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Volume 63 No 1

RADIO **AMATEUR**



Journal of the Wireless Institute of Australia



Full of the latest amateur radio news, information and technical articles including

- * **Back to Basics 40 or 80 m Receiver**
- * **Capacitors at High RF Power**
- * **QRP — The Art of Low Power Operation**

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Cover

One of the rare occasions on which *Amateur Radio* Editor, Bill Rice VK3ABP, could be found at the operating position in his largely homebrew shack.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Member of the International Amateur Radio Union

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Federal QSP

Early in October 1994 the \$40,000,000 seven hundred tonne catamaran *Condor II* ploughed on to a reef known as Black Jack Rocks near the mouth of the Derwent River near Hobart.

At the time of the impact the vessel was undertaking its sea trials and was travelling at a speed of 36 knots. After six weeks, salvage operations costing approximately \$2,000,000 have finally refloated the vessel satisfactorily, much to the credit of all concerned.

Through the kind services of a local amateur, Maurice Potter VK7SA, who gave a ball by ball description of the operations which was relayed over the State via amateur radio on the two metre link on Repeater 13, amateur radio eclipsed the media with on-the-spot news. Maurice was ably assisted by Bill Reid VK7WR and Brian Morgan VK7RR when Maurice was unable to attend through work commitments. A most commendable and unselfish effort by these three people. Thank you. This was amateur radio at its best, without fuss or bother, relaying the facts as they came to hand to many interested people who responded with loads of questions and complimentary remarks.

The VK7 Division is embarking on a recruiting campaign using displays depicting amateur radio. These displays will be at various vantage points in the business area of Hobart. We are looking forward to receiving numerous queries from the public at large.

Another bonus envisaged is that the displays will also act as a publicity campaign, enlightening people about amateur radio. It is hoped this will increase our membership as numbers have been somewhat static over many years. Our new clubrooms in the South have been a great success, particularly on a Wednesday afternoon when we have a social gathering and welcome any of our amateur friends from the mainland visiting the State.

Ted Beard VK7EB
VK7 Divisional Secretary
ar

Editor's Comment

Need for Material

There is a letter in the *Over to You* section of this issue complaining about a dearth of articles in *Amateur Radio* magazine for Novices. Looking back over the last few years we must admit that there has been little technical material published for the radio beginner and progressing up to at least the Novice licence standard.

Years ago we had a column called *Newcomer's Notebook* which ran for at least a decade, and was then replaced by *Novice Notes*, by a different author, which also ran for many

Continued on page 3

Continued from page 2

years. It is a great pity that we have not been able to publish such a column for at least the last five years.

Why don't we publish a Novice column now? As footnoted to our dissatisfied reader, simply because no one has volunteered to write one for us. We (that is, all the people you see listed on the left hand side of page one) don't write this magazine! We put it together from material sent in by our regular columnists and (less regularly) from many of you, our members and readers. It is **YOUR** magazine!

So, is it possible that among you who have only recently become Novices, there may be some who would like to re-activate a Novice column? Those of us who have been licensed for decades, cannot do it,

because most of your problems and their answers were part of our early education and have now become subconscious knowledge. We have forgotten how to identify with beginner's problems.

So, do we have any volunteers? We would love to hear from you.

On a related theme, we have noticed over the last few months that our backlog of not yet published technical articles is getting smaller. That's good news for those who are wondering if their magnificent contribution will ever be printed! But it does mean that we would like to see some "new stuff" coming in. It's much better to have a backlog than for the barrel to be empty. Once *Amateur Radio* was full of reprints from overseas magazines, but for many years now we have had

sufficient input from you, our readers **AND** contributors! Let's keep it that way.

And finally, the supply of good front-cover photographs is also drying up. I doubt if we have ever had a surplus in that area, but we would certainly like to see some more. Some months we have been so desperate that you have barely escaped getting a photo of your Editor on the cover! Surely you don't want that inflicted on you, do you? So, how can you escape again?

Thank you all in advance for sending in marvellous cover photos in self-defence! (*Alas! Your contributions were too late for this issue! Assistant Editor*).

Bill Rice VK3ABP
Editor
ar

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers	Call Sign	Weekly News Broadcasts	1995 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Rob Apathy Secretary Len Jones Treasurer Don Hume	VK1KRA VK1NLJ VK1DH	3.570 MHz LSB, 146.950 MHz FM, 438.525 MHz FM each Monday evening (except the fourth Monday) commencing at 8.00 pm. Repeated on Wednesday evening at 8.00 pm on 146.950 MHz FM.	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Michael Corblin Secretary Pixie Chapple Treasurer Terry Ryeland (Office hours Mon-Fri 11.00-14.00 Mon 1900-2100)	VK2PFQ VK2KPC VK2UX	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. Voicemail highlights on (02) 724 8793. The broadcast text is available on packet.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530)	VK3PC VK3XV VK3XLZ	1.840MHz AM, 3.615 LSB, 7.085 LSB, 53.900 FM(R) Mt Dandenong, 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 146.900 FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) Mt Macedon, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 284 9075	President Secretary Lance Bickford Treasurer Rodger Bingham	VK4ZAZ VK4HD	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Garry Herden Secretary Maurice Hooper Treasurer Bill Wardrop	VK5ZK VK5EA VK5AWM	1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555, 7065, 10125, 146.700, 0900 hrs Sunday 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 434 3283	President Cliff Bastin Secretary Ray Spargo Treasurer Bruce Hedland-Thomas	VK6LZ VK6RR VK6OO	Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Avenue Lindisfarne TAS 7015 Phone (002) 43 8435	President Andrew Dixon Secretary Ted Beard Treasurer Phil Harbeck	VK7GL VK7EB VK7PU	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$69.00 (G) (S) \$55.65 (X) \$40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).			Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times.

Note: All times are local. All frequencies MHz.

Receivers

Back to Basics 40 or 80 m Receiver

Neville Chivers VK2YO* describes an experimenter's basic superheterodyne receiver

Listening around on HF, I often hear fellows saying that they experiment with antennas and build tuners, but that anything else is too complicated or they cannot get the parts.

The basic superheterodyne receiver that I'm about to describe was built entirely from readily available parts, gleaned from the various suppliers' catalogues. As you

can see from the circuit (Fig 1) the receiver is basic, being built for one band only, either 40 or 80 metres. Mine was built for 40 m. Details for the 80 metre version are given in the coil winding table and parts list.

It is a single conversion receiver having an IF frequency of 455 kHz, no "S" meter or flashing LEDs, and no bells and whistles. It has no AVC, just a simple RF gain control which

has to be adjusted if any strong stations are encountered. Sensitivity is adequate and the IF selectivity is good enough to be able to separate stations inside the passband from those just outside it with a little help from the RF gain control.

At the heart of this receiver is the HF VFO, which must have good electrical and mechanical stability. A suitable tuning capacitor was not available so I chose varicap tuning using the common 1N914 diodes. A linear 10 K potentiometer was used as the tuning control in conjunction with a well-constructed anti-backlash vernier dial. This was easy to adapt to the shaft of the pot. MPF102s, used for the oscillator and buffer in the VFO, are easily obtainable.

The inductors L1, L2, and L3 use standard F16 slugs. Details are in the parts listing.

The capacitors used in the

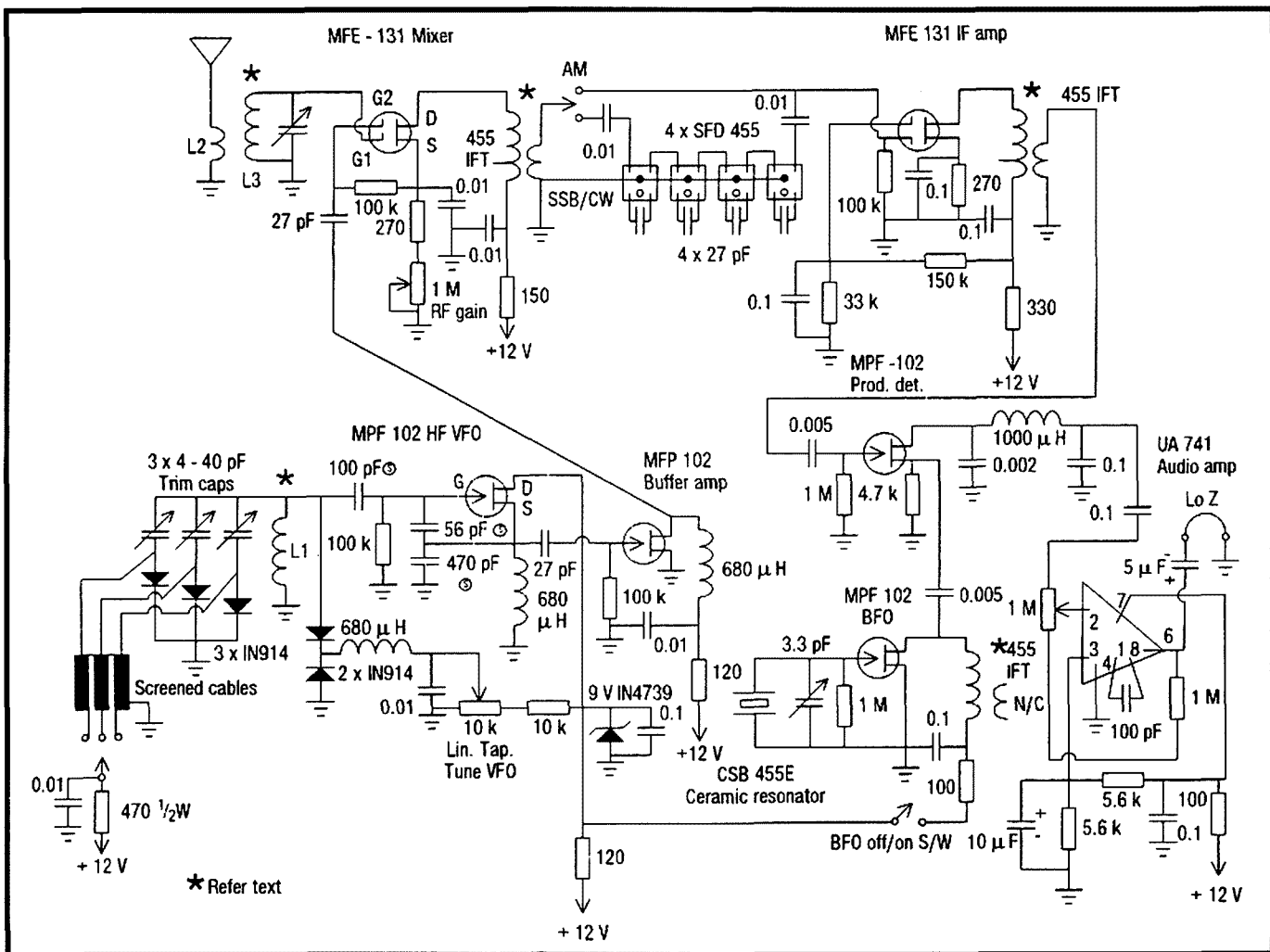


Fig 1 — Circuit of the Back to Basics 40 or 80 m Receiver.

frequency determining parts of the VFO circuit must be polystyrene to minimise frequency shift due to temperature variations. The simple VFO is not up to commercial standards, but is good enough to listen to an SSB QSO without having to adjust the dial after an initial 2 minute warm-up. I measured the drift at 200 Hz in 30 minutes with the VFO set at 7555 kHz to receive at 7100 kHz. The VFO was tested at other dial settings with much the same results.

That's the good news. The bad news is that 1N914 diodes are temperature sensitive. The dial does not always correspond to the previous setting when the set is turned on. It does, however, stabilise after a short period after switch on to within a kHz or two.

During the initial development it was found that, with a single 4-40 pF trimmer across L1, the frequency coverage was only 55 kHz. To cover the band on 40 metres, 6 presets would be required. It's even worse on 80 metres, with just 40 kHz of coverage. This is presumably

because of the higher LC ratio of the tuned circuit. I tried using diodes in parallel, but that was unsatisfactory due to increased temperature drift.

*"good enough . . .
SSB . . . after . . .
2 minute warm-up*

I have limited my frequency coverage to 150 kHz on 40 metres which, in practice, turns out to be 7000 kHz to 7164 kHz in 3 steps. By using 3 pre-set trimmers, diode switching via a 3 position switch, and screened cables coupled to 0.75 volts which is RF bypassed to ground, the pre-set trimmers allow the band to be covered in 50 kHz segments with about 5 kHz overlap. Each trimmer, when adjusted, has an effect on the next trimmer in line, so readjustment is required until about 5 kHz overlap is obtained. The VFO is running at 7455 kHz at its lowest frequency in the 40 metre model (3955 kHz on 80 m). Small variations in circuit stray

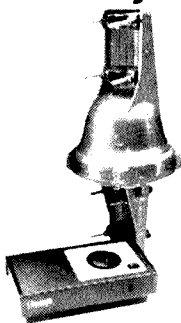
capacitance can mean a large frequency shift; use the shortest possible leads and build the VFO on a separate piece of Veroboard from the main receiver. Output is taken from the second MPF102 buffer/amplifier via a 27 pF capacitor.

The mixer is a common MFE131 dual gate FET with the incoming signal on G1 and the high side VFO injection on G2 (455 kHz above signal in). The gain is controlled by the 1 MΩ pot to ground in the source lead of the mixer. The resulting difference frequency is selected from the drain of the MFE131 mixer by the first IF transformer.

The IFTs are miniature types as used in portable AM radios. They are usually supplied in a pack of four. The oscillator coil has a red core. Set this coil aside for modification later. Different packs contained different colour combinations for IFTs; eg two white, one black. Some had two yellow and one blue coil, but all had a red oscillator coil. Most packs supplied details for first, second and third IF coils. In practice it did not

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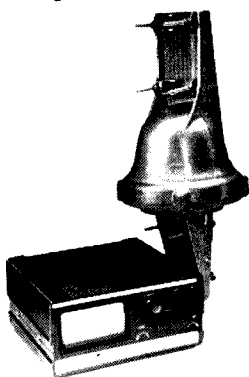
Hy-Gain AR40

For small communication antennas up to .28m', the AR40 is an economical rotator using a disc brake and low voltage control. Ideal for medium size VHF/UHF arrays.

- Dual 12 ball bearing race
- Automatic position sensor
- Fully automatic control
- Solid state control
- Low voltage operation
- Includes lower mast support

AR40 rotator

\$503



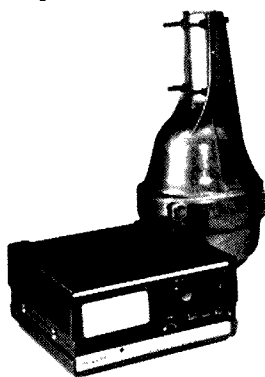
Hy-Gain CD4511

The same external dimensions as the AR40 but heavier duty, the CD4511 will handle a 4 element tri-bander or that bigger VHF array with ease.

- Dual 48 ball bearing race
- Diecast ring gear
- Stamped steel gear drive system
- Illuminated directional indicator
- Low voltage control
- Includes lower mast support

CD4511 rotator

\$704



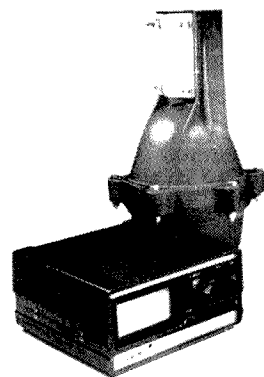
Hy-Gain HAM IV

Heavy duty antennas, such as large tribanders and big HF monobanders need a heavy duty rotator, like the HAM-IV with its wedge brake.

- New high strength ring gear
- Dual 98 ball bearing race
- Electric locking steel wedge brake
- Illuminated directional indicator
- Zener regulated control circuit
- Lower mast support optional.

HAM-IV rotator

\$997



Hy-Gain T2X Tailtwister

For multiple HF antenna arrays or HF+VHF arrays the T2X 'Tailtwister' has the grunt to handle the big jobs!

- Thickwall castings for large load handling
- 138 ball bearings
- Triple bearing race
- Machined hardened steel drive gear
- Electric locking steel wedge brake
- Low voltage control
- Lower mast support optional

T2X Tailtwister rotator

\$1250

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seem to make much difference where they were placed in the circuit.

Next is the IF filter which is made using four SFD455 ceramic elements. This filter sets the selectivity of the receiver which turned out to be 2.8 kHz when tested. The resonators are viewed from the top as if they are transparent. The polarising circle is shown between the pins that are bridged by the 27 pF capacitor on the same resonator. Each resonator is connected to the next by the pins opposite the circle; see the circuit for details of interconnection. Keep the interconnections as short as possible to limit stray capacitance that may affect the bandwidth of the filter. The SFD455 and the CSB455E used in the BFO may be a little difficult to find (refer to the parts list for possible suppliers).

The output of the filter is coupled to the second IF transformer and then to the MPF102 product detector. Another MPF102 is used for the beat frequency oscillator using a two pin CSB455E ceramic resonator as the frequency determining element. The output is injected into the source of the product detector. The BFO frequency is set by the 3-30 pF trimmer shunted across the resonator. Tune for the best sound on a lower sideband signal. When I measured the BFO frequency I found it to be around 456.3 kHz.

An audio signal is derived from the product detector drain, then coupled to a UA741 IC, where it is amplified and used to drive a pair of low impedance headphones.

To complete and align the receiver, the following equipment is needed: a multimeter, a frequency meter or signal generator, and a GDO to get you in the ball park. A reasonable amount of patience is needed to finish what you have started. The completed receiver was built on plain, unclad Veroboard. This was hard wired and housed in a commercial instrument case. The all up cost as at January 1994 was \$105. The power required is 12 volts DC at 65 ma.

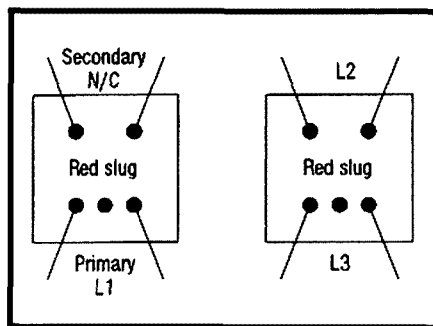
No more excuses. All the parts are reasonably available except for the resonators which were supplied by D. Dauner (refer to the parts list). Best of luck. A companion transmitter will be described soon.

Happy home brewing.

Parts List

This is a list of the major components used in the construction of this receiver and where I obtained them. I have not individually listed the minor components as they are obtainable at most good electronic stores.

Vernier dial 50 mm diam.	Dick Smith	Cat No P7170
Unclad punched board (Vero)	Jaycar	Cat No HP9562
Coil Formers L1, 2, 3 Neosid	Jaycar	Cat No LF1224
Ferrite slugs Type F16	Jaycar	Cat No LF1226
Winding wire 0.5 mm/24 B&S/25	SWG Jaycar	Cat No WW4016
Screened cable RG174 Teflon	Dick Smith	Cat No W2088
4-40 pF ceramic trimmer	Jaycar	Cat No RV5726
1N914 diode pack 50	Tandy	Cat No 276-1620
Pack assorted RF chokes	Jaycar	Cat No RC5600
Styroseal or polystyrene capacitors	Jaycar	Cat No RS5526/32/48
Zener diodes 1N4739 9.1 V pack of 2	Tandy	Cat No 276-562
MFE131 dual gate FET	Dick Smith	Cat No Z1849
MPF102 J FET	Dick Smith	Cat No Z1832
UA741 OP amp	Dick Smith	Cat No Z6382
Mini IF pack 455 kHz	Jaycar	Cat No LF1050
10 K linear taper pot VFO tune	Tandy	Cat No 271-1715
Headphones	Jaycar	Cat No AA2016
CSB455E & SFD455 ceramic resonators	D. Dauner	Phone (02) 724 6982 Fax (02) 725 7850



Coil Data

- 40 metres** L1 30 turns close wound
 L2 8 turns close wound over earth end of L3
 L3 25 turns close wound

All coils are wound with 0.5 mm enamel copper wire on Neosid formers fitted with F16 slugs. Resonate L3 in the 40 metre band, fit a 100 pF fixed capacitor

In parallel with the inductor, use the GDO set to 40 metres to tune the slug for a dip, use loose coupling for the best dip, remove the capacitor when tuned. It may also be tuned by wiring a 68 pF cap and a 4-40 pF trimmer in parallel with L3, tuning the trimmer for a dip as before.

80 metres Select 2 spare oscillator coils (red slug) from mini coil packs.

L1 Secondary coil is left unused.

Primary resonates at 4 MHz with 20 pF in parallel tune with 4-40 trimmer as per circuit.

L2/3 use Oscillator coils, resonate L3 at 3.6 MHz with 33 pF in parallel with secondary, tune to frequency with the 4-40 pF trimmer.

*51 Meeks Crescent, Faulconbridge NSW 2776
 ar

WIA News

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of November 1994.

L70125 MR M P POWELL
 VK3AMG MR M GIETMAN
 VK3KEG MR T PITMAN

VK3KRS MR R SHAW
 VK3PXJ MR J K WATERS
 VK3XKU MR N PENDLEBURY
 VK3YMG MR A D JOHNSON
 VK6BHV MR R LIYANAPATHIRANA
 VK6BKZ MR J J OLIVERO
 VK6CV MR A J PRESTON
 VK7CA MR M PRIESTLEY

■ Technical Capacitors At High RF Power

Lloyd Butler VK5BR* shares with us much useful knowledge about fixed capacitors in transmitting circuits.

Introduction

In some of my articles on the Z Match Tuner, I referred to the use of high voltage fixed capacitors to achieve matching at 1.8 MHz. I discussed rated voltage but there are other factors which have to be considered in choosing a capacitor to operate in a high power RF circuit. I thought it would be useful to prepare a few notes on this subject.

Rated Current

Whilst the dominant impedance component in a capacitor is capacitive reactance, also included is a small resistance component caused by resistance in the electrode assembly and losses in the dielectric. When an AC voltage is applied across the capacitor plates, a reactive current flows, essentially equal to the applied voltage divided by the

capacitive reactance. The point of interest is that heat is developed in the capacitor by this current passing through the resistance. As the reactance is inversely proportional to frequency, the current increases with frequency and hence the heat dissipation increases with frequency. Excessive rise in temperature caused by excessive heat can destroy the capacitor and a capacitor made for RF power applications, with high developed voltage, also has a maximum AC current rating.

At low frequencies, the limiting rating factor is the voltage across the capacitor plates. However, there is a frequency for a given capacitor above which the limiting factor is the current through it. Above this point, the voltage which can be applied must be lowered inversely with frequency so that the reactive current does not exceed the rated limit.

Let's take the typical case of our Z match at 1.8 MHz where a fixed capacitor of around 1000 pF is connected as part of the input capacitance and a fixed capacitor of 400 pF is connected across the coil. When the tuning unit is properly matched to load 50 ohms and the power is 400 watts, an RMS voltage of around 250 might be developed across the input capacitor and an RMS voltage of around 350 might be developed across the shunt capacitor. At 1.8 MHz, the 1000 pF capacitor has a reactance of 88 ohms and the 400 pF capacitor has a reactance of 220 ohms. The respective RMS currents are then worked out as $250/88 = 3$ amps and $350/220 = 1.6$ amps.

Allowing for the peak value of voltage and a 50% margin, we might seek a voltage rating of around 540 V for the input capacitor and around 750 V for the shunt capacitor with RMS current ratings of around 3 A and 2 A respectively.

Mica Capacitors

Muscovite mica is an excellent low loss dielectric material and mica dielectric capacitors have been around since the early days of radio. Mica capacitors have high insulation resistance, low power factor and are frequency and temperature stable. They perform well up to frequencies of 500 MHz and, made to an appropriate size, can handle large RF currents and high voltages. For many years they have been used in transmitting applications.

Basically, there are two types of mica capacitors. The stacked foil unit consists of alternate layers of metal foil electrodes separated with sheet mica insulators. These are sometimes marked "MS" for stacked mica. The silver mica type, sometimes marked "SM", have a silver electrode material screened on the mica stampings which form the electrodes. The silver mica type have very high stability and are highly recommended for use in oscillators and other critical applications requiring stable capacitance. However, they do not withstand high RF currents and for circuits where there are high RF voltages or currents, the stacked foil unit should be used.

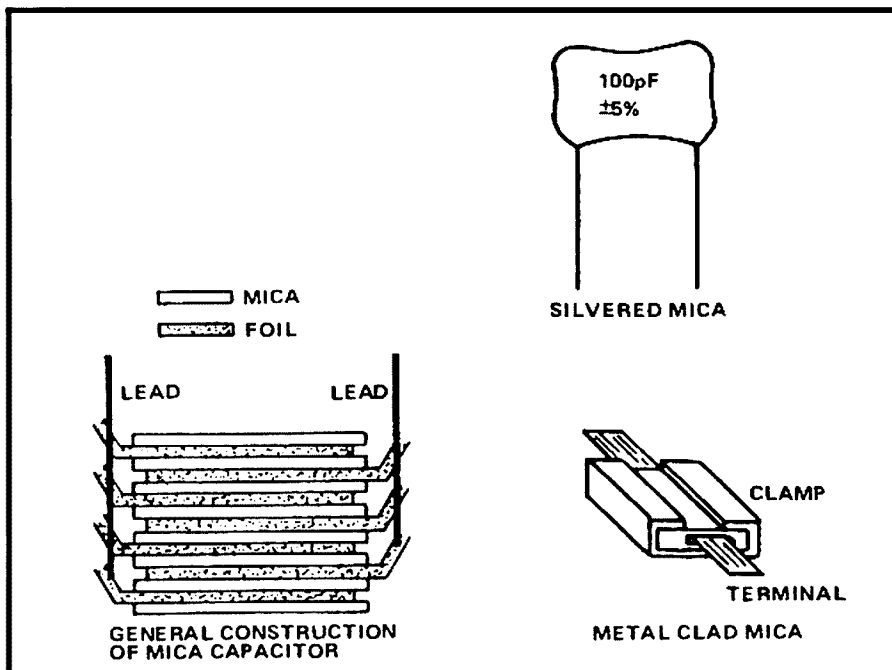


Figure 1 Mica Capacitors.

High voltage mica capacitors are ideal for the RF power application but these days, it is difficult to buy a mica capacitor of any sort from the local electronic store. They seem to have disappeared from the catalogues, apparently superseded by capacitors using dielectrics of synthetic material. Furthermore the stores no longer seem to cater for high voltage or high power RF components of any sort. The source of supply is the amateur radio trading marts or electronic sales. All sorts of valuable junk changes hands — valuable because you can't buy it anywhere else.

High voltage mica capacitors specifically made for high RF power often have the current rating printed on their case together with the voltage rating. If there is nothing to define the current rating and there is voltage rating well above that required, the chances are that at the low frequency of 1.8 MHz, current will not be a problem.

Ceramic Capacitors

Whilst radio transmitters of early vintage used mica dielectric capacitors in their high power RF circuits, transmitters of more recent vintage have used ceramic dielectric capacitors specially made to withstand the high voltage and high currents inherent in the circuitry. These capacitors are somewhat larger than the common forms of ceramic capacitor and are invariably of disc or tubular construction. I have found an interesting introduction to these capacitors from a catalogue distributed by Unilator Technical Ceramics who manufacture ceramic capacitors. They refer not only to a voltage and current rating but also a reactive volt/amp (VAR) rating, the product of the two. The following paragraphs are extracted from their catalogue:

Power capacitors can be defined as capacitors suitable for radio frequency use with reactive powers in excess of 1 KVAR, 1 amp RMS and rated voltage above 700 volts peak.

The electrical performance is determined by the current and power ratings. These parameters are interdependent as specified by the equations:

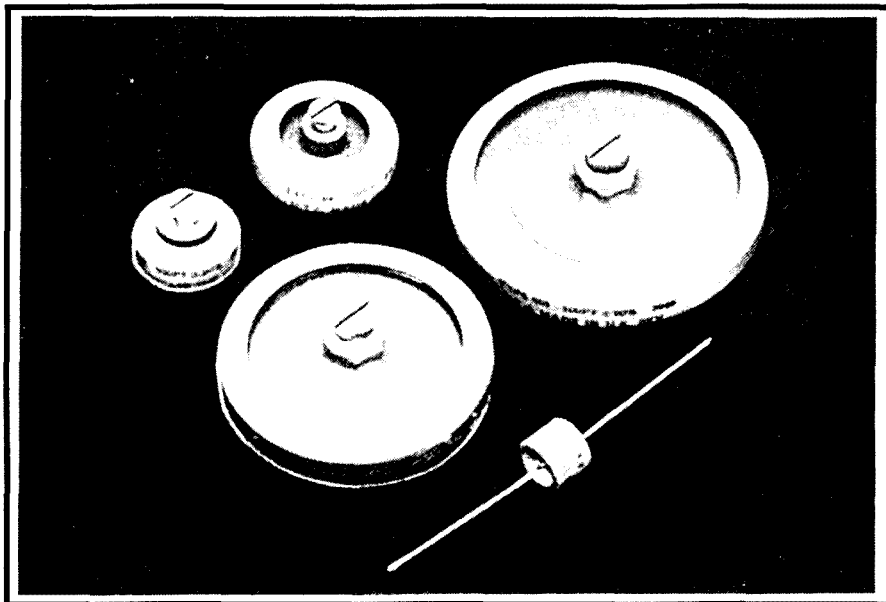


Figure 2 High voltage ceramic disc capacitors.

$$V_{AR} = V^2 2\pi f C \quad (1)$$

$$V_{AR} = \frac{I^2}{2\pi f C} \quad (2)$$

V_{AR} = Reactive Power

V = Voltage (volts)

I = Current (amps)

C = Capacitance (farads)

f = Frequency (Hz)

When a power capacitor is subjected to an RF load heat is generated in the dielectric due to internal losses and in the electrode system due to resistance heating. Depending on the applied power the temperature of the capacitor will rise until either:

- (1) *thermal stability is reached; or*
- (2) *thermal runaway occurs resulting in destruction of the capacitor.*

In practice, the maximum temperature of the capacitor should not exceed 95 degrees C. The performance is characterised by a typical reactive power versus frequency load curve as shown in figure 3. The curve can be split into three distinct zones:

- (1) *In Zone 1, the power rating is determined by the voltage rating of the capacitor. Below frequency f_1 it is neither possible to operate the capacitors at maximum*

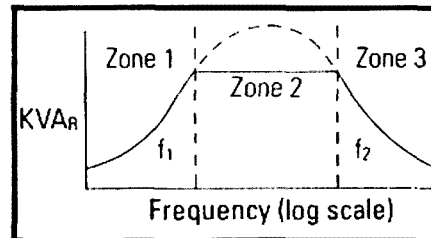


Figure 3 The reactive power versus frequency curve of the ceramic capacitor can be split into three distinct zones.

reactive power nor maximum current ratings.

- (2) *In Zone 2, the reactive power rating is limited by the temperature rise in the capacitor. Above f_1 , the maximum voltage that can be applied will decrease with frequency.*
- (3) *In Zone 3, the reactive power rating is determined by the current rating of the capacitor. Above frequency f_2 , it is neither possible to operate the capacitor at maximum voltage nor maximum reactive power ratings.*

For any given capacitor ratings, the frequencies f_1 and f_2 can easily be calculated using equations (1) and (2). Ratings are defined as follows:

- (1) *The voltage rating is either the peak AC, the peak AC+DC, or the DC voltage for which the capacitor is designed.*
- (2) *The reactive power rating is such that capacitor temperature rise shall not exceed 45 degrees C*

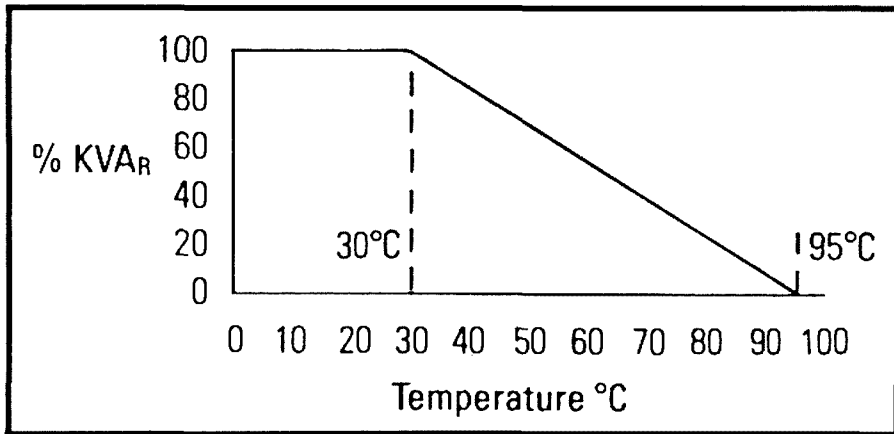


Figure 4 Reactive power rating of the ceramic capacitor must be decreased with increased temperature.

when operated at an ambient temperature of 30 degrees C.

(3) The current rating is the RMS current for which the capacitor is designed.

If capacitors are operated in an ambient temperature higher than 30 degrees C, then the reactive power rating must be reduced as shown in figure 4.

There is a lot more in the catalogue but I think those paragraphs provide an excellent introduction on how the ratings of high voltage/high power ceramic capacitors are used. I am out of touch these days with information concerning source of supply of these special capacitors but perhaps some of our readers might be able to supply *Amateur Radio* with that information.

Summary

This article has been prepared simply to alert the unwary that in selecting a fixed capacitor for high RF power, there is a little more to consider than just the voltage developed and the voltage rating of the capacitor. Capacitors have internal losses which amount to heat dissipated when alternating current is passed through them. Hence the rated current and the amount of heat dissipation must also be considered. Capacitors with low dielectric loss and ability to withstand a temperature rise are desirable.

Two types of capacitor suitable for high power RF have been identified as the stacked foil mica and the high voltage disc or tubular ceramic capacitor. Perhaps there are other suitable capacitors which someone else, with specialised component knowledge, might like to identify through the columns of *Amateur Radio*.

*18 Ottawa Avenue, Panorama SA 5041
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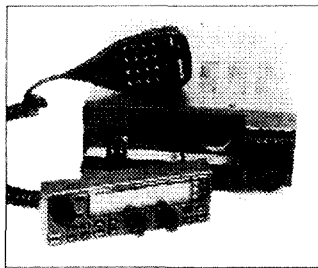
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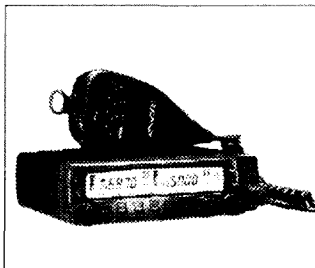
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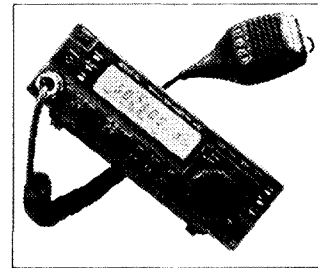
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■ Technical

QRP — The Art of Low Power Operation

David "Doc" Wescombe-Down VK4CMY/VK5HP* gives some clues to success with low power.

If you respond to a challenge and frustration, possess a reasonable degree of operating skill and have infinite patience, then low power operation on CW or SSB may be a pleasant change for you, even in these days of inferior propagation.

My own activity in QRP since 1975 has involved 10,000 plus QSOs using 5 watts input (or less) on CW, primarily 20 metres, with a variety of rigs:

- 6C4 driving a 5763 ("home spun")
- Heathkit HW7 and HW8
- TenTec "Argonaut 509" and "Century"
- ICOM IC-710 "wound back".

There is a healthy VK QRP Operators Club with a \$10 per year membership. Details and membership applications may be obtained from Kevin Zietz VK5AKZ, 41 Tobruk Avenue, St Marys, SA 5042. Packet address is VK5AKZ@VK5TTY.#ADL.#SA.AUS.OC.

The club QRP CW net operates on Tuesday nights from 0945 UTC (0845 UTC Summer Time) on 3529 kHz, or lower if QRM.

The club SSB "Natter Net", Steve VK5AIM's roster, is on Friday nights from 1030 UTC (0930 UTC Summer Time) near 3620 kHz.

The VK QRP Club promotes low power CW mode operation and "homebrewing" within the amateur radio service. The quarterly journal, LO-KEY, is a source of ideas, circuits, who's who and where within the club, awards and contests, QRP kit sets, components and books.

Interested? Let's find out some more.

No doubt that a high power station, given a suitable QTH and antenna system, will "get out" better, but the real value of power is often

overstated. Consider this. If an S9 signal is arriving at your end from a 1 kW transmitter, then an:

S8 signal would emanate from a 250 W transmitter;
S7 signal would emanate from a 62 W transmitter;
S6 signal would emanate from a 16 W transmitter;
S5 signal would emanate from a 4 W transmitter;
S4 signal would emanate from a 1 W transmitter;
S3 signal would emanate from a 250 mW transmitter;
S2 signal would emanate from a 62 mW transmitter; and an
S1 signal would emanate from a 16 mW transmitter.

In other words, the power level is not going to be as critical as the antenna system. Over the years, it has often been the custom to test station aerial efficiency for other operators by running QRP operation from their aerial(s) and providing resultant feedback. Be assured that many of our coax fed antennas, commercial and others, do NOT work as well as either the manufacturers claim or the owners would like to believe. That piece of information often hurts because it reflects on our ability to assemble and install and heaven forbid that I might have rushed it or misread a measurement, etc!

THE ANTENNA EFFICIENCY MAKES OR BREAKS ANY AMATEUR RADIO STATION BUT ESPECIALLY A QRP STATION!

Antennas/Aerials

What to use? Any aerial that works on the desired frequency is suitable, but a number of construction practices need to be "spot on" and not "near enough is good enough". They include:

- conductive paste used in all telescoping joints in elements/radiators;
- resonant radiators;
- open wire line (300 Ω TV ladder or

600 Ω air-spaced lines) are much superior to coaxial cable;

- an aerial site clear of obstruction for at least a half wavelength in all directions at the desired frequency;
- elevated aerial — the higher the better;
- soldered joints, including radial wires;
- avoid conductive supports for inverted Vees and other wire aerials — they play havoc with absorption and patterns of radiation; and
- use a low loss ATU when possible.

A QRP Station

Many commercial QRP rigs are available through Classified Advertisements or at "buy'n'sell" functions. Delicacies such as:

- SHIMIZU 105S (ex Dick Smith, several years back)
- TENTEC "ARGONAUT 509" "PM" Series
- HEATHKIT HW7, HW8 and HW9
- MFJ-40T
- KANTRONICS "Rockhound"

appear from time to time but these units are at a premium level of demand because most are no longer manufactured. The QRP Club journal, *Amateur Radio*, *Amateur Radio Action* and your local private *Trading Post* paper would be good areas to run a "Wanted to Buy" advertisement.

"Rolling your own" can be a very worthwhile project and a number of designs, bits and components are readily available locally (again consult the QRP journal).

A VFO is essential, in my opinion, for serious DX work as crystal operation becomes too restrictive for hooking up with DXpedition activity and also avoiding the illegal QRM that prevails in our bands.

Receivers can be separate or part of the QRP rig depending on your situation.

QRP Operating

The difference between success or not in low power operation, notwithstanding aerial efficiency, is operating skill. My experience would suggest these few tips:

- indicate you are a low power station by adding QRP after your call. DXpeditions and most QRO operators are very mindful of the meaning and it will often give you a "priority" over other callers.
- check the band conditions to pick the right time for operating. I often listen around the bands I work (80, 40, 20 metres) but finish up gardening, reading, writing or being seconded to other chores simply because it won't be worth trying to operate.
- Choose your band with care. 80 m and 160 m static levels are high; 20 m is "kilowatt alley" but 40 m (apart from the fishing boat SSB

QRM up to 7005 kHz) is usually OK. 15 m and 10 m in times of better sunspot activity can be really brilliant, but then you may have to wait a while for them to produce their best.

- Know the right frequencies. Popular CW spots are 1810, 3540, 3560, 7040, 7060, 14060, 21040, 21060, 28040 and 50360 kHz.
- Call on the caller's frequency. This may sound rather obvious, but it highlights a disadvantage of Xtal control.
- Listen before calling. In QRP operation, if you get serious about it, you will probably do 10 times as much listening as transmitting.
- Send a little slower than usual on CW and speak clearly on SSB using STANDARD PHONETICS. Bear in mind that someone at the other end may be really straining

to pull you in, so give them all the help you can.

Conclusion

QRP operation is not everybody's cup of tea but I think that is the major strength of our hobby — we can each do our own "thing". It is, however, low cost with high achievements. My own QTH has no mains power, so I use a 40 AH car battery to run the HW8 and the IC710, but I have a lot of fun and work many stations, both local and overseas. My aerial is a half wave ground plane with 120 half wave radials and fed with 300 ohm TV ladder line through a home brewed Z-match. Not flash at all, but as anyone who has worked me will tell you, QRP GETS OUT!

Best of luck and I would enjoy meeting you on QRP soon.

*C/o PO Dalveen QLD 4374
ar

QSP News

80 Metre DX Window

Statement from SMA on Out-of-Band Operation

The SMA has issued a statement explaining the meaning of the regulations as they apply to the 80 metre DX window. The statement is as follows:

"The 80 metre DX window (3794-3800 kHz) is set aside for use by the amateur service in Australia on a secondary (non-interference) basis and is specified in Australian footnote AUS8 of the Australian Spectrum Plan (Statutory Rules 1990 No 413). This band is available for use by unrestricted amateur licensees only and is conditional upon the avoidance of operation within 1 kHz of 3794 kHz, which in effect reduces the band to 3795-3800 kHz. Amateur licensees must ensure that their transmissions are wholly contained within the band.

"When using lower sideband

emission for voice transmission, as is customary for amateur operation on 80 metres, care must be taken to ensure that the transmitted sidebands do not extend below 3795 kHz. Consequently, depending on the transmitted audio bandwidth, the operating (carrier) frequency may be limited to approximately 3798 — 3800 kHz. Other modes of transmission which occupy less spectrum (such as CW) permit closer operation to the 3795 kHz lower limit.

"Within Australia, the spectrum immediately below the 80 metre DX window is occupied by a number of primary services. It is important that these services do not receive interference from out-of-band amateur transmissions.

"I trust that this information settles any disputes regarding the use of this band."

The letter (SMA ref No X94/1358) was signed by Mr Peter Allen, Acting Manager, Technical

Services Team, Customer Services Group of the SMA in Canberra. It should be understood that this explanation does not represent any change to our licence conditions or any toughening of the rules relating to the DX window. The regulations as set out in RIB71 are the same now as they were when the DX window was introduced in 1983. Unfortunately, the rules have been misunderstood and many amateurs have been operating out of band for some time, in the belief that they were operating legally.

The rules may change in the future and it is possible that the DX window will be expanded. In the meantime we are required to abide by the rules as they stand. This is not easy in such a narrow window but there is no alternative.

John Martin **VK3KWA**
Chairman Federal Technical
Advisory Committee

■ Antennas

Random Radiators

with Ron Cook VK3AFW and Ron Fisher VK3OM*



Ron's Hiace van parked at The Devil's Marbles in the Northern Territory. The Hustler antenna is mounted on the bull bars to the passenger's side of the spare wheel, and the Global whip is gutter mounted over the passenger side front door.

First off, we must apologise for the lack of *Random Radiators* over the last few months. Both of us have been travelling far and wide and each was relying on the other to produce the column. Sorry, we promise to be more regular in the future.

Mobile HF Antennas — How Well Do They Work?

If you read the *Editor's Comment* (we hope you do) you will have noted that one of the Rons has undertaken an around Australia trip. This, of course, was a great opportunity to play around with a few different antennas and assess their relative merits. I now intend to change to the singular person as only one of us went. You can figure out who "I" is by checking the *Editor's Comment* of a few months ago.

Anyhow, I have enjoyed portable and mobile operation for the last 40 years, starting off with an AM transmitter on 40 metres into a centre loaded whip. The receiver in those

days was a two tube crystal locked converter feeding into the car broadcast receiver. These were actually described in *Amateur Radio* circa 1956. At some time in between then and now I acquired an American Hustler mobile antenna set. It's so long ago, I've forgotten just when this occurred. The Hustler has worked very well over the years and has been around Australia twice.

Just before setting out on our latest expedition, Adrian VK2DZF announced the release of his "Global" series of HF whips. Adrian has been a long-time contributor to *Amateur Radio* with many interesting antenna articles. I suggested that it would be a good idea if I took a sample of his new whips along on our trip and made a few on air tests with them. This I did and came up with some very interesting results.

But first I will hand over to Adrian to describe the construction and theory of operation of the Global antennas. "Most mobile HF antennas

will perform a lot better if they can be located high on the motor vehicle. This not only puts the antenna well in the clear but also keeps the feed point as far as possible from ground level. These new high performance mobile whips are designed to be located high on the vehicle, at roof or boot level and, because of their relatively slim design and two piece construction, the eye tends not to see the total length. This gives the antenna an advantage over other designs that cannot be located in these preferred locations because of either size, design or because it just looks too ugly.

Global HF Whips, Technical Description

They are a resonant centre loaded two piece slim design using a fibreglass rod with stainless steel top half. The bottom section is covered in non RF sensitive black heat shrink tubing.

Excellent bandwidth is achieved with most bands above and including the 20 metre models. The two 20 metre models show a VSWR of 1:1 and have a better bandwidth with the shunt capacitor installed for the antenna to show 50 ohms impedance. The 80, 40 and 30 metre antennas must have the shunt capacitor installed for the antennas to show 50 ohms impedance. This is normal for physically short antennas. The MFJ-910 is a commercial device specially designed for this purpose (available from Daycom) and the capacitors can be by-passed for the higher frequency bands as required.

Resonance is determined with the shunt capacitor in circuit for 30, 40 and 80 metres. The capacitance values and SWR readings were obtained using a feed line length of 7 metres (23 feet) as installed in the test vehicle. The capacitor box should be located 60 cm (2 feet) or less from the antenna feed point."

The Global Antennas On Test

My old Hustler was mounted on the bull bar in front of our Toyota Hiace camper van. Possibly this is by no means an ideal position as it is shielded by the van in almost every direction except straight ahead.

However, results over the last few years have been satisfactory.

The Global was mounted at gutter level using a standard gutter mount. In fact, this mount was also used for the two metre whip with the antennas being swapped around according to needs at the time. Both were fed with RG-58 coax of around 4 metres in length. The matching capacitor for the Global was connected with a couple of crocodile clips when needed.

Two other comparison antennas were available from time to time. These were a 20 metre half wave dipole fed with about 15 metres of RG-58 coax through a 1 to 1 balun. The other antenna was a 25 metre wire end fed through an Emtron EAT-300 ATU (no, I didn't take a Z match!). This antenna is very similar to the W3EDP which was described in this column some time ago.

At fixed locations this antenna performed very well with several 160 metre contacts into Melbourne from places like Ayers Rock and Alice Springs and 40 metre contacts into VK3 during daylight hours. At most times it was no higher than seven or eight metres above ground. Tests with the whips were mostly carried out around mid day when we stopped for lunch and checked into the Travellers Net on 14116 kHz.

Usually, only a narrow section of 20 metres was used with the highest frequency being about 14140 kHz for contacts back to Melbourne. When

tests were carried out, the other antenna was removed to eliminate any interaction.

So, which was the best antenna? That has to be answered in several ways. Initial tests between the Hustler and the Global usually came out in favour of the Global by, maybe, an "S" point or so. Sometimes the two received the same report but at no time did the Hustler better the Global.

*"tests . . .
between dips in
the hot springs"*

These initial tests were carried out in the Ayers Rock area with contacts into Melbourne, Sydney and Perth. It wasn't until we got further north to Mataranka Hot Springs that a few days stay allowed longer tests to be carried out in between dips in the hot springs. I was able to put the 20 metre dipole up at about 10 metres. On the Melbourne path both whips and the dipole were almost even in signal strength but a contact into the west coast of the USA brought the dipole out the winner with a one "S" point advantage over both whips. Due to poor propagation, contacts into Europe were hard to come by from the Northern Territory but it's possible that the dipole might favour the longer

distance even more than the one "S" point to the USA.

So, what are my conclusions?

1. The Global whip on 20 metres is better than average.
2. Mobile whips can equal a dipole at 10 metres height over a two to three thousand kilometre path and not be too far behind over longer paths.
3. On 40 metres, the Global whip was an "S" point behind my 25 metre wire but this is probably not conclusive as only a few short tests were tried on this band.
4. The bandwidth of the Global 20 metre was excellent. The 2:1 SWR points were more than 150 kHz apart.
5. The only alteration I would make to the Global would be the addition of a spring at the base. Mounted on top of a camper van, the top of the antenna is quite high. I got mixed up with a few low trees and, while the antenna didn't break, I would be happier with a spring. The Dick Smith D-4509 should be OK.

If you want a mobile antenna that really performs I suggest you contact Adrian at Global Antennas, PO Box 344 Baulkham Hills, NSW 2153.

And that's all for this month. See you in a couple of months. Goodbye from him and goodbye from me.

The two Rons.

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Technical

Technical Abstracts

with Gil Sones VK3AUI*

Dual Band VHF/UHF Antenna

An antenna which can be used on both 144 MHz and 432 MHz is useful to extend the operating range of a dual band handheld radio. In *QST* for September 1994, a dual band J pole is described by Jim Reynante KD6GLF.

The interesting thing about this design is that it is a 144 MHz design which works on its third harmonic on 432 MHz. This is different from the designs which branch out of a single pipe with separate feedlines on each band. This design, which is built out of TV 300 ohm ribbon, will, however, have different vertical radiation patterns on each band. However, if it helps you work stations further afield, you should not worry too much about the radiation pattern.

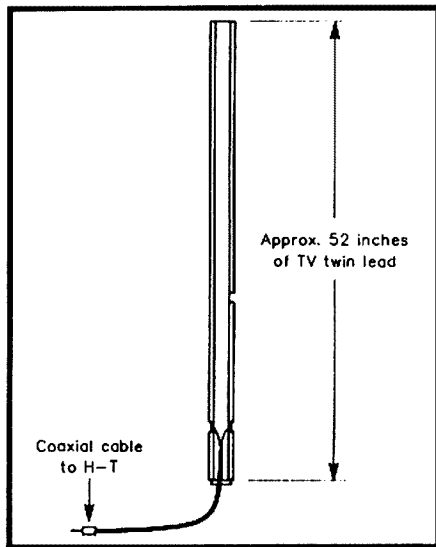


Fig 1 — J Pole Antenna.

The basic J pole is shown in Fig 1. The dimensions are in inches as this is an American design. The antenna is shown in more detail in Fig 2. In Fig 3 the attachment of the feedline is shown. To decouple the feedline you can slip some ferrite beads over it or, alternatively, wind a five turn coil using the coax on a one or two inch

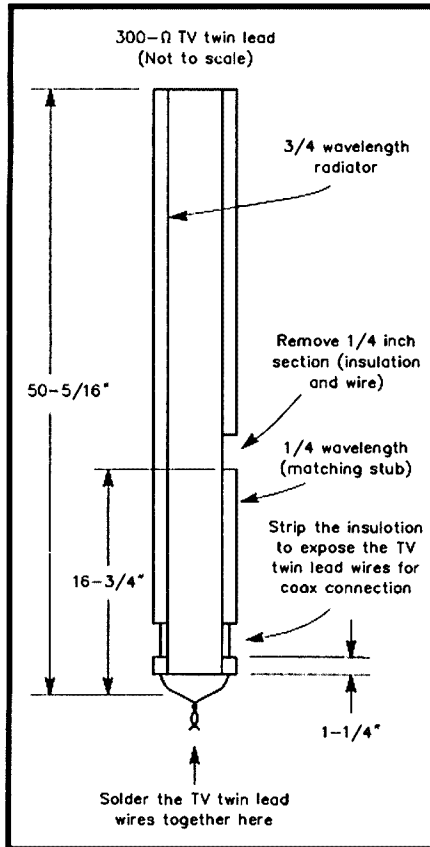


Fig 2 — J Pole Antenna showing dimensions for trimming and stripping insulation.

diameter. This choke coil should be close to the feedpoint.

If you need to adjust the SWR you should trim three times as much from the radiator as from the stub. Only do this in very small increments or you will soon have an antenna that is too short. The SWR curves claimed are shown in Fig 4 and Fig 5.

The antenna can be suspended from an insulating cord or it could be slipped into a plastic pipe radome. For anything other than a very short run of coax use RG213. At these frequencies the attenuation of RG58 and other thin coax is excessive. Even RG213 is fairly lossy at 144 and 432 MHz.

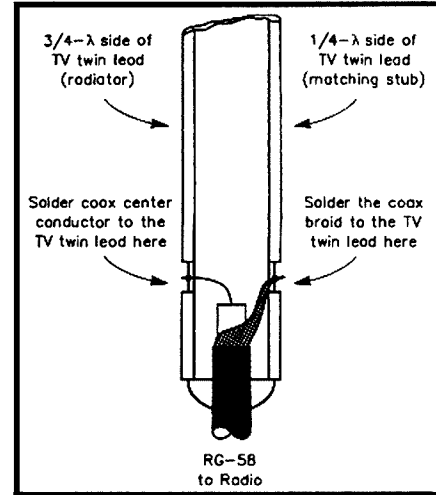


Fig 3 — Attaching the feedline. The centre conductor is attached to the longer three quarter wave side. The braid is connected to the shorter quarter wave side.

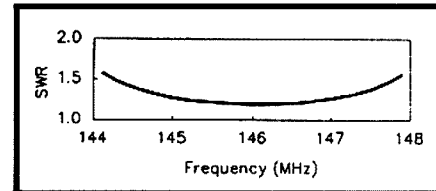


Fig 4 — Two Metre SWR Curve.

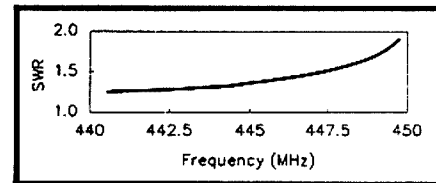


Fig 5 — 70 cm SWR Curve.

Stub Filters

At VHF and UHF, coaxial cable stubs can be used as filter elements. They are often easier to use than lumped L and C in a filter design. Some interesting designs were published in the RSGB monthly journal, *Radio Communications*, for November 1994 by John Regnault G4SWX.

A stub assisted Low Pass Filter is shown in Fig 6 with values for both 50 MHz and 144 MHz. The inductors used were prewound Toko S18 coils but air wound small inductors could be used. For more than 10 watts the coils should be air wound. The coaxial cable used for the stubs was RG58.

The performance of the 50 MHz filter is shown in Fig 7. Low insertion

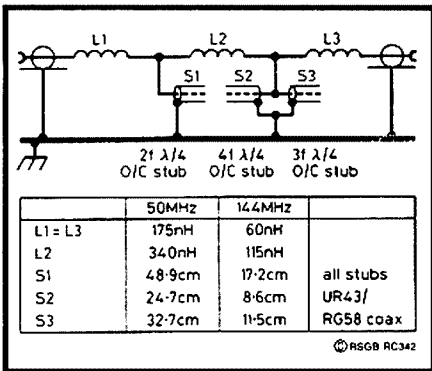


Fig 6 — Stub Assisted Transmitter Lowpass Filters for 50 MHz and 144 MHz.

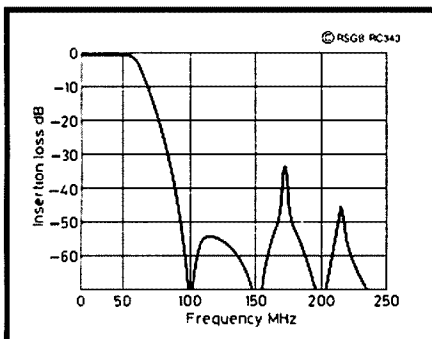


Fig 7 — Measured Performance of the 50 MHz Lowpass Stub Filter.

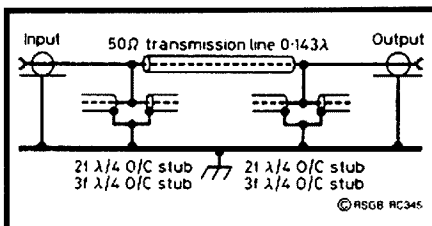


Fig 8 — All Stub KISS Harmonic Filter.

loss, together with low SWR and high harmonic rejection, is claimed for this design. The components are not specialised and it should be easily reproduced.

Another design, using coaxial cable only, was given. This is purely a harmonic filter designed to lower the harmonic output of an amplifier. The main filtering of other than harmonics is left to the filtering in the exciter. This design was originally from Ian White G3SEK.

The all coaxial cable KISS stub filter is shown in Fig 8. The length of the matching line is given in Table 1 for variants of the design. For a 144 MHz or 432 MHz design for 2nd and 3rd harmonics using RG8 or RG213 cable, the cable lengths are given in Table 2.

Table 1

$\lambda/4$ Open Circuit Stubs Included	2f	3f	2f&3f	2f&3f&4f	2f&3f&4f&5f
Length of Matching Line λ	0.175	0.205	0.143	0.125	0.113

Table 2 — Cable lengths for 2nd and 3rd Harmonic Filter using RG8 or RG213 Cable.

	144 MHz	432 MHz
2nd Harmonic Stubs	17.2 cm long	5.7 cm long.
3rd Harmonic Stubs	11.4 cm long	3.8 cm long.
Matching Section	19.6 cm long	6.5 cm long.

The use of different cables will need some variation of the lengths given. Excellent attenuation of harmonics of the order of 60 dB is possible.

PA0SSB Transceiver

I have received a translation of part of this extremely complex transceiver project from Jos Weemaes VK3DJQ. The articles describing a high performance HF transceiver have been published over a period from February 1993 in ELECTRON by Jan Ottens PA0SSB. The project is not for the inexperienced or the faint hearted as it is a very high performance design and extremely complicated.

One interesting technique used in this design is the use of a Phase

Locked Loop Integrated Circuit type 74HCT4046A as a filter to select the desired product from a mixer in the Transceiver Phase Locked Loop for the local oscillator. This was after the product had been enhanced by an image rejecting mixer which gave a 20 dB ratio between the desired product and the undesired product. The use of two phase locked loop ICs as filters for the desired product gave over 70 dB of rejection of the undesired product.

This was one of the rather novel techniques used in this complex design. I would like to thank Jos Weemaes VK3DJQ for his excellent translation.

*C/o PO Box 2175, Caulfield Junction VIC 3161

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WIA News

Special Event Stations

Amateur radio will play a role in publicising the British-sponsored 1995 "Expedition Island Earth, Jason Project" which, each year, takes a team of scientists and students on a scientific expedition.

In March 1995, the Jason Project will explore the volcanic islands of Hawaii. Promotion for the expedition will be carried out at a number of UK sites, through the National Galleries and Museums.

The activities will be accompanied by several special

event amateur radio stations. In the UK, GB6JAS will focus on VHF, UHF and satellite working. Further afield, GB0JAS will be heard on the HF bands. They plan schedules with British research vessels in the North and South Atlantic, according to the event organiser, Alan Clayton G7HZZ (QTHR).

The special event stations plan to commence operations on 5 March. Further information will be available in amateur radio press and on packet radio, closer to the date.

■ People

Jay Carr W6FAY/VK6FG and "DESERT STORM" — 'A' saga of one amateur's very active life.

John Hawkins VK6HQ*

On 15 April 1942 a PBY Catalina flying boat followed the course of the Swan River from Fremantle and aligned itself for touchdown on Perth's Crawley Bay. Both commissioned pilots observed several Catalinas moored in the placid water below. Another had been hauled from the brackish tidal flow onto dry land for maintenance.

The enlisted pilot doubling as the bomb-aimer tied away his charts. Two mechanics sat waiting for the splash of the floats on water.

It had been a long flight. Operational needs at one point to ascend above their customary patrol height of 5,000 feet had meant the use of oxygen. There were no oxygen masks, just pipe stems at the end of rubber tubes. At 10,000 feet the cold had penetrated the aircraft and left them shivering.

As the aircraft continued to lose altitude the radio operators took last minute approach instructions. Dual receivers directed Morse to each heedful ear of Jay Carr W6FAY. In a short while he was to reunite with his buddy from Pearl Harbour days, Chuck Farkas, later to become VK6CF, but for the moment concentration came first. He was not to know that, in due course, they would both bump into Jim Rumble VK6RU serving in the Australian Army and in the Crawley Bay area.

Initial billets were in a tent city on the Esplanade. Later came more permanent but austere

accommodation on the University of WA campus, in the chemistry department.

Nevertheless, these minor hardships paled at what was to come. War never was a barrel of laughs. The Java operations for Jay were particularly nasty. There were, however, lighter moments, like the time, when with wheels down, circling Geraldton airport, Jay's Catalina avoided one landing strip crudely marked with an X believing it meant "closed". They soon discovered as they bumped and slithered their way between sand drifts and vegetation on the other strip that X meant quite the opposite!

Then there was the time they played the game of "crazy Yanks" and came into land at Port Moresby airfield with nothing but the floats between them and terra firma. At the last moment, and with the local Aussies yelling frantically into the radio to "pull up!" and the fire tender heading out to sort out a seemingly inevitable catastrophe, down came the wheels. Catalinas had wheels too!

That was over fifty years ago.

How both Jay and Chuck met and married West Australian "sheilas" was typical of the war years. Jay married Kitty on 11 September 1943. He was 22. Kitty was, well, younger than Jay! They spent their honeymoon at Narrogin. At the end of the war, on her way to reunite with Jay in San Francisco, Kitty was on the first "bride-ship" and was photographed with other wives joining their husbands. This picture, I understand, appears in a book written about the "war brides" as they came to be called.

Nowadays

Nowadays, Kitty and Jay live very happily in Escondido near San Diego where I had the pleasure of meeting them both last year. Chuck married Dorothy and they live very happily in Kalamunda, Western Australia, where I had the pleasure of meeting them last week. We only live one mile apart!



(l to r) Art K6XT, editor of the San Diego DX club bulletin and Jay W6FAY/VK6FG.

Despite the distances between Jay, Chuck and myself, we can talk to one another virtually whenever we please through the medium of amateur radio, although it's very pleasant once in a while to have that "eye-ball" QSO, a face to face contact with the reassurance of a handshake.

I missed catching-up with Jay in 1985. He was at the Visalia DX Convention when Connie and I were in the Los Angeles/San Diego area. I did manage a 2 m contact with him, however. We were on our last day in Chula Vista on the Mexican border when someone said Jay was back and got him to come up on the band. Sadly, we were due to fly out the next day for Albuquerque.

Last year there was no mistake and Jay and I had two terrific days, driving around looking at big aerials, eating, drinking, working the radio, meeting the locals. Above all, we talked.

Recent Career

Jay is a man who, at the age of 70, was recalled to serve in operation "Desert Storm". I kid you not. What follows can only be a thumb-nail sketch of the lead-up to how it happened. Nearly all of my notes were taken "on the run" so to speak, as time was of the essence. Jay drove, pointing out things of interest and answering my questions. I listened.

After the war Jay did a variety of jobs. For a while he was with the Jet Propulsion Laboratory at Pasadena working on the very successful soil-sampling arm for the Viking I and Viking II projects. In the mid 50s he worked on the F102 Delta Dart, then transferred to missile development on the Atlas telemetry. For a while he became self-employed doing drafting, liaison and "gofer" type work as he termed it! During the mid 60s radio officers were in demand so he spent six months or more with the merchant marine servicing the Vietnam offensive. Around 1970, Jay felt he was getting left behind by technology. He was not alone in that! He returned to the Merchant Marine until March 1988 when he retired.

Retirement was shortlived. The Merchant Marine Union had a contract for ready reserve and on or about 10 August 1990 they got in



The medal received by Jay W6FAY/VK6FG.

touch with Jay advising him that they could not muster enough personnel for Arabia and "Desert Storm". The next day Jay flew to North Carolina where 864 pieces of military equipment had just been driven onto the USNS "Pollux" and chained down. The heavier weapons they needed were on board, together with jeeps, packaged rations, water purifiers and ammo trucks packed with 7,000 tons of ammo! They were on their way.

Three hours from Wilmington the "Pollux" passed the last point of land before the open sea. From every vantage point flags waved, hundreds of cars pointed in towards the vessel with horns blaring. PA systems voiced the pride and good wishes of the multitudinous farewell party! It was a moment, Jay said, he would always remember.

The "Pollux" was a fast ship despite her twenty years. She averaged 33 knots from North Carolina via the Mediterranean, Red Sea and Gulf of Aden to Ad Damman, one hundred miles south of the Kuwaiti border, taking barely ten days to get there. Two 21 foot four-blade props driven by two steam turbines enabled her to do 37 knots if need be. She was one of the first to arrive. The assignees of the equipment had been flown in to meet the ship and within three hours, the equipment had been driven off and was supporting the 82nd, easing concerns that the Iraqis were about to cross the border unimpeded.

As you can see from the

photographs, Jay lived to tell the tale and to receive a medal for his efforts. It's still hard to believe he was 70 when the award took place.

Oddly enough, this account of Jay W6FAY, ends on a Middle East note, too. While I was in the Escondido area, Jay showed me many gigantic antenna arrays. A huge, four tower outfit belonged to Rick N6ND. There was a fine antenna farm at Dale K6UA's place. We called on Art K6XT as he prepared his seven element long John on its 53'5" boom for placement back that weekend at 175'.

Terry W6MKB's QTH was overshadowed by a 180' tower supporting beams for just about every known band! As we stood marvelling Jay told me Terry had once stayed with JY1, King Hussein of Jordan, at His Royal Highness's invitation and had worked the CQ Worldwide Contest using the King's Drake equipment. When the time came for Terry to leave, the King had taken his watch from his wrist and presented it to Terry as a memento. Terry had not long returned to Escondido when his house was broken into and the safe containing the watch was stolen.

It was good to catch up with Jay and Kitty, to meet some more of the Californian "Big Guns" and to ponder antennas that seem to defy gravity.

Whether one's lot in life is a bitch or a bowl of roses, it has to be said that life wasn't meant to be dull and boring. Jay's *joie de vivre* radiates like a camp fire on a cold night! His 20 m CW does pretty good too

*39 Glyde Road, Lesmurdie WA 6076

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■ Industry

TEN-TEC Tennessee

John Hawkins VK6HQ tells of his tour of a fascinating ham radio equipment factory.*

Celebrities appearing among the amateur radio fraternity have been almost too numerous to mention. King Hussein of Jordan, Senator Barry Goldwater, Sir Brian Rix, world champion speedway rider Tommy Price. They come from all walks of life. Chet Atkins and Tex Beneke have thrilled the world with their mastery of music, whilst privately enjoying the relaxation afforded by amateur radio.

Unless you're a jazz buff you may not have heard of Chet and Tex but you must have heard of Dolly Parton. However, don't start scanning the W4 listings for "D Parton". I'm only teasing! So far as I know, the star of Dollywood is not likely to be heard calling CQ DX! But, if you ever find yourself on Dolly Parton Freeway near Sevierville, Tennessee, you'll probably have amateur radio on your mind as well as Dolly because you'd be within cooee of another star from Tennessee, TEN-TEC.

It wasn't by chance that I had the privilege of treading those hallowed halls. TEN-TEC, to the best of my knowledge, was formed by Al Khan, K4FW, whom I first worked in 1985. But it was not until much, much later that someone else told me of the K4FW/TEN-TEC connection. With a visit to the Smoky Mountains National Park area in mind, I wrote to Al. He replied, saying he'd make arrangements for me to see the factory. This I did in late September, 1992.

The outside of the factory and its surroundings are easy on the eye, especially the tri-band beam out front. Rick Long, KE5XY, from Customer Services, met me and I was soon seeing things, just as impressive, inside. TEN-TEC, Rick explained, was started in 1969 and has for some time diversified its operations beyond the construction of quality amateur radios and peripherals.

Nowadays, TEN-TEC is largely self-sufficient, making its own cabinets and chassis and much of its own plastic injections. The sheet metal shop punches the holes and bends the sheet metal which can then be cleaned, painted and silk screened. In fact, a large TEN-TEC sideline is the manufacture of equipment enclosures. MFJ and companies like those making line-surge protectors and so on keep TEN-TEC busy and the machines running. TEN-TEC continues, nevertheless, to welcome enquiries from individuals for generic enclosures.

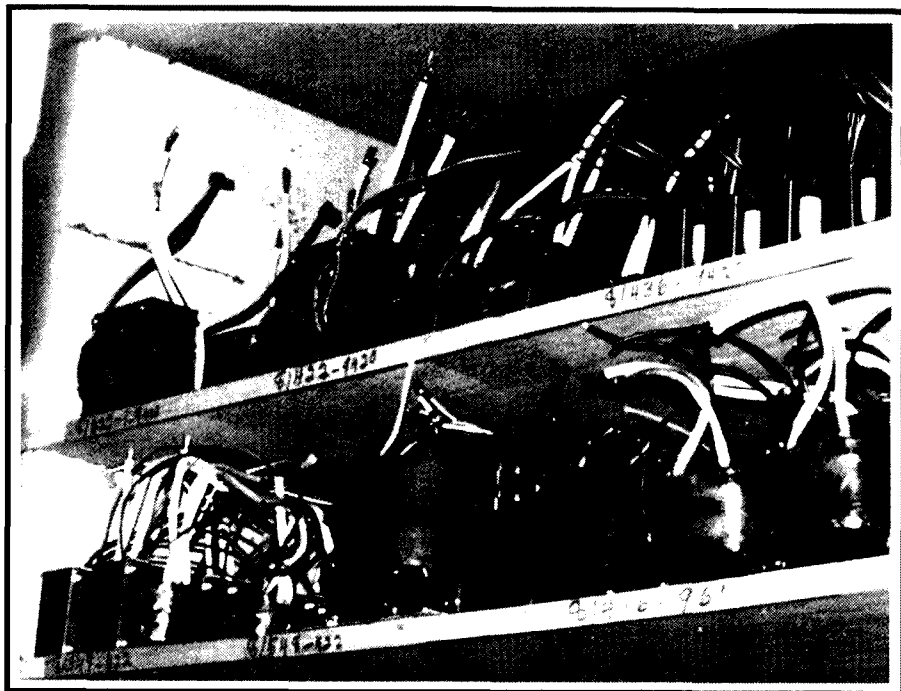
Using this expertise to the full they now direct around 60% of those resources into outside contracts with companies like General Motors, Yale Lock and Dial Light. They work in both aluminium and steel. The computer controlled milling machine provides the masters for front panel extrusions on amplifiers and the larger radios.

As we moved around the factory I saw examples of TEN-TEC's plastic/nylon injections — exquisite miniature coil forms in their hundreds, still attached to the mould trees.

Instruction manuals are made on-site, too. Text, schematics and layouts are compiled on a computer CAD system. Plates are then made for an off-set press.

We moved on to the transformer bulk storage area. I was impressed with TEN-TEC's attention to its transformers, especially those for amplifiers like the Centurion. I suspect a degree of "overkill" is built-in. The transformer for the Titan 1.5 kW amplifier, for example, weighs 41 lbs. I took care to bend my knees when lifting it! Furthermore, should a customer need a replacement transformer, they can save \$200 off the cost of a new one by utilising TEN-TEC's exchange scheme.

In the assembly area components are hand-inserted into the various boards. Some boards are grouped in fives and split later. All boards are then given a bottom layer of wax to retain the components whilst the leads are being clipped, and are then wave soldered. TEN-TEC say they can maintain a high standard without the cost of expensive automated equipment. Penny, one of the



The TEN-TEC factory transformer storage area.

charming young ladies on the production line (and far more approachable than a robot!) was able to tell us about the boards she was assembling for a new Jones filter. Incidentally, this patented filter is an eight-pole device using crystals and affords variable bandwidth between 500 Hz and 25,000 Hz, thus avoiding fixed options such as 2,400, 1,800, 500 and 250 Hz.

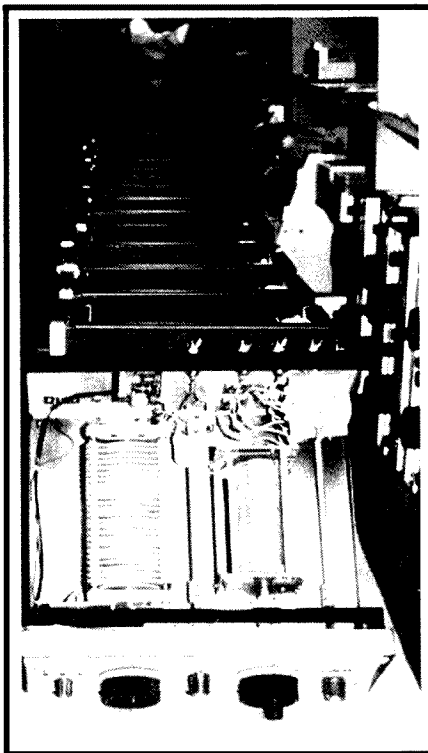
At the end of the production line rigs are removed for testing on a shaker table to detect any loose screws or components and then "burnt-in". This is done by running them at 50%-75% full power into a dummy load and auto-keying them between transmit and receive once every five seconds for between 16 and 24 hours.

The Model 238 antenna tuner is beautifully engineered. Forty or so of them, virgin and in concert, is a joy truly to be beheld! Not only does TEN-TEC make its own roller inductors, it makes its own high voltage tuning capacitors as well and the good news is that component parts from the ATUs are available for purchase.

I asked Rick how many different amateur radios TEN-TEC currently produced. He said the Argonaut II (the QRP rig), the Delta II, the Paragon and the Omni 6 were the four transceivers (and now, of course, there's the Scout, reviewed in the March 1994 issue. Ed). In the power department there was the Hercules II solid state, 12 V, no tune, auto band-switching amplifier, the Centurion and the Titan.

The 100 W Delta II meets the requirements of a modern transceiver with features including dual VFOs, 48 memories, GC receiver, FM and noise blanker.

The latest radio, the OMNI 6, is ham-band only, with a top-of-the-line receiver. This rig has built-in digital signal processing with auto notch for SSB. This means that "tuner-uppers" and broadcast station carriers — up to 50 heterodynes in all — can be made to "disappear" at the push of a button! Direct band and frequency entry is nice! There is a keyer and CW variable off-set for sidetone and receive, programmable between 400 and 990 Hertz. There's also a digital



The TEN-TEC ATU production line.

low pass filter and built-in tailored high end cut off between 600 and 1400 Hertz. If that isn't enough, optional "voice-link" provides audible frequency read-out. Dual VFOs are provided and an RS 232 interface port with full compatibility with control and logging programs like "CT" and "Log Master".

It's a fiercely competitive world market, making amateur radios.

The big "plus" with TEN-TEC equipment has to be the regard for servicing — there's room to "move around" if you have the need to get inside a radio and I've heard many unsolicited testimonials to TEN-TEC's help should a problem occur.

Now nearing the end of a fascinating tour, we entered the conference room where the Paragon, the Hercules II, the Model 220 solid state power supply and the automatic tuner were combined into a fully integrated station in a rack presentation. Although it was disconnected from the beam outside and ready for transportation to the Boxville, Massachusetts, Hamfest,

Rick was still able to demonstrate how one module "followed" the other without manual bandswitching as soon as the band or frequency on the Paragon was changed. It was obvious what a superb contest station the combination made.

Back on the road I reflected on what Rick had said about the capacitors in the TEN-TEC amps. He had explained that when the WARC bands came in it would have needed an enlarging of the wide-spaced capacitors and a matching extension of the enclosures to bring the units onto the additional frequencies. Instead, TEN-TEC "replaced" air in the dielectric in the capacitors with teflon, which lowered the frequency just as effectively!

It's a fiercely competitive world market, making amateur radios. TEN-TEC's continued success appears to stem from innovation, far-sightedness, team work and a good measure of national pride.

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■ Technical

Variable Capacitors Made From Trimmers

Drew Diamond VK3XU has much useful information about adapting air-spaced trimmers to use (for example) in VFOs.*

Goons' fans will recognise the phrase — "you can't get the wood you know". Well, for the amateur radio constructor it's — "you can't get suitable variable capacitors". Commercial electronics manufacturers have largely moved to varactor diodes for low power tuning duties, and so the demand for capacitors has declined dramatically. However, for many amateur applications, a variable capacitor is still the best, or simplest part for the job. Some desperados have even been reduced to using those pathetic little transistor radio "tuners" with their horrible, lossy, drifty, plastic dielectric.

On parts expeditions to hamfests and disposals shops we generally seem to be able to find pretty good capacitors of the trimmer variety, made by old well known companies such as Hammarlund, Polar, Jackson or Eddystone. But they have no

proper 1/4" shaft, just a screw-driver slot in a dinky little ferrule, not quite suitable for that VFO or receiver project in hand.

The samples shown in photo 1 have (maximum) values between 8 pF and 100 pF, with an air dielectric and ceramic insulation. Most have a round ferrule of about 13/64" diameter and one, the 8 pF unit, has a hexagonal ferrule of about 1/4" across the flats. Soldering an adaptor shaft on is a possibility. However, it is difficult to align ferrule and shaft with sufficient accuracy for the result to be satisfactorily in-line, and mechanical strength may be poor.

Shown in photo 2 is a suggested approach for the hex capacitors; a short length of 1/4" inside diameter fuel hose is attached with spring clips (normally supplied with hose from auto parts shops), and a length of ordinary metal rod (for example a potentiometer off-cut) is fixed into the

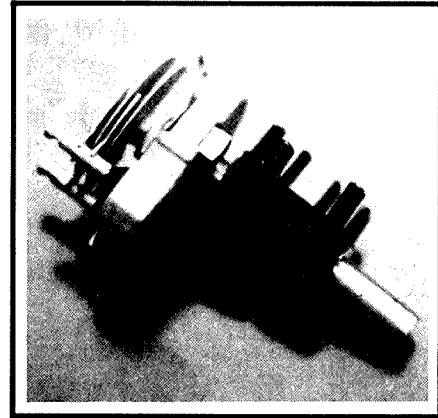


Photo 2 Fuel hose adaptor.

other end. Over time the rubber will mould onto the metal parts and achieve an even more effective grip. A small right angled bracket to mount the capacitor, and a front panel bearing bush (perhaps from an old potentiometer) will also be required.

To adapt for round ferrules which are less than 1/4", obtain a length of 1/4" or 5/16" brass rod. Face off each end square. You will need a drill-press or, better still, a lathe. I know that's easy to say. If you do not have access to these tools, one of the members of your radio club, or a mate in the engineering trade may be able to assist. Adjust a vernier or spring caliper to the exact diameter of the ferrule, then find a drill in your collection which is one or a few thousandths of an inch under (just a tiny crack of light visible when the drill shank is held between the jaws of the caliper). If you have a set of Imperial and metric, then it's odds-on that you will have one for the job.

If using a drill press, hold the work in a machine vice or vee-block, and clamp it onto the drill table (sharp new drills will bite into brass rather viciously—slightly dull drills are better for brass work). Centre-drill your adaptor shaft. Double-ended "stubby" drills start the hole more truly than ordinary ones, so use these if available (not hard to buy, they are made for pop-riveting jobs). In at least three stages, starting with a small drill, sneak up on the final drill as previously determined. Drill to a depth equal to the ferrule length, perhaps a few thousandths of an inch less.

Test the capacitor on the adaptor. It should feel like it will go on, but only if some pressure is applied. Too tight

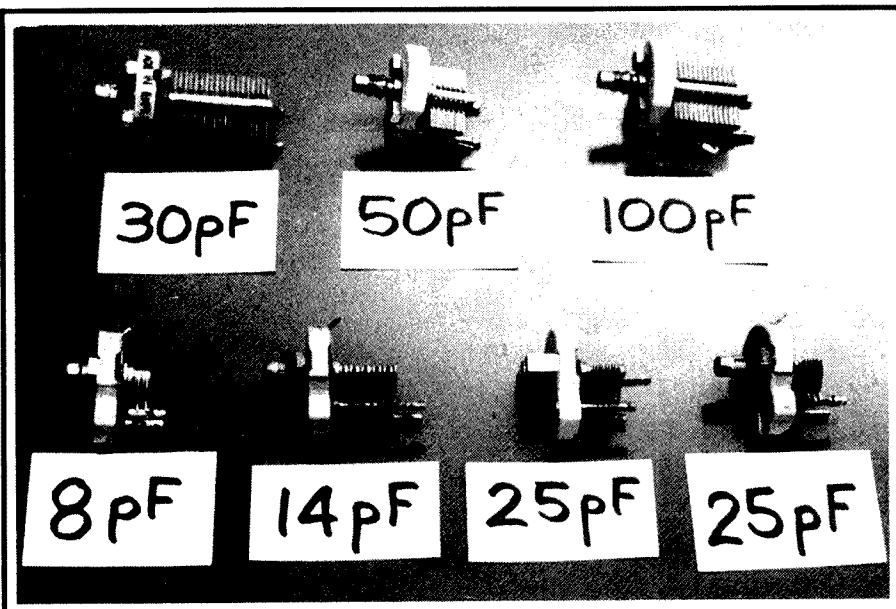


Photo 1 Typical trimmer capacitors.

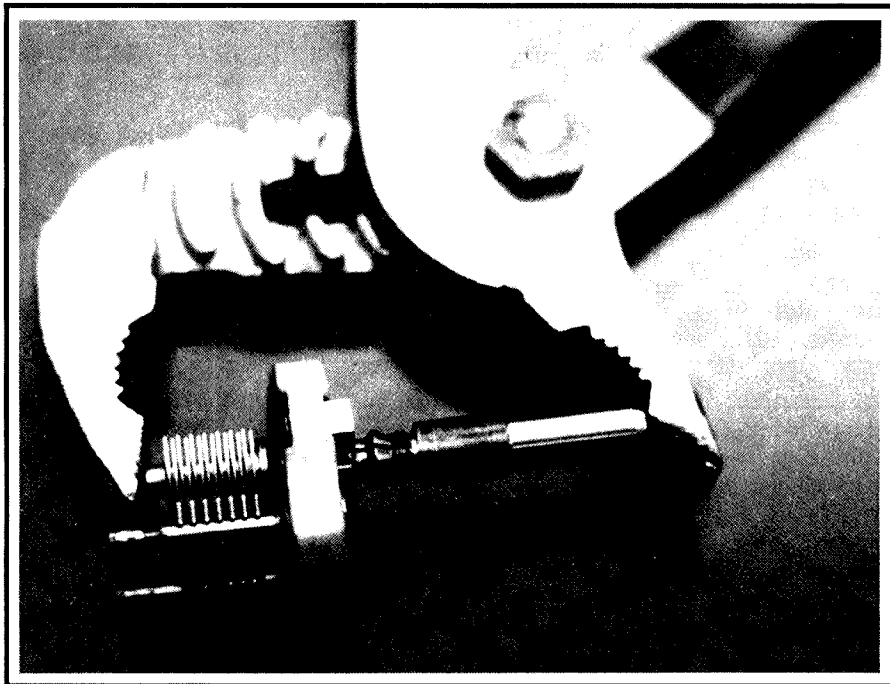


Photo 3 Press fit adaptor.

a fit may be eased if necessary by inserting a single junior hacksaw cut across the diameter of the hole. Using multigrips or, better still, a vice, press the adaptor onto the ferrule for a good "friction" fit (see photo 3).

The adaptor on the left in photo 4 is a press fit, as described, made from 5/16" rod. The right hand adaptor was made similarly, but from 3/8" brass for a capacitor whose ferrule is 1/4" (also applicable to 1/4"

AF hex units). Note the single junior hack-saw cut across the larger diameter to allow the adaptor to be pressed onto the capacitor. A threaded hole and grub screw in the side of the adaptor would also serve. However, the press fit is to be preferred, as the resulting job will generally remain more truly in-line.

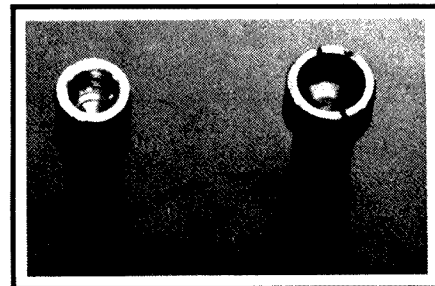


Photo 4 Brass adaptors.

Finally, clean any grime and particles from and between the plates using (say) methylated spirits and a small paint brush, paying close attention to the wiper contact. If necessary lubricate the bearing with a tiny drop of WD-40 (TM) or similar.
 "Narr Meian" Gatters Road, Wonga Park VIC 3115
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WIA News

Electromagnetic Compatibility Networks

The federal government has moved to establish a nationwide education and training program on electromagnetic compatibility (EMC) standards to help Australian manufacturers and suppliers of electronics equipment meet the government's new EMC standards which will come into force on 1 January 1996.

All electronic equipment manufactured or assembled in Australia, as well as imported equipment, will be required to meet the new EMC standards. It will not be retrospective, however. Goods produced before that date will not need to comply. The Australian Electrical and Electronics Manufacturers Association earlier last year

expressed the concern that there may be some dumping of overseas-made non-complying equipment leading up to that date.

Central to the government's education and training program on EMC will be the establishment of EMC Regional Networks, managed around the country by local co-ordinators. The scheme is to be co-ordinated on a national basis by the Australian Electronics Development Centre (AEDC), based in Melbourne.

The AEDC is a company dedicated to providing specialised training for the Australian electronics and telecommunications industry. It is sponsored by a variety of communications, computer and electronics companies, along with several government departments.

In November, the AEDC called

for proposals from interested parties wishing to become co-ordinators in the scheme and is presently working on establishing the EMC Regional Networks, the objectives being to provide access to the knowledge of EMC experts and EMC programs, a forum for government and industry dealings over EMC issues and a structure for network members to work on specific EMC issues.

According to the AEDC, over 18 months the EMC Regional Networks will help both industry in general and individual companies develop and implement strategies for compliance with national and international technical standards for EMC.

The WIA has made contact with the AEDC to see where the Institute and the hobby might benefit from some involvement.

Amateur Radio Annual Index 1994

What a tremendous amount of absorbing reading was provided in *Amateur Radio* magazine during 1994, much of it the accounts of WIA members' experiments, construction projects and experiences, and all to do with this most fascinating of all hobbies, amateur radio.

If you see an item in this index which you want to read, and you cannot locate, or

do not have, that particular copy of *Amateur Radio*, back issues of the magazine are available from the Federal Office to current WIA members at \$4.00 each, which includes postage in Australia.

If a back issue is no longer in stock, photocopies of articles are available to members at \$2.50 each (plus \$2.00 for each

additional issue in which the article appears).

And remember. The WIA is always on the lookout for technical and general interest articles from members. Have you submitted your contribution lately? For further details on how to write an article about your latest construction project, or amateur radio experience, for your magazine, please refer to the August 1992 issue of *Amateur Radio* (page 18), or contact the editors at the Federal Office of the WIA.

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What's New

Bob Tait VK3UI* introduces new products of interest to radio amateurs

New from Cushcraft Corporation

ASL-2010 Skylog Log Periodic

The new Cushcraft ASL2010 Skylog Log periodic antenna released in September 1994, is the answer for hams who would like to have a single antenna to cover all bands from 10 to 20 metres. This new antenna eliminates the need for two antennas to cover 20, 15 and 10 metres plus the WARC frequencies. No more switches — it uses a single feedline with an inbuilt balun; no traps to increase the wind loading (10.1 sq ft).

The ASL-2010 will operate continuously at 1 kW. The gain of the antenna is 6.4 dBd. It has eight elements, the longest being 11.58 metres, with a boom length of 5.48 metres. The entire assembly is made from 6063-T832 aluminium for maximum strength combined with

lightness. The mounting hardware and element clamps are made from stainless steel.

The ASL-2010 represents a cost effective five band, high gain antenna. It is easy to install on a tower and will provide long and trouble free service.

For further enquiries contact your local Cushcraft Distributor.

*C/o PO Box 2175, Caulfield Junction VIC 3161

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Don't go mobile without a Yaesu Mobile Transceiver!

Whether you're going bush or operating around town, a quality mobile transceiver from Yaesu delivers the best performance.

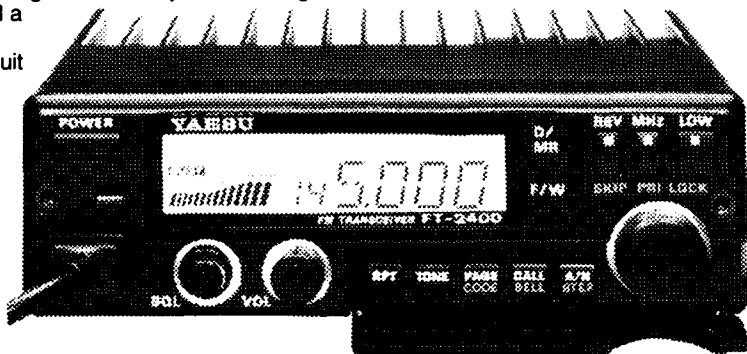
FT-2400H Rugged 2m Transceiver

The ultimate in dependability and reliability! The FT-2400H is built using commercial grade mechanical and electronic construction techniques and meets the tough USA MIL-STD-810C shock and vibration requirements, so you know you're getting the highest quality. A one-piece die-cast chassis/heatsink allows three-step output of up to 50 watts without forced air cooling. Plus, fibreglass circuit boards and chip components provide professional-grade reliability. It has a large backlit LCD screen, backlit knobs and 31 tuneable memories (which can store frequency and a four-character name of your choice). A customised microprocessor also provides Auto Repeater Shift to suit Australian conditions. Two-stage track-tuning and a dual FET mixer improve receiver intermod performance. Scanning functions include programmable scan limits, selectable scan resume modes, memory skip, and priority monitoring. Seven selectable channel-steps and CTCSS encode are standard features. Comes complete with MH-26 hand mic., mobile mounting bracket and DC power lead.

Cat D-3630

2 Year Warranty

\$699



Specifications

General

Frequency range: Transmit 144-148 MHz
Receive 140-174MHz
Channel steps: 5, 10, 12.5, 15, 20, 25 & 50kHz
Current Consumption: Receive: 400mA
Transmit: 12 Amp (Hi power)
Dimensions: 160 x 50 x 180mm (w/o knobs)

Receiver

Intermediate Freq: 21.4MHz & 455kHz
Image Rejection: Better than 70dB
Maximum AF Output: 2.0 watts into 8 ohms @ 10% THD

Transmitter

RF Output power: 50/25/5 watts (Hi/Med/Low)



FT-2200 2m Mobile Transceiver

The new FT-2200 is a compact, fully featured 2m FM transceiver providing selectable power output of 5, 25 and 50 watts, and includes the latest convenience features for more enjoyable mobile or base station operation. Built around a solid diecast chassis, it provides 49 tunable memories, a large variety of scanning modes, an instant recall CALL channel, 7 user-selectable channel steps from 5kHz to 50kHz and is just 140 x 40 x 160mm (not including knobs). Backlighting of the large LCD screen, knobs and major buttons is even automatically controlled to suit ambient light conditions. Also provided is a 38 tone CTCSS encoder, DTMF based paging and selective calling with Auto-Page/Forwarding features, and 10 DTMF auto-dial memories. The LCD screen provides a highly legible bargraph Signal/P.O. meter plus indicators for the various paging and repeater modes. An optional internal DVS-3 digital recording/playback board can also be controlled from the front panel, giving even greater messaging flexibility. Supplied with an MH-26D8 hand microphone, mobile mounting bracket and DC power lead.

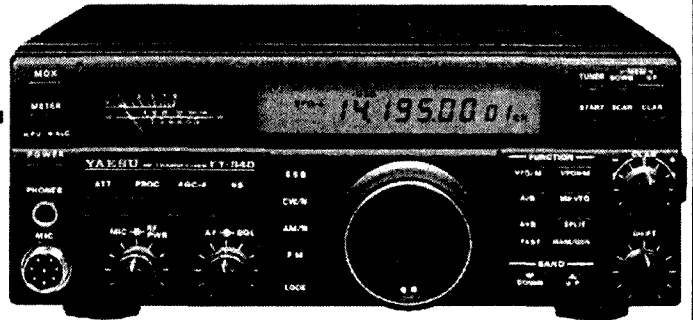
Cat D-3635



2 Year Warranty \$699

See Us For The Latest in High Qua

Yaesu FT-840 HF Transceiver



Blending the high-performance digital frequency-synthesis techniques of the FT-890 with the operating convenience of the FT-747GX which it replaces, the all new FT-840 HF mobile transceiver sets the new standard for high performance in affordable transceivers. Covering all HF amateur bands from 160m-10m with 100w P.E.P output, and with continuous receiver coverage from 100kHz to 30MHz, the FT-840 provides SSB/CW/AM operation (FM optional), 100 memory channels, a large back-lit LCD screen, two independent VFOs per band, an effective noise blander and an uncluttered front panel, all in a compact case size of just 238 x 93 x 243mm (WHD). Unlike some competing models, small size doesn't mean small facilities. The FT-840 provides easily-accessible features such as: Variable mic. gain and RF power controls, SSB Speech processor for greater audio punch, and IF Shift plus CW Reverse to fight interference. Dual Direct Digital Synthesizers ensure clean transmitter output and fast Tx/Rx switching, while the low-noise receiver front-end uses an active double-balanced mixer and selectable attenuator for improved strong signal handling. The FT-840 weighs just 4.5kg and uses a thermally-switched cooling fan, surface-mount components and a metal case for cool, reliable operation. An extensive range of accessory lines are available, including the FC-10 external automatic antenna tuner, so you can customise the FT-840 to suit your operating requirements.

Cat D-3275



\$1695
2 Year Warranty

FT-11R Micro Deluxe 2m Handheld

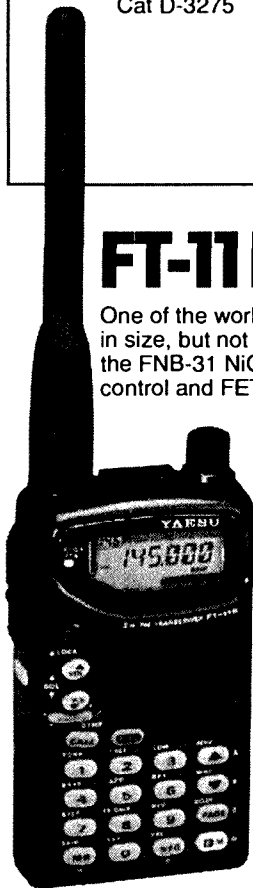
One of the world's smallest 2m FM handhelds with a full-size keypad, the Yaesu FT-11R has been reduced in size, but not in features. Designed to fit comfortably in your hand, it's just 57 x 102 x 25.5mm (W.H.D) including the FNB-31 NiCad pack, and weighs only 280 grams. The result of the latest in miniaturisation, microprocessor control and FET technology, the FT-11R provides a large back-lit LCD screen with full frequency readout, 150 memories (75 in alpha-numeric mode), full function keypad with easy SET mode, and up/down thumb control Volume and Squelch settings. A new high efficiency FET RF amplifier provides 1.5W output standard from the compact 4.8V battery pack, and up to 5W output from 9.6V (using an optional battery pack or PA-10 mobile adaptor). A range of battery life extenders, including Auto Battery Saver, Tx Save, and Auto Power Off (with ultra-low 20uA consumption) are included. Australian version Auto Repeater Shift, DMTF based selective calling and paging, extended 110-180MHz receiver coverage (including the AM aircraft band), and a variety of scanning modes are also provided. Other new features include naming of memory channels, DTMF Auto-dial memories, and DTMF Message Paging with upto 6 alpha-numeric characters. A large range of accessory lines are also available for easier customisation of your transceiver. The FT-11R comes with an FNB-31 600mA/H NiCad, belt-clip, approved AC charger, CA-9 charge adaptor and antenna.

Cat D-3640



2 Year Warranty

\$599



Quality Transceivers And Accessories!

High Performance VHF/UHF Base Station Antennas

Our range of top-name Brainer base station antennas offer outstanding quality and exceptional value. They are stacked collinear types providing high gain, wide bandwidth and a low radiation angle for extended range. The fibreglass reinforced polyester (FRP) outer tubing random and gasket seals provide excellent all-weather operation, and they are supplied with compact ground-plane radials for a clean radiation pattern. Stainless-steel mounting hardware ensures a long trouble-free life. They also feature comprehensive instruction sheets to make installation and set-up easier. Both come with a 1 year warranty.



2m/70cm GST-1

Frequency: 144-148MHz, 430-450MHz

Gain: 6dB on 2m, 8dB on 70cm

Max. Power: 200W

Length: 2.5m

Type: 2 x 5/8 wave (2m)
4 x 5/8 wave (70cm)

Connector: SO-239 socket

\$199

Cat D-4830

2m/70cm GST-3

Frequency: 144-148MHz, 430-440MHz

Gain: 7.9dB on 2m, 11.7dB on 70cm

Max. Power: 200W

Length: 4.4m

Type: 3 x 5/8 wave (2m)
7 x 5/8 wave (70 cm)

Connector: SO-239 socket

\$299

Cat D-4835

Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV is a 5-band HF trap vertical which continues the Hustler tradition of quality and performance. It incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1 kW (PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, < 2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike some other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.

Cat D-4920

HUSTLER

\$299

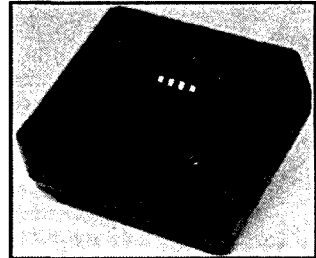
Master Charger 1 Fast Desktop Charger

At last, an intelligent, fast desktop charger that not only suits most current Yaesu handhelds but also many previous models.

Made in USA, the MasterCharger 1 operates from 13.5V DC and uses switch-mode technology plus a Philips battery charge monitor I.C. (with -ΔV full charge detection) to

correctly fast-charge NiCad batteries between 6V and 13.2V, then switch to a trickle charge. Suitable for the FT-23/73, FT-411/411e, FT-470, FT-26, FT-415/815 and FT-530, its charging cradle can easily be replaced, allowing for the insertion of a new cradle to suit earlier Yaesu transceivers (eg FT-209R) or different brands/model handhelds. The MasterCharger 1 requires 12-15V DC at 1.3A, and is supplied with a fused cigarette lighter cable for vehicle use.

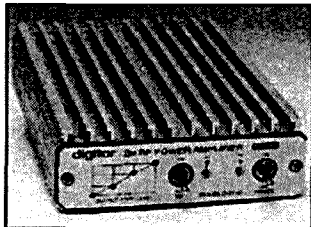
Cat D-3850



\$169⁹⁵

2m RF Power Amplifier

Boost your 2m hand-held's performance with this compact amplifier. Works with 0.3 to 5W input and provides up to 30W RF output, plus has an inbuilt GaAsFet receive pre-amp providing 12dB gain. A large heatsink and metal casing allow for extended transmissions at full output, and a mobile mounting bracket is supplied for vehicle use. Requires 13.8V DC at 5A max. Size 100 x 36 x 175mm (W x H x D).



Cat D-2510

digitor \$149⁹⁵

Now available - charging cradles

to suit various Kenwood, Icom, and Alinco handhelds.

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*MAJOR AMATEUR STOCKIST STORES SHOWN IN RED

ALARA

Sally Grattidge VK4SHE*, ALARA Publicity Officer

ALARA For Men

Dear OM, does the YL in your life think amateur radio is about as exciting as unblocking the sink (though that, too, can yield unexpected thrills)? Does she only pick up *Amateur Radio* to dust under it, turns pale at the thought of studying electronics and the dreaded "Code", and finds she has something extremely important to do every time you suggest she joins you in the shack?

If you answered yes to all the above, and sometimes wish your hobby could be more of a shared pastime, then make her a nice cup of coffee and give her this article to read. OK, you can go now.

Dear YL, what follows is a bit of basic information about ALARA, for you, and any other YL who has not given ALARA a thought for quite a while.

Australian Ladies' Amateur Radio Association

ALARA was formed in 1975 by a small group of Australian ladies interested in

amateur radio. Membership has now grown to over 200, with many Australian members sponsoring overseas YLs into ALARA on a reciprocal basis. The term YL stands for "Young Lady", regardless of age.

To enable Australian members to get together on air for a chat, an ALARA net is held each Monday night on 80 metres. This often helps newcomers to our hobby to overcome "mike shyness" by operating in a friendly atmosphere. If you do not yet hold a licence, you can still participate in this net if you are in the shack of a licensed operator who supervises all transmissions.

Many ALARA members also join in world-wide YL nets and in local state nets, thus making many friends. Monthly luncheons are held in some states, to which all are welcome, particularly visitors from other states and overseas.

ALARA holds a contest on the second Saturday in November. This is a friendly type of contest, with men also

participating. A special trophy is awarded to the Australian Novice YL with the highest score in radio telegraphy, and certificates go to winners of other sections.

A Newsletter is issued quarterly containing news of members' activities, as well as official ALARA information. We also have a monthly column in *Amateur Radio*, the official magazine of the Wireless Institute of Australia with which ALARA is affiliated.

ALARA has an attractive Award based on contacts with other members and is quite easy to earn. Details of the Award and of the various badges, charms, stickers, spoons, etc with our distinctive emblem can be found in the Newsletter.

DX News from Maria VK5BMT

The YL 222 DX Net has been a bit quiet lately because of poor propagation, but Net Controller Dave ZL1AMN is there every Monday, and hopefully conditions will improve soon.

Carol H44BC said her farewells last Monday. She is moving back to the States where she will make upgrading her license a priority so that she can get back on the net again before too long.

Dawn ZL2AGX is progressing well and awaiting the erection of her beam so she can come back on the air.

Oz News

Bev VK6DE's husband Brian VK6AI is also recovering from heart surgery, so Bev's Friday net has been a bit quiet lately.

Bron VK3DYF enjoyed the annual lunch of her local radio club SPARC, celebrated a granddaughter's 18th birthday, went to two dinners and a morning tea — all in the same week!

Dorothy VK2DDB is spending a few days in Canberra, showing her two younger boys the sights and attending the Mid South Coast RC meeting, also hoping to meet Marion VK2BNG.

*C/o PO Woodstock, QLD 4816

ar

YL NETS — Conditions Permitting

OFFICIAL ALARA NET	Mondays on 3.580 MHz +/- at 1030 UTC (during daylight saving — 1000 UTC)
ALARA MONTHLY GENERAL MEETING	as above 4th Monday
YL ACTIVITY DAY	6th of each month listen on the hour/call "CQ YL" Frequencies — 14.288, 21.188, 28.588 MHz
YL "222" DX NET	Mondays on 14.222 MHz at 0600 UTC (call in from 0545 UTC)
EUROPEAN YL-DX NET	Thursdays on 14.243 MHz +/- at 1700 UTC (Net Control — Christine GM4YMM)
VE/VK/ZL NET	Fridays on 14.148 MHz at 0500 UTC
VK4 YL NET	Fridays on 3.575 MHz +/- at 0930 UTC
VK6 ALARA/YL NET	Mondays on 3.585 +/- MHz at 1200 UTC (Net Control — Poppy VK6YF)
BEV VK6DE	Fridays on 21.188 MHz at 0400 UTC

ALARA Membership

As from September 1994, subscriptions have increased, but you can still enjoy a year of fun and friendship for about the same price as lunch in town.

Annual subscription, due 1 Jan, to be sent to the Treasurer C/- PO Box 758, Dalby, Qld 4405.

\$12.00	Australian member
\$ 6.00	Australian Pensioner — pension number required
\$ 6.00	Australian full time student, 18 years/under
\$10.00	DX Self paid
\$10.00	Sponsored — Australian address
\$ 8.50	Sponsored — DX — Economy Airmail
\$ 5.00	Sponsored — DX — Surface Mail
\$12.00	Non-member's subscription to Newsletter

You do not have to be a member to join in the nets, and it is a great way for newcomers to radio to make friends and get used to talking on air. There is very little technical jargon on YL nets, and

plenty of chatting about kids and gardens, hobbies and holidays, so why not listen a few times and see if you would like to join in, you will be very welcome.

When you buy something from one of our advertisers, tell them you read about it in the WIA Amateur Radio Magazine.

AMSAT Australia

Bill Magnusson VK3JT*

Sunday Night Net

Please note that for the remainder of the summer daylight saving period the Sunday night net will be conducted at 0900 UTC with early check-ins at approx 0845 UTC. The frequency for this period will be 7.068 MHz +/- QRM.

Home Brewer's Corner

A couple of mentions this month. Ron VK4BRG registered his interest in the home brew segment. He is particularly interested in computer programs for designing printed circuit boards and the subsequent production of PCBs from these designs. Another Ron, VK6TF, has been in touch to say that he is making progress on the digital satellites. He is moving from the ubiquitous turnstile antennas towards a fully controllable az/el Yagi system. Ron brings out some interesting points. In his own words,

National co-ordinator
 Graham Ratcliff VK5AGR
 Packet: VK5AGR@VK5WI
AMSAT Australia net:
 Control station VK5AGR
 Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.
 Frequencies (again depending on propagation conditions):
 Primary 7.064 MHz. (usually during summer).
 Secondary 3.685 MHz. (usually during winter).
 Frequencies +/- for QRM.
AMSAT Australia newsletter and software service
 The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:
 AMSAT Australia
 GPO Box 2141
 Adelaide SA 5001

"Since I last wrote to you I have made quite a bit of progress towards operating reliably through the digital satellites. I have finished building a home-brew 17 element crossed Yagi for 435 MHz. I have started on an 8 element crossed Yagi for 145 MHz, but as a stop-gap measure I'm using a turnstile as the up link antenna. The Yagis sit at either end of an 8 ft cross boom and are fixed at 30 degrees to the horizon but capable of being rotated in a horizontal plane..... the 17 element aerial produces good, strong signals and appears to be working very well, at least for receiving..... I only have to turn the aerials about two or three times during an entire pass".

In the early days of OSCARs 6, 7 and 8, az/el systems were a luxury and computerised az/el was only a dream. At that time many people were using beams tilted up at about 30 degrees as a practical and inexpensive way of coping with the LEO satellites. The method seems to have slipped from the culture in recent years but, as Ron suggests, it works and is certainly worth considering if you don't want to go to the expense of a complete az/el system. Thanks to both Rons for their contributions this month.

Six Monthly Amateur Radio Satellite Frequency and Mode Update

Here is the latest update on the currently operational OSCARs. As this is a rather volatile area, I would appreciate any feedback about errors or omissions.

Satellite	Uplink (MHz)	Downlink (MHz)
OSCAR 10 (AO-10)		
General Beacon (Carrier only)		145.810
Engineering Beacon (irregular and garbled)		145.987
Mode B (SSB, CW-Inverting)	435.030-435.180	145.825-145.975
Note: AO-10 is out of control but it provides good communications via mode "B" when the batteries are fully charged. It looks like AO-10 is drifting back to a more favourable attitude. Occasionally signals have been as good as in the heady days when it was under control.		
OSCAR 11 UoSAT-2 (UO-11)		
Beacon (1200 AFSK, FM) telemetry only		145.826
Beacon (1200 AFSK, FM) telemetry only		435.025
Beacon (1200 AFSK, FM) carrier only		2401.500
Note: UO-11's 2401.5 MHz beacon is off at the time of writing but may be turned on again soon. When it is on there does not appear to be any modulation but the signal is very strong and is great for checking out "S" mode gear.		
Radio Sputnik 10 (RS-10)		
Mode A (SSB, CW-Inverting)	145.86-145.90	29.360-29.400
Beacon/Robot (CW)		29.357
Beacon/Robot (CW)		29.403
Robot Mode A (CW)	145.82	29.357 or 29.403
Mode K (SSB, CW-Inverting)	21.160-21.200	29.360-29.400
Beacon/Robot (CW)		29.357
Beacon/Robot (CW)		29.403
Robot Mode K (CW)	21.120	29.357 or 29.403
Mode T (SSB, CW-Inverting)	21.160-21.200	145.86-145.90
Beacon/Robot (CW)		145.857
Beacon/Robot (CW)		145.903
Robot Mode T (CW)	21.120	145.857 or 145.903
Radio Sputnik 11 (RS-11)		
Mode A (SSB, CW-Inverting)	145.91-145.95	29.410-29.450
Beacon/Robot (CW)		29.407

Satellite	Uplink (MHz)	Downlink (MHz)
Beacon/Robot (CW)		29.453
Robot Mode A (CW)	145.83	29.407 or 29.453
Mode K (SSB, CW-Inverting)	21.210-21.250	29.410-29.450
Beacon/Robot (CW)		29.407
Beacon/Robot (CW)		29.453
Robot Mode K (CW)	21.130	29.407 or 29.453
Mode T (SSB, CW-Inverting)	21.210-21.250	145.91-145.95
Beacon/Robot (CW)		145.907
Beacon/Robot (CW)		145.953
Robot Mode T (CW)	21.130	145.907 or 145.953
Radio Sputnik 12 (RS-12)		
Mode A (SSB, CW-Inverting)	145.91-145.95	29.410-29.450
Beacon/Robot (CW)		29.408
Beacon/Robot (CW)		29.454
Robot Mode A (CW)	145.831/840	29.408 or 29.454
Mode K (SSB, CW-Inverting)	21.210-21.250	29.410-29.450
Beacon/Robot (CW)		29.408
Beacon/Robot (CW)		29.454
Robot Mode K (CW)	21.129	29.408 or 29.454
Mode T (SSB, CW-Inverting)	21.210-21.250	145.910-145.950
Beacon/Robot (CW)		145.912
Beacon/Robot (CW)		145.959
Robot Mode T (CW)	21.129	145.912 or 145.959
Radio Sputnik 13 (RS-13)		
Mode A (SSB, CW-Inverting)	145.96-146.00	29.460-29.500
Beacon/Robot (CW)		29.458
Beacon/Robot (CW)		29.504
Robot Mode A (CW)	145.84	29.458 or 29.504
Mode K (SSB, CW-Inverting)	21.260-21.300	29.460-29.500
Beacon/Robot (CW)		29.458
Beacon/Robot (CW)		29.504
Robot Mode K (CW)	21.138	29.458 or 29.504
Mode T (SSB, CW-Inverting)	21.260-21.300	145.960-146.000
Beacon/Robot (CW)		145.862
Beacon/Robot (CW)		145.908
Robot Mode T (CW)	21.138	145.862 or 145.908

Satellite	Uplink (MHz)	Downlink (MHz)
AMSAT-OSCAR-13 (AO-13)		
General Beacon (400 BPSK,CW,50 Baud RTTY)		145.812
Engineering Beacon (PSK,CW,RTTY)		145.985
Mode B (SSB,CW-Inverting)	435.420-435.570	145.825-145.975
Mode S (SSB,CW,FM)	435.601-435.639	2400.711-2400.747
Beacon (PSK,RTTY) seldom turned on		2400.325
Beacon (PSK) ON 1st 2 MA counts of "S" time		2400.664
Note: Modes "L" and "J" are no longer operational on AO-13 due to the failure of the 70 cm transmitter.		
UoSAT-OSCAR-14 (UO-14) (UO-14 has been taken out of amateur service)		
AMSAT-OSCAR-16 (AO-16) Callsign = PACSAT		
Mode J (1200 BPSK)		
BBS,FM-SSB)	145.90/92/94/96	437.025 or 437.050
Mode S (1200 BPSK)		
BBS,FM-SSB)		2401.10 or 2401.1428
AMSAT-OSCAR-17 (DO-17) (Dove)		
Beacon 1 (1200 bps AFSK,Digital Voice,FM)		145.82516
Beacon 2 (1200 bps AFSK,Digital Voice,FM)		145.82438
Beacon 3 (1200 BFSK,Digital Voice,SSB)		2401.2205
Note: Dove's 2401.2205 MHz beacon has been switched on again. Signals are very strong. It is useful for checking out "S" mode gear.		
AMSAT-OSCAR-18 (WO-18) (Webersat)		
Mode J (1200 BPSK,RC,SSB)	144.30-144.50	437.075 or 437.10
ATV (TV,AM)	1265.000	
AMSAT-OSCAR-19 (LO-19) Callsign = LUSAT		
(1200 PSK,FM-SSB)	145.84/.86/.88/.90	437.15355 or 437.1258
FUJI-OSCAR-20 (JAS-1b) (FO-20) Callsign = 8J1JBS		
Beacon JA (CW,Analog)		435.795
Mode JA (SSB,CW)	145.90-146.00	435.80-435.90
Beacon JD (CW)		435.910
Mode JD (1200 BPSK,FM-SSB)	145.85/.87/.89/.91	435.910
OSCAR-21 (AO-21) , Radio Sputnik 14 (RS-14)		
Note: AO-21 is currently shut down. At the time of writing it is not known if it has failed or has been turned off permanently. The parent Russian satellite, INFORMATOR-1 has been de-commissioned.		
UoSAT-OSCAR-22 (UO-22) Callsign = UOSAT5		
Mode JD (9600 Baud FSK,FM)	145.90/.975	435.120
KITSAT-OSCAR-23 (KO-23) Callsign = HL01		
Mode JD (9600 Baud FSK,FM)	145.85/.90	435.175
KITSAT-OSCAR-25 (KO-25) Callsign = HL02		
Mode JD (9600 Baud FSK,FM)	145.980	436.500
ITAMSAT-OSCAR-26 (IO-26) Callsign = ITMSAT		
Mode JD 1200 baud PSK	145.875	435.867
	145.900	435.822
	145.925	
	145.950	
AMRAD-OSCAR-27 (AO-27) 145.850 436.800		
Note: AO-27 is operated as a commercial satellite (EYESat) during the week and is switched to amateur service at weekends. It is currently configured as an FM voice repeater and is switched on only over the northern hemisphere. It may soon be configured for digital mode. When that happens however, it will not respond to normal Pacsat software. It will require a TNC modification and normal communications software.		
POSAT-OSCAR-28 (PO-28) Callsign = POSAT1		
Mode JD 1200 baud FSK	145.925	435.250
	145.975	435.275
Note: PO-28 is another part time amateur radio satellite. Its scheduling is uncertain, as is the on-going availability to the amateur community.		

Thought for the month

Wherever you go, there you are! (I think I need a holiday).

*359 Williamstown Rd, Yarraville VIC 3013 Packet: VK3JT@VK3BBS

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On the move!

During 1994 I enjoyed seeing many of you in Perth, Mt. Gambier, Gosford and the Victorian Conventions. In 1995 I hope to spread my wings even further...

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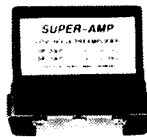
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SP-13

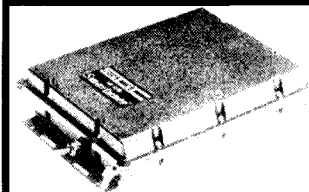
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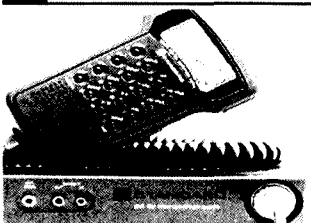
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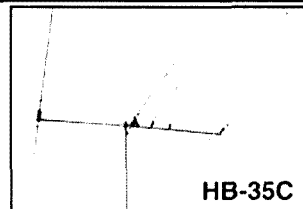
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- TE-34 3-ele beam on 14-21-28MHz, 1-ele on 7MHz.....\$695
- TE-44 4-ele beam on 14-21-28MHz, 1-ele on 7MHz.....\$870

SIX BAND BEAMS FOR 10-14-18-21-25-28 MHz BANDS

- TE-26 dual rotatable dipole.....\$380
- TE-46 3-ele beam on 14-21-28MHz, 1-ele on 10-18-25MHz.....\$750
- TE-56 3-ele beam on 14-21-28MHz, 2-ele on 10-18-25MHz.....\$950



EMTRONICS

SYDNEY & HEAD OFFICE
94 Wentworth Ave. SYDNEY 2000
Ph (02) 211 0988 Fax (02) 281 1508

VIC. Ph. (03)700 5428
QLD. Ph. (07) 394 2555

Awards

John Kelleher VK3DP — Federal Awards Manager*

In response to my suggestion that I would publish information on local awards, Rod Dunham VK4MFH has forwarded the following.

Worked Rockhampton Award

Eligibility: 3 contacts with a Rockhampton callsign (VK4WIR the Club callsign counts as 2 contacts).

Fee: \$5.00 for printing and mailing costs.

Post your log extract to The Awards Manager, CQ Branch, WIAQ, PO Box 496, Rockhampton Qld 4700.

Maybe this is a beginning for active Club Stations which supply awards.

Kuwait National and Liberation Day Award

On 25 and 26 February every year, the State of Kuwait celebrates its National and

Liberation Day. To mark this auspicious event, the Kuwait Amateur Radio Society is delighted to announce an international award.

The contest is open to both licensed radio amateurs and shortwave listeners, according to the following rules and regulations:

1. Contacts may be conducted on any band or mode.
2. The contest will start at 0000 UTC on 25 February every year, and will end at 2400 UTC on 26 February. The time could be extended to the end of February.
3. There will be two callsigns in use, 9K2RA/NLD and 9K2.../NLD (9K2RA is the Club Callsign).
4. To qualify for the award, the participant is required to secure at least 3 points by making:

(a) Two contacts with KARS station (9K2RA/NLD) and one contact with any other Kuwait amateur station the call letters of which are added to, for example, 9K2DR/NLD; or

(b) Three contacts with three different Kuwait amateur stations.

5. The participant must submit a certified copy of their log-book entries, along with a fee of five IRCs or \$US3.00.
6. There is no deadline for submitting applications, which should be addressed to The Award Manager, Kuwait Amateur Radio Society, PO Box 5240 Safat, 13053, Kuwait.

Vanuatu Award

The Vanuatu Amateur Radio Society (VARS) issues the Vanuatu Award for working at least six YJ8 stations who are members of VARS. Contacts made from 30 July 1980, Vanuatu Independence Day, are acceptable.

Contacts may be made by any mode. Endorsements for single band, single mode, or additional stations worked are available. Two contacts with any one YJ8 station will be accepted, provided that contacts are made on different days bands or modes.

Send a certified log extract and 10 IRCs or \$US2.00 to Awards Manager, VARS, PO Box 665, Port Vila, Vanuatu.

The Diploma RAEM

This award, in honour of E T Krenkel, polar explorer and first president of the RSF, is issued for confirmed contacts with Russian amateur stations operating beyond the north and south Polar Circles.

To obtain the diploma, 68 points are required. Each contact with RAEM counts 15 points. Each contact with stations in the Arctic and Antarctic counts 10 points. Each contact with stations in the Arctic Islands counts five points, and each QSO with stations beyond the North Polar Circle count two points. Points are doubled for contacts made by stations located in the Oceania region.

Valid QSOs must have been made since 24 December 1972, on any HF band, CW only!

Applications should be sent to Radio Sport Federation of Russia, PO Box 88 Moscow, along with a fee of one rouble (approx \$US3.00).

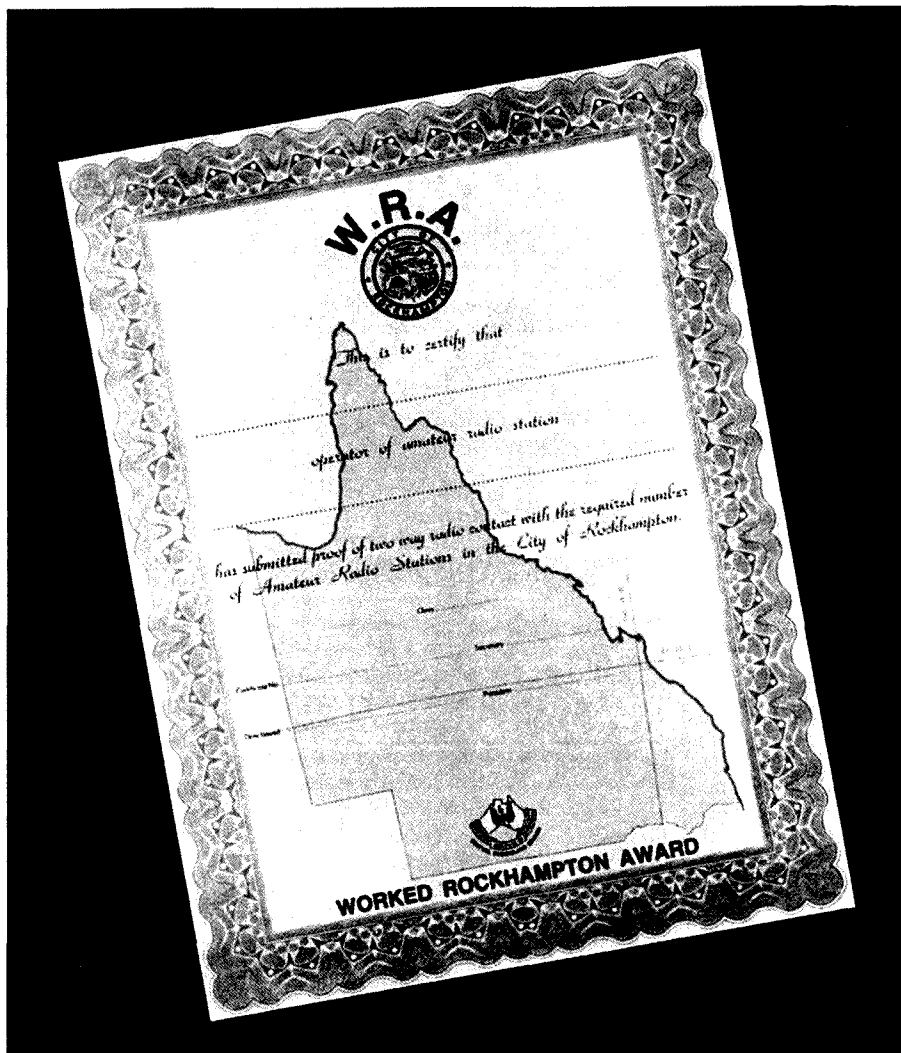
Suriname Award

The Vereniging van Radio Amateurs in Suriname (VRAS) issues one operating award for making two-way contacts with three PZ stations.

Certified log data and \$US5.00, for defrayment of postage and printing of the certificate, should be sent to VRAS, PO Box 1153 Paramaribo, Suriname.

*PO Box 2175 Caulfield Junction 3161

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Contests

Peter Nesbit VK3APN* Federal Contest Coordinator

Contest Calendar Jan — Mar 95

Dec 26-Jan 28	Ross Hull VHF/UHF Contest	(Nov 94)
Jan 1	ARRL Straight Key "Night"	(Dec 94)
Jan 7/8	ARRL RTTY Roundup	(Dec 94)
Jan 14/15	VHF/UHF Field Day	(Dec 94)
Jan 14/15	HA DX CW Contest	(Dec 94)
Jan 27/29	CQ WW 160 m DX Contest	(Dec 94)
Jan 28/29	UBA Belgium SSB DX Contest	(Dec 94)
Feb 11/12	PACC CW/SSB DX Contest	
Feb 11/12	Spanish RTTY Contest	
Feb 18/19	ARRL DX CW Contest	
Feb 24/26	CQ 160 Metre SSB Contest	
Feb 25/26	RSGB 7 MHz CW Contest	
Feb 25/26	UBA Belgium CW DX Contest	
Mar 4/5	ARRL DX SSB Contest	
Mar 11/12	BERU CW Contest	
Mar 18/19	WIA John Moyle Field Day	
Mar 18/19	Bermuda Contest	
Mar 18/19	BARTG RTTY Contest	
Mar 25/26	CQ WPX SSB Contest	

Looking through the results of overseas DX contests, one cannot help but be struck by high scores achieved by many overseas entrants. In the CQ-WW for instance, 40 m scores approaching a million are not uncommon, and on 80 m the best scores nudge half a million. How do they do it?

A clue is contained in a recent American magazine, about a US contester who set off for the Caribbean one particular contest, armed with a good rig and assorted antennas. Not surprisingly, he worked heaps, despite going barefoot and using fixed wire beams. His article concluded by saying that one didn't need high power or huge antennas to win a contest; the more cynical amongst us might say that an exotic callsign didn't hurt either!

Seriously though, the real message stems from the fact that, in the months leading up to the event, the contester performed research into the best sort of rig to take, and which antennas would be the most practical and versatile. He assembled some reliable ancillaries (headphones, computer etc), spent money on fares and accommodation, and arranged the necessary licence. During the event he operated according to a predetermined plan, and afterwards analysed his experiences and wrote them up in an article. Broadly speaking, he demonstrated a considerable degree of initiative, planning, self-organisation, and determination; and followed it up with a review of his efforts. The key words are *planning and commitment*.

How many times have we entered contests in a half baked manner? Perhaps

we stayed up too late the night beforehand, or maybe we got embroiled in household chores which caused us to miss the first hour, and become exhausted into the bargain. Perhaps we got distracted by something on TV, or through some ultimately futile attempt not to be nagged about contests, went through the motions of eating with the family before rushing back into the shack. And, who hasn't operated with a rig or antenna which wasn't up to scratch? We probably knew about it well in advance, but how many of us put off the necessary repairs until it was too late? What about those rush jobs where we were still soldering wires together an hour and a half into the contest?

I know there are some who seem to have it all together, but for the rest of us it's too easy to put in a 90% or 75% effort, instead of 110%. The net effect is encapsulated in the results: good score, but could have been better... So, we make all the right promises for the next year's event, then promptly forget them, and the cycle repeats itself a year later!

As I've said before, contesting is such a tough and time consuming activity, that we owe it to ourselves to put in our very best efforts. We need to emulate the US contester mentioned above, ie plan, prepare, commit, review, and improve. So, finish that linear, get those antennas up even higher, check out that contest logging program, and hunt down that local RFI. The effort will be well worth it!

Thanks to VK2BQS, VK6NK, PA3BFM, CQ, QST, and Radio Communications. Until next month, good contesting!

73, Peter VK3APN

UBA SSB/CW HF Contest

SSB: 1300z Sat to 1300z Sun, Jan 28-29
CW: 1300z Sat to 1300z Sun, Feb 25-26

This contest runs on the last full weekend of Jan and Feb each year (SSB & CW respectively). Any station may work any other worldwide. Categories are: single operator (single & all band); multioperator single transmitter; QRP max 10 W O/P; SWL. Frequencies: CW 3500-3560, 7000-7035, 14000-14060, 21000-21060, 28000-28060; SSB 3600-3650, 3700-3800, 7040-7100, 14125-14300, 21175-21350, 28400-28700.

Exchange RS(T) plus serial number. Belgian stations will add their province code. Score 10 points for contacts with Belgian stations, 3 points with other European stations, and 1 point with others. The multiplier is the total of Belgian provinces, Belgian prefixes, and European countries. Total score is QSO points times multiplier. Send log, summary sheet, declaration etc. within 30 days to: UBA HF Contest, Oude Gendarmeriestraat 62, B-2220 Heist Op Den Berg, Belgium. Logs on disk in K1EA or ASCII format also welcome.

PACC CW/SSB DX Contest

1200z Sat to 1200z Sun, Feb 11-12

The PACC is another popular European contest, with phone and CW held on the same weekend. The object is to work as many Dutch stations as possible on 160 to 10 m, excluding the "WARC" bands. Categories are single and multi-operator; SWL. Only CW contacts are eligible on 160 m. Stations may be worked only once per band, regardless of mode.

Exchange RS(T) plus serial number; Dutch stations will RS(T) plus a 2 letter province code. Possible codes are: DR FR GD GR LB NB NH OV UT FL ZH ZL. Score 1 point per Dutch QSO. Final score equals the total QSO points times the total Dutch provinces worked from each band (max 72). Mail logs by 31 March to Frank E van Dijk PA3BFM, Middellaan 24, NL-3721 PH Bilthoven, The Netherlands. Certificates will be awarded to the top scoring stations in each category and country, including second and third places where justified.

Spanish RTTY Contest

1600z Sat to 1600z Sun, 11/12 Feb

The object is to contact as many stations worldwide as possible, on RTTY, 80 to 10 m. Categories are single operator (single/multiband); multioperator single transmitter; SWL.

Exchange signal report and CQ zone. Spanish stations will send signal report and province. On 10/20 m score one point per QSO with stations inside your WAC

continent, and two points with stations outside your WAC continent. On 40 and 80 m, the QSO points are tripled. QSOs between stations in the same country can be claimed for multiplier credit, but not QSO points. The multiplier is the sum of the DXCC countries and Spanish provinces (max 52) per band. The final score is the total QSO points times the multiplier.

Send log, summary and declaration by 8 April to: EA RTTY Contest, c/o EA1MV Antonio Alcolado, PO Box 240, 09400 Aranda de Duero (Burgos), Spain.

ARRL DX Contest

CW: 0000z Sat to 2400z Sun, Feb 18-19
SSB: 0000z Sat to 2400z Sun, Mar 4-5

There is always plenty of activity in this popular contest. The CW section runs on the third full weekend in February each year, and the phone section on the first full weekend in March. The object is to work as many WVE amateurs as possible on 1.8-30 MHz. Categories are single operator (single band, all band, all band QRP max 5 W O/P, and all band assisted); Multioperator (single Tx, two Txs, and

unlimited). In the single and 2 Tx categories, once a transmitter has begun operation on a band it must remain on that band for at least 10 minutes. Listening time counts as operating time.

Exchange RS(T) and a 3 digit number indicating approx output power. WVE stations will send RS(T) and state/province. Score 3 points per WVE QSO. The multiplier is the sum of US states and District of Columbia (DC) (except KH6/KL7), NB (VE1), NS (VE1), PEI (VE1 or VY2), PQ (VE2), ON (VE3), MB (VE4), SK (VE5), AB (VE6), BC (VE7), NWT (VE8), YUK (VY1), NF (VO1), and LAB (VO2) worked to a maximum of 63 per band. The final score equals the total QSO points times the multiplier.

Entries with more than 500 QSOs must include crosscheck (dupe) sheets. Logs on DOS disk are welcome in lieu of a paper log, providing a paper summary sheet showing usual info is included. Multioperator entries must list all operators. Entries must be postmarked by 5 April 1995 or they will be classed as check logs (no exceptions)! Mark the envelope CW or Phone, and send the log

to: "ARRL Contest Branch, 225 Main Street, Newington, CT 06111, USA". Certificates will be awarded to the top scoring stations in each country and category, and plaques to the top worldwide and continental stations.

RSGB 7 MHz CW Contest

1500z Sat to 0900z Sun, Feb 25-26 1995.

The object of this contest is to contact as many British Isles stations as possible on 40 m CW. Exchange RST plus serial number starting at 001; UK stations will add their county code (see this column Sept 93 for list). Oceania stations score 30 points per QSO, and the final score is the total QSO points times the number of UK counties worked. Include a summary sheet showing all standard details, plus a checklist if more than 80 QSOs are made. Send logs to arrive by 17 April 1995 to "RSGB HF Contests Committee, c/o S. V. Knowles G3UFY, 77 Bensham Manor Road, Thornton Heath, Surrey, CR7 7AF, England". Airmail is recommended, as late logs may be treated as check logs. Certificates will be awarded to the leading entrants in each overseas section.

Results of 1994 7 MHz RSGB Contest

(Call/QSOs/Mult/Score)
VK6VZ 32 19 16910
VK3APN 21 14 8820

Results of 1994 West Australian SSB & CW Contests

Presented by Cliff, VK6NK

CW:

1	VK6BN	1890
2	VK6AFW	1248
3	VK6HQ	1104
4	VK6AR	864
5	VK5UE	370
6	VK3XB	288
7	VK3APN	240

SSB:

1	VK6BN	12972
2	VK6HQ	9728
3	VK6AFW	5760
4	VK6RG	4440
5	VK6AR	3136
6	VK5BKM	2376
7	VK6CSW	1220
8	ZL1BVK	840
9	VK5PMC	570
10	VK5UE	108
11	VK4OD	96

Results of 1994 ANARTS World Wide RTTY Contest

Presented by Jim, VK2BQS

Overall, the decline in the sunspot cycle is reflected in entrant's scores, very few of whom improved over last year. Those who did appeared to have worked longer hours (and maybe harder, hi).

WIA News

Cable Pay TV and Interference

Cable-delivered Pay TV poses a possible threat to amateur radio operations, the WIA Federal Council learned from a report written by Federal Technical Advisory Committee Coordinator, John Martin VK3KWA, which was considered at the Council's October quarterly meeting.

Frequencies to be used by the proposed cable system range from low VHF through to UHF, with a "return" channel in the HF spectrum (Pay TV is interactive, or two-way). The greatest potential for two-way interference between Pay TV installations and amateur radio, apparently, involves the household feed points.

The cables themselves are understood to pose less of a threat, with today's standards. Horror stories from the United States and Canada abound, where "cheap" cable installations caused particular problems for amateurs.

Legislation excludes the

Spectrum Management Agency from administering Pay TV matters; that's the province of Austel, apparently. Standards Australia standards will likely cover the appropriate equipment and installation environment, along with electromagnetic compatibility.

However, cable-delivered Pay TV was thrown into some doubt in November following an announcement by the Communications Minister, Michael Lee, that the government would not allow Optus Vision to hold a monopoly on its proposed cable system.

Optus Vision planned to sling cables between electricity poles in the street, with a target of reaching one million homes by 1996 and more than three million by 1998. Optus has scuttled the plan following Minister Lee's announcement.

The WIA is monitoring the situation, particularly with regard to Austel's involvement and developments with Standards Australia.

There probably won't be any significant improvements until the 1997 contest, although maybe the "dead low" might be shorter this cycle.

It was good to see many old friends participating despite the difficulties, and in particular I draw the attention of all to the presence of Syd, VK2SG. Despite the poor health which he has suffered for quite some time now, he managed to operate the keys and submit an entry. We all appreciated your efforts Syd, well done.

Many entrants commented about the lack of VKs in the contest (although 18 were logged this year, 50% more than last year). Also, many promised to be with us again next year. Examples follow:

"A lot of QRN and somebody stole 10 m, only 2 QSOs" (SV2BFN); "Tnx fine contest, condx not so good but see you next year" (JR5JAQ); "Maybe next year the bands will be better" (VE7SAY); "Pleased to work at least one VK, I hope to improve on antennas for next year" (GW4KHQ); "I did not operate for long as I was putting up a tower and beam" (VK6GOM); "cu in ANARTS 1995" (SP6CYV); "Poor condx here again. Heard no JAs, only one African, and even USA was scarce!" (W9FFQ).

There were many requests for scoring sheets and points tables, which will not be answered individually, as copies automatically go to all participants. However, as well as keeping these for your own use next year, we would be pleased if you could initiate copies to go to your local club.

Thanks for your efforts, and 73 to all from the President and Committee of ANARTS. The following results show in order: Call, Score, QSOs, Multiplier, Countries, VK Bonus. The World Plaque winners are shown by an asterisk (*).

Single Operator:

VK2KM	*3,765,325	212	95	5	n/a
SV2BFN	1,987,530	225	97	6	1000
JR5JAQ	1,802,920	171	80	6	1000
UA4LCQ	1,009,704	188	87	6	1200
VE7SAY	734,888	173	56	6	1400
IV3FSG	420,500	107	50	6	200
GW4KHQ	313,790	110	59	6	500
W2KHQ	285,302	87	47	6	200
JH7QXJ	276,620	63	41	5	1100
ZL2JON	190,920	54	30	4	3600
ZA1AJ	188,160	153	49	4	0
4X6UO	187,840	106	42	5	100
ZL1SY	158,080	56	20	4	400
CP1FF	145,040	49	28	5	0
OM3ZJW	119,000	73	41	4	100
YL2KF	113,920	68	44	3	400
VK2CTD	108,368	46	26	4	n/a
SP3EJJ	102,050	50	37	5	300
VK2BQS	97,824	39	24	4	n/a
DJ2YE	68,150	49	29	5	100
VK6GOM	64,892	38	24	3	n/a

SP9LKS	59,900	38	30	5	200
SP6CYV	56,520	41	31	5	100
W9FFQ	52,268	53	28	4	300
JM1NKT	39,152	25	22	4	1400
JA3BSH	38,000	25	21	4	200
W6/G0AZT	38,000	52	21	3	200
VE6JAV	35,260	32	19	5	300
VP9MZ	27,612	38	19	4	100
W2JGR/O	21,530	40	18	3	200
YU7AE	16,500	43	25	3	0
DL7VOG	10,850	33	25	2	0
AB5KD	10,620	31	20	3	0
VK8BE	7,829	14	9	3	n/a
N2CQ	6,720	42	15	2	0
VK2SG	6,447	11	7	3	n/a
DF5BX	6,240	23	20	2	0

YO3FRI	2,596	17	11	2	0
OH6UP	1,818	13	9	2	0
N2ALE/6	252	3	3	20	
JJ8DEN/1	60	3	3	1	0

Check logs: SM6APB WA0ACI

Multioperator:

VE3FJB	*441,965	168	49	5	1700
LY1BZB	57,728	78	41	4	0

SWL:

ONL383	*260,790	136	59	6	600
ONL4335	118,550	66	46	5	100
ONL3997	47,244	62	32	4	0
DE0GMH	8,304	34	24	2	0

*C/o PO Box 2175, Caulfield Junction VIC 3161

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Divisional Notes

VK2 Notes

Richard Murnane VK2SKY

Since the re-formation of the broadcast team in recent weeks, we've been working to improve the content of the Division's weekly news bulletin. A number of popular features have been reinstated, such as magazine technical highlights, and communications news from the mainstream media. The popular tape segments from Tim Mills VK2ZTM returned, and we are continuing Winston Muscio's series on Australian Radio History (so far we've had only one complaint!).

The recurrent legal and defamation news items of the past have mostly been dropped (though the recent High Court decision to nullify the more draconian aspects of our state's defamation laws is most welcome; hopefully, we will once again be able to express our views on air without having to consult our solicitors first!).

The Division welcomes submissions and clippings from amateurs and SWLs, as well as further suggestions for improving the content of the Division's weekly broadcast.

Repairs and renovations to the Dural transmitting facility are continuing. Dural Officer, David Horsfall VK2KFU/VK2ZTB has brought the station back to where it was before it was vandalised nearly a year ago. We've even had good signal reports from VK3 stations, who lamented recently that the recent high winds had taken out the antennas at the VK3 Divisional station in Melbourne.

However, we didn't escape completely in VK2. High winds took out power lines at Dural, restricting the evening broadcast of 20 November to what could be done on battery power. Plans are being laid to cope with such outages more effectively

in the future! The same high winds brought a large branch down on the 160 metre dipole, altering its radiation characteristics somewhat.

Many Hands Make Light Work

If you're short of ideas for New Year's resolutions, how about resolving to lend some of your spare time to your Division? There are many jobs that need to be done to get the Division back on its feet, administrative, technical and organisational. If you can "donate" even just a few hours of your time, we can find something useful you can do with it.

How do you know if you have time to spare? One way, according to American motivational speaker Anthony Robbins, is to look at your television set; if it's switched on, then you have spare time going to waste. Think about it.

The Season of Good Will

By the time you read this, Christmas will have come and gone. Those of us from the northern hemisphere still find it strange not to be huddled around a fire at this time of the year. In Australia, of course, the fires are much more likely to be huddling around us! Please make sure that your equipment is in full working order in case the emergency services need to call on us for assistance again (don't forget those spare batteries!). Talk to local WICEN members if you need a few ideas.

Finally, let's also remember that this is traditionally the season for good will (if only it lasted all year 'round!). Enjoy the holidays, stay safe, and let's make 1995 the year we get back to *communicating!*

Thought for the Month

If you can lead a horse to water, and make it drink, then it's not a horse.

VK6 Notes

Peter Parker VK6BWI

Hamfest Hailed as Great Success

It was good to meet so many of you at November's NCRG Hamfest. Over 500 people attended and the 30 exhibitors present made it one of the biggest ever held. The choice of an air conditioned hall was a wise one as temperatures outside approached the old century.

The winners of the Homebrew contest were:

- First: VK6BHT for his 10 GHz SSB transceiver;
Second: VK6UE for his HF linear amplifier; and
Third: VK6KAR for an 80 m direct conversion receiver.

The door prize was won by Derrick Congdon, while the raffle winners were Brian VK6YBR, Gerald VK6KTN, Tim VK6ZW, Joe VK6BFI and Peter VK6JZA.

Thanks to all those who donated prizes. Highlights included the display of computer generated slow scan television, the car park market, the WIA Bookshop, antique radios, and numerous commercial vendors. Unusual homebrew equipment, such as a 160 m DSB hand held transceiver, a 40 m FM rig, a direct conversion single signal 80 m SSB receiver, a six metre transceiver based on a car radio, and a two metre FM receiver made from an unmodified AM car radio were all on show at the QRP Club's stall.

An innovation this year was the distribution of free "poster projects" containing all the information required to build a simple receiving package for either HF or two metres based on an AM car radio, presented on a single, easy to follow, A3 sheet. Such material proved popular with potential amateurs. If you want one, I still have a few left at the time of writing (mid-November).

VHF Group to Hold its First Meeting for 1995

If you have an interest in microwaves, satellites or VHF operating, you are urged to attend the meeting of the WA VHF Group on Monday, 23 January. The meeting commences at 7.30 pm and the venue is the Wireless Hill Meeting Room in Ardross. You will meet other experimenters who share your interests in the frequencies above 30 MHz.

Meetings, held on the fourth Monday of every month, sometimes include a guest speaker. A junk sale is held in the middle of the year. Members receive a bi-monthly newsletter produced by the group. If you live in the metropolitan area, annual subscriptions are \$17.00, but country

amateurs need only pay \$15.00. You may direct any enquiries to Terry Leitch VK6ZLT, or write to the group at PO Box 189, Applecross, WA 6153.

Tune to 144.460, 432.460 and 1296.460 MHz to hear the Group's beacons. In addition, a 10 GHz beacon is operational. The beacon on 50.066 is now operating after a break of several months off air. These beacons can be useful when working on equipment or experimenting with antennas.

VK6s Urged to Support VHF/UHF Field Day

Portable and home stations are encouraged to participate in this year's VHF/UHF Field Day, to be held on 14 to 15 January. Last year, activity in Western Australia was comparatively high and this year promises to be even better. A VHF hand held or mobile transceiver, plus a small Yagi or vertical, will provide worthwhile results from your nearest hill and you need not operate over the entire contest period because a six hour period exists for busy amateurs. I would recommend you monitor the following frequencies: SSB — 50.150, 144.100 and 432.100 MHz; FM — 146.500 and 439.000 MHz. The rules were published in last month's *Amateur Radio* magazine.

Help Yourself to a Better WIA

All those who desire to raise the status of amateur radio in Western Australia are urged to nominate for the WIA VK6 Council in time for the April Annual General Meeting. As a Councillor, you get a say in how this Division can best serve its members and advance our hobby. While 1994 was a year of steady progress for the Division, your involvement would make 1995 even better. Do yourself a favour and make 1995 the year you get elected to Council.

"QRM" — News from the Tasmanian Division

Robin L. Harwood VK7RH

1995 is here and, coincidentally, the centenary of the first wireless message sent by Guglielmo Marconi. I'm sure that we will hear more about this event later on in the year.

On 19 November, Divisional Council met at the Domain Centre. In attendance were VK7GL, VK7EB, VK7PU, VK7WR, VK7JK, VK7FJ, VK7AX and VK7RH. There were two visitors, VK7PP and VK7RO.

What do we do with unclaimed QSL cards, particularly from non-members? What is the legal position regarding this as it is an offence to destroy mail? Council has referred this to the Hon Solicitor for his comments. In the meantime, it would help if you could contact VK7PP at the

QSL Bureau (GPO Box 371D) if you wish for your cards to be promptly forwarded or do not wish to receive any at all. This will assist his job substantially. Also a SASE would help.

VK7JK reported it is hoped that future Sunday morning VK7WI relays on 80 and 40 metres would rotate between the north and south to allow better coverage whilst the propagation is currently low. By placing the 80 metre relays in the north, it could make it easier for regions who are currently missing out due to propagation. Also we would like to hear feedback from those stations who are currently relaying VK7WI as to the numbers checking in on the callback.

Subscriptions will remain as they are now over the next 12 months but will again be reviewed later in the year.

The possibility of a State EMC coordinator was canvassed and will be referred to the next AGM which will be held on Saturday, 25 March at the Domain Activity Centre. Please note that all reports from the Branches should be in by 8 February and include the signature of the President, Secretary and Treasurer plus a signed Auditor's Statement.

Whilst in Hobart, I was quite amazed to see on a spectrum analyser, the devastation being wrought by the ever-increasing number of pagers operating so

A. J & J COMAN ANTENNAS

Dual band Co/linear 2M&70cm	\$ 95
2M co/linear 2 5/8	\$ 93
12 ele 2M	\$123
6 M J-pole	\$109
6 M co/lin 6 dbd rad 4.NEW	\$150
6 ele 6 M	\$196
Duo 10-15 M	\$265
3 ele 15 M	\$190
3 ele 20 M	\$298
20 m log-yag array 11.5 dbd	\$685
M B Vert NO TRAPS 10-80 M	\$255
Tri band beam HB 35 C 5 ele	\$675
40 M linear loaded 2 ele	\$484
13-30 M logperiodic 12 ele	
all stainless/steel fittings	\$885
70 cm beam 12 ele bal/Feed	\$102
23 cm slot fed 36 ele brass cons	
s/solder-assembled. 18 dbd	\$170
80 m top load/cap/hat vert.	\$260
3 ele 40m l/cap hats 60mm boom	\$785
2 m 144.190 2.2 wavelength boom	\$145

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close to our two metre allocation. It is rapidly getting to the stage where operations within metropolitan areas are marginal. Repeater 7000 on Mt Wellington VK7RHT is difficult to access, even within Hobart at times. Why? Because many pager transmitters are co-sited on Mt Wellington. My spies also inform me that pager interference is much worse in the Melbourne CBD.

This month is rather quiet on the meeting front. However, there will be plenty of activity on the bands, so if you hear an interstate visitor or somebody from out of town calling on the repeater, give them a call and make them welcome to your area.

The weekly VK7WI broadcast will continue but the VK7NB weekly Wednesday broadcasts will take a break till the end of January.

VK7 Divisional 1994 Annual General Meeting

Would all members please note that the Annual General Meeting of the Division will be held at the Southern Branch Activity Centre, Queen's Domain, Hobart on 25 March 1995, commencing at 1400 hours.

All notices of motion for the AGM must be received by the Secretary not less than 28 days prior to the meeting, and must be signed by at least three currently financial members. Nominations of candidates for election to the Divisional Council must be received by the Secretary, in writing, not less than 21 days before the AGM.

Not less than 10 days before the AGM, should an election be necessary, a ballot paper will be posted to each member of the Institute, which is to be returned to the Secretary, prior to the commencement of the AGM.

Proxies are to be deposited at the registered office of the Institute, Town Hall, Macquarie Street, Hobart 7000 at least 24 hours before the time appointed for the meeting. All of the above is in accordance with the Articles of Association.

Dates To Remember

- | | |
|------------|---|
| 25 January | 11 am Domain Activity Centre — Divisional Council Meeting |
| 1 February | 8 pm Southern Branch AGM — Domain Activity Centre |
| 8 February | 7.30 pm Northern Branch AGM — Room 17 Block "C" Level 3 — Alanvale campus of Launceston TAFE. |
| 25 March | 2 pm Domain Activity Centre — Tasmanian Divisional AGM. |

Next month's column will be compiled by Ted VK7EB.

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FTAC Notes

*John Martin VK3KWA, Chairman, Federal Technical Advisory Committee**

New 10 GHz World Record — VK2ALU to WA7CJO

Lyle Patison VK2ALU has resumed EME experiments after an absence of some years. On 9 October 1994 he made a 10 GHz EME contact with Jim Vogler WA7CJO in Phoenix, Arizona.

Lyle's equipment included a G3WDG HEMT preamp, a WB5LUA preamp, and G3WDG/G4DDK modules. Power output was 16 watts from a Siemens travelling wave tube and the antenna was a 1.75 metre horn fed dish.

Jim's equipment was a homebrew transverter with a 300 watt TWT and a 4.8 metre dish, representing an ERP of about 30 megawatts (I wonder how much bird life there is in his area). This was the first known 10 GHz EME contact involving an Australian station, and also appears to be the first EME contact on any SHF band by a station in the southern hemisphere. The calculated terrestrial distance is 12601.3 km.

This contact is obviously an Australian record but it also appears to be a new world record as well. Not bad for a first attempt! Congratulations to all of those involved.

Packet Radio Band Plan Proposal

The South Australian Technical Advisory Committee has proposed four extra two metre packet channels: 144.625, 144.650, 144.675 and 147.550 MHz. They have also proposed extra packet channels at 434 MHz and the allocation of three 70 cm repeater pairs for regenerative repeaters.

FTAC supports the 70 cm proposal but for two metres it is suggested that the space below 144.700 be kept clear for future use by linear translators and that the packet segment be expanded to 144.700-145.200 MHz instead.

Full details of these proposals have been circulated to all Divisions for distribution within each state, and copies can be obtained via the WIA Federal Office by asking for FTAC papers F94/1102 and F94/1103.

10 Metre Band Plan

With the introduction of our new licence conditions in the near future, Intermediate (Combined) licensees will have use of the whole 10 metre band, and Limited licensees will have use of 29.0-29.7 MHz. The band plan needs to be reviewed to provide for the increased activity.

Two band segments are fixed already. The satellite band at 29.3-29.5 MHz is a "no transmit" zone. The other is the international FM segment at 29.5-29.7 MHz, including four repeater channels and a simplex calling frequency on 29.6 MHz. Local FM operation, as well as an SSB/CW segment, will have to fit below 29.3 MHz.

I would suggest that we use 29.0-29.2 MHz as our local FM segment. Following overseas practice, the FM channels would be at 20 kHz intervals from 29.02 to 29.18 MHz. The SSB/CW segment for use by Limited licensees could then be at 29.2-29.3 MHz, alongside the satellite band. A 6 metre liaison frequency of 29.285 MHz is also suggested.

Any comments on this proposal would be appreciated. Further details are in the paper F94/1113 which can be obtained from the WIA federal office.

Beacons

Some changes and additions to the beacon list, which were not to hand when the new Call Book went to press:- The Townsville beacon VK4RTL is now on 50.087 MHz only. The Gunnedah 6 metre beacon VK2RGB is QRT. Proposed new 6 metre beacons are VK9RNI Norfolk Island on 50.005 and VK0IX on 50.199 MHz. The 1296 MHz beacon VK3RXX should be operational soon. There are plans to move the 432 MHz beacon VK3RAI to a new frequency and relocate it at Mt Hotham in northeast Victoria. New beacons on bands up to 1296 MHz have been proposed for Townsville and a site in eastern Victoria.

**PO Box 2175, Caulfield Junction, VIC 3161*

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**Help stamp out stolen equipment
— always include the serial
number of your equipment in
your Hamad.**

How's DX

Stephen Pall VK2PS*

A survey is conducted each year by the "DX Magazine" among its subscribers about the most wanted DXCC country of the year. The 1994 survey indicated that the most wanted country was A5 Bhutan. Nearly two thirds of the 3000+ DXers who responded to the survey reported needing a contact with this mountainous country. Here is the list of the rest of the fifteen most wanted countries. Second is VU4 Andaman Island, then 5A Libya. VK0 Heard Island is fourth on the list, followed by 70 Yemen, 3V Tunisia, FR/T Tromelin, XZ Myanmar and VU7 Laccadive Islands. VK0 Macquarie Island is number ten on the most wanted list. Number eleven is ZL8 Kermadec Island, then SV/A Mount Athos, FR/6 Glorioso Island, 3Y Bouvet, and the fifteenth most wanted country is E3 Eritrea.

What are the chances of some activity in 1995 from any of the above DXCC countries? The answer is, not very good. To be able to operate from Andaman Islands one has to have a special licence from the Indian PTT officials. This is inexplicably very difficult to obtain. Indian DXers have been working on this project for many years, so far without result. The Libyan political system is not helpful in supporting an amateur radio DX operation.

Heard Island is a protected wildlife territory, maximum transmitting power is restricted and the logistics of transport and money require a very big effort.

Yemen is accessible but present politics and the recent civil war make a future operation unlikely. Tunisia also has political problems and the military must approve any amateur activity. The recent Japanese operation with the callsign 3V8BB might alter the ranking of this DXCC country, at least among Japanese DXers.

Tromelin and Glorioso operations are sporadic, depending on the needs of the French Meteorological authorities on Reunion Island. Myanmar, formerly Burma, has just had a demonstration of amateur radio, with some helpful signs for the future. Macquarie Island, Kermadec Island and the Laccadives are wildlife refuges and scientific study stations; access for amateurs is not allowed or very much restricted.

Despite all this, one must not give up hope. Maybe, somewhere, somebody is already working in great secret on organising a DXpedition to one of the "top fifteen" countries?

May all your DX wishes be fulfilled in 1995. Happy New Year and good DXing to all of you.

Bhutan A5

The expected activity by Jim VK9NS and Kan JA1BK from Bhutan in the early part of November 1994 resulted in 27 QSOs. Jim sent a long press release to the DX outlets in mid-November

explaining the present position of amateur radio in Bhutan. Here are a few details.

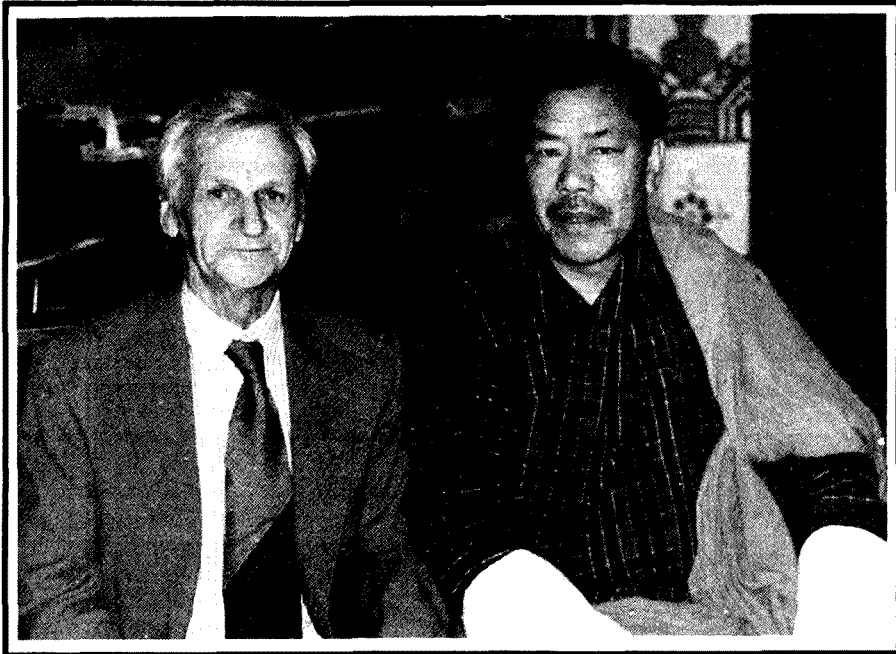
"A51MOC appeared briefly on 3 November on 14195 kHz SSB around 0400 UTC. This was a demonstration of amateur radio permitted by the Bhutan Ministry of Communications (MOC) on a short term basis only. We were given office space in the Ministry building and Kan and myself, with the assistance of several Bhutanese Ministry staff, had the station set up for the scheduled 10 am start with a few minutes to spare. The equipment was a Kenwood TS950 with external switched mode power supply, a Yaesu FL2100Z linear amplifier (donated to MOC in 1991) and many metres of coax to reach the Cushcraft R5 vertical. The antenna was assembled by Kan and we placed it well away from the building in what seemed to be quite a good position. Just when everything was finally together about ten minutes before the start time, we struck problems. High SWR on all bands. Phub (a Bhutanese technician) and myself went hunting with a meter and quickly found that one of the three sections of the coax was faulty with open circuit braid. Luckily we had a spare section and a few minutes later we were in business. The 27 contacts were made with JA stations. The Bhutanese operators were used to make several of the QSOs, guided by Kan and myself. It was wonderful to see and hear these QSOs and a good, but nervous time, was had by them both.

Has anything been achieved? This was never a DXpedition in the first place but it was an extension of the previous years of work. Looking at things in another way, this was A51MOC active from the Ministry of Communications building with dozens of Bhutanese looking on. We had our official visit from the Minister and a couple of questions addressed to me as Kan was operating. There were the usual photographs, and so on. We had no choice of the time to start operating and we all know that 10 am is not the best time to be on 20 metres."

Jim continues, "Let me now give you, the DXer, the negative side. There are now some 400 applications or letters on the MOC files, all with the same plea, "please can I come to Bhutan to operate amateur radio?"

Rather difficult to action, when we all know that Bhutan is not on the air. Foreigner before Bhutanese? I think not. There are at least four or five "major, well known DXers" involved in beating their own path to Bhutan."

Further on Jim says, "Most of these (letters) are sent with little or no interest in the broader picture (of establishing the amateur radio service in Bhutan). The Ministry of Communications is absolutely



Jim VK9NS with the Minister of Communications in Thimphu, Bhutan.

not interested that Bhutan is high on the DXers wanted list. I hope to travel to Bhutan again fairly soon, but HIDXA will make no previous announcements as to arrival time and so on."

Above is, in essence, what Jim said. The future of the amateur radio service in Bhutan is a very delicate issue. It is governed by the difficulties of a nation emerging from the "restricted" past, rich in culture, religion and national traditional systems, and the transition into a future of a totally open society with all the benefits of modern communications and ruling systems, but also with the negative side of the so called "modern culture" which the Bhutanese, understandably, do not desire to acquire.

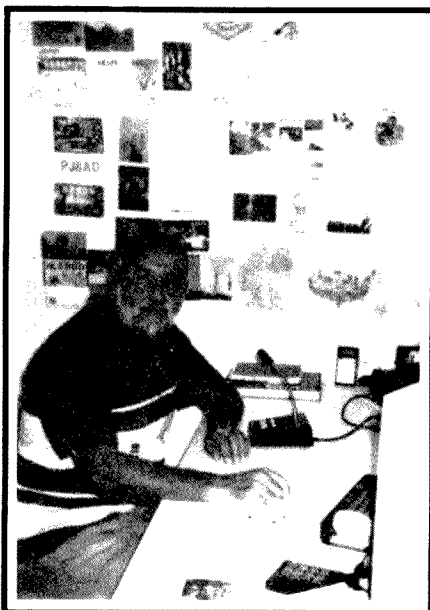
Amateur Radio in Taiwan and China

Fred K3ZO, on his recent visit to the Far East, attended the IARU Region 3 Conference in Singapore. His impressions about the status of amateur radio in Taiwan and China were published on Internet, and make interesting reading.

The delegates of CTARL, the Taiwan National Radio Society, handed out a sheet of calls indicating that as from 31 August 1994, there were 1534 licensed amateur stations in Taiwan. There is only one class of licence so all of these stations have permission to operate on all the HF bands. There is some talk of adopting a codeless VHF class of licence, if only to try to attract some of the 200,000 pirate VHF operators in Taiwan into amateur radio. The delegate from China's CRSA, BZ1HAM, told me that China had been reserving the BW prefix for foreign reciprocal operators but, if Taiwan manages to get all of these pirate operators into ham radio, Taiwan would run out of BV calls and might have to use BW as an overflow prefix. The Taiwanese delegates indicated that Taiwan has also begun to issue Club station licences. CTARL's club station is BV5Y, and regional branches of the club have station calls BV2YA, BV4YA, BV7YA and BV8YA so, evidently, the suffixes beginning with Y are reserved for club stations.

They also handed out a map indicating that BO is a prefix for some Taiwanese islands, and described the BOOK operation on Kinmen island and the BOOM operation on Matsu Island. There are two permanent amateurs on Kinmen Island, BO2AA and BO2AB. Penhu Islands were recently changed from the BV7 area to the designator BV9A, and so the two permanent amateurs on these islands are now BV9AA and BV9AB.

BV9A is just off the south west coast of Taiwan. In addition to this, other islands indicated as having BV9 designators are:



Frank 5NOBHF in Nigeria.

BV9W Peng-Chia Yu, BV9M Mien Hua Yu, BV9H Hua-Ping Yu, BV9C Chi-Lung Yu, BV9K Kuei-Sha Dao, BV9G Lu Dao, BV9L Liu-Chiu Yu, BV9P Pratas, BV9S Spratly, and BV9U Chiu Dao. Of course the Taiwanese have asked that Pratas be designated as a new country and Spratly already counts as separate from Taiwan. The other islands are too close to Taiwan to qualify under anyone's definition as new countries, but will no doubt eventually get IOTA designators. BV9AA is ex-BV7ER and BV9AB is ex-BV7BQ.

This December, for the first time ever, the Taiwan authorities held the amateur radio examination away from Taipei in Kaoshiung, BV7-land.

The delegate of the Chinese Radio Sports Association, BZ1HAM, submitted a document which gives the prefix line-up in China as follows:

B VHF/UHF stations and contest stations on the mainland

BA Class 1 individual home stations,

BD Class 2 individual home stations,

BG Class 3 individual home stations

BG Jin Men (Quemoy) area of Taiwan

BR Repeaters

BS0H Huang Yan Dao (Scarborough Reef)

BT Special events station

BV Taiwan

BV9P Dong Sha Dao (Pratas)

BY Club stations

BZ Personal calls of club station operators, to be used at club stations only.

There are now 33 old timers who have been issued permission to operate from their homes with the BA prefix.

On 17 July China conducted an examination in 28 cities for the class 3 individual home station licence. About

1400 people took the examination, about 1000 of whom are expected to pass. The main problem for most of these amateurs will be obtaining equipment. Imported ham gear is too expensive for most of their pocket books and ham gear is not yet made in China, though, if there is a big enough market in the future, that might happen.

As of June 1994 there were 99 Club stations (BY) in China. About 200 amateurs currently hold the BZ prefix call sign enabling them to use personal calls when operating from Club stations.

Almost Lost at Sea — XF4M

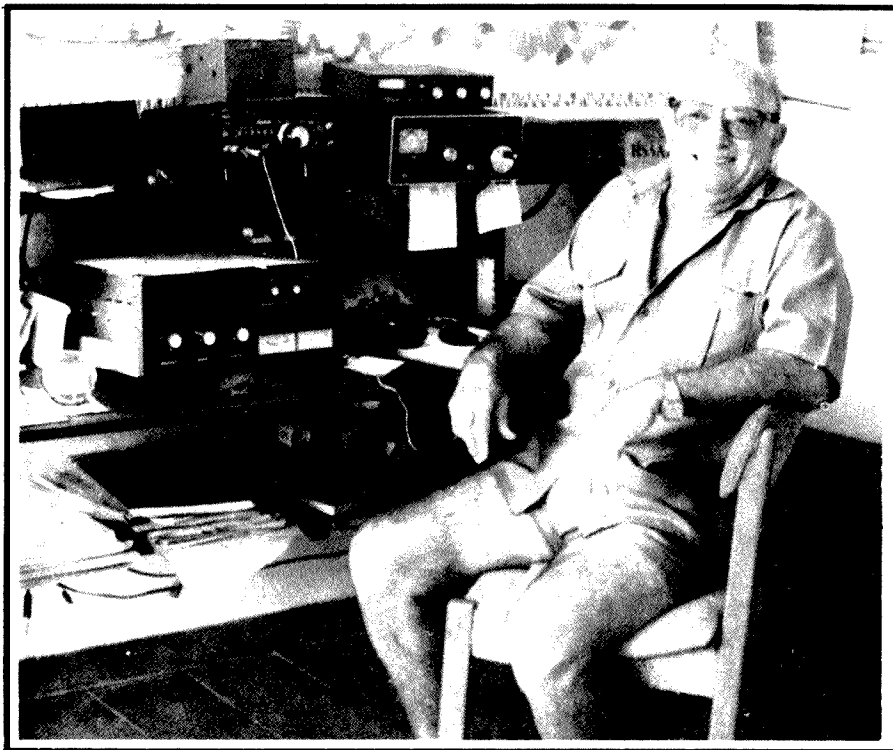
"QRZ DX" quotes Frank AH0W/OH2LVG, who was one of the operators on Revilla Gigedos, telling the story of the return of the DXpedition to the mainland of Mexico.

"We were returning on Sunday night on this boat, Felipe Angeles, when the engine burned up. Listing and drifting, about 20 hours later, after the US Coastguard called Revilla's Comandancia, we were rescued by a small Mexican Marina patrol boat and returned to the island. It was a very terrifying situation to be on this very poorly equipped boat in the middle of the ocean surrounded by total darkness for hours on end and not having any control over the situation. After being returned to the island, hams in La Paz (Mexico) started contacting aircraft pilots all over Mexico in an attempt to get us off the island."

Finally the stranded amateurs were evacuated by Mexican military aircraft and were flown to La Paz on the Baja California Peninsula.

Future DX Activity

- ZL1BAI Dave is on Great Barrier Island (36° 15' S and 175° 50' E) IOTA OC-201. QSL to Jim VK9NS, PO Box 90, Norfolk Island NSW 2899. Last month's issue incorrectly identified Dave as Jim — Jim is the QSL Manager. Apologies all around.
- A35RK — Paul KK6H will be on the air until 7 February. Most of the activity will be on CW on 160 metres to 30 metres, from Tongatapu Island, IOTA OC-049.
- VP8CMR Nigel is now active from Halley base, Antarctica. QSL via Nigel, Halley Base, BAS, Port Stanley, Falkland Islands via UK.
- DU1KK is the new Philippine callsign of Dick Kwiatowski WN7S. QSL to him C/o American Embassy, (IM), APO, AP 96440, USA.
- Mike K3UOC is now active in Saudi Arabia with the callsign 7Z500 mainly on CW. QSL via W1AF.
- Paul F6EXV will be active as 9Q5EXV until the end of January.
- HV3SJ — W9SI, one of the recent



Ello FH5CB in his shack on Mayotte Island.

operators of this station, said that the station had just been re-built and much more activity could be expected on all bands and modes from January.

- Ed TU5BA/XT will be operating for the next two years from Burkina Faso. QSL to Ed, American Embassy, Ouagadougou, Dept of State, Washington, DC 20521 — 2440 USA.
- D2XX is PA3CXC. QSL to home call.
- 5X4B is DL8AAI from Northern Uganda. He and his XYL (5X4A) intend to be in Uganda for one year. QSL to DL8AAM.
- G5RV will go to Uruguay and plans to operate as CX5RV between Dec 1994 and April 1995.
- XV7SW is Rolf SM5MX, who is operating from the Swedish Embassy in Hanoi. He has been allocated fixed CW frequencies of 28016, 28019, 21016, 21019, 14016, 14021, 7033 and 3505 kHz. QSL direct only (there is no QSL Bureau in Vietnam) to Rolf T Salme, Embassy of Sweden, Box 9, Hanoi, Vietnam.
- Jay W6GO and Jan K6HHD, producers of the QSL Managers List, announced that they have retired from producing the very informative list. The print subscription is now handled by the "DX Magazine", and the DXBBS and the Packet Cluster Sysop interface will be handled in the future by Paul and Nancy Smith, N4FFO and KB4RGW.
- The DXCC has approved recently 60 DX activity callsigns. Most are from the

year 1994, but there were a few from 1993, one from 1992, two from 1991 and one from 1988 (A6/F2JD).

- You read it here, for the first time! The Hervey Bay Amateur Radio Club (PO Box 829, Hervey Bay, QLD 4655) will run a special event station, VI50PEACE from 1 August to 31 October 1995, remembering the 50th Anniversary of the cessation of hostilities in the Pacific Area, which terminated World War II.

Interesting QSOs and QSL Information

(E = East Coast, W = West Coast, M = the rest of Australia)

- HS8AC — Cham — 14015 — CW — 0818 — Oct (E). QSL to Chumporn ARC 275-8, Poramintmonka Road, Amphur Muang, Chumporn 86000, Thailand.
- 3X0DEX — Didier — 7083 — SSB — 0806 — Oct (E). QSL to HH2HM/F Michel, via PO Box 104, F-22650 Ploubalay, France.
- 9K2HN — Hamad — 14195 — SSB — 1256 — Nov (E). QSL to HH2HM/F as above.
- OD5NH — Puzant — 14214 — SSB — 0550 — Oct (E). QSL to Puzant Azirian, PO Box 80903, Dora, Beirut, Lebanon.
- VK0FPS — Phil — 14228 — SSB — 1351 — Oct (E). QSL to VK3MA, M A Withers, 10 Zeinert St, Wodonga, VIC 3690.

- KC6SS — Jim — 3508 — CW — 1155 — Oct (E). QSL to WV5S, James M Hood, 11623 Smoking Oak Dr, Oklahoma City, OK 73150, USA.
- 4S7DA — Denver — 14226 — SSB — 1323 — Oct (E). QSL to W3HNC, Joe Arcure Jr, PO Box 73, Edgemont, PA 19028, USA.
- A71CW — Chris — 14011 — CW — 0611 — Nov (E). QSL to Mr Chris, PO Box 22101 Doha, Qatar, Middle East, or to SP5EXA via the Polish QSL Bureau.
- VP8CPC — Les — 14252 — SSB — 1001 — Nov (E). QSL to PO Box 260, MPA, Falkland Islands via UK.
- 9N1WT — Willy — 14214 — SSB — 1237 — Nov (E). QSL to OE7KWT, Wilhelm Wallenta, Perthalerg 17, A-6020, Innsbruck, Austria.
- L73AA — Dorys — 14204 — SSB — 0606 — Oct (E). QSL to LU4AA, Radio Club Argentino, Carlos Calvo 1424, 1102 Buenos Aires, CF, Argentina.
- 5R8ED — Helge — 14226 — SSB — 1403 — Oct (E). QSL to LA1SEA, Helge Siljuberg, Box 117, N-2410, Hernes, Norway.

From Here There and Everywhere

- Many more Thais have now received permission to set up their stations at home and you will begin to see more activity from these stations on HF. There are presently 460 citizens of Thailand who hold licences to operate on the HF bands. There are another 95,000 odd licences for a "no code" VHF activity.
- The Thais are now operating an SSB net at 1300 UTC on 7060 kHz. About 50 foreigners are also licensed in Thailand to operate on HF.
- The new QSL manager for Dave 5V7MD in Togo, and for Randy TJ1JR in Cameroon is Adam N7VEW. Both stations are missionaries and will be there for a few years.
- Fred K3ZO on his recent visit to Thailand observed the tremendous upsurge in the radio amateur population. More Club stations are being set up in the Bangkok area and many of the 55 Clubs in interior provinces of Thailand are obtaining HF permission. He renewed his HS0ZAR licence until September 1999. Incidentally, the new Thai QSL Bureau Manager is K3WUW/HS0ZBI with HS1ASN serving as his assistant. The address is RAST, GPO Box 2008, Bangkok 10501, Thailand. All QSL requests for HS0AC should go to Ray Gerrard, PO Box 1300, Bangkok, 10112, Thailand.
- Unconfirmed reports indicate that

South Korea has run out of call signs in the HL series and will begin soon issuing calls in the DS series.

- According to HB9CRV, one "greenstamp" (\$US1.00) is not sufficient to post a letter overseas. The cost of the postage is SF1.80 and a greenstamp is worth only SF1.28. In contrast, one IRC is worth SF1.80.
- 5H3JD has returned to Germany.
- Paul 11RBJ, has advised that over 50,000 QSOs have now been made from Seborga. First stamps will be issued on 11 November. No documentation is yet available for DXCC status.
- If you worked ZA9A in the CQ WW SSB Contest, send your card to OKDXF, PO Box 73, 293-06, Bradlec, Czech Republic.
- A group of Japanese operators became active in Tunisia as 3V8BB on 19 November.
- QSLs to the Hungarian Contest Station, HG92HQ, HG93HQ, HG94HQ and HG95HQ, always active in the months of July during the IARU contest, should be sent to Gabi HA5NK.

I received an interesting QSL card and letter from Frank 5N0BHF. Frank hails originally from Austria, but has lived in Nigeria since 1980. He is employed with a German firm long established in Nigeria and involved in power generation. He is a resident of Abuja, the new capital of Nigeria. He uses a TS440S and a 4 element 6 band Fritzl beam antenna. He said he had very few QSOs with VK and ZL because, when the band is open, he is on duty at the workplace. According to Frank, Nigeria officially has 90 million inhabitants but, in reality, with transient immigrants, the population is probably around 120 million. Nigeria is a very rich country in mineral deposits. The big rush of the country population towards the towns started with the discovery of oil. This caused severe problems in their agricultural production from the land. "The youth does not really want to work, but the money does not lie on the streets", concludes Frank in his letter. His QSL manager is OE6LAG.

- Carol H44BC, the well known lady operator from Honiara, Solomon Islands has returned to the United States. Carol was a high school teacher of English in the Betikama High School in Honiara for the past 6 years. She holds a General call in the states, N8KIQ, which will be her new postal address. For the time being, QSLs sent to her Honiara address will be forwarded to her in due course.

- VI5AGP was a special event station celebrating the 10th Anniversary of the Adelaide, SA, Motor Grand Prix. QSLs to be sent to North East Radio Club, PO Box 36, Modbury North, SA 5092.
- There was an interesting visiting call sign on the air recently, VE7VDK/VK8 Atze, who originally held the call sign ZS5VDK. Last heard he was in the Northern Territory travelling and enjoying himself.
- A group of eight US amateurs were the first operators officially sanctioned by the Syrian Government to activate YK0A between 23 and 30 November. QSL to W60AT.
- The latest unconfirmed report is that the DXAC recently received a petition for a separate country status for the Kingdom of Mustang. This is a small area bordered by Tibet and Nepal (coordinates 29° 10' N and 83° 55' E) which was once part of Tibet, but was ceded to Nepal from China. It retained its Tibetan culture and is off limits to foreigners.

- Did anyone work the special event station at the Asian Pacific Economic Conference in Indonesia? Apparently 8A1APEC was on the air from 14 to 15 November.

QSLs Received

YS1DRF (3W W2PD), FH5CB (3M fm Op), VK2WAH (6W VK2KAA), VR6PAC (10W fm Op), UN7VV (2W VK4MZ), ZA/OK2PSZ (22W OK2PSZ), T11C (2W W3HNC), LX4B (5W LX1TI), BV4OQ (1W fm Op).

Thank You

Many thanks to those who kept me informed, but especially to VK1FF, VK2DSL, VK2KCP, VK2KFU, VK4AAR, VK4BX, VK9NS and FH5CB. A special word of thanks also to the following publications, *QRZ DX*, *The DX Bulletin*, *DX News Sheet*, *The W6GO/K6HHD List*, *Island News* and *Indexa*.

73 and Good DX.
*PO Box 93, Dural NSW 2158
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An Old Timer Reflects....

Des Greenham VK3CO (SK) continues to look back over 50 years of amateur radio operation.

Just after the war (WW2) it was very common to receive a barrage of short wave listener reports. This was brought about for two main reasons. We all operated on AM and everyone, without exception, had a "Dual Wave" radio set in their home. This meant it had shortwave facilities as well as receiving the normal broadcast band.

Many people listened into broadcasts from London, America, Moscow, etc. On the expansive illuminated dials of these receivers were also listed the amateur bands of 40 metres, 20 metres, etc. It was a very simple exercise to switch over and

listen to the Hams talking. Then the listening and reporting hobby started.

People would listen and record conversations heard on air and send a report by letter or specially printed QSL cards. Amateurs operating on the 20 and 40 metre bands were deluged with these reports. It was quite pleasing to receive an intelligent report from someone interstate or overseas but it was annoying when contacting a station in Greenland to receive a special report from a guy three doors down telling you that you were heard "loud and clear"!

Then in the 50s came this new thing known as "Sideband". All the listeners could hear then was "Donald Duck" signals and the SWL reports virtually stopped. By this time the polished cabinet radio receivers had been moved out into the shed and the portable transistor radio was the favourite. It no longer had the short wave bands. The number of listening enthusiasts dropped dramatically and those wishing to follow the hobby were forced to purchase special receivers with sideband capabilities.

Today, we receive SWL reports from remote places and these are of interest to the operator who will normally return a QSL card in appreciation.

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Sign up a new member today — we need the numbers to protect our frequencies and privileges.

Over to You — Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Foundation of WIA

I am researching the development of wireless/radio (especially amateur radio and amateur radio operators) in Western Australia.

I am writing this on the occasion of the 75th anniversary of the Wireless Institute of Australia WA Division which occurred on 3 November 1994.

The first radio club in WA (other than that at Perth Boys School, which had been in existence in May 1913) was the WA Radio Club, formed on Monday, 15 November 1913. (*Very progressive! Radio, not Wireless, in 1913! Ed*)

On 21 June the following year (1914) it was decided to extend the scope of the club, which in future was to be known as "The WA Institute of Radio and Scientific Experimenters".

Later that year, on-air activities of its members (and all experimenters at the time) were to be curtailed during the "great conflict". Meetings were to continue but, on 12 July 1916, it was announced that the President Mr R Thomson "was

going into camp". At the first recorded post-war meeting of the Club, it was he who proposed that the name be changed to "The Wireless Institute of Australia (WA Section)" in conformity with similar institutions in the Eastern States.

According to the WIA Book, Vol 1, two days later (5 November 1919) The Wireless Institute of New South Wales was renamed "Wireless Institute of Australia" (presumably NSW Division).

The Wireless Institute of New South Wales had been formed in May 1910. Like similar clubs in other states, they had existed independently of each other until after WW1. Indeed, it is doubtful if experimenters in "the West" had ever "connected with" their counterparts in the East.

While it would be correct to claim that the earliest organisation for wireless experimenters in Australia was the Wireless Institute of NSW, it would appear quite erroneous to claim that this was the beginning of the Wireless Institute, which

organisation should, this year, be celebrating its 75th anniversary, if we are to interpret history accurately.

Dave Hanscomb VK6ATE
PO Box 39 Quinn's Rocks WA 6030

Amateur Radio Magazine and Novices

In January 1992 I first "went on air" with a Novice licence, and very proud I was too. It was hard work making the grade. Apart from knowledge of the Morse code and a very basic grounding in things electrical, I was a true beginner, a novice by definition.

My tuition was provided by a very dedicated group of persons belonging to the ACT Division of the WIA. These people suggested, and indeed recommended, that I should become a member of the WIA. "We need your support, it produces a first class magazine"; and so on. "Great"; I thought, and so I became a member.

I have since parted with \$200 or more in membership fees and received monthly a magazine. I browsed through some of the magazines before recycling them and I was amazed how little information there was for a "novice". In fact, almost nothing. I have had more satisfaction from another magazine which I purchase now and

WIA News

Moves on the 80 m DX Window

The WIA is to approach the Spectrum Management Agency (SMA) with a proposal to extend the 3795-3800 kHz "DX Window" segment of the 80 metre band. A lengthy and very well-researched submission compiled by Peter Forbes VK3QI was put before the Federal Council at its October quarterly meeting. The submission recommended that the DX Window be extended, to cover from 3750 kHz to 3800 kHz on a "secondary usage basis outside of normal business hours (5 pm local time till 8 am local time)."

This adds 45 kHz to the Window, making it 50 kHz wide, while the operating period restriction permits amateur usage at times when most radio amateurs are able to pursue their interest.

The 80 metre DX Window gets its greatest usage during the troughs of the solar cycle. We are

currently in the declining phase of solar cycle 22, with the minimum forecast to occur between late-1995 to mid-1996, so 80 metre DX activity is increasing.

A 50 kHz-wide DX Window would bring Australia amateurs more into line with amateurs in other countries in the Asia-Pacific region (who have co-existed with commercial users for many years), and permit a lot more frequency agility to avoid the already high levels of international interference, according to the submission.

The recommendation to extend the Window by 45 kHz was based on extensive research, including monitoring the band between 3700 kHz and 3795 kHz, researching and interviewing commercial licensees of allocations in this segment, and monitoring amateur usage of 80 metres in this area of the band locally and internationally.

Commercial users of the 3750-3795 kHz segment have been declining for some years, and four reasons were identified: users moving to alternative HF allocations in the 4-6 MHz band which offers improved communications during daytime, increasing use of cellular mobile telephones, a change to satellite communications by some users, and moves to UHF CB with the spread of the UHF CB repeater network.

Monitoring between January and September 1994 has shown there to be no consistent or identifiable operations by commercial operators in Australia on 3750-3795 kHz. Below 3750 kHz, state emergency services make consistent use of the segment down to 3700 kHz.

The proposal is to be discussed with the SMA during the coming months.

then, containing a sequence of articles to upgrade one's licence. They were written in understandable language.

Please, Mr Editor, spare a thought for the Novice. Come down to earth now and again and let us have some "real" stuff for the beginner! In Victoria there are about 700 Novice licence holders. I wonder how many are not members because of this lack of Novice items?

Also, could I ask the WIA to consider lobbying for the Novice licence holder to have access to packet radio. Yes, I am writing this on a word processor. Indeed, the computer is almost standard household equipment these days and probably 100% of the Novices have one.

Also, could room be found for the Novice to have a small portion of the 14 MHz band?

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(We can only publish the articles we receive from members. If no-one like yourself is impelled to fill in the gap, it will be filled by more advanced material from other authors. When the new regulations come into force they will refer to packet for Novices. 14 MHz for Novices is contrary to world-wide IARU (International Amateur Radio Union) policy. Access to that busy band is one of the incentives to upgrade. Life can't be too easy! Bill Rice VK3ABP, Editor)

Deceased Estates

This is a melancholy query but is there an established drill whereby a silent key's equipment can be appropriately disposed of to "good" homes or must it suffer the indignity of being bundled up and labelled "Deceased Estate — Offers"?

Hams, of course, are not alone in leaving behind treasured possessions. All hobbyists are affected but there is something especially poignant about a key going silent. It's not as though our signal gently fades away eventually to disappear in cosmic noise. No. One day we're there and the next we're up there.

The wise endeavour to give their things away to sensitive and appreciative souls thus sparing their immediate family the onerous task of wondering what to do with "All Dad's radio stuff". But this is not always possible and many a time we see in Hamads the heavy title "Deceased Estate".

Thus, is there an organisation that is prepared reverently to receive the clutter of a deserted shack? Would it, for instance, be worthwhile for *Amateur Radio* to operate such an Avalon for orphaned equipment? The basis could be that the equipment could be willed to *Amateur*

Radio who, in its turn, would dispose of it in whatever manner seems appropriate at the time. *Amateur Radio* would keep a proportion of the proceeds commensurate with their efforts and return the residue to the next of kin.

Doubtless some such idea has been mooted before and there are a number of obvious snags since some hams reign in great majesty over vast arrays of antennas and gear whilst others live in humble circumstances grateful to be one of the anonymous brotherhood of the air. Perhaps *Amateur Radio* would quail at the concept of avalanches of equipment being trucked to Victoria and would need to do some very careful sums before giving the idea a go.

On the other hand, many a ham, whose years before are greater than those in front, might rest in peace knowing that their gear would be going to an honourable place served by a priesthood of true believers. I hasten to add that I have no immediate plans to hand in my key and close my log book but it's as well to be prepared.

As we look around our shacks we see favourite screwdrivers, beloved meters and treasured components amidst our prime gear from which emits a soft

Pounding Brass

Stephen P Smith VK2SPS*

As we recover from Christmas and New Year festivities, a few kilos heavier I might add, it's time to put into practice those New Year resolutions.

Telegraphy, the premier mode of communications, is now 151 years old and still going strong. However, let's try and recruit new blood to the "code" and increase our ranks.

IC Keyer Chips

Before I continue, I would like to mention that I have not included any circuits with the following information. These will appear in next month's issue as there is quite a bit of theory to cover.

The newer twin level or iambic paddle consists of two independent single-pole, single throw, switches. Each paddle is independent so that you may call for either dots or dashes by closing either, or you can get an iambic string by closing both paddles together, otherwise known as squeezing. It is impossible to close both paddles simultaneously. One lever always precedes the other to signal whether a dot or dash is to be generated first. Alternating short and long syllables is known as iambic, a term used in poetry.

Squeeze keying is fun and easy to learn

enchancing light that, through a length of wire spread aloft, invisibly hearkens to voices from out of the sky.

Bob Hawksley VK2GRY
21 Wallumatta Road
Newport NSW 2106

(Beautifully put, Bob, but Amateur Radio is not really the organisation to do it. Each WIA Division already plays this part sometimes. Some may already have set up regular procedures or nominated appropriate officers. Amateur Radio can certainly publicise them. Ed)

Please Return

Some time ago, probably at least three years back, a visitor "borrowed" my copy of "A History of Radio in South Australia, 1897-1977", by Mr John Ross.

Unfortunately, that is the last I have seen of it.

Would readers please check their text books and see if it is still in their possession. These copies were \$10.00 each. Its return would be appreciated. Is it hoping too much that it just might be returned to me in due course?

The copy is autographed by Mr Ross.

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after you have acquired the correct technique of paddle manipulation. It minimises finger and wrist action, cutting down on fatigue which leads to glass arm effect, an effect for which the old hand key is notorious. If you squeeze the key paddles leading with the thumb (dot paddle) the Morse "period" is sent, all with two movements compared to seven on a hand key. By starting the squeeze with the index finger (dash paddle) we can produce such characters like C and K. By squeezing during a letter we can make other characters like Q and F. This type of keying is known as "type A iambic" (type B was mentioned last month).

About 90% of sales these days are type A. There seems to be no clear advantage for one or the other method except that, if learned on one or the other, you are likely to be unable and unwilling to change over.

It is so important to produce a dot or dash of the correct length, regardless of when the paddle is released. The space between elements must never be allowed to shorten by early key closure. Early closure is necessary to produce smooth keying because it allows the keyer circuitry to govern the exact length of the element spaces. Most keyers produced have some form of dot memory which is absolutely essential if the thing is going

to function correctly at high speeds. Dot memory allows the keyer to remember that you hit the dot paddle, even though you hit the paddle early and didn't wait for the commencement of the dot. Try sending "N" at over 20 wpm to test this feature. You cannot hit the dot and dash paddle fast enough to prevent both transmitting. If you do not have dot memory the dot will be lost in most cases.

A dash, as we know, is equal to three dots as opposed to a single dot. Therefore, we dwell on the dash paddle a fraction longer and thus a dash is seldom lost. Send the letter "A" as fast as you can and you will always get the dit followed by the dah. For reliable dot or dash insertion and true iambic keying, dot and dash memories are required. Another important factor is key debouncing. All mechanical switches will bounce slightly on both make and break. Unless the response of the keyer is conditioned to ignore this bouncing the circuit will think the operator is doing the switching and operate accordingly. The result of this bounce is the transmission of unwanted elements. Most of the time we blame ourselves for putting in that extra digit, not realising the keyer is at fault.

The chip I/Ps on pins 4, 5 and 6, 7 are circuits consisting of a 1 M Ω resistor and a 0.01 μ F capacitor. The bounce is around 5-10 mS. While this may seem short it begins to approach the length of a dot at high speed. Dot length at 50 wpm is only 24 mS.

The debouncing must not be so sluggish that it slows an operator trying to send at high speed. Weight control on

pin 20 allows the operator to vary the element weight from 1-1 dot-space and 3-1 dash-space ratio designed for efficiency and readability. Some amateurs feel that weight control has no place on a keyer because, if misused, it can degrade readability. On the other hand, modern rigs do not faithfully reproduce the keying input and therefore require adjustments of the keyer which quite a few amateurs are reluctant to tackle. At higher speeds of 25 wpm + most rigs lengthen the elements which, along with poor paddle manipulation, result in poor copy to the other operator. If weight control is desired, a capacitor of 0.22 μ F, a linear pot of about 500 k and a resistor of 5.6 k are used. The higher the value of each the more weight is added. How it functions is that the 0.22 μ F and the delay time provided by the pot and 5.6 k resistor stretches each dot and dash by a constant amount regardless of speed. In other words, the weight added is not a constant ratio of the dot or dash length.

Another interesting aspect of the ABM chip is the speedmeter pin 12. If you want to check your sending speed this circuit is for you. The circuit takes advantage of the averaging property of a moving coil meter. When you send a series of pulses through this type of meter at a frequency just a bit higher than its "flicker frequency" the meter pointer will remain stationary at some intermediate point on the scale.

For example, if you send a current of 100 mA, which is on 50% of the time and off 50% of the time, through a meter with 100 mA FSD, the meter will indicate 50

mA, the average value of the current. The value of the capacitor attached to C-Meter pin 11 in conjunction with internal resistance of the IC causes the speedmeter pin to go low for 1 to 1.5 mS each time the keyer clock changes state. As the keyer is adjusted to go faster, the rate of pulses increase accordingly causing the average current to increase.

I would advise using a separate power supply to the meter so that the indication is stable with varying power supply voltages. The speedmeter is connected to VDD on the one end and to the low pulsing pin on the other, an intermittent current flows, and the average of this circuit is indicated by adjusting R1, 100 Ω , and R2, 1 k pot.

The meter can be made to indicate the keyer speed directly in WPM.

A 50 mA meter is the best choice since it suits the ABM chip. Its scale is 0-50 and thus corresponds to 50 wpm. I have found that, in order to maintain accuracy and linearity, the value of the capacitor across the meter should not be increased beyond 0.22 μ F.

All of the 8044 series ICs are now priced at \$US19.95. Also, an 8044ABM-3 which includes an 8044ABM, a 20 pin socket, a PCB for a full featured keyer and a construction manual is available at \$US34.95. Further enquires can be made to (this is their new address) Curtis Electro Devices Inc, 4345 Pacific Street, Rocklyn CA, 95677, USA, or by phone at (916) 6320600.

Happy keying, see you next month with the circuits. *PO Box 361, Mona Vale NSW 2103

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SOME THINGS HAVE NO COMPARISON

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radio
action

The magazine for the serious radio operator
AT YOUR NEWSAGENT EVERY MONTH

Repeater Link

Will McGhie VK6UU*

New Year

Will 1995 be the year that the changes to the amateur regulations come about, and, in particular, repeater regulations? It continues to be an astoundingly long wait for the regulation changes. Why it has taken so long will never be known by most amateurs but the reason or reasons I'm sure would make a great story. From memory, 1995 takes us into the fourth year of waiting; let's hope it is the last and the regulation changes are what repeater managers and builders have waited so long for. Why the changes had to be a complete package, all or nothing, is also a mystery to me. Some of the repeater changes, from what little understanding I have of the situation, could have been implemented on their own.

The Duplexer

For most amateurs aspiring to put a repeater on air, the duplexer is the most difficult part of the project. A simpler and sometimes better solution is separate antennas for receive and transmit. In an earlier article in *Repeater Link*, the pros and cons of separate antennas versus single antenna and duplexer were discussed. If the decision is to go with a duplexer design then all sorts of problems are perceived. Apart from construction the correct alignment is a big problem. All sorts of expensive test gear is thought to be required to set up a duplexer. It is true a spectrum analyser and frequency sweep generator is the way to go, but most of us do not have access to this type of equipment. There are, however, several other ways to line up a duplexer. I tried out a simple method using only a two metre transmitter, a length of coax, an SWR bridge and a 50 ohm dummy load. The result was a correctly aligned and working duplexer.

The Name

Before I describe the alignment method, what is the correct name, duplexer or diplexer? These two words are used by amateurs to describe the same piece of equipment but do they mean the same thing? To my understanding, duplexer is correct. A duplexer is a device that connects two unlike objects, such as a transmitter and a receiver, to a common port such as an antenna. A diplexer connects two like objects such as two transmitters to a common port. That is my understanding. If I'm not correct please let me know.

Duplexer Alignment

The accompanying diagram shows the setup. The two metre transmitter is connected via a 15 metre length of RG 58 coax to the cavity filter, and then through the SWR meter to a 50 ohm dummy load. Put simply, the transmitter is set to the frequency that the notch is to be set to on the cavity filter and then adjusted for a minimum reading on the SWR meter. Seems simple, but I'm sure you must have a few questions.

The most obvious question is how can a SWR bridge read such a low power output from the filter when the notch depth is around 35 dB? If 10 watts is going into the filter, 35 dB of attenuation would mean that about 3 mW comes out. My interest was, could you tune through the notch watching the SWR bridge go through zero power reading, and then climb again as you tune past the notch and judge the centre point of the notch? And tune back and forth through zero indication on the bridge and finally guess the 35 dB notch? To my surprise it was easy! I detuned a duplexer and went through all six cavities in quick succession. The result was a working duplexer that was as near to spot on as was required. The repeater worked into the duplexer with no desensing.

The SWR bridge is only used as a signal level indicator. Other types of detection equipment can be used but most amateurs have an SWR bridge. When looking for the notch turn the sensitivity of the SWR meter as high as it will go.

Due to the notch characteristics the SWR that the transmitter sees is very high. This is because the cavity filter is an open circuit with little of the transmitter power reaching the 50 ohm load. Almost all of the transmitted power is reflected back to the transmitter, hence the need for some isolation between the transmitter

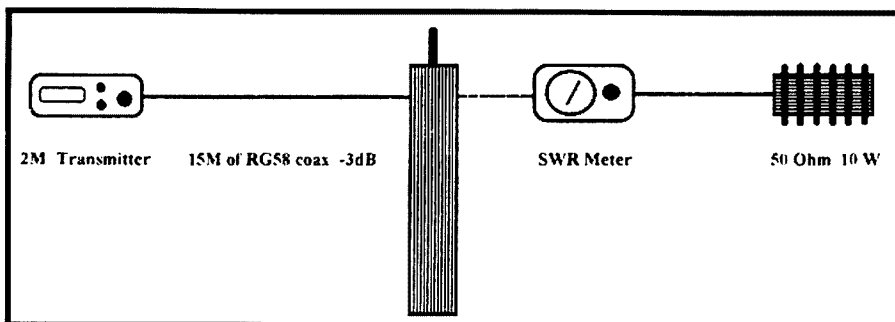
and the cavity filter. This is achieved by the 15 metres of RG 58 coax. At two metres this introduces a loss of three dB which equates to a total return loss of six dB. The reflected power back to the transmitter is reduced to one quarter of the transmitted power output. In SWR terms this is two to one and should not be a problem for the transmitter. The coax length can be increased if you want greater isolation between the transmitter and the cavity filter, but the sensitivity of the notch detection is reduced.

The cavity filter under adjustment is your standard two port band pass filter some 0.6 of a metre in length by 10 cm in diameter, that has either a capacitor or inductor added across the in and out ports to produce the notch. Placing a capacitor between the input and output produces a notch below the pass frequency, and an inductor produces a notch above the pass frequency. Only one of these components is added to a given cavity.

All these adjustments are done on one cavity at a time. For two metres you will require six cavity filters, three in the receive leg and three in the transmit leg. The complete alignment of the duplexer is done on each cavity filter on its own before all six are connected together. Even with the best test equipment, trying to align this type of duplexer with all the cavity filters connected together can be difficult and misleading.

Other methods I have used to set up a duplexer require considerable time and effort. There are three variables. The first is the frequency to which the filter is tuned. The second is the in and out coupling loop distance to the centre tuning element, and third is the value of the added capacitor or inductor. If you have done a few filters in the past then you have a feel for the rough setup of all these variables. If not, there is a degree of trial and error. What the test setup described here does is make the tuning up easier, not necessarily easy.

When tuning the filters with the added capacitor the final value will be around five pF. Start with the capacitor set on the



VHF Notch Cavity Filter alignment setup.

low side at about three to four pF. The filter with the added inductor is easier as the inductor is a fixed length of wire 2.5" (64 mm) in length soldered between the in and out ports and usually does not require adjustment.

If all that was required to tune a cavity notch duplexer was to set the frequency of the notch then it would be simple. However, what is required is minimum loss on the pass frequency and maximum attenuation on the rejection frequency. For alignment, all the variables must be correct. Using the method shown makes checking the pass and loss frequencies easier. Adjust the pass frequency first for maximum power to the SWR bridge. Change the frequency of the transmitter to the notch frequency and adjust the shunt C for best notch. Now go back to the pass frequency and see if there has been any change. Chances are there will be. Back and forth to achieve minimum loss on the pass frequency and maximum loss on the notch frequency. With a 20 watt source and three dB lost in the isolation coax, 10 watts is applied to the

cavity filter. When aligned correctly, half a dB is lost in the filter, resulting in about nine watts passing through to the SWR bridge and dummy load.

Of all the subjects to write about, tuning these types of cavity filters is the hardest. Trying to put onto paper all the hours of playing with these filters is difficult. If, during your tuning up procedure, you find that the pass to loss ratio is not heading in the right direction then one or more of the three variables is not set correctly. For example, when tuning the cavity with the variable capacitor a situation can occur where there is too much C. This is compensated for by tuning the main tuning element lower in frequency. The result is an improvement in either the pass or loss figure but not both. You can end up chasing your tail. If this happens, wind the capacitor out and start again.

This situation can also be due to the wrong degree of coupling between the coupling loops and the centre tuning element. Starting with the correct coupling is important. Almost all the cavity filters on two metres that I have tuned

have been built from the design that appeared in the *ARRL Handbook* many years ago, and is repeated from time to time in latter years. From the outset I could never have achieved the results as published. After much playing around I found the coupling loops were too tightly coupled to the centre tuning element. Only by reducing the coupling of both loops could the correct results be obtained. I don't know why I could not achieve the results as published but I was pleased to find a way around the problem.

Quite a marathon on one method of tuning up a two metre cavity duplexer. I could write more, but where do you stop? One final point. If your duplexer introduces a poor SWR to your system then it is not tuned up correctly. Giving one of the cavities a last minute tweak to improve the situation is not a good idea. Tune each cavity in isolation on its own and then join them together. Hopefully the result is a correctly working duplexer.

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WIA News

Band Plans, Beacons and Bad Habits

Now that the summer VHF-UHF DX season is here, it's timely to remind operators of why there are band plans.

Basically, band plan arrangements help avoid mutual interference problems between otherwise incompatible modes and operations. The 1995 Call Book has full details for all the Australian bands, HF through SHF. On each VHF band, a segment is set aside by gentlemen's agreement for narrow band modes and weak signal operation. Other segments are set aside for FM and repeaters, packet radio, etc.

On the two metre band, the segment for narrow band modes is from 144.000 to 144.600 MHz. Within this 600 kHz segment, the first 100 kHz — from 144.000 to 144.100 MHz — is for CW only operation. The segment between 144.100 and 144.600 MHz, is for CW, SSB and other narrow band modes. Within this segment is a sub-segment exclusively for beacons, between 144.400 and 144.600 MHz. There is, in addition, a "national SSB calling frequency" of 144.100 MHz. All this is part of a long-standing gentlemen's agreement that is adhered to nationwide.

Unfortunately, a growing number of wideband FM signals is appearing

below 144.600 MHz, transgressing the band plan arrangement. FM stations have been heard using the national SSB calling frequency (144.100 MHz) and on other frequencies below 144.600 MHz.

Two metre operators who use the segment below 144.600 MHz, particularly those in pursuit of weak signal and long distance work, find FM stations who operate on top of 2 m beacon frequencies particularly annoying. Just because the VK5 2 m beacon cannot be heard by an FM station in Sydney is not a good reason for that station to operate in the beacon segment, using the VK5 beacon frequency or a frequency adjacent to it.

Beacons serve a number of purposes: among other things, to provide an effective indicator of propagation "openings", and to provide a constant reference signal for operators in the beacon's "local" area. At considerable distances, a beacon's weak "scatter" signal provides a means of checking or measuring station system performance.

It's just as important to have beacon frequencies free of interference when a band's NOT open as when it is open.

Many volunteers have spent a lot of time and money (often, WIA members' money) constructing, installing and maintaining the twenty four 2 m beacons currently operating in Australia.

FM stations operating in the beacon

segment completely negate the efforts of these people. In recent years, for example, there were occasions when FM operators in Sydney were actually having contacts on top of the Adelaide beacon frequency, when the beacon was clearly audible at the time! These stations declined to move, when asked.

There would be certain complaint if SSB or CW operators moved into the channelised FM/repeater segments and operated with impunity. Many such operators run considerable power to large antenna arrays and thus have high radiated power.

Courtesy and respect for the band plan, which preserves the rights of operators who pursue differing modes and operating practices, needs to be observed for the sake of peaceful coexistence.

The national 2 m band plan expressly reserves the region below 144.600 MHz for narrow band modes. The segment 144.600 to 145.700 is for general use, ALL modes.

Be a "good neighbour". FM is not compatible with narrow band modes and weak signal operation, even though DX may be worked (in the appropriate band segment) when conditions are really good.

Thanks to the NSW VHF-to-SHF DX Group for details.

VHF/UHF — An Expanding World

Eric Jamieson VK5LP*

All times are UTC

STOP PRESS

Mike K6MYC is willing to run EME scheds on 6 and 2 metres to late January from the US base at McMurdo Sound on the Ross lceshelf in Antartica (grid square RN32hd).

Anyone wishing to QSO should contact Steve VK3OT at VK3RMV PBBS. Steve will forward the request to K6MYC.

Six Metres

Ron VK4BRG advises that his beacon VK4BRG on 50.0775 (QG48) at Sarina is operational. He says that as far as he can discover the three beacons at Mackay under the callsign of VK4BRM are not operational.

Nev VK4CV writes to say that, following his expeditions to several South Pacific countries during 1985 and 1987, he would be prepared to lend substantial financial support to anyone contemplating operating from Pacific regions. If interested, you may contact Nev Cooper at 5 Cahill Street, Strathpine, Queensland, 4500. Nev says that, with the usual improvement to Es at the low part of the sunspot cycle, such countries as T33, T31, KH1, H44 and 3D2 Conway Reef could be within Es range, some of which have not been worked by many VK operators.

Nev also sent me a photocopy of a letter he received from the late Jean Duplat FK8AB on 18 March 1977. It is interesting in that he worked seven VKs between 22/1 and 25/1/67, they being VK2ZSG, VK2ZDN, VK2ZJG, VK4ZRG, VK2UQ, VK5ZMT and VK5ZLP. The contact with VK2ZSG is eleven years earlier than the contact VK3AMK had with FK8AX and which was listed as the first worked from VK. It is a pity such a letter did not surface prior to the publishing of my list last July but, it is as I said then, earlier dates for some contacts will become apparent with the passage of time.

News from South Africa

David VK3ADW sent me a short letter he received from the South African Radio League, the one paragraph reading as follows:

Re Multi-hop Sporadic-E propagation on 50 MHz:

Ever since the success of multi-hop Sporadic-E contacts on 50 MHz between the UK and USA in the Northern Hemisphere, we believed that the same could occur in the Southern Hemisphere

during our summer. We would like to arrange schedules with interested VHF amateurs in Australia to look for us on 50.110 MHz.

73 Mike C Bosch, ZS2FM, VHF & Microwave Manager.

The distance from the UK to the US is between 5000 and 6000 km depending on where each party lives. The distance from Durban in South Africa to Perth is around 7000 km or about the same distance as from Melbourne to Hawaii. We all know that unexpected contacts have been made with Hawaii although not necessarily via Es. Multi-hop Es requires reasonable power and antenna gain to achieve results but those requirements should not pose a problem to a well organised VK station.

It has always been of interest to me that South Africa has not been worked from Australia via Es and about the only reason I can offer is that simultaneously there have not been dedicated operators at each end. Also, during the F2 peak of Cycle 22, there were few contacts between Australia and Africa. The South Africans find it relatively easy to work Europe via TEP the same as we find it easy to work Japan by the same method, both being south-north paths.

I think the challenge could at least be taken by the VK6s, or anyone else for that matter, as no one knows just how far Es signals will travel. If anyone is interested the address is Cnr Duff Road and Louis Botha Avenue, Houghton, PO Box 807, Houghton, 2041, South Africa. Telephone (011) 484-2830, Fax (011) 484-2831. There is also a Telefax number which reads +27 11 484 2831. Please advise me if you will try.

Papua New Guinea

A letter from Rick Warnett P29KFS, Vice-President of the PNGARS and Convenor of the Moresby Radio Group, has arrived on my desk via the office of *Amateur Radio* in Melbourne. It deals at length with the results of a duct between PNG and Queensland from 5/11/94 which provided enhanced signals on two metres for several days.

Rick said the opening is a regular event between the two areas during the "doldrum season" when the winds depart and the weather conditions allow a duct to be formed between PNG and much of the east coast of Queensland.

In past years such conditions have allowed 144 and 432 MHz contacts between Phil VK4FIL and Kyle P29KH at Madang on PNG's north coast. Phil also

managed to arouse Norm P29NB and rejuvenate his VHF interests. The intervening Owen Stanley Ranges were overcome by the excellent siting of the eastern highlands repeater P29RAE located on Mount Michael.

P29RPM on 147.000 is a voice repeater and P29TPY on 144.900 a digipeater and both are on Burns Peak in the Port Moresby area of PNG. In the Cairns area VK4RCA is a voice repeater and VK4RIK and VK4RCA digipeaters on 144.900. These have allowed stations of modest performance to make contact and exchange information. Direct contacts were made at good strength on packet and voice to stations in Townsville with both ends using high power and 2 x 16 element Yagis.

5/11: A good two metre opening saw several P29 and VK4 operators exchanging packet data, messages and voice during the morning and afternoon. Those involved included P29s KMT, PL, ZNQ, ZTC and KFS to VK4s FIL, KGV-1, KGV-15 and XUK. Several VK4s logged into P29BBS. Rick P29KFS was unable to raise any VK4 repeaters but could easily hear Phil VK4FIL reverse on 146.350 as he talked to Paul P29PL. It seemed there was a form of selective propagation favouring low altitude as Mount Bellenden Kerr at 1500 m was high enough to preclude it as a good receive site.

The best news was that the VK4s managed to work through the Goroka repeater giving operators in that area their first contacts to VK4. On 6/11 conditions were holding very well resulting in further contacts. So good were the conditions that Charlie P29NCS, listening from his Koki site on his AR3000 and discone, managed to monitor on 118 MHz Air Niugini flight NG098 all the way from Port Moresby to Cairns where it landed at 0830. While the plane was on the ground Charlie could hear the pilot in contact with the tower. 7/11: Conditions still good and much overnight activity with signals from VK4s AJI, ABW, XUK, KGV-1, TFT and ZZB as well as a host of P29s.

The conditions enjoyed by the above mentioned stations are similar to that experienced in the south when a large stationary duct encompasses the Great Australian Bight and provides contacts between Albany and Melbourne. In the latter case most of the activity is via SSB or CW.

10 GHz EME Record

Lyle Patison VK2ALU has sent me details of a recent 10 GHz contact he had with Jim Vogler WA7CJO. Lyle has applied for the Australian SHF record on 10 GHz in the EME category for what is believed to be the first Australian 10 GHz EME contact with any station; the first known

10 GHz EME contact involving a station in the Southern Hemisphere; and the first known EME contact on any SHF band which involved a station in the Southern Hemisphere. At 12601 km it may also be a 10 GHz EME world record but that has yet to be determined. The contact has been confirmed by the exchange of QSL cards.

Details are as follows: Date: 9 October 1994. Time: 0215 UTC. Frequency: 10368.100 MHz. Mode: CW. Signal reports: "M" both ways. Lyle referred to both their stations as "backyard" stations, having been put together by themselves.

The equipment used at VK2ALU: Transmitter — Exciter/driver is of G3WDG/G4DDK design and uses a Yaesu FT290R 144 MHz transceiver to supply a tuneable IF input to the transmit mixer. The output from the transmit converter module is attenuated to approximately 1 mW which is the 10368.100 MHz drive to a Siemens travelling wave tube (TWT) with an output of 16 watts.

Receiver: Receive converter is of G3WDG/G4DDK design using a G3WDG004 HEMT pre-amp to a WB5LUA GasFet pre-amp to a G3WDG002 10 GHz receive converter incorporating a G4DDK004 oscillator chain and an Icom IC202 144 MHz tuneable IF unit, which was replaced by a G3WDG design wide-band 144 MHz noise amplifier and a detector/meter readout unit for detection of "moon noise" as necessary for antenna tracking purposes.

Antenna: 1.75 m diameter parabolic reflector antenna with prime focus feed using a pyramidal feed horn and horizontal polarisation. Dish $f/d = 0.48$. 3 dB beamwidth 1.1 degree.

Transmit frequency was monitored using an 18 GHz digital frequency counter with approximately 10^8 accuracy and the frequency of FT290R 144 MHz input was continuously adjusted to maintain a transmitter output frequency of 10368.100 MHz. The moon was visible at VK2ALU throughout the test period of 0100 to 0215. The antenna tracking of the moon was optimised manually by maximising the strength of WA7CJO's signal.

Equipment at WA7CJO: Transmitter — Homebrew transverter with Collins 32S-3 IF input. The transverter fed into a 300 watt output TWT.

Receiver: Homebrew receive converter with Collins 51S-1 IF output. A G3WDG HEMT pre-amp was used.

Antenna: 4.8 m diameter parabolic reflector using a SCR-584 positioner mount. 3 dB beamwidth approximately 0.7 degree.

In an earlier issue I reported on 10 GHz EME activity in the US and at that time

WA7CJO had worked 18 different stations in 10 countries in North America and Europe since 1988. The contact with Lyle was number 23 so his tally continues to increase.

During the test period covering the above contact the station operator Lyle VK2ALU was assisted by David Henderson VK2YKQ (antenna manual tracking), Robert Bonella VK2SRB (monitoring transmit frequency), John Simon VK2XGJ (receive/transmit time periods and antenna pointing coordinates), Les Holmes (part-time video camera operator) and their help was gratefully acknowledged.

Microwave Workshop

For the past two years Lyle VK2ALU has run a "Microwave Workshop" at the Central Coast Amateur Radio Club Field Day held near the end of February at the Wyong Racecourse north of Gosford, NSW. Last year the workshop covered about 2½ hours, broken into half hour segments covering — Introduction to Microwaves; Simple WBFM 10 GHz equipment and test gear; Setting up and operating on microwave field tests; 10 GHz NB transceivers and their construction techniques; and Advanced propagation modes and their equipment requirements, which included non line-of-sight paths, ducting, rain scatter and aircraft reflection, troposcatter and 10 GHz EME.

In the likely event that he will be asked to hold a similar workshop next February, Lyle seeks information from interested people on the subjects they would like to see covered. He would like to set up equipment for contacts, etc, the presentation of short video tapes relating to 10 GHz field tests, backyard talks on microwaves, 10 GHz EME tests with WA7CJO, and so on, but this requires others to be involved for the other end of 10 GHz contacts, the setting-up of facilities for screening video tapes and generally assisting him to best present the workshop.

Last year Bill VK2ZAC gave support with his information on his microwave experiences; maybe he will assist again? Lyle is seeking help from several enthusiastic amateurs who can assist in the preparations for the workshop and is looking enviously at those who talk about their interests on the Sydney weekly two metre nets. Contact Lyle Patison VK2ALU, at 98 Heaslip Street, Wollongong, 2500 or phone 042 296 984 and indicate your preferences for discussion subjects and/or whether you can lend a hand to arrange the workshop.

Two Metres

Ron VK3AFW phoned to say that on 30/10 at 1730 Des VK3CY worked K5GW

on 144 MHz EME with signals 529 both ways. Des runs about 200 watts to a single 13 element ATN Yagi while K5GW uses 48 x 10 element Yagis with a gain of 35 dBi and enough power from a single 8875 to produce more than one megawatt of ERP!

Also, 20/11 at 2146, Charlie VK3BRZ worked VK2TWR who lives on the other side of the ranges near Cooma, a very difficult 450 km path. Signals were 5 x 1 on 144 MHz. Roger VK3XRS has fairly regular contacts with VK2TWR on 144.200 but the contact with Charlie was the first time VK2TWR had worked into Melbourne.

From the UK

Ted Collins G4UPS continues to hear and work a variety of stations on 50 MHz; if the band is closed today it will probably be open tomorrow! His tally for October 1994 includes 4N1SIX/b, 9A3FT, 9A3HZ, 9H3TV, CT0WW/b, EH1DVY, ES0SIX/b, GB3BUX/b, GB3LER/b, GB3MCB/b, GB3NHQ/b, GB3RMK/b, I4CIL, I7WAN, IK1EGC, IK2QDX, IK3HHJ, IS0AGY, OE2UKL, OE5OLL, OE5XBL, OE6LOG, OZ2LD, OZ6VHF/b, OZ7ABV, OZ7DX, OZ7IGY/b, PA2VST, PA3FYM, S55ZRS/b, SM3EQV, SM7AED, SM7FJE, SP5CCC, SP6GZZ, SP6RLA, SP6VWM, SR6SIX/b, YU1IA, YU1SIX/b, YU7AS plus many UK stations. There are 13 beacons from 8 countries and 11 countries worked. In addition, Ted keeps his regular daily skeds with G3CCH and SM7AED.

The October 1994 issue of *Six News* from the UK Six Metre Group contains interesting snippets of information. Inside the front cover is a picture of Mike ER5OK who commenced operating on 1/6/94 with a CW transmitter running at less than 1 watt. After a couple of months or so he had worked 391 different stations in 31 DXCC countries and 127 grids! Shows what you can do if you live in Europe.

There is a full write-up on the 6 metre expedition to Jordan contained in 36 pages including photographs. It makes interesting reading, particularly one paragraph which reads: *Jordan is a marvellous country. The people are the friendliest we have ever seen in any country and they really welcome "guests" with open arms. None of us have any reservation in recommending anyone to go there for a holiday.*

Geoff GJ4ICD from Jersey Island says he has just completed a beacon for Guyana which signs 8R1SMC on 50.013 and this will be forwarded in the New Year. Other beacons in the pipeline may include one for Svalbard (JW), Cape Verde (D44SIX), and a replacement for his own Jersey Island beacon! Having added D44 to his log, Geoff's country score now stands at 148 — still five to go Geoff to catch JA4MBM at 153!

Just as an aside, Geoff wrote his letter to me on 17/11, posted it so that it was franked in Jersey on 18/11 and it arrived in Meningie today 21/11. Geoff had omitted to add Meningie, all the letter carried was my name, callsign, box number, the Meningie Post Code and South Australia. A bouquet to all postal offices en route and Australia Post. I would give Australia Post another bouquet if they could only do the same for me for letters between Meningie and Melbourne, which take longer!

Geoff said that early October commenced well with a good ridge of high pressure developing into an anti-cyclone over the central UK, which resulted in Frank G3FIJ in Essex working Jersey on 50, 144, 432 and 1296 MHz, and French stations from near the Spanish border were reported on 432 MHz.

On 9/10 GW3ZTH/p worked many French stations on 432 while HB9AMH/p worked UK stations on 10 GHz. On 12/10 the pressure read 1034 m/b which resulted in G8VR working GJ on 1296 with 1 watt. 13/10 provided beacons from everywhere into Jersey resulting in a string of DLs being worked on 70 and 23 cm. G3KEU reported a two-way contact on 10 GHz with an OZ. G3JMY and G3FYX near Bristol worked what is thought to be a UK record for 10 GHz narrow-band CW when both worked into Sweden for a distance of around 1300 km.

Due to the impressive conditions there were many countries available on 70 and 23 cm, but 10 GHz was given a good work-out and contacts were made two-way between the UK, SM, PA, DL, and HB9, etc. Geoff GJ4ICD had a ball on 70 and 23 cm; on the latter band he worked SK7QJ (1400+ km) plus four other Swedish stations at more than 1300 km. Stations located at levels just above the sea reported very poor propagation and said "everything is going over our heads!"

A few days later 50 MHz opened. On 21/10 PY5CC had an opening to the Caribbean. On 23/10 a good European opening, mentioned above in Ted Collins' report. Geoff took full advantage of this opening and worked the UK pile-up plus YU, OK and then 5B4CY at a distance of 3163 km. Another good opening on 29/10 with a large section of the UK able to work Yugoslavia at S9.

Emil Pocock W3EP in *QST's World Above 50 MHz* writes that June was the second best month for Es propagation during the last six years, according to Pay Dyer WA5IYX. Pat recorded 3495 minutes of E-skip on 88 MHz or higher on 25 different days in June, based on his continuous monitoring of the FM broadcast band from San Antonio. This corresponds well to conditions found on 50 and 144 MHz during the same period.

The cumulated total dropped to 1850 minutes in July and 255 minutes in August.

Those months correspond to our December, January and February. Traditionally, December has been our prime month for Es, especially during the latter half. Last summer we enjoyed a number of good two metre Es openings, always indicative of a good Es season. My February notes should outline how we fared by comparison with the US.

Although many amateurs have written off six metres with the disappearance of F2 propagation, it is interesting to note that on 25/6/94 at 1856 HA8BE in Budapest (where they have no six metre allocation) heard KJ4E in Florida at 559. On the same day DL7QY heard N5JHV in New Mexico. Emil W3EP sums it up rather well when he says that, *Obviously there is still a lot more to be worked via*

sporadic E especially as most European countries are now on the band. I believe he is correct. We may not be able to work Europe but our hope is that the operators in the Pacific island nations remember that they are within Es range of Australia — there will be much Es activity in VK to warn them and Channel 0 at Toowoomba is an early warning device!

Closure

Closing with two thoughts for the month:

1. Put off until tomorrow only what you are willing to die having left undone, and
2. The ideal committee consists of two, four or six people who haven't time, and one person who likes to run things his own way.

73 from The Voice by the Lake.

*PO Box 169, Meningie SA 5264

Fax: 085 751 043. Packet to VK5ZK for VK5LP.

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Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

A J (Jim)	STEWART	VK3AS
P J (Percy)	SEBIRE	VK3MX
L R (Les)	MCINTYRE	VK3XF
R F H (Ron)	CANNON	VK3BRC
G F (George)	PALMER	VK4ZG
B D	ERSKINE	VK6KBE
KE	MILLIN	VK7KA

Arthur James (Jim) Stewart VK3AS

Jim Stewart died on 14 October, at Wodonga Hospital, following a stroke, aged 69 years.

Jim was born in Mildura and, after attending the local high school, was employed as a Junior Technician at 3MA. A year later he moved to Melbourne for a position in the PMG's Department with ABC Radio.

In 1956, with TV due to commence, he joined GTV9 as a Transmitter Technician and helped with the initial installation of a TV transmitter, antenna and associated equipment at Mt Dandenong. He continued in the position of Shift Supervising Technician until a stroke caused his early retirement in 1982.

On recuperation Jim and his wife, Les, moved from Mount Waverley to what had been their holiday home at Lake Tyers. He received a limited AOCIP in 1959 with the call of VK3ZFS and later changed it to VK3AS after attaining the full AOCIP

Jim was well known in his position as Disposal Officer of the WIA. Many will remember his help with supply of components, kits and conversion of surplus mobile transceivers. In this

position he extended much time and effort for which he was honoured with a Life Membership of the WIA.

We offer our condolences to Les, their daughter, two sons and grandchildren. He will be remembered for his friendship and helpfulness to all. Ray Miller VK3RF

Percy Sebire VK3MX

Percy Sebire VK3MX passed away at Kingston Rehabilitation Centre on Friday, 25 November after a short illness. His death was not expected although he had celebrated his 90th birthday in July. He is survived by his son Robert and daughter Elaine.

Percy was first licensed in 1930 and was always a dedicated "home brewer". His magnificent rack and panel transmitter covering 80 to 10 m on AM and CW is preserved in the Radio and Radar Museum at Essendon Airport whence it was moved after the closure of the Science Museum station VK3AOM. Everything was home made including the five power transformers.

Percy was a mechanic by profession and a perfectionist by nature. Even his antenna tower was home made and does not show a sign of weld splatter.

Percy was a member of the WIA, the Moorabbin and District Radio Club and the Radio Amateurs Old Timers Club. The Moorabbin and District Radio Club's annual home brew award fund was started a few years ago with a donation of \$200 from Percy.

Many old timers will regret his passing. Vale Percy Sebire VK3MX.

Allan Doble VK3AMD ar

HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μV (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μV in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μV at the receiver's input and the S-meter scale is 6 dB per S-point.

V in 50 ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4

0.78	S3	2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 22.2. The predicted value for February is 21.0.

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	16.5	17	13.3	-8	20	13	4	-10
2	16.7	17	13.8	-7	20	14	5	-9
3	16.7	17	13.7	-5	21	14	5	-9
4	16.7	18	13.7	0	22	15	5	-9
5	16.7	19	13.6	6	24	15	5	-9
6	16.5	21	13.4	16	26	16	5	-10
7	16.4	24	13.3	31	30	18	6	-11
8	15.9	26	12.9	45	32	18	4	-14
9	15.1	27	12.2	48	31	15	0	-20
10	14.3	29	11.5	50	29	12	-4	-27
11	13.5	30	10.8	51	27	7	-10	-35
12	12.8	30	10.2	50	24	3	-16	...
13	12.3	31	9.8	50	22	0	-21	...
14	11.8	31	9.3	49	19	-4	-26	...
15	11.2	32	8.7	48	16	-9	-33	...
16	10.4	33	8.0	47	11	-17	...	...
17	10.2	33	7.7	46	9	-20	...	...
18	9.9	31	7.5	40	7	-22	...	...
19	10.4	24	7.8	26	8	-16	...	...
20	11.8	19	8.8	13	13	-5	-23	...
21	13.7	18	10.3	5	17	5	-9	-29
22	15.2	17	11.7	0	19	10	-1	-18
23	16.0	17	12.5	-5	20	12	2	-13
24	16.3	17	13.0	-7	20	13	3	-11

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	19.9	13	15.8	...	15	15	11	3
2	20.0	13	16.2	...	15	15	11	3
3	20.3	13	15.1	...	15	16	12	4
4	20.4	14	16.7	-35	16	17	13	5
5	20.4	15	16.7	-28	18	18	13	5
6	20.3	16	16.5	-16	22	20	14	6
7	20.1	18	16.3	1	26	22	16	6
8	19.9	21	16.1	19	31	25	17	6
9	19.1	23	15.4	34	34	26	17	5
10	18.1	25	14.5	43	35	25	15	1
11	17.1	26	13.6	46	34	23	12	-3
12	16.3	27	12.9	49	34	21	9	-7
13	15.6	28	12.4	50	33	19	6	-11
14	14.9	29	11.8	49	31	17	3	-16
15	14.2	29	11.1	49	29	14	-1	-21
16	13.4	30	10.3	48	27	10	-5	-27
17	12.5	31	9.5	47	24	6	-11	-35
18	12.2	31	9.2	46	23	4	-14	-39
19	12.0	25	9.1	28	18	1	-15	-39
20	12.6	20	9.4	13	17	3	-11	-32
21	14.5	17	11.4	-3	17	9	-1	-17
22	16.8	15	12.7	-19	17	13	5	-6
23	18.6	14	14.3	-30	16	15	9	0
24	19.5	14	15.2	-37	15	15	11	2

VK EAST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	13.2	9	9.2	-27	9	3	-6	-22
2	12.0	3	9.2	-37	5	0	-10	-26
3	12.1	-1	9.2	...	1	-1	-9	-24
4	14.3	1	10.7	...	2	-2	-3	-13
5	17.6	5	12.5	...	0	5	3	-4
6	17.9	5	12.6	...	0	5	3	-3
7	18.1	5	12.7	...	0	5	3	-3
8	18.0	5	12.6	...	0	5	3	-3
9	17.9	6	12.6	...	3	6	4	-3
10	17.0	8	12.5	...	6	7	3	-5
11	16.1	9	12.4	...	9	8	2	-8
12	15.2	11	12.1	-29	11	8	0	-11
13	14.4	14	11.4	-12	14	8	-1	-16
14	13.8	18	10.9	4	17	8	-3	-20
15	13.2	23	10.4	25	21	7	-6	-25
16	12.6	26	9.8	34	21	5	-10	-31
17	12.0	28	9.2	38	20	2	-14	-38
18	11.5	30	8.8	41	19	0	-18	...
19	11.3	30	8.5	42	18	-1	-20	...
20	11.8	30	8.2	42	20	2	-16	...
21	11.5	25	7.9	28	16	-1	-18	...
22	11.1	20	7.7	14	12	-3	-19	...
23	11.1	14	7.7	0	10	-3	-18	...
24	11.7	11	8.2	-12	9	-1	-14	-33

VK SOUTH — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	12.8	11	9.9	-14	10	1	-11	-28
2	10.9	3	8.4	-26	3	-6	-20	...
3	10.9	-1	8.4	-37	1	-6	-18	-37
4	14.1	2	10.7	...	2	1	-5	-17
5	17.7	5	12.5	...	1	5	3	-3
6	17.8	4	12.5	...	-1	4	3	-3
7	17.7	4	12.4	...	-1	4	2	-3
8	17.6	4	12.3	...	-1	4	2	-3
9	17.6	5	12.3	...	0	5	3	-3
10	17.1	6	11.9	...	3	6	3	-5
11	16.4	7	11.4	...	6	7	2	-7
12	15.4	10	10.6	-39	9	7	0	-11
13	14.4	12	10.0	-19	13	7	-2	-16
14	13.6	17	9.4	3	16	6	-5	-22
15	13.1	24	9.0	27	20	6	-8	-28
16	12.5	26	8.5	35	20	3	-12	-35
17	11.9	28	8.2	39	19	0	-17	...
18	11.4	29	7.9	41	17	-2	-22	...
19	11.1	30	7.7	41	16	-5	-25	...
20	11.2	30	7.6	42	17	-4	-24	...
21	11.8	27	8.3	36	18	0	-17	...
22	11.8	23	9.0	24	16	0	-17	...
23	11.4	18	8.7	12	12	-3	-19	...
24	12.0	14	9.0	-1	11	-1	-14	-35

VK WEST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	12.0	18	9.0	8	14	0	-15	-36
2	12.1	14	9.2	-5	12	0	-12	-32
3	14.3	12	11.3	-24	12	6	-2	-16
4	17.7	11	13.6	...	11	11	6	-3
5	18.9	10	14.0	...	9	11	7	0
6	18.9	9	15.4	...	7	10	6	0
7	19.0	9	15.5	...	6	9	6	0
8	18.9	9	15.4	...	6	9	6	-1
9	18.7	9	15.2	...	7	9	6	-1
10	18.6	10	15.1	...	8	10	6	-1
11	18.0	11	14.8	...	11	11	6	-2
12	17.2	13	13.8	-28	14	12	5	-5
13	16.2	16	13.0	-9	18	12	4	-9
14	15.3	19	12.2	9	21	12	2	-13
15	14.5	23	11.5	28	24	12	-1	-19
16	13.9	26	11.0	37	25	10	-3	-23
17	13.3	28	10.7	41	24	8	-7	-29
18	12.6	29	9.9	44	23	5	-11	-35
19	12.0	30	9.3	44	21	2	-16	...
20	11.6	30	8.8	44	19	-1	-20	...
21	11.4	31	8.6	44	18	-2	-22	...
22	11.9	30	8.9	44	21	1	-17	...
23	12.0	27	9.2	36	19	1	-16	...
24	11.5	23	8.7	23	15	-2	-19	...

VK EAST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	22.8	14	17.9	-39	18	19	16	10
2	23.0	12	17.5	...	16	18	15	9
3	23.6	13	18.4	...	17	19	16	10
4	24.3	13	18.5	...	18	20	18	12
5	25.3	14	19.2	-38	20	22	20	14
6	26.1	15	20.2	-28	23	25	22	17
7	25.0	17	20.4	-14	26	26	23	17
8	23.8	19	19.8	6	31	29	24	16
9	22.6	21	18.2	32	37	31	24	15
10	21.3	22	17.1	40	38	30	22	11
11	20.2	23	16.2	45	38	29	20	8
12	19.7	23	15.7	49	38	28	19	6
13	19.1	24	15.0	52	38	27	17	3
14	18.2	22	13.8	51	35	23	11	-5
15	16.5	23	12.7	50	31	16	2	-16
16	15.2	24	11.5	49	28	10	-6	-28
17	13.9	24	10.6	48	23	3	-16	...
18	11.8	26	9.1	45	12	-13	-38	...
19	9.1	28	7.0	38	-11	...	...	...
20	8.6	27	6.7	36	-17	...	...	...
21	12.5	20	9.4	26	13	-7	-28	...
22	18.8	16	14.6	5	25	18	9	-3
23	21.8	16	17.3	-17	23	22	17	9
24	22.3	15	18.0	-30	20	20	17	10

VK SOUTH — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	18.0	12	14.4	...	12			

VK EAST — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.2	-2	7.2	-22	0	-13	-30	...	
2	8.4	-10	6.6	-25	-1	-15	-32	...	
3	8.2	-14	6.5	-29	-1	-14	-30	...	
4	9.4	-11	7.2	-39	0	-9	-22	...	
5	12.0	-3	9.6	...	1	-2	-11	-25	
6	15.2	2	12.2	...	1	3	-2	-11	
7	17.8	6	14.3	...	2	6	3	-3	
8	19.8	9	15.9	...	4	9	7	1	
9	21.1	12	17.1	...	11	14	12	6	
10	20.9	17	16.8	-18	21	21	17	9	
11	19.7	21	15.8	9	28	24	18	8	
12	18.7	23	14.9	27	32	25	17	6	
13	18.1	25	14.4	37	34	25	16	4	
14	17.5	24	13.6	42	33	22	11	-3	
15	15.4	25	12.2	44	29	15	2	-16	
16	13.1	27	10.6	43	22	4	-12	-36	
17	11.4	28	9.0	41	15	-7	-28	...	
18	10.0	29	7.9	39	7	-19	...	...
19	9.3	29	7.2	37	2	-28	...	...
20	8.9	29	6.9	36	-1	-33	...	...
21	8.3	25	6.4	28	-4	-35	...	...
22	7.8	16	6.1	14	-7	-36	...	...
23	9.3	9	7.2	0	1	-19	...	...
24	9.6	4	7.4	-12	1	-14	-32	...	

VK SOUTH — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.9	3	7.7	-17	2	-11	-27	...	
2	9.0	-5	7.0	-24	0	-13	-30	...	
3	8.7	-11	6.9	-32	0	-12	-27	...	
4	10.1	-9	7.7	...	0	-6	-18	-36	
5	13.2	-2	10.5	...	0	0	-6	-18	
6	16.7	3	13.4	...	-1	3	1	-6	
7	19.4	5	15.6	...	-2	5	5	0	
8	19.6	7	16.0	...	-2	7	7	3	
9	19.5	8	15.8	...	1	8	8	3	
10	18.9	11	15.3	...	6	11	9	3	
11	18.0	15	14.5	-36	15	14	10	2	
12	17.0	19	13.7	-2	22	17	10	0	
13	16.1	24	12.8	24	28	19	9	-5	
14	15.3	26	12.2	35	29	17	6	-9	
15	14.7	27	11.6	40	29	16	3	-14	
16	14.0	26	11.1	43	25	9	-6	-27	
17	12.2	28	9.5	42	19	0	-19	...	
18	10.8	29	8.4	40	12	-11	-34	...	
19	9.9	29	7.7	39	7	-19	...	...
20	9.5	29	7.3	38	4	-24	...	...
21	9.4	29	7.2	36	3	-26	...	...
22	8.0	19	6.2	19	-9	...	...	...
23	8.2	12	6.4	8	-6	-32	...	...
24	10.2	10	7.9	-5	4	-11	-29	...	

VK WEST — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	10.4	13	8.0	3	4	-14	-33	...	
2	9.4	4	7.3	-10	-1	-18	-38	...	
3	9.1	-4	7.2	-22	-2	-17	-35	...	
4	10.6	-2	8.0	-35	0	-9	-22	...	
5	14.0	2	11.2	...	2	0	-7	-19	
6	17.9	5	14.4	...	1	5	2	-5	
7	20.7	6	16.7	...	0	7	6	1	
8	22.6	7	18.3	...	0	8	8	5	
9	22.9	9	18.7	...	1	10	10	7	
10	22.3	11	18.2	...	4	11	11	8	
11	21.4	12	17.8	...	10	14	12	7	
12	20.4	16	16.5	-24	19	19	14	7	
13	19.3	20	15.5	12	28	22	16	5	
14	18.3	23	14.6	32	32	23	15	3	
15	17.5	22	13.8	38	31	20	9	-5	
16	15.0	24	12.3	41	26	12	-2	-21	
17	13.0	26	10.1	43	21	3	-14	-38	
18	11.5	27	8.9	41	15	-7	-28	...	
19	10.6	28	8.2	39	10	-15	-39	...	
20	10.2	28	7.8	39	7	-19	...	...
21	9.9	28	7.5	38	5	-22	...	...
22	10.0	28	7.8	38	6	-21	...	...
23	9.1	25	7.0	30	-1	-31	...	...
24	8.7	17	6.7	16	-4	-32	...	...

VK EAST — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.2	-7	6.9	-30	0	-9	-22	...	
2	9.6	-2	7.3	-24	2	-9	-22	...	
3	9.9	2	7.5	-18	3	-8	-23	...	
4	9.5	5	7.4	-10	3	-11	-27	...	
5	8.7	8	6.7	0	0	-18	-38	...	
6	8.4	14	6.6	11	0	-23	...	...
7	9.7	23	7.7	24	7	-15	-36	...	
8	12.4	25	9.9	33	19	2	-13	-35	
9	11.4	25	8.7	26	17	1	-14	-36	
10	11.4	15	8.6	0	12	0	-12	-31	
11	14.5	10	11.4	-34	10	7	0	-11	
12	14.6	4	11.5	...	4	4	0	-9	
13	13.9	-1	11.2	...	0	1	-2	-11	
14	13.2	-6	10.3	...	-3	0	-4	-12	
15	12.5	-11	9.6	...	-4	-1	-5	-13	
16	12.0	-13	9.1	...	-5	-2	-5	-14	
17	11.7	-15	8.8	...	-4	-2	-6	-15	
18	12.3	-12	9.1	...	-5	-1	-5	-13	
19	13.5	-7	10.6	...	-5	-1	-4	-12	
20	11.7	-12	9.1	...	-3	-2	-7	-18	
21	10.4	-15	8.0	...	-1	-3	-11	-24	
22	9.6	-15	7.3	...	0	-5	-14	-30	
23	9.2	-14	7.0	...	0	-7	-17	-34	
24	9.1	-11	6.9	-36	0	-8	-20	-39	

VK SOUTH — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	8.7	-10	6.6	-28	0	-12	-26	...	
2	8.9	-5	6.9	-22	0	-13	-28	...	
3	9.1	0	7.0	-15	0	-14	-31	...	
4	8.8	3	6.8	-7	-1	-18	-37	...	
5	8.0	6	6.2	1	-5	-27	...	...
6	7.8	11	6.1	9	-7	-34	...	...
7	8.8	22	7.0	23	-1	-28	...	...
8	11.1	22	8.9	27	11	-7	-26	...	
9	11.7	24	9.1	30	15	-3	-20	...	
10	9.0	20	6.9	21	0	-24	...	...
11	8.5	11	6.5	6	-1	-24	...	...
12	12.3	9	9.5	-16	8	-1	-12	-29	
13	13.1	4	9.3	...	5	2	-4	-16	
14	12.5	-3	8.7	...	0	0	-6	-17	
15	11.9	-9	8.3	...	-2	-1	-6	-17	
16	11.6	-12	8.1	...	-3	-2	-7	-17	
17	11.6	-13	8.2	...	-4	-2	-6	-16	
18	12.3	-12	8.7	...	-5	-1	-5	-14	
19	12.5	-10	9.5	...	-4	-2	-6	-16	
20	10.8	-15	8.5	...	-2	-3	-9	-21	
21	9.5	-29	7.4	...	-8	-12	-21	-37	
22	8.8	-33	6.8	...	-9	-16	-28	...	
23	8.5	-26	6.6	...	-5	-14	-27	...	
24	8.5	-15	6.5	-33	0	-10	-23	...	

VK WEST — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	8.3	-27	6.4	...	-7	-16	-29	...	
2	8.6	-16	6.6	-35	-3	-12	-25	...	
3	8.7	-12	6.7	-29	-3	-14	-28	...	
4	8.4	-10	6.6	-23	-3	-17	-32	...	
5	7.6	-9	6.0	-14	-6	-23	...	...
6	7.5	-5	5.9	-8	-7	-28	...	...
7	8.4	4	6.6	-2	-4	-25	...	...
8	10.5	12	8.3	3	4	-12	-29	...	
9	12.7	16	9.9	11	13	0	-13	-32	
10	10.8	20	8.4	24	9	-9	-27	...	
11	8.8	13	6.8	11	-1	-23	...	...
12	9.0	5	6.9	-4	-1	-18	-37	...	
13	12.8	4	9.6	-31	4	-1	-10	-24	
14	13.6	0	9.2	...	0	0	-5	-15	
15	12.9	-7	8.9	...	-3	-2	-7	-16	
16	12.3	-11	8.4	...	-5	-3	-8	-17	
17	11.8	-15	8.0	...	-6	-4	-8	-18	
18	11.4	-17	7.8	...	-6	-4	-9	-18	
19	11.4	-17	7.9	...	-6	-5	-9	-19	
20	10.3	-27	8.1	...	-10	-11	-17	-30	
21	9.1	...	7.1	...	-19	-22	-32	...	
22	8.4	...	6.6	...	-23	-29	...	...
23	8.2	...	6.3	...	-21	-29	...	...
24	8.1	...	6.3	...	-16	-24	-38	...	

VK EAST — MEDITERRANEAN									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	8.2	-7	6.3	-19	-2	-19	-38	...	
2	7.8	-16	6.0	-26	-3	-18	-36	...	
3	10.8	-6	8.3	...	0	-6	-17	-34	
4	16.5	4	12.7	...	1	4	-8	-4	
5	22.0	7	16.9	...	-1	7	7	4	
6	23.6	8	17.9	...	-2	7	9	6	
7	23.8	9	18.4	...	-2	8	10	8	
8	23.1	10	18.8	...	0	10	11	8	
9	22.2	11	18.4	...	5	12	12	8	
10	21.1	14	17.0	...	13	16	13	8	
11	19.9	17	16.0	-19	20	19	15	7	
12	18.9	20	15.1	9	27	22	15	5	
13	18.2	23	14.5	30	32	24	15	3	
14	17.6	25	13.9	38	33	23	14	1	
15	16.8	26	13.2	42	33	22	12	-2	
16	15.8	27	12.4	45					

HAMADS

TRADE AOS

● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albany; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth.

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● **FOR SALE RADIO REPAIR BUSINESS** UHF/VHF & HF. WA Coastal town, well established, no opposition. Genuine reason for sale at a fraction of its value, \$19,000. Director (075) 97 5737.

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● **YAESU FT-212RH** 45 W 2 mm mobile xcvr s/n 21960679 \$450; **YAESU FT-26** 2M HT s/n 1L150095 \$300. Both radios EC, with orig boxes plus manuals. Colin VK2AXX QTHR (02) 30 8685.

● **IDEAL QTH** or Community Radio site 5 acres elevated land close Picton fenced, few trees, all services \$160K. VK2ADI (02) 597 5807.

● **1989 TO 1994 Amateur Radio** 72 copies \$30; **FT101B** excellent condition with spare driver and final valves s/n 4J313385 \$400. VK2GZ QTHR (069) 62 3576.

● **QTH FIVE** Hilltop acres excellent HF/VHF erect tower of your dreams amid tranquillity characterful home 12 mins from main shops, 15 to superb beaches in go ahead Gosford \$365,000. Write Dave, RMB 5443 The Ridgeway, Holgate Gosford NSW 2250.

● **LOG** periodic, 8 element 13-30 MHz ATN type all-hardware GC \$500. Phillip VK2QG (02) 675 3514.

● **ICOM IC32AT** dual band 70 cm/2 m FM HH with BC36 desk top charger & cig lead \$500; **YAESU FT26** 2M FM HH as new \$325; **YAESU**

FT757GX HF mobile/base rig full WARC with FC757AT fully auto tuner & mobile bracket \$1300. Bob VK2AOE QTHR (02) 449 6364.

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FOR SALE VIC

● **YAESU** mobile antenna full set includes base mount 2 m stub plus 10, 15, 20, 40, 80 MHz loading coils \$135 Posted. Jim VK3YJ QTHR (03) 315 9387.

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● **TENDER FELL** Estate round three. Military radios, military pamphlets, ham transceivers, linears, test gear, PSUs, Genemotors general. No valves. Send 85c stamp for catalogue Hadgraft, 17 Paxton St, Holland Park QLD 4121, (07) 397 3751 AH.

FOR SALE WA

● **YAESU FRG-7** communications receiver immaculate as new 12 V DC and mains full cover all HF bands with manual \$150. Tom VK6TL (09) 386 7692.

● **YAESU FT757GX** \$850; **YAESU** monitor scope \$80; **KENWOOD TS120V** \$300. All with manuals VK6NMF QTHR (09) 941 2305.

WANTED NSW

● **YAESU FV-102DM** VFO GC, VK2QC (02)675 3514

WANTED QLD

● **AMATEUR** receiver 12 volt; large Tx type variable capacitor for "L" tuner (long wire); COPY "Understanding Amateur Radio by ARRL"; **TENTEC "Century 21"** transceiver. Details to Granite Belt Amateur Wireless Group (076) 85 2167 AH.

WANTED WA

● **KENWOOD TS940S** in immaculate condition. Would prefer one with optional CW filters. Steve VK6VZ (09) 298 9330.

MISCELLANEOUS

● **THE WIA QSL** Collection (now Federal) requires QSLs. All types welcome especially rare DX pictorial cards special issue. Please contact Hon Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350.

ar

Spotlight on SWLing

*Robin L Harwood VK7RH**

Well 1995 has arrived at last! Every year we hope that this year will be better than the last, yet it seems to degenerate in a dull sameness and the situation generally does not improve. What will 1995 bring? The proposed regionalisation of the BBC World Service is due to commence sometime early in the New Year, probably when the Northern Hemisphere commences Daylight Saving at the end of March. One query that I have, what are the co-operating rebroadcasting MW or FM outlets going to carry when they use the BBC W/S as a midnight to dawn "filler" if the regional service to the Pacific is unavailable? I guess we will find out in due course.

The VOA site at Bethany Ohio ceased operating at 1800 UTC on 13 November 1994. I noted on the Internet that Shortwave echoes had a number of

messages of support to the 70 or so staff who were being laid off both at Bethany and at Greenville. This budgetary cutback pales by comparison to the 700 layoffs at Radio Free Europe/Liberty at Munich. You may have also heard that they are proposing to relocate the studios from Munich to Prague in the Czech Republic, yet I have heard whispers that the incoming Republican controlled US Congress may have other ideas.

Incidentally, Radio Moscow International is no more. It is now known as the World Service of the "Voice of Russia". This ties in with the title of Russian language service. Radio Tashkent in the Uzbek Republic has been noted in English at fairly good strength at 1200 on 13705 kHz.

Noted two new MW stations operating in Melbourne both carrying programming

for the ethnic community. One, "Radio Hellas", has resurrected an old callsign and frequency, 3XY on 1422 kHz. It has quite a strong daylight signal here in Launceston. 1593 kHz is carrying an Italian program but I have no additional information on it other than it is not associated with the other Italian outlet on 1116 kHz. All are commercial and "narrowcasting".

If you have access to a Phone BBS, there are several message areas devoted to shortwave radio available. The international echo "rec.radio.shortwave" is both on FIDONET and INTERNET, although there are minor differences. I find this echo is useful to receive advance information on schedules and special broadcasts but is dominated by North American related information which often isn't relevant to this region. Hence an Australian echo is active on FIDONET known simply as "OZ_SW". Notice the underline between those two words — it is not a hyphen mark. Correct addressing is important in e-mail, otherwise your mail bounces back to you. Personally I find that the latter echo is more suited to my needs, although a fair amount of scanner and satellite information pops up. There are

specific message areas to cater for these groups and it is advisable that information should relate to the specific areas and not clutter up the echoes with useless or duplicative messages.

Dr Glenn Geers VK2EKL sent me a list of radio-related echoes currently available on INTERNET. Here is the current listing:
 alt.commercial-hit-radio.must.die: 0
 alt.internet.talk-radio: 0
 alt.internet.talk.radio: 0
 alt.radio-shack.bill-bixby.dead.dead.dead: 0

alt.radio.digital: 0
 alt.radio.internet: 0
 alt.radio.networks.cbc: 0
 alt.radio.networks.npr: 0
 alt.radio.online-tonight: 0
 alt.radio.scanner: 0
 alt.radio.uk: 0
 aus.radio.amsat: 1-316
 aus.radio.packet: 0
 aus.radio.wicen: 0
 aus.radio: 1-1035
 rec.antiques.radio+phono: 0
 rec.radio.amateur.antenna: 0
 rec.radio.amateur.digital.misc: 0
 rec.radio.amateur.equipment: 0
 rec.radio.amateur.homebrew: 0
 rec.radio.amateur.misc: 0

rec.radio.amateur.packet: 0
 rec.radio.amateur.policy: 0
 rec.radio.amateur.space: 0
 rec.radio.broadcasting: 0
 rec.radio.cb: 0
 rec.radio.info: 0
 rec.radio.noncomm: 1-80
 rec.radio.scanner: 0
 rec.radio.shortwave: 1-1223
 rec.radio.swap: 0

As you can see, some of these are relevant to the States but there are quite a number that would be interesting to access. Check your local BBS SYSOP to see if these would be available. Some are also on FIDONET nodes. However, "OZ_SW" and "OZ_SCAN" are only on FIDONET and also are confined to Australia. There is also a satellite TV echo but I do not have exact details.

Do hope that you have plenty of fun over the summer holidays listening around. Take care and good monitoring!

*54 Connaught Crescent, West Launceston TAS 7250
 VK7RH@VK7BBS.LTN.TAS.AUS.OC
 Internet: robroy@clarie.apana.org.au
 Fidonet: Robin.Harwood 3:670/301@fidonet.org

Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.

*Eight lines per issue free to all WIA members, ninth line for name and address
 Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.

*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.

*Copy typed or in block letters to PO Box 2175, Caulfield Junction, Vic 3161, by the deadline as indicated on page 1 of each issue.

*QTHR means address is correct as set out in the WIA current Call Book.

*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.

*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

Conditions for commercial advertising are as follows: \$25.00 for four lines, plus \$2.25 per line (or part thereof) Minimum charge — \$25.00 pre-payable.

State:

Not for publication:

Miscellaneous

For Sale

Wanted

Name: Call Sign: Address:

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It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with strictly.

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All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

TYPESETTING AND PRINTING:

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Telephone: 428 2958

MAIL DISTRIBUTION:

R L Polk & Co Pty Ltd, 96 Herbert St, Northcote, Vic. 3070. Tel: (03) 482 2255

CONTRIBUTIONS TO AMATEUR RADIO

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. "How to Write for Amateur Radio" was published in the August 1992 issue of AR. A photocopy is available on receipt of a stamped, self addressed envelope.

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Wireless Institute of Australia
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VK2	PO Box 73 Teralba NSW 2284
VK3	40G Victory Boulevard, Ashburton VIC 3147
VK4	GPO Box 638 Brisbane Qld 4001
VK5	PO Box 10092 Gouger Street Adelaide SA 5001
VK6	GPO Box F319 Perth WA 6001
VK7	GPO Box 371D Hobart Tas 7001
VK8	C/o H G Andersson VK8HA Box 619 Humpty Doo NT 0836
VK9/VK0	C/o Neil Penfold VK6NE 2 Moss Court Kingsley WA 6026

WIA Divisional Bookshops

The following items are available from your Division's Bookshop
(see the WIA Division Directory on page 3 for the address of your Division)

	Ref	List Price		Ref	List Price
ANTENNAS					
Ant. Compendium Vol 2 Software 5.25" IBM Disk	BR293	\$20.00			
Antenna Compendium Vol 2 — ARRL	BR292	\$32.00			
Antenna Impedance Matching — ARRL	BR257	\$52.00			
Antenna Note Book W1FB — ARRL	BR179	\$26.00			
Antenna Pattern Worksheets Pkt of 10	BR902	\$3.00			
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G-QRP Antenna Handbook — RSGB — 1992 1st Edition	BR452	\$22.50			
HF Antenna Collection — RSGB	BR391	\$44.00			
HF Antennas for all Locations — Moxon — 2nd Edition	BR188	\$45.00			
Antenna Compendium Vol 1 — ARRL	BR163	\$26.00			
Novice Antenna Notebook — DeMaw W1FB — ARRL	BR162	\$20.00			
Physical Design of Yagi — 3.5" IBM Disk	BR388B	\$20.00			
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Practical Antennas for Novices	BR35	\$19.00			
Practical Wire Antennas — RSGB	BR296	\$32.00			
Reflections Transmission Lines and Antennas — 5.25" IBM	BR348A	\$20.00			
Reflections Transmission Lines and Antennas — ARRL	BR348	\$52.00			
The Antenna Handbook — ARRL 1994 edition with disk	BR370A	\$65.00			
Transmission Line Transformers — ARRL	BR329	\$40.00			
Yagi Antenna Design — ARRL	BR164	\$40.00			
HANDBOOKS					
ARRL Handbook — 1995	BR369	\$66.00			
Electronics Data Book — ARRL	BR201	\$32.00			
Radio Communication Handbook — RSGB	BR266	\$44.00			
Radio Theory For Amateur Operators — Swainston — 2nd Ed	BR265	\$47.50			
Space Radio Handbook — GM4IHJ — RSGB	BR439	\$47.00			
World Radio TV Handbook	BR450	\$40.00			
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200 Meters and Down 1936 — ARRL	BR198	\$21.00			
50 Years of the ARRL — 1981	BR196	\$8.00			
Bright Sparks of Wireless	BR394	\$44.00			
Dawn of Amateur Radio	BR395	\$58.00			
World at Their Finger Tips	BR38	\$23.00			
INTERFERENCE					
Radio Frequency Interference — ARRL — 1992 Edition	BR186	\$40.00			
The Radio Amateurs Guide to EMC	BR36	\$25.00			
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Amateur Radio for Beginners — RSGB	BR392	\$13.50			
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First Steps in Radio — Doug DeMaw W1FB	BR385	\$14.00			
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Ham Radio Communications Circuit Files	MFJ37	\$24.95			
Help For New Hams — DeMaw — ARRL	BR308	\$26.00			
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I Love Amateur Radio Car Bumper Sticker — RSGB	BR466	\$2.75			
I'm On The Air Sticker	BR466A	\$2.75			
Low Profile Amateur Radio	BR46	\$17.50			
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OPERATING					
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Low Band DXing — John Devoldere — 2nd Edition 1994	BR195	\$45.00			
Operating Manual — ARRL — 4th Edition	BR192	\$48.00			
Operating Manual — RSGB	BR359	\$31.00			
Passport to World Band Radio	BR346	\$45.00			
Prefix Map of the World — RSGB (laminated)	BR397	\$25.00			
RTTY/AMTOR Companion ARRL 1st Ed 1993	BR45	\$21.00			
The Complete DXer — W9KNI	BR194	\$32.00			
Transmitter Hunting	BR222	\$43.00			
World Grid Locator Atlas — (Maidenhead Locator) — ARRL	BR197	\$13.00			
PACKET RADIO					
AX.25 Link Layer Protocol — ARRL	BR178	\$21.00			
Gateway to Packet Radio 2nd edition — ARRL	BR169	\$32.00			
NOSintro	BR468	\$45.00			
Packet Computer Networking Conference No 8 1989 — ARRL	BR295	\$20.00			
Packet Radio Companion ARRL 1993 1st Edition	BR285	\$22.00			
SATELLITES					
Satellite Anthology — 1994 3rd Edition — ARRL	BR476	\$24.00			
Satellite Experimenters Handbook	BR177	\$52.00			
Space Almanac — ARRL	BR299	\$50.00			
Weather Satellite Handbook — ARRL — 5th Edition 1994	BR324	\$45.00			
Weather Satellite Handbook Software 5.25" IBM Disk	BR326	\$20.00			
VHF/UHF/MICROWAVE					
Microwave Handbook Vol 1 — RSGB	BR318	\$38.00			
Microwave Handbook Vol 2 — RSGB	BR437	\$57.00			
Microwave Handbook Vol 3 — RSGB	BR447	\$57.00			
Spread Spectrum Source Book — ARRL	BR365	\$52.00			
UHF/Microwave Experimenters Manual — ARRL	BR325	\$52.00			
UHF/Microwave Experimenters Software — ARRL	BR327	\$20.00			
VHF Companion — ARRL	BR461	\$21.00			
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WIA Log Book — Horizontal or Vertical Format		\$5.00			
WIA Novice Study Guide		\$1.50			

Not all of the above items are available from all Divisions (and none is available from the Federal Office).

If the items are carried by your Divisional Bookshop, but are not in stock, your order will be taken and filled as soon as possible.

Divisions may offer discounts to WIA members — check before ordering. Postage and packing, if applicable, is extra.

All orders must be accompanied by a remittance.

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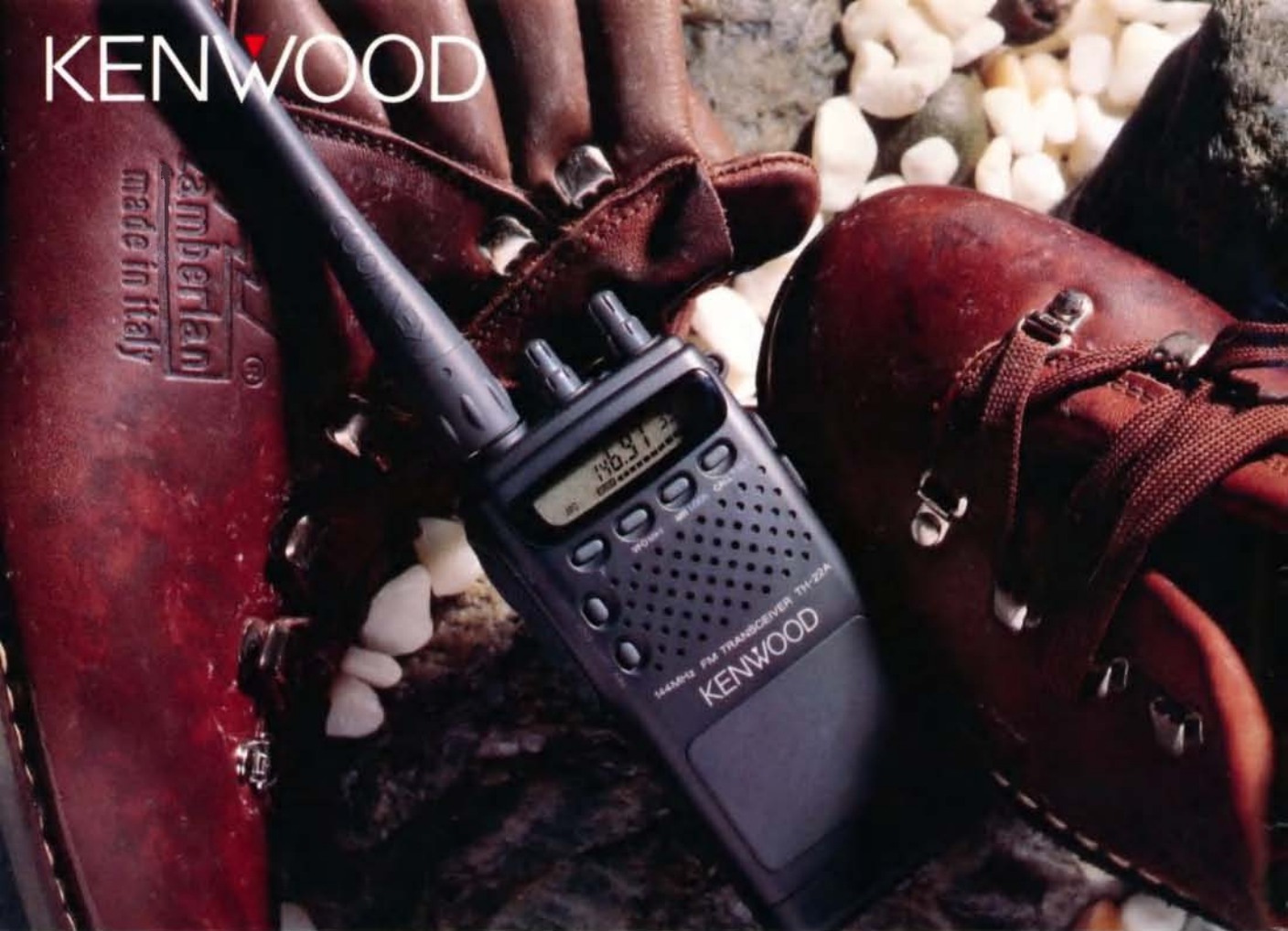


Full of the latest amateur radio news, information and technical articles including

- * "Paddy Board" Circuit Construction
- * WIA Exam Service Listing of Examiners
- * Stolen Equipment Register

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Cover

Ron Fisher VK3OM's fully equipped Toyota Hiace van parked at the Devil's Marbles in the Northern Territory during his 1994 around Australia expedition. Ron and wife Lyn travelled in company with two other couples, including editor Bill Rice VK3ABP and wife Margaret. Amateur radio operation was an important part of their travels. Ron used a Yaesu FT747 on HF and an ICOM IC28A on 2 metres. Mobile HF antennas included a Hustler and a Global (see page 12 of last month's Amateur Radio for more details).

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest National Radio Society Founded 1910

Representing the Australian Amateur Radio Service

Member of the International Amateur Radio Union

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Editor's Comment

Licence Fees

I must preface these comments by making clear that they are entirely my own personal opinions and do not necessarily reflect the views of Federal Council or anyone else.

Firstly, judging by the volume of mail received since the new fees were announced, there appears to have been a violent reaction by many amateurs to the magnitude of the increases. Such a reaction was to be expected to a proposed fee level not far short of twice its previous value (from \$37 to \$69 for a full licence). We are accustomed to various prices, taxes, duties, etc being increased from time to time, but never by such a rise in one blow!

There has been a suggestion by some that the increases were provisional and still subject to re-negotiation (as hinted in last month's insert to *Amateur Radio*, with the possibility of rising further, or falling, by as much as \$10). But even \$59 is still much more than \$37.

This month's insert, protesting at the rises, was not originated by Federal Council (it was the idea of Ian Hunt VK5QX), but does have its support. It gives all of you an opportunity to express your own attitudes personally. Likewise, the comments by Stephen Pall on the *How's DX* page are his own thoughts, but do make comparison with CB operators whose licences are now free!

Altogether, there seem to be many anomalies in the proposals, which require a great deal more convincing justification than has been received so far.

Bill Rice VK3ABP
Editor
ar

WIA Videotape Library

It is customary to list all the videotape titles available from the WIA Videotape Library in the February issue of *Amateur Radio* magazine each year, as well as explain how members and clubs may borrow from the library.

Bob Godfrey VK4BOB advises that there have been no new titles added to the library since compilation of the list that appeared in the February 1994 issue of *Amateur Radio*.

Therefore, because space is at a premium in this issue of the magazine, we have decided not to print the list this year. If you want details of the Videotape Library, please refer to page 27 of the February 1994 issue of *Amateur Radio*. If you do not have access to that issue, a photocopy of the listing is available from the Federal Office for \$2.50; or you may contact the Federal Videotape Librarian, Bob Godfrey VK4BOB, by writing to him at 20 Buckra Street, Bracken Ridge QLD 4107, or by telephoning him after hours on (07) 269 5380.

ar

QSP News

Amateur Radio Talking Book

The WIA has been negotiating for some time with the Royal Institute for the Blind in Victoria to have *Amateur Radio* converted onto tape for the blind.

Despite the fact that we have two volunteers who have presented sample readings which were accepted, we were informed on 8 December that the project was now "on hold" while the User Committee investigates the viability of the scheme.

To lend support to the project it

could be of assistance if amateurs who would use this service could write to:-

Ms Linley Wallis, Chief Librarian,
557 St Kilda Road, Melbourne, VIC 3000.

Special Event Station VI75RAAF

Bob VK4ACL, secretary of the Air Forces Amateur Radio NET, advises that, in 1996, the AFAR Net will be putting on air the special event station VI75RAAF to celebrate the 75th anniversary of

the Royal Australian Air Force (RAAF).

The special event station will operate on all amateur frequencies (except WARC) in all modes, including digital.

The major sponsor will be the Department of Defence (RAAF) which has offered to supply certificates and QSL cards.

The AFAR Net meets on Tuesday evenings on 3567 and 3610 kHz, and on Friday afternoons on 7085 kHz.

The awards manager is Brian VK4LV (QTHR).

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers	Weekly News Broadcasts	1995 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Rob Apathy Secretary Len Jones Treasurer Don Hume	VK1KRA 3.570 MHz LSB, 146.950 MHz FM, 438.525 MHz FM each VK1NLJ Monday evening (except the fourth Monday) commencing at VK1DH 8.00 pm. Repeated on Wednesday evening at 8.00 pm on 146.950 MHz FM.	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Michael Corbin Secretary Pixie Chapple Treasurer Pieter Kloppenburg (Office hours Mon-Fri 11.00-14.00 Mon 1900-2100)	VK2PFG From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, VK2KPC 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 VK2CPK (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. Voicemail highlights on (02) 724 8793. The broadcast text is available on packet.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530)	VK3PC 1.840MHz AM, 3.615 LSB, 7.085 LSB, 53.900 FM(R) Mt Dandenong, (F) VK3XV 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 146.900 (G) (S) \$58.00 VK3XLZ FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) (X) \$44.00 Mt Macedon, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Secretary Lance Bickford Treasurer Rodger Bingham	VK4ZAZ 1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, (F) \$72.00 VK4HD 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 (G) (S) \$58.00 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday (X) \$44.00	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Garry Herden Secretary Maurie Hooper Treasurer Charles McEachem	VK5ZK 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, (F) \$72.00 VK5EA 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, (G) (S) \$58.00 VK5KDK 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV (X) \$44.00 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555, 7065, 10125, 146.700, 0900 hrs Sunday 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825 3.560, (F) \$60.75 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. (G) (S) \$48.60 Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt (X) \$32.75 William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 434 3283	President Cliff Bastin Secretary Ray Spargo Treasurer Bruce Hedland-Thomas	VK6LZ VK6RR VK6OO	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Avenue Lindisfarne TAS 7015 Phone (002) 43 8435	President Andrew Dixon Secretary Ted Beard Treasurer Phil Harbeck	VK7GL VK7EB VK7PU	(F) \$69.00 (G) (S) \$55.65 (X) \$40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times.

Note: All times are local. All frequencies MHz.

■ Construction

"Paddyboard" Circuit Construction

Drew Diamond VK3XU* describes his approach to a construction technique mentioned in "Technical Abstracts" last April.

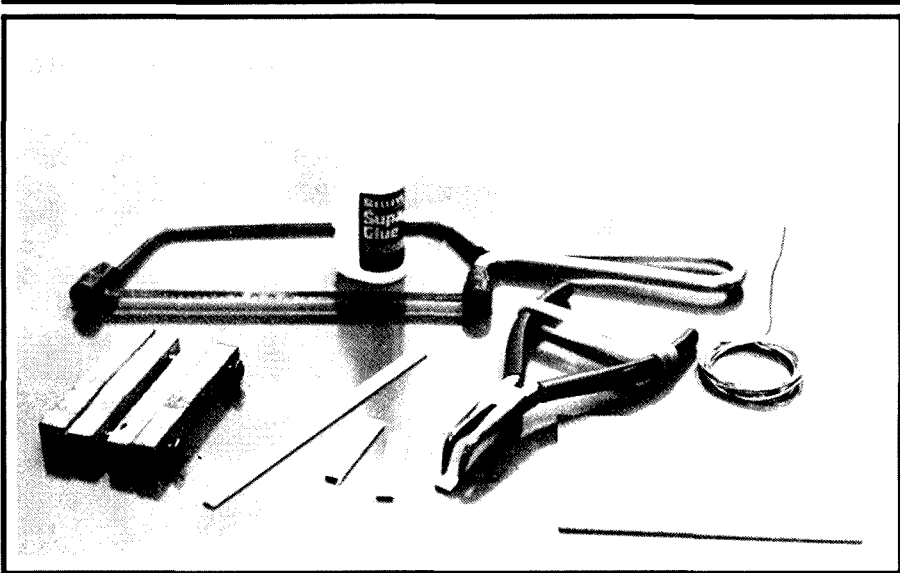


Photo 1 Tools and materials.

If a radio friend, or workmate, gives you circuit details and a spare printed board along with words something like "build that — it works terrific", it's odds-on that you will probably get around to building the thing. However, if a desired project involves figuring out the artwork, then laying out a circuit board, messing about with chemicals and drilling hundreds of tiny holes, we may not "get around to it" quite so soon.

For one-off radio and electronics projects involving a circuit board, the amateur generally has the choice of a factory-made board (most desirable, but not always available), making a home-made board (if artwork is available), doing the artwork and making the board, employing the "ugly" technique (not always elegant, but quite workable), or not building the project at all.

A circuit board construction method which has not received the attention it deserves uses pads of appropriate size attached to plain

circuit board sheet. No drilling or etching is necessary. More reliable operation, even for VHF circuitry, is usually obtained because the foil provides a continuous "ground plane" under the components, and lead lengths can therefore be made very short, thus improving circuit stability. Capacitance is about 4.3 pF per square centimetre for 2 mm fibre-glass board. So for DC, AF, HF and VHF work, the additional capacitance

of small pads should not significantly alter circuit operation. The example shown in photo 5 is a prototype transmitter board for a 40 m version of the "TCF" transceiver presently under development.

Scraps of single or double-sided board are hacksawed, guillotined, or tin-snipped to the sizes required. For applications involving ordinary transistors and passive components, squares of about 6 mm are suggested. Rough edges and burrs should be removed with a flat mill file. According to authoritative opinion, the dust from fibre-glass board is not known to be hazardous. However, as with any dusty job, "you should wear a suitable mask (available from hardware shops) when cutting this material."

Here are two effective methods of attaching the pads to the board; a tiny dab of super glue is applied to one side (single or double-sided), then the pad is quickly placed onto the board at the spot required. To make the job a little easier, temporarily solder a resistor to the pad, then use it as a "handle" when positioning. Both surfaces must be clean before the glue is applied. Be sure the glue has set properly before the soldering iron is applied again. If a pad needs to be removed later, carefully present a sharp pocket-knife blade to the pad-board junction and snap it off the board.

The second method, which I prefer, uses pads of double-sided board. Using bent long-nose pliers as an extra hand to hold the pad on the workbench, apply a narrow thin line of solder along two opposite edges of one surface of the pad foil (photo 2).

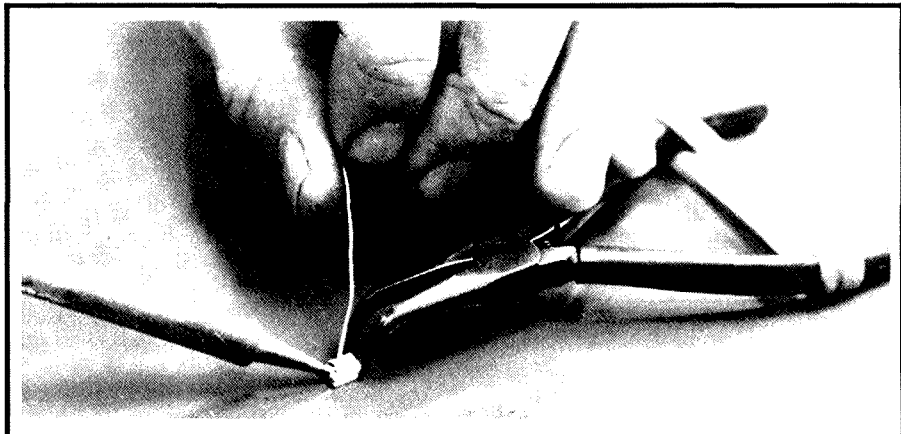


Photo 2 Tinning the pad.

Place the pad, pre-soldered side down, onto the board in the exact spot required. Again use the bent pliers to lightly clamp the pad in position (photo 3).

Now this is the crafty part. Apply the tip of your soldering iron at an angle of about 45 degrees so that the tip makes contact with the board and the lower surface of the pad at the very edge of the foil. Melt a little extra solder at the junction as you slide the tip along. A small amount of solder will then "sweat" under the pad. Do the same at the opposite edge. Presto! the pad is firmly attached. Visually check that there are no solder bridges between top and bottom of the pad.

If you need to remove a pad, apply the tip of the iron as before, then place a knife blade under the pad and gently lift one edge just a bit, then do the same with the opposite edge whilst holding the pad with long-nosed pliers, and lift the pad from the board.

For multi leaded components, we will need a "substrate" pad, sized

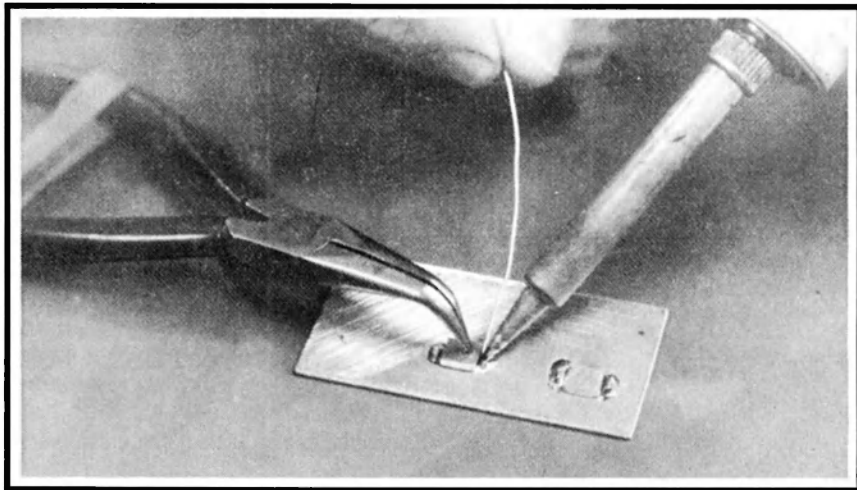


Photo 3 Soldering the pad onto the board.

accordingly. For instance, with 8-leg ICs, try a substrate of perhaps 18 mm x 20 or 25 mm, with spare lands at the ends if desired. An ordinary vice will not normally grip circuit board on its edges for working this material.

Shown is a suggested holding device (left in photo 1). The jig is made from a 65 mm length of 10 x 40

mm hardwood. Using a tenon saw and chisel, cut a channel 18 mm wide along the length of one surface of the wood, about 1.5 mm deep (slightly shallower than your board thickness). Two countersink wood screws are fitted to provide a tightening arrangement. The holes should be clearance to half the width, then

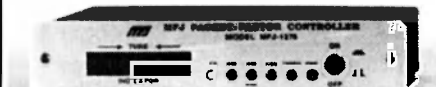
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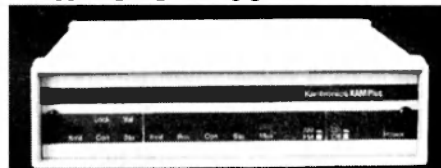


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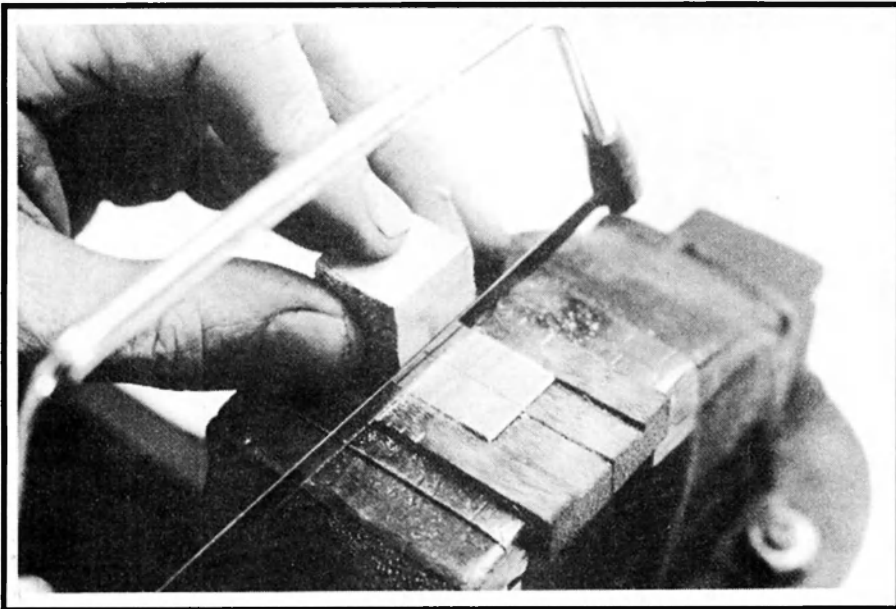


Photo 4 Cutting the substrate.

woodscrew thread in the other half. When the holes for the screws have been drilled, saw the wood lengthways down the middle.

To make a substrate, place your circuit material in the jig and tighten the screws so that it is firmly held. The jig may then be fixed in an ordinary vice; a slightly firmer grip will thus be applied to the job when the vice is tightened. An Eclipse 14J junior hack-saw is a good tool to cut the individual lands. Hold a small scrap of timber against the side of the blade as a guide when starting the cut, then draw the teeth square across the surface of the board (photo 4). Remove just sufficient of the foil to form the lands.

It would be a good plan to socket the ICs, thus avoiding the need for great accuracy in cutting the lands. Wire-wrap and the cheaper sockets allow you to bend their legs a little so that they will be lined up nicely. Substrates may be glued or soldered to the main board in a similar manner to that described for the smaller pads.

We can also make tag strips using this method. With double-sided board, make a substrate with as many lands (or tags) as desired, both sides if necessary. Instead of placing them flat upon the board, they may be soldered vertically on edge to enable the construction of quite compact and dense circuitry, or for use as anchor points for wires and cables.

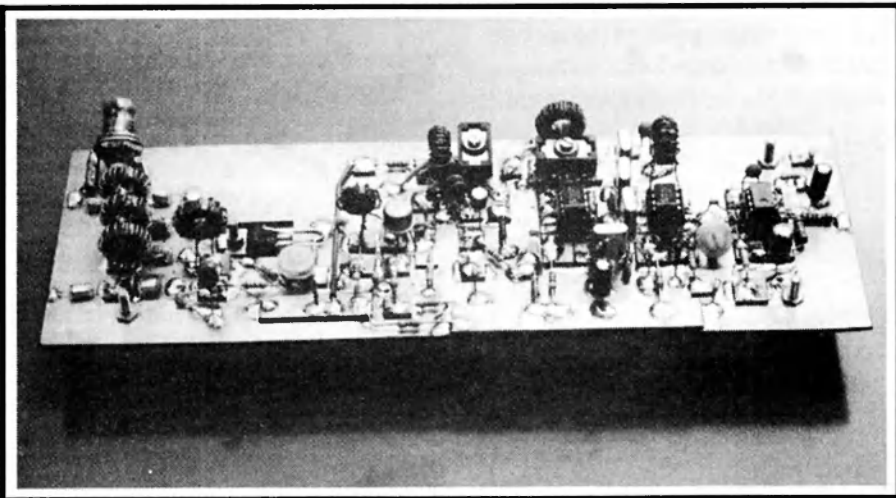


Photo 5 "Paddyboard" construction.

Acknowledgments

Discussions and correspondence with Roy Hartkopf VK3AOH ("Paddyboard" idea), and Basil Dale VK2AW.

References and Further Reading

1. *Build It Yourself From QST* — Hale, QST April-July '92 (excellent series).
2. *How To Lay Out RF Circuits* — White, Rad Comm Feb-Mar '91 (matrix pin method).
3. *Solid State Power* — Hepburn, ARA Nos 12 and 13 (amplifier using pad board construction).

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QSP News

G3AAJ Receives MBE for Services to Amateur Radio

Bill Magnusson VK3JT advised of the following news item from Martin Sweeting G3YJO, Chairman of AMSAT-UK.

Congratulations to Ron Broadbent G3AAJ, Hon Secretary and Treasurer of AMSAT-UK who was awarded an MBE (Member of the British Empire Medal) in the New Year UK Prime Minister's Civil Honours list in recognition of his services to amateur radio.

This award is most well-deserved and is an honour for both Ron and AMSAT-UK, recognising his many years of devoted service to AMSAT and its members worldwide as well as the contribution of AMSAT to the technical advancement of space technology.

I am sure that you will all join in congratulating both Ron and Beryl and also take this opportunity to thank them for all their unstinting hard work in support of AMSAT and amateur radio.

Bill VK3JT points out it is not so long ago that our own Graham Ratcliffe VK5AGR received an OA (Order of Australia) for similar activities with AMSAT in Australia.

**Table 1
Output Filter Component Values**

Band (metres)	10	15	20
C1 pF	330	470	680
C2 pF	100	150	220
L1	3 turns (all 5/8 inch long or 15 mm)	4 turns	5.5 turns
L2	7 turns 5/8 in long or 15 mm	10 turns both 1 inch long or 25 mm.	12 turns

C1 and C2 are mica or ceramic

L1 and L2 are 3/8 inch inner diameter
or 9 mm wound with # 14 wire.

alternative is to purchase a new module.

The lid of the module must be removed to gain access to the internal circuitry. The modules internally consist of a ceramic or Alumina substrate with the circuitry on it. Failure can occur if thermal expansion and contraction of the substrate cracks one of the tracks. Opening the module may require a hacksaw but, if you are lucky, the lid may only be a snap fit. It is a last ditch, out of warranty, procedure.

With the lid open you may be able to find an open circuit. You then must perform the delicate job of bridging the gap with a jumper. The use of a soldering iron with a high thermal capacity is recommended as the substrate will conduct heat away very efficiently. A complication is the small size of the tracks and components. This is, after all, a last ditch, out of warranty, attempt to avoid an expensive replacement and so some difficulty is to be expected.

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This provides enough capacity to hold the memory during periods when the transceiver is switched off.

The circuit is shown in Fig 2. This circuit is for an IC271H but a similar circuit would be suitable for many other radios. A low leakage 0.1 farad capacitor is used to supply the RAM memory while the radio is switched off instead of the lithium battery.

Diodes isolate the capacitor both from the 5 volt supply and the lithium battery. The capacitor is charged via D1 when the radio is turned on and the RAM memory is supplied via D2. The capacitor voltage is greater than the lithium battery voltage so the RAM memory is supplied with current by the capacitor. The diodes used were germanium switching diodes. The capacitor can supply the RAM memory for about a month.

The capacitor is a secondary backup to the RAM memory supply. Installation is carried out with the radio switched on. Some care is essential.

To cater for long periods with the radio switched off a serviceable lithium battery is required as the capacitor is only a medium term storage. However, the circuit does give you some leeway when replacing the lithium battery.

In those radios where the operating system for the CPU is stored in RAM, extreme care should be exercised both in replacing the lithium battery and with this circuit. A momentary loss of supply to the RAM would necessitate completely reprogramming the RAM. For radios where the RAM only contains information personalising the radio and an extensive set of memories, the consequences are not so severe.

The capacitor used is of a type available locally. The exact capacitance value is not critical and a value between 0.1 F and 1.0 F would be suitable. It must, however, have low leakage. Be very careful not to short out the supply to the RAM during installation. Installation should be done with the radio switched on and you should be careful. Use a soldering iron with an isolated and floating tip. An earthed soldering iron could short out the supply to the RAM which is to be avoided.

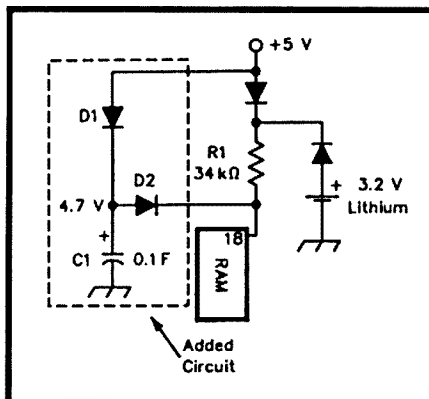


Fig 2 — RAM supply from Low Leakage High Capacity Capacitor.

Repair of VHF/UHF Output Modules

The output modules used in many VHF/UHF transceivers sometimes fail and they are very costly to replace. In *Hints and Kinks* in the November 1994 issue of *QST*, some ideas for repair of these modules are given. John Gruenwald K0BF and David Stockton GM4ZNX give some hope to those brave enough to attempt a repair. Such repair attempts will void any warranty and they should only be undertaken when the only other

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Accredited examiners should not only be able to provide advice and assistance in relation to examinations, but also about how to become a radio amateur, to all interested enquirers in their locality. The SMA and WIA Exam Service direct all such enquiries to accredited examiners in the area in which the enquirer lives.

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Nevil Eyre VK1NE	Tidbinbilla ARC	PO Box 4350, Kingston,	2604 06 201 7800 (BH)
Bob Quick VK1ZQR	Tidbinbilla ARC	PO Box 4350, Kingston,	2604 06 201 7800 (BH)
Len Ricardo VK1ALR	Tidbinbilla ARC	PO Box 4350, Kingston,	2604 06 201 7867 (BH)
Christopher Davis VK1DO	WIA ACT Division	123 Hawkesbury Cres, Farrer,	2607 018 62 5027
Rob Apathy VK1KRA	WIA ACT Division	5 Wrixon St, Latham,	2615 06 254 2982
Alan James VK2ACN	Twin Cities R & E Club Inc	PO Box 396, Albury,	2640 060 25 1117 (AH)
Greg Sargeant VK2EXA	Twin Cities R & E Club Inc	PO Box 396, Albury,	2640 060 21 5438 (AH)
Graeme Scott VK2KE	Twin Cities R & E Club Inc	PO Box 396, Albury,	2640 060 21 3655 (BH)
David Ashley VK2NK	Wagga Amateur Radio Club Inc	PO Box 294, Wagga Wagga,	2650
John Eyles VK2BXD	Wagga Amateur Radio Club Inc	PO Box 294, Wagga Wagga,	2650
Leon Boneham VK2DLN	Griffith ARC Inc	PO Box 1804, Griffith,	2680 069 62 4534 (BH)
Graeme Watkins VK2DGW	Griffith ARC Inc	PO Box 1016, Griffith,	2680 069 62 4577 (BH)
Don Smith VK2BDU		34 Fowler St, Deniliquin,	2710 058 81 1267
John Goodall VK2ESP		RMB 850, Moama,	2731 058 89 5121
Eric Fossey VK2EFY	Blue Mountains ARC	45 Gascoigne St, Penrith,	2750 047 31 5885
Garry Cottle VK2AGC		SGTS Mess, RAAF Base, Richmond,	2755 045 70 2192 (BH)
Pixie Chapple VK2KPC	Blue Mountains ARC	231 Shepherd St, St Marys,	2760 02 833 1138 (AH)

Examiner	Group/Club	Address	Telephone
Brett Hazell VK2CBH	Chifley Amateur Radio Club	PO Box 280, Mt Druitt,	2770 02 671 2035 (AH)
Leon McHugh VK2FLI	Chifley Amateur Radio Club	PO Box 280, Mt Druitt,	2770 02 625 9646
Ralph Simmons VK2GRS	Chifley Amateur Radio Club	PO Box 280, Mt Druitt,	2770 02 671 4756
Perce Garbutt VK2GAI		10 Tygh St, Lapslane,	2773 047 39 3866
David Barry VK2CFB	Blue Mountains ARC	6 Murray Ave, Springwood,	2777 047 51 5775
Les Gaborit VK2LW	Blue Mountains ARC	347 Macquarie Rd, Springwood,	2777 047 51 4767
Julie Kentwell VK2XBR	Sydney Amateur Television Gp	34 Raymond Rd, Springwood,	2777 047 51 1219
Alan Whitmore VK2YYJ		32 Greens Pde, Valley Heights,	2777 02 839 1388 (BH)
Adrian Clout VK2BFN		137 Lower Valley Rd, Hazelbrook,	2779 047 58 6797
John Dudley VK2GXZ		PO Box 52, Hazelbrook,	2779 047 58 6131 (BH)
Dave Harding VK2AIF	Blue Mountains ARC	91 Hall Pde, Hazelbrook,	2779 047 58 8022 (AH)
Peter Van Gemert VK2ALL	Bathurst Amateur Radio Club	291 Durham St, Bathurst,	2795 063 31 2464
Neville Wilde VK2DR	Bathurst Amateur Radio Club	22 White St, Bathurst,	2795 063 31 5809 (AH)
Bruce Carroll VK2DEQ	Orange Amateur Radio Exams	PO Box 128, Orange,	2800 063 62 8703
Peter Carter VK2ETK	Orange Amateur Radio Exams	7 Ophir Rd, Orange,	2800 063 61 3439 (AH)
Frank Wall VK2CWL	Orana Amateur Radio Club	"Westbrook", Narromine,	2821 068 89 0535
David Walters VK2AYO	Orana Amateur Radio Club	"Carramar" Burraway Rd, Dubbo MS 4,	2830 068 88 5265
Roy Counsell		PO Box 540, Lightning Ridge,	2834 068 29 0511
Phill Roberts		38 Nettleton Dve, Lightning Ridge,	2834 068 29 0511
Ken Westerman VK2AGW		Coromandel, Dunedoo,	2844 063 75 1347
Walter Field VK2NNF	Parke & District ARC Inc	C/- 4 William St, Parkes,	2870 068 62 1776
Dave Kent VK2BJI	Parke & District ARC Inc	PO Box 564, Parkes,	2870 068 62 2154
Lindsay Richmond VK1NDM	Tidbinbilla Tracking Station	21 Buckley Cct, Kambah,	2902 06 231 4182 (AH)
Jan Burrell VK1BR	WIA ACT Division	20 Currey St, Gowrie,	2904
Ross Peters VK1DZ	Tidbinbilla Tracking Station	14 Mehaffey Cres, Theodore,	2905 06 292 5477 (AH)
John Beverin VK3CMO	RMIT School of Electrotech	GPO Box 2476V, Melbourne,	3001 03 660 4455 (BH)
Graham Cottew VK3DPC	ARA Exam Service	GPO Box 628E, Melbourne,	3001 03 601 4203 (BH)
Chris Edmondson VK3YID	ARA Exam Service	GPO Box 628E, Melbourne,	3001 03 601 4203 (BH)
Graham Judge VK3YGJ	ARA Exam Service	GPO Box 628E, Melbourne,	3001 03 601 4203 (BH)
Ralph Parkhurst VK3LL	ARA Exam Service	GPO Box 628E, Melbourne,	3001 03 601 4203 (BH)
Rob Whitmore VK3ESE	RMIT School of Electrotech	GPO Box 2476V, Melbourne,	3001 03 660 4479 (BH)
Peter Willmott VK3TQ	RAAF Williams ARC	PO Box 187, Sunshine,	3020 03 364 8663
Alan Foulstone VK3ECZ	RAAF Williams ARC	PO Box 161, Laverton,	3028 03 368 3600
Jumbo Kennedy VK3BIG	RAAF Williams ARC	26 Tarneit Rd, Werribee,	3030 03 741 2856
Dixie Lee VK7HP	RAAF Williams ARC	26 Church St, Werribee,	3030 03 742 3786
Joe Aprile VK3GFA		19 Scotia St, Moonee Ponds,	3039 03 370 7697
Tony Bittisnich VK3TSZ		98 Newlands Rd, Coburg,	3058 03 354 6395 (AH)
Les Cardilini VK3BLC	RMIT School of Electrotech	PO Box 418, Craigieburn,	3064 03 305 6297 (AH)
John Wright VK3AJL	J Wright & Associates	72 Ramsden St, Clifton Hill,	3068
Kevin Gilbert	Xavier College Radio Club	59 Hawthorn Rd, Northcote,	3070 03 854 5411 (BH)
Pino Glessi VK3WU		184 Clarke St, Northcote,	3070 03 489 0817 (AH)
Bernie Neumann VK3AXL	Xavier College Radio Club	59 Hawthorn Rd, Northcote,	3070 03 489 9732 (AH)
Harry Petrodaskalakis VK3ABO		PO Box 225, Northcote,	3070
Jim Baxter VK3DBQ	NERG Exams	1 Pamela Crt, Bundoora,	3083 03 467 1253 (AH)
Graham Gall VK3ZS		76 Greenwood Dve, Bundoora,	3083 03 467 2697
Gary Greer VK3KBL	NERG Exams	54 Corowa Cres, Greensborough,	3088 03 434 3687
Chris McLaughlin VK3CHR		18 Selsdon Crt, Greensborough,	3088 03 322 6104 (BH)
Ewen Templeton VK3BMV	NERG Exams	45 Cairns St, Greensborough,	3088 03 434 6071 (AH)
Greg Williams VK3VT	NERG Exams	1 Noorabil Crt, Greensborough,	3088 03 634 5532 (BH)
Harry Lodder VK3AXJ	Camberwell Grammar Radio Club	PO Box 151, Balwyn,	3103 03 836 6266 (BH)
Des Bird VK3EDB	Electrotechnology RMIT	277 Lambourne St, Surrey Hills,	3127 03 899 8649 (AH)
Philip Adams VK3JNI	Scout R & E Service Unit	PO Box 311, Box Hill,	3128 03 438 3013 (AH)
Len Atyeo VK3DXM	Scout R & E Service Unit	PO Box 311, Box Hill,	3128 03 848 3580
Craig Cook VK3CMC	RMIT School of Electrotech	33 Haig St, Box Hill South,	3128 03 890 2117 (AH)
Peter Fraser VK3ZPF	Scout R & E Service Unit	PO Box 311, Box Hill,	3128 03 895 9617 (AH)
Rob Carmichael VK3DTR		PO Box 200, Forest Hill,	3131
Jim Linton VK3PC		PO Box 200, Forest Hill,	3131
Geoff Atkinson VK3YFA	EMDRC	PO Box 87, Mitcham,	3132 03 791 7988 (BH)
Jack Bramham VK3WWW	EMDRC	PO Box 87, Mitcham,	3132 03 873 2459 (AH)
Joe Magee VK3BKI	EMDRC	PO Box 87, Mitcham,	3132 03 729 8579 (AH)
Dave Neville VK3UC	EMDRC	PO Box 87, Mitcham,	3132 03 802 7492 (AH)
Len Vermeulen VK3COD	EMDRC	PO Box 87, Mitcham,	3132 03 808 5350 (AH)
John Bedwell VK3EHZ	EMDRC	49 Winyard Dve, Mooroolbark,	3138 03 726 7700
Mark Diggins VK3JMD		134 Howard Rd, Dingley,	3172 03 583 7692 (AH)
Warren Inglis VK3DWI	Moorabbin & District RC Inc	31 Ealing Cres, Springvale Sth,	3172 03 546 9615 (AH)
Craig McMillan VK3CRA	VK3CRA Amateur Exams	5 Sunview Crt, Dingley,	3172 03 551 5635
Ross Northmore VK3BRN		35 Oak Ave, Doveton,	3177 018 99 1982 (BH)
Frank Robinson VK3DDK		PO Box 173, Prahran,	3181
Keith Forbes VK3ENR	Moorabbin College of TAFE	Private Bag 19, Moorabbin,	3189 03 556 9600 (BH)
Roderick Wall VK3BKO	Moorabbin College of TAFE	Private Bag 19, Moorabbin,	3189 03 556 9600 (BH)
Brian Fairless VK3ES	Moorabbin & District RC Inc	PO Box 58, Highett,	3190 03 592 7536
Jerry Viscaal VK3MQ	Moorabbin & District RC Inc	PO Box 58, Highett,	3190 03 704 6355 (AH)

Examiner	Group/Club	Address	Telephone
Brett Leslie VK3JHP		3/4-6 Oswald St, Cheltenham,	3192 03 584 4230 (AH)
Shirley Johnson VK3NKN	FAMPARC	54 Scotch Pde, Bonbeach,	3196 03 772 8457 (AH)
Gordon Buchanan VK3BGB	FAMPARC	PO Box 38, Frankston,	3199 03 789 7710
Jessie Buchanan VK3VAN	FAMPARC	4 Milford Cres, Karingal,	3199 03 789 7710
Audrey Gibson VK3YW		94 Kars St, Frankston,	3199 03 783 8714
Len Gibson VK3SI		94 Kars St, Frankston,	3199 03 783 8714
Peter Johnson VK3CPJ	FAMPARC	PO Box 38, Frankston,	3199 03 772 8457 (AH)
Graham Wallington VK3GEW	FAMPARC	13 Milford Cres, Frankston,	3199 03 789 2972 (AH)
Ian Stowe VK3GA	FAMPARC	20 Norfolk Cres, Frankston North,	3200 03 785 2976 (AH)
Barry Watts VK3BRW	Only Tomorrow	36 Mountain St, South Melbourne,	3205
Valerie Watts VK3CVW	Only Tomorrow	36 Mountain St, South Melbourne,	3205
Chas Gnaccarini VK3BRZ	Geelong Amateur Radio Club	66 Smeaton Close, Lara,	3212 052 82 3167 (AH)
Bruce Kendall VK3WL	RAAF Williams ARC	33 Rennie St, Lara,	3212 052 82 2664 (AH)
John Collins VK3TKH	Geelong Amateur Radio Club	22 Elnbank Dve, Grovedale,	3216 052 43 0075
Keith Vriens VK3AFI	Geelong Amateur Radio Club	224 Myers St, Geelong,	3220 052 21 3658
Lee de Vries VK3PK	Geelong Amateur Radio Club	215 Swan Bay Rd, Wallington,	3221 052 50 1105 (AH)
Maggie Iaquinto VK3CFI	Colac Amateur Radio Club	PO Box 3, Cororooke,	3254 052 32 1118 (AH)
Bill Bell VK3WK	Warrnambool R & E Club	PO Box 724, Warrnambool,	3280 055 65 9348 (BH)
Bill Dennis VK3XE	Warrnambool R & E Club	5 Karana Dve, Warrnambool,	3280 055 62 9132
Ian Durston VK3VID	Warrnambool R & E Club	5 Fairmont Ave, Warrnambool,	3280 055 62 8684
Joe Morgan VK3CDX	Warrnambool R & E Club	44 Merrivale Dve, Warrnambool,	3280 055 62 7140
Mona Swinton VK3BRE	Warrnambool R & E Club	PO Box 724, Warrnambool,	3280 055 62 6016
Trevor Dyson VK3DTV	Warrnambool R & E Club	RMB 5280, Yambuk,	3285 055 68 4228 (AH)
Ian Mason VK3DNQ	Warrnambool R & E Club	PO Box 10, Yambuk,	3285 055 68 4214
Harold Benson VK3VSX	Hamilton & District RC	PO Box 188, Hamilton,	3300 055 23 4773
Steve Curtis VK3CAX	Hamilton & District RC	PO Box 188, Hamilton,	3300 055 72 1355 (BH)
Ray Downes VK3ERD	Hamilton & District RC	PO Box 188, Hamilton,	3300 055 78 6352
Keith Heemskerck VK3AIH	Hamilton & District RC	PO Box 188, Hamilton,	3300 055 23 1977 (BH)
Ian Wyndham VK3EF	BARG	317 Eureka St, Ballarat,	3350 053 32 7234
Reg Carter VK3CAZ	BARG	PO Box 1261, MC Ballarat,	3354 053 41 7585 (AH)
Gordon Cornell VK3FGC	BARG	PO Box 1261, MC Ballarat,	3354 053 39 2427 (AH)
Tom George VK3DMK	BARG	PO Box 1261, MC Ballarat,	3354 053 32 7234 (BH)
Ian McDonald VK3AXH	BARG	PO Box 1261, MC Ballarat,	3354 053 31 1317 (BH)
Geoff Smith VK3ADB	BARG	PO Box 1249, MC Ballarat,	3354 053 33 2112 (AH)
Charlie Stewart VK3DCS	BARG	PO Box 1261, MC Ballarat,	3354 053 31 7425
Bob Terrill VK3BNC	BARG	7 Locksley St, Wendouree,	3355 053 39 5317
Eric Froude VK3FRO	BARG	Post Office, Linton,	3360 053 44 7448
James Glenn VK3AIQ		30 Olinda St, Beaufort,	3373
Dave Ward VK3PUG	Horsham Amateur Radio Club	PO Box 720, Horsham,	3400 053 82 2852 (AH)
Aady Squires VK3DTO	Horsham Amateur Radio Club	PO Box 720, Horsham,	3401 053 82 1439 (BH)
David Timms VK3YLV	Horsham Amateur Radio Club	PO Box 720, Horsham,	3401 053 82 5399 (BH)
Mark Weaver VK3KZZ	Horsham Amateur Radio Club	PO Box 720, Horsham,	3401 053 81 1911 (BH)
Leon Reichelt VK3KIT		PO Box 654, Horsham,	3402 053 84 8219 (AH)
Wally Maxwell VK3MJW	Sunbury ARC Inc	20 Kintore Close, Sunbury,	3429 03 744 6020
Ian Morris VK3DVO	Sunbury ARC Inc	PO Box 915, Sunbury,	3429 03 744 4326 (AH)
Craig Norris VK3TCN	Sunbury ARC Inc	PO Box 915, Sunbury,	3429 054 28 4154 (AH)
John Nunan VK3IC	Sunbury ARC Inc	PO Box 915, Sunbury,	3429 03 744 2506 (AH)
Judy Atkins VK3AGC		"Taralea Park", Old Drummond Rd Taradale,	3447 054 23 2409
Ron Atkins VK3BYM		Old Drummond Rd, Taradale,	3447 054 23 2409
Denis Charlesworth VK3DWC		Majorca Rd, Carisbrook,	3464 054 64 2309 (AH)
Peter Rafferty VK3ITI		49 Majorca Rd, Maryborough,	3465 054 60 4387 (AH)
Allan Greening VK3PA		PO Box 67, Dunolly,	3472 054 68 1088
Terry Bunting	Sunraysia Amateur Exams	PO Box 30, Mildura,	3502 050 25 7202 (AH)
Maurie Milani VK3CWB	Sunraysia Amateur Exams	PO Box 30, Mildura,	3502 050 22 2120 (AH)
Peter Milne VK3PM	Sunraysia Amateur Exams	PO Box 30, Mildura,	3502 050 24 5814 (AH)
Watty Cameron VK3WMC	Midland ARC Inc	166 McKenzie Street West, Golden Square,	3555 054 47 0560 (AH)
Ray Taylor VK3FQ		Tandara Rd, Tandara,	3571 054 36 8301
Rex James VK3OF	Swan Hill & District ARC	PO Box 682, Swan Hill,	3585 050 33 1032
Daryl Manley VK3AMJ	Swan Hill & District ARC	PO Box 682, Swan Hill,	3585 050 32 1427
Dave Duff VK3JRA	Goulburn Valley Digital ARG	6 Yarramundi Crt, Murchison,	3610 058 26 2586 (AH)
Wayne Collyer VK3XQA	Shepparton & District ARC	PO Box 692, Shepparton,	3630
Roger Conway VK3ACC	Goulburn Valley Digital ARG	PO Box 1878, Shepparton,	3630 058 23 1847 (AH)
Barrie Halliday VK3KBY	Shepparton & District ARC	37 Gourlay St, Shepparton,	3630 058 21 5756
Peter O'Keefe VK3YF	Shepparton & District ARC	PO Box 654, Shepparton,	3630 058 21 6070 (AH)
David Waring VK3ANP	Wangaratta College of TAFE	Banksdale Rd, Hansonville,	3675 057 27 6218 (AH)
Bruce Riley VK3ZSR	Wangaratta College of TAFE	16 Phillipson St, Wangaratta,	3677 057 21 0183 (BH)
Reg Jones VK3GC	Wodonga TAFE Electronics Dept.	15 McKoy St Wodonga,	3690 057 56 2230 (AH)
Michael Greenall	Army College of TAFE	Radio Trades Latchford Bk, Milpo Bonegilla,	3693 060 55 4340 (BH)
Ian McInnes VK2XXW	Army College of TAFE	Radio Trades Latchford Bk, Milpo Bonegilla,	3693 060 55 4340 (BH)
Malcolm McRae VK3BXJ	Army College of TAFE	Radio Trade Wing, Latchford Milpo Bonegilla,	3693 060 55 4340 (BH)
Peter O'Bryan VK3MU		PO Box 180, Yarrowonga,	3730 057 44 2176 (AH)
Hilton Younger VK3AHY		10 Witt St, Yarrowonga,	3730 057 44 3768

Examiner	Group/Club	Address	Telephone
Derek Thurgood VK3DD	Healesville ARG Inc	PO Box 234, Yarra Glenn,	3775 03 730 1557 (AH)
Phil Hingeley VK3IN	Healesville ARG Inc	27 Westmount Rd, Healesville,	3777 059 62 2832
Bert Matthies VK3MGU	Healesville ARG Inc	16 Hillcrest Gve, Healesville,	3777 059 62 4950
Graeme Tremellen VK3GPT	Healesville ARG Inc	PO Box 285, Healesville,	3777 059 62 6098
Gavin Hobbs VK3TLN	Healesville ARG Inc	PO Box 105, Cockatoo,	3781 059 68 8482
John Hill VK3WZ		6 Cumberland Way, Endeavour Hills,	3802 03 700 5428
Graeme Brown VK3BXG	VK3 Eastern Zone Education	RMB 8375 Pryor Rd, Drouin,	3818 056 23 1227 (BH)
Colin Dyason VK3PJ	VK3 Eastern Zone Education	66 Colquhoun Blvd, Warragul,	3820 056 23 4655 (BH)
Bernard Henne VK3YTT	VK3 Eastern Zone Education	12 Ash St, Morwell,	3840 051 34 4275 (AH)
Peter Freeman VK3KAI	VK3 Eastern Zone Education	PO Box 273, Churchill,	3842 051 22 2550 (AH)
Henk Pillekers VK3CAQ	VK3 Eastern Zone Education	PO Box 65, Churchill,	3842 051 22 1885 (AH)
Brian Young VK3BBB	East Gippsland ARC Inc	48 Washington St, Traralgon,	3844 051 76 1167
Patrick Bond VK3GEE		PO Box 87, Rosedale,	3847 051 99 2811
Kevin McGrath VK3EQM	East Gippsland ARC	12 Government Rd, Paynesville,	3880 051 56 6938
Bob Neal VK3ZAN	East Gippsland ARC	76 Langford Pde, Paynesville,	3680 051 56 7654
John Piovesan VK3GU	East Gippsland ARC	15 Gilsenan St, Paynesville,	3880 051 56 6110
Bob Dickinson VK3BLD		94 Dunlop St, Bittern,	3918 059 83 9162
Frank Feldman VK3BC	Southern Peninsula Radio Club	30 Armstrong Rd, McCrae,	3938 059 86 2031
Vic Vickery VK3DEA	Southern Peninsula Radio Club	11 Flamingo Rd, Rosebud West,	3940 059 86 1327
Alan Robinson VK3SQ	Southern Peninsula Radio Club	16 Alatheia Crt, Rye,	3941 059 85 6213
Barry Wilton VK3XV		PO Box 260, Cranbourne,	3977
Lindsay Allen VK3LFA	Community D/L Wonthaggi Inc	13 Epsom St, Wonthaggi,	3995 056 72 2563
Colin Thomson VK3VBU	Community D/L Wonthaggi Inc	59 Anglers Rd, Cape Paterson,	3995 056 72 3144
Ted Trinder VK3JMT	Community D/L Wonthaggi Inc	1 Campbell St, Wonthaggi,	3995 056 72 2307
Patricia Raven VK4PT	QRV Exam Service	22 David St, Toombul,	4012 07 266 6197
Ted Raven VK4EWR	QRV Exam Service	22 David St, Toombul,	4012 07 266 6197
Bob Godfrey VK4BOB	Department of Education QLD	20 Buckra St, Bracken Ridge,	4017 07 269 5380 (AH)
Rodger Bingham VK4HD	Redcliffe Radio Club	PO Box 20, Woody Point,	4019 074 96 4553
Nigel Marsh VK4EEE	Redcliffe Radio Club	PO Box 20, Woody Point,	4019
John Presotto VK4WX	Redcliffe Radio Club	PO Box 20, Woody Point,	4019 07 283 1329 (AH)
Laurie Prilchard VK4BLE	Redcliffe Radio Club	PO Box 20, Woody Point,	4019 07 284 8859 (AH)
Mark Van Laecke VK4VG	Redcliffe Radio Club	PO Box 20, Woody Point,	4019 074 95 5794
Bob Neville VK4ACL	QRV Exam Service	124 Roscommon Rd, Boondall,	4034 07 265 3104
Richard Ettinger VK4DIC	QRV Exam Service	12 Strathford Ave, Albany Creek,	4035 07 264 1655
Ron Everingham VK4EV	Brisbane ARC 30	Hunter St, Everton Park,	4053 07 355 4308 (AH)
Charles Ivin VK4DK	Pelican Examinations	9 Persimmon St, Ferny Grove,	4055
Don Johnman VK4DS	Brisbane ARC	12 Jarrott St, Chelmer,	4068 07 379 6341
Garry Hawgood VK4KE	Radio Amateurs Group	9 Ararat St, Riverhills,	4074 07 279 0278
Murray Kelly VK4AOK	WIAQ Examinations Service	29 Molonga Tce, Graceville,	4075 07 379 3307
Steve Vaughan VK4YEK	Brisbane ARC	PO Box 300, Darra,	4076 07 849 8156
George Nelson VK4WZ	Brisbane ARC	96 Ekibin Rd, Annerley,	4103 07 848 2456
Greg O'Grady VK4TUX	Department of Education QLD	33 Koala Rd, Moorooka,	4105 07 848 0081 (AH)
Ron Lewis VK4ZRL		12 Firelight St, Sunnybank Hills,	4109 07 273 8946
Peter Harding VK4JPH		40 Centaurus Cres, Regents Park,	4118 07 800 3305 (AH)
Brian Knowles VK4CBK		4 Glen St, Browns Plains,	4118 07 809 2778 (AH)
Roy O'Malley VK4ZQ	WIAQ Examinations Service	Emtronics P/L 633 Logan R, Greenslopes,	4120 07 394 2555 (BH)
Keith Griffin VK4IO	Bayside District ARS Inc	20 Kordick St, Carina,	4152 07 398 6013 (AH)
Ian Campbell VK4TK	Bayside District ARS Inc	PO Box 411, Capalaba,	4157 07 824 1518 (AH)
Cathie Cooper VK4FG	Bayside District ARS Inc	PO Box 411, Capalaba,	4157 07 245 5432 (AH)
Roy Mahoney VK4BAY	Bayside District ARS Inc	PO Box 411, Capalaba,	4157 07 396 1655
George Roberts VK4BSH	Bayside District ARS Inc	PO Box 411, Capalaba,	4157 07 206 7298 (AH)
Dennis Waugh VK4ALL	Bayside District ARS Inc	PO Box 411, Capalaba,	4157 07 209 9365 (AH)
Ian Perkins VK4YIP	WIAQ Examinations Service	15 Juanita St, Birkdale,	4159 07 207 3627 (AH)
Jim Cunningham VK4BS	Bayside District ARS Inc	3 St Helena Crt, Cleveland,	4163 07 286 4730
Nic Chantler VK4DIT	Gold Coast ARS Inc	PO Box 6620, Gold Coast Mail Centre,	4217 075 39 6609 (AH)
Robert White VK4TRW	Gold Coast ARS Inc	5 McCubbin Crt, Burleigh Heads,	4220 075 35 2222 (AH)
George Walters VK4GEW	Gold Coast ARS Inc	64 Bateke Rd, Mt Tamborine,	4272 075 45 2148
Bob Linsket VK4ALI	Ipswich & District ARC	5 Cypress St, Loamside,	4305 07 288 9321
Greg Walker VK4TDR	Ipswich & District ARC	48 Siemon St, One Mile,	4305 07 281 1370 (AH)
Denis Bill VK4XDB	Ipswich & District ARC	43 Coal Rd, Chuwar,	4306 07 281 8658
Neil Faulkner VK4ANF		Lot 367 Mt Crosby Rd, Mt Crosby,	4306 07 201 0956
Peter Ormerod VK4CPW		PO Box 114, Amberley,	4306 (BH)
John Tucker VK4WJT	Dalby & District ARC	Post Office, Blackbutt,	4306 071 63 0769
Mal Beck	Concordia College Toowoomba	154 Stephen St, Toowoomba,	4350 076 36 1700 (BH)
Graham Weier VK4AGN		C/- 58 Water St, Toowoomba,	4350 076 39 2219 (BH)
Cliff Jenkins VK4QJ		"Weer Heer" MS 1073, Crows Nest,	4355 076 98 1223
John Moulder VK4YX	Cunningham Radio Club	PO Box 323, Warwick,	4370 076 61 3131 (BH)
Graham Muirhead VK4WEM	Cunningham Radio Club	23 Cunningham St, Warwick,	4370 076 61 4602
Kerin Hunting VK4HL		32 Matthew St, Stanthorpe,	4380 076 81 2083 (BH)
Graham Rayner VK4GDR	Cunningham Radio Club	PO Box 93, Glen Aplin,	4381 076 83 4336 (AH)
Reg Kerslake VK4AQU	Dalby & District ARC	88 Patrick St, Dalby,	4405 076 62 2193
Margaret Schwerin VK4AOE	Dalby & District ARC	"Rosedale" MS 902, Dalby,	4405 076 62 3934

Examiner	Group/Club	Address	Telephone
David Jones VK4OF	WIAQ Examinations Service	18 Browning Crt, Strathpine,	4500 07 205 1561
Bill McDermott VK4AZM	WIAQ Examinations Service	8 Panorama St, Bray Park,	4500 07 260 1366 (BH)
Nev Mills VK4KOP	WIAQ Examinations Service	49 Viscount St, Bray Park,	4500 07 205 4532 (AH)
Bill Yates VK4YWY	QRV Exam Service	29 Brittainy St, Petrie,	4502 07 285 1462 (BH)
Brian Berry VK4BDB	WIAQ Examinations Service	42 Laver St, Morayfield,	4506 074 98 5754 (AH)
Charlie Strong VK4YZ	Redcliffe Radio Club	St M's Old Toorbul Pt Rd, Caboolture,	4510 074 95 1565
Ken Hanby VK4IS	Sunshine Coast ARC	17 Kig Hts 14 Queen St, Caloundra,	4551 074 91 5532
Max Vincent VK4ZMV		PO Box 10, Golden Beach,	4551 074 92 2710
Mike Mallett VK4CCA	Sunshine Coast ARC	4 Seaview Crt, Maroochydore,	4558 074 79 1078
Ron Marschke VK4DRC	Sunshine Coast ARC	759-769 Diddillibah Rd, MS1536 Nambour,	4560 074 48 4063
Jack Cornes VK4VAH	Gympie Amateur Radio Club Inc	43 Mellor St, Gympie,	4570 074 82 2443
Ian Parkinson VK4KUP	Gympie Amateur Radio Club Inc	PO Box 845, Gympie,	4570 074 82 9886 (AH)
Fran Walker VK4NSN	Gympie Amateur Radio Club Inc	86 Noosa Rd, Gympie,	4570 074 82 5325
Roy Winchester VK4IRW	Gympie Amateur Radio Club Inc	Lot 4 Jeremy Rd, Gympie,	4570 074 82 7823
Ron MacNamara VK4ESC	Sunshine Coast ARC	23 Callitris Cres, Marcus Beach,	4573 074 48 1886
John Mahoney VK4JON	Gympie ARC	23 Oyster Pde, Tin Can Bay,	4580
Bob Harper VK4KNH		4 Buckingham St, Kingaroy,	4610
Geoff Hosking VK4ZGH		4 Buckingham St, Kingaroy,	4610 071 62 5924
Ian Mowat VK4ZS		MS 648, Yarraman,	4614 071 63 8261
Trevor Clement VK4YH		14 Gipps St, Nanango,	4615 071 63 2565
Niel Cunningham VK4JX	Hervey Bay ARC	PO Box 178, Torquay,	4655
Gerry Fulton VK4GJ	Hervey Bay Amateur Radio Club	PO Box 829, Hervey Bay,	4655 071 28 3232
Geoff Stephenson VK4BTU	Hervey Bay ARC	14 Windsor Way, Pialba,	4655 071 24 4764
Gray Taylor VK4OH	Hervey Bay Amateur Radio Club	PO Box 526, Hervey Bay,	4655 071 25 7167
Ted Watson VK4OW	Hervey Bay Amateur Radio Club	PO Box 829, Hervey Bay,	4655 071 28 3489
Reg Wheeler VK4PL	Hervey Bay Amateur Radio Club	PO Box 829, Hervey Bay,	4655 071 28 1383
Ken Blatchford VK4BKB	BARC Inc Exam Service	9 Que Hee St, Bundaberg,	4670 071 51 3195
Tony Dorrrough VK4NAD		15 Memory Blvd, Innes Park,	4670 071 59 3474
Gerard Feerick VK4SW	BARC Inc Exam Service	M/S 108 Hoffmans Rd, Burnett Heads,	4670
Kev Meredith VK4LQ		36 Tarakan St, Bundaberg,	4670
Bob Millgate VK4ADZ	BARC Inc Exam Service	9 Chapman St, Booloolah Bundaberg,	4670 071 52 7482
Bernie Smallman VK4BFS		6 Williams St, MS 108 Burnett Heads,	4670 071 59 4483
Glyn Gibbings-Johns VK4LA		M/S 882 Mount Perry Rd, Via Gin Gin,	4671 071 56 3208
Noela MacDonald VK4ANJ	Gladstone Exam Service	98 Barney St, Gladstone,	4680 079 72 5494 (AH)
Vic MacDonald VK4CA	Gladstone Exam Service	98 Barney St, Gladstone,	4680 079 72 5494 (AH)
Merv Deakin VK4DV		PO Box 380, Rockhampton,	4700 079 34 0193
Lyle Dobbs VK4ALD	WIAQ CQ Branch Rockhampton	265 Carpenter St, Rockhampton,	4701 079 31 2775 (BH)
Nick Quigley VK4CNQ	WIAQ CQ Branch Rockhampton	265 Carpenter St, Rockhampton,	4701 079 31 2388 (BH)
Clive Sait VK4ACC	WIAQ CQ Branch Rockhampton	265 Carpenter St, Rockhampton,	4701 079 28 1173 (AH)
David Wilson VK4UN	Central Highlands ARC	6 Gum St, Tieri,	4709 079 84 8442
David Christmas VK4DJC		27 Dee St, Mt Morgan,	4714 079 38 1263
Hank Hahn VK4VCD	Biloela ARC	2 Raglan St, Biloela,	4715 079 92 1386
Mark Haseman VK4CMH	Biloela ARC	PO Box 315, Biloela,	4715 079 92 2491
Graeme Martin VK4KGM	Biloela ARC	PO Box 291, Biloela,	4715 079 92 3919
John Petersen VK4AXA	Central Highlands ARC	48 Littlefield St, Blackwater,	4717 079 82 5126
Jim Storch VK4AVS		PO Box 147, Blackwater,	4717 079 82 6279
James West VK4YFS		41 Blain St, Blackwater,	4717 079 82 6756 (AH)
Lloyd West VK4QE		41 Blain St, Blackwater,	4717 079 82 6756 (AH)
Geoff Bonney VK4GI	TAFE College Emerald	Capricorn Hwy, Emerald,	4720 079 82 3699 (BH)
Pete Foster VK4COU		39 Woodbine St, Springsure,	4722 079 86 1882
Allan Abbott VK4ABP	Central Highlands ARC	PO Box 493, Longreach,	4730 076 58 3111 (BH)
Wal Douglas VK4AIV	Mackay Amateur Radio Assoc	PO Box 1065, Mackay,	4740 079 42 1615 (AH)
Ed Roache VK4EJR	Central Highlands ARC	21 Badila Crt, Mt Pleasant Nth Mackay,	4740 079 42 1435 (AH)
George Glendinning VK4AJL	Mackay Amateur Radio Assoc	PO Box 5509, Mackay MC,	4741 079 59 2436 (AH)
Ray Mansfield VK4AIL		39 Fifth Ave, Scottville,	4804 077 85 6166
George Brand VK4DZB	Bowen & Collinsville ARC	PO Box 534, Bowen,	4805 077 85 5958
Keith Carter VK4CKC	Bowen & Collinsville ARC	22 Soldiers Rd, Bowen,	4805 077 86 2497
Brian Winterburn VK4BOW		7 Hay St, Bowen,	4805 077 86 2367
Alan Stephenson VK4PS	Townsville ARC Inc	PO Box 5315 MSO, Townsville,	4810 077 71 2513
John Stevens VK4AFS	Townsville ARC Inc	GPO Box 419, Townsville,	4810 077 22 1113 (BH)
Ian Sutton VK4ZT	Townsville ARC Inc	PO Box 964, Townsville,	4810 077 71 1211 (BH)
Roger Cordukes VK4CD	Townsville ARC Inc	1620 Ross River Rd, Kelso,	4815 077 74 0221 (AH)
Bruce Jones VK4KIT	Mount Isa & District ARG	57 Brett Ave, Mount Isa,	4825 077 43 5618 (AH)
Robert Mackie VK4SWR	Mount Isa & District ARG	PO Box 1429, Mount Isa,	4825 077 43 0123 (AH)
Keith Noll VK4AKA	Mount Isa & District ARG	23 Abel Smith Pde, Mount Isa,	4825 077 43 3116 (AH)
Bruce Taylor VK4DD		13 Cook Cres, Mt Isa,	4825 077 43 0391 (AH)
Roger Wood VK4ARZ	Mount Isa & District ARG	PO Box 1715, Mount Isa,	4825 077 43 5935 (AH)
Ted Golledge VK4AVG	Tropical Coast ARC	PO Box 1019, Innisfail,	4860 070 61 4517 (AH)
Les Meier VK4EMI	Tropical Coast ARC	48 Laurie St, Innisfail,	4860 070 61 2932 (AH)
Graham Bennett VK4FGB	Cairns Amateur Radio Club Inc	PO Box 1914, Cairns,	4870 070 54 1448
Pat Laurenzi VK4MP	Cairns Amateur Radio Club Inc	PO Box 1426, Cairns,	4870 070 54 4157 (AH)
Chris Parr VK4ANI	Cairns Amateur Radio Club Inc	PO Box 1215, Cairns,	4870 070 51 0452 (AH)

Examiner	Group/Club	Address	Telephone
Wilf Booth VK4ZNZ	Tableland Radio Club MS	1318 McLean Rd, Yungaburra,	4872 070 95 3888
Tom Debel VK4DEB	Tableland Radio Club	PO Box 13, Kairi,	4872 070 95 8217
Rene Brank VK4MES	Thursday Island ARC	PO Box 410, Thursday Island,	4875 070 69 1854 (AH)
Rex East VK4BRE	Thursday Island ARC	PO Box 418, Thursday Island,	4875 070 69 1679
Bill Lochridge VK4WL	Torres Straits Examinations	C/-Post Office, Thursday Island,	4875
Ron Goodhew VK4EMF	Tableland Radio Club	PO Box 253, Mareeba,	4880 070 92 2888 (BH)
Chuck Waite VK5CQ		GPO Box 222, Adelaide,	5001 018 80 4408
John McKellar VK5BJM	Port Adelaide Radio Club	5 Diosma Cres, Lockleys,	5032 08 43 8386 (AH)
Christine Taylor VK5CTY	Taylor Radio Group	16 Fairmont Avenue, Black Forest,	5035 08 293 5615
Geoff Taylor VK5TY	Taylor Radio Group	16 Fairmont Avenue, Black Forest,	5035 08 293 5615
Alan Haines VK5ZD	Adelaide Hills ARS Inc	22 Moriane Ave, Panorama,	5041 08 276 7091
Donald McDonald VK5ADD	WIA (SA Div) INC	6 Whittier Ave, Marion,	5043 08 276 1251
Doug Head VK5DUG	Adelaide Hills ARS Inc	PO Box 401, Blackwood,	5051 08 276 3688 (AH)
Phil Day VK5QT	Adelaide Hills ARS Inc	PO Box 260, Belair,	5052 08 366 2214 (BH)
Murray Burford VK5ZQ	WIA (SA Div) INC	261 Belair Rd, Torrens Park,	5062 08 276 3393
Rowland Bruce VK5OU	WIA (SA Div) INC	42 Gleneagles Rd, Mt Osmond,	5064 08 379 4584
Rob Gurr VK5RG	Taylor Radio Group	35 Grandview Ave, Urrbrae,	5064 08 379 1889
Doug Carruthers VK5KCQ	Elizabeth Amateur Radio Club	PO Box 8, Elizabeth,	5085 08 287 2868
George Lindop VK5BGL	Port Adelaide Radio Club	28 Dyott Ave, Hampstead Gardens,	5086 08 261 5910
Peter Watts VK5ZFW	North East Radio Club	18 Bendigo Cres, Modbury,	5092 08 265 3332 (AH)
Rick Grivell VK5GV	North East Radio Club	43 Lincoln Cres, Pooraka,	5095 08 262 5152 (AH)
Rob Gunnourie VK5FI	WIA (SA Div) INC	99 Maxwell Rd, Ingle Farm,	5098 08 264 6581
Charlie McEachern VK5KDK	North East Radio Group	56 Wright Rd, Ingle Farm,	5098 08 396 1131 (AH)
Jim Martin VK5KOB	Elizabeth Amateur Radio Club	PO Box 8, Elizabeth,	5112 08 287 2868
Dallas Taylor VK5WA	Elizabeth Amateur Radio Club	PO Box 8, Elizabeth,	5112 08 259 6166 (BH)
Don Martin VK5AEY	Elizabeth Amateur Radio Club	268 Midway Rd, Elizabeth Downs,	5113 08 287 1049
Hans Smit VK5YX	Adelaide Hills ARS Inc	PO Box 271, Ashton,	5137 08 390 3760 (AH)
Keith Pettman VK5NAX		11 Norfolk Ave, Victor Harbor,	5211 085 52 7139 (AH)
Don Wilton VK5KDW	WIA (SA Div) INC	PO Box 40, Littlehampton,	5250 08 388 6966
Joe Nebl VK5PWC		9 Callington Rd, Strathalbyn,	5255 085 36 2665
David Giles VK5ANB	South East Radio Group Inc	17 Reginald St, Mount Gambier,	5290 087 25 3142 (BH)
Ivan Huser VK5QV	South East Radio Group Inc	PO Box 1103, Mount Gambier,	5290 087 25 5514
Trevor Niven VK5NC	South East Radio Group Inc	PO Box 1103, Mount Gambier,	5290 087 25 5593 (AH)
Kevin O'Rorke VK5OA	South East Radio Group Inc	PO Box 1103, Mount Gambier,	5290 087 25 3079
John Ruston VK5ARK	Riverland Amateur Radio Club	PO Box 98, Renmark,	5341 085 86 6127
Hugh Lloyd VK5BC	Riverland Amateur Radio Club	PO Box 743, Berri,	5343 085 82 2690
Graham Johnston VK5SU	Mid North Repeater Group	25 Square St, Port Pirie,	5540 086 32 4122 (BH)
Leo Vette VK5SO		36 Ferme St, Port Pirie,	5540 086 33 0485 (AH)
David Bice VK5QU	Moonta Scout Group ARC	PO Box 133, Moonta,	5558 088 25 2263
John Vayne VK5BL	Moonta Scout Group ARC	PO Box 133, Moonta,	5558 088 25 2798
Jack Kleinrahm VK5AJK	Lower Eyre Peninsula ARC Inc	11 Luke St, Port Lincoln,	5606 086 82 1466 (BH)
John Plevin VK5AEP	Lower Eyre Peninsula ARC Inc	18 Wandana Ave, Port Lincoln,	5606 086 82 3161
Peter Baker VK5BWI	WHYCOM SA	49 Bastyan Cres, Whyalla Stuart,	5608 086 45 2460 (BH)
Stuart Crowther VK5BWC	Whyalla Amateur Radio Club	68 Acacia Dve, Whyalla Stuart,	5608 086 45 4331 (AH)
Alan Gilchrist VK5BWG	Port Augusta ARC	6 Kinnear Street, Port Augusta,	5700 086 43 6455 (AH)
Peter Horgan VK5BWH	Port Augusta ARC	6 Kinnear Street, Port Augusta,	5700 086 42 2363 (AH)
Bill Offler VK5BWO	Port Augusta ARC	6 Kinnear St, Port Augusta,	5700 086 42 2855 (AH)
Phil Jamieson VK6ZPP	Northern Corridor Radio Group	11 Bromley Place, Kingsley,	6026 09 409 1156 (AH)
Phil Street VK6KS	Northern Corridor Radio Group	PO Box 97, Mirrabooka,	6061 09 344 5241 (AH)
Rob Lamb VK6VP		10 Butterworth Ave, Koondoola,	6064 09 247 3009
Des Kinnerley VK6ZJ	Northern Corridor Radio Group	34 Lalina Way, Wanneroo,	6065 09 405 4215
Dianne Cousins VK6BC		25 Dellar Rd, Maddington,	6109
Glenn Cousins VK6AUZ		25 Dellar Rd, Maddington,	6109
Clyde Hillsdon VK6ZCH		3 Youngs Place, Parmelia,	6167 09 419 5764 (AH)
Pat Haywood VK6PH	Peel Amateur Radio Group Inc	9 Baudin Way, Singleton,	6175 09 537 1289
Rod Harrod VK6BRH	Peel Amateur Radio Group Inc	PO Box 1010, Mandurah,	6210 09 535 7178 (AH)
Rex Hickling VK6SN	Peel Amateur Radio Group Inc	PO Box 1010, Mandurah,	6210 09 535 7992
Frank Langford VK6BLA	Peel Amateur Radio Group Inc	10 Clipper Way, Halls Head,	6210 09 581 5028
Rev Suter VK6SA	The Amateur Radio Exam Centre	PO Box 261, Mandurah,	6210
Con Murphy VK6PM		PO Box 88, Yarloop,	6218 097 33 1978
Bill Harrison VK6WJH	Bunbury Radio Club Inc Lot	143 Ewing Rd, Allanson,	6225 097 34 4374 (AH)
Murray Peacock VK6YD	Bunbury Radio Club Inc	PO Box 31, Bunbury,	6230 097 21 5442
John Thornborough VK6AJJ	Bunbury Radio Club Inc	PO Box 31, Bunbury,	6230 097 97 1126
Aubrey Keightley VK6XY	Southern Electronics Group	242 Serpentine Rd, Albany,	6330 098 42 2624
Tom Reed VK6TR	Southern Electronics Group	Lot 25 Shellbay Rd, Lower King,	6330 098 447395
Ron Howrie VK6ANR	Goldfields ARG	PO Box 1281, Kalgoorlie,	6430 090 91 4457
Alan Ransley VK6AJO	Goldfields ARG	214 McDonald St, Kalgoorlie,	6430 090 21 7746 (AH)
Keith Gadsby VK6MKG	Esperance ARS	13 Westmacott St, Esperance,	6450 090 71 2708 (AH)
Graeme Smith VK6ATS	Esperance ARS	12 Young Place, Esperance,	6450 090 71 2801 (AH)
Peter Zwarecz VK6APZ	Esperance ARS	PO Box 1116, Esperance,	6450
Bob Hollingshead VK6KI		PO Box 1651, Geraldton,	6530 099 64 2246 (AH)
Bob Marlow VK6PJ	Geraldton Amateur Radio Club	PO Box 2004, Geraldton,	6530 099 21 1367 (AH)

Examiner	Group/Club	Address	Telephone
Gordon Williams VK6IU		PO Box 259, Northampton,	6535 099 34 1259
Bob Jones VK6CIJ		PO Box 162, Carnarvon,	6701 099 41 1855
Scott Savage VK6AAB		PO Box 1172, Carnarvon,	6701 099 41 3444 (BH)
Rex Wiggins VK6ARW		PO Box 532, Exmouth,	6707 099 492335
Ed Williams VK6AJR		PO Box 532, Exmouth,	6707 099 491880
Steve Hill VK6PA	ARS Northwest Australia Inc	PO Box 410, Wickham,	6720 091 85 4510 (AH)
Dave Holt VK6YA	ARS Northwest Australia Inc	PO Box 410, Wickham,	6720 091 87 1926
Peter Dowd VK7PR	WIA Tasmanian Division	12 Susan Pde, Lenah Valley,	7008
Andrew Dixon VK7GL	WIA Tasmanian Division	Faulknors Rd, Glenlusk,	7012 002 39 0249 (AH)
Mike Jenner VK7FB	WIA Tasmanian Division	PO Box 641, Rosny Park,	7018 018 12 1755
Bill Reid VK7WR	WIA Tasmanian Division	40 Wentworth St, Bellerive,	7018 002 44 4089 (AH)
Reg Emmett VK7KK	WIA TAS DIV Southern Branch	PO Box 26, Rokeby,	7019 002 48 6824 (AH)
Bill Bower VK7AV	WIA TAS DIV Northern Branch	40 Amy Rd, Launceston,	7250 003 44 1584 (AH)
Al Burke VK7AN	WIA TAS DIV Northern Branch	30 Newland St, Trevallyn,	7250 003 27 1171 (AH)
Barry Hill VK7BE	WIA TAS DIV Northern Branch	611 West Tamar Rd, Riverside Launceston,	7250 003 27 2096
Gary Hammond VK7KYZ	WIA TAS DIV Northern Branch	PO Box 82, Beaconsfield,	7270 003 83 1275
Ron Churcher VK7RN	WIA Tasmanian Division	PO Box 277, Devonport,	7310 004 24 6366 (AH)
Tony Clayton VK7AH	WIA Tasmanian Division	10 Wrenswood Dve, Quoiba,	7310 004 24 5375 (AH)
David Spicer VK7ZDJ	WIA Tasmanian Division	5A Helen St, Ulverstone,	7315 004 25 2030
Phil Harbeck VK7PU	WIA Tasmanian Division	14 Kennedy St, Burnie,	7320 004 31 3020
Clarrie Hilder VK7HC	WIA Tasmanian Division	5 Speed St, Cooee,	7320 004 31 8211
Shane Lynd VK7KHZ	WIA Tasmanian Division	14 Read St, Tullah,	7321 004 73 4256 (AH)
Steve Bush VK7EQ	WIA Tasmanian Division	PO Box 123, Somerset,	7322 004 35 1043
Dick Van Beek VK7KVB	WIA Tasmanian Division	31 Beech Dve, Rosebery,	7470 004 73 1693 (AH)

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SOME THINGS HAVE NO COMPARISON

amateur
radio
action

The magazine for the serious radio operator

AT YOUR NEWSAGENT EVERY MONTH

Stolen Equipment Register

The Stolen Equipment Register is one of many services offered to members by the WIA. It has been in operation since 1980, and is maintained on a computer database in the Federal Office.

Members wanting to take advantage of the Register, either to publicise the theft of their equipment, or to check equipment they are about to purchase, may write, fax, or telephone the Federal Office.

Any telephone reports of stolen equipment MUST be followed by written confirmation of the details. For maximum efficiency, these details should include the manufacturer's name, model, type of equipment, serial number, date stolen, owner's name, address and callsign, any distinguishing features or modifications and the police contact (if any).

When equipment is recovered it is important that you advise the Federal Office as soon as practicable. The following list is the most up-to-date information available at the time of going to press, but is based entirely on information received from you, the member.

Would all members please check this list and immediately advise if there are any amendments. For space reasons, only those items stolen in the past three years are published in this list.

Manufacturer	Model	Description	Serial Number	Owner	Date Stolen	Comment
ALINCO	DJ-100T	5/8 2 MET WHIP		VK7NDQ	03/06/94	STOLEN FROM COOLANGATTA
ALINCO	DR112T	1/4 WAVE 27MHZ WHIP	0005049	VK7NDQ	03/06/94	STOLEN FROM COOLANGATTA
AMSTRAD	PC700	H/HELD & RD ANTENNA	0006697	VK2KIQ	17/10/93	CALLSIGN PAINTED ON BODY
CHIRNSIDE		2M FT TRANSCEIVER	532-872380	VK1DA	13/09/93	PART OF MOUNT BRACKET & MICROPH
DICK SMITH		LAPTOP COMPUTER		VK5ALE	16/04/92	ENGRAVED LEPARC OR VK5ALE
FDK	MULTI 7	5 MOB HF ANTENNAS		VK3AMM	26/03/92	
GEN ELECTRIC		2M 5/8 MOBILE WHIP		VK3AMM	26/03/92	
GME	TX472S	2M TRANSCEIVER		VK5XY	06/03/92	ENGRAVED D/LICENCE S 415 265 O
HOME BREW		18 CH 27MHZ SSB CB	006-62229	VK7NDQ	03/06/94	STOLEN FROM COOLANGATTA
HOMEBREW		40 CH UHF T/CEIVER		VK7GQ	15/02/93	NO DISTINGUISHING FEATURES
ICOM	2410H	ATU	2668	VK7NDQ	03/06/94	STOLEN FROM COOLANGATTA
ICOM	2SAT	6M 60W LINEAR AMP	1387	VK3AMM	26/03/92	
ICOM	2SRA	MOBILE RADIO	3299	STEWART ELEC	25/04/92	
ICOM	720A	HAND HELD	06619	STEWART ELEC	25/04/92	
ICOM	735	HF TRANSCEIVER	8065	K7NDQ	03/06/94	STOLEN FROM COOLANGATTA
ICOM	IC225	MULTI-MODE HF RADIO	62015291	STEWART ELEC	25/04/92	
ICOM	IC27H	2M MOBILE	02318	VK5ZFW	30/08/93	SLIGHT HUM IN BACKGROUND
ICOM	IC701	2M MOBILE TRANSCEIV	13814689	VK2KFK	20/04/93	REAR HEATSINK BROKEN/EPOXIED
ICOM	IC730	HF TRANSCEIVER	#06196	VK5ALE	16/04/92	ENGRAVED LEPARC OR VK5ALE
ICOM	IC735	HF TRANSCEIVER	020254	VK3MT VK3COT	05/11/92	DC POWER CORD NOT TAKEN
ICOM	IC735	HF TRANSCEIVER	#0180	RMIT	06/12/92	ENGRAVED HEATSINK & TOP COVER
ICOM	IC735	HF TRANSCEIVER	001781	VK2AZI	16/12/92	INC MOUNTING BRACKET/MICROPHONE
ICOM	ICW2A	PSU POWER SUPPLY	1817	RMIT	06/12/92	
ICOM	P2AT	DUAL BAND H/HELD	64395	VK6ZPE	10/10/93	HM46L MIC/SPEAK DUAL WHIP ALSO
ICOM	R1	HAND HELD	1866	STEWART ELEC	25/04/92	
ICOM	W2A	WIDE BAND RECEIVER		STEWART ELEC	25/04/92	
KENPRO	KR500B	DUAL BAND HAND HELD	41003177	STEWART ELEC	25/04/92	
KENWOOD	TH-28A	H/D ROTATOR	41003180	VK6YEF	16/02/92	
KENWOOD	TH-28A	HANDHELD	0061315	ROSS KEOGH	14/07/94	
KENWOOD	TH75A	HANDHELD	30401157	ROSS KEOGH	14/07/94	STOLEN FROM CHURCH ST STORE
KENWOOD	TH77A	VHF/UHF HAND HELD	8022576	VK6KCH	26/02/92	CASE — SPKR/MIC — MOB POWER LEAD
KENWOOD	TM221A	DUAL BAND H/HELD	8022583	VK6AD	27/02/94	PLUS DIAMOND D/BAND ANTENNA
KENWOOD	TR2400A	2M FM TRANSCEIVER	0114944	VK7GO	15/02/93	NO DISTINGUISHINF FEATURES
KENWOOD	TR751A	2M FM TRANSCEIVER	7050702	VK3KGM	04/11/92	
KENWOOD	TR851	2 METRE H/HELD	8100046	VK6ART	20/06/93	
KENWOOD	TS120S	144 MHZ TRANSCEIVER	0010035	VK3HY	23/04/92	NO IDENTIFICATION
KENWOOD	TS120S	70 CM TRANSCEIVER	0070741	VK3TRI	28/04/94	CALLSIGN ENGRAVED
KENWOOD	TS120V	HF TRANSCEIVER	560762	VK2EV	05/06/92	WITH MIKE AND 12V POWER LEAD
KENWOOD	TS440S	HF TRANSCEIVER	9100338	VK5AKN	12/05/92	ENGRAVED WITH DRIVERS LICENCE NO
KENWOOD	TS520S	HF TRANSCEIVER	8052033	VK2NVS	16/12/93	LIC NO N674522 ON BACK
KENWOOD	TW1000A	HF TRANSCEIVER		VK6ELL	01/02/92	
MICROMETER		DUAL BAND 2M/70 FM		SPARC	16/06/93	
PAC-COMM	TINY 2	SWR METER NOT KNOWN	T5782	VK3XV	04/05/93	MICROPHONE & ANTENNA DIPLEXER
PAC-COMM	.TINY 2	TNC	T6784	VK5ALE	16/04/92	ENGRAVED LEPARC OR VK5ALE
PALOMAR ELITE	TX5500	TNC		GOULBURN ARC	27/11/92	
PHILIPS	1680	HF LINEAR AMPLIFIER		GOULBURN ARC	27/11/92	
PHILIPS	20GR1050	VHF MOBILE T/CEIVER		VK2DIG	19/07/94	MODS TO 259 SOCKET AND HEATSINK
PHILIPS	PRM80	20 INCH TV	NOT KNOWN	VK5XY	06/03/92	ENGRAVED D/LICENCE S 415 265 O
PHILIPS	FM828	VHF TRANSCEIVER	45459	VK6KDN	09/09/92	
SAWTRON	999	FM TRANSCEIVER	203026	VH3HY	23/04/92	4 COMM 3 X 144 MHZ RPTR CHANNELS
		UHF CB TRANSCEIVER		GOULBURN ARC	27/11/92	
				VK2KSN	24/04/92	

Manufacturer	Model	Description	Serial Number	Owner	Date Stolen	Comment
STANDARD	C146A	2M TRANSCEIVER		VK3XCE	05/10/92	XTALS FITTED RPT 6700-7000-6500 MANUAL TAKEN BUT NOT RUBBER DUCK MANUAL ALSO
STANDARD	C528	2M HAND HELD	OOE 130667	VK2PD	27/08/92	
STANDARD	C528	2M HAND HELD	OOE 150667	VK2PD	27/08/92	
STANDARD	CAT08	MIC/SPEAKER		VK3XCE	05/10/92	
STANDARD	CMPO8	RUBBER DUCK ANTENNA		VK3XCE	05/10/92	
SUPER PANTHER		40CH 27MHZ CB	00029377	VK6ZGP	26/04/92	
UNIDEN	PC122	SSB/AM CB TRANSCEIVR	NOT KNOWN	VK3HY.	23/04/92	PHILIPS MICROPHONE
WELZ		SWR/POWER METER		VK2AZI	16/12/92	
YAESU	FC 700	A T U	4J090473	VK5ALE	16/04/92	ENGRAVED LEPARC OR VK5ALE
YAESU	FC700	ANTENNA TUNER		VK2NVS	16/12/93	LIC NO N674522 ON BACK
YAESU	FP700	POWER SUPPLY. 3C-020584		VK4BWG	11/03/92	
YAESU	FT 890	HF TRANSCEIVER	2K130424	DSE COBURG	18/07/94	NO ACCESSORIES OR PACKING TAKEN
YAESU	FT-280R	2M TRANSCEIVER	2F22898	VK3XCE	05/10/92	
YAESU	FT209RH	2M FM HANDHELD	6E-260229	VK4BWG	11/03/92	FNB4 & FBA10 BATTERY PACKS
YAESU	FT209RH	2M FM HANDHELD	NOT KNOWN	VK6KAD	08/02/93	BROKEN BATTERY. RETAINING CLIP FROM MOTEL HURSTVILLE
YAESU	FT211RH	2 M MOBILE TX	8M180306	VK2ZUP	09/07/92	
YAESU	FT230R	2M FM TRANSCEIVER	2M120897	VK2JCC	10/02/93	
YAESU	FT23R	2 METRE H/HELD	9C651443	VK6TT	11/07/93	
YAESU	FT23R	2 METRE H/HELD	0D071776	VK6KDN	09/09/92	PA6 BATTERY ELIM PACK ALSO
YAESU	FT290R	MK1 2 M TRANSCEIVER	3E270928	VK3TRI	28/04/94	INT RF PREAMP/CALLSIGN ENGRAVED WITH BATTERY. BOX
YAESU	FT290R11	2M FM TRANSCEIVER	8G130128	VK3YNB	04/06/92	
YAESU	FT290R11	2M FM TRANSCEIVER	9F240010	VK2BVR	10/03/93	
YAESU	FT415	2 METRE HAND HELD	2I 172773	DICK SMITH	05/05/93	
YAESU	FT415	2 METRE HAND HELD	2I 173633	DICK SMITH	05/05/93	
YAESU	FT470	DUAL BAND HAND HELD	1 K 430817	D SMITH ELEC	31/12/92	
YAESU	FT7	HF TRANSCEIVER		VK5XY	06/03/92	ENGRAVED D/LICENCE S 415 265 O
YAESU	FT707	HF TRANSCEIVER	0G030440	VK3AMM	26/03/92	
YAESU	FT712	UHF TRANSCEIVER	81120576	GOULBURN ARC	27/11/92	
YAESU	FT747		2C721035	VK3YSU	00/02/94	ITEMS FROM DICK SMITH SPRINGVALE
YAESU	FT757	HF TRANSCEIVER	4E-071058	VK4BWG	11/03/92	
YAESU	FT757GX	11 HF TRANSCEIVER	IL590102	DICK SMITH E	13/05/92	STOLEN FROM PARRAMATTA STORE
YAESU	FT911	11140173		VK3YSU	00/02/94	ITEMS FROM DICK SMITH SPRINGVALE
YAESU	FT912R		OK040382	VK3YSU	00/02/94	ITEMS FROM DICK SMITH SPRINGVALE
YAESU	FTV707	6M TRANSVERTER	1H010331	VK3AMM	26/03/92	
YAESU	SP4	EXTENSION		VK2AZI	16/12/92	
YAESU	YM24A	MIC/SPEAKER		VK3XCE	05/10/92	

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QSP News

1994 Amateur Radio Awards

Amateur Radio magazine, as members know, is a magazine of the members and for the members of the organisation which represents the Australian amateur service both nationally and internationally.

Some of the interesting and original articles which appear in *Amateur Radio* are republished in overseas publications but this is not the only tribute which authors of articles submitted to the WIA magazine receive. Every year the WIA Publications Committee selects winners of three annual magazine awards. Yet again, the task of the Publications Committee

was not an easy one this year considering the wide range of quality articles published in our magazine over the past 12 months.

However, at the Publications Committee meeting held on 8 December 1994 the annual *Amateur Radio* awards were allocated. The eventual winners were selected after much consideration by that committee.

The Al Shawsmith Journalistic Award, presented for an article on a radio theme considered best to display journalistic merit, was awarded to Bob Hawksley VK2GRY for his article "Forever Courteous" which appeared in the December issue of *Amateur Radio*. Bob receives an engraved wall

plaque as well as a cheque for \$100.00.

The Technical Award, for the best technical article(s) published during the year, was awarded to Will McGhie VK6UU for his monthly column *Repeater Link*. Will receives a cheque for \$100.00.

The Higginbotham Award, for meritorious service to amateur radio generally, was awarded to Eric Jamieson VK5LP for 25 years of service to VHF/UHF operators through his monthly column *VHF/UHF — An Expanding World*. Eric also receives a cheque for \$100.00.

Congratulations to Bob, Will and Eric on winning these *Amateur Radio* Awards for 1994!

ALARA

Sally Grattidge VK4SHE*, ALARA Publicity Officer

Monday Night Net

The 80 metre net has struggled on through the poor summer conditions and is always well attended, even though some of the more distant stations can do little more than shout hello through the static. However, even at this time of year, there is the occasional night when signals are surprisingly good, so it is always worth listening to see who you can copy.

Recent regular callsigns include VK2AMJ, VK3AGC, VK3DMS, VK3DYF, VK3FMC, VK3OZ, VK4AOE, VK4NBC, VK4SHE, VK5AMD, VK5AOV, VK5BMT, VK5CTY, VK5YL and VK6YF, with others checking in when conditions permit. A less frequently heard callsign is always made welcome. If you cannot hear net control, just call after one of the stronger signals and they will relay for you.

If you wish to know what the weather has been like for the last week around Australia, just listen to the ALARA Monday net. That is the way the net starts most weeks and it makes interesting listening, showing what a large and varied country we live in.

Details of this net are, Monday nights on 3580 kHz +/- at 1000 UTC during daylight saving, and 1030 UTC at other times.

ALARA committee meetings are also held on 80 metres. Motions are passed and votes counted with many relays, "say agains", phonetic spelling and the rest. Christine VK5CTY does a mighty job keeping everything under control. I am sure most of us have experienced less well organised meetings where everybody can see and hear each other clearly.

News from the Members

Mary VK5AMD has had to sheath her antennas with short lengths of over-sized plastic tubing to deter the galahs and corellas who like to perch on them. Mary has had very little trouble with the birds since she tried this trick.

Mary VK3FMC has a different problem. When the beam is set one way the birds leave their calling cards on OM Dick's (VK3DLC) vintage Mercedes. If it is turned the other way, Mary's washing receives the "donations". Passers-by think they have a lot of DX contacts.

Marilyn VK3DMS has a new improved signal after installing a new balun.

In December a very pleasant luncheon was attended by Jenny VK5ANW, Denise VK5YL, Christine VK5CTY and her OM Geoff VK5TY to welcome Pat VK3OZ and

her OM Peter VK3VB to Adelaide. They were in Adelaide to visit their son and family who were also able to join the party at the Old London Tavern. Philip VK5VB, wife Kathy and their little daughter were welcome additions to the group. Despite arranging the gathering, Meg VK5AOV found she had another engagement so was unable to join in. However, Pat and Peter were able to spend a few hours with Meg and David on their way to Turadin later in the week.

Across the Tasman, Dawn ZL2AGX is recovering well from heart surgery, and will be more active once all the antennas are reinstalled at the new home. On the other side of the continent, Bev VK6DE's OM, Brian VK6AI, is doing well too and back playing bowls.

VK5 Luncheons

Due to the closure of "The Red Apple" restaurant at Edwardstown, the regular meeting place for the VK5 girls on alternate months, it has been necessary to find another venue. In February and April the Parkside "Sizzler" will be the place to meet. The April luncheon will be held on the first Friday instead of the second Friday as this is Good Friday. Visitors are welcome and should contact one of the VK5 girls for details.

If you are going to the Gosford Field Day on 26 February, keep a look out for Dorothy VK2DDB and her ALARA stall there. Go and say "hello" and find out more about ALARA.

Marlene VK3WQ and Jim VK3DL, on the last leg of their 1994 tour, were in Adelaide in November, where they met Meg VK5AOV and David VK5OV at the Art Gallery to view the Irish Masterpieces. After which they were joined by Christine VK5CTY and Geoff VK5TY for lunch. Jim and Marlene also managed a trip on the O-Bahn, the Adelaide Christmas Pageant and two days at Murray Bridge with Meg and David.

The VK5 girls ran their usual catering stall for the AHARS Electronic Sale in November last year, and this time it did not coincide with the ALARA contest. Maria VK5BMT ran the day very efficiently assisted by Jenny VK5ANW and Meg VK5AOV. Christine brought the pies from her freezer, but could not stay as she had an amateur exam to supervise. ALARA members there for the day included Jean Day, Jean Kopp, Tina Clogg, and Mary Rodgers and OM Peter from Rudall.

Bev VK4NBC and Graham VK4BGC

are trying to master a new computer. That should keep them quiet for a while. They attended several Hamfests last year, but feel these are not as good as they used to be. Bev had two memorable contacts in December. A good one with Kirsti VK9NL, and a bad one with a nest of paper wasps.

There were some fruity topics of conversation on the net just before Christmas. Marilyn VK3DMS was bottling apricots, Meg VK5AOV had plenty of pears, Mary VK5AMD had bananas and passionfruit, Sally VK4SHE was making mango chutney and Mary was picking loganberries.

Joan VK3BJB travelled extensively last year keeping up with family and friends including Japanese amateurs on ships in port in Australia. She is improving her Japanese by going to classes and checking into the Japanese Maritime Mobile and Yacht networks.

The Townsville YLs decided not to have a Christmas break-up last year as there were so many other parties going on. They planned to have a new year get-together instead. Those intending to take their holidays in the sunny north are reminded of the North Queensland Convention in September. After the successful Queensland YL meet last year in Bundaberg, this will be a great opportunity to get together again with no problems about how to amuse the OM.

The District Radio Ladies combined with the CQ Branch for a Christmas party at the QTH of Robyn VK4RL and Rob VK4SEA on 17 December. Children in nearby streets were delighted by Santa throwing lollies from a trailer cunningly disguised as a sleigh.

New Callsign

June VK4DDJ is now VK4SJ, and her OM is VK4BP.

Thought For The Month

The nice thing about radio friends is that you can take them with you when you move.

*C/o PQ Woodstock, QLD 4816
ar

**Help stamp out
stolen equipment
— keep a record of
all your equipment
serial numbers in a
safe place.**

AMSAT Australia

Bill Magnusson VK3JT*

National co-ordinator

Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI

AMSAT Australia net:
Control station VK5AGR

Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary 7.064 MHz. (usually during summer).

Secondary 3.685 MHz. (usually during winter).

Frequencies +/- 5 kHz for QRM.
AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Frequencies for Phase 3D

AMSAT Phase-3 D design team member Peter Guelzow (DB2OS) reported recently that flight crystals for the transponders were ordered and further changes in receiver and transmitter frequencies are not expected. He released the following transponder-plans.

AMSAT PHASE 3-D Transponder-Bandplan as at 1 Dec 94

AMSAT P3-D Uplink Bandplan

Uplink	Digital	Analog Passband
15 m	none	21.210 - 21.250 MHz
2 m	145.800 - 145.840 MHz	145.840 - 145.990 MHz
70cm	435.300 - 435.550 MHz	435.550 - 435.800 MHz
23cm(1)	1269.000 - 1269.250 MHz	1269.250 - 1269.500 MHz
23cm(2)	1268.075 - 1268.325 MHz	1268.325 - 1268.575 MHz
13cm(1)	2400.100 - 2400.350 MHz	2400.350 - 2400.600 MHz
13cm(2)	2446.200 - 2446.450 MHz	2446.450 - 2446.700 MHz
6cm	5668.300 - 5668.550 MHz	5668.550 - 5668.800 MHz

Note: all receivers are inverting

AMSAT P3-D Downlink Bandplan

Downlink	Digital	Analog Passband
10 m	29.330 MHz (+/- 5 KHz)	%
2 m	145.955 - 145.990 MHz	145.805 - 145.955 MHz
70cm	435.900 - 436.200 MHz	435.475 - 435.725 MHz
13cm	2400.650 - 2400.950 MHz	2400.225 - 2400.475 MHz
3cm	10451.450 - 10451.750 MHz	10451.025 - 10451.275 MHz
1.5cm	24048.450 - 24048.750 MHz	24048.025 - 24048.275 MHz

Beacons

Band	Beacon-1	Beacon-2
2 m	none	none
70cm	435.450 MHz	435.850 MHz
13cm	2400.200 MHz	2400.600 MHz
3cm	10451.000 MHz	10451.400 MHz
1.5cm	24048.000 MHz	24048.400 MHz

Note:

Beacon-1 (formerly known as the General Beacon) and Beacon-2 (formerly known as the Engineering Beacon) support command access and will be modulated in 400 bit/s BPSK AMSAT-format and possibly CW and RTTY. This means that currently available telemetry demodulators will work on p3d.

Due to limitations within the IF-matrix and two metre bandwidth there will not be any beacon on two metres.

Demise of OSCAR-13

Reports have been circulating via news broadcasts and the packet network on the imminent demise of OSCAR-13. It was reported to be expected to re-enter the atmosphere and burn up in mid December 1994. They got the month right but not the year! The latest studies by James Miller G3RUH and others have shown that the likely date for re-entry is in early December 1996. James' money is on 5 Dec 1996 but he hastens to say that closer estimates will be available as the time approaches. Funny how these rumours get around. The accurate information is not secret and has been published in all AMSAT magazines and newsletters including Graham VK5AGR's AMSAT-VK newsletter and this column. I urge you to not listen to rumours, listen to the beacon. All relevant and topical

information is broadcast regularly through AO-13 itself. The broadcasts are made in 400 baud PSK, RTTY and CW.

New Satellites

The long awaited RS-15 satellite has become a reality. It was launched from Baikonur space centre at 0300 UTC on 26 December 1994. RS-15 is a mode "A" satellite rather reminiscent of OSCAR-7. It has a similar orbit with an apogee of 2254 km and a perigee of 1875 km. This gives it a much larger footprint than the usual low-earth-orbiter. As an example, when it is over the north Atlantic ocean it can see parts of Western Europe, eastern Canada and the US, northern South America and West Africa. The apogee has been placed over the northern hemisphere and the position is not quite as good in our latitudes. It is still pretty good though and passes can be as long as 28 minutes when RS-15 goes overhead.

I can remember OSCAR-7 being up for as long as 25 minutes which means that it travels slowly, is easy to track and gives plenty of time for good QSOs. RS-15 should prove popular among newcomers and old timers alike as mode "A" has few of the problems associated with LEOs having UHF transponders. The Doppler shift is easy to follow and simple antennas are quite satisfactory to receive the down link signals on 29 MHz. We used to obtain very good results on OSCAR-7 with a one wavelength square (quad) loop mounted horizontally as high as possible in the clear.

Footprints should enable QSOs to be made over all of VK/ZL and parts of Asia and Antarctica. OSCAR-7, like most amateur low-earth-orbiters, was in a polar orbit giving two sets of three passes per day. RS-15 is in a high inclination orbit

(nearly 65 degrees) meaning that at our latitudes we can expect the two sets of passes to "string" together giving one series of maybe six or seven orbits per day. This is typical of high inclination satellites like MIR and STS.

Transponder frequencies for RS-15 are:

Uplink 145.858 to 145.898 MHz
 Downlink 29.354 to 29.394 MHz
 CW beacon 1 to 29352.5 kHz
 CW beacon 2 to 29398.7 kHz

The transponders support CW and SSB modes only. Please DO NOT overload the transponders with continuous modes like AM, FM, SSTV etc.

At the time of writing there is still some uncertainty about the keps for RS-15. This is not unusual as it is often the case for a short period soon after launch that the satellite and the last stage of the rocket orbit close to each other and it is difficult to tell which is which. This will be resolved in the coming weeks but for those of you who wish to look at the orbit I have searched out what seems to be a satisfactory set of keps.

Plug them in and give this new bird a go.

Satellite: RS-15

Object Number: 94085A

NASA Designation: 23439U
 Epoch Time 94: 362.6062197
 Epoch Rev: 283
 Mean Anomaly: 52.6969
 Mean Motion: 11.19236697
 Inclination: 64.7982
 Eccentricity: 0.0224393
 Arg of Perigee: 305.3126
 R.A.A.N: 170.9393
 Decay: -4.2000e-007

I mentioned new satellites (plural). The second worthy of mention is a new NOAA weather satellite. Many of our number are avid followers of the WXsats. The pictures available on the high resolution SHF channel are extraordinarily good, showing clear detail of coastal and topographical features down to a km or so. NOAA-14 is no exception. It was launched at 1002 UTC on 30 December 1994 from Vandenberg Air Force Base. Within a few days high resolution GIFs began appearing on the various internet services.

Next month, FAQs (Frequently Asked Questions).

*359 Williamstown Rd, Yarraville VIC 3013

Packet: VK3JT@VK3BBS

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QSP News

Insert

Elsewhere in this issue of *Amateur Radio* you will find an insert which provides a suggested wording for a letter which can be sent to any politicians regarding the attack mounted on our hobby by the threat of increased charges and taxes. You may wish to change the content to suit your own ideas.

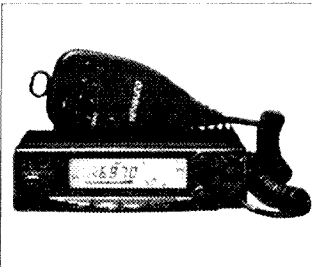
For greatest effect your letter should preferably be no longer than one page. In the form provided it will just fit on an A4 sized sheet allowing room for headings and signatures, etc.

A good idea would be to obtain a copy of the release provided as an insert to *Amateur Radio* magazine for January 1995 and forward this with your letter.

Strictly Ham Pty. Ltd. ACN 059 638 407

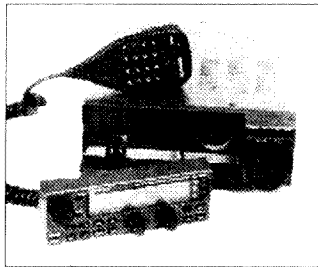
14 Church St, Bayswater. VIC. 3153
 PH:(03) 729 7656 FAX:(03) 729 7422

ALL NEW KENWOOD MOBILES



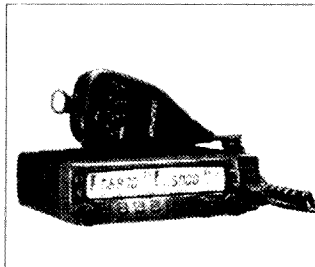
TM-251A 2m DATA MOBILE

- ✘ 1200/9600 BAUD PACKET
- ✘ 41 MEMORIES (EXPANDABLE TO 200)
- ✘ S METER SQUELCH
- ✘ BUILT IN DIGITAL RECORDING
- ✘ DUAL BAND RECEIVE
- ✘ 50 W OUTPUT POWER.



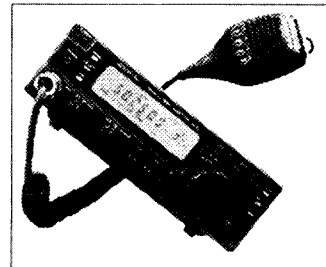
TM-255A 2m ALL MODE

- ✘ 1200/9600 BAUD PACKET
- ✘ DETACHABLE FRONT PANEL
- ✘ ALL MODE OPERATION
- ✘ 101 MEMORY CHANNELS
- ✘ TWIN TUNING DIALS
- ✘ 40W OUTPUT POWER



TM-733A DUAL BAND MOBILE

- ✘ 1200/9600 BAUD PACKET
- ✘ DETACHABLE FRONT PANEL
- ✘ DUAL RECEIVE VHF & UHF
- ✘ 72 MEMORY CHANNELS
- ✘ S METER SQUELCH
- ✘ 50/35W OUTPUT POWER



TS-60S 6m ALL MODE

- ✘ 100 MEMORY CHANNELS
- ✘ DUAL VFOs
- ✘ DUAL MENU SYSTEM
- ✘ ALL MODE SQUELCH
- ✘ COMPUTER CONTROLLABLE
- ✘ 90W RF OUTPUT

CALL FOR PRICES

G 084ARA

AWARDS

John Kelleher VK3DP — Federal Awards Manager*

Changes to DXCC listings since 1987.
All dates shown are effective from the date of publication by the ARRL.

Firstly, the additions:
Jan. 1987 3Y Peter 1 Island.
April 1988 P4 Aruba Island.
April 1988 S0 Western Sahara.
May 1989 4J1 Malyj Vysotskij Island.
May 1989 3D Rotuma Island.
May 1990 3D Conway Reef.
May 1990 T33 Banaba (Ocean) Island.
May 1990 ZS9 Walvis Bay.
May 1991 7O Yemen (Nth & Sth combined).
Sept. 1991 ZS0-1 Penguin Island.
Jan. 1993 9A Croatia.
Jan. 1993 S5 Slovenia.
Jan. 1993 T9 Bosnia-Herzegovina.

June 1993 4N5 Macedonia.
June 1993 OK Czech Republic.
June 1993 OM Slovakia.

The deletions were:
Mar. 1991 Y2 East Germany.
Mar. 1991 4W North Yemen.
Mar. 1991 7O South Yemen.
June 1993 A15 Abu Ail Island.
June 1993 OK Czechoslovakia.
Jan. 1994 ZS9 Walvis Bay.
Jan. 1994 ZS0-1 Penguin Island.

From the above list, it can be seen that the former country of Czechoslovakia is now divided into the Czech Republic, and Slovakia. Yugoslavia remains as a DXCC country, while the breakaway Republics of Slovenia, Croatia, Bosnia-Herzegovina and Macedonia have been added to the DXCC countries list.

Walvis Bay and Penguin Island stayed

for a comparatively short time, both being deleted by March 1994. The operation by P5RS7 was an absolute fizzer. The ARRL has removed any inference of this supposed operation from their books. BV9P, Pratas Island, is still hanging in the balance, requiring more definite documentation. More recently, the DXAC has voted against adding the Austral, Marquesas, and Balleny Islands to the DXCC countries list, which stands at 326 countries.

There is a hint of an operation to little-known Sala-y-Gomez Island in the South Pacific in August 1995. The tentative call sign may be XR0Z.

If you find that your call sign does not appear in the following WIA DXCC listings, it is because:

- (a) you have not updated your claims since December, 1988; or
- (b) your current listings have dropped below 100 countries due to changes and deletions, etc.

Now, here are your current WIA DXCC listings....

WIA DXCC Standings		General Listing	
Phone		VK4DP	289/300
Honour Roll		VK2AKP	289/294
Call sign	Countries	VK2DTH	287/289
VK5MS	326/379	VK4BG	286/301
VK4KS	326/372	VK2APK	285/313
VK4LC	326/372	VK3CYL	283/290
VK5WO	326/361	VK3DU	282/290
VK6HD	326/350	VK5OU	281/286
VK6LK	326/350	VK3VU	272/275
VK4RF	326/344	VK4OD	272/275
VK3QI	326/339	VK3GI	263/266
VK3AKK	326/337	ZS6IR	259/262
VK3DYL	326/331	VK3VQ	255/272
VK6RU	325/379	VK2SG	253/274
VK4OH	325/331	VK2AVZ	251/257
VK2FGI	325/330	VK4QO	251/255
VK5QW	325/329	VK2PU	244/247
VK4UA	324/337	VK3DP	243/246
VK1ZL	324/329	VK6YF	237/240
VK5EE	322/327	VK2CKW	234/237
VK6NE	320/335	PS7AB	233/237
VK5XN	318/338	VK3DS	226/336
VK3YJ	317/322	VK2ETM	226/227
VK3OT	315/327	VK5IE	219/221
		VK5BO	218/222
		VK3UY	217/217
General Listing		VK6APW	215/216
VK3AMK	313/329	VK3DD	214/217
VK3CSR	312/320	VK4XJ	204/216
VK6AJW	312/317	ON6DP	200/202
VK7BC	310/319	VK4KRP	199/201
VK6VS	309/312	VK2VFT	198/201
VK4AAR	307/310	VK4DDJ	198/198
VK5WV	305/324	VK3CIM	196/199
VK3RF	304/311	VK3DVT	196/198
VK6PY	304/309	VK4AU	191/191
VK3WJ	303/308	VK6BQN	186/190
VK6RO	299/304	VK4ICU	182/184
VK2WU	292/296	KA1TFU	176/179
VK3JI	290/304	VK7TS	170/171
		VK2BQS	162/165
		VK4LV	159/161
		VK4BAY	158/160
		VK2NO	157/
		VK4IT	153/154
		7J1AAL	149/150
		VK4ARB	149/150
		VK4DMP	147/148
		VK3DNC	141/142
		VK6LC	139/140
		VK2EQ	139/
		VK4CHB	137/138
		VK2SPS	135/137
		VK4VJ	135/137
		VK6LG	135/135
		VK4CY	132/133
		TI2YLL	129/
		LU5EWO	125/
		SM6PRX	122/126
		VK3TI	122/125
		VK7WD	115/116
		VK3BRZ	114/116
		VK4NJQ	111/115
		VK4VIS	110/112
		VK5AGM	105/107
		N4JED	104/105
		VK3EHP	103/105
		VK4IL	103/
		VK4BJE	102/104
		VK5GZ	102/104
		JH3OHO	101/103
		VK2CMV	100/102
		VK6APH	100/101
		WIA DXCC Standings	
		CW	
		Honour Roll	
		Call sign	Countries
		VK6HD	324/344
		VK3QI	324/335
		VK3XB	309/343
		VK4AAR	308/311
		VK4RF	306/332
		VK3KS	295/322
		VK5WO	295/310
		VK6RU	274/318
		VK2APK	274/304
		VK3AKK	267/272
		VK3JI	257/280
		VK7BC	224/233
		VK3DP	222/225
		VK4LV	218/225
		VK4DA	217/219
		VK2CWS	210/212
		VK4DP	203/214
		VK4OD	185/188
		VK3CIM	184/185
		VK6PY	178/181
		VK5BO	159/184
		VK6MK	157/159
		VK3DNC	154/157
		VK4XJ	150/163
		VK6BHW	150/152
		VK4UA	143/155
		VK4ICU	143/
		VK5UO	142/143
		EA6AAK	138/
		VK7DQ	137/138
		VK2SG	136/148
		VK4KS	126/134
		VK7TS	125/
		VK2TB	123/125
		VK3AGW	119/120
		VK5GZ	116/118
		VK2AKP	115/117
		VK4CY	110/
		VK5QJ	107/109
		VK8KV	102/103
		VK2CXC	101/103

WIA DXCC Standings	VK4AAR	308/311	VK3CIM	236/239	VK4NJQ	133/139
Open	WA3HUP	306/330	VK4LV	235/242	VK4EZ	129/138
Honour	VK3JI	305/333	VK4XJ	233/249	YB8GH	127/129
Roll	VK6PY	305/312	VK5UO	226/229	VK7HV	114/117
Callsign	VK4DP	304/317	VK4DA	218/220	VK5BWW	111/112
Countries	VK6RO	304/309	WA5VGI	216/218	VE7BS	106/107
VK4KS	VK3DP	293/296	VK2CWS	214/216	VK3COR	102/104
VK5WO	VK2APK	292/328	VK4ICU	212/214	VK3VB	102/104
VK4RF	VK4BG	292/310	VK2VFT	202/205	SM7WF	101/
VK6HD	VK2SG	289/314	VK7TS	201/202		
VK3QI	VK2AKP	289/294	VK3DNC	185/187	WIA DXCC Standings	
VK3AKK	VK4OD	285/288	VK2BQS	176/179	RTTY	
VK6RU	VK3CYL	283/290	PR7CPK	174/175	Callsign	Countries
VK5QW	VK3UY	272/274	VK6MK	162/164	VK3EBP	198/200
VK4UA	VK3VQ	270/287	VK6NV	154/156	VK2SG	157/160
VK3JA	VK5BO	264/301	VK2CXC	150/152	VK2BQS	115/117
VK3OT	TF5BW	260/264	VK4CHB	145/147		
VK7BC	VK4CY	242/243	VK6LC	142/144		
General Listing	VK2ETM	239/240	VK5GZ	140/142		
VK3AMK						
VK3XB						

*PO Box 2175 Caulfield Junction 3161 ar

Contests

P Nesbit VK3APN* — Federal Contest Coordinator

Contest Calendar Feb-Apr 95		
Feb 11/12	PACC CW/SSB DX Contest	(Jan 95)
Feb 11/12	Spanish RTTY Contest	(Jan 95)
Feb 18/19	ARRL DX CW Contest	(Jan 95)
Feb 24/26	CQ 160 Metre SSB Contest	(Dec 94)
Feb 25/26	RSGB 7 MHz CW Contest	(Jan 95)
Feb 25/26	UBA Belgium CW DX Contest	
Mar 4/5	ARRL DX SSB Contest	(Jan 95)
Mar 11/12	BERU CW Contest	
Mar 18/19	WIA John Moyle Field Day	
Mar 18/19	BARTG RTTY Contest	
Mar 25/26	CQ WPX SSB Contest	
Apr 1/2	SP DX Contest	
Apr 8/9	Israel DX Contest	
Apr 29/30	Helvetia DX Contest (Switzerland)	

Contest Details

The following contest details should be read in conjunction with the "General Rules & Definitions" published in April 1993 *Amateur Radio*.

Commonwealth Contest (BERU)

CW only: 1200z Sat to 1200z Sun, 11-12 March

This annual event is always very popular in this part of the world. It runs each year on the second full weekend in March, and its purpose is to promote contacts between stations in the British Commonwealth and Mandated Territories. Categories are single operator, single and multiband; and receiving. The use of spotting nets, packet clusters, etc is precluded. Contacts may be made with any station using a British Commonwealth prefix, except those within the entrant's own call area. Bands are 80-10 m, using the bottom 30 kHz of each band, except when contacting novice stations above 21030 and 28030 kHz.

Exchange RST and serial number commencing with 001. Score five points per QSO, with a bonus of 20 points for each of the first three QSOs with each Commonwealth call area on each band (note that, for the purpose of this contest, the entire UK area counts as *one* call area).

Several "headquarters" stations will be active during the contest, and will send "HQ" after their serial number to identify themselves. Each HQ station counts as an additional call area, and therefore attracts the 20 point bonus. Entrants may

contact their own HQ station for points and bonuses.

Show duplicate contacts in the log with zero points. Entrants making more than 80 QSOs should include a sorted alphabetical list of the call signs appearing in the log, together with either the serial number sent or the time of contact beside the call sign. Separate logs and lists of bonuses claimed are required for each band. Single-band entrants should claim points for contacts on the selected band,

A. J & J COMAN ANTENNAS

Dual band Co/linear 2M&70cm	\$ 95
2M co/linear 2 5/8	\$ 93
12 ele 2M	\$123
6 M J-pole	\$109
6 M co/lin 6 dbd rad 4.NEW	\$150
6 ele 6 M	\$196
Duo 10-15 M	\$265
3 ele 15 M	\$190
3 ele 20 M	\$298
20 m log-yag array 11.5 dbd	\$685
M B Vert NO TRAPS 10-80 M	\$255
Tri band beam HB 35 C 5 ele	\$675
40 M linear loaded 2 ele	\$484
13-30 M logperiodic 12 ele	
all stainless/steel fittings	\$885
70 cm beam 12 ele bal/Feed	\$102
23 cm slot fed 36 ele brass cons	
s/solder-assembled. 18 dbd	\$170
80 m top load/cap/hat vert.	\$260
3 ele 40m l/cap hats 60mm boom	\$785
2 m 144.190 2.2 wavelength boom	\$145

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PHONE 054 285 134**

but should also submit details of QSOs made on other bands for adjudication purposes.

Include a cover sheet showing standard details, and send the log postmarked by 10 April to RSGB HF Contests Committee, c/o S Knowles G3UFY, 77 Bensham Manor Road, Thornton Heath, Surrey, CR7 7AF, England. Airmail is advised, as late logs may be treated as check logs. The Senior and Junior Rose Bowls will be awarded to the overall leader and runner-up respectively, and Certificates of Merit to the leading stations in each category and call area on each band.

The following call areas are recognised for the purpose of scoring in the 1995 Commonwealth Contest:

A2, A3, AP, C2, C5, C6, CY9, CY0, G/GB/GD/GI/GJ/GM/GU/GW (all one area), H4, J3, J6, J7, J8, P2, S2, S7, T2, T30, T31, T32, T33, V2, V3, V4, V5, V8, VE1, VE2, VE3, VE4, VE5, VE6, VE7, VE8, VK1, VK2, VK3, VK4, VK5, VK6, VK7, VK8, VK9C, VK9L, VK9M, VK9N, VK9W, VK9X, VK0 (Heard Isl), VK0 (Macquarie Isl), VK0 (Antarctica), VO1, VO2, VP2E, VP2M, VP2V, VP5, VP8 (Falkland Isl), VP8 (S Georgia), VP8 (S Sandwich Isl), VP8 (S Shetland Isl), VP8 (S Orkney Isl), VP8 (Antarctica), VP9, VQ9, VR6, VS6/VR2 (Hong Kong), VU, VU4 (Andaman & Nicobar Isl), VU7, VY1, YJ, Z2, ZB2, ZC4, ZD7, ZD8, ZD9, ZF, ZK1 (N Cook Isl), ZK1 (S Cook Isl), ZK2, ZK3, ZL0 or /ZL (NZ reciprocal calls), ZL1, ZL2, ZL3, ZL4, ZL5, ZL7, ZL8, ZL9, 3B6/7, 3B8, 3B9, 3DA, 4S, 5B4, 5H, 5N, 5W, 5X, 5Z, 6Y, 7P, 7Q, 8P, 8Q, 8R, 9G, 9H, 9J, 9L, 9M2, 9M6/8, 9M0, 9V, 9Y, GB5CC (RSGB HQ station), various other HQ stations.

BARTG RTTY Contest

0200z Sat to 0200z Sun, 18-19 March
(See February 1994 *Amateur Radio* for rules).

CQ WPX Contest

SSB: 0000z Sat to 2400z Sun, 25-26 March

CW: 0000z Sat to 2400z Sun, 27-28 May

This contest is sponsored by CQ Magazine, and the objective is to contact as many stations worldwide as possible on 1.8-30 MHz (except 10, 18 & 24 MHz). Categories include: single operator (either single or all band), subdivided according to power (unrestricted, low power max 100 W O/P, and QRPp max 5 W O/P); and multioperator (either single or multitransmitter, all band only). Single operator stations are where one person performs all operating, logging, and spotting functions. The use of DX spotting nets places the station in the multioperator single transmitter category. Multi-multi stations must have all

transmitters located within a 500 m diameter circle or within the property limits of the licensee's address, whichever is greater. All antennas must be physically connected by wires to the station transmitters and receivers.

Exchange RS(T) plus a three digit number starting at 001. Continue to four digits if past 1000. Multitransmitter stations must use separate numbers for each band. Score 3 points (14-30 MHz) or 6 points (1.8-7 MHz) for contacts with stations on different WAC continents, and 1 point (14-30 MHz) or 2 points (1.8-7 MHz) for contacts with stations within the same WAC boundary. Contacts with stations in the same country are permitted for multiplier credit but have zero point value.

The multiplier is the total number of prefixes worked on all bands (each prefix is counted only once regardless of the number of different bands on which it is worked). A "prefix" is the unique letter/numeral combination forming either the first part of the callsign, or else the normal country identifier for stations using their home callsigns in another DXCC country. For example: N8, W8, AG8, Y22, Y23, HG7, HG73 are all separate prefixes. The prefix for both N8ABC/KH9 and KH9/N8ABC is KH9. KH6XXX operating from Ohio could sign /W8, /N8, /K8, or any other prefix authorised for that district. Portable designators without numbers will be assigned zero after the letter prefix, eg N8ABC/PA becomes N8ABC/PA0. Any calls without numbers will be assigned a zero after the first two letters, eg RAEM becomes RA0EM. Suffixes indicating maritime mobile, mobile, portable, alternate location, and licence class do not count as prefixes (eg /MM, /M, /P, /A, /E, /J). The final score is QSO points x multiplier.

Logs must show times in GMT, with breaks clearly marked. Show prefix multipliers only the first time they are worked. Logs must be checked for duplicates, correct points, and prefix multipliers. Logs must be accompanied by a sorted alphanumeric list of prefix multipliers, and a summary sheet showing call, name, address, category, power, scoring information, and a signed declaration that all contest rules and radio regulations were observed. Logs may also be submitted on 3-1/2" or 5-1/4" DOS disk in ASCII format (.BIN, .RES, .DBF, .WKS also acceptable), providing a sorted multiplier file and a paper summary sheet are included. Send logs postmarked by 8 May (SSB) or 7 July (CW) to WPX Contest, 76 N. Broadway, Hicksville, NY 11801, USA. Indicate SSB or CW on envelope.

A comprehensive range of trophies and plaques is offered, and certificates will be

awarded to the highest scoring station in each category, country and VK call area. To be eligible for awards, single operator stations must show at least 12 hours operation, and multioperator at least 24 hours operation. Single band entries showing points claimed for more than one band will be judged as multiband unless otherwise specified. Where returns justify, second and third place awards will also be made.

1995 John Moyle Contest

Presented by Phil VK1PJ

Well, once again those who enjoy a weekend in the bush should be planning for the John Moyle Field Day. The rules remain the same as last year, except for the finishing time which has been brought forward to give entrants the chance to pack up and return home at a respectable hour. Since most activity has usually all but disappeared by Sunday afternoon, the effect on scores should be minimal.

I hope to be on air the weekend prior to the contest, family and work commitments permitting, to help anyone with rule interpretations etc. My planned schedule is 14.275 MHz at 1200 EST and 3.570 MHz 2030 EST (approx) on Sunday, 12 March. For those without HF callsigns, perhaps you can join one of the nets as a second operator. If anyone wishes to contact me privately, my home phone number is 06 292 3260, and my address is shown in the Log Submission section below. Best of luck and see you on air, hopefully as one of the operators of VK1DX (Canberra DX Group)!

Overview

1. The aim is to encourage and provide familiarisation with portable operation, and provide training for emergency situations. The rules are therefore designed to encourage field operation.

2. The contest takes place on the third weekend in March each year, and this year (1995) runs from 0100 UTC Saturday to 0059 UTC Sunday, 18-19 March.

3. The contest is open to all VK, ZL and P2 stations. Other stations are welcome to participate, but can only claim points for contacts with VK, ZL and P2 stations.

4. Entries shall consist of one choice from each of the following (eg 6 hour, portable, single operator, phone, VHF/UHF):

- a. 24 or 6 hour;
- b. Portable, Home, or Receive;
- c. Single or Multiple operator;
- d. Phone, CW, or Open mode;
- e. HF, VHF/UHF, or All Band.

Scoring

5. Home stations for all sections shall score:

- a. Two points per QSO with each portable station;

b. One point per QSO with other home stations.

6. Portable HF stations shall score two points per QSO.

7. Portable stations shall score the following on 6 m:

- a. 0-49 km, two points per QSO;
- b. 50-99 km, ten points per QSO;
- c. 100-149 km 20 points per QSO;
- d. 150-199 km 30 points per QSO;
- e. 200-499 km 50 points per QSO;
- f. 500 km and greater, two points per QSO.

8. Portable stations shall score the following on 144 MHz and higher:

- a. 0 to 49 km, two points per QSO;
- b. 50 to 99 km, ten points per QSO;
- c. 100 to 149 km, 20 points per QSO;
- d. 150 km and greater, 30 points per QSO.

9. For each VHF/UHF QSO where more than two points is claimed, either the latitude and longitude of the station contacted, or other satisfactory proof of distance, must be supplied.

Log Submission

10. Logs must be accompanied by a summary sheet showing: callsign, name, mailing address, section entered, number of contacts, claimed score, location of the station during the contest, and equipment used. For multioperator stations, the callsigns and signatures of all operators should be included. If any VHF/UHF QSOs have been made which qualify for more than 2 points, the latitude and longitude of the station during the contest must be included.

11. The summary sheet must include the following declaration signed by the operator, or in the case of a multiple operator station, one of the licensed station operators: *"I hereby declare that this station was operated in accordance with the rules and spirit of the contest"*.

12. Logs must be postmarked no later than 28 April 1994, and forwarded to John Moyle Contest Manager, 33 Willoughby Cres, Gilmore, ACT 2905, Australia. An ASCII text copy on a MS-DOS floppy disk would be most helpful, with the following alternative data formats also acceptable: Wordstar, Word 5, WordPerfect, dBase 3 & 4, Lotus 123.

Certificates and Trophy

13. At the discretion of the Contest Manager, certificates will be awarded to the winners of each portable section. Note that entrants in a 24 hour section are ineligible for awards in a six hour section.

14. The Australian station with the highest CW score will be awarded the President's Cup, a perpetual trophy held at the Federal Office, and will receive an individually inscribed wall plaque as permanent recognition.

Disqualification

15. General WIA contest disqualification criteria, as published in *Amateur Radio* from time to time, applies to entries in this contest. Logs which are illegible or excessively untidy are also liable to be disqualified.

Definitions

16. A portable station comprises field equipment operating from a power source independent of any permanent facilities, eg batteries, portable generator, solar power, wind power.

17. All equipment comprising the portable station must be located within an 800 m diameter circle.

18. A single operator station is where one person performs all operating, logging, and spotting functions.

19. A single operator may only use a callsign of which he/she is the official holder. A single operator may not use a callsign belonging to any group, club or organisation for which he/she is a sponsor except as part of a multioperator entry.

20. A multioperator station is where more than one person operates, checks for duplicates, keeps the log, performs spotting, etc.

21. A multioperator station may use only one callsign during the contest.

22. Multiple operator stations may only use one transmitter on a given band at any one time, regardless of the mode in use.

23. Multiple operator stations must use a separate log for each band.

24. A station operated by a club, group, or organisation will be considered to be multioperator by default.

25. None of the portable field equipment may be erected on the site earlier than 24 hours before the beginning of the contest.

26. Single operator stations may receive moderate assistance prior to and during the contest, except for operating, logging and spotting. The practice of clubs or groups providing massive logistic support to a single operator is, however, totally against the spirit of the contest. Offenders will be disqualified and, at the discretion of the manager, may be banned from further participation in the contest for a period of up to three years.

27. Phone includes SSB, AM and FM.

28. CW includes CW, RTTY, and packet.

29. It is not expected that any other modes will be used in the contest, but if they are, they shall be classed as CW.

30. All amateur bands may be used except 10, 18 and 24 MHz. VHF/UHF means all amateur bands above 30 MHz.

31. Cross-band, cross-mode and contacts made via repeaters are not

permitted for contest credit. However, repeaters may be used to arrange a contact on another frequency where a repeater is not used for the contact.

32. Portable stations may make repeat contacts and claim the appropriate points providing that at least three hours have elapsed since the previous valid contact with that station on the same band and mode.

33. Home stations may not claim points for repeat contacts.

34. Stations must exchange ciphers comprising RS(T) plus a three digit number commencing at 001 and incrementing by one for each contact.

35. Portable stations shall add the letter "P" to their own cipher, eg 59001P.

36. Multiple operator stations are to commence each band with 001.

37. Receiving stations must record the ciphers sent by both stations being logged. QSO points will be on the same basis as for Home Stations, unless the receiving station is portable.

38. The practice of commencing operation and later selecting the most profitable operational period within the allocated contest times is not in the spirit of the contest, and shall result in disqualification. The period of operation commences with the first contact on any band or mode, and finishes either 6 or 24 hours later.

73, Phil VK1PJ

Results of 1994 Commonwealth Contest

Presented by John VK3ZC

Every 11 years or so, as we approach the minimum on the sunspot graph, the number of entries submitted in the BERU seems to follow a similar path. However, in 1994 the number of entries took a real dive, totalling only 67 multiband and 24 single band, the lowest since 1974.

Conditions were terrible, both locally and worldwide and, with bad QRN during the last few hours, many operators gave up and went QRT without further thought of sending in a log; what a pity! Nevertheless, there were 22 VK entries, (17 multiband and 5 single banders), and about half a dozen ZLs were active, although only two logs made it to the UK.

Bob Whelan G3PJT/VP9 was the outright leader with 5587 points, 2288 less than the 1993 top score, and Barry Simpson VK2BJ achieved 4590 points, 2205 lower than his score last year. Special thanks to Tino Pavic VK3EGN who, as VK3WIA, provided a welcome HQ bonus prefix in this part of the world.

RSGB Summary (by G2HLU)

Conditions did not favour our flagship contest this year, especially on 21 and 28 MHz. This is reflected in the scores, which

are down considerably on the last few years. Not unexpectedly, those with good antennas did best. However, there were some notable absentees, particularly ZL3GQ, G3MXJ and VE7CC.

Even so, about 640 stations participated, with the following Commonwealth call areas active: C5, C6, G, GB (HQ), GD, GI, GM, GW, V3, V8, VE1,2,3,4,5,6,7,9 VE3 (HQ), VK1,2,3,4,5,6,7,8,9, VK3 (HQ), VO1, VP2, VP5, VQ9, VR2/VS6, VU, Z2, ZB2, ZC4, ZD8, ZF2, ZL1,2,3,4, 3B8, 3D2, 3DA0, 5B4, 5W, 5Z, 6Y, 7P, 7Q, 8P, 8Q, 8R, 9H, 9J and 9V.

The winner of the 1994 BERU Rose Bowl is Bob Whelan G3PJT/VP9, no stranger to success in BERU both from home and abroad. He used 250 W from a TS930 and TS940, and a range of beams. Tim G4VXE, in his first competitive entry in this contest, operated VE3EJ, a station well known at the top of the list, to take second place. Ex-G3PEK evidently finds Australia suits him and, as VK2BJ, moves up a place or two each year: he came third this time and clearly the leaders must watch him! He used only 100 W from a TS930S, with a Cushcraft A4S at 45 ft, and a pair of two half-wave in phase antennas on 7 MHz, also used as doublets on 3.5 MHz. Also very worthy of note is VK3FC who gained 27th place at the age of 90. He was first licensed in 1928.

After his success on 21 MHz in 1992, Bob Whelan G3PJT has donated a series of awards in the form of medals. The Commonwealth Medal will be awarded each year to the individual who is considered to have most improved his performance in BERU, and the HF Contests Committee is very pleased to be able to award the first medal to Tom Dowling VK4OD.

The re-admission of South Africa to the Commonwealth will bring an interesting new dimension to the 1995 event, including more potential bonuses. Finally, perhaps some of those who were only able to be active on a single band can rejoin the multi-band entrants in the next BERU, and help to support RSGB's oldest contest through its sixth sunspot minima.

Some comments received with logs:

"Great contest — polite, gentlemanly — a pleasure!" V85KX; *"Conditions mainly rotten ... but great fun"* VK6AJ; *"Definitely the worst conditions I have experienced. Fancy only one G on 20 m and no VEs!"* VK4OD; *"The less said about conditions, the better!"* G3NKS; *"Antenna a bit of wire about 15 inches above the tiles — no masts are permitted"* VK3XB; *"Hard work this year. Very poor conditions"* G4BUO; *"Condx lousy, but good fun as always. Even if you banned the term BERU I'm*

sure most of us would still use it" ZL1MH; *"Nearly got WAC in one go"* G3DOT (4 W QRP!); *"Nice to greet some of the OTs who seem to show only during BERU"* VE3ST;

"A bit like pulling teeth" G0LII; *"At least I got some good DX!!!"* G3ZGC; *"Next year I'll try and be in Antigua for the contest"* G6QQ

Top Ten

Posn	Call sign	80	40	20	15	10	Total
1	G3PJT/VP9	719	1468	2623	627	150	5587
2	VE3EJ	692	1796	2024	544	98	5154
3 *	VK2BJ	707	1538	1990	355		4590
4	6Y5HN	473	1447	1822	447	130	4319
5	GW3YDX	475	1227	1392	325	40	3469
6	G4BUO	403	1036	1434	350	75	3298
7 *	VK4XA	480	953	1460	200	123	3216
8	ZL1MH	225	1104	1222	283	183	3017
9	G3OZF	255	849	1153	248	75	2580
10	G3TBK	223	685	1291	298	48	2545

Australian Scores

Multiband (* Certificate winners)

3	VK2BJ	707	1538	1990	355		4590
7	VK4XA	480	953	1460	200	123	3216
12 *	VK5BN	480	702	792	200		2174
17	VK5GZ	387	495	939	25		1846
18	VK4XW	460	603	705	75		1843
19	VK4EMM	375	922	513			1810
21 *	VK3ZC	515	847	350			1712
23	VK4OD	429	564	564	123	25	1705
24 *	VK6HQ		615	1034	50		1699
25	VK2DID	313	540	622			1475
27	VK3FC	387	600	392			1379
37	VK5RG	303	513	225			1041
39	VK3XB	248	372	305	25		950
50	VK3DDX	175	197	355			727
54	VK5HO	227	250	120	25		622
60	VK2NV		205	318			523
67	VK3KS		50	98			148
--	VK3WIA (Check Log)						

Single-Band

7 MHz			
1 *	VK2APK	1505	
4	VK7RO	628	
14 MHz			
4	VK4TT	916	
5	VK6AJ	877	
6	VK2ETM	868	
7	VK5AGX	777	
11	VK3JI	473	

New Zealand Scores

8	ZL1MH	225	1104	1222	283	183	3017
20	ZL1HV	280	590	700	100	50	1720

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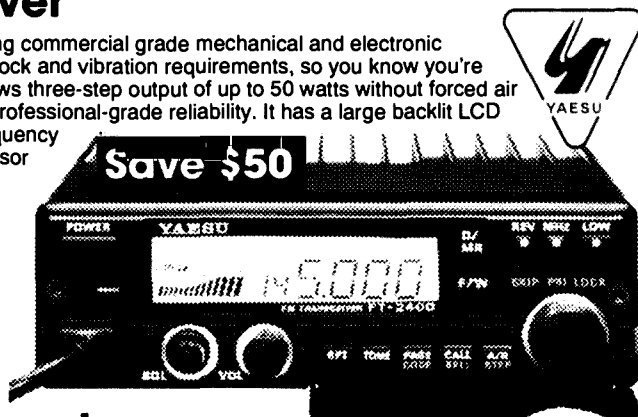
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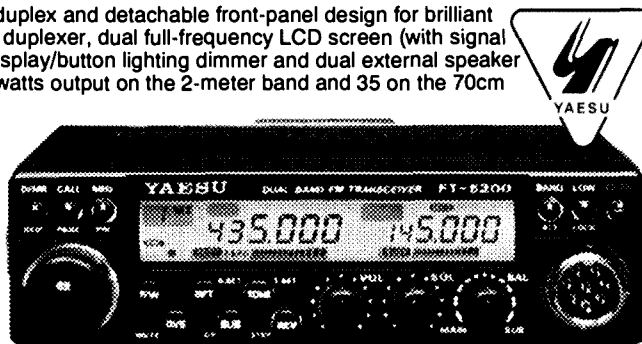
FT-5200 2m/70cm Mobile Transceiver

The FT-5200 uses the latest innovations in compact cross-band full-duplex and detachable front-panel design for brilliant mobile performance. It has 32 tuneable memories, a built-in antenna duplexer, dual full-frequency LCD screen (with signal strength/power output bargraphs for each band), 8-level automatic display/button lighting dimmer and dual external speaker jacks (one for each band.) A thermally-activated fan allows up to 50 watts output on the 2-meter band and 35 on the 70cm band. Plus, scanning features include programmable scan limits, selectable scan resume modes, memory skip, priority monitoring and one-touch recall CALL channels. In addition, 6 user-selectable channel steps are provided and a FRC-4 DTMF paging selcall option lets you program a three-digit ID code so you can be paged by other transceivers, or page up to 5 other stations yourself. An optional YSK-1 remote panel lets you relocate the main rig (under the front seat, for example) and mount the control panel on the dash. The FT-5200 comes with hand-mic, mobile mounting bracket and DC power lead.

Cat D-3310

2 Year Warranty

\$1399



Yaesu FT-840 HF Transceiver

The FT-840 HF mobile transceiver sets the new standard for high performance in affordable transceivers. Covering all HF amateur bands from 160m-10m with 100w P.E.P output, and with continuous receiver coverage from 100kHz to 30MHz, the FT-840 provides SSB/CW/AM operation (FM optional), 100 memory channels, a large back-lit LCD screen, two independent VFOs per band, an effective noise blanker and an uncluttered front panel, all in a compact case size of just 238 x 93 x 243mm (WHD).

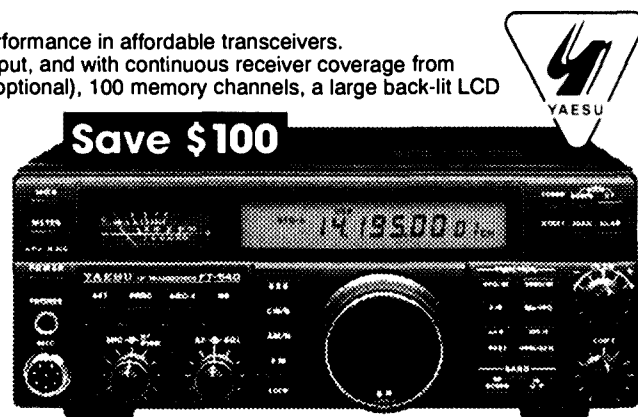
The FT-840 provides an SSB Speech processor for greater audio punch, and IF Shift plus CW Reverse to fight interference. Dual Direct Digital Synthesisers ensure clean transmitter output and fast Tx/Rx switching, while the low-noise receiver front-end uses an active double-balanced mixer and selectable attenuator for improved strong signal handling.

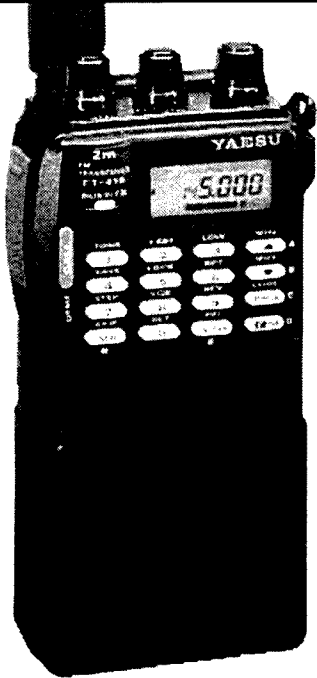
An extensive range of accessory lines are available, including the FC-10 external automatic antenna tuner, so you can customise the FT-840 to suit your operating requirements.

Cat D-3275

2 Year Warranty

\$1595





Clearance!

Handhelds Way Below Cost!

Yaesu FT-415 Deluxe 2m Handheld



While stocks last, grab a deluxe FT-415 at a great bargain price!

- 144-148MHz Tx, 140-174MHz Rx
 - 41 memories, 2 VFOs
 - Keypad and dial frequency entry
 - Selectable Auto Repeater shift (VK version)
 - DTMF paging, variable Auto Battery Saver, Auto Power off, VOX, DC power socket
 - Complete with 1000mA/H NiCad (2W RF out), carry case, belt-clip and AC charger
- Cat D-3610

Only \$399

2 Year Warranty

Monthly Specials!

Grab a bargain while stocks last. Prices are valid until 28th February '95, and some items have limited stocks available.

Some units may be shop soiled but full warranties apply.

Save \$300! Limited Stocks!

Yaesu FT-530 2m/70cm Handheld

With 1000mA/H NiCd battery, carry case, belt-clip and AC charger. Features extended receive on VHF and UHF, cross-band repeat facility, dual receive and 2 year warranty.

Cat D-3620



\$699

Below Cost! Limited Stocks!

Yaesu LL-5 Phone Patch Interface

Mounts in SP-5 or SP-6 speaker. Requires approved line isolation transformer.

Cat D-3267



\$149

Below Cost!

Yaesu SP-5 Large Desk Speaker

Dual inputs and selectable audio filters.

Cat D-3230



\$165

Below Cost!

YSK-4700 Separation Kit

To suit FT-4700.

Cat D-3301

\$2995

Save \$1300!

Yaesu FL-7000 1.2kW HF Linear Amplifier

With in-built high power auto antenna tuner and AC power supply. Ex-demo units only.

Cat D-2549



\$2995

Clearance!

Yaesu FNB-11 12V 600mA/H NiCd Battery Pack

Cat D-3496



\$7995

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High Performance VHF/UHF Base Station Antennas

Our range of top-name Brainer base station antennas offer outstanding quality and exceptional value. They are stacked collinear types providing high gain, wide bandwidth and a low radiation angle for extended range. The fibreglass reinforced polyester (FRP) outer tubing random and gasket seals provide excellent all-weather operation, and they are supplied with compact ground-plane radials for a clean radiation pattern. Stainless-steel mounting hardware ensures a

long trouble-free life. They also feature comprehensive instruction sheets to make installation and set-up easier. Both come with a 1 year warranty.

2m/70cm GST-1

Frequency: 144-148MHz, 430-450MHz

Gain: 6dB on 2m, 8dB on 70cm

Max. Power: 200W

Length: 2.5m

Type: 2 x 5/8 wave (2m)

4 x 5/8 wave (70cm)

Connector: SO-239 socket

\$199

Cat D-4830

2m/70cm GST-3

Frequency: 144-148MHz, 430-440MHz

Gain: 7.9dB on 2m, 11.7dB on 70cm

Max. Power: 200W

Length: 4.4m

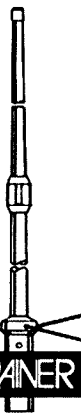
Type: 3 x 5/8 wave (2m)

7 x 5/8 wave (70 cm)

Connector: SO-239 socket

\$299

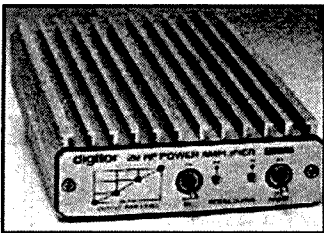
Cat D-4835



BRAINER

2m RF Power Amplifier

Boost your 2m hand-held's performance with this compact amplifier. Works with 0.3 to 5W input and provides up to 30W RF output, plus has an inbuilt GaAsFet receive pre-amp providing 12dB gain. A large heatsink and metal casing allow for extended transmissions at full output, and a mobile mounting bracket is supplied for vehicle use. Requires 13.8V DC at 5A max. Size 100 x 36 x 175mm (W x H x D).



digitor \$149⁹⁵

Cat D-2510

Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV is a 5-band HF trap vertical which continues the Hustler tradition of quality and performance. It incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1 kW (PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, < 2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability.

At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike some other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.

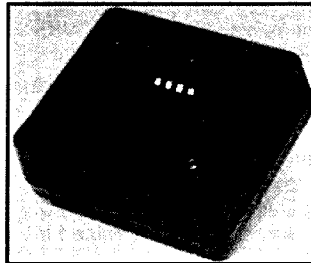
Cat D-4920

HUSTER

\$299

Master Charger 1 Fast Desktop Charger

At last, an intelligent, fast desktop charger that not only suits most current Yaesu handhelds but also many previous models. Made in USA, the MasterCharger 1 operates from 13.5V DC and uses switch-mode technology plus a Philips battery charge monitor I.C. (with -ΔV full charge detection) to correctly fast-charge NiCad batteries between 6V and 13.2V, then switch to a trickle charge. Suitable for the FT-23/73, FT-411/411e, FT-470, FT-26, FT-415/815 and FT-530, its charging cradle can easily be replaced, allowing for the insertion of a new cradle to suit earlier Yaesu transceivers (eg FT-209R) or different brands/model handhelds. The MasterCharger 1 requires 12-15V DC at 1.3A, and is supplied with a fused cigarette lighter cable for vehicle use.



\$169⁹⁵

Now available - charging cradles to suit various Kenwood, Icom, and Alinco handhelds.

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***MAJOR AMATEUR STOCKIST STORES SHOWN IN RED**

Results of 1994 RD Contest: VK3 Wins Again!

Presented by Alek VK6APK

The 1994 RD Contest has again been won by the VK3 Division. Through a combination of heavy publicity and the generation of a healthy "Team Spirit" within that division, the Victorians have retained the title for another year. Runners up were VK6.

The results contain some tremendous individual efforts. At least one log was sent in by a 15 year old, and there seemed to be a good representation from the other end of the age spectrum as well, judging from the log sheets with the words "Postmaster General's Department" printed across the top!

I think a couple of gentlemen deserve special recognition for the amazing scores they attained in the contest. They are Ray Cowling VK3ACR, who amassed a total of 1037 points in the VHF Phone and CW sections, and Chris Edmondson VK3CE/YID who scored a total of 971 points in the VHF Phone section. Well done, we salute you!

Whilst speaking about VHF operation, both VK3 and VK6 scored the vast majority of their points in this section. VK5 had some activity, but the other divisions didn't seem to realise their opportunity to make good scores here. Is the reason geographical, or haven't you others thought of using those bands yet?

It was great to receive the many letters which accompanied the entries. Many of the questions and suggestions raised in

some of these letters should be quite seriously considered for future contests. Perhaps there will be space to print some of them for debate and consideration through the WIA and the pages of this magazine.

I believe it is time to implement some changes to encourage a growth in participation, rather than the dwindling interest which is now evident. For example, in 1974 the participation rate (Logs/Licensees) was 11.4% nationally.

By 1984 it was down to just 3.95%, and 1994 saw a further fall to 2.64%. What will it be in the year 2004? Give it some serious thought and help us do something to reverse this trend.

Once again, congratulations to all who took part in RD '94, and especially to VK3 Division. You are all helping to maintain the spirit of this great contest, and thus doing something positive towards the improvement of amateur radio. See you again in 1995!

Table 1: 1994 Divisional Results

Final Score = No. Logs/No. Lic. x Total Points x WF

1st:	VK3	212/4882	x	20395	x	3.51	=	3106.85
2nd:	VK6	143/1699	x	12438	x	1.56	=	1633.76
3rd:	VK2	35/5368	x	3885	x	11.79	=	297.73
4th:	VK5	39/1810	x	4126	x	3.26	=	289.19
5th:	VK7	24/660	x	1738	x	2.77	=	175.24
6th:	VK4	24/3385	x	1908	x	9.62	=	130.32
7th:	VK1	10/465	x	388	x	2.99	=	24.94
8th:	VK8	2/239	x	56	x	20.46	=	9.62

Table 2: Weighting Factors 1991-1994

Division	1991	1992	1993	1994	Average
VK1	1.00	1.00	1.16	8.78	2.99
VK2	7.29	21.45	8.26	10.15	11.79
VK3	2.88	7.30	2.11	1.75	3.51
VK4	4.08	14.57	6.84	12.79	9.62
VK5	1.83	5.53	2.46	3.22	3.26
VK6	1.26	2.96	1.00	1.00	1.56
VK7	1.92	4.56	1.81	2.78	2.77
VK8	9.72	N/A	N/A	31.14	20.46

Individual Scores	VHF/CW	HF/CW	TRE	265	JKW	134
VK1	Nil Entries	CW	JKX	250	KKJ	134
(Total = 388 pts)	HF/Phone	ZC	CRA	245	YPY	121
* Denotes Certificate	BUV	DID	GHA	236	KT	120
Winner	CAA	RJ	JK	236	NCP	105
VHF/Phone	BO	BO	ACT	234	VKP	105
KLB	ARJ	GT	LDJ	233	DBZ	102
KMA	396	EII	DYL	230	FBA	100
FF	207	Individual Scores	EWM	222	MBL	100
CUB	206	VK3	BNW	218	NC	98
ED	173	(Total = 20395 pts)	TB	213	CG	96
VHF/CW	XT	VHF/Phone	XV	205	KK	94
FF	158	ACR	QI	203	JWZ	89
HF/Phone	131	ZNF	AO	194	BBM	80
KLB	125	ALM	URH	191	MFR	80
RN	103	AYF	ZUG	190	AEO	79
HF/CW	102	CE	CAP	189	AWS	77
FF	90	ZJF	AUI	180	ENX	77
RN	66	YID	BOP	180	MY	74
Individual Scores	65	ABO	DUQ	179	EMF	70
VK2	BDT	BGS	EFP	179	EX	68
(Total = 3885 pts)	EII	EO	WEG	177	WWW	65
VHF/Phone	ZM	ER	ZNE	176	KAB	63
BDT	EXA	XXX	ZWI	173	MET	63
ANK	IV	JUD	VCF	154	LAW	61
AIJ	RJ	DDU	CKK	152	NE	61
EY	AYF	KWA	VKV	138	CAM	60
	CF					

DG	57	CRA	102	HF/CW		ATU	369	KG	120
HG	57	LAW	100	FC	79*	TTY	233	APK	117
XLC	56	AU	80	DG	47	PMC	132	ZDJ	114
HY	51	ADW	76	AIC	39	BWH	128	NT	106
PC	51	LK	74	XB	37	UE	116	VHF	105
AGH	50	ATJ	73	BBN	33	GZ	114	YJ	100
JWL	50	GHZ	66	DDX	33	NOS	102	FC	97
UX	50	SM	64	APN	32	PSG	102	RO	89
BII	49	DVT	62	KS	27	CJP	90	UA	86
PTR	49	DET	61	AMD	21	UW	75	UV	85
XLD	48	BMK	60	ZC	20	PF	73	AHH	75
JTW	47	AAM	57	JI	15	3WT/5	72	XH	75
WI	47	ACT	56	WEG	10	ZQ	70	YBQ	72
XPD	46	CIM	55	HY	7	RV	68	IW	66
COD	44	DQW	54	DNG	6	ANB	65	QC	64
DEV	41	EX	53	NMK	5	WO	54	ZPP	64
DD	37	BG	52	Individual Scores		NF	53	SMH	63
YZR	35	ACR	51	VK4		RK	40	SAR	59
XB	34	ENX	51	(Total = 1908 pts)		BVJ	37	HK	56
XJU	34	AMW	50	VHF/Phone,		AKQ	35	TX	56
TFE	33	AYQ	50	VHF/CW		TW	25	CSW	55
EKF	32	JQ	50	Nil Entries		BCD	18	KHD	50
XH	32	EAT	45	HF/Phone		3OM/5	11	APW	48
DCP	30	1WD/3	43	BB	400*	PJR	9	YF	48
GMZ	30	JJM	38	BAY	189	3ABP/5	4	TS	43
PQ	30	MSL	35	DO	163	HF/CW		PO	42
BBA	29	DEV	34	BGC	141	AGX	88*	OE	41
DTR	28	DY	33	NBC	111	GZ	68	AUZ	37
ZS	26	ZT	33	BSH	85	PF	27	BC	37
BTV	24	DYF	32	IS	76	BRC	26	MCB	36
VKC	24	MDH	32	GZ	69	TL	16	ADF	30
LBA	22	VKW	32	PJ	60	Individual Scores		WT	28
BLE	21	BC	31	WRM	53	VKS		IV	27
DET	20	ALM	28	ACW	50	(Total = 12438 pts)		CV	25
ZPP	20	LBA	28	BIF	48	VHF/Phone		UT	25
CCB	19	EWM	26	BBA	41	KS	598*	FRE	21
BSP	18	JKA	25	DM	38	BDJ	370	MAP	21
GOD	18	KAV	25	BTS	27	ANC	338	AO	20
JI	18	AUI	22	OD	22	VP	314	PFI	20
KS	17	WEG	22	OX	19	AD	308	SM	20
BTV	15	DNG	21	FK	11	XV	279	EB	19
ZJH	15	NC	21	WJG	10	RR	273	RU	19
XMP	14	PTR	21	HF/CW		THB	273	VZ	17
EAT	13	DCP	20	LV	104*	SAA	272	DC	11
ALR	12	LP	20	XA	79	PDR	271	RZ	10
AHY	11	DD	19	GD	62	RG	262	ABL	1
EZM	11	EZM	18	OD	40	SAF	227	VHF/CW	
JAZ	11	KKJ	18	COZ	10	JP	245	KS	16*
KME	11	ALD	17	Individual Scores		BWI	236	ABL	2
GUS	10	BMU	17	VK5		XPS	229	HF/Phone	
TTX	10	BSP	17	(Total = 4126 pts)		KTN	221	SZ	447*
NMK	5	JI	16	VHF/Phone		TKR	212	9XZ	218
YTT	5	AGJ	15	TTY	400*	AR	201	CSW	156
VHF/CW		DG	14	BRC	345	GGD	177	VZ	151
ACR	71*	ATN	13	ZBK	297	GGA	157	RG	144
KKJ	6	NPY	13	THA	113	MIN	147	GW	138
HF/Phone		VCF	13	BW	85	FS	143	KG	107
APC	281*	EWD	12	AVQ	16	TNT	132	JP	104
DDX	195	ALR	11	BCD	16	RRG	131	AR	100
AHY	188	BCZ	11	PJR	16	FJA	127	SMH	96
CX	151	BLE	11	DH	10	HU	127	APK	82
AEO	135	EKF	11	VHF/CW		SAN	127	RR	77
RC	114	ER	11	Nil Entries		BY	124	WC	76
GH	112	CAM	10	HF/Phone		GSB	122	AI	74
CCB	106	HY	5	BRC	508*	WCC	122	GGA	50
		VKV	2			DUN	120	AFW	45

ATS	43	3OM/6	14	JB	18	YW	63	HF/Phone	
WU	41	FRE	13	AJ	16	TJ	42	CR	26*
DE	40	SAF	13	WT	16	JP	41	HF/CW	
GL	36	AO	12	FK	14	BM	20	XJ	30*
SAR	33	HU	11	GA	10	PP	17		
AN	30	OV	11			HK	15	Overseas Entries	
OE	30	ABL	10	Individual Scores		1HK/7	15	P20VH	303*
OR	30	CV	10	VK7		JK	13	ZL3TX	271
UW	30	GT	10	(Total = 1738 pts)		RM	12	ZL1BGT	190
RU	27	RZ	10	VHF/Phone		SN	12	ZL1AGO	93
MM	25	SAN	9	KZ	10*	CHT	10		
TS	25	MJC	7	RY	4	HF/CW		Short Wave	
XA	22	FK	6	VHF/CW		VK	52*	Listeners	
APW	20	IW	4	Nil Entries		GW	45	HF	
YJ	20	NQK	4	HF/Phone		TJ	10	Peter Kenyon	276
NKB	19	MAP	4	KZ	323*	Individual Scores		pts*	
3ABP/6	16	HF/CW		CK	258	VK8		VHF	
DA	15	HQ	115*	KC	254	(Total = 56 pts)		Timothy Lewis	L30763 11 pts
KH	14	AFW	70	NDO	136	VHF/Phone,			
PO	14	GW	38	OTC	114	VHF/CW			
YF	14	IV	26	HJ	113	Nil Entries			
WT	14	ABL	22	MSM	92				
				NRR	64				

*C/o PO Box 2175, Caulfield Junction VIC 3161
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Divisional Notes

Forward Bias — VK1 News

Rob Apathy VK1KRA

Our Annual General Meeting will be held in February (third Monday) and we should like to see everybody attend this important event. Our treasurer, Don Hume, is retiring and I would like to take this opportunity to thank Don for the excellent work he has done. He is one of the best treasurers that I had the pleasure to work with. We should be able to hear Don on air more often now that he no longer has to keep us in line.

While we are on financial matters, I am pleased to report that we finished the year in the black, but only just. At one stage it looked like we would close the year with a nice surplus but it was not to be. Just before Christmas, "person or persons unknown" broke into our repeater hut on Mt Ginini. While nothing inside the hut was damaged or taken, the security door repairs and necessary improvements cost over \$600. So much for our surplus!

For a number of years now we have finished the year very close to zero balance. The current committee has decided that we cannot continue to take risks of running short of funds, so, the bad news is that membership fees will have to go up by \$5.00 next year and this proposal will be put to members in February. The good news is that the Federal component will be reduced by the same amount which means no change to our members.

We have experienced some problems

with our Ginini repeater this year but I hope that by the time you read this, the problems have been fixed. Simply put, our voice repeater does not like being in close proximity to the packet repeater. The repeater group is working on the problem and service should return to normal very soon.

As far as I know, all the members of the committee have made themselves available again in 1995 but that should not deter anyone from nominating for any of the positions. I would like to thank the committee for the work they have done in 1994 and all our members for the tremendous support we have enjoyed in the last twelve months.

VK6 Notes

Peter Parker VK6BWW

Division Ends Year With Barbecue

The VK6 Division held a barbecue for its members at Wireless Hill on 18 December. Those who attended enjoyed themselves and Bruce VK6ABR, the Divisional Bookshop Officer, sold several 1995 Call Books. If you would like one, see Bruce at the February WIA meeting at the Westrail Centre in East Perth. Be there at 7 pm on Tuesday, 21 February. You pay only \$11.00 for 18,000 plus callsigns and a revised information section. As about 15% of the population move house in a given year, and amateurs upgrade their callsigns, you need this book to keep

abreast with your hobby. In addition, if you're travelling interstate, you will find the list of VHF/UHF repeaters handy.

Digital Barbecue Well Attended

About 30 members of the WA Amateur Digital Communications Association enjoyed an early morning breakfast barbecue at Wireless Hill on 11 December. Clearly the 6.30 am start did not deter many, and weather conditions were perfect.

Rockingham Geraldton Spanned on 10 GHz

VK6 10 GHz enthusiasts are claiming a new distance record on the 3 cm band. On 29 November, Neil VK6BHT at Geraldton and Wal VK6KZ at Rockingham made an epic 400 km SSB contact using equipment they had built themselves. Earlier that evening the 377 km Geraldton to Fremantle path had been bridged, but the distance was extended when Wal moved his portable station to Rockingham. The contact was repeated the following evening at reduced signal strength. Those who attended the Hamfest might have seen Neil's homebrew 10 GHz SSB transceiver at the Homebrew Equipment Competition. See Eric Jamieson's VHF/UHF — *An Expanding World* column elsewhere in this issue for more details of this great achievement.

Television News

Those interested in fast scan ATV are invited to join the Perth ATV Group. The aim of this small but enthusiastic group is to promote ATV activity in Western Australia. ATVers monitor 145.500 MHz

and hold a net on repeater 6750 at 8.00 pm every Wednesday. Those experimenting with transmitting or receiving amateur television will be made especially welcome. Meetings are held monthly at 7.30 pm on the third Monday of the month. The venue is the Media Centre in the Churchlands campus of Edith Cowan University. The group's main project is the construction of a 70/23 cm AM/FM ATV repeater for the Perth area. Steady progress is being made on this ambitious task.

Working on another ATV repeater are members of the Northern Corridor Radio Group. The repeater receives signals on 444.250 MHz and transmits on 579.250 MHz (UHF channel 35). It is proposed that the repeater will be sited at Walliston and its completion is expected later this year.

Turning to a different form of image transmission, there is some local slow scan TV activity on both HF and VHF. Perth slow scan enthusiasts swap pictures every Thursday evening at 7.30 pm on repeater 6800. A two metre receiver, simple modem and computer with a VGA monitor will receive the images. JV Fax version 7 shareware is normally used.

VK6s Urged to Use Ten Metres

West Australian amateurs are invited to join one of the local Sunday nets on 28.560 MHz to help populate our largest HF band. The morning net starts just after the WA Divisional Broadcast at 0210 UTC (10.10 am local), while the afternoon session begins at 0830 UTC (4.30 pm local). An initiative of the Perth (Twenty Eight) Chapter of Ten-Ten International, the net sometimes attracts interstate and DX operators when conditions are favourable. Ten-Ten International aims to promote an appreciation of our 28 MHz band. The Perth Chapter was started many years ago by Dave VK6ATE. Check in to the Ten-Ten net for details of their comprehensive awards program for 10 metre operators.

Correction

The list of office bearers of the WA Amateur Digital Communications Association, published on page 73 of the December 1994 issue of *Amateur Radio* contains some errors. The Association's treasurer is Bruce VK6ABR, and Rob VK6THB occupies the position of secretary. Clem VK6CW is no longer the broadcast officer. Apologies to all concerned.

Stop Press — 10 GHz Contact Extended to 545 km!

News has just been received from VK6KZ of a successful 10 GHz contact with VK6BHT at Geraldton. This time Wal was operating from Busselton. The over

water contact highlights the advantages of Western Australia's concave coastline between Steep Point and Cape Naturaliste, with its long over water paths ideal for extended distance VHF/UHF propagation.

Notice of Annual General Meeting

Cliff Bastin VK6LZ, President of the VK6 Division, hereby notifies that the Annual General Meeting of the West Australian Division of the Wireless Institute of Australia will be held on 18 April 1995 following the General Meeting which commences at 8 pm. The meeting will be held at the Westrail Centre, East Perth.

Agenda

1. Consideration of the council's annual report
2. Consideration of the financial report
3. Consideration of other reports
4. Election of office bearers, viz president and vice-president of the Division and seven other councillors
5. Election of two auditors
6. Appointment of a patron
7. General business which has been duly notified.

Notice of Motion for the AGM must be received by the secretary not less than 42 days prior to the meeting and must be signed by at least three members.

Nominations of a candidate for election to council must be received by the secretary in writing not less than 42 days prior to the meeting, with an intimation that such candidates are willing to act. A candidate may submit a statement not exceeding 200 words outlining his or her case for election, and experience. Each nomination shall be signed by two members proposing the candidate. Candidates must possess a current amateur licence.

Proxies

Any financial member entitled to vote may appoint a proxy, who must also be a financial member entitled to vote, to speak and vote on his/her behalf. Each such proxy must be in the hands of the secretary prior to the meeting and be in the following form: I....., a member of the Institute, hereby appoint..... also a member of the Institute, to act for me as my proxy, and in my name to do all things which I myself being present could do at the meeting of the Institute held on Signed:

Witness:

Date:

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"QRM" — News From the Tasmanian Division

Robin L Harwood VK7RH

This month sees plenty of activity resume within VK7 after the holiday break. On the weekend of the 4th & 5th there will be another WICEN exercise associated with the "Rally Tasmania event" which will be held around NW Tasmania. As the WICEN resources will be stretched to the limit, operators from other parts of the state have been requested to assist. VK7PU is co-ordinating this event in co-operation with the State Co-ordinator, Tony Bedelph VK7AX.

This event is a prelude to the much bigger "Targa Tasmania" rally which will be held in late April and is staged over five days in all regions of Tasmania. So this mini-event will be a trial run not only for WICEN but also for the rally and other emergency services for the "Targa". For further details on the "Rally Tasmania" WICEN exercise, contact VK7PU @ VK7AX BBS.

In a recent "QRM" I mentioned that a new repeater would be operational in NE Tasmania soon. Well, VK7RNE, located at Tower Hill near Fingal commenced operation on Christmas Eve on 146.725 MHz with negative offset. Preliminary reports indicate that it has a good coverage of NE Tasmania, especially in areas not covered from VK7REC further down at Cranbrook. However, VK7RNE does not service Launceston and the Tamar Valley as coverage is blocked by Ben Lomond at 5,000 feet. VK7REC does, however, cover Launceston on 146.900 MHz, also with negative offset.

While VK7RNE burst into life the Mount Barrow repeater died. Signals on VK7RAA on 147.000 MHz for the

Christmas Day VK7WI weekly broadcast were well down, which meant that VK7JG and VK7PF had to journey to the top of the Mountain on Boxing Day to re-erect the antennas. Now, Tasmania's first operational repeater is back to its old self with an excellent coverage of the northern half of the State. Thanks Joe and Peter!

Noted that the weekly gatherings at the Domain Activity Centre continued without a beat during January and attendances were well up including a number of visitors from interstate and overseas. Just a reminder that the time is Wednesdays from 12 noon to 5 pm. You will be most welcome.

On 13 December last year, I attended the Northwestern Annual Dinner, which was held at a well-known Ulverstone restaurant. Highlight of the evening was the presentation of the Joan Fudge Memorial Award. The recipient in 1994 was Phil Harbeck VK7PU, who currently is the Divisional Treasurer besides being NW WICEN Officer. One of the attendees was Helen Cunningham, VK7HJ. This attractive 16 year old is the daughter of Kirby VK7KC and Gail VK7NGC. Her brother is Dale VK7XTC. Dale and Helen attend Launceston Church Grammar School. There is yet another daughter, only 10 at present, and the whole family have been working on her to also eventually get her amateur licence. From that you can easily deduce why the VK7 division is working towards a family rate membership! Clarrie Hilder VK7HC, and another VK7 in the south of the state, recently completed a successful two way QSO on only 100 milliwatts. The frequency was 3585 kHz. Now Clarrie is working towards a QRP Devil's Award. Naturally these QRP contacts were on CW.

This month's Branch meetings in

Tasmania will be Annual General Meetings. The Southern Branch AGM will be on 1 February at 8 pm at the Domain Activity Centre and will be followed by the monthly General Meeting. The Northern Branch AGM will be held at the Launceston Institute of TAFE, Alanvale Campus, Block "C" Room 17 at 7:30 pm on 8 February. The monthly General Meeting will follow. The Northwest AGM will be presumably at the Penguin High School on the 14th at 7.45 pm. Incidentally, the Northern and Northwestern Branches will again be getting together at Deloraine on 14 March for a combined meeting.

Well, that concludes the column for this month. Until next time the very best of 73.

ar

WIA News

US Amateur in Congress

During the recent United States elections, an amateur was elected to the US House of Representatives, Congress.

David Funderbunk K4TPJ, a Republican, represents North Carolina's second district, taking over from a retiring Democratic Party member. The *ARRL Letter* reports that Funderbunk was first licensed at the age of 15. He holds a PhD in history, with expertise in East European and Russian studies and taught at several North Carolina colleges before being appointed in 1986 by President Reagan as US ambassador to Romania.

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Education Notes

Brenda M Edmonds VK3KT* Federal Education Coordinator

Over the last few months I have been exchanging information with the Radio Society of Great Britain (RSGB) on the basis of a letter in one direction or the other each couple of months. A package recently received included a copy of the first "AMRED" magazine, a production of the STELAR Group. "STELAR" stands for "Science and Technology Through Educational Links with Amateur Radio", and "AMRED" for "Amateur Radio in Education".

This magazine, although only about twenty pages, contains much of interest to persons concerned with amateur radio in educational institutions. The back cover lists about seventy schools or universities which were affiliated with STELAR at the date of publication in May 1994. Of them, nearly fifty hold callsigns, and many have BBS identification.

Articles include:-

- a report on a training course to introduce amateur radio to teachers;
- a description of a packet radio set up at one school;
- a long article about the establishment and use of a link from Harrogate Ladies College to the MIR station whilst the first British astronaut was on board (including a trip by the author to Moscow to complete the arrangements);
- information on WeberSat (WO-18) which provides materials for scientific study (eg solar and earth spectra, earth photographs, meteor impact detectors);
- an article on possible uses of amateur radio satellites in education; and
- an explanation of the then relatively new Novice licence.

With an Editorial and a Letters page, you will agree that a lot of interesting information is packed into a small space.

It is very encouraging to see so much activity in the schools and the degree of involvement of the younger generation, and to see this activity supported by the national Society. The RSGB provides an annual award for the Junior Amateur of the Year, and publishes a magazine for Novices.

Obviously, the differences in area and population size between Britain and Australia are some of the factors which account for the differences in recruiting patterns between the two countries. However, from other comments received it is apparent that the deciding factor in the introduction of amateur radio to a school is the drive and enthusiasm of one

or more teachers at that school.

I have asked previously for news of what is happening in Australian schools, but have received little in reply. I am still interested. If there are any members who have the interest and opportunity to set up amateur radio in a school, the same letter from RSGB also included notes on some school activities in America. I am sure the originators of these ideas would

be only too happy for their ideas to be used and perhaps extended by amateurs in Australia. There can be much more to a school amateur radio station than just calling "CQ" and talking.

I know that there are a few amateurs who have developed very effective and ambitious programs within their schools. I would be very pleased to offer these enthusiasts the space in this column to present reports on their activities and achievements. It is a field about which too little is known, and those who are doing this good work deserve the recognition of their peers. *PO Box 445, Blackburn VIC 3130 ar

FTAC Notes

John Martin VK3KWA, Chairman, Federal Technical Advisory Committee*

More New 10 GHz Records — Including Another World Record

Last month I announced a new world record for an EME contact between VK2ALU and WA7CJO. Since then there have been a number of new state and national records for terrestrial 10 GHz contacts, including a new world record.

The first was a contact between Russell Lemke VK3ZQB at Moonlight Head and Trevor Niven VK5NC at Cape Banks on 11 December 1994. The distance of 267.7 km is a new Victorian 10 GHz record. This was followed by several contacts between VK5NC, VK5NY and VK3ZQB which between them appear to create two more VK3 records, two more VK5 records, and two new national records.

In addition, news has been received of a 10 GHz contact between VK6BHT and VK6KZ. This contact between Perth and Geraldton will be a new VK6 record and also breaks the previous national record. Claims for these contacts have not been received yet so it is not possible to give precise distances.

Finally, VK5NY worked VK6KZ on 30 December 1994. The distance has not been confirmed yet but it appears to be a new world record for terrestrial contacts on 10 GHz. So it appears that Australian amateurs now hold world records for terrestrial and EME operation on 10 GHz.

Congratulations to all those involved in these contacts.

Data Base Update

Some more information just received. Amend your 1995 Call Book.

- Alice Springs ARC has advised that the VK8RAS beacons are not operating.
- The VK3RXX beacon is now testing on 1296.530 MHz with a vertical antenna.

- The Canberra beacons on 144.410, 432.410 and 1296.410 MHz are back on air from a site east of Michelago, with an elevation of 1400 m. Power is 14 W on 2 metres, 12 W on 432, and 2 W on 1296. All beacons identify with FSK and use crossed dipoles.
- The VK7RNW beacon is now in operation on 432.474 MHz.
- In the repeater list, VK3RGO should be deleted and a new repeater added — VK3RTU at Mt Taylor, near Bairnsdale, on 439.525 MHz. In footnote 2, replace VK3RGO with VK3RTU.

Packet Stations in 80 m CW segment?

A number of amateurs in NSW are concerned about interference to CW contacts from what appears to be a packet net operating around 3520 kHz. The digital segment of 80 metres is 3620-3640 kHz. It would be appreciated if packet operators could keep an eye on 3520 kHz and ask any packet stations there to please avoid interfering with CW stations.

6 Metre DX Window

A submission has been presented to the SMA for an expansion of our 6 metre DX window in the eastern states.

Packet Radio Band Plans

Agreement has been reached on the proposed changes to the packet radio band plan for 2 metres and 70 cm. The main changes are an expansion of the 2 metre packet segment to 145.200 MHz, and frequency pairs for regenerative repeaters on 70 cm. The SMA has agreed to make the full 144.700-145.200 MHz segment available to Novice and Novice Limited stations from the date on which their packet privileges take effect.

*PO Box 2175, Caulfield Junction, VIC 3161 ar

How's DX

Stephen Pall VK2PS*

These lines were written in the last dying days of 1994. One wonders what the New Year will bring? More DX? Better propagation? Unexpected, unpleasant developments in the Australian amateur world?

Yes, the last one is going to happen, unless you — the amateur-voter, the user of the spectrum, as allowed by international treaties (ITU) — do not protest!

Our masters in Canberra, the SMA (Spectrum Management Agency), a federal government administration arm, intends to give you, the user of the spectrum, a nasty new year present. The timing is politically perfect. The news reached us just before Christmas when the average taxpayer-voter is busy with festivities, cricket, sailing, beach, annual holidays and does not want to hear and care about politics.

In the insert to January issue of *Amateur Radio* you can read all the details of the intended increase of amateur licence fees. After you have digested all the gobbledegook (according to the

dictionary this means a language characterised by circumlocution and jargon) it will dawn on you that the Government wants more taxes from a group of 18,000 plus amateur-voters, whose vote in an upcoming election can be totally ignored. You will also note that the Citizens Band (CB) licence in the future will be free. Yes, it will cost nothing! There are hundreds of thousands of CB licences in Australia which represent so many hundreds of thousands of voters. Therefore their vote is important.

I hope that you, the average Australian amateur-voter, also know that in the USA you are given a ten year amateur licence free of charge. Not a dollar is paid for it! All the USA amateurs fit into the same spectrum space, all 660,000 of them, as the 18000 Australian amateurs.

Please digest and try to understand the meaning of the new concept of "issue/reissue costs". Do you remember when it was said that computers will reduce costs? You must not confuse the Spectrum Maintenance Costs (SMC) with the cost of repairing the plumbing or

roofing or painting of your house. This SMC is the ongoing cost of the SMA for which you are expected to pay. These costs include wages, fringe benefits, car use, flexidays, sick days, stress leave, holiday pay, long service pay, training costs, overtime, workers compensation costs, superannuation costs and tea or coffee break costs of the public servants who are the SMA personnel.

Spectrum Access Tax (SAT) is not a satellite, it is a TAX. Tango Alpha Exray. TAX! There is no other meaning for it. It is a TAX for a spectrum space used by you the amateur-voter. Spectrum space which the government can take away from you unless you pay the tax, despite the international treaties. Do not forget, the Government has the power to ban amateur radio. The fact that the spectrum used by you has no commercial value on exclusively HF international amateur bands is ignored by the decision makers.

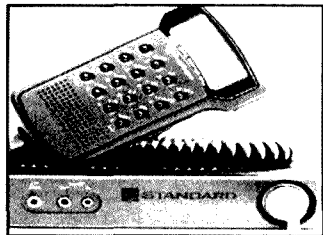
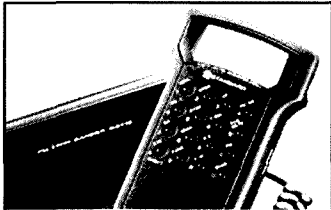
These decision makers apparently are not aware of the valuable community service provided free of charge by amateur-voters, like vital communications links during national disasters. Cyclone Tracy, Newcastle earthquake, bushfires and floods are just a few examples.

What can you, the average amateur-taxpayer-voter, do to minimise the licence

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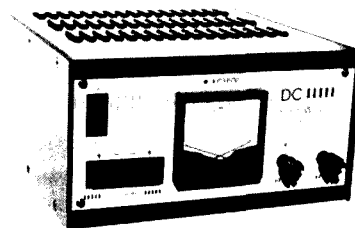
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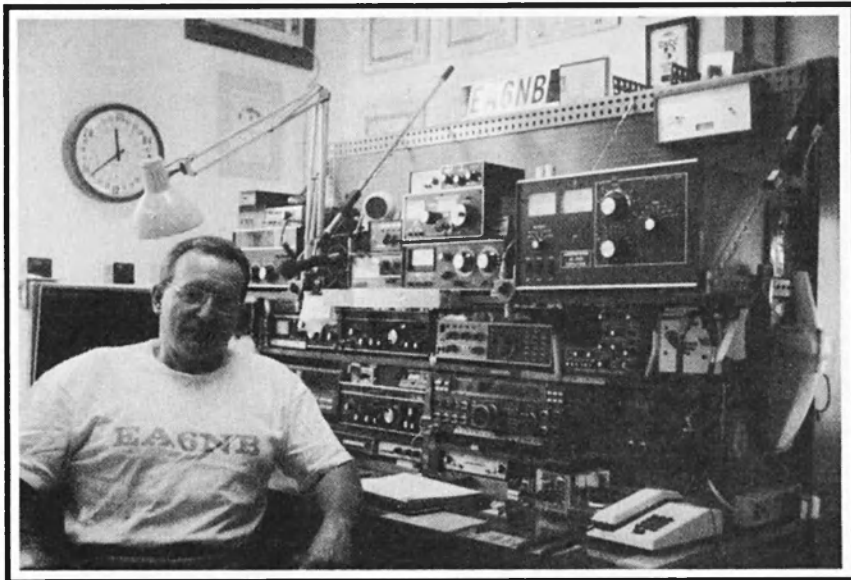
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Jaime EAGNB, the well known Spanish DXer.

fee increase from \$36.00 a year to \$69.00 a year, a 92% increase?

You can write a protesting letter against the increase to your federal member, to the senators representing your state, and to the leaders of other minority parties. Write or fax and put your argument

properly. Write today! Not tomorrow! Not next week! The new fees will be introduced on 1 March.

The above is my personal view. It may not make me popular in certain circles. It does not necessarily represent the official WIA policy.

Jordan — JY

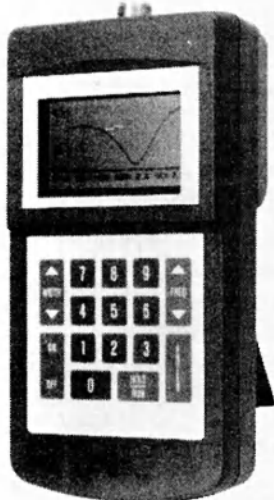
King Hussein, the well known amateur with the callsign JY1, is bringing the new peace accord with neighbouring Israel to a level that even includes amateur radio. The Israeli ham radio publication, "Ha Gal International" reports that the Jordanian monarch recently held his first recorded contact with an Israeli youngster whose callsign is 4Z9FHB. "Ha Gal" also reports that the thawing of relations between the two countries has already led to discussions between their respective amateur radio societies on matters of technical cooperation and DXpedition planning.

Antarctica

- Eddie VK4EET is active as V10ANT until March 1995, mostly on CW and mainly on the low bands. Look for him around 1130 UTC to about 1630 UTC on CW on frequencies of 3502, 7005, 14005 and 21005; or on SSB on 3798, 7070, 14190 and 21295 kHz. QSL to Eddie De Young, 131 Plantain Road, Shailer Park, QLD 4128.
- Phil VK4FPS is active as VK0FPS. QSL to VK3MA.
- Lance VK7ERZ is active as VK0ERZ. He will be active until March 1995.
- Gavin VP8GAV is now at Fossil Bluff,

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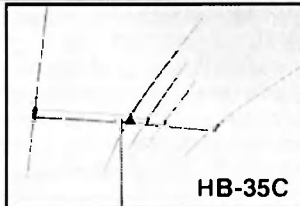
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1-ele on 7MHz.....	\$695
TE-44 4-ele beam on 14-21-28MHz.	
1-ele on 7MHz.....	\$870

TE-14 rotatable dipole.....	\$275
TE-34 3-ele beam on 14-21-28MHz.	
1-ele on 7MHz.....	\$695
TE-44 4-ele beam on 14-21-28MHz.	
1-ele on 7MHz.....	\$870

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1-ele on 10-18-25MHz.....	\$750
TE-56 3-ele beam on 14-21-28MHz.	
2-ele on 10-18-25MHz.....	\$950



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a British base in the Antarctic. QSL to GMOLVI.

- Luciano IOJBL and Filipino IKOAIH were active as IAOPS in December from the Terra Nova Bay area (74° 42' S, 164° 12' E). QSL to IKOUSA. They were using 1 kW into a rhombic antenna and were heard with an S9 signal in Sydney.
- KC4/K7ANW is also active from a US seismic research station located at 82° S, 118° W.
- VK0IX is working from Casey Base, mostly VHF with a beacon on 50.2 MHz. QSL via his home call VK5IX.

To those of you who are chasing "wallpapers" may I recommend the WIA Antarctic Award. Applicants need to make ten confirmed contacts with amateur stations conducting valid operations from Antarctica. The ten contacts must include at least six different government authorities and at least one contact must be a VK0. Antarctica is defined as the land mass including islands and permanent ice shelf below 60° south latitude (this excludes Heard and Macquarie islands which are sub-antarctic areas). Only contacts made on or after 23 February 1988 are valid for this award.

Palestine — ZC6 (?)

It came as a surprise to hear the old British mandated territory's callsign again on the air. The prefix ZC6 used to refer to Palestine before 30 June 1968, from when the DXCC deleted Palestine as a separate country. ZC6B came up on 14243 kHz on Selim's (OE6EEG) net early in December as a list operation. Since then he has reappeared from time to time on the 14243 or 14250 nets.

Early reports said that the operation was a joint venture DXpedition from Gaza by Israeli and Jordanian amateurs. Later reports from Israeli sources denied this. The Ohio/Penn DX Newsletter reports that Larry W4RA, IARU Secretary, received a fax from the "Palestine Amateur Radio Association" with information which may shed some light on the callsign being used. The fax contained a newspaper article dated 12 December 1994 from the "Al Quds" newspaper stating that the call was issued in 1948 to Dr Sami Tarazi but never used because of the war which broke out.

A later report said that the Palestine Amateur Radio Club (Association) had invited JA1UT and JA3UB to help set up a station and to operate. The operator behind the ZC6B callsign was Sami and his QSL address is Dr Sami Tarazi, PO Box 1008, Gaza, Palestine via Israel. There is no doubt that Palestine will reappear in the near future as a new country once all the outstanding political



A51MOC Bhutan (l to r) Jim VK9NS, Butanese officials Phub and Tshering, and Kan JA1BK.

issues are resolved. The present situation poses a number of questions. Will Palestine be a new DXCC country or will it be a resurrection of a country from the deleted list? Will it keep the ZC6 prefix which presently belongs to the United Kingdom and Northern Ireland under the ITU allocation of ZBA-ZJC or not? What will be the starting date of the recognition? Only the future will tell.

Glorioso Island — IOTA AF-011

Jacques FR5ZU/G was active from Glorioso island from 17 November until 1 December. Glorioso is quite a difficult place to reach from VK, especially from VK4 and VK2. A further difficulty is that the operators are active in their evening local time which is well after midnight on the East coast of Australia with changing propagation at those hours. There are two QSL routes for Jacques. Europe and USA to VE2NW and Asia to JA8FCG.

Jacques left Glorioso but Henri FR5ZQ/G stayed behind and appeared a few times for a thirty minutes stay on the Southern Cross DX Net (14226.5 kHz at 1100 UTC) working a list. For the FR5ZQ/G operation, QSL Henri direct at the address given later in this column.

United Arab Emirates — A61

Don Greenbaum WB2DND, who often visits the United Arab Emirates on business trips, reports that the PTT authorities of the UAE have approved the issue of three more amateur licences. Two of the new licence holders are "graduates" of the Club Station at the

Dubai Men's Technical College. These are the first licences issued in about a year. A61AH is Al Mur Al Mohiri, a pilot. His address is PO Box 4800, Dubai, UAE. The other is A61AN, Nasr Fekri. Nasr is in his early twenties and works in the new Dubai Hospital. He is an experienced operator. His QSL goes to PO Box 53656, Dubai, UAE.

The third licence is for A61AI. It will be issued as soon as the applicant picks it up from the authorities. Incidentally, Don WB2DND made about 1700 contacts in four evenings.

Future DX Activity

- DP1KGI will be operated by Thomas DL7VTS from South Shetland until 31 March.
- HF0POL, starting mid-December, is also operating from the Shetland Islands. Henry SP3FYM will be on the air presumably until the end of 1995. He will pay special attention to RTTY and 160 metres. During his stay in 1990-1991 he made about 25,000 QSOs.
- 9Q5IY. LA9IY is active from Zaire for three months during a tour of duty with the United Nations. QSL to LA1K direct only, because he is not a member of the LA Bureau.
- 9X5EE. Alex PA3DZN is now licensed in Rwanda. QSL to PA3DLM.
- Peter KC1QF intends to visit Mt Athos during the northern summer. He hopes to receive the call SV0GV/A and intends to operate SSB, CW and RTTY. He will carry wire antennas, batteries,

and 82 W solar cells plus a TS50S and will operate from a height of 6000 feet. Peter says he is a Greek citizen and of the Orthodox faith and he thinks that these facts will provide freedom of entry for him to Mt Athos.

- Tom DL7UTM was going to be active from the Maldiv Islands during the Christmas period. This plan has now been changed. He will be operational as 8Q7XO during March/April.
- Bernhard DL2GAC (H44MS) and Norbert DJ9RD were active from the western Solomons in the second part of January on SSB, CW and Pactor. They used a TS50S and a 400 watt amplifier. QSL to home calls.
- A Swedish Amateur Radio Club (SK3JR) will be promoting Sweden as a possible candidate for the winter Olympics in 2002. The special call 7S3OWG will be active from January until 16 June 1995. QSL to SM3CVM.

Interesting QSOs and QSL Information

E = East Coast. W = West Coast. M = the rest of Australia.

- 9N1SON — Jack — 14024 — CW — 1109 — Nov (M). QSL to W4SON, Jack W Rucker, Box 837, Jamaica, NY 11430, USA.
- 7Z5OO — Mike — 14012 — CW — 1330 — Nov (M). QSL direct only to W1AF, Harvard Wireless Club, 6 Linden St, Harvard University, Cambridge, Mass 02138, USA.
- J28F — 14022 — CW — 1214 — Dec (M). QSL to PO Box 1076, Djibouti, Africa.
- 9K2WA — Ali — 14192 — SSB — 0527 — Nov (E). QSL to PO Box 25020, Safat — 13111, Kuwait.
- 9N1ARB — Dick — 14227 — SSB — 1248 — Dec (E). QSL to PO Box 25, Kathmandu, Nepal.
- FR5ZQ/G — Henri — 14226.5 — SSB — 1339 — Dec (E). QSL to Henri Namtameco, Rampe De St Francois,

5052 Tour La Chaumiere, Saint Denis, 97400 Reunion Island via France.

- A92BE — Don — 14200 — SSB — 0550 — Nov (E). QSL to Sheridan K Street, Box 26803, Manama, Bahrain.
- IA0PS — Luc — 14204 — SSB — 0715 — Dec (E). QSL to IK0USA, Paolo De Michetti, Casella Postale 9047, I-00167, Roma, Italy.
- A61AC — Mohamed — 14250 — SSB — 0630 — Dec (E). QSL to ON7LX, Carine Ramon, Bruggesteeweg 77, B-8755, Ruisselede, Belgium.
- 8R1AK — Esmond — 7083 — SSB — 0936 — Dec (E). QSL to Esmond L Jones, PO Box 10868, Georgetown, Guyana, South America.

From Here There and Everywhere

It is said that to catch the rare DX one has to be on the right band at the right time with good propagation and with "lady luck" on the side. This happened to Merv VK4DV. Merv is the only VK, to my knowledge, and one of the very few in the world who worked the XY1HT, demonstration station from Myanmar (see Nov and Dec *Amateur Radio*). Writes Merv, "I heard XY1HT calling for propagation reports. He also stated that he wanted stations outside South East Asia. I was lucky enough to call him on the back of the quad on SSB for a 5x4 report. He was not very strong here but he came back with the same report. He did not have many takers at all. From the short QSO it appeared that I spoke to the G operator. When I first heard the call I had no idea where it came from. I first thought that it was a special event station from Europe, but when I looked up the International ITU prefix allocations in the callbook I could hardly believe my eyes." Congratulations Merv, you landed a rare one.

- Dave WX3N advises that he is the QSL manager for the following stations: 8Q7WA, 8Q7WX, AA9AK/AH2,

AG9A/AH2, AH2U, KC6XX, KJ9W/KH2, VR2/WX3N, 8Q7WQ, AA9AK/WH0, AG9A/WH0 and VS6/AA9AK.

- I was pleasantly surprised when I received a QSL card directly from Antarctica. Paul VK0CS sent his QSL card from Casey Base (110° 31' E, 66° 17' S). The envelope had the standard Australian postage for internal mail of 45 cents with an Australian Antarctic Territory stamp on it and the post office cancellation stamp reads "Australian National Antarctic Research Expeditions, Casey, 3 Nov 1994". The envelope arrived on 6 December for a QSO on 27 February 1994. Paul's home call is VK2GMI, and his address is Paul Hansen, 16 Rotuma St, Oakhurst, NSW 2761, Australia.
- John VK1PG reports that he had a CW contact at 2051 UTC on 14033 with ST2AA in Khartoum. Lou is an Australian and left VK5 in 1975. He is anxious to have QSOs with VKs around his evening local time, which would be 1800 — 2000 UTC. His full name is Louis Szondy and QSL is via WB2RAJ.
- Did you know that the Harvard University Wireless Club is America's oldest radio club, established in 1909?
- Meralda VR6MW was missing from the bands. She spent some months in New Zealand for health reasons. "We are so far away when help is needed", writes her mother, Mavis.
- The QSL cards for HV3SJ, operated by Father Edward Schmidt W9SI, should go to I0DUD with two IRCs.
- 9K2F was active from Faylakah Island, which is located about 25 km NE of Kuwait City, from 15 to 18 December. QSL to 9K2RA.
- C56/G0MRF is not listed in the 1994 callbook. Direct QSLs go to G8PDW.
- Recently there was some CW activity from Syria by seven American amateurs. The activity took place with the help of Omar YK1AO. The callsign

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Bhutan, November 1994. Amateur radio activity by a Bhutanese operator, Phub, assisted by Kan JA1BK.

used by the Americans was YK0A. QSL goes to W6OAT. The prospects for future CW operation are better than they were before. A complete amateur station was left behind and there are several other operators keen to begin DXing. The Americans report that they were treated very well and with great kindness by the Syrian people. They made 15,000 QSOs, 75% with Europe.

- If you worked VI8TRACY, commemorating the destruction of Darwin by the cyclone as indicated by the suffix of the callsign, for a \$5.00 donation, the Darwin Amateur Radio Club will send you a special certificate. The address is DARC, PO Box 41251, Casuarina, NT 0811.
- Ray AB4JI approached the relevant authorities again to operate from Desecheo Island, KP5. However, he was told that no amateur radio is allowed from the islands at present.
- I am sure many DXers remember Alan VK8AV from Alice Springs. I have not heard of him for a couple of years. The other day VK4IV called me on CW. It was Alan who has now settled in the Brisbane area.
- The proposed December ZL5/Balleny Island DXpedition has been postponed to a date sometime in 1995.
- Various DX publications report the following pirates or unauthorised activity. Save your money and do not QSL. 9V/SV2BBJ was active, but has no permission to operate. SU2CW asked to send the cards to DK7PE.

Rudi knows nothing about that station. A51NS was an illegal operation. 5A0/DL7FT and ST0CW are very doubtful. 3V/JA2MAO was a pirate, as was YA7NEL asking for cards to JA6NEF. The call D2SA has been pirated extensively during the last week or two on CW, with various pre/suffixes including TN and 3C. The real D2SA does not operate on CW. 3V8UJ, asking for cards via W4DE, was very doubtful. F6EEM said that the calls FR/F6EEM/T, TM2YT and 3A/F6EEM were all pirates.

- According to unconfirmed sources the planned Kermadec Island activity for March 1995 has been cancelled. Barry G4MFW, whilst he had a licence to operate, failed in his attempts to secure a landing permit from the relevant New Zealand authorities.
- Tunisia 3V was active during November and December. Four Japanese operators (JH2CFD, JF2EZA, JR2RVL and JL2OYI) assisted to set up a club station. According to some reports the Club Station is in a high school in Bir-Ei-Bey town. The Japanese operators were instructing the locals and, according to some reports, a few trained operators will continue to be active after the Japanese leave. QSL goes to JF2EZA.
- The Krenkel Central Radio Club of Russia sent a circular to all QSL Bureaus of radio amateur organisations advising that Box 88

(phone +949-52-21) Moscow is still very much alive. They admit, however, that for some time past the number of incoming QSL cards has sharply fallen. They also point out that, whilst the Krenkel Central Radio Club of the Russian Federation has more than 30,000 members and whilst they claim to be the successors of the former Radio Sport Federation of the USSR, the recently formed Union of Radio Amateurs of Russia (SRR), Box 59, Moscow counts only about 4000 members. The latter, however, has been admitted as a member of IARU. The Krenkel Club assures us that they possess moveable property, transport, staff members and the necessary organisation to sort and send amateur mail (QSL cards) in good time and regularly. They also allege that the opposition organisation does not regularly forward cards. So there you are. Competing QSL bureaus in Russia. One has to remember also that the other, now independent, republics also have their own QSL Bureaus.

- Bill VK4CRR was heard operating portable from Cato Island in December in the Coral Sea Group (23° 15' S, 155° 32' E).
- There is a rumour that DU0K will be operating soon from Spratly Islands.
- Here are the latest decisions of the ARRL DX Advisory Committee (DXAC) advised in a news release dated 2 Dec 1994. The DXAC has voted 14 to 2 against a petition to add Austral Islands and the Marquesas Islands to the DXCC countries list. The DXAC voted 14 to 1 against adding the Balleny Islands to the DXCC countries list. The DXAC voted 13 to 2 against recommending the establishment of a DXCC award for contacts made whilst operating mobile.

QSLs Received

GI3OQR (12 w op) — VK6ISL and VK8ISL (10 w VK6LC) — VR6MW (10 w op) — 5T5JC (3 w F6FNU) — VK0CS (10 m op).

Thank You

Many thanks to my helpers without whose support this column would face real difficulties. Special thanks to VK1PG, VK2DSL, VK2KCP, VK2KFU, VK4AAR, VK4DV, VK4XW, VK6HD, DL2GAC, K1IYD, PA0LEG and WX3N, as well as the following sources of information, The Krenkel Central Radio Club of the Russian Federation, *QRZ DX*, *The DX Bulletin*, *The DX News Sheet* and *The W6GO/K6HHD list*.

73 and Good DX
*PO Box 93, Dural NSW 2158
ar

WIA News

WIA Action on Proposed Licence Fees

The following item, from WIA Federal President Neil Penfold VK6NE, was sent to Divisional broadcast officers in the first week of January.

Since the SMA explained the proposed new amateur licence fees to us early in December and we arranged to distribute the information as rapidly as possible through the various means at our disposal, the WIA has not been idle.

But, before outlining developments, I should dispel some erroneous concerns that many amateurs have raised.

The proposed new fees were revealed to the WIA's SMA Liaison team FOR THE FIRST TIME on 5 December. The information was embargoed from public release by the SMA until 14 December when they put full licence pricing policy details before representatives of all the other spectrum users at a meeting of the Radio Consultative Council in Sydney.

Text for the insert which appeared in your January issue of Amateur Radio was finalised on the morning of 14 December, and flown to Melbourne to be printed and inserted in the magazine the following day.

On 15 December, the text of that insert was issued to the packet radio network.

The WIA's SMA Liaison team and the Federal Council has been monitoring reaction and formulating plans to put a well-argued response to the Spectrum Management Agency.

It should come as no surprise that, fundamentally, the WIA is opposed to a number of aspects of the proposed new fees, in particular, the Spectrum Access Tax.

As a result of discussions within WIA Federal, on 30 December I authorised a press release to be issued to the media so that, hopefully, the licence fee issue could be more widely disseminated, particularly with a view to reaching non-members of the WIA and other interested people and groups.

Fortunately, it caught the attention of the media, receiving national coverage on radio and television on Tuesday, 3 January, a story and picture on page three of The Age newspaper the same day, and subsequently on a number of Victorian radio stations, as well as stories in metropolitan and regional newspapers.

As I said, the WIA is monitoring reactions to the proposed licence fees and to say the response has been overwhelming would be an understatement. It has been most welcome.

The WIA plans to put the strongest possible case to the SMA, reflecting the views of members and non-members alike, but there has been only a short time since the information was made available and there is only a short time frame in which we can negotiate before the deadline of 1 March.

It should be obvious that only reasoned argument will win the day and the WIA aims to take that course in developing a case to negotiate with the SMA.

On behalf of the WIA, and the amateur fraternity at large, I would like to thank all those who have taken the time and made the effort to put their views.

Neil Penfold VK6NE, WIA Federal President.

The press release of 30 December was issued from Sydney to the five national television broadcast networks (2, 7, 9, 10, SBS), Australian Associated Press, some of the radio broadcast networks, national print media, all capital city metropolitan daily newspapers and Amateur Radio Action.

Copies of the release were also sent to the Spectrum Manager, Christine Goode, the Minister for Communications and the Arts, Michael Lee, the Shadow Minister for Communications, Senator Richard Alston and his counterpart in the House of Representatives, David Kemp.

The Age newspaper in Melbourne was the first to pick up on the press release, running the story mentioned above in their 3 January edition. This seemed to have sparked the interest of other media.

WIA Victoria President, Jim Linton VK3PC, was kept busy dealing with news media inquiries. It began with The Age needing a photograph to go with their story written from the WIA press release. Ray Cowling VK3ACR readily volunteered for the photo.

Jim VK3PC fronted the television cameras for both Channels 9 and 10, which gave excellent coverage in the evening news on 3 January. With a number of TV appearances over the past decade, he was able to clearly explain the arguments against the Spectrum Access Tax. Rob Carmichael VK3DTR kindly made his shack available for the TV interviews.

John Hill VK3WZ also received media calls, including ABC Radio National, who had his name in their contact book. They had previously interviewed him during the Gulf war.

The West Australian newspaper in Perth, picking up on the Channel 9 TV news item, contacted Federal President Neil Penfold to ask why they had not been sent a release. He was able to inform them that it had been faxed to the Chief of Staff on 30 December.

Many local metropolitan weekly and regional newspapers picked up on the earlier media stories, as did radio stations, particularly in Victoria. One radio station, 3CR in Melbourne, following an item on its Friday morning breakfast program, reported receiving a number of calls from people enquiring about how to get their amateur licence and where to contact the WIA.

The Gold Coast Amateur Radio Society in Queensland also managed to get a prominent story in their local paper.

Background to the licence fees issue was first published in the March 1994 issue of Amateur Radio, on pages 21 and 22, in a WIA News item covering the SMA Apparatus Licence Inquiry. An insert reporting on the Inquiry was in the same issue.

Federal President Neil Penfold wrote to the Spectrum Manager, Christine Goode, early in January seeking a specific meeting for the WIA to negotiate with the SMA on the licence fees.

Over to You — Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Novice Articles

Instead of blasting the WIA *Amateur Radio* magazine for not filling its columns with novice-related articles, it might pay B Thirkell VK1PBT (*Amateur Radio* magazine, January issue) to take out a subscription to *QST*, the world's oldest amateur radio magazine.

Here every month there is a special section of at least ten pages, often more, with a host of features for the novice.

Not only will these articles fulfil his needs for top novice-related articles, but they will give him a chance to explore all facets of this great hobby of ours. The November 1994 issue ran to 280 pages.

It amazes me how few VKs subscribe to this journal. Why?

Roth Jones VK3BG
23 Cherry Tree Grove
Croydon VIC 3136

(I suspect the answer to your final question, Roth, is that many amateurs, Novice or otherwise, feel that they cannot afford the cost. Ed)

ITV

After fifteen years of sterling service my old National TV set finally died so, in an uncharacteristic fit of self indulgence, I bought myself a new Sony KV2966 68 cm stereo TV set.

That night in bed, listening to late-night talkback as is my custom, I noticed curious birdies about every 130 kHz up and down the broadcast band. I fell asleep moderately perplexed.

The next day I did some investigation. Lo and behold, strength nine raspberries, about 135.3 kHz apart, covering the entire HF spectrum up to 30 MHz. The culprit? My new \$2,200 TV set!

Amateur Radio has been pushing EMC/RFI down our throats for years now. Haven't the commercial manufacturers heard of it?

Is this the apotheosis of 1990s hi-tech?

Al Rechner VK5EK
PO Box 12
Old Noarlunga SA 5168

(Did you leave the TV on all night, Al, or was the interference present even when nominally "off"? Ed.)

Disagreements or Problems

Reference the Bruce Hedland Thomas comment about Quaker talkathons in the December Federal QSP. If our councillors are considering the Quaker method for resolving disagreements, I remind them it is only suitable for that purpose, it is

useless for problem solving. Problems require a process of logical reasoning applied to the evidence; so don't abandon your gift of reasoning in favour of the gift of the gab.

Interference problems are technical and require technical solutions based on consideration of the technical evidence. SMA appointed consultants, arbitrators and conciliators should be suitably qualified technical persons; if an amateur is not satisfied that the outcome of an investigation has resulted from the technical evidence he should appeal to an ombudsman and, if necessary, the courts. It would not be unreasonable for him to expect legal and financial assistance from the WIA for that purpose. A compromise might satisfy the affected parties at the time but it could set a prejudicial precedent.

Lindsay Lawless VK3ANJ
PO Box 760
Lakes Entrance VIC 3909

WIA Exam Service

For some time now I have been assisting students to gain their various Amateur Operating Certificates and, during this time, I have been able to see just how the *WIA Examination Service* works.

I was very impressed with the administration of the system and the consideration given to the students when sitting for their exams.

The advantages of the WIA system are:-

a. Examinations are now held on average at least once a month instead of the three month interval under the former DoTC system.

b. Venues are, in most cases, locations such as the local radio club meeting halls, etc which are usually familiar to the students. Furthermore, the examiners are well known to the students and, in such circumstances, an informal atmosphere prevails which must help to settle the students' examination nerves.

c. Students sitting for the Morse tests can use their own keys or oscillators and are given ample opportunity to practise sending a small piece before the test and also listen to a Morse tape for a short period. What more would you want?

d. Formerly, students at distant locations would have to travel considerable distances to sit for an examination, whereas now locations can be more conveniently placed.

e. When the exam results are sent to

the WIA for confirmation, the students can be assured of a speedy turn-around, getting their results in a few days. The DoTC used to take much longer than this.

The WIA Education Officer, Brenda Edmonds, and her helpers are to be congratulated on a smoothly running devolution of the examination system from the DoTC to amateur control.

I know there are awards made by the WIA for the best articles published in *Amateur Radio*, but what about an ACHIEVER Award for the year? I, for one, would nominate Brenda Edmonds for that award, for a magnificent job well done.

Although, seeing that the Examination system is going so well, why don't we look further afield and export it to our Asian neighbours (at least)? Tertiary institutions do similar things, why not the WIA?

Still another thought. To cater for our distant students and the incapacitated ones, it would be very useful if some of our experts in the remote student education field could introduce a correspondence course for amateur students. It would be a big task, I know, but maybe it is not impossible.

Perhaps there may be a niche market somewhere in the above thoughts, perhaps just to help reduce our current account deficit!

Well done, Brenda. The amateur organisation owes a lot to your undoubted ability and zeal in the amateur education field.

Quintin Foster L30720
77 Church Street
Beaumaris VIC 3193

(Brenda is grateful for your praise, Quintin, but hastens to attribute most of the Exam Service success to the organisational ability of Bill Roper VK3BR during his time as General Manager Both were employed by the WIA at that time. Ed)

Licence Fees

I am writing to express my opinion about the new SMA pricing policy for amateur radio licences.

The insert in January *Amateur Radio* was an excellent description of the SMA's policy but it gave no indication of what response the WIA would make to it. However, I would deduce that, because the SMA said it was a *pretty good deal* and the WIA made no comments to the contrary, the Federal WIA accepts that, or at least Roger Harrison does.

The new policy is a revenue raising (taxation) strategy in keeping with its previously well publicised commercial management of the radio spectrum. The fact is that an unrestricted amateur will pay about 100% extra for a licence.

It may be argued that fees will decrease if we swell the ranks but under this policy

the ranks may well diminish and then fees will increase. There may well be a lot of half hearted hams who, at double the price, don't bother to renew their licences.

The fact is that the Amateur Radio Service is basically a hobby, but is being priced on a commercial basis and that the adoption of this policy is THE THIN EDGE OF THE WEDGE for the service.

The policy does nothing to foster the amateur service which is an asset to the community, particularly in times of emergency and natural disaster.

I have written to my Federal Member of Parliament protesting these charges and feel much valuable time has been lost because of the one calendar month it took to receive this information.

If the WIA is continuing discussions with the SMA then I expect that they be very firm discussions with the interest of amateur operators at heart.

Eric Williams VK2IDE
30 George Street
Springwood NSW 2777

Fee Increases

(Copy of letter sent to SMA)

I have received an advance copy of your new charges relating to amateur radio.

I attended the seminars in Adelaide in 1994 and I wrote a submission input to you (as did many others). You acknowledged receipt of the letter.

Suddenly, without warning, you have announced a FEE INCREASE OF OVER 100%.

The seminar was told a SMALL fee increase was the "worst case" scenario but the more likely settlement would be a fee REDUCTION.

There are NO licence fees for the CB bands and you allow them to be used commercially.

Amateur radio operators are really that. AMATEURS providing a very valuable service FREE OF CHARGE to Darwin Cyclones, Ash Wednesday bushfires, NSW bushfires, etc.

We provide services to Camp Quality, Guides and Scouts groups, training for Australian Armed Forces and industry in general.

Were it not for the amateurs, you and the general public of the world would be less well served.

Adding insult to injury you never replied and, I suspect, never applied the submissions to the recommended 100% fee increase.

Now you are saying the amateurs have been given a GOOD DEAL!

You can be assured I am UPSET AND VERY ANGRY at your SNEAKY approach. A sniper in the trees couldn't have done it better.

Mervyn V Millar VK5MX
31 Rickaby Street
Croydon Park SA 5008

(The above two letters are typical of the many letters received so far on the licence fees theme. Regrettably, while all displayed tremendous indignation, most were too long to print here. Ed) ar

Update

Back to Basics 40 or 80 m Receiver

Neville Chivers VK2YO, the author of the above article which appeared on pages four to six of the January 1995 issue of *Amateur Radio* magazine, points out some errors in the circuit diagram, Fig 1.

1. The VFO buffer amp should read MPF102 and not MFP102.
2. The BFO trimmer should read 3-30 pF, not 3.3 pF.
3. The AM line from the first IF transformer should bridge the filter and not connect direct to G1 of the MFE131 IF amp.
4. (The most important!) The drain of the MPF102 product detector should connect to the 12 V rail via a 1 k resistor at the junction of the .002 capacitor and the 1000 μ H RFC.

It might be a good idea to correct your copy of the January issue of *Amateur Radio* NOW!

ar

WIA News

EMC Compliance to be Set Back?

The Australian Telecommunications Industry Association (ATIA) has proposed to the Spectrum Management Agency that the 1 January 1996 date for the introduction of the "EMC Regime", requiring that electrical, electronics and telecommunications equipment sold or manufactured in Australia meet mandatory spurious emission levels, be put back 12 months.

The ATIA is the representative body for the Australian telecommunications equipment industry and is affiliated with the Australian Electrical and Electronics Manufacturers Association (AEEMA).

Their January newsletter, *ATIA News*, reported that their proposal had been circulated to the ATIA's divisions for discussion, and that they had met recently with Paul Elliott, the Parliamentary Secretary to the Minister for Communications, who has responsibility for spectrum management issues.

Technical Correspondence

All technical correspondence from members will be considered for publication, but should be less than 300 words.

CRADBIG Charger

The excitation circuit in the article in the December issue of *Amateur Radio* leaves a little to be desired, as the author suggests. I would like to offer a simple fix to overcome the charger's shortcomings.

The output voltage of the unit described is directly proportional to rotor speed and inversely proportional to load. The result is a need to continually adjust the excitation control. The circuit is capable of destroying the battery if the voltage is allowed to rise above 15.1 volts (2.5 volts per cell). This causes the plates to heat up thereby dislodging the positive plate material. A voltage of 2.45 per cell is generally considered to be the maximum permissible. If the voltage is higher than this figure, the active material sheds and falls to the bottom of the cell. This can result in a shorted cell or the material going into suspension, appearing as a red tinge in the electrolyte.

The simple fix is to replace the excitation circuit with a low cost Bosch RE55 regulator (\$15.40 plus tax). Connect D+ to the battery via the series diode combination, earth the case to battery negative, and connect F to the top end of the rotor winding. This regulator is only suitable for alternators with one end of the rotor connected to earth. Using this regulator the CRADBIG will regulate the output voltage between 14.0 volts and 14.4 volts. It has temperature compensation, negative feedback for stable output and internal filtering against transients.

Using the RE55 you can charge the battery without having the fear of the whole thing suddenly taking off into no man's land!

Bob Tait VK3UI
PO Box 107
Seaford VIC 3198
ar

Repeater Link

Will McGhie VK6UU*

Loops

Last month's *Repeater Link* tried to pass on some of the knowledge gained at an amateur level on the tuning of the two metre cavity filter duplexer. Not an easy task but I hope amateurs faced with the task of constructing and tuning a duplexer for the first time found some of the information useful. Much of the following will make sense to duplexer builders but to most other amateurs may be a mystery.

This month I have included additional information on the coupling loops. As commented on last month, I found the coupling loops in the ARRL design were coupled too tightly to the centre tuning element. Only by reducing the coupling could I achieve the published results. In the hope that a picture is worth a thousand words the accompanying drawing, Fig 1, should help in modifying the coupling loops. The shape is as simple as could be.

No precise bending of the wire loops into the published rectangular shape is required, just 115 mm (4.5") of household electrical wire formed into a loop. The 115 mm is the total length from the solder connection on the BNC to the earth termination. The closest point of the loop to the centre tuning element is the only critical dimension. By moving the loops in and out from the tuning element the correct degree of coupling is achieved. The 6 mm as shown is close to the right coupling but you will still require some experimentation.

Cuts

Note also the bottom of the tuning element where the centre tuning plunger extends. Instead of the finger stock as specified in the *ARRL Handbook*, which is labour intensive, simply cut eight slots in the larger tube down about 40 mm. Screw the centre smaller tube far enough inside the larger tube so you can squeeze in the eight slotted bottom pieces. Do every alternate one so you end up with four inner ones and then four outer ones overlaying the inner ones. Then screw the inner tube out to the position shown. Much easier.

History

While writing the articles on the two metre cavity duplexer, my memory returned back to those long ago days when the word duplexer first crept into the repeater scene in VK6. The first repeaters in VK6 were all split antenna designs. Coupling a repeater via a duplexer to a single antenna was a great mystery that

had far too many unknowns. Only one of the club members had any two way commercial knowledge and that was limited when it came to understanding the duplexer.

Many hours of discussion were spent on how a duplexer was put together. Most of the commercial radio systems back then used much wider frequency separation between the input and output frequencies which, in turn, meant the duplexer was easier to make and get going. Could a 500 kHz split amateur repeater for two metres be made to work through a duplexer? No, the 500 kHz is not a typo. Way back then the repeater split on two metres was 500 kHz before it changed to 600 kHz.

When the ARRL design appeared, much discussion on building a duplexer ensued. It is important to understand that amateur repeater clubs or individuals vary greatly in their knowledge. What one group, due to its radio experience, takes for granted and moves on, another group flounders over for months, or sometimes years. Finding out information in amateur radio can at times be exceedingly difficult. Even when the information is there it is usually written by someone who knows a lot about the subject. This can be an inbuilt flaw. What the writer takes as accepted knowledge causes nothing but confusion for those struggling with the

basic concepts. Sometimes information is left out, such as how the dimensions for the connecting cables in the duplexer are arrived at. Does anyone know?

In examining the ARRL duplexer design, many hours were spent trying to duplicate the design down to the last turn on the lathe. Even the tiny insulator bushings for passing the coupling loops through the top plate were reproduced in exact detail, as it was thought that any deviation from the design could result in disaster. Today a 3 mm hole is drilled and household electrical wire passed through to make up the coupling loops. The job of the insulator bushings is done by the plastic covering on the electrical wire. I sometimes think that construction projects very much reflect the individual's bias. If you are into machine turning on your big lathe then every chance you get to use the lathe results in one more piece of beautifully manufactured hardware. For those following behind it can be a major hurdle that turns out to be completely unnecessary. A simple comment like "this is the way I did it but a simple hole with insulated electrical wire is also OK" could have made the project so much easier.

I wonder if us few VK6 amateurs were the only ones way back then struggling with the mysteries of the duplexer? Dare I say, could it be happening all over again even as you read this?

News

Whenever I see an item on packet that relates to repeaters I usually read it. In order to find more input to *Repeater Link* I then send a packet back to the author of the packet item requesting any information on repeaters. It may be a new repeater just going into service or a bit of history relating to repeaters in that area. It is hard going getting amateurs to write and pass on their experiences in building, installing and maintaining repeaters.

What interests me in particular is the organisational side of putting a repeater on air. Is a given repeater the result of an individual or a group of amateurs? Coordinating a repeater installation can be an interesting experience. If you would like to have your repeater featured in *Repeater Link*, be it large or small, then send me whatever information you have. Other amateurs who are sharing similar experiences can relate to your particular situation and perhaps gain a small amount of help and enjoyment by reading about your repeater.

Cairns

From Bob VK4JZB comes the following information on a new 70 cm repeater in Cairns.

The repeater itself was put together from a Hamtronics kit many years ago and

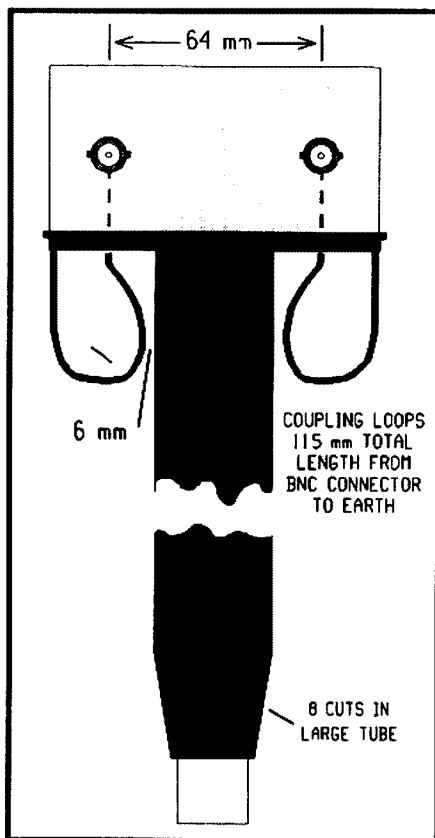


Fig 1.

tended to lay dormant until earlier this year. The antennas are both J poles spaced about one metre apart and are situated on top of the generator room of the Matsen Plaza. The generator room itself is situated above the 13th floor on the southern end of the complex. Output power is approx 12 watts and the frequency is 439.350 MHz. The input frequency is 5 MHz lower on 434.350 MHz. The Matsen Plaza is owned and operated by the Daikyo Group and until very recently had Paul VK4APN as the General Manager. Paul was instrumental in obtaining the site for the Cairns Amateur Radio and Electronics Club Inc, the repeater sponsor.

Thanks Bob for the information. Bob's Packet address is VK4JZB @ VK4KGV.FNQ.QLD.AUS.OC if you want any additional information.

Adelaide

Also tracked down on packet was Mark VK5AVQ who sent me this information on some of the history about repeaters in Adelaide.

Adelaide's first repeater was VK5RAD at Crafers on 147000 MHz back in 1971. A 146.850 system followed in the mid seventies. In 1979 a UHF repeater committee was formed, of which I was part and, with a W15U donated by Philips, the project was on air a few years later as VK5RVP. This UHF repeater was co-sited with the two metre repeater VK5RAD. The UHF repeater runs two antennas and a masthead amplifier. Attempts to boost the 5 watts output power have been messy, as have the three aerial rebuilds, two due to tower collapses, but that's another story. (I'd like to hear about that one too, Mark.) Last year I went to VK0 and the UHF repeater failed. While off air, due to confusion the licence was transferred to Mt Lofty. I'm hoping to replace the old W15U UHF repeater VK5RVP with a Philips FM 815 that was obtained from the VK6 VHF Group. The proposed location is Mt Lofty which is Adelaide's highest site. Meanwhile the W15U is re-licensed as VK5RAD at Crafers until Mt Lofty is running.

When I returned from VK0 and discovered that VK5RVP was off air I investigated and found the 40 minute fail-safe timer's latching relay had tripped. There was probably a glitch when a digipeater was installed at the site. A simple fault but no one else knew the system (or cared?). Presently there are only two other 70 cm repeaters around Adelaide. Fairly quiet in Adelaide but we did have the first ATV licence and repeater in Australia.

Thanks Mark for your comments on that aspect of the repeater scene in Adelaide in which you are directly involved. Mark's

packet address is VK5AVQ @ VK5WI.#ADL.#SA.AUS.OC.

I particularly identified with the problem about information pertaining to a particular repeater installation being vested in only one individual. If for any reason that person is not available no one

else has any idea what to do. How is information about your local repeater documented and how many people know anything about its operation?

*21 Waterloo Crescent, Lesmurdie 6076
VK6UU @ VK6BBS
ar

Spotlight on SWLing

Robin L Harwood VK7RH*

Conditions still have not improved and there has not been a great deal happening on the bands. The VOA has started a daily talkback program at 1700 UTC entitled simply "Talk to America". This 60 minute program will not be heard by many in this region due to its timing. However, they do have edited highlights in later releases. WJCR, the Kentucky gospel music station on 7490 kHz, was off-air for a while due to difficulties in obtaining tubes. This information followed my query on Internet to its continued absence.

The nearby WWCR station in Nashville, Tennessee continues mainly to broadcast religious programming, yet I have heard it signing as "World Wide Country Radio" between 2100 and 2300 hours on 11980 kHz. The program consists of Country and Western music plus commercials. This isn't surprising as Nashville is regarded as the home of this genre of music. WWCR utilises three transmitters, one of which is dedicated to the so-called "University Network" and Dr Gene Scott. 5935 kHz seems to be the channel carrying this program while 5065 and 7435 carry separate programming around 0700 UTC.

I was puzzled by a station on 9255 kHz at 0630 UTC on 5 December last, broadcasting in Persian. Identification was difficult due to furry modulation and generator hum. Programming was mainly martial music plus plenty of slogans. Iran and one of its leaders (Rafsajani) was frequently mentioned. It was not Teheran as I cross-checked 15084 kHz so it presumably is one of the clandestine outlets in the Mid-east. The station is not a regular but could be beneath the bubble jammers that are heard between 0500 and 0700 UTC daily sweeping from 9200 to 9350 kHz.

It looks as if the days of longwave broadcasting are numbered, particularly in Western Europe. Norway and Austria ceased using these frequencies on 1 January. Others are likely eventually to follow suit. Incidentally, Austria went further and left AM, relying on the FM networks. The CIS countries (ie the former Soviet Union and Eastern Europe) will

probably continue on LW for longer than in Western Europe.

Don't forget early next month, the Daylight Saving madness will be really evident. NSW leaves it on the first Sunday of the month, whilst New Zealand follows suit on the second Sunday. Victoria and South Australia will join Tasmania and revert to Standard time on the 26th. Honestly, I don't know why we are unable to standardise the changeover dates. Apparently time comes under state jurisdiction and not Commonwealth. Just to demonstrate how ludicrous it will be, Broken Hill (which is on Adelaide time) will be 30 minutes ahead of Sydney, when it usually is the other way round.

Budgetary cutbacks are continuing in the major public broadcasters. The latest to feel this is Kol Israel in Jerusalem who axed several English releases. The CBC in Canada recently announced it was axing 6,000 of its staff which includes the shortwave arm, Radio Canada International. Ironically, the RCI site at Sackville, New Brunswick is mainly used by other broadcasters to get into North America. The users are the BBC, Radio Japan, Radio Korea, Austrian Radio and Deutsche Welle.

This increasing trend for site sharing makes it a challenge to identify what country the signal is emanating from. I wonder just how many have been caught hearing Radio Japan in Tokyo at 0700 UTC on 7230 kHz when, in fact, the signals are coming from Skelton in the UK. Fortunately, Radio Japan acknowledges this fact but there are many who fail to disclose it. China Radio International in Beijing is heard around 0400 UTC in English on the 25 metre band yet in reality it is via French Guiana.

Well that is all for February. Don't forget if you have any news for inclusion, I can be reached on Internet or Fidonet as below. The Packet address is unchanged as is my snail mail address, despite what the latest callbook states. Until March, the very best of listening and 73.

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Fidonet: Robin.Harwood.3:670/301@fidonet.org
ar

VHF/UHF — An Expanding World

Eric Jamieson VK5LP*

All times are UTC.

World Record 10 GHz Contact

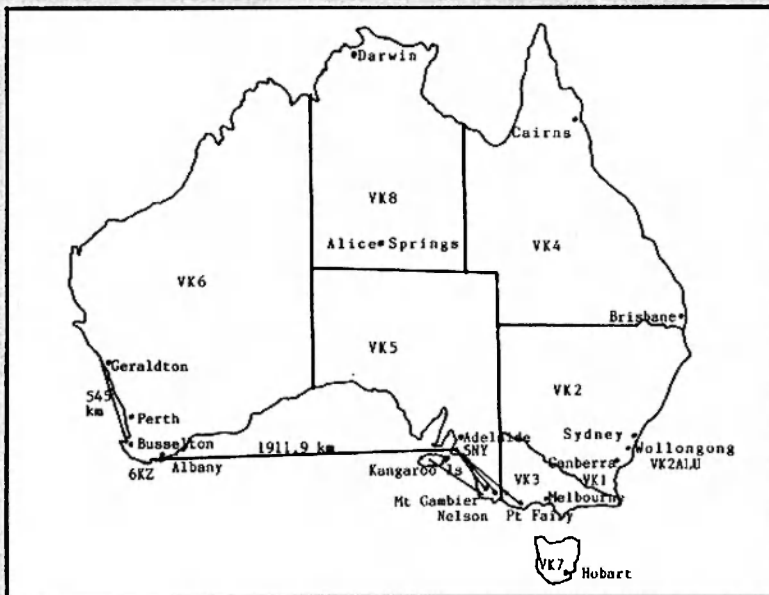
What is likely to be confirmed as a world record contact on 10.368100 GHz on 30/12/1994 at 1232 UTC took place between Roger VK5NY/p at Mount Wilson PF94hs, 408 metres ASL and south of Adelaide, South Australia, and Wally VK6KZ/p at Torbay Hill OF84tw near West Cape Howe, 140 metres ASL and 25 km west of Albany, Western Australia, over a distance of 1911.9 km. Both stations used SSB, VK6KZ/p gave a 4x1 report to VK5NY/p and the reverse report was 5x2. Roger and Wally noted strong QSB over the mainly water path across the Great Australian Bight. The contact also establishes VK5, VK6 and Australian records.

VK5NY/p used a German designed transverter with an output of 180 mW into a 40 cm dish with penny feed and an FT290R for the 144 MHz IF. VK6KZ/p used a Suckling English designed transverter with 100 mW output into a 40 cm dish with dipole feed, a 4 dB NF receiver and an FT290R for the 144 MHz IF.

Both stations ran keyers and signals were copied for about three hours. A contact followed at 1457 UTC with numbers exchanged for the Ross Hull Memorial Contest, 4x1 reports both ways on SSB with serial numbers exchanged. Both operators are to be congratulated for their efforts in placing Australia on the map again while we wait for the US amateurs to work Hawaii from San Francisco and so clinch the record!

Another station in Adelaide, David VK5KK PF94 was endeavouring to make contact with VK6KZ/p at the same time as the first contact. Signals were marginal and both David and Wally could hear each others' signals but no two-way contact took place. David is believed to be about 6 km further distant from Wally than Roger, who now awaits to see who will take the record from him!

The present World Record for 10 GHz occurred on 18/7/1993 between EA9/I0SNY and IOYLI/IE9 at a distance of 1666 km.



The map indicates the progression of 10 GHz contacts in Australia during 1993/4. On 30/4/93 VK5NY/p QF02ec Cape Banks Light House to VK5ACY/p PF84rg Minarapa, Kangaroo Island, 355.4 km and a new national record; 22/4/94: VK5NY/p PF94hs Mount Wilson to VK5MC QF02 Millcent 290 km; 12/12: VK5NY/p PF94lr Mt Magnificent to VK5NC/p QF02jd at Potters Point, Mt Gambier, 338 km; then to VK5NC/p QF01mw Nelson, Victoria 369 km; then VK3ZQB/p QF11dp near Port Fairy 466 km; 14/12: VK6BHT/p 0071 near Geraldton to VK6KZ/p OF76 at Busselton 40 km south of Bunbury 545 km; 30/12: VK5NY/p PF94hs Mount Wilson near McLaren Vale to VK6KZ/p QF84tw Torbay Hill west of Albany 1911.9 km. Also shown is the location of VK2ALU QF55 who recently set a 10 GHz EME world record and has been a pioneer of 10 GHz terrestrial experiments.

Notable 10 GHz Contacts

Wally VK6KZ said by fax that on 29/11/94 at 1352 Neil VK6BHT/p OG71 at Point Moore near Geraldton worked VK6KZ/p OF77 at Rockingham near Perth on 10368.080 MHz. SSB signal reports were 5x5 each way. The distance between the stations was 402 km and exceeded the current Western Australian and Australian records.

This contact followed one about an hour earlier when VK6KZ/p was portable at the North Mole OF77 at Fremantle Harbour over a 377 km path. This earlier contact was notable in that it represented the first two-way narrow band contact for both operators.

On 14/12 with the two metre path open between Geraldton and Perth, a decision was made for VK6KZ to go portable and VK6BHT to travel to Point Moore again. Contacts were made from Rockingham (402 km), Falcon OF77 (434 km), and Bunbury OF76 (515 km). As signals were 5-7/8 both ways from Bunbury and it was only 2315 local time, a decision was made for VK6KZ to go further south to Busselton OF76 to provide an all-water path to Geraldton OG71. The two stations were in QSO between 1605 and 1632 UTC (0032 local) with signals peaking 5x5 both ways. QSB was very evident on the path at this time. This contact over the 545 km path is being claimed as a new WA and Australian 10 GHz distance record.

The equipment used was based on the G3WDG design. Neil VK6BHT has 70 milliwatts to a 570 mm dish and a judged 3 dB NF receiver with an Icom IC202 and Wal VK6KZ has 100 milliwatts to a 400 mm dish with a 4 dB NF receiver to a Yaesu FT290R.

Contacts have been made on three occasions, two of which have been from VK6BHT/p in Geraldton to the home QTH of VK6KZ OF78 in Perth. Neil is optimistic that, with his gear mounted on the roof of his home, direct contacts will be possible. It all sounds very interesting and we await the next episode.

As it turned out, the next episode was almost on the heels of the above contact and is one which should set the microwave fraternity agog with interest. The details are in the box at the left of this page.

Six Metres

The sporadic-E appears to have favoured long distance contacts this year. ZLs have been working across to VK6 Perth which is a long way, as are the contacts between the northern VK4s and ZL, also VK6 to VK4 which are not that common. On 7/11 stations were copied here from VK, ZL, P29 and a single JA at 0636. 12/11: ZLs and at 0925 on 40.000 MHz there were telephone signals at 90

degrees. The next four weeks produced the usual VK2s, VK4s and many VK6s and ZLs. On 26/12 at 2350 I was able to hear both sides of a contact between VK6AKT and ZL2KT and ZL3TLG. ZL3s again on 29/12. Two metre Es contacts appear to have been scarce.

Two metre tropo contacts have been reasonably consistent between VK5 and VK3 and VK7. The VK7RNW beacon at Lonah is a good indicator of conditions as is VK3RGL at Geelong both of which are regulars at VK5LP. The VK3RMV beacon near Hamilton is usually S1 most days from the rear of its antenna although on 29/12 at 1000 it was S5. We still miss the VK5RSE beacon at Mount Gambier and the Melbourne beacon remains a mystery as to why it cannot be heard in VK5.

On 2/11 Norm VK3DUT reported JAs from 0530 and worked JR2HCB, JE2DWZ, JH1WHS with much QSB. 7/11: VK5BC, VK3OT, VK4ZAL, VK2YDC, VK6AS. At 0650 heard P29PL and P29ZFS working VK8GF. At 0810 ZL3s, then at 1250 worked VK5ZEE and VK5ZBK. Reasonable opening on 13/11 between 0230 and 0340 with VK4ZBV, VK4AMJ, VK4LE, VK4NW, VK2GJC, VK2BMX, VK4KHG. At 0800 to ZL4TBN, ZL3TIC, ZL4LV, ZL3ADT, ZL3NW and ZL2AQR until 1145. Thanks to VK3OT for the above information.

It is with regret that I announce the passing of Keith Laws VK2BKL on 23/10/94. Keith was an ardent six metre operator and will be missed. He came on the air on 2/12/1958 as VK2ZVL. It appears from my log book that I worked him for the first time on 8/1/65.

Jordan to USA

In the December 1994 issue of *Amateur Radio* I mentioned the 10,000 km contact between Jordan and the US and was seeking more details. They were already in the October issue of *Six News* but I missed them.

The station worked was WD4KPD and the contact took place at 2145 on 9 June 1994. After a long day, Geoff GJ4ICD and Nick G3KOX were laying on their beds, shattered. The CQ keyer was calling every 30 seconds on 50.110 but the band was silent. Suddenly, a weak CW station broke through the noise and was quickly identified as WD4KPD, but the completion of the OSO took about ten minutes due to deep QSB. Nick then phoned W4OO who alerted US operators but no other US stations were heard during the whole trip. A few minutes after the contact PA and ON were worked before the band finally closed for the evening.

From the American side it is understood that 6 m was open to CU and 48.250/48.242 MHz video was audible in many eastern states. WD4KPD is in

FM15mm, a distance of 9775 km from Amman! He runs a Yaesu FT726R, TESystems amplifier with 140 watts output to a 7 element beam 25 feet high and surrounded by trees. There can be no suggestion of trans-equatorial propagation link-up due to the east-west path, so it looks like at least four hop sporadic-E. This contact was both unexpected and amazing! So now you have the details.

Neil G0JHC in his letter said: *I think it is very important with multi-hop Es for at least one of the stations to be very high above sea level. If you look at the best contacts made each summer from Europe, most of them are from FB locations. In Amman, Jordan we were 3000 feet ASL and the antenna a further 200 feet AGL with a clear take-off to the horizon. If we all lived in places like that I'm sure there would be many more reported QSOs around 10,000 km. Hi!*

In the light of the above comment there is little hope for VK5LP being the better end of a contact. My house sits about two metres ASL despite being 15 km from the coast, and the antenna is 20 metres high!

EME Contest

Al Rechner VK5EK participated in the ARRL EME Contest in October and November 1994 in the two metres section. Al is running 8x10 element Yagis each 4.6 metres long, in two horizontal rows of 4 spaced 3.7 metres vertically and 2.7 metres horizontally. Each array should give a gain of 12 dB and the whole array about 20 dB. The Yagi design is from the ARRL VHF Handbook and fed with open wire line.

Al's VXO frequency controlled transmitter uses a pair of 4-125As driven by a QEO6/40. He uses a BF981 pre-amplifier in front of a valve converter (E88CC cascode/6AK5 mixer) to a TS850 with about 200 Hz bandpass.

He said: *The contest occupied the weekends of 29/30 October and 26/27 November and on both days of the second weekend the 150 foot radio telescope at Algonquin in Canada was in use with the callsign VE3ONT. On the first weekend Al worked K5GW, I2FAK, HB9CRQ, W5UN and KB8RQ. All stations were in the lowest 20 kHz of the two metre band. The legendary W5UN who runs 48 Yagis was much weaker than expected. On the second weekend Al worked SM5FRH and KB8RQ, plus VE3ONT, K5GW and I2FAK each twice.*

The European stations were worked just before moonset, about mid-day local time both weekends. The USA was worked just after moonrise, about 3 am local time both weekends. Clear skies allowed the antenna to be aimed visually on most

occasions with strong signals. When the sky was overcast Al relied on computer antenna directional calibrations.

Another EME participant was Chris VK5MC who operated on 432 and 1296 MHz. 29/10: on 432 Chris worked SM4IVE 559/559 and JA4BLC 449/449; on 1296 EA6/DF5JJ M/O, OZ4MM 449/559, LA8LF O/O, AA6WI O/O, WB5LUA 449/449. 30/10: 432 DL9KR 549/559, I5MPK 569/559, F1FEN O/559, OH2PO 559/559; 1296: F1ANH 439/439.

26/11: 432 OE5JFL 559/559, DL3BGG O/O, N4GJV O/O, VK3UM 549/449; 1296 AA6WI 539/539, N2IQU O/O. 27/11: 432 G4RKG O/O, K1FO 549/559; 1296 OE5JFL O/O, ZS6AXT O/O, OE9XXI 549/559, HB9BBD O/O, K2UYH 559/549.

The stations were contacted using a 6 metre dish with dual mode feedhorn on 1296 which has a pair of dipoles for vertical and horizontal operation on 432 MHz mounted around the 1296 MHz feed. Chris said it was interesting to see the difference the polarisation switch had on signals, sometimes the signals disappeared completely. Despite the late (or early) hours he enjoyed the contest.

Doug VK3UM was another participant in the EME contests, although an equipment blow-up on the first weekend made it difficult with a power reduction to 50 watts! All contacts were on 432 MHz. 29/10: 0000 to 0213 — DL9KR, JA9BOH, JA4BLC, DL9NDD, JA5OVU, F1FEN, OE5JFL; 1635 to 1756 — K1FO, N4GJV, W7FN, K0RZ, N2IQU, VE1ZJ, W0KJY, K1RQG, NC1I, WA6BJE, KB8ZW, K2OS.

26/11: 0000 to 0045 — DJ6MB, SM4IVE, OH2PO, OK1CA, DF6NA, UR4LL, G3SEK; 1524 to 2350 — W0RAP, K4QIF, WA4NJP, W2UHI, N4PZ, WA7BBM, K3LFO, W7HAH, W8TN, VK5MC, JA4BLC, UR4LX, UA6LGH, UT5EC, S57QM.

27/11: 0004 to 0145 — UT4DL, S5IZO, I2COR, ON4KNG, ON4OF, G4RKG, F5MZN, SP5CJJ; 1545 to 1823 — KD4LT, WB2VVV, VE1ALQ, JA7UIQ, KB4HH, JA2JRJ, WA6BJE. Doug had a pleasing total of 56 contacts with 29 multipliers.

Antarctica

Darin VK0IX (VK5IX) is at the Casey Base for about 12 months. He has a six metre beacon VK0IX on 50.200 but it seems delays with the off-loading of the six metre antenna and/or equipment may have prevented early December operating which probably would have provided the best conditions for a contact to Australia. Darin's QSL Manager is VK5PO. All that anyone can do is call and listen and hope that there is someone at the VK0 end if your signals reach that far.

I mentioned last month that Mike K6MYC would be on the Antarctic

continent from 16/12 to late January hoping to work 6 and 2 metres EME. A message from Steve VK3OT said that up to 25/12 they had made two EME contacts on 144 MHz but so far nothing had eventuated on six metres. A late message says that Mike has worked a further six stations in the US. On 31/95 at 0645 VK3ATQ reported that he heard Mike's six metre beacon on 50.0099 MHz. Mike's output power is a maximum of 600 watts.

Apart from EME usage, there seems no reason why Antarctica should not be worked via Es as the distance from Melbourne is not much greater than from Perth to New Zealand and contacts have been made to there on a number of occasions including this December.

Canberra signals

Ron VK3AFW sent a Fax to say that on 4/12 he had worked Ian VK1BG via aircraft enhancement on 144.2 and 432.2. Ian informed Ron that for several years he had been trying to work Ross VK2DVZ at Taree on 1296 MHz and had succeeded that morning. At 2030 he heard Ross's 1296 MHz beacon at S7 and for some time tried to contact Ross using telephone and two metres.

After half an hour Ross appeared on two metres at 5x9 plus and worked Ian and Eddie VK1VP. They did the same on 432 where signals were also 5x9. Another QSY to 1296 brought Q5 and easy QSOs for both Ian and Eddie. The distance is about 490 km. Doug VK3UM heard Ross on 432 and Ross heard Doug but, despite their best efforts, no complete QSO resulted. Their distance is about 920 km and crosses the lower part of the Great Divide as well.

These happenings occurred as a result of a large tropo duct stretching along the entire coast of NSW and penetrating about 100 km inland, resulting in considerable congestion on 144.200.

A further set of good conditions on the morning of 18/12 resulted in Eddie VK1VP working Ross VK2DVZ on 1296, to be followed shortly after by Ian VK1BG doing the same. Contacts ensued on 1296, 432 and 144 MHz with 1296 providing stronger signals than 432. Ross also copied the VK1 1296 beacon which runs about 1.5 watts to a crossed dipole.

Ron also advised that on 16/12 Charlie VK3BRZ in Lara and VK3FPG in Melbourne worked VK6APZ and VK6ATS at Esperance on 144 MHz. The latter station was running 25 watts to a two element quad. Charlie also worked VK6APZ on 432 MHz. On the morning of 17/12 David VK3AUU worked VK6AS at Esperance. These represent contacts over a considerable distance.

News from Europe

Ted Collins G4UPS said conditions were generally poor during November and often contacts are limited to his regular skeds with SM7AED and G3CCH. Of interest to us, on 8 November at 0825 he copied the VK5WI beacon on 28 MHz at 559 during rain conditions.

For November contacts were made with, or signals were heard from, 2E1DLC, 4N1SIX/b, G0GKC, G3HBR, G3OMH, G4SZM, G5JJ, G8WZA, GB3BUX/b, GB3LER/b, GB3MCB/b, GB3NHQ/b, GB3RMK/b, I2WSG, IK1EGC, OH1SIX/b, OZ2LD, OZ5IQ, OZ6VHF/b, OZ7DX, OZ7IGY/b. The list includes seven beacons and, after taking out six G stations, the pickings have been poor, something akin to our six metre conditions in May.

Courtesy of Roger Harrison VK2ZRH comes a list of beacons in the IARU Region 1 area and includes 46 beacons on 50 MHz, 9 on 70 MHz, 74 on 144, 78 on 432, 85 on 1296, 37 on 2320, 6 on 3456, 6 on 5760, 42 on 10 GHz and 11 on 24 GHz. The beacons appear to be widely scattered through Europe, nearby islands and Africa so no matter where you live there exists the possibility of having a beacon within range of your receiver!

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

J E	THOMPSON	VK2AHT
M L T (Jim)	RUDDER	VK2DCF
E	MEYERINK	VK2PUM
J A	CORDINGLEY	VK3DCK
R D	TAYLOR	VK4NBD
J K	BARTHOLOMEW	VK4YJB
H E	VIVIAN	VK5FO
W R	FRANZI	VK5FR
W (Bill)	RUSSELL	VK5WR
D C	LEDGARD	VK5ZLE

Jim Rudder VK2DCF

Jim Rudder passed away, in Sydney's Westmead Hospital, during the early hours of 22 December 1994, some four months after the onset of a vaguely defined illness, at first thought to be a heart attack. He was 78 years of age.

Jim, returning to "civvy" life after war service in Signals, became an active member of the original Gladesville and District Experimental Radio Club in Sydney and obtained his original call of VK2AJR in 1946.

After some years, a competing interest in archery, in which he and his wife Dawn

The Calling frequency

For a long time I have been exhorting amateurs to remember that 50.110 MHz is the international DX calling frequency.

It gives me a degree of pleasure to say that my observations on six metres this summer Es season indicate that, almost without exception, after initiating a contact on 50.110 amateurs are moving to other frequencies. This is good and you are to be applauded. Please keep it going. For some reason, about the only exceptions now are a few CW operators who still persist in holding QSOs there, sometimes multiple QSOs. Why? I thought all transceivers had tuning mechanisms!

Closure

I hope the sporadic-E season was good to you and that you were able to join in the fun of the Field Day contacts.

Closing with two thoughts for the month:

1. The chief drawback to New Year's resolutions is that a wife always remembers her husband's, and
2. Mincing your words makes it easier if you have to eat them later.

73 from The Voice by the Lake

**PO Box 169, Meningie SA 5264*

FAX to 085 751 043. Packet to VK5ZK for VK5LP

ar

were enthusiastic participants, and in quality cars (initially the Armstrong Siddeley, then the Triumph and latterly, as befitted increasing maturity, the Volvo) caused him to turn temporarily from amateur radio and allow his original call to lapse.

A serious motor accident, which left him with some physical handicaps reducing his mobility, no doubt contributed to his return to amateur radio and he again took out a callsign, VK2DCF, which he held until his death.

A few years after the war Jim joined the (former) PMG's Department as a temporary technician, progressing to permanency, achievement of Senior Technician's qualifications, and ultimately switching to the Department's Training organisation where, for many years, he actively participated in the training of future technicians, until his retirement.

Jim's wife, Dawn, passed away some seven years ago, but he is survived by his four children, Patricia, Tony, Christopher and Mark, and we extend our deepest sympathy to them and their families.

Ken Andrew VK2ATK

Ken Millin VK7KA

On Saturday, 26 November 1994, at 7.30 pm in the Repat hospital, Ken Millin VK7KA passed away peacefully. Ken made a long-time impact on amateur radio, as his name on the officials' board on the wall in the clubroom at the Domain will testify, secretary from 1957 to 1962.

He was a member of the radio amateurs old-timers' club and an avid CW operator. But it was not only in amateur radio that he made his mark. Ken was a skilled motor mechanic, having trained at Hobart Tech, and worked for some time for Shell. He was born in the UK, in Maidenhead, and came out to Australia as a child. Before the war, Ken joined the Naval Reserve and, when war broke out, he went into the Royal Australian Navy, spending some time on the minesweeper HMAS Warrungul. He also worked as an ERA on small boats in Darwin.

Post war, the family business was the Moonah Automotive Repair Shop where Ken, of course, used his skills. He also worked equipment for the Mines Department, and on drilling.

Sailing was another of his hobbies, and he built and raced a Tamar dinghy with his daughters June and Mary. Then the 34-foot yacht "Melita", a Piet Hein design he raced with Bellerive Yacht Club and finally there was "Runaway" which, with his son Norman, he took into the Sydney/Hobart, and finished!

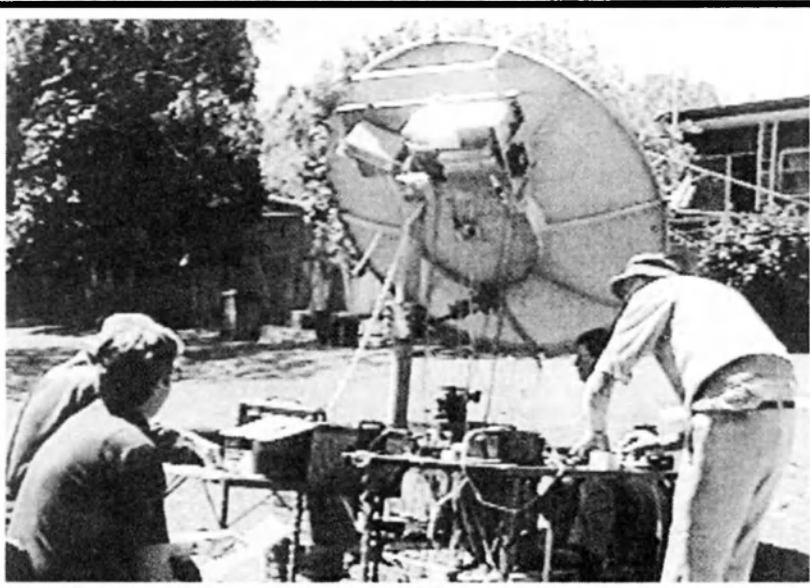
Before we get to the amateur radio side, we must mention that Ken also learned to fly and, post war, went solo!

Ken's radio exploits included building an AM transmitter in a cabinet which was also expertly built, 6 feet high and 19 inches wide, for 10 to 80 metres and, to top it all off, he constructed a beautifully designed paddle for an electronic keyer. In 1958/9, in the international sphere, Ken came third in the Australia/New Zealand DX contest and compiled a score of 10,764 points in the American Worldwide CW contest. Quite a deal of progress from the first two watt CW transmitter he built when licensed in 1948, when his first contact was Ted VK7GB.

A full page about Ken appeared in "The Tasmanian Mason" in June 1993 and that brings to light yet another facet of this very talented person who will be very much missed. Our sympathy goes to all his family from his many colleagues in the amateur radio service.

Attending Ken's funeral were amateur operators VK7LE, 7FE, 7EB, 7LS, 7AL, 7FM, 7RX, 7RO, 7GB, 7KS and 7CH.

John Rogers VK7JK
ar



VK2ALU's New 10 GHz World Record

Details of the new world record on 10 GHz appeared on pages 39 and 49 of last month's *Amateur Radio* magazine. No photographs were taken during the test, but the above picture was taken from a frame of a video taken by Les Holmes.

Lyle VK2ALU is leaning over and keying the transmitter. John VK2XGJ is on Lyle's left, calling out dish azimuth and elevation readings to David VK2YKQ (beneath the dish) who kept the dish pointed at the moon for the test.

Robert VK2SRB (hidden behind VK2XGJ) is monitoring the transmit frequency on an 18 GHz frequency counter (borrowed for the day — not now available!) so that the transmit frequency of 10,368.100 MHz could be accurately maintained by adjustment of the transmitter IF injection frequency at 144 MHz from an FT290R.

NZART Morse Code Policy

As the result of a survey conducted in 1993, to which 31% of their members responded, the NZART, the WIA's sister society in New Zealand, has established the

following policy in regard to Morse code.

The policy is:

1. That NZART support the continuation of Morse Code as an entry test for full amateur radio privileges.
2. That NZART support the retention of the current standards of 12 wpm for full privileges and 6 wpm for Novice.
3. That NZART seek a relaxed Morse Code examination environment that will encourage candidates and realistically test their ability.
4. That NZART oppose any move to isolate our licence from the standards set out in the ITU Radio Regulations and accepted for CEPT and reciprocity.
5. That until a change is made in the ITU International Radio Regulations, NZART request that the Ministry of Commerce retain the Morse Code requirement (*the Ministry of Commerce is the New Zealand Administration*).
6. That should moves be made by the IARU to delete Morse Code as an entry point under the ITU Radio Regulations, NZART seriously consider supporting such action.

Pounding Brass

Stephen P Smith VK2SPS*

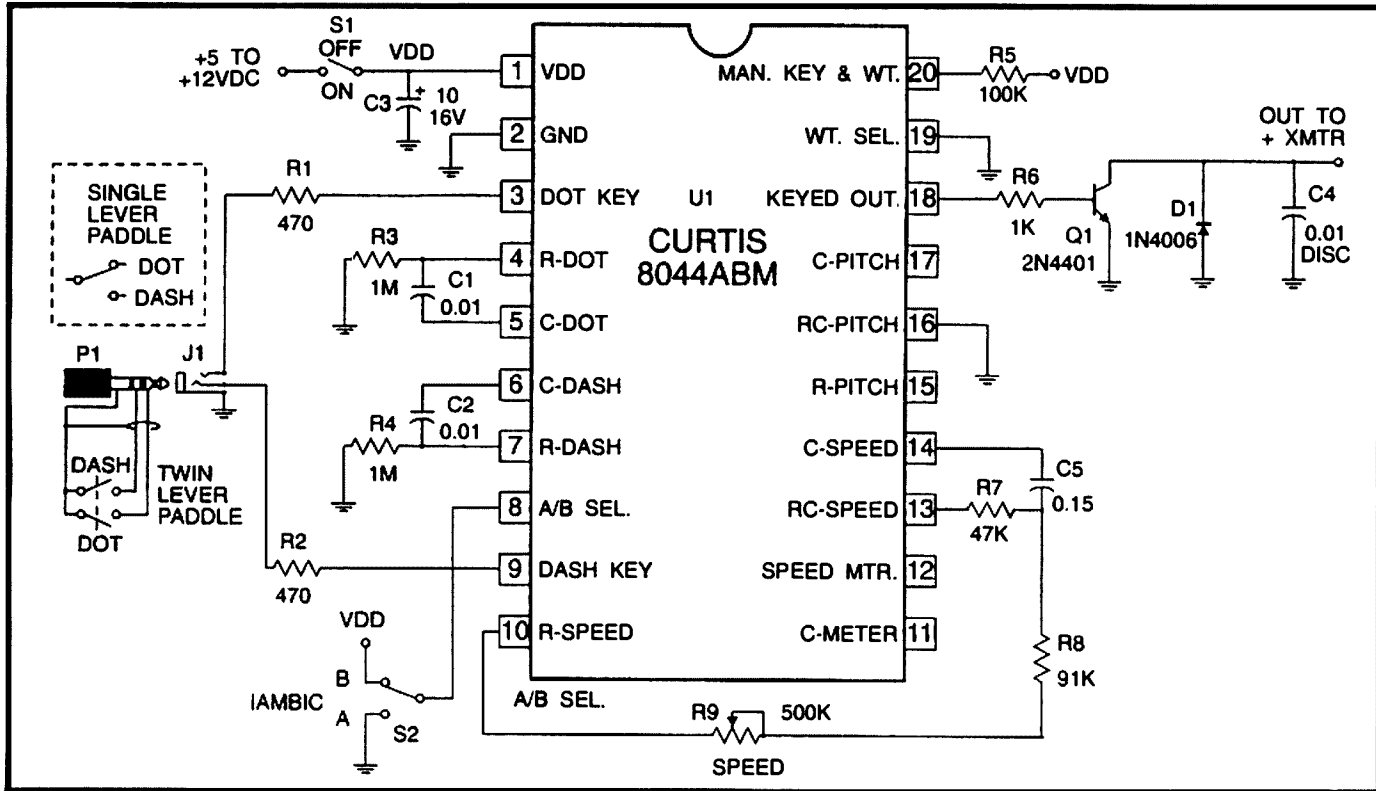


Fig 1.

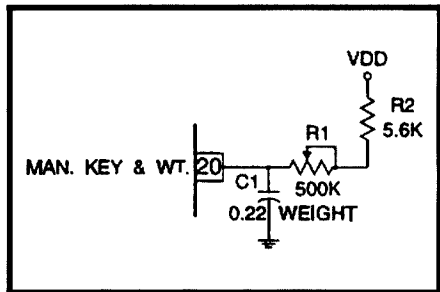


Fig 2.

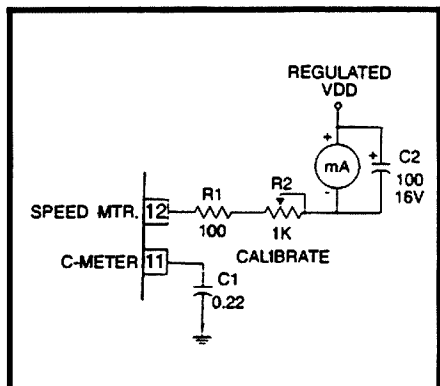


Fig 3.

In this issue I have included three circuits relating to the 8044ABM chip, which should be used in conjunction with the last two editions of *Pounding Brass*.

If, for some reason, you missed these copies of *Amateur Radio*, drop me a line and I will send you a copy of the related article(s).

The circuits included here are the main keyer in its most simple form (Fig 1), the weight control (pin 20) in Fig 2, and the code speedometer (pins 11 and 12) in Fig 3.

Good luck with your experimentation.

*PO Box 361, Mona Vale NSW 2103
ar

WIA News

Further Concessions Sought for 50 MHz Band

The WIA is negotiating with the Spectrum Management Agency (SMA) for further concessions regarding the 50-52 MHz section of the 6 m band, which is subject to a variety of restrictions.

A detailed submission has been developed in consultation between operators who use this segment of the band and Federal Technical Advisory Committee Chairman, John Martin VK3KWA.

Among concessions sought are permission to use the lower 50 kHz, from 50.00 to 50.05 MHz, use of the segment 50.2-50.3 MHz in restricted areas in the Eastern states, and use of "constant carrier" modes such as frequency-shift keying (FSK), with a suitable power limit.

Restrictions currently in force for the 50-52 MHz segment of 6 m are detailed in the current Call Book.

The WIA is working towards a positive resolution in 1995.

No Pressure on 2 m and 70 cm Bands for 2000 Olympics

At a meeting on 5 December last year, the Spectrum Management Agency (SMA) gave assurances to the WIA that the Sydney Organising Committee for the Olympic Games was not planning to apply for temporary use of all or part of the 144-148 MHz and 420-450 MHz amateur bands.

Executive manager of the SMA's Customer Services Group, Peter Stackpole (VK1RX) told the WIA that, after recent discussions with the Sydney Organising Committee, there was no hint of any impact on amateur bands. The Sydney Organising Committee had little requirement for spectrum space, he said, and what they were planning was covered by existing allocations. The WIA raised the issue with the SMA as there had been persistent rumours circulating that the 2 m and 70 cm bands might be required for the Olympics, even if on a temporary basis. French amateurs lost the use of their 144-146 MHz band during the Winter Olympics held there several years ago.

The WIA has arranged with the SMA that, in future, where amateur bands are affected by any proposals for use of spectrum, the WIA will be consulted at the time.

An Australian Amateur Band on VLF?

The WIA is progressing with negotiations with the Spectrum Management Agency (SMA) for an allocation in the 160 to 190 kHz region for Australian radio amateurs. Secondary use for amateurs is being sought for this band, which is presently used by radio navigation services.

The SMA told the WIA at a meeting on 5 December last year that they had written to the Civil Aviation Authority (CAA) who have responsibility for primary services

operating in this band, seeking their comments on the WIA's proposal. The CAA is yet to reply.

New Zealand amateurs are permitted to use the band 165-190 kHz, also known as 1800 metres, with a power limit of 5 W effective radiated power. A few Australian amateurs have taken out experimental licences with the SMA and are conducting transmission and propagation experiments with homebrew equipment.

The WIA will continue negotiations with the SMA in an effort to obtain access to the 1800 metre band for Australian amateurs.

LEO Satellites Boom

Low Earth Orbiting satellites (LEOs) will figure in global communications networks by the year 2000, according to an American academic.

Addressing the 1994 Australian Telecommunications Networks and Applications Conference held in Melbourne in the first week of December, Professor Bezalel Gavish of the Vanderbilt University in America, said that LEO systems would enable telecommunications providers to target any region in the world as a market.

Several telecommunications systems employing LEO satellite technology were in the planning stages, he said, and are expected to be operational by the turn of the century. The Iridium and Globestar systems are among them.

Radio amateurs pioneered LEO satellite technology with the OSCAR series of satellites launched over the past three decades, joined in recent years by the British UoSATs, Russian RS-series, Korean and Japanese amateur satellites.

Orbiting at heights between 700 and 1500 km above the Earth, Professor Garvish says the LEO telecommunications systems had

the potential to cause problems as they would enable network users to bypass local regulatory authorities.

Such LEO systems would cost some \$AUS 5-13 billion to establish, Professor Garvish predicted.

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of December 1994:

L20985	MR C M BRAMLEY
L20987	MR D W BUTLER
L20989	MR T G MACARTNEY
L50330	MR T DULNOAN
L60336	MR J BOUHLAS
L60339	MR P G DEAN
L70127	MR R J HANCOCK
VK2DEB	MR H SANDER
VK2GVV	MR A W MCKAY
VK2NPH	MR P G HANNA
VK2SEX	MR J PETRUSINSKI
VK2SHA	MR S L MARGERY
VK2SIL	MR N L DA SILVA
VK2TRL	MR R J LYNCH
VK2VDS	MR R DAVIS
VK2VLI	MR M G WOJTYNSKI
VK2ZJB	MR J D BRITTON
VK3VWH	MR J B HARVEY
VK4BEL	MR B E LEECH
VK4CCV	MR P G MOSCATT
VK4JWG	MR J W GILLESPIE
VK4MAA	MR K J CARTER
VK4NCH	MR K I FIRTH
VK4PFV	MR P F VICARS
VK5CI	MR P E ALLEN
VK5EDM	MR E MERTENS
VK5KDT	MR D R MADISON
VK5VE	MR W N THOMAS
VK6JRD	MR R A DE VRIES
VK6KMJ	MR M H JACKSON
VK6QC	PARAQUAD CENTRE
VK6ZW	MR T J JONES

Sign up a new member today — we need the numbers to protect our frequencies and privileges.

HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μ V (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μ V in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μ V at the receiver's input and the S-meter scale is 6 dB per S-point.

V in 50 ohms	S-points	dB(μ V)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4

0.78	S3	2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 21.0. The predicted value for March is 20.1.

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	17.0	16	13.8	-7	20	13	4	-10
2	17.3	16	14.2	-6	21	14	5	-9
3	17.3	16	14.2	-3	21	14	5	-9
4	17.3	17	14.2	2	23	15	6	-8
5	17.3	18	14.1	9	25	16	6	-9
6	17.1	20	13.9	21	27	17	6	-10
7	16.6	23	13.5	36	30	18	5	-12
8	15.8	25	12.8	45	31	16	1	-18
9	14.6	27	11.7	47	28	11	-5	-28
10	13.4	28	10.7	49	25	5	-13	-39
11	12.5	29	10.0	49	21	-2	-23	...
12	11.7	30	9.4	48	17	-7	-31	...
13	11.2	31	8.9	47	14	-12	-38	...
14	10.7	31	8.4	46	11	-17	...	...
15	10.2	32	8.0	46	7	-23	...	...
16	9.7	33	7.4	45	4	-28	...	...
17	9.3	33	7.1	43	0	-35	...	...
18	9.0	33	6.8	42	-3	...	...	...
19	9.3	24	7.0	28	0	-31	...	...
20	10.9	19	8.1	16	8	-14	-36	...
21	13.2	17	9.9	8	15	0	-15	-38
22	15.1	17	11.6	1	18	8	-3	-21
23	16.2	16	12.7	-3	20	11	1	-14
24	16.7	16	13.3	-6	20	13	3	-12

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	20.4	13	16.2	-38	15	15	11	3
2	20.7	12	16.8	-39	15	16	12	4
3	21.1	13	15.6	-37	16	16	12	5
4	21.1	13	17.3	-33	17	17	13	5
5	21.1	14	17.3	-24	19	19	14	6
6	21.1	15	17.2	-11	23	21	15	6
7	20.8	17	16.9	7	28	23	17	6
8	20.1	20	16.2	26	32	25	17	6
9	18.7	23	15.0	41	35	25	15	1
10	17.2	25	13.8	45	34	22	10	-5
11	15.8	26	12.6	47	32	18	5	-12
12	14.9	28	11.9	49	30	15	1	-18
13	14.2	28	11.2	48	28	12	-3	-24
14	13.5	29	10.7	48	26	9	-7	-30
15	12.9	30	10.1	47	24	6	-11	-35
16	12.4	30	9.6	47	22	3	-16	...
17	11.6	32	8.8	46	20	0	-20	...
18	11.1	32	8.4	45	17	-5	-26	...
19	10.9	26	8.2	31	13	-7	-28	...
20	11.4	21	8.5	17	13	-4	-22	...
21	13.4	17	10.5	1	15	4	-8	-28
22	16.2	14	12.2	-15	16	11	2	-11
23	18.6	14	14.2	-26	17	14	8	-2
24	19.9	13	15.5	-34	16	15	11	2

VK EAST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	12.0	9	8.4	-17	7	-2	-14	-33
2	11.4	3	8.7	-30	5	-2	-14	-31
3	11.2	-1	8.5	...	2	-4	-14	-30
4	13.6	1	10.3	...	2	1	-5	-17
5	17.6	5	12.7	...	1	5	3	-4
6	18.5	5	13.0	...	0	5	3	-3
7	18.6	5	13.1	...	0	5	3	-3
8	18.6	6	13.0	...	2	6	4	-3
9	17.8	7	13.1	...	5	7	3	-4
10	16.6	8	13.0	...	7	7	1	-8
11	15.2	9	12.2	-35	9	6	-1	-13
12	14.0	11	11.2	-19	11	4	-5	-20
13	13.1	14	10.4	-4	13	3	-8	-26
14	12.5	19	9.9	12	15	1	-12	-33
15	11.9	24	9.4	27	16	0	-17	...
16	11.4	26	8.9	34	16	-3	-22	...
17	10.9	28	8.4	38	14	-6	-27	...
18	10.4	30	7.9	40	13	-10	-32	...
19	10.1	30	7.6	40	11	-13	-36	...
20	10.6	30	7.4	41	14	-8	-30	...
21	10.3	27	7.1	33	11	-11	-33	...
22	9.9	21	6.9	20	7	-14	-35	...
23	9.8	15	6.8	7	5	-13	-33	...
24	10.5	10	7.3	-5	5	-9	-25	...

VK SOUTH — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	12.0	14	8.9	-5	11	0	-12	-31
2	12.0	10	9.0	-14	9	0	-12	-31
3	14.5	9	11.4	-32	9	5	-2	-15
4	18.5	10	13.4	...	9	10	6	-1
5	19.5	8	13.8	...	6	9	7	0
6	19.6	8	14.0	...	5	8	6	0
7	19.6	8	13.9	...	4	8	6	0
8	19.4	8	13.8	...	5	8	6	0
9	19.1	8	13.5	...	6	9	6	0
10	18.3	10	12.9	...	9	10	5	-3
11	17.1	11	12.0	-36	11	9	4	-6
12	15.7	12	11.0	-21	13	8	0	-12
13	14.3	14	10.0	-6	15	6	-4	-19
14	13.3	18	9.2	10	16	4	-9	-28
15	12.5	23	8.7	27	18	2	-14	-36
16	11.8	26	8.2	34	17	-1	-19	...
17	11.2	28	7.8	38	15	-5	-25	...
18	10.8	29	7.5	40	14	-9	-30	...
19	10.5	30	7.4	40	12	-11	-33	...
20	10.7	30	7.5	41	13	-9	-31	...
21	11.0	29	7.6	41	15	-7	-27	...
22	10.6	25	7.4	30	11	-9	-30	...
23	10.6	20	7.4	18	9	-9	-28	...
24	11.3	16	8.0	7	10	-5	-21	...

VK WEST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	10.9	18	8.2	13	10	-7	-26	...
2	11.3	14	8.6	-1	10	-3	-18	...
3	13.8	12	10.8	-18	12	5	-6	-20
4	17.9	12	13.7	-38	12	11	6	-3
5	19.5	10	14.5	...	10	11	7	0
6	19.6	9	15.9	...	8	10	7	0
7	19.6	8	16.1	...	7	10	6	0
8	19.6	8	16.0	...	7	9	6	0
9	19.3	9	16.0	...	7	10	6	1
10	18.8	9	15.3	...	9	10	6	-2
11	17.9	11	14.8	-39	12	11	5	-4
12	16.7	13	13.4	-21	15	10	3	-9
13	15.3	16	12.3	-2	18	9	0	-15
14	14.1	20	11.2	15	19	7	-5	-24
15	13.2	24	10.5	31	21	5	-10	-32
16	12.6	26	9.9	37	20	2	-15	-39
17	12.0	28	9.7	41	19	-1	-20	...
18	11.5	29	8.9	43	17	-4	-24	...
19	11.0	30	8.5	43	15	-8	-29	...
20	10.5	31	8.0	42	12	-11	-34	...
21	10.2	31	7.7	42	11	-14	-38	...
22	10.7	30	8.0	42	14	-10	-32	...
23	11.1	29	8.5	41	15	-6	-27	...
24	10.5	24	8.0	25	10	-10	-31	...

VK EAST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.1	-4	7.5	-20	-8	-29	...	...
2	9.4	-4	7.2	-23	-6	-25	...	...
3	9.5	-4	8.0	-24	-6	-24	...	...
4	9.5	-3	7.9	-23	-6	-24	...	...
5	9.4	-2	7.8	-20	-6	-26	...	...
6	9.2	-1	7.6	-15	-8	-30	...	...
7	8.8	2	7.3	-7	-10	-37	...	...
8	8.4	7	7.0	4	-16	...	...	...
9	7.8	16	6.4	17	-27	...	...	...
10	7.2	19	5.9	20	-39	...	...	...
11	6.7	22	5.5	20	...	...	...	...
12	6.4	24	5.2	20	...	...	...	...
13	6.2	27	5.0	20	...	...	...	...
14	5.9	27	4.9	17	...	...	...	...
15	5.6	27	4.5	14	...	...	...	...
16	5.4	27	4.3	11	...	...	...	...
17	5.0	27	4.0	6	...	...	...	...
18	4.7	27	3.7	0	...	...	...	...
19	4.6	26	3.7	-1	...	...	...	...
20	3.9	25	3.1	-19	...	...	...	...
21	3.6	1	2.9	-12	...	...	...	...
22	4.9	-8	3.9	0	...	...	...	...
23	7.4	-4	5.8	-6	-23	...	...	...
24	8.7	-3	7.0	-15	-10	-34	...	...

VK SOUTH — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	18.6	11	14.9	...	12	12	7	-2
2	19.1	11	15.5	...	11	12	8	0
3	19.6	11	16.2	...	11	13	9	1
4	19.7	12	16.3	...	12	13	9	2
5	19.8	12	16.2	...	13	14	10	2
6	19.7	13	16.1					

VK EAST — EUROPE									VK SOUTH — EUROPE									VK WEST — EUROPE								
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.3	-3	7.2	-23	0	-13	-29	...	1	10.0	3	7.8	-18	3	-10	-26	...	1	10.6	13	8.2	4	5	-12	-31	...
2	6.5	-11	6.7	-28	-1	-14	-30	...	2	9.1	-6	7.2	-27	0	-12	-28	...	2	9.6	4	7.5	-12	0	-14	-31	...
3	8.5	-14	6.7	-33	0	-12	-26	...	3	9.1	-11	7.2	-36	0	-10	-24	...	3	9.5	-3	7.5	-25	-1	-16	-31	...
4	10.0	-10	7.7	...	0	-6	-17	-35	4	10.7	-8	8.2	...	0	-4	-14	-30	4	11.3	-2	8.5	...	1	-6	-17	-35
5	12.8	-3	10.2	...	0	-1	-8	-20	5	13.9	-1	11.1	...	-1	0	-4	-15	5	14.8	2	11.8	...	1	1	-4	-15
6	15.8	2	12.6	...	0	3	0	-9	6	17.3	3	13.8	...	-3	3	1	-4	6	18.4	5	14.8	...	0	5	3	-3
7	18.1	5	14.5	...	0	5	3	-2	7	19.6	5	15.8	...	-4	4	5	0	7	21.0	6	16.9	...	-1	6	6	2
8	19.7	8	15.9	...	2	8	7	1	8	20.3	7	16.6	...	-3	6	7	3	8	22.5	7	18.3	...	-1	7	8	5
9	20.8	11	16.9	...	9	13	11	5	9	19.8	8	16.1	...	0	7	7	3	9	23.6	8	19.3	...	0	9	10	7
10	20.9	15	16.9	-31	18	18	15	8	10	18.8	10	15.2	...	6	10	8	1	10	22.9	10	18.6	...	3	11	11	7
11	19.3	18	15.5	-6	23	20	14	5	11	17.5	12	14.1	...	12	12	7	-1	11	21.6	11	18.0	...	9	13	12	7
12	17.9	21	14.3	14	29	20	12	1	12	16.1	16	12.9	-12	18	13	5	-7	12	20.2	14	16.3	-29	17	17	13	5
13	17.1	23	13.6	26	27	20	11	-2	13	14.8	21	11.8	14	22	12	1	-14	13	18.6	18	15.0	2	24	19	12	1
14	16.3	25	12.9	36	30	20	9	-6	14	14.0	25	11.1	33	25	11	-2	-22	14	17.2	21	13.8	26	28	19	10	-3
15	15.6	26	12.3	41	30	18	6	-10	15	13.3	27	10.5	38	24	8	-7	-28	15	16.4	23	13.1	36	29	18	7	-7
16	14.7	27	11.5	44	29	15	2	-16	16	12.7	28	10.0	42	23	5	-11	-34	16	15.7	25	12.4	41	29	17	4	-12
17	13.5	27	10.6	43	24	7	-9	-31	17	12.2	29	9.5	42	21	2	-16	...	17	15.0	26	12.0	44	28	14	1	-17
18	11.8	28	9.2	41	17	-3	-23	...	18	11.7	29	9.0	42	19	-1	-20	...	18	13.4	26	10.4	43	23	5	-24	-34
19	10.5	29	8.2	39	10	-15	-38	...	19	11.1	29	8.5	41	15	-8	-29	...	19	11.9	27	9.1	41	17	-4	-21	...
20	9.8	29	7.6	38	6	-21	...	...	20	10.5	29	8.0	40	11	-14	-37	...	20	11.2	28	8.5	40	13	-10	-31	...
21	9.2	27	7.1	32	3	-24	...	...	21	10.1	29	7.7	39	8	-17	...	...	21	10.8	28	8.2	40	11	-13	-36	...
22	8.5	18	6.5	16	1	-27	...	...	22	8.3	24	6.4	25	-6	-39	...	...	22	10.7	28	8.4	40	10	-14	-37	...
23	9.5	10	7.3	0	2	-17	-37	...	23	8.5	14	6.6	11	-4	-31	...	...	23	10.1	28	7.8	37	6	-20	...	...
24	9.6	3	7.4	-13	1	-14	-31	...	24	10.4	11	8.0	-3	5	-10	-27	...	24	9.1	19	7.1	19	0	-27	...	...

VK EAST — EUROPE (long path)									VK SOUTH — EUROPE (long path)									VK WEST — EUROPE (long path)								
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.7	-3	7.3	-28	2	-8	-22	...	1	8.9	-7	6.8	-26	0	-12	-26	...	1	8.5	-18	6.6	-38	-3	-11	-23	...
2	9.8	0	7.4	-20	2	-8	-22	...	2	9.0	-2	6.9	-18	0	-14	-30	...	2	8.5	-14	6.6	-31	-3	-13	-27	...
3	9.9	5	7.6	-12	4	-9	-24	...	3	8.9	2	6.9	-10	0	-16	-34	...	3	8.5	-11	6.6	-25	-3	-16	-31	...
4	9.6	9	7.4	-2	4	-12	-29	...	4	8.7	6	6.8	-1	-1	-21	...	...	4	8.2	-8	6.4	-18	-4	-19	-36	...
5	8.8	12	6.8	6	1	-18	-39	...	5	8.1	10	6.3	6	-5	-29	...	...	5	7.7	-6	6.0	-10	-6	-25	...	...
6	8.8	23	6.9	24	2	-22	...	...	6	8.1	15	6.4	14	-5	-32	...	...	6	7.8	0	6.1	-5	-7	-28	...	...
7	10.3	24	8.2	27	10	-10	-29	...	7	9.5	22	7.5	23	3	-21	...	...	7	9.0	8	7.1	2	-7	-21	...	...
8	13.2	24	10.5	31	21	6	-8	-27	8	11.9	23	9.5	31	15	-2	-20	...	8	11.2	13	8.9	6	7	-8	-24	...
9	11.7	22	8.9	19	17	3	-10	-30	9	13.5	23	10.4	30	21	7	-7	-26	9	13.8	15	10.8	11	14	3	-9	-27
10	11.4	13	8.6	-6	11	1	-11	-29	10	10.0	18	7.7	14	6	-13	-32	...	10	11.7	16	9.1	10	10	3	-18	-38
11	13.9	8	11.0	-33	8	4	-3	-15	11	9.0	8	6.9	-1	1	-17	-36	...	11	9.2	9	7.1	2	1	-7	-35	...
12	13.1	1	10.4	...	3	1	-5	-16	12	12.4	8	8.6	-23	8	0	-9	-25	12	13.9	1	7.1	-12	0	-14	-30	...
13	12.5	-4	10.1	...	0	0	-6	-17	13	11.7	0	8.3	...	3	-1	-10	-25	13	12.9	2	8.8	-39	3	-1	-9	-22
14	12.0	-9	9.3	...	-2	-1	-7	-17	14	11.2	7	7.8	...	0	-3	-11	-24	14	12.2	-4	8.3	...	-1	-3	-10	-22
15	11.4	-13	8.8	...	-3	-2	-7	-18	15	10.7	-12	7.5	...	-1	-3	-10	-23	15	11.6	-10	8.0	...	-3	-4	-11	-22
16	10.9	-17	8.3	...	-3	-2	-8	-18	16	10.3	-16	7.2	...	-2	-3	-10	-23	16	11.0	-15	7.5	...	-4	-5	-11	-22
17	10.5	-19	7.9	...	-3	-3	-8	-19	17	10.3	-18	7.2	...	-2	-3	-10	-22	17	10.6	-19	7.2	...	-5	-6	-11	-23
18	11.0	-16	8.2	...	-3	-2	-7	-18	18	10.9	-16	7.8	...	-3	-2	-8	-19	18	10.2	-24	7.0	...	-7	-7	-13	-25
19	12.9	-9	10.2	...	-4	-1	-5	-13	19	12.6	-10	8.7	...	-5	-2	-5	-14	19	10.1	-26	7.4	...	-7	-8	-14	-27
20	13.9	-5	10.8	...	-4	0	-4	-12	20	12.9	-8	10.1	...	-4	-2	-6	-15	20	10.7	-19	7.4	...	-5	-5	-10	-21
21	12.2	-7	9.4	...	-2	-1	-7	-18	21	11.2	-12	8.8	...	-2	-3	-9	-21	21	10.7	-17	8.4	...	-5	-5	-11	-23
22	10.8	-9	8.3	...	0	-3	-11	-25	22	10.0	-14	7.7	...	-1	-5	-13	-28	22	9.5	-32	7.4	...	-11	-14	-23	-36
23	10.1	-9	7.7	...	0	-5	-15	-31	23	9.4	-13	7.2	...	0	-7	-17	-35	23	9.0	-35	6.9	...	-11	-17	-27	...
24	9.8	-6	7.4	-35	1	-7	-18	-36	24	9.0	-11	6.9	-34	0	-9	-22	...	24	8.6	-30	6.6	...	-9	-16	-28	...

VK EAST — MEDITERRANEAN									VK SOUTH — MEDITERRANEAN									VK WEST — MEDITERRANEAN									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.1	3	6.9	-22	0	-14	-30	...	1	9.0	0	6.9	-14	0	-17	-35	...	1	8.3	9	6.4	5	-6	-32	...		
2	8.6	-12	6.6	-31	-1	-14	-29	...	2	8.4	-10	6.5	-25	-2	-17	-34	...	2	7.7	-2	6.0	-8	-8	-31	...		
3	11.6	-4	9.0	...	1	-3	-12	-28	3	11.7	-2	8.6	...	1	-3	-13	-29	3	10.7	1	7.9	-26	1	-10	-25	...	
4	17.4	4	13.5	...	0	4	2	-5	4	18.0	5	13.9	...	1	5	3	-4	4	15.2	6	12.5	...	4	9	8	2	
5	22.7	7	17.4	...	-2	7	8	...	5	21.2	7	17.4	...	-2	7	7	-4	5	21.4	8	15.8	...	4	9	8	2	
6	25.0	8	19.0	...	-3	7	10	8	6	21.2	6	17.4	...	-4	5	6	3	7	21.5	8	17.7	...	1	8	8	4	
7	24.7	9	19.6	...	-3	8	10	8	7	21.2	6	17.3	...	-4	5	6	3	8	21.4	8	17.1	...	2	9	8	4	
8	23.9	9	19.3	...	0	9	11	8	8	20.9	7	17.0	...	-2	6	7	3	9	21.5	8	17.6	...	1	8	8	4	
9	22.4	11	18.6	...	5	12	12	8	9	20.4	9	15.7	...	0	7	7	3	10	20.1	9	16.6	...	3	10	8	2	
10	20.9	12	16.9	...	12	15	12	6	10	19.4	9	15.7	...	11	10	7	-1	11	19.4	11	16.1	...	11	12	8	1	
11	19.3	15	15.5	-24	18	17	12	3	11	18.0	12	14.5	...	11	11	7	-1	12	18.1	14	14.6	-20	17	14	8	-2	
12	17.8	18	14.2	-2	23	18	11	0	12	16.6	15	13.3	...	15	17	12	5	-6	13	16.7	18	13.4	10	23	15	5	-8

HAMADS

TRADE ADS

● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth.

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FOR SALE ACT

● **PACKET** modem DRSI DPK-2 cables and software 9 mths old ec box and manuals \$180. Tex VK1TX (06) 296 2508 (018) 48 1130.

● **KENWOOD TS530S** s/n 1121013 SSB filter, hand mic, op man, serv man, orig carton, matching AT230 ant tuning unit s/n 2010766, op man, serv man, orig carton, both exc condition, \$750 the pair ONO; **ICOM IC2GAT** 2 m 7 W/1 W h/held s/n 01848 c/w BP70, chgr, spkr/mic, op man, orig carton, as new. Stirling VK1EV QTHR (06) 258 8023.

FOR SALE NSW

● **KENWOOD TS-120S** 90 W SSB transceiver for amateur bands 3.5-29.5 MHz exc cond, deceased estate, hardly used. Offers (02) 498 4425.

● **YAESU FT221** 2 M txcvr, 12 W all modes, s/n 5N304271, good condition, mic and manual \$300; **KENWOOD TS520S** HF txcvr s/n 830714, good condition little used, mic and manual \$425. Both rigs one owner. Guy VK2BBF QTHR (02) 850 8930 BH (047) 51 6726 AH.

● **ICOM 736** HF, 50 MHz xcvr top shelf only 2 months old as brand new \$3,100.00. Merv VK2SML 10 Maculata Pl, Orchard Hills NSW 2748.

● **FT-101B** excellent condition with spare driver and final valves s/n 4J313385 \$400. Bob VK2GZ QTHR (069) 62 3576.

● **TH3JR ANTENNA** three element three bander \$200; **JAYBEAM 10Y/2** M ten elements \$90; **CDE HAM II** rotor system with 33 m eight core cable \$450; **DUMMY** load 1 KW HN31

\$30; **COAX UR67** 27 m \$27; **ICOM IC-22S** needs repair \$50. Ron VK2BKN QTHR phone/fax (069) 72 2021.

FOR SALE VIC

● **KENWOOD TR411A** 70 cm FM, 25 watts, dig display and memories, EC, \$275. **YAESU FT212RH** 45 watt 2 m FM, EC, \$425. **KDK 15** watt 2 m FM, dig display, full coverage, EC, \$185. Ron VK3OM QTHR (059) 44 3019.

● **MML 432/50** Linear power amp \$45. Ted VK3TG (052) 59 3225.

● **IBM XT Turbo** compatible computer, colour CGA monitor, EGA card, 640 K RAM, 20 Mb hard disk, 5 1/4" floppy, 2S/1P ports, low profile case, 101 keyboard. Perfect for packet or satellite software \$120 or consider reasonable swap for ham gear in good condition. Ben VK3KBC, 12 Mt Blackwood Rd, Myrning VIC 3341.

● **KENWOOD TS-680S** xcvr s/n 10500222 all HF bands + 6M with gen coverage rcvr, matching PS50 power supply s/n 0100222 and AT230 Antenna tuner with pwr & swr metering s/n 2060062. MC80 desk mike + manuals, all ec, \$1950. Maurice VK3ADJ QTHR (056) 78 0694.

● **ANTENNA ATN** log periodic 13-30 MHz 8 el beam, in top condition with all instructions and specs \$495; **NOISE FILTER** by Timewave DSP-9 new in carton, kills all noise \$250. Max VK3GMM (059) 85 2671.

● **ICOM IC490E** 70 cm all mode transceiver with mic, manual, leads and carton in excellent condition \$580 ONO. Steve VK3TSR (059) 64 7742 or (018) 10 3487.

● **SWISS QUAD** 20 m storm damaged but easily fixed, mounting pole included \$200. Clem VK3AYY (03) 725 8770.

● **ICOM IC22S**, gc, external freq control, mntng cradle, s/n 13650 \$150 ono; **KENWOOD TR2600A**, ec, with ext mike and vox head set, drop-in charger s/n 502246 \$250 ono. Both with orig books, ccts etc. Keith VK3AFI QTHR (052) 21 3658.

● **ICOM 720A** HF xcvr s/n 10776 with PS20 plus all cables and instruction book, will not transmit on 40 m, priced to have fault rectified, excellent on all other bands \$500. H Lonsdale VK3DND (051) 53 0717.

● **YAESU FT1000** HF all mode t/sceiver as new cond compl with BPF1 (B'pass filter) manual, mic, in orig packaging \$4,600. Rob VK3JE (060) 37 1262 or (03) 584 5737.

● **SHACK CLEARANCE**, Nally self supporting tilt over windup tower, 9 element ATN log periodic SS hardware, Create HD auto rotator, Kenwood PS30 Power supply, all as new condition, solid state power supply 25 amp new, plus more. Patrick VK3GEE (051) 99 2811.

● **YAESU FT101E** s/n 8J361406 manual new driver PAs \$550; **FV101B** ext VFO s/n 808271 \$100; **YD148** Desk mike \$90. All mint no mods. Bob VK3UY (03) 374 2416.

● **NEC** laptop PC model PC-16-01 mono LCD plus EGA output 604 k RAM V30 CPU 2x35 FD runs on 240 VAC 13.5 VDC and intern batt. Ideal portable packet or shack PC, VGC, \$230. Terry VK3ZXY QTHR (03) 592 3514.

FOR SALE OLD

● **ICOM IC2R** 2 m handheld \$250. Geoff VK4ANP QTHR (074) 66 5476.

● **YAESU FT101E** s/n 6N240563 working well what offers. Henry VK4CQH (070) 92 1994.

● **YAESU 767GX** all mode HF, ATU, 2 m 70 cm 6 m fitted, \$2200. VK4BL QTHR (070) 55 0230.

● **MOBILE HF** txcvr Dick Smith 6330 40 m (with 80 m conversion kit included) 15 W CW 30 W pep digital readout 13.8 V works fine together with brand new Mobile One 40 m whip and base \$175. LAO "Doc" VK4CMY (076) 85 2167.

● **TENDER** Estate Military radios, military pamphlets, Yaesu FT102ZD, Kenwood TL922, Linear PSUs genemotors, Studio audio bits (valve) Hi-Fi parts, vibrators, general items catalogue. Send 85c stamp Peter Hadgraft, 17 Paxton St, Holland Park QLD 4121, (07) 397 3751 AH.

● **VALVES** for restorers, amateurs, collectors, octals, novals, metals, special 5 stars. All tested, sockets, transmitting ceramics. Send 9" x 4" SASE for list. Reduced prices. Ted VK4YG PO Box 245, Ravenshoe QLD 4872, (070) 97 6387.

● **DSE 12"** monitor, green screen 872033941 \$50; **COMAX** telereader CD670, RTTY and CW 501264 \$95; **HAL** RTTY scope RG2100 1" crt crossed eclipse 262 \$50. Richard VK4DIC (07) 264 1655.

● **KENWOOD TS440S** xtr xtals, fitted with mike, manual, in original box, s/n 0010795 \$1400.00; **OPTIONAL** PS50 with ammeter, voltmeter fitted, \$400.00, s/n 001393. Both excellent condition. Clarry VK4ECS (071) 25 3415.

● **KENWOOD TS130SE** VGC \$650; **KENWOOD R2000** VGC \$600. VK4KDD QTHR (074) 67 3271.

FOR SALE SA

● **FT107M** Yaesu HF SSB xcvr, inbuilt pwr supply, scanning mike, \$750 ONO, or swap for 2 m all mode gear. Dale VK5AFO (08) 391 2300.

● **YAESU FT-411** 2 m handheld with accessories, as new, original carton s/n 9D080112 \$400 ONO. John VK5KBE QTHR (08) 250 7259.

FOR SALE WA

● **CODAN 8528** transceiver with manual, 7208 ATU, 600 Ch, all Aust RFDS, HF radphone, sel call, beacons, fitted with amateur options and CB options, books, cradle \$2200. Allan VK6LL QTHR (09) 446 1568.

WANTED NSW

- WANTED FOR restoration of Military vehicle WS No 19 xmtr receiver or any parts including cables and control boxes. Karl VK2KKT (02) 456 4161 after 6 pm.
- UNIDEN 2510 10 m transceiver or similar Bill VK2BWW QTHR (065) 68 244 BH or (065) 68 7227 AH.

WANTED VIC

- NINETEEN inch rack — cabinet type referred. Morris VK3DOC (03) 824 8988.
- COLLINS equipment 51S-1 receiver, 312B-4 speaker console. Ian VK3KCM QTHR (03) 744 7793 evenings.
- WANTED 500 Hz CW filter for FT101E. Tim VK3BCN QTHR (03) 751 1563 AH.
- ICOM IC901 band modules, 10 m and 6 m. Damien VK3CDI (054) 27 3121.
- MILITARY receiver AR8, preferably in complete state, working or not. Will consider all offers or trade for Yaesu FL200B HF SSB/CW transmitter and matching FR100B HF SSB/CW receiver. Peter VK3FDX (059) 62 2563 AH (059) 64 2255 BH.
- SMALL windmill tower/radio mast suitable for rotatable 3-band dipole in restricted space 2x2 metres. Instruction manual/circuit diagram of the Eddystone "EDOMETER" dip meter. Write or phone Ken Gillon VK3FLK, 1 Thorpe Ave, Hoppers Crossing Vic 3030, (03) 748 0102.

WANTED QLD

- CIRCUIT and relevant data alignment crystals etc TCA (Philips) FM1677C 25 tcvr photocopy, costs covered. Dick VK4GOR QTHR.

- HIGH VOLTAGE X'FORMER for valve linear eg 1800-0-1800 500 mA. Ron VK4BL QTHR (070) 55 0230.
- OLD SCOUTS ex Woodford Old 40 year celebration 7 May 1995. Circuit — manual "Sun" VHF automatic scanning receiver 70-98 MHz, 160-183 MHz 2 separate models 12 volt operation details from. Fred VK4DY PO Box 17, Woodford OLD 4514, (074) 96 1186.
- VALVE Data handbooks, lists, equivalents lists, STC, RCA, AWA, GEC, Philips, Westinghouse, etc. Valve testers with Data charts. Two and three section "H" gang variable condensers. Ted VK4YG QTHR (070) 97 6387 or PO Box 245, Ravenshoe Old 4872.

WANTED SA

- BUY OR BORROW for copying RSGB Radio Communication, July 1985. Kurt VK5KI QTHR (08) 264 1902.

WANTED TAS

- "SHIMIZU 105S" noise blanker board or legible circuit diagram; also FM board. Blower, Dayton or similar, to suit pair of 4CX250B. Bill VK7WR QTHR (002) 44 4089.

MISCELLANEOUS

- HELP needed from DXers. Please donate a few of your unusual call sign prefixes and other Commemorative QSL cards to your National WIA QSL collection. Contact Hon Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose VIC 3765, Tel (03) 728 5350.

HOW TO JOIN THE WIA

Fill out the following form and send to:

The Membership Secretary
Wireless Institute of Australia
PO Box 2175
Caulfield Junction, Vic 3161

I wish to obtain further information about the WIA.

Mr, Mrs, Miss, Ms:.....

Call Sign (if applicable):.....

Address:.....

State and Postcode:.....

Hamads

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*Eight lines per issue free to all WIA members, ninth line for name and address. Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.

*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.

*Copy typed or in block letters to PO Box 2175, Caulfield Junction, Vic 3161, by the deadline as indicated on page 1 of each issue.

*QTHR means address is correct as set out in the WIA current Call Book.

*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.

*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

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Wanted

Name:..... Call Sign: Address:

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CONTRIBUTIONS TO AMATEUR RADIO

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. "How to Write for Amateur Radio" was published in the August 1992 issue of AR. A photocopy is available on receipt of a stamped, self addressed envelope.

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When back issues are no longer available, photocopies of articles are available to members at \$2.50 each (plus \$2.00 for each additional issue in which the article appears).

The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

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WIA News

News on the 80 m DX Window

In discussions with the Spectrum management Agency (SMA) on 5 December last year, the WIA was told that, following their monitoring of the 80 m DX Window, the SMA was not impressed by the many instances of disgraceful behaviour of a small number of amateurs who frequented the segment. These operators are not giving fellow amateurs a fair go, with instances of deliberate interference to other local operators and other examples of inappropriate on-air behaviour, including out-of-band operation.

While the WIA's SMA Liaison team put forward a proposal to permit amateurs access to a wider band, between 3750 and 3800 kHz, the SMA pointed out that

amateurs were faced with three choices:

- (1) retaining the present window,
- (2) expansion of the window, or
- (3) withdrawal of the window.

An SMA spokesman said the easy option was to withdraw the window and that this was a serious consideration, given the prevailing circumstances.

However, in discussions between the WIA and SMA, it was decided that, if agreement could be obtained from the primary users in the segment between 3750 and 4000 kHz, amateurs might be able to share usage with them on a secondary basis, then the SMA might consider a submission for an increased allocation.

With the cooperation of the SMA, the WIA has obtained a list of primary users in this segment

and is writing to them with a view to obtaining responses by the end of January in order to submit a new proposal at the earliest opportunity in 1995.

Meanwhile, the SMA is to continue monitoring the DX Window. Operators using it should note that the SMA has warned that transmissions must remain within 3796-3800 kHz, which effectively means that for SSB voice transmissions, the carrier of a lower sideband signal should be no lower than 3799 kHz in order to keep the transmission sidebands within the DX Window.

In other words, there is only one SSB voice channel available in the DX Window. Don't "hog" it, give other operators a fair go. Above all, make sure your transmission stays within the Window.

WIA Divisional Bookshops

The following items are available from your Division's Bookshop
(see the WIA Division Directory on page 3 for the address of your Division)

	Ref	List Price		Ref	List Price
ANTENNAS					
Ant. Compendium Vol 2 Software 5.25" IBM Disk	BR293	\$20.00	MORSE COOE	BR223	\$16.00
Antenna Compendium Vol 2 — ARRL	BR292	\$32.00	Morse Code — The Essential Language	BR331	\$24.00
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G-ORP Antenna Handbook — RSGB — 1992 1st Edition	BR452	\$22.50	Morse Tutor 3.5" IBM Disk	BR187	\$20.00
HF Antenna Collection — RSGB	BR391	\$44.00	Morse Tutor Advanced 3.5" IBM Disk	BR328A	\$40.00
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Antenna Compendium Vol 1 — ARRL	BR163	\$26.00	OPERATING		
Novice Antenna Notebook — DeMaw W1FB — ARRL	BR162	\$20.00	Amateur Radio Awards Book — RSGB	BR297	\$25.00
Physical Design of Yagi — 3.5" IBM Disk	BR388B	\$20.00	Amateur Techniques — G3VA — RSGB	BR393	\$36.00
Physical Design of Yagi — 3.5" Mac Disk Excel Format	BR388C	\$20.00	DXCC Companion — How to Work Your First 100	BR345	\$16.00
Physical Design of Yagi 5.25" IBM Disk	BR388A	\$20.00	DXCC Country Listing — ARRL	BR386	\$5.00
Physical Design of Yagi Antennas — The Book	BR388	\$52.00	Locator Map of Europe — RSGB	BR396	\$6.00
Practical Antennas for Novices	BR35	\$19.00	Log Book — ARRL — 9" x 11" Wire Bound	BR202	\$9.00
Practical Wire Antennas — RSGB	BR296	\$32.00	Low Band DXing — John Devoldere — 2nd Edition 1994	BR195	\$45.00
Reflections Transmission Lines and Antennas — 5.25" IBM	BR348A	\$20.00	Operating Manual — ARRL — 4th Edition	BR192	\$48.00
Reflections Transmission Lines and Antennas — ARRL	BR348	\$52.00	Operating Manual — RSGB	BR359	\$31.00
The Antenna Handbook — ARRL 1994 edition with disk	BR370A	\$65.00	Passport to World Band Radio	BR346	\$45.00
Transmission Line Transformers — ARRL	BR329	\$40.00	Prefix Map of the World — RSGB (laminated)	BR397	\$25.00
Yagi Antenna Design — ARRL	BR164	\$40.00	RTTY/AMTOR Companion ARRL 1st Ed 1993	BR45	\$21.00
HANDBOOKS					
ARRL Handbook — 1995	BR369	\$66.00	The Complete DXer — W9KNI	BR194	\$32.00
Electronics Data Book — ARRL	BR201	\$32.00	Transmitter Hunting	BR222	\$43.00
Radio Communication Handbook — RSGB	BR266	\$44.00	World Grid Locator Atlas — (Maidenhead Locator) — ARRL	BR197	\$13.00
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I'm On The Air Sticker	BR466A	\$2.75	VHF Companion — ARRL	BR461	\$21.00
Low Profile Amateur Radio	BR46	\$17.50	VHF/UHF Manual — RSGB	BR267	\$40.00
Novice Notes. The Book — OST — ARRL	BR298	\$16.00	WIA MEMBERS SUNDRIES		
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ORP Operating Companion — ARRL — 1992 1st Ed	BR010	\$16.00	WIA Badge — Diamond With Call Sign Space		\$4.00
Radio Auroras — RSGB	BR381	\$30.00	WIA Badge — Traditional Blue		\$4.00
Radio Buyers Source Book — ARRL — Volume 1	BR377	\$40.00	WIA Badge — Traditional Red		\$4.00
Radio Buyers Source Book — ARRL — Volume 2	BR3772	\$40.00	WIA Car Bumper Stickers		\$0.50
Slow Scan TV Explained	BR39	\$30.00	WIA Car Window Stickers		\$0.50
Solid State Design — DeMaw — ARRL	BR171	\$32.00	WIA Tape — Sounds of Amateur Radio		\$7.00
Technical Topics Scrapbook	BR37	\$35.00	WIA PUBLICATIONS		
Understanding Basic Electronics	BR454	\$37.50	Australian Radio Amateur Call Book — 1994		\$12.50
			Band Plans Booklet		\$2.80
			WIA Log Book — Horizontal or Vertical Format		\$5.00
			WIA Novice Study Guide		\$1.50

Not all of the above items are available from all Divisions (and none is available from the Federal Office).

If the items are carried by your Divisional Bookshop, but are not in stock, your order will be taken and filled as soon as possible.

Divisions may offer discounts to WIA members — check before ordering. Postage and packing, if applicable, is extra.

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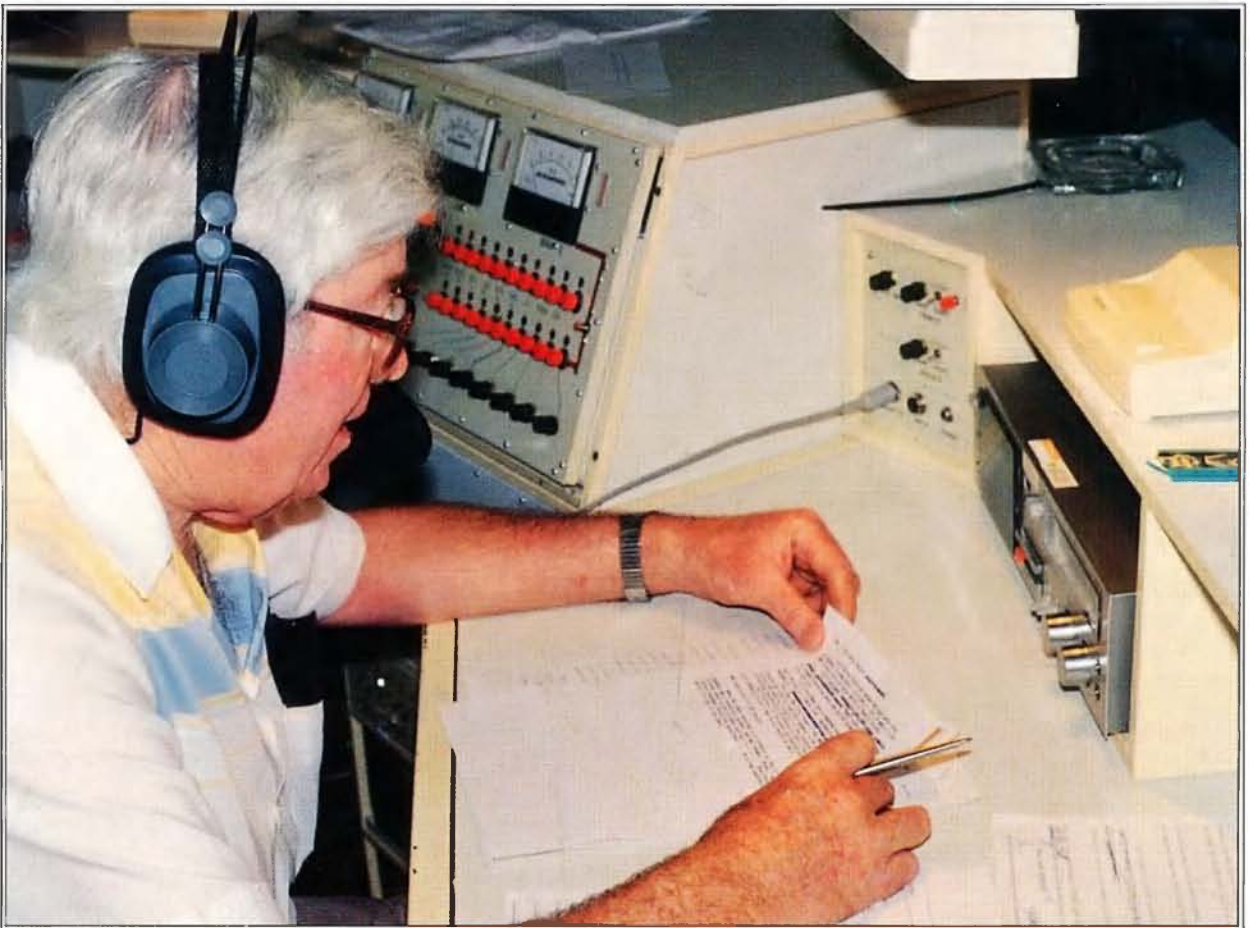
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MARCH 1995
Volume 63 No 3

RADIO **AMATEUR**



Journal of the Wireless Institute of Australia



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Cover

Long time WIA Victoria broadcast announcer Rolf Fox VK3JWL presents the news from the Lyndhurst studio and transmitter site of VK3BW1.

(Photo by Ron Fisher VK3OM)

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editor's Comment

Publication Delays

From time to time, members who have submitted articles to us for publication enquire when their article might be printed. This question came up on a recent visit to one of our more prolific contributors, and it seemed a good idea to summarise, for all to read, the essence of that conversation.

There are factors which help publication to be in the ideal sequence, which is in the order received from contributors.

These are:

Presentation; preferably on computer disk, well set-out, perfect grammar and spelling, diagrams professionally drafted, relevant photographs (preferably prints).

Topicality; relating to techniques or activities of current interest to most amateurs. If commenting on political topics, without bias and in no way offensive to anyone.

Availability of space; regrettably this can delay even the most perfect submission. Space is always limited, some months more than others.

On the other hand, there are factors which can produce tremendous delay. Most of these are obviously converses of the accelerating factors, eg scruffy, ungrammatical and hand scribbled. But there is one in particular; being a non-member of the WIA. *Amateur Radio* magazine is (or should be) of, by and for our members. So, members have automatic preference over non-members. Rarely, we receive from a non-member something so good and topical that we must publish it. But not very often!

I could go on, for example about the time and cost involved in having diagrams drafted, but I'm sure you are all getting the message. We look forward to seeing your work!

Bill Rice VK3ABP
Editor
ar

WIA News

Award for Amateur Radio Correspondent

Amateur Radio magazine correspondent, Eric Jamieson VK5LP, has been awarded the WIA's G A Taylor Medal for writing the VHF/UHF column for the magazine, which he has contributed continuously over the past 25 years.

The award follows on the Publications Committee giving him the Higginbotham Award (announced in the February issue).

Eric was voted to receive the award at the WIA's quarterly meeting on 4-5 February. It was given in recognition of his outstanding service to the amateur community and *Amateur Radio* magazine through contributing his column on happenings in the VHF/UHF world over the past quarter century.

Congratulations, Eric!

WIA News

WIA Negotiations Over Licence Fees

At the WIA Federal meeting over the weekend of 4-5 February, the WIA spent more than eight hours deliberating over the Spectrum Management Agency's proposed fees structure for amateur radio licences, announced last December.

Letters to the Institute, submissions from the state Divisions and individual amateurs, and comments circulated on packet radio were all considered.

From all this, the WIA has developed a position and a

strategy with which to negotiate with the Spectrum Management Agency (SMA). WIA President, Neil Penfold VK6NE, wrote to the Spectrum Manager Christine Goode in January, seeking a meeting to discuss the licence fees issue. Christine Goode replied, foreshadowing a meeting, and the Institute is expecting to meet with the SMA during February or March.

The date for introduction of the SMA's new fees regime has been put back till April. The Institute would like to thank all those who sent submissions or wrote and made their feelings and ideas

known — it has helped tremendously in the process of formulating a response to the SMA.

Changes at WIA Federal

Replacing Bill Wardrop VK5AWM on the WIA Federal Council and Executive is Bob Allen VK5BJA, who took up his appointment at the quarterly convention of 4-5 February.

Bill Wardrop resigned last December.

The South Australian Division's new alternate Federal Councillor is Grant Willis VK5ZWI.

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

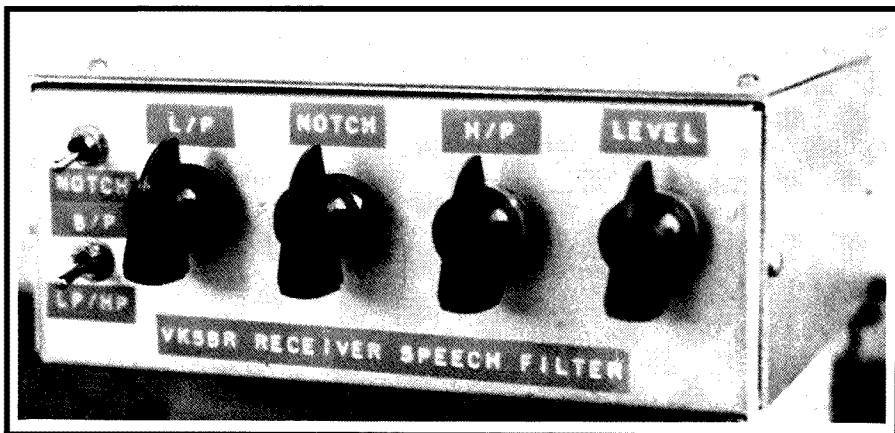
Division	Address	Officers	Weekly News Broadcasts	1995 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Rob Apathy Secretary Len Jones Treasurer Don Hume	VK1KRA 3.570 MHz LSB, 148.950 MHz FM, 438.525 MHz FM each VK1NLJ Monday evening (except the fourth Monday) commencing at VK1DH 8.00 pm. Repeated on Wednesday evening at 8.00 pm on 146.950 MHz FM.	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 669 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Michael Corbin Secretary Pixie Chapple Treasurer Peter Kloppenburg (Office hours Mon-Fri 11.00-14.00 Mon 1900-2100)	VK2PFQ From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, VK2KPC 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 VK2CPK (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. Voicemail highlights on (02) 724 8793. The broadcast text is available on packet.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530)	VK3PC 1.840MHz AM, 3.615 LSB, 7.085 LSB, 53.900 FM(R) Mt Dandenong, VK3XV 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 146.900 VK3XLZ FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) Mt Macedon, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Secretary Lance Bickford Treasurer Rodger Bingham	VK4ZAZ 1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, VK4HD 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Garry Herden Secretary Maurie Hooper Treasurer Charles McEachern	VK5ZK 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, VK5EA 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, VK5KDK 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555, 7065, 10125, 146.700, 0900 hrs Sunday 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00 (F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 434 3283	President Cliff Bastin Secretary Ray Spargo Treasurer Bruce Hedland-Thomas	VK6LZ 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on VK6RR 146.700 at 1900 hrs. VK6OO	(F) \$69.00 (G) (S) \$55.65 (X) \$40.00
VK7	Tasmanian Division 148 Derwent Avenue Lindisfarne TAS 7015 Phone (002) 43 8435	President Andrew Dixon Secretary Ted Beard Treasurer Phil Harbeck	VK7GL 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on VK7EB 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, VK7PU 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$69.00 (G) (S) \$55.65 (X) \$40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times.

Note: All times are local. All frequencies MHz.

■ Filters

An Adjustable Audio Filter System for the Receiver

Lloyd Butler VK5BR* shows us how to shape the audio response at top and bottom and in the middle too! And it's all adjustable!



Front panel view of the receiver filter unit.

Introduction

A circuit is presented which provides frequency response adjustment of the audio signal fed from the receiver into the loud speaker. Low frequency and high frequency cut off can be individually set over the speech range by adjustable high and low pass filters respectively. An additional adjustable notch filter allows an unwanted carrier beat note to be rejected from the audio pass band. The high and low pass filters can also be switched to track so that they provide a narrow bandpass at any centre frequency in the speech range thus providing a suitable response for CW or other narrow band modes.

Response is controlled by three switched capacitor filters coupled from three clocks, the frequencies of which determine the setting of cut off frequencies and the notch frequency. The clock frequencies (and hence the filter characteristics) are manually set by three panel mounted potentiometers.

The unit input is plugged into the receiver (or transceiver) headphone jack (thus disconnecting the internal speaker). A power amplifier at the output of the unit feeds the processed signal to an external speaker. Internal DC power supplies are fitted so that the unit can be powered from the 240 V AC mains.

Filter Nomenclature

As this article is essentially about filters, a few paragraphs introducing the terminology used in filters might be useful for some readers. Filters are used to restrict the band of frequencies which pass through them. Lowpass filters restrict frequencies above a defined cut off point. Highpass filters restrict frequencies below a defined cut off point. Bandpass filters restrict frequencies outside defined band limits and can be made up by combining highpass and lowpass pairs. The cutoff frequency of a filter is normally defined as the point at which the signal level falls by 3 dB (or

0.707) of the nominal level within the passband. Another type of filter is a band reject (or notch) filter which accepts all frequencies except those in a defined (and usually narrow) band.

Some important filter characteristics are the steepness of the response curve slope in the transition from passband to stopband and the general stopband attenuation. Other important characteristics are the consistency of level within the passband (referred to as passband ripple) and linearity of phase response (important in some types of signal such as video). Particular characteristics are well defined by filter designs such as the Bessel, Butterworth, Chebyshev and Elliptic. The choice of these depends on which of the characteristics are most important. For example, the Butterworth might be chosen for low ripple in the passband. On the other hand, the Chebyshev has a steeper slope from the cut off point and greater out of band rejection but at the expense of some ripple in the passband.

Filters are classified as passive or active, the latter made up around amplifier elements. Classical passive filters such as the Butterworth and Chebyshev are made up with series and shunt elements of capacitive and inductive reactance. Figure 1 shows typical lowpass filters which can be either Butterworth or Chebyshev depending on the actual reactive values chosen. As shown in the diagram, the filter can be either unbalanced or balanced to suit the circuit to which it is attached. When the filter is balanced the values of inductance are shared between the two balanced legs.

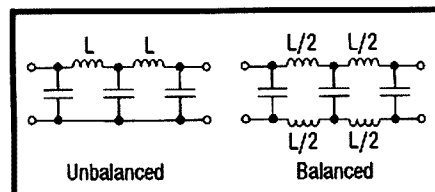


Figure 1 — Typical passive lowpass filters.

Selection of the reactive elements is also determined by the source resistance feeding the filter and the load resistance at its output. When

the source resistance is equal to the load resistance, the filter is defined as symmetrical. When these are unequal, the filter is defined as asymmetrical.

Apart from the type of filter (eg Butterworth, Chebychev, etc) the slope and out of band attenuation are dependent on the number of reactive elements in the filter and this number is often called the filter order. For a Butterworth filter, the slope is 6 dB per octave multiplied by the filter order. (NB. An octave is an increase to twice the frequency). For a Chebychev filter, the slope is much steeper. In deciding on a filter design, the filter order for a given filter type is chosen to achieve the desired out of band performance.

At low frequencies, and in particular at audio frequencies, the values of inductance required for passive filters necessitate the use of large and expensive inductor components. For low frequencies, most designers prefer to use active filters with operational amplifiers around which characteristics such as the Butterworth and Chebychev can

be configured with resistive and capacitive elements. Active filters are used at frequencies up to around 100 kHz. Above this, circuit stability can be a problem.

Switched Capacitor Filters

In general, filters are not adjustable because their frequency determining elements are fixed. One filter which is often made adjustable is the State Variable filter. This has a second order Butterworth characteristic with the feature that lowpass, highpass, bandpass and notch outputs can each be taken out from selected points in the circuit. There are two resistors in the circuit which are of equal value and which determine the cut off frequency. To make this frequency adjustable, these resistors are replaced with a two gang potentiometer.

If a given voltage is applied to a resistance, a current flows as determined by the value of resistance in accordance with Ohm's Law. This can be seen to be simulated by charging and discharging a capacitor

from the same voltage at a rate such that the average current is equal to that which flows through the resistor. By varying the switching frequency of the average current is varied, the associated circuitry is made to think that it is seeing a resistance varied. The switched capacitor filter is based on the State Variable filter except that the controlled variable resistance is replaced by the switched capacitor controlled from a clock operating at frequencies many times the cut off frequency of the filter. When the clock frequency is varied, the average current into the capacitor is varied making the circuit appear as though a resistance in the circuit were being varied. Hence adjustment of cut off frequency is achieved by varying the clock frequency.

The switched capacitor filters used in our filter unit are the National types MF6 and MF10. The MF6 is configured as a 6th order Butterworth lowpass circuit with its own internal clock operating at 50 times the cut off frequency. It also has two spare

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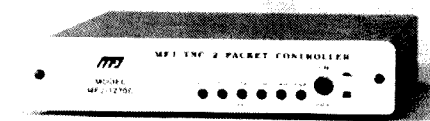
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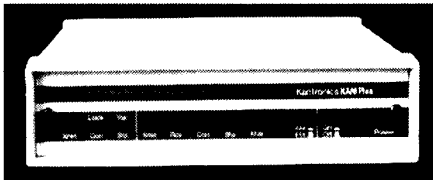


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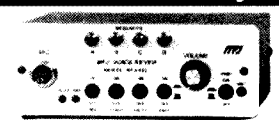
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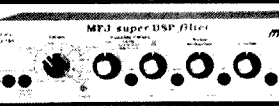
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operational amplifiers on board the package which have been put to good use in our own filter unit. To operate the package, an external resistor and capacitor are required to set the clock frequency and then it is only a matter of connecting input, output and DC power (plus and minus 5 V).

Setting up the MF10 is not quite so simple. It is equivalent to two MF5 second order units, separate, but fitted in the one package so that a combined unit of 4th order can be achieved. It is a universal filter in that, by varying the values of external resistors and the external connections, it can be configured as highpass, lowpass, bandpass, or notch, with different characteristics such as Bessel, Butterworth, or Chebychev. To work out the desired circuit arrangement, one has to carefully study all the published application notes. The MF10 requires an external clock source at a frequency selectable either 50 or 100 times the cut off frequency. In our application, two MF10 packages are used, each driven from a 555 package operating as a clock at 50 times the frequency.

Circuit Description

Figure 2 shows the filter system in block form. Detail of the complete circuit is shown in figure 3. Input level from the receiver is assumed to be that which would appear across the receiver loudspeaker voice coil. Pre-amplifier N1 has a voltage gain of 5.

This allows some margin for input level adjustment using potentiometer RV1 and sets the signal to a more comfortable level for the switched capacitor filters. As discussed further on, there is a signal to noise ratio problem if they are operated at too low a level.

Signal components fed into the inputs of the switched capacitor filters near clock frequency cause spurious signals at the filter outputs. These components must be stopped from reaching the filter inputs and this is mainly achieved by band limiting in the IF stage of the receiver and by limits in the audio response of the receiver. As a further precaution, stage N2 is configured as a second order Butterworth low pass filter with its cut off frequency just above 3 kHz which is the upper frequency limit of the complete unit. This is referred to as an anti-alias pre-filter. Operational amplifiers N1 and N2 are type μ A741. Type μ A747 combines two 741s in one package and alternatively this could have been used. However, there are many components around N2 forming the filter and the separate packages relieve the component congestion.

The first controlled filter in the chain is N3 (type MF10) which is configured as a 4th order Chebychev highpass stage. The Chebychev characteristic was chosen as its 4th order cut off slope is a close complement to the 6th order Butterworth slope of the associated lowpass filter N7 (type MF6). This

choice was made accepting that there would be a few dB of passband ripple hardly noticeable to the ear. Operating as an individual highpass element, the filter is fed with a clock signal from N4 (type 555) which is adjustable using potentiometer RV2 over a frequency range of 5.6 to 60 kHz. Dividing by 50, this provides a highpass cut off adjustment range of 112 to 1200 Hz.

With the Notch circuit switched out, the highpass output is directly coupled into the input of lowpass filter N7 (type MF6). The internal clock of N7 is adjustable using potentiometer RV4 over the frequency range of 8.5 to 150 kHz. Dividing by 50, this provides a lowpass cut off adjustment range of 170 to 3000 Hz.

Operation of switch SW1 to the BP (bandpass) position disconnects highpass filter N3 from clock N4 and reconnects it to the output of the lowpass filter clock in N7. This allows the highpass cut off frequency of N3 to track the lowpass cut off frequency of N7 as adjusted by RV4. A narrow bandpass is formed which can be set by RV4 over the centre frequency range of 17 to 3000 Hz. At 1000 Hz centre frequency, the 3 dB bandwidth is around 200 Hz.

Filter N5 (type MF10) is configured as a 4th order Butterworth notch. In this configuration, an additional external operational amplifier is needed and use is made of one of the spare amplifiers in the N7 (MF6) package (refer N7B in figure 2). The filter is fed with clock signal from N6

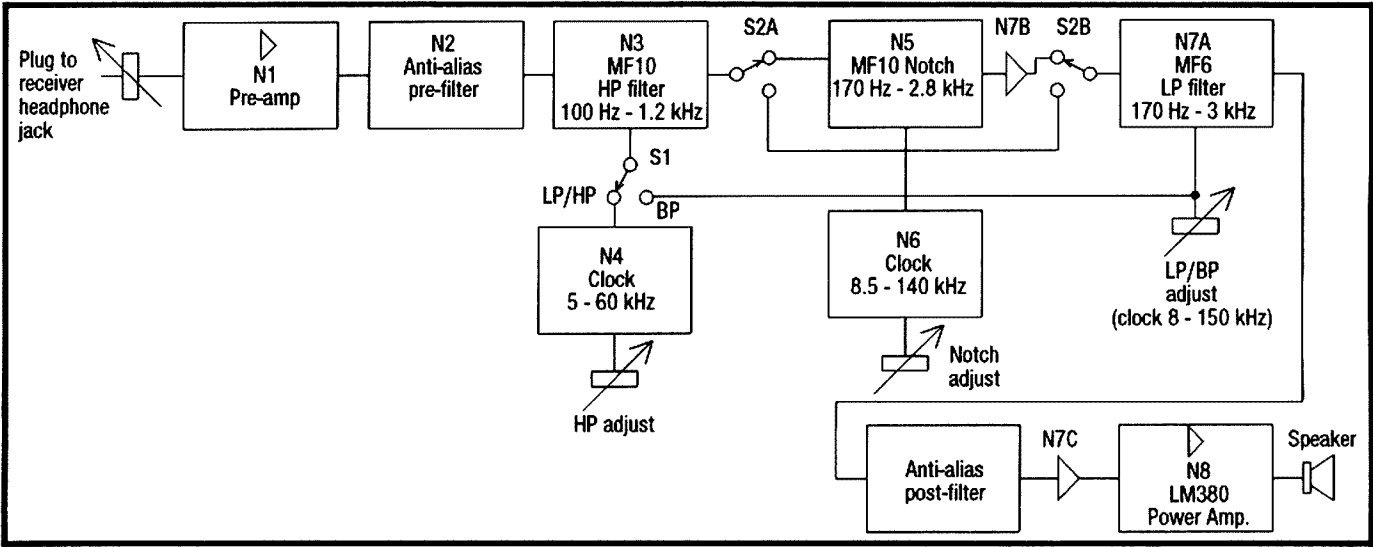


Figure 2 — Audio filter unit — Block diagram.

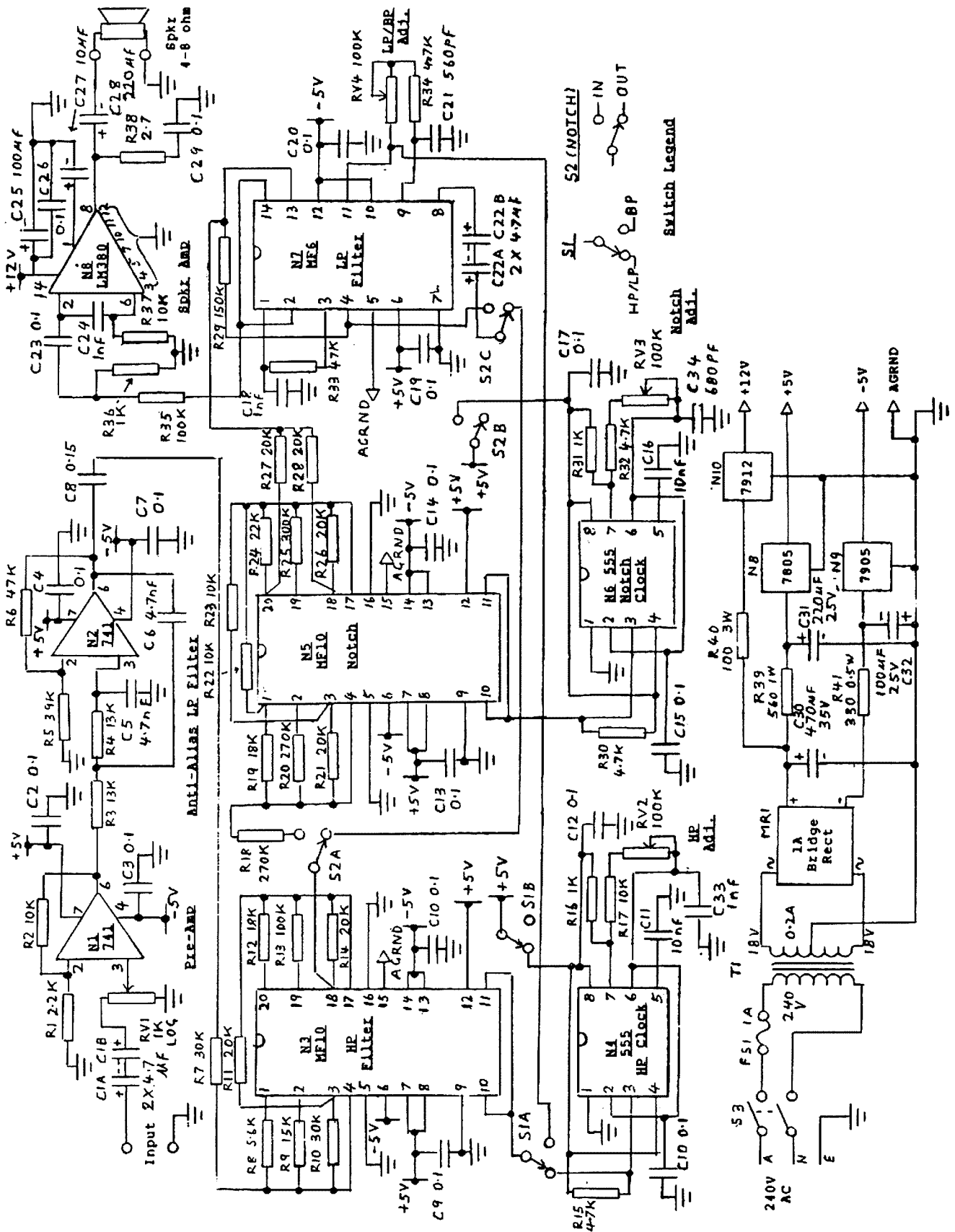


Figure 3 — Audio filter unit — Circuit diagram.

(type 555) which is adjustable over the frequency range of 8.5 to 140 kHz using potentiometer RV3. Dividing by 50, this provides adjustment to move the notch over the frequency range of 170 to 2000 Hz. With the notch set for 1000 Hz centre frequency, the notch width for 3 dB down is approximately 100 Hz. At the notch centre frequency, its attenuation has been measured to be near 35 dB.

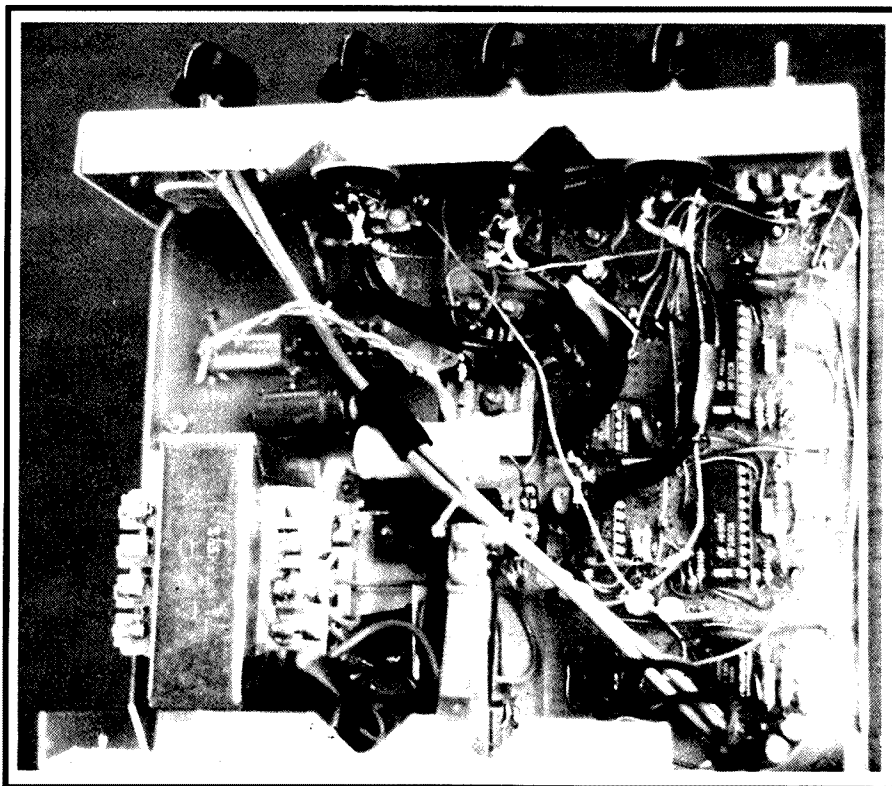
The output of the filter system, taken from the output of lowpass filter N7, contains components at clock frequency which are easily removed by a simple RC anti-alias filter. This filter is formed by the two components R33 and C18 which are interfaced by the second spare operational amplifier in N7 (shown as N7C in figure 2).

If use of headphones were only required, the output of N7C could be coupled directly into the headphones. To operate a loudspeaker, a power amplifier is needed and for this purpose an LM380 (device N8) has been utilised. The LM380 package has quite high voltage gain, too much for our particular application. To correct for this, the input of the LM380 is fed via attenuation network R35-R36. The LM380 was selected because it happened to be on hand. Any other audio power amplifier such as the LM386 would substitute. To heat sink the LM380, it was fitted on a 60 mm square piece of copper plated circuit board with heat sink pins 3, 4, 5, 10, 11, 12 soldered to the copper.

Power Supply

Recommended power rails for the switched capacitor filters are +5 V and -5 V relative to ground or +10 V relative to ground. The former split 5 V rail arrangement simplifies coupling between packages and this has been adopted to feed both the filters and associated operational amplifiers. The +5 V rail is also used to feed the 555 clocks which then deliver a nominal 5 V square wave output which is compatible with the clock signal specification for the switched capacitor filters. The load current on the +5 V rail is 31 mA and on the -5 V rail is 21 mA.

The LM380 power amplifier operates in class AB with large variation of load current with signal



The filter with the cover removed. As Lloyd says, "The inside of the filter unit is not quite a thing of beauty. It has been put together as an experimental gadget which, of course, suffered quite a few alterations in the process of getting it to work. As assembled, it is not meant to be a prototype for reproduction. It is left to the reader to work out his own mechanics if he wishes to make use of the circuitry I have described."

level change. To prevent interaction with filter circuitry, it is desirable to use a separate power rail for the power amplifier and a 12 V rail is derived for this purpose. The quiescent load current for the LM380 is around 7 mA. This swings to around 70 mA with normal signal and to 100 mA for power amplifier overload condition.

The power supply circuitry is included in figure 3. This utilises straightforward rectifier and voltage regulator circuitry requiring no further explanation.

Clock Noise

The clock frequency is normally well above the speech frequency range and running one or more filters from a single clock (as for the bandpass switch setting) creates no noise problems. However, more than one clock running at different frequencies (when in the LP/HP or Notch switch settings) can produce beat frequencies which may fall in the speech range. In the unit constructed,

such noise was measured as less than 50 dB below the overload signal level of the filter system. To achieve the best signal to noise ratio, the gain of pre-amp N1 and the attenuation in R35-R36 are arranged so that, for a comfortable speaker level, the filter system operates just below overload level.

On the unit constructed, the 555 clocks were mounted on the same card and close to the switched capacitor filters. Tests indicated that some of the clock beat noise was induced directly from the 555 packages. The earth and +5 V rails to the 555 packages were isolated from the remainder of the system but a better result might have been achieved had the clocks been mounted on a separate card with improved supply decoupling. Another precaution taken has been to turn off clocks which are not needed for the particular mode of operation. Referring to figure 3, it can be seen that mode switches S1 and S2 incorporate contacts which, when

appropriate, disconnect 5 V from their associated 555 clock. Each of the switched capacitor filters has a separate analogue ground (marked AGRND) separate from their digital ground. These are taken via a separate common rail to the ground point, desirably with other analogue returns such as those associated with pre-amp N1 and anti-alias filter N2.

The clock beat noise is normally well masked by the signal level but, if the signal is turned off, the noise at low level is apparent to the ear for certain settings of filter adjustment.

RF Pick-Up

The whole filter system involves a multitude of high gain amplifiers which, in the presence of a high intensity RF field, are likely to pick up and rectify the RF signal. With the constructed unit turned on and the home transmitter operated, RF feedback was apparent even with the filter input disconnected from the transceiver headphone socket. Insertion of RF chokes and bypass capacitors at various points in the filter system failed to eliminate the feedback. It seems that, for operation in conjunction with a transceiver, the filter system must be disabled by relay switching when transmitting. A muting relay has not been included in figure 3 but it must be considered as an addition possibly needed.

Operation

Adjustment of the filter settings enables the bandwidth to be set at the minimum required to interpret the received signal whilst eliminating noise existent on unwanted sections of the audio band. On speech it is really a compromise on what seems best. A narrower speech band reduces the noise but it also reduces the speech intelligibility, particularly when the higher frequencies are cut too far. Cutting the low frequencies makes the voice sound thin but this seems to affect the intelligibility to a lesser extent. For narrow bandwidth signals of only a few hundred hertz (such as CW and RTTY), it is simpler to use the bandpass mode where the lowpass and highpass filters track in a narrow band state.

The notch is very sharp and the adjustment potentiometer must be moved very carefully to settle it on an

unwanted carrier signal. It is very easy to move too fast and miss picking up the cancelling which occurs when passing across the signal. Some potentiometers have sloppy bearings which produce backlash and this makes setting the notch difficult. Several different potentiometers were tried out in the unit constructed before a satisfactory one was found. At one stage a 10 turn potentiometer was used and this made fine adjustment much easier. However, winding the knob around and around many times searching for the cancellation became a little tedious.

Cancelling out an unwanted CW signal can be a little tricky. It is very easy to pass the notch through the CW signal frequency in a key up period between Morse characters and miss detecting the cancellation. Whilst the notch handles stable carrier signals and CW signals it is too narrow to cancel out wider bandwidth frequency shift signals such as packet. A further improvement to the system might be an adjustable bandwidth notch which could be set to reject a wider band signal. Perhaps we can work on that.

Switching in the notch on speech

to remove a nuisance carrier beat tone has no detrimental effect on the speech quality. The tiny section of the speech band which is sliced out is not apparent to the ear.

The unit as constructed has been assembled on an experimental basis using components which were on hand. No work has been done to locate a recent source of supply of the National MF6 and MF10 packages or other makes of switched capacitor filter. The other ICs and regulator packages used are readily available.

The unit as assembled works quite well. There could be room for improvement in reducing further the level of clock sourced noise by fitting the clocks on a separate card away from the filters and carefully decoupling the rails. Simple anti-alias filters between each of the switched capacitor filters might help further. However, these were tried out on the assembled unit and, as no noise reduction was noticeable, they were not included in the final circuit. As suggested earlier in the text, an adjustable width notch would be a useful addition worthy of further thought.

*18 Ottawa Avenue, Panorama SA 5041

ar

Complete Unit Specification

<u>Lowpass</u>	Cut off — 170 to 3000 Hz adjustable Slope — 6th order Butterworth
<u>Highpass</u>	Cut off — 112 to 1200 Hz adjustable Slope — 4th order Chebychev
<u>Bandpass</u>	Centre frequency — 170 to 3000 Hz adjustable 3 dB bandwidth — 200 Hz
<u>Notch</u>	Centre frequency — 170 to 2850 Hz adjustable Width at 3 dB down — 100 Hz (measured at 1 kHz) Attenuation at centre frequency — 35 dB
	Maximum frequency range for 3 dB down — 170 to 3000 Hz
	Input Resistance — 1000 ohms
	Recommended load impedance — 4 to 8 ohms
	Maximum output power — 400 mW into 4 ohms (Limited by overload level of filters. Power can be increased if needed by reducing R35)
	Maximum voltage gain (input to output) — 10
	Noise level below maximum power output — 50 dB
	Power supply — 240 VAC 30 mA

**Help stamp out stolen
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numbers in a safe place.**

■ Technical

A 240 Volt AC Line Monitor

Ken Taylor, VK3KAV* describes how to construct a useful metering device.

WARNING

The unit described here operates directly from the AC mains. It has no protective isolation such as a transformer. All parts of the circuit must be assumed to be operating at mains potential, even with the unit switched off. This can happen if the active and neutral leads are reversed, an all too frequent occurrence.

The author recommends using a fully insulated chassis for this project with good reason. A metal (or uninsulated) chassis is not recommended. If it is used then a protective earth wire connected to the chassis is mandatory, ie three core flex. Also, the integrity of the protective earth must be established before power is connected. This is particularly important with generators. Checking household wiring may only be carried out by a licensed electrician.

All circuitry in an operational unit must be fully enclosed and not accessible. This includes using probes.

During calibration use insulated screwdrivers when adjusting the trimpots. Even the shaft should be insulated. The operator should use insulated clothing, eg gloves, and never assume that the insulation works. Take care!

REMEMBER, 240 V AC MAINS ARE LETHAL!!

Here is a simple gadget that will be very useful in WICEN exercises, John Moyle field days and to farmers or builders. In fact, any place where portable AC alternators are used. This gadget is even handy in the

shack to keep an eye on mains voltage and frequency.

Description

Both meters used in this gadget are 1 mA FSD which may be available from the junk box, or readily from suppliers such as Dick Smith Electronics, etc.

The voltage indicating meter is supplied via a bridge rectifier from the AC input, then through a 390 k resistor and a 50 k trimpot.

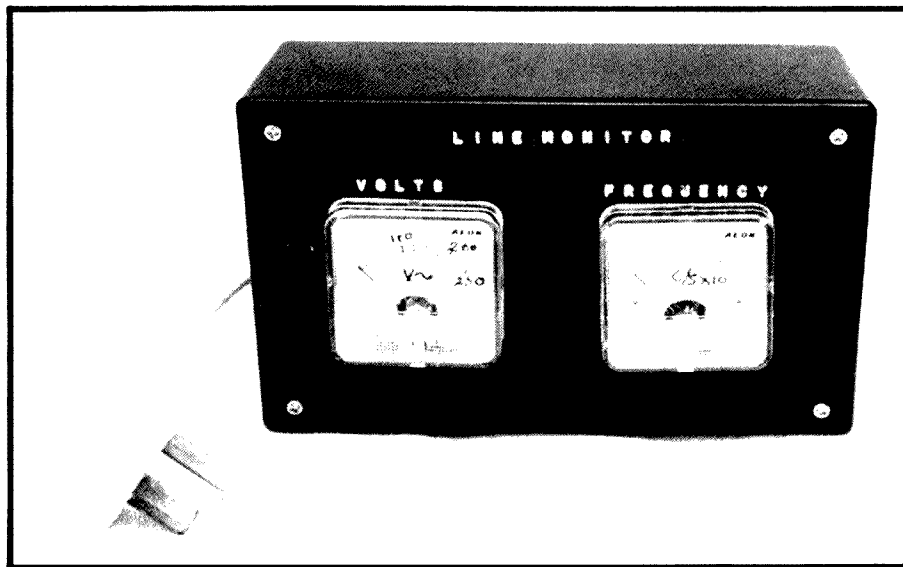
The frequency indicating portion uses a pulse counting detector, the output of which is supplied to the other meter via a 4.7 k resistor and a 5 k trimpot. The frequency indication shows little reaction to voltages above approximately one hundred volts.

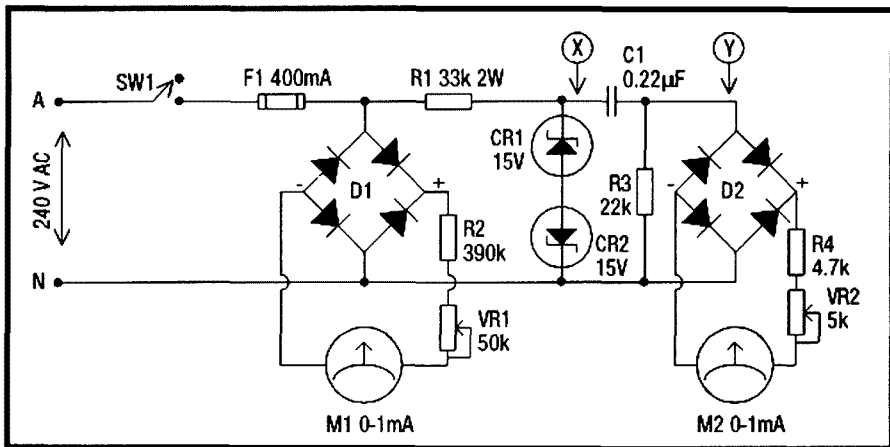
The circuit diagram of the complete unit shows the meter, M1, with its associated circuitry connected across the line, metering the voltage. The frequency measuring part of the circuit starts at CR1 and CR2, each a 15 Volt zener diode connected back

to back. During the peak of the cycle of the line voltage wave form, one diode is forward biased and so conducts. At the same time the other diode, through its avalanche operation, will conduct current in the same direction but will regulate the voltage at its rated value of 15 volts. R1 is the voltage dropping resistor. It requires a 33 k resistor with a rating of two watts.

Such a resistor with this rating is fairly hard to come by these days. I paralleled two 68 k one watt resistors. These resistors do get quite hot if the unit is left on for an appreciable time. On a second unit constructed I used four 150 k one watt resistors in parallel. This resulted in much lower temperatures when left switched on for an extended period of time. As the total resistance was within 15% of the circuit value, no appreciable difference was noted in the operation of the unit.

As the polarity of the line voltage reverses so does the action of the two diodes, and 15 volts is developed across the pair in opposite polarity. The resultant voltage at point X is almost a square wave. Its frequency is the same as that of the line input, with an amplitude of 30 volts peak to peak. C1 and R3 differentiate this signal forming positive and negative pulses at point Y. These pulses are rectified by another bridge rectifier and connected by R4 and VR2 to the meter. VR2 is used to calibrate M2. With an increase in frequency the number of rectified pulses per second





increases, causing M2 to read higher. A lower frequency has the opposite effect, with M2 reading lower.

Construction

A printed circuit board could be made to mount the various components. However, as there are not a great number of components required, it can be built on a piece of resistor mounting strip (Dick Smith Electronics, H6610). Even tag strips could be used.

The complete unit was housed in a plastic Zippy box with the meters being mounted on the lid. A plastic box was preferred so that if 240 volts comes in contact with the case it is unlikely to cause injury.

The dimensions of the Zippy box used are approximately 50x90x150 mm. No particular layout of the components is required. **Remember that you are working with voltages that can be lethal.** Use safe construction practices, and take care when calibrating the gadget. The milliammeter used as the voltmeter could have the figures 0-1 carefully removed or painted over, without touching the calibrated scale, and new figures in a scale 0-250 marked in at appropriate places, 250 being full scale deflection. The frequency indicating meter could have the word milliamperes removed together with the decimal points before the figures and Hz (or C/s if you prefer) X 10 marked on it.

Calibration and Use

When completed and ready to be adjusted check it over for shorts or unnecessary long ends of components that could cause

unsatisfactory results. When all is OK, connect to mains power. With a volt meter of known accuracy, switch on, and adjust VR1 so that M1 indicates a voltage reading corresponding to that of the calibrating meter. Then adjust VR2 so that M2 reads 5 on the scale.

That completes the setting up and adjusting. Switch off and carefully install it in its box. When assembled verify that the calibrations have not altered. If a motor powered alternator is available, connect the unit to it and vary the speed slightly, noting the rate of change on the meters. With M2 calibrated as previously indicated, slowing the motor down so that the motor reads 4 on the scale indicates the frequency is 40 Hz. Speeding the motor up so that the meter reads 6 on the scale indicates that the frequency is 60 Hz.

Having an instrument of this nature in use at the next exercise or field day you will know whether or not your alternator is putting out the correct voltage and frequency for your gear.

I can make no claim to the design of this gadget as I came across a similar device in an ARRL publication

Sign up a new WIA member today — we need the numbers to protect our frequencies and privileges.

several years ago. I have, however, changed some of the component values and added additional components so that satisfactory operation can be expected with Australian voltages and the component values available at the time of construction.

Parts List

- SW1 SPST toggle switch
 - F1 5AG 400 mA Fuse with holder
 - R1 33 k 2 W resistor
 - R2 390 k
 - R3 22 k
 - R4 4.7 k
 - VR1 50 k trimpot
 - VR2 5 k trimpot
 - M1 0-1 milliammeter
 - M2 0-1 milliammeter
 - CR1 15 volt Zener diode
 - CR2 15 volt Zener diode
 - D1 4x1N4004 Diodes
 - D2 4x1N4002 Diodes
 - C1 0.22 µF 100 VW capacitor
- Zippy box (50x90x150 mm)

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■ Technical

An L of a Network — Part 1

Graham Thornton VK3IY describes all you wanted to know about the L-Match, but were afraid to ask!*

Introduction

The simplest solution to the problem of transforming a complex load impedance into a pure resistance is an L network. It consists of just two components, a variable capacitor and an adjustable inductor. Since load resistance and load reactance are independent variables, it is not possible to have any practical ATU with less than two adjustments. The L-Match may be seen as the progenitor of all other ATUs. Correctly applied, it can deal with a wide range of impedances; this may come as a surprise, considering its simplicity. It is particularly useful for unbalanced loads such as random wires, yacht backstays and mobile whips.

The design, if done from first principles, involves quite a lot of mathematical manipulation which, at best, is tedious and, for some amateurs, utterly forbidding. This article seeks to simplify matters by using a graphical approach. After all, we are designing an adjustable device and high precision is not justified. Ball park answers are all we need. The same approach is used to investigate operating Q, insertion loss and the peak voltage developed across the capacitor. As we shall see, each load problem has at least two solutions; sometimes four. The following treatment is offered as a design tool for L networks. For completeness, the mathematical basis is stated, so that those who are able may critically evaluate the information, and that the super-keen may write a computer program, if that is the preferred option. However, it is not necessary to understand the mathematics; if the given procedure is followed by rote, a workable solution will be obtained, provided

only that the given reactances can be achieved in practice.

The operating principle of an L-Match is very simple. As illustrated in Figure 1, it is a four-terminal network. One pair of terminals connects to a parallel tuned circuit, and thus presents a high impedance. The other pair "sees" a series resonant circuit and is therefore of low impedance (it took me a good forty years to wake up to that simple explanation, but then I'm a slow learner!). It can be used either way round as a step-up or step-down transformer. Load reactance can be considered as part of the output reactor, in most cases.

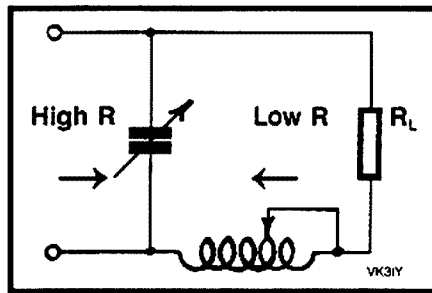


Fig 1 — L Network in step-down mode.

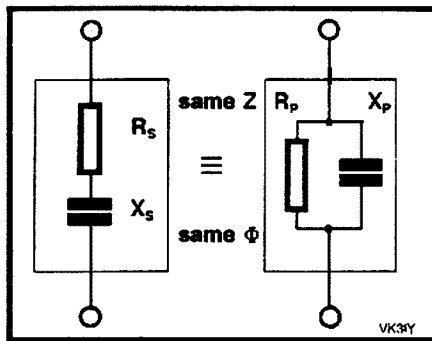


Fig 2 — Equivalent series and parallel impedances pictured in externally indistinguishable black boxes. Knowledge of the contents of one box allows the components for the other to be determined.

Theory

There are two discrete cases to be dealt with. One is where the resistive component of the load impedance is less than the desired input resistance, the other being the converse. (Note that this applies to resistance, not scalar impedance!) The theory is invalid in the special case where the two resistances are equal but, in that case, an ATU is not needed!

Central to the analysis and application of the L network is the concept of equivalent series and parallel impedances. A little chat about this would be appropriate for starters. Any reactance in series with a resistance may be represented by another (different) resistance in parallel with another reactance of the same sign, and vice-versa. The criteria for equivalence are that both circuits have the same impedances and phase angles. If we regard the two options as being enclosed in two-terminal black-boxes, their circuit behaviour would be identical, and we would have no way (in an AC sense) of distinguishing them. Both are equally valid representations of the same thing. This is illustrated in Figure 2. Most published information about antennas and transmission lines, by convention, is presented as series equivalent impedance. The formulas for conversion are:-

$$R_p = \frac{R_s^2 + X_s^2}{R_s}$$

$$X_p = \frac{R_s^2 + X_s^2}{X_s}$$

and conversely:

$$R_s = \frac{R_p \cdot X_p^2}{R_p^2 + X_p^2}$$

$$X_s = \frac{X_p \cdot R_p^2}{R_p^2 + X_p^2}$$

There is one interesting and highly relevant feature about the above equations. The equivalent resistance is partly dependent on reactance. Thus, adjustment of reactance can transform a resistance to a desired value.

The fundamental formula for an L network is:

$$R_{IN} \cdot R_{LOAD} = - X_1 \cdot X_2$$

This applies to both cases. This formula can best be remembered as "The product of the resistances is equal to the negative product of the

reactances". Note that, since neither of the resistances can be negative, the two reactances must be of opposite sign to give a positive result. But it matters not which is which. It sometimes happens, if we are lucky, that the series equivalent load resistance is less than 50 Ω, and its

parallel equivalent resistance is greater than 50 Ω, in which case the network can be used either way round. This gives a choice of four options which can be used.

The situation for low resistance output is shown in Figure 3. The upper practical circuit shows things

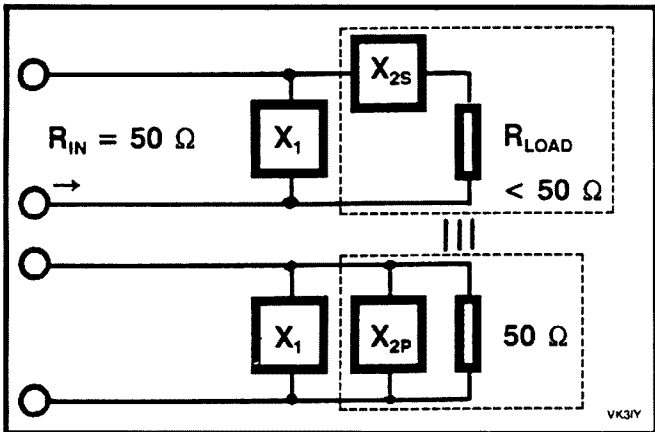


Fig 3 — Practical circuit (above) and parallel equivalent circuit for low resistance output case. Note that, for resonance, X_1 and X_{2P} must be conjugate reactors; ie same magnitude but opposite sign. If the concepts implicit in this diagram, and the following Fig 4, can be grasped, your understanding of the topic, and ATUs in general, will take a giant leap forward!

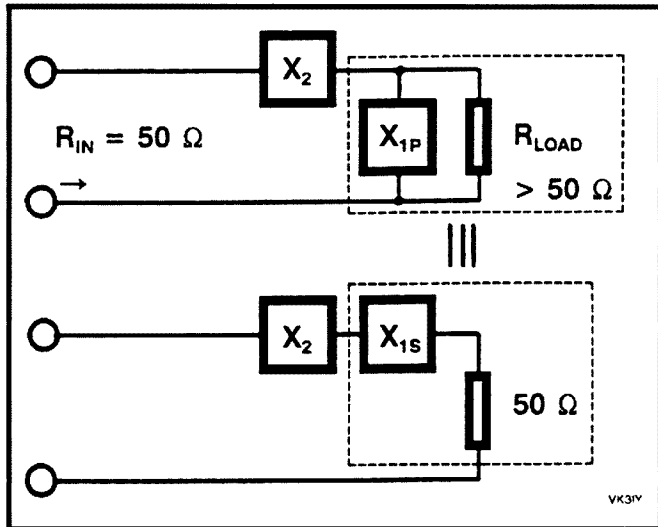
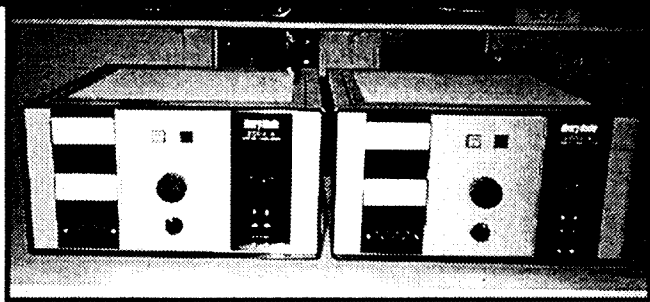


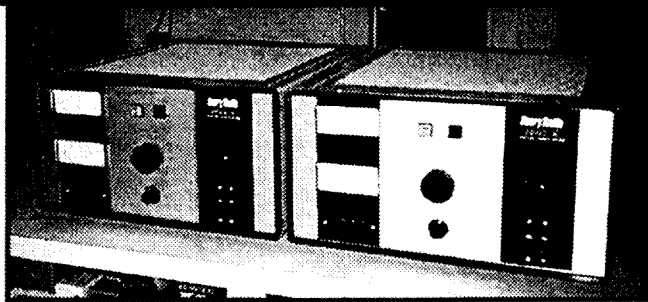
Fig 4 — Practical circuit (above) and series equivalent circuit for high resistance output case. Note that, for resonance, X_2 and X_{1S} must be conjugate reactors.

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as they appear, but the lower equivalent circuit shows how it really works. The sole task of the series output reactor (X_{2S}) is to be such a value that the parallel equivalent load resistance is equal to 50Ω (or whatever other figure is desired). Thus it may be regarded as a **LOADING** reactor. For resonance, the value of the input shunt reactor (X_1) must be exactly equal and opposite to the equivalent parallel shunt reactance produced by the transformation process (X_{2P}). Thus the input reactor functions in a **TUNING** role. (It is tempting, looking at the practical circuit, to assume that the two reactances are equal in magnitude. This is **NOT** the case! For this to be so, R L & C must be either ALL in series or in parallel. The difference is illustrated in Figure 5.)

The high resistance output case, shown in Figure 4, works just the other way around. The output shunt reactor (X_{1P}) must be of such a value that the resultant equivalent series resistance is equal to 50Ω . It too is a **LOADING** reactor. The series element (X_2) must provide a conjugate reactance for **TUNING**. (As a matter of interest, this is exactly the process by which the very popular Z-Match works.) In this case, the two reactive elements will be approximately equal in magnitude, if the load resistance is very much larger than 50Ω .

Design Procedure

(i) Low Resistance Output

Well let's get down to the nitty-gritty of design. We will start with the low resistance output case, as it is much easier to deal with. A desired input resistance of 50Ω is assumed throughout. We have seen how the value of the output series element controls everything else, so that would seem an appropriate place to start. The formula to determine its magnitude is:

$$|X_{SERIES}| = \sqrt{R_{LOAD} \cdot (50 - R_{LOAD})} \Omega$$

For convenience, this function is plotted in Figure 5. The only input information required is the series load resistance. Note that this gives the total series reactance, which includes any load reactance which we will

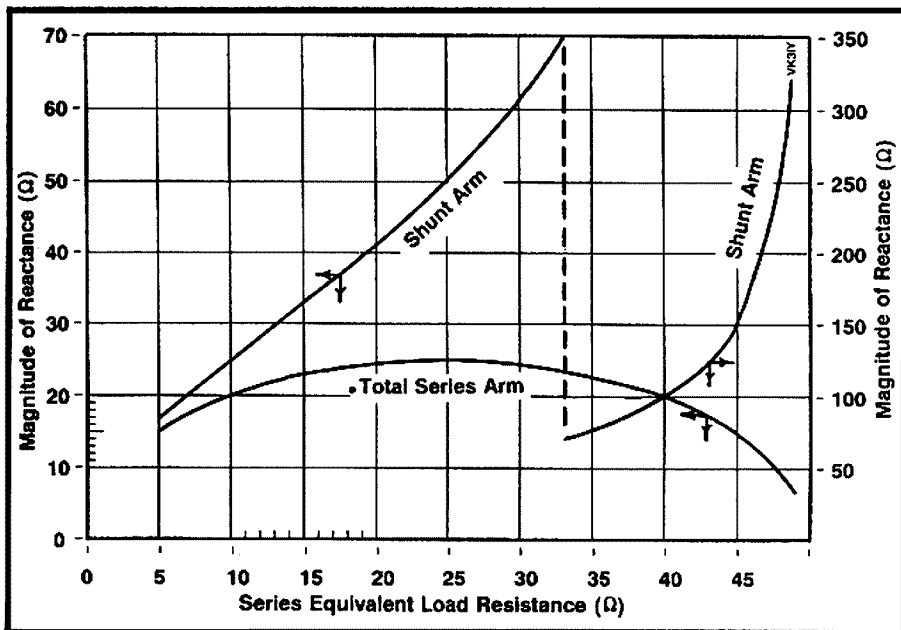


Fig 5 — Magnitude of network elements for low resistance output.

subtract later on. For the present, let's keep our options open whether it is to be an inductor or a capacitor. It is

interesting to note that the maximum series reactance under any condition is 25Ω .

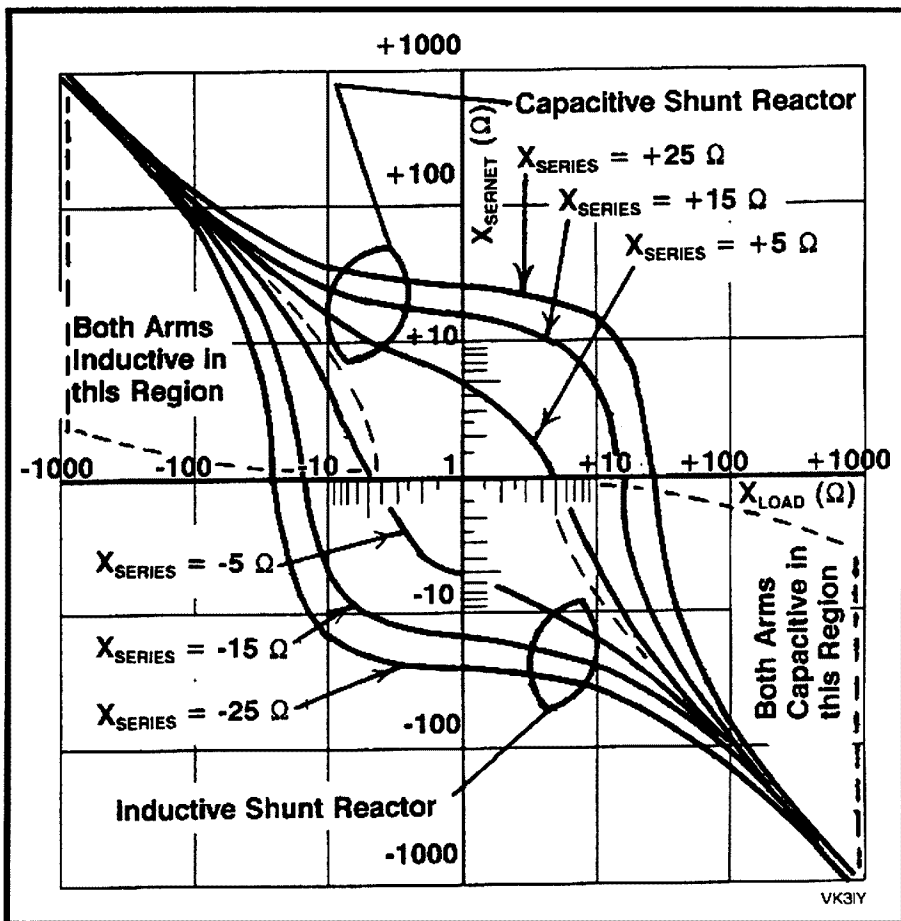


Fig 6 — Value of series reactor including load reactance compensation-low resistance output case.

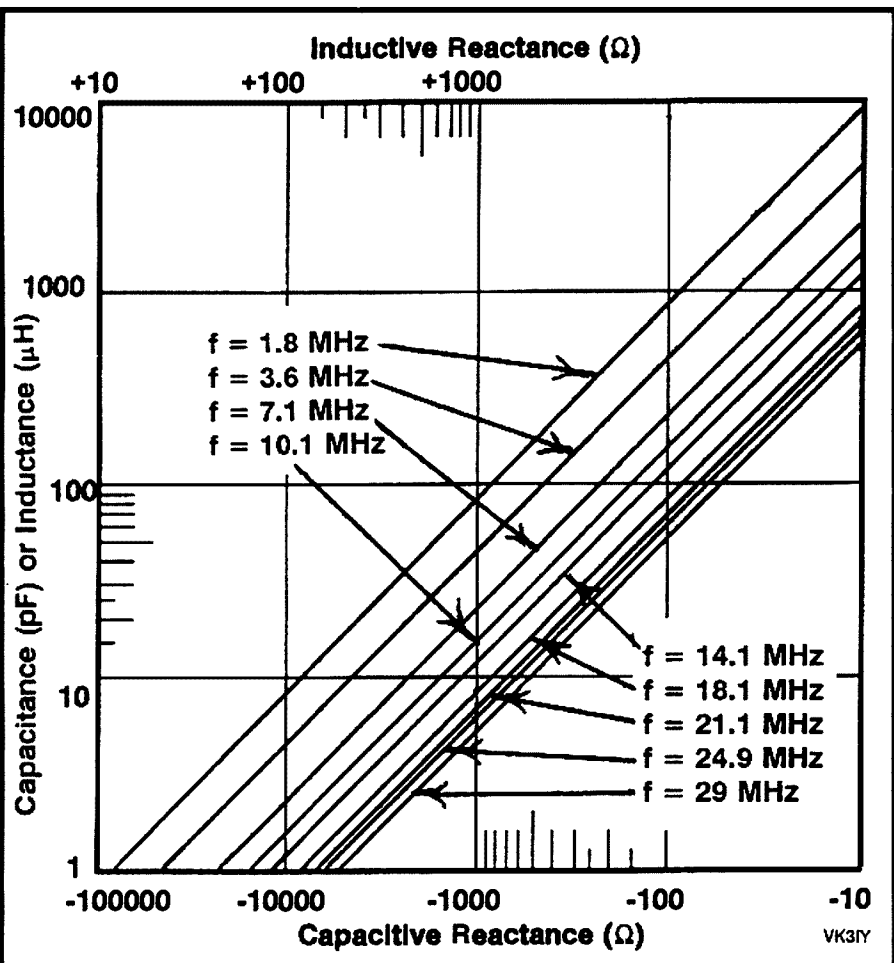


Fig 7 — Inductance and capacitance from reactance.

Well let's have the other half of the network. In this case, the final value is not affected by the load reactance. The relevant formula is:

$$|X_{SHUNT}| = 50 \cdot \sqrt{\frac{R_{LOAD}}{50 - R_{LOAD}}} \Omega$$

This expression is also plotted in Figure 5.

We have already found the total series reactance, but we need to subtract any load reactance from it to determine the value of the lumped reactance to use in the L network. The result will be different, depending on whether a shunt inductor or a shunt capacitor is used. It is

worthwhile considering both options, as one may present a practical advantage over the other. X_{SERNET} represents the value of series reactance to be inserted:

$$X_{SERNET} = X_{SERIES} - X_{LOAD} \Omega$$

(Having regard for sign; ie positive for inductance, negative for capacitance.)

Thus, if the load is a pure resistance, X_{SERNET} will simply be the same as X_{SERIES} . Figure 6 may be used to determine X_{SERNET} for both positive and negative values of X_{SERIES} , taking X_{LOAD} into account. (An interesting situation arises if X_{SHUNT} is capacitive and X_{LOAD} is a

larger inductive reactance than X_{SERIES} . Both arms of the L network would then be capacitors.)

When the load reactance is high, it is best to ignore Figure 6. In this case we have no option but to insert an opposite reactance as our series element. We may adjust it as either a capacitive or inductive reactance. However, since we are tuning for a small difference in a large reactance, resolution problems may occur; we may need a slow motion drive for a capacitor, or a series fine-tuning capacitor if the series arm is an inductor.

Reference can now be made to Figure 7 to translate the reactances obtained into practical values of inductance and capacitance. A choice can be made between the two options on the basis of availability of components, and other properties of the network which will be described later.

Next month, we'll take a look at the high resistance output case. See you then.

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■ Antennas

Random Radiators

with Ron Cook VK3AFW and Ron Fisher VK3OM*

Oh No, Not the Z-Match Again!

In the April 1994 issue of *Amateur Radio*, Murray VK5ZQ described some problems he had with the Z-match. To refresh your memory, he was using a Z-match with a built-in SWR meter, but stopped using it when he found the SWR meter in his transceiver disagreed with the SWR meter in his Z-match. He then began to think that the Z-match might not work after all. In a letter received in June 1994 he continued the story. (An extended absence from VK followed by that all too common problem, overload at work, prevented this Ron from following up as quickly as he should; apologies are extended to the other correspondents affected).

Murray wrote, *During May a local radio club devoted its monthly meeting to the Z-match. The meeting began with a 20 minute talk by a well respected technical researcher and amateur on the said device. During the last five minutes he briefly mentioned "cancelling the reactance of the load" that the Z-match was to feed into. If the audience's attention had wavered slightly, that point could easily have been missed, but that was and is the very point of my argument!*

Later in the evening, when members were describing their efforts, another well qualified and respected amateur mentioned that his standard ARRL ATU would pass a greater current up the feedline than his Z-match. I wasn't surprised.

I connected a light globe to my Z-match and managed to light it up with an SWR of one. Then, to simulate a reactive load, ie an antenna system that had not been brought to resonance, I added an inductor in series with the globe.

Again the Z-match gave me an SWR of one, but now the globe shone with

less brilliance. Less current was flowing!

I then added a variable capacitor to tune out the inductive reactance. Result, the lamp brilliance was restored!

Conclusion: The Z-match will nicely match impedance, but does not seem to tune out reactance, ie it won't tune the antenna system. However, the "standard" ATU does tune the system and then proceeds to match the impedance as well.

By the way, the disagreement between the SWR indicators was tracked down to a soldered joint that wasn't soldered properly. Now the indicators agree with each other.

Well, from Murray's concluding comments, perhaps his Z-match worked after all.

I do, however, take issue with his conclusion that the Z-match will tune out a reactance but not tune the antenna system. As has been demonstrated ad nauseam in *Amateur Radio*, the Z-match is no different from any ATU, matcher or tuner, whatever you may call it. They all work by "tuning out" the reactance seen at the shack end of the antenna feedline and also perform some transformation so that the resistive part of the impedance seen at the shack end of the feedline is close to the desired value of 50.0 ohms (or 75.0 or 300.0 ohms or whatever it is that you want). All of these tuners (or matchers, etc) have limitations in the range of reactance and resistance that they can cope with, the range varying from one band to the next.

By achieving a match at the shack end of the feeder, the antenna system has been tuned. This does not mean that the antenna itself has been brought to a half wave resonant length or that the feedline no longer has a high SWR. It means that system resonance has been achieved. The feeder and antenna

combination become part of a resonant circuit when connected to the ATU reactance. The transceiver is tapped into the system at a nominal 50 ohms point (usually).

So why does a "standard" ATU apparently give "better" results than a Z-match? Well I don't know for sure. I don't even know what sort of circuit Murray defines as a "standard" ATU. The ARRL has published L, Pi, tapped coil and inductively coupled coil tuners, all of which could be called a "standard" tuner on the basis of being a tried and true circuit. The Z-match is also a tried and true circuit.

My guess is that the SWR is not a true 1:1 even when so indicated on Murray's meter. Thus he might have two different situations when the meter indicates zero reflected power. All SWR meters exhibit some finite lack of directivity. This means that some forward power is detected by the meter when it is measuring reverse power. The power may add or subtract from the reverse power, giving a higher or lower reading than should occur. "Murphy" is not a kind person and hence optimistic SWR readings are often obtained when such a result is the least desired one. Readings of less than 5% of full scale deflection could be obtained for at least two quite different "almost matched" conditions. I am not doubting what Murray observed, but cannot duplicate his experience and, apart from the above suggestion, cannot see any logical reason why the power delivered to an average load should be substantially different when different tuners are used or when low loss reactances are added to the load when matched conditions prevail.

I might also add that not all SWR meters are exactly 50 ohm devices, that is they may indicate zero reflected power truly only when inserted in a line of some value other than exactly 50 ohms. This may be a deliberate design feature or it may be a consequence of normal manufacturing tolerances, or even because of inadequate design in the first place. I have a VSWR meter which supposedly operates at either 50 or 75 ohms by a flick of a switch. A brief examination of the

construction and circuit shows this to be wishful thinking. Yet it is made by a respected Japanese instrument manufacturer. Buyer beware, I suppose.

On Bow Ties and Building Antennas Inside the Shack

It was only a matter of time before someone took up the issue of computer simulation of antenna systems. The "father" of most of the currently popular programs is the American program, Numeric Electromagnetic Code or NEC for short. This large computer program required a large computer to run it and so only the US military and large universities had the machines to use it. Then along came a version called MININEC, a mini version written in BASIC and capable of running on a PC. I bought a copy from the USA's National Information Service for \$200 US (being a foreigner I paid twice what a US citizen would have paid). It worked but was clumsy to feed information to and it is not at all easy to interpret the output tables. Then several people wrote "front" and

"tail" ends which made the system input-output more user friendly by including such features as polar diagrams of the pattern.

Nevertheless a degree of skill and knowledge is still required to avoid the old "garbage in, garbage out" situation.

Now over to David, VK1DT.

I read your article on the "bow tie" with interest.

*I have modelled your correspondent's design, using NEC81. The height of the end wires (not given) was adjusted to achieve resonance. I assumed the ground to be heavy clay. As the ground clearance is fair, this is not critical. The input impedance varies from 69 ohms (perfect earth) to 86 ohms (assumed earth). A 1/4 wave, 75 ohm line would transform $(86/75) * 75$ to $(75/86) * 75 = 65$ ohm.*

I decided on an inverted Vee of the same base area for gain comparison. There are a number of ways this could be fitted. I chose to remove the wire from 1/4 to 3/4 Lambda in the original design. This leaves an inverted Vee with bent ends. To achieve resonance the ends were trimmed.

There is practically no difference in

the gain pattern of the two designs. The input impedance dropped from 86 to 33 ohms. The current on the loop is zero at 1/4 and 3/4 Lambda and has near sinusoidal distribution. The currents are mirror-imaged along the major axis of the base area. The loop could be considered a cross between a fan dipole and a folded dipole. The current splits evenly as per both the fan and folded dipole. The current in the end sections is too small to change the radiation pattern. I am using the term "dipole" loosely, regardless of apex angle.

For the loop to be considered a folded fan, the fan's impedance needs to be $86/4 = 21.5$ ohms, about 2/3 of unfanned 33 ohms. Presto, another NEC run, 21 ohms. I feel there is material for an article, or six here; not the intention of this letter.

It would be interesting to compare the following for bandwidth, feed impedance, size and multiband potential.

- Dipole. +I- Bend (Inv Vee);
- Fan Dipole; (should fanned ends be joined?)
- Folded Fan Dipole; (wires not crossing at apex)

SOME THINGS HAVE NO COMPARISON

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- *Folded Crossed Fan Dipole; (the original design)*

I suspect any gain differences from your reference are due to differences in apex angle and ground clearance. It pays to be sceptical about modelling results. In this case the input impedance, current distribution and internal programs checks look good, better than average luck for me.

My interest in the loop is at frequencies far from resonance, but that's another story. I have enclosed hard copy of some the NEC results. I would be interested in any results or observations you or your readers may have.

David kindly supplied some six pages of tabular printout, which for reasons of space are not reproduced here.

David makes some good points when considering as to why there are differences between the results I obtained and those he gets.

There is no doubt that his results show less than 0.3 dB difference between the two antennas, namely

the Bow Tie and the Inverted Vee. I note that David's Inverted Vee has bent ends, whereas the one I referred to did not. This would make a small difference to the pattern. There are two interesting aspects of the printouts provided.

Firstly there is some lack of symmetry in the azimuth pattern. If the antenna is physically symmetrical then I would expect the radiation pattern also to be symmetrical. Has anybody else noticed such behaviour in modelling programs?

Secondly, the signal at 10 degrees elevation is about 5.5 dB stronger when the aerial is modelled over a perfect conductor than when modelled over "heavy clay". I would have expected the reverse. Perhaps someone out there with more knowledge and experience might care to comment.

Well, perhaps this just shows that different computations of the same data give small but noticeable differences in the results.

That's all for this month. So now its goodbye from him and goodbye from me.

*C/o PO Box 2175, Caulfield Junction, VIC 3161 ar

WIA News

Olympics Callsign

For the year 2000 Olympics in Sydney, the WIA applied to the Spectrum Management Agency (SMA) for the special event callsign AX2000 (A-X-two thousand).

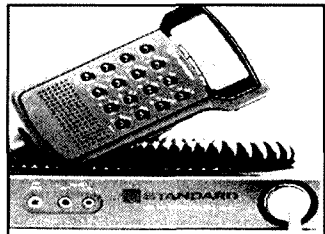
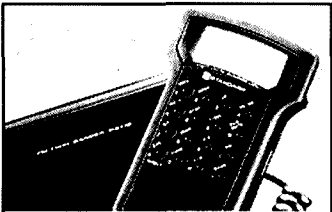
The SMA replied that they applied to the International Telecommunications Union (ITU) for permission to use the callsign, but they replied that the use of such a callsign is prohibited.

However, all is not lost — the WIA may use AX2000 (A-X-two triple Oh) during the Sydney Olympic Games.

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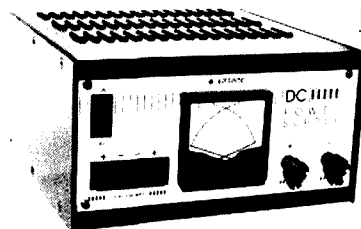


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■ Technical

Technical Abstracts

Gil Sones VK3AUI*

Smart Nicad Charger

A smart Nicad battery charger which automatically discharges the battery to a known state of discharge and then carries out a full charge cycle was described in *Radio Communications* for November 1994 by E R Gaze G8NKA. This sort of charger is very desirable if you are to reliably receive a full capacity from the Nicad pack in your radio. The circuit also offered the option of a fast one hour charge as well as a longer 12 hour charge cycle. The circuit also allowed an extended trickle charge to be maintained for a week or so.

The secret of all this is a purpose

built Integrated Circuit Type U2400B. Unfortunately, the manufacturer was not specified but the type number is similar to that of a similar IC used to control the charging of Gel Cells and which is locally available. I would be interested to learn the manufacturer and any local source of the U2400B. The author of the article did, however, give a source of a basic kit from a UK supplier. Obtaining parts from the UK may be possible.

The UK parts supplier was JAB Electronic Components, 1180 Aldridge Rd, Great Bar Birmingham, B44 8PB, UK. The UK cost of a kit was 34.50 pounds sterling. An

enquiry enclosing an SASE with means of return postage may elicit costs of key components.

A circuit of the charger is given in Fig 1 and Fig 2. The charger is simple with S1 selecting the charge time and S2 providing a means to initiate charging without going through the discharge sequence. The circuit constants are set up for a 7.2 volt pack.

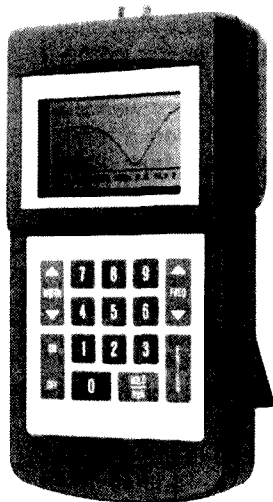
The battery potential falling due to discharge by TR1 and R17 is sensed at pin 6. R13 and R10 are selected to stop discharge at 0.9 V per cell which is 5.4 V for a 6 cell pack.

At pin 4 an overvoltage condition can be sensed to terminate the charge at 1.6 V per cell. To enable this, remove D1 and make R7+R9 = 100 kohm. The author disabled this feature due to the particular characteristics of his battery pack which had a higher end of charge point.

At the end of the charge cycle the circuit reverts to a trickle charge mode of 3% of the mAh rating.

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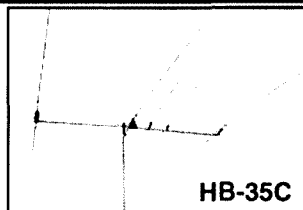
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TE-23M 2-ele. mini-beam.....	\$440
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FOUR BAND BEAMS FOR 7-14-21-28 MHz BANDS

TE-14 rotatable dipole.....	\$275
TE-34 3-ele beam on 14-21-28MHz, 1-ele on 7MHz.....	\$695
TE-44 4-ele beam on 14-21-28MHz, 1-ele on 7MHz.....	\$870

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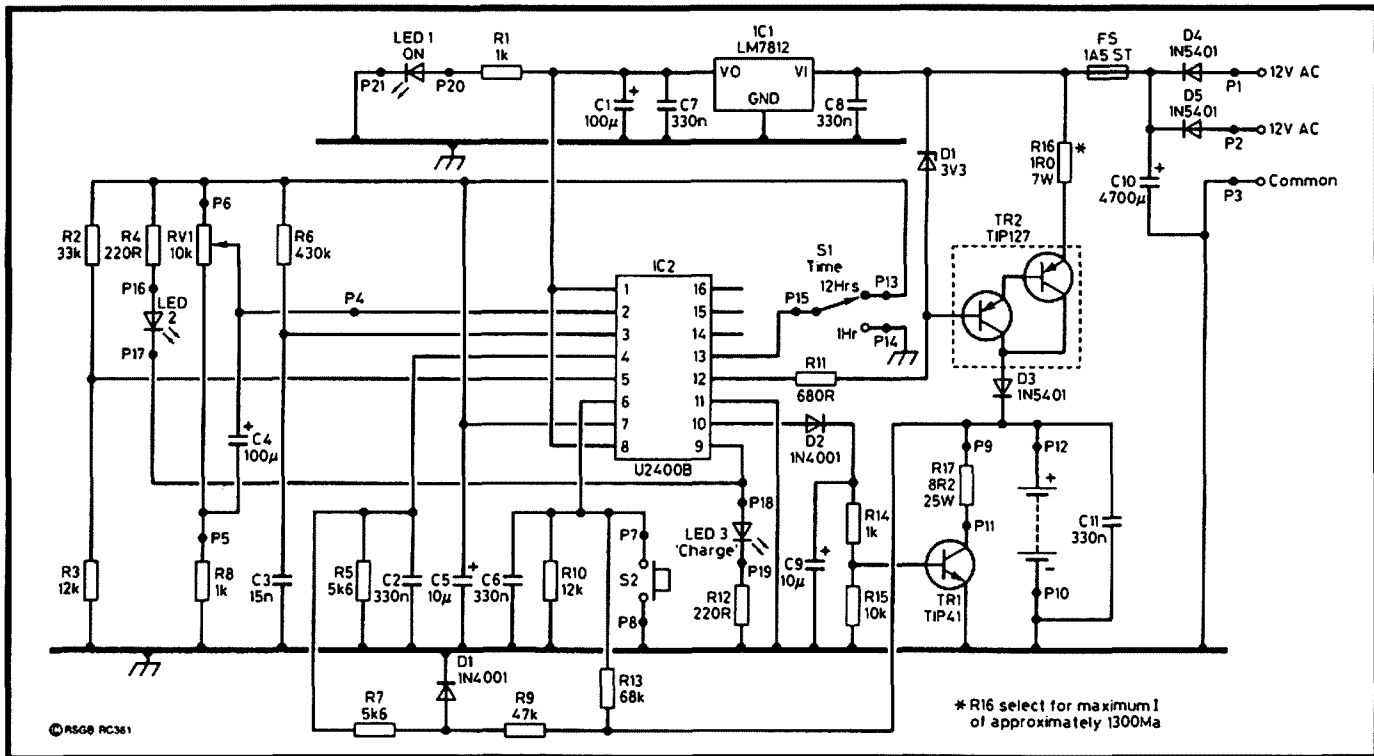


Fig 1 — Circuit Diagram of Nicad Charger.

The charge rate is set by adjusting RV1. The circuit should be switched on and S2 pressed to initiate charge. Then, with S1 in the 1 hr position, adjust the charging current into the

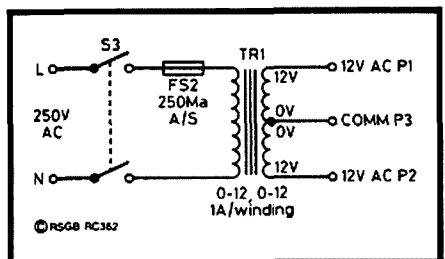


Fig 2 — Transformer Wiring Diagram.

Nicad pack to the current corresponding to the mAh capacity plus 10%.

The IC is a pulse operating type and both the discharge and the charge are regulated by varying pulses at the output. The charging times and charging currents are obtained by a basic Pulse Width variation together with an overriding on off cycle. The pulse width variation sets the basic one hour charge rate and then the lower 12 hour and trickle rates are set by turning this pulse train on and off in a longer cycle. For the 12 hour rate the battery is pulsed 200 milliseconds every 1.2 seconds.

For trickle charge the 200 mS pulsing only occurs every 16.8 seconds.

Pulse operation allows the circuit to operate with less heatsinking of pass transistors. The Nicads easily average out the pulses. An option exists to connect a positive temperature coefficient resistor to pin 5 to sense battery pack heating during fast charging. However, this is usually not practical to add to existing battery packs.

If you can get the IC, this is a sophisticated charger. Obtaining from the UK should be possible but may have some inherent delays. Payment by credit card would be an option once you have established contact with a supplier. This could be done by phone or mail. A local over-the-counter supplier would, of course, be best. Let me know if you find one so I can pass on the news.

Disguised Antenna

A well disguised antenna appeared on the cover of *73 Amateur Radio Today*, November 1994 issue. The cover photo showed how Jose Rivera KP4FMD had disguised his vertical antenna. Jose had wound plastic imitation vine around his vertical so that it looked like a horticultural

creation in the garden. The plastic vine would, of course, have little effect on the antenna.

If you should feel like emulating this disguise there are many businesses selling artificial plants and foliage in the Yellow Pages. They no doubt have many alternative artificial plastic plants and foliage that could be pressed into service.

Home Brew Loop Tuning Capacitor

A loop tuning capacitor with a high voltage rating which can be home-built was described in *QST*, November 1994. The author was Bill Jones KD7S who described a three foot diameter loop tuning from 10 to 20 metres with a home built tuning capacitor. The design could handle 100 watts.

Bill used a trombone configuration of copper tubing as the capacitor plates with Teflon insulation. The Teflon was thin sheet wrapped around the inner tubing. The tubing was standard copper plumbing tube.

A small motor and a long lead screw were used to adjust the position of the moving trombone section. Some "Allthread" would be

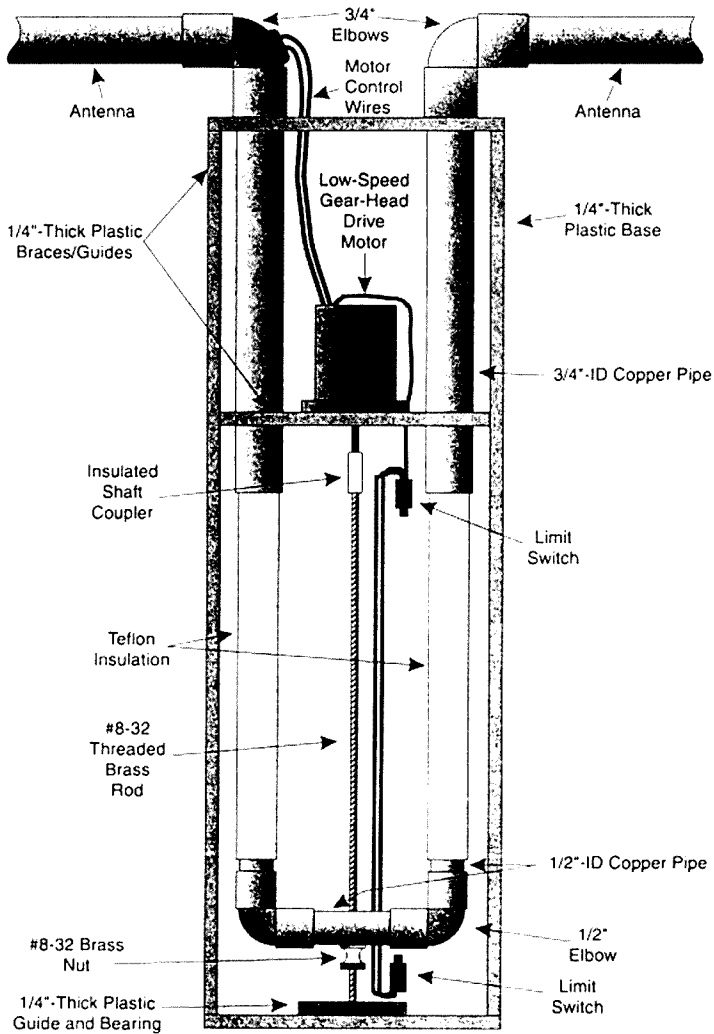


Fig 3 — Mechanical drawing of KD7S Loop Tuning Capacitor.

suitable and is readily available from hardware suppliers.

The layout of the tuning capacitor is shown in Fig 3. There are sufficient details in Fig 3 to duplicate the loop tuning capacitor. The copper tube and fittings are standard plumbing materials. The Teflon sheet should be available from plastic suppliers. The sheet need not be very thick as Teflon has a dielectric strength of 1 to 2 kV per 0.001 inch. Similarly, the structural plastic should be available from suppliers.

The results obtained by Bill KD7S and the calculated values are plotted in Fig 4. Obviously it is difficult to allow for all variables. However, the results are fairly close and show that a useful capacitor can be fabricated from available materials.

The loop antenna which this capacitor tuned was a standard design. The interesting thing was the capacitor fabrication which showed what could be done with simple materials and techniques.

**C/o PO Box 2175, Caulfield Junction VIC 3161
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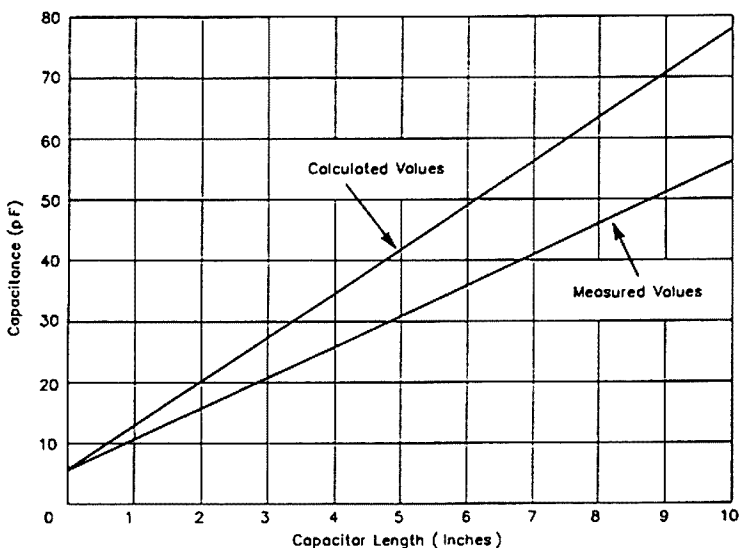


Fig 4 — Comparison of calculated and measured values of capacitance.

WIA News

VK2ALU Wins Wilkinson Award

The 1995 winner of the prestigious Wilkinson Award for service to amateur radio, is Lyle Pattison VK2ALU.

The award was determined at the WIA Federal meeting on the weekend of 4-5 February.

The citation detailed Lyle's 10 GHz world-record moonbounce (Earth-moon-Earth, or EME) contact with WA7CJO last October, which was the first known EME contact on the 3 cm band involving a station in the southern hemisphere.

Lyle is well known for his pioneering work on 70 cm, when he led the Illawarra Amateur Radio Society VK2AMW EME project in the 1970s. For many years VK2AMW was the only Australian station available on 70 cm EME, and held the world 70 cm EME record for a period.

■ Book Review

The Novice Operators Theory Handbook

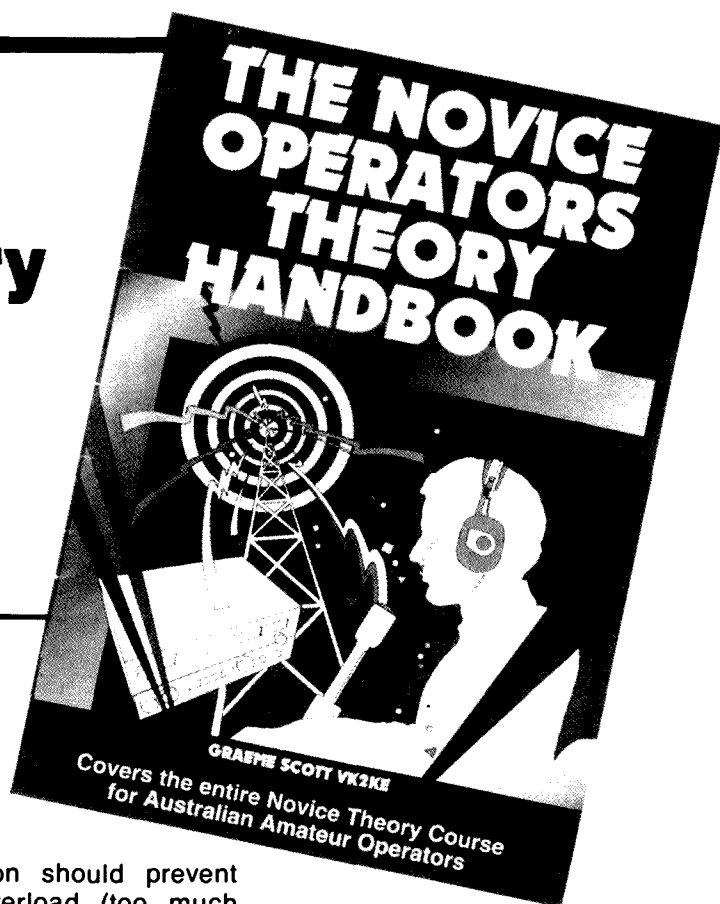
Written by Graeme Scott VK2KE

Second Edition 1994

ISBN 0 959 3726 0 1

Paperback 96 pages 297. mm by 210 mm

Reviewed by Evan Jarman VK3ANI



The first edition of this book was reviewed by Bruce Bathols VK3UV in the June 1982 issue of *Amateur Radio* magazine. It was very successful with 10,000 copies being sold. One of the original authors has now revised the book. This is to make sure that it conforms to revisions in the Spectrum Management Authority syllabus.

This book has been written to help those who want to obtain a Novice licence. The content of the book is basic theory. It presumes no experience in electronics and is intended to provide only the information necessary to pass the theory examination. There are fourteen chapters of theory. They cover all the building blocks of radio: Electrical Laws and Circuits, Circuit Symbols, Semiconductors, Vacuum Tubes, Power Supplies, Oscillators & Amplifier Principles, Transmitters, Receivers, Wave Propagation, Antennas and Transmission Lines, Test Equipment & Measurement, Interference and last, but not least, Safety. A two page description of mathematics and units is also included as the other chapter. There is a set of sample questions and answers, an outline on Morse Code study and a glossary of terms.

While the book is designed to be read, rather than referred to, the author recommends reading a section a time, then using the questions as a check on comprehension. There is a large variety of topics and the author's

recommendation should prevent information overload (too much information taken in too quickly without adequate comprehension). The author is an experienced technical teacher and his suggestions should be heeded.

All the topics have separate paragraphs with headings to make them easy to find. A liberal use of diagrams complement the text — a picture is worth a thousand words. There are also photographs of various transceivers and test equipment. However, on two occasions, to just refer to these photographs for "typical controls and their functions" was disappointing.

The contents of this book are designed to be easily learned. It just takes a little time for the job to be done properly. The author also provides sample examination papers (at a cost) for those wanting to check their comprehension before taking the real examination.

With experience, it is easy to get academic and quibble (especially when using obtuse logic to justify alternative answers to some of the questions), but it takes talent to keep it simple and the author has done just that.

One thing, however, did stand out, the glossary entry for decibel. It is a unit allowing power levels to be compared or calculated. It is not for comparing voltages or currents. Any decibel formula involving voltage or current is manipulation of a formula for power. The examples in the book kept to power ratio concept. In discussing attenuators, a subject related to decibels, the author did refer to the chapter on mathematics for more information on logarithms. This entry could not be found.

The needs of newcomers are easily overlooked. The author has used his teaching ability to write a book to meet this need. The book is aimed at anyone wanting to enter the hobby. I can only echo (with a name correction) Bruce Bathol's original comments.

Graeme is to be congratulated on his efforts, and a candidate who has fully studied this book, together with the SMA operator's handbook and Morse code requirements, should have little difficulty in passing the Novice operator's examination.

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■ Places

Colombia Revisited — Five Months in HK3

David McConnell, VK3YNB*



A view of Bogota.

It was September 1993 and I was about to embark on my long awaited return visit to Colombia. I had checked up on the amateur radio licensing arrangements and had found that, although all South American countries have reciprocal agreements with the USA, no such agreement was in place with Australia, so I was interested to know how I would fare when it came to using the radio as I travelled through the country.

Shortly after my arrival in the Colombian Capital of BOGOTA I was able to contact the officials of the LIGA COLOMBIANA DE RADIO AFICIONADOS, an equivalent to our WIA, who were very helpful.

Their offices are housed in a very impressive building which is adorned

with a very comprehensive "antenna farm" covering all bands and modes. The radio room is quite extensive and very well equipped with several HF and VHF/UHF rigs operating as well as two 2 metre packet systems. Two operators were busily engaged in operating the HF rigs and were in contact on 14 MHz and 7 MHz. Apparently a roster of operators keeps these stations "on air" most of the time.

The organisations hold meetings each Thursday night for the various activities conducted by the Group and they are very active in the schooling of prospective amateurs as they conduct regular classes and examinations. A NOVICE licence does not require a CW test and entitles the operator to use VHF and

40 metres with an output power of 2 kW.

A FULL CALL requires CW at 10 wpm and gives access to ALL HF and VHF/UHF bands, also with a power output of 2 kW.

The cost of a Full Call Licence is 81,510 Pesos (approx \$110) and the 2nd Grade Licence is 41,500 Pesos (approx \$56).

On making enquiries about using my HT rig, I was referred to the MINISTRY OF COMMUNICATIONS building in central Bogota where I was informed that I would be able to go "on air" for two months without paying a licence fee. However, it was necessary to apply for permission in writing and to produce a copy of my paid up Australian licence. After two months I would be required to pay the full 2nd Grade licence fee to obtain an HK3 callsign.

Amateur radio operators show great patience and are determined to assist the visitor in any way they can.

I made contact with several American amateurs who were among many Americans who work in and around Bogota. The repeaters in Colombia are "closed repeaters" in that they are owned and operated by RADIO AFICIONADOS and other clubs and require subtones to gain access for operation by various club members or authorised operators.

The Colombian Red Cross have amateur radio installations in several of their district headquarters to supplement their own communications network in times of emergency.

As with most international travelling the language (Spanish in this case) can present quite a problem at times, but with some thought and perseverance this can usually be overcome, just as in the world of amateur radio operators show great patience and are determined to assist the visitor in any way they can.

Some Examples

Shielded braiding — *Maya protectora*
Single Sideband — *Banda lateral unica.*

Lower Sideband — *Banda lateral inferior.*

Amateur Radio Operator — *Radioaficionada*

Callsign — *Indicativo*

Atmospheric noise — *ruido atmosferico*

The Amateur Bands translate to *Dos, Diez, Quince, Veintiuno* and *Ochenta Metres* (2, 10, 15, 20 and 80 metres).

A typical CQ call becomes: "CQ, CQ, CQ. *Hola CQ, CQ, CQ. quince metros. Llama CQ en Quince metros. Esta es W2XYZ Esta es W2XYZ Llama CQ y sintoniza para una llamada. Adelante.*" (CQ, CQ, CQ, Hello CQ, CQ, CQ. 15 metres. Calling CQ on fifteen metres. This is W2XYZ. This is W2XYZ calling CQ and tuning for a call. Go ahead.)

Recognition of the call is made much harder by the fact that the sound of some of the more common phonetics are changed, eg CQ sounds like "Say Coo", QRM sounds like "Coo Ere Eme", and QRA sounds like "Coo Ere Ah". However, patience usually triumphed, and before long it

was quite easy to greet my newfound radioaficionada friends "*Buenas tardes colega — El reporte de tu senal es cinco por nueve.*"

In 3 city blocks I counted 52 electronic parts suppliers.

Electronic stores abound in Bogota. The two main stores sell ham radio equipment from the three main manufacturers, and undertake ALL electronic equipment servicing. In 3 city blocks I counted 52 electronic parts suppliers selling all manner of electronic and radio parts from micro chips to HUGE rectifiers and the like.

The cities of Bogota, Medellin and Girardot (pronounced hit-a-dot) are quite large and have varying climates. Bogota has an altitude of 2650 metres and an average temperature of 57° F (14° C) whereas Medellin and Girardot are bordering on the tropical rainforests and have average temperatures of about 84° F (29° C).

Nearby Mt Monserrate has an altitude of 3910 metres and affords magnificent views of distant mountain ranges and the Bogota Plains. Colombia abounds with museums, art galleries, cultural displays, art, craft and food markets, theatres, fine restaurants and clubs, and the hotels offer really first class accommodation.

Historically the Plain of Bogota was the original seat of the ancient Muisca civilisation. The Muisca Indians were skilful craftsmen and goldsmiths and developed complex techniques for melting and moulding gold. They created marvellous works of art dedicated to the worship of their gods. The initial conflict between the Indians and the Spanish in 1538 and the later integration of the two cultures has brought about the intermixing which is so evident in modern day Bogota, now a city with 5 million inhabitants.

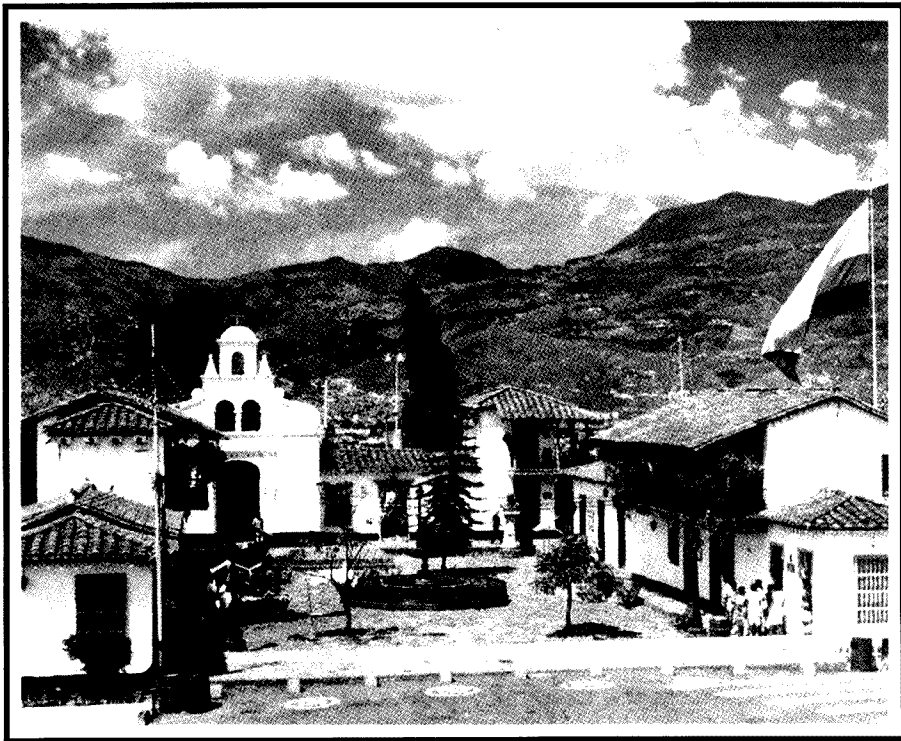
During my stay the Colombian President decreed that a population census should be conducted, and on Sunday, 24 October ALL transportation was stopped for the day. All shops were closed and movement of the public was prohibited, without special authority, for the whole day, while census takers moved from house to house. Those found contravening the laws (some 10,400 of them) were detained for the duration of the census. The population of Colombia is approx 33 million.

The San Agustin Archaeological Centre is Colombia's most popular tourist attraction with its haunting stone statues carved by the obscure Agustinian civilisation many centuries ago. These monoliths make San Agustin the most studied and most visited archaeological site in the country. The relics disclose many aspects of religion and the daily life and fate of this civilisation that left little for antiquity but their stone carvings.

Colombia is a very interesting country in many ways and has its share of outstanding natural beauty and culture but, after my five months stay, I must admit that it was great to return home to the "lucky country" and the lifestyle to which we are more accustomed.

*Box 1283 Mail Centre, Ballarat VIC 3354

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An historic building in Medellin.

ALARA

Sally Grattidge VK4SHE*, ALARA Publicity Officer

Results of 14th ALARA Contest, November 1994

1	FK8FA	Aimee	603	Top overall Top DX YL Top Pacific Is ALARA member
2	VK3CYL	Kim	452	Top VK YL Top VK3 ALARA member
3	VK5NYD	Nora	400	Top VK Novice Top VK5 ALARA member
4	VK6DE	Bev	374	Top Phone Top VK6 ALARA member
5	VK4NBC	Bev	353	Top VK YL CW Top VK4 ALARA member Florence McKenzie Trophy
6	VK4RL	Robyn	315	
7	VK3OZ	Pat	246	
8	VK3DYL	Gwen	237	
9	ZL1ALK	Celia	182	Top ZL ALARA member
10	ZS1AFZ	Maria	167	Top DX YL CW Top South Africa ALARA member
11	VK5BMT	Maria	161	
12	VK6YF	Poppy	146	
13	VK4PT	Pat	139	
14	VK4AOE	Margaret	137	
15	VK5AOV	Meg	134	
16	VK7HD	Helene	114	Top VK7 ALARA member
17	VK3KS	Mavis	110	
18	V85BJ	Barbara	109	
19	VK4SHE	Sally	97	
20	VK3XB	Ivor	90	Top VK OM
21	VK3DVT	Valda	89	
22	VK5CTY	Christine	89	
23	VK2DDB	Dorothy	86	Top VK2 ALARA member
24	ZL2AGX	Dawn	76	
25	VK3DYF	Bron	52	
26	ZL2OI	Gwen	51	
27	VK2MAS	Margaret	51	
28	VK4KRR	Ted	50	
29	ZL1BBN	Win	48	
30	VK4BGC	Graeme	45	
31	VE7YL	Elizabeth	38	Top Canada ALARA member
32	JA8GTA	Yohko	15	Top Japan YL non-member
33	JA8XJF	Tadakatsu	15	Top Japan OM
34	VK3BSP	Sth Pen ARC	15	Top VK Club station

Once again the ALARA Contest has come and gone — unfortunately this time I was unable to take part due to other social commitments on that day. From the reports I have had, both on the air and with the logs, it would appear that everyone had a very enjoyable day.

Very special congratulations must go to Maria ZS1AFZ who, in her very first contest, worked CW only with a rotator stuck in the opposite direction to VK! Nevertheless she managed a very good 167 points. Again we had our two Japanese contestants send their logs — an effort very much appreciated.

Bev VK6DE has taken the top phone score despite having a broken wire on the driven element of her quad! It was

heartening to see more girls working at least some of their contacts in CW but, of course, the biggest bouquet AND the Florence McKenzie Trophy go to Bev VK4NBC who scored 156 CW points. She was heard to say later that it involved BLOOD and SWEAT! (I guess the climate contributed to the sweat, but well worth the effort, Bev.) Nora also scored towards the Florence McKenzie Trophy — better luck next year Nora.

Regarding signal reports, one contestant gave out a 4.0 and was told that the zero meant there was no contact. However, if you can hear a station but the needle does not move, surely the contact is valid. Any comments welcome on this one. Another contestant reported a YL

signal splattering 10 kHz either side — this is not good and we should all look to our operating technique to avoid this sort of sin.

Several people spent time explaining the contest to DX stations they worked, who were very interested, which was valuable publicity for ALARA. Maybe we will receive more DX logs in future contests.

There seemed to be far fewer comments on the contest in general coming in with the logs. PLEASE SEND YOUR THOUGHTS — as well as comments and criticisms. We all like to know the interesting and amusing things that happen.

One comment which should be treasured this year was "People seem to have blown the cobwebs out of their rigs". I hope even more YLs will blow the cobwebs out next year, even if conditions probably will not be good.

73, Marilyn VK3DMS
(Comment from VK4 — As one of the grumblers who have complained about the contest being held in summer when 80 m is so noisy, making it hard for Novices who rely on this band for at least some of their contacts, this is the first year I have experienced the contest without 9+ static. I hope we can be lucky again in 1995.
Sally VK4SHE)

Contest Manager, Marilyn VK3DMS, is hoping to have a bit more time in future now that she has given up the WIA Victorian Division Club News Net after eleven and a half years, but fears she may suffer withdrawal symptoms on Sunday nights for a while.

More YL Contests

Canadian Ladies Amateur Radio Association

The CLARA and Family HF Contest (most activity on 20, 40 and 80 m) will take place from 1700z on 14 March to 1700z on 15 March 1995. Scoring — five points per contact with CLARA member, two points per contact with CLARA family member, three points per contact with YL non-member, and one point per contact with OM. Multipliers — one for each Canadian Province/Territory (possible 13) and each ARRL DX country. Contest Manager: Renee Devenny VO2RD/VE3, Box 149, Osgoode, Ontario, KOA 2WO. Logs to be received no later than 14 April 1995. Open to all licensed amateurs. SSB/CW.

Thelma Souer Memorial Contest 1995

Sat 1 April and Sun 2 April 0700z to 1000z each evening, all contacts on 80 m, SSB/CW. YLs work anyone, OMs work YLs only. One contact per station each half hour. Call "CQ WARO Contest", RST, number commencing with 001. To qualify as a multiplier, WARO Member stations

must have contacts with at least 20 different stations. Bonus station ZL2YL is also a multiplier once each night. A club station where all operators are WARO members counts as one multiplier. Scoring — one point for each contact. Multiply by number of WARO members worked. Log — date each evening, time of contact, cipher sent, cipher received, name of contact. Underline multiplier contacts. Separate summary sheet — callsign, name and address, number of contacts, number of WARO members worked, score, declaration that regulations have been observed. Logs to Contest Manager, Chris Armstrong ZL1BQW, PO Box 209, Kawerau 3038, NZ, no later than 6 May 1995. Note that contacts made during this contest may count towards the NZ WARO Century Award.

Christine is looking forward to receiving plenty of logs from "across the pond", so take this opportunity to catch up with your sponsors and other YLs in the land of the long white cloud.

DX:YL to North America YL Contest 1995

CW from 1400 UTC, Wed 12 April to 0200 UTC, Fri 14 April. SSB from 1400 UTC, Wed 26 April to 0200 UTC, Fri 28 April. Show operating breaks in your log. All licensed YLs invited to participate. Call "CQ North America YL". All bands but no cross band, net or repeater contacts. Score Phone and CW scores as separate contests. Contacts with OMs do not count. North America includes 48 contiguous states and all Canadian provinces. One point for each station on each band. Multiply by the number of different ARRL Sections/VE Provinces/Countries. Low power — CW, 150 watts or less at all times; SSB, 300 watts PEP at all times. Multiply result by 1.5. Suggested frequencies, CW on 3.540 to 3.570, 7.040 to 7.070, 14.040 to 14.070, 21.120 to 21.150 and 28.180 to 28.210; SSB on 3.940 to 3.970, 7.240 to 7.290, 14.250 to 14.280, 21.380 to 21.410 and 28.280 to 28.410. Logs to Carla Watson WO6X, 473 Palo Verde Drive, Sunnyvale CA 94086 postmarked no later than 30 days after each contest.

International World-Wide YL Meeting — Berlin 1996

Thursday, 20 June to Sunday, 23 June 1996. This is the weekend before the Ham Radio Convention in Friedrichshafen (tell the OM). This may seem a long way in the future, but the organisers wish to know numbers of DX visitors well in advance so that travel, accommodation and other activities can be planned (eg a coach trip to the Convention after the YL meet will be organised if sufficient numbers). Interested? Contact Gertrud Szyza

DK8LQ, Am Brook 5, Fassendoorf, 23701 Susel, Germany (tel: +44 4521 4827).

YL History

The stories from our "historical" YLs are coming in SLOWLY. Please, if you have received a letter asking you to participate, send in your story as soon as you can. OMs, non-members, and other readers, we would love to hear from you if you know any YL involved in amateur radio in the early days (up to about 14 years ago), or have heard any interesting stories relating to YL activity in this period. Even the information that a certain name/callsign was heard or known as being active in some aspect of amateur radio may help the historian in his detective work. ALARA members please send your information to your state

representative; others can send direct to the Federal Historian, John Edmonds VK3AFU/ATG, PO Box 2175, Caulfield Junction VIC 3161.

Other News

Welcome to two new ALARA members, Ann VK6ANN (joined 6 Oct 1994) and Karen (VK3, joined 12 Dec 1995).

Congratulations to Kirsti VK9YL on receiving her #1 Honour Roll for CW from DXCC. She now also has her #1 Honour Roll SSB confirmed. What a splendid achievement!

VK3 lunches at the Vista Cafe will start again Friday, 19 February. Because of Good Friday, the April lunch will be held on the first (not second) Friday, 7 April.

**C/o PO Woodstock, QLD 4816*

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AMSAT Australia

*Bill Magnusson VK3JT**

National co-ordinator
Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI
AMSAT Australia net:
Control station VK5AGR
Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):
Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/- 5 kHz for QRM.
AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

400 Baud PSK Demodulator

Last month I mentioned 400 baud PSK telemetry in relation to two topics. Firstly, the new phase 3d satellite which will be carrying a similar beacon to OSCAR-13, and secondly in relation to listening for the latest news from the horse's mouth via the present AO-13 telemetry beacon. The 400 baud telemetry data format seems to have become a "standard" for the high orbit AMSAT OSCARs. There are very good reasons for this, not the least of which is

to encourage OSCAR satellite users to venture into home brewing. To my knowledge, apart from one or two of the very expensive DSP devices on the market, none of the current common batch of commercially available modems will handle 400 baud.

James Miller G3RUH has made available a new 400 baud PSK demodulator in two forms. The demodulator requires no setting up and no adjustment. It is available as a bare PC board and instructions for £25 or a fully made up and tested board for £99 (Sterling). Either way it represents good value, particularly when you realise that James donates 50% of all money to the AMSAT satellite building fund. This makes it a good way to get into the telemetry business and also contribute to the on-going construction of more OSCARs. The launch of phase 3d will provide some exciting opportunities for "snooping" on the telemetry, particularly in the commissioning stages.

More on RS-15

Since writing last month's column the situation has become clearer regarding the new Russian amateur satellite RS-15. Several VK stations have reported working through it although signals are not strong. The set of kep elements I gave in the February column were rather questionable, but represented the best available at the time as a result of much watching and adjusting by several amateurs, mostly in America and Europe. A short time after writing the February column the situation was resolved and, since that time, RS-15 has been included in the kep sets emanating from NASA



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The deluxe 2m/70cm dual-band hand-held Transceiver that offers easier operation and more features than ever before is still available at an unbelievably low price!

The Yaesu FT-530 provides a flexible dual receiver facility with separate volume and squelch controls, allowing you to listen on two frequencies in the same band or one frequency on both bands! Plus, the exclusive Australian version features full 70cm band coverage (420-450MHz), selectable Auto Repeater Shift on both 2m and 70cm (suits Australian band plan), and extended receiver coverage as standard. Two VFOs and 41 tunable memories per band are provided, together with keypad or dial frequency entry, seven selectable tuning steps and a one-touch CALL channel. The dual 5.5-digit LCD screen is back-lit for easy viewing and includes many functional indicators plus separate signal/P.O. bargraphs for both receivers. An LCD voltmeter function is provided so you can even monitor your battery's performance under load and estimate remaining battery life.

Other top features include: Inbuilt CTCSS encode/decode, CTCSS scanning, an auto battery saver (ABS) for extended battery charge life, a cross-band repeater facility and an inbuilt clock with alarm and snooze functions.

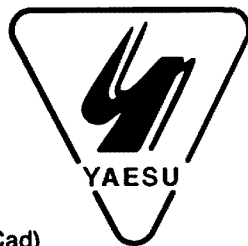
Also provides VOX circuitry for use with the optional YH-2 headset, a user-replaceable Lithium back-up battery, and DTMF selective calling and paging. A DC supply jack allows simple transceiver powering and NiCad charging, with RF output in four selectable steps up to 5W at 12V. The FT-530 comes complete with an ultra high-capacity 1000mAh NiCad battery, belt clip, carry case and approved AC charger.

Cat D-3620

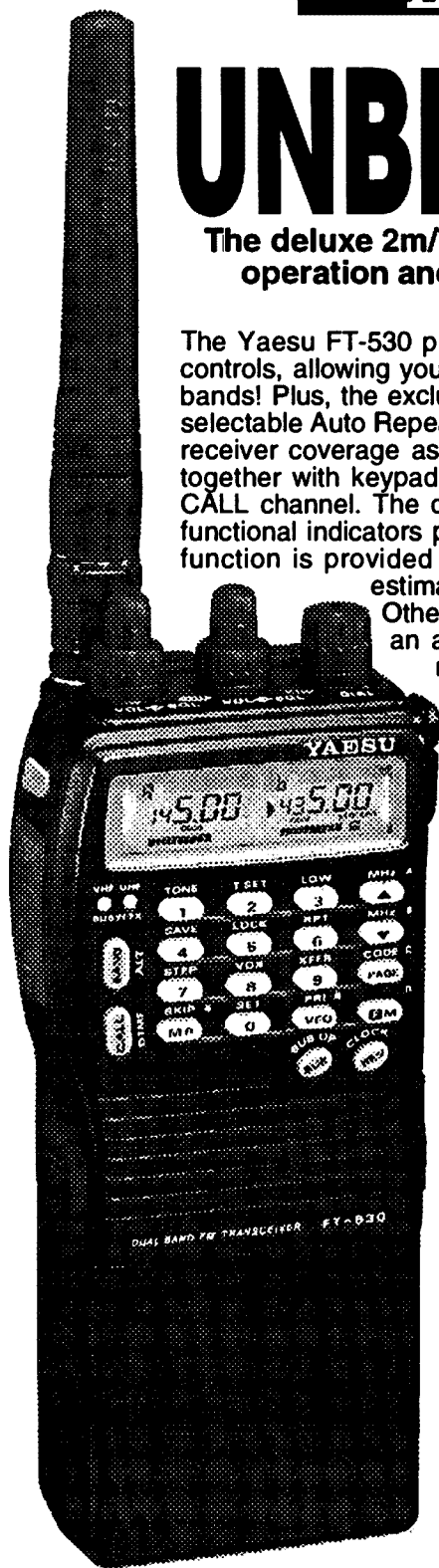
Specifications

Frequency range:	144-148MHz, 420-450MHz
Transmit:	130-174MHz, 420-500MHz, 800-950MHz
Receive:	
Current consumption:	
Auto power off	150uA
Standby (saver on)	16.8mA (both bands)
Dimensions:	55(W) x 163(H) x 35mm (D)
Transmitter:	
Power Output:	5, 3, 1.5, 0.5 (at 12V)
RF Power Output:	2.0W (2m) 1.5W (70cm) (Supplied 7.2V 1000mA/H NiCad)
Receiver:	
Sensitivity:	2m: < 0.158uV, 70cm: < 0.18uV (Ham bands only, 12dB SINAD)
Selectivity:	>60dB
Audio Output (12V):	300mW at 8 ohms (at 12V)

2 Year Warranty



\$699 Still Available At This
Special Low Price!!



Clearance!

Handhelds Way Below Cost!



Yaesu FT-415 Deluxe 2m Handheld

While stocks last, grab a deluxe FT-415 at a great bargain price!

- 144-148MHz Tx, 140-174MHz Rx
- 41 memories, 2 VFOs
- Keypad and dial frequency entry
- Selectable Auto Repeater shift (VK version)
- DTMF paging, variable Auto Battery Saver, Auto Power off, VOX, DC power socket
- Complete with 1000mA/H NiCad (2W RF out), carry case, belt-clip and AC charger

Cat D-3610

2 Year Warranty Only **\$399**

Very limited stocks. Some units may be ex-demo but full warranty applies.

Also available:

Yaesu FT-815 70cm Hand-held
Similar features to FT-415 except
with 430-450MHz coverage.



Only **\$399**

FT-890 All-Mode Transceiver

The outstanding FT-890 is a rugged, 100-watt PEP mobile transceiver that covers all HF amateur bands in SSB, CW, FM and AM modes, plus provides continuous reception from 100kHz to 30MHz. Two direct digital synthesizers (DDSs) provide pure local signals and fast t/r changeover, while the low noise receiver front-end offers excellent receiver dynamic range performance. The switchable RF amplifier and a 12dB attenuator provide clear copy of even extremely strong signals, while interference rejection is facilitated by both IF Shift and IF Notch filters. Two independent VFOs per band are provided, plus 32 memories which store data from both VFOs. There's also an effective variable noise blanker, and a CW iambic memory keyer plus an adjustable passband-shifting speech processor which lets you tailor SSB transmitter audio to your own voice and microphone characteristics.

The FT-890 weighs less than 6kg, uses modular design and surface-mount components to ensure highly reliable operation and comes complete with an MH-1 hand mic. An optional internal automatic Antenna Tuner (ATU-2) is also available, which can be controlled from the front panel.

Cat D-3270

\$1995

Limited Stocks



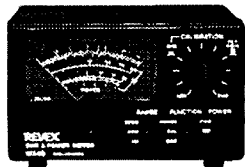
2 Year Warranty

Quality Transceiver Accessories!

VHF/UHF

Power/SWR Meter

A high quality SWR/Power meter suitable for amateur, UHF CB and commercial applications. High-quality Japanese construction assures you of maximum reliability. It has an all-metal case, large meter display, 140-525MHz coverage with less than 0.3dB insertion loss, and 4W, 20W & 200W power scales. Revex model W540.



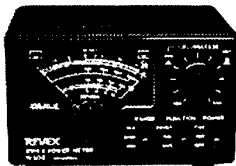
Cat D-1370

\$199

With PEP Reading!

HF/6m Power/SWR Meter

A quality wide-band SWR/power meter with accurate PEP metering. Manufactured in Japan, it's very well constructed with an all-metal case. Features include a large, back-lit meter, 1.8-60MHz coverage with less than 0.1dB insertion loss, 20W, 200W and 2kW power scales, and LED indicators for Average/PEP operation. Requires 13.8VDC at 200mA. Revex model W502

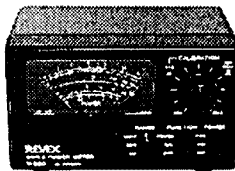


Cat D-1360

\$199

Revex W560N HF/VHF/UHF SWR/PWR Meter

Another quality Revex wide-band SWR meter, offering 2 inbuilt sensors for 1.8MHz to 525MHz coverage! Provides measurement of 3 power levels (3W, 20W, 200W), SWR (at low and high power levels) and uses an N-type socket for the VHF/UHF sensor to ensure minimal loss. Measures 120 x 80 x 85mm.



Cat D-1375

\$369

Limited Stocks

Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV is a 5-band HF trap vertical which continues the Hustler tradition of quality and performance. It incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1 kw (PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, < 2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike some other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.

Cat D-4920

\$299

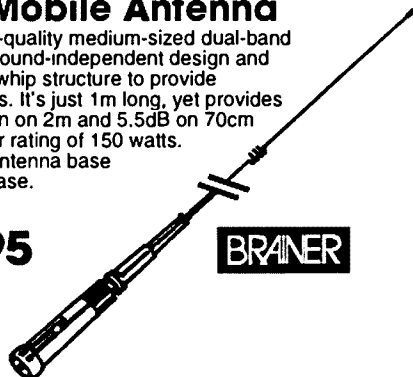


2m/70cm Mobile Antenna

The ST-7500 is a high-quality medium-sized dual-band antenna that uses a ground-independent design and tiltable stainless steel whip structure to provide excellent mobile results. It's just 1m long, yet provides approximately 3dB gain on 2m and 5.5dB on 70cm with a maximum power rating of 150 watts. Requires an SO-239 antenna base or SO-239 magnetic base.

Cat D-4810

\$7995



BRANER

2m/70cm Hi-Gain Mobile

The ST-7800 is our best long-range, dual-band mobile antenna providing high gain (4dB on 2m and 7.2dB on 70cm), while only 1.5m in length. It incorporates an inbuilt tilt-over mechanism and has a maximum power rating of 150 watts. Requires an SO-239 antenna base.

Cat D-4815

BRANER

\$12995



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each week. The latest set I have is as follows and is a good fit with the AOS, TCA and LOS times for RS-15.

Satellite RS-15

Catalog number: 23439
Epoch time: 95029.78512545
Element set: 25
Inclination: 64.8142 deg
RA of node: 118.8199 deg
Eccentricity: 0.0167992
Arg of perigee: 285.7880 deg
Mean anomaly: 72.4579 deg
Mean motion: 11.27524749 rev/day
Decay rate: $-3.9e-07$ rev/day²
Epoch rev: 391
Checksum: 343

Given RS-15's high orbit (for a low earth orbiter) the keps should remain accurate for some months for manual tracking methods.

FAQs (Frequently Asked Questions)

A feature of Internet based communication in the news groups or forum areas is a series of files called FAQs. They are usually maintained by sysops or news group organisers and updated from user contribution and their own experience. It has been suggested that I could include a short segment from time to time listing frequently asked questions and, of course, answers which could be of value to newcomers to the OSCARS. It's certainly true that the same questions seem to come up regularly as new operators become interested in amateur radio satellites.

On the Internet the FAQs are available on request and newcomers are encouraged to download the files and scan them before proceeding into a new area. That's a bit hard to do in printed form but I'll begin by including one or two each month. Perhaps if they snowball it may be possible to collect them and make a feature of them at some future time.

FAQ — How do I work all the OSCARS?

You would be surprised how often I am asked this question. The short answer, rather tongue-in-cheek, is "I don't know", because I am not aware of anyone who works all the OSCARS. But the questioner is always well intentioned, so here goes.

It would be nearly impossible to make a practice of working all the OSCARS due to the different equipment requirements and sheer number of OSCARS to work. Most operators specialise and zero in on one satellite or a small group of satellites sharing similar features. Even then equipment requirements can vary widely from very simple, such as an FM rig and ground plane antenna, to complex auto-track computer controlled systems

involving a shack full of expensive gear and a back yard full of complex antennas.

Usually the person asking such a question is expecting a one sentence reply. Unfortunately, to get to square one you need to at least do some preliminary reading on the subject. I usually refer them to publications such as the *Satellite Experimenter's Handbook* and suggest they consider joining an AMSAT group and read as much information as they can get their hands on.

The situation is ever changing with new operating modes, new satellites being launched and others reaching the end of their operational lives. There's no easy way. Packet radio and Internet are excellent sources of up-to-date information on what's happening day to day in the amateur radio satellite field.

FAQ — Do I really need a computer to work the OSCARS?

A difficult question. The short answer is "No, but it won't be easy and it depends on who your friends are". If you have a friend who is a satellite buff, has a computer, a satellite tracking program and a current set of keps elements, and will alert you when a particular satellite is in range and tell you which operating mode is turned on and where to point your antenna and continue to feed you this information minute by minute or provide you with a printout in advance (whew!), then you may be able to make the odd contact through one of the analog transponders.

The practical answer is "Yes". All of the above soon becomes rather tiresome for your friend. If you are developing an interest in amateur radio satellites, you had better get on first name terms with at least a simple computer. On a positive note, it doesn't have to be a super whiz-bang state-of-the-art device. An old IBM clone XT will acquit itself quite well. The basic requirement is that it will run a tracking program.

FAQ — What are Keplerian elements (keps)?

This is a very common question from someone starting out. What do those numbers mean? I covered this in detail in a series of introductory articles I wrote for *Amateur Radio* a few years ago. One of the best explanations I have come across is contained in the document file of Franklin Antonio's tracking program *InstantTrack*. This is worth reading whether you are a newcomer or an experienced satellite user.

Very briefly, the numbers are mathematical constants. Collectively they describe the satellite's orbit in terms a computer can manage. Many of them are angles describing exactly where a satellite is positioned in its orbit at a precise time. You don't have to understand them. Load them into your computer and let it work its little heart out. Keps need to be updated every week or two depending on your requirements. Satellite orbits change with time. New keps sets appear weekly on packet radio and less frequently in various amateur radio publications.

FAQ — Why don't you (that means me!) generate the tracking data and publish it in this column each month, after all...you have a computer?

Answer. Sheer volume. It would take a publication several times larger than *Amateur Radio* to contain a month's printout of all the OSCARS and it would be out of date before you received it. I'm afraid you're on your own on this one! Do what I did. Go out and buy a secondhand IBM clone XT, learn how to use it, buy a copy of *InstantTrack* from AMSAT-VK, install it and enjoy.

That'll do for this month. Maybe readers can suggest some FAQ topics.

*359 Williamstown Rd, Yarraville VIC 3013
Packet: VK3JT@VK3BBS.#MEL.VIC.AUS.OC
CompuServe: 100352.3065
ar

Update

Apology

In the article "Capacitors at High RF Power" by Lloyd Butler VK5BR, published on pages 7-9 of the January issue of *Amateur Radio* magazine, reference to the source of diagram Figure 1 was accidentally omitted.

The diagram is copyright, having previously appeared in an article written by Roger Harrison VK2ZRH, published in

the Australian edition of *Electronics Today International (ETI)* in 1976.

At the request of Roger Harrison VK2ZRH, the author of the article, Lloyd Butler VK5BR, and the editor of *Amateur Radio* magazine, Bill Rice VK3ABP, hereby apologise to the original author and publication for this omission.

It might be a good idea to correct your copy of the January issue of *Amateur Radio* now.
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AWARDS

John Kelleher VK3DP — Federal Awards Manager*

The greatest feature of amateur radio is the countless ways that there are to enjoy the hobby. Such as experimentation, packet, rag-chewing, VHF/UHF, satellite, DXing — the list goes on and on. Much of the obvious enjoyment of amateur radio was nurtured and made possible by early pioneers of the hobby, old-timers, and those who were interested enough to give it a definite profile. This, plus very obvious changes in technology, have created the very pleasant situation which we all enjoy today. Which leads me to another facet of the hobby....awards chasing, sometimes referred to, most irreverently, as "paper-hanging"!

But you don't have to be a "paper-hanger", as such, to enjoy this facet of amateur radio. More than likely, as a more than average DXer, you will have boxes and bundles of QSL cards doing little else than taking up space in some obscure storage area.

For the average amateur, there is a whole world out there beyond Club and State Awards. Begin with the major WIA awards, then tackle the International arena. If you have already earned DXCC, you have a fine start in meeting the requirements of more than several dozen colourful DX awards. The odds are that you've got some of these earned right now and don't know it.

To assist me personally, and to provide information for these pages, I enlisted help from the K1BV DX Awards Directory which, at last count, listed over 2200 awards from 125 DX countries. I will list information on this fine publication later.

Awards Tips

The newcomer to awards hunting should pay attention to this section in an attempt to keep his or her expenses down and the success rate high.

Application forms should contain all the relevant information required by the award sponsor. Make sure that your name and correct address is printed clearly, also the correct address of the award sponsor, or manager, as this information does change from time to time without adequate notice.

Don't forget to obtain the necessary signatures to verify the information in your application. Insist that your verifiers read your application before signing.

List the number of entries on your application.

Most sponsors will allow a GCR (General Certification Rule) list, in lieu of actually wanting to see QSL cards, but

you do have to have the necessary cards, because spot checks are sometimes carried out by sponsors and managers. Some will accept photocopies of both sides of your cards.

Include the fee as indicated. If money is to be sent, a piece of carbon paper folded around the currency is very efficient in preventing tampering. Use blue-lined envelopes wherever possible. Include a self-addressed envelope with your application, for quick return of the verification you want.

If you must use IRCs, make sure that they are postmarked on the LEFT side. Don't hoard IRCs, as they change in format from time to time. Some you have may have already become defunct.

Attach ordinary stamps to your application envelope. Fancy commemoratives may attract unwanted attention. If you want to send nice stamps, say, to a collector, include them inside your envelope.

Read all the rules of application, and follow them. If the award rules specify certain officials, make sure that their titles follow their signatures. The rubber stamp of their Club or other organisation will often make doubly sure.

A tiny minority of sponsors will actually want to see your cards. If you want the award, then you are going to have to risk your cards. I've never lost any in the mail, but I have never rested easy until they were returned safely.

If the award is listed in several levels or modes, always specify the level or mode you are seeking.

It follows that, to accumulate the QSL cards that you want for the awards, you have to have been reasonably active for a considerable length of time, and have been diligent in sending out cards for all

your contacts. Don't rely on your DX contact to send you a card, as he or she may be following the same "waiting" procedure. Remember that your QSL card may be the final courtesy of your contact.

Most Awards organisations require that you send your applications listed in alphabetical order BY PREFIX, not by country. Later logging programs now have both facilities. Again, read the rules.

A few words about your QSL card. If you want a good percentage of confirmations, your card should:

1. Be reasonably attractive (pictures are great, but not necessary);
2. Contain all the QSO data in logical format;
3. Show contact time in UTC, and be 100% accurate;
4. Indicate country, zone, and locator if possible; and
5. Be of average size, (about 140 by 87 mm), to fit the average size envelope.

Contests are an excellent way of building up your QSL card collection. After the contest, QSL all your first-time contacts either by the bureaux, or direct to the QSL managers specified during the contest. If you miss this latter information, there are very accurate and reputable listings published almost monthly. It may be that some of your DXer friends have the information you want. There are also some DX nets which devote an entire segment to giving out correct paths for certain operations.

As your collection grows, you will truly realise that DXCC, WAC and WAZ are only the beginning. Again, I say that there is a whole world out there ready and willing to recognise and reward your on-air achievements.

The address for the K1BV DX Awards Directory is Ted Melinosky K1BV, HCR 10, Box 837A, Spofford NH 03462 USA. Fees are \$US17.00 surface mail and \$US28.00 for airmail.

*PO Box 2175 Caulfield Junction 3161

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Club Corner

Barossa Amateur Radio Club Inc

The Barossa Amateur Radio Club Incorporated is pleased to advise that the WIA Annual Radio Picnic will be held on Sunday, 26 March 1995 at Talunga Park Showgrounds, Mount Pleasant. This has become a major event on the South Australian amateur radio calendar, and promises to be the best yet.

Once again, South Australia's major retailers of amateur radio equipment are

participating. These include Dick Smith Electronics, International Communication Systems and Jensen Electronics. Daycom Communications and the Wireless Institute Equipment Supplies Committee and Publications will also be there. Johnston Electronics will be setting up the latest Barrett HF equipment, Lencom and Bushcom antennas and a Magellan vehicle based GPS unit which is well worth a look.

One complete pavilion is reserved for

buy and sell, and tables may be pre-booked or hired on the day at \$5 per table. These tables are not limited to radio equipment, and other hobby items are most welcome (provided it's legal), as well as handicrafts, cakes and preserves. No commission is charged.

Talunga Park is just over an hour's drive from Adelaide, with plenty of tree shaded car parking spots around the main oval. Entry to the main hall will cost \$2, which also entitles you to a ticket in the door prize raffles, drawn every half hour. A large range of hot foods, drinks and icecreams will be available from on site caterers. There is plenty of room to sit under the shade of the verandah in front of the main hall. Children can make use of the football oval and well equipped playground.

The traditional transformer throwing competition will run throughout the day to ensure that all visitors have a chance to participate. There is still plenty of room in

the pavilion and on the grounds surrounding the hall, and radio clubs or other organisations are most welcome to set up a display or activity in these areas. Mains power is available.

For further information, or to book a spot, ring Martin VK5GN on 085 24 3440, or write to the Barossa Amateur Radio Club at PO Box 356, Angaston SA 5353.

Stephen Bigg
Secretary BARC

Radio Amateurs Old Timers Club

Monthly broadcast. The March broadcast will be at the same times as in November, December and February, and revert to EAST as from April onwards.

The Annual Meeting and luncheon will be held on Wednesday, 15 March, commencing at 1.00 pm at the Bentleigh Club in Yawla Street, Bentleigh. The cost will be \$20.00 plus drinks.

The speaker will be Dr Ken Joyner of the Telecom Research Laboratories and his subject will non-ionising radiation and its possible effects. Ken has worked in this field for many years and has travelled widely and met all his counterparts around the world.

Allan Doble VK3AMD

Notice to Club Secretaries and Radio Historians

Parts of the WIA National QSL Collection are available for exhibition at club meetings, conventions, etc.

Also photostat copies of historical QSL cards are available to writers of radio history for the purpose of illustration.

Enquire to the Honorary Curator of the WIA QSL Collection, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose VIC 3765 or telephone (03) 728 5350.

Ken Matchett VK3TL
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Contests

P Nesbit VK3APN — Federal Contest Coordinator*

Contest Calendar Mar-May 95

Mar 4/5	ARRL DX SSB Contest	(Jan 95)
Mar 11/12	BERU CW Contest	(Feb 95)
Mar 18/19	WIA John Moyle Field Day	(Feb 95)
Mar 18/19	BARTG RTTY Contest	(Feb 94)
Mar 25/26	CQ WPX SSB Contest	(Feb 95)
Apr 1/2	SP DX Contest	
Apr 8/10	JA DX CW Contest (High Bands)	
Apr 9/10	Israel DX Contest	
Apr 9/10	"King of Spain" CW & SSB Contests	
Apr 29/30	Helvetia DX Contest	
May 6/7	ARI Contest CW/SSB/RTTY	
May 13/14	CQ-M Contest	
May 27/28	CQ WPX CW Contest	(Feb 95)

Some interesting comments were received with the logs for the last Remembrance Day (RD) contest, and it is good to see the high level of enthusiasm which exists for it. Clearly, the RD has plenty of life left in it yet, contrary to what some people might say! On the other hand it is becoming increasingly clear that significant changes are needed, to avoid the contest becoming, as one entrant says, a VHF-only event.

We obviously need to find ways to make the contest more interesting. In addition, it is probably time to downplay the importance of inter-divisional rivalry, to encourage all entrants to put in their best possible efforts, free from worrying about their QSOs contributing to the scores of other Divisions. It is time to discontinue

the RD as a contest between Divisions, and make it between individuals only? What about adopting the system of bonus points used in a number of RSGB contests, where the first QSO with a new call area attracts a 10 point bonus, the second 9 points, and so on (in addition to the normal points per QSO)? This would make the rarer states well worth chasing, at least for the first 10 QSOs with each one, without raising the old bogey of what constitutes a fair points table. Can we learn anything from the highly popular ARRL "SS" contest? These are simply ideas, not solutions, and I'm sure many readers have further worthwhile ideas to contribute. I'm meeting with the RD Contest Manager, Alek VK6APK, in several weeks time, and together we will be thrashing out these and other issues. The next RD is only 5-1/2 months away, so there is not much time to lose!

Many thanks to VK3ZC, VK6APK, HA5JJ, HB9DDZ, N3RR, also CQ, QST, and *Radio Communication*. Until next month, good contesting!

73,
Peter VK3APN

Contest Details

The following contest details should be read in conjunction with the "General Rules & Definitions" published in April 1993 *Amateur Radio*.

Addendum to 1995 Commonwealth Contest Rules

Please add the following to the list of Commonwealth prefixes published last month: ZS1 ZS2 ZS3 ZS4 ZS5 ZS6 ZS8 (thanks VK3ZC).

SP DX Contest (SSB)

1500z Sat to 1500z Sun, April 1-2

This contest is held on the first full weekend of April, and usually has a good level of Eastern European activity. Categories include single operator (single or all band), multioperator, and SWL. Bands are 160-10 m. Send RS plus serial number; SPs will send RS plus a two letter province code. Score three points per QSO with each Polish station, and obtain the final score by multiplying by the number of provinces worked (max 49). In this contest, multipliers are counted only once, even if worked on more than one band.

SWLs must receive the call sign and number sent by Polish stations, plus the call sign worked. Each SP may be logged only once per band.

Send your log, summary sheet, and multiplier check list to arrive by 28 April to: Polski Związek Krotkofalowcow, SPDX Contest Committee, Box 320, 00-950 Warsaw, Poland. Disk logs are welcome (ARRL/ASCII file format).

Polish provinces are: SP1: KO SL SZ; SP2: BY GD EL TO WL; SP3: GO KL KN

LE PI PO ZG; SP4: BK LO OL SU; SP5: CI OS PL SE WA; SP6: JG LG OP WB WR; SP7: KI LD PT RA SI SK TG; SP8: BP CH KS LU PR RZ ZA; SP9: BB CZ KA KR NS TA.

Japan DX CW Contest (High Band)

2300z Fri to 2300z Sun, Apr 7/9

The object of this contest is to contact as many Japanese stations as possible on 14, 21 and 28 MHz CW. Classes include single operator (single and multiband), single operator QRP (5 W max O/P), and multioperator (one Tx). Max operating period for single operator stations is 30 hours (show rest breaks clearly in log); multioperator stations full 48 hours. Multiop stations must remain on a band for 10 mins minimum.

Send RST plus CQ zone number; JAs will send RST plus prefecture number (01 — 50). Score one point per JA QSO on 14 & 21 MHz, and three points on 28 MHz. Points are doubled for QSOs with QRP stations (QRP stations must send /QRP). The multiplier equals JA prefectures + Ogasawara Isl (JD1) + Minami-Torishima Isl (JD1) + Okino-Torishima Isl. Send log postmarked by 8 May to Five-Nine Magazine, Box 59, Kamata, Tokyo 144, Japan. (Rules for this year's contest were not received by the magazine deadline, so the details are subject to confirmation).

Israel "Holyland" DX CW/SSB Contest

1800z Sat — 1800z Sun, Apr 1/2

This contest is designed to promote contacts between Israeli amateurs and the rest of the world on CW and/or SSB. Classes are single operator all bands, multioperator, SWL. Send RS(T) plus serial number; Israeli stations will add their area abbreviation. Score two points per 160-40 m QSO with Israeli stations, and one point per QSO on other bands. The multiplier equals the total Israeli areas from each band (counted separately on each band). Final score equals total points times total multiplier. Send logs postmarked by 29 May to The Contest Manager, Israeli Amateur Radio Club, Box 17600, Tel Aviv 61176, Israel. Awards include a trophy to the outright winner, wall plaques, and certificates to the top scorers in each country (minimum of 50 QSO points).

Helvetia DX CW/SSB Contest

1300z Sat to 1300z Sun, Apr 29/30

General rules apply. Work only Swiss stations, CW on 160-10 m and SSB on 80-10 m. You may work a station only once per band, regardless of mode. Score three points per QSO; multiplier is the total number of Swiss cantons worked (max 26 per band). Send log to be received by 14 June to: "Niklaus Zinsstag

HB9DDZ, Postfach 651, CH-4147 Aesch, Switzerland". Cantons are: AG AI AR BE BL BS FR GE GL GR JU LU NE NW OW SG SH SO SZ TG TI UR VD VS ZG ZH.

World Radiosport Team Championship

July 8-9, 1995

The Potomac Valley Radio Club (PVRC) and Frankford Radio Club (FRC) have announced WRTC-95, to be held in the Washington DC area on 8-9 July 1995, during the 24 hour IARU Contest. This is a competition between fifty teams, each of two amateur radio operators, from all over the world. The championship will be judged by some of the world's top contesters, with the winners being declared the best team of two amateur radio contesters in the world.

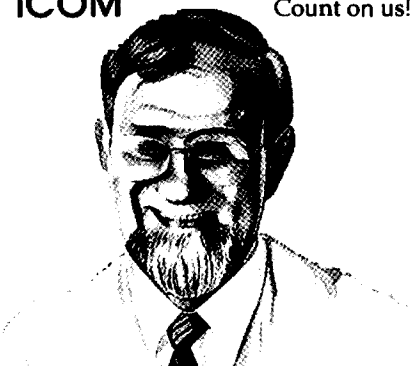
Participants will be provided with well equipped amateur stations in the Baltimore/Washington/Virginia area, and will compete head-to-head in the same geographical area and with similar equipment. The stations will have similar transceivers, 500-700 W output power, computer logging facilities (CT, NA, or N6TR), and packet cluster. Call signs will be provided by the organisers. Entrants must bring their own headphones, microphone, CW keyer and key, and may bring their own transceiver if both operators agree. Time will be available during the week prior to the event to set up and debug the equipment. To ensure uniformity, a technical evaluation and rating of each station will be made by the PVRC and FRC. Scores will be adjusted, as necessary, to enable the winning team to be ascertained. Further assistance is being provided by various local radio clubs, in terms of social activities and the organising of accommodation.

To be considered for the event, application forms must be requested from the organisers by 31 March and returned or faxed back by 15 April. The rules for selection are involved, but basically require that applicants be currently licensed, and have scored well during 1990-94 in some of the following events: IARU, CQ-WW, CQ-WPX, ARRL-DX, WAE, AA, ARRL 10 m & 160 m, CQ 160 m.

This sounds like an interesting event, and a chance to prove your real mettle as a contester, whilst also enjoying a holiday to the USA (note: entrants will be responsible for their own travel and living expenses). I will be pleased to forward a full copy of the rules upon receipt of an A4 SASE; however, application forms must be obtained directly from the organisers at "WRTC-95, c/o Hayman Systems, 14700 Sweitzer Lane, Laurel, MD 20707-5905, USA" (fax 1-301 470 1580).

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Results of 1994 RD Contest (continued)

Following on from the results printed last month, here are some comments received (thanks VK6APK):

I've never had to work so hard for points. Only one QSO on 15, nothing on 10. Why bother with CW when you get the same points for SSB?... (VK4LV). Not one signal on 10 or 15... (ZL3TX). The CW operators really had it tough. I think CW OSOs should be worth two points, or else apply the same rules as for VHF, ie QSOs allowed within the same division, every two hours ... (VK4BAY). A lot of fun and friendship during the contest, and it was good to see a lot of new amateurs having a go. As the 24 hours went on I was getting tired, and listening to a tape I found myself saying "QSL 102 and 887 to you 59", so we did manage to get it right (sort of), if not in the right order... (VK3ACR). To bring more meaning into this, arguably Australia's best contest, I suggest a roll call at the start of each year's contest of the names and call signs of the amateurs who lost their lives in WW2. Also, current holders of the calls read out during the roll call could be worth 10 points so that these honoured calls would be remembered during the contest. Ex-service amateurs could be worth two or five multiplier points, and numbers could be along the lines of: 10001 (first QSO by an honoured callsign); 01009 (9th QSO by an ex-serviceman); DE001 (first QSO by honoured callsign, DE = deceased); EX050 (50th QSO by an ex-serviceman); 59009 (9th QSO by a standard station)... (VK4BB). It is a pity that almost all VHF activity was on a handful of FM nets, which often led to a long wait to give out numbers. If only people would try SSB and spread out a bit! 144.100 is the DX calling frequency, and is the last frequency which should be used for contests. In future, the use of DX calling frequencies should be strongly discouraged... (VK3KWA). It is many years since I have operated in the RD under my own callsign, and this year I managed to improve on my personal best with a score of 352 points. In the past I have operated with the MDRC under VK3APC and, whilst I have enjoyed this, it was refreshing to operate using my own callsign for a change. Good activity in Melbourne on 2 m and 70 cm, except for the 3 am to 6 am period of course. At times the bands were rather congested! Some stations seemed confused about the rules (eg signal reports), and I can only presume they didn't read the rules before the contest. Because so many operators are now using computer logging, I suggest some guidance needs to be given as to what is an acceptable log format... (VK3BGS). A jolly good contest, despite the worst conditions I can remember. It

was a friendly contest, although I was surprised at the poor participation with numbers seeming to be down markedly. Do we need more publicity? Or maybe another war (just joking of course, WW2 was enough, with Korean and Vietnam for dessert)... (VK2BO). Participation seemed to be down, and no Novices were heard. Unless more people participate, I feel the RD's importance will decline. More Novices are needed, especially on CW. They may be inhibited due to the speed that some operators use, but from my observations that shouldn't deter them because most people will reduce speed readily. The duration may affect the participation of some operators, such as myself, who can't devote 24 hours to operating. Perhaps we need awards for performance in shorter sections? It would be interesting to see the statistics of participation of each licence grade, in each section, to see what trends may be emerging... (VK2RJ). Thanks for your efforts. I've been in RDs over the past 20 years, and find the current level of interest disappointing, especially on VHF/UHF NB modes. In general the contest seemed flat, and I would like to see the return of the older scoring system with different points awarded for the various call areas. This would add variety and the greater thrill of the chase. Such a system is always going to be unfair to some, but it really should be considered, as one point per QSO is boring. Not many QSOs on VHF/UHF SSB; perhaps this mode needs more points per

QSO than dull 2 m FM. Some changes are needed... (VK5AVQ). Thanks for organising the RD. Participation was well down, which I think is due to the rules. Many people now refuse to operate HF, as they can keep all QSO points within their state by operating VHF only. Something must be done to bring operators back to HF, otherwise we may as well make the contest just for VHF... (P29VH). If I contact a station from another state, I score a point for VK3 but the station I contact also scores a point. Consequently, nobody achieves much (for their Division) by making interstate QSOs on HF. However if I contact a station within my own state on VHF, we both score a point for VK3, which is much better for our Division! Also, on VHF/UHF I can contact the same station again on every band every hour — even better. It isn't hard to see why nearly every entrant concentrates on VHF/UHF Meantime, what about the poor buggers in the country: even if he can hear anyone contesting on HF, he can't work his own state on HF, and gives away a point if he works another state. He is too far away to score simplex points on VHF/UHF, and can't use repeaters! There should be more points for interstate HF contacts than for "local" ones, and the station which initiates the contact should get more points than the one who responds. HF novice QSOs should also get an extra point, both ways... (VK3JWZ).

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WIA News

International Beacon Project

At the International Amateur Radio Union (IARU) Region 3 Conference in Singapore during September last year, the Conference created the position of IARU Region 3 Beacon Coordinator, for an amateur in the region to be responsible for carrying out Region 3 policy with regard to the International HF Beacon Project.

This project seeks to establish a network of HF beacons within the region, co-ordinated with others in Regions 1 and 2 around the world.

The Singapore Conference endorsed proposals to establish HF beacons in Sri Lanka, Taiwan, New Zealand and Australia.

The WIA has appointed Roger

Harrison VK2ZRH as the Australian Co-ordinator for the International Beacon Project (IBP) and nominated Roger to be IARU Region 3 IBP Region 3 Co-ordinator.

The IBP network involves a series of time-sharing beacons operating initially on 14.1 MHz, which is being expanded to operate on 14,100, 21,150 and 28,200 kHz, and subsequently to five bands, adding 18 MHz and 24 MHz. The power output is stepped between 100, 10, 1 and 0.1 watts on each frequency.

A site in Western Australia and perhaps on the East coast of the continent, are being considered.

Details of the existing network and future plans were published in the October and November 1994 issues of the ARRL journal, QST.

Divisional Notes

VK2 Notes

Richard Murnane VK2SKY

About Last Month

No, *VK2 Notes* didn't disappear again: "due to circumstances beyond our control" (to coin a phrase), last month's column was delayed just long enough to miss the editorial deadline. However, the text of the February column (suggestions for points to raise in your letters to the politicians regarding the proposed fee increase) was placed on the packet network several weeks ago.

Changes on Council

In mid-January, three more Divisional Councillors followed the lead of Roger Harrison VK2ZRH and resigned from Council within days of each other. John Robinson VK2XY, Terry Ryeland VK2UX and Jim Walker VK2XJW stood down and were replaced by the next highest polling candidates from last year's election. We thank the outgoing Councillors and welcome Peter Jensen VK2AQJ, Steve Pullan VK2QZ and Eric Fossey VK2EFY onto Council (Peter Jeremy VK2PJ was unable to take up his position due to other commitments).

Fee Increase Submission

As you will have heard on the VK2 weekly news broadcast, the Division decided to make its own submission to the SMA regarding the proposed fee increase. A committee, chaired by Peter Jensen VK2AQJ, comprising Dave Horsfall VK2KFU/VK2ZTB, Cesar Miranda VK2TCM and myself, prepared the document, which was sent to politicians and the SMA at the end of January. The submission should appear as an insert in this month's *Amateur Radio* magazine. The editor of *Amateur Radio Action* magazine also requested a copy, so it may appear there as well.

Thanks to those of you who expressed their views on packet (a number of SMA stations were noted reading those bulletins), and to those of you who wrote to their government representatives and the SMA regarding the issue. It looks like many of us finally found our voices and the courage to speak out. It was good to see so many amateurs taking an active role in the defence of our hobby.

Weekly Broadcast

We've had requests from one or two other Divisions for some of the background material we use on the

VK2WI weekly broadcast. Perhaps the technical and historical tapes will eventually be syndicated nationwide.

In the meantime, please listen in to the weekly broadcast to keep up to date with developments on important issues that affect all radio amateurs. The times and frequencies are listed on page three of this issue. The text of each broadcast is also available on packet, and on the Internet *aus.radio* newsgroup.

Thought for the month. Taxation is the art of plucking a goose to get the maximum number of feathers with the least amount of hissing.

VK3 Notes

Jim Linton VK3PC

Broadcast Change

This month the WIA Victoria broadcast, through VK3BWI, will be on air only once, on Sunday, 12 March.

As advised on the first broadcast for the year in January, it has been reluctantly decided to have a monthly broadcast. For several years, and particularly throughout 1994, pleas made for an increase in contributions of news and information had not been successful.

Although recognised as one of the best WIA broadcasts, the high standard has relied on the dedicated efforts of a very few. All members of the 1994 broadcast team, and other interested radio amateurs, were invited to a special meeting to discuss the future of the broadcast.

While there has been no shortage of members willing to be announcers, the real need is for producers. The task requires writing, editing, and news gathering skills, and compilation and production of a half hour broadcast.

At the special meeting two producers volunteered, making it possible to put the broadcast on air once a month, on the second Sunday.

During February, as an interim measure, the broadcast went to air fortnightly. It was hoped more producers could be found to maintain this level of broadcast. Unfortunately, at the time of writing these VK3 Notes, no additional producers, or producer-teams offered their services.

The WIA Victoria Council has also decided to issue the major broadcast items under the callsign VK3WI on packet through BBSs servicing only Victoria. Important news happening in between VK3BWI voice broadcasts will also appear as packet bulletins.

Team Victoria Wins

As revealed on the VK3BWI voice broadcast, and in *Amateur Radio* magazine last month, VK3 won the Remembrance Day Contest '94. This 5th win in a row is shared by those who submitted the 212 summary sheet entries.

National single operator certificate winner Ray Cowling VK3ACR was contest champion for a second consecutive year. Congratulations to Ray, and all those who were part of the Team Victoria Campaign To Win.

Join New Members

It is pleasing to note the continued efforts of a few who are encouraging fellow radio amateurs to join WIA Victoria. Membership can cost as little as \$44 a year. Due to prudent financial management we have been able to keep the fees unchanged for the past three years.

Signing up a new member is simple! Either obtain a membership application from the WIA Victoria office, or use the coupon section on the *Amateur Radio* address label flyer.

No Packet Address

WIA Victoria is unable to accept messages on the packet network. While in the past there has been a minimum use of packet by contributors for the VK3BWI voice broadcast, a number of radio amateurs have unwittingly sent material which could be classed as commercial in nature.

This is contrary to licence conditions and regulations. For that reason, WIA Victoria does not accept material or correspondence via packet.

The only methods to get material to the VK3BWI broadcast are via the mail, facsimile, or hand delivery to the WIA Victoria office.

VK6 Notes

Peter Parker VK6BWI

Thousands See Amateur Radio at Scout Jamboree

WA's biggest ever amateur radio publicity exercise was mounted at the 15th Asia-Pacific/17th Australian Jamboree held in Perth. The Jamboree, which lasted for ten days, attracted 13,500 scouts and their leaders from all Australian states and many Asian-Pacific nations. Dennis Muldownie VK6KAD organised the station which operated under the VK6SAA callsign. Other local and interstate amateurs assisted with operating the station. Four HF and two VHF transceivers were operational together with HF and UHF CB radios. The exercise

was evidently a success as the pile of brochures from the SMA disappeared very quickly!

Special thanks go to all those who gave their time to talk to the scouts over the air, although there were times when it was difficult to find contacts. During a particularly lean time on HF a scout was heard to say, "Those (amateurs) out there could be all snobs!". He may be right. Food for thought?

John Moyle Contest Fast Approaching

Later this month it's time to go portable in the annual John Moyle Field Day. Whatever your operating interests, you are sure to enjoy yourself if you set up a HF or VHF/UHF station in the field. The rules were published on page 24 of last month's issue of *Amateur Radio*.

Stolen Equipment Register

To assist amateurs in recovering radio equipment which has been lost or stolen, the WA Division runs a Stolen Equipment Register. If a piece of your equipment has gone missing, give Roy VK6XV a call on (09) 246 3642. The same number can be used to advertise items wanted, or for sale, on the Sunday broadcast.

While on the subject of equipment, it's a good idea to note the serial numbers and any distinguishing features of any items of value in your shack. Easter is but a few weeks away and thieves know that many of you will not be home. Now, therefore, is the best time to do this little job.

Bight Spanned on 10 GHz

Australia has been placed in the forefront of world amateur microwave communication by a 10 GHz contact made between VK6KZ/P and VK5NY. The SSB contact may be a world record. It follows the contacts to Geraldton reported last month and serves as a warning to VK3 and VK7 that microwave communication with Western Australia is a real possibility.

Hills Group Promotes Amateur Radio

Members of the Hills Amateur Radio Group are promoting our hobby by erecting their portable static display on amateur radio in public venues. The display was at the Kalamunda Public Library for some time, and many of you would have seen it at the Hamfest.

Regular meetings, often with guest lecturers, are held and the group publishes a bi-monthly bulletin called "The Beacon". Meetings are on the last Wednesday of every month at 7.30 pm.

The venue is the Girl Guides Hall on the corner of Sanderson and Brady Roads in Lesmurdie. The official part of the meeting is generally concluded quickly to make time for guest lecturers whose topics have ranged from geophysics to the Pritikin Diet!

A monthly net is held on the first Wednesday of the month at 7.30 pm. Tune to 146.450 MHz FM simplex. The Group's main positions are President, Richard VK6BMW; Secretary/PR, Norman VK6UV; Treasurer, Bruce McIlwaine; and Beacon Editor, Cy VK6IK.

The Hills Amateur Radio Group was formed in 1983 and invites amateurs in Kalamunda, Lesmurdie and surrounding areas to join its ranks. Subscriptions are \$18 annually. Direct your enquiries to Richard on (09) 291 7807 or Norman on (09) 291 6055.

VK6 Gets New Correspondent

As I will be moving to Canberra to further my career, it has been necessary for me to relinquish my position as VK6 correspondent. I've enjoyed writing this column and thank all who provided material so essential for its compilation. I also appreciate the many kind comments received from readers. A successor has come forward and I hand my pen over to John Morgan VK6NT whose first column will appear next month. I urge you to support John, and will be following his columns with interest from VK1.

"QRM" — News From the Tasmanian Division

Robin L Harwood VK7RH

The main activity this month is the Divisional Annual General Meeting. As you are aware, it is scheduled for Saturday, 25 March and will be held at the Domain Activity Centre at 1400 hours local time. Notices of motion should be in the hands of the Secretary by now whilst nominations for Council should be received 21 days prior to the AGM. If an election is required a postal ballot will be sent out 10 days prior to the election to be returned prior to the election. Proxies are also to be handed in 24 hours prior to the election at the registered office of the Tasmanian Division — the Town Hall, Macquarie Street, Hobart TAS 7000.

News of the Divisional AGM will be included in the May column. The Branch elections were held last month but, as I compile this prior to the meetings concerned, details of these will be included in the April column.

The last Divisional Council meeting prior to the AGM was held on Saturday, 28 January, again at the Domain Activity

Centre. All councillors were in attendance and there were two observers from the Northern Branch, namely Kevin Riley VK7AKR and Terry Brundle VK7JTC. It was a drizzly day and the usual spectacular view was lost in the frequent rain squalls sweeping across the Derwent. The meeting lasted for about three hours before we went our separate ways into the torrential rain that poured down, much to the relief of the state's rural community.

There has been quite a deal of discussion in amateur circles regarding the proposed SMA apparatus fees and this was naturally raised. What is puzzling to me was the almost total absence of written comment from VK7s regarding this, despite pleas on the VK7WI weekly broadcast from any amateur regardless of their affiliation. Quite a deal of comment regarding this issue has been generated, particularly on the packet network, and we, as Council, were concerned at some of the irrational, emotive comment that has emanated from interstate. In the meantime, we await further discussions between the Federal Executive and the Spectrum Management Agency (SMA).

The Council also looked at increasing use of the Special Events Callsigns and a recommendation is being formulated for the AGM. Several annual events are in the pipeline and it would be an ideal opportunity to publicise amateur radio in conjunction with these events. Further investigations will also be made regarding an Internet Packet Gateway within the State, which does not exist at present.

This month, the Northern and Northwestern Branches will be holding another combined meeting at Deloraine on the 14th. I am unsure where the venue will be at this stage but the VK7NB "fox" on 146.000 MHz will be operational from the site plus there will be a talk-in on one of the local repeaters.

The annual Northwestern Branch BBQ will be held on Saturday, 11 March at Legion Park near the Ulverstone Showground from 1100 hours locally.

The Southern Branch will be meeting on Wednesday, 1 March at the Domain Centre. With a date like that, I wouldn't be surprised if there will be a lot of singing plus plenty of leeks! (Try and work that out! If you're still puzzled, ask VK7JK.)

The daily "Sewing Circle" ragchew at 1700 hours locally has been an institution on 3590 kHz but, because of possible unintentional interference, has relocated three kHz upwards. However, the weekly Tasmanian Devil Net is unaffected remaining on 3590 kHz as is VK7NB'S broadcast on Wednesday. Both are on at 0830 UTC until 26 March when Tasmania reverts to EAST.

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How's DX

Stephen Pall VK2PS*

Have you sent your individual protest letter to your Federal Member of Parliament protesting against the 92% increase in amateur radio licence fees? If not, please write to-day. It is still not too late! The more protesting letters, especially individual ones, that arrive on the doorstep of our politicians, the bigger the pressure on them. Please do something about the matter.

The battle of the elimination of the Spectrum Access Tax (SAT), the proposed new component in our licences, cannot be won, in my opinion, by a measured, dry, technical argument. The decision was made by dry, accountant-type bureaucrats from the marketing development section of the SMA. The battle can be won only by well organised political pressure.

The Parliamentary Opposition Spokesperson for Communications has already promised that the access tax will be abolished after the government change in Canberra. But that is in the future, and the future is uncertain.

The other day somebody reminded me that the possibility of higher licence fees and Access Tax was known to the WIA a long time ago and that it was widely publicised in *Amateur Radio* for the benefit of the readers. I spent some time going through the past issues of our magazine with a fine tooth comb.

Surprise, surprise! I made some interesting discoveries. I suggest you read-up old issues of *Amateur Radio* as quoted below and make up your own mind whether the details of the proposed

new licence fees were known to the WIA and the readers of this magazine, or not?

Page 21-22 of the March 1994 issue of *Amateur Radio* will tell you, for example, that the communication licence fees in general are a type of a tax and that the SMA in its first year of operation (year ending June 1993) earned \$82 million from licence fees, while operating costs were \$45 million, thus returning some \$37 million to consolidated revenue.

Page 51 of the April 1994 issue of *Amateur Radio* will tell you, among other things, about both sides of the argument whether radio amateurs should be granted a "class licence" or not. Read the WIA arguments carefully. Page 51 of the June 1994 issue enlightens you about the contents of a speech made by a representative of the SMA at the annual Convention dinner on 30 April last year. It appears he said nothing (or was it not reported?) about an increase in amateur licence fees. Apparently nothing important happened about this subject between July and September.

Page 49 of the October 1994 issue of *Amateur Radio* brings you the interesting news that the SMA will introduce separate "class licences" for CBers and that CB licence fees will no longer be payable after 30 October 1994.

At the very end it appears that all of us were caught napping due to our indifferent lay-back attitude about things that really matter.

Finally, the WIA press release dated 14 December, and enclosed as a

supplement with your January 1995 *Amateur Radio*, told you that your proposed new licence fee will probably cost you \$69 per year, an increase of 92%. I suggest that, in future, you should read every single line of your magazine. Once bitten, twice shy!

Auckland Islands — ZL9GD

This group of eight small islands lies in the subantarctic zone at 50° 30' South and 166° 00' East. They are subject to strong westerly winds, humidity is 80-90% and they have a rainfall of 1500-2000 mm per year.

The islands were discovered in 1806 by Captain Bristow of the British whaling vessel "Ocean". Sealing operations followed until 1830 and then changed to whaling.

Auckland Island was inhabited by a small group of Maoris in about 1842. A colonial settlement was established in 1849 by the British Southern Whale Fishery Company under Charles Enderby. At one stage up to 300 people were on the island, but the settlement was unsuccessful and it was abandoned in 1852. The area around the island is a graveyard of many shipwrecks which occurred in the second half of the nineteenth century and early in this century.

Attempts at sheep farming in 1874-77 and 1895-1910 failed. Coast watching parties were based on Auckland Island during the war.

The group of islands, together with the separate Campbell Island group nearby, are flora and fauna reserves and landing on them without a permit from the New Zealand Department of Conservation is prohibited. In the past seven years, to my knowledge, there have been only two

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groups of amateurs active from these islands.

Ron ZL9AMO, Roly ZL9BQD and Wayne ZL0AFZ/9 were active in February 1986, being part of a scientific group which sailed to the islands on the "Savannah" under Captain Ian Leask.

The second group of amateurs visited the island in March 1991. The callsign ZL9DX was used by Rick ZL1OK, Ted ZL1AVC and Jun JH4RHF. The callsign ZL9YL was used by Kumiko (YL) JR4DUW, and ZL9TPY was used by Kerry ZL2TPY. This team made 10,000 QSOs on 160 to 6 metres.

The amateur bands were jammed again this year from 25 January to 15 February 1995, looking for Graham ZL9GD. Graham ZL4MV was part of a New Zealand TV documentary expedition. Due to his professional situation his free time for operating amateur radio was very restricted, usually only between 0600 to 1000 UTC on 40 and 20 metres. A further difficulty was that the TV group moved from location to location on the island, necessitating changes in timing of his activity. Graham was heard on 40 and 20 metres, being assisted by Roy ZL4BO and Jim VK9NS. QSL direct with the usual return postage and reply envelope to Graham L Dawson ZL4MV, PO Box 1516, Invercargill, New Zealand.

South Georgia VP8SGP

As mentioned earlier (November 1994 issue of *Amateur Radio*), four well known DXpeditioners visited these islands early in January 1995.

Al WA3YVN, Jan WA4VQD and Vince K5VT departed on 20 December from Miami on a flight to Punta Arenas, Chile. On 23 December they flew to the Falkland Islands for licence processing and to verify the previously issued licence of VP8SGP. During their stay in the Falklands the team checked the equipment on the vessel ABEL-J. A fourth operator, Bob Valler VP8BFH, a RTTY operator, joined the team there. During their two day stay in Port Stanley the DXpeditioners were active with the callsign VP8CBC.

ABEL-J departed the Falklands on 31 December on the 800 mile trip to South Georgia Island. During the voyage, which lasted four days, they signed VP8CBC/MM.

Operations started on 5 January and terminated on 15 January, at least 4-5 days earlier than expected.

Propagation was not the best between South Georgia and Australia on the direct path across the Antarctic. As the expedition concentrated on the areas with greater amateur population (towards the north) the opportunity to work them from Australia was limited. Grytviken, the

former whaling station located on the north coast of the island and surrounded by the high mountains of the Allardyce Range, was an ideal QTH to the north but not the best in the southerly direction towards Australia across the South Pole.

DXpeditions, it seems to me, are often not aware that we here in VK and ZL do not have a Packet DX Cluster system which could give us immediate spotting information about the activity of a DX station. Many VKs and ZLs missed out when, on one weekend, the South Georgia DXpedition specifically called for VK/ZL and Pacific. Those DXers who were otherwise engaged on that afternoon missed the opportunity to work them.

South Georgia is a fascinating island and it is well known for its bird life. The British Antarctic Survey contingent, usually a group of not more than 20 persons, researches and monitors the seal and seabird population in this environmentally fragile area. A small garrison of British troops maintains a vigil against any moves by unfriendly neighbours who claim both the Falkland and South Georgia Islands. Fewer than a thousand tourists visit South Georgia annually and most of them go ashore only for a few hours.

Captain James Cook explored, charted, claimed and named the island for His Majesty George III in 1775. Cook was aboard the 462 ton vessel HMS Resolution on 14 January 1775 when Midshipman Thomas Willis saw land which Cook named after him. Willis Island is a few miles off the north west coast of South Georgia near Bird Island.

Permanent snow covers most of the treeless island, and much of the rest of

the island is bare rock. "The wild rocks raised their lofty summits till they were lost in the clouds" wrote Cook. South Georgia is the highest, most mountainous and the second largest island of the islands that circle Antarctica. The island is just slightly over one hundred miles in length and about 2300 square miles in area. A mountain chain runs almost the full length of the island. Mt Paget is the highest peak at 2934 metres.

Whaling used to be a big industry on the island between the years of 1904 and 1966. At one stage there were many hundreds of whalers living at the five whaling stations scattered on the island. A wooden church, dismantled in Norway and reassembled in 1913 in Grytviken, has withstood the elements and is still standing today in good condition. In contrast, the cinema built in 1931 is crumbling and has fallen into complete disrepair.

If you are fascinated by the history and life on the island, then I suggest you read a very interesting article about the island titled "Wildlife Quest to the Icy Seas of South Georgia" which appeared in the "National Geographic", March 1989 issue, written by Sally Poncet. Sally is an Australian from Hobart, married to a Frenchman named Jerome. During the summer they and their small children sail the icy waters of South Georgia assisting the BAS team in their work. During the winter they manage a sheep station on the Falkland Islands.

If you were fortunate enough to have made a QSO with VP8SGP, send your QSL card to John Parrott W4FRU, PO Box 5127, Suffolk, VA 23435, USA.



Bernhard H44MS on Duff Island in March 1993.

Future DX Activity

- FT5XK is Vincent who replaced Pierre FT5XJ on Kergulen Island. He will stay for one year. QSL to F6KQD.
- IA0PS in Antarctica can be worked easily around 14200 kHz on the weekends.
- 8J1RL is active on the CW section of the 20 metre amateur band. It is a Japanese base in Antarctica. QSL to the JARL Bureau.
- V5 Namibia. Sigi DL7UUG and Tom DL7UTR will be active from Namibia using the V5 prefix with their own callsign until 19 March. QSL to DL7UUG.
- VU2JPS was reported to be active from the Andaman islands. He expects to be there for two years. He was reported to be active on the 40 metre band. Hopefully he will be active on other bands soon. Check 7060 kHz around 0200 and 0730 UTC. According to KI5GF, the QSL goes to VU2JPS.
- South Shetland Islands. Contrary to earlier reports the HF0POL callsign will not be activated by the two Polish operators. Instead they will use the VP8CQR and VP8CQS callsigns. QSL to DL1EHH.
- Jean Pierre F5FHI says that he now has a valid licence and will be active in March as 9U/F5FHI.
- UA3YH will be on the air as KC4AAA during his stay on the Amundsen-Scott base for the next 15 months.
- Robin DU9RG has announced plans for a Spratly activity around 10-16 April. The callsign to be used will be DU0K.
- W1BIH is now active as PJ9JT from Curacao and will be on all bands and all modes until mid-April. QSL to W1AX.

- Pete N5TP will be active again as VQ9TP from Diego Garcia. His tour of duty is expected to last four months. QSL to N5TP.

Interesting QSOs and QSL Information

E = East coast W = West coast M = The rest of Australia

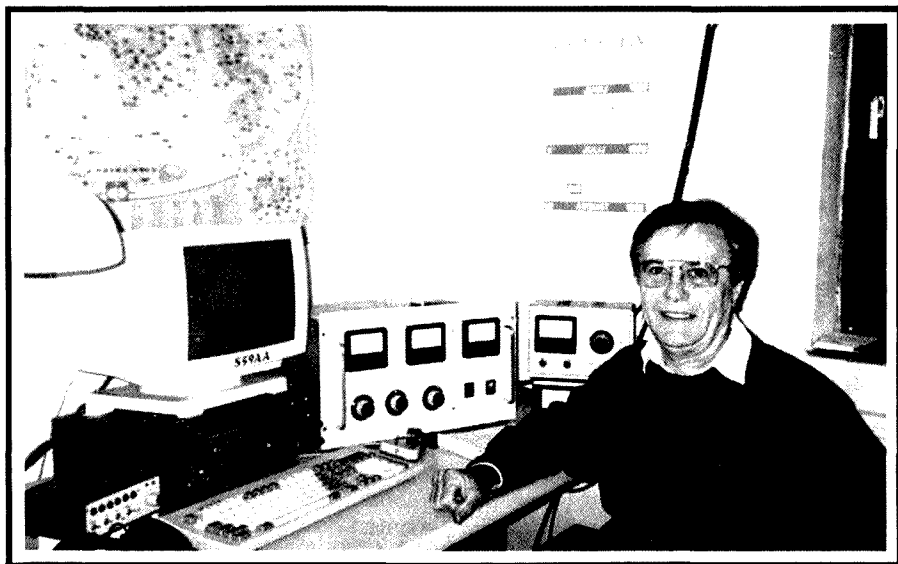
- 5Z4FM — Jim — 14227 — SSB — 1400 — Dec (E). QSL to J Stewart, PO Box 34168, Nairobi, Kenya, Africa.
- 5Z4PL — Peter — 7054 — SSB — 1934 — Jan (E). QSL to Peter Lutz, PO Box 1095, Limuru, Kenya, Africa.
- VP8CQJ — Jon — 14222 — SSB — 0651 — Dec (E). QSL to FIARC (Falkland Islands Amateur Radio Club), PO Box 260, MPA (Mount Pleasant Airport), Falkland Islands via United Kingdom.
- Z3ZM — Mome — 7007 — CW — 1940 — Dec (E). QSL to Radio Club Nicola Tesla, PO Box 179, Kumanovo 91300, Republic of Macedonia.
- 4E9RG — Robin — 14188 — SSB — 1102 — Jan(E). QSL to DU9RG Robin U Go, Tukananes, Cotabato City, 9301, Philippines.
- ET3BT — Tensai — 14226 — SSB — 1230 — Dec (E). QSL to PO Box 6128, Addis Ababa, Ethiopia, Africa.
- 9K2ZZ — Bob — 14197 — SSB — 1239 — Jan (E). QSL to W8CNL Raymond H McClure, 674 Crestlyn Dr, North Augusta, SC 29841, USA.
- AP2JZB — Bab — 14236 — SSB — 1427 — Jan (E). QSL to Jahanzeb Arab, House 13, Street 15, Khayaban Touheed Phase V, Defence Housing Authority, Karachi, Pakistan.
- P49I — Tom — 7013 — CW — 1026 — Jan (E). QSL to K4PI Thomas M

Greenway, 4055 Kings Highway, Douglasville, GA 30135, USA.

- V16VY — Terry — 14222 — SSB — 0558 — Jan (E). QSL to W3HCW Carl F McDanie, 2116 Reed St, Williamsport, PA 17701, USA or via the VK6 QSL Bureau to VK6VS.
- XX9GD — Toni — 18130 — SSB — 0901 — Jan (E). QSL to the Manager, PO Box 1476, Macao, Asia.
- ZK1HCU/QRP — Udo — 14023 — CW — 0655 — Jan (E). QSL to DL9HCU, Udo Moeller, Wennerstorfer Str 1, D-21629, Neu Wulmstorf, Germany.

From Here There and Everywhere

- Prospective DXpedition leaders to Heard Island (VK0) please note. The following small news article appeared in the "Sydney Morning Herald" on 4 January 1995. "The Federal Government has moved to protect Australia's only active volcano and the land around it. Big Ben, a heavily glaciated 2700 metre cone, dominates Australia's Southern Ocean Territory of Heard Island, 4100 km south west of Perth."
- Henri FR5ZQ/G returned home from Glorioso Island early January, and will start answering QSL cards.
- If you post direct QSL cards to any of the Falkland Islands stations, direct your mail to "Falkland Islands via United Kingdom". Otherwise the mail might go through some South American countries and arrival at Falkland Islands is not guaranteed.
- IA0PS, the Italian Antarctic station in the Terra Nova Bay area, is remotely controlled from a distance of 2.5 km from Staff Quarters and uses 1 kW into a rhombic antenna. The station is located in the Ross Dependency claimed by New Zealand, is 380 km north of the McMurdo Base, and has a population of 72 people. QSL to IK0USA.
- It is with a sad heart I report that Percy VK4CPA, the founder of the "ANZA" Net, is seriously ill in a Gold Coast (QLD) hospital. Blood circulation and blood clot problems might necessitate the loss of one of his legs. DXers and many friends of yours, Percy, wish you a speedy recovery.
- T31JK Bill (home call GW00JK) is sailing with his XYL in the Pacific Ocean. He said in a QSO with me that he has been sailing for the past seven years and will continue to do so in the future. Bill is not a DXer and he is not in the QSLing business. He uses amateur radio for fun and for chit-chat. He was very active from the Canton Island Lagoon with his amateur station



Franc S59AA in his shack in Ljubljana.

on board an anchored yacht. He was overwhelmed by the pile up created by his callsign and by the request for T31 QSL cards. He has no QSL Manager and promised to post computer generated QSL cards from the next available post office which is in American Samoa in April 1995. It seems to me that Bill is unaware of the DXCC rule (Basic rules, 8) that all stations contacted must be "land stations". Contacts with ships and boats, anchored or under way, and airborne aircraft, cannot be counted for DXCC purposes.

- Patrick J20UFT is active on the Brazilian Net, 0900 UTC daily on 14240 kHz.
- VI6VY celebrates 100 years of community service by the Shire of Harvey in Western Australia. It will be active from time to time during 1995. QSL to W3HCW or via the VK6 QSL Bureau to VK6VS.
- If you want contacts with South East Asian countries, check in to the "SEA Net" each day at 1200 UTC on +/- 14320 kHz.
- Well known DXer Bill J88AQ passed away on 1 January 1995.
- Watch out for the special event station VI75RAAF to be active in 1996 celebrating the 75th Anniversary of the Royal Australian Air Force.
- Bob A92FZ (home call VK1BOB) was active on 20 metres. His QSL address is PO Box 15763, Adliya, Bahrain.
- There is some confusion about the correct QSL address of XT/TU5BA. The address is Harry Chamberlain, American Embassy, Department of State, Ouagadougou, Burkina Faso, Washington DC 20521/2010 USA.
- AP2AMA is a new operator. He wants QSL cards to be sent to PO Box 1450, Islamabad, Pakistan.
- Can anybody beat this record? Dietmar VK2APK (as at 25 December 1994) told me that so far he has made 277,000 QSOs and taken part in 366 contests. Dietmar gave up QSLing many years ago.
- T30XP Peter left Tarawa on 9 February and returned to Australia. He asked that QSL cards to be sent to his home call VK1XP. The problem is that his home address in the 1994, and presumably in the 1995, International Call Book is incorrect. His correct home address is P A Dalton, 29 Govett Place, Holder, ACT, 2614, Australia.
- The Dutch National Amateur Society, VERON, is celebrating the 50th Anniversary of its foundation. VERON club stations with the P14 prefix may use the special prefix of P150 throughout the year. Individual stations

might add the number 5 to their normal prefix during the month of May.

- Special event station CG6ARC was active from 25-26 February from the Canada Winter Games. QSL to CG6ARC, PO Box 767, Grand Prairie, Alberta, T8V 3R5, Canada.
- At least a dozen Japanese amateurs, members of the Japanese UNICEF Ham Club, were active from Nepal for a short time. Callsigns used were 9N1AT, AS, WN, CC, WX, AX, IZ and IB.
- Said SU1SK says he has no QSL manager and cards should be sent to PO Box 62, Shobra, Alkima, 13411, Cairo, Egypt.

STOP PRESS — DXpedition to Conway Reef — 3D2

Mats SM7PKK visited Conway Reef as part of a seven man team DXpedition in May 1990. News reached me, just before closing time for this issue, that Mats, in company with Pekka OH1RY, NI6T and SM6CAS will be active from Conway Reef from 24 March to 3 April. They will have three 1 kW stations of which two will be operating 24 hours a day. They promise to give a good coverage on the low bands. Operational frequencies are to be CW on

1823, 3503/23, 7003/23, 10103, 14003/23, 18071, 21003/23, 24893 and 28023 kHz; SSB on 1843, 3785, 7085, 10135, 14195, 18115, 21295, 24935 and 28495 kHz; and RTTY on 7030, 10120, 14082, 18100, 21082 and 28082 kHz.

The Budget of the expedition is \$US15,000, not counting personal tickets and hotels. More details about this DXpedition will appear in the April issue of *Amateur Radio*. Send your donations to SM7PKK Mats Persson, Zenithgatan 24 #5, S-212 14 Malmo, Sweden (this is the new correct address).

QSLs Received

FK8GM (3M op) — KP4TK (3M op) — T31BB (3M DF6FK) — YB3OSE (4M W7TSQ) — EA9KQ (2M op) — HC4L (4M op) — LZ1KBB (2M op).

Thankyou

Many thanks to those who kept me informed, but especially to VK2DSL, VK2KCP, VK2KFU, VK4AAR, VK4CY, VK6VS, SM7PKK and T30XP, and the following publications *QRZ DX*, *The DX Bulletin*, *The DX News Sheet*, and *National Geographic*.

73 and Good DX

*PO Box 93, Dural NSW 2158
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Over to You — Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Digital Intruder

One turns on the receiver and finds three strong carriers on 20 metres. The strongest is S9 on 14.111 kHz, the others are less than S7 on 14.024 and 14.200 kHz. These signals are present 24 hours a day, seven days a week and have been around for the last five months.

Where are they coming from?

Answer! A two section compact-disc player in the neighbour's house next door. The CD transport section appears to be the culprit. The digital interconnect lead was apparently acting as the antenna.

It was tracked down after going HF mobile. Upon returning home the signal was strongest and had a range of one km.

Connect up a hand key and go QRP CD CW!

Adrian Fell VK2DZF
PO Box 344
Baulkham Hills NSW 2153

Touch Lamp

I would like to let all operators and SWLs know about the rotten signals being

radiated by so-called "touch lamps". After months of suffering I finally found one belonging to a neighbour. We were both amazed by the noise it produced when close to a portable receiver.

On my FT 890 next-door at 7 MHz, it was 50 Hz FM with a bandwidth of 30 kHz. The second harmonic on 14 MHz was also strong. Close to the lamp it was an unbelievable mess, also on 11, 12 and 18 MHz, and drifting upwards.

The lamp has a free running oscillator in its base, sensitive to "hand capacitance", and its signals are effectively radiated by the power lines. Downpipes, water piping and power line to a garden shed also helped radiation.

Others may have been troubled by this type of interference and wondered about its source. A strong RF signal may be able to turn such a light off or on. In my opinion a good cure would be a well-handled hammer!

I have written to the SMA and await their comments. I understand devices like

this have been mentioned in *Electronics Australia*. Does the WIA have any comment?

Jack Swainger VK3IP
28 Lording Street
Ferntree Gully VIC 3156

(The two preceding letters, plus that from VK5EK last month, certainly show that there are many potential sources of interference being marketed. The WIA can only bring such complaints to the notice of the SMA. Permanent corrective measures may take a long time. Ed.)

That's Defamatory

Bruce Hedland-Thomas is right on the mark with his remarks about conflict resolution within our ranks (*Federal QSP, December 1994*). It's sad to see, then, the same issue featuring yet another "barrow push" on the subject of defamation (*Packet Radio Users and the Law, WIA News, page six in the same issue*). We've finally managed to rid the *VK2 Notes* of that particular fixation but, alas, it appears to have migrated to other parts of the magazine!

It seems to me that these repeated threats of defamation action have been aimed at suppressing fair comment on the various goings-on within the Institute (as does the policy of preventing any such views being aired within the pages of *Amateur Radio*). Packet radio, as the only remaining means of airing views for group discussion, has come under attack from some of the very people who should be defending it.

In *VK2*, of course, we've had repeated abuse of amateur privileges on packet, particularly from one or two who appear to be, shall we say, "a few countries short of DXCC", or "a few elements short of a beam". They've even attacked our Divisional and Federal representatives (and their spouses) though with apparent impunity. If such individuals can so viciously attack others without official reprisal, how real is the threat to the amateur community as a whole?

Instead of threatening the entire amateur community (especially BBS sysops, who are usually too busy to scan every single message that passes through their systems), shouldn't the WIA be working to reduce or eliminate the burden they face? I think our Institute representatives, especially those who liaise directly with the SMA, ought to examine their priorities. Perhaps if they spent more time on air talking with their fellow amateurs, they'd be more in touch with the realities of the situation.

The key, as Bruce points out, is to communicate with each other, so we can seek and find novel solutions to the

problems we face, instead of resorting to the same old legal "remedies". We in *VK2* have had a belly full of that, thank you!

When you get down to it, shouldn't we, as amateurs, be a "Society of Friends"?

Richard Murnane VK2SKY
715 Grafton Crescent
Dee Why NSW 2099

(There is a policy regarding publication of politically controversial opinion in Amateur Radio, where it might be defamatory of individuals or Divisions. Its purpose is not to suppress fair comment, but to inhibit unfair comment. Particularly when seen from a distance, the border-line is often rather vague! Bill Rice VK3ABP, Editor.)
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FTAC Notes

John Martin VK3KWA, Chairman, Federal Technical Advisory Committee*

Yet More New 10 GHz Records

Last month a 10 GHz contact was reported between VK5NY and VK6KZ on 30 December 1994. The distance is 1912.1 km and is definitely a new world record.

There is also a new VK1/VK2 record of 218.4 km between VK2ALU/1 on Mt Coree and VK2ZAC/2 on Mt Canobolas on 2 Jan 1995. Over the past few months I have processed nine new state records, four new national records and two new world records, and there are more in the pipeline. At present almost every active 10 GHz station in Australia holds a distance record of some kind!

80 Metre DX Window

Once again, yet another attempt to get the facts straight. The item on page 56 of last month's magazine is incorrect. The band limits of this window are 3795 — 3800 kHz. For an LSB signal to be within the band, the lowest possible suppressed carrier frequency will depend on the filter bandwidth but will normally be 3798 kHz.

I have heard people make comments on the air like "The SMA hasn't told me that this is the rule, so I'm going to continue as before". A crazy attitude. I wonder how many people ignore the road traffic rules for the same sort of reason. The SMA publishes the regulations and it is the responsibility of each amateur to know what they are and to abide by them. The rules have ALWAYS required us to confine our emissions within the band limits.

Fortunately, most of the out of band operation has stopped and very few

stations are still ignoring the rules. But we are still on thin ice with this band and even a minority can spoil things for everyone else. Do not let fools place your operating privileges at risk.

Band Plan Revision

Federal Council has formally approved the band plan changes discussed over the last few months.

Details of the revised plans for the 23 cm and 13 cm bands were published on page 77 of December 1994 *Amateur Radio*. On the 23 cm band the main changes are the new FM simplex segment at 1294-1295 MHz, and the new simplex data segment at 1297-1300 MHz. No firm date has been set yet for existing repeaters to change over to the new 20 MHz offset. Please note that the 1270-1280 MHz guard band still applies in some areas until the 1275 MHz CAA radars close down.

The 10 metre proposals have been changed in order to avoid interference problems with overseas FM activity. The nine domestic FM channels will become 29.12-29.28 MHz, and the SSB/CW segment will become 29.0-29.1 MHz.

On 2 metres and 70 cm the main changes will be the new packet channels discussed over the last few months. These changes partly depend on our new licence conditions and will be detailed in full when the SMA releases the final version of the new regulations.

*PO Box 2175, Caulfield Junction, VIC 3161

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When you buy something from one of our advertisers, tell them you read about it in the WIA Amateur Radio Magazine.

International Amateur Radio Union Monitoring Service (IARUMS) — Intruder Watch

Gordon Loveday VK4KAL*

Region 3 Monitoring Service News

The IARU Region 3 Monitoring Service Co-ordinator, K Wahrlich ZL1CVK has provided the following news release.

The end of another year of hard work by the Region's MS Co-ordinators and their contributors was highlighted by the Singapore IARU Region 3 Conference. Monitoring matters had a high profile at the conference and an increased awareness of the problems faced by amateurs in the region was a welcome outcome.

Many societies have pledged assistance, and already ARSI have a monitoring system up and running. JARL have offered equipment to assist in the setting up of a monitoring system to those societies requesting help. ORARI have managed to get their government to take some very positive steps to help eliminate intruder problems within that country

As the Regional Co-ordinator, I would

like to take this opportunity to say a heart felt "thank you" to the system co-ordinators and all those amateurs and SWLs and others who have helped to increase the effectiveness of our fight against intruders. Many of these people have become personal friends and I feel fortunate indeed to be able to work with them.

The International, Region 1, 2 and the DARC Co-ordinators have played a major part in the Region 3 Monitoring System

also by the continued sending of reports and other information. Parts of these packages have been sent to all Region 3 Co-ordinators and help to identify intruders and often act as a means of verification for many of the things which we hear.

Without all of these efforts we would not have an effective world wide Monitoring System. I firmly believe that we are winning the fight.

1995 is a new year and I look forward to working with you all.

Frequencies to Monitor

Would observers please check the following:

14.343	ID?	mode A1A	1200z	Chirpy signal 9+
18.075	ID?	mode J3E/U	0830z	
18.100	ID?	mode J3E/U	0620-34z	
18.116.9	ID?	mode J3E/L	1520-30z	non amateur
21.448.8	ID	Radio Tirana	mode A3E	is anyone hearing this station in Australia?

*Federal Intruder Watch Co-Ordinator, Freepost No 4 Rubyvale QLD 4702 or VK4KAL@VK4UN-1

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An Old Timer Reflects....

The late Des Greenham VK3CO continues to look back over his 50 years of amateur radio operation.

After the war (WW2) we had resumed operation on the air, restricted to 10 metres only. The year was 1946 and, of course, we were using AM, the only form of modulation at that time. We were all using open wire tuned feeders to connect with our antennas. Coaxial cable was not available at this time, We had read about it and had seen it used by the military services.

Another new product had hit the market in the USA but was not available here. This was a 75 ohm twin feeder line known as "Twin Lead". We had seen this used by operators in overseas magazines but it was not available here.

One day I was on air and happened to have a contact with an American on board a merchant ship coming into Melbourne. He told me he had to observe radio silence once he came within the coast limit. He requested my telephone number and invited me to visit him on his ship when he arrived in port. To me this appeared to be a great opportunity, not only to meet Salvador, but also a chance to look over his ship which was relatively modern.

In due course he arrived in port and, after the expected phone call, he visited

my home and had dinner with us. He was a very nice guy and we all enjoyed his company. Later, I was to visit him on board the ship. On the appointed day I arrived at the dock in Melbourne and, after passing through strict security, I was ushered on board there to spend a most pleasant time inspecting this modern ship with turbine engines, etc.

After enjoying the tour of the ship, we ended up back in Salvador's radio shack. Here he had the latest in ham radio gear. During this time I noticed he had some parcels on the floor ready to post. To my horror I noticed he had them tied up with, you guessed it, 75 ohm Twin Lead!

When I mentioned this to him he showed me an enormous drum of the cable and he used it like common string to tie his parcels! He was surprised at my interest and rolled off a large quantity saying, "take this home with you".

When I mentioned about security, he suggested I stick the roll up my jumper and just casually walk off! Being very anxious to get this new cable home, I did just this. Imagine my consternation when the security guy wanted me to stop and have a chat. I tried desperately to be calm and casual, fully aware of the bundle up

my jumper. In due course I was able to walk through the gate and, resisting the temptation to run, get back to the car and drive home. Phew, what a relief!

I decided there and then that "smuggling" was not my career path. However, I used the cable successfully for many years after that, despite my guilt feelings.

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**Have you advised
the WIA Federal
Office of your
new Callsign?
Use the form on
the reverse of the
Amateur Radio
address flysheet.**

Pounding Brass

Stephen P Smith VK2SPS*

It's been a very busy month for me. I have just started a new career, leaving behind 14 years of service in the Telecommunications Industry, and moving into the electronics side of television and video recorders, etc, something I find extremely challenging.

Over the last couple of months I have received some very interesting letters from readers which I have been unable to include in past issues due to space restrictions. I will now take a back seat and present them in this issue, and hope you enjoy them as much as I did.

From Peter VK6BWI, QRP Club 66, taken from *Selected Poems* by Les L Murray 1986, published by Carcanet Press Ltd Manchester.

"MORSE"

Tuckett. Bill Tuckett Telegraph Operator, Halls Creek, Which is way outback of the outback, but he stuck it, Quite likely liked it, despite heat, glare, dust and the lack of diversions or doctors. Come disaster you trusted to luck, ingenuity and pluck.

This was back when nice people said pluck; the sleeve link and green eyeshade epoch.

Faced, though, like Bill Tuckett with a man needing surgery right on the spot, a lot would have done their dashes. It looked hopeless (dot dot dot). "Lift him up on the table"; said Tuckett, Running the key hot till Head Office turned up a doctor who coolly instructed up a thousand miles of wire,

As Tuckett advanced slit by slit with a safety razor blade, pioneering on into the wet, copper-wiring the rivers off, In the first operation conducted along dotted lines, with rum drinkers gripping the patient:

D-d-dash it, take care Tuck! And the vital spark stayed unshorted. "Yallah!" breathed the camelmen.

"Tuckett you did it, you did it!" cried the spattered La-De-Dah jodhpur-wearing Inspector of Stock.

We imagine, some weeks later, a properly laconic convalescent averring, "Without you, I'd have kicked the bucket..."

From Chungking to Burrenjuck, Morse keys have mostly gone silent and old men meet now to chit-chat in their electric bygone dialect.

The last letter many will forget is Dit-Dit-Dit-Dah, V for Victory.

The coder's hero had speed, resource and a touch.

So Dit Dit Dit Dah for Bill Tuckett.

Thanks Peter for the above poem. I wonder how many times situations occurred where medical advice was passed down the line before the Flying Doctor Service came into being?

Movies and Morse Code

How many times has Morse code been portrayed in the movies, from the very professional to the downright ludicrous such as many of the older cartoons?

I have included the following from Graham VK6RO at Ferndale WA. Graham is interested in Morse code as used in the movies.

"The Runaway Train" In this movie the characters are sent "de K3NF". I wonder if K3NF was on the set at the time?

"The Hunt for Red October" In the movie the message "de WLO RTTY" is sent just as a submarine is breaking the surface. WLO is the callsign of a coastal Marine Radio Station in Mobile, Alabama in the USA. Perhaps they recorded a short burst of WLO transmission and used it in the movie?

"Operation Daybreak" In this movie the characters "UKL de QFAO nr 70109130/ 7V3" are heard. What does it all mean?

Last year there was a hit record called "The Tide is Turning" on the broadcast radio in Perth, and at the end of the record a lot of "CW" type music was heard, but I don't think it makes much sense.

I mentioned to Graham two movies that came to mind were the B & W version of "Titanic" when the radio operator sent out the SOS, and a comedy, "The Three Stooges Go West" where the Indian smoke signals are high speed Morse.

If anyone has come across Morse in the movies, please drop me a line.

This last poem was sent to me from SA, but with no name or callsign. I would appreciate the person who sent it letting me know his name and callsign. The poem appeared in *Radio Communications* (August 1994, page 28).

The Air Signaller's Prayer

*In days of old,
When W/Ops were bold,
And sidebands not invented,
The word would pass by sounding brass,
And all were well contented.
Amen.*

*PO Box 361, Mona Vale NSW 2103
af

Spotlight on SWLing

Robin L Harwood VK7RH*

This month will see major changes to the shortwave scene due to propagation changes from Summer to Winter. Hence the 26th of this month will see most Northern Hemisphere broadcasters make their frequency alterations to coincide with the introduction of Daylight Saving Time on that date, particularly in Europe and the CIS. Programming to other areas is usually fixed in UTC, yet releases to Europe and North America are usually an hour earlier than Winter schedules.

As I am compiling this in late January, no updated frequency information is to hand and, if I did include this, there would not be sufficient room in this column. However, both the Fidonet and Internet rec.radio.shortwave echoes do post some schedules as well in many monthly bulletins of your favourite club. I am also surmising that the proposed regionalisation of the BBC World Service could also commence around this date although I have not heard anything lately on this endeavour.

The Italian Public broadcaster, RAI, was rarely heard in this part of the World but now Rome can be heard via the BBC Kranji senders, broadcasting to Asia from 1000 to 1100 UTC. This Italian language program is on 11850 kHz and is at excellent strength. Radio Japan from Tokyo is also making increased use of this BBC Singapore relay facility and can be heard on 11740 in English at 0500 UTC. The recent tragic earthquake in Kobe was covered extensively by Radio Japan and I felt it was more in-depth than many other international broadcasting stations.

The "Voice of Russia" has made a number of cutbacks due to budgetary constraints to the point that it is difficult at times to even find it. This is in stark contrast to when the station, then known as "Radio Moscow", was easily heard just about 24 hours a day! The number of external service outlets are also well down compared to August 1991.

Radio Kol Israel also axed several English language releases of their

evening programming which particularly upset many North American listeners. As well, programming in Spanish to Latin America was also axed. The shortwave relays from the domestic Hebrew networks remains unaffected. The 15 minute morning English release from Jerusalem continues as previously, followed by the French broadcast, but will commence at 0400 UTC when Israel goes on to Daylight Saving Time sometime in March.

Another Cold War relic, Radio RIAS in Berlin, closed down on 31 December, and was absorbed into the domestic German networks. The acronym "RIAS" stood for *Radio in the American Sector* and was located in West Berlin. It could be heard well in Europe and beyond on 6005 kHz and, although German programming continues on that channel, it is one of the

domestic networks. Incidentally, all occupying allied troops have now left Berlin so programming from various armed forces networks has ceased from within Berlin, eg AFRTS from Washington, the BFBS from London, French Forces Radio, Canadian Forces Radio and Radio Volga from Moscow. The Americans and British continue in western parts of Germany near the Dutch border on a much smaller scale than previously.

Incidentally, our own "Australian Defence Forces' Radio" based in Canberra continues to broadcast on non-standard broadcasting allocations. They are usually on between 0300 and 0400 and repeated at various times of the day namely 0930 to 1030 and 1330 to 1430 hrs. Times and frequencies can change so you may have to tune around but I usually find them on higher frequencies

on the earlier releases dropping down lower at night. Try tuning around 18 MHz, 13 or 10 MHz USB and you will come across them. They also welcome reception reports, especially from overseas. Target areas are where Australian military personnel are serving overseas, particularly Rwanda and SE Asia. Programs are in English and consist of news from home plus dedications from family members.

Well, that is all for this month. Don't forget, if you have any news I can be reached at the addresses shown. Good listening and 73.

*52 Connaught Crescent, West Launceston TAS 7250
 VK7RH@VK7BBS.LTN.TAS.AUS.OC
 Internet: robroy@clarie.apana.org.au
 Fidonet: Robin.Harwood.3:670/301@fidonet.org.au

QSLs from the WIA Collection

Ken Matchett VK3TL* Honorary Curator WIA QSL Collection

VK3ACD

This QSL was sent from Heard Island in January 1948 for an operation which, one would think, would have been the first amateur radio operation from the island. The operator, Alan Campbell Drury, used his own allocated call several years before the prefix VK1 (and later VK0) had been used for callsigns to denote Macquarie Island. The card was for a CW contact on 40 m with Quintin Foster, then VK6QF. Alan has written on the reverse side of this QSL, "Tnx OM — vy gud QSO Quintin — the first communication with the outside world from Heard Is. CUL Alan". Alan used a Type A MK3 (five watts) which was his own since the original officially supplied

equipment had been rendered useless due to immersion in the sea.

Sadly, Alan passed away only a short time after addressing an Old Timers' Luncheon in March 1993 in Melbourne at which he gave a most interesting account of his experiences on that lonely island and the historic radio contact with the outside world.

Original card donated by Quintin Foster.

DF0SSB

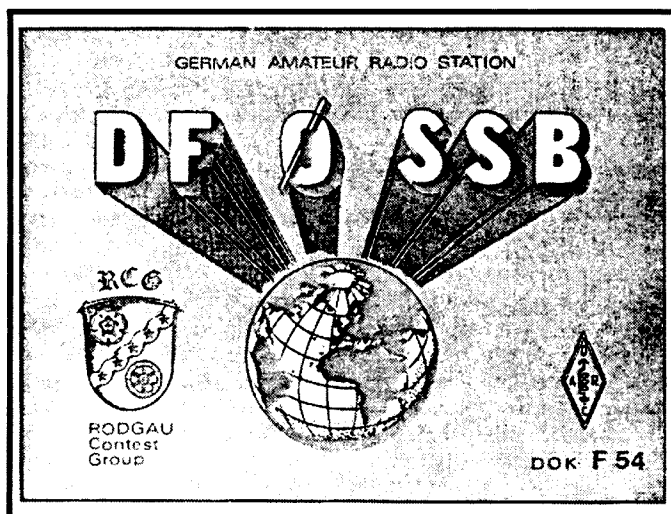
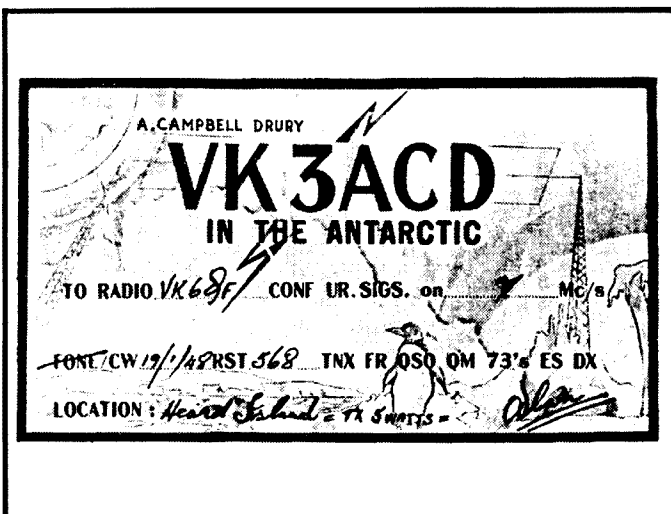
The advent of Single SideBand transmission revolutionised the world of amateur radio when it started to take the place of AM during the 1950s. The phenomenal advances in digital modes,

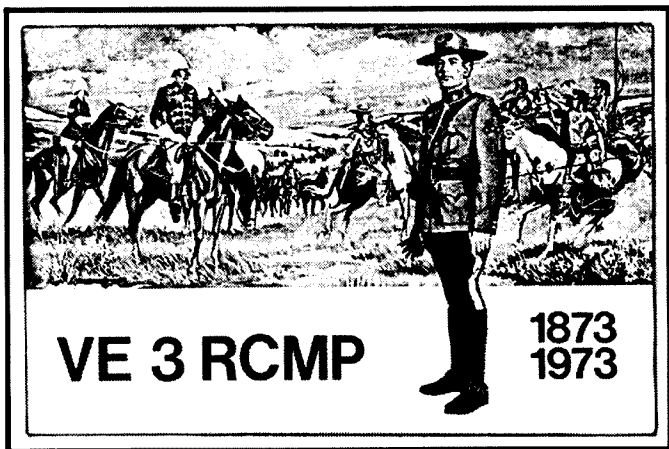
not to mention satellite and SSTV activity, tend to eclipse this communication revolution. Just as some prefer CW, others prefer voice, so it is not surprising that amateurs have formed clubs to bring together others with their shared interest. The QSL, DF0SSB, is a special allocation to the Rodgau group of SSB operators who proudly display the special suffix of their callsign.

Card donated by Milton VK3MN.

VE3RCMP

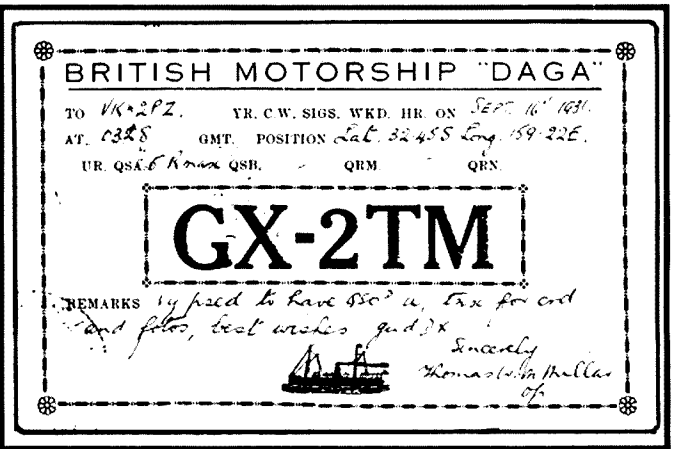
The Royal Canadian Mounted Police (formerly the North-West Mounted Police) was given its present name in 1920 when it became responsible for the





VE 3 RCMP

**1873
1973**



BRITISH MOTORSHIP "DAGA"

TO *VK2PZ* VR. CW. SIGS. WKD. HR. ON *Sept 16 1931*
 AT *0328* GMT. POSITION *Lat. 32 45S Long. 159 22E*
 UR. QSL. *QRM* QSB. QRM. QRN.

GX-2TM

REMARKS *My friend to have 850² u, fax for card and photo, best wishes god! X*
Sincerely Thomas John Mullen

enforcement of law throughout the whole of Canada. Amongst its many duties it is responsible for the suppression of trade in narcotics and also deals with smuggling offences. This body also enforces provincial laws in most of the Canadian provinces. The QSL card VE3RCMP celebrated the centennial of the force. Four letter suffixes are still fairly uncommon although Canada again used one for its Expo 86 with the callsign VE7EXPO.

The attractive QSL was donated by Roy VK4NE.

GX2TM

At first glance one would believe this QSL to be one of the GX prefixes recently allocated to English clubs operating under the same conditions as stations to which special event callsigns have been allocated. Actually, during the pre-World War II years we find several callsigns accompanied by the letter X. These were for operation as licensed portable stations. The callsign XY16BZ portable from Iraq was featured in the November 1990 issue of *Amateur Radio*. The QSL GX2TM, dated 16 September 1931, was station G2TM operating fixed portable on the British motorship "Daga". In most cases the "X" was handwritten but in this

case the operator must have felt that the frequency of QSL demand warranted the printing of a special card. It was for a CW QSO from the ship's "spark" to SK VK2PZ, Chris Cowan of Aberdare near Cessnock NSW.

Card courtesy of Bill VK3XT.

VI4MOO/VI4BEF

This special event QSL celebrated Australia's 1994 beef exposition in Rockhampton, radio operations taking place from 18 to 23 April. With the greatest concentration of cattle in Australia within 300 km of Rockhampton, Central Queensland, the city of 60,000 has earned the title of "Beef Capital of Australia". More than 500 international visitors, representing 100 countries, visited the city during the week of the exposition. Both of the callsigns VI4BEF and VI4MOO are probably as close as one can get to beef and a bovine exclamation.

Cards donated by Roth VK3BG and the Central Queensland Branch of the WIA.

LZ40KSL

Very few countries can rival Bulgaria in its use of multiple numerals in its allocated callsigns. The WIA national collection holds QSL cards with the

prefixes LZ13, LZ30, LZ40, LZ90, LZ91 and LZ100. No doubt there are several more. The QSL LZ40KSL celebrated 40 years of the Socialist Revolution in Bulgaria from 9 September 1944. It was on the 5th of that month that the Soviet Union declared war on Bulgaria which, in turn, led to the Communist Fatherland Front party seizing power and declaring the Revolution. Bulgaria did not become a People's Republic until two years later after much internal unrest.

Card donated by Athol VK3CP.

Thanks

The WIA would like to thank the following for their kind donation of QSL cards to the collection (supplementary list):-

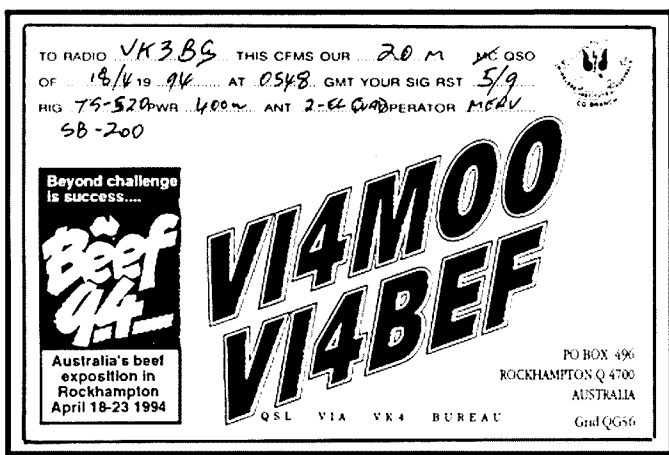
Tad VK3UX, Bob W5KNE, Mike VK6HD, Paul VK5MAP, Ken VK3MBO, Jim VK9NS, John N3GNF, Wim SP5DOJ and Jan SP5NE.

Also the following families and friends of the following "Silent Keys" (supplementary list):-

Jim Pope VK3DPO, Ray Humphreys VK3WO, Norman O'Brien G3LP, Henry Person VK4NRF and Harry Small VK2CAJ.

*4 Sunrise Hill, Montrose VIC 3765 Tel (03) 728 5350

ar



TO RADIO *VK3BG* THIS CFMS OUR *20 m* *MC* QSO
 OF *18/4/19 94* AT *0548* GMT YOUR SIG RST *5/9*
 RIG *75-520PWR* *400m* ANT *2-44* OPERATOR *MEW*
SB-200

Beyond challenge is success...
Beef 94
 Australia's beef exposition in Rockhampton April 18-23 1994

**VI4MOO
VI4BEF**

PO BOX 496
 ROCKHAMPTON Q 4700
 AUSTRALIA
 QSL VIA VK4 BUREAU
 Grid QG56



BULGARIA

AMATEUR RADIO STATION

LZ40KSL

QTH: SILISTRA
 40 YARS FROM THE SOCIALIST
 REVOLUTION IN BULGARIA
 9. IX. 1944 - 9. IX. 1984

ITU zone 28

WAZ zone 20

Repeater Link

Will McGhie VK6UU*

With so much happening and about to happen in amateur radio this year it is difficult to know what to comment about in the repeater scene. The time delay between writing this and its appearance in *Amateur Radio* can result in embarrassment to the writer. March is the new date for the new regulations to come into force and, in particular, the long promised change to the repeater regulations. This means that, along with this *Repeater Link* article you could also be reading the new regulations.

Community Benefits

The large increase in licence fees is leading me to believe that we are seen as a source of revenue. I thought that we were a little more than this. Our interest and efforts in communications technology flow back into the community and in many cases our work situations. For myself this is not just hollow rhetoric. My interest in amateur radio has benefited my work situation considerably. Working in the television industry and, in particular, outside broadcasts, brings lots of technology into one area. My particular work situation is microwave links and communications.

You probably are not aware of the complexity and enormous amount of equipment that goes into bringing you your favourite sport live. The television picture almost always is carried on a microwave link from the event back to the television station from where it is fed into the network. Often the outside broadcast site is not in direct line of sight to the television station. Being microwave the signal must have line of sight and be a strong signal with no introduced link noise into the picture. For an RF bandwidth of 40 MHz this requires several hundred microvolts and preferably signal levels over 1 millivolt. One or more microwave repeater sites have to be set up if there is not direct line of sight. Reliability has to be 100%. How often do you see a live outside broadcast fail due to the link failing? It just is not allowed. However, being electronic, it has to fail some time. The way around this potential loss of your favourite sports program is dual link systems. If one system fails then the other link is automatically selected and hopefully you did not even notice any disruption.

The point about all this is that most of

my knowledge came from being interested in radio. It was not learnt at a technical college but out of my hobby interest in communications. Radio frequency technology is a bit of a fringe technology even in the broad area of television. Most technical people who work with and maintain television equipment shy away from radio. It was not covered in all the courses I did, and I did many. It is a specialist area. You either were into radio and microwaves or you were not. Television technical staff who found themselves working with radio often never really figured it out. Sure, you could wander through and make do, but when it came to quickly figuring out an RF problem the person with the interest always performed better.

Now I might be in a small minority in that amateur radio directly benefits my work. I can pay the new licence fee, as it is not a large sum of money, but the whole situation alarms me. By the time you read this there may have been many changes but in my 27 years as an amateur I have never seen amateurs so upset. Packet radio has led the way in allowing us to gauge the opinions of other amateurs and to voice our own. Amateurs vary greatly in their ability to put words on to paper in a strong coherent manner. Reading other amateurs' point of view helps shape our response and we are able to make a better contribution.

QSP News

The "Golden Antenna" of the Town of Bad Bentheim

Every year, on the occasion of the German-Dutch Radio Amateur Festival (DNAT), the Town of Bad Bentheim awards the "Golden Antenna" to radio amateurs for an exceptional humanitarian deed in the field of amateur radio communications. This award has been given since 1982 to radio amateurs from countries such as Brazil, Italy, Belgium, Netherlands, Romania and the former USSR.

The "Golden Antenna" 1994 has been awarded to Rolf Sigris DJ2RN. Beside many other worthy and unselfish activities, with the help of amateur radio he saved a family with four children from serious trouble in Uganda

(Africa). Furthermore, by his radio contacts and personal involvement, he created the preconditions to building a new school in Uganda.

The 14th award of the "Golden Antenna" is to take place on the occasion of the 27th German-Dutch Radio Amateur Festival, on 25 August 1995 in Bad Bentheim.

Radio amateur organisations all over the world, as well as every radio amateur and every individual who have been helped in any way by radio amateurs, are called upon to submit proposals for individuals or groups of radio amateurs, handing in the respective detailed documents substantiating their proposal by 15 June 1995, at the latest, to Stadt Bad Bentheim, PO Box 14 52, D 48445 Bad Bentheim, Germany.



The Mayor of Bad Bentheim presenting the 1994 Golden Antenna award to Rolf Sigris DJ2RN.

Repeater Licence Costs

The new fee structure as it relates to repeaters is alarming. The increased annual cost of the licence fee for established repeaters, and the rumoured large increase for new repeater sites, raises the question just what does the SMA do? Our local repeater group in VK6 manage several repeaters and have an annual licence cost of around \$550. This figure is now set to almost double. The introduction of high powered pager transmitters so close to our prime VHF band has demonstrated that we have little protection from other services. Most of the interference to our 2 metre repeater network is not the result of faulty pager transmitters but repeater receivers being unable to cope with very strong signals. Many of these receivers are built to commercial specifications yet, with the signal levels received from pagers, are pushed into intermodulation. The result is loud pager audio.

The SMA and Repeaters

This invites the question as to what rights do we have from strong pager signals overloading our repeater receivers? I have been involved with several pager problems and have found the SMA courteous and helpful when contacted. The SMA officer is helpful in trying to localise the problem and supply information as to where the pager transmitter is located. But when it comes to actually fixing the problem it can become difficult from this point on. Pagers create a unique problem in that not only are they strong signals but they are very close to our 2 metre band. Also pagers are not just one transmitter.

In VK6, and probably in other states, when a pager transmitter keys up it is not necessarily just one pager transmitter that keys up, but several. The pager customer may have the wide coverage option and pagers several hundreds of kilometres apart all simultaneously key up. The result makes sorting out the pager problem very difficult. The SMA officer may find it far more difficult to find a solution to the problem than the repeater manager.

Almost all the pager problems experienced with repeaters in VK6 have been sorted out by amateurs. This is perhaps the best course of action as it is not possible for the SMA to sort out a problem with your repeater receiver in a cost effective manner. No one wants the SMA to be involved at this level but the question is, what do the SMA do when it comes to solving pager problems to our repeaters? My experience is that, helpful as they may wish to be, there is little the SMA can do.

For example, a pager problem with one of our repeaters was solved by us amateurs by shifting frequency. Many months of trying to solve the problem resulted in defeat and a frequency change was the easiest way around the problem. If you can't change frequency then you do have a problem.

VK3PK

My thoughts on the SMA's role in repeater management in Australia were further stimulated by a packet I read from Lee VK3PK. Now Lee had a lot to say about the role of the SMA on administering repeaters. What Lee's qualifications are to comment on this I do not know but so much of Lee's packet said what I have pondered over for many years. Repeater experimentation has been stymied from day one. Regulations that, to me, do nothing but restrict. It is acceptable to restrict something if there is a good reason, but when you try and try to figure out why a particular regulation exists, and can come up with no logic to it, then you have to ask is there something fundamentally wrong?

The conclusion of Lee's very lengthy packet was, let the WIA do most or all of what SMA now do towards repeater management. The WIA already do about half of the current repeater management in terms of frequency planning and coordination. The stumbling point appears to be the interface with other services. The SMA are reported to run the repeater frequencies through a computer program to check for problems to other services. I don't know if the SMA also check for interference to repeater receivers. If they do why do we have so many problems with pagers? One answer could be that the problem with receiver intermodulation is too complex for the computer program. Intermodulation problems can be the result of several sources and, to take all but the most likely, may just be too difficult.

Also included with Lee's comments was the pager problem with VK3RMM at Mt Macedon. I gather that this repeater is almost unusable due to pager interference and has been for many months. All attempts to fix the problem have had no effect. The repeater is not at fault, I gather. I know there are several repeaters in a similar situation throughout Australia.

UHF 828s

I received an informative letter from Colin VK3BLE several months ago and have only now been able to include some of it in *Repeater Link*. Colin is involved in repeaters in a big way in the Gippsland area in Victoria. He lists some twelve amateur repeaters, seven CB repeaters, two St John Ambulance repeaters and two Surf Lifesaving repeaters that he and other amateurs are involved with. The two clubs are the WIA Eastern Zone ARC and the East Gippsland ARC. I'm interested to know more about how all this came about Colin and, in particular, the involvement by amateurs in the non amateur systems. This type of involvement is what needs to be brought to the attention of our politicians and the SMA. Amateurs contribute to our community but does anybody know?

Colin's main reason for writing was a warning on the plastic inside the L1, L2 and L3, etc of the Philips UHF FM 828s being susceptible to melting. If you have to remove these coils for modification place a wet cloth on the metal cans then unsolder the cans only and remove them as one piece. Then unsolder the coils. If you damage the plastic which tunes the coils you may have difficulty in finding any replacements. Thanks Colin for the information and advice.

*21 Waterloo Crescent, Lesmurdie 6076
VK6UU @VK6BBS
ar

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

P J (Peter)	KOEN	L50242
R T W (Ronald)	PAIN	VK1WP
N R	MARTIN	VK2AID
K (Keith)	JAMES	VK2CKJ/VK2KVQ
M	BARRY	VK2IH
J (John)	LLOYD	VK3AKF
C (Cliff)	MANNING	VK3CJ
H (Howard)	AMOR	VK3RD
L D (Lew)	FAVILLA	VK5BI
T	LAIDLER	VK5TL

Ronald Timothy Wellesley Pain VK1WP

Ron died at his home in Holt, ACT on 12 January 1995 aged 78 years. Upon completion of his education at The King's School, Parramatta in 1933 he studied accountancy and joined the Militia part-time. At the outbreak of WW II he enlisted (NX180) and served in 6 Div and 9 Div Signals in England and the Middle East. He was one of the "Rats of Tobruk."

Returning to Australia he was CI at the Signals Schools at Bonegilla and in PNG, rising to the rank of Major. He then transferred to the British Army serving in India and Malaya rising to the rank of Lt Colonel. Back in civil life he successfully manufactured Mellolite Venetian Blinds until taken over by Hunter Douglas. He then set up another firm making Aluminium Windows (Dayview). During this period he served on the Council of his old school, The King's School; two terms on the Hornsby Shire Council; member of Hornsby Rotary and a member of the Synod of the Diocese of Sydney.

From childhood he was actively involved in his local Church and upon retirement he spent four years in PNG for the Asian Pacific Christian Mission. While in PNG he gained his amateur radio licence, firstly as P29NRP in 1976 and P29RP in 1978.

Returning to Australia he settled at Coomba Park, near Forster, building his own home. While in NSW he used the callsign VK2DBH. In 1988 he moved to Canberra and was given the callsign VK1WP. One of his interests which helped to keep him fully occupied was putting on computer disks Pacific Native Languages (about 15 in all) for the Bible Society.

He is survived by his wife, Margaret, four children and twelve grand-children.

A. Franklyn Pain VK2DYP

Dr Michael Barry VK2IH

Mike Barry passed away on 14 January after a short illness, aged 81. He grew up in Strathfield and went to Sydney Grammar School. From there he studied medicine at Sydney University and graduated in 1938 as MBBS.

At the outbreak of WW II he was Medical Superintendent of Sydney Royal North Shore Hospital. At the time, this was a reserve occupation. However, Mike found the AIF was short of MOs and enlisted. After some time in the Army he

**Have you advised
the WIA of your
new Callsign?
Use the form on
the reverse side
of the
Amateur Radio
address flysheet.**

was able to transfer to the RAAF and saw active service in Borneo.

In 1941 he married Lorna who also studied medicine. Upon discharge from the RAAF in 1946 they set up a joint practice which in those days meant house calls day and night.

From an early age Mike was fascinated with radio, but was unable to spare the time until he and Lorna retired in 1979. They moved to the Central Coast where he joined the local radio club and, with club members and friends, built his own SSB transceiver. He really enjoyed his radio.

We offer our condolences to his wife Lorna, two sons Michael and Patrick, and grand children. Farewell dear friend, Happy to meet — sorry to part.

Les Gaborit VK2LW

Lewis D Favilla VK5BI

It is with deep regret we report the passing of Lewis (Lew) D Favilla VK5BI on Monday, 2 January 1995 aged 85. He had only recently been made our first Life Member. His cheery voice will be missed by his many friends on air.

Lew took up amateur radio at the ripe age of 80 years, obtained his Novice licence at 81 years, and followed through to obtain his Full Call some months later. Quite an achievement for an octogenarian!

Lew was proof that you are never too old to take up a new hobby and enjoy it and life to the fullest. 73 Lew.

John C Wayne VK5BL
Moonta Scout Group ARC
ar

Technical Correspondence

All technical correspondence from members will be considered for publication, but should be less than 300 words.

Pass Band Tuning for The ICOM IC-751A

Recently I bit the bullet and decided to trade in my much loved Uniden 2020 transceiver for a more "state of the art" ICOM IC-751A.

Having installed the new rig and operated it over a period of several months I was disappointed to find that the IF shift, the notch and the filter controls were virtually useless.

By comparison, the ICOM IC-R71E communications receiver which I use for general shortwave listening left the new transceiver for dead. So what's the joke, I thought to myself. I spend several thousand dollars and get a rig with a handful of controls that look beaut but do nothing. Being completely satisfied with the ICR-71E performance I decided to compare the circuits and see what differed.

Surprise, surprise! All that had changed was an extra transistor in the IC-751A circuit which, if anything, seemed to serve only to cut off the pass band tuning function.

"This transistor must go", I thought!

After tracking it down the offender was duly excised.

The difference in performance which resulted from this modification is almost unbelievable.

Why ICOM have made such a circuit change is more than I can understand. Indeed, I find nothing good to say about the IF shift control except that in theory

it seems OK. In practice, it leaves a lot to be desired.

The Modification

1. Disconnect power from the rig and then remove the upper half of the transceiver case.
2. Locate the shielded enclosure which is approximately 10 centimetres from, and immediately to the rear of, the tuning control knob. This enclosure is identified by a coil adjustment hole in its lid.
3. At the left hand side of this enclosure are two transistors. The one of interest is Q87 (RN2202), Q87 being marked on the PC board beside the transistor.
4. Depending on how adventurous you are you may try either of the following:
 - (a) Take out the Main Board retaining screws, lift up the PC board and desolder Q87 and remove it; or
 - (b) Carefully snip the transistor's three legs using an appropriately small tool. Make sure remnants of the legs are separated and that they are not in contact with the shielded enclosure or any other component.
5. The IF Shift now operates as a Pass Band Tuning system. Both the Notch and the Filter controls exhibit greatly enhanced functionality.

Steve Bushell VK3HK
20 Allendale Crescent
Mulgrave VIC 3170

ar

VHF/UHF — An Expanding World

Eric Jamieson VK5LP*

All times are UTC.

Six Metres

Six metres almost let us down this year. There were several good bursts during November, then a few quiet periods until Christmas. From then on through January the band has been very responsive with interesting long haul contacts across the continent and to New Zealand. Short skip conditions have produced quite a number of good, though relatively short, openings on two metres Es from VK5 to the eastern states and VK7.

Mike VK2FLR said that, from the Sydney viewpoint, the Es season got off to a good start in December but went into decline towards the end of the month. Things picked up again in January with some very widespread openings on six and a number on two metres. On 13-14 January VK1, 2, 3, 4, 5, 6, 7, 8, ZL and FK8 were all available in Sydney on six. He did not hear VK0IX although it was reported that VK2BA had done so. On two metres during the first half of January VK5 was worked from Sydney on at least three occasions, New Zealand once, plus FK1UH and FK8GM from New Caledonia for 30 minutes on the evening of the 15th.

Roger VK5NY said that on 15/1, after the VHF/UHF Field Day had ceased, from 0621 he had two metres Es and worked VK1VP, VK1BG, VK2ZXC and a partial contact to VK2DXE. 0740 VK7ZIF on six metres with VK7RNW/b on two metres warning that the band could be open. From 0747 to 0759 Roger worked VK7ZMF, VK7ZIF, VK7XR and VK7KAP. VK7ZIF was rather pleased as it was his first VK5 contact on two metres. Roger was told that he had just completed working all available VK7s who operate on the low end of two metres! The two metre signals were not strong so tropo may have been involved. At 0804 Roger worked VK3BEH, and at 0806 VK3BRZ. Then on six metres at 0839 ZL3NW followed by ZL2IA. It was a good weekend.

10 GHz

Following the recent world record-breaking contact between Roger VK5NY and Wally VK6KZ, Wally took the opportunity of using the e-mail system to pass on the good news to the world microwave fraternity. Wally sent me copies of his messages and the responses and the world scene is certainly agog with interest.

The response from Chip Angle N6CA was particularly interesting — I quote

portion. Every summer we attack with Paul Lieb across the pond (California to Hawaii...5LP). Last year we finally made it on 2304, all previous attempts had no propagation on 2304. 3456 and 5760 were quite exciting when they happened. 10368 MHz is going to be the most difficult. We have been trying on all of the bands (902, 2304, 3456, 5760 and 10368) every year now for the past four or five years.

Equipment, which is identical on both ends of the path is: four foot dish, .375 F/D with changeable feeds for 2304 thru 10368. KH6HME's feed lines are about eight feet of 1/2 inch hard line. On 10368 he uses seven feet of WR90 waveguide, 0.6 dB loss.

On my end, 30 inch feedlines (1/2 inch) and four feet of WR90 guide. 2304-12 watts 1.5 noise figure receivers; 3456 — 7 watts, 1.5 nf Rx; 5760 — 5 watts, 1.5 nf Rx; 10368 — 3.5 watts, 3 dB nf Rx.

We are probably going to upgrade Paul's system on 10368 with a TWT, a new receiver and a new feed so we can go up to 15 watts, 1 dB nf and a new Chaparral feed from TVRO Ku band.

Congratulations again on yet another fine effort in pushing the rest of the world! 73's. Chip N6CA.

As Wally VK6KZ says, Australia has the record for at least the next six months until the northern summer when it may be lost to the California — Hawaii path. Let's wait and see, it may not be that simple! In the meantime it would be nice to see VK raise the distance to at least 2000 km. Just imagine if it became Albany to New Zealand, about 4500 km!

Ross Hull Contest

Chris VK1DO commenced operation in the contest from a field location late on 26 December. Conditions were not favourable and the 24 hours in the field yielded only 28 contacts on 2 m, 70 and 23 cm. The exercise served to test some equipment and antennas for the forthcoming field day contest. The remainder of the Ross Hull saw quite flat conditions with the usual spread of VK2 and VK3 stations on 2 and 70.

Chris writes, *The new rules for the Ross Hull have been well received and the emphasis on the 100 best contacts per band has relieved the congestion created by local stations exchanging numbers. As an operator who rarely scores annual leave over the contest period I would like to suggest a notation on entries from those who continued to work full time (that includes Saturday for me.) This is not an*

exercise in sour grapes but an opportunity to compare ourselves with similarly placed stations.

I am concerned that there may be an inclination on the part of some people to eschew contests, fearing that there might be an excessively aggressive or unfriendly atmosphere prevailing. The principle intent, surely, is to provide activity and stretch your operating horizons. As an operator who grew up with HF contests and now mainly operates in VHF contests, I would assure anyone who abhors aggressive or unfriendly operating techniques, that the most serious rivals are often heard assisting one another in the completion of contacts on difficult bands and paths. The courtesy and consideration shown between VHF operators abounds during a contest and will always be an excellent medium for new operators and old hands to co-exist (I couldn't agree more...5LP).

During the VHF Field Day on 14/15 January, Chris VK1DO, Andrew VK1DA, Geoff VK1CO and Bill VK2IFR mounted a combined effort at Kowen Forest northeast of Canberra and 1000 metres asl. The location chosen placed particular emphasis on 23 cm and hoping to work Doug VK4OE near Narrabri. The increased manpower made easy work of erecting the station with a professional operating room kicking off close to starting time with 6 metres open to ZL. This band continued to provide good contacts throughout Saturday until sunset and again on Sunday.

Conditions towards NE Victoria were rock solid; however, in the Melbourne direction we clearly had an impeded path. Despite the fairly difficult conditions in an important direction, Roger VK3XRS and Rob VK3DEM were worked on 23 cm. Late in the evening we made contact with Doug VK4OE who had found things pretty slow until then. Numbers were exchanged on 2 and 70 and numerous attempts were made for 23 cm with Doug audible to us but our lower power not making the grade in return.

Next morning signals from Doug were very favourable on 2 and 70 and the 23 cm contact on phone was completed fairly easily. This contact exceeds the record set with VK2DVZ in 1993. The distance and record set are yet to be confirmed; however, the considerable effort and travel for Doug is to be commended.

The station at VK1DO/p on 23 cm consisted of 4 x 36 element Yagis, MGF1302 preamp and a Kenwood TS790 running about ten watts. A thoroughly enjoyable field day completed with minimal fatigue and in excellent humour.

Doug VK4OE writes about his activities during the Field Day, some of which are already mentioned in the report from

VK1DO. He went to his usual portable location on Mount Kaputar near Narrabri and enjoyed being part of the VK2/4 record contact on 23 cm with Chris VK1DO over a distance of approximately 600 km (see above). Doug used 50 watts with the Tx amp and Rx pre-amp both mounted at the feedpoint of four loop Yagis (see front cover of December 1994 *Amateur Radio* for photograph).

Best 144 MHz contact was with VK2TWR/p at Snowy Mountains, 760 km. Many Sydney area stations were good strength on 144 and 432 MHz, also three central NSW stations west of Dubbo — VK2FC, VK2EMA and VK2XCI, each in a different grid square. He also worked Lyell VK2BE 5x8-9 on 1296 MHz. Signals between VK4OE/p and Brisbane were unexpectedly weak, probably due to the New England Plateau intervening.

Like so many of us who have been involved in portable operation, Doug looks forward to the occasion when the VHF/UHF Field Day will coincide with a slow moving high pressure system in the right spot and many only-dreamed-of contacts will actually occur in the eastern part of our continent. He thanks the Sydney-based fraternity for their fostering of some activity and enthusiasm for VHF and UHF amongst a number of amateurs in western NSW.

On 23/1 when Gary VK4AR, Peter VK4APG and Rod VK4KZR, all in Brisbane, began their usual aircraft enhancement contacts with Gordon VK2ZAB they found signals were a steady S5 and did not diminish. Rod also worked Gordon on 432. As the signals experienced slow QSB and peak characteristics indicative of long distance tropo enhancement, they turned their attention further afield and on 144 worked Gary VK4ABW/2 at Glenbrook in the Blue Mountains west of Sydney and Bill VK2IFR at Cooma, the latter at about 1050 km. Doug VK4OE was advised and worked VK2IFR for half an hour with signals at S2. No VK1s were heard.

Doug VK4OE enclosed a weather map from the Brisbane Weather Bureau which showed an eastward moving 1028 hP high in the southern Tasman Sea. The trailing edges of this high included the area between Brisbane and south of Sydney which is a classic example of the conditions required for tropo enhancement. This is one of the reasons why VK5LP and others like to see the daily weather map on television because it tells a story in itself as being one of the factors which may lead to a warning of long distance propagation.

The Antarctic — Again!

The continent of Antarctica, which for years remained "too difficult" for six

metre operators to work, or so we thought, has proved to be more accessible than ever imagined. All that was required was someone to be available to operate from the Antarctic and for amateurs elsewhere to be dedicated enough to make the effort to respond. The first definite such response came in November 1993 when Steve VK3OT was instrumental in spanning the distance of 3750 km and being the first ever to work VK0 on six metres by working VK0AQ. He was quickly followed by VK3LK and VK5NC and together they formed an exclusive club of three to have worked there on six metres.

Since then the club has extended to more than 30 members with the addition of Melbourne stations, more VK5s and VK7ZMF on 31/1. The following info is a mixture of that supplied to me by Steve VK3OT and notes from my log book, and commences on 13/1/95 at 0730 with the VK0IX beacon varying from 319 to 519 with rapid QSB, plus VK6ZAK, VK6JJ, VK6AS and FK1UH heard. From that which follows, readers can see how a chain of events unfolded at VK3OT leading to a possible contact warning being issued.

- 0731: Worked VK6JJ, VK6ZAK.
- 0740: TV video and sound on 45/46/50/51/57/62/64/69 MHz.
- 0745: Beacons on 50.042/056/057/076, 52.325/345/420 MHz.
- 0746: VK0IX/b 539 fast QSB.
- 0755: VK0IX called on 50.110 and heard unidentified CW.
- 0800: Video 45.240/250/260, 46.2396/2400, 55.2396, 57.240/26035/2607.
- 0801: Video 62.2396/240/2502, sound 62.760.
- 0802: Video 64.240/250/260, sound 69.740/750.
- 0805: FM sound 80.070, 90.105, 91.820, 94.660, 96.320, 97.080.
- 0810: VK0IX/b back and faded out within two minutes.
- 0845: VK6ZAK heard.

The above set of circumstances was sufficient to alert those interested so some stations were ready the next afternoon, 14/1. It was also the first day of the VHF/UHF Field Day so more stations were on air. Much TV video below and above 50 MHz, six metres to everywhere, two metres Es again to VK2 and VK4, ZLs were in and so were the VK7 beacons, the early afternoon pointers were right. The only problem seemed to be the impending storms, gale-force winds, dust, then thunderstorms. Pity!

The beacon did not get to me on 13/1 but on 14/1 I was on the alert from 0600 after the huge storms and lightning had subsided — all antennas were disconnected here from 0300. At 0730 VK7RNW/b was 599, at the same time VK4BRG/b was 579. VK0IX/b was heard here from 0745 through to 1100 at 519 at which hour it commenced to improve. Soon after, we managed to get Darin on air and I worked him 5x2 at 1135. At 1140 he was 5x6 for about five minutes but I resisted the temptation to work him again in case I spoil it for someone else. Darin then slowly dropped down until disappearing around 1155.

14/1/95 as supplied by VK3OT:

- 0608 VK2BA in Sydney copied VK0IX/b weakly (4471 km).
- 0633: Beacon into Sydney again. VK2BA alerted people on 6 m.
- 0645: VK8LM, VK8VF/b, VK8AH, (2500 km), VK1DO short skip.
- 0730: VK0IX/b to VK3OT, alerted stations.
- 0750: VK3OT CW copied in ZS1 via South Pole (details being checked.)
- 0755: VK0IX copying 55.250 video from ZL and sound carriers from VK.
- 0759: VK7ZIF short skip S9+.
- 0800: **VK3OT made two-way 5x5 SSB QSO to VK0IX (3750 km).**
- 0802: VK2QF Mudgee worked VK0IX 5x1 (4544 km).
- 0808: VK5ARC/p copied VK0IX/b weakly.
- 0820: VK2BA hearing beacon again, also at 0844.
- 1105: VK0IX/b heard weakly in Adelaide (3934 km).
- 1134: VK5ARC/p worked VK0IX 5x1 (who by now was very stable), followed by VK5PO/p, VK5NY, VK5LP, VK5ZTX, VK5ZIP, VK5ZTV, VK5ZWI, VK5ZBR, VK5SUBJ, VK5ZBK and VK5GRS.
- 1145: VK3OT heard VK0IX on CW but no QSO.
- 1155: Band closed. (The list of stations actually worked by Darin VK0IX on 14/1 has been confirmed by receipt of a Fax from him listing the stations.)
- 15/1/95: Band opened to ZL at 2200 with TV on video and audio frequencies. Call signs and beacons logged up to 0200: ZLs 2TPY, 2KI, 2UJH, 3NE, 3TY, 1THQ, 1AXB; VKs 3DTO, 3DUT, 3DUQ, 3ATQ, 4DO, 4BRG, 4EZ, VK7FP/mm etc. ZL3MHF/b 50.043, ZL4AAA/b 50.097, ZL2MHB/b 51.028, VK4BRG/b 50.076, VK4ABP/b 52.345, VK7RST/b 52.370 from 0300 short skip.

0700: VK5 to VK3 strong opening.
 0700: VK1RX worked VK0IX 5x1 (4256 km).
 0830: VK2BA et al to FK8 on two metres.
 25/1: 2300 FO5DR using FM heard in VK2, 3, 4.
 26/1: ZLs all day. Short skip VK2 to 3, VK7.
 0700: TV on 49.750, VK5BC on backscatter.
 0730: VK0IX/b 539 using TS660 connected to 50 metres of RG58 and beam on Brisbane!
 0745: VK0IX/b 50.200 559 with fast fading.
 0920: Beacon off and VK0IX calling CQ on 50.110 — VK3OT 5x1/5x2 exchanged in QSO. VK5NC and VK5LP hearing beacon 519 at 0830. No copy in ACT or Melbourne. VK5LP alerted VK5RO, VK5BC, VK5AKM, VK5NY, VK5KK.
 27/1: 0835 VK0IX/b 529 at VK5LP. Alerted VK5AKM and VK5BC.
 29/1: 1011 to 1021 VK0IX/b 519 heard by VK5NY, VK5LP and VK5ZBR.
 31/1: 0904 VK0IX/b into Melbourne. 0937 to 1145 worked by many VK3s, VK3OT, VK5LP, several more VK5s and VK7ZMF. Signals were up to 5x7.

The VK0IX beacon has been received over a wide area covering VK4AFL in Brisbane (5195 km), VK2APG and VK2BA Sydney area, VK2QF at Mudgee, VK3OT Hamilton, VK5LP Meningie, VK5NY Mount Wilson, Adelaide stations and VK1RX in Canberra, with no Melbourne stations in the first instance, but fortunately they were rewarded on 31/1. It's odd that there are no reports of any contacts from VK6 — Perth is 3833 km from Casey. They have been alerted.

VK0IX/b was heard in VK5 on seven days during January! The mode of propagation is difficult to define with any certainty. It appears that weak beacon signals arrive around local sunset then gradually increase in strength, sufficiently to allow SSB operation. On 31/1 Melbourne stations had contact before Adelaide but it soon was open to both areas simultaneously. Signals in Adelaide rose to S7. The Tasmanian beacons were very strong during the opening suggesting some Es content but the VK0IX signals are usually steady with occasional small fades so there may be some tropo component. Very interesting.

VK0IX uses a 50 metres per leg V-beam pointing to Adelaide connected to an ICOM 575H running 100 watts. He has access to a three element beam. He also uses 14.335 MHz. The beacon operates on 50.200 and Darin chooses his actual operating frequency usually close by but he can also be heard on 50.110 MHz. QSL route for VK0IX is Darin Roberts, care of John McRae VK5PO, 13 Francis Street, Kapunda, South Australia, 5373.

Western Australia

The West Australian VHF Group Bulletin for January provides a listing of the status of their beacons which has been added to my data base. Also included is a comprehensive list of satellite uplink and downlink frequencies. A notation says that, *All satellites up to and including AO-9 have crashed. UO-14 has been returned to the University of Surrey for Medical*

Research. UO-15 failed after a few orbits. RS-15 was launched on 26 December 1994. AO-21 was recently switched off by the main control centre for the Russian space centre as the mother satellite was no longer required. The RA-24 failed after several months with low battery voltage switching in to a 2 metre transmitter which has no antenna. PO-28 is currently only in use by the satellite owners transmitting on non-amateur frequencies.

Delayed News

Mike VK2FLR sent me a Fax in November which never arrived but I now have another copy. It includes references to stations in country areas of NSW which should be within tropo range of VK5s, so please note!

The weekend two metre and 70 cm circuits continue between stations in Sydney, Canberra and country NSW. For Gordon VK2ZAB this list should be extended to include VK4 and VK3. NSW country activity includes the tireless Ross VK2DVZ at Taree who consistently works

into Sydney and occasionally Canberra on 23 cm. In the west are VK2YZU at Peak Hill, and VK2EMA and VK2ERB at Condoblin. Mark VK2EMA now has two 17 element Yagis for 144 and added a couple of S points to his signal into VK2FLR in Sydney. Mark reports good reception of sun noise with the new array.

In the south west, VK2BWT and VK2APP at Young are typically S5 to S7 or better into Sydney. Further to the south are newcomers VK2TWR at Nimmitabel and VK2TCL at Captains Flat, east of Canberra, the latter having now discovered the virtues of horizontal polarisation.

In Sydney there are the regulars, plus Norm VK2ZXC who occasionally shows up from Port Kembla. Newcomers in Sydney are Brad VK2ZBD and Mark VK2GFR.

Mike's letter also includes information on meteor scatter tests, plus the use of digital processing devices (DSP). I need more space so will carry these items over until next month, together with overseas news.

Closure

March will see the approach of the equinox so TEP activity with Japan and other northern neighbours may increase.

Closing with two thoughts for the month:

1. A well-adjusted person is one who makes the same mistake twice without getting nervous, and,
2. A folk singer is a person who gets rich singing about how wonderful it is to be poor.

73 from The Voice by the Lake.

*PO Box 169, Meningie SA 5264

Fax: (085) 751 043

Packet: to VK5ZK for VK5LP

ar

VK QSL Bureaux

The official list of VK QSL Bureaux. All are Inwards and Outwards unless otherwise stated.

VK1	GPO Box 600 Canberra ACT 2601
VK2	PO Box 73 Teralba NSW 2284
VK3	40G Victory Boulevard, Ashburton VIC 3147
VK4	GPO Box 638 Brisbane Old 4001
VK5	PO Box 10092 Gouger Street Adelaide SA 5001
VK6	GPO Box F319 Perth WA 6001
VK7	GPO Box 371D Hobart Tas 7001
VK8	C/o H G Andersson VK8HA Box 619 Humpty Doo NT 0836

VK9/VK0 C/o Neil Penfold VK6NE
2 Moss Court Kingsley WA 6026

HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μ V (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μ V in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μ V at the receiver's input and the S-meter scale is 6 dB per S-point.

V in 50 ohms	S-points	dB(μ V)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4

0.78	S3	2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 20.5. The predicted value for April is 18.7.

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	18.1	15	15.1	-4	22	16	7	-6
2	18.4	16	15.6	-3	23	16	8	-5
3	18.4	16	15.4	0	23	17	8	-5
4	18.4	17	15.3	5	25	18	8	-5
5	18.4	18	15.1	14	27	19	9	-5
6	18.2	20	14.7	30	31	20	9	-6
7	17.3	23	13.8	44	33	20	7	-10
8	15.8	25	12.5	48	31	15	0	-20
9	14.1	27	11.2	49	26	7	-10	-35
10	12.6	29	10.0	49	21	-1	-22	...
11	11.7	29	9.2	48	16	-10	-34	...
12	10.9	30	8.6	47	11	-17	...	...
13	10.2	31	8.1	45	6	-25	...	...
14	9.8	32	7.7	44	3	-30	...	...
15	9.4	32	7.4	43	0	-35	...	...
16	9.0	33	6.9	42	-3	...	...	...
17	8.8	33	6.6	41	-8	...	...	...
18	8.2	33	6.3	40	-13	...	...	...
19	8.5	28	6.5	32	-9	...	...	...
20	10.3	21	7.7	23	4	-22	...	...
21	13.0	18	9.9	12	14	-1	-18	...
22	15.5	17	12.1	5	19	9	-3	-21
23	17.0	16	13.6	0	21	13	3	-12
24	17.6	16	14.3	-3	21	14	5	-9

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	21.6	12	17.5	-34	17	17	13	5
2	22.1	12	18.4	-36	17	18	14	6
3	22.5	12	18.9	-34	18	18	15	7
4	22.5	13	18.8	-28	19	19	15	8
5	22.5	14	18.6	-19	22	21	16	8
6	22.5	15	18.4	-1	27	23	18	9
7	22.2	17	17.7	16	31	26	19	10
8	20.5	20	16.3	31	34	26	18	6
9	18.6	22	14.7	42	34	24	14	0
10	16.5	25	13.1	45	32	19	7	-9
11	14.8	27	11.7	47	29	14	0	-20
12	13.8	28	10.9	48	27	10	-6	-28
13	13.0	29	10.3	47	24	6	-11	-35
14	12.4	30	9.8	47	22	2	-17	...
15	11.8	30	9.4	46	20	-1	-21	...
16	11.4	31	8.9	46	18	-4	-25	...
17	10.7	33	8.2	45	16	-7	-29	...
18	10.3	33	7.8	44	12	-13	-37	...
19	9.9	29	7.6	36	9	-16	...	...
20	10.3	23	7.8	22	9	-12	-34	...
21	12.5	18	9.9	7	14	0	-14	-36
22	16.0	15	12.2	-8	18	10	1	-13
23	19.0	14	14.8	-21	18	15	9	-1
24	20.9	13	16.6	-30	17	17	12	4

VK EAST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	11.2	10	8.2	-8	7	-6	-21	...
2	10.8	4	8.3	-21	5	-5	-18	-38
3	10.2	-2	7.8	-31	2	-7	-20	-39
4	12.9	2	9.8	...	3	0	-7	-21
5	17.6	6	13.6	...	3	6	3	-4
6	19.7	6	14.5	...	3	7	5	-1
7	19.9	6	14.7	...	3	7	5	-1
8	19.5	7	14.5	...	4	8	5	-1
9	18.3	8	14.4	...	7	8	4	-4
10	16.6	9	13.1	...	9	7	1	-9
11	14.8	10	11.6	-27	10	5	-3	-17
12	13.2	12	10.4	-11	11	2	-9	-27
13	12.2	15	9.6	2	12	-1	-15	-36
14	11.4	21	9.0	19	13	-4	-22	...
15	10.9	25	8.6	31	13	-7	-27	...
16	10.5	28	8.2	35	11	-11	-33	...
17	10.1	29	7.8	38	10	-14	-37	...
18	9.6	31	7.3	39	7	-19	...	...
19	9.2	31	6.9	38	4	-23	...	...
20	9.6	30	6.7	39	7	-18	...	...
21	9.4	30	6.5	38	5	-22	...	...
22	9.0	23	6.3	24	1	-24	...	...
23	8.8	17	6.3	15	0	-24	...	...
24	9.5	11	6.8	2	2	-17	-37	...

VK SOUTH — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	11.2	16	8.2	5	11	-3	-18	...
2	10.8	11	8.2	-6	7	-5	-20	...
3	13.6	11	10.8	-20	11	4	-5	-20
4	18.4	12	14.2	-39	12	12	7	-1
5	20.4	9	15.1	...	9	11	8	1
6	20.8	8	15.2	...	7	10	8	2
7	20.9	8	15.1	...	7	10	8	2
8	20.6	8	14.7	...	7	10	8	1
9	19.8	9	14.0	...	9	11	7	0
10	18.7	10	13.1	...	11	11	6	-3
11	17.1	11	11.9	-26	13	10	3	-8
12	15.3	13	10.6	-11	14	7	-2	-16
13	13.5	16	9.4	3	14	3	-9	-28
14	12.3	20	8.5	18	14	-1	-17	...
15	11.4	24	7.8	31	14	-6	-25	...
16	10.7	27	7.3	35	11	-12	-34	...
17	10.0	29	6.9	38	8	-17	...	...
18	9.6	30	6.7	38	5	-22	...	...
19	9.2	30	6.5	38	3	-26	...	...
20	9.3	30	6.7	38	3	-25	...	...
21	10.0	30	6.9	39	8	-17	...	...
22	9.5	29	6.7	37	5	-21	...	...
23	9.4	23	6.7	26	3	-21	...	...
24	10.2	18	7.4	15	6	-13	-34	...

VK WEST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.9	21	7.5	20	6	-15	-37	...
2	10.3	15	7.9	5	8	-8	-26	...
3	13.1	14	10.4	-10	12	3	-8	-25
4	18.0	13	13.9	-29	15	13	7	-3
5	20.5	10	15.7	...	12	13	9	2
6	20.9	9	17.2	...	10	12	9	2
7	20.9	9	17.3	...	9	11	8	2
8	21.0	9	17.1	...	9	11	8	2
9	20.6	9	16.7	...	9	12	8	1
10	19.7	10	15.8	...	11	12	7	0
11	18.4	11	15.6	-30	14	12	6	-4
12	16.7	14	13.2	-12	17	11	2	-10
13	14.8	16	11.7	3	18	8	-3	-20
14	13.2	21	10.5	22	18	3	-11	-33
15	12.3	25	9.7	35	18	0	-18	...
16	11.5	27	9.1	38	16	-5	-25	...
17	11.0	29	8.7	41	14	-9	-31	...
18	10.5	30	8.2	42	12	-12	-36	...
19	10.2	30	7.9	41	10	-16	...	...
20	9.7	31	7.4	40	7	-21	...	...
21	9.3	31	7.1	40	4	-25	...	...
22	9.7	31	7.4	40	7	-20	...	...
23	10.4	31	8.0	42	12	-13	-36	...
24	9.7	27	7.4	32	7	-18	...	...

VK EAST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	26.2	13	21.4	...	19	22	20	16
2	26.2	13	21.3	...	18	21	20	15
3	27.2	13	20.9	...	18	22	21	17
4	28.1	13	23.4	...	19	23	22	18
5	29.3	14	24.0	...	21	25	24	20
6	28.6	15	23.3	-30	23	26	25	21
7	27.3	15	22.0	-15	27	28	25	20
8	25.4	17	21.4	9	32	30	25	18
9	23.4	19	18.7	34	38	31	25	15
10	21.2	20	16.9	41	37	29	20	9
11	19.2	22	15.2	45	36	25	15	0
12	18.1	22	14.3	48	35	22	11	-5
13	17.2	23	13.6	51	34	20	7	-10
14	16.3	24	13.0	50	31	16	2	-16
15	15.5	24	12.2	50	29	13	-2	-23
16	14.8	25	11.6	49	27	9	-7	-30
17	13.4	25	10.5	48	22	1	-18	...
18	11.6	27	9.0	45	12	-13	-38	...
19	10.9	27	8.4	44	8	-21	...	...
20	9.6	28	7.4	40	-4	...	...	...
21	13.9	21	11.0	32	20	2	-14	-39
22	21.5	16	16.8	0	27	23	17	7
23	23.8	15	19.1	-20	23	23	19	12
24	24.5	14	20.0	-33	20	22	19	13

VK SOUTH — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	19.6	11	16.0	...	13	13	9	0
2	20.3	11	16.8	...	1			

VK EAST — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.5	-4	6.9	-27	0	-11	-28	...	
2	8.8	-11	6.5	-33	0	-11	-26	...	
3	9.1	-14	6.7	...	0	-9	-22	...	
4	10.8	-9	7.6	...	0	-4	-13	-28	
5	13.8	-2	10.4	...	-1	0	-5	-15	
6	16.6	2	12.5	...	-2	3	0	-6	
7	18.7	5	14.1	...	-2	5	4	-1	
8	19.9	7	15.0	...	1	7	7	2	
9	21.0	11	15.8	...	7	12	10	5	
10	21.1	14	16.3	...	14	16	13	7	
11	18.9	16	15.1	-20	19	17	12	2	
12	17.1	18	13.5	-1	22	16	8	-4	
13	16.0	20	12.7	14	24	15	5	-9	
14	15.2	23	12.0	26	25	14	2	-14	
15	14.4	25	11.4	35	26	12	-1	-19	
16	13.8	26	10.9	40	25	10	-4	-25	
17	13.2	28	10.3	43	24	7	-8	-30	
18	12.2	29	9.4	42	20	1	-17	...	
19	10.7	30	8.3	40	14	-9	-31	...	
20	10.3	30	7.7	40	11	-13	-36	...	
21	10.3	28	7.2	37	9	-15	-39	...	
22	9.3	21	7.1	39	5	-18	...	...
23	9.9	11	7.0	0	4	-14	-33	...	
24	9.6	3	7.0	-17	2	-12	-28	...	

VK SOUTH — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	10.4	4	7.4	-19	4	-8	-23	...	
2	9.5	-4	6.8	-29	1	-10	-25	...	
3	9.7	-9	7.1	...	0	-8	-20	...	
4	11.6	-6	7.9	...	0	-2	-11	-25	
5	15.0	0	11.1	...	-1	1	-2	-11	
6	18.1	3	13.4	...	-4	3	3	2	
7	20.3	5	15.1	...	-5	4	5	2	
8	21.5	7	16.0	...	-4	6	7	4	
9	20.7	8	16.6	...	0	8	8	4	
10	19.3	9	15.2	...	5	10	8	1	
11	17.4	11	13.8	...	10	11	6	-3	
12	15.5	14	12.3	-20	14	10	2	-11	
13	13.9	17	11.0	1	17	7	-5	-22	
14	12.9	22	10.2	20	18	4	-10	-31	
15	12.2	25	9.6	32	18	0	-17	...	
16	11.7	27	9.2	37	17	-3	-22	...	
17	11.3	28	8.8	40	16	-6	-26	...	
18	10.9	29	8.5	40	14	-9	-30	...	
19	10.3	29	8.0	40	10	-14	-38	...	
20	9.8	30	7.5	39	7	-20	...	...
21	10.1	29	7.6	39	9	-16	...	...
22	9.1	27	7.1	31	1	-9	...	...
23	9.2	19	7.1	18	1	-23	...	...
24	10.8	13	7.5	-1	7	-8	-24	...	

VK WEST — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	11.0	15	7.7	6	8	-9	-26	...	
2	10.0	4	7.1	-13	1	-13	-31	...	
3	10.1	-1	7.3	-28	0	-11	-26	...	
4	12.2	-1	8.2	...	1	-3	-13	-28	
5	15.9	3	11.6	...	1	3	-1	-10	
6	19.4	5	14.2	...	-1	5	4	-1	
7	21.7	6	15.9	...	-2	6	7	3	
8	23.0	7	16.9	...	-2	7	8	5	
9	24.0	8	17.7	...	-1	8	10	7	
10	23.8	9	18.2	...	3	11	11	8	
11	22.2	11	18.3	...	9	13	12	7	
12	20.2	13	16.1	-34	15	16	12	4	
13	18.1	16	14.4	-6	21	16	9	-1	
14	16.3	19	12.9	15	23	15	5	-10	
15	15.3	23	12.1	33	26	13	1	-16	
16	14.5	24	11.5	38	25	11	-3	-22	
17	13.8	26	11.0	42	24	8	-7	-28	
18	13.3	26	10.5	43	23	6	-10	-33	
19	12.8	27	9.1	43	21	3	-14	-38	
20	11.9	27	8.4	41	17	-3	-22	...	
21	10.7	28	8.0	40	11	-12	-35	...	
22	10.5	28	8.0	40	10	-14	-37	...	
23	11.2	28	7.9	41	14	-8	-30	...	
24	9.7	22	7.5	23	4	-20	...	...

VK EAST — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	10.4	2	7.0	-22	4	-6	-18	-38	
2	10.2	6	6.9	-13	5	-7	-21	...	
3	10.1	9	7.0	5	5	-8	-23	...	
4	9.8	13	6.9	3	5	-11	-28	...	
5	9.1	17	6.4	13	3	-17	-38	...	
6	9.3	23	6.7	23	5	-17	-39	...	
7	11.2	25	8.1	31	14	-4	-21	...	
8	14.2	23	10.4	29	23	10	-2	-19	
9	12.0	19	9.2	9	16	5	-7	-24	
10	11.4	11	8.7	-11	10	1	-9	-26	
11	12.9	6	10.1	-32	7	2	-7	-21	
12	12.0	-1	9.5	...	2	-1	-9	-22	
13	11.5	-7	9.0	...	0	-2	-9	-21	
14	11.0	-12	8.6	...	-1	-3	-9	-21	
15	10.6	-15	8.2	...	-2	-3	-9	-21	
16	10.0	-19	7.7	...	-2	-3	-10	-22	
17	9.6	-27	7.3	...	-5	-7	-14	-28	
18	10.0	-19	7.5	...	-2	-3	-10	-23	
19	12.1	-10	9.5	...	-3	-2	-6	-16	
20	15.4	-1	11.2	...	-3	1	-1	-8	
21	14.2	-1	9.6	...	-1	1	-3	-12	
22	12.2	-2	8.3	...	1	-1	-8	-20	
23	11.2	-2	7.6	...	2	-3	-12	-27	
24	10.6	0	7.1	-31	3	-4	-16	-33	

VK SOUTH — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.4	-2	6.5	-23	1	-11	-25	...	
2	9.2	1	6.4	-13	0	-14	-31	...	
3	9.0	5	6.4	-5	0	-17	-38	...	
4	8.8	10	6.3	4	0	-21	...	...
5	8.3	14	6.0	12	-3	-29	...	...
6	8.6	21	6.3	22	-2	-29	...	...
7	10.3	23	7.6	28	8	-13	-35	...	
8	12.9	22	9.6	27	18	3	-12	-33	
9	15.0	20	10.4	19	22	11	0	-15	
10	11.1	15	8.6	5	10	-4	-19	...	
11	9.5	5	7.4	-9	3	-11	-27	...	
12	11.3	-3	7.8	-27	4	-3	-15	-32	
13	10.7	-4	7.5	...	1	-5	-15	-31	
14	10.1	-10	7.0	...	0	-5	-15	-30	
15	9.7	-15	6.8	...	-1	-5	-14	-29	
16	9.3	-29	6.6	...	-7	-11	-21	-37	
17	9.1	...	6.6	...	-13	-17	-26	...	
18	9.9	-27	7.2	...	-7	-9	-17	-31	
19	11.7	-12	8.0	...	-3	-2	-7	-18	
20	14.5	-4	10.6	...	-5	0	-3	-10	
21	13.2	-6	9.2	...	-3	-1	-5	-15	
22	11.3	-9	7.9	...	-1	-3	-10	-23	
23	10.4	-8	7.2	...	0	-5	-15	-30	
24	9.7	-6	6.7	-34	0	-8	-20	-39	

VK WEST — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.0	-13	6.2	-36	-2	-11	-24	...	
2	8.7	-11	6.1	-28	-3	-14	-28	...	
3	8.5	-8	6.1	-21	-3	-17	-33	...	
4	8.3	-4	6.0	-13	-4	-21	-39	...	
5	7.9	-1	5.8	-6	-6	-26	...	...
6	8.3	5	6.1	0	-5	-26	...	...
7	9.9	11	7.4	4	2	-16	-34	...	
8	12.2	15	9.2	9	10	-3	-17	-37	
9	14.6	15	11.0	9	16	6	-4	-20	
10	13.1	15	10.2	5	14	3	-8	-25	
11	10.1	7	7.8	-7	3	-9	-24	...	
12	9.9	0	7.7	-22	1	-9	-22	...	
13	12.0	-1	8.1	...	1	-4	-12	-27	
14	11.2	-4	7.5	...	-1	-5	-14	-27	
15	10.6	-8	7.2	...	-3	-6	-14	-28	
16	10.0	-19	6.8	...	-4	-6	-13	-26	
17	9.6	-30	6.6	...	-9	-11	-19	-34	
18	9.2	...	6.4	...	-14	-17	-26	...	
19	9.0	...	6.4	...	-17	-20	-30	...	
20	9.7	-32	7.0	...	-10	-12	-20	-34	
21	11.5	-15	7.7	...	-5	-5	-10	-20	
22	10.9	-15	7.6	...	-4	-5	-12	-24	
23	10.0	-17	7.0	...	-3	-7	-15	-29	
24	9.3	-16	6.5	...	-2	-9	-19	-36	

VK EAST — MEDITERRANEAN									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	10.0	0	7.7	-28	2	-8	-23	...	
2	9.5	-9	7.2	-37	0	-9	-23	...	
3	12.6	-2	9.5	...	1	-1	-8	-21	
4	18.6	5	14.2	...	-1	5	4	-2	
5	23.7	7	18.5	...	-3	7	9	6	
6	26.4	8	21.2	...	-4	8	10	10	
7	25.9	9	21.0	...	-3	8	11	9	
8	24.7	9	19.8	...	0	9	11	9	
9	22.9	10	19.3	...	5	12	12	8	
10	21.0	12	16.7	...	11	14	11	5	
11	18.8	14	14.9	-29	16	15	10	1	
12	16.9	17	13.4	-6	20	14	7	-5	
13	15.9	20	12.6	16	24	15	4	-11	
14	15.0	24	11.9	34	26	14	1	-15	
15	14.3	26	11.4	39	26	12	-1	-20	

HAMADS

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● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albany; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth.

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● **GLOBAL** high performance HF mobile whips (see review Jan 95 Amateur Radio, Random Radiators), prices from \$50.00. Adrian VK2DZF QTHR (02) 89 9856.

FOR SALE NSW

● **TOWER** telescopic 2 sections 6 m each winch detachable section dimen 200x200x200. Problem, tower fixed to 17 sq home — hope to sell both as a complete unit. VK2EJU (065) 53 1365.

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● **LINN Sara-9** speakers \$1,500 or swap for Icom IC751-A or Kenwood TS930-S in EC consider other types. Adrian VK2DZF (02) 899 8560.

● **FIVE Hilltop** acres excellent HF/VHF. Erect tower of your dreams amid tranquility character full home 12 mins from main shops 15 to superb beaches in go ahead Gosford \$365,000. Write Dave Bell, RMB 5445, The Ridgeway, Hoigate Gosford NSW 2250.

● **YAESU FT101ZD** vgc new 6146B finals microphone manual serial no. 120956 \$550 ono. Herb VK2UJ QTHR (068) 65 3213.

FOR SALE VIC

● **KENWOOD TH25AT** handheld 2 m FM transceiver c/w mobile headset (vox operated), nicad battery pack & charger, DC car adaptor, speaker/mic \$450; 2 m 12 el Werner Wulf Yagi \$100; 6 m 6 el Werner Wulf Yagi \$150; 70 cm

Skybeam 21 el Yagi \$150. Mike VK3XL (03) 660 4310 BH or (03) 703 2729 AH.

● **YAESU 707 HF SSB** base or mobile station comprising FT707 transceiver s/n OH-50022 FP707 power supply s/n OE-010483 FC707 antenna tuner and dummy load s/n OF-010860. WARC bands all with manuals, total \$750; HOXIN HF-5DX HF band vertical trapped antenna with aluminium mast \$80; HEAD Phones and Morse key \$40. Owen VK3ON QTHR (03) 457 3425.

● **KENWOOD 440S HF** transceiver with built in ATU very good condition, seldom used \$1,400. Ian VK3MZ Ringwood (03) 876 3643.

● **KENWOOD TS520S** (with CW filter) together with speaker (SP230) and MC35S noise cancelling microphone and original operating manual \$600. Derek VK3DD (03) 730 1557.

● **ALINCO DR-112 2 m 5/45 watt** mobile xcvr with both manuals cradle mic as new in box little used \$425; TIMEWAVE audio noise eliminator DSP-9 kills all noise, brand new in carton, retail \$339 Sell \$239. Max VK3GMM (059) 85 2671.

● **ICOM IC-2400A 2 m/70 cm FM** transceiver s/n 01805 wide Rx with original packaging, manuals, accessories, etc as new condition. Antenna specialist thru-glass 2 m & 70 cm whips. Supplied with new re-mount kits ec. Best Offers. Adam VK3ALM QTHR (015) 36 2799.

● **SATELLITE DISH 1.5 metre** Andrews spun aluminium \$120; KU Band LNC \$25; PLESSEY 12A LNC \$15. VK3BCU (03) 390 2609.

FOR SALE QLD

● **HEATHKIT SB201 HF** linear amplifier factory assembled mint condition with manual and spare pair 572B tubes 1200 W pep 80-10 m \$700; DICK SMITH 80/40 m mobile SSB/CW digital xcvr vgc with manual and Mobile One whip \$175. "Doc" VK4CMY (076) 85 2167.

● **YAESU FT207R 2 m HT AC DC** chargers remote speaker-mike manual \$240; YAESU FT208R 2 m HT AC DC chargers remote speaker-mike manual \$300. Peter VK4APD QTHR (07) 397 3751 AH.

● **CREED model 75 teleprinter w/original PSU**, manual. This most compact of Creed range is in excellent condition — a rare collector's item \$100 plus freight. John VK4SZ QTHR (070) 61 3286.

● **ICOM 275H 2 m 100 W** all mode VHF transceiver, very little use, perfect condition, mike, manual, original carton etc. \$1,800. Peter VK4PO QTHR (07) 843 0505.

FOR SALE SA

● **YAESU linear FL2100B** serial 4H303003 plus two new valves 572B/T160L and books, one owner, deceased estate, \$600 ono. Bob VK5QJ (08) 379 1845.

FOR SALE WA

● **PC BREEZE II CAD** programme for PCB artwork, complete with manual \$70. VK6EQ QTHR (09) 277 3583.

WANTED ACT

● **PANBRAKE** — small sheet metal bender or similar. HT transformer for pair 813s ie approx 900 V at 0.5-1 amp for voltage doubler or 1800 V for bridge (my ex Admiralty transformer finally failed in a spectacular way) for cash or willing to swap four new Mil spec 6146B's or metal cased vacuum variable 30-1000 PF at est 7.5 kV with cash adjustment. Keith VK1KG QTHR (06) 292 6464.

WANTED NSW

● **PLUG IN** coils for Heathkit GD1-U grid dip oscillator. Malcolm VK2BMS QTHR (02) 257 4583 BH or (02) 958 1114 AH.

● **YAESU SP101PB** speaker phone patch console. Valve type 1T4. Ray VK2FW QTHR (063) 65 3410.

● **HRO coil box** type E 960 kHz to 2.05 MHz (approx); pick up head for Edison Diamond Disk model L-35; Chassis for AWA Radiola model C-66 (approx 1930), any condition; Magnavox horn speaker driver unit, approx 1926. Stan VK2EL QTHR (044) 55 5825.

WANTED QLD

● **OLD SCOUTS** who knew "Fox" Alf Chappel, Woodford 7th May 1995 "40" years scouting celebration. For more information contact Fred on (074) 96 1186 or (018) 06 0315 or write to PO Box 17, Woodford Old 4514.

WANTED SA

● **RECEIVER** type Sky raider 12 made in 1940 also Type 3 Mk II parts. Brass plates from receiver and p/supply band knob, volume knob. Key, any spares etc. Circuit for ATR2B. Andy VK5AAQ (08) 322 1010 AH.

WANTED WA

● **ICOM IC251** and **ICOM IC451**, very good condition only. Bill VK6ACY (09) 242 2420.

MISCELLANEOUS

● **THE WIA QSL Collection** (now Federal) requires QSLs. All types welcome, especially rare DX, pictorial cards, special issue. Please contact Hon Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350.

ar

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How Good is Your Connection?

Des Greenham VK3CO (now a Silent Key) points out some traps with coaxial cable plugs and sockets.

Recently I had occasion to inspect a coaxial cable connection using the standard PL-259 plugs and a female to female connector. This joint had been in use for some time and, when I removed the covering tape, I found the PL-259 plug tongue was corroded. Obviously, the connection had not been positive.

I cleaned the centre tongue and then carefully plugged it into the SO-239 socket. To my surprise it fitted loosely with no positive tension presented by the socket. We invariably tighten the outer ring assuming the inner is making good contact. With this alarming situation in mind, I decided to go further and

see what connection was made with other SO-239 sockets.

I checked and ascertained that the pin on a standard PL-259 plug is exactly 5/32" in diameter. By using the shank of a 5/32" drill bit, it is a very simple job to check the fit and tension of any SO-239 socket. I looked out all my connectors, PL-259 to BNC, etc and, to my surprise, I found several of them had little or no contact pressure. So, I went further and inspected the outlets of my transceivers, only to find that some were also providing a doubtful connection.

As a result of these investigations, I am sure that this may be the answer

to many of the intermittent problems experienced by operators. By removing the PL-259 plug and reinserting it, a better connection is achieved and this may well cure the problem.

Having found this alarming condition, the next question that comes to mind is "how to fix it?"

The centre piece of most SO-239 sockets is split into 4 segments and by using a sharp thin blade, eg a small instrument blade screwdriver or a Stanley knife, it is possible to push this down in between the socket and the insulation and slightly bend the segments in towards the centre. This increases the tension on the centre of the inserted plug. Care must be taken NOT to bend the socket too much otherwise the plug cannot be inserted at all!

By carefully carrying out this operation on all my SO-239 sockets I am now confident that I have a good coaxial connection not only on the outer braid but also on the more important inner!

Have a quick check of the coaxial sockets around your shack — you may be surprised at what you find!

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Volume 63 No 4

RADIO **AMATEUR**



Journal of the Wireless Institute of Australia



Full of the latest amateur radio news, information and technical articles including:

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Cover

At the North East Radio Group's station VK3NE located at Mount Macedon on the Saturday evening of the John Moyle Field Day. The HF antennas are on the mast at the left, and the 6 m, 2 m and 70 cm antennas are on the other mast.
Photo by Greg Williams VK3VT

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A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editor's Comment

A Happy Jubilee

This year of 1995 is notable in many areas, being the 50th anniversary of the end of World War 2, in Europe in May and the Pacific in August. But resulting from this there is an even happier anniversary coming up in December. During the War all amateur radio operation was suspended. In Australia all amateur equipment was impounded "for the duration", so could not be used anyway, even if many of the pre-war operators had not joined the Armed Forces.

But, in December 1945, the impounded equipment was returned to its owners, new regulations were introduced by the Government, and licences were re-issued to those who applied for them. Some were able to "get back on the air" early in December and start making contacts. The only HF band authorised at first was 28-29 MHz but, by February 1946, many stations were active and some international contacts had been made.

Victorian Division notes in *Amateur Radio* for February 1946 list 15 stations as active. Of these only three operators are still living. Unfortunately, there were no corresponding lists published from the other states so only a sketchy outline of VK activity generally is available.

The question now is *who made the first post-war amateur contact in Australia?* The Old Timers' Club would be delighted to find out, as no doubt would the Federal Historian. Can any reader enlighten us, please?

Bill Rice VK3ABP
Editor
ar

WIA News

Amateur Wins International Science Award

Scientist, Dr Ken McCracken VK2CAX, a radio amateur and founding chief of the CSIRO's Division of Mineral Physics, has shared the 1995 Australia Prize, awarded to researchers who have made outstanding contributions to science and technology promoting human welfare.

An international award, the \$300,000 prize was shared with Dr Andrew Green and Dr Jonathan Huntington, of the CSIRO Division of Exploration and Mining, and Dr Richard Moore, Emeritus Professor of Electrical and Computer Engineering at the University of Kansas, USA.

The award was announced in February by Senator Peter Cook, the Minister for Science. Senator Cook said Dr McCracken, Dr Green and Dr Huntington were an outstanding research team which had pioneered satellite-based remote sensing in Australia. In the late-1970s, Dr McCracken coordinated a propagation study, Project ASERT, for the Federal WIA.

WIA News

Recommencement of Amateur Radio after WWII

Ideas and suggestions are being put forward on how Australian amateurs can mark the 50th anniversary of the recommencement of amateur radio here after the end of World War II. As many amateurs know, amateur radio was banned during World War II.

At the outbreak of hostilities, radio amateurs received telegrams directing that they surrender their transmitters. The equipment was locked away for the duration of the war. When the war ended in August 1945, there was considerable effort to get amateur

radio re-established. The government of the day was busy with post-war activities, including soldier resettlement, and amateur radio took a back seat. However, new regulations for amateur radio were gazetted on 24 November, 1945.

Preparations for the 50th anniversary of this important milestone in amateur radio history are in hand, with research being conducted by Herb Stevens VK3JO. Herb is researching the events leading up to, and immediately subsequent to the post-war recommencement.

Not a great deal of information and detail is available at present.

Who were those radio amateurs to first get back on the air, and which bands did they use?

Herb would like to hear from anyone with information or recollections. His address is QTHR in the 1995 Call Book.

In the meantime, a number of possible ways of celebrating the recommencement have been put forward, including commemorative call signs or a special prefix, and a nation-wide period of reunion on-air by those immediate post-war radio amateurs.

Ideas should be put to your Division's Council for consideration of both state activities and possible Federal WIA sponsored events.

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

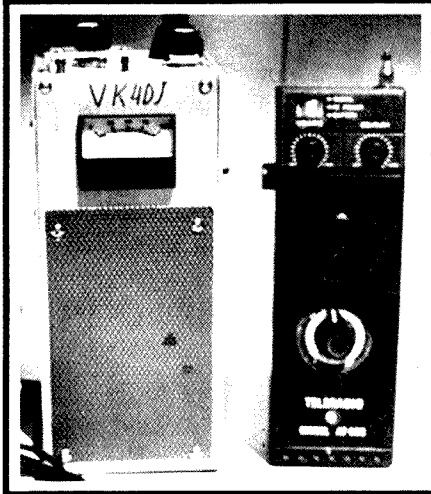
Division	Address	Officers	Weekly News Broadcasts	1995 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Rob Apathy Secretary Len Jones Treasurer Don Hume	VK1KRA 3.570 MHz LSB, 146.950 MHz FM, 438.525 MHz FM each VK1NLJ Monday evening (except the fourth Monday) commencing at VK1DH 8.00 pm. Repeated on Wednesday evening at 8.00 pm on 3.570 MHz LSB, 146.950 MHz FM and 438.525 MHz FM.	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Free call 1800 817 644 Fax (02) 633 1525	President Michael Corbin Secretary Pixie Chappie Treasurer Peter Kloppenburg (Office hours Mon-Fri 11.00-14.00 Mon 1900-2100)	VK2PFQ From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, VK2KPC 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 VK2CPK (* morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. Voicemail highlights on (02) 724 8793. The broadcast text is available on packet.	(F) \$86.75 (G) (S) \$63.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261 Fax (03) 885 9298	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530)	VK3PC MONTHLY BROADCAST on the second Sunday of the month, starts VK3XV 10.30 am. Primary frequencies 3.615 LSB, 7.085 LSB, and VK3XLZ FM(R)s 146.700 Mt Dandenong, 147.250 Mt Macedon, 147.225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH, VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Lance Bickford Secretary Rodger Bingham	VK4ZAZ 1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, VK4HD 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Garry Herden Secretary Maurie Hooper Treasurer Charles McEachern	VK5ZK 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, VK5EA 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, VK5KDK 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555, 7085, 10125, 146.700, 0900 hrs Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 434 3283	President Cliff Bastin Secretary Ray Spargo Treasurer Bruce Hediand-Thomas	VK6LZ 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825 3.560, VK6RR 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Busseton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback VK6OO 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$80.75 (G) (S) \$48.00 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Avenue Lindisfarne TAS 7015 Phone (002) 43 8435	President Andrew Dixon Secretary Ted Beard Treasurer Phil Harbeck	VK7GL 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on VK7EB 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, VK7PU 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$69.00 (G) (S) \$55.65 (X) \$40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times.

Note: All times are local. All frequencies MHz.

■ Transceivers

A 150 Watt Handheld Transceiver

Paul Kay VK4DJ* describes a somewhat unusual piece of amateur equipment.



The homebrew 150 W handheld alongside a commercial 0.7 W sideband HT.

Technical Editor's Note

Whilst this article describes the transceiver as a hand held unit, its weight and size would probably preclude many people from operating it as such for long. Another point to consider is the potential danger of operating in close proximity to equipment, such as this, that can generate very high RF fields. For these two reasons, it is probably a better idea to operate a unit such as this as a desk mounted portable rather than as a handheld.

At first sight, the thought of a handheld base station seems ridiculous. But then, why not be able to work DX on Sunday outings? This article doesn't blaze any new electronic trail, nor am I going to tell you where to find wondrous new black boxes. Quite the contrary. I am going to describe a simple but effective handheld talking machine that will allow you to work the world whilst getting you out of the rut and the black box syndrome.

As far as I know, any technical articles on HF handhelds previously published only extend up to a power level of 15 watts. That is clearly not

sufficient if we are going to rake in the DX. Unless that guy on the other continent hears you, no QSO. Therefore, we don't want kids' stuff here, we want results.

Technical Description

Figure 1 shows the block diagram of the transceiver and the

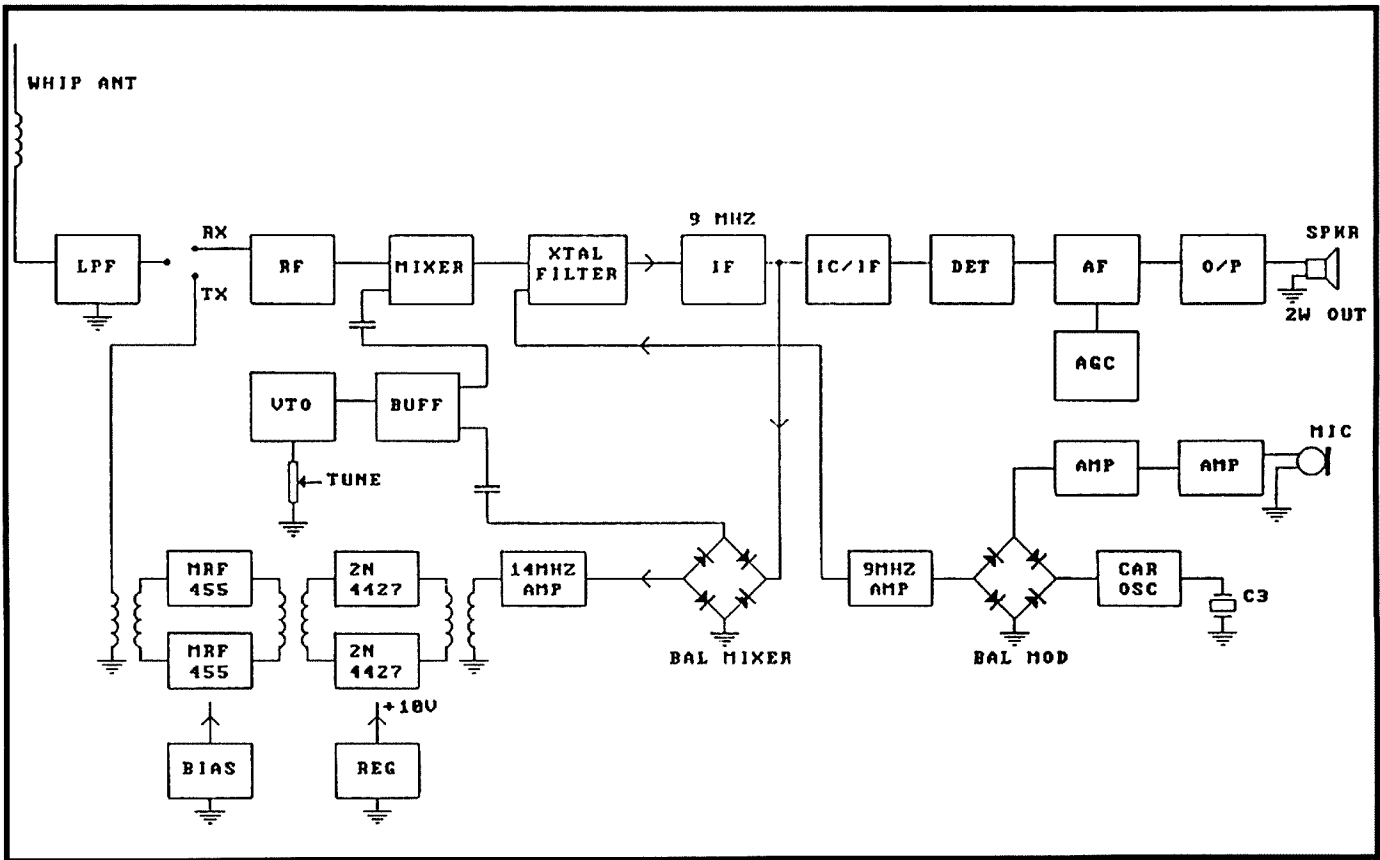
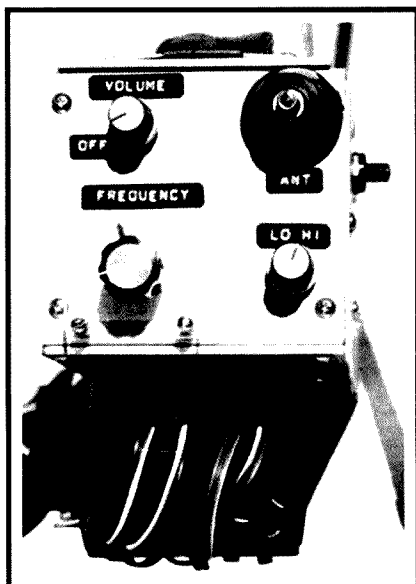


Fig 1 — Block diagram of the 150 W HF handheld transceiver.

photographs show how it is assembled.

Figure 2 shows the complete circuit diagram of the transceiver. It operates over the range of 14000 to 14350 kHz. It is single conversion, with an IF of 9 MHz. The voltage tuned oscillator (VTO) operates between 5000 and 5350 kHz. RIT is included with a range of +/-2 kHz. The receiver has an audio output of 2.5 W, feeding an inbuilt speaker. A pill microphone for the transmitter is also behind the speaker grille. A fitting for an external microphone would be a good idea as well. The xtal filter and the 9 MHz IF amplifier are common to both transmit and receive. On transmit a balanced mixer is used, followed by a 14 MHz tuned amplifier. This feeds a broadband push-pull driver followed by a broadband power amplifier using a pair of MRF455 transistors, also in push-pull. The output transistors are mounted directly on the back panel which is an effective heatsink. A multisection low pass filter cleans up the signal before it reaches the whip aerial.



Top panel view of the 150 W handheld with a plug pack beneath it.

The aerial terminal is a screw on type. A fibreglass type whip, about 1800 mm long, is used with a centre loading coil. The fibre glass whip is hollow and supports a wire up the

inside, thereby providing protection against shock or burns. A helical whip, about 1070 mm long, has also been used. Heat shrink tubing is used on any exposed parts of the whip or base to prevent shocks or burns.

The output power is about 80-120 W under 2-tone conditions, the same as your average transceiver. The inbuilt battery consists of 2 x 6 V/7.5 Ah, maintenance free, recombination electrolyte batteries. The voltage under normal operation is about 13.8 V but it can rise as high as 15.5 V after an overnight charge. A plug-in pack is used at home whilst, when mobile, the battery is topped up via the cigarette lighter plug.

A large meter decorates the front panel. On receive it displays signal strength and on transmit it indicates RF output. The meter originally measured PA current on transmit with a FSD of 20 A but experience showed that indicating RF output was of more value.

The rig measures about 115 mm by 115 mm by 250 mm high, and weighs

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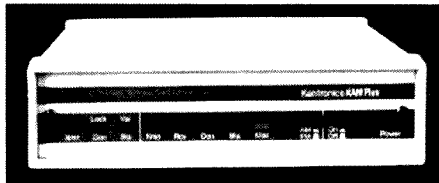


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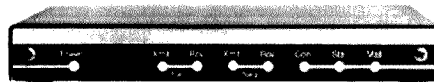
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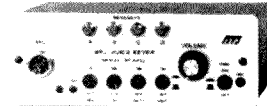
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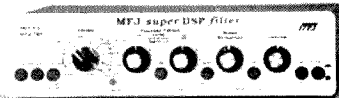
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UK4DJ HIGH POWER TRANSCIEIVER

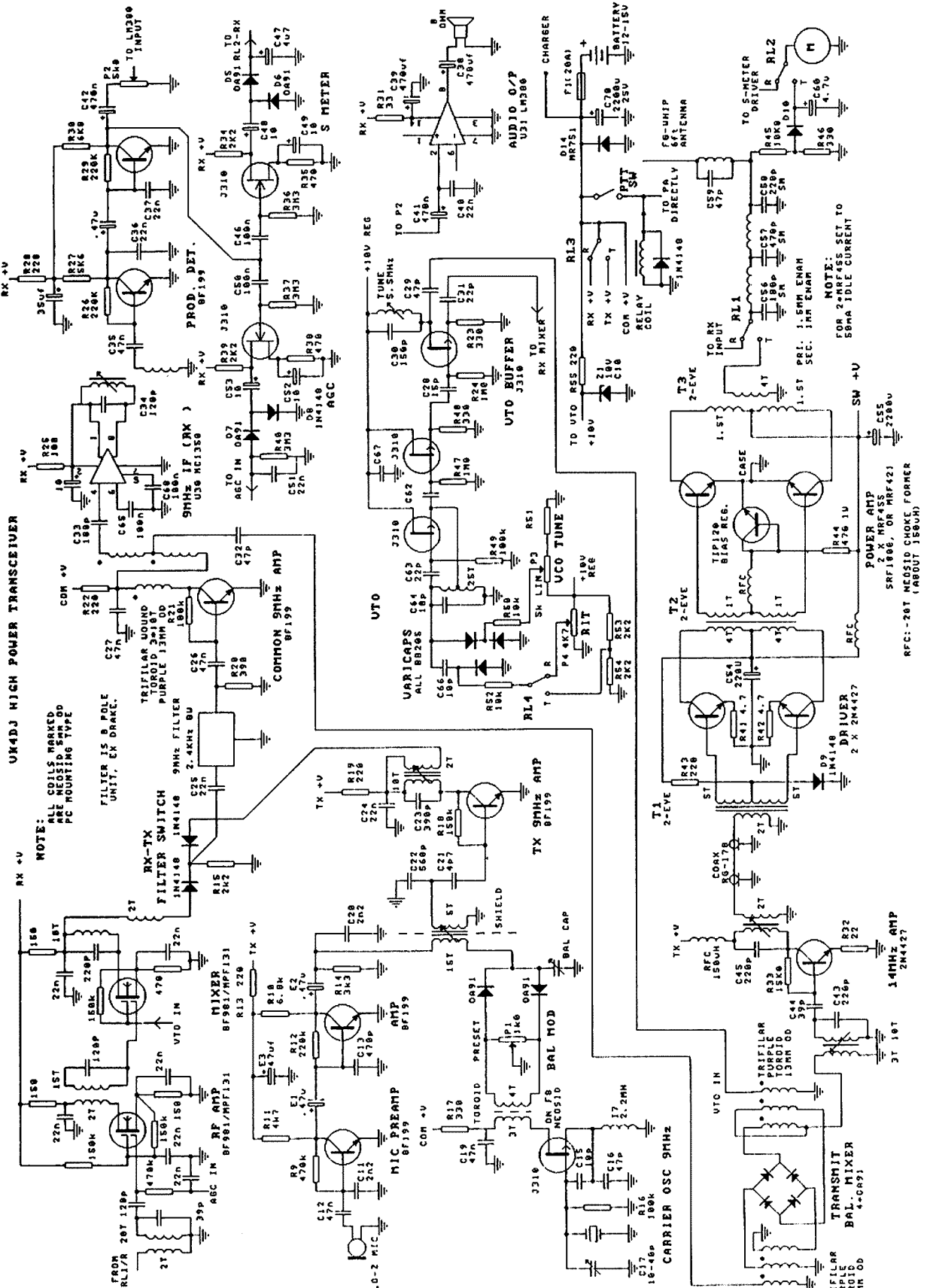
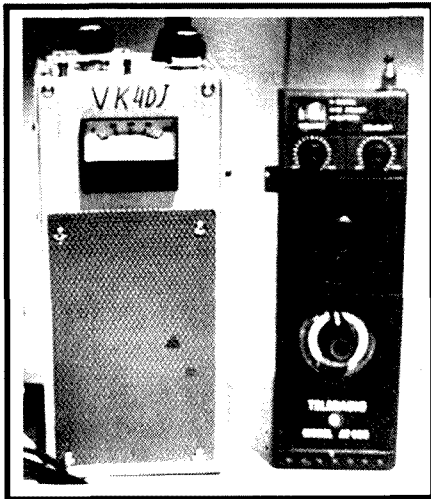


Fig 2 — Full circuit diagram of the 150 W HF handheld transceiver.



An inside view of the 150 W handheld transceiver (the side panels swing out on piano hinges).

a hefty 3.5 kg, which means it will stand stably on its base. If you want to use it handheld, the left hand will

fit snugly under the carry strap and will operate the PTT. This leaves the right hand free to take notes.

Construction Tips

This article is not meant to be a blow by blow construction article. Any one interested in building a transceiver such as this would probably not want to duplicate it totally, anyway. Therefore, the circuit diagram and some of the following tips should be adequate for most would be constructors.

The VTO coil is tapped about 1/3 of the way from the ground end and is coupled to the buffer via a 15 pF capacitor. The original VTO and other junction FETs used the 2N3819 which is no longer available. However, the U310 (or J310) can be used as a replacement.

I used a 50 by 100 mm "ugly

board" type construction for the main board. The push pull driver and the PA small components are on a separate 50 by 50 mm board. All driver and PA transformers use "2-eye" balun cores with no metal tubes or any other accessories. The PA transistors are bolted directly on the back panel. This means that if you talk too much whilst hand holding the unit, you can get a very hot hand. A good reason for short overs. Different RF output transistors can be used, which will result in different output powers. A pair of 2N5591s will produce 70 watts output, whilst a pair of MRF421s will deliver 200 watts output. The last mentioned pair are, however, a little brutal on batteries. The MRF455 are, therefore, a good compromise.

*435 Ross River Road, Cranbrook QLD 4814

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■ Transmitters

Back to Basics 40 or 80 m Transmitter

Neville Chivers VK2YO describes a companion transmitter to his experimenter's basic receiver.*

This is a follow up article to the **Back to Basics 40 or 80 m Receiver**, published in the January 1995 issue of *Amateur Radio* magazine. This transmitter is also built from readily available components and the construction method used is the same as for the receiver.

The receiver VFO may be used to make this little rig tuneable or you may decide to use the crystal locked oscillator. The choice is up to you. The complete circuit is provided in Figure 1 and Figure 2, showing a simple SSB transmitter using an MC1496 as a mixer, two diodes for the modulator, a 741 for the mike amplifier, a hand full of ceramic filters and associated coils, three FETs, two bipolar devices, and that's it!

Circuit Description

Figure 1 shows the carrier oscillator, which uses a CSB455E ceramic resonator as the frequency control element. The frequency of the oscillator is set at 453.5 kHz by the 3-30 pF trimming capacitor. The supply to the MPF102 is regulated at 8.2 V by a 1N4738 zener diode and a 100 ohm series resistor. The primary winding of a miniature 455 kHz IF transformer is connected between the drain of the oscillator and the 8.2 V supply; the primary (large) winding measured approximately 4 Ω. The secondary winding, which is about 0.25 Ω, has a 1 kΩ potentiometer connected across this winding, with the wiper connected to earth.

This pot is used as the carrier balance control, and two matched point contact germanium diodes (OA95) are connected across the secondary winding to form a passive balanced modulator. To select these diodes, measure the forward and reverse resistance of both diodes and choose diodes with the same readings. If chosen correctly, the balance control will be in its central position.

The carrier null can be checked in several ways. The simplest way is to use a general coverage receiver in AM mode, connect the antenna of the receiver to the output from the junction of the OA95 diodes, tune the receiver to 453.5 kHz for maximum output, and a heterodyne should be present. Adjust the Tx balance pot until a zero beat is obtained and the receiver "S" meter reading should reduce to near zero.

If you have already built the **Back to Basics Receiver**, this can also be used to check the carrier balance. Disconnect the DC supply to the HF oscillator and mixer in the receiver, then couple the junction of the OA95 diodes to the input of the IF strip in AM mode. Turn on the BFO and rotate the balance pot until the heterodyne

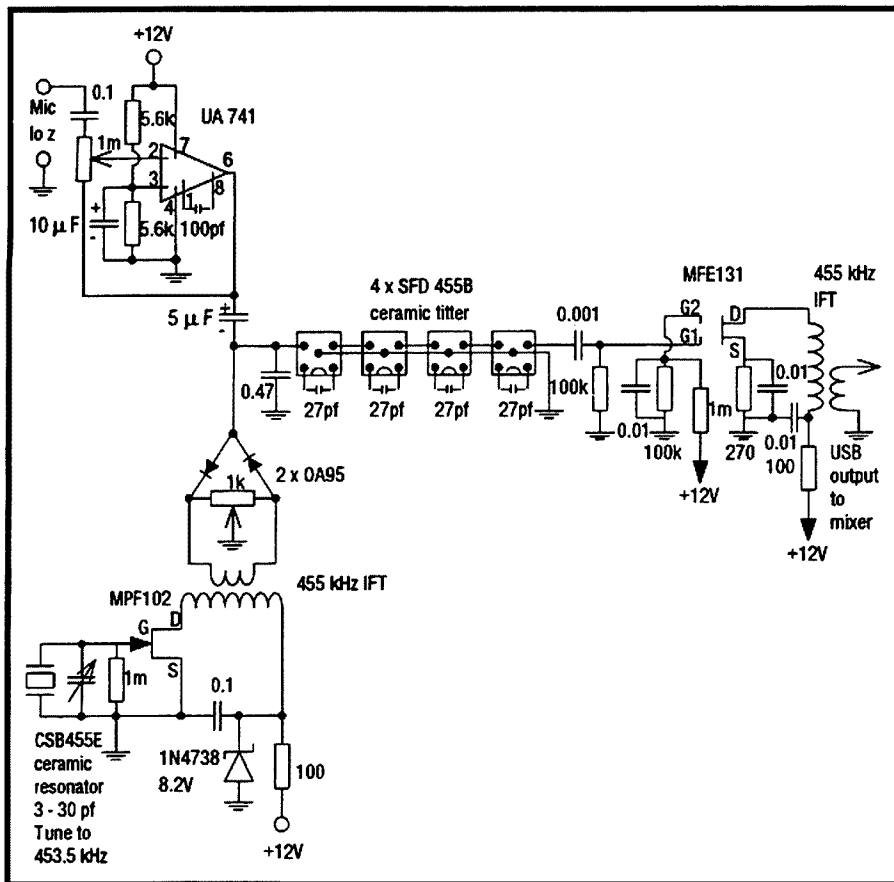


Fig 1 — SSB generator.

cannot be heard. A slight adjustment of the BFO may be required if the note cannot be heard as the two oscillators could be in exact zero beat. Once the modulator is balanced, a double sideband signal will be available at the input to the IF filter by unbalancing the modulator with the audio signal from the μ A741 microphone amplifier.

The double sideband signal may be monitored in the same way as the carrier balance check. By shifting the receiver BFO frequency both sidebands should be individually apparent with a fixed tone applied to the microphone input. Once you have established that a double sideband signal is available, the signal must be stripped of its lower sideband by four SFD455 ceramic filters which are coupled together on the non dimple side (see the circuit). Each filter section is tuned by a 27 pF capacitor.

At the output end of the filter should appear the upper sideband signal at 455 kHz. The reason that the carrier oscillator is not set on 456.5 kHz to

produce lower sideband, is because I tried to pass LSB and found that the filter inverted the signal. It appears

that the filter only wanted to pass USB.

This does not matter providing that you take this into consideration when mixing this signal to the desired final frequency. That is why I selected the VFO in the **Back to Basics Receiver** to be on the high side of the incoming signal at 3.5 MHz or 7 MHz with a view to using the same VFO for receive and transmit to produce LSB on 40 and 80 as normal.

Again the **Back to Basics Receiver** can be used to monitor the quality of the USB signal at 455 kHz. Better still, if you have a commercial receiver which has an USB/LSB switch and can receive 455 kHz directly, you will be able to check the opposite sideband rejection in relation to the passband of the filter. I found that 27 pF was about right — 18 pF made the signal sound too thin, whilst 33 pF was too broad.

The filter is followed by an MPF131 amplifier to boost the small signal to the required level for injection into the mixer stage in Figure 2. The mixer is the popular MC1496 double balanced mixer IC. The USB signal is applied to pin 1 and the VFO or HF oscillator to pin 10. A suitable crystal oscillator is shown if you wish to operate on a

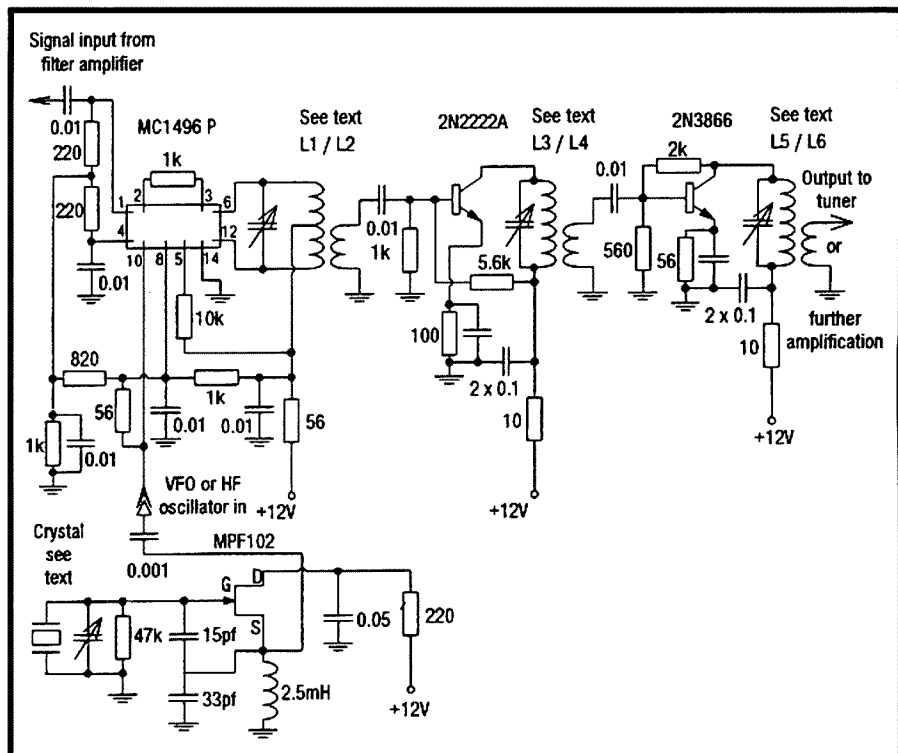


Fig 2 — Mixer, oscillator and amplifiers.

single frequency, or if the receiver oscillator is not stable enough for transmitter use.

The output signal is taken from pins 6 and 12 via a tuned circuit which is resonant at the final frequency, 455 kHz below the VFO frequency or crystal oscillator. This will produce LSB on 40 and 80 metres. Note that the 12 volt supply to the IC MC1496 is via the centre tap of L1. The coils L1/L2, L3/L4 and L5/L6 combinations are all the same windings at the required frequency (see winding data).

Following the mixer is a two stage amplifier using a 2N2222 and a 2N3866 to bring the power up to about 1 watt of RF on either 40 or 80 metres. If you wish, you could further amplify the output. Circuits for larger linears can be found in various text books.

Winding Data

Coils L1, L3 and L5 have the same data; L2, L4 and L6 are wound at the bottom of the former. All windings are close wound with 0.5 mm wire (Jaycar WW 4016). The 80 metre winding is 35 turns close wound which is resonated by a 4-40 pF trimmer shunted by a 100 pF styroal capacitor.

For 40 metres the winding is 25 turns close wound resonated by a 4-40 pF trimmer only. Both the 80 and

40 coils secondary windings comprise four turns on the lower part of the former (see Figure 3).

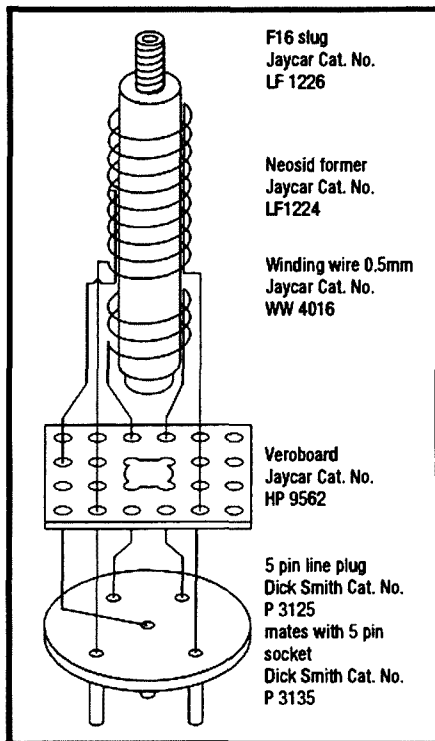


Fig 3 — Coll details.
Coil winding details for L1, L3, & L5:
80 m — 35 turns close wound, resonated by 4-40 pF trimmer (Jaycar Cat No RV5726 plus 100 pF in parallel).
40 m — 25 turns close wound, resonated by 4-40 pF trimmer (Jaycar Cat No RV5726).
L2, L4, & L6 — 4 turns at bottom of coil form.

Results

I have mostly tested this project on 40 metres during the daytime, simply because there is usually someone around and not much QRM or QRN to smother a weak signal. 80 metres is only possible at night but the QRN is around S8-S9 in the Blue Mountains where I live. We also get the occasional thunderstorm in summer which makes operating difficult. I have had a lot of fun with this project and would like to thank the following amateurs who were kind enough to reply to my test CQs. They were patient and offered constructive comment. Thanks to George VK2GP, Eugowra; John VK2WF, Armidale; Len VK3LP, Campbell's Creek; Ron VK3BRC, Melbourne (now SK); Reg VK3CEJ, Melbourne; and Geoff VK4ANP, Esk. There were many others and, as you can see, I was able to get up and down the East Coast and covered a fair distance. Keep up the good work and keep home brewing.

*51 Meeks Crescent, Faulconbridge NSW 2776

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Parts Suppliers

To assist you in obtaining the major parts, I have prepared a table of suppliers.

Part Number	Supplier Part No	Supplier
OA95	Z 3050	Dick Smith Electronics
1N4738	Z 3535	Dick Smith Electronics
UA741	Z 6382	Dick Smith Electronics
MPF102	Z 1832	Dick Smith Electronics
MFE131	Z 1849	Dick Smith Electronics
2N2222A	Z 2069	Dick Smith Electronics
2N3866		VSI Electronics
MC1496		VSI Electronics
Crystals		Bright Star PO. Box 335 Vermont 3133
Slugs	L1,L3,L5 LF1226 (F16)	Jaycar 3 off
Formers	LF1224	Jaycar 3 off
455 kHz IFT	LF1050	Jaycar 2 off
0.5 mm wire	WW4016	Jaycar as required
5 Pin plug	P3125	Jaycar 3 off
5 Pin Socket	P3135	Jaycar 3 off
Vero board	HP9562	Jaycar 1 off
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■ Technical

An L of a Network — Part 2

Graham Thornton VK3IY* continues his analysis of the L-Match from last month.

High Resistance Output

In this case, we have a shunt output reactance in the network. For this reason, it is more convenient to convert our complex load to the form of its equivalent parallel impedance.

OK, now trot off to Figures 8(a) & 8(b) armed with your series impedance figures, and bring back their parallel equivalents. As before, the output reactance is the starting point. We need the parallel equivalent load resistance to solve the equation:

$$|X_{SHUNT}| = R_{LOAD} \cdot \sqrt{\frac{50}{R_{LOAD} - 50}} \Omega$$

Having entered our value of equivalent parallel resistance in Figure 9, we can obtain the magnitude of X_{SHUNT} . As before, let's try both options about a capacitive or an inductive reactance. The reactance obtained includes that of the load. Note that the minimum possible value is 100 Ω .

The magnitude of the series input reactor can be found from:

$$|X_{SERIES}| = \sqrt{50 \cdot (R_{LOAD} - 50)} \Omega$$

Figure 9 shows this in graphical form. For values higher than shown, each reactor may be taken as $\sqrt{(50 \cdot R_{LOAD})}$.

We need to find the value of the network lumped output reactance, having taken the parallel equivalent load reactance into account. Combining parallel reactances we have:

$$\frac{1}{X_{SHNET}} = \frac{1}{X_{SHUNT}} - \frac{1}{X_{LOAD}} (S)$$

(Having regard for sign — positive for inductive, negative for capacitive reactance.)

The above expression is plotted in two separate parts. Figure 10(a) shows the situation when a shunt

inductor is used in the network, and Figure 10(b) is for a shunt capacitor. The formula is awkward to display in

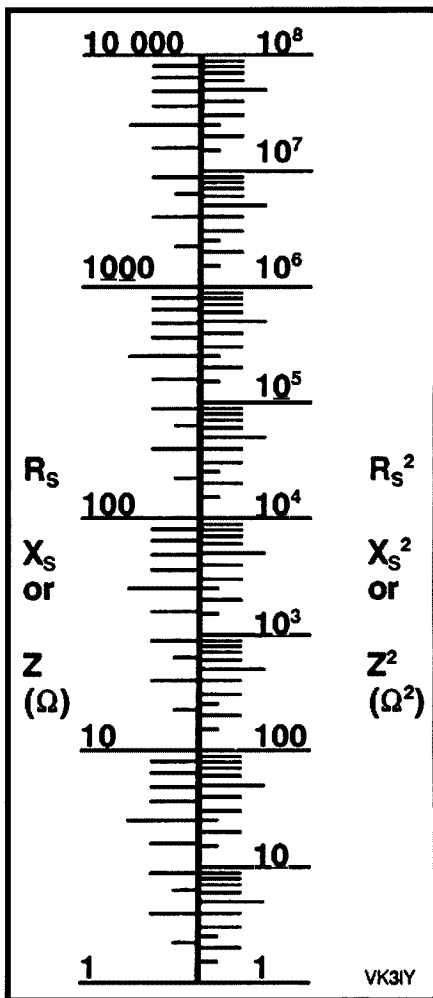


Fig 8(a) — Impedance chart. To use Fig 8(b) we need to know Z^2 ie $R_s^2 + X_s^2$. If you are happy to calculate this, please do so. Otherwise, the nomograph above may be used. Enter R and X on the left; the right hand scale will give their squares. Add these together to get Z^2 . This chart may be used as a general impedance calculator. The sum of the squares entered at the right will give impedance on the left.

meaningful form; the method finally chosen results in hyperbolic scales, which may present some difficulty with interpolation. The graphs are limited to showing only practical values of reactance for the network. If X_{SERIES} is capacitive and X_{LOAD} is a smaller inductive reactance than X_{SHUNT} , then both legs of the network will be capacitors.

Figure 8(b) is divided into four rectangles. Area (1) defines the region where low resistance output is appropriate. Region (2) defines where only high impedance output may be used. For impedances which lie in region (3), the L network may be used either way around. Area (4) is a no-go situation. In the latter case, series resistances greater than 50 Ω have parallel equivalents LESS than 50 Ω and the network can not cope with this. If you find yourself in this untunable black hole, the solution is as simple as it is obvious. Insert series reactance such that the parallel equivalent resistance is greater than 50 Ω , and you move into region (2) (ie the system becomes a T-Match — this is the only condition where such a device has any advantage over a simple L-Network). The two diagrams may be used to experiment for the necessary values (feel free — be my guest!). The same procedure may be adopted if, for any reason, it is desired to move from region (1) into region (3).

In next month's final episode, power rating and insertion loss will be considered.

*17 Britannia Creek Road, Wesburn VIC 3799
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Opposite Page
Bottom Left: Fig 10(a) — Value of shunt inductor to use for high resistance output, taking equivalent parallel load reactance into account. X_{SHUNT} may be taken as positive or negative, but note that points south of the horizontal axis require that both arms of the network be inductors. Having plotted both values of known reactances, it may be necessary to interpolate for values of X_{SHNET} between those shown. Each graph represents a particular shunt inductive reactance for the network.
Bottom Right: Fig 10(b) — Value of shunt capacitor to use for high resistance output, considering load reactance. For all points above the horizontal axis, both arms of the network will be capacitors. Note that there is a degree of overlap between this and the previous diagram.

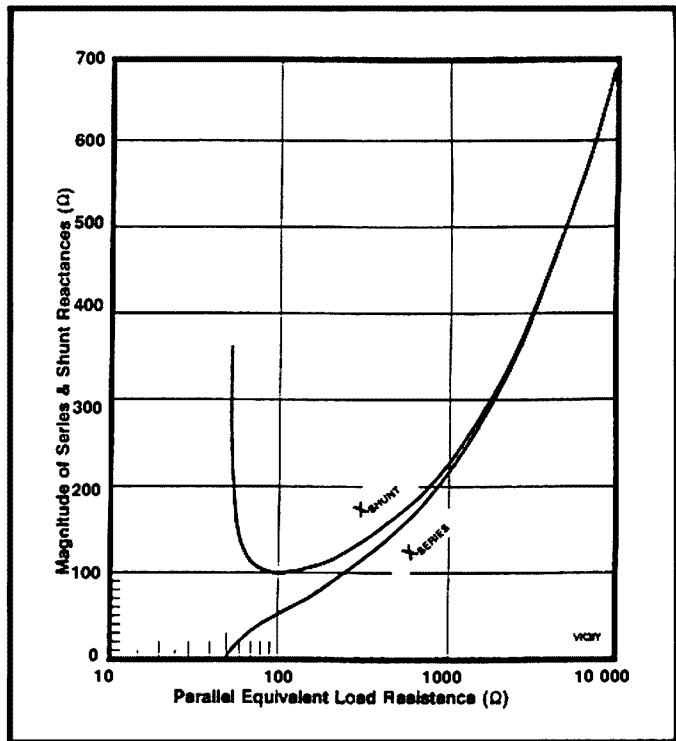
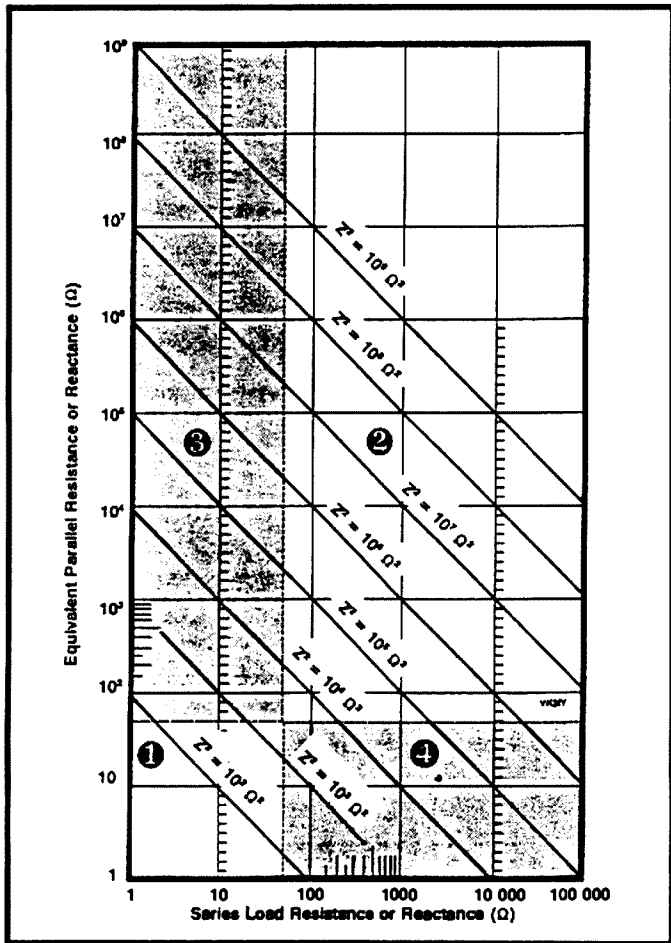
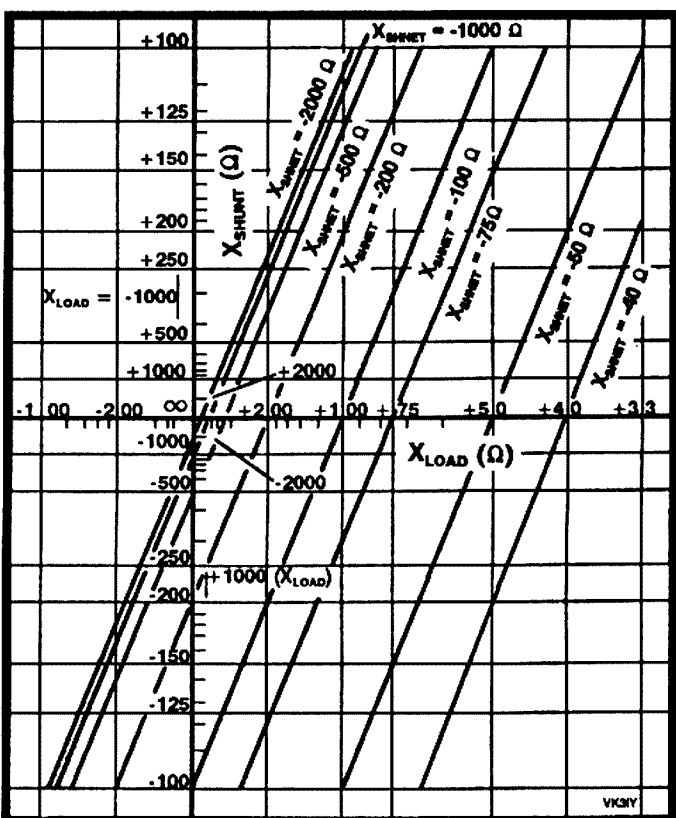
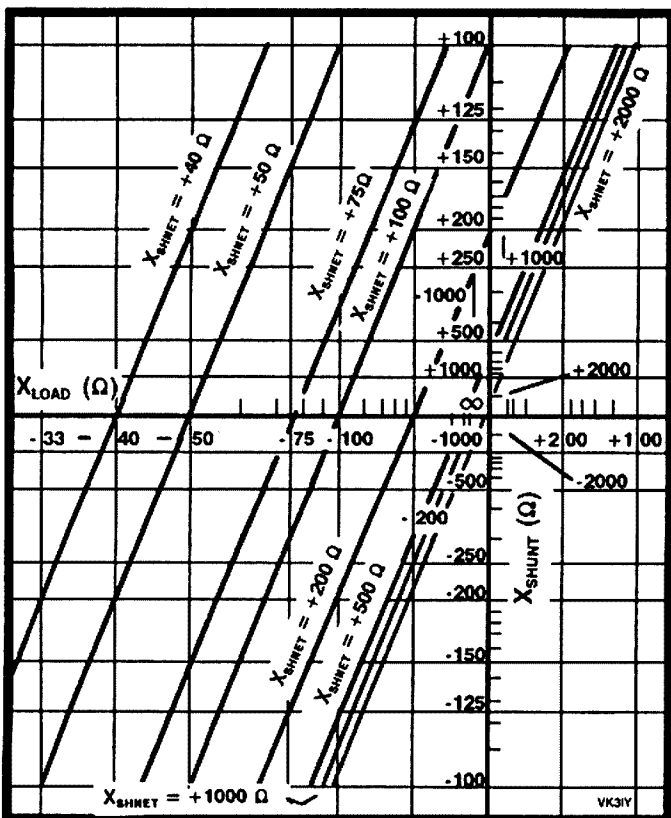


Fig 9 — Magnitude of circuit elements for high resistance output.

Left: Fig 8(b) — Equivalent parallel resistance and reactance for various values of Z². Note that defined areas refer to resistance, not reactance, values.



■ Technical

Technical Abstracts

Gil Sones VK3AUI*

Cat Food Tin Filter

A cheap and simple filter which can notch out an amateur UHF or VHF signal appeared in *Radio Communications*, June 1993 issue, in the EMC column of Megan Smith G0MEG. The simple notch filter was built into a tin plate box made out of a cat food tin lid and the idea came from John G8MNY.

The filter is a simple series trap to notch out a 432 MHz band signal which was overloading a UHF TV tuner. The TV in the UK is mostly on UHF and in this case there was also a satellite system UHF output involved.

Similar overload can occur from 144 MHz and 50 MHz signals and a similar filter with the appropriate tuned circuit values would work.

The filter is shown in Fig 1. The box housing the filter was bent up from the lid of a cat food tin. The box measured 25 mm square and was 12.5 mm deep and was just a nice size for the components. The corners can be soldered and when completed the lid should be soldered on. A hole is left to adjust the trimmer.

The tuned circuit consists of a small trimmer and a 3 turn 6.3 mm diameter coil of 22 gauge wire. The

coil is not extremely critical and either a 6 mm or a 1/4 inch diameter will do. The ferrite rings are used to suppress any signal on the outer of the coax. The coax is RG59 75 Ohm coax as this is a TV system.

To adjust the filter, connect it in the line to your transceiver temporarily and adjust the trimmer to notch out a received signal. This will give maximum attenuation in the amateur band.

For the 50 and 144 MHz bands a larger coil with more turns is required. The trimmer could be a 20 pF maximum type to give a suitable tuning range. Glue or silicone sealant can be used to hold the ferrites in place. The filter will work without the ferrites which are really just an added frill.

The finished filter should be painted or taped so as to make it look its best. Solder dags and the remnants of the label may not impress your neighbour. The contents of the tin will impress the cat, though, when it receives the extra meal.

Locked Out

A small item in the IREE Society publication *Monitor*, Vol 20, No 1 1995, came to my notice. The item was

included in an account of a visit to the site of the Mt Wellington New NTA Broadcasting Tower. The new tower is being constructed on Mt Wellington overlooking Hobart and is by all accounts a significant project.

After the inspection, however, a car belonging to one of the participants suffered from EMC problems affecting the engine management and security system. The problem was that the system did not respond to the radio key. Resort to a manual disable key saved the day.

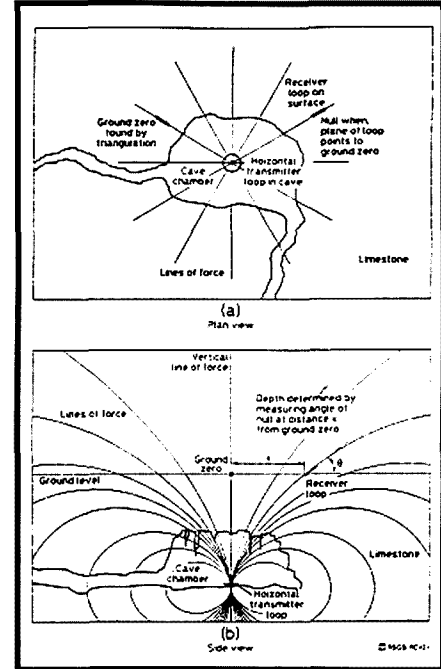


Fig 2. Plan View (a) and side elevation (b) of cave and magnetic lines of force.

Underground Radio

Some experiments with VLF induction radio systems for use in cave communication and radiolocation in caves have been published in *Radio Communications* for Jan 1995 by Mike Bedford G4AEE. A radiolocation system operating on 874 Hz was described which has been used to assist in mapping caves. Also mentioned was a two way communications system on 87 kHz.

The licensing situation in the UK is different from that here and, whilst this work has been carried out by amateurs, the operation is not in an amateur band. There is a possibility, though, if a VLF band were allocated here to carry out this sort of experimental work. The equipment

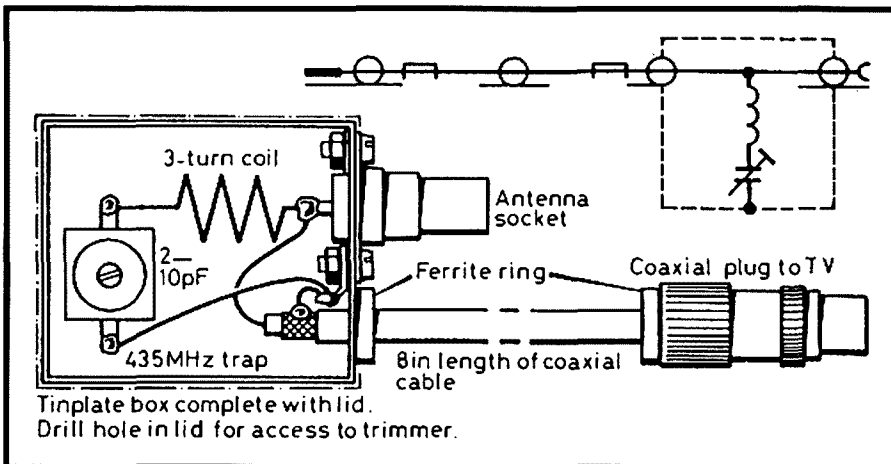


Fig 1. Cat Food Tin Filter.

described was developed within the UK licensing arrangements.

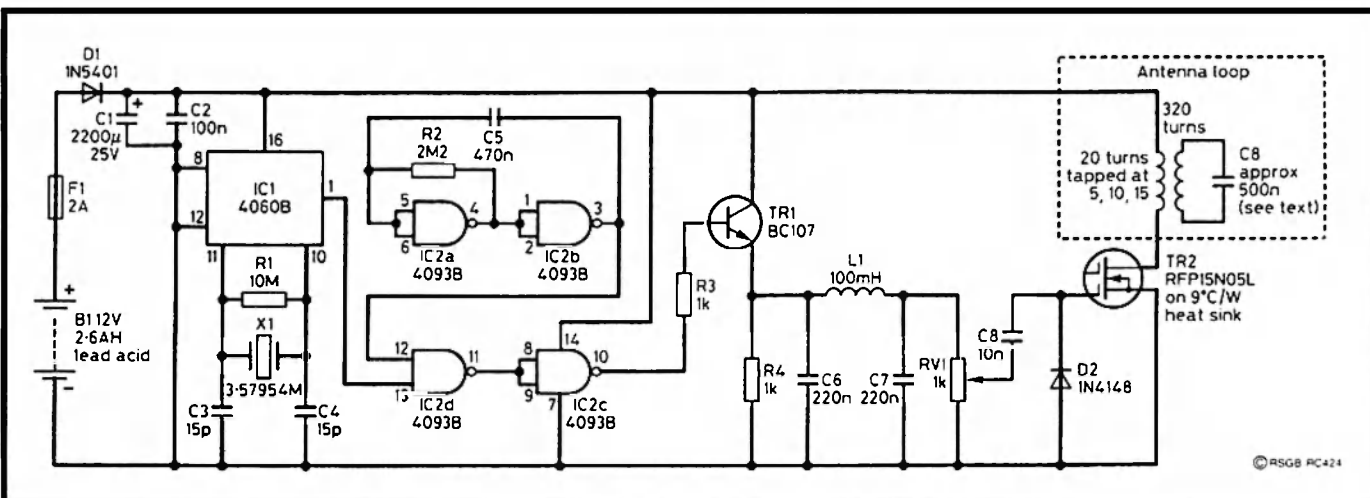
The equipment operates in the near field and makes use of the magnetic field from a loop. The receive loop is used to find the point on the surface directly above the transmit loop which is laid out horizontally in the cave. This is by triangulation. Directly above the Tx

loop at ground zero the vertical receive loop can be rotated without a signal being detected. The loop is in a no signal point.

The loop is then moved along a radial line from ground zero and the loop is tilted in the vertical plane to obtain a null. The distance from ground zero and the angle to which the loop is tilted can be used to

calculate the depth of the transmitter. The plan view and side elevation of a cave are shown in Fig 2. Simple triangulation is not accurate enough as the lines of force are curved. However a suitable formula is given in the *Rad Com* article.

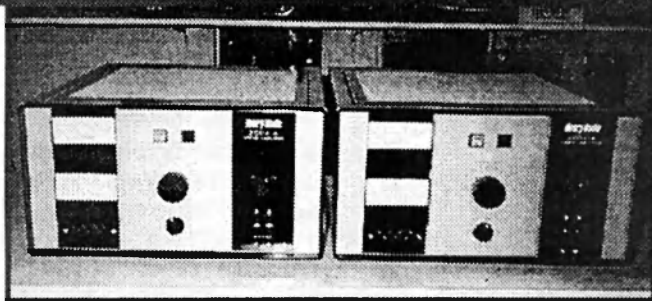
The 874 Hz transmitter is shown in Fig 3. A 3.579 MHz colour crystal is used with a 4060 IC divider to provide



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Fig 3. 874 Hz Radiolocation Transmitter.

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a stable 874 Hz source. The 874 Hz is gated by a 1 Hz oscillator to identify the signal and help increase battery life due to the reduced duty cycle. The signal is filtered and used to drive the loop. The loop is 450 mm square and is wound with 320 turns of 7/0.2 mm PVC covered wire. The coupling coil is 20 turns of 16/0.2 mm PVC covered wire tapped at 5, 10 and 15 turns. The tuning capacitor is a series/parallel combination of small 1 kVw polypropylene capacitors adjusted for resonance.

The receive loop is similar but without the coupling loop. Back to back diodes are used to limit strong signals. The receiver circuit is shown in Fig 4. The loop is used with a Q Multiplier and the signal is then

passed through a tuned amplifier to the output amplifier driving a pair of headphones.

The receiver is adjusted by setting RV1 so that the Q Multiplier is just short of ringing. RV2 adjusts the filter frequency and RV3 is adjusted similarly to RV1.

The equipment is mounted in waterproof boxes. The loops require protection from water and varnishing or potting are recommended.

The winding of the loops is quite a job as approximately 1 km of wire is used in the two loops.

A further article by the same author appeared in *Electronics World and Wireless World* for December 1994. This article, together with the *Rad Com* article, should be read by

anyone needing further information. Additional references and sources are given in both articles.

A warning is also appropriate as caves can be dangerous places. Do not venture into caves without the appropriate equipment and knowledge. Seek out experienced cavers before venturing into a cave. Do not add your bones to those of the unwary.

The local licensing situation should be ascertained also. The situation here is no doubt different from that in the UK. The equipment is operating a long way from any amateur band and the licensing requirements would be very different.

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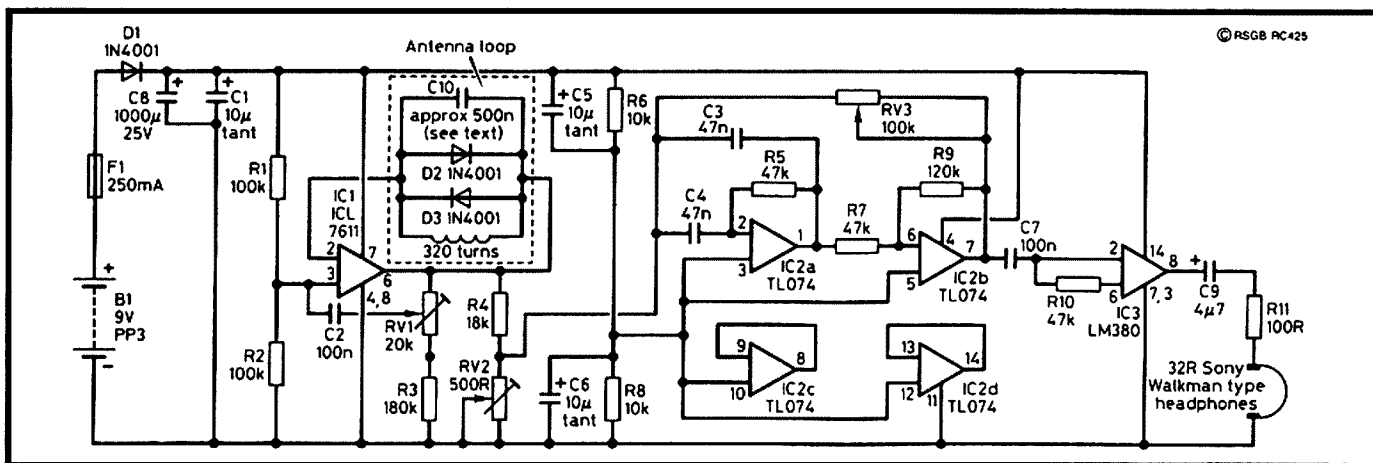


Fig 4. 874 Hz Radiolocation Receiver.

Operating Amateur Radio Direction Finding (ARDF) Championships

Wally Watkins VK4DO

7th ARDF World Championships

(The following is taken from 'ARDF INFO, October 1994, IARU Region 1.)

The championships took place in Sweden on 17 September 1994. The organising society was SSA (Sveriges

Sandare Amatorer) and the venue was the site of the 1st Royal Engineers' Regiment in Almnas, close to Sodertalje some 40 km SW of Stockholm. Preparatory work and performance of the championships was done in an excellent way by the

Organising Committee under the skilled Chairmanship of P A Nordwaeger SM0BGU (Swedish member of ARDF Working Group and International Class ARDF Referee).

The championships were the biggest and most impressive ARDF event that has taken place. The following 26 amateur societies from IARU Regions 1 and 3 participated. Non-IARU participating societies are marked with asterisks.

BFRA	Bulgaria
CRC	Czech Republic
CRC RF *	Russia
CRAS	China
DARC	Germany
EDR	Denmark
FRS MR *	Moldavia
HRS	Croatia
JARL	Japan
KARL	Republic of Korea

LRMD	Lithuania
NRRL	Norway
NZART	New Zealand
PZK	Poland
REF	France
RSGB	United Kingdom
RSM	Macedonia
SARA	Slovakia
SRAL	Finland
SSA	Sweden
UARL	Ukraine
UBA	Belgium
USKA	Netherlands
WIA	Australia

The opening ceremony took place on Tuesday, 13 September afternoon. The SSA President, Commander of the 1st Royal Engineers and SP5HS addressed the 26 gathered ARDF teams and observers. The Chairman of the Organising Committee, SM0BGU, raised the IARU Region 1 Flag. The Swedish military bagpipe band in Scottish uniforms gave entertainment during the Ceremony.

The competitions took place on Wednesday, 14 (144 MHz) and Friday, 16 September (3.5 MHz). The terrain was perfectly chosen by the Organising Committee and fine location of the hidden transmitters (due to the concept of Siting Referee SM00Y) ensured the technical skill and experience of competing radio amateurs were in balance with simple physical ability.

The special event amateur radio station 8S0RDF operated in the Regiment during the championships. The free day program included a visit to Stockholm with the main attraction being the museum of the famous medieval warship Vasa.

Referees from Regions 1 and 3, were as follows:

Chairman	Krzysztof Slomczynski SP5HS
Secretary	Gunnar Ahl SM5CWV
Technical	Bo Lenender SM5CJW
Siting	Lars Nordgren SMOOY
Start	Ole Garpestad LA2RR
Finish	Karl-Heinz Mols DL9ME
TX 1 Referee:	Hiroshi Izuta JF1RPZ
TX 2 Referee:	In Young Jang HL1KPK
TX 3 Referee:	Wally Watkins VK4DO
TX 4 Referee:	Hans Endras HB9QH
TX 5 Referee:	Max Wheatley ZL2MAX

The awarding ceremony took place on Friday, 16 September afternoon. Medals and certificates were awarded

to individual and team winners of the first three places in each category on the VHF (144 MHz) and HF (3.5 MHz) bands. A Hamfest concluded this memorable amateur radio event.

2nd ARDF Region 3 Championships

Situations Vacant!

Expressions of interest are being sought from foxhunters to represent the WIA at the 2nd IARU Region 3 Amateur Radio Direction Finding championships to be held in Townsville between 15 and 20 July 1996. The WIA is the host society and it is essential to put together a full team to represent the WIA.

There are four classes, YL, Junior (under 19), Seniors (no age limit) and Old timers (over 40).

Skills required include:

- Technical skill — the ability to use a receiver, take bearings, estimate the distance to a transmitter and recognise a "good" bearing from reflections.
- Orienteering skill — the ability to use a map and compass, and find the best way from one transmitter to another.
- Physical skill — the ability to run fast.

A team is made up of three people and the two best individual times are taken as the team score in each classification.

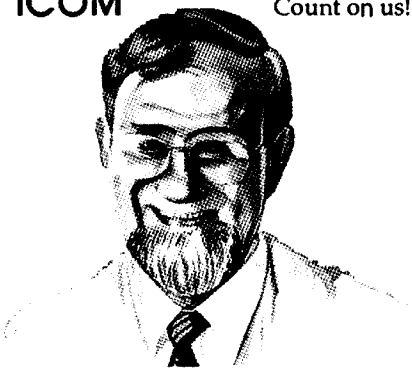
Further information can be obtained from Wally VK4DO.

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New Products

Last month I mentioned two new products, including the exciting IC-Z1 handheld with a detachable front panel that enables full control on the speaker/microphone section. Over the next couple of months quite a few other new products will be released. It is not possible to advertise them all immediately so if you are interested in a particular type of product give me a call.

Competition Winner

Congratulations to VK2QE, Allen Gillson, as the winner of the most interesting QSL card competition.

The Icom Swiss Army Knife is in the post and if the card is any indication it will be of use.

Gosford Convention

Undoubtedly the largest convention I attend, it was again great to catch up with so many old friends, even a banana bender or two.

"...73"

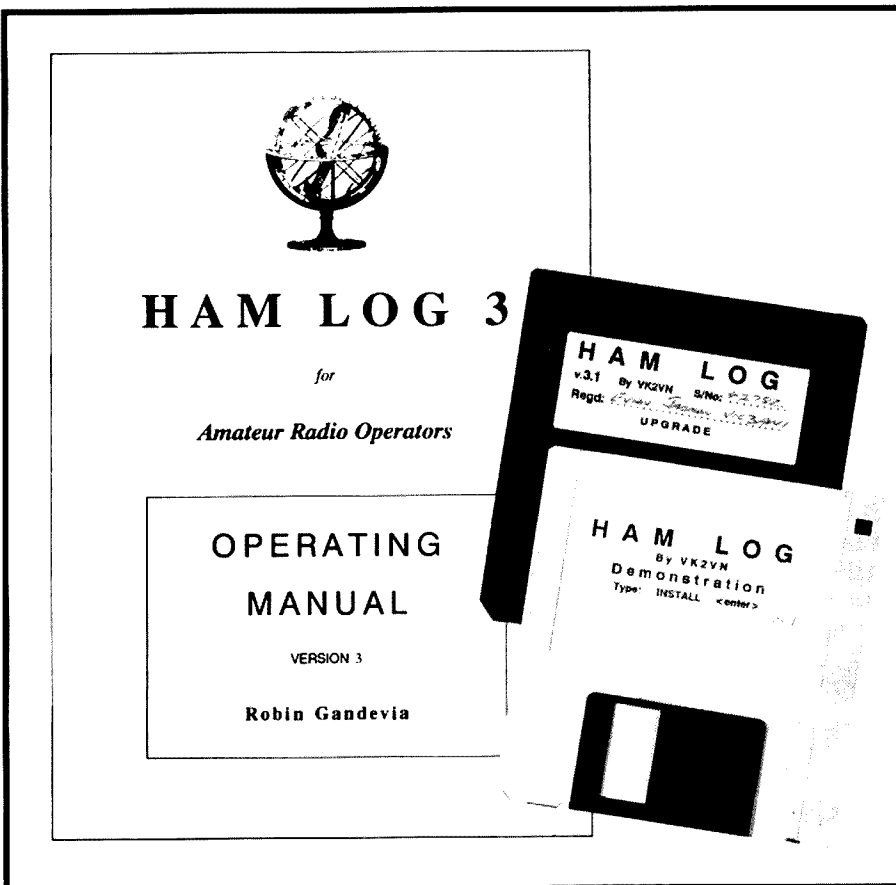
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■ Product Review

Ham Log v.3.1 — An Australian Log Program Update

Reviewed by Evan Jarman VK3ANI



When this program was first reviewed in April 1994, it was version 2.41.

The program has been refined to incorporate some of the ideas of users. Some extra fields have been included. These improve the information available about a contact, from initial contact through to QSL confirmed. Also, the number of user defined default conditions has been increased. However, while changes have been made, this program has kept to its original goal. It remains

easy to use and provides the information at the touch of a button.

Ham Log 3 maintains up to six separate log files. This was an innovation in the original version and was bound to become the benchmark of a good log keeping program. It has two methods for making log entries, normal and contest. Choice of log file is by menu and is set until changed. QSO entry is by pressing a key. A prompt is given for the callsign. When entered, the program then checks the country listing and displays the

country. This includes the "out of country" callers, the ones with a /prefix at the end. It ignores portable and mobile suffixes. The program displays the country information including beam heading, local time and distance.

Quite often a screen of translations of a few phrases in the local language is available. A prompt alerts you if the station has been worked before, providing the details of the contact, even giving the name. The program assumes the frequency, mode and RST last used when entering stations in the log, so these parameters are changed only when changes are made in operation. You don't have to re-enter all the details for each contact.

There are positions for date and time which use the computer's clock (adjusted by the program to UTC) which the program enters, the commencement and conclusion time for the QSO being set by user defaults. A final touch is a text editor that displays any previous conversational text kept and it is unique to that station. All available at the touch of key if you want it.

An alternative is "contest mode" where only basic information is supplied. The only prompts are if the station has been previously worked, requiring an extra key stroke to abandon or continue with the contact. Using a separate log during a contest overcomes unnecessary duplicate contact prompts. One of the reasons for having multiple logs.

The only other information required is the received sequence number — the cursor starts there. The program automatically increments in sent sequence. Other fields assume the previous value so changes are required only when changes are made, but the option is always there.

Few key strokes are required. This reduces the time taken to keep a log, thereby increasing speed, which can only enhance contest operation.

Log programs, like any data base, are distinguished by their ability to deal with the information collected. Ham Log 3 excels in this area. It can use any of the log fields as a key to locate, merge, extract or print records. Any of the records can be edited at a later date to correct data or confirm

QSL receipt. Each of the six logs can be merged into another when the reason for keeping them separate is no longer there.

A custom field has now been included in which a user tag can be inserted. These are 10 characters long and can be referenced by the program to merge, combine, extract or locate contacts. For example, a confirmed country can have a tag like "DXCC" placed in the custom field. By printing only those entries with the custom tag "DXCC", Ham Log 3 provides that essential log extract needed with your application. There is the option of a default in the custom field enabling contacts to be similarly tagged as they are logged. The custom field can be modified, when the key is no longer necessary, on all records with that key. As each of the six logs has the capacity to store 99,999 contacts, a user defined key like the custom field can be invaluable.

Ham Log 3 has added some other extra fields to improve its QSL ability. QSL sent/received dates and an identifier for bureau or direct confirmation have been added. The program automatically inserts a sent

date depending on the default options.

Also, the print options have been improved. As well as the normal formats, a new one has been added for customising the printing of QSLs. This enables Ham Log 3 to provide printouts in a user defined format, suitable for another program or a special QSL card printer.

The program keeps a statistical tally of contacts and can display total contacts, countries and countries confirmed. These are broken down in totals in each mode. You are limited to two modes per log although there are 12 to choose from. I don't see the need for this limit.

The country list can be altered as changes are required. The program keeps country prefix listings on a time basis. This means a contact stays relevant to that country even though the prefix has been deleted or reassigned.

Utilities are provided to renumber, sort or repair the log data bases. These are used when backup logs are restored to realign linkages. One of the logs had to be deliberately altered to test these functions; they worked.

Finding the balance between the ease of entering data in a computer and retrieving useful information is not easy. Ham Log 3 succeeds. It was designed around the requirements of the heavier log users as a working aid. That was obvious in the original version. Now the author has fine tuned a good program without losing sight of its objectives. This program has the features that many hours of experience deem necessary.

Ham Log 3 occupies 1.42 MBytes for the program plus extra space for the log files. A hard disk is essential. Operation is by keyboard. It requires 512 kBytes of memory to operate but needs 640 kBytes for all functions to work. It needs an IBM/C personal computer running MS-DOS 3.3 or later. The new version includes a PIF file for Windows devotees. The program has the usual F1 help screens and a manual is also included for clarification "if in doubt". The review copy came as a 720 kByte floppy Update disc with a manual and a 720 kByte Demonstration disc; it was version 3.11.

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SOME THINGS HAVE NO COMPARISON

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■ Operating

QRP — The Crest of the Radio Wave

Dr Murray Lewis VK3EZM*

Any amateur operator who uses less than five watts output must be a masochist. Or so I believed before discovering QRP operating.

QRP, in the International Q code, is equivalent to "Reduce power". In current amateur terminology, however, QRP means low power operation, and is usually defined as a maximum of five watts output to the antenna. Power levels up to one watt output to the antenna, are regarded as QRPp.

So why would anyone want to use low power operating in this age of global communication systems via telephone, satellite television and computer networks? Maybe for the same reason anyone would operate an amateur station. Possibly it's the challenge of doing something

different. Or perhaps for the thrill. But I can tell you there's nothing quite like having a QSO with a DX station while running less power than a single tail-light on my car.

Internationally, in amateur radio, interest is returning to low power operating, home construction of transmitters and receivers and, to some extent, CW transmission. In England about five thousand amateurs are members of the G-QRP Club — a number equivalent to approximately one-third of all Australian amateur licensees. Within the USA, the home of the kilowatt, the two largest QRP groups have a combined membership of over two thousand. And the Australian CW Operators QRP Club Inc has increased its membership to more

than three hundred, at an average growth rate of eighteen percent a year over the last five years.

Operating QRP with inexpensive and home-built equipment, many radio amateurs find, yields a rare satisfaction and a chance to gain the ultimate in operating skill. DX chasing, contesting, packet, FM, SSB, repeater operating and experimentation are all within the QRPers areas of activity.

Not many amateurs can afford to buy a new transceiver. Few can hope to duplicate the latest HF rig on their workbench; indeed, few may even want to. However, working within the QRP guidelines of five watts, probably anyone with the ability to gain an amateur licence could build a transmitter, at least for CW. QRP transmitters are small, simple, and don't inflict pain in the hip pocket. Integrated circuits, low cost transistors, printed circuit boards, and all the other modern electronic wizardry have made home construction a breeze. Gone are the hazards of high voltage and current which lurked in the older rigs to bite the unwary. Most QRP equipment uses from six to twelve volts of battery power, or even solar cells.

To begin a QRP project there is no need to start from scratch and collect all the components yourself. Kits are readily available. If you have an interest in home construction, but have been too timid to warm the soldering iron, I'd suggest a QRP transmitter as a first project. There is a chance, of course, that you'd prefer to build a transceiver. Again, cheap and simple projects are available in kit form if you'd rather commence homebrewing this way. Be warned, though, if you are one of the many who build for use when away from the base station. All those bells and whistles which come with a commercial receiver make listening for weak signals easy, but it's difficult to reproduce them "in a matchbox". Simple receivers, though, are great fun to have when you are away on a holiday trip. That's no excuse of course, for not having filters; but maybe they are not necessary all of the time. Isn't that what you find with your normal receiver? Jim Rowe was correct when he stated in a recent

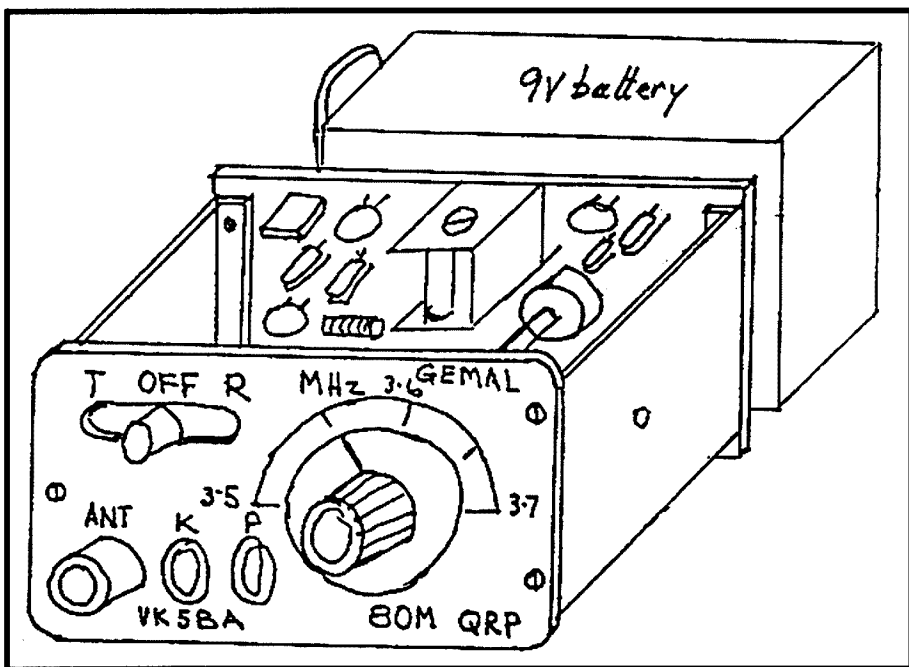


Fig 1 — Sketch of the Gemal 80 m QRP Transceiver, designed by Malcolm Haskard VK5BA. (Originally printed in "Lo-Key", Issue 21, page 1).

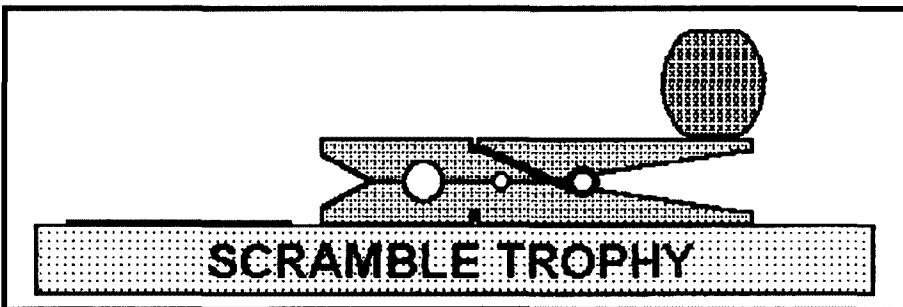


Fig 2 — Sketch of the Clothespeg Key Trophy made by Steve Mahony VKSAIM, for QRP CW "Scramble" Contest Winners. (Originally printed in "Lo-Key", Issue 36, page 25).

Electronics Australia (Oct '93) article, "The best way to learn how a radio receiver works is to build one yourself".

You'll need a suitable antenna for your QRP rig too. Don't be fooled into thinking that with low power, simple transmitters and receivers, the QRP antenna can be small and simple. With just a few watts of RF power, you need to make sure your feedline and antenna losses are minimal.

Preservation of every milliwatt is critical. So, if possible, get that antenna up high and clear, with the best feeder you can arrange. Even so, some QRPers are forced to use a less than desirable vertical or indoor antenna. And you'll find that while on holiday a low dipole or long-wire, held by a friendly tree, will still bring in plenty of signals and QSO's.

For those who are keen on home-made equipment, several books are available. Scan the WIA Bookshop list, published each month in *Amateur Radio* magazine, or Daycom's latest catalogue. The "QRP Notebook", the "G-QRP Circuit Handbook", "QRP Classics" and "Solid State Design for the Radio Amateur" are four titles which form the library backbone for the homebrew enthusiast.

"Lo-Key", an informative quarterly technical publication, edited by Don VK5AIL, is available to members of the Australian CW Operators' QRP Club. To join the club, which has radio kits and components available, send your details and \$10 annual subscription to Kevin Zietz VK5AKZ, 41 Tobruk Ave, St Marys, South Australia 5042. The club also circulates "Boomerang Circuit Books", which are packed with enough ideas to burn out several soldering irons. Some of the most

popular projects built by QRPers are from the pen of Drew Diamond VK3XU, a CW Ops Club member who has published details of several low power transceivers in past issues of *Amateur Radio* magazine.

Suppose, though, you'd like to try QRP without building your own equipment. That's easy, just turn down the power on your commercial rig. Many of the modern transceivers have an external ALC socket and, with an appropriate input to this line, power levels can be reduced to 5

watts or less without "lifting the lid". Other transceivers can be temporarily modified too. This gives the best of both worlds, all the advantages of a modern receiver and transmitter, but operating within the QRP guidelines. It's a good way to start operating, although homebrewing is better!

Operating QRP means that skills need to be honed. With just a few watts of signal you must perfect your operating technique, especially if you are going to work that DX station before the next high power station collects it. For QRP to QRP contacts there are some calling frequencies in common use, eg 3530, 7030, 14060, 21060, and 28060 kHz. QRP operating is the amateur operator's equivalent of "brains over brawn". You must be able to find DX stations, know when various bands will be open and have a crisp and clear setup on SSB and CW. Waiting for the right moment to make your move is essential when operating QRP. You must be alert and listening rather than transmitting. Perhaps the primary skill QRP

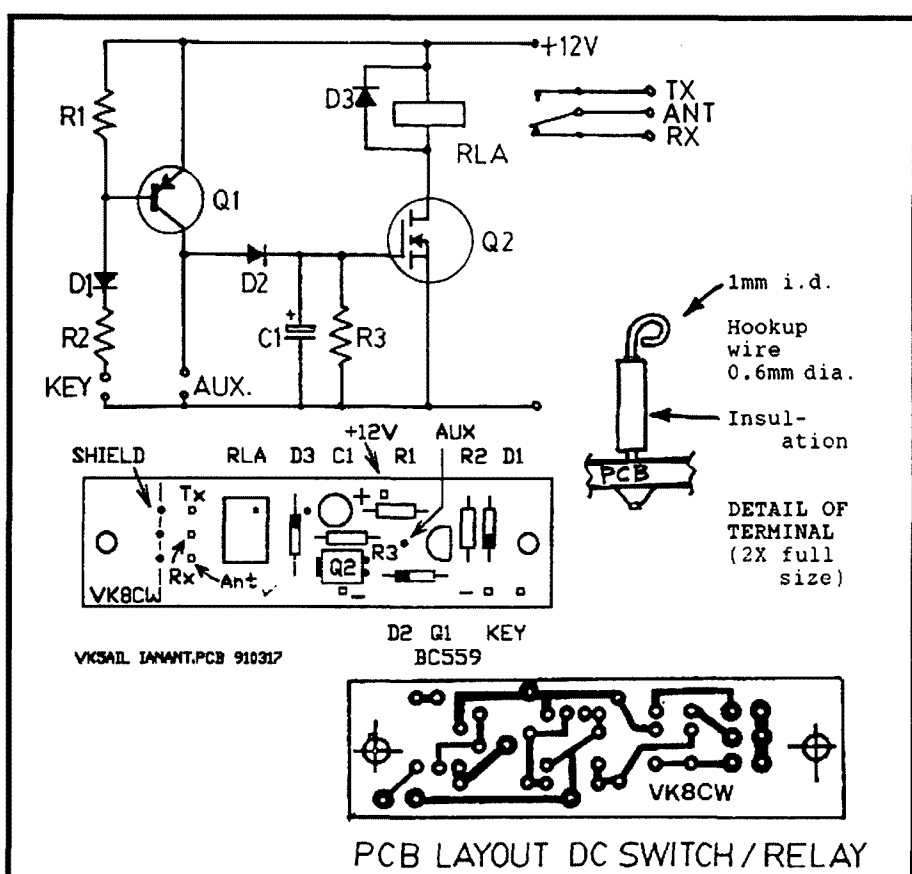


Fig 3 — Circuit and pcb layout for an antenna change-over relay, designed by Ian Smith VK8CW. (Originally printed in "Lo-Key", Issue 29, page 27).

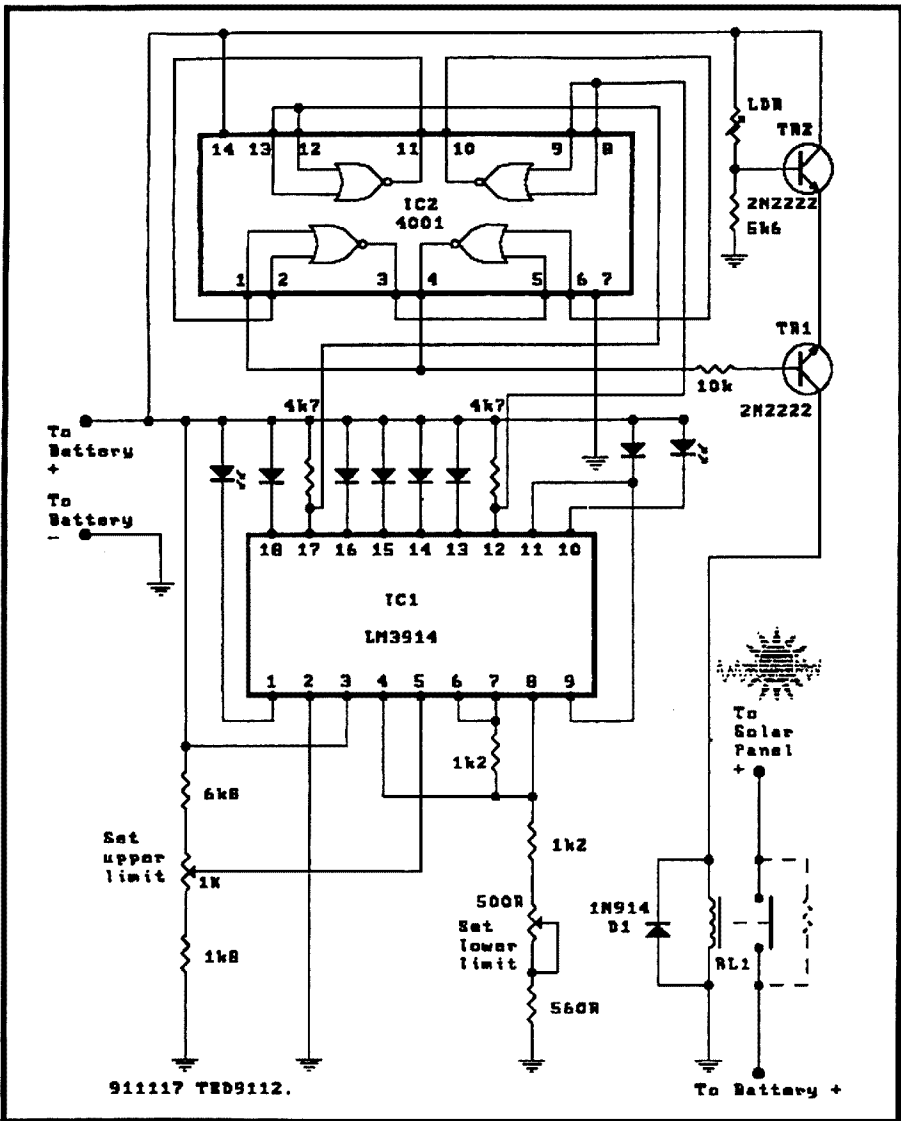


Fig 4 — A solar power supply circuit designed by Ted Daniels VK2CWH. (Originally printed in "Lo-Key", Issue 32, page 7).

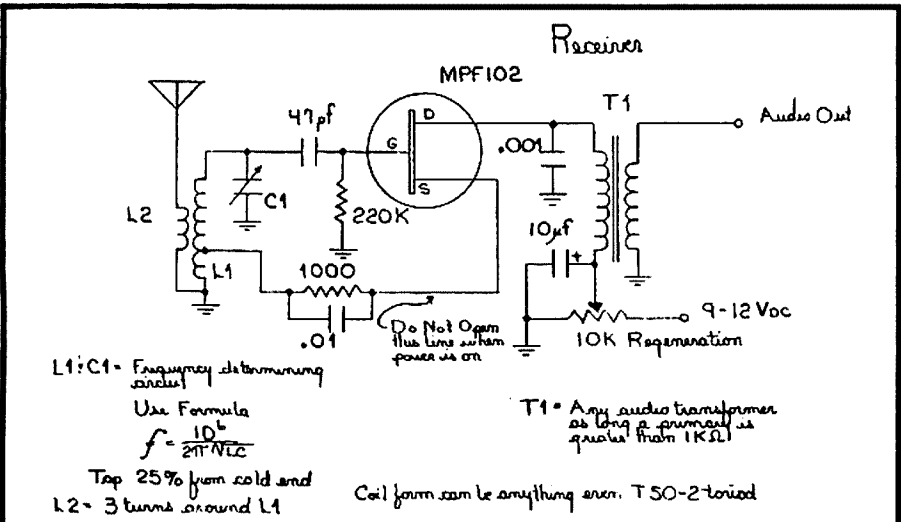


Fig 5 — Regenerative receiver designed by Bic Lucas WB0NQM. (Originally printed in "Lo-Key", Issue 26, page 17).

operation strengthens is patience. All it takes is patience, practice and listening, listening, listening.

Some QRPers only communicate with a combination of QRP power levels, CW and homebrewed gear. To be honest, though, few QRP operators use low power transmission, or CW, all of the time. This can lead to some amusing stories. One incident followed a recent Friday evening "natter net", a time when Australian club members operate on SSB at "high" power (perhaps up to fifty watts) to swap technical ideas and news items. As the net finished, a club member changed frequency, and heard the end of a contact between two other operators. "Just a few kHz down", said one old-timer, "are a group who claim to be low power CW operators. They're not using CW though, just talking about it".

QRP operating can yield amusing moments also. A VK3 club member related how one QRP/QRO contact with a VK2 ended rather abruptly after he stated he was using less than three watts output with an ICOM 735. "Who would do that?", the VK2 demanded, "A madman or a masochist?"

There was a time when I thought the same. But why not give QRP a try? Maybe I'll see you around 3530 kHz sometime.

Acknowledgement

Thanks to Don VK5AIL, for providing information and illustrations for this article.

Murray Lewis is a senior staff member, in the Neurology section of a local university, and is involved in teaching and research. A keen short-wave listener while at school, he was first licensed as VK3JHX and, about two years ago, achieved his present "full call" licence. He has many publications, most within his teaching and research areas, but also fiction and articles of general interest. Other interests include travel, photography and making jewellery.

*7 Shalimar Court, Vermont South Vic 3133 ar

■ Book Review

Communications Receivers The Vacuum Tube Era: 1932-1981. 3rd Edition

By Raymond S Moore.

Published by RSM Communications

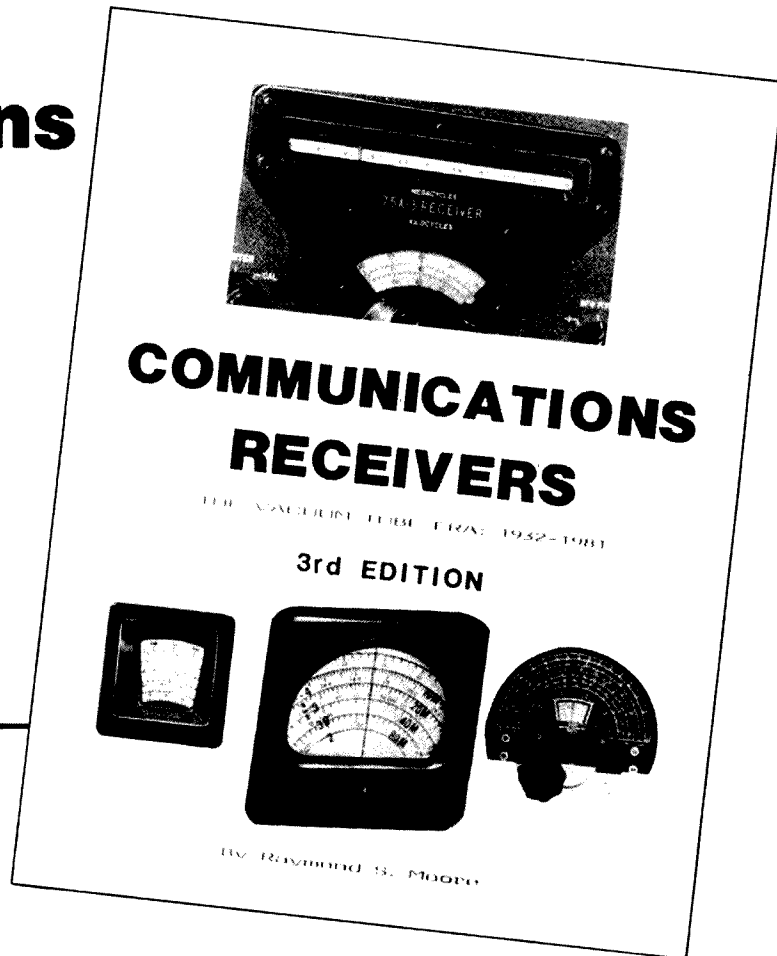
Reviewed by Ron Fisher VK3OM

How come I missed out on editions one and two? This would have to be one of the most fascinating books I have read in years.

To the newcomer in amateur radio, it might seem strange that, in years gone by, we used separate transmitters and receivers. The transmitters were usually home made or modified war disposals equipment. Receivers were often home made also, but the lucky few who could obtain a factory built receiver were really looked up to. The most desirable receivers came out of the USA with names like Hallicrafters, Hammarlund, National and, somewhat later, the incomparable Collins.

Here in Australia it was often luck, more than money, that brought an elusive receiver into the shack. In the 1940s and 50s, US dollars were almost unobtainable and I could never work out just how some Australian amateurs were able to import the latest receivers.

This book tells the story of American communications receivers and, as far as I can see, lists just about every model ever produced. It also gives the history of all of those famous manufacturers which, in itself, is worth the price of the book.



The criteria used for inclusion in the book are;

1. Superheterodynes only.
2. Manufactured in the USA.
3. Offered for sale to radio amateurs and the general public or through surplus channels.
4. Must have a BFO.
5. Continuous tuning — excludes fixed tuned and switch tuned receivers.
6. Must cover all or part of the high frequency bands.
8. Advertised or promoted for communications use.

As you can see from this, you won't find the Australian produced receivers such as the AR7 and AR8 mentioned. Also missing are the popular English Eddystone receivers that were popular in Australia up to the late 1950s.

However, the author didn't quite stick to criterion number two. Several Lafayette receivers available through the 1960s were made in Japan. Most were available in Australia, also under

the Lafayette brand, but were imported direct from Japan. The HE-30 was one of the better known models.

I also suspect that criterion number four is suspect in a few cases as no mention of a BFO tube or switching could be found. However, I must admit that I am nit picking. A tremendous amount of research has gone into the production of this book and, in general, the illustrations used are of very reasonable quality.

If you have ever used an American receiver you will find this book hard to put down. Most of the receivers described are now collector's items. I was lucky enough to have used over forty of them over the years and I wish I still had a few of them.

Our review copy came from Daycom but is possibly also available from your local Divisional Bookshop. The price is \$45.

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ALARA

Sally Grattidge VK4SHE*, ALARA Publicity Officer

Vital Statistics

In January 1995 ALARA's total financial membership stood at 177. Of these 85 are Australian members, and 53 are Australian members affiliated with the WIA.

Some YL Nets

BYLARA Monday, 1945 local, 3.708 MHz. If not on this frequency, then somewhere between 3.680 and 3.710 MHz. Watch out for UK daylight saving.

BYLARA Wednesday, 1115 local, 7.050-7.090 MHz.

BYLARA Saturday, 1045 local, 7.050-7.090 MHz.

CLARA Tuesday, 1700z, 14.120 MHz.

Finnish Phone Sunday, time not known, 3.688-3.710 MHz.

Finnish CW Sunday, time not known, 3.533-3.522 MHz.

Italian Monday, 1400 UTC (Summer), 1300 UTC (Winter), 7.070 MHz.

European YLDX Thursday, 1800 BST, 14.242 MHz.

YLDX Monday, 0700 BST, 14.222 MHz.

Did You Know?

WARO uses the figure of Pania as its emblem. An old Maori legend tells how Pania heard the voices of the sea people and swam out to meet them. However, she was unable to return to her lover on the shore and was transformed into the reef which now lies beyond the breakwater at Napier.

When it came to designing a badge for WARO the figure proved to be too complex, so a flower, *Ranunculus Lyallii*, the Giant Mountain Buttercup, was chosen. This magnificent alpine plant has tall branched flowering stems, usually with many large white flowers, each with numerous overlapping petals, and is found in the southern alpine regions of the South Island and the highest peaks of Stewart Island. The almost circular leaves can be up to 40 cm across, and the central hollow where the stalk is attached can be deep enough to hold a cup of water. The flower can be five to eight cm in diameter, with white petals surrounding golden stamens and a centre of overlapping greenish pistils. It is the largest and finest *ranunculus* in the world. (From WARO Newsletter).

Learning the Code — Has anything changed since Mrs Mac?

Florence McKenzie OBE was a remarkable person. She was Australia's first woman to qualify as an Electrical Engineer, the first licensed woman amateur radio operator as VK2FV, and the first woman member of the WIA. ALARA remembers her each year during the ALARA Contest, where the Florence McKenzie Trophy is offered to the Novice with the highest CW score. This way Mrs Mac continues to encourage operators to

use CW just as she did in the 1940s when she and her team trained between 10,000 and 12,000 telegraphists for wartime operation.

22 WPM was the speed required to be accepted into the WRANS with, of course, absolute accuracy, and all this without a computer or iambic keyer in sight. Monumental changes have taken place in the equipment used for communication, but the human brain has not altered much in what evolution would regard as a very short space of time, so maybe we can learn something from Mrs Mac's teaching methods.

"Learning the alphabet always frightens beginners, but it can be done one character at a time "singing" it to yourself at odd moments through the day. You can sing aloud if you wish, but this is best done in the privacy of your own home. Each letter must have a distinctive rhythm and not be heard as separate dits and dahs. This way you learn to recognise a character sent at around 20 WPM, although you will need long spaces between characters until your brain knows them without conscious translating. For longer characters it sometimes helps to invent a short phrase to help you remember, for example "L" "D'dah d'dit" — "To hell with it".

Once a few characters have been memorised, you can start "reading" in code as you go about your day looking at posters, street signs, number plates, and so on. Rhythm is the key to success with spaces between the characters and words being as important as the characters themselves.

Learn to receive before you try sending. Those rhythms must be imprinted on the brain before you attempt to use the key. Mrs Mac used her students as instructors. When they reached a certain speed, they would practice their sending by sending at a slower speed to beginners.

Most people reach a "plateau" around 12 WPM. Those who suffered this condition were instructed to attempt to copy much higher speeds (22 WPM) and just keep trying even though they missed most of it. Short well-used words like "the" and "and" are recognised first. Eventually words are recognised as a single unit, not broken into separate letters."

The above information was found in an article in *Amateur Radio Action* by Moira Millgate VK8NSW who was one of Mrs Mac's pupils but, if you are trying to learn the code today, I am sure you will find the instructions familiar.

North Queensland Convention

Dates have now been set for the North Queensland Convention in Townsville, so mark your calendar for 15, 16 and 17



We'll Meet Again? VK4 YLMEET, BUNDABERG, September 1994.

L to R: Back row — Ann VK4ANN, Pat VK4PT, Lorne, Robyn VK4RL, Julie VK4JJB, Mary VK4PZ.

Front row — Val VK4VR, Joycelln VK4JJ, Margaret VK4AOE, Sally VK4SHE, Bev VK4NBC.

September 1995. Although not officially a YL meet, activities are organised for the ladies and it is a good opportunity to get together again and meet some YLs from other states as this popular convention is usually well attended. There will be the usual YL home brew, and why not amaze the OMs by putting something in their section too. ALARA will be represented with a small display and a chance to meet the local members.

Townsville Ladies Net

On 8 February this year the Townsville Ladies Net was six years old. The net is on the local 2 m repeater (146.700) on Wednesdays at 6 pm local time and visiting YLs are very welcome to call in. The net is run by Ann VK4MUM, who started it in 1989. Recent regular callers are Dawn, Sally VK4SHE and Pat VK4MUY.

Welcome to New Members

Edward VK7NET joined 1 February 1995. Edward is a "wheelie", and has been licensed since June 1994. OMs cannot be full ALARA members but are very welcome to subscribe to the Newsletter. Also, Lynda G0VDR joined on 7 February 1995, sponsored by Marilyn VK3DMS.

**C/o PO Woodstock, QLD 4816 ar*

WIA News

Cable TV — Questions Over EMC

The roll-out of cable television around Australia is well under way.

By the end of January, the Telstra Pay TV cable network had passed 100,000 homes Australia-wide, reaching its 50,000th home in Sydney alone in mid-February. Telstra (the operator of Telecom Australia) is on target to reach 400,000 homes mid-year and plans to pass one million homes each year from the end of this year.

They have been laying aluminium "hard line" cable under the streets since June last year. Philips Electronics Australia has been supplying Telstra with cable imported from Times Fibre of the US.

In October last year, Telstra began a doubling of their roll-out and expects to reach 400,000 homes by mid-year, and plans to pass one million homes each year from the end of this year for the next four years.

Now, Optus Vision has joined the cable Pay TV bandwagon, having resolved its differences with the Minister for Communications, Michael Lee, over the issue of monopolising access which brought their plans to a halt late last year.

Optus began installing "hybrid" cable — comprising aluminium hardline coax and optical fibre — in Sydney's western suburbs in late February, slinging the cable between streetside power poles. The optical fibre part of the cable is to be for Optus' subscriber

telephone system to compete with Telecom's.

In an agreement announced late in January, Melbourne cable manufacturer, Olex Cables, part of the Pacific Dunlop group, will establish a factory in Tottenham to make hardline coax for both cable TV carriers. Electronics giant, Philips Electronics Australia, has said they are preparing business plans for local manufacture of other key items, including the underground amplifiers which are distributed along the cable. These have been imported up to now.

The cable pay TV system employs radiofrequency transmission down the coax, between the service providers and the subscribers in their homes. However, the specifications for the cable transmission systems are not yet settled, according to an Austel spokesman. Each supplier will likely have different transmission systems, although Austel are favouring "open" standards to avoid system monopolies.

One proposed system employs two spectrum segments: 5-65 MHz, for encoding and subscriber control, and 85-550 MHz, for the television channel transmissions themselves. A higher UHF band is "reserved" for future multimedia interactive systems.

The free-to-air television services don't want their channels used on cable systems and the Federation of Australian Commercial Television Stations (FACTS) have proposed that cable

service providers use spectrum in the 230-520 MHz and 820-950 MHz ranges.

There is some confusion over standards at present and an Austel committee is working towards developing a set of standards, but they're a moving target, Austel's spokesman said, and, while Australia is basically modelling its approach on European standards, we're breaking fresh ground. Settling of standards is unlikely to occur within 12 months, but that may be accelerated in the future depending on prevailing circumstances within the industry.

Clearly, there's potential for electromagnetic compatibility problems between cable TV installations and amateur radio operation. The potential for amateur transmissions to possibly interfere with cable installations — either streetside equipment, set-top equipment in subscribers' homes or to the link from streetside to set-top — is at present unknown. Likewise, the potential for interference to amateur radio receivers from the subscriber "back channel" is unknown, and where and how problems might arise.

Austel's spokesman said EMC considerations are to play a big part in pay TV standards and Austel is wanting to have an urgent look at that as there is a gap there at present.

The WIA is monitoring the situation and is to seek input on the EMC question to the relevant organisations.

AMSAT Australia

Bill Magnusson VK3JT*

National co-ordinator

Graham Ratcliff VK5AGR. Packet: VK5AGR@VK5WI

AMSAT Australia net: Control station VK5AGR

Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions): Primary 7.064 MHz (usually during summer). Secondary 3.685 MHz (usually during winter). Frequencies +/- 5 kHz for QRM.

AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia, GPO Box 2141, Adelaide SA 5001

MIR Operations Return to Normal

It seems that all has returned to normal on MIR after quite a long period when activity has been interrupted by high workloads and other problems. Reports indicate that the packet PMS is working and the cosmonauts have been enjoying leisure time voice contacts. The recent MIR/STS rendezvous went (almost)

according to plan and we can look forward to the real thing later in the year. Viewing conditions were not good and I didn't see the two spacecraft flying together. Did you?

Finding Phase 3d Will Be Easy

You will be aware of the confusion regarding the tracking of RS-15. Evidently this was caused by the explosion of the

spent third stage of the rocket which peppered the orbit path with debris. Phase 3d will have a GPS receiver on board. This will enable the satellite computer to calculate its own keplerian elements and it is anticipated these will be broadcast as part of the telemetry stream.

RS-15 Suffers Eclipses

If you have been having problems with RS-15 it may have been due to the satellite being in eclipse. Reports indicate that the transponder has been failing due to low battery voltage during recent eclipses. The battery voltage has been monitored as low as 12 volts instead of the normal 17 volts. When it falls to about 14 volts the transponder becomes intermittent. The only way to tell for sure is to monitor the telemetry.

Two New OSCARS

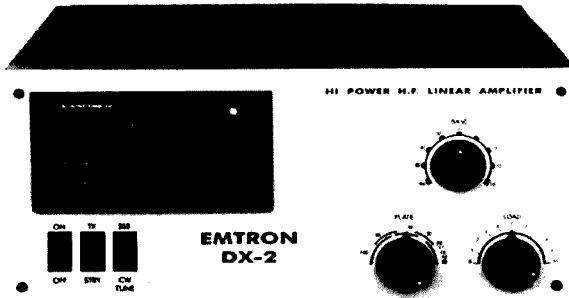
The launching of TECHSAT-1 was due to take place on 28 March from Plesetsk, Russia, about 700 km north of Moscow. The orbit is circular and not sun synchronised. The satellite is three axis stabilised, and will be earth pointing.

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- ORDER NOW! DELIVERY 6 TO 8 WEEKS

Specifications:

- **FREQ. RANGE:** All HF amateur bands 1.8-29.7 MHz
- **MODES:** SSB, CW, AM, RTTY, SSTV
- **POWER OUTPUT:** 1500 watts PEP, CW or continuous carrier
- **DRIVE POWER:** 40 to 60 watts
- **INPUT SWR:** Better than 1.3:1
- **ALC:** Negative gain, rear panel adjustment
- **HARMONIC OUTPUT:** 50dB below rated output
- **INTERMODULATION DISTORTION:** 35dB or better below rated output
- **FAULT PROTECTION:** Ip, Ig, temperature, other
- **COOLING:** Full cabinet ducted-air, temperature controlled two speed blower motor, pressurised forced air chassis
- **TUBES:** 2x4CX800A GU74B ceramic tetrodes designed and built for military use

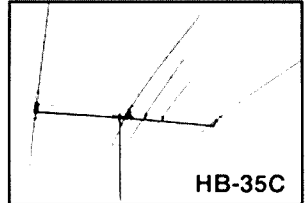
TET-EMTRON ANTENNA SYSTEMS

SAVE \$59 Free Collins 1:1 balun worth \$59, comes now with every TET-EMTRON beam antenna!

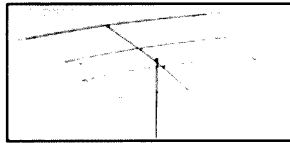
DUE TO SHARP INCREASE IN WORLD ALUMINIUM PRICES, WE WILL NOT BE ABLE TO HOLD OUR PRICES MUCH LONGER. BUY YOUR ANTENNA NOW, OR IT WILL BE TOO LATE!

THREE BAND BEAMS FOR 14-21-28 MHz BANDS

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- TE-23 2-element beam.....\$414
- TE-23M 2-ele. mini-beam.....\$440
- TE-33 3-element beam.....\$575
- TE-43 4-element beam.....\$750
- HB-35C 5-element trapless beam.....\$770



FOUR BAND BEAMS FOR 7-14-21-28 MHz BANDS



- TE-14 rotatable dipole.....\$275
- TE-34 3-ele beam on 14-21-28MHz, 1-ele on 7MHz.....\$695
- TE-44 4-ele beam on 14-21-28MHz, 1-ele on 7MHz.....\$870

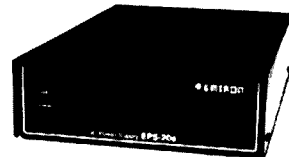
New EMTRON switching mode power supply

This is the power supply specially designed for your ham radio transceiver!

EPS-20s

ONLY \$295

- Specifications:**
- Input:** 240 VAC +/- 15%, 50 or 60 Hz
110 VAC +/- 15% 50 or 60 Hz
 - Output:** 13.8 VDC (nominal) 20 A peak
 - Regulation:** +/- 0.25V at nominal mains
 - Ripple:** less than 25 mV peak at 15A
 - Size:** 60mm x 185mm x 300mm



Pre-launch keplerian elements

Satellite:	TECHSAT-1	
Catalogue number:		
Epoch time:	95087.37500000	(Separation)
Element set:	001	
Inclination:	075.3991 deg	
RA of node:	328.7324 deg	
Eccentricity:	0.0015304	
Arg of perigee:	101.9385 deg	
Mean anomaly:	355.9607 deg	
Mean motion:	14.7000703 rev/day	
Decay rate:	0 rev/day ²	
Epoch rev:	0	

Frequencies

2 m uplink	23 cm uplink	70 cm downlink
145.850	1269.700	435.225
145.890	1269.800	435.325
145.910	1269.900	
145.930	1269.950	

Modes of Operation

9600 bps MSK or 1200 bps PSK.

Suitable TNC or MODEM

G3RUH or compatible for 9600 bps
FUJI or PACSAT for 1200 bps.

This launch will also carry the Mexican microsat UNAMSAT-1 constructed at the University of Mexico by a team headed by David XE1TU. Details as they come to hand.

More FAQs

(Frequently Asked Questions)

FAQ. Where can I get keps for the Sun/Moon?

This is a very common question. It comes up often on packet and other media. The questioner seldom gives a reason for the request so it's not an easy one to answer. The Sun is not too difficult and the "keps" are well known. They are

included in many tracking programs. If you consider the Earth to be stationary and the Sun to orbit around it, a more or less normal set of keplerian elements will work in amateur tracking programs and the results will be quite accurate. The keps should not need updating for a century or two! The Moon is different, however. Its orbit is affected by the Earth and the Sun. It is a "three body problem" and it requires a three body solution. Our tracking programs will not do a very good job even if presented with a so called "good" set of keps. Some programs can be modified to give a close approximation but it is complicated. Astronomy programs use algorithms that take all the variables into account. The best answer then is to get hold of either an EME tracking program or an astronomy program if you are serious about tracking the Sun or the Moon. I would not recommend putting keps for the Sun or Moon into a program that did not already have them in the satellite file.

FAQ. What does mode "X" mean?

For "X" substitute just about anything. This is a confusing one for newcomers. A bit of history. OSCAR-6 carried the first amateur radio transponder into space. It

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SYSTEM and features that only
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100 memories, stores freq., offset
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today.

DSP/MULTI MODE DATA
CONTROLLERS. The internal
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Unique LCD read-out on the
DSP-2232 displays the mode
and diagnostics for both
channels.

DSP-1232 \$1495 DSP-2232 \$1895



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With features borrowed from
the '2232', plus unique
additions: dual simultaneous
ports, software selectable
modems, 9600 baud modem &
PACTOR, etc. \$1250



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communication modes in one
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New PK96 HIGH SPEEDPACKET CONTROLLER \$499

Tired of waiting for packet
data? Wish for an easy
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cost, high-speed, single-
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PK-12 a Pint-Sized
PACKET CONTROLLER
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1200 baud VHF packet
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AEA's HOST mode * KISS *
Persistence * Slottime!
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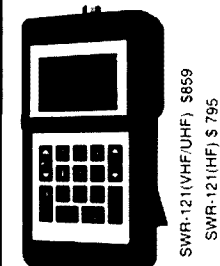
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It shows a precise display of
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feedline. With optional software
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Whether you are a HAM, LAND
MOBILE, MARINE or AIR
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where a computer system continuously monitors all antenna
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than half a million combinations in its matching circuit to make
sure everything is perfectly tuned. With 500 position non-volatile
memory build in, and a memory management program, there is
only one word for SG-230 HF AUTOMATIC ANTENNA
COUPLER - RELIABILITY! PRICE \$795

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More sophistication and power
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include Morse, Baudot, Bit
Inverted Baudot, Variable
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SWED-ARQ, VFT (FDM), Piccolo, Possag, Golay, ASARS and
breath-taking FAX. Also will display to screen: Russian
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MSI, USO, diversity reception, level control, dual tuning
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Satellite tracker to control your
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listened for signals in the two metre band and re-transmitted them in the 10 metre band. No problem there but when OSCAR-7 went up it carried two transponders so a means of differentiating between them was required. One operated in the same bands as OSCAR-6 so it was called mode "A". The new one was designated mode "B".

As new transponders have flown on the OSCARs they have been given mode designations to indicate to users where to listen and transmit and to give an idea of the equipment required to work them. Over the years this has become quite complex and with the launch of phase 3d we will see a new method of mode designation in operation.

It will be a two letter system indicating the uplink and downlink bands of operation. It should simplify things considerably. In the meantime the following modes are in operation on various OSCARs (see January or July *Amateur Radio* for exact frequencies).

Mode	Uplink	Downlink
"A"	2 m	10 m
"B"	70 cm	2 m
"J"	2 m	70 cm
"L"	23 cm	70 cm
"S"	70 cm	13 cm
"K"	15 m	10 m

FAQ. What is circular polarisation?

Most antennas are either horizontally polarised or vertically polarised and all amateurs should know what that means. Satellite spin or tumble and the passage of the signal through the ionosphere mean that the user has no way of knowing the polarisation of the incoming signal at any instant. For this reason most satellite antennas are circularly polarised and, to take advantage of this, you should use similar polarisation at your station.

You will see symbols like RHCP and LHCP to denote Right or Left Hand

Circular Polarisation. Circular polarisation produces a signal with a rotating wavefront. You can imagine this by visualising an antenna spinning on its axis as it transmits. This would be quite difficult to do physically but it is a simple matter to produce a spinning wavefront electrically. The helix antenna produces such an effect naturally without any help at all. Helixes make excellent satellite antennas but are difficult to construct and are cumbersome at VHF.

Most circularly polarised antennas used by amateurs are dipoles or Yagis. To produce a circularly polarised wavefront from a Yagi it is necessary to build two and mount them at right angles. They can share the same boom (crossed Yagi) or be entirely separate entities. They need to be fed 90 degrees out of phase to produce circular polarisation. This is done by using a 90 degree delay line between the feed points and feeding power to one antenna. The hand of polarisation, ie RHCP or LHCP, can be changed by reversing the feed connections to one antenna. This can be relay controlled to allow changing polarisation from the operating position.

This arrangement produces a wavefront which is spinning at the frequency of operation. 145.9 million revolutions per second on two metres! Quite hard to do mechanically! There is a very heavy penalty to pay for getting the hand of polarisation wrong. Some texts put it as high as 30 dB so you had better get it right. A switch or relay is not a bad idea.

Next Month

SUNSAT: A Micro Satellite Under Construction In South Africa

*359 Williamstown Rd, Yarraville VIC 3013
Packet: VK3JT@VK3BBS.#MEL.VIC.AUS.OZ
CompuServe: 100352,3065

ar

Indies, IOTA-N America, IOTA-Asia, IOTA-British Isles, IOTA-Oceania, IOTA-Antarctica, IOTA-Europe, IOTA-S America, IOTA-Arctic Isles, IOTA World Diploma, and the IOTA Century Clubs 100, 200, 300, 400, 500 and 600.

All communications about the IOTA rules and forthcoming activities, including requests for directories, should be sent to Roger Ballister G3KMA, IOTA Director, La Quinta, Mimbridge, Chobham, Woking, Surrey GU24 8AR, England.

At the time of going to press, I have not received any information concerning an IOTA checkpoint in Oceania. I do know that one high-profile amateur was making overtures to the IOTA directors. If any of our readers has information that would assist, I would be grateful. In the absence of a regional check-point for QSL cards, Philip Marsh G4WFZ, 28 Orcheston Road, Charminster, Bournemouth BH8 8SR, England is authorised to check cards and answer requests for certificates for all amateurs outside Europe, USA and Canada.

The IOTA directory is available on disk for an IBM compatible PC in WordPerfect, Wordstar, and plain ASCII. Write for details of price, specifying the type and format of disk required (the disk itself will be included in the price) and the likely number of users.

The IOTA 100 Islands of the World is the basic award, and the place to start. This requires proof of contact with 100 or more islands/groups with different reference numbers in the directory. At least one contact should be with EACH OF THE SEVEN CONTINENTS.

The IOTA 200, 300, 400, 500 and 600 islands awards are issued for confirmed contacts of those numbers or greater. Each continental award is for contacting 75 percent of the numbered islands/groups in that continent, OR, alternatively, 75 islands/groups, whichever is the less.

The IOTA Arctic Islands, British Isles and West Indies awards follow the same percentage rules as above. The relevant islands/groups are marked by an "A" "B" or "W" as appropriate on the continental pages.

The IOTA World Diploma is for contacting 50% of the numbered islands/groups, OR, alternatively, 50 islands/groups, whichever is the less, in each of the seven continents.

In all cases, if the qualifying percentage figure works out as a fractional number, round the fraction down to the nearest whole number. Remember, only one confirmed contact counts for credit for each IOTA reference number. QSLs from different islands with the same reference number do not count separately. All

AWARDS

John Kelleher VK3DP — Federal Awards Manager*

Is there life after DXCC? When you have worked and confirmed all of the entries on the ARRL DXCC Countries list, what then? Do you try for all-modes or five band DXCC, or do you broaden your horizons? Whatever you choose, you will find that there certainly is life after DXCC!

One of my compatriots approached me commenting on this very question. He said "I've worked them all (DXCC Countries), what do I do now?" I handed him a copy of the IOTA (Islands on the Air) program. Having worked all DXCC countries, it was obvious that some islands, or island groups, were indeed

"countries" in their own right, which would give him a healthy start to the IOTA program. This number of Island groups would only be (pardon the pun) a mere "drop in the ocean". Just living in Australia is a start. We are Oceania-001!

The IOTA program consists of 17 separate awards. They may be claimed by any licensed amateur for contacts since 1 December 1964, with the required number of islands/countries, both world-wide and regional. It is an evolving program with new islands being added to the list for first time contacts. The awards series includes IOTA-Africa, IOTA-West

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The deluxe 2m/70cm dual-band hand-held Transceiver that offers easier operation and more features than ever before is still available at an unbelievably low price!

The Yaesu FT-530 provides a flexible dual receiver facility with separate volume and squelch controls, allowing you to listen on two frequencies in the same band or one frequency on both bands! Plus, the exclusive Australian version features full 70cm band coverage (420-450MHz), selectable Auto Repeater Shift on both 2m and 70cm (suits Australian band plan), and extended receiver coverage as standard. Two VFOs and 41 tunable memories per band are provided, together with keypad or dial frequency entry, seven selectable tuning steps and a one-touch CALL channel. The dual 5.5-digit LCD screen is back-lit for easy viewing and includes many functional indicators plus separate signal/P.O. bargraphs for both receivers. An LCD voltmeter function is provided so you can even monitor your battery's performance under load and estimate remaining battery life.

Other top features include: Inbuilt CTCSS encode/decode, CTCSS scanning, an auto battery saver (ABS) for extended battery charge life, a cross-band repeater facility and an inbuilt clock with alarm and snooze functions.

Also provides VOX circuitry for use with the optional YH-2 headset, a user-replaceable Lithium back-up battery, and DTMF selective calling and paging. A DC supply jack allows simple transceiver powering and NiCad charging, with RF output in four selectable steps up to 5W at 12V. The FT-530 comes complete with an ultra high-capacity 1000mAh NiCad battery, belt clip, carry case and approved AC charger.

Cat D-3620

Specifications

Frequency range:

Transmit:

144-148MHz, 420-450MHz

Receive:

130-174MHz, 420-500MHz, 800-950MHz

Current consumption:

Auto power off

150uA

Standby (saver on)

16.8mA (both bands)

Dimensions:

55(W) x 163(H) x 35mm (D)

Transmitter:

Power Output:

5, 3, 1.5, 0.5 (at 12V)

RF Power Output:

2.0W (2m) 1.5W (70cm)
(Supplied 7.2V 1000mA/H NiCad)

Receiver:

Sensitivity:

2m: < 0.158uV, 70cm: < 0.18uV
(Ham bands only, 12dB SINAD)

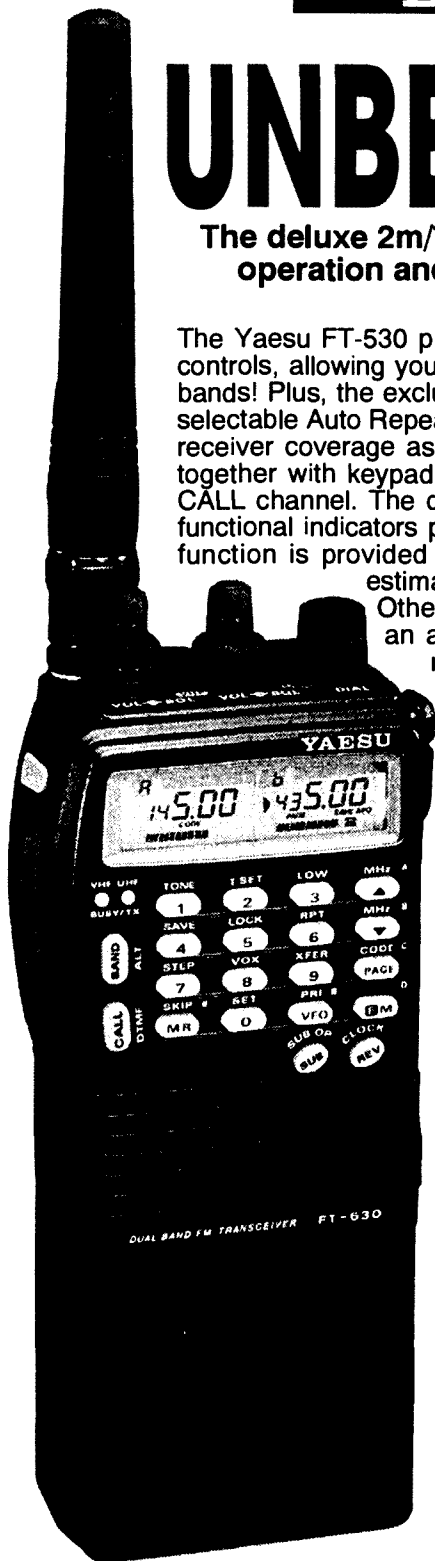
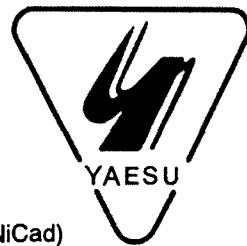
Selectivity:

>60dB

Audio Output (12V):

300mW at 8 ohms (at 12V)

2 Year Warranty



\$699

Still Available At This
Special Low Price!!

Don't go mobile without a Yaesu Mobile Transceiver!

Whether you're going bush or operating around town, a quality mobile transceiver from Yaesu delivers the best performance.

FT-2400H Rugged 2m Transceiver

The ultimate in dependability and reliability! The FT-2400H is built using commercial grade mechanical and electronic construction techniques and meets the tough USA MIL-STD-810C shock and vibration requirements, so you know you're getting the highest quality. A one-piece die-cast chassis/heatsink allows three-step output of up to 50 watts without forced air cooling. Plus, fibreglass circuit boards and chip components provide professional-grade reliability. It has a large backlit LCD screen, backlit knobs and 31 tuneable memories (which can store frequency and a four-character name of your choice). A customised microprocessor also provides Auto Repeater Shift to suit Australian conditions. Two-stage track-tuning and a dual FET mixer improve receiver intermod performance. Scanning functions include programmable scan limits, selectable scan resume modes, memory skip, and priority monitoring. Seven selectable channel-steps and CTCSS encode are standard features. Comes complete with MH-26 hand mic., mobile mounting bracket and DC power lead.

Cat D-3630



\$649 2 Year Warranty

Specifications

General

Frequency range: Transmit 144-148 MHz
Receive 140-174MHz
Channel steps: 5, 10, 12.5, 15, 20, 25 & 50kHz
Current Consumption: Receive: 400mA
Transmit: 12 Amp (Hi power)
Dimensions: 160 x 50 x 180mm (w/o knobs)

Receiver

Intermediate Freq: 21.4MHz & 455kHz
Image Rejection: Better than 70dB
Maximum AF Output: 2.0 watts into 8 ohms @ 10% THD

Transmitter

RF Output power: 50/25/5 watts (Hi/Med/Low)



Yaesu FT-840 HF Transceiver

Blending the high-performance digital frequency-synthesis techniques of the FT-890 with the operating convenience of the FT-747GX which it replaces, the all new FT-840 HF mobile transceiver sets the new standard for high performance in affordable transceivers. Covering all HF amateur bands from 160m-10m with 100w P.E.P output, and with continuous receiver coverage from 100kHz to 30MHz, the FT-840 provides SSB/CW/AM operation (FM optional), 100 memory channels, a large back-lit LCD screen, two independent VFOs per band, an effective noise blanker and an uncluttered front panel, all in a compact case size of just 238 x 93 x 243mm (WHD). Unlike some competing models, small size doesn't mean small facilities. The FT-840 provides easily-accessible features such as: Variable mic. gain and RF power controls, SSB Speech processor for greater audio punch, and IF Shift plus CW Reverse to fight interference. Dual Direct Digital Synthesizers ensure clean transmitter output and fast Tx/Rx switching, while the low-noise receiver front-end uses an active double-balanced mixer and selectable attenuator for improved strong signal handling. The FT-840 weighs just 4.5kg and uses a thermally-switched cooling fan, surface-mount components and a metal case for cool, reliable operation. An extensive range of accessory lines are available, including the FC-10 external automatic antenna tuner, so you can customise the FT-840 to suit your operating requirements.

Cat D-3275



2 Year Warranty

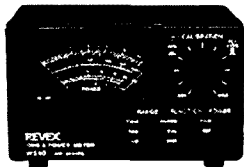
Still only **\$1595**

Quality Transceiver Accessories!

VHF/UHF

Power/SWR Meter

A high quality SWR/Power meter suitable for amateur, UHF CB and commercial applications. High-quality Japanese construction assures you of maximum reliability. It has an all-metal case, large meter display, 140-525MHz coverage with less than 0.3dB insertion loss, and 4W, 20W & 200W power scales. Revex model W540.



Cat D-1370

\$199

With PEP Reading!

HF/6m Power/ SWR Meter

A quality wide-band SWR/power meter with accurate PEP metering. Manufactured in Japan, it's very well constructed with an all-metal case. Features include a large, back-lit meter, 1.8-60MHz coverage with less than 0.1dB insertion loss, 20W, 200W and 2kW power scales, and LED indicators for Average/PEP operation. Requires 13.8VDC at 200mA. Revex model W502



Cat D-1360

\$199

Revex W560N

HF/VHF/UHF SWR/PWR Meter

Another quality Revex wide-band SWR meter, offering 2 inbuilt sensors for 1.8MHz to 525MHz coverage! Provides measurement of 3 power levels (3W, 20W, 200W), SWR (at low and high power levels) and uses an N-type socket for the VHF/UHF sensor to ensure minimal loss. Measures 120 x 80 x 85mm.



Cat D-1375

\$369

Limited Stocks

Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV is a 5-band HF trap vertical which continues the Hustler tradition of quality and performance. It incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1 kw (PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, < 2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike some other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.

Cat D-4920

\$299

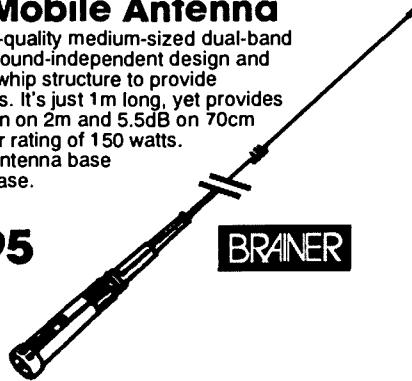


2m/70cm Mobile Antenna

The ST-7500 is a high-quality medium-sized dual-band antenna that uses a ground-independent design and tiltable stainless steel whip structure to provide excellent mobile results. It's just 1m long, yet provides approximately 3dB gain on 2m and 5.5dB on 70cm with a maximum power rating of 150 watts. Requires an SO-239 antenna base or SO-239 magnetic base.

Cat D-4810

\$7995



BRAINER

2m/70cm Hi-Gain Mobile

The ST-7800 is our best long-range, dual-band mobile antenna providing high gain (4dB on 2m and 7.2dB on 70cm), while only 1.5m in length. It incorporates an inbuilt tilt-over mechanism and has a maximum power rating of 150 watts. Requires an SO-239 antenna base.

Cat D-4815

BRAINER

\$12995



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contacts must be made personally by the holder of the call sign, and such contacts must be made with licensed amateur stations. All contacts must be made on the 1.8, 3.5, 7, 10, 14, 18, 21, 24, or 28 MHz bands.

Contacts may be made from any location in the same DXCC country, including when the operator is land mobile. Contacts with land mobile stations on islands will be accepted if the exact location is clearly stated on the QSL card. Contacts with maritime mobile stations near islands, whether or not they operate with a /MM suffix, will NOT be accepted. This also applies to stations on board ships in harbour, except that credit may be given if an essential part of the station, ie the transceiver, beam antenna, or power supply, is shown to have been on shore.

Credit will be given for contacts made entirely on a single mode of transmission, or on a combination of modes. Certificate endorsements for single mode, and/or single band transmission, may be made on the submission of cards clearly confirming the mode or frequency, but the request must be made at the time of the submission. Credit will not be given for cross-mode, cross-band or satellite-aided contacts.

QSL cards submitted should bear an island/group name or other indication of an island QTH such as the name of a town or, in Antarctica, a base. Do not write on, deface, or amend a card in any way, as it may lead to disqualification from the award program.

Wherever possible, submit QSL cards with printed IOTA reference numbers. Where this is not possible, submit QSL cards with at least printed call signs and island/group names.

Awards with a hand written or type written or rubber stamped call sign or island/group name may be accepted exceptionally, if they are supported by:

1. Mention of the activity in DXNS at the time; and/or
2. Receipt by the IOTA director of similar QSLs from other applicants; or
3. At the discretion of the checker.

Applicants should realise that, on occasions, the checkers will have no option but to reject cards pending the receipt of more information. In such cases a letter from the island operator giving the dates of the operation may provide the only acceptable solution. It will normally be for the applicant to obtain this information.

Applications

1. Start with the basic IOTA 100 Islands of the Air award. Arrange the cards by continent in IOTA reference number order. It is best to send in excess of 100 cards in case any are rejected. In fact, you may send any number of QSL cards for this initial award (in excess of 100), and the extras will be credited to your score shown in the annual listing as well as count towards the higher level awards. Remember, enclose at least one QSL from each of the seven continents.
2. Complete a checklist for each batch of QSLs submitted. This should be typed or clearly printed and the list of cards be by continent in order of IOTA reference number, with call sign and group name.

Certificates will be provided against a specific request accompanied by the

correct fee. You may apply at any time through your normal checkpoint. The fee for one certificate is UK4.00 pounds, \$US8.00, or 12 IRCs. The fee for two or more certificates requested at the same time is UK3.00 pounds, \$US6.00 or 9 IRCs each.

Applicants submitting cards for checking must include sufficient payment to cover their return, whether surface or by airmail. It may be necessary to consult the relevant postal authorities to determine the correct postage.

Please do not send cheques drawn on foreign banks, or foreign currency (except US dollars).

From a copy of QRZ DX dated 20 February, 1995, I quote the following: *The Official IOTA Application Disk is now available from checkpoints, price \$US8.00 or 13 IRCs postpaid. This enables the applicant to submit the application/update on disk to the checkpoint where it is checked and amended before the data is passed through to Central Records. After processing, the disk is returned by the checkpoint to the applicant with the credited score/record, ready for the next update. This means that the disk is purchased once only, at the beginning.*

If you have any further enquiries about this particular award, I do have more information, but would have to four finger type for another two days. I don't want to get into bad habits!

*PO Box 2175 Caulfield Junction 3161
ar

FTAC Notes

*John Martin VK3KWA, Chairman, Federal Technical Advisory Committee**

More Records

A record claim has been made for a 10 GHz contact between Wally Howse VK6KZ at Busselton and Neil Sandford VK6BHT at a site near Geraldton. The date was 14 Dec 1994 and the distance 544.0 km. This is a new VK6 state record and was also the national record until 30 Dec 1994 when VK6KZ and VK5NY made their world record contact of 1912.1 km.

Andrew Anderson VK3KAJ and Karl Harbeck VK3ZKH made a contact of 18.3 km on the 47 GHz band on 9 Feb 1995. This is the first ever record claim for this band and automatically becomes a VK3 and national record. Congratulations.

Band Plan Changes

The item in last month's issue stated that the band plan revision proposals discussed over the last few months had been adopted by Federal Council. This

was a misunderstanding on my part. The proposals were in fact held over for the Federal Convention at the end of this month. Further details next time.

Fair Go for Everyone

January 1995 *Amateur Radio* (page 48) included a note from the NSW VHF-SHF DX Group about interference problems from FM voice and packet stations in the narrow band segment of the 2 metre band. The problem is still there, in some cases on or near beacon or weak signal calling frequencies.

FM stations already have use of 80 per cent of the 2 metre band free of any interference from CW or SSB stations. Please, FM operators, let CW and SSB stations have the same fair go in their 20 per cent of the band!

*PO Box 2175, Caulfield Junction, VIC 3161
ar

**Help stamp out
stolen equipment.
Always include
the serial
number of your
equipment in
your Hamad.**

Contests

Peter Nesbit VK3APN — Federal Contest Coordinator*

Contest Calendar April-June 95

Apr 1/2	SP DX Contest (CW)	(Mar 95)
Apr 8/10	JA DX CW Contest (High Bands)	(Mar 95)
Apr 9/10	Israel DX Contest	(Mar 95)
Apr 9/10	"King of Spain" CW & SSB Contests	
Apr 29/30	Helvetia DX Contest	(Mar 95)
May 6/7	ARI Contest CW/SSB/RTTY	
May 13/14	CQ-M Contest	
May 13/14	Sangster Shield (80 m ZL)	
May 27/28	CQ WPX CW Contest	(Feb 95)
Jun 3/4	RSGB Field Day CW	
Jun 10/11	ANARTS (VK) RTTY	
Jun 17/18	VK Novice Contest	
Jun 17/18	All Asia CW DX Contest	
Jun 24/25	ARRL Field Day	

Radio Communications for February carried an interesting snippet about the WU1F "TACO", which stands for "Totally Automated Computer Operation". It seems he developed and ran such a system during the CW legs of the 1994 ARRL 10 m contest and the CQWW, using it to make about 100 QSOs in each. Apparently the machine searched for stations automatically, and made QSOs with those who WU1F asked it to work. It seems it needed fairly good signals to work properly, and needs further development, but this does show the inexorable forward march of progress (or retreat, depending on your point of view)!

"TACO" is strangely reminiscent of those clunky chess computers that started appearing 10-12 years ago. In those days, the machines were not a patch on a good human player, but since then have developed to the point where they give the top players a very difficult time. Although the task of finding and identifying callsigns during a contest is probably significantly more difficult than that of working out chess moves, due to QRM, etc, I am sure we will be hearing more about this sort of thing over the years to come. Who knows, maybe one day we will even see contests organised expressly for machines, as has already been happening for some years in the world of chess! What fun for us humans! As they used to say, "Stop the world, I want to get off!"

Last month's introduction contained a typo which possibly caused a near fatal heart condition for some readers, which was "It is time to discontinue the RD as a contest between Divisions...?" As many probably guessed, the first two words of that sentence were inadvertently reversed. My apologies for any alarm!

Many thanks this month to VK2PS, VK3KWA, HB9DDZ, OE4BKU, SP6FER, UV3BW, CQ, and *Radio Communications*. Until next month, good contesting!

73,
Peter VK3APN

Contest Details

The following contest details should be read in conjunction with the "General Rules & Definitions" published in April 1993 *Amateur Radio* (I'll get around to revising them some day).

Addendum to SP DX Contest (1/2 April)

The updated rules for this year's contest, just received, reveal that this year's event is for CW only (the rules published last month indicated SSB only). There are no other changes. Over the last few years this contest has alternated between SSB one year, and CW the next, which is something to remember for next year! Hopefully, this advice will reach prospective entrants before the contest.

Addendum to Helvetia DX Contest (29/30 April)

Advice has been received from the manager of this contest that his address is now: "Niklaus Zinsstag HB9DDZ, Salmendorfli 568, CH-4338 Rheinsulz, Switzerland". Please amend the address for logs as shown in last month's issue.

ARI International DX Contest CW/SSB/RTTY

2000z Sat to 2000z Sun, May 6/7

This contest occurs each year on the first full weekend of May. Anyone can work anyone else, and categories are single

operator CW, SSB, RTTY or mixed; multi-operator single transmitter mixed; and SWL mixed. Bands are 160-10 m (no WARC). The same station can be worked on the same band once each on CW, SSB, and RTTY, but the multiplier can be claimed only once for that band. Once a band or mode has been used, 10 minutes must elapse before it can be changed. Send RS(T) plus serial number and Italian stations will send RS(T) plus province.

Score 10 points per Italian QSO, 3 points per QSO with stations in another continent, 1 point per QSO with stations in own continent, and zero points per QSO with stations in own country. Final score equals total points from all bands times total multipliers from all bands.

Multipliers are the sum of Italian provinces (max 103) and countries (excluding I and IS0) on each band. Province codes include: I1: AL AT BI CN GE IM NO SP SV TO VB VC; IX1: AO; I2: BG BS CO CR LE LO MI MN PV SO VA; I3: BL PD RO TV VE VR VI; IN3: BZ TN; IV3: GO PN TS UD; I4: BO FE FO MO PR PC RA RE; I5: AR FI GR LI LU MS PI PT SI; I6: AN AP AQ CH MC PS PE TE; I7: BA BR FG LE MT TA; I8: AV BN CB CE CZ CS IS KR NA PZ RC SA VV; IT9: CL CT EN ME PA RG SR TP AG; I0: FR LT PG RI ROMA/RM TR VT; IS0: CA NU SS OR.

Use a separate log for each band, and a check log (ie sorted callsign list) for 100 plus QSOs on any band. Send log within 30 days to ARI Contest Manager I2UIY, PO Box 14, 27043 Broni (PV), Italy. Logs on disk are welcome, and an MS-DOS logging program is available from the contest manager for \$US5.00 (to cover disk/postage).

CQ-M Contest (CW, Phone, Mixed)

2100z Sat to 2100z Sun, May 13/14

Sponsored by the Krenkel Central Radio Club, this contest runs on the second full weekend of May each year. Categories are single operator, single and all band; multioperator single transmitter; 20 m SSTV; SWL. Bands are 160-10 m. No cross mode QSOs please. Call "CQ-M", and exchange RS(T) (or RSV on SSTV) plus serial number. Score one point per QSO with own country, two points with a different country in the same continent, and three points with other continents (continents as for WAC). The final score equals total points times total number of countries from each band. Countries are according to the R-150-C list, which is similar to the ARRL DXCC list except for former USSR countries. Serious competitors should review the R-150-C list. Awards apply, and there are achievement awards for stations making

200 plus QSOs. Mail logs by 1 July to "Krenkel Central Radio Club, CQ-M Contest Committee, Box 88, Moscow, Russia".

Sangster Shield

0800-1100z Sat & 0800z-1100z Sun, May 13/14

This unusual contest emphasises low power operation. Work ZLs on 80 m CW. QSOs can be repeated once per 1/2 hour period, ie 0800-0830, 0830-0900, etc. At least five minutes must elapse between repeat QSOs with the same station, or else another station must be worked in between. Send RST plus power output, ZLs will send RST/branch/power. Non-ZLs using up to 5 W score 10 points per QSO with a ZL, if the ZL worked is using up to 5 W; or five points per ZL using over 5 W. Non-ZLs using more than 5 W score five points per QSO with a ZL using up to 5 W. QSOs between stations where both use more than 5 W are invalid for the contest. Final score equals total points times number of ZL branches worked. Send logs to reach "Contest Manager ZL3KR, 4 Exton Street, Christchurch 8005, NZ" by 9 June. Certificates will be awarded to the highest scoring non-ZLs in their respective call areas.

Result of 1994 SP DX SSB Contest

(Call/Category/Score/QSOs/Pts/Mult)
VK3UX* SO-14 1008 24 72 14

RESULTS OF 1994-1995 ROSS HULL CONTEST

Presented by John, VK3KWA

The changes to the scoring system resulted in a different pattern of activity from previous years. The bands were quieter due to a decrease in local activity. On the other hand the new scoring system led to an increase in the number of longer distance contacts.

With the change from "all in" to "best 100" scoring, anyone who did as well this year as in 1993-1994 could be expected to have a lower score this time round. But, in fact, most scores were much higher this year, again showing that DX activity has increased.

I have again added up the total number of call signs appearing in the logs. There was a decrease in Victoria and South Australia, which was due partly to the reduced importance of local contacts and partly to poor propagation. On the other hand there was a large increase in activity in most other states, especially Western Australia. There was also increased activity on the higher bands. Overall, contest activity was about 20 per cent higher than last year, and the number of

logs was more than 60 per cent greater.

The logs were very well presented and I thank all entrants for making my job easier. The only problem I could find in the logs were a couple of errors in totalling the scores. Special thanks to those who took the trouble to send in check logs, and to those who put a log in this year for the first time.

This Year's Results:

Now to the results. The highest aggregate score has gone again to Roger Steedman VK3XRS, who has now set an all-time record of six consecutive wins.

Call	Name	6 m	2 m	70 cm	23 cm	13 cm	9 cm	3 cm	TOTAL
VK3XRS	R Steedman	987	2144	2961	3160	143	—	298	9683
VK6KZ	W Howse	352	2528	3353	1430	221	288	704	8872
VK2ZAB	G McDonald	31	3260	3458	—	—	—	—	6749
VK3DEM	R Ashlin	925	1880	2275	1070	143	—	288	6581
VK1BG	I Cowan	170	1948	3017	1380	—	—	—	6515
VK5AKK	P Helbig	220	3844	1841	210	—	—	—	6115
VK1DO	C Davis	492	1888	2394	260	—	—	—	5034
VK3CY	D Clarke	—	2564	2282	—	—	—	—	4846
VK7XR	A Hay	615	2100	1757	300	—	—	—	4808
VK5ZBK	S Ruediger	1000	1280	1316	760	—	—	—	4356
VK3AFW	R Cook	—	1696	2352	40	—	—	—	4088
VK3KWA	J Martin	—	—	—	4060	—	—	—	4060
VK3AUI	G Sones	103	1240	1330	930	—	—	—	3603
VK3ALZ	I Berwick	33	948	1309	1060	—	—	—	3350
VK2FZ	A Pollock	—	—	—	3240	—	—	—	3240
VK3DLM	L Mostert	166	1248	1526	—	—	—	—	2940
VK4KZR	R Preston	31	1308	1491	20	—	—	—	2850
VK2DVZ	R Barlin	—	1040	672	350	—	—	—	2062
VK5NY	R Bowman	—	804	357	360	—	—	320	1841
VK7KAP	A Perkins	11	660	630	200	—	—	—	1501
VK4APG	P Garden	—	1472	—	—	—	—	—	1472
VK3AL	A Elliott	32	312	497	330	—	—	—	1171
VK2GLS	R Lear	1000	—	—	—	—	—	—	1000
VK6HK	D Graham	49	84	161	190	221	272	—	977
VK4DO	W Watkins	762	—	—	—	—	—	—	762
VK6BHT	N Sandford	—	96	—	—	—	—	320	416
VK2BWT	W Thompson	—	224	—	—	—	—	—	224
VK2BBF	G Fletcher	Check log	—	—	—	—	—	—	—
VK3BRZ	C Gnaccarini	Check log	—	—	—	—	—	—	—
VK4PU	J Purdon	Check log	—	—	—	—	—	—	—

Contest Activity Table:

Area	6 m	2 m	70 cm	23 cm	13 cm	9 cm	3 cm	TOT
VK1	6	20	6	6	0	0	0	38
VK2	40	54	13	3	0	0	0	110
VK3	30	52	32	11	2	0	2	129
VK4	46	25	13	2	0	0	0	86
VK5	29	18	16	4	0	0	0	67
VK6	24	27	17	6	2	2	3	81
VK7	12	4	2	3	0	0	0	21
VK8	7	0	0	0	0	0	0	7
VK0	1	0	0	0	0	0	0	1
ZL	44	4	0	0	0	0	0	48
FK	3	2	0	0	0	0	0	5
TOT:	242	206	99	35	4	2	5	593

Notable Contacts:

6 m: VK2GLS — log consisted almost entirely of ZL contacts.

2 m: VK3ZQB — VK6KZ. VK2ZAB wkd five VK call areas plus ZL1TZA, ZL1BIC, FK8GM, FK1UH. VK4APG — ZL4AA, ZL3NE. VK5NY — VK1BG, VK2ZXC, VK6KZ, VK7ZIF.

70cm: VK1DO — VK4OE. VK5NY — VK6KZ. VK5AKK — VK6DM, VK6KZ, VK6WG, VK6YAU.

23cm: VK1DO — VK4OE/2. VK2FZ — VK3TU, VK3KWA. VK5AKK — VK6YAU. VK5NY — VK6KZ.

3 cm: VK6KZ — VK6BHT (new state and national record).
VK6KZ — VK5NY (new world record).

Next Year:

The new rules seem to be working well. There was much less QRM this year on calling frequencies and, hopefully, next year things will be even better.

Under the new rules it is still important to show the flag and make as many contacts as possible. The contest brings a number of casual operators into contact with a new aspect of the hobby, and this can help to provide new recruits to the ranks of DX operators. Don't pass up the opportunity to work new stations even if they are not "best 100" material!

One other thought is that this year, the logs included new national records and a world record, yet the points scored for these were fairly ordinary and do not seem to reflect the amount of effort and skill involved. Here is a thought for next year: a 1000 point scoring bonus for anyone who sets a new distance record during the contest. Any comments?

Ross Hull Contest Winners, 1950 to 1995:

1950-51	VK5QR	R Galle
1951-52	VK5BC	H Lloyd
1952-53	VK4KK	A K Bradford
1953-54	VK6BO	R J Everingham
1954-55	VK4NG	R Greenwood
1955-56	VK3GM	G McCullough
1956-57	VK3ALZ	I F Berwick
1957-58	VK3ALZ	I F Berwick
1958-59	VK3ALZ	I F Berwick
1959-60	VK4ZAX	D R Horgan
1960-61	VK3ARZ	W Roper
1961-62	VK5ZDR	M J McMahon
1962-63	VK4ZAX	D R Horgan
1963-64	VK5ZDR	M J McMahon
1964-65	VK3ZER	R W Wilkinson
1965-66	VK3ZDM	J R Beames
1966-67	VK5HP	J H Lehmann
1967-68	VK3ZER	R W Wilkinson
1968-69	VK5ZKR	C M Hutchesson
1969-70	VK3ZER	R W Wilkinson
1970-71	VK4ZFB	E F Blanch
1971-72	VK5SU	J W K Adams
1972-73	VK5SU	J W K Adams
1973-74	VK5SU	J W K Adams
1974-75	VK5SU	J W K Adams
1975-76	VK5SU	J W K Adams
1976-77	VK4DO	H L Hobler
1977-78	VK3OT	S R Gregory
1978-79	VK4DO	H L Hobler
1979-80	VK3ATN	T R Naughton
1980-81	VK6KZ	W J Howse
1981-82	VK6KZ	W J Howse
1982-83	VK6KZ	W J Howse
1983-84	VK6KZ	W J Howse
1984-85	VK3ZBJ	G L C Jenkins

1985-86	VK3ZBJ	G L C Jenkins
1986-87	VK3ZBJ	G L C Jenkins
1987-88	VK5NC	T D Niven
1988-89	VK5NC	T D Niven
1989-90	VK3XRS	R K W Steedman
1990-91	VK3XRS	R K W Steedman
1991-92	VK3XRS	R K W Steedman
1992-93	VK3XRS	R K W Steedman
1993-94	VK3XRS	R K W Steedman
1994-95	VK3XRS	R K W Steedman

RESULTS OF 1995 VHF-UHF FIELD DAY

Presented by John, VK3KWA

The level of activity this year was higher on six metres due to some very good sporadic E, and rather flat on higher bands with very little in the way of tropo openings. Once again the main activity was in the south-eastern states, with only two portable stations operating in NSW, and one each in Queensland and WA.

An interesting feature of the results is that most six-hour stations did better than most 24-hour ones. The reason seems to be that the six-hour stations were in areas where there were more stations to work.

Several stations worked VK0IX on six metres, and there were a number of interstate contacts on two metres and above. The most notable contact was a

new VK1 record between VK1DO and VK4OE/2 on 1296 MHz.

There were far too many contest exchanges on DX calling frequencies, especially 50.110 MHz, which should never be used for contest operation.

Some entrants felt that the incentive to go portable was reduced by dropping the double scoring for portable stations. In fact, it makes no difference because home and portable stations are in different sections. However, I have no problems with changing it back if that is what entrants want. One valid point is that contacts between two portable stations should score more than a portable to home station contact.

It was also pointed out that the scoring system favours the lower bands in spite of the band multipliers. The reason is that the number of contacts on each band is multiplied by the number of grid squares worked. If an operator has a large score on two metres and then works an extra grid square, this extra square is multiplied by all of the contacts he has made on the band. On higher bands, such as 1296 MHz, there are fewer contacts in the log and an extra grid square does not boost the points score by anywhere near as much.

I agree that this is a problem and it is certainly not the aim of the Field Day to discourage people from using higher bands — quite the opposite. So some change is needed. The best option could be to add the QSO and grid square points rather than multiplying them.

Results:

The winner in the 24-hour section was Rod Collman VK2TWR, and the top 6-hour scorer was Ron Cook VK3AFW. In the multi-operator section, the Geelong Amateur Radio Club wins again. Rob Ashlin VK3DEM, entered as a home station this year and took out first place.

Special congratulations are due to Rob VK2TWR for coming out a clear winner in his first ever Field Day, just as Rob VK3DEM did in 1993. Congratulations also to all other entrants.

Call	Name	Loc	6m	2m	70cm	23cm	TOTAL
SECTION A — PORTABLE, SINGLE OPERATOR, 24 HOURS							
VK2TWR	R Collman	QF43	240	2464	672	—	3376
VK4OE/2	D Friend	QF59	12	864	210	80	1166
VK5XY	C Luke	PF95	—	48	42	10	100
VK2XCI	N McMillan	QF27	—	96	—	—	96
VK6BWI	P Parker	OF77	—	96	—	—	96
SECTION B PORTABLE, SINGLE OPERATOR, 6 HOURS							
VK3AFW	R Cook	QF32	—	1488	1386	—	2874
VK3DLM	L Mostert	QF21	9	864	714	—	1587
VK3ATQ	J Patterson	QF21	435	576	—	—	1011
VK4NEF	E Fittock	QG63	—	432	—	—	432
SECTION C — PORTABLE, MULTI OPERATOR, 24 HOURS							
VK3ATL	GARC (1)	QF22	4386	6440	5964	460	17250
VK5ARC	SCARC (2)	PF94	4142	7436	1988	320	13886
VK1DO	C Davis	QF44	2001	7828	2632	728	13189

SECTION D — HOME STATION, 24 HOURS

VK3DEM	R Ashlin	QF32	204	1656	1904	845	4609
VK3CY	D Clarke	QF13	—	2256	154	—	2410
VK5NY	R Bowman	PF94	459	756	245	—	1460
VK3AUI	G Sones	QF22	66	608	560	160	1394
VK3AL	A Elliott	QF22	54	128	252	220	654
VK7XR	A Hay	QE38	286	128	147	—	561
VK7KAP	A Perkins	QE38	1	144	168	30	343
VK5LP	E Jamieson	PF94	81	160	35	30	306

(1) Geelong Amateur Radio Club

(2) South Coast Amateur Radio Club

Some Comments from Logs:

"The boys had a terrific time ... All call areas of VK worked except VK9 ... Maybe the 35 degree temperature discouraged many ... The number of contacts was disappointing but most of the locals were busy driving tractors ... It was great to work VK0IX ... Would have preferred 12 noon finish here in VK4 ... Six metres yielded 34 grid squares and contacts into all states ..."

Most entrants reported fine weather this year. However, in the interests of balanced reporting, here are some extracts from a letter sent by Alan Raftery, VK5BW, whose absence was noted this year.

"I could see a dust storm coming toward me. Two minutes later the tent was down, the metal poles bent by over 90

degrees. For the next fourteen hours it hailed and rained continuously and the heavy winds never abated. Next morning I awoke to see one of my masts leaning at 30 degrees from vertical. As I approached the mast it toppled over in front of me. Still not worried, I awaited the arrival of John VK5AJQ. Try as he could, John was only able to come within 3 km of the site. The rain had made the track a quagmire. I faced the reality of the situation and left just before the Field Day commenced. Over 50 mm of rain fell and it took me six hours to return to Adelaide exhausted. I hope to try Mt Bryan again for the John Moyle Field Day in March."

What more needs to be said? What a hobby! See you all next year — weather permitting, of course!

*PO Box 2175, Caulfield Junction, VIC 3175
ar

VK2 Notes

Richard Murnane VK2SKY

Pleased to Meet You

I am writing this just a few days after the Central Coast Field Day, which seemed a little quiet this year. The entire Divisional Council was there (unlike last year). Your Councillors would like to thank all of you who stopped to talk, sign the petition, and don your *Proud to Be a Member* badges. After all the turmoil of the last year or so, it was good to see so much positive support for the Division. We have at last turned the corner.

...till the Fat Lady sings

The new amateur licence fees were due to come into effect on 1 March, but appear to have been delayed until at least the end of April. At this stage, it's difficult to say what effect our protests have had. It's been reported that the SMA has produced a new discussion document on the issue, entitled *A New Outlook* (perhaps *Look Out!* might be nearer the mark...). Deadline for further comment is now apparently 21 April, so get a copy of the document from the SMA, and keep writing those letters!

On 3 March I heard an amateur on the Dural 2 m repeater say he had been unaware of the proposed fee increase. I wonder where he has been for the last three months — isn't this hobby of ours supposed to be about communicating? Worse, perhaps, the amateur who informed him of the increase seemed to think there was nothing we could do about it. Such defeatism!

Meanwhile, our submission to the SMA has been publicised on packet, in *Amateur Radio Action*, and as an insert in *Amateur Radio*. So far, the response has been good, though a handful of people criticised the Division for having the initiative to produce a submission at all. Just goes to show you can't please everyone.

Early Radio

We'd like to offer our congratulations to Divisional Councillor Peter Jensen VK2AQJ, who has recently published his excellent book, *In Marconi's Footsteps: Early Radio*. The book features many photographs illustrating Marconi's pioneering work in the development of early radiocommunication systems and includes a number of construction projects that allow the reader to replicate some of Marconi's experimental equipment. *In Marconi's Footsteps* is available from the Divisional Bookshop.

Car Badges

There has been some recent interest shown in car badges, or just nice car type

Divisional Notes

Forward Bias — VK1 Division Notes

Peter Parker VK6BWI/1

VK1 Broadcast Service Improved

To provide a more comprehensive coverage of amateur radio events in the Canberra region, the VK1WI broadcast is now transmitted every week. Tune in each Wednesday at 8 pm on 3.570 MHz LSB, 146.950 MHz FM or 438.525 MHz FM. A more frequent service requires more material from you, the member. Contact the Broadcast Officer, Peter Westerhof VK1NPW, if you have news and information to contribute.

Mt Ginini Back on Air

As foreshadowed in February *Amateur Radio*, this wide-coverage repeater (6950) is back on air and working well. Further repeater developments in the ACT are planned.

There have been some good conditions on VHF recently and stations from Newcastle, Bathurst and Orange have been heard on the 6900 repeater.

Divisional AGM a Success

Our Annual General Meeting was held on Monday, 27 February. The existing committee was re-elected with two new additions. Alex VK1AC now keeps a watchful eye over Divisional finances, while I, who had only been in Canberra for ten days, somehow became the Publicity Officer! We also welcome Jim VK1FF as a new committee member.

Plaques of recognition for outstanding service to the Division were awarded to Christopher VK1DO and Jan VK1BR for their running of the Divisional Examination Service for several years.

Those at the AGM were treated to a demonstration of the AEA Graphical HF Antenna Analyser by Peter Ellis VK1KEP. The instrument displays an LCD graph of SWR versus frequency, and no transmitter is required. The analyser is simply connected to an antenna and an SWR curve is plotted in a few seconds. The unit is handheld and sells for approximately \$800. Covering 1.8-30 MHz, the device would seem indispensable to the inveterate antenna experimenter.

badges to stick on your shack wall. Last seen around 1979 or so in this Division. The latest cost for such a badge, which would stick on rather than screw on, is around \$25.00. If there is sufficient interest, we propose to go into production. We need 500 starters. Please indicate your expression of interest to the VK2 Divisional Office.

Thought for the Month

An optimist may see the light where there is none, but why must the pessimist always stick to blow it out? *Michel de Saint-Pierre, quoted in "You Can't Afford the Luxury of a Negative Thought".*

VK6 Notes

John R Morgan VK6NT

Thanks

Last year, when Peter VK6BWI volunteered to re-start the "VK6 Notes" column, the Division was grateful. After a few months of reading his output, we were impressed! Peter's career now takes him to VK1, and so VK6 has lost one of its true experimenters. Thanks, Peter, and enjoy the snow!

Annual General Meeting

The VK6 Division's AGM will be held on 18 April 1995 at the Westrail Centre, East Perth, following the General Meeting which starts at 8 pm. For more detail, please refer to Peter's "VK6 Notes" in the February 1995 issue of *Amateur Radio*. As usual, the bookshop and QSL bureau will open at 7 pm.

February General Meeting

At the February GM, Bruce VK6OO presented a talk which was enigmatically-entitled "Those Surfing Electrons". The speaker described the various internal sub-systems of a modern medical x-ray machine and, in particular, the linear accelerator. And yes, these "linacs" do contain bunches of electrons "surfing" the wave-fronts of microwave beams!

Demonstration of InterNet

At the March meeting of the Western Australian Amateur Digital Communications Association Inc (known as WAADCA, pronounced wad-kah), Jeff Johnson of "Dialix" gave a live demonstration of some of the capabilities of the InterNet. The meeting was well-attended, and Jeff answered many questions. The doors of the Wireless Hill meeting room were locked-up shortly before midnight, which says quite a lot.

Club Station VK6QC

The club station at the Para-Quad Centre in Shenton Park, callsign VK6QC, has been operating for about 18 months, and is affiliated to the VK6 Division. About six residents meet in the "radio shack" every Sunday morning to listen to the VK6WIA news broadcast. None of the residents is yet licensed, so local operators supervise these sessions. Volunteers include VK6s AUZ, BC, RR, SC, THB, VP, and ZW.

The station operates an "early synthesised" rig for working on VHF FM, usually via the local repeaters, and an FM-828 for VHF packet. The latter mode is a most popular activity, with an average of 12 to 14 messages sent (and a similar number received) each week. Although the club's VHF antennae are not the best, VK6QC did manage to raise a creditable 64 points in the VHF/Phone section of last year's RD contest.

The club's immediate goals are to acquire an HF transceiver and to recruit more volunteer supervisors, especially those who are available on weekdays, either daytime or evenings. In the longer term, several of the residents have expressed interest in obtaining their licences, but the practicalities of arranging a course of study have yet to be overcome.

Morse Practice Beacon

The Morse practice beacon has recommenced transmissions and is using its new permanent callsign of VK6RCW on 147.375 MHz. The system now has a 25 W transmitter, and will be located at the QTH of Joe VK6ZTN in Mt Pleasant, or Phil VK6SO in Kewdale, until it finds a permanent home. It is hoped that a 3.5 MHz output for this WIA-funded project will commence operation later this year.

Reminder

Just a reminder that all contributions to this column must arrive on or before the first day of the month preceding publication. Items from country members and clubs will be especially welcomed. All mail to PO Box 169, Kalamunda WA 6076.

"QRM" — News from the Tasmanian Division

Robin L Harwood VK7RH

The Divisional Annual General Meeting was held on 25 March, but as I am writing this on 27 February, it is beyond my capabilities to know in advance what transpired. However, all will be revealed in the May issue of *Amateur Radio*.

The various Branch AGMs were held in February and I can now report the following officers were elected. Please note that I have only included the principal office-holders due to space limitations.

We commence with the Southern Branch, which met on 1 February. Andrew Dixon VK7GL, was re-elected as President with Matthew Richardson VK7JUF as Secretary.

The Northern Branch met on 8 February and Joe Gelston VK7JL was re-elected unopposed. Bob Richards VK7NRR was elected as Secretary/Treasurer.

The final AGM was the Northwestern Branch on 14 February which saw the re-election of David Spicer VK7ZDJ as President. Ron Churcher VK7RN is the new Secretary.

Don't forget that the Divisional Broadcast is now on at 2300 UTC Saturdays (0900 EAST Sundays) since we returned to Standard Time on 26 March. Interesting to have more interstate reports since some Divisional broadcasts are now monthly. The main frequencies are 3570, 7090 and 14130 kHz plus relays on your local VK7 Repeaters. There is also a Tuesday repeat at 0930z prior to the Tasmanian Devil Net on 3590 kHz. The Wednesday Northern broadcast of VK7NB at 0930z may be only on the VK7RAA 2 m repeater now due to difficulties in relaying to 3590 kHz.

At the end of this month, the prestigious "Targa 95" International motor rally will be held on Tasmanian roads. Once again, WICEN Tasmania will be assisting with communications back-up to the Targa comms. If you do hear WICEN traffic on 2 m, we would strongly recommend that you keep clear of the channels, as past experience has shown WICEN has been used to fill in the gaps in Targa comms.

In conclusion, I have to report that there are two silent keys from VK7. A Morrisby, who held the call of VK7MY until a few years ago, passed away. I believe he worked for many years at Watson's Wireless. Keith Miller, who was VK7SU, passed away in February. He mainly operated on 20 m to GM and ZL.

Don't forget to drive safely over the Easter break!

Sign up a new WIA member today. We need the numbers to protect our frequencies and privileges.

ar

How's DX

Stephen Pall VK2PS*

When you read these lines we will have already passed the autumnal Equinox on 21 March. For those who have forgotten it, there are two days in the year when the Sun is directly above the Earth's Equator. At these times the days and nights are of nearly equal length everywhere on Earth. The term equinox comes from a Latin phrase, meaning equal night.

One can notice that, with the movement of the Sun from our southern region towards the north, propagation is changing. Solar Cycle 22 is still declining. However, propagation has improved considerably during the past few weeks and, generally, should be satisfactory in April.

Solar flux was in the high 80s on many occasions and there were days when it was even in the high 90s. The boost in the flux number has increased the maximum useable frequency limits (MUF).

Propagation on 20 metres has improved. Europe on the long path came in strongly for hours on many days around 0630 UTC, and changed towards the short path at around 1200 UTC on 20 and 15 metres. There were even short openings on 10 metres when Italy could be worked at around 1100 UTC. Early morning activities at around 1800 UTC on 40, 80 and 160 metres are also improving. Good openings to Europe and Africa around our sunrise are not uncommon.

All in all, propagation is improving, relatively speaking, so make the most of it in the next six months.

Conway Reef — (Ceva I Ra) — 3D2

Conway Reef lies south west of Viti Levu, the main island of the Fiji group, at a distance of about 300 nautical miles and at 21° 44' South, 174° 35' East. The mean tide level is three feet. The actual island of the Reef is only about 200 metres long and 50 metres wide during high tide, whilst the treacherous reef which surrounds it is about 1 by 3 km in size.

The journey from Fiji to Conway Reef takes about two to three days, depending on the weather, which is unpredictable.

The weather can change rapidly and so do the currents around the reef. When approaching the reef the waves are usually far too high for landing and it requires an experienced skipper to find one of the very few openings which lead to the calm waters in the inner lagoon of the reef. Landing is possible only at high tide and in daylight.

Vegetation is very sparse, but the island is infested with hermit crabs and lots of boobies which carry ticks. These ticks were the biggest menace to previous DX operators and there is no doubt that the present expedition will also suffer from the ticks. Sudden change of wind and rainstorms are also frequent and one hopes that the tents housing the equipment will withstand the force of the wind. The first activity on Conway is dated April 1989 by 3D2CR. The next move was by Baldur 3D2SI (DJ6SI), Henry 3D2HL (DJ6JC), Vince 3D2VT (K5VT) and Karl 3D2WV (DK2WV) during July 1989.

No sooner did the ARRL DXCC accept Conway Reef as a new DX country in December 1989 than plans were made by a big international group to put a dent into the "most wanted" country status of Conway Reef. Seven operators, Masa JG2BRI, Wayne N7NG, Pekka OH1RY, Martii OH2BH, Mats SM7PKK, Steve VE7CT and Dale VE7SV, under the sponsorship of the "Yasme Foundation" and using the callsign 3D2AM, landed on the reef in May 1990. The group used five stations in two camps about 200 metres apart and made about 45,000 QSOs.

By the time you read this, the present expedition will have been active since 24 March and, according to the plan, will finish on 3 April (see "Stop Press", *Amateur Radio*, March 1995). The expeditioners are using three stations with beams for higher bands and verticals for the lower bands. Due to the sunspot cycle situation they will try to give a good coverage on lower bands. Two stations will be active 24 hours a day and a third station will operate on RTTY. The four

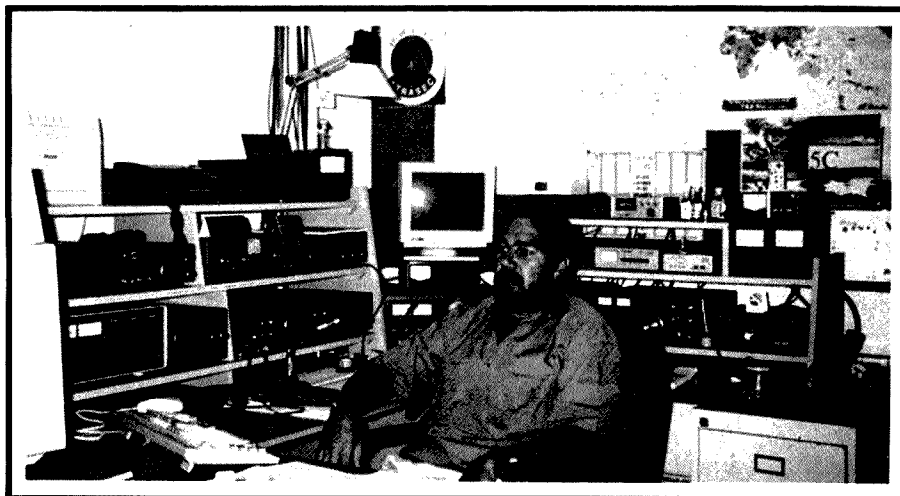
operators, SM7PKK, OH1RY, NI6T and SM6CAS, will have a very busy two weeks of operating, not to mention other possible difficulties which Mother Nature may create.

Operational frequencies were given in the March issue of my column. They will always listen up and will try to use minimum bandwidth in the pile up. There are two QSL routes: SSB, Phillip Marsh G4WFZ, 28 Orcheston Road, Bournemouth, BH8 85R, Dorset, United Kingdom; and CW/RTTY, Mats Persson SM7PKK, Zenithgatan 24#5, S-212 14, Malmö, Sweden (this is a new and correct address for Mats).

International Marconi Day — VK2IMD

In 1988 the Cornish Radio Amateur Club started a commemorative activity to celebrate Marconi's birthday which falls on 25 April. This event is always celebrated on the nearest Saturday to the actual birthday. In 1988 there were only six participant stations. This year there will be approximately forty stations participating.

One of these stations will be VK2IMD, operated by the Wahroonga Amateur Historical Radio Association (WAHRA), PO Box 600, Wahroonga, NSW 2076. Send your QSL cards to this address with a stamped, self addressed reply envelope. The activity is for a continuous 24 hour period, starting at 0001 UTC on 22 April on all bands, SSB, CW, FM and packet. There is also an attractive award issued by the Cornish Radio Amateur Club if you work a specified number of participating Marconi stations. In 1994, 250 such awards were issued. This year Marconi Day has its special significance as it celebrates the centenary of the first wireless message generated by Marconi from Villa Griffone in Italy in the year 1895. After offering his invention to the Italian



Eric FK8GM in his well equipped "shack".

Government, which showed no interest in the work of the young inventor, Marconi, being a bi-lingual engineer, went to the United Kingdom to further his own career. The rest of his life is now part of the history of wireless communications.

Pratas Island — a New DX Country?

A news release dated 2 February 1995, issued by the DXAC, said *The ARRL DX Advisory Committee (DXAC) voted 8 to 7 to reject a petition to add Pratas Island to the DXCC countries list based on point 2(a) of the rules, ie separation by water.*

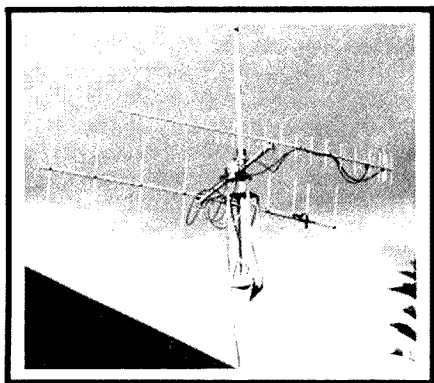
Some of those voting against cited concerns over the possibility of intervening rocks. Others cited what they perceived as disputed ownership of the island.

"Rocks" both above and below the high tide seem to cause problems in recognition of Pratas Island (Republic of China, Taiwan) and Scarborough Reef (Peoples Republic of China) as a new DXCC country.

Bhutan — A5

A Japanese group, led by "Zorro" JH1AJT, made a sudden, unexpected appearance as a "demonstration station" from Thimphu, Bhutan from 1 February until the evening of 4 February. They were active on many bands and were quite good copy in Australia.

Amateur radio legislation still does not exist in Bhutan, and the activity was initiated via a high ranking educational official from the Ministry of Communications. The JA operators obtained the necessary documentation from the Bhutanese authorities and this already has been sent to the DXCC. A total of 8200 contacts were made in CW, SSB and FM modes. Directional breakup of the QSOs is as follows: USA (970), Europe (950), Japan (5940) and other areas (this includes the rest of the world) 340. QSLs go to Yasuo Miyazawa JH1AJT, PO Box 8, Asahi-Ku, Yokohama, 241 Japan.



The satellite antenna system of Eric FK8GM.

Antarctica

Here is an additional list to the one published in the February issue of *Amateur Radio* about amateur stations which were, or are, active in Antarctica.

- VE3OOG/P is reported to be active from Patriot Hills Base. QSL to K4MZU.
- AT3D operates from India's Maitree Station which is located on Princess Astrid coast. QSL via VU2DVC.
- KC4/KK6KO and KC4/KA6JNF are operating from Palmer station on Anvers island. QSL to home calls.
- CE9MFK is operating from Chile's Yelcho Base on Wiencke Island, one of the islands in the Palmer Archipelago.
- LW8EYZ/Z Claudio is operating from Livingstone Island. QSL via LU4EDL.
- HC1JXC/P is operating from Patriot Hills Base (80° S, 80° W). QSL via K4MZU.
- KA7DHE/KC4 is operating from a new base, Central West Antarctic Station (82° 5' S, 118° W).
- ZX0ECF is operating from the Brazilian Base on King George Island. QSL to PY2ASK.
- KC4USB Byron is active from the Byrd Surface Camp (80° 1' S, 119° 32' W). QSL via K4MZU.
- KC4AAG is operating from a new base at Terra Nova Bay.
- DP1KGI is active from Ardley Island. QSL via DD6UAB.
- LZ0A is operating from Livingstone Island. QSL to LZ1R.
- ED0BAE is on Livingstone Island. QSL to K4MZU.
- 8J1RL is active from the Japanese Base in Antarctica. QSL via the Japanese QSL Bureau.

South Georgia — VP8

The VP8SGP activity (*Amateur Radio*, Feb 1995) was cut short by four days. Because of scheduling difficulties, the ship "Abel-J" had to return to the Falkland Islands earlier than planned. The expedition made 18,000 contacts of which 10,000 were on 30, 40 and 80 metres, and 300 on 160 metres. Due to poor propagation and the mountain range around the whaling station, the 17, 15, 12 and 10 metre bands yielded less than 2,000 QSOs. Most of the contacts were made on the South to North axis giving the VK/ZLs a diminished opportunity to work them.

Future DX Activity

- There will be a combined amateur-scientific expedition to Easter Island and Salas y Gomez island between 26 August and 14 Sept. The intended call signs are XR0Y for Easter Island and XR0Z for Salas y Gomez.

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- A DXpedition is being planned to take place in late April or early May with five operators to Navassa Island. It will be a one week operation with emphasis on the lower bands.
- Special event station 3A2RAR will be active from Monaco during the International Rotary Conference, which will be held in nearby Nice, France, from 10 to 15 June. QSL to 3A2LZ.
- Lou ST2AA is active from Khartoum on the 40, 20 and 17 metre bands. QSL to WB2RAJ.
- Spratty Islands. Bobby DU6BG, President of the Philippine Amateur Radio Association, will be leading an all Philippine team of radio amateurs to activate DU0K on all bands and modes from 10 to 16 April. QSL to DU9RG.
- ET3BT is active from Ethiopia. QSL to Box 6128, Addis Ababa, Ethiopia, Africa.
- Marcel ON4QM will be active for two months from Comoros Islands, D6, as from 20 February.
- ZD8WD will be active from Ascension Island until September. His home call is G4RWD.
- Look for 3W6JP from Vietnam. He is active on 7037, 7078, 14010, 14230, 21010 and 21430 kHz. Home call is JR1TAG.
- Good News. Henri FR5ZQ/G advised me that he intends to return to Glorioso Island for a second expedition during April. Henri is connected with the Meteorological station on Glorioso, and he is a fast QSLer.

Interesting QSOs and QSL Information

E = East, W = West, M = The rest of Australia

- HS0ZBJ — Dale — 14332 — SSB — 1235 — Jan (E). QSL to W8GIO Paul R Vest, Rt 1, Box 140-42, Bunker Hill, WV 25413, USA.
- VQ9TP — Pete — 7010 — CW — 1248 — Jan (E). QSL to N5TP Travis W Pederson, 6 Squirrel Ridge, Wylie, TX 75098, USA.
- S21HQ — Saif — 14320 — SSB — 1242 — Feb (E). QSL to Bangladesh Amateur Radio League, GPO Box 3512, Dakha, Bangladesh.
- EX7MM — Vit — 14036 — CW — 1159 — Feb (E). QSL to DF8WS Wilhelm Schommer, Merscheiderweg 37, D-54662, Speicher, Germany.
- ZL7ZB — Lothar — 14195 — SSB — 0431 — Feb (E). Prefers that cards to be sent via the QSL Bureaus to DJ4ZB.
- FY5GJ — Bruno — 14164 — SSB — 0510 — Feb (E). QSL to F2YT Paul Herbet, 9 Rue de L'Alouette, Estre Cauchy, F-62690, Aubigny en Artois, France.

- OD5JY — Faiz — 14240 — SSB — 0705 — Feb (E). QSL to OE6EEG Dr Selim El-Rifai, PO Box 31, Graz, A-8011, Austria.
- A71BH — Mohamed — 14243 — SSB — 0754 — Feb (E). QSL to OE6EEG as above.
- TA3BU — Bulent — 14243 — SSB — 0602 — Feb (E). QSL via the Bureau.
- SU1SK — Said — 14222 — SSB — 0653 — Feb (E). QSL to Said Kamel Ahmed, PO Box 62, Shobra Al Khima, Cairo, Egypt.
- OH1NOA/OD5 — Tim — 14202 — SSB — 0447 — Feb (E). QSL to OH1MRR, Jarmo Kettunen, Tuomarink 31, SF-28120, Pori, Finland.
- ZP5MAL — Juan — 14195 — SSB — 0345 — Feb (E). QSL to Juan F Duarte Burro, PO Box 34, Asuncion, Paraguay or via the QSL Bureau.

From Here There and Everywhere

- Three German DXers, Joerg DL8WPX, Rudi DJ5CQ and Dietmar DL3DXX were active from Christmas island and Cocos Island during February as VK9XY and VK9CR. On their way back to Germany they were also active from Lord Howe Island as VK9LM. QSLs to DJ5CQ, Rudi Mueller, Alter Main 23, D-96179, Ebing/Bamberg, Germany.
- Some Andorran amateurs used the prefix C37 during the month of March, celebrating the 15th anniversary of the URA, the Andorran Amateur Radio Society.
- Fava Paulo IK2QPR (PO Box 7, 46100 Mantova, Italy) is the QSL manager for YL1XZ, EU6MM, EW6WW, UN2O, UL7OB, RL0O, UL0OB and for the following old calls, UQ1GXZ, UC2WO, UC1WWO, IQ2YKV and IZ2YKV.
- Swedish novices now use the SH prefix. The novice licences in Sweden are issued for HF and VHF/UHF activity with the authority to use a maximum power of 100 Watts.
- If you worked Scotty A92Q in Bahrain, he is none other than the Admiral of the US Fleet in the Persian Gulf/Arabian Gulf area.
- The Gaza story continues. The Radio Communications Agency, which is the authority in the UK for the issue of amateur call signs, has informed the RSGB that it had not authorised the use of the ZC6 prefix which falls within the ITU prefix block allocated to the United Kingdom.
- IR0C is the new contest call sign of IK0AZG.
- The UK is to close down its Faraday Base Ionospheric and Geomagnetic monitoring station in Graham Land, Antarctica. Negotiations are in

progress for the hand-over of the station to the new Ukrainian Antarctic Research Centre (UARC).

- According to a Hawaiian newspaper, the Republican Party in the US Congress is advocating the extension of the jurisdiction of the State of Hawaii over Baker and Howland, Jarvis Islands, Palmyra Atoll, Kingmann Reef, Johnston Atoll and Midway Islands. The whole package contains only seven square miles of actual sand, but it would give the State of Hawaii 322,000 more nautical square miles of area. Except Palmyra, which was purchased recently by a private owner, all other areas are under the Federal jurisdiction of the US.
- Sanyi XU7VK (op HA7VK) has a new licence which also allows him to sign the special event sign XU95HA for this year. He can use this new call for contests and special events such as Cambodian and Hungarian celebrations. QSL to HA0HW.
- Tony WA4JQS reports that planning the future Heard Island DXpedition is progressing nicely. Eddie VK4EET/V10ANT joined the team recently.
- According to some reports, the Tunisian authorities have agreed to allow Omani members of the Royal Omani Amateur Radio Society (ROARS) to operate from Tunisia. This activity might take place during the middle of the year.
- DXers will remember Martin OY7ML. Often he was the only contact from the Faroes Island for many amateurs' DXCC applications. Martin Haasen died after many months of illness on 18 January. He was 67 years old.
- SM0BFJ, QSL manager for Gus 9X/SM5DIC, has reported that the licence of Gus was accepted for DXCC credit.
- Late reports indicate that Bernhard H44MS will try to activate Belep Island/Huon Islands from New Caledonia, FK8.

QSLs Received

VR6FLY (1y op) — FR5ZQ/G (3w op) — 3B8FQ (4w op) — 9J2BO (4w W6ORD) — 4F3AAL (2w AA7AN) — JY8VJ (4m DL1VJ).

Thankyou

Many thanks to all of you who kept me informed, but especially to VK1FF, VK2KAA, VK2KCP, VK2KFU, VK4CY, VK4MZ, VK4XW, VK9NS and FK8GM, and the publications *QRZ DX*, *The DX Bulletin* and the *DX News Sheet*.

73 and Good DX

*PO Box 93, Dural NSW 2158

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Club Corner

Radio Amateurs Old Timers Club

Broadcasts

Broadcasts from April to September will revert to EAST EXCEPT that the two morning transmissions on 14.150 MHz will remain on the same UTC times all year, that is 0000 and 0100 hours.

50 Years Ago

We are asking the Federal Council of the WIA, through the VK3 Division Council, to consider marking the 50th anniversary of the return of amateur operating rights in November 1945 after the World War II war time ban. A special prefix perhaps?

We currently hold proof of several QSOs in VK3 in December 1945 and would very much like to hear of similar early QSOs in other states.

Allan Doble VK3AMD

Did You Know This Man?

Wanted! All past Scouts from Woodford (QLD), especially those who knew Alf "Fox" Chappel.

Woodford, about 70 km north west of Brisbane, is a small Stanley River valley town surrounded by timber stands, and the fruit and dairy farms of the district's predominant industries.

Alf Chappel arrived in this area from England as a six year old in 1912 with his parents and twin brother Harry. His death in July 1994 lost this community a much valued and respected citizen. His friends are well aware of his many contributions

during 82 years of local involvement. High on this list was starting 1st Woodford Scouts forty years ago and subsequently continuing as Scout Master for 13 years.

Many men who hiked, camped and were taught scouting skills by "Fox" Chappel during those years, will want to mark Sunday, 7 May 1995 in their diaries. On this day, beginning at 10.30 am, Woodford Scout Group will be commemorating the commencement of Scouting.

Information about this event is available from Group Leader Jim Johnson (074 965 130).

Alf Chappel's son, Fred VK4DY, has obtained the callsign VI4FOX from 29 April to 14 May. Several operators will use it on most bands, and a station will be set up at the Woodford Scout Hut on 7 May.

An award will be given to all who work VI4FOX and send an SAE to PO Box 17, Woodford QLD 4514.

Fred Chappel VK4DY

Sunraysia Radio Group Inc

The Sunraysia Radio Group Inc, in conjunction with the Riverland Radio Group, are conducting a joint, two states radio/craft exhibition in Mildura on 20 May 1995.

They would like to extend an invitation to attend and/or participate to all interested persons.

The venue will be the Chaffey Secondary College Assembly Hall in Deakin Avenue, Mildura, between 13th and 14th Streets, and the event will run from 1030 to 1600 hours.

For further information, please contact Debra Mahy at PO Box 76, Mildura, VIC 3502

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Stolen Equipment

The following equipment has been reported stolen. If you have any information that may lead to the recovery of the equipment, please get in touch with the advised contact as soon as practicable.

Make:	ICOM
Model:	IC2G XAT
Serial Number:	001990
Type:	Handheld transceiver
Accessories:	Carry case and speaker mic
Stolen from:	Home QTH
Date:	15 February 1995
Owner:	James Jessiman
Callsign:	VK2MLV
Contact details:	60 Coleman Street, Wagga (069) 251 060 (AH) (069) 217 475 (BH)

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Education Notes

Brenda M Edmonds VK3KT* Federal Education Coordinator.

Some time ago, I promised that I would write about the Morse code examinations. I have been asked about the actual speeds of the characters at each level, and the style of code sent. Many computer programs have been devised to convert text into Morse code for practice, and some candidates seek to be able to set their programs to equate to the examination standards.

As the examinations stand at present, both levels are sent with the characters at a speed slightly above the nominal rate and the spaces lengthened to compensate, ie, for 10 wpm receiving, the individual letters are sent at a speed of 12 wpm, but the message contains only the equivalent of 50 words of 5 letters each. (Of course you know that each number counts as two letters). For the 5 wpm, the characters are sent at 7 wpm, with a total of 25 words or 125 characters.

The tone used is approximately 800 Hz, which is a higher pitch than the old DoTC used, but which has proved to be more acceptable to candidates and examiners.

Different letters require different times to send, eg J and Y are very long, B, M and G are medium length and E, I and T are very short. Therefore, a representative text must contain a fair distribution of all letters. In the past this was done by writing the text, then modifying it by using words with longer or shorter letters, more or less on a trial and error basis.

In approving texts for use for receiving examinations, the DoTC accepted a time

discrepancy of a couple of seconds either way, and approved some AOCF texts which did not contain a sample of every letter of the alphabet. Naturally, it is harder to get all the letters into a 5 wpm test than into a 10 wpm test, but the aim is to have all if possible, but without an unnatural emphasis on letters such as Q and Z.

To return to the computer programs, I have very little direct experience with any of them. I know from hearsay that they vary considerably. But I would caution against being too strict in adhering to the standard set for the examinations. To my mind, candidates are better prepared if they learn to receive a variety of styles and under a range of conditions. Those who have listened and learnt from on-air contacts, or have used the various CW training broadcasts and tapes, will be less likely to be upset if the examination does not sound exactly as expected.

The best way to learn Morse code is to learn the letters, then listen to as much as possible. Read it good or bad, through atmospherics, through fades, at high or low pitch, in plain language or QSOs, at any speed up to just above the examination speed. If it is too fast, just copy occasional letters. Learn to let a missed letter go, but most importantly, listen, listen and listen some more. A few minutes every day is better than an hour once a week. The sending examination is a breeze if you are confident of the receiving. Good luck!

*PO Box 445, Blackburn VIC 3130
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for their operations — until the new "whiz bang data mode" is invented and requires more band space.

Now for some suggestions:

1. Proposed band plan changes be gazetted in the journal (and other publications) before agreement has been reached.
2. Proposals be put on the WIA broadcast to inform all operators (WIA members or not) that a decision is about to be made which will change operating conditions for ALL amateurs.
3. To give ALL amateurs some input to the "agreement" a referendum sheet could be produced with Band Plan proposals on it. Interested amateurs could then mark their opinion on the sheet. They might even add suggestions if they are concerned enough.
4. What about 12.5 kHz channel spacing in the data segment? If practical in operation this may mean the packet allocation would not have to be expanded.
5. Could the 144.600 to 144.700 MHz segment be utilised for packet instead of 145.000 to 145.200 MHz?

John Smedley VK5AJS
54 Fulham Park Drive
Lockleys SA 5031

(There has been a need for extra packet channels in most states for some time. Proposals from the SA Technical Advisory Committee and from FTAC were circulated to all Divisions last November and were announced in Amateur Radio. No objections were received so it was assumed that affected groups in each state had been consulted and had agreed with the proposal.

There should have been more time for consultation but a decision had to be made quickly so that the extra channels could be included in our Novice licence condition submission to the SMA.

I regret the clashes, especially as the idea of band plans is to avoid clashes rather than to cause them. However, there is already packet activity above 145 MHz in several states and more than three extra channels are needed, so there is no alternative to going above 145 MHz.

The three channels below 144.700 MHz were avoided because the 144.6/145.2 segments are the only possible option for future linear translators.

There are no plans for any more major changes and the band plan now precludes any further expansion of the two metre data segment beyond the 144.7 — 145.2 MHz limits.

John Martin VK3KWA
(Chairman, Federal Technical Advisory Committee)

Over to You — Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Packet Radio Band Plans?

There was an announcement on page 35 of *Amateur Radio*, February 1995 issue, headed *Packet Radio Band Plans*. The article states *Agreement has been reached on the proposed changes to the packet radio band plan for two metres and 70 cm*. The supposed agreement is about removing nine voice or general use channels and giving them to the **EXCLUSIVE** use of data packet radio.

The band segment concerned is from 145.000 to 145.200 MHz. Currently several operators regularly use this segment with

FM phone and CW. They will be excluded from continuing operations in this segment of two metres because of the overbearing nature of packet radio audio.

To say these operators have agreed to losing operating channels would be incorrect because they probably have not been made aware the changes will occur. When they are informed (being too late to object) they will probably realise that Band Plan Officials (whoever they are) made an "agreement". This would comply with constitutional provisions of the WIA (or does it?).

So, being "good hams", they will probably QSY to what is left of the band

SMA Actions

I found the February issue of *Amateur Radio* most interesting, especially the items regarding proposed fee increases. I obtained an extra copy and delivered it to the office of a local Parliamentarian, Senator R Alston, Shadow Minister for Communications and Arts. I highlighted the various articles about the proposed increases and amateur feeling about it. Hopefully, he might find time to read them!

I was also rather puzzled by the *WIA* News item on page 56 regarding the 80 Metre DX window and the SMA's consideration of withdrawing the window due to the conduct of a small group of amateurs. Surely a letter of warning to these persons, and further action should they persist in their alleged misconduct, would be more appropriate than to punish others who are "doing the right thing"?

Lindsay I LaPouple VK3DXH
2/172 Moray Street
South Melbourne, VIC 3205

Morse Exams

Regarding the letter from Quintin Foster L30720 about using his own key and having time to do a little practice before the Morse exam. This is not peculiar to the present exam system. When I sat for my Novice and Full call Morse exams in the early 80s I found the RIs and others in charge of the exams most friendly and helpful.

Ample time was given before the sending exam to have a practice. In fact, I was given a paper with practice messages, typical of what one could expect to send in the test, and was advised I could have used my own key.

Before the receiving tests, again there was every consideration given to set one at ease. Volume and pitch of the transmission was played to see it suited all, and a practice message was played and written in the rear of the book provided. After a short pause the actual test message was played.

Throughout the exams I felt the examiners had a very friendly attitude of "we are there to help you pass". Not, of course, by giving away anything relating to the actual exams, but by their willingness to help and answer any queries.

Lindsay I LaPouple VK3DXH
2/172 Moray Street
South Melbourne, VIC 3205
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**Tell the advertiser you
saw it in the WIA
Amateur Radio Magazine.**

Spotlight on SWLing

Robin L Harwood VK7RH*

A quarter of the year has already gone and it is Easter, the high point of the Christian calendar. Whereas here in the southern hemisphere it means that the winter chills are not far away, in the northern hemisphere spring has arrived. Propagation also is changing over from summer to winter here and I am already noticing the higher frequencies are not propagating in the evening hours. Signals are more noticeable in the daylight hours and broadcasts to the Americas in their evening hours, as well as the early morning European releases, come in without any problems.

The regionalisation of the BBC World Service is also expected to commence in April and may have already commenced when Europe went onto Daylight Time on 26 March. Modifications to the format may have been made following listener concerns. Listen in to "Waveguide" at 1030 UTC Saturdays on 9740 or 12095 kHz for more details.

Radio Canada International in Montreal celebrated its 50th anniversary on 25 February, yet its continued existence is still up in the air as the CBC, its parent organisation, has to trim another 7,000 from the staff, including RCI. As I have mentioned previously, the RCI senders in Sackville, NB are utilised more by other international broadcasters than RCI, eg BBC, DW, Austria Radio International, Radio Japan and Radio Korea, etc. RCI also uses sites in Japan, Korea and Austria. Sites in China are in use but the Chinese don't have reciprocal facilities at Sackville.

In mid-February, signals from Asia were observed on lower frequencies at 0200 to 0300 UTC. I was copying several CW marker signals from Indonesian stations in the 8 MHz maritime allocation. 9VG in Singapore was also monitored on both SITOR and CW. Also, there were many SSB networks observed between 7 and 10 MHz. Signals were about S 2-3 and were copiable due to a low-level noise threshold and the absence of any European signals. RRI Ujung Padang on the unusual split frequency of 9552.5 was at S 7 and the modulation was good. I noticed "Channel Africa" was also there but just at the threshold on 9580 kHz. The signal would suddenly jump up to S 6 for about five seconds before slipping back to the threshold. This was at 0330z. Incidentally, Johannesburg was in English. European signals re-appeared at 0400z and this Asian-African path closed.

One of America's experienced DX

Clubs suddenly ceased operating in February. "SPEEDX" published a monthly bulletin both in print and electronically on the Internet. No reasons were given other than financial. I know a replacement e-mail utility facility is running on rec.radio.shortwave, but I think the bulletin is separate from that echo.

Another DX club is now operational in Australasia, known as "The South Pacific Union of DXers" or SPUD. It is not affiliated to any existing club or organisation and is made up of experienced DXers who are rather disillusioned with the scene. I don't, unfortunately, have their PO Box No but I am sure you can get in contact with them through either Paul Newton or Dave Onley at the Radio-Active BBS in Melbourne or the Shortwave Possums BBS in Sydney.

I am experiencing a little difficulty with my e-mail facility. My Internet provider has switched to UNIX from Waffle and I am having some difficulty in downloading stuff over the phone lines. As well, my Fidonet node has somehow lost the rec.radio.shortwave echo. It looks as if the Internet/Fidonet gateway has problems and it may have been fixed up by the time you read this. I like the latter because it allows me to send/receive mail offline which my Internet provider doesn't have, yet it does store it at the BBS for perusal later. If only I could sort out these minor hassles, I would be much happier. Don't forget there is always the snail mail route!

Well, that is all for April. Until next time, the very best for Easter and good listening!

*52 Connaught Crescent, West Launceston TAS 7250
VK7RH@VK7BBS.LIN.TAS.AUS.OZ
Internet: robroy@clarie.apana.org.au
Fidonet: Robin.Harwood 3:670/301@fidonet.org
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QSP News

1994 Annual Reports

The usual practice of publishing *WIA* Annual Reports in this issue of *Amateur Radio* will not be adopted this year. Instead, all reports will be published after adoption at the Annual General Meeting on 29th/30th April and, therefore, should appear in the June edition of *Amateur Radio*.

An Old Timer Reflects....

Des Greenham VK3CO (SK) continues to look back over 50 years of amateur radio operation.

When it came to antennas it was hard to beat the "End Fed Zepp" - this was the thinking when we resumed operation after the war (WW2). We worked lots of DX and could contact stations all over Melbourne. Then, one day in 1946, I was called by Alf VK3VJ who lived near Mentone on the southern side of Melbourne. His signal was very strong and he told me he was using a new antenna, a "Yagi Beam"! I had not heard of this before and, from the strength of his signal, judged it must be a good antenna.

After our contact I decided to visit Alf and see what this antenna looked like. After a short trip on the old Triumph motorbike, I arrived at Alf's QTH. Here was this weird antenna perched on top of a length of water pipe. It could be rotated with a wrench and a strong arm.

We did some tests and, after contacting a station in USA, it was obvious the gain was really there. This thing really worked! Alf's beam was made with steel split electrical conduit. This was mounted on a wooden boom and mounted atop a length of water pipe...and it worked!

Returning home, I was determined to have a beam. So, after consultation with my father, a construction expert, we decided to erect a mast. It would be 40 ft (12 m) high and made of wood. We

purchased a large quantity of ex army tent poles for 30 shillings per dozen. They were about 2 metres long, 50 mm diameter and made of top quality dressed hardwood. These were drilled and pins fitted so they could be fitted end to end. The mast was 12 inches (30 cm) square and guyed at 3 points.

A permit was obtained from the local Council to construct this structure, the cost being one shilling per foot above 25 ft. The "once only" fee was 15 shillings and this was willingly paid. The 3 element beam was constructed using aluminium tubing. This was "obtained" from a secret source and mounted on a wooden pine boom. The beam was checked and tuned on the ground and finally hauled to the top and mounted on a rotatable pipe. The whole thing being rotated by a series of cables down to a wheel in the shack.

From this beam, one of the earliest in Melbourne after the war, many countries were worked. In 1953 I moved to the country and the tower was finally demolished in 1955. Only recently some of the original tent poles were located. Still in good condition, they are being used to stake tomatoes in my mother's garden. Humiliation!

ps — Mum will be 96 this year.

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from the 68 to 88 MHz band down to six metres, is a considerable move and several capacitors need increasing in value. One point to make is that there are several ways to convert these radios down to six metres. I have had feedback from several amateurs and have pooled the ideas that follow.

Receiver

The receiver conversion is straight forward. Add 8.2 pF to each of the four front end tuned circuits to ground. These tuned circuits are found in the two large tin boxes, two coils in each. You will have to remove the top cover off each box by de-soldering the lids. Once inside, add an 8.2 pF capacitor from the hot end of each coil to ground. This is best done from the tuning capacitor to ground. Next add a ferrite slug to each of the coil formers in the local oscillator multiplier tin box. Likewise, you will have to de-solder the top lid.

I obtained the slugs from the unused multi channel oscillator board. If your 828 does not have the optional extra 7 channel board then you will have to find another source of slugs. Another option is to use the slugs from unused oscillators on the main receiver and exciter board, if only one channel is to be installed. If all this fails then add capacitance across the multiplier coils. I'm not sure how much but about 10 pF would be a good start. The receiver should now tune down to six metres.

Exciter

The exciter requires more modifications than the receiver board but usually only increasing capacitor values.

Crystal Oscillator

This was the area I had the most difficulty with, making the reference crystal oscillate, and oscillate on the right frequency. I managed to have the 828 producing 25 watts on somewhere around 56 MHz. It is possible for the crystal to oscillate on its parallel resonance point rather than the series resonance point. The frequency is different, so be sure to check that the oscillator, once going, is on the correct frequency. However, this was in the development phase and, with the components shown, you should not have this problem.

The real problem with the crystal oscillator circuit is that the series netting inductor requires more turns. You can have a go at adding turns if you like, but the wire is very thin and it is most frustrating and time consuming. It is easier to add C and fool the circuit into working at the lower frequency. L1, L2 and

Repeater Link

*Will McGhie VK6UU**

Notches

My thanks to Trevor VK8CO who, during a phone call about the joys of 2 metre duplexers, mentioned that I had yet to produce the promised conversion details for the Philips E band transceiver to six metres. I was sure that I had but, on checking, found that Trevor was right. Only a brief mention on the receiver conversion was made in the February 1994 edition of *Amateur Radio*.

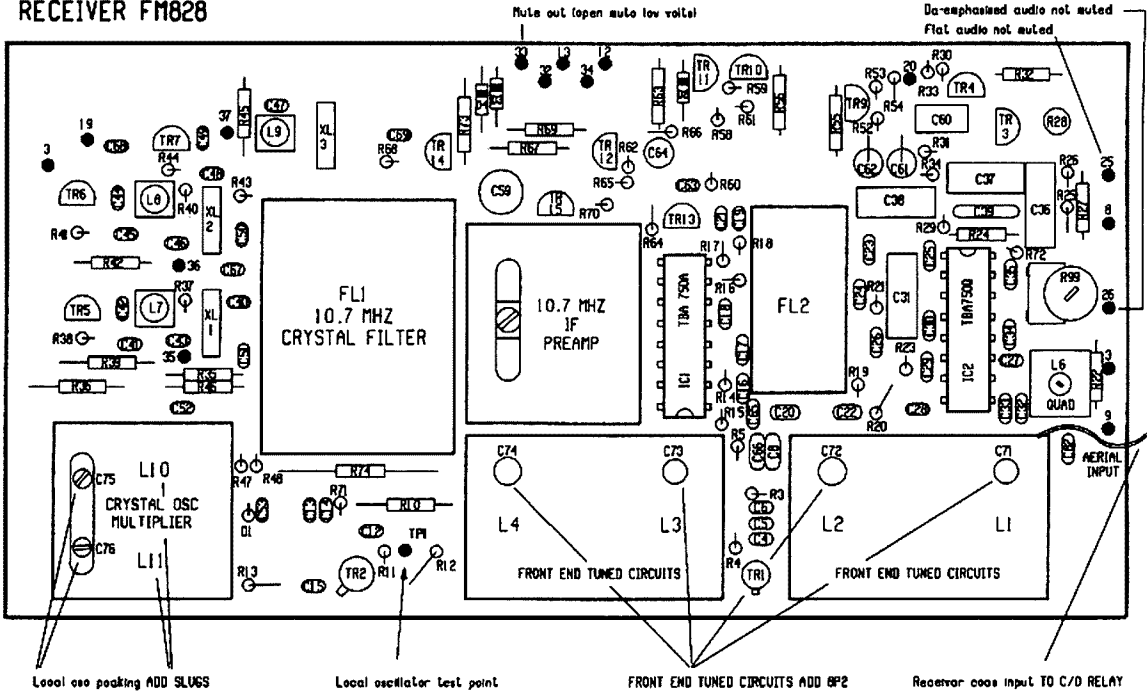
Trevor also rang to let me know about a modification to the two metre cavity filter to produce an easier and more stable notch. Trevor is involved with WICEN and has had trouble with cavity duplexers moving frequency when transported. The modification is to only use one coupling loop that is series tuned with a capacitor. The coupling loop is made up of an

inductance (the loop) and a series capacitor. The cavity filter is "T" connected into the coax feed and produces a notch that is deeper than the normal "T" cavity filter without the series capacitor. The addition of this series capacitor in the coupling loop also allows for easy adjustment of the pass to notch relationship. As soon as Trevor is happy with the finished duplexer, hopefully I can bring you the results.

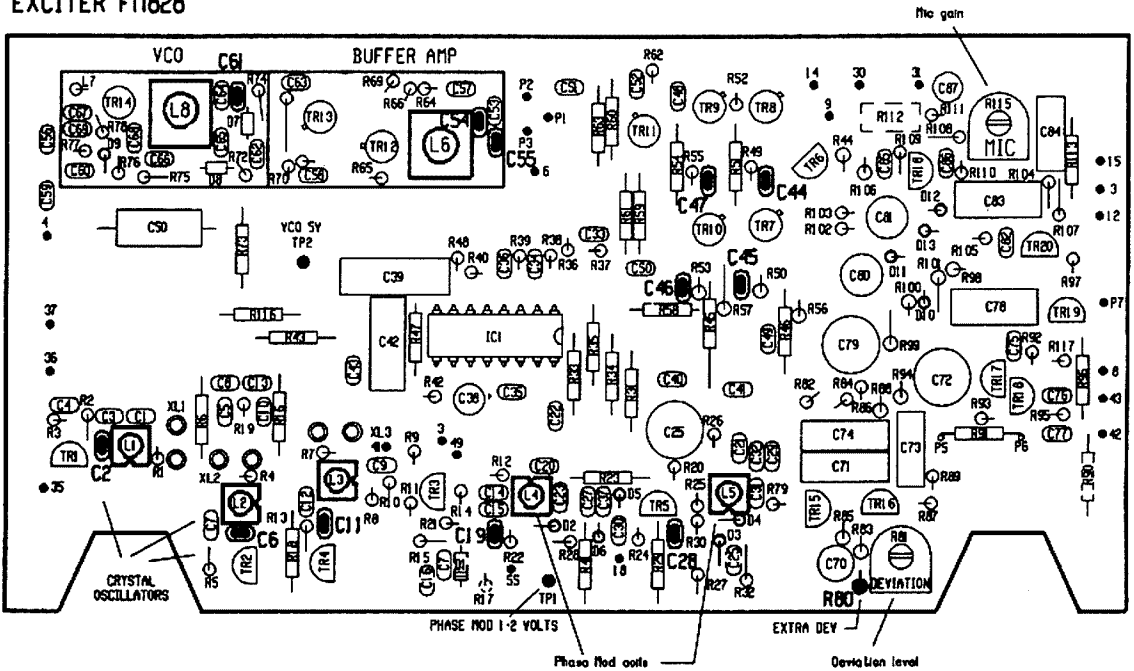
E Band Conversion

The Philips E band FM transceivers are going for a song these days and can be converted to six metres fairly easily. However, unlike the A and B band that only require a retune to put them on two metres, the E band does require some component changes. The frequency shift,

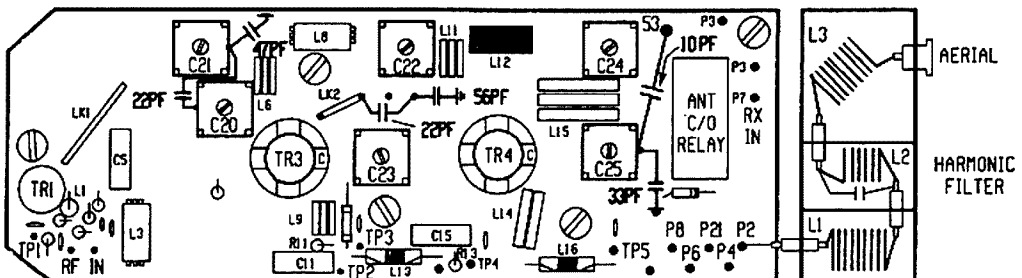
RECEIVER FM828



EXCITER FM828



POWER AMPLIFIER FM828 E BAND



L3 are the on-board netting coils for each of the three transmit crystal channels. If you are adding only one channel then you need only modify one of the oscillators.

Increase C2, C6 & C11 (100 pF) to 390 pF either by paralleling 270 pF, or replacing one or all of these capacitors with 390 pF. If the crystal oscillator won't run after this modification add 22 pF across L1, L2 and L3. If still no go, replace the 680 Ω resistor across the crystal with a 1.5 kΩ. Hopefully, only the first modification will be required.

Check the crystal is oscillating on its correct series resonant frequency.

Phase Modulator

L4 and L5 need 39 pF added across each or replace with a 68 pF for each. I found this value resonated the phase modulator coils but some amateurs have had to use higher values up to 82 pF.

Divider

C45 and C46 need increasing from 47 pF to 100 pF. Either add 47 pF or replace with 100 pF. C44 and C47 need increasing from 33 pF to 47 pF.

Tuned Amp

Increase C54 from 1.8 pF to 4.7 pF. Increase C55 from 8.2 pF to 15 pF.

Increase C61 from 6.8 pF to 18 pF. L6 may require a few pF across it to resonate but, in my case, it did not.

VCO

Place 3.3 pF to 6.8 pF across L8. Try the lower value first.

Power Amplifier

Across all these trimmer capacitors add the following values of ceramic capacitors:

- C20 add 22 pF
- C21 add 47 pF
- C22 add 22 pF
- C23 add 56 pF
- C25 add 33 pF
- C24 add 10 pF

All these capacitors can be added from the top (component) side of the PA board. It may take a multimeter and a bit of time to work out where the easiest point is to solder the capacitors in circuit. Consult the PA layout diagram.

Harmonic Filter

This modification is the most important. The E band FM 828 is designed to transmit up to 88 MHz. The transmitter output harmonic filter has no attenuation up to this frequency and above. The filter does not introduce any significant attenuation until well above 110 MHz. If your 828 is transmitting on 53 MHz then the second harmonic is 106 MHz. At this frequency the harmonic filter only offers a few dB of attenuation. The result of this is that your second harmonic will only be about 40 dB down at its best. Not good. The second harmonic should be better than 60 dB down. To modify the output harmonic filter add 2 turns to L1, add 1 turn to L2 and add 2 turns to L3.

Drawings

You may find the board layout drawings of the 828 hard to read but, with space at a premium in *Amateur Radio*, I have placed them all on one page rather than each board to its own page. These drawings have been re-drawn onto computer using *Draft Choice* and may have an error or two. Also, your version of the 828 may be slightly different as there are several versions. The receiver and exciter boards of the 828 are the same for the A, B and E bands, with only a few component changes. Philips were able to produce a VHF receiver and exciter that covered from 60 MHz to 180 MHz with the same basic layout and components, requiring few changes for each specific band.

Where it has been possible, I have shown the circuit changes required for six metre conversion in thicker line. This may

not reproduce too well but short of colour it was all I could do. Note also the capacitor changes are shown darkened in on the exciter board and the text relating to their component number is enlarged.

Hopefully, you will find the component layout useful for the 828 A, B and E band. The PA for the A and B band has an extra transistor in its line up designated TR2. Note that the three transistors in the E band PA are called TR1, TR3 and TR4. There is no TR2. Philips used the same component designation for all components between the A, B and E bands. In the E band PA less amplification was required and TR2 was removed. Wonder if there was ever a C band?

If you want a larger layout drawing or, better still, a copy of the CAD drawings, contact me. The CAD drawings can also be sent to you via Packet Radio.

One final point. You may find the Tx deviation on the low side, even with the deviation control (R81) flat out. Try reducing the value of R80 from 180 to, say, 100 Ω or less.

If you notice any errors, or know of a better way of placing an E band on six metres, please let me know so I can update my information.

Tune Up

Tune up of the E band to six metres will have to wait till next month due to the amount of space already taken up. In brief, though, the exciter is the most difficult. Tune L4 and L5 for maximum on TP1 and L8 for 5 volts at TP2. Once the exciter is locked and the Tx LED lights there should be some power output on six metres.

29 MHz

I have received a reply from John Martin VK3KWA, the Chairman of FTAC, regarding 29 MHz simplex gateways. John's comment was that a simplex gateway can be placed on an existing repeater, provided the 29 MHz gateway is in the WIA 29 MHz repeater sub band between 29.5 MHz to 29.7 MHz. Also, the 29 MHz repeater frequency must not link to another gateway on the same frequency. Our application to the SMA has been submitted to place a 29 MHz gateway on an existing 2 metre repeater. The frequency is 29.680 MHz simplex. This frequency has been allocated to VK6 for a 29 MHz repeater that is yet to see the light of day.

Next month I should be able to comment on the new regulations as they relate to repeaters.

*21 Waterloo Crescent, Lesmurdie 6076
VK6UU @ VK6BBS
ar

WIA News

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of February 95.

L20990	MR W LUCAS
VK2APA	MR A T PUNCH
VK2ARM	MR R A MANIERI
VK2ATP	MR K E PETERS
VK2GCT	MR C TSOUTIS
VK2SNS	MR N S STEELE
VK3KPK	MR P K KATZ
VK5NWH	MR W R HOLMAN
VK6AMD	MR R SPENCER
VK6KPW	MR P D WATTS
VK6MQ	MR R J MCCORMICK
VK6VW	MR P D SORRELL
VK7DG	MR D G BARNES
VK7JRM	MR R J MCKENZIE
VK7ZEH	MR E A H HARRISS
VK7ZTW	MR J V GILES-CLARK

Pounding Brass

Stephen P. Smith VK2SPS*

It's been some time now since this column has reviewed the most up-to-date publications relating to telegraphy. In the months to come, I hope to include for you the current listing of available books, where they can be obtained, and at what cost. Sadly most of these fine reference books are not yet available in this country. I can only hope that retailers of amateur related products, especially in the sale of books, can improve on what little they have. Only time will tell.

Over the last few months I have corresponded with several American authors and have been very fortunate to have been lent some fine reference books for review. One such book, which I found to be most informative, is called "J-Series Telegraph Keys of the US Army Signal Corps". This well put together book was produced by Larry Nutting. Being a collector of keys myself this fine book has identified a number of markings on my J-36 and J-38 keys that have eluded me for some time. Most of the material has been compiled from military signal corps catalogues. Military terminology is used throughout the book with cross reference listings from BC and SCR numbers being included.

The standard format is as follows:
J-5-A (1945) Stock No 3Z3405A.
Descrip: Key Telegraph: Sig C Key J-5-A; Flameproof.
Overall: 5-1/8" lg x 2-5/8" wd x 2-3/4" h.
Base: Phenolic base 2-5/8" x 3-1/8"; 3#6-32 mtg screws extend through base.
Lever: Black nickel finish lever.
Contacts: Two silver cont, 1/4" dia.
Knob: Navy type.
Spec: US Army Spec # 71-377; Sig C DWG #RL-D-103.
Use: For use in airplanes; P/O Radio Set SCR-134 (BC-114) and SCR-135 (BC-114)
Mfrs: L.S Branch MFA CO, Western Electric Co

From the above you can see that a lot of research has gone into this publication. The book has a soft cover, measures 8-1/2" x 11", and costs \$US12.00 Airmail. Further enquires can be made to Larry Nutting, 4025 Slate Ct, Santa Rosa, CA 95405 USA.

I would highly recommend this book to collectors of military "J" keys. Further book reviews will appear in later issues.

I've been in contact with Ed Wetherhold W3NQN, ARRL Technical Adviser, in relation to his Passive LC Filter which he has been working on for the last couple of years.

He informed me his earlier designs incorporated two stacks of surplus 88 mH inductors and one surplus 44 mH inductor. This configuration worked fine but was too heavy to ship overseas to those wishing to assemble his filter. The filter configuration was changed and the 44 mH inductors, which are no longer available, were dispensed with. Instead, bifilar-wound 88 mH toroidal inductors, which you modify to the design inductance by removing turn pairs, have now been included.

His present design includes "one stack of five series-connected inductors and two shunt inductors". For centre frequencies of 537, 750 and 800 Hz, the two shunt inductors range from 88 mH to 38.1 mH. Inductances less than 88 mH are obtained by removing turn pairs from the two bifilar-wound inductors as mentioned above.

Ed advises me he has sufficient inductors for perhaps another two or three hundred kits. After that, no more.

Most parts can be obtained here, except for the bifilar-wound inductors which he purchases direct from the C & P Telephone Company. Most transceivers use a sidetone frequency of either 750 or 800 Hz. Ed can provide a single cap set suitable for both 750 and 800 Hz sidetone frequencies or a cap set for 537 Hz design.

Here is a current (November 94) price list of parts used in the CW Filter Assembly:

- (1) Inductor set (88 mH Stack and two bifilar-wound 88 mH inductors): No charge
- (2) One mounting clip for the inductor stack: \$0.50
- (3) Two matching transformers, 8/200 CT, 2 W: \$3.00
- (4) One matched capacitor set for F-centre = 750/800 Hz: \$5.00
- (5) One phone jack, 1/4" mono: \$0.50

- (6) One phone plug, 1/4" mono, with 33" cable: \$0.50
- (7) DPDT toggle switch, with wide blade lever: \$0.50
- (8) 10 or 12 Ω resistor for RI and insulated wire for filter assembly: No charge
- (9) Pre-punched plastic box with bumpers for box bottoms: \$5.50
- (10) Packing & Surface Shipping to Australia: \$9.50

Total cost for one CW Filter Kit: \$25.00

(The inductor set is provided free through the courtesy of the C & P Telephone Company. Ed also mentions that if there are any parts in the above list you do not require, please specify to reduce the overall cost.

Further enquires can be made to Ed Wetherhold, 1426 Catlyn Place, Annapolis, MD 21401 USA (Phone 410 2680916)

The above prices are subject to change.

Next month I will continue with the five resonator CW filter. I have made enquires with Australian manufacturers as to the possibility of getting some inductors made up for fellow amateurs. I will report my findings at a later date.

*PO Box 361, Morra Vale NSW 2103
ar

A. J & J COMAN ANTENNAS

Dual band Co/linear 2M&70cm	\$ 95
2M co/linear 2 5/8 7dbd	\$ 97
12 ele 2M broad B/width	\$123
6 M J-pole	\$109
6 M co/in 6 dbd rad 4.NEW	\$157
6 ele 6 M N.B.S 50 mm Boom	\$296
Duo 10-15 M	\$278
3 ele 15 M	\$299
3 ele 20 M	\$312
20 m log-yag array 11.5 dbd	\$719
M B Vert NO TRAPS 10-80 M	\$265
Tri band beam HB 35 C 5 ele	\$690
40 M linear loaded 2 ele	\$492
13-30 M logperiodic 12 ele	
all stainless/steel fittings	\$915
70 cm beam 12 ele bal/Feed	\$102
23 cm slot fed 36 ele brass cons	
s/solder-assembled. 18 dbd	\$170
80 m top load/cap/hat vert.	\$260
3 ele 40m l/cap hats 60mm boom	\$815
2 m 144.100 2.2 wavelength boom	\$145

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Technical Correspondence

All technical correspondence from members will be considered for publication, but should be less than 300 words.

L Network Matching Design — A Reply

Tim Hunt (*Amateur Radio* November '94) in his comment about my Feb '94 "technical point" suggests that my reference to Power Factor (PF) is off the track. What he really means is that I am not following his track. I won't be following Tim because I believe he is on the wrong track.

The Power Factor of a reactive circuit or circuit element is not close to unity, it is close to zero. If the element is pure reactance, the PF is zero. The power factor of a pure resistor is unity.

Power Factor gives useful information about load characteristics at all frequencies. The meaning is nicely summarised by the equation $PF = \cos \theta$ where θ is the angle of the lead or lag of the supply current with respect to supply EMF.

Tim might be confusing PF with other terms and definitions, which have similar applications. PF is used to indicate the probable loss in capacitors and dielectrics but some authorities prefer "loss angle" and/or "dissipation factor" for that purpose. Loss angle is $(\frac{1}{2}\pi - \theta)$ expressed in radians. The tangent of the loss angle is the dissipation factor. If θ , (in radians), loss angle (in radians) and dissipation factor are less than 0.1 they are taken to be equal. Good dielectrics and insulators have PF of 0.0006 at 1 MHz.

Power Factor is also the ratio of energy consumed to energy supplied, (Watts/Volt Amps). If the PF is less than unity, not all supplied energy is consumed. Some is transferred from the source to the load and back again and serves no useful purpose. The energy returned (reflected in amateur jargon) can cause destructive currents and voltages in source components, and amateur solid state transmitters include PF sensing circuits which reduce drive when the PF departs from unity. Some shut down the transmitter when the PF is less than 0.75 (SWR greater than 3).

In a transmitting antenna system, the energy consumed is converted to electromagnetic radiation and to conductor heating. The ratio of energy radiated to energy consumed is the antenna efficiency. A major design, or trial and error objective is to adjust the total system (Tx to antenna) for a power factor of unity and an efficiency approaching unity.

I consider the section of Tim's letter about L section matching is also on the wrong track. I have sent Tim a hand written response and copies of this are available for other interested readers on receipt of a SAE. In the meantime, I suggest an attempt at a general analysis, using the reactance coupled mesh approach suggested in my July '94 Technical Correspondence, is worthwhile.

Lindsay Lawless VK3ANJ
Box 670
Lakes Entrance VIC 3909

L Matching Network Design — A Follow Up

There were a couple of ambiguities and at least one error in my *Technical Correspondence* (November '94). When writing this, I did not fully appreciate the significance of Lindsay Lawless's "technical point" of February '94, until he clarified this in a letter to me. Lindsay has used the Power Engineering concept of "power factor" in an RF engineering application. He has also separated two logical functions performed by the L match, those of load reactance cancellation, which he calls "power factor" correction, and resistive source/load impedance transformation.

Both are perfectly valid but required, I believe, more explanation than given in his original article.

Power factor correction, in (high current) Power Engineering applications, is applied between the transmission line ("source") from the AC power generator and the plant equipment ("load") to enable this equipment to operate at specified load conditions with minimum loss in both transmission line and plant equipment. This correction network, in its simplest form, achieves a near resistive load to the transmission line through reactance cancellation.

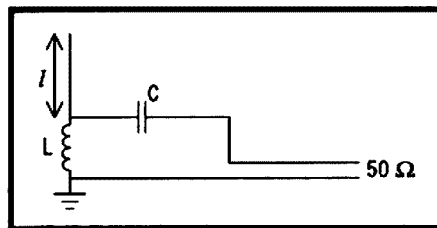
More complex networks can perform both impedance transformation and reactance cancellation functions.

In my correspondence, I was referring to the power factor of the load (antenna + transmission line up to the matching network junction) being very close to 1. The power factor correction network, which I had assumed to be the entire L match, is then placed between the source and the load. The power factor of the reactive element is then obviously very close to 0. Lindsay has separated this network into its two logical functions,

resistive impedance transformation and load reactance cancellation (which he calls power factor correction). If I were to use power factor in this context, the power factor correction network would be the entire L match because it facilitates the maximum transfer of power to the load (antenna + transmission line).

In the fifth paragraph of my correspondence, the "<" sign was not printed. It should read "(length $l < \lambda/4$)".

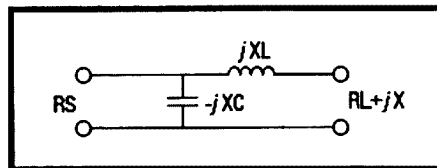
In figure 3, the network has been drawn incorrectly. It should be:-



I have assumed, incidentally, that the real part of the input impedance of the system (R) is less than 50 ohms in Figure 2 and greater than 50 ohms in Figure 3.

The L and C in Figure 4 refer to parameters associated with antenna reactance, for the two special cases discussed, and not of the associated matching network, as the caption below it indicated.

The L matching network, in one of its forms, can transform a range of loads containing both reactance and resistance to a source resistance (usually 50 ohms). This latter statement should not be open to controversy because the conditions under which such a transformation is possible can be specified precisely and be easily verified.



Where $XL = 2\pi fL$ and $XC = 1/2\pi fC$. For instance, if $RS > RL$ and $ZL = RL + jX$ then:-

C (capacitive reactance of C in L network) = $RS \sqrt{RL/(RS-RL)}$

XL (inductive reactance of L in L network) = $\sqrt{RL(RS-RL)} \cdot X$

where $\infty < X < \sqrt{RL(RS-RL)}$.

Such a network can cope with any level of capacitive reactance and an inductive reactance bounded by $\sqrt{RL(RS-RL)}$. An analogous set of design equations and conditions can be specified when $RS < RL$.

Tim Hunt VK3IM
20 Ravenscourt Crescent
Mt Eliza VIC 3930
ar

VHF/UHF — An Expanding World

Eric Jamieson VK5LP*

All times are UTC.

Six Metres Standings List

I said that the list published last August was the final one for the Standings List. However, in my haste to complete the August notes, due to a looming hospital admission, I missed updating the entries of VK3LK and VK5RO, so I need to repeat the list once more to include them. As my columns lately have been rather full with other information, this is the first opportunity I have had to make the amendments.

Column 1: 50/52 MHz two-way confirmed contacts

Column 2: 50/52 MHz two-way claimed as worked but not confirmed

Column 3: Countries heard on 50/52 MHz

CALL-SIGN	1	2	3
VK3OT	100	102	
VK4KK	93	93	4
VK4BRG	86	90	
VK2QF	85	85	3
VK2BA	69	69	
VK4ALM	68	70	
VK4ZAL	68	68	
VK2BBR	54	64	
VK4JSR	53	56	8
VK4TL	51	54	
VK3LK	49	50	
VK6HK	47	47	13
VK8ZLX	45	60	1
VK3AMK	45	47	
VK5RO	43	63	3
VK8GB	42	42	3
VK6RO	39	39	1
VK1RX	39	39	9
VK6PA	36	57	
VK3AUI	36	36	
VK5LP	35	36	9
VK3AWY	34	36	
VK3BDL	32	32	
VK3NM	31	34	
VK5BC	29	63	
VK2DDG	25	26	3
VK4ZJR	25	25	
VK4KHZ	23	34	
VK3XQ	23	25	2
VK2KAY	21	23	
VK2BNN	20	21	
VK9LG	20	20	
VK7JG	20	22	2
VK4BJE	19	25	
VK4KAA	19	20	
VK3TU	17	19	
VK2ZRU	16	19	4
VK4ZSH	16	16	
VK2ZSC	16	29	
VK9LE	14	14	
VK3ALM	13	15	7
VK3KTO	11	11	

VK5KL	11	19	7
VK6OX	10	10	
JA2TTO	48	48	6
YJ8RG	25	25	

Happenings in Australia

Since the upsurge in six metre activity during January, which resulted in some good pickings for the VHF/UHF Field Day and the working of VK0IX in Antarctica, the band has been much quieter.

While on the subject of Antarctica, the following is a list in call area and alphabetical order of all callsigns worked by Darin VK0IX at Casey during January 1995 — the list being supplied by his QSL Manager, John McRae, 13 Francis Street, Kapunda, 5373, SA. Please send a SASE and card for your QSL.

14/1: VK2QF.
VK3OT.
VK5s ARC/p, GRS, LP, NY, PO/p, TZX, UBJ, ZBK, ZBR, ZIP, ZTV, ZWI.
15/1: VK1RX.
26/1: VK3OT.
31/1: VK3s AKK, ALM, AMK, AMX, AZM, AZY, BDL, DUQ, KMF, LK, OT, YDE, YY, ZNF.
VK5s AKM, AVQ, BC, EME, KK, LP, NC, WA, ZBK.
VK7JG, VK7ZMF.

There were a total of 41 contacts with 37 different stations in five states. Call area totals were VK1-1, VK2-1, VK3-14, VK5-19, VK7-2. The absence of VK6s is interesting — they were certainly alerted — and there are no contacts with ZLs.

VK3OT, VK3LK and VK5NC also worked Mark VK0AQ at Casey during November 1993 thus becoming the first world contacts to Antarctica on six metres. The same three stations did it again during the above openings.

The higher bands have also been making their presence felt. The good conditions commenced on 10/2 as the result of a large, slow moving high pressure system with isobars extending right across the lower portions of the continent and to the Indian Ocean. The pressure gradients were not as high as would be expected for such conditions, varying from 1022 to 1027 hpa. During the evening of 10/2 VK5NY PF94 worked VK6WG OF84 at 5x9 on 144 and 432 and 5x5 on 1296.

The conditions were such that the bands from 144 to 1296 were open almost continuously. Wally VK6WG in Albany was able to monitor a keyer provided by Roger VK5NY on 1296, running about 10

watts to four loop Yagis, and compare that signal with those on 432 and 144 provided by the Adelaide beacons on Mount Lofty PF95. Although the latter were running less power to omnidirectional antennas, there were times when the lower bands were best but at other times 1296 was far ahead, particularly as the week progressed. Signals on 144 and 432 penetrated to VK3 but not on 1296.

Roger VK5NY believed the conditions would have permitted operation on 10 GHz but Wally VK6KZ was not available. Darrell VK6KDC at Manjimup OF85 has a good location about 300 metres ASL, runs 150 watts to a pair of 12 elements on two metres and is believed to have worked David VK3AUI at Drouin QF21 for a distance of well over 2000 km. Manjimup is about 70 km inland and a further 150 km west from Albany. Others to be worked were VK6AS and VK6APZ at Esperance PF06 and VK6DM OF85. 144 and 432 remained good on 21, 22 and 23/2 but 1296 had dropped out.

On 21/2 VK5NY and Trevor VK5NC QF02 in Mount Gambier had a 5x5 contact at 2053 on 1296. From 17/2 conditions were improving in an easterly direction with Ian VK3AXH QF12 at Ballarat 5x3 on 432 and up to 5x9 on 144 to VK5NY. On 20/2 Roger used 144 to work Doug VK3KAY QF21 at Geelong who runs 10 watts to an eight element, Charlie VK3BRZ QF21 at Lara and Russell VK3ZQB QF11 at Port Fairy.

News from the UK

The January 1995 issue of *Six News*, the quarterly magazine of the UK Six Metre Group, carries our list of 173 countries First Worked from Australia on 50-54 MHz. With some appended explanatory notes from me, the coverage extends to five pages and I am grateful that the Editor, Neil Carr G0JHC, has so well set out the list. It should make interesting reading, particularly for northern hemisphere operators. It will also add a few new entries to the world tally of countries worked on six metres.

Neil also gave some prominence to the existence of VK0IX at Casey in the Antarctic. Since then I have passed on last month's information about the working of Darin VK0IX by VK stations. To date 37 stations have worked Darin which is quite good when so many considered it would be impossible! I heard him on seven occasions and worked him twice.

I suppose it is a matter of priorities and how a writer personally sees a subject, but I was interested to note that, when the May issue of *HRT* or *Ham Radio Today* in the UK hits the sales places, there will

be only a passing reference (in fact, one and a half lines plus a map), to the recent setting of the 10 GHz world record by two Australian amateurs, VK5NY and VK6KZ. I thought that they did rather well to finally take the record from the Italians!

After more than four years of committee involvement and a period as Chairman of the UK Six Metre Group, Geoff GJ4ICD has finally stepped down. I cannot but admire the man for his dedication to the cause of amateur radio. Geoff lives on the island of Jersey and each time he flew to the UK for meetings his cost was around £500 or about \$A1000 for the round trip. Unselfishly, he believes this kind of money could be put towards exotic DXpeditions — but he doesn't want you to tell his wife! From

Australia, we say thanks Geoff for a job well done and for your continuing interest in amateur radio, especially the provision of six metre beacons for remote places.

As if on cue, Geoff will be part of a DXpedition to Cape Verde Islands and operating from 1 to 14 June. Callsign may be D44BC or D44GB, locator square HK76mk, 100 watts on 50 MHz and 1000 watts on HF. The islands are due west of the westernmost point of Africa around Dakar in Senegal. Some distances are UK 4425 km, Italy 4400 km, Jordan 6300 km, French Guiana 3280 km, Martinique 3860 km and USA 5200 km. As it will be mid-summer, multi-hop Es may produce some surprises.

Geoff makes the following observations and his comments may answer a few

questions some of us have pondered here in Australia. He says, *Looking back over the past year at 50 MHz QSOs from Jordan and Mauritania some interesting facts can be recalled.*

The Jordan expedition's shortest QSO was SV9ANK at about 1000 km. In Mauritania, Eric 5T5JC's shortest QSO via Es seems to have been with EA8 at around the same distance, with the MUF over 100 MHz. 5T5JC's 3000 to 4500 km QSOs were as far north as northern Scotland and arcing across to Sweden and they were in the hundreds and up to S9+. Cape Verde's range at similar distances should be around IM76 in southern Spain to IO83 in central UK, providing similar propagation patterns exist.

WIA News

Amateur Licence Fees — \$51, For Now

Amateur Licence fees will increase to \$51, for all licence grades, commencing from 3 April. The Hon Paul Elliott, Parliamentary Secretary to the Minister for Communications, made the announcement in the House of Representatives late in the evening of 8 March.

The new fee is \$20 less than the highest fee of \$71 proposed by the Spectrum Management Agency (SMA) in February, but \$14 above the \$37 licence fee current in March, a 38% increase.

The decision followed urgently called, direct consultation by the Government with the Wireless Institute of Australia on Monday, 6 March.

Paul Elliott, who is the member for Parramatta (NSW), requested consultation with the WIA late the previous week, to hear from the Institute the views expressed by the amateur radio community, how the Institute had responded to the Apparatus Licence Inquiry and to hear submissions on a way forward.

Attending for the WIA were Federal Vice Chairman Roger Harrison VK2ZRH and Dr David Wardlaw VK3ADW, Federal

Coordinator for International Telecommunications Union (ITU) activities and the Institute's representative on the International Radiocommunications Advisory Council (IRAC). Both represent the WIA on the SMA's Radiocommunications Consultative Council (RCC).

Amongst the information put to Paul Elliott was the many ways the Amateur Radio Service was of value to the Community — particularly the self-training aspect, the lack of detailed information from the SMA (until December 1994) on how Amateur Licence fees would be affected by the price-based spectrum allocation system, the range of views expressed by the amateur radio fraternity since the December announcement of the proposed fee structure, the issue of amateur radio access to the spectrum — particularly addressing misinformation about primary and secondary allocations, how WIA representatives had provided expert assistance on non-amateur matters on behalf of the Australian Governments's delegations at international radio conferences — at WIA's members' expense, and the WIA's objections from the outset that the Amateur Radio Service was unsuited to being included under the Apparatus Licence system.

As many amateurs will be aware, the WIA wrote to MPs, both Government and Opposition, during January and February, as did many individual amateurs and some WIA State Divisions, putting objections to the proposed fee structure.

The Government made the announcement about the revised fee arrangement during the second reading of legislation, associated with the Radiocommunications Act, dealing with licence payment arrangements.

The Government negotiated the new Amateur Licence fee arrangement with the SMA subsequent to consultation with the WIA. In a 9 March press release announcing the revised fee, Paul Elliott acknowledged the value amateur radio provides to the community, saying, *"After further consultation and in recognition of the valuable services provided by Amateurs to the community in maintaining communications links, and in training young people to be proficient in communications technology, the SMA has decided to reduce the tax component of Amateur fees to the minimum level".*

Mr Elliott's release said the new fee was based on the administration and maintenance costs provided to amateurs by the

5T5JC worked ten grid squares in northern Europe between 4500 and 5300 km with signals to S9+. JP74 seems to have been his best European DX at 5300 km and is well outside the northern temperate zone; he may well have been able to work further but there was little or no activity beyond this distance for him to work. Cape Verde is 6100 km to JP74, and the 4500 km belt lands an arc from IO83 (Manchester) to JN19 (Paris) to JN36 (HB9) and on to JM76 (9H1). The 5300 km belt arcs from IP52 (OY) to JO64 (northern DL) to JN89 (OK) to KN03 (YU7).

From Cape Verde, if multi-hop propagation exists, then we could have QSOs with many stations around 6000 km (OH). Eric 5T5JC did this to the USA but

could not do it in Europe due to no activity in the Arctic circle!

Our expedition to Jordan was a similar situation, the furthest European distance I recall was a station in Scotland at 4200 km, the distance from JY7SIX to 5T5JC was around 5100 km but, again, these distances could not be exceeded because there is little or no activity until you hit the USA which we did with one QSO at 10,000 km, which is nearly 5000 km further than 5T5JC, so what lies in the 5000+ km belt for the D44 expedition? Certainly more than we achieved from Jordan which goes without saying as having been brilliant.

From the Australian viewpoint our recent contacts, 37 in all, to Darin VK0IX at Casey on the Antarctic continent were

mostly around 3800 to 4000 km with that to VK2QF Mudgee QF47 about 4500 km and Brisbane (heard) QG62 5200 km. Perth OF78 is about 3800 km. Fortunately for the VK5s the VK0IX V-beam points to Adelaide and the first offer of contacts occurred during the VHF Field Day when more stations than usual were on six metres. The Melbourne stations were lucky to have propagation right at the end of the period of openings.

It seems we have distances from Casey somewhat akin to those that Geoff GJ4ICD has been talking about. The only reason more stations did not work VK0IX is probably due to a general (but false) acceptance that most of the Es was gone by mid-January and that Antarctica was too far anyway! We should be grateful to

WIA News

SMA, including the issuing of licences, managing interference, issuing and registering call signs, arranging and accrediting examinations, and international coordination.

"While we have recognised the unique community contribution of amateurs, it is quite reasonable that amateurs pay for the ongoing services provided by the SMA in managing the radio frequency spectrum they use," Mr Elliott said.

During the House of Representatives debate on 9 March, apart from some ill-informed comments by some MPs, strong arguments in support of the Amateur Radio Service were made by Government members and MPs on the Opposition benches, particularly Judy Moylan (Lib) the member for Pearce, WA. Favourable mention of the WIA and the Wireless Institute Civil Emergency Network (WICEN) was made in some speeches.

While the announcement of the revised fee can only be seen as a first step in resolving the whole issue of amateur radio licensing, a full response to the Government's announcement will be issued by the WIA after further analysis of the announcement and subsequent statements.

On 9 March, the Spectrum Manager, Christine Goode, wrote to WIA President Neil Penfold with

further information on the revised fee structure and seeking a meeting. Christine Goode advised that a common fee is to apply to all amateurs irrespective of the particular category, with the exception of beacons and repeaters which will be licensed on an assigned frequency basis, with fees determined in accordance with the "standard fee table" (published in the SMA's document, "Inquiry Into The Apparatus Licence System: A New Outlook", released in February).

The new licence fee of \$51 per annum consists of an administrative charge of \$38, a spectrum access tax of \$10 and a \$3 spectrum maintenance charge (which is a fixed percentage of the access tax).

Christine Goode explained that, although amateurs have access to significant amounts of spectrum, the SMA decided, in consultation with the Government, to recognise some of the public value of amateur use of the spectrum by reducing the access tax component to the minimum level set out in their overall fees tables.

She added that the SMA will continue to require amateurs to contribute their fair share of the overall costs of managing the spectrum and in the SMA providing services specifically to amateurs. In addition, since the

minimum access tax is now applied, Christine Goode said it is no longer necessary to differentiate between licence types on the basis of the extent of spectrum access, as had been previously proposed.

The new fees will apply to every amateur licence issued after 3 April 1995 and to all renewals due on or after that date.

The matter of licence fees for amateur beacons and repeaters is to be pursued by the WIA with the SMA.

Arrangements for the proposed meeting between Christine Goode and WIA President Neil Penfold VK6NE had not been confirmed by press deadline.

At the 6 March meeting between Paul Elliott and WIA representatives, Paul Elliott, recognising WIA objections to the Amateur Radio Service being administered under the Apparatus Licence system, has invited the Institute to put a submission to the Government as to how the Amateur Service might be better licensed in the future.

This invitation provides a further opportunity to gain greater recognition of the unique nature of the Amateur Radio Service, to obtain further improvements for the amateur radio fraternity and a better approach to licence fees.

Steve VK3OT for his persistence and belief that Casey could be worked and, having proved that to be so, he alerted others that it was possible. We also had the advantage of a telephone which was used to alert Darin that the band was open, and he was prepared to make the effort and tramp the considerable distance through snow to the radio shack, perhaps at times wondering whether he would actually work anyone! To ensure he did not waste his time I phoned at least six amateurs to alert them that the band was open.

The end result of all these discussions is really that, without the assistance of F2, long distance six metre contacts are possible via the E-layer given reasonable propagation conditions, but there exists the need for dedicated operators at both ends. In the range of 4000 to 5000 km distance from VK there are very few six metre operators to the east of us in the Pacific and none of those have indicated that they are ready and willing to make a worthwhile attempt; there appear to be none in the Indian Ocean to our west where there is precious little land (maybe I should move and live on Amsterdam Island), and few operators on six to the north within that range available to amateurs in the southern half of VK. In the future, DXpeditions offer us the best opportunities to work those areas but such expeditions are immensely costly and the operator cannot work himself so he misses out while providing contacts to others. That's really dedication to the cause of amateur radio.

Special Request

I would like to put together a list of amateurs who have worked to areas outside Australia (remember Tasmania is Australia!), using the bands 144, 432, 1296 MHz (and possibly higher), via tropospheric propagation, that is inversions, ducts, forward scatter, etc. Omit 144 MHz Es contacts.

Such contacts are likely to have occurred from the eastern states to places like New Zealand, New Guinea, New Caledonia and possibly other islands. Details of the 144 MHz contacts to Japan would also be useful.

As early as conveniently possible, could you please send the details in writing stating your callsign, station worked with location and locator square (if known), date and time of contact, mode, signal reports, type of propagation and any other relevant details, especially weather patterns. New Zealand and New

Support the WIA in order to protect Amateur Radio frequencies.

Guinea readers are also invited to send information.

It will be useful information to include in my data base but also will assist Emil Pocock W3EP, of *The World above 50 MHz in QST* who is seeking such information for a special article he is preparing on tropo coverage within the Pacific regions.

Closure

By the time you read this we will be in the equinoxial period, so be aware that odd things can happen on the bands, particularly six metres. Sudden extensions to distances are possible and TEP to Japan is sometimes available.

Closing with two thoughts for the month:

1. Age does not diminish the extreme disappointment of having a scoop of ice-cream fall from the cone, and
2. Self-delusion is pulling in your stomach when you step on the scales.

73 from The Voice by the Lake

**PO Box 169, Meningie SA 5264.*

Fax: (085) 751 043

Packet: to VK5ZK, for VK5LP.

ar

Update

Incorrect Phone Number for ZRV Electronics Pty Ltd

On Page 15 of the 1995 *Australian Call Book* the phone number is incorrectly shown for ZRV Electronics. The correct phone number is (03) 439 3389. If you own a 1995 *Australian Call Book* it might be a good idea to correct your copy now.

ar

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

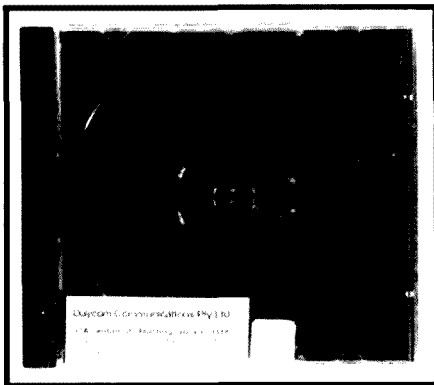
B	COOPER	VK2DHO
K (Keith)	JAMES	VK2KVQ
H J (Howard)	FREEMAN	VK2NL
K B (Keith)	IRESON	VK3AIR
J D	MCNALLY	VK3BJM

ar

What's New

Bob Tait VK3UI introduces new products of interest to radio amateurs.*

Electronics Software Compendium CD ROM from Buckmaster Publishing



This CD ROM contains 664 compressed files in various formats, some of which will run under Windows and some which will only run in DOS.

The material contained on this CD has been gleaned from many sources. There are many Shareware files covering log keeping programs, CW tutors, examination text, equipment modifications for packet, RTTY and other miscellaneous modifications. There is an absolute abundance of material relating

to antennas which covers design, plots, feed systems, losses, and gain, etc.

The one disappointing aspect about this CD is that, whilst it has a lot of data pertaining to amateur radio, it has, in my view, not been edited. There is a lot of file duplication, along with a fair bit of rubbish which appears to be downloads from packet bulletin boards.

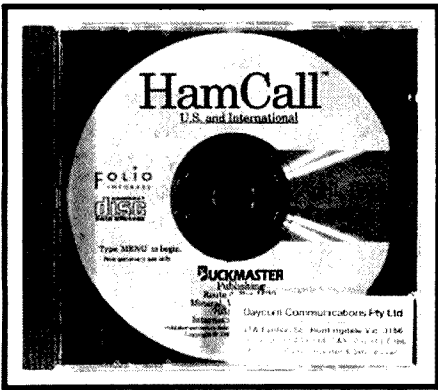
However, if you are prepared to sift through the files to find what you want, and can accept a bit of frustration at times, this CD is still good value.

The 1995 release should be available during April from Daycom Communications Pty Ltd. The ordering number is BR497 and the cost is \$45.00.

Ham Call CD ROM from Buckmaster Publishing

The US and International Call Book is available on CD ROM and covers most countries in the world with the exception of Australia. The program is simple to use and will run under Windows. The user can search by call sign, name, or town, etc.

In addition to the International and US Call Book, the CD contains many amateur utility programs which are similar to the data contained in the Software Compendium reviewed above.



April. The ordering number is BR498 and the cost is \$80.00.

Daycom Now the Australian Agents for OPTOELECTRONICS

Daycom Communications Pty Ltd has become the Australian agent for the OPTOELECTRONICS range of products. These include a wide range of frequency counters, signal strength meters, signal interceptors, tone counters as well as DTMF and CTCSS decoders. Watch for further information on their product range.

For enquiries about any of the above please contact Daycom on (03) 543 6444 during office hours.

*C/o PO Box 2175, Caulfield Junction VIC 3161 ar

constructor the wrong idea. For instance, there are three excellent charts that show how to calculate matched feed line loss, feeder loss with unmatched line input and total line loss. However, a description on how to use these charts in chapter five refers the reader to the wrong chart. The matched feeder line loss chart is in chapter three on page 6, not 7 as stated.

Well, what does the trouble shooting chapter cover? Let's look at the sub headings. **Trouble Shooting Feed Lines.** Is your coax due for replacement? Do you have a short somewhere? "Ty" takes you through the various problems that might pop up. **Trouble Shooting with a VSWR Bridge.** An instrument we all have in the shack. Do you know how to get the most out of it? **Testing a Feed Line Using a Noise Bridge.** **Trouble Shooting a Dipole; Rotating Trap Dipoles and Yagis; Checking Traps.** And so it goes on.

After reading all this you will certainly have a better idea of how to look for problems when they arise. The chapter of Equipment Reviews gives a lot of coverage to MFJ equipment which, I guess, is to be expected. However, "Ty" looks at the good points but fails to mention any of the poor aspects. For instance, in his review of the MFJ-815B peak reading SWR/Wattmeter he states, *"The peak reading is used to average the power reading and hold the meter for a short length of time making it easier to read the meter on short duration signals"*.

I think "Ty" is a bit mixed up here. Perhaps he worked it out by the fact that the MFJ meter reads about half the actual PEP power when switched to "Peak". See QST February 1991 where they compare peak-reading HF/MF Wattmeters for the full story.

At a price of only \$22 this book is good value and is certainly worth reading. However, it will be better when the revised edition comes out and the mistakes are cleared up. "Ty" also needs a better "spell checker" on his word processor to correct the several spelling mistakes that occur.

Our review copy came from Daycom but you should be able to order it through your local Divisional Bookshop. ar

The 1995 addition will be available from Daycom Communications Pty Ltd during

Book Review

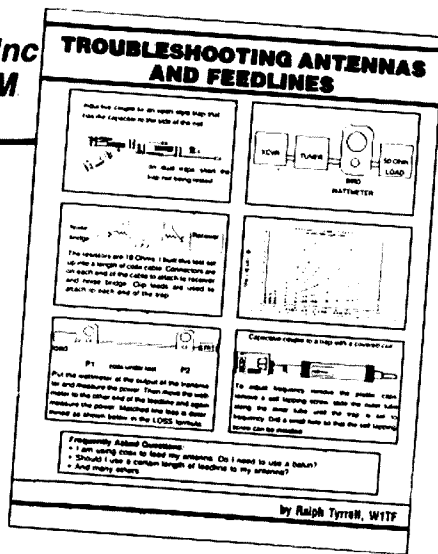
Troubleshooting Antennas and Feedlines

By Ralph "Ty" Tyrell W1TF.
Published by MFJ Enterprises Inc
Reviewed by Ron Fisher VK3OM

"Another antenna book" I hear you say. "Surely they must have covered antennas backwards by now." Well, this one is somewhat different. It sets out how to fix them. Just how well it does this we shall soon see.

First a little about the author who, I must admit, is new to me. "Ty" was first licensed as an amateur in 1950 so that probably makes him about the same vintage as me. He worked in Aerospace for many years and then went to work as a technical adviser to a major antenna company (unnamed, unfortunately) talking to amateurs about their antenna problems. He retired recently to write this book. This has been produced and published by MFJ Enterprises, the people who make all of those wonderful antenna tuners and other gadgets for amateurs.

There is no doubt that the antenna system is the most important part of any radio station. It is most important to put it up the right way and keep it



working at top efficiency. There are seven chapters which, in order, are; Antenna Fundamentals, Directivity and Gain, Feeding and Matching Principles, Antenna Ideas, Equipment Reviews and, finally, Trouble Shooting Antennas.

The first three chapters are all good stuff that any antenna builder should know about. Unfortunately, a few errors might give the novice antenna

HF PREDICTIONS

Evan Jarman VK3ANJ

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μV (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μV in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μV at the receiver's input and the S-meter scale is 6 dB per S-point.

V in 50 ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4

0.78	S3	2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 19. The predicted value for May is 17.3.

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	21.1	14	17.5	-20	21	19	14	5
2	21.6	15	18.3	-19	22	20	15	7
3	21.7	15	18.1	-14	23	21	16	7
4	21.6	16	17.9	-7	25	22	17	8
5	21.3	17	17.5	5	28	24	17	7
6	20.5	20	16.6	28	33	26	18	6
7	19.0	22	15.2	41	35	24	14	0
8	17.2	23	13.6	45	33	20	7	-9
9	15.3	25	12.1	47	29	13	-2	-23
10	13.5	27	10.7	48	24	4	-14	...
11	12.3	28	9.7	47	18	-4	-26	...
12	11.7	28	9.3	46	15	-9	-32	...
13	11.2	29	8.9	45	12	-14	-39	...
14	10.9	29	8.6	45	10	-17	...	...
15	10.7	29	8.4	44	9	-19	...	...
16	10.4	30	8.0	44	7	-21	...	...
17	9.5	31	7.3	42	0	-34	...	...
18	9.1	31	7.0	41	-3	-39	...	...
19	9.4	26	7.1	32	-2	-34	...	...
20	11.3	19	8.5	19	9	-12	-33	...
21	14.7	16	11.2	4	17	6	-7	-26
22	17.6	15	13.8	-7	20	14	6	-7
23	19.5	15	15.6	-14	21	17	11	0
24	20.3	14	16.5	-19	21	18	12	3

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	20.8	13	16.9	-27	18	17	12	3
2	21.6	13	17.9	-29	18	18	13	5
3	22.0	13	16.5	-27	19	19	14	6
4	22.1	13	18.5	-21	21	20	15	7
5	22.0	14	18.2	-11	23	21	16	7
6	21.7	16	17.7	6	28	24	17	7
7	20.3	19	16.2	27	32	25	16	5
8	18.3	22	14.5	40	33	23	12	-2
9	16.2	25	12.8	44	31	18	5	-12
10	14.4	27	11.4	46	28	11	-3	-24
11	13.1	29	10.3	47	24	6	-12	-36
12	12.5	30	9.9	47	22	2	-16	...
13	11.9	30	9.4	46	20	-1	-21	...
14	11.4	31	9.0	45	17	-5	-26	...
15	11.0	31	8.7	45	16	-8	-30	...
16	10.8	31	8.5	45	14	-9	-32	...
17	10.0	33	7.7	44	11	-15	...	...
18	9.8	33	7.4	43	10	-17	...	...
19	9.7	32	7.4	41	7	-20	...	...
20	9.9	24	7.5	27	7	-17	...	...
21	11.8	20	9.3	16	13	-3	-21	...
22	15.0	17	11.5	1	18	9	-2	-19
23	17.9	14	14.0	-13	19	14	7	-5
24	19.9	13	15.8	-22	18	16	11	1

VK EAST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	10.4	12	7.6	0	5	-11	-29	...
2	9.7	6	7.5	0	5	-11	-28	...
3	9.3	0	7.1	-18	1	-13	-29	...
4	11.9	3	9.1	-36	4	-2	-13	-29
5	16.5	7	12.0	...	6	6	1	-8
6	19.0	7	14.0	...	6	8	4	-3
7	19.2	7	14.3	...	6	8	5	-2
8	17.8	8	14.2	...	7	8	3	-5
9	16.2	9	12.8	-39	9	6	0	-11
10	14.4	9	11.4	-27	9	4	-5	-19
11	12.8	11	10.1	-14	9	0	-12	-30
12	11.6	13	9.2	-2	9	-4	-19	...
13	11.0	17	8.7	11	9	-7	-24	...
14	10.5	22	8.3	23	9	-10	-31	...
15	10.2	26	8.0	31	9	-14	-36	...
16	9.9	28	7.6	35	8	-16	...	...
17	9.7	30	7.1	38	7	-18	...	...
18	9.3	30	6.8	38	5	-22	...	...
19	8.9	31	6.5	37	2	-27	...	...
20	9.2	31	6.3	38	4	-24	...	...
21	9.1	30	6.3	37	2	-27	...	...
22	8.8	27	6.1	31	0	-29	...	...
23	8.5	20	6.0	20	-2	-29	...	...
24	8.9	15	6.4	11	0	-23	...	...

VK SOUTH — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	10.3	20	7.5	16	9	-10	-29	...
2	10.0	14	7.6	6	6	-11	-30	...
3	12.7	14	10.0	...	12	1	-11	-29
4	17.4	13	13.4	-25	15	12	5	-5
5	19.3	10	14.3	...	11	11	7	-1
6	19.8	9	14.4	...	10	11	7	0
7	19.5	9	14.1	...	9	10	6	-1
8	18.7	9	13.4	...	10	10	5	-3
9	17.5	10	12.4	-35	11	9	3	-7
10	16.0	11	11.2	-24	12	7	0	-13
11	14.3	12	10.0	-12	12	4	-6	-23
12	12.8	14	8.9	1	12	0	-14	-35
13	11.6	18	8.0	13	10	-6	-23	...
14	10.7	21	7.4	23	9	-12	-32	...
15	10.2	25	7.0	31	7	-16	...	...
16	9.8	27	6.7	34	5	-21	...	...
17	9.4	29	6.5	37	3	-26	...	...
18	9.1	30	6.4	37	1	-29	...	...
19	8.8	30	6.3	37	-1	-33	...	...
20	8.7	30	6.3	36	-2	-34	...	...
21	9.4	29	6.7	38	3	-26	...	...
22	9.3	30	6.5	38	3	-26	...	...
23	9.0	27	6.5	32	1	-27	...	...
24	9.6	22	6.9	24	4	-21	...	...

VK WEST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.5	23	7.2	25	4	-20	...	...
2	9.3	17	7.1	13	4	-18	...	...
3	12.1	15	9.5	1	12	-1	-15	-36
4	16.9	13	13.0	-19	16	11	4	-8
5	19.6	11	15.4	-37	13	13	8	0
6	20.4	10	16.6	...	11	13	9	1
7	20.5	9	16.9	...	10	12	8	1
8	20.2	9	16.5	...	10	12	8	0
9	19.4	10	15.7	...	11	11	7	-2
10	18.0	11	14.4	-34	12	10	4	-6
11	16.3	12	13.8	-19	14	9	0	-12
12	14.5	15	11.5	-2	15	6	-5	-22
13	12.9	18	10.2	12	15	1	-14	-35
14	11.7	22	9.3	25	14	-4	-23	...
15	11.1	26	8.8	34	13	-8	-29	...
16	10.6	28	8.4	37	11	-12	-35	...
17	10.2	29	8.1	40	9	-16	...	...
18	10.0	30	7.8	41	8	-18	...	...
19	9.8	31	7.6	40	7	-20	...	...
20	9.4	31	7.3	40	4	-24	...	...
21	9.0	31	6.9	39	1	-29	...	...
22	9.3	31	7.0	39	3	-26	...	...
23	10.1	31	7.8	41	9	-16	...	...
24	9.4	31	7.2	39	5	-23	...	...

VK EAST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	24.4	13	20.2	...	18	21	18	12
2	25.5	13	19.6	...	18	21	19	14
3	26.4	13	20.6	...	18	22	20	16
4	26.8	14	22.1	...	19	22	21	17
5	26.8	14	22.0	-38	20	23	22	17
6	26.1	14	21.2	-28	23	24	22	17
7	24.5	15	19.8	-13	26	25	21	15
8	22.4	17	18.8	13	31	26	20	11
9	20.3	20	16.2	41	36	27	18	5
10	18.1	22	14.4	46	34	22	10	-6
11	16.4	23	13.0	48	31	16	2	-17
12	15.5	24	12.3	49	29	12	-3	-24
13	14.8	24	11.7	49	27	9	-7	-30
14	14.2	25	11.3	48	24	5	-12	-37
15	13.6	25	10.7	48	22	2	-17	...
16	13.2	25	10.3	47	20	-1	-21	...
17	12.1	26	9.4	46	15	-10	-33	...
18	10.4	27	8.0	42	3	-29	...	...
19	9.8	28	7.5	41	-2	-37	...	...
20	10.1	28	7.8	42	0	-32	...	...
21	14.6	22	11.5	35	23	6	-9	-31
22	21.3	16	16.8	0	26	23	16	7
23	22.7	15	18.2	-19	23	22	17	10
24	23.3	14	19.0	-31	20	21	17	10

VK SOUTH — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	16.9	11	15.4	...	13	12	7	-2
2	19.7	11	16.3	...	12	13	9	0
3								

VK EAST — EUROPE											VK SOUTH — EUROPE											VK WEST — EUROPE										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5						
1	10.0	-3	7.3	...	...	...	...	...	1	10.9	6	7.7	...	...	...	...	...	1	11.5	16	8.1	...	...	...	...	...	
2	9.6	-10	7.1	...	...	...	...	...	2	10.3	-2	7.4	...	...	...	...	...	2	10.8	6	7.7	...	...	...	...	...	
3	10.2	-11	7.5	...	...	...	...	...	3	10.8	-6	7.9	...	...	...	...	...	3	11.3	1	8.2	...	...	...	...	...	
4	11.8	-7	8.3	...	...	...	...	...	4	12.7	-4	8.6	...	...	...	...	...	4	13.4	1	9.0	...	...	...	...	...	
5	14.2	-2	10.7	...	...	...	...	...	5	15.5	0	11.5	...	...	...	...	...	5	16.5	3	12.1	...	...	...	...	...	
6	16.4	1	12.3	...	...	...	...	...	6	18.0	3	13.3	...	...	...	...	...	6	19.2	5	14.1	...	...	...	...	...	
7	17.8	4	13.4	...	...	...	...	...	7	19.4	5	14.4	...	...	...	...	...	7	20.8	6	15.3	...	...	...	...	...	
8	18.6	6	14.0	...	...	...	...	...	8	20.2	6	15.0	...	...	...	...	...	8	21.6	7	15.9	...	...	...	...	...	
9	19.2	9	14.5	...	...	...	...	...	9	18.9	7	15.1	...	...	...	...	...	9	22.4	8	16.5	...	...	...	...	...	
10	18.4	11	14.6	...	...	...	...	...	10	17.1	7	13.5	...	...	...	...	...	10	21.7	8	16.8	...	...	...	...	...	
11	16.3	12	13.0	...	...	...	...	...	11	15.2	8	12.1	...	...	...	...	...	11	19.7	9	16.6	...	...	...	...	...	
12	14.8	15	11.7	...	...	...	...	...	12	13.5	10	10.7	...	...	...	...	...	12	17.7	11	14.1	...	...	...	...	...	
13	14.0	17	11.1	...	...	...	...	...	13	12.3	14	9.7	...	...	...	...	...	13	15.7	14	12.5	...	...	...	...	...	
14	13.3	21	10.6	...	...	...	...	...	14	11.7	18	9.3	...	...	...	...	...	14	14.3	17	11.3	...	...	...	...	...	
15	12.8	23	10.1	...	...	...	...	...	15	11.2	22	8.8	...	...	...	...	...	15	13.6	20	10.7	...	...	...	...	...	
16	12.4	25	9.7	...	...	...	...	...	16	10.9	25	8.6	...	...	...	...	...	16	12.9	24	10.2	...	...	...	...	...	
17	12.1	27	9.4	...	...	...	...	...	17	10.7	27	8.4	...	...	...	...	...	17	12.5	25	9.9	...	...	...	...	...	
18	11.2	29	8.7	...	...	...	...	...	18	10.5	29	8.1	...	...	...	...	...	18	12.1	27	9.5	...	...	...	...	...	
19	9.9	30	7.6	...	...	...	...	...	19	10.1	29	7.8	...	...	...	...	...	19	11.9	27	9.3	...	...	...	...	...	
20	9.5	30	7.3	...	...	...	...	...	20	9.5	30	7.3	...	...	...	...	...	20	11.2	28	8.6	...	...	...	...	...	
21	10.8	30	8.2	...	...	...	...	...	21	9.7	30	7.3	...	...	...	...	...	21	10.0	28	7.7	...	...	...	...	...	
22	10.2	23	7.8	...	...	...	...	...	22	10.2	30	7.9	...	...	...	...	...	22	9.8	29	7.5	...	...	...	...	...	
23	10.8	13	7.6	...	...	...	...	...	23	10.3	23	8.0	...	...	...	...	...	23	11.1	28	8.5	...	...	...	...	...	
24	10.4	4	7.5	...	...	...	...	...	24	11.3	15	7.9	...	...	...	...	...	24	10.2	25	7.8	...	...	...	...	...	

VK EAST — EUROPE (Long path)											VK SOUTH — EUROPE (Long path)											VK WEST — EUROPE (Long path)										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5						
1	11.6	10	7.8	...	...	...	...	...	1	10.7	5	7.3	...	...	...	...	...	1	10.2	-5	7.1	...	...	...	...	...	
2	11.1	12	7.5	...	...	...	...	...	2	10.2	9	7.1	...	...	...	...	...	2	9.8	-2	6.9	...	...	...	...	...	
3	10.8	14	7.4	...	...	...	...	...	3	9.8	13	6.9	...	...	...	...	...	3	9.4	0	6.7	...	...	...	...	...	
4	10.4	18	7.2	...	...	...	...	...	4	9.5	17	6.8	...	...	...	...	...	4	9.2	4	6.6	...	...	...	...	...	
5	9.9	23	7.0	...	...	...	...	...	5	9.3	22	6.7	...	...	...	...	...	5	9.0	8	6.5	...	...	...	...	...	
6	10.5	24	7.5	...	...	...	...	...	6	9.8	23	7.2	...	...	...	...	...	6	9.5	11	7.0	...	...	...	...	...	
7	12.2	23	8.9	...	...	...	...	...	7	11.3	23	6.4	...	...	...	...	...	7	10.9	14	8.2	...	...	...	...	...	
8	13.6	22	10.5	...	...	...	...	...	8	13.4	21	10.0	...	...	...	...	...	8	12.6	15	9.6	...	...	...	...	...	
9	11.1	16	8.5	...	...	...	...	...	9	12.8	18	8.9	...	...	...	...	...	9	14.6	15	11.0	...	...	...	...	...	
10	10.6	7	8.1	...	...	...	...	...	10	11.0	12	8.0	...	...	...	...	...	10	13.8	13	9.7	...	...	...	...	...	
11	11.6	3	9.2	...	...	...	...	...	11	10.4	4	7.5	...	...	...	...	...	11	10.6	5	8.3	...	...	...	...	...	
12	11.1	-3	8.7	...	...	...	...	...	12	10.4	0	7.1	...	...	...	...	...	12	10.6	-1	7.6	...	...	...	...	...	
13	10.7	-8	8.4	...	...	...	...	...	13	10.0	-7	7.0	...	...	...	...	...	13	10.8	-5	7.3	...	...	...	...	...	
14	10.4	-12	8.1	...	...	...	...	...	14	9.6	-12	6.7	...	...	...	...	...	14	10.3	-11	6.9	...	...	...	...	...	
15	10.2	-16	7.9	...	...	...	...	...	15	9.4	-18	6.6	...	...	...	...	...	15	9.9	-17	6.7	...	...	...	...	...	
16	9.8	-19	7.5	...	...	...	...	...	16	9.1	-33	6.4	...	...	...	...	...	16	9.5	-25	6.5	...	...	...	...	...	
17	9.3	-27	7.1	...	...	...	...	...	17	8.8	...	6.3	...	...	...	...	...	17	9.3	-38	6.4	...	...	...	...	...	
18	9.6	-20	7.2	...	...	...	...	...	18	9.3	-37	6.8	...	...	...	...	...	18	9.0	...	6.3	...	...	...	...	...	
19	11.4	-11	8.9	...	...	...	...	...	19	10.8	-14	7.4	...	...	...	...	...	19	8.7	...	6.2	...	...	...	...	...	
20	14.4	-1	11.0	...	...	...	...	...	20	13.3	-6	9.9	...	...	...	...	...	20	9.2	...	6.6	...	...	...	...	...	
21	15.5	3	10.5	...	...	...	...	...	21	14.3	-2	9.9	...	...	...	...	...	21	10.7	-16	7.1	...	...	...	...	...	
22	13.9	4	9.4	...	...	...	...	...	22	12.8	-3	8.9	...	...	...	...	...	22	12.3	-10	8.7	...	...	...	...	...	
23	12.9	6	8.7	...	...	...	...	...	23	11.9	-2	8.2	...	...	...	...	...	23	11.5	-10	8.0	...	...	...	...	...	
24	12.1	7	8.1	...	...	...	...	...	24	11.1	1	7.7	...	...	...	...	...	24	10.7	-9	7.4	...	...	...	...	...	

VK EAST — MEDITERRANEAN											VK SOUTH — MEDITERRANEAN											VK WEST — MEDITERRANEAN										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5						
1	11.3	4	8.6	...	...	...	...	...	1	11.3	10	8.7	...	...	...	...	...	1	10.4	17	8.0	...	...	...	...	...	
2	11.1	-2	8.4	...	...	...	...	...	2	11.0	2	8.3	...	...	...	...	...	2	10.2	7	7.7	...	...	...	...	...	
3	14.3	1	10.8	...	...	...	...	...	3	14.3	4	11.3	...	...	...	...	...	3	13.1	6	10.4	...	...	...	...	...	
4	19.6	6	15.0	...	...	...	...	...	4	20.0	7	15.4	...	...	...	...	...	4	18.2	8	14.0	...	...	...	...	...	
5	23.7	8	18.5	...	...	...	...	...	5	22.2	7	18.6	...	...	...	...	...	5	21.4	8	16.3	...	...	...	...	...	
6	24.9	8	20.4	...	...	...	...	...	6	22.2	7	18.3	...	...	...	...	...	6	21.7	7	18.1	...	...	...	...	...	
7	24.1	8	19.5	...	...	...	...	...	7	21.9	7	17.9	...	...	...	...	...	7	21.8	7	18.0	...	...	...	...	...	
8	22.5	8	18.1	...	...	...	...	...	8	21.0	7	17.0	...	...	...	...	...	8	21.6	7	17.7	...	...	...	...	...	
9	20.4	9	17.2	...	...	...	...	...	9	19.5	7	15.6	...	...	...	...	...	9	20.8	7	16.9	...	...	...	...	...	
10	18.3	10	14.6	...	...	...	...	...	10	17.6	8	13.9	...	...	...	...	...	10	19.4	8	15.6	...	...	...	...	...	
11	16.2	12	12.9	...	...	...	...	...	11	15.7	9	12.4	...	...	...	...	...	11	17.6	9	14.9	...	...	...	...	...	
12	14.7	14	11.7	...	...	...	...	...	12	13.9	12	11.0	...	...	...	...	...	12	15.8	12	12.5	...	...	...	...	...	
13	14.0	18	11.1	...	...	...	...	...	13	12.6	16	10.0	...	...	...	...	...	13	14.0	15	11.1	...	...	...	...	...	
14	13.4	22	10.6	...	...	...	...	...	14	12.0	20	9.5	...	...	...	...	...	14	12.8	19	10.1	...	...	...	...	...	
15	12.8	25	10.2	...	...	...	...	...	15	11.5	24	9.0	...	...	...	...	...	15	12.2	23	9.6	...	...	...	...	...	
16	12.5	27	9.8	...	...	...	...	...	16	11.1	26	8.7	...	...	...	...	...	16	11.6	25	9.2	...	...	...	...	...	
17	12.2	28	9.5	...	...	...	...	...	17	10.9	28	8.5	...	...	...	...	...	17	11.3	27	9.0	...	...	...	...	...	
18	11.4	29	8.9	...	...	...	...	...	18	10.7	28	8.3	...	...	...	...	...	18	11.0	27	8.6	...	...	...	...	...	
19	10.2	30	7.9	...	...	...	...	...	19	10.2	29	7.9	...	...	...	...	...	19	10.8	28	8.4	...	...	...	...	...	
20	10.																															

HAMADS

TRADE ADS

● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth.

● **WEATHER FAX programs for IBM XT/ATs** *** "RADFAX2" \$35-00, is a high resolution shortwave weatherfax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" \$45-00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" \$75-00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add \$3-00 postage. ONLY from M Delahunty, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

● **HAM LOG v.3.1** — Acclaimed internationally as the best IBM logging program. Review samples....AR: "Recommend it to anyone"; The Canadian Amateur: "Beyond this reviewer's ability to do it justice. I cannot find anything to improve on. A breakthrough of computer technology". ARA: "Brilliant". Simple to use with full help, the professional HAM LOG is immensely popular (now in its 5th year), with many useful, superb features. Just \$59 (+ \$5 P & P), with a 90 page manual. Special 5 hour Internet offer. Demos, brochures available. Robin Gandevia VK2VN (02) 369 2008 BH fax (02) 360 3069.

FOR SALE NSW

● **FIVE Hilltop acres excellent HF/VHF.** Erect tower of your dreams amid tranquility character full home 12 mins from main shops 15 to superb beaches in go ahead Gosford \$365,000. Write Dave Bell, RMB 5445, The Ridgeway, Holgate Gosford NSW 2250.

● **REALISTIC DX302 quartz synthesised 0.01 to 30 MHz ac-dc \$150, manual.** L Adams (043) 96 3172.

● **HIDAKA trap vertical antenna.** Leo VK2QB (049) 43 3392.

● **TH3JR Antenna 3 element tri bander with balun \$150; KR400 Rotator \$150; 50 ft push up steel mast \$50.** Keith VK2DZT QTHR (047) 39 2503.

● **KDK — 2025A/E Mark II 2 m FM txcvr, s/n 1026, 3 or 25 W, large dig display, 10 memories,**

manual \$250; AZDEN PCS-300 2 m HH, s/n 14602, 1 or 3 W, LCD, 8 memories, bat charger, c/case \$250. Both rigs exc cond — very little used. Ben VK2DLB QTHR (02) 623 4032.

● **YAESU diplexer VHF/UHF new cond \$50.** Gordon VK2AVT QTHR (02) 580 4325.

● **PACCOM TNC-200 packet controller \$160; DVK-100 digital voice keyer \$450; SWAP/SALE some 300 issues of QST.** Tom VK2OE (046) 26 2631 evenings.

● **PORTABLE packet, Epson laptop PC, Baycom modem and TH21 HT 2 m, ready to go on packet \$500; 1 kW Uninterrupt power supply \$100 not working; 12 V Adaptor for Philips PCR41 mobile phone \$50; BROTHER HR-5 portable printer (uses fax paper or plain paper, can run on batteries) \$110; 386DX motherboard with Intel chips incl 30387 co-processor \$200.** Horst VK2HL (02) 971 9795.

● **ICOM IC-736 HF plus 6 metres 100 W on all bands, brand new in box with ICOM base mic and ext speaker s/n 01234 \$3100 firm.** Jim VK2TEM QTHR (06) 299 8657 AH or (06) 286 1770 BH.

FOR SALE VIC

● **ICOM SM-8 microphone with plug, as new \$150.** Firm price no deals. Roth VK3BG (03) 725 3550.

● **UNIDEN 760XLT scanner top condition with orig carton manuals etc. \$280.** Damien VK3CDI (054) 27 3121.

● **KENWOOD TR2600A, EC, with ext mike, VOX head set, soft case and drop-in charger, s/n 5022246 \$200.** With orig books ccts etc. Keith VK3AFI QTHR (052) 21 3658.

● **TOWER 60 ft/18 metres self supporting 8 ft base with ladder and specs \$480 ono; ICOM IC04A \$250; J Pole 6 m Coman Antenna \$50 ono.** Brian VK3EO (03) 366 7707.

● **PHILIPS FM828 UHF W1 10ch \$100; TAIT aircraft transceiver 30 W 6 ch \$250; 13.8 V 20 A supply \$200; 20 V 10 A transformer brand new \$40.** Tony VK3ZOT (03) 728 5598.

● **YAESU FR160 AM/SSB marine rec \$200; BEARCAT 220 scanner \$200; BTR20 50 W VHF BASE \$200; 27 MHz marine trans with AM/FM rec brand new \$200; SEIWA VHF pocket scan \$100; 12 CHAN VHF pocket rec \$100; 12 chan air pocket rec \$100.** All vgc. Ian VK3JAN (059) 82 2323.

● **ESTATE of the late Mr Ron Raworth.** Free standing tilt-over tower, approx 80 ft at rotator mounting, tower base bolts onto large concrete base. All plans and drawings included, tower standing at Talbot and buyer to dismantle, etc. \$500; ANTENNA rotator KR-2000 complete with control unit, cables and manual currently fitted to above tower \$300; 4 ELEMENT beam antenna 10, 15, 20 m (Tet brand?) \$100; 2 m vertical antenna (unknown brand) \$100; SWR

power meter Kenwood SW-100B complete with box, covers 1.8-150 and 140-450 MHz \$75; CB SBE Sidebander IV, suit conversion to 10 m \$50. Please contact Geoff Agar VK3BGT Somerville (059) 77 5824.

FOR SALE QLD

● **VIDEOCAMERA Canovision E60 (Deceased estate) with CA-100 adaptor, tapes, charger, four NP37 nicads, manual, padded bag, only ever used 3 times \$900; HEATHKIT SB201 linear mint cond spare pair 572 finals \$700.** "Doc" VK4CMY (076) 85 2167 AH.

● **KENWOOD TS50S s/n 59604032 never been used, in original carton with mic, op manual, mobile rack, urgent sale \$1300.** Anne VK4FAB QTHR (070) 53 4115.

● **YAGI antenna 6 m band 52-54 MHz, six elements, ARRL design, seven meter boom, very clean pattern, homebrew.** Geoff VK4ZGF QTHR (071) 22 1368.

● **TOWER HILLS cyclonic galvanised 13 m winch-up rotator Kenpro KR1000; ANTENNA Tet-Emtron TE46 6 band with coax installed 2 years \$1500 ono still assembled.** Ron VK4FRW QTHR (075) 98 7460.

FOR SALE WA

● **YAESU FT767GX HF with tuner PS tcxo all VHF/UHF modules built in s/n 9D250128 offers please.** Graham VK6RO QTHR (09) 451 3561.

● **HILLS PARADISE, Perth 25 minutes, 1.3 acres 1000' ASL, 90' tower, four bedrooms, two bathrooms, large studio/shack, sub division available \$286K.** John Hawkins VK6HQ (09) 291 7908.

FOR SALE TAS

● **YAESU FRG9600 scanner receiver SSB/FM new AM 50-905 MHz new condition cost \$1199.00 sell \$650 ono; EMOTATOR 105STX Med/hduty rotator new unused \$580.** VK7AN Allen (003) 27 1171.

WANTED NSW

● **URGENT required circuit National PF2800 receiver, will pay cost.** L Adams (043) 96 3172.

● **COLLINS 52-S1 or 52-S2 receiver, SM-1 or SM-2 microphone, 312B console, Drake PS-7 power supply (working or not).** Tom VK2OE (046) 26 2631 evenings.

● **TELEREADER CWR-685A key board circuit or quote repair any help appreciated.** Bill VK2WHM Coolah 2843 or phone (068) 44 6252 evening.

● **ICOM IC-2A 2 m and IC-4E 70 cms handhelds not working for parts only.** Ken VK2YKM (066) 44 9944 AH or (066) 42 2766 BH or PO Box 994, Grafton NSW 2460.

WANTED VIC

- JENLEX 50 Ohm helical notch filter model HNF2 (4 stage, 1 inch square resonators). David VK3DNG QTHR (03) 859 4698.
- HANDBOOK and/or circuits for Philips FM321 70 cm transceiver will repay costs or copy and return. Dave VK3DHF OTHR (03) 669 4153 BH or (03) 729 5380 AH.
- WANTED BADLY Marconi TF1247 oscillator, also circuits and manuals for Polarad SA-84WA spectrum analyser, and Datapulse 110B pulse generator. Russ VK3KRS (03) 562 6331 after 6 pm weekdays.
- KYOKUTO FM144 — 10 SXR or similar 2 m transceiver, will pay around \$100 for a good one. Jim Sosnin VK3TQT QTHR (03) 479 2375 BH or (03) 439 6871 AH.

WANTED SA

- WANTED two or more seven pin 813 valve bases. Murray VK5BVJ QTHR (087) 38 0000.

WANTED TAS

- RQ TS900 older R/O old price pse. George VK7GW (003) 76 8283.

MISCELLANEOUS

- HELP needed from DXers. Please donate a few of your unusual call sign prefixes and other Commemorative cards to your National WIA QSL collection. Please contact Hon Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350.

ar

VK QSL Bureaux

The official list of VK QSL Bureaux. All are Inwards and Outwards unless otherwise stated.

- VK1 GPO Box 600 Canberra ACT 2601
- VK2 PO Box 73 Teralba NSW 2284
- VK3 40G Victory Boulevard, Ashburton VIC 3147
- VK4 GPO Box 638 Brisbane Qld 4001
- VK5 PO Box 10092 Gouger Street Adelaide SA 5001
- VK6 GPO Box F319 Perth WA 6001
- VK7 GPO Box 371D Hobart Tas 7001
- VK8 C/o H G Andersson VK8HA
Box 619 Humpty Doo NT 0836
- VK9/VK0 C/o Neil Penfold VK6NE
2 Moss Court Kingsley WA 6026

Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.

*Eight lines per issue free to all WIA members, ninth line for name and address
Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.

*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.

*Copy typed or in block letters to PO Box 2175, Caulfield Junction, Vic 3161, by the deadline as indicated on page 1 of each issue.

*QTHR means address is correct as set out in the WIA current Call Book.

*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.

*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

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Not for publication:

Miscellaneous

For Sale

Wanted

Name:..... Call Sign:..... Address:

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It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with strictly.

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All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

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Telephone: 428 2958

MAIL DISTRIBUTION:

R L Polk & Co Pty Ltd, 96 Herbert St, Northcote, Vic. 3070. Tel: (03) 482 2255

CONTRIBUTIONS TO AMATEUR RADIO

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. "How to Write for Amateur Radio" was published in the August 1992 issue of AR. A photocopy is available on receipt of a stamped, self addressed envelope.

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Fill out the following form and send to:

The Membership Secretary
Wireless Institute of Australia
PO Box 2175
Caulfield Junction, Vic 3161

I wish to obtain further information about the WIA.

Mr, Mrs, Miss, Ms:.....

Call Sign (if applicable):.....

Address:.....

State and Postcode:.....

WIA Morse Practice Transmissions

VK2BWI Nightly at 2000 local on 3550 kHz

VK2RCW Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm

VK3COD Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz

VK3RCW Continuous on 144.975 MHz 5 wpm, 10 wpm

VK4WIT Monday at 0930 UTC on 3535 kHz

VK4WSS Tuesday at 0930 UTC on 3535 kHz

VK4WCH Wednesday at 1000 UTC on 3535 kHz

VK4AV Thursday at 0930 UTC on 3535 kHz

VK4WIS Sunday at 0930 UTC on 3535 kHz

VK5AWI Nightly at 2030 local on 3550 kHz

VK5RCW Continuous on 144.975 MHz, 5 wpm to 12 wpm

VK6WIA Nightly at 1930 local on 146.700 MHz and nightly (except Saturday) at 1200 UTC on 3.555 MHz.

WIA Divisional Bookshops

The following items are available from your Division's Bookshop
(see the WIA Division Directory on page 3 for the address of your Division)

	Ref	List Price		Ref	List Price
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Ant. Compendium Vol 2 Software 5.25" IBM Disk	BR293	\$22.00			
Antenna Compendium Vol 1 — ARRL Book	BR163	\$26.00			
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Antenna Compendium Vol 3 — ARRL Book	BR453	\$37.00			
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G-QRP Antenna Handbook — RSGB — 1992 1st Edition	BR452	\$22.50			
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Reflections Transmission Lines and Antennas — ARRL	BR348	\$52.00			
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Novice Notes, The Book — QST — ARRL	BR298	\$16.00			
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Understanding Basic Electronics	BR454	\$36.00			
WIA Novice Study Guide		\$1.50			
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Ferrell's Confidential Frequency List	BR387	\$40.00			
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Nth American Callbook 1995	BR338	\$56.50			
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Buckmaster Electronic Software CD ROM Compendium	BR497	\$45.00			
Design Note Book W1FB — ARRL	BR357	\$26.00			
G-QRP Circuit Handbook — G Dobbs — RSGB	BR441	\$31.00			
Ham Radio Communications Circuit Files	MFJ37	\$24.95			
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The prices are correct as at the date of publication but, due to circumstances beyond the control of the WIA, may change without notice.



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MAY 1995
Volume 63 No 5

RADIO **AMATEUR**



Journal of the Wireless Institute of Australia



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Wireless Institute of Australia 1995

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Cover

One of our best-known authors, Lloyd Butler VK5BR, can sometimes be found at the operating desk, but probably is even happier in his test lab (not in the photo, but only one metre to the right!). Beginning in 1983, when he was some years from retirement from the Defence Science and Technology Organisation, Lloyd has written about 60 articles for *Amateur Radio* magazine, on a wide range of topics.

Photograph by Bill Rice VK3ABP

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest National Radio Society Founded 1910

Representing the Australian Amateur Radio Service

Member of the International Amateur Radio Union

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Editor's Comment

Letters Received

Most of the material that arrives here addressed to "The Editor" fits into its particular category with no problem. Letters mostly go into "Over to You", regular columns slip straight into place, technical articles go to the Technical Editors, and so on.

But there are exceptions, usually in the form of letters too long for publication in "Over to You", and apparently seeking a personal reply from me. More often than not they need a good deal of editorial research before an answer can be given. They cannot be dealt with in five minutes, so they fall into the mythical "too hard" basket. Others fall on top of them and soon they are "snowed under". Time passes.

However, several such recent letters have refused to lose themselves, and probably the best way of doing them justice is here and now.

To begin, VK4CGO comments on the March "Editor's Comment" ("Publication Delays"). He assumes it was serious (yes, it was), and asks what is the hobby of amateur radio really about that we seem to be a "commercially based radio activity", with a magazine "topical, without bias, in no way offensive", with preferred input on computer disk and professionally drawn diagrams.

We can sympathise with his concern about "commercially based", particularly regarding the age-old controversy between "home-brew" and "bells and whistles". But, if members are to build their own from our published designs, they must be much more than scribble and sketches. Almost all of our regular contributors already submit their copy on disk.

Then there was a letter in "Over to You" back in January from VK1PBT, who complained that *Amateur Radio* carried too little material for Novices or beginners generally. We had to admit that, since Ron Cook VK3AFW stopped writing "Novice Notes" some years ago, the complaint was somewhat justified.

"Doc" Wescombe-Down VK4CMY (who used to write a Novice Column with Rodney Champness VK3UG even further back in time) volunteered to "start up" again. But so did Peter Parker (now VK1PK, ex VK6BWI), full of enthusiasm and bright ideas. He even called on VK1PBT and persuaded him to rejoin the WIA. So thanks to "Doc" for volunteering, but you've already done your bit and more! Peter's column should start in a couple of months from now.

Finally, a letter from VK8NSB looked at things from the viewpoint of a Novice in Darwin. He's full of enthusiasm to upgrade and already prefers CW at 20 plus wpm, but is having some trouble with AOC theory. Keep plugging away, Stuart, and I'm sure some of the locals will help where they can. Perseverance eventually wins.

Bill Rice VK3ABP
Editor
ar

WIA News

WIA Action Over Licence Fees

Misinformed criticisms and allegations over Federal WIA actions in regard to the SMA's Inquiry into Apparatus Licensing and the subsequent determination of amateur licence fees have been circulated within the Divisions and on the packet radio network recently.

While the strident language and the repeating of clearly inaccurate and speculative statements used debased the credibility of the statements, some amateurs and Institute members have sought to build the credence of these criticisms

and allegations by frequent repetition.

One baseless allegation made was that Federal WIA representatives at the 5 December liaison meeting with the SMA accepted the SMA's proposed fees and "...agreed to help sell the fees to the amateurs."

The Federal WIA and its SMA Liaison representatives *never* "accepted" the fees proposed by the SMA last December, nor agreed to help "sell" them to amateurs.

The *WIA News* insert to the January issue of *Amateur Radio* simply reported the facts of the statements made by the SMA at the 5 December 1994 meeting, without

Institute comment. The text of that release was circulated to all Divisions, to the amateur radio and electronics press, and put on the packet radio network on 15 December 1994.

Within a day, a number of packet radio operators were suggesting amateurs write to members of Parliament. The following Sunday, 18 December, news of the proposed fees was on Divisions' broadcasts.

On 30 December 1994, taking advantage of the holiday's "slow news" period, the Federal WIA issued a press release to the general print and electronic media, resulting in wide press coverage in January of amateurs' early objections to the new fees regime, in particular the spectrum access tax.

The purpose of this release was to publicise the issue to amateurs and other interested people who are not

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers	Call Sign	Weekly News Broadcasts	1995 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Rob Apathy Secretary Len Jones Treasurer Don Hume	VK1KRA VK1NLJ VK1DH	3.570 MHz LSB, 146.950 MHz FM, 438.525 MHz FM each Monday evening (except the fourth Monday) commencing at 8.00 pm. Repeated on Wednesday evening at 8.00 pm on 3.570 MHz LSB, 146.950 MHz FM and 438.525 MHz FM.	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Michael Corbin Secretary Pixie Chappie Treasurer Peter Kloppenburg (Office hours Mon-Fri 11.00-14.00 Mon 1900-2100)	VK2PFQ VK2KPC VK2CPK	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. Voicemail highlights on (02) 724 8793. The broadcast text is available on packet.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261 Fax (03) 885 9298	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530)	VK3PC VK3XV VK3XLZ	MONTHLY BROADCAST on the second Sunday of the month, starts 10.30 am. Primary frequencies 3.615 LSB, 7.085 LSB, and FM(R)s 146.700 Mt Dandenong, 147.250 Mt Macedon, 147.225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH, VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Lance Bickford Secretary Rodger Bingham	VK4ZAZ VK4HD	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Garry Herden Secretary Maurie Hooper Treasurer Charles McEachern	VK5ZK VK5EA VK5KDK	1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555, 7065, 10125, 146.700, 0900 hrs Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 434 3283	President Cliff Bastin Secretary Ray Spargo Treasurer Bruce Hedland-Thomas	VK6LZ VK6RR VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 52 Connaught Crescent West Launceston TAS 7250 Phone (003) 31 9608	President Andrew Dixon Secretary Robin Harwood Treasurer Terry Ives	VK7GL VK7RH VK7ZTI	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$69.00 (G) (S) \$55.65 (X) \$40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).			Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times.

Note: All times are local. All frequencies MHz.

members of the WIA, don't have access to packet radio, don't frequent radio club meetings or may not have heard the issue discussed on the bands. It certainly succeeded (see "WIA action on proposed licence fees", *WIA News*, February *Amateur Radio*).

The Federal WIA acted very quickly to first publicise as widely as possible the proposed fees and amateurs' objections to them. On 3 January 1995 the SMA demanded an explanation from the WIA for its actions in publicising the issue and Federal President Neil Penfold VK6NE wrote to the Spectrum Manager, Christine Goode, the next week seeking a specific meeting for the WIA to negotiate with the SMA on the licence fees.

Before a reply was received, Neil Penfold was approached on 2 March by an adviser to the Minister for Communications, Michael Lee, seeking to arrange a meeting between the WIA and the government. A meeting with the Parliamentary Secretary to the Minister for Communications, Paul Elliott, was arranged for Monday, 6 March, and confirmed on Friday, 3 March.

That invitation was sparked by a number of things, including the barrage of letters to MPs from amateurs around Australia, and an on-air interview on the ABC Queensland regional radio network between presenter David Anderson and Paul Elliott, who explained the SMA's position on amateur licence fees, followed by an interview between David Anderson and WIA Vice Chairman Roger Harrison VK2ZRH, who comprehensively rebutted the arguments put by Paul Elliott.

Another baseless allegation made was that, at that meeting on 6 March, the Federal WIA representatives, Roger Harrison VK2ZRH and David Wardlaw VK3ADW, "reached or agreed on" a fee with Paul Elliott. *No fee level was either discussed or negotiated.* So, it was impossible to agree to anything, either.

As reported in *WIA News* in the March issue of *Amateur Radio*, it was Paul Elliott who met with the SMA subsequent to the 6 March meeting

and negotiated the \$51 flat fee which he announced in Parliament late in the evening of 8 March. The Federal WIA was only advised of the new flat fee and sent official confirmation on 9 March. The Spectrum Manager, Christine Goode, wrote to Federal President Neil Penfold on 9 March, responding to his January letter, advising of the new \$51 flat fee and suggesting a meeting. That meeting took place on 27 March, in Perth.

Neil Penfold sought clarification of beacon and repeater licence fees during that meeting. The results of WIA-SMA consultations over beacon and repeater licence fees are covered in another *WIA News* release.

Further baseless allegations regarding WIA representations on licence fees claimed the WIA had been "...mucking around with this since December 1993".

Nothing could be further from the truth. In September 1990, and again in July 1991, the Federal WIA made submissions to the House of Representatives Standing Committee on Transport, Communications and Infrastructure (HORSCOTCI). The first submission was to the HORSCOTCI *Inquiry into management of the radio frequency spectrum*, and the second was in response to the HORSCOTCI discussion paper, *Issues and options in radio frequency spectrum management*.

In each instance, the WIA's concerns over how the amateur radio service was licensed, and might be licensed in the future, and the charging of licence fees were raised in the submissions. Objections were raised to commercial price-based or market type setting of fees.

The SMA's discussion paper on Apparatus Licensing, dated December 1993 but not issued until late January 1994, sought public response, with a deadline of 15 March 1994. The Federal WIA made a submission to the SMA covering six major points (reported in *WIA NEWS* in 1994), including consideration for the "perceived social value" of the Amateur Radio Service, and applicability of Class Licensing. Two Divisions also made their own submission, that from the NSW Division specifically raising the fees issue, saying that a survey of

members indicated they would rather see fees fall or not go above the then \$36 level.

In a scheduled WIA-SMA Liaison meeting on 16 June 1994, Paul Palmer of the SMA explained a number of matters regarding the Apparatus Licence inquiry, but no new information on the matter of fees was put forward. However, it was explained that there would be no Class Licence for amateurs.

On 22 September, in response to rumours circulating about increased licence fees, the Federal WIA wrote to the SMA expressing concern that "...in the SMA's reviewing of Apparatus Licences a formula is being applied to Amateur Radio Licences which may result in increased licence fees".

The submission comprehensively outlined the value of WICEN in assisting community emergencies, the educative role of the annual Scout and Guide "Jamboree of the Air", and the Amateur Service's role in experimentation and technical development.

It concluded with "I trust the value of amateur radio to the community, youth, aged, disabled and Australia is taken into account when the new structure of fees is set in place and that Australia aligns with those other nations who have recognised the value of amateur radio and set their licence fees accordingly".

At the scheduled WIA-SMA Liaison meeting on 28 September 1994, Paul Palmer of the SMA again presented information on Apparatus Licensing and fees. He said Class Licences had been introduced for the CB and 27 MHz handphone services and reiterated information on how Apparatus Licence fees were to be determined. No information other than that previously released in the SMA discussion paper was divulged. However, Mr Palmer did say to the WIA that he thought amateur licence fees might rise "a bit".

No further details on amateur licence fees were forthcoming from the SMA until the proposed fees were divulged to the WIA on 5 December 1994. Between October and December 1994, the SMA Liaison Officer, Gavan Berger VK1EB did raise concerns on the matter during

informal discussions with SMA officers, but no information was provided until the matter was put on the agenda for the 5 December meeting, which was notified the previous week.

Amateur Beacon and Repeater Licence Fees

In a letter Christine Goode wrote to Federal President Neil Penfold VK6NE on 9 March, which confirmed the government's decision to apply a flat amateur licence fee of \$51, the Spectrum Manager indicated that beacons and repeaters would be licensed "on an assigned frequency basis, with fees determined in accordance with the standard fee table".

At a meeting arranged with the Spectrum Manager, Christine Goode, on 27 March in Perth, Neil Penfold raised the matter of amateur beacon and repeater fees, seeking further clarification.

She replied promptly on 31 March, advising that, "for an amateur repeater or an amateur beacon licence the spectrum access tax and

spectrum maintenance charge components of the licence will be derived from the new formula which takes account of spectrum location, geographic location, area of coverage and bandwidth.

"For most such licences, the bandwidth would be between 0 Hz and 36 kHz, and they will therefore attract the minimum spectrum access tax and the minimum spectrum maintenance charge, amounting to around \$13.

"The total fee for the *issue* of such a licence (involving frequency assignment) would be this amount plus the issue charge, calculated on the basis of an hourly rate," Christine Goode explained.

The SMA's hourly rate charge is currently \$91.

Her letter went on, "The *renewal* charge for such a licence would be around \$11, giving a total annual fee at renewal of \$24".

Christine Goode also acknowledged the WIA's foreshadowed submission to Paul Elliott, the Parliamentary Secretary to the Minister for Communications and the Arts.

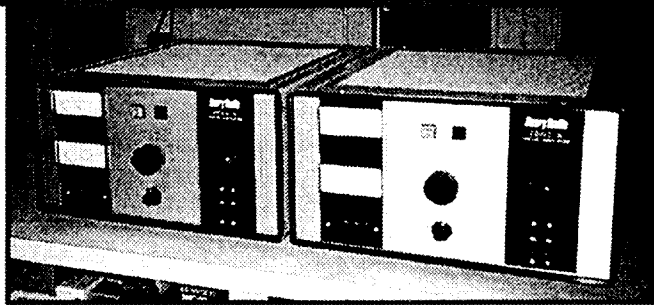
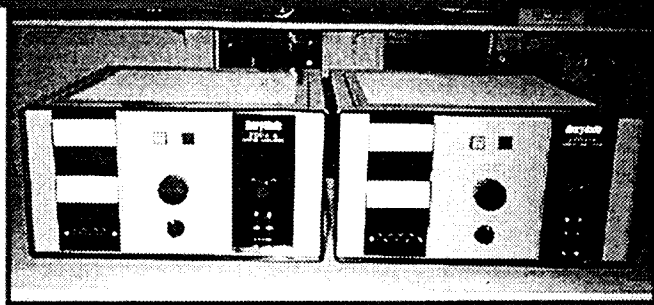
The same day the licensee of the Perth Amateur TV Group's repeaters (VK6RTV), Brian Pilcher VK6TTV, received a little shock — a renewal notice for \$8,938.85! The form RF 284 ("Offer to Renew, Radiocommunications Apparatus Licence[s]") listed a spectrum access tax of \$6,799.89, spectrum maintenance charge of \$2,039.96 and renewal charge of \$99.

Confirming the renewal by fax on Monday, 4 April, WIA Vice Chairman Roger Harrison VK2ZRH sent a fax to Spectrum Manager, Christine Goode, asking if the fee for VK6RTV was correct, as well as seeking further clarification of her advice of 31 March.

In addition to asking about the fees for VK6RTV, the following questions were put to the Spectrum Manager:

- Many voice repeater installations have several channel pairs operating under the one licence at the one site. Does the SMA propose that each channel pair attract the \$24 fee?
- Alternatively, does the SMA propose that each discrete frequency attract the \$24 fee?

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- What is the SMA's role when the beacon and repeater applications are pre-processed by each state's WIA Technical Advisory Committee to ensure compliance with amateur band plans?
- Under the system outlined in your letter, what would be the expected range of fees to issue a new amateur voice or data (packet) repeater licence?

A reply by Friday, 7 April was requested.

On 6 April, a reply from Peter Stackpole, for the Spectrum Manager Christine Goode, advised that "The fee indicated on the computer generated renewal notice for VK6RTV...is not correct and the Spectrum Management Agency is investigating the problem". He included a copy of a letter, dated 4 April, to Don Graham VK6HK, advising that the SMA was reviewing the charges for the Perth ATV Group repeater.

"Further advice on the actual fee level and the methodology for determining the fee will be provided as soon as the investigation is completed," he said.

The next day, 7 April, another letter from Peter Stackpole confirmed that the SMA had "resolved the anomaly" and that the renewal fee of \$24 "applies to amateur television repeaters as well as to narrow band repeaters and beacons," adding that "SMA area offices will adjust any anomalous fees when licensees renew".

In both letters, of 6 and 7 April, Peter Stackpole advised that the initial fee for repeaters and beacons will be charged at an hourly rate of \$91, with a minimum fee of \$45.40 for a half hour. He explained that it reflects the work involved by SMA staff to conduct frequency assignment compatibility checks and that, while the SMA recognised the importance of the coordination role of the WIA's state Technical Advisory Committees, the SMA is still required to perform various technical compatibility checks to ensure the potential for interference from or to nearby commercial users is minimised.

However, each beacon or repeater, once licensed, will attract an annual

re-issue fee of \$24 *per transmitter*, but any associated links are covered by that one transmitter licence.

During informal discussions with SMA officers on the matter, Federal President Neil Penfold ascertained that a simple beacon or repeater application might take less than an hour's work for the SMA to check the assignment, while a more complex application might take up to a few hours. The WIA understands that initial fees might range from under \$90 up to several hundred dollars.

The SMA was first asked about the matter of initial beacon and repeater fees by the WIA's SMA Liaison Officer, Gavan Berger VK1EB, back on 5 December at the scheduled WIA-SMA liaison meeting at which the then-proposed amateur licence fees were first divulged. Followed-up in January and February with SMA officers, but the letter from Christine Goode of 31 March was the first time concrete information was supplied by the SMA. However, the SMA did reply promptly to the WIA's questions faxed on 3 April.

Lower Fees With Five Year Licences

As foreshadowed in the *WIA News* insert in the January issue of *Amateur Radio* magazine, the Spectrum Management Agency (SMA) will shortly introduce five year terms for Apparatus Licences which will afford discounted fees and options for a single up-front payment or instalment payments over a period.

Instalment payments may be made annually over the five years.

The necessary legislation went through the House of Representatives in the Spring session, during March. It is to go before the Senate in the session which commences on 9 May.

It is expected that five year terms for Apparatus Licences (under which amateur stations are currently licensed) will be introduced by or before mid year.

For a five year licence, payment will be discounted by subtracting the value of four re-issue costs from the annual fee multiplied by five. The re-issue fee, as advised by the SMA, is currently \$11.

Under the foreshadowed

arrangements, a five year amateur licence would thus be five x \$51, or \$255, less four x \$11, or \$44 — making the five year fee \$211.

If you then elect to pay in annual instalments, you would be paying \$42.50 a year, or just \$5.20 above the old \$37 annual licence fee, a difference of 14%.

The catch is, the onus will be on the licensee to pay on the anniversary of the first payment (no renewal notices will be issued), or within 60 days of the anniversary, or risk being liable for any amount remaining together with a penalty payment, or even cancellation of the licence. In other words, the legislation reflects normal commercial debt arrangements.

Representation Makes a Difference

WIA representation has gained some official recognition for the Amateur Radio Service in the final draft of the Australian Radiofrequency Plan, released late in January.

The Spectrum Plan is a table of frequency band allocations covering the radio spectrum from 9 kHz to 400 GHz, which specifies the general purposes for which the bands may be used in Australia, alongside provisions of the International Telecommunications Union (ITU) Radio Regulations band allocations for the three world regions.

The Spectrum Plan is the prime document used when making frequency allocations for radiocommunications services in Australia and is legally binding on the Spectrum Management Agency in making decisions on use of the radiofrequency spectrum. Late in 1994, the preliminary draft Spectrum Plan was circulated to the members of the International Radiocommunications Advisory Committee (IRAC). The WIA is represented on this committee by International Study Group coordinator, David Wardlaw VK3ADW.

Working in conjunction with Federal Technical Advisory Committee (FTAC) Chairman, John Martin VK3KWA, and SMA Liaison Office, Gavan Berger VK1EB, David Wardlaw drafted comments which were forwarded to the SMA.

Subsequently, the WIA was invited

to a special meeting in Canberra to discuss these comments with the SMA. That meeting was also attended by representatives from other organisations who had commented, who were — the Federation of Australian Commercial Television Stations (FACTS), Telecom and Defence.

The WIA sought to have ITU footnotes to the international table of allocations and the words "amateur-satellite" added to the Australian allocations table in the Spectrum Plan to "...make it much clearer to people using the table as to where the amateur-satellite allocations are..." in the bands between 148 MHz and 10 GHz (all of which are allocated to the Amateur Service in Australia on a secondary basis).

The particular ITU footnotes are FN 664, which delineates amateur-satellite use on a secondary basis in the bands 435-438 MHz, 1260-1270 MHz (Earth-to-space only), 2400-2450 MHz, 3400-3410 MHz (Regions 2 and 3 only) and 5650 to 5670 MHz (Earth-to-space only), and FN 808 which delineates amateur-satellite use on a secondary basis in the 5830-5850 MHz band (space-to-Earth).

The final draft Spectrum Plan included the "amateur-satellite" annotation and the footnotes in all the appropriate places in the table.

The WIA also suggested noting in the Spectrum Plan proposed secondary amateur allocations at 160-190 kHz and 3700-3900 kHz, and a note that the broadcasting service in the 45-52 MHz band would be phased out. However, these suggestions were not incorporated.

Additional comments from the WIA regarding matters in the spectrum Plan's preliminary explanations on Class Licensing, Broadcasting Service use of other bands on a secondary basis, and secondary use of bands by atmospheric and ionospheric sounders, bore some fruit, as explanatory notes on these matters were added to the final draft Spectrum Plan.

Having representation in the right places has paid off for the Amateur Radio Service in Australia.

Other Spectrum Users Object to Licence Fees

The Surf Life Saving Association (SLSA), the Volunteer Coast Guard Association (VCGA) and volunteer firefighter groups are to fight the Spectrum Management Agency's new licence fees for their radio equipment.

A report in *The Australian* newspaper on 12 April said, "Surf Lifesaving Australia and other volunteer rescue associations face hundreds of thousands of dollars in new annual government levies on their radios, which are used in rescues".

The report said the SLSA had calculated that its 260 clubs were collectively up for \$80,000 in "maintenance" and "administration" fees for the clubs' 1200 hand-held radios.

The SLSA and VCGA, along with volunteer firefighters, said they were preparing to fight the fees, which they cannot pay.

The general manager of the SLSA, Dennis Heussner, said they were not about earning profit, they were about saving lives and it would not be possible to conduct rescues without their radio equipment. He estimated the new fees would add more than \$300 to each club's annual costs.

The Spectrum Manager, Christine Goode, reportedly commented that radio licence fees had been restructured to make them fairer and remove anomalies, and that the figures mentioned were worst-case nightmares and unlikely to eventuate.

The newspaper report said volunteer rescue groups are exempt from annual licence fees and taxes, but the SMA wrote to the groups in March saying that they would not be exempt from new "cost recovery" fees. Rural radio users and community radio stations would pay less in licence fees, said Christine Goode.

However, the technical consultant to the Community Broadcasters Association of Australia (CBAA), David Sice, told the WIA in late March that, although some licence fees for their operations had been discounted 43%, the way the new Apparatus Licence fees regime was being applied would result in an increase in

total fees payable by many community broadcasting stations.

The CBAA objected to the Spectrum Access tax component of their licence fees, supported by the Broadcast Industry Advisory Council (BIAC) and the Australian Federation of Consumer Organisations (AFCO). They said it was inappropriate to apply this tax to non-profit community groups, many of whom were supported by government grants. They said it was "ludicrous" for such groups to have to use taxpayers' money to pay taxes back to the government.

UHF Amateur Bands Earmarked for Spectrum Licensing

The 23 cm and 13 cm amateur bands have been earmarked as "potentially suitable" for commercial spectrum licensing, according to a new discussion paper, *Implementing Spectrum Licensing*, released by the Spectrum Management Agency (SMA) in the first week of April.

The 100-page booklet actually contains two discussion papers and was scheduled for release last February. As a consequence of the delay, the original deadline date of 21 April for public consultation has been changed to 26 May.

In a letter accompanying a copy of the booklet, sent to WIA Vice Chairman Roger Harrison VK2ZRH, the SMA's manager — Spectrum Marketing, Ian Hayne, said the first discussion paper "...sets out the SMA's plans for introducing spectrum licensing and the types of measures that we anticipate will be applied to allow spectrum licensing to operate".

The second paper, he said, "...opens discussion about the bands that the SMA could recommend to the Minister for Communications and the Arts for allocation to spectrum licensing.

"Before making a recommendation to the Minister, the SMA is required to give members of the public a reasonable opportunity to make representations about the sort of recommendation it should make."

In its introduction to the discussion papers, the SMA explains the differences between Apparatus

Licensing and Spectrum Licensing. Apparatus Licensing is about authorising *equipment* for a particular frequency, geographic location and use, whereas "Spectrum licensing, instead of focusing on *equipment* and its uses (which in turn defines the area covered and the frequency bandwidth used), authorises the use of *spectrum* within specific limits of frequency bandwidth and coverage area.

"Under spectrum licensing, licensees will have the flexibility to change their equipment, antenna, siting, in fact any aspect of their use of spectrum, provided they comply with the core technical conditions of the licence, and any coordination requirements."

This reads rather like a prescription for amateurs' use of their spectrum bands!

The second discussion paper in the booklet lists in a table 132 bands, from 39 MHz through 3100 MHz, considered as suitable or unsuitable for spectrum licensing. A total of 83 of the 132 bands are listed as "potentially suitable" for spectrum licensing, including the 1260-1300 MHz segment of our 23 cm band, and the 2400-2450 MHz, or 13 cm, band.

The 148-149.9 MHz paging band, immediately above the two metre

amateur band, is also earmarked as potentially suitable for spectrum licensing. The booklet explains that this band is well suited as, although there are a large number of assignments, there is a much smaller number of paging service operators, with many national services.

"Trading and subdividing, as provided by spectrum licensing, could help facilitate change in the paging market to satisfy demand from some paging service operators for greater coverage. There may also be demand from other compatible uses," the booklet says.

In respect to the 13 cm band, the booklet says, "The 2300-2450 MHz band contains MDS [multipoint distribution service — pay TV] Group B licensees. The small number of operators, combined with the commercial competitive nature of the uses of this band suggests that it is well suited to spectrum licensing."

MDS currently has the 2300-2400 MHz segment, which was recently withdrawn from the Amateur Radio Service which had secondary user status in the band 2300-2450 MHz. Amateurs retain secondary service status in the 2400-2450 MHz band, which is still designated internationally as an "Industrial, Scientific and Medical" (ISM) band.

The WIA is planning to respond to the *Implementing Spectrum Licensing* discussion papers.

It has been WIA policy for some years to seek some primary segments for amateur radio in the bands between 148 MHz and 10 GHz where we only have secondary service status at present.

While the WIA has not had any positive response on this matter to date from the SMA, it will be vigorously pursued in forthcoming discussions.

The next WIA-SMA Liaison meeting, originally scheduled for 1 May, has been postponed by the SMA to 17 May so that all the required SMA people will be available to attend.

Meanwhile, US amateurs have gained primary status in segments of the 13 cm band. The Federal Communications Commission (FCC), in reallocating segments of this band, elevated amateurs to primary status in the segments 2390-2400 MHz and 2402-2417 MHz, which they will share with unlicensed, low-power "personal communications service" (PCS) digital devices, which are now a secondary user. (Thanks to *The ARRL Letter* 13 February 1995. ar

SOME THINGS HAVE NO COMPARISON

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Circuit

The receiver section is in the lower half of the schematic. The VFO and crystal oscillator, which are common to both the receiver and transmitter, are shown in the centre. The transmitter is in the top portion.

An IF of 4 MHz was found by experiment to produce the cleanest transmit signal, and most spur-free reception, using cheap computer crystals. Complexity is greatly reduced by having identical Twin Crystal Filters (TCF), one each for transmit and receive functions.

Receiving

Signals in the 7.0 to 7.25 MHz range are admitted via the top-coupled band pass filter and applied to one of the NE602 inputs of the receive mixer. The VFO is adjustable from 11.0 to about 11.25 MHz, and is injected into the oscillator port at pin 6. The wanted product, the IF at 4 MHz, must negotiate the 4-crystal ladder filter, whose bandwidth is determined by the value of the five coupling capacitors; 33 pF yields a bandwidth of about 1.8 kHz.

The filtered 4 MHz signal is again presented to an NE602 as the product detector. Crystal derived oscillator (BFO) signal at about 3.9995 MHz is applied to the oscillator port at pin 6. The 4.0 MHz oscillator crystal is pulled about 500 Hz low with a 10 μ H coil to place it on the lower edge of the crystal filter bandpass, thus providing reception of LSB signals on SSB (the polarity of the sideband is reversed by the VFO mixing process), and single-signal reception of CW signals. The low level audio product is applied to a conventional '741/'386 audio amplifier to power a speaker or 'phones.

The NE602 was designed originally by Signetics for mobile radio applications, and has a 500 MHz input bandwidth. To keep unwanted VHF signals out of the set, the receive signal is routed via the transmitter's low-pass filter.

For CW operation, and to allow for small netting errors on SSB, incremental tuning is provided on receive with a diode and capacitor at the source tap of the VFO tank coil. The effective value of capacitance is

■ Transceivers

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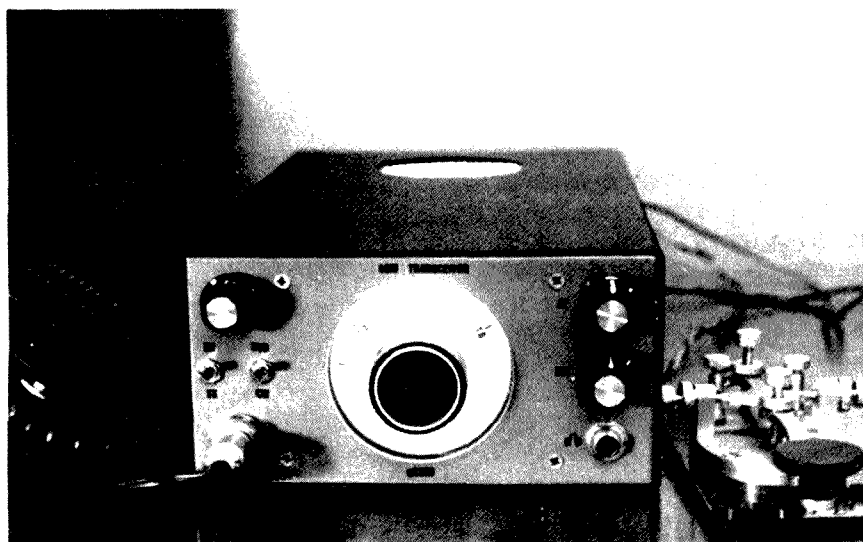
Here are details of a 40 metre version of the TCF transceiver. Transmitter and receiver sections have individual circuit boards, so these may be built as separate items (with small adaptations), or in stages, as desired. The prototype has the following measured characteristics:

Receiver

Frequency Range:	Nominally 7.0 to 7.250 MHz.
Sensitivity:	0.5 μ V for 10 dB S+N:N.
Reception Modes:	SB, CW, DSB and AM (as SSB).
Image Rejection:	70 dB.
IF (4 MHz) Rejection:	60 dB.
Incremental Tune (RIT):	Nominally +/-3 kHz.
Frequency Stability:	Less than 100 Hz in any hour after warm-up
Spurious Signals:	One sub-microvolt spur at 6.998 MHz

Transmitter

Frequency Range:	Same as receiver.
Power Output:	At least 2 W, typically 3 W into 50 ohms.
Modes:	SSB (LSB) and CW.
Carrier Suppression:	35 dB.
USB Suppression:	35 dB.
Harmonics and Spurs:	At least -55 dB at full output.
Frequency Stability:	Same as receiver.
Load Tolerance:	Withstands any load SWR without damage.
Power Supply:	+12 to +13.8 Vdc at up to 1 A.



TCF 40 Transceiver.

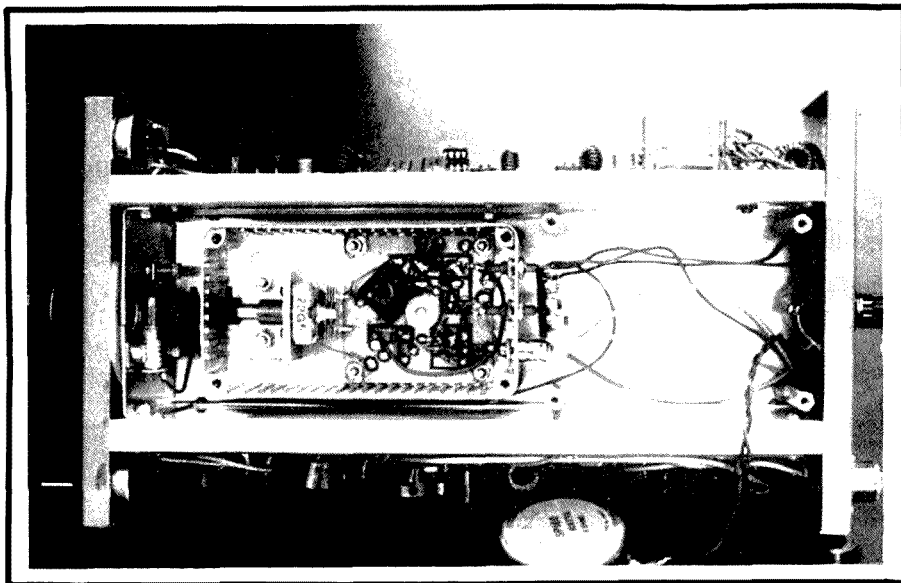
altered by varying the forward current through the diode. A 470 ohm resistor sources the diode on transmit from the regulated +6 V which powers the balanced modulator, and thereby biases the diode to the same nominal current level as at the mid point of the 1 kohm offset pot, which is sourced on receive from a separate +6 V regulator (the 7806 chips provide a very stable 6 V supply at these low current levels).

Transmitting

Microphone audio is amplified and applied to pin 2 of an NE602 wired as a balanced modulator (input pins 1 and 2 are interchangeable, as are the output pins 4 and 5). "Carrier" at about 3.9995MHz is applied to pin 6. The normally good balance is upset at audio rate, thereby producing double sideband (DSB) at the output of the balanced modulator. Static DC conditions of the '602 may be altered with high value resistors and a trimpot connected between pins 1 and 2, thus allowing for accurate carrier balance adjustment. For CW operation, the '741 mike amplifier is unpowered, and balance is upset by inclining one side of the '602 input to ground. Rise/fall time constant is determined by the value of C at pin 1, 1 μ F, and series R, 22 kohm, resulting in click free CW keying. Back-wave on CW is about the same as carrier suppression at -35 dB.

The DSB or CW signal emerging at pins 4 and 5 is applied to a second crystal filter, which passes the USB only, the LSB being greatly attenuated. Another '602 doing transmit mixing duty has the VFO output applied at the oscillator port where our 4 MHz SSB or CW signal is heterodyned as follows; 11.0 — 4 = 7.0 MHz, 11.25 — 4 = 7.25 MHz. Once again, the VFO mixing process inverts the sideband polarity from USB to LSB, the convention for 40 m SSB.

The resulting SSB or CW signal is raised in discrete increments through a three stage linear amplifier to about 2 W. A seven pole low pass filter cleans up any harmonics which may be (and probably are) present at the drain of the output power MOSFET.



VFO and dial assembly (speaker removed).

Construction

Equipment required includes the usual electronics hand tools, drill-press (not essential), multimeter (preferably digital), power meter/load (or lamp), 40 m receiver, frequency counter and/or general coverage receiver.

The set must be housed in a metal box so that external RF fields cannot enter and cause instability problems. My aluminium made "shoebox" measures 285 x 163 x 85 mm. Good rigidity and compactness is obtained by using three internal sub-chassis panels as shown. Most components are accommodated upon three home-made circuit boards, which are receiver, VFO and transmitter. The patterns are the same as for the TCF-80. If only the receiver, or transmitter sections of this project are required, then it is only necessary to build that part, plus VFO and crystal oscillator (the crystal oscillator is located on the receiver board). As a transceiver project, it is suggested that items should be constructed in the order of VFO, power supply (if required), receiver, then transmitter.

Constructors generally agree that a home-made VFO should be housed in a metal box, preferably die-cast. In addition to RF shielding, the thermal time constant of the box is so long that the oscillator components are effectively buffered from any short term temperature excursions. A further useful degree of isolation may

be had by mounting the assembly upon insulating material, or insulated spacers.

The VFO tank coil is wound on a standard 7.5 or 8 mm (5/16") former; the kind with four or six tags is ideal. Drill a 1 mm hole across the diameter of the former, 23 mm from the base. Uncoil about 1 m of 22 B&S wire from your spool, then fix the spool in a vice. Solder the wire to the tag corresponding to the ground end of the coil (check the circuit board layout). Whilst maintaining tension on the wire, walk towards the vice and wind on five turns, then pull out sufficient wire to twist up a little pig-tail loop, which is the source tap. Now wind on the remaining 20 1/2 turns, making sure that each turn lies right next to the last, maintaining tension all the way. Cut the wire with about 50 mm to spare, then carefully (this is the tricky part) poke the wire through the 1 mm hole, then pull through to keep tension on the coil. Solder the "hot" end of the coil to the appropriate tag. The coil should be coated with Q-Dope (TM), Estapol (TM) or shellac.

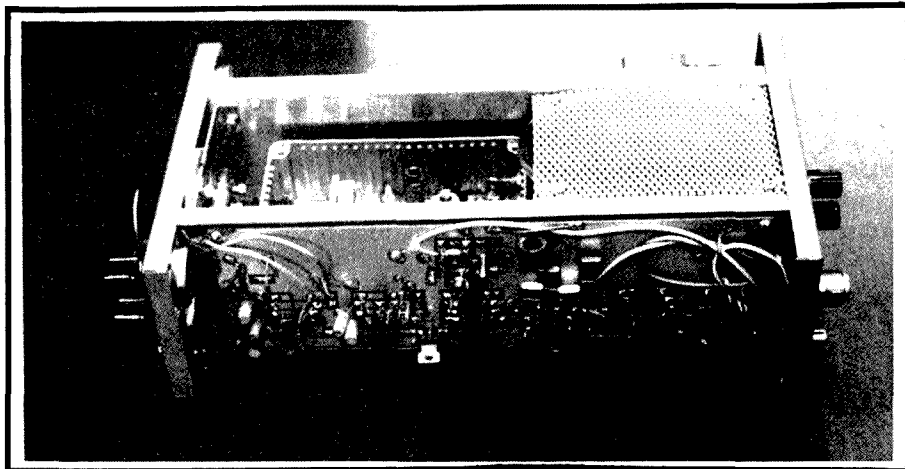
Variable capacitors of any kind are hard to buy new, although the resourceful builder can generally locate something to suit (in my opinion, without great care, varactor diodes do not offer the high Q and stability required, whereas a good variable capacitor is the best and simplest part for the variable element in a VFO). The capacitor shown is

one of those well-made ceramic insulated screwdriver adjust 8 pF units with a home-made 1/4" adaptor fitted to the ferrule. If greater than 250 kHz range is required, employ (say) a 10 or 12 pF.

Now this is important! For a quality VFO, use the best constructed variable capacitor that you can find, NP0, polystyrene, or silver mica capacitors in the VFO tank (do not use cheapo "mystery" ceramics, and avoid the tiny little NP0s — physically larger caps have more thermal mass), and an air dielectric "beehive" trimmer. Improved stability is generally obtained if the fixed C part for the tank is made up of more than one capacitor. The prototype required 18 pF worth of N750 (negative 750 parts per million/°C) for very acceptable stability. See Ref 7 for further VFO notes. The components associated with RIT may be located on a small 4-tag strip soldered to the feedthrough capacitor which carries RIT current into the VFO box.

The frequency dial consists of a disc of 3 mm opaque perspex, machined in a drill press using a tank-cutter. A hole-saw would also serve. Temporarily fix a bolt and nut through the resulting centre hole, and reduce the disc diameter by mounting it in the chuck and applying a flat file to the outer edge of the rotating disc. The clear perspex "window" has slightly larger diameter than the dial disc, and is fitted into the front panel. By the same method, but with the file tilted, put a slight taper on the outer diameter of the window disc so that it is a nice friction fit into the front panel. The planetary drive is mounted upon a right-angle formed in a sub chassis. To take up any small misalignment, the drive should be connected to the variable capacitor with an insulated flexible coupler. A short length of 6.35 mm (1/4") inside diameter rubber fuel hose clamped between drive and capacitor is a workable second best. The dial disc may be illuminated with a 12 V/100 mA dial lamp placed so that light is radiated through a 10 mm hole from behind. A cursor line is formed by positioning a length of wire between lamp and dial, thus projecting a line onto the dial.

With care, there is just room behind



Chassis assembly.

the VFO for an internal power supply, although an external supply is recommended. If accidental wrong polarity is possible (eg battery), connect a 1 A diode in reverse across the power input terminals, and series connect a 2 A fuse between positive battery supply and the set.

Bifilar broadband transformers T1, T2 and T3 are made as follows; take two 300 mm lengths of 24 B&S wire. Twist together at one end, and clamp that end in a vice. Twist the free ends together, and clamp in the chuck of a hand drill. Whilst maintaining tension, turn the drill until you have about three twists per cm, then pull the drill to set the pair. Now carefully loop the pair onto an Amidon FT50-43 core. About 11 loops should fit comfortably. Snip the ends leaving about 2 cm free. Remove about 1 cm enamel from each wire, and with a meter on ohms, identify the "windings". For T2 and T3, connect the end of one winding to the start of the other as shown on the circuit. Most toroidal transformers and coils are self-supporting. However, if additional support is required, they may be fixed to the board with a small blob of non-acid silicone glue.

Several different brands of crystals were tried for the crystal filters and oscillator. Cheapest price (in lots of ten, we need nine and a spare would be handy) and satisfactory performance was obtained with units branded Vigor from Tecs Computers (see Parts). For best chance of success, it is suggested that you use these also. In any event, try not to mix different makes of crystal in any one filter.

The IRF511 output amplifier must have an effective heatsink. A rectangular hole is cut in the circuit board so that the MOSFET may sink excess heat directly into the chassis. Remember to fit insulating hardware at the device/chassis interface. A solder tag under the mounting nut provides the drain connection. The source pin is soldered direct to the foil, then drain and gate pins are bent up at right angles to clear the board.

Although it may be useful to have an in-built ammeter to monitor the PA drain current, meters are rather expensive and, once the standing current bias has been set up, there is rarely need to touch it again. The current drawn by the remaining circuitry (excluding dial lamp) is small. So, if the power supply is external, and has its own meter, then none is required for the transceiver. In the absence of a metered supply, a 0.1 ohm resistor (or two paralleled 0.2s) in series with the drain supply line allows us to connect a multimeter across it and check the current. 100 mA will therefore cause 0.01 V to be dropped, 800 mA drops 0.08 V, and so on. A 3 or 4-digit DMM will read these values.

Alignment

Receiver

The VFO range must first be verified. If a counter is available, simply connect the VFO to the counter input and measure the frequency. (Note that, if checking the VFO as a "stand-alone" assembly, in order to fully test the unit we should hay-wire the RIT components and 7806 regulator(s) into circuit and replace the cover).

Adjust the 25 pF VFO trim capacitor so that a range of a little less than 11.0 MHz to just over 11.25 MHz is generated. Check that the RIT pot gives a smooth receive frequency adjustment of about 3 kHz each side of mid pot travel. Under normal conditions, ten minutes of warm-up operation should have the device generating a satisfactorily stable signal. If, for some reason, the correct VFO range cannot be obtained, change one of the fixed tank capacitors, larger or smaller as required.

No counter? Listen for the VFO signal on a general coverage receiver and adjust as described above. A short clip lead inserted in the VFO output connector should radiate a detectable signal. With the perspex window removed, the dial may be calibrated by applying rub-on numbers onto the opaque disc at (say) 50 kHz increments.

Connect an antenna to the input. Peak the two 55 pF trim capacitors at the receiver input filter for best sensitivity/flatness across the band. The receiver should be responsive. At moderate loudness, SSB and CW signals should sound clean, without perceptible distortion or hum.

Transmitter

Set the MOSFET bias pot for minimum voltage, the balanced modulator pot to mid-range, and the VFO to 11.1 MHz (to produce 7.1 MHz). Connect the output to a 50 ohm dummy load (a 12 V/250 mA lamp will do). Disconnect any dial lamp if you are doing your current measurement with a power supply ammeter. Select CW mode, and switch to send. Adjust the MOSFET bias voltage so that something less than about 100 mA of standing (no signal, or "idling") drain current flows, ie class B operation. Close the Morse key. Current should increase. Adjust the 55 pF trim capacitors at Tx Mix and the collector tank of the 2N2222 amplifier for maximum RF output. Current should now be about 800 mA, giving about 2 to 3 W RF output across the band. Open the key. Whilst listening to the signal on another receiver, adjust the balanced modulator pot for carrier null. You should obtain a clearly defined null as the carrier is balanced out. The signal

at the test receiver must not be so strong that the null is masked. Keyed CW should have a pure note, with no clicks, chirps or ripple.

Switch to SSB mode. Plug in a radio type PTT dynamic microphone. Whilst talking, increase the mike gain pot until the drain current flicks up to about 800 or 900 mA on voice peaks. Listen to the SSB signal on another receiver (don't headphones to avoid feedback). It should sound clean, and be free of splatter, clicks, hum, or other unpleasant noises. If an oscilloscope is available, view the RF waveform. It should have nicely rounded peaks, without bright spots anywhere on the envelope, and no significant "carrier" with mike gain at minimum.

Set the RIT pot to mid travel. On transmit, measure, as precisely as you can (preferably with a DMM), the voltage at the junction of the two 1N914s. Now switch to receive. Adjust the RIT pot to read exactly the same voltage, then slacken off the RIT knob grub screw and position the pointer to a calibration mark at 12 o'clock. Transmit and receive frequencies will now be the same as the nominal mid point of the RIT pot.

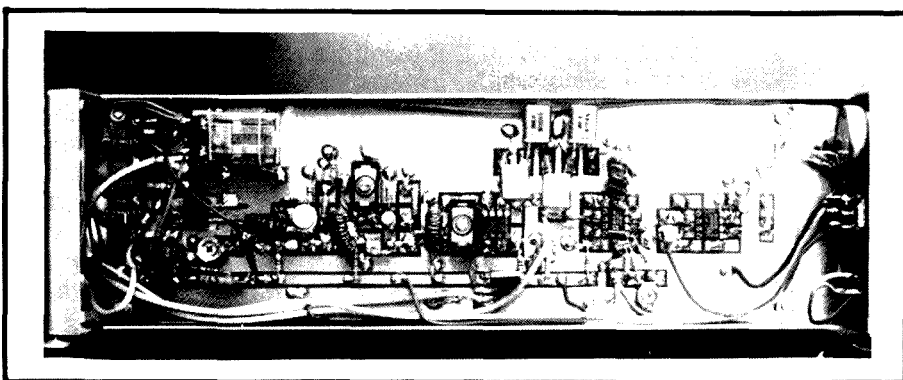
In actual use, when contact has been established with another station, any necessary receive frequency adjustments must be made with the RIT pot, leave the main VFO control untouched. When operating CW, about 1 kHz RIT offset will be necessary to obtain a pleasing "beat note".

An After-Burner

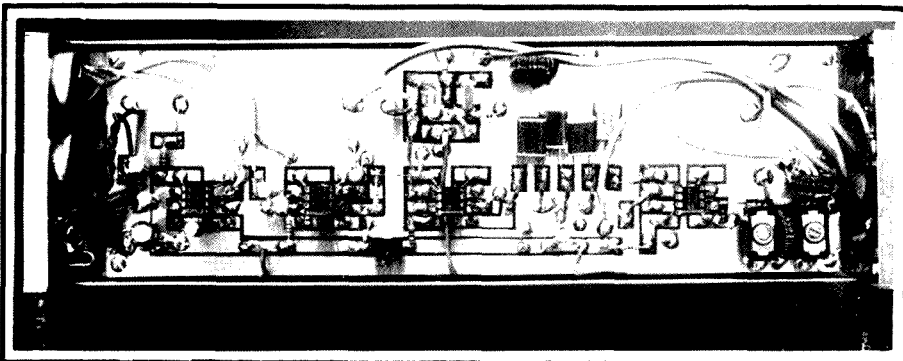
Two watts into a dipole antenna should yield good interstate (and possibly NZ) SSB and CW contacts, although the going may sometimes be rough under poor conditions. As a follow-on project, the output power may be raised with a linear amplifier. One similar to the 25 W job described in Ref 6 is suggested, with the addition of a relay with two sets of change-over contacts to by-pass the amplifier during receive.

Parts

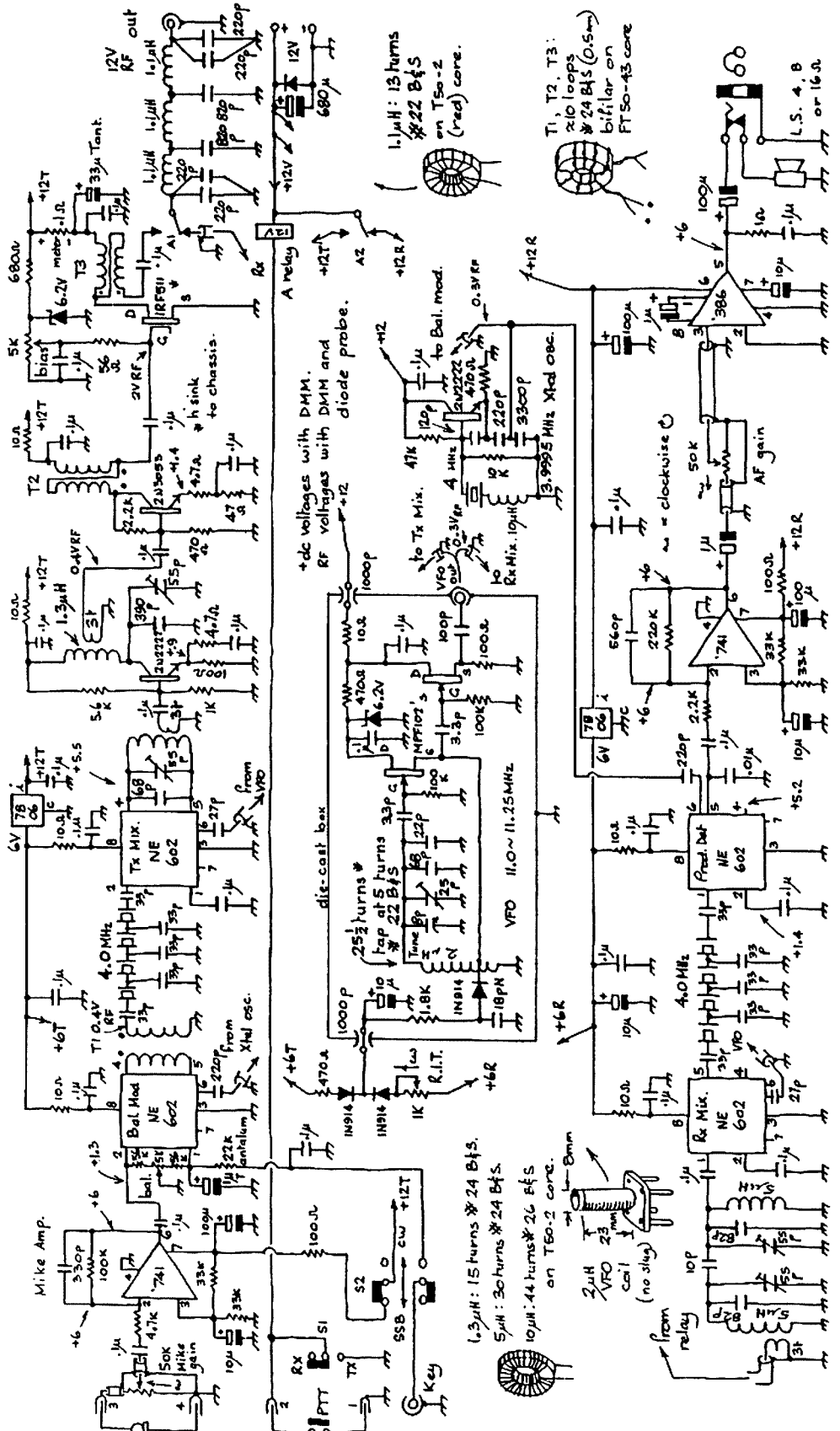
All conventional components are available from the usual electronics suppliers. The crystals were purchased from Tec's Computers (03) 562 9501. In addition, radio type components, including Amidon cores and trim caps may be ordered from Stewart Electronics (03) 543 3733,



Transmitter board.



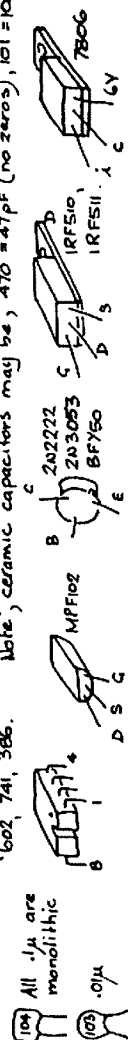
Receiver board.



White; ceramic capacitors may be; 470 = 47pF (no zeros), 101 = 100pF (one zero) etc. marked by some makers.

'TCF' SSB/CW TRANSCEIVER FOR 40M

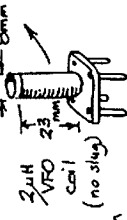
... VK3XU '94



1.1uH: 13 turns
#22 B4S
on T50-2
(red) core.

T1, T2, T3:
2x10 loops
#24 B4S (0.5mm)
on bifilar on
FT50-43 core

1.3uH: 15 turns #24 B4S.
5uH: 30 turns #24 B4S.
10uH: 44 turns #26 B4S
on T50-2 core.



Daycom (03) 543 6444, Truscotts Electronic World (03) 723 3860 and Electronic Disposals (03) 723 2699. Amidon suppliers also advertise in the Hamads of this journal. Some perspex vendors will supply small off-cuts; look up perspex in your local Yellow Pages. Dick Smith can supply a planetary reduction drive for the dial (but check for adequate shaft length).

Disclaimer

Apart from being an ordinary customer, the writer has no connection with any firm mentioned herein, nor has he gained any "freebies" for naming them.

More Information

Please write to me at my home address if you would like more information, including circuit board artwork and component location diagrams. Some relevant DC and RF voltages are shown on the circuit to aid in any necessary troubleshooting. Voltages which differ greatly should indicate the problem area. If, after earnest efforts, you cannot get your project to work satisfactorily, please write, and all reasonable assistance will be gladly returned. An appropriately sized SASE would be appreciated.

References and Further Reading

1. NE602 Primer — Carr, *Elektor Electronics*, Jan '92.
2. Sideband Can Be Simple! — Price, G4BWE, *Rad Com*, Sep '91.
3. A Miniature SSB Transceiver — Grierson, G3TSO, *Rad Com*, June/July '91.
4. QRP SSB/CW Transceiver for 14 MHz — Hayward, W7ZOI, *QST*, Jan '90.
5. Designing and Building Simple Crystal Filters — Hayward, *QST*, July '87
6. 25 W MOSFET Linear Amplifier — Diamond, VK3XU, *Amateur Radio* Jan '91.
7. Some Practical Tips on VFO Construction — Diamond, *Amateur Radio* Jan '88.
8. "TCF" SSB/CW Transceiver for 80 m, *Amateur Radio* Oct '93.
9. Multi-band Phasing Transceiver — Hey, *Rad Com* July-Aug '93.
10. The "Tiny Tim" 3.5 MHz SSB Transceiver — Walford, *Practical Wireless* July-Aug. '93.

Parts List for the "TCF" 40 m Transceiver

Capacitors all 16 V or greater	Qty
3.3 pF NP0 (black spot)	2
10 pF NP0	2
8 pF variable (see text)	1
18 pF N750 (violet spot)	1
25 pF "beehive" air trimmer	1
27 pF NP0	2
33 pF NP0	10
68 pF NP0	1
55 pF compression mica trimmer	4
120 pF poly or ceramic (second choice)	1
220 pF poly or ceramic (second choice)	7
330 pF ceramic	1
390 pF ceramic	1
560 pF ceramic	1
820 pF poly or ceramic (second choice)	2
1000 pF feedthrough	2
0.01 µF ceramic	1
0.1 µF monolithic	29
1 µF electrolytic	2
1 µF tantalum	1
10 µF electrolytic	5
33 µF tantalum	1
100 µF electrolytic	4
680 µF electrolytic	1

Resistors all 1/4 or 1/2 W

0.1 ohm (or two 0.2 ohm)	1
1 ohm	2
4.7 ohm	2
10 ohm	7
47 ohm	1
56 ohm	1
100 ohm	4
470 ohm	3
680 ohm	1
1 kohm	1
1 kohm linear pot	1
2.2 kohm	2
4.7 kohm	1
5 kohm flat mount trimpot	2
5.6 kohm	1
10 kohm	1
33 kohm	4
47 kohm	1
50 kohm log pot	2
56 kohm	2
100 kohm	3
220 kohm	1

Semiconductors

MPF102, 2N5457, etc.	2
2N2222, 2N3904, etc.	2
2N3053, BFY50, etc.	1
IRF510, IRF511, MTP4N08 etc.	1

NE602AN	4
LM741	2
LM386	1
7806/1 A regulator chip	2
6.2 V/400 mW zener	2
1N4148 or 1N914 diode	3

Miscellaneous

Case to suit, or sheet aluminium to make, die cast box approx 122 x 41 x 66 mm, Amidon T50-2 cores (8), FT50-43 cores (3), Vigor 4.0 MHz crystal (9, all identical), 6 or 4-pin 8 mm bakelite coil former, dial drive, coupler, perspex, 12 V lamp & holder, 8-pin DIL wire wrap sockets (7), single or double-sided circuit board material, speaker, mike socket, antenna coax connector, phones socket, key socket, RCA plug and socket for VFO, power supply terminals, knobs, 12 V relay with two sets of c/o contacts, miniature SPST and DPDT switches (one each), miniature 50 ohm coax, chassis items including IRF511 mounting hardware, screws, nuts, washers, and VFO spacers.

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2M co/linear 2 5/8 7dbd	\$ 97
12 ele 2M broad B/width	\$123
6 M J-pole	\$109
6 M co/lin 6 dbd rad 4.NEW	\$157
6 ele 6 M N.B.S 50 mm Boom	\$296
Duo 10-15 M	\$278
3 ele 15 M	\$299
3 ele 20 M	\$312
20 m log-yag array 11.5 dbd	\$719
M B Vert NO TRAPS 10-80 M	\$265
Tri band beam HB 35 C 5 ele	\$690
40 M linear loaded 2 ele	\$492
13-30 M logperiodic 12 ele	
all stainless/steel fittings	\$915
70 cm beam 12 ele ball/Feed	\$102
23 cm slot fed 36 ele brass cons	
s/solder-assembled. 18 dbd	\$170
80 m top load/cap/hat vert.	\$260
3 ele 40m l/cap hats 60mm boom	\$815
2 m 144.100 2.2 wavelength boom	\$145

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■ Propagation and Predictions? Singing the Sunspot Blues — or, A Conversation with a Minor

Fred Naylor VK3AQN looks just a little way into the future.*

Nothing to be heard. The third morning and 20 metres still a dead band. The Missouri boys had surely tried to get the news through. With our good gear, their TH7 and my monoband log-Yagi, it used to be easy. Ah well, it's tough times, low in the sunspot cycle.

The phone rang. A friend, impatient with excitement, had a fax and wanted to tell me all that latest news I'd been working and waiting for. Who was it said something about "hopes turning to ashes"?

The humble, everyday fax had left us for dead. Tongue in cheek, I shot off a packet message to the president, my old friend Ernie, WB2UJL:

"G'day, Ernie! Well, it looks as though the old sunspot cycle bottoming out plus sunflares and other disturbances has us beaten! Don't know if the Kansas City boys were able to get conference news together ready for transmission to the land down under, but the 20 metre band at 2200 hrs UTC has sounded as though the antenna cable was cut. Nothing to be heard from any direction. Anyhow, we've been shown up technologically; your common or garden fax doesn't need sunspots, just the phone line — assisted by optical fibres and a satellite or two, of course. Yes, it's consigned our "state of the art" technology to dusty irrelevance.

Reckon I'll still keep the old steam radios though, if only for the curiosity value. Come to look at it now, the radio shack does begin to seem a bit like a museum."

I logged off and stood there despondent, gazing at the equipment. Startled, I saw it appear to change. It took on a dusty aspect and began to resemble the primitive gear of long ago. Why was that? What did it mean?

There was a soft footfall and a touch on my arm.

"What's wrong, Grandpa? You looked confused."

"Yes, I think I'm in a time warp — I don't know whether it's past or present and I've just seen my lovely, modern radio shack turn into a museum piece."

"What are those big boxes with knobs on, Grandpa?"

"They're radios, son; old-time radios — Kenwoods and Yaesus."

"What did you do with them, Grandpa?"

"Why, we used to send messages out into the ether, to be reflected by the ionosphere, and the messages might come down just anywhere."

"You mean you sent out messages you didn't know where, so you could talk to people you'd never met?"

"'Yeah...Well...Yeah...Er...Sure:'"

"It's like taking a sailing ship and hoping the right wind might blow you some place nice, isn't it, Grandpa!"

"Hadn't thought about it like that, son."

"How did you find out about this kind of radio, Grandpa?"

"Well my old Dad, your great-grandfather, first told me about it a long, long time ago."

"Were those the Dark Ages, Grandpa?"

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"Whatever makes you ask that, son?"

"Didn't you believe in a sort of magic? Wasn't it a kind of sorcery — high priests of wizardry sitting in front of their magic boxes, weaving a sort of spell?"

"Well....Yeah....Yeah well, I suppose it was, in a way. A special magic...anybody might pick it up...on a little island far away...someone in the jungle maybe or in a big city...someone you'd never met...maybe friends...kinda romantic."

"Doesn't look very romantic to me, Grandpa, just old grey boxes with black knobs, attached to lots of spiky aluminium sticking up into the sky."

"It was a big world, son, and radio seemed to make it smaller."

"Here's a thing like a lever with a knob on it."

"Ah, that's a Morse key, for switching the transmitter off and on, using a code others far away could read. See — diddidey-dah — that's "V" "

"Oh, Grandpa, stop kidding! Sounds like a chook pecking corn."

"This conversation is making me more uncomfortable by the minute.



Fred Naylor VK3AQN's very neat station.

Throw the dust covers over 'em, son. Maybe we'll come back and talk about it again, some time."

"OK. Grandpa."

"Let's go out into the sun and the breeze, my boy. It'll blow away some of the cobwebs from my head. I'll put the mobile phone in my pocket; we'll sit on that seat over there in the garden and make a call to your Uncle

Matthew in Chicago. Shouldn't take more than about 10 seconds before we hear his voice."

"That'll be fun, Grandpa. Oh, and Grandma says there's a fax from Auntie Win in England. She wants you to reply before she goes out shopping. Is it still a big world, Grandpa?"

*4 Oak Avenue, Emerald VIC 3782
ar

■ Technical

An L of a Network — Part 3

Graham Thornton VK3IY* wraps up his analysis of the L-Match

Power Rating

In practice, it is the peak voltage across the capacitor which determines the power rating of the network. The breakdown potential of an air spaced capacitor is about 20 volts per thousandth of an inch. According to our esteemed Editor, Bill Rice VK3ABP, 500 V is the minimum breakdown potential, regardless of spacing. A two-gang broadcast capacitor can be used split-stator fashion, to double the voltage rating, and halve the capacitance. It is intended to describe a paraffin oil

immersed capacitor, capable of withstanding high voltage, in a later issue of *Amateur Radio*.

So what voltage does the capacitor have to stand for a given power output? There are four different places in the network where a capacitor may be used, and the answer depends on which one is chosen. Resolution of the voltage question may help to decide which option to select.

(1) Low resistance output — shunt capacitor input. This is the simplest case, and is independent of the

capacitance. The peak voltage across it will be 100 V for 100 W, and 200 V for 400 W.

(2) Low resistance output — shunt inductor input.

$$\frac{E_{MAX}}{X_{SERNET}} = \sqrt{\frac{2P}{R_{LOAD}}} \text{ amp}$$

(P = power (W))

This result is plotted in Figure 11 for both 100 and 400 W.

(3) High resistance output — series capacitor input.

$$E_{MAX} = \sqrt{2P \cdot (R_{LOAD} - 50)} \text{ V}$$

(4) High resistance output — series inductor input.

$$E_{MAX} = \sqrt{2PR_{LOAD}} \text{ V}$$

Figure 12 reveals all for cases (3) & (4)

System Operating Q

A high Q reduces cross modulation

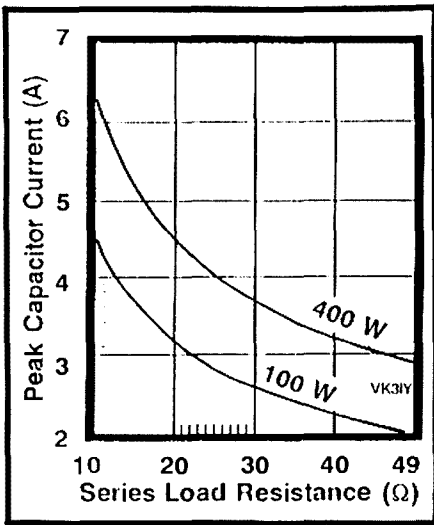


Fig 11 — Peak current through series output capacitor — low resistance output (multiply result by reactance of series capacitor to get peak voltage).

QRN, and helps reduce harmonics, at the price of sharp tuning and the need to re-tune across a band. Unfortunately, the L network rather lets us down in this respect — it would appear to be basically a low Q device. It wouldn't really win any prizes as a harmonic filter. It doesn't offer us much choice in terms of operating bandwidth. Perhaps it can be forgiven this one limitation!

For the low resistance output case:

$$Q = \sqrt{\frac{(50 - R_{LOAD})}{R_{LOAD}}}$$

and for the high resistance output version:

$$Q = \sqrt{\frac{(R_{LOAD} - 50)}{50}}$$

Both functions are illustrated in Figure 13.

Insertion Loss

There is a price to pay for everything and some energy is wasted within the network itself. This treatment assumes that the loss is confined to the inductor. We can draw some consolation from the fact that low operating Q implies low losses. In general, the insertion loss depends both on the unloaded Q of the inductor and on the operating Q. The greater the former quantity, the

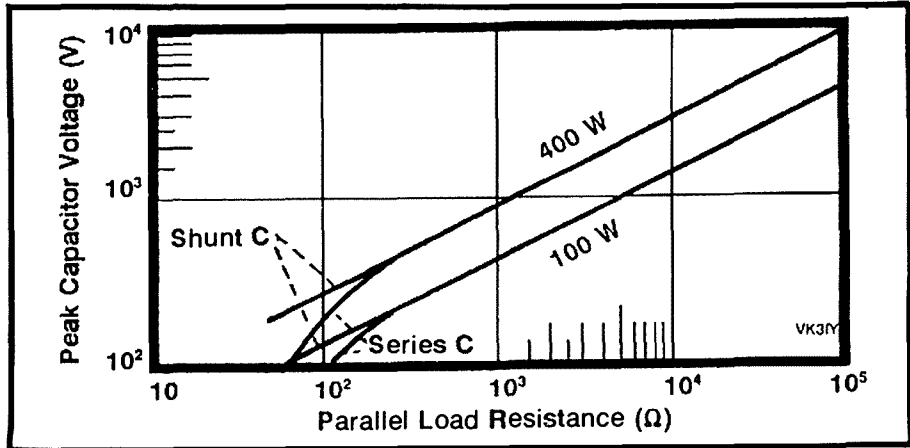


Fig 12 — Capacitor voltage — high resistance output. Note that there is little practical difference between the series and shunt options.

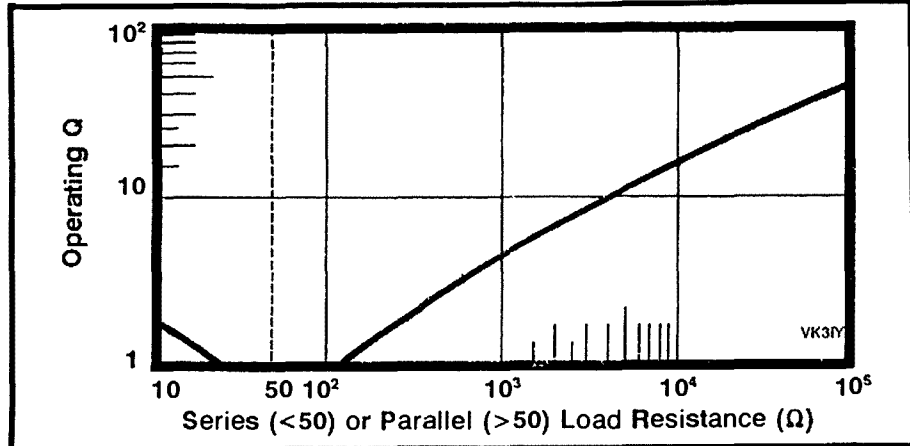


Fig 13 — Network operating Q.

lower the loss will be. The converse applies to the latter. If no means of measuring Q is to hand, we need to indulge in some "guestimation". If the inductor is of considerable diameter, not too long in proportion and substantially air-spaced, we can take a stab at a Q of 150. If it's wound on a somewhat lossy former, we can claim a Q of about 50. For cases in between, let's say 100 (these perhaps err on the conservative side).

The efficiency of the circuit may be expressed as:

$$\eta = \frac{Q_{UNLOADED} - Q_{LOADED}}{Q_{UNLOADED}}$$

and insertion loss = $10 \log_{10} \eta$ dB

Figure 14 shows a plot of insertion loss for the three values of Q_u. This shows that for most practical situations the loss, being less than 1 dB, is insignificant. It also means that we don't have to be too fussy about the design of our inductor, with respect to efficiency.

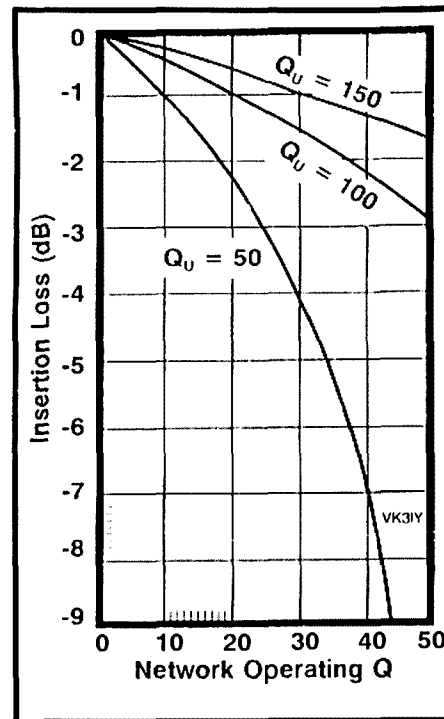


Fig 14 — Insertion loss for three values of unloaded Q.

Roundup

The L-match has been shown to cover a wide range of load impedances with high efficiency. It has one of the greatest virtues possible in any equipment — simplicity. Lack of harmonic rejection is its one deficiency.

From the point of view of hand capacitance, a shunt capacitor arrangement is easiest; however, if split stator devices are used, the benefit of an earthed rotor is not obtained. This treatment has only considered unbalanced loads. It is possible, of course, to pre-face the system with a toroid balun to handle balanced loads, floating everything following above earth, but there is some danger of introducing inadvertent unbalance with this approach, unless the current distribution is defined by the antenna itself.

The inductor used may be adjusted by shorting a section of the solenoid with a jumper lead, or by providing a switched arrangement. An inductance of 20 μH can readily be achieved by a single layer solenoid. Wheeler's formula is convenient to calculate coil inductance:

$$L_0 = \frac{r^2 n^2}{9r + 10l} \mu\text{H}$$

where r is the radius of the coil, n the number of turns and l its length. All dimensions are in inches.

A note of caution about inductors is appropriate here. Standard formulas, including the one given above, do not take distributed capacitance into account. At HF, this results in a higher effective inductance than calculated — the error escalating as the coil approaches self-resonance. At frequencies above self-resonance, the coil is not an inductor at all, but behaves as a lossy capacitor. An L-match in this situation will, of course, simply not work. The obvious cure is to use less turns than calculated.

More complex ATUs, if they can be reduced to equivalent L networks, may be handled by the procedure given above. The treatment given assumes knowledge of the load impedance. Perhaps a thumb-nail sketch of the values to be expected would be in order.

For antennas shorter than a quarter-wave, the resistive component varies from about 5 Ω to 36 Ω at resonance. Its reactance may be as high as 1000 Ω capacitive (the thinner the greater reactance), diminishing to zero as resonance is

approached. A counterpoise, if mostly horizontal and not too high, would have the same reactance but zero resistance. Simply add its reactance (algebraically) to that of the antenna. Longer antennas have an inductive reactance increasing from a few hundred ohms to some 2000 or so for a thin antenna, and perhaps 500 Ω or so for a thick one. Resistance over this range may vary from about 40 Ω just above resonance to some thousands at half wave resonance.

If you would like the derivation of any formula quoted above, whether from mere curiosity or from healthy scepticism, an SASE will fetch it for you.

For further reading, and another view point, refer to the work of Lloyd Butler VK5BR — Loading Up on 1.8 MHz, *Amateur Radio*, December 1985, pages 11-14, and An Approach to Antenna Tuning, *Amateur Radio*, June 1987, pp 12-16.

You have been led, gently I hope, through all that is necessary for the design of an L network. If a little light has been shone into some dark corners along the way, that can only be a good thing. May you enjoy an SWR of one to one for ever and ever. Amen.

*17 Britannia Creek Road, Wesburn VIC 3799

ar

WIA News

US Ham Radio Bill is now Law

We learn from the Internet that the American Radio Relay League (ARRL) has succeeded in persuading the United States Congress to pass a joint resolution "...acknowledging that radio amateurs provide valuable help during all kinds of emergencies".

What is known as The Ham Radio Bill is now US Public Law 103-408. It was signed by President Clinton last October. The ARRL's success comes after several years' effort.

The law expresses the "sense of Congress" that all government agencies should encourage the use of new technologies in the Amateur Service and recommends that authorities throughout the United States should make

"reasonable accommodations" for amateur radio operation from private homes, from vehicles and in public places, says the report.

The new law does not require specific action by any government agency or personnel, but the ARRL says it can help in negotiations with any authority at any level of government that might be acting, or planning to act, in any ways that might hinder amateurs' activities.

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of March 1995.

L20993 MR J L ROY
L20994 MR E DECELIS
L20995 MR B WERBOWSKY
L20996 MR K BIRKETT
L30909 MR P MASKREY

L60341 MR J H PANIZZA
N4YKD MR D L BURNS
VK2ATL MR L G PERRETT
VK2DAM MR A J JACKSON
VK2GPJ MR P K JORDAN
VK2GWW MR M RAMIREZ
VK2IAY MR S LAWMAN
VK2IBT MR K R STANDEN
VK2ICW MR J CARTER
VK2KJD MR J G PITCHER
VK2MAA MR M J MORAS
VK2MJV MR D V MARKS
VK2SKI MR W PAULINSKI
VK2VAN MR J J VAN DENDEREN
VK2XVJ MR F J WEBER
VK2YGA MR G J ALLEN
VK2ZDW MR W B WEILEN
VK3NBH MR B C HAYNISH
VK5NL MR N W LANGMAN
VK5ZCV MR P J SKINN
VK5ZKA MR R M HOWDEN
VK6GE MR F M MADDISON
VK6NGD MR G J DOWN
VK6NMK MR F M KELLY
VK8MS MR M G SELLERS

■ Operating

Morse Not Required

Bob Hawksley VK2GRY argues that the insistence on Morse code as a licence requirement is self-defeating and urges that it be dropped. In so doing he reviews some of the correspondence that has appeared in Amateur Radio on the matter.*

In August 1992, *Amateur Radio* published a letter of mine in which I argued that Morse was no longer necessary. In the October edition of the same year Peter Wellum VK5ZPG endorsed my view and I still adhere to it.

What apparently escapes the powers that be is that once Morse is removed as a requirement there will inevitably spring up a class of ham who either delights in using it or is eager to learn it since its use enables DX operating on a grand and wonderfully economical scale. In short, Morse would become fashionable and CW Clubs would proliferate. Such clubs would aim to teach Morse, develop accreditation as Morse examiners, encourage and develop new ways of utilising Morse and generally contribute to the fun of ham radio. At the same time, of course, members of such clubs would delight in their own exclusiveness. And why not? Such is human nature.

Looking back over past issues of *Amateur Radio* Graham Jackson VK3TFN said in July 1990, "Not everyone enjoys CW — many find it extremely difficult to master, due to lack of aptitude, not lack of intelligence, or diligence". Hear, hear. Pounding Brass said in October 1990 that "... polls taken in Australia favour retention of Morse code and that it be an examination necessity." Was that proof of anything in particular?

In December 1990, Ian Hunt VK5QX said "We should come back to basics. There is a valid reason for the Morse requirement independent of other arguments. Emergency situations occur and it is possible, and likely, that a radio call for help will be transmitted using Morse." That didn't go down too well with Graham

Jackson VK3TFN who, in January 1991, thought that Ian Hunt's comment was "...a great argument for compulsory requirement in CW, and Japanese and Esquimaux and any other language one might receive a distress signal in." Graham wasn't allowed to get away with that because, in February 1991, Peter Alexander VK2PA said that Graham didn't realise that Morse is a common language. Um! Common to a certain extent, Peter, and perhaps OK for SOS and co-ordinates but not much cop for nattering about the meaning of life.

Also in February 1991, G W Lanyon VK2AGL touched on my favourite point by saying that passing the test doesn't make you a CW operator. "You only become one of the elite after years of practice." I agree. I never was one of the elite and, as the years go on, I'm more of the delete.

In my opinion a speed of 10 wpm is quite inadequate for serious operating. To be really serious about Morse the pass speed should be, wait for it, at least 25 wpm together with a good fist and a competency with procedure. And to get up to 25 wpm it is necessary to pass through the threshold of 14 wpm at which point the brain goes into auto and a person automatically writes what is heard without being conscious of the decoding process. Being in brain auto is the real secret of Morse operation.

In the same issue, Ted Gabriel VK4YG also took Graham Jackson to task by saying that 60% of the contacts worldwide were conducted in Morse code. He gave the reasons.

- Language difficulties where speech is concerned.
- High cost of equipment in less affluent countries has led to simple solid-state CW rigs.

(c) Often proven fact of the superior performance of CW under poor conditions.

(d) Ability to copy distress calls in Morse should be essential for all radio operators.

Ted's (d) sounds ideal but way beyond the scope of thousands unless examinations are made so tight and that there are regular exercises in depth to test competence which begs the question — is ham radio a hobby or preparation for membership of a resistance group?

In May 1991 T D Dowling VK4OD pointed out that you can beat QRM on CW and not on SSB. Dead true. But he followed that by saying "...isn't it strange that nearly all criticism of CW appears to come from persons who do not — or won't try to — use this [CW] mode." Are you sure? Doesn't strike me as strange at all. Common sense. Let's face it, Morse is a primitive method of communication and labour intensive, but technically it's cheap and it's fun. That is all.

So to June 1991, and Graham

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Jackson came out to do fresh battle and said lots of sensible things like the days when CW was essential are gone, ie essential, not in terms of qualifications, but in terms of the alternatives available now to CW illiterates. And in the same issue S V Ellis VK2DDL said *"Competence in Morse is no measure of an amateur's overall ability. At the present state of the art, continued insistence on this licence condition can only be regarded as both regressive and retrogressive, and therefore a deterrent to the populating and preservation of our bands."* Well said, S V Ellis. I entirely agree with you.

In July 1991 Kevin L Feltham poured much wisdom into the CW debate by observing that there were those in the boating world *"...who maintained that it is not possible to understand fully seamanship unless you can handle a boat under sail in any conditions."* Kevin contrasted that bold statement with similar statements that *"...you can only be a competent radio operator if you can use Morse code under adverse conditions."* Quite right, Kevin, which makes the 25 wpm operator a *sine qua non* does it not?

Kevin puts his finger on the rigidity of the arguments of the pro-CW lobby. Many people, including professionals, enjoy sailing and ham radio as recreations and yet the former aren't part of a private navy and the latter aren't members of a clandestine resistance group. So the upshot is that, as hams, we don't need to be all-singing, all-dancing.

In the same issue Drew Diamond VK3XU pleaded that, while Morse should not be a mandatory requirement, those with a proven interest in the code should be allowed unmolested access to the traditional "bottom end" of the HF allocations. And still in July 1991, Robert R McGregor VK3XZ argued that *"Serious HF communicators should not miss acquiring a modest proficiency in this invaluable method [CW] and USING IT (Robert's capitals)."* Robert's point cannot be denied but it carries with it the whiff of the lone ham in the midst of a disaster. Do we have to legislate for such probabilities? Ham radio is a hobby and WICEN exists and attracts



Bob Hawksley VK2GRY enjoying a CW contact. Bob's shack shares the back of his garage with his dark room.

to its ranks serious operators. And what of the thousands of CB radio users who all happily jam each other?

In August 1991, Geoff Marsh VK2GRM sang *"Long Live CW"* saying *"Let's continue the CW, sort out the men from the boys, and see who is genuinely interested in the hobby, which means its future and, most of all, its colourful past."* Sorry, Geoff, but that's nonsense and I can think of dozens of very clued-up hams who would take deep offence at such a comment. Nobody is saying do away with CW, only don't make it a mandatory requirement.

In September 1991, Thomas Knopp VK3MEY asked all those who complained about how hard it was to learn Morse code *"...for goodness sake, stop complaining. Sit down on your rear end and start listening to the Morse, and you'll get there."* Fair enough. Morse is for those who want it. But for those who don't want it, or have no aptitude for it, why try to force feed?

Then there was a gap until my letter in August 1992, asking *"Is Morse necessary any more?"* Admittedly with the above I've been selective but, I trust, not unfair to the many correspondents.

These days, when a person goes for a job the applicant is not handed a goose feather and asked to make a quill; demonstrations of more modern skills are required. But to insist on an applicant for a full licence to demonstrate a Morse capability is exactly the same as handing over a goose feather.

So what's the point on insisting on

a knowledge of something which he or she will promptly discard the moment they are licensed? I'd rather they were closely examined on the causes and cures of TVI. How many hams embrace CW when fully licensed? How many hams even remember their 10 wpm a year after getting their licence? (It can't be many because, unless one gets beyond 14 wpm, one will forever be floundering.)

But, amazingly, two thirds of all operators in the world use CW so it's in no danger of falling into disuse. It will continue to be used because of its utility and despite its primitiveness.

It's time to bring ourselves up-to-date and recognise that the technology that gave us birth has raced ahead in awesome ways. Of all developments the PC is the most exciting. Although still in its infancy, nobody is insisting that a PC user must be able to touch type before getting in front of a keyboard. So why insist on Morse before getting in front of a rig?

In my view no cogent argument remains for insisting on Morse. It has a place but it must be a place of free will. Rather like calligraphy. It's lovely if you can do it. If you can't you're missing out.

Many would-be hams are put off by the insistence on Morse because they see in it a very limited application for *them*. Thus insistence upon it has now become self-defeating. When I first acquired my licence in 1949, Morse was the gateway to the stars. Not any more!

²¹ Wallumatta Road, Newport NSW. 2106

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■ Equipment Review

MFJ-249 HF/VHF SWR Analyser with LCD Frequency Counter.

MFJ-259 HF/VHF SWR Analyser with LCD Frequency Counter.

Reviewed by Ron Fisher VK3OM

It seems that printing out the names of these devices might take up half the review, but stick with me, these little instruments are very worth while.

Let's go back to the January 1993 issue of *Amateur Radio*. It was there that I reviewed the MFJ-247 HF only SWR analyser and had a few misgivings about it. The latest two devices have coverage up to 170 MHz so are usable from 160 metres right through to 2 metres.

If you don't have access to the earlier edition of *Amateur Radio*, let me explain just what these analysers actually do. Each unit contains a variable frequency oscillator which tunes in six switched bands from 1.8 to 170 MHz. The frequency of the oscillator is read with the built-in counter and displayed to a ten digit accuracy on a very clear LCD.

The oscillator is fed through a very sensitive SWR bridge to the antenna connector which is connected to the antenna, the antenna feeder, an ATU or a combination of all three. The SWR is then read from the built-in SWR meter. With this you can check the entire antenna system without putting a signal on the air. Well, only about 0.01 watt of signal which should not annoy anyone.

The earlier MFJ-207 did not have continuous coverage, and had gaps around 5.5 MHz which could have

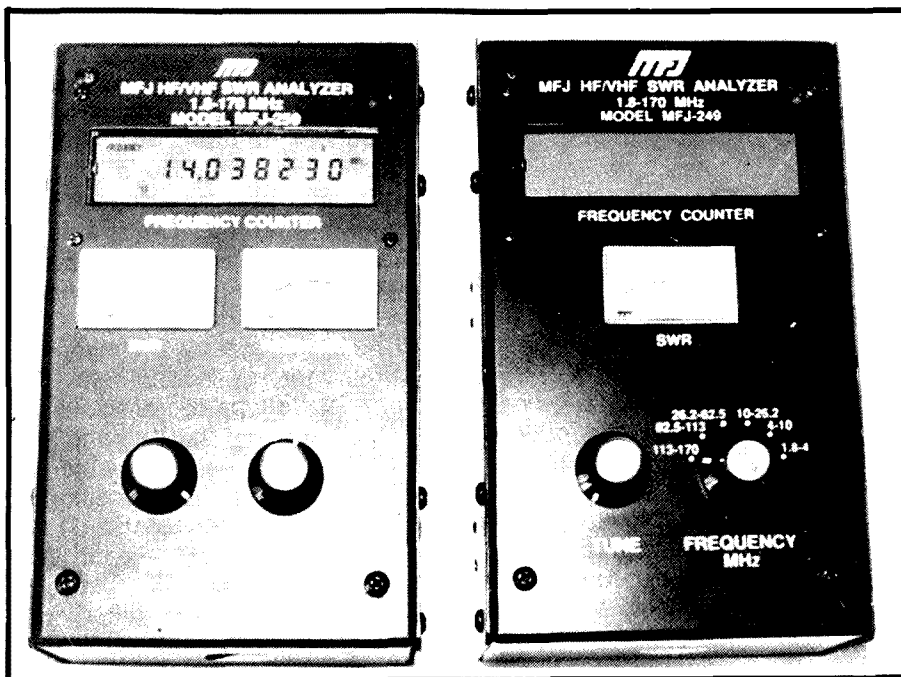
been a problem for commercial users. The new models have full coverage. Also, the earlier model used a direct drive for the oscillator tuning which made exact frequency setting rather difficult. The new model uses a six to one vernier drive for much improved action. My complaint that the DC power input was not marked for polarity has been put right on the latest model. Thanks MFJ, it's nice to know you are listening.

The analysers can also run from internal power with eight AA batteries but it is still necessary to remove eight screws to install or replace them. All of my tests were carried out using an external 12 volt DC supply.

Current drain from the internal batteries is rather high so it's better to use these when outside work at the antenna is needed and use a power supply when in the shack. One of the great things about these meters is that the counter can be used independently of the analyser. Switches on the top allow the counter to be used externally with input via a BNC connector. Another switch sequentially selects the gate time of the counter.

I noted that the counter in the review analyser was much more accurate than the one reviewed in January 1993. At 146 MHz it was better than ± 50 Hz. Again, the lock up problems noted in the earlier model were completely absent with these units. I also noted that the SWR readings were more consistent with those obtained using my usual station meter.

In addition to the SWR meter, the MFJ-259 also has a "resistance" meter which is calibrated from 0 to 500 ohms. This is most useful when checking antenna feed systems as a



The MFJ HF/VHF SWR Analysers.

resistance other than 50 ohms will require both matching and tuning to achieve 1:1 SWR.

The instruction books have been upgraded over the earlier models. There is information on using both the 249 and 259 to adjust simple antennas, including dipoles and verticals, testing and tuning stubs and transmission lines, which includes checking the velocity factor of a transmission line. However, there are still a few odd things that don't quite add up. For instance, there are two pages devoted to a parts list which includes a circuit designator and description but there is no circuit to refer these to.

Conclusions

MFJ have improved their earlier models to a very marked degree. The instruction manuals are also better. All of my complaints about the MFJ-247 have been addressed and so these new models are highly recommended. The MFJ-249 is priced at \$499 and the MFJ-259 at \$549



MFJ-66 Dip Meter Adaptor

This handy little gadget can be used with either of the above analysers to effectively turn them into dip meters. Two coupling coils plus an adaptor are supplied in the kit. These are plugged into the "Antenna Connector" on top of the analysers.

Bring them close to the tuned circuit you wish to dip, tune the analyser past the frequency expected and note the dip on the SWR meter, read off the frequency from the counter and there you are. I did several comparison tests against my old Heathkit GDO, which is now over 35 years old, and found that the MFJ combination appeared to be rather insensitive. However, it is a useful addition to a pair of versatile instruments.

Thanks to Daycom Communications Pty Ltd for the loan of the review equipment. For further information please contact John Day of Daycom Communications on 03 543 6444.

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QSP News

Effect of RF Radiation on Eyes

We have received from its author, Hector Maclean VK3CEC, a copy of an article from "Developments in Ophthalmology" published by S Karger, Basel, Switzerland. Its full title is "Lens Heating in Donor Eyes by VHF and UHF Radiation".

Hector is an Associate Professor in the Department of Ophthalmology in the University of Melbourne, and also practises at the Victorian Eye and Ear Hospital. The summary introduction to his article is as follows:

"The increasing use of radio transmitters of the walkie-talkie and mobile phone types may pose a risk of cataract formation because the antenna is close to the eye. The resulting radiation may cause heat cataract. An experimental model has been developed to detect possible thermal effects on the lens from use of a moderate power transmitter at different frequencies and with antennas of different

power gains. The two amateur radio bands where walkie-talkie use is most common were chosen. Mobile and cellular phones use a frequency just over twice that of the higher test band, and results from the other two bands may be extrapolated to this higher band."

The procedure which was used involved a plastic container simulating the radio-user's head, in which was mounted a donor eye (obtained from the Eye Bank). Temperature of the eye was measured directly using an alcohol thermometer readable to 0.1° C, and near the eye by a similarly accurate mercury thermometer.

A handheld type of transceiver (ICOM-32AT five watt dual band 2 m and 70 cm) was mounted relative to the eye in a position representative of normal use.

Transmissions were made for 10 minutes continuously on each band and using three different antennas, viz a short helical "rubber-ducky", and quarter wave and half wave whips for two

metres. Frequencies used were just below 148 MHz and just below 440 MHz. The quarter and half wave whips (on 2 m) resonated as 5λ/4 and 3λ/2 on 70 cm. Each measurement was repeated up to 10 times and results averaged. Tests were made first on the thermometers alone and then with the eye attached.

The results showed clearly that thermal effects alone were very small, the mean temperature rise being about 0.2° on the thermometers alone, and even less with the eye in position.

In discussing the results, the possibility of cataract formation by strong RF fields is not dismissed completely. It could be as a result of high peak power from a pulsed source, or due to high field strength affecting tissues. But the results do show, if heating by a CW source is to be a cause of cataract, that walkie-talkie power levels are unlikely to produce it.

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■ Technical

Technical Abstracts

Gil Sones VK3AUI*

Simple Shortwave Receiver

Many years ago most amateurs were very well acquainted with regenerative receivers. They were simple and cheap and, in the uncrowded bands, they performed quite adequately. They were even used in some of the Second World War portable radio equipment used behind enemy lines. Even today they can provide reasonable performance and provide a lot of fun for a small outlay.

In the December 1994 issue of *CQ* magazine, Bill Orr W6SAI featured in his *Radio Fundamentals* column an interesting modern design for a regenerative receiver. The design is the work of Charles Kitchen of Analog Devices and was originally published in *Electronic Design News*. It is basically a single transistor regenerative stage followed by a two transistor audio amplifier.

The circuit is shown in Fig 1. Q1 is a regenerative RF amplifier with the level of regeneration controlled by R2. The signal is detected by D1 and the resultant audio is amplified by Q2 and Q3. The series string of D2, D3 & D4 is a simple voltage regulator for Q1.

The coil details given provide a tuning range of 5 to 10 MHz. Changing the number of turns will change the tuning range. A reduction drive on the tuning capacitor C2 would be desirable. C2 could be salvaged from a defunct radio. The value is not critical but it will determine the tuning range. Construction could use the ugly method with components soldered together above a piece of PCB laminate with tag strips or using glued-on pieces of PCB for interconnection points.

With such a receiver an RF amplifier is a useful addition, even if it is simply an untuned stage with minimal gain. When receiving CW or SSB the regenerative stage is

oscillating and can radiate a signal which may not be welcomed by your neighbours. The regenerative stage is most sensitive when on the brink of oscillation and adjusting the regeneration whilst tuning is an art.

An audio gain control can be provided by making R3 a potentiometer with C3 connected to the moving contact. However, the circuit can be operated without such refinement.

Super Regenerative Receiver

The super regenerative receiver was once popular with VHF amateurs as it provided a fairly sensitive receiver with a minimum number of parts. They were usually accompanied by a modulated oscillator transmitter and they provided many amateurs with their first introduction to VHF. They still survive today in the many simple remote controls such as car locking and remote controlled garage doors and in many other domestic devices.

In Europe they are a serious source of QRM to 70 cm operators, but that is another story.

In the Fall 1994 issue of *Communications Quarterly*, a number of super regenerative receiver circuits were described in an interesting article by Charles Kitchen of Analog Devices, Wilmington, Massachusetts. These are of interest to amateurs as they provide simple receivers for VHF use which can receive AM or FM.

A simple single FET design for the FM broadcast band, which could be adapted to either the 52 MHz band or the 144 MHz band, is given in Fig 2. It would allow monitoring of an FM net or you could use it to listen to the local FM broadcast station. Another possibility is to listen to the aircraft transmissions in their band. However, for many of these uses, an RF amplifier is highly desirable both to aid sensitivity and, more importantly, to limit radiation. The super regenerative receiver is famed for the rough signal it can radiate.

The super regenerative detector gains its sensitivity by oscillating and so can radiate. The oscillation is actually at two frequencies, one of these being the frequency to which you are listening, and the other being in the region above the audio frequency range. The resultant rough rasping signal will be heard by your neighbours. You will only hear a

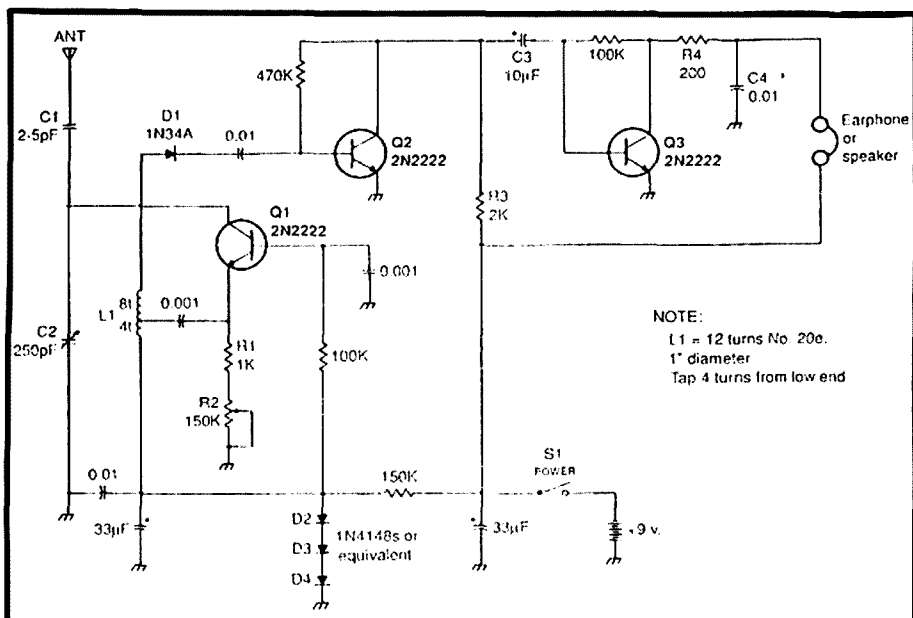


Fig 1 — Simple Regenerative Receiver.

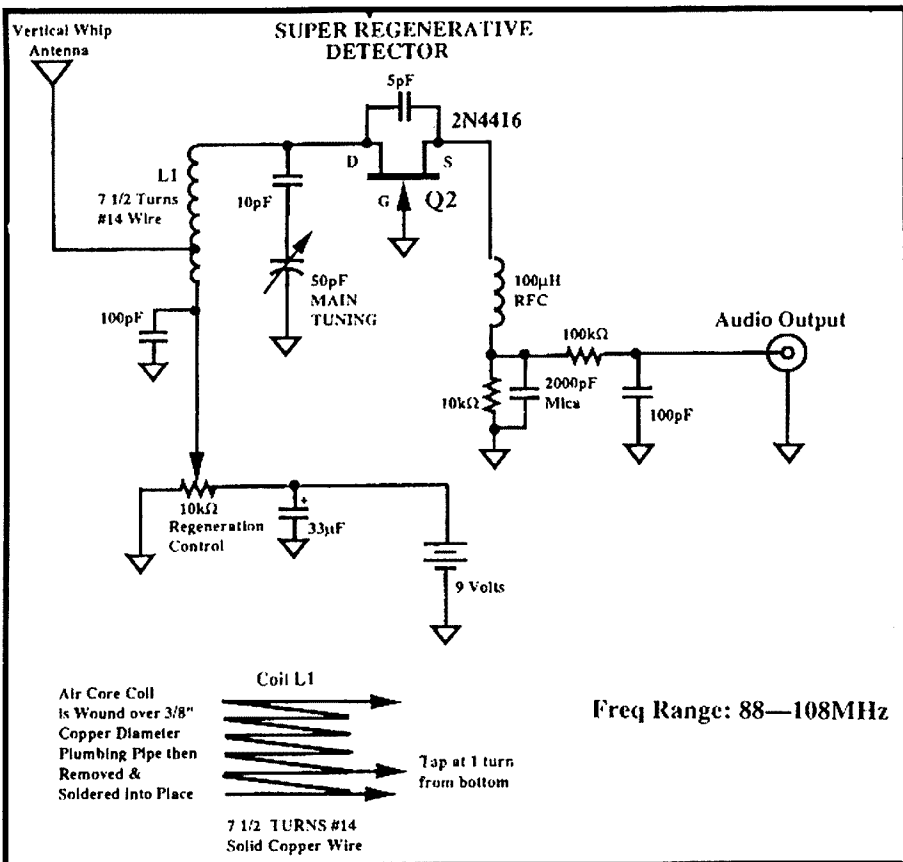


Fig 2 — Simple Super Regenerative FM Tuner.

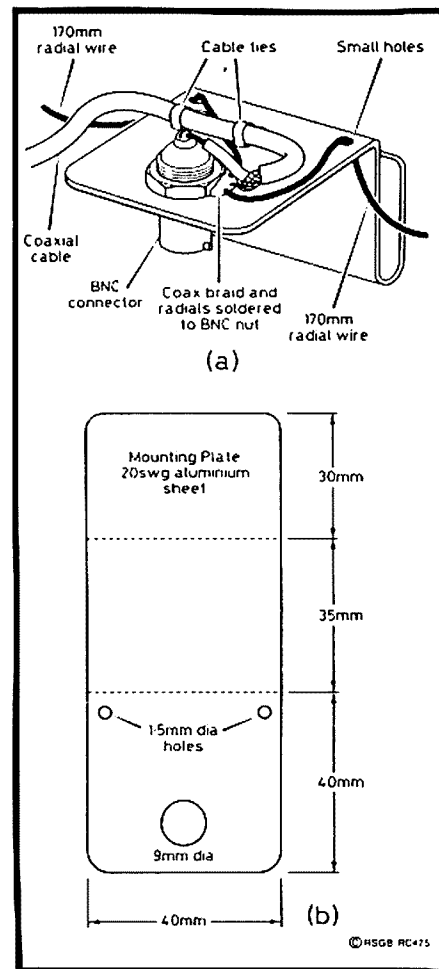


Fig 3 — UHF Window Clamp Antenna Mount.

Nicad Charger Integrated Circuit

In *Technical Abstracts* in the March 1995 issue of *Amateur Radio*, an interesting Nicad charger was featured. The only snag was the source of the IC used.

The maker of the IC was identified as Telefunken by Barney VK3XPW and also by Peter VK7KD who suggested a possible source. The U2400B IC had been used in a project in *Elektor* magazine and can be obtained by mail order from a Dutch firm who sell parts for Elektor projects. The firm is C-I Electronics, PO Box 22089, NL-6360 AB Nuth Holland and they have a FAX number of (+31) 45 241877.

The Australian Distributor of the Telefunken IC wrote including both Data and a catalogue. Telefunken are part of the TEMIC Semiconductor group which also includes Siliconix, Matra, Dialog and Eurosil and they

Window Clamp Antenna Mount

A window clamp antenna mount for a UHF antenna was described in *Novice Notebook* in the February 1995 issue of *Radio Communications* by Ian Keyser G3ROO. This was to provide a simple antenna mount for use with a UHF handheld. A gutter mount is hard if you have a car without a gutter and a magnetic mount can lead to marks on the paintwork.

The mount is shown in Fig 3. The radial wires are taped to the window glass to provide a ground plane. The handheld "rubber duck" antenna is used as the radiator. The same design would work on 144 MHz but the radials would have to be three times longer.

The mounting bracket is slipped over the top of the window and is clamped when the window is closed. The radials are taped to the glass using Scotch glazing tape which is used in the UK to join clear plastic roofing sheets. Similar tape may be available locally or you may have to find something experimentally.

reassuring hiss indicating that the receiver is working. An RF amplifier will confine the signal and provide some amplification of the wanted signals. One of the Preamp kits from the VK5 component service would be ideal.

Sensitivity of a super regenerative receiver is derived from the detector moving in and out of oscillation at the signal frequency. A regenerative stage has highest gain at the brink of oscillation and by continually moving through this point the "super regen" gains its sensitivity. The stage is turned on and off by a super audio oscillation caused by it oscillating at a second or Quench frequency. This can be obtained from a separate oscillator but, in the circuit shown in Fig 1, the single FET oscillates at both the signal and the quench frequency.

For more information on super regeneration the article in *Communications Quarterly* is recommended. This magazine is handled by *Daycom Communications Pty Ltd* who advertise in *Amateur Radio*.

are represented by IRH Components who are the Australian Distributor. Even better, the letter included the news that Truscott Electronics of 32 Lacey Street, Croydon VIC 3136 can source the IC. Truscott Electronics phone numbers are 03 723 3860 and 03 723 3094 and the fax number is 03 725 9443.

The anticipated delivery is mid May and the price \$6-\$10 each plus freight. Sales tax was not mentioned but the pricing seems very reasonable. Contact at Truscott Electronics is Mr Ian Truscott. My thanks to Julian Rose, Victorian Branch Manager of IRH Components, for the letter and the information.

**C/o PO Box 2175, Caulfield Junction VIC 3161*

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ALARA

Sally Grattidge VK4SHE ALARA
Publicity Officer*

Exciting Find

Some photographs of the Women's Emergency Signalling Corps taken during a group weekend at Newport in 1941. Mary Hay and Marie Dortkamp are on the left in the group in the top photo. The girls were trained by Florence McKenzie.

The photographs came from Jack McFarlane VK2NPX, whose XYL was Marie Dortkamp. Jack found the negatives in a box of "good junk" last year and, as far as we know, they had never been printed, which makes all of us who never throw anything out feel a whole lot better.

If you can identify any of "Mrs Mac's girls" in the photograph please contact Christine VK5CTY or Bron VK3DYF. They would also like to hear from you if you have any information about early YLs, especially interesting stories or photographs.

Today's YLs — Three ALARA Profiles

Agnes PA3ADR

Agnes lives in the Netherlands where she is the first YL general vice president of VERON, the national society of radio amateurs in the Netherlands. She has been nominated for general president to take over on 22 April 1995, the year VERON celebrates its 50th anniversary. She is looking forward to a busy year with festivities throughout the country and speeches and forums to prepare.



In August last year her son married a girl from Australia. Though both had good jobs in the Netherlands, they emigrated to Australia in January 1995. Agnes hopes to visit them in their new country in December. She will be able to meet some of her ALARA friends while she is here. She would love her son and daughter-in-law to become radio amateurs, but understands that it is difficult to study when you are young and careers demand most of your time.

Pearl ZL2QY

Pearl lives in Otaki, is 85 years old and blind. She has been on the air for 20 years, recently acquiring a rig with voice synthesiser which she claims "talks to you and tunes itself". She was a skilled operator on less sophisticated rigs and has an amazing memory for names, numbers and bands, demanding respect from all of us who reach for the notebook every time we hear someone who has not been around for a while.

Pearl's OM Albert was licensed in 1934 when all Pearl heard from the shack was CW. When voices started coming out of the equipment Pearl began to take an interest, and gained her licence in 1974.

Amongst others, Pearl has an award for talking to women radio operators in 100 different countries, an award for talking to women operators in every state in America and an award for having so many awards. These days she spends most of

her time chatting to friends all over the world.

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An Amateur Radio Licence would be an advantage and a broad knowledge of RF techniques and test methods with microprocessor based circuits and systems from HF to 2 GHz.

Written applications only, specify qualifications, experience and personal details to:

**Managing Director
Icom Australia Pty. Ltd.
7 Duke Street
Windsor 3181
Victoria**

Pearl was the first DX member of ALARA when she joined in 1976, sponsored by Mavis VK3KS. Mavis and OM Ivor VK3XB met Pearl and Bert (now SK) in 1975 while touring New Zealand.

Mavis provided the information about Pearl from an article by David Fisher in *The Chronicle* of 29 June 1994, sent to her by Pearl.

Joy VK4AT

Joy and her daughter Carol joined in when OM Bob started studying amateur radio. All three received call signs in November 1979.

Joy's first call was VK4VFJ (very friendly Joy), Bob's was VK4VIP (very important person) and Carol was VK4VIE (very important extra). Nine years later Joy passed her full call theory and became VK4JOY in March 1988. In December 1991, she finally cracked the code and became VK4AT.

Joy enjoys JOTA each year and for the past 14 years has joined Tom VK4TY under a sheet of canvas with a long wire and petrol generators at Karingal.

Joy is also involved in ATV, weather fax, all digital modes and packet, and is the proud owner of a 486 DX66 computer. Her latest venture is into Community Radio, and two mornings a week she is an announcer for 4BAY — 100.3 FM, where she interviewed Ian Campbell VK4TK about amateur radio on the program "Morning Magazine".

Details of Joy's profile came from the November 1994 issue of *The Bayside Beacon*, newsletter of the Bayside District Amateur Radio Society Inc.

Gosford Field Day

On 26 February, Dot VK2DCB and Margaret VK2MAS represented ALARA at the Gosford Field Day at the Wyong Racecourse. The first visitors to the table (and to sign the visitors' book) were Beryl VK2BBM and her OM Doug VK2YI.

Other ALARA members among the 37 people who signed the visitors' book were Marjorie VK2AMJ, Anne VK4ANN, Pauline VK2GTB and Pixie VK2PC.

Dot and Margaret had many interesting chats with YLs (and OMs too), sharing our stories about how and why we took up amateur radio. Pauline had a good reason. She was very keen to be a member of WICEN, but not just as the tea lady, so she got her licence.

Altogether a successful day and busier than expected. Margaret took her knitting to do in the "quiet times" and didn't do a stitch.

Silent Key

February 1995, Rae VE7CIX, who was sponsored by VK3BIR.

**C/o PO Woodstock, QLD 4816*

AMSAT Australia

*Bill Magnusson VK3JT**

National co-ordinator

Graham Ratcliff VK5AGR

Packet: VK5AGR@VK5WI

AMSAT Australia net:

Control station VK5AGR

Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/- 5 kHz for QRM.

AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia

GPO Box 2141

Adelaide SA 5001

Two Amateur Radio Satellites Lost

AMSAT News Service recently released this report on the events leading to the loss of two amateur radio satellites during launch:

Explanation Of Tragic Loss Of TECHSAT AND UNAMSAT

ANS has received additional information regarding the loss of TECHSAT-1 and UNAMSAT-1. As reported earlier, the flight was on a converted ICBM. Lift off and following events apparently were nominal until the time came for the fifth stage to fire. All stages are reported as being solid-fuel rockets. After that time, it is said that signals were lost. It is not known whether any salvage will be attempted. It is speculated that everything burned up in re-entry as the flight was in the vicinity of 600 km altitude, although slow, at the time of failure. This was, apparently, the first time that a fifth stage has been attached in this flight configuration although the fifth stage module has been reported to have flown on other missions as an add-on stage. TECHSAT and UNAMSAT are said to have been accompanied, on the flight, by two Russian satellites. It had been reported previously that TECHSAT and UNAMSAT were to remain attached to a RESURS-

class spacecraft in orbit, but that was apparently for an earlier flight configuration which was changed some months ago. It is now reported that the payloads were all separately attached to the upper stage of the launch vehicle. AMSAT-NA President Bill Tynan (W3XO) expressed deep sorrow over this substantial loss to all of those who worked so hard to design and construct these spacecraft, and to the entire amateur satellite community worldwide. He said that he had dispatched E-Mail messages of condolences to the appropriate parties. [The ANS wishes to thank Richard Limbear (G3RWL) and AMSAT-UK for the material used in the preparation of this bulletin.]

A sad loss indeed for all those involved in the planning and construction of the two satellites. It's not the first time, of course. The original phase 3 satellite, which would have been AO-10, was lost in similar circumstances and there have been a couple of amateur satellites that have reached orbit but failed during commissioning or shortly after.

Home Brewers Corner

Bruce VK5KJ called to add his name to the list of satellite operator home brew enthusiasts. I'm still compiling the list and it's still open for expressions of interest. I'll publish what I have so far along with the regular frequencies and modes list in the July column.

SunSat — New Satellite Planned

A satellite now being designed in South Africa will include an extensive amateur radio package and is scheduled for launch in January 1996. Called Sunsat, the satellite is being designed and built by engineering students at the Electronic Systems Laboratory at Stellenbosch University. In exchange for a US National Aeronautics and Space Administration launch, Sunsat will carry a precision GPS receiver and a set of Laser retro-reflectors, for NASA's use.

The amateur radio payload was approved at the SA-AMSAT Spacecon 91 Conference. It includes duplicate transmitters and receivers for the two metre and 70 cm bands, a 24 cm (1260 MHz) receiver and 13 cm (2400-MHz) receiver. A number of uplink and downlink frequency combinations are possible. Sunsat will offer extensive digital communication capability. One of the two metre receivers has four IF sections connected to 1200-baud AFSK packet

DICK SMITH ELECTRONICS

UNBEATABLE VALUE!

The deluxe 2m/70cm dual-band hand-held Transceiver that offers easier operation and more features than ever before is still available at an unbelievably low price!

The Yaesu FT-530 provides a flexible dual receiver facility with separate volume and squelch controls, allowing you to listen on two frequencies in the same band or one frequency on both bands! Plus, the exclusive Australian version features full 70cm band coverage (420-450MHz), selectable Auto Repeater Shift on both 2m and 70cm (suits Australian band plan), and extended receiver coverage as standard. Two VFOs and 41 tunable memories per band are provided, together with keypad or dial frequency entry, seven selectable tuning steps and a one-touch CALL channel. The dual 5.5-digit LCD screen is back-lit for easy viewing and includes many functional indicators plus separate signal/P.O. bargraphs for both receivers. An LCD voltmeter function is provided so you can even monitor your battery's performance under load and estimate remaining battery life.

Other top features include: Inbuilt CTCSS encode/decode, CTCSS scanning, an auto battery saver (ABS) for extended battery charge life, a cross-band repeater facility and an inbuilt clock with alarm and snooze functions.

Also provides VOX circuitry for use with the optional YH-2 headset, a user-replaceable Lithium back-up battery, and DTMF selective calling and paging. A DC supply jack allows simple transceiver powering and NiCad charging, with RF output in four selectable steps up to 5W at 12V. The FT-530 comes complete with an ultra high-capacity 1000mAh NiCad battery, belt clip, carry case and approved AC charger.

Cat D-3620

Specifications

Frequency range:

Transmit:

144-148MHz, 420-450MHz

Receive:

130-174MHz, 420-500MHz, 800-950MHz

Current consumption:

Auto power off

150uA

Standby (saver on)

16.8mA (both bands)

Dimensions:

55(W) x 163(H) x 35mm (D)

Transmitter:

Power Output:

5, 3, 1.5, 0.5 (at 12V)

RF Power Output:

2.0W (2m) 1.5W (70cm)

(Supplied 7.2V 1000mA/H NiCad)

Receiver:

Sensitivity:

2m: < 0.15uV, 70cm: < 0.18uV

(Ham bands only, 12dB SINAD)

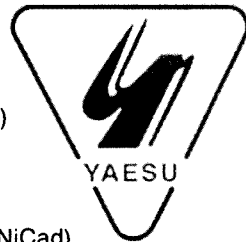
Selectivity:

>60dB

Audio Output (12V):

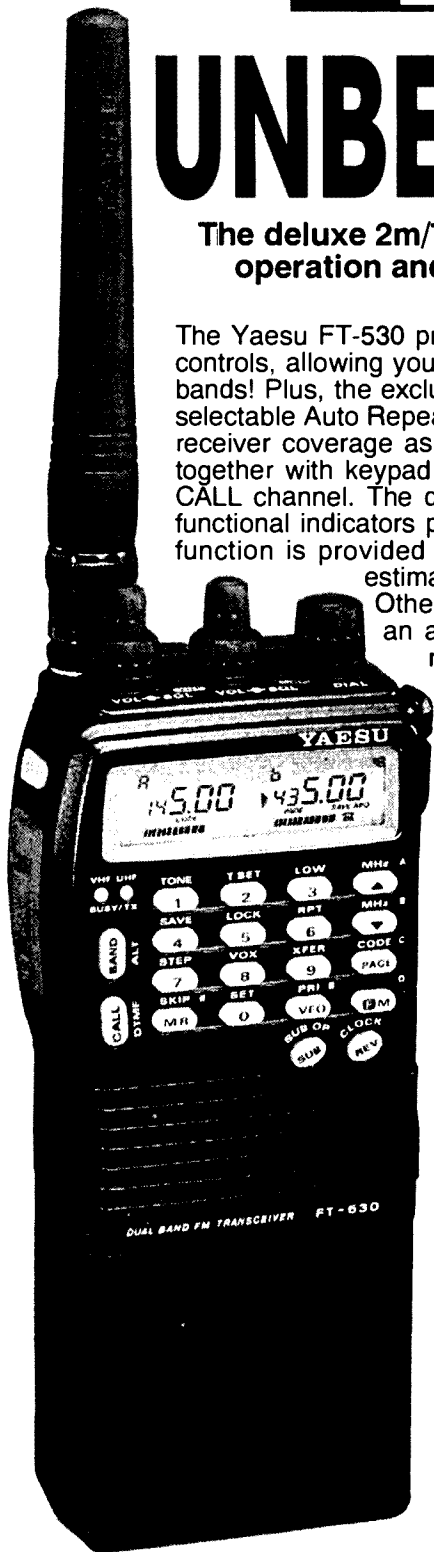
300mW at 8 ohms (at 12V)

2 Year Warranty



\$699

Still Available At This
Special Low Price!!



Don't go mobile without a Yaesu Mobile Transceiver!

Whether you're going bush or operating around town, a quality mobile transceiver from Yaesu delivers the best performance.

FT-2400H Rugged 2m Transceiver

The ultimate in dependability and reliability! The FT-2400H is built using commercial grade mechanical and electronic construction techniques and meets the tough USA MIL-STD-810C shock and vibration requirements, so you know you're getting the highest quality. A one-piece die-cast chassis/heatsink allows three-step output of up to 50 watts without forced air cooling. Plus, fibreglass circuit boards and chip components provide professional-grade reliability. It has a large backlit LCD screen, backlit knobs and 31 tuneable memories (which can store frequency and a four-character name of your choice). A customised microprocessor also provides Auto Repeater Shift to suit Australian conditions. Two-stage track-tuning and a dual FET mixer improve receiver intermod performance. Scanning functions include programmable scan limits, selectable scan resume modes, memory skip, and priority monitoring. Seven selectable channel-steps and CTCSS encode are standard features. Comes complete with MH-26 hand mic., mobile mounting bracket and DC power lead.

Cat D-3630



\$649 2 Year Warranty

Specifications

General

Frequency range: Transmit 144-148 MHz
Receive 140-174MHz
Channel steps: 5, 10, 12.5, 15, 20, 25 & 50kHz
Current Consumption: Receive: 400mA
Transmit: 12 Amp (Hi power)
Dimensions: 160 x 50 x 180mm (w/o knobs)

Receiver

Intermediate Freq: 21.4MHz & 455kHz
Image Rejection: Better than 70dB
Maximum AF Output: 2.0 watts into 8 ohms @ 10% THD

Transmitter

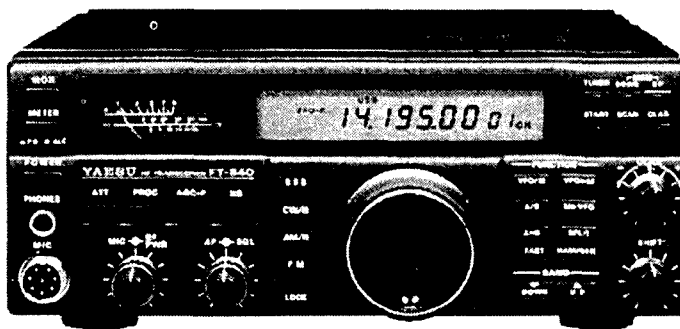
RF Output power: 50/25/5 watts (Hi/Med/Low)



Yaesu FT-840 HF Transceiver

Blending the high-performance digital frequency-synthesis techniques of the FT-890 with the operating convenience of the FT-747GX which it replaces, the all new FT-840 HF mobile transceiver sets the new standard for high performance in affordable transceivers. Covering all HF amateur bands from 160m-10m with 100w P.E.P output, and with continuous receiver coverage from 100kHz to 30MHz, the FT-840 provides SSB/CW/AM operation (FM optional), 100 memory channels, a large back-lit LCD screen, two independent VFOs per band, an effective noise blanker and an uncluttered front panel, all in a compact case size of just 238 x 93 x 243mm (WHD). Unlike some competing models, small size doesn't mean small facilities. The FT-840 provides easily-accessible features such as: Variable mic. gain and RF power controls, SSB Speech processor for greater audio punch, and IF Shift plus CW Reverse to fight interference. Dual Direct Digital Synthesizers ensure clean transmitter output and fast Tx/Rx switching, while the low-noise receiver front-end uses an active double-balanced mixer and selectable attenuator for improved strong signal handling. The FT-840 weighs just 4.5kg and uses a thermally-switched cooling fan, surface-mount components and a metal case for cool, reliable operation. An extensive range of accessory lines are available, including the FC-10 external automatic antenna tuner, so you can customise the FT-840 to suit your operating requirements.

Cat D-3275



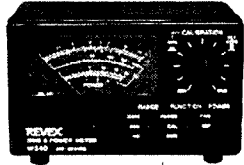
2 Year Warranty

Still only **\$1595**

Quality Transceiver Accessories!

VHF/UHF Power/SWR Meter

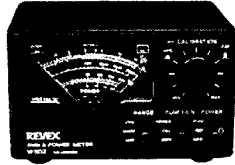
A high quality SWR/Power meter suitable for amateur, UHF CB and commercial applications. High-quality Japanese construction assures you of maximum reliability. It has an all-metal case, large meter display, 140-525MHz coverage with less than 0.3dB insertion loss, and 4W, 20W & 200W power scales. Revex model W540.



Cat D-1370
\$199

With PEP Reading! HF/6m Power/ SWR Meter

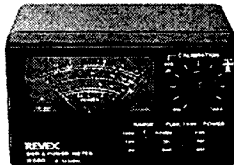
A quality wide-band SWR/power meter with accurate PEP metering. Manufactured in Japan, it's very well constructed with an all-metal case. Features include a large, back-lit meter, 1.8-60MHz coverage with less than 0.1dB insertion loss, 20W, 200W and 2kW power scales, and LED indicators for Average/PEP operation. Requires 13.8VDC at 200mA. Revex model W502



Cat D-1360
\$199

Revex W560N HF/VHF/UHF SWR/PWR Meter

Another quality Revex wide-band SWR meter, offering 2 inbuilt sensors for 1.8MHz to 525MHz coverage! Provides measurement of 3 power levels (3W, 20W, 200W), SWR (at low and high power levels) and uses an N-type socket for the VHF/UHF sensor to ensure minimal loss. Measures 120 x 80 x 85mm.



Cat D-1375
\$369
Limited Stocks

Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV is a 5-band HF trap vertical which continues the Hustler tradition of quality and performance. It incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1 kW (PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, < 2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike some other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.

Cat D-4920

\$299

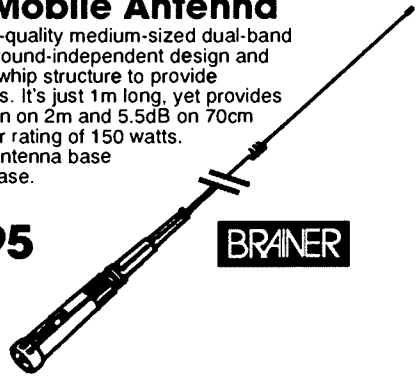


2m/70cm Mobile Antenna

The ST-7500 is a high-quality medium-sized dual-band antenna that uses a ground-independent design and tiltable stainless steel whip structure to provide excellent mobile results. It's just 1m long, yet provides approximately 3dB gain on 2m and 5.5dB on 70cm with a maximum power rating of 150 watts. Requires an SO-239 antenna base or SO-239 magnetic base.

Cat D-4810

\$7995



2m/70cm Hi-Gain Mobile

The ST-7800 is our best long-range, dual-band mobile antenna providing high gain (4dB on 2m and 7.2dB on 70cm), while only 1.5m in length. It incorporates an inbuilt tilt-over mechanism and has a maximum power rating of 150 watts. Requires an SO-239 antenna base.

Cat D-4815



\$12995



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Fax: (02) 805 1986 or write to

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All major Credit Cards accepted. O/Nite Courier Available.

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modems. The satellite carries three G3RUH-compatible 9600 baud modems that can be switched to various receivers and transmitters.

The designers say that ground-station requirements are minimal. Data communications between stations running 10 watt transmitters and dipole antennas will be practical. Since large quantities of data can be stored in the satellite, global data transfer will be possible. Sunsat carries a number of educational experiments including a two metre "parrot" mode repeater intended for amateurs new to satellite operating. Up linked speech will be digitally stored and re-transmitted on the same frequency enabling school users to hear the transmission and know they are getting through.

FAQs (Frequently Asked Questions)

Suggested by Bruce VK5KJ, "How do

I get Keplerian elements over the phone?"

There are several sources available, depending on where you live. Here in Melbourne our local packet BBS has a phone BBS attached and keps are available there for download. It will cost you a short international call but one of the best and most up-to-date sources is the Goddard Space Centre BBS. The number (including ISD code) is 0011 1 713 244 5625. This source is particularly useful during STS flights. On those occasions the very latest STS keps are right there on the introduction page so you only need to have disk capture on when you connect and you can disconnect after only a few seconds, reducing the cost substantially. If you know of any other reliable sources please let me know and I can compile a list for publication.

*359 Williamstown Rd, Yarraville VIC 3013
 Packet: VK3JT@VK3BBS.#MEL.VIC.AUS.QC
 CompuServe: 100352,3065
 ar

a little closer to the operational dates. In the meantime, further information may be obtained by contacting Jim White VK4BX, Secretary, Hervey Bay ARC, PO Box 829, Hervey Bay QLD 4655.

Southern Cross DX Net

The co-ordinators of the "Southern Cross DX Net" have recently begun issuing a very handsome certificate to anybody who checks into the Net, provided that they apply for it. Apply to A Roorcroft VK4AAR, c/o PO Dalveen, QLD 4374 and include \$AUS5.00 or \$US3.00 and a normal size self addressed envelope. Stations in NA, SA or EU should apply to Bob McCourt KI4RU, 507 Highland Drive, Eustis FL 32726 USA.

PLCA (Portuguese Language Countries Award)

This award is issued for confirmed contacts (or SWL reports) with ten countries where the Portuguese language is spoken. This list includes C9 Mozambique, CT Portugal, CT3 Madeira Is, CU Azores Is, D2 Angola, D4 Cape Verde Is, J5 Guinea-Bissau, PY Brazil, PY0F Fernando de Noronha, PY0S St Peter & Paul Rocks, PY0T Trindade & M Vaz Is, S9 Sao Thome & Principe, and XX9 Macao.

All contacts must be made from the same DX country. Contact must be made with land stations only. Maritime mobile and aeronautical mobile do not qualify. Participants must be licensed amateurs and SWLs. There are no time restrictions. There is an endorsement for contact with all 13 countries. A GCR list will be accepted.

The fee for the award is \$US4.00 or five IRCs (via airmail). The fee for the

AWARDS

John Kelleher VK3DP — Federal Awards Manager*

A survey carried out by one of my predecessors indicated that there were, in 1989, between 25 and 30 radio club stations actively operating Awards Nets. In 1994 I requested information from any and all club stations still actively engaged in the issue of awards, with the promise that free publicity would be given through the pages of *Amateur Radio* magazine, which has a world-wide circulation.

To my dismay, only four clubs responded. Does this mean that at least 24 radio clubs have become inactive or defunct, or have they just "shut up shop" for the duration of the present solar cycle?

Needless to say, I have kept my end of the bargain.

VI50PEACE

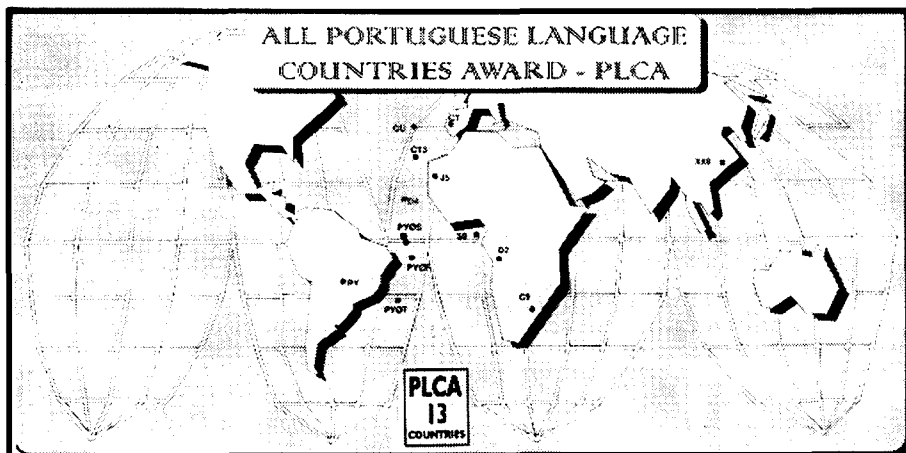
The Hervey Bay ARC has been allocated this "Very Special Call" for the period 1 August to 31 October 1995. This special event callsign has not been initiated to glorify war in any shape or form, but to attempt to bring together, in international unity, as many of our fellow amateurs as possible. The callsign is being activated in commemoration of the men, women, and children, of all nations, who lost their lives during the time of world conflict.

It will be realised that 1995 brings with it the 50th anniversary of the cessation of hostilities for World War 2 and, while the

world is in unrest in many localities, perhaps by our efforts the various leaders throughout the world may strive to achieve an everlasting peace.

The Hervey Bay ARC would be pleased to hear if your club, or country would be interested in activating a special call along these lines and thus gain a greater combined image.

Hervey Bay ARC intends to advise all amateur radio media regarding this event,



Award: NORTHEAST BRAZIL DX/SWL GROUP. Certifies that
 Mode: has submitted proof by two way contacts with amateur radio stations located
 in 10 different countries (DXCC - List) where it speaks Portuguese language.
 Natal, RN.

Amateur Radio, Hervey Bay, QLD 4655

endorsement is \$US1.00 or one IRC. The award measures 310 mm X 215 mm and is in two colours. Applications should be sent to The Award Manager, North-East Brazil DX/SWL Group, c/o PS7AB, Ronaldo Bastos Reis, PO Box 2021, 59094-970 Natal RN Brazil.

Life After DXCC

On the subject of life after DXCC, I intend to introduce (again) the US Counties Award. There are 3067 individual counties, so, to help those interested, I have already produced print-outs of the entire list. A kind word and an SAE should be sufficient to get the list.

Another escape route is the DX Dynasty Award, which is a fun award with well over

the present total of 326 countries. It is being mentioned, along with other awards, in the hope that some use can be made of those piles of QSL cards. I would appreciate some input on this latter theme.

In conclusion, I would mostly appreciate some reaction from clubs running awards nets. You would be mildly surprised by the amount of mail I get requesting information on Australian Awards. I naturally have full information on WIA awards, but the pantry is very bare when it comes to State and domestic awards. If there is enough feedback, I will publish details received in booklet form, for the information of all concerned.

*PO Box 2175 Caulfield Junction 3161

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Club Corner

Radio Amateur Old Timers Club

The 1995 Annual General Meeting and luncheon were held on Wednesday, 15 March. The existing committee was re-elected with John Fullagar VK3AVY as President and Arthur Evans VK3VQ as Secretary/Treasurer.

A most informative talk about the possible effects of non ionising radiation on the human system was given by Dr Ken Joyner, PhD, who is head of the Electromagnetic Compatibility Section of the Telecom Research Laboratories.

The most important message was that magnetic fields below 500 Hz were more likely to be troublesome than fields of similar strength at HF and VHF/UHF. Research has also shown that about 30% of energy from handheld devices is absorbed in the head of the user!

Bill Rice VK3ABP moved a vote of thanks to Ken after a long session of questions.

Publication of "OTN" was late due to computer problems and the incidence of "hamfests" requiring the presence of our Editor/Publisher, Stewart Day VK3ESD.

Allan Doble VK3AMD
206 Poath Road
Hughesdale VIC 3166

CW Operators' QRP Club Inc

The 1995 QRP CW Weekend Contest, sponsored by the CW Operators' QRP Club Inc, will take place from 0000 UTC on Saturday, 17 June to 0800 UTC on Sunday, 18 June 1995. It will cover all VK, ZL and P29 call areas and use all normally recognised CW sections of the 80, 40, 20, 15 and 10 metre bands.

In order to spread interest and to reduce possible congestion, stations are asked to distribute their calling across

bands as follows: on the hour, all bands; hour + 15 minutes, 40 metres; hour + 30 minutes, 20 metres; hour + 45 minutes, 15/10 metres. Stations should preferably call on the recognised QRP Calling Frequencies (1.815, 3.530, 7.030, 14.060, 21.060 and 28.060 MHz), then QSY to a working frequency.

Contacts are to be logged with RST plus a three digit number commencing with 001 and incrementing by one digit for each contact. Repeat contacts will be allowed with a minimum of three hours between subsequent contacts.

Contacts with non-DX stations will score one point for a QRO station and five points for a QRP station. Contacts with DX stations will score ten points for a QRO station and 20 points for a QRP station. A DX station, for this contest, is any station outside VK, ZL and P29.

Certificates will be awarded to the first three placegetters overall and to the highest scorers in each of New Zealand, the Australian States and Papua/New Guinea.

Any station claiming to operate QRP must not exceed a maximum of five watts carrier power to the antenna and should sign with the /QRP suffix.

Logs showing contacts and points claimed should be sent to Ron Everingham VK4EV, 30 Hunter Street, Everton Park, QLD 4053 no later than 18 July 1995.

Ian Godsil VK3DID
Awards and Contests Manager
CW Operators' QRP Club Inc

South East Radio Group Inc

The South East Radio Group Inc is holding its 31st annual convention — yes, that's right, its 31st Convention! — over

ICOM

Count on us!



"VK3LZ calling!"

More sound information from Icom

Believe it or not!

A mobile radio covering HF/6M/2M, all mode, detachable front panel and a host of features! As small as our current FM mobiles, the IC-706 will be available in June. Preliminary data available.

Interested in a dual band mobile?

Over the next couple of months savings of up to \$300 can be made on the IC-2340H dual band mobile. Call your dealer for details.

Strength of the Australian dollar

The Australian dollar has weakened significantly against the Yen in recent months. Unless there is a strong turnaround this can only mean price rises, making now a good time to buy!

Savings on a HF Receiver

Significant savings can be made on the IC-R72A receiver. Check with your local dealer.

"...73"

Call me at Icom on
free call (008) 338 915
ph: (03) 529 7582
fax: (03) 529 8485

ACN006 092 575

the weekend of 10 and 11 June 1995.

This year the program has greater emphasis on Fox Hunting type events. This is in line with our responsibility to conduct the Australian Fox Hunting Championships each year. However, increasing emphasis is to be placed on the Home Brew competition. So, come on all you Home Brewers, "rolling your own" can't be that hard. It doesn't have to be flash, just home built. There are three different sections ranging from Novice to Expert, so, if you built it, bring it. Great prizes too!!

The South East Radio Group convention promises to be a very popular spot on the amateur radio calendar so make sure you don't miss out by booking your accommodation early. A list of recommended motels and caravan parks is available by writing to the Convention Coordinator, SERG, PO Box 1103, Mt Gambier SA 5290.

Hope to see you there.

Simon Vickery VK5VST

Summerland Amateur Radio Club

The 36th Annual General Meeting of our club resulted in the following being elected:

President, Ken VK2HE; Vice-President, John VK2CGY; Secretary, Peter VK2TEK; Treasurer, Karlene VK2JAY; Publicity Officer, Graeme VK2GJ; Committee Members, Mike VK2TMT and Bert Sueskrow.

The next event on our Calendar will be the Grand Summerland Computer EXPO, to be held in the Lismore (NSW) City Hall on Saturday, 27 May from 9.30 am.

There will be commercial displays of the latest in Computer Technology and Electronics, tables of pre-loved equipment, "Bring & Buy" stalls, amateur radio demonstrations and lucky door prizes throughout the day. Refreshments will be available.

Admission is only \$2 per person, or \$4 per family.

For more details contact Ric VK2EJV on 066-895136 or on packet via VK2RPL-2 668900.

Information on other club activities may be obtained from Ken VK2HE, Peter VK2TEK, or Graeme VK2GJ, or the club BBS, VK2YDN-1 via VK2RPL-2, 668900.

The club's postal address is PO Box 524, Lismore NSW 2480.

Graeme VK2GJ
Publicity Officer

Eastern and Mountain Districts Radio Club

Amateur Exam

Saturday, 13 May is the date of the next amateur examinations to be conducted by the EMDRC. All applications should be addressed to the Examination Officer and arrive no later than Tuesday, 2 May. For more information, please contact Jack VK3WWW at home on 03 873 2459.

May General Meeting

Are you interested in exchanging QSL cards with foreign stations? If the answer is yes, how about attending the May meeting of the EMDRC, to be held in the Willis Room at the Maroondah Civic Centre, Nunawading. Our speaker for the evening will be Ken Matchett VK3TL. Ken is the custodian of the WIA QSL Historical Collection. If you would like to see some rare cards, and possibly learn a few tricks to working those rare stations, this meeting should not be missed. For more information, please contact Jack VK3WWW at home on 03 873 2459.

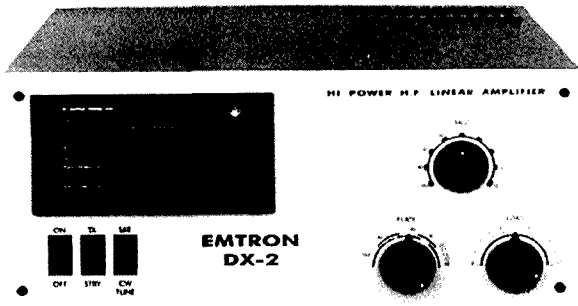
Christopher Piatt
ar

MADE IN AUSTRALIA
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EMTRON DX-2

THE "POWERHOUSE"



Be on top of the pile!

- Specially developed by EMTRON for those HAMS who demand quality and performance at a competitive price.
- Revolutionary new monitoring and display unit for Pout, Prev, Ep, Ip, Ig2, Fault, Ready & TX on.
- This power house will handle all the rigours of contest, DXing and high duty cycle emissions.
- EMTRON DX-2 is built to well known Emtron standards for quality, reliability performance and price. We challenge you to compare these features of EMTRON DX-2 with any other amplifier.
- IN PRICE, QUALITY AND FEATURES THE EMTRON DX-2 HAS NO COMPETITION!
- Buy from EMTRONICS (factory direct - no middle man's markup) and become a "TOP GUN".
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Specifications:

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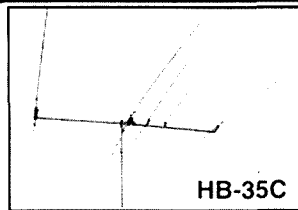
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 - Size:** 60mm x 185mm x 300mm



Contests

Peter Nesbit VK3APN — Federal Contest Coordinator*

Contest Calendar May — July 1995

May 6/7	ARI Contest CW/SSB/RTTY	(Apr 95)
May 13/14	CQ-M Contest	(Apr 95)
May 20/21	Sangster Shield (80 m ZL)	(Apr 95)
May 27/28	CQ WPX CW Contest	(Feb 95)
Jun 3/4	RSGB Field Day CW	
Jun 10	Merv Stinson Memorial (SSB)	
Jun 10/11	ANARTS WW RTTY	
Jun 17/18	WIA Novice Contest	
Jun 17/18	All Asia CW DX Contest	
Jun 24/25	ARRL Field Day	
Jul 1	Memorial Contest (ZL)	
Jul 1	Canada Day CW/Phone	
Jul 1/2	Venezuela SSB DX	
Jul 8/9	IARU HF Championship	
Jul 15	Jack Files Memorial (80 m Phone)	
Jul 22	Jack Files Memorial (80 m CW)	
Jul 22/23	Venezuela CW DX	

This column receives a lot of information on disk, which certainly makes things easier for me. For those able to send information on disk, I can accept 3 1/2" or 5 1/4" DOS disks in most

wordprocessor formats (I use WordPerfect). Just in case the wordprocessed version won't import properly, or the disk can't be read, please include an ASCII version plus a paper

printout as well. If possible, please use a fixed pitch font (ideally Courier 12 cpi), and spaces (not tabs) to position the text. Text formatting should be limited to bolding, underlining, and italics.

Speaking of disks, readers may recall my comments a few months ago about them getting scrambled in the mail. Whilst this undoubtedly happens on occasions, there is an additional danger lurking in the shacks of most amateurs. I speak of the innocent, but deadly (to disks), headphones! If your computer is anywhere near the operating position, take care NEVER to let your disks near your headphones, which will mess them up as quick as a wink!

I have been attacking the backlog of chores recently, and readers will notice more than the usual number of results this month. There are still a couple more sets of results to go, which will appear next month. Who knows, what with all this spare time (ie about 1/2 hour per week, or so it seems), I might even be able to finish the new antenna soon and (gasp) resume contesting!

Many thanks this month to VK2BQS, VK2SRM, VK4LW, G3PJT, G6LX, I2UIY, ZL1AAS, CQ, QST, and Radio

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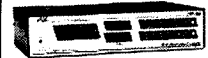
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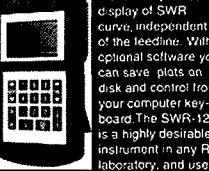
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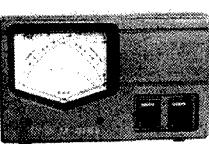
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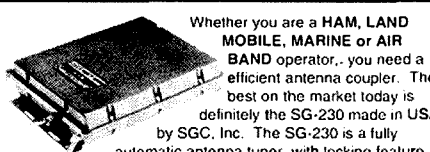
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Communications. Until next month, good contesting!

73, Peter VK3APN

Help Wanted

Bob Whelan G3PJT is currently researching the history of the RSGB Commonwealth Contest (BERU). This contest, first held in 1931, was one of the first ever international contests. It has been held annually since inception, and represents a history of amateur radio contesting and HF DX operating. He would like to hear from anyone who entered, won, or who knows anyone who has records of the earlier contests, especially pre-1960s. Information on the pre-war contests would be especially valuable. Photographs, QSLs, personal recollections and emotions of the time would be very helpful. Readers can telephone Bob on 440 223 263137, fax him on 440 223 263940, or write to him at 36 Green End, Comberton, Cambridge CB3 7DY, UK. I would be happy to send more complete information on the sorts of things Bob is looking for, upon receipt of a SASE.

Contest Details

The following contest details should be read in conjunction with the "General Rules & Definitions" published in April 1993 *Amateur Radio*.

ARI International DX Contest CW/SSB/RTTY — Additional Rules

2000z Sat to 2000z Sun, May 6/7

Further to the rules published last month, recent information states that, to commemorate the 100th anniversary of the invention of radio by Guglielmo Marconi, for this year only several Marconi Memorial stations will be active from the places where Marconi performed his experiments. They will use the IY prefix, and will send RS(T) + "GM". Each of these stations counts as a separate multiplier.

Incidentally, if you work the same station on the same band more than once (using different modes), only the first QSO can be claimed for multiplier credit.

Sangster Shield — Revised Date

Please note the correct date for this event of 20/21 May, not 13/14 May as mentioned last month. (Thanks ZL1AAS).

RSGB Field Day

1500z Sat to 1500z Sun, June 3/4

This CW contest stimulates considerable portable activity in the UK

and Europe. Overseas stations can participate and submit a log, and certificates will be awarded to those in each continent who make the most contacts. Send logs to RSGB HF Contest Committee, PO Box 73, Lichfield, Staffs, WS13 6UJ, England.

Merv Stinson Memorial Sprint (80 m SSB)

1030-1130z, Sat. June 10

The Redcliffe Radio Club of Queensland invites all amateurs and SWLs to enter the 3rd Merv Stinson Memorial Contest. This contest remembers the assistance Merv gave to many people to help them obtain their certificates of proficiency, and also the assistance he gave to the Club during contests, especially the John Moyle Field Day.

It is one of three sprints over a three month period, which aim to provide practice to those interested in contests, and who want to improve their operating skills. The object is for stations in VK, ZL and P2 to contact (or log QSOs if an SWL) as many stations as possible between 3535 and 3700 kHz within one hour, using SSB only. Contacts with any country are valid. Group operation is allowed, but only one call sign and station may be used.

Exchange signal report and serial number (leading zeros are optional, ie 591 can be used instead of 59001). The score is the number of stations worked (no multipliers). Logs must show date/time (UTC), callsign, and signal reports/serial numbers sent and received. Include a cover sheet showing name, address, callsign, total valid QSOs, a declaration that the rules and spirit of the contest were observed, and any comments. Send logs to Contest Manager, Redcliffe Radio Club, PO Box 20, Woody Point, QLD 4019, to be received by COB Monday, 26 June. Certificates to the highest score overall, in each VK call area, ZL, P2, and the rest of world.

ANARTS WW DX RTTY

0000z Sat to 2400z Sun, June 10/11

This contest is organised by the Australian National Amateur Radio Teletypewriter Society, and runs on the second full weekend of June each year. The object is to contact as many stations locally and overseas as possible on 80-10 m (no WARC bands), using any digital mode (RTTY, AMTOR, FEC, PKT, FACTOR, etc) (no satellite). Categories are single operator, multioperator (one Tx), and SWL. Max operating time is 30 hrs (single opr). Rest periods can be taken at any time during the contest. Mark rest periods in log. Messages comprise RST,

TIME (UTC), CQ ZONE. For each valid QSO, points are claimed according to zone. Space precludes publishing a complete points table. However, the following extracts show the points claimable by entrants in zones 28, 29, and 30. The numbers show the number of points for QSOs with zones 1 to 40, working left to right, top to bottom (ie the first number shows the points per QSO with zone 1, 2nd with zone 2, etc).

Your Zone = 28:

31	40	40	44	45	49	53	51	55	54
49	48	46	32	30	26	22	20	20	25
20	11	14	10	15	05	07	02	10	17
31	24	34	25	36	30	22	26	19	34

Your Zone = 29:

39	50	43	52	54	47	49	54	52	44
42	37	37	42	39	36	32	30	30	34
28	21	24	20	23	16	15	10	02	09
15	32	42	33	39	31	24	24	20	44

Your Zone = 30:

35	50	35	44	46	38	40	44	45	37
41	33	34	49	47	42	38	35	32	43
37	29	30	24	30	22	18	17	09	02
24	07	51	42	47	40	33	32	29	48

Countries per ARRL DXCC list, except that each call area in mainland VK, VE, JA and W counts as a separate country. Mainland VK, VE, JA and W are not claimable. Call areas outside these mainland areas (eg VK0, JD1, KL7, KC4) count as separate countries. One's own country (as defined herein) can be worked for QSO points, but not for a multiplier.

Points are determined for each band and then added. Countries are similarly tallied. Continents are those worked on all bands (max 6). Total score is points countries x continents. Non-VKs should add a "VK Bonus" to their points tally, which is 500 pts for each VK worked on 80 m, 400 pts on 40 m, 100 pts on 20 m, 200 pts on 15 m, and 300 pts on 10 m. Send log and summary sheet to Contest Manager, ANARTS, PO Box 93, Toongabbie, NSW 2146 by 1 September. If required, a full page scoring table, and log and summary sheets, are available from ANARTS or myself upon receipt of a SASE.

1995 WIA VK Novice Contest

0800z Sat to 0800z Sun, June 17/18

Presented by Ray Milliken VK2SRM, Novice Contest Manager

The object of this contest is to encourage amateur operation in Australia, New Zealand and Papua New Guinea, and particularly to promote contacts with Novice and radio club stations. Only stations in VK, ZL and P2 call areas are eligible to participate.

All operation must be confined to the

Novice frequency allocations in the 10, 15 and 80 m bands, viz 3.525-3.625 MHz, 21.125-21.200 MHz and 28.100-28.600 MHz. No cross-band operation is permitted. Stations in the same call area may contact each other for contest credit.

Sections include (a) Phone-Novice/Full call; (b) CW-Novice/Full call; (c) SWL. Except for club stations, no multi-operator operation is allowed.

Phone stations call "CQ Novice Contest", CW stations call "CQ N". Exchange a serial number comprising RS (or RST) followed by three figures commencing at 001 for the first contact and increasing by one for each subsequent contact.

Any station may be contacted twice per band, provided at least 12 hours has passed since the previous contact with that station. SWLs may log up to 10 sequential contacts made by a station, and then must log no less than another five stations before logging that station again. The five stations so logged need a minimum of one contact only logged.

Score five points for contacts with Novice or Combined call stations, 10 points for contacts with club stations, and 2 points for contacts with Full call stations. SWLs score five points for Novice to Novice contacts, two points for Novice to Full call or Full call to Full call contacts, and 10 points for contacts made by a radio club.

Logs must show Date/time UTC, Band, Mode, Station contacted, Report and serial number sent, Report and serial number received, Points. Each log sheet must be headed "VK Novice Contest 1995". The total claimed score for each page must be shown on the bottom of the page.

Logs must be accompanied by a summary sheet showing callsign, name, mailing address, section entered, number of contacts, and claimed score. The summary sheet must include the following declaration: "I hereby certify that this station was operated in accordance with the rules and spirit of the contest". The sheet must be signed and dated by the operator or, in the case of a club station, by a responsible officer of the committee, or a licensed operator delegated by the committee to do so.

Entrants may submit only one contest log per mode. Logs for entries where an entrant uses more than one callsign whilst operating in the contest will not be accepted. Send entries to Novice Contest Manager, Westlakes ARC, Box 1, Teralba, NSW 2284, to arrive by Friday, 21 July 1995.

The Keith Howard VK2AKX Trophy will be awarded to the Novice entrant with the highest phone score, and the Clive Burns

Memorial Trophy to the Novice entrant with the highest CW score (these are perpetual trophies on permanent display at the WIA Federal Office). In each case, the annual winner will receive a suitably inscribed wall plaque as permanent recognition. Certificates will also be awarded to the top scoring Novice station in each call area, the top scoring station in each section, and to any other entrant where meritorious operation has been carried out. Awards are at the discretion of the contest manager. A Certificate of Participation will be awarded to all operators who submit a log in the contest.

35th All Asian DX Contest

CW: 0000z Sat to 2400z Sun, June 17/18
Phone: 0000z Sat to 2400z Sun, Sept 2/3

The object is to contact as many stations in Asia as possible, on 160-10 m (no WARC bands). Classes are single operator, single and multiband, and multioperator multiband. Call "CQ AA" or "CQ Asia". Exchange RS(T) plus two figures denoting your age (YLs send "00"). For each QSO score three points on 160 m, two points on 80 m, and one point on other bands. The multiplier is the number of different Asian prefixes worked per band, according to CQ WPX rules (refer Feb 95). For example, JS9ABC/7 counts for prefix JS7. Note that JD1 stations on Ogasawara (Bonin & Volcano)

Is belong to Asia, and JD1 stations on Minamitori Shima (Marcus) Is belong to Oceania. Final score is total QSO pts x total multiplier.

Use standard log and summary sheet format, clearly showing new multipliers when first worked. Send logs postmarked by 30 July (CW) and 30 Sept (SSB) to JARL, AA DX Contest, Box 377, Tokyo Central, Japan. Indicate phone or CW on envelope. Awards include certificates to the top one to five stations in each country on each band (depending on activity), and medals to the continental leaders. For full results please enclose an IRC and SAE with log.

Asian countries are: A4 A5 A6 A7 A9 AP BV BY CR9 EP HL/HM HS HZ/7Z JA-JS JD1 (Ogasawara) JT JY OD S2 TA U/R (CIS) VR2/VS6 VU VU4 VU7 XU XV/3W XW XZ YA YI YK ZC4/5B4 1S 4S 4X/4Z 7O 8Q 9K 9M2 9N 9V.

ARRL Field Day

1800z Sat to 2100z Sun, June 24/25

As with the RSGB Field Day (see above), overseas stations can participate and submit a log, but otherwise are ineligible to compete. Exchange RS(T) + QTH, W/VE will send operating class + ARRL/CRRL section. Send log postmarked by 26 July to ARRL Field Day Contest, 225 Main St, Newington, CT 06111, USA.

Results of 1994 Merv Stinson Memorial Contest

Presented by Rick VK4LW

(* = section winner)

SSB:

VK1AJM*	John McInnes	11	1st VK1
VK2MNA*	Darrell Edwards	12	1st VK2
VK2NPH	Paul Hanna	7	
VK3NFJ*	Paul Ellis	24	1st VK3 & 1st Novice
VK3DD*	Derek Thurgood	23	
VK4OH*	Gray Taylor	52	1st Outright
VK4LW	Ricky Chilcott	39	2nd Outright
VK4IL	Elizabeth White	11	
VK4FRZ	Ritsie Zeeman	16	
VK5UE*	C. H. Low	19	1st VK5
ZL1BVK*	Alex Learmond	29	1st ZL & 3rd Outright

CW:

VK3OZ	Patricia Pavey	8	1st VK3
VK4OW	Ted Watson	12	1st Outright
VK4TT	K. E. Hanlon	10	= 2nd Outright
VK4EMM	John Loftus	9	
VK5XE	Ian Northeast	10	1st VK5 & = 2nd Outright

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Results of 1994 Jack Files Contest

Presented by Rick VK4LW

(call/pts/mult/total; * = section winner)

SSB, Single Operator, VK:

VK4AAR*	155	35	5425	1st (Trophy)
VK4NEF*	66	23	518	2nd & 1st Novice (Trophy)
VK4OW*	50	17	850	3rd
VK5PMC	61	13	793	
VK5UE	37	13	481	
VK2MNA	27	9	243	
VK1JE	18	12	216	
VK4PJ	8	7	56	

SSB, Single Operator, DX:

ZL1BVK*	78	30	2340	1st DX
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SSB, Club:

VK4BAR*	184	32	5888	1st Club (Trophy)
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CW, Single Operator:

VK4AAR*	48	15	720	1st
VK4OD*	13	9	117	2nd
VK5UE*	5	3	15	3rd
VK3APN	3	4	12	

RESULTS OF 1993 CQWW DX CONTEST

Note that single operator entrants must operate for a minimum of 12 hours to be eligible for an award. In the following results, an asterisk (*) represents low power (150 W max), a hash (#) QRP (5 W max), and certificate winners are shown in bold. The results show call, band, final score, QSOs, zones, and countries.

SSB:

In the all band low power category, P29KH came 10th worldwide. Zone leaders included VK8AV (zone 29) and VK5GN (zone 30).

Single Operator:

VK5GN	A	1,948,926	1980	100	243
VK3TZ	"	1,308,888	1243	110	233
VK8AV	"	581,410	815	88	177
VK4AAG	"	278,216	631	60	106
VK3EW	7	188,055	617	31	74
*VK2VM	A	337,909	648	61	126
*VK3PU	"	264,264	436	77	154
*VK2ARJ	"	160,602	354	69	105
*VK2AYD	21	334,696	1081	30	77
*VK4NEF	"	39,772	233	21	40
*VK8BE	"	3,819	69	9	12
*VK3SM	14	30,851	116	28	67
*VK4GU	"	3,078	32	16	22
P29DK	A	44,460	155	52	65
P29DX	14	656,236	1504	35	126
*P29KH	A	1,853,280	2197	96	201

Multioperator Single Transmitter:

VK1DX	1,050,776	1709	82	141
VK6ANC	396,750	631	68	162

Multioperator Multitransmitter:

VK9LI	10,881,894	7689	144	370
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(ops VK5KOO, K6MC, N6AA, N6CW, N6ZZ, W6KNC, W6XD, WB6OKK)

CW:

Congratulations to VK4XA for having the top score worldwide on 28 MHz low power. Even in the high power category, only two other stations worldwide had higher scores! Zone leaders included VK6HG (zone 29) and VK2AYD (zone 30).

Single Operator:

VK2AYD	21	652,795	1826	29	92
*VK2BQQ	A	450,264	613	98	159
*VK1FF	"	359,464	660	64	132
*VK6HG	"	282,240	406	85	155
*VK6LW	"	49,920	217	37	43
*VK4XW	"	33,900	134	43	77
*VK2QF	"	30,004	200	23	30
*VK4XA	28	125,386	624	23	48
*VK8BE	"	1,425	25	8	11
*VK4TT	14	140,556	239	29	77
*VK3APN	7	140,900	480	29	71
#VK2NV	A	4,495	14	17	14
P29DK	A	507,698	902	76	118

Single Operator Assisted:

VK2VM	A	450,448	831	75	113
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Check log: VK9NJ

Results of 1993 CQ WPX CW Contest

Congratulations to the continental leaders VK2BQQ (28 MHz, also 6th worldwide on that band), and VK4TT (14 MHz). The scores below show the callsign, band, score, QSOs, prefixes. An asterisk before the call indicates low power (150 W max):

*VK1FF	A	171,655	272	172
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(opr WB2FFY)

*VK5AGS	A	73,788	182	143
*VK2BQQ	28	33,449	111	83
*VK4XA	21	178,724	286	182
*VK8BE	21	6,732	51	44
*VK4TT	14	134,136	247	184
P29DK	A	175,570	308	194
P29JA	14	147	7	7
*P20PL	A	548,080	666	248

Addendum to Results of 8th IARU World Championship (1993)

Due to an oversight on my part, the results for zone 55 were accidentally omitted from the results published last September. For the sake of completeness, the complete results for VK/P2 are published below (my apologies to the zone 55 entrants):

Zone 55:

Call	Score	QSOs	Mult	Sectn
VK8BE	570	19	6	Phone
VK8AV	185,170	412	97	CW
VK4TT	14,256	124	24	"

Zone 59:

VK2VM	103,380	365	60	Mixed
VK5GN	74,965	285	55	Phone
VK2ARJ	44,400	368	25	"
VK2DID	10,740	87	30	"
VK2APK	442,720	910	102	CW
VK2AYD	238,293	603	83	"

Result of the 1994 CQ 160 m DX Contest

VK4YB was the only entrant from this region (shame on all you others, can't stand a bit of QRN)?! The results show the score, QSOs, W/V/E states, and countries:

VK4YB*	936	17	4	4
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Results of 1994 ARI International DX Contest (CW)

(call/QSOs/mult/score; * = certificate)

VK2APK*	386	124	185102
VK4TT	44	24	5616

Regional Results of 1994 ARRL RTTY Roundup

(call/score/QSOs/mult/hrs)

VK2RT	8,364	164	51	24
ZL3GQ	12,800	200	64	24

*PO Box 2175, Caulfield Junction, VIC 3175

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Divisional Notes

Forward Bias — VK1 Division Notes

Peter Parker VK1PK

Members Enjoy Talk on RTTY

Those present at the March Divisional meeting enjoyed a talk given by Alex VK1AC on radio-teletype operating. Alex pointed out that a VK1 on RTTY is keenly sought after by DX stations, and also that, while a VHF packet signal must be noise-free to be received, an RTTY signal containing some noise will still be copiable. All who attended received a free Jaycar catalogue from Tex VK1TX.

Beacons Come Home

The VK1 2 m, 70 cm and 23 cm beacons have been operating from VK2 for some time. At the time of writing they are being moved back to VK1. Tune to 144.410, 432.410 and 1296.410 MHz to hear them. Incidentally, while it was situated in NSW, the two metre beacon was received as far away as Albany in Western Australia.

Big Transmitters Up For Grabs

The VK1 Division has a small quantity of "Sailors" 500-600 watt, 0-30 MHz HF USB/AM/RTTY transmitters which include an F1 scanning receiver tuning ten fixed frequencies. Including a 240 V power supply and automatic ATU, the transmitters are fully synthesised with keyboard frequency entry. Mounted in 19 inch rack-mount cases, these transmitters come with full documentation. They will be sold in pairs, one working and one for spares. They are available to members only for a very attractive price. Contact the Division if interested.

High Pass Rates in Recent Exams

It was announced at the March General Meeting that, of 24 exams recently administered, 15 were successful. This is a pass rate of 62 percent, and represents a significant improvement over previous exam sessions. The Division thanks Graham VK1GN for his efforts in this area.

Broadcast Officer Wants Stories

In order to bring a comprehensive amateur radio news bulletin to you each week, Peter VK1NPW requires your input. If you have built a new antenna, gone portable, or tried a new mode, the

chances are that other people would like to hear about your experiences. Give Peter a call on 265 5830 (BH), 231 2766 (AH), or 018 541 402 (mobile) and see how easy it is to transform your words into an item which will capture the interest of your fellow amateurs.

Miscellany

Who will be the first to work Sydney, Wollongong and the NSW South Coast from Canberra on 70 cm FM via the new linked repeater system now approaching completion? Will you be attending the VK1 Technical Symposium being organised by the Division? If you have any material for this column, please contact me on 285 1004 (AH).

VK2 Notes

Richard Murnane VK2SKY

Licence Fee REDUCTION

At the time of writing, it appears that the SMA has implemented the licence fee increase from \$37 to \$51. While it's better than the \$71 initially proposed, the VK2 Divisional Council feels we could do better.

As of early April, the "Fat Lady" was still looking around for her song book. The VK2 Division was approached by the Federal Government to produce a further submission, with a view to justifying a lower licence fee than we were paying before the recent increase.

To this end, we're asking amateurs *from all states of Australia* to send us key points of your submissions to the government. In addition, tell us specific examples of how amateur radio benefits your local community, eg local emergencies, community festivals, or clubs in your area that you have helped using amateur radio in recent years. And, of course, list those local WICEN events. We're aiming to raise the government's awareness of the true value of amateur radio, so they can set a more appropriate licence fee. The more examples we show them, the lower the fee we can justify. It's up to you!

As well as convincing the Government of our worth, we have to make it easy for them to justify lower amateur licence fees to the public, especially other spectrum users.

It seems as though the massive response from so many amateurs has left the government overwhelmed and perhaps a little confused, which is why they have approached us again, to make it simpler for them.

We have contacted the other WIA Divisions and overseas amateur organisations for their ideas for this submission and we want *your* input. Send your submission to the VK2 Divisional Office, PO Box 1066, Parramatta NSW 2124.

We're aiming for a "win-win" situation here. Lower fees for us and a greater awareness of the true value of amateur radio for the government and the SMA. Be in it!

AGM and Council Election

Back to more mundane matters. The Division's court application to call a general meeting and Council elections will have been heard on 21 April. As you should be aware, legal problems resulting from irregularities in the conduct of last year's election and the "straw poll" necessitated this application.

As always, news of the latest developments can be heard on the Division's weekly broadcast. The text of the broadcast is also posted to the packet network. Speaking of the broadcast, we'd like to welcome our new audience from Victoria (HI).

Free Publicity

Recently, my response to a letter in the *Sydney Morning Herald*, which had commented that Internet is "just ham radio for the computer generation", caught the attention of ABC Radio in Adelaide, who invited me for a ten minute interview on air about amateur radio. It just goes to show that, with a little imagination and a willingness to promote amateur radio, you can get free publicity in the most unexpected ways. To borrow a line from the film *The Commitments*, "say it loud — I'm an amateur and I'm proud!"

VK2PFQ Is now VK2YC

Finally, congratulations to Divisional President Michael Corbin, who passed his AOCPC Theory and is now a "real" amateur (for those of you who believe in the amateur radio "caste" system!). Mike now sports the callsign VK2YC, which was the callsign of his father Jim Corbin, President of the VK2 Division in 1950-1 and 1953 to 1958.

Thought for the month: When all you have is lemons, make lemonade!

VK6 Notes

John R Morgan VK6NT

March General Meeting

At the March GM, our guest speaker was Yianni Attikiouzel, Professor of

Electrical and Electronic Engineering at the University of Western Australia. The subject of his talk was "Digital Signal Processing". In attempting to cover this technically difficult topic in the allotted 45 minutes, Yianni had volunteered for a "mission impossible", but his frequent comparisons with earlier (non-digital) methods helped the audience to gain some insight into the sub-systems and techniques involved.

The VK6 Division meets on the third Tuesday of each month, at the Westrail Centre, East Perth, commencing at 8 pm. The bookshop and QSL bureau open at 7 pm. All interested persons (members and non-members, licensed or listener) are welcome to attend these meetings.

WA Repeater Group

WARG invites you to take part in its VHF net, held every Sunday morning, commencing at 1030 am. Listen for VK6RRG on Perth repeater VK6RLM (146.750 MHz). Packet mail may be sent to VK6RRG@VK6BBS.

New VHF Site

An excellent site in the Welshpool industrial area has recently become available to us. The factory's main building boasts a 130 foot mast, for which the business has no use.

At the time of writing, it has not yet been decided whether the site will become the new home of the WIA-funded VK6RCW Morse Beacon (147.375 MHz), WARG's voice repeater VK6RPD (146.950 MHz), or some other device.

Club Station VK6SEA

This callsign belongs to the VK6 members of the Australian Naval Amateur Radio Society (ANARS), which aims to bring together radio amateurs, and short-wave listeners, who have a professional naval or maritime background. The Society is affiliated to the Federal WIA, and has nearly two hundred members.

The members in VK6 plan to use the VK6SEA callsign at occasional special events, and on the Society's nets (7.075 MHz LSB at 0330z daily, and on 14.175 MHz USB at 0430z daily, amongst others).

If you are interested in finding out more about the ANARS, contact Glenn Dunstan VK1XX, PO Box 2018, Kambah ACT 2902, or any of the local members: VK6APW, VK6BDB, VK6BPJ, VK6CF, VK6GW, VK6NT, VK6PDJ, VK6WO, VK2XH/6.

WAADCA

The focus of the April meeting of the Western Australian Amateur Digital Communications Association Inc (known

as WAADCA, pronounced wad-kah) was a discussion concerning possible future projects. More details of these can be found in the Autumn newsletter.

The meeting also discussed the on-going maintenance of the Association's numerous country digipeaters, since this work has been draining the enthusiasm (and the fuel-tanks) of the more active members. To combat this trend, it was decided that each of the clubs in the regions served by these digipeaters would be approached to take responsibility for the "care and feeding" of their local machine.

WAADCA meets at 8 pm on the first Wednesday of each month, in the Meeting Room of the Wireless Hill Telecommunications Museum, Adress. Visitors are always welcome.

Reminder

Just a reminder that all contributions to this column must arrive on or before the first day of the month preceding publication. Items from country members and clubs will be especially welcomed. Write to PO Box 169, Kalamunda WA 6076, or telephone (09) 291-8275.

"QRM" — News from the Tasmanian Division

Robin L Harwood VK7RH

The Annual General Meeting of the Tasmanian Division was held on 25 March. The venue was the Domain Activity Centre, overlooking the picturesque Derwent River. The attendance was a little disappointing but those present indicated their continued involvement and interest in the affairs of the Institute. Andrew VK7GL welcomed those present and outlined the past year's activities in his presidential address.

This year saw two Council members stand down, Ted Beard VK7EB and Phil Harbeck VK7PU. Ted has been Divisional secretary and membership officer for five years. A vote of thanks was moved and passed and the Division is grateful for his assistance and involvement. He will be missed but is ready to assist the incoming officers to have a smooth transition. Thanks Ted! Phil has been on Council for a shorter time and filled the position of Treasurer. He has stood down due to work commitments. However, he will continue to be involved in the hobby, especially with WICEN, being deputy Northwestern co-ordinator. Thanks Phil!

After the various Divisional reports had been read, we moved on to the election of Council members. As the number of candidates exactly matched the number of positions, there was no need for an election. Elected were Andrew Dixon

VK7GL, John Rogers VK7JK, Bill Read VK7WR, Barry Hill VK7BE, Robin Harwood VK7RH, Terry Ives VK7ZTI, David Spicer VK7ZDJ and Tony Bedelph VK7AX.

Elected/endorsed to be Officers of the Division were Patron, Col Wright VK7LZ; QSL Bureau, Charles Payne VK7PP; Broadcast Officer, John Rogers VK7JK; *Amateur Radio* correspondent, Robin Harwood VK7RH; Hon Solicitor, Phil Corby VK7ZAS; FTAC Representative, Tony Bedelph VK7AX; Awards Manager, Clarrie Hilder VK7HC; WICEN Co-ordinator, Tony Bedelph VK7AX; Intruder Watch (IARUMS), to be announced (VK7RH acting); EMC Representative, A M Williams VK7AM; and Hon Auditor, Mr Justin Cook.

Following the AGM, the new Council had a brief meeting to elect the office bearers for the next 12 months. The new Executive is President, Andrew Dixon VK7GL; Vice-President, David Spicer VK7ZDJ; Secretary, Robin Harwood VK7RH; Treasurer, Terry Ives VK7ZTI; Assistant Secretary, John Rogers VK7JK; and Assistant Treasurer, David Spicer VK7ZDJ.

The next meeting of Council will be held towards the end of April. In accordance with one of the first decisions of the new Council, future meetings will be rotated around the various regions of Tasmania. At this stage, the inaugural Meeting will be on the Northwest coast, probably at Penguin.

Please note that the new Divisional Postal address is The Secretary, WIA Tasmanian Division, 52 Connaught Crescent, West Launceston TAS 7250, telephone (003) 31 9608.

Earlier in March, the Northern and Northwestern branches held a combined meeting in Deloraine. There were about 40 present, including two visitors from VE. A very successful evening was rounded off with an interesting talk by Don Hopper VK7NN who spoke about the International Maritime Mobile Net. Also, Bill VK7AK showed us some galena crystal rocks, found somewhere in Tasmania. Thanks to the Deloraine members for organising such an interesting evening and for the sumptuous supper that followed.

Meetings for the month of May will be the Southern Branch on Wednesday, 2 May at 2000 EAST at the Domain Activity Centre; the Northwestern Branch on Tuesday, 8 May at 1945 EAST at the Penguin High School; and the Northern Branch on Wednesday, 9 May at 1930 EAST at the Launceston TAFE, Alanale Campus, Block "C", Level Three, Room 17.

Next month it is hoped that I will be able to include a report on the WICEN involvement in Targa '95. ar

How's DX

Stephen Pall VK2PS*

Early in March, the editor of *Amateur Radio* received a letter written by Doug VK2DDR protesting against the use of the name Conway Reef by past and present DXpeditioners.

A copy of that letter was sent to me by the editor to acknowledge in my column. Here is the full text of the letter for the benefit of all concerned.

"Dear Sir,

DXpedition to 3D2

I read with interest, in the March edition of Amateur Radio, that there is to be another expedition to "Conway Reef". As there is no such place this should be a most remarkable feat!

The reef once known by this name has been called Ceva-I-Ra since 1976. Since then there have been a number of DXpeditions to the reef but so far as I am aware none have used the correct name which is no doubt the one for which the Fijian authorities issue the licence. As radio amateurs we have always been keen to demonstrate our capacity to keep abreast of the "state of the art". Perhaps an obsession with this has allowed us to slip behind in the most basic areas.

The DXpedition should show proper respect to Fiji by using the name that country bestows on its land.

I would be grateful if you would pass this letter to the US DXCC committee to ensure the matter is rectified. I will forward a copy to the Fijian authorities.

An acknowledgment in the How's DX pages of the next edition of Amateur Radio would be appreciated.

Regards,

(signed) Doug Watkins, Balgowlah Heights."

Well, there you have it. I consulted my Macquarie Illustrated World Atlas and could find neither Ceva-I-Ra nor Conway Reef mentioned on any of its 512 pages. However, I had better luck with the Times Concise Atlas of the World. This shows Conway Reef on page 137 but does not show Ceva-I-Ra.

The ARRL DXCC Countries list shows 3D2, Conway Reef. Therefore, I do not believe that DXpeditions can be blamed for using the name of the country as shown in the official ARRL DXCC Countries list or as it is shown in geographical atlases.

But lets look into the future. Maybe we should also change the name of Scarborough Reef to Huang-Yan-Dao, and

the name of Pratas Island to Tung-Sha-Dao, not to mention the large variety of indigenous names of the Spratly Islands claimed by six different nations.

Name changes of countries for DXCC purposes can be initiated only by the ARRL DX Advisory Committee.

Ceva-I-Ra — 3D2CT & 3D2CU

Ceva-I-Ra, as Doug pointed out above, is the official Fijian name of a small treacherous sandy coral atoll which is also known as Conway Reef. Five well known DXers, Mats SM7PKK, Garry NI6T, Nils SM6CAS, Jun JH1RHF, and Pekka OH1RY were to land on the reef on 24 March according to plan. However, "Mother Nature", who also played havoc with the previous DXpedition in May 1990, decided otherwise. The seas and the waves were very rough around the reef and inside the lagoon causing the expedition to run into significant difficulties attempting to land. One of the landing craft lost its outboard motor and, in the end, two boatloads of operators and equipment capsized in the heavy surf.

At one stage, only half of the group was on dry land with the other half still on the boat unable to do anything to help. A lot of personal luggage, clothing, passports and cameras were lost together with some radio equipment. All the operators survived without serious injury but the total material loss is about \$10,000.

The landing difficulties resulted in a delayed start for the expedition and only two stations were operational instead of the planned three. The two stations were put to hard work on a 24 hour operational

basis. One station, 3D2CU, served as a CW and RTTY station, while the other, 3D2CT, was used for SSB. They were operational on two different bands, sometimes in different modes, at the same time to reduce cross interference due to the closeness of the two stations on the reef.

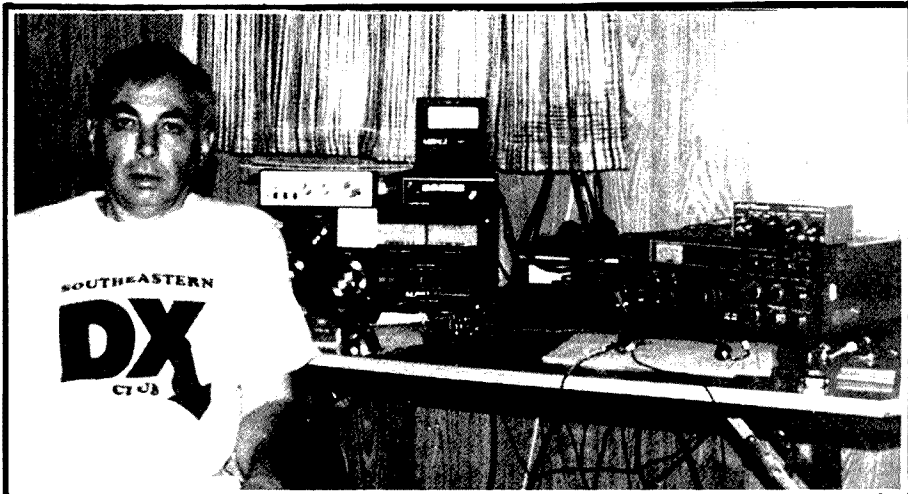
Signals were at a very good strength in Australia and many VKs worked them on all the bands used and in many modes. Traffic was heavy, especially to North America and Europe, and it took some skill and luck to "navigate" through the "dog-pile".

Following the news about the difficulties of landing, the Fijian Navy paid the DXpeditioners a visit on 28 March. I followed the DXpedition's activity on all bands when there was an opening to VK2. At one stage, at 1235 UTC, there were no takers following a CQ call on the 1.824 MHz CW frequency. Such is life! According to Gary NI6T and Mats SM7PKK, they still managed to total approximately 28,000 QSOs.

By the late hours of 2 April (UTC) and midday on 3 April local time, there was only one station left operating on 12 metres. As I write these lines they are preparing to leave the reef before sunset local time. Separate OSL routes for SSB and CW/RTTY were given in the April issue of *Amateur Radio*.

Despite the difficulties, the DXpedition did an excellent job and managed the dogpiles quite skilfully, thus giving many DXers their first contact with Conway Reef.

Due to increased costs and the considerable loss suffered by the DXpedition members, post-expedition financial help would be in order from the DX community. Send your contributions to The Conway Reef Fund, c/o Garry Shapiro NI6T, 20941 Nex Perce Trail, Los Gatos, CA 95030 USA.



Tom K4PI, active in Aruba as P49I.

PALESTINE



JA1UT/GAZA

JA3UB/GAZA

JK1KHT/GAZA

JO3XEQ/GAZA

PALESTINIAN AUTHORITY

MINISTRY OF HEALTH

Gaza Strip

Planning and Specification Centre



Dec.12~20,1994

السلطة الفلسطينية

وزارة الصحة

قطاع غزة

مركز التخطيط الهندسي و المواصفات

ZONE 20

The QSL card of the Japanese DXpedition in the Gaza Strip.

113° 53' E and Lat 25° 51' S. Mai will be accompanied by his son Rhyon, a 4th year medical student who will help him set up the station and act as a general help. There is the possibility of another amateur assisting Mai at short notice.

Activity will be on the usual IOTA frequencies of 14260, 21260, 21190 (Australian Novice frequency 0100-0200 UTC only), 7084, 7220 and 3797 kHz. Send your QSL cards to VK6LC (VK & Oceania), I1HYW (Europe) and K1IYD (North America). Mai's address is M K Johnson, 9 Abinger Road, Lynwood WA 6155.

Future DX Activity

- Nepal. 9N1RHM, 9N1AA and 9N1ARB can often be heard on Sundays at 1230 UTC on 14190 kHz when they talk with their friends in Western Australia.
- Cape Verde D44. There is a possibility that a group of British amateurs will be active from these islands during the first two weeks in June.
- Bhutan. Yasuo JH1AJT, one of the A51/JH1AJT group, hopes to return to Bhutan during the northern summer. He left all the equipment, antennas and amplifiers in Bhutan.
- Peter 9Q5TT left Zaire on 27 March. 9X5EE has left Rwanda and moves to Goma, Zaire for the next year and hopes to be active from there.
- 9N1MWU is active from Nepal until 10 May. QSL to JA8MWU.
- Galapagos. Horst DF1VU, Frank DL4VCG, Joachim DK5VP and Thomas DF8VK will be active under their call signs/HC8 from Galapagos until 10 May.
- Rumour has it that the Russian bases on Franz Josef Land will be closed soon. R1FJL and RX1OX/FJL are the present operators. This will be your last

chance to work them if you need that country.

- Barry G4MFW/ZS1FJ has advised that he has now secured permission from the New Zealand Department of Conservation to land on, and transmit from, Raoul Island. The permission limits Barry's amateur radio activities to a few hours each day, and Barry is the only member of the scientific team who will be allowed to operate on 15, 20, 40 and 80 metres. His favourite spot on 20 metres will be 14260 kHz. Activity will be from 5 to 15 May.
- The special call 3A100GM will be aired on CW by the 3A CW group from 21 April until 21 May 1995 to celebrate the Marconi anniversary. QSL to 3A2LF.

Interesting QSOs and QSL Information

E = East coast; W = West coast; M = the rest of Australia.

- YK1AO — 7005 — CW — 1615 — Feb (M). QSL to Box 245, Damascus, Syria.
- 9X5EE — Alex — 18070 — CW — 1019 — Feb (M). QSL to PA3DLM T J M Mahoney Bockstael, Josef Haydnstr 17, NL-4536, BT, Terneuzen, The Netherlands.
- TJ1AG — 14180 — SSB — 2136 — Jan (M). QSL to Thierry Lesnier F5RUQ, 31 Rue de Bleuets, F-22190, Plerin, France.
- 8R8ED — Helge — 14226 — SSB — 1309 — Feb (E). QSL to Helge Siljberg LA1SEA, Box 117, N-2410, Hernes, Norway.
- XV7TH — Tornsten — 14195 — SSB — 1036 — Mar (E). QSL to SK7AX Sodra Vetter Bygdens Amatörradio Club 2035, S-56102, Huskvarna, Sweden.
- CN2SM — Santiago — 14195 — SSB — 0806 — March (E). QSL to Antonio

Vietnam — XV7SW

Rolf Salme SM5MX has been operating from Hanoi, Vietnam from early November 1994. He is one of three legally licensed expatriate operators in the capital city.

XV7SW prefers CW and is active on the following spot frequencies for the time being, 14016, 14021, 21016, 21019, 28016, and 28019 kHz. Rolf uses a rotatable log periodic up about 30-35 metres and runs 500 watts to a Drake L4B on 20, 15 and 10 metres. He hopes to erect an 80 metre "sloper" soon. His spot frequencies on 80 and 40 metres, once he gets going, will be 3505 and 7033 kHz, although he wishes to negotiate a change for the 7 MHz frequency.

Rolf is also interested in 160 metres and is collecting information on suitable antennas. XV7SW is with the Swedish Embassy in Hanoi and expects to be there for another two years. He is the correspondent for Vietnam in IARU Region 3.

Many thanks for the above news to David Rankin 9V1RH/VK3QV, who is a Director of IARU Region 3 and is based in Singapore.

Easter Island — XROV and XROZ

Cordell Expeditions (Dr Robert Schmieder, KK6EK of 3Y0PI fame), is organising a multipurpose, multi-disciplinary expedition to Easter and Salas y Gomez Islands from 2 to 23 September 1995. The activation of Salas y Gomez Island will produce a new IOTA reference number.

The expedition is looking for a VK or ZL operator to be part of the team. The expedition will include amateur radio activities (HF, VHF and digital mode operation), radio science including transequatorial propagation, beacons, propagation during low sunspot conditions, etc. It will also include natural science (marine specimens, bird surveys) and the study of the culture and history of Easter Islands. Radio amateurs, and also marine divers, are welcome. The cost is approximately \$US2000 plus airfare to Easter Island.

If you are interested, contact Bob by phone on *1-510-934-3735, E-mail: Cordell@CCNET.COM, or write to Dr Robert W Schmieder, 4295 Walnut Blvd, Walnut Creek, CA 94596 USA.

Faure Island — VK6ISL

The well known IOTA Island-hopper, Mai VK6LC, intends to activate this new island in the SW Coast-North Group, situated in Shark Bay, North Western Australia. The island is situated at Long

Lopez Paradinas EA4EII, Cayetano Pando 4, 28047 Madrid, Spain.

- JWDF6JC — 14189 — SSB — 1016 — Mar (E). QSL to German QSL Bureau.
- 4L7FS — Leo — 14300 — SSB — 0726- Feb (E). QSL to PO Box 40-55, Tbilisi 380058, Georgia (note: postal service not secure).
- ZC4ESB — Mat — 14243 — SSB — 0644 -Mar (E). QSL to PO Box 96, Larnaka, Cyprus.
- YB2ARW — Jack — 14200 — SSB — 1347 — Mar (E). QSL to John R Sproat Jr W4LCL, PO Box 7009, Pasadena, CA 91109 USA.
- ZP6XR — Ray — 14192 SSB — 0443 — Mar (E). QSL to Renato Bellucci, PO Box 1937, Asuncion, Paraguay.
- TG9CB — Sam — 14164 — SSB — 0537 — Mar (E). QSL to Samuel L Saunders, PO Box 115, Guatemala City, Guatemala.

From Here There and Everywhere

- Z32ZM, Mome advises, that the Macedonian QSL Bureau is not functioning, therefore QSLs should be sent direct with SAE and two IRC, or one "green stamp" to Dimovski Mome, Bedinje 109, Kumanovo, 91300, Republic of Macedonia.
- I am happy to report that Percy VK4CPA, the founder and principal controller of the ANZA Net (21205/14164 kHz at 0500 UTC each day), is progressing well after many months in hospital. Percy lost part of one of his legs due to an operation, and is now in training to learn how to use his artificial leg. The ANZA Net (Australia, New Zealand and Africa) was Percy's idea and the net's first operational day was on 20 May 1970. On the 25th anniversary of the net we wish Percy a speedy and full recovery and future good health.
- A group of VK2 amateurs are contemplating forming a DX Group for exchanging DX information and to further the scope of DXing. Any VK or ZL interested in the project please contact John VK2DEJ on (02) 809 5686.
- QRZ DX, the Texas based DX Bulletin published by Bob Winn W5KNE and his wife Bonnie, has changed hands after 12 years. Many thanks to Bob for a job well done, and best wishes to Carl and Miriam Smith, N4AA and KB4C, the new owners of QRZ DX. The future address of the Bulletin is PO Box 16522, Asheville, NC 28816, USA.
- UA9OBA intends to visit and activate three islands starting June 1995. Firstly, Nanskian island in the Sea of

Okhotsk (57° 25' N and 139° 51' E) then Scott island in Antarctica (67° 24' S, 179° 55' W) and last, but not least, the most important island, Bouvet Island (3Y) at the end of the trip in late October/November.

- Spratly Island. This operation took place from 29 March to 3 April from Layang Layang Island, the Malaysian claimed part of the archipelago. A group of Japanese and Malaysian amateurs were active on all bands and all modes with the callsign 9M0A. QSL via JA9AG. It was unfortunate that the timing of this expedition clashed with the one on Conway Reef. To compound the issue they used the same DX frequencies as the Conway Reef expedition. This not only caused confusion but also some "lack of patronage". The operators were heard asking, "where were the VKs?"
- Tunisia. 3V8BB has submitted proper documentations and QSL cards will be accepted now for DXCC credit.
- Since March all foreign amateurs visiting Kuwait must use their own callsign with the prefix designator 9K2/. As from 1 March, 9K2ZZ is now 9K2/N6BFM, 9K2ZC is now 9K2/K1OK and 9K2YY is now 9K2/N0YKI.
- Ken V73C (and AH9C) reports that he mailed all direct QSL cards from Kwajalein and, in addition, he sent out 248 Bureau cards. Ken states that the OKDXA (Oklahoma DX Association) is no longer his QSL Manager. Ken now has a new QSL Manager for all his contacts. He is Bruce Smith N4GAK.
- Three YLs were active from Spitzbergen Island in the Svalbard Archipelago (EU-26) for a few days in the middle of April. They were using synthesised portable radios with 25 watt output power to a dipole antenna. The operators were Unni JW6RHA, Turid JW9THA and Inger JW8KT. They were members of a glacier expedition, travelling by snowmobile and using battery power. QSL to their respective LA home calls.
- I heard a Lebanese station (OD5) calling "CQ" and an Israeli station (4X6) replied to the call. Deep silence. An Italian station told the Lebanese station that the Israeli had called him. A frightened Lebanese voice told the Italian, "I am sorry, I am not allowed to have contact with him". It is a sorry state of affairs when politics dominate amateur radio.
- If you hear VK3SKI/mm give him a call to cheer him up. Andy is on a 30 foot sloop named "Shahdaroba" and is sailing in the Caribbean. Andy left Melbourne about four years ago going westward through the Indian Ocean

and the Atlantic Ocean and is now on his way back to Australia. Expected arrival time is in 1997. He is using a TS440 with a dipole antenna on the backstay.

- I heard Bernhard DL2GAC when he was in New Caledonia saying that he will reply only to those who use their full call. The "two last letters" description is missing from Bernhard's dictionary.
- Jackie F2CW, the well known DXer employed by the International Red Cross to look after the victims of the present Balkan War, and who has his headquarters in Zagreb, Croatia, spent an enjoyable three weeks in New Zealand as a tourist on holidays. He was not on the air.
- Do you remember AI H44AP, who was active many years ago from the Solomon Islands? AI Pearce is now active from Papua New Guinea as P29EP
- A VK5 amateur must have a very "deaf" receiver. He was quite happy to call "CQ" in the middle of a pile up on the listening frequency of Conway reef on 3504 kHz. He might have thought the pile-up was for him?
- If you have worked LX95VEC, a special event callsign to celebrate that Luxembourg has been declared the cultural city of Europe, the QSL goes to LX1NO.
- Jim TU4EI/TU5EY has returned to the USA. His QSL manager W3HCW notes that he "will continue to answer cards only until they run out. Only about 200 cards left..."
- Eddie V10ANT has returned to his home base in VK4.
- There is an Arctic Polar net each Sunday on 14150 kHz at 0800 UTC with Victor UA1MU as controller.
- UA3YH/KC4 is operating from KC4AAA station in the Antarctic.
- When was the last time you heard the SMA (Spectrum Management Agency), or its predecessor the DoTC (Department of Transport and Communications) on the air? Never? On the contrary, they are on the air, but more often listening than transmitting. Therefore, it was with great interest that I heard VK7SMA at around 0730 UTC on 28 March announce that activities on the 80 metres DX window, 3794 — 3800 kHz, are being monitored and out of band transmissions, or transmissions with more than the approved legal limit, will cause a fine to be imposed, or prosecution launched, or both. The station provided a phone number (002) 681242 to explain the rules. You have been warned!

- Phil VS6CT is temporarily absent from Hong Kong. He has retired from his demanding job and is spending the early part of his retirement travelling to the UK and USA. He intends to return to Hong Kong later in the year.
- INDEXA, the International DX Association Inc, is looking for new members. If you want to become a member, send \$US15.00 to INDEXA, PO Box 607, Rockhill SC, 29731 USA. A daily DX information session is on 14236 kHz at around 2330 UTC.
- DXCC has approved the recent activities of the following stations for which QSL cards may be submitted at any time, 3V8BB, A51/JH1AJT, A51MOC, V10ANT, VP8SGP and ZA/OKICF.

QSLs Received

P491 (3 w op K4PI) — 9Y4VU (3 w W3EWW) — Z32ZM (1 m op) — 3DA0Z (3 m ZS6EZ) — 9K2MU (3 w WA4JTK) — T320 (6 w WC5P).

Thankyou

This column was made possible with the help of VK2DDR, VK2DEJ, VK2KCP, VK2KFU, VK4AAR, VK4CY, VK4MZ, VK5WO, VK6APM, VK6LC, ZL2VS, JA1UT, NI6T, P491 and 9V1RH, and the following publications, *QRZ DX*, *The DX Bulletin*, *The DX News Sheet*, *INDEXA News Bulletin* and *DX Enterprises*, publishers of the "GOLIST" QSL Managers list.

73 and good DX

*PO Box 93, Dural NSW 2158

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An Old Timer Reflects...

Des Greenham VK3CO (SK) continues to look back over 50 years of amateur radio operation.

It was towards the end of the 50s that we were allowed to operate on 40 metres. At that time I was engaged in a job that took me all over the state of Victoria conducting tests with the PMG's Dept (now Telecom). To enable me to still follow my hobby I decided to build a portable transmitter and receiver for 40 metres.

This used a 6V6 and other valves readily available at that time.

The unit was constructed in a large box and had two watts output, AM of course. The receiver was the usual five valve superhet type and the whole thing operated from an external 250 volt DC power supply. This unit was described fully in *Amateur Radio* magazine of January 1947 under the heading of "The Terrific Two Watter".

This small unit worked many stations under the call sign of VK3ACO. In those days portable operation was NOT permitted with your home callsign. You were required to take out a special portable licence. On one occasion I was working at Echuca and, after hauling up a dipole antenna to the Post Office tower flag pole, I was able to get on air. One of the PMG line staff of the day was very interested. When I explained what I was doing and the frequency I was using, he understood the purpose. He then told me he had a "Dual Band Radio" at home and asked if I could be heard on this. When I told him it could be done, he went home full of enthusiasm.

That evening, I worked many stations around VK and ZL and I was very pleased with my night's activity. The next morning when I attended work my lineman friend was there to meet me. He was very excited and, in front of the entire staff, he told how he had heard me very clearly and didn't miss a word. I asked him where he lived and he told me that he "lived just past the water tower". This was a short distance from the Post Office and, from that time, I was always asked when I operated portable in town, "Are you getting past the water tower?"

This joke stayed with me for many years.

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International Amateur Radio Union Monitoring Service (IARUMS) — Intruder Watch

*Gordon Loveday VK4KAL**

The International Amateur Radio Union Monitoring System (IARUMS) is set up to record, report, and encourage the removal of non-amateur stations from amateur band allocations. Stations targeted are usually broadcast or commercial stations from other countries. Priority is not given to local "pirates". Each country appoints a Co-ordinator, who is responsible for collating reports and forwarding them to the appropriate regulatory authorities (the Spectrum Management Agency in Australia).

Each WIA Division, apart from VK3, has a Divisional Co-ordinator to collect reports from that Division and forward them to the Federal Intruder Watch Co-ordinator. But

the main strength of the service is in the individual amateurs who spend time regularly listening on the bands and identifying types of signals and stations.

More Intruder Watch listeners are always required. Volunteers who contact either their Divisional Co-ordinators or me direct will be supplied with information, log sheets and tapes to assist in identifying modes.

STOP PRESS

I have received an official reply from the Posts and Telegraph Policy Department in Hanoi, Vietnam regarding the cessation of the VRQ transmissions on 14.285 MHz. The letter, signed by Nguyen Ngoc Canh, Deputy director, asks for any reports of VRQ being heard after 28 February 1995.

Would observers please check and report back to me of any such infringements.

Reports are also required of a flood warning system operating on 7.038 MHz SSB (ARSI). The transmissions are possibly from Pakistan.

And also a broadcast station operating on 18.075 MHz with transmissions in the Hindi language with a Punjab accent and the identification "Radio India". These transmissions are sometimes jammed by a military station.

*Federal Intruder Watch Co-Ordinator, Freepost No 4 Rubyvale QLD 4702 or VK4KAL@VK4UN-1

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Help stamp out stolen equipment. Always include the serial number of your equipment in your Hamad.

Pounding Brass

Stephen P Smith VK2SPS*

Passive LC Filter

Design

Continuing on from last month with details of the filter designed by Ed Wetherhold W3NQN, I must apologise for the quality of the two diagrams and table. They were photocopied from material provided by Ed.

Figure 1 shows the schematic diagram and component values of three one-stack CW filter designs. The designs were selected for centre frequencies of 537, 750 and 800 Hz with termination impedances between 225 and 234 ohms so that standard 8/200 ohm transformers could be used. The filter needs a source impedance within ten percent of 234 ohms, consisting of the 200 ohm transformed 8 ohm source, the transformer winding resistances and the L1 inductor resistance. In a similar way, the filter needs a load impedance of 234 ohms.

For a centre frequency of 800 Hz, L2 and L4 are both 38.1 mH, a value which is obtained by removing about 250 turns (125 turn-pairs) from a bifilar-wound 88 mH inductor. The polyurethane film insulation does not need to be scraped off the inductor leads because the insulation vaporises if soldered with a 750 degree solder tip. Select the design having a centre frequency equal to the sidetone frequency of your transceiver.

Construction

The pictorial diagram of Figure 2 shows the modified bifilar-wound inductor lead connections and the connections between the capacitor leads and the 88 mH stack terminals. To build either of the CW filters, obtain one 88 mH stack with a plastic mounting clip and two bifilar-wound 88 mH inductors and then follow steps 1 to 4.

1. Remove the number of turn-pairs (specified in the table under Figure 1) from one of the bifilar-wound 88 mH inductors to get the required L2 inductance. Twist the green finish and red start leads together to make the centre tap of L2 as shown in Figure 2. If the two leads are soldered with a 750 degree solder tip, the film insulation will vaporise leaving a clean solder connection. Tin the two remaining leads. Do the same with the other 88 mH inductor to make L4.
2. Fasten both of the modified 88 mH inductors to opposite ends of the 88 mH stack with clear silicone rubber

sealer. Position the modified inductors so their leads can easily be connected to the rest of the circuit. Solder the L2 and L4 inductor leads and the capacitor leads to the stack terminals as shown in Figure 2.

3. Obtain a suitable box and make holes for the inductor mounting clip, the DPDT switch and the phone jack and phone cord. Install transformers T1 and

T2 and the inductor/capacitor stack in the box. Fasten the transformers (with leads pointing upwards) to the bottom of the box with silicone rubber sealer. Secure the stack to the side of the box using a 1 3/8 inch component mounting clip fastened to the side of the box with two 6-32 x 7/16 inch screws.

4. Connect wires to the transformer, the DPDT switch with resistor R1, and the phone jack and phone plug. Then check the correctness of your wiring by measuring and comparing the filter node-to-node resistances with their values listed in Table 1.

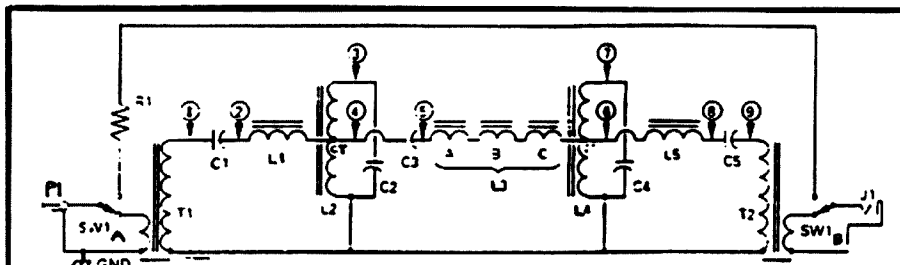


Figure 1. Schematic diagram of 5-resonator cw filter.

CW FILTER DESIGNS USING MODIFIED 88-mH BIFILAR-WOUND COILS FOR L2 & L4

Center Freq. (Hz)	537	750	800	FOR ALL DESIGNS:
3-oB BW (Hz)	280	236	250	L1, 5 = 88.0 mH
Percentage BW	52.3	31.5	31.3	L3 = 3x88 = 264 mH
C1, C5 (nF)	1000	512	450	T1, 2 = 8/200 ohms c.t.
C2, C4 (µF)	1.00	1.036	1.039	R1 = 6 to 100 ohms
C3 (nF)	333	171	150	
L2, L4 (mH)	88.0	43.5	38.1	USE 1% CAPS FOR BEST RESULTS.
T-P to Remove	NONE	109	125	SEE TABLE 1 FOR THE APPROXIMATE
R-Term (ohms)	234	230	230	NOOE-TO-NODE RESISTANCE VALUES

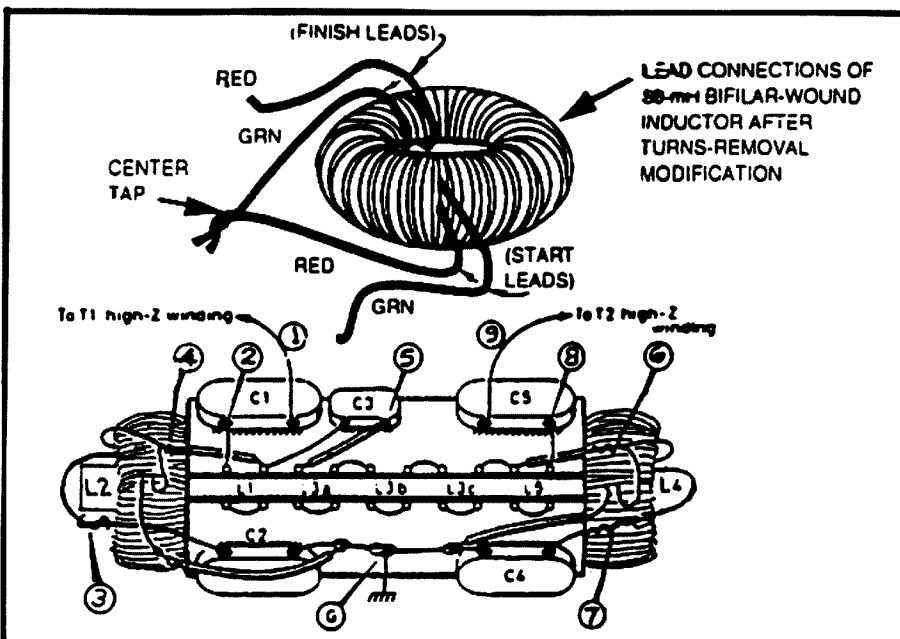


Figure 2. Pictorial diagrams showing the L2 and L4 lead connection and the wiring of the inductor stack.

Table 1. Node-to-node resistance for the 800 and 537-Hz filter designs.

NODES From To		COMPONENTS	RESIST. (Ohms)	FOR FC= 537 Hz
1	GND	T1 Hi-Z Winding	12.0	12.0
2	GND	L1 + 1/2(L2)	9.9	11.3
3	GND	L2	4.7	7.5
4	GND	1/2(L2)	2.35	3.8
5	GND	L3 + 1/2(L4)	24.9	26.3
6	GND	1/2(L4)	2.35	3.8
7	GND	L4	4.7	7.5
8	GND	L5 + 1/2(L4)	9.9	11.3
9	GND	T2 Hi-Z Winding	12.0	12.0
1	2	L1	7.5	7.5
5	6	L3	22.5	22.5
6	8	L5	7.5	7.5
2	3	L1 + 1/2(L2)	9.9	11.3
8	7	L5 + 1/2(L4)	9.9	11.3

See Figure 1 and 2 for the filter node locations.

Installation

Transformers T1 and T2 match the filter to your receiver low impedance audio

output and to an eight ohm headset or speaker. If your headset is high impedance, omit transformer T2 and connect a 1/2 watt resistor from node 9 (C5 output lead) to ground so the parallel combination of the headset resistance and the resistor gives the correct filter termination impedance within ten percent of 230 ohms. Resistor R1 helps to maintain a constant audio level in the headset or speaker when the filter is switched in or out of the circuit. The value of resistor R1 is determined by trial and error, and its value (between six and 100 ohms) will depend on your audio system.

Performance

The measured 30 dB and 3 dB bandwidths of the 800 Hz filter are about 557 and 250 Hz, respectively, and the 30/3 dB shape factor is 2.23. The 2.7 dB insertion loss at 800 Hz is compensated by slightly increasing the receiver audio gain. I will conclude this series about the passive filter next month.

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several thousand inhabitants but, by the 18th Century, numbers had dropped precipitously. This is thought to have been due to the depletion of natural resources and inter-tribal conflict. By the time Peruvian slave traders had done their work the population was to be measured in only hundreds. The present population has grown to about 2,500 but few are of original Polynesian descent.

CE0AE

Undoubtedly the most known feature of Easter Island is its 600 or so stone statues (moai). Some of these are reproduced on the QSL card CE0AE of Fr David Reddy, probably the most active operator from the island who was also an excellent QSLer. He provided many DXers with the island contact from the early 1970s to the early 1980s. This particular card was sent to the late Col Chirnside VK3WQ for a QSO in March, 1981. The statues are truly remarkable. Many stand nine metres in height and weigh more than 20 tonnes. There is no mystery about the source of the volcanic rock from which the statues are carved; the mystery lies in the method by which the gigantic blocks were transported from the central volcanic interior of the island to the shore.

QSLs from the WIA Collection

Ken Matchett VK3TL* Honorary Curator WIA QSL Collection

Easter Island

Easter Island, lying in the south-east Pacific Ocean, must be one of the most isolated spots on earth. It is 1900 km east of Pitcairn Island and 3700 km west of Chile. The island derives its name from the fact that Europeans, under the Dutch admiral Jakob Roggweeen, landed there on Easter Sunday in the year 1722. It was a single day's visit by the explorer.

Since that year the island has had several visitors, amongst them the

Spanish, Peruvians, French and Captain James Cook (in 1774 during his second voyage to the South Pacific). In 1888 the island was annexed by Chile, which country used it solely for sheep raising (it wasn't until 1954 that the Chilean Navy took over the sheep range). In 1965 full Chilean citizenship was granted to the islanders.

Many tragedies must have befallen the population of the island. It has been estimated that the island once supported

SM2AGD/CE0

Not surprisingly there have been several DXpeditions to Easter Island. This imaginative QSL card from Eric SM2AGD/CE0 was sent to the writer when he was active from Nauru Island as C21TL in 1972. The words Rapa Nui on the card are the native (Polynesian) name for Easter Island. Also on the card may be seen the many stone pavements which are associated with the statues.

One of the first radio operations from the island after World War 2 was that of CE0AC. This was the call-sign of Chilean Air Force (Fuerza Aerea de Chile) personnel stationed at Mataveru airport. The new prefix CE0 was first used, however, in 1953 by CE3AG who operated from the island with the call CE0AA during August of that year, the new prefix appearing in the ARRL's Countries list in the January 1954 issue of QST. The island's name had first appeared in the Post-War Countries list published by QST in February 1947 but it was, like several "countries", listed without prefix.

W6KG/CE0

The most successful of all DXpeditioners, Lloyd Colvin (now, regrettably, a "SK"), together with his XYL, Iris W6DOD, worked a great proportion of the world's DX chasers. They operated from over 300 countries whilst connected with the Yasme

Cards supplied by:

QSO WITH	DATE	GMT	MHz	RST	2-WAY
VK3WQ	10 Dec 81	0501	2.7	59	1-0

QSL
PSED .TNX

QSL MANAGER: W3HP

FR. DAVID L. REDDY, O.F.M.
K2BUI ex-FP8DR

73
PARROQUIA, ISLA DE PASCUA, CHILE

RAPA NUI

ISLA DE PASCUA



Repeater Link

Will McGhie VK6UU*

Tune Up

Last month's *Repeater Link* promised how to tune up the converted FM 828 E Band to six metres. Having looked at the tune up it is basically the same as the already published tune up instructions in *Repeater Link* for November 1994. If you follow the tune up instructions as published, the E Band 828 should have you on six metres FM. The all important VCO lock may be a problem area, as there are several modifications required to move the VCO down in frequency. Hopefully, the modifications as shown in last month's article worked and the tune up is straight forward.

To tune up the receiver a signal source is required. Waiting for an off air signal can be frustrating, particularly as the 828 is crystal locked. As a suggestion, use the second harmonic from a HF transceiver in the CW or FM mode. For example, the second harmonic of 26.5 MHz is 53 MHz. If your HF transceiver can transmit on half the receive frequency of the 828, then you have a signal source. Caution is required, transmitting 100 watts or so into the front end of the 828 will do a lot of damage. I made up a 30 dB power attenuator consisting of a 50 watt 50 ohm resistor combination, followed by a 1.5 kΩ quarter watt resistor, into a 56 ohm quarter watt resistor. A basic pi network that isolates the 100 watt transmitter from the 828 receiver. At worst I could only apply 100 milliwatts to the 828 front end. There was still lots of second harmonic left to tune up the 828.

Signal Generator

While on the subject of signal sources, I received a query via packet from Lloyd VK5LL, inquiring about a signal generator for two metre repeater receiver maintenance. Test gear is the one thing we all don't have enough of, and many amateurs won't devote the time to build test gear, as it looks too hard. However, sometimes simple test gear can be made, that is worth its weight in gold. It saves time and frustration when it comes to checking repeater systems.

Many years ago I had constructed a crystal oscillator from a surplus crystal that produced harmonics all the way to 70 cm. The crystal oscillated around 4 MHz and produced 50 microvolts or more on 2 metres. However, as useful as the signal generator was, it lacked several features. With Lloyd's query I decided to redesign the crystal signal generator with the features the earlier design had missing.

Thanks

The WIA would like to thank Mike VK6HP, Alf VK3LC, John VK3WJ, "Snow" VK3MR, Roth VK3BG, Ivor VK3XB, Mavis VK3KS, Wim SP5DDJ and Bob VK3XZ (courtesy of "Snow" VK3MR) for their kind contribution to the Collection (supplementary list).

Also the family and friends of the following "SKs" (supplementary list), Bill Hodder VK5LY (courtesy of Rowland VK5OU), Jim Ballinger VK3NK (courtesy of Tom VK3AGH), Reg Gibson VK3GX and Jim Stewart VK3AS.

Author's Note

Would you, the reader, like to make a contribution to this National Collection? Commemorative QSLs, rare prefixes and DXCC countries, pictorials and QSLs of a thematic nature are in greatest demand. Please contact the Hon Curator, who is also the author of this series of articles.

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Tel (03) 728 5350

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EASTER ISLAND

THE YASME ROUND THE WORLD DX-PEDITION

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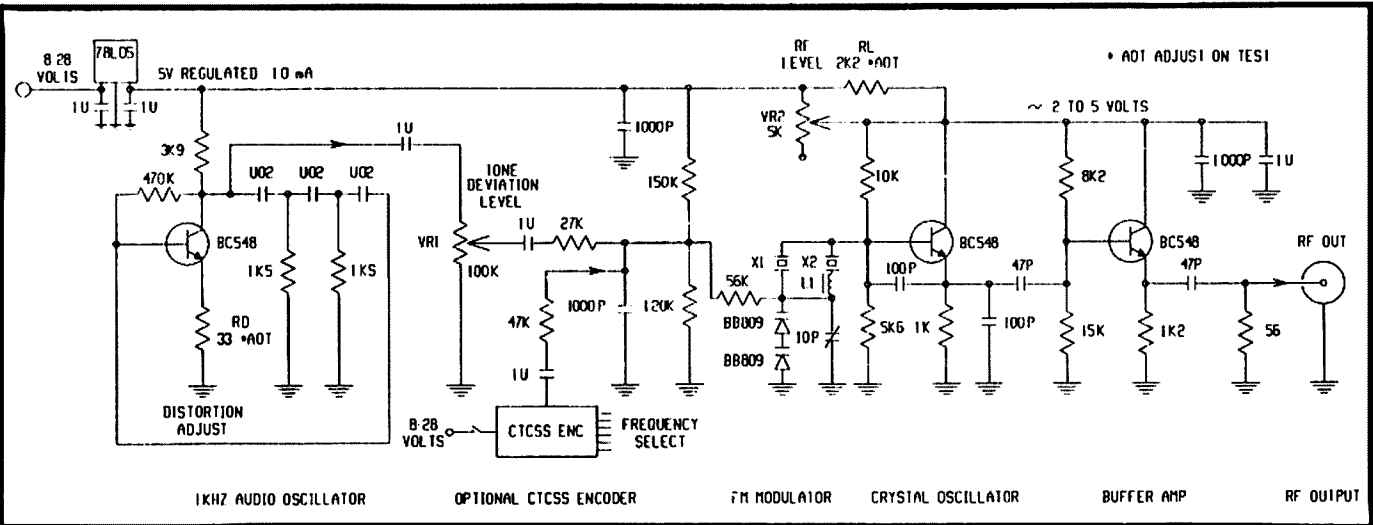
Isla De Pascua

YASME FOUNDATION

6KG/CE0

YASME AWARD

(Note: The background of this block contains a dense grid of small text, likely a list of names or call signs, which is mostly illegible due to the high contrast and small size.)



Crystal Harmonic RF Signal Generator.

Crystals

As the signal generator is crystal locked, my design was based around a source of surplus crystals from the ICOM IC22a and the FM 828. These two radios use the same frequency range of around 18 MHz. The only difference is that the IC22a crystal is frequency adjusted with a series capacitor and the FM 828 crystal with a series inductor. Both crystals oscillate in the crystal oscillator circuit but, if you place an FM 828 crystal in the series capacitor tuned circuit, the frequency can be 200 kHz high or more, on its harmonic on two metres.

The reverse is also true if you place an IC22a crystal in the series inductor circuit. However, this is an advantage and has been utilised in the design. Note the two crystals shown, X1 and X2. These are in reality the crystal sockets into which a single crystal is plugged, an IC22a crystal into the series capacitor tuned, and an FM 828 crystal into the series inductor tuned. Note, only one crystal at a time. By swapping crystals between the two sockets, various frequency combinations can be achieved. An FM 828 crystal with a two metre harmonic on 146.825 MHz, will produce a two metre harmonic several hundred kHz higher up, when plugged into the IC22a socket. With a bit of experimenting all sorts of frequencies can be covered with very few crystals. Both C1 and L1 are adjustable for netting.

Depending on the crystal, up to 30 kHz or more of frequency shift can be achieved with C1 or L1. L1 is a surplus frequency netting inductor from an FM 828 exciter board. I had to rewind the coil on this inductor, doubling the number of turns. The reason being the added series capacitance in the FM modulator. This raises the frequency and the standard coil may not tune down to the original crystal frequency.

Harmonics

Having access to a spectrum analyser made this project easy when it came to looking at what harmonics were present, and at what level. The original circuit used a 12 volt power source, and the harmonic level at two metres was around 1000 microvolts. At 70 cm there was about 50 microvolts. There is a gradual falling off of harmonic energy, with usable amounts up to 1296 MHz!

Note the oscillator transistor is the common BC548 "audio transistor". I like using easy to obtain components and the BC548 was tried and worked well. Each

higher harmonic is not necessarily smaller in amplitude than the harmonic below it. There is a "wave pattern" in the harmonic level as viewed on the spectrum analyser, but an overall falling in level as the frequency rises.

That's all we have space for in this issue. In next month's Repeater Link I will conclude the description of the crystal harmonic RF signal generator, covering Level, FM Modulation, Varicap Diode, Tone Source, Deviation, CTCSS and Construction.

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VK6UU @ VK6BBS
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Spotlight on SWLing

*Robin L Harwood VK7RH**

The planned changeover of the BBC World Service into seven regional services took place on Saturday, 1 April. It is quite unusual to hear the "Beeb" with different releases on-air simultaneously. This looks as if there was wholesale rescheduling of their output and I am presently looking for an updated frequency list to know what's what.

If you're a regular BBC W/S listener, I would suggest that you contact them at their London address at Box 76, Bush House, London UK WC2B 4PH. A lot of regular programs have been rescheduled to fit in with this regionalisation into different timeslots. I notice that all services seem to carry various programs such as "Newsdesk" plus hourly news bulletins at the same time, although releases of "Newsdesk" for European listeners seems to be an hour earlier to take account of local Summer time.

If you wish to hear the different

releases, I suggest that you try at around 1100 to 1200 UTC. The European releases are on 15070, 12095 and 9410 kHz, whilst the North American release is best heard on 9515 kHz from Sackville NB. The BBC Kranji (Singapore) relay has programming for this area. The BBC Eastern relay at Masirah, just off Oman, is on 15310 kHz. All are airing different programming which means that, if you don't like what is on, you can tune in to another regional service for alternative fare, depending on propagation, of course.

I'm certain that the Ascension Island and Seychelles relays are probably broadcasting alternative releases for Africa. Incidentally, "Newsdesk", which was at 1100 UTC, has been retimed to be one hour earlier but no relay from the NZ site. So, we will have to rely on Kranji, yet the same program is carried by the ABC Newsradio Network simultaneously, that is if Parliament is not sitting!

In mid-March the World was horrified to hear of the fatal gassing of 11 people in Tokyo. A nerve gas called Sarin was used by terrorists at a crowded subway station in the morning peak hour. 5,000 others were affected and a massive police investigation was launched. Evidence began pointing to a shadowy Doomsday cult called "Aum Shinrikyo" or "Supreme Truth" led by Mr Asahara. SWLs quickly realised that it was the identical organisation that used to air their programming twice daily in English over Radio Moscow International. Their pronunciation was poor, rendering large chunks of the program unintelligible. We know that the Russians were eager for hard currency at the time and were happy to slot two thirty minute daily releases over their World Service. Then, as suddenly as it commenced, programming was cut in mid-1994. This coincided with the group tackling internal divisions, although programming in Russian, Japanese and an English release over a MW sender in Kaliningrad for Europe, continued.

Following further police investigation in the cult's headquarters and at many other sites, dangerous chemicals used in the manufacture of Sarin were found. Evidence also emerged of torture and kidnapping by the cult of several disaffected members who attempted to leave it. The cult's guru, Asahara, disappeared and, as I write this, is Japan's most wanted man. Embarrassed Russian broadcasting officials quickly yanked remaining programming off the air as the scale of the cult's operations became clear, leading to an investigation by Russian police and security officials of the cult's involvement there. The authorities quickly banned it as it had never sought registration. The cult claimed 30,000 members in Russia, particularly in the Far East, but Russian estimates put it at only 1,500 to 3,000. The majority were, of course, in Japan but there were pockets of membership in Asia and in other regions, thanks to the Radio Moscow relays.

Radio "Aum Shinrikyo" was eager to receive money and responses for their dubious output and even issued QSL cards for their station which, in turn, prompted several listeners to query whether they had been impregnated with Sarin. Anyhow, the next we are likely to hear about Mr Asahara and his shadowy "Aum Shinrikyo" group is from the Japanese investigations and the resulting court cases.

I have had several problems of late accessing the Internet and Fidonet echoes. My Internet problems revolve around a software problem associated with receiving the Unix system of my

provider. I think that I have almost cured this now by changing the emulation. As for Fidonet, it looks as if they are plagued by some internal policy problems with receiving feeds from the Usenet/Fidonet gateway. The result is that I haven't been able to acquire the rec.radio.shortwave echo satisfactorily through either system. Also, I don't know what has happened to the OZ__SW echo on Fidonet as it dried up in February. Hopefully, it will be all sorted out soon.

I have assumed further responsibilities with the Tasmanian Division, which means that time for monitoring will have to take second place. However, I am hopeful that I will be able to continue to take time to earwig about.

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Fidonet: Robin.Harwood 3:670/301@fidonet.org

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VHF/UHF — An Expanding World

Eric Jamieson VK5LP*

All times are UTC.

The G A Taylor Medal

No one was more surprised than I when a letter arrived from Donna Reilly, Manager of the WIA Federal Office, advising that I had been awarded the above medal, the WIA's highest honour, by the WIA Federal Council, "In recognition of meritorious service to the Federal Body and Amateur Radio magazine." Confirmation of the award appeared in the March 1995 issue of *Amateur Radio*.

This medal follows the receipt of the Publications Committee Higginbotham Award announced in the February issue of *Amateur Radio*.

I feel very humble, but honoured and appreciative that my efforts in writing *VHF/UHF — An Expanding World* for the past 25 years have been so recognised. The monthly task was often not easy for a variety of reasons.

Sometimes it was a shortage of material and, to gather news, the regular need to telephone leading operators half-way across Australia. No matter how well I felt personally, there was always a printing deadline to meet and the on-time receipt of my notes in Melbourne rested entirely with the efficiency of the Postal Service, which often left much to be desired.

There has always been a nucleus of people who send regular letters containing useful news, so I gratefully acknowledge their support. There were the times when, if I said a word out-of-place or dared to make a suggestion/statement/allegation without naming a person, then I would be "hauled over the coals" for not being specific.

During the past five years I have been the recipient of letters and phone calls with disparaging references to others and the way they operated. However, this is a territory of mine where I have some expertise in handling people, which

enabled me to resolve the matters, to a sufficient degree anyway, so that the least harm resulted to the amateur radio movement of this country.

However, all has not been "doom". There have been many pleasantries associated with writing these notes, the nice people I have met at conventions, the amateurs calling at my home, the pleasing and encouraging correspondence and phone calls, the Christmas cards and Get-Well cards, the support from the Editor and staff of *Amateur Radio* magazine, and the belief that what I was trying to do was always for the benefit, encouragement and well-being of the amateur fraternity, particularly in the sphere of VHF/UHF communications.

My writing of these notes almost ended five years ago, when I became confined to a wheelchair but, by coming-to-terms with my affliction, which has not been of my own doing, and with the gradual upgrading of computers, my total output from the keyboard has actually increased, first with the continuation of these columns, the writing of several books, and involvement in sundry community projects such as the Area School library, the History Centre, church newsletters and material for other publications. My present world is very busy.

Finally, the following extract from Donna Reilly's letter may be of interest — it was to me! *Major George Augustus Taylor was the founding Chairman of the Wireless Institute of New South Wales in 1910 out of which grew today's Wireless Institute of Australia. He was a pioneer in many ways, granted one of the first transmitting licences under the 1905 Wireless Telegraphy Act. He was among the first ten wireless experimenters to have been licensed by the PMG Department, transmitting the first military wireless signals in Australia. He conducted the first wireless communication between moving trains and was the first to fire a gun by wireless.*

Any problems which I faced seem small by comparison with those confronted by Major Taylor when entering the fledgling wireless industry of 1910. But, thank you everyone, including those people who wrote letters of congratulations and contacted me by telephone. Your interest is appreciated.

Six Metres

Costas SV1DH and Nick SV1EN have written with a correction to my "VKs First Worked List." They advise that the first station worked in Greece from Australia was on the same day (17/10/89) when VK4VV worked SV1EN at 0706. My entry was VK8RH to SV1DH at 1335. List corrected.

Costas and Nick congratulate VKs for working 173 countries. The total from SV stands at 151 countries and SV1DH, SV1EN, SV1OE and SV1OH already have their DXCC for 50 MHz, while SV1AB and SV1UN have submitted theirs and SV1AHP and SV1AHX expect to claim theirs in 1995. They report that presently there are no more than ten active six metre operators in Greece, but the SV team is preparing for a more organised and powerful appearance on six metres during the next solar cycle. Thanks for writing.

A very welcome QSL which arrived on my desk was verification of my first contact with VK0IX, Casey Base, Antarctica, on 14/1/95 at 1135. As I was unable to work Europe during Cycle 22 I cannot join VK3OT, VK5NC and VK5KK who form a very exclusive world club of operators to have worked seven continents on six metres.

Six metre DX records

Cycle 22 saw every six metre DX record broken from all states of Australia. VK1RX worked KP4A on 8/4/91 at 16,082 km. VK2FLR worked N6AMG/CU3 on 27/11/91 at 19,424 km. VK3OT worked GW3MFY on 19/2/91 at 16,924 km. VK4KK worked G4CCZ on 15/2/92 at 16,515 km. VK5NC worked GJ4ICD on 18/10/91 at 16,808 km. VK6RO worked G18DYZ on 28/2/90 at 14,904 km. VK7IK worked PA0LSB on 8/2/92 at 17,053 km. VK8RH worked 8R1AH on 2/4/89 at 18,858 km. VK2BBR worked JH1WHS on 28/4/91 for a new digital mode contact. VK4ZAZ worked FM5WD on 6/4/91 at 16,243 km for a mobile contact. VK3OT made the first-ever VK six metre EME contacts on 7/11/93 with K6QXY and W6JKV.

VK3OT, VK3LK and VK5NC worked the continent of Antarctica for world first contacts. VK3OT, VK5NC and VK5KK are the only stations in the world to have worked all seven continents on 50 MHz.

There are four contentious long-path records with which some disagree: VK2BA and VK3OT to 9Q5EE, VK6JQ to TL8MB, all in the 26,000 to 28,000 km distance. VK4ZAZ to 9L1US at 22,550 km. Permission from VK3OT to use the above information.

Beacons

Courtesy of Dave VK2KFU I received a fax which originated as e-mail from Geoff GJ4ICD advising of a new beacon, V31SMC at Belize on 50.035 MHz, FSK, 10 watts output and active from April 1995. It was built by GJ4ICD and GJ3RAX.

The West Australian VHF Group Bulletin reports that Wally VK6KZ has reinstated the VK6BRS beacon following repairs to the transmitter. It now appears work is necessary on the antennas requiring a brave soul to climb the tower!

The Beacon Committee is considering resiting the VK6RPH beacons. The 1296 MHz beacon is being rebuilt by Al VK6ZAY and Don VK6HK.

Two metres

With apologies to John VK5PO, I can now give you the comprehensive list of two metre activity which John experienced during December and January. His original list simply disappeared from my desk!

SSB — 16/12: VK3ZQB. 29/12: VK3CY, VK6WG. 30/12: VK6APZ, VK6KZ/p. 31/12: VK3CY.

FM — 27/12: VK3ZGL. 29/12: VK6WG. 30/12: VK6VX/p, VK6KZ/p. 31/12: John said, "He had one hell of a time on two metres!" — VK5KCX via VK7RWC, VK7KT (John's first VK7 on two metres), VK3CY, VK6QB (on the extreme west coast of WA). Between 1200 and 2145 John logged the following repeaters: VK2s RBH, RGF. VK3s RBA, RBS, RCR, RCV, RDU, REC, RGV, RMA, RML, RMM, ROW, RSG, RSH, RVL, RWG, RWL, RWZ. VK5s RAC, RAD, RBU, REP, RHO, RLD, RLH, RMG, RMN, RNC, RSV. VK6s RAW, RBN, RMS, RMW, RWM. VK7s REC, RMD, RNW, RWC. VK3RMM on 439.275 MHz. The distances varied from relatively close VK5s to VK6s at about 2000+ km. Some signals were 5x9 +60dB. A most interesting list and indicates the extent of the wide-spread Es coverage.

SSB — 5/1: VK2ZAB for John's first VK2 Es QSO, VK2DXE. 13/1: 0422 to 0502 — VK2s MZ, FLR, VC, ZRU, BBF. 15/1: VK3s ZQB, CY, BRZ, VSW and DNA on FM, VK8MS/3 FM mobile near Maryborough, Victoria; a total of five hours propagation.

Thanks John for the information. Once again, this supports my long-held view that the low part between solar cycles provides the best Es!

Contest Results

John Martin VK3KWA sent me a copy of the Ross Hull and VHF-UHF Field Day results. Roger VK3XRS won the Ross Hull for the sixth time in succession with 9683 points, overtaking the original top winner, Kerry VK5SU, with five wins from 1971 to 1976. Second place went to VK6KZ with 8872, followed by VK2ZAB with 6749 points. VK6KZ used a total of seven bands and was the only contestant to do so. Three contestants used six bands.

Since 1950 the Ross Hull has been won 20 times by VK3, 7 by VK4, 13 by VK5 and 5 by VK6. In each group, there are 9 callsigns involved in the VK3 wins, 5 for VK4, 6 for VK5 and 2 for VK6. During the contest, on 3 cm VK6KZ and VK6BHT set a new state and national record and VK6KZ and VK5NY set a new world record, details outlined previously.

Field Day results: Section A — portable, single operator, 24 hours to VK2TWR with 3376 points; Section B — portable, single operator, 6 hours to VK3AFW with 2874 points; Section C — portable, multi-operator, 24 hours to VK3ATL of the Geelong Amateur Radio Club; Section D — home station, 24 hours to VK3DEM with 4609 points. The most notable contact was a new VK1 record between VK1DO and VK4OE/2 on 1296 MHz.

After a long spell of dry weather, the clouds opened on the Field Day in portions of South Australia. Alan VK5BW made it to his hill-top site but John VK5AJQ could not due to a track turned into quagmire, being thwarted three km from Alan. They abandoned their portable expedition and their presence was missed on the bands.

John Moyle Field Day

Doug VK4OE writes that conditions were a little better than average, but finds it curious that the prevalence of FM only on the VHF bands has created nearly a generation of amateurs who believe that their normal world stops at about 100 to 150 km. This is reflected by the rules for scoring in the John Moyle contest.

VK4WJE/4 operating from Mount Wolvi near Gympie approximately 125 km north of Brisbane, VK4KAC/4 at Howell's Knob near Maleny and 60 km north of Brisbane and VK4OE/2 operating from a hill near Byron Bay, NSW, 150 km south of Brisbane, were the three stations "in the field." Byron Bay is the most easterly point on the Australian mainland. Operating in the field places a VHF/UHF operator in a significantly better location than the typical home station, enabling the "DX horizons" to be pushed further afield.

The above three stations readily made contact on 144 MHz plus numerous

contacts locally by each using FM on this band. On Sunday morning Bernard VK4KAC/4 worked Harry VK4LE near Springsure for a distance of 530 km. Harry operates early each morning on 144 and 432 MHz and has noted many inland "lift" conditions over the years between 5 and 7 am local time. Harry has documented these years of experiences.

Contacts over 600 km paths on 144 and 432 were possible most of the time down the coastline to Sydney stations, notably Gordon VK2ZAB, Mike VK2FLR and 700 km to Norm VK2ZXC at Port Kembla. On 1296 MHz VK4WIE/4 and VK4OE/2 successfully completed a Sunday morning SSB contact over the "far-from-being-all-clear" path of 285 km. VK4WIE/4 was a multi-operator station with Eric VK4NEF handling the VHF/UHF contacts. He has been captured by the wonders of these bands so maybe he will upgrade to allow him to operate there.

Lyell VK2BE in southern Sydney and VK4OE had a difficult contact on 432 and were tempted to forget 1296, but on aligning their antennas found the band better than 432, resulting in a comfortable conversation. The 635 km path is "non-aircraft enhanced" and was obviously coastal ducting.

Doug concludes by saying that the often superior contacts on 1296 compared to 432 adds weight to the well-established argument that temperature-inverted ducts often permit transmission of microwave frequencies before UHF, and UHF before VHF. A case in point is the recent 10 GHz contact across the Great Australian Bight between VK5NY and VK6KZ.

Overseas News

In April issue of *Amateur Radio* I gently chided Geoff GJ4ICD for the one-and-a-half line reference to the world-record 10 GHz contact between VK5NY and VK6KZ. This brought a response in a letter that he was only the writer, not the editor and space is often at a premium. However, I note that July *HRT* compensates with an in-depth coverage of the VK0IX saga. Thanks Geoff — but no harm intended!

Geoff GJ4ICD is now on E-mail Internet with the address equinox@business.co.uk and looking for VKs willing to keep in touch with him.

Other points from GJ4ICD include confirmation of the Cape Verde Expedition from 1-14 June with the callsign D44BC. Details were given in last issue of *Amateur Radio*. 3A2LZ Monaco and 3V8BB Tunisia are now operational. There will be no licensed operation from S0 — Western Sahara according to the ARRL.

Geoff says if you are unhappy with the

noise blanker in your FT650 then try shorting out diode 4013, which will increase the gating time of the AGC line to the noise blanker. The diode is located on the IF board and the modification improves the noise blanking by several S points under heavy power line noise.

Ted Collins G4UPS reports the Gibraltar beacon on 50.035 MHz returned to air from January. In addition to his regular daily skeds with SM7AED, G3CCH and OZ7DX, February band "pickings" have been poor. Worked 2E1DLC, F1MCF, LA1IC, OH1SIX, OZ3ZW, OZ7DX, SM3EQY, SM7FJE. Five GB3 beacons heard plus OH1SIX, OZ6VHF and OZ7IGY. Seems like most of the European six metre operators have placed the dust covers on their gear!

Emil Pocock W3EP in April's *The World Above 50 MHz* gave good coverage to happenings on 10 GHz including a substantial coverage of the VK5NY to VK6KZ world record. Emil notes the high interest in the band in Europe and reports the extensive 10 GHz beacons coverage. Ten are operating in England and at least 30 or more across the remainder of Europe.

On 50 MHz Emil reports the second half of winter Es openings on 1, 6, 7, 8, 18, 19, 22, 30 and 31 January. Most events lasted an hour or two and were limited to one-hop distances. From this it seems the US enjoyed more winter activity than Europe, or did they simply keep using their gear?

In his *VHF/UHF Microwave News Section* Emil recorded a report from OZ9ZI of the 1994 Danish Microwave Activity Week. The Danes constructed twenty DB6NT design 47 GHz transverters running 100 mW each to 25 cm dishes, thus assuring good activity on 10, 24 and 47 GHz. In addition there were several 76 and 145 GHz stations using Russian-made diodes for harmonic mixers.

Although weather conditions were poor, the results were gratifying. OZ/ON6UG

and OZ1UM made the longest 24 GHz contact at 90 km. All the 47 GHz stations made contacts with the longest being 38 km. OZ1UM and DB6NT made an 11 km contact on 76 GHz for a new Danish record.

On 145 GHz OZ1UM and DB6NT made a 1.1 km SSB contact at 5x6 both ways. A few days later OZ1UM and OZ9ZI set out to span the same 11 km path on 145 MHz they had first used in 1983 for early 10 GHz tests. They chose 47 GHz for liaison and easily established the link. The 145 MHz contact was nearly as easy, save that the exceedingly sharp beamwidths from the 25 cm dishes made alignment more difficult. OZ9ZI believes this now constitutes a new 145 GHz world record. Output power was considerably less than 1 mW and the receiver nf 13 dB. Congratulations from Australia. German amateurs have claimed world-record contacts on 76 GHz at 77 km and 241 GHz 0.5 km.

Closure

From the lack of information it seems the recent equinox was not spectacular in its performance, indicated by the overall absence of operating news. However, it is worth repeating again that six metres is not dead. There will be Es during June and July and, as the band of surprises, something outstanding can occur at any time. So, leave the dust covers off your gear!

Closing with two thoughts for the month:

1. There are several good protections against temptation, but the surest one is cowardice, and
2. Possibly the factor that makes the adult-youth controversy more difficult than ever is that for the first time parents are outnumbered. Worse yet, they can't blame it on the children.

73 from The Voice by the Lake

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ar

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

V L (Vic)	COLE	VK2VL
F W (Frederick)	EADE	VK2AEE
Alan	NOBLE	VK3BBM
W	EVANS	VK6QN

Victor Lionel Cole VK2VL

It is a sad duty to report the passing of Vic VK2VL, of Sussex Inlet, who joined

the ranks of the silent keys on 8 March 1995, at the age of 84.

First licensed in 1936 as VK2ASC, Vic changed to VK2VL when he resumed activities after WW2. He was active in the old Lakemba radio club and a past president of the WIA NSW Division.

Victor was an electrical engineer and was employed by the United Condenser Company for a time. He saw service in

WW2 as a Captain in the Signals Corps, and rose to the rank of Major. He remarried at Nowra in 1978 and he and Lillias lived at Sussex Inlet for the past 16 years.

Vic played a large part in the re-organisation of WICEN some years ago in Sydney and remained active as South Coast co-ordinator for many years. He was very active as an operator and serviceman with the Sussex Inlet Coastal Patrol and was also an active member of the Mid South Coast Club.

A quiet and modest man, Victor will be sadly missed by all his friends on the South Coast. We extend our sympathy to his children, Barbara and Barry, and to Lillias.

Stan Bourke VK2EL

Frederick William Eade VK2AEE

Frederick W Eade of Kotara, Newcastle passed away suddenly on 22 January 1995. Fred was born (in 1917) and educated in Armidale. On leaving school he started apprenticeships in the Boilermaking and Electrical trades. However, both firms became insolvent owing to the depression.

He then joined the army, attaining the rank of Sergeant in the Signallers Corps.

After leaving the army Fred worked at BHP, firstly as Electrician and then as Electrical Engineer. Later still he was Engineer at Hunter Valley County Council in Maitland and Queen Street Newcastle from where he retired. He also taught Electronics at Wood Street Tech part time.

As a young man Fred became interested in amateur radio and maintained that interest throughout his life, making a lot of contacts with overseas hams. In recent years he has tested young "Hams" for their certification.

His other interests were computers, choir singing and Masonic activities. He is survived by his wife Else, six children, eight grandchildren and one great grandchild.

Paul G Hanna VK2NPH
On behalf of Fred's widow.

Alan Noble VK3BBM

With sadness we record the death of Alan Noble VK3BBM, aged 61, who passed away on Easter Saturday while working on his radio mast and antennas.

Alan was known through his many years involvement in the administrative side of the WIA both at a Federal and Victorian level. He was also active in WICEN Victoria. He served as WIA Victoria President 1980-81, 1982-83 and 1986-7. During most of that period, while on the WIA Victoria Council, Alan also

held the position of VK3 Federal Councillor.

He was re-appointed Federal Councillor in March 1994 and held that position at the time of his death. Alan's interest in radio and electronics stemmed from his boyhood when he used to build receivers and other projects. Exposure to amateur radio later in life led him to study and qualify for his callsign and immediately he adopted a truly hands-on approach to the hobby.

Alan had strong, passionate feelings about amateur radio and, with an intensity, took up several key causes. He was a stickler for detail which often helped when dealing with issues. Two matters in which he made high level contributions were municipal controls on radio masts, and Ash Wednesday.

Alan played a major role in the two years leading up to the parliamentary inquiry into radio masts in 1983, including co-writing WIA Victoria's written submission. His depth of knowledge about the complex matter of radio masts, and willingness to act as an advocate for radio amateurs, saw him help many navigate their way through municipal barriers to radio masts.

On the terrible night of Ash Wednesday, when the state was ablaze, Alan was on air as the first reports of life and property losses were received. As the human tragedy unfolded he found himself in charge of a net that led to amateur radio's formal activation and involvement in the disaster.

Throughout his service to our hobby, Alan was equally comfortable being at the helm in control, or playing a low-key role assisting others. He was always available when his counsel was sought, or contribution required. Alan gave with a selflessness which typified his love of amateur radio. But, even though extremely busy aiding the WIA, he always found time to enjoy his hobby, being a communicator, home-brewer and experimenter.

Alan Noble made a lasting contribution to amateur radio and will be sadly missed from our fraternity.

He is survived by wife Pat, sons Rob and Alan (Jnr), and daughters Julie Ann and Shelley Francis.

Jim Linton VK3PC
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■ Book Review

THE EARLY HISTORY OF RADIO: from Faraday to Marconi

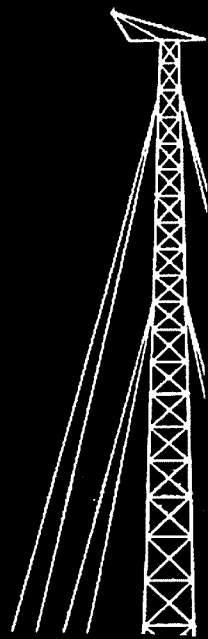
By G. R. M. Garratt
Reviewed by Bill Rice VK3ABP

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THE EARLY
HISTORY OF
RADIO
from Faraday
to Marconi

G R M Garratt

The Institution of Electrical Engineers
in association with the Science Museum



The previous volume in this series (History of International Broadcasting) was reviewed in *Amateur Radio* in August 1993. A very friendly letter from its author (James Wood) was subsequently received, revealing, among other things, that he had held the amateur call sign of G3VG since 1938. Regrettably, this precedent cannot be followed in the case of Gerald Garratt, who was G5CS until his death in 1989 at the age of 83.

In fact, when he died, Gerald's book was unfinished, and we owe the final chapter (on Marconi) to his daughter Susan, who based it on a lecture given by him to a joint IEE-RSGB meeting in 1972. Reference has already been made to this book in my April 1994 editorial. I found it fascinating!

The book is divided into an introduction and six chapters, each of the latter being devoted to a particular radio/electrical pioneer. In sequence, the six are Faraday, Maxwell, Hertz,

Lodge, Popov and Marconi. All six are covered in only 83 pages, so there are few surplus words. Lodge has the most pages (20) and Popov the least (4). Many other names also appear (Davy, Oersted, Ampere, Henry, Kelvin, Hughes, Fitzgerald, Helmholtz, Preece, Muirhead, and

more)! Literally, the book displays a galaxy of 19th century researchers into mysteries which are now the essential infrastructure of the 20th century. If you have any interest at all in the history of radio you will find it as enthralling as I did!

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Over to You — Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

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We have just completed the restoration of a 1940 Commonwealth Aircraft Corporation CA-3 "Wirraway" aircraft.

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Ed Field

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(There must be dozens of AT5/AR8 sets out there looking for a good home! Editor.)

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HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μV (dBU) at the MUF; the fourth column lists the "frequency of optimum traversal" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μV in 50 ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μV at the receiver's input and the S-meter scale is 6 dB per S-point.

V in 50 ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10

1.56	S4	4
0.78	S3	2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 17. The predicted value for June is 16.5.

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VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	16.2	16	12.2	5	21	11	-1	-18
2	16.6	16	12.4	6	22	12	1	-15
3	16.7	17	12.5	10	23	13	1	-15
4	16.6	18	12.5	16	24	13	1	-15
5	16.2	20	12.1	26	26	13	0	-19
6	14.4	24	10.9	43	25	7	-10	-34
7	12.5	26	9.5	45	18	-4	-26	...
8	10.9	29	8.2	45	10	-18	...	...
9	9.9	31	7.4	44	2	-31	...	...
10	9.1	31	6.8	42	-5	...	...	...
11	8.6	32	6.4	40	-11	...	...	...
12	8.5	32	6.3	40	-12	...	...	...
13	8.3	32	6.1	39	-14	...	...	...
14	8.2	33	6.0	39	-16	...	...	...
15	8.1	33	6.0	39	-17	...	...	...
16	7.4	34	5.7	36	-26	...	...	...
17	7.2	34	5.6	35	-30	...	...	...
18	7.4	33	5.7	36	-27	...	...	...
19	7.5	33	5.8	35	-26	...	...	...
20	8.6	26	6.7	31	-10	...	...	...
21	10.9	21	8.4	24	6	-18	...	...
22	13.0	18	10.0	15	14	-2	-20	...
23	14.6	17	11.1	9	18	5	-9	-30
24	15.4	16	11.7	6	19	8	-5	-24

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	18.9	13	14.3	-19	18	14	8	-3
2	19.9	13	14.9	-21	19	16	10	0
3	20.4	13	15.8	-19	20	17	11	2
4	20.5	14	15.4	-13	21	18	12	2
5	20.4	15	15.3	-2	24	20	13	2
6	19.3	17	14.5	15	28	21	12	0
7	17.1	21	13.0	31	29	18	6	-9
8	14.9	24	11.2	41	27	11	3	-23
9	12.9	27	9.7	43	22	3	-15	...
10	11.6	29	8.7	44	17	-5	-26	...
11	10.8	31	8.1	44	14	-11	-34	...
12	10.4	31	7.7	44	11	-15	...	...
13	10.2	31	7.6	43	10	-17	...	...
14	10.0	32	7.4	43	9	-19	...	...
15	9.9	32	7.4	43	8	-20	...	...
16	9.8	32	7.3	43	7	-21	...	...
17	8.9	33	6.8	41	1	-30	...	...
18	8.7	33	6.7	40	0	-33	...	...
19	9.0	33	6.9	41	2	-30	...	...
20	9.1	27	7.0	32	1	-28	...	...
21	10.6	22	7.8	22	8	-13	-35	...
22	13.4	17	10.3	9	16	2	-12	-32
23	16.0	15	12.3	-4	18	10	0	-15
24	17.9	14	13.7	-14	18	13	6	-6

VK EAST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.2	14	7.3	9	0	-22	...	...
2	8.3	7	6.4	0	-3	-24	...	...
3	8.0	-1	6.2	-8	-4	-25	...	...
4	10.5	3	8.1	-21	3	-9	-23	...
5	14.8	7	11.4	...	7	3	-4	-17
6	17.4	7	13.6	...	7	7	1	-8
7	16.9	8	12.7	...	7	6	1	-9
8	15.2	8	11.4	-36	8	4	-3	-16
9	13.2	8	9.9	-23	8	0	-11	-27
10	11.5	8	8.6	-13	6	-6	-20	...
11	10.2	10	7.6	-3	4	-12	-30	...
12	9.6	13	7.1	7	2	-17	-38	...
13	9.4	18	7.0	17	2	-20	...	...
14	9.3	25	6.8	29	2	-24	...	...
15	9.1	28	6.7	33	2	-26	...	...
16	9.0	29	6.7	36	1	-28	...	...
17	8.9	30	6.7	37	0	-31	...	...
18	8.8	30	6.6	36	-1	-33	...	...
19	8.3	31	6.4	35	-4	-37	...	...
20	8.4	31	6.5	36	-4	-37	...	...
21	8.4	30	6.5	35	-4	-38	...	...
22	8.3	30	6.4	35	-6	...	...	...
23	7.9	24	6.2	26	-8	...	...	...
24	8.1	17	6.4	17	-6	-36	...	...

VK SOUTH — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.1	21	6.9	22	2	-23	...	...
2	8.8	17	6.8	14	0	-24	...	...
3	11.2	15	8.3	5	9	-6	-22	...
4	15.6	14	12.1	-7	16	9	0	-14
5	17.3	11	14.0	-27	13	10	3	-8
6	18.0	10	14.5	-35	11	10	4	-6
7	17.4	9	14.0	-36	11	8	2	-8
8	16.2	10	12.9	-28	11	7	-1	-14
9	14.5	10	11.5	-19	10	3	-7	-22
10	12.7	11	10.0	-10	8	-2	-16	-36
11	11.1	11	8.7	-2	5	-10	-27	...
12	9.9	13	7.7	6	2	-18	...	...
13	9.3	17	7.2	16	0	-25	...	...
14	8.9	24	6.9	28	-2	-32	...	...
15	8.8	27	6.7	32	-3	-35	...	...
16	8.7	29	6.6	35	-4	-38	...	...
17	8.5	30	6.5	35	-6	...	...	...
18	8.4	30	6.5	35	-7	...	...	...
19	8.2	30	6.4	35	-8	...	...	...
20	8.0	30	6.3	34	-11	...	...	...
21	8.4	30	6.6	35	-7	...	...	...
22	8.7	30	6.7	36	-3	-35	...	...
23	8.4	30	6.5	35	-6	...	...	...
24	8.6	25	6.8	29	-3	-34	...	...

VK WEST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.3	27	6.4	30	-3	-35	...	...
2	8.0	19	6.2	19	-7	-37	...	...
3	10.6	15	7.9	7	6	-11	-30	...
4	15.1	14	11.7	-8	15	7	-3	-19
5	17.7	11	13.5	-27	14	11	4	-7
6	18.6	10	14.1	-37	12	11	3	-4
7	19.0	10	14.2	...	11	11	5	-4
8	18.4	9	13.8	...	11	10	4	-5
9	17.1	10	12.8	-34	11	8	1	-10
10	15.3	11	11.5	-21	12	5	-3	-18
11	13.3	12	10.0	-8	11	0	-12	-31
12	11.6	14	8.7	4	9	-6	-23	...
13	10.3	19	7.7	17	6	-15	-37	...
14	9.7	24	7.2	27	4	-22	...	...
15	9.5	27	7.0	33	3	-25	...	...
16	9.3	29	6.9	36	2	-27	...	...
17	9.2	30	6.9	38	1	-29	...	...
18	9.1	31	6.8	39	0	-30	...	...
19	9.1	31	6.8	39	0	-31	...	...
20	8.9	31	6.7	38	-1	-33	...	...
21	8.4	31	6.4	37	-5	-39	...	...
22	8.5	31	6.5	37	-4	-38	...	...
23	9.4	31	7.1	40	4	-25	...	...
24	8.8	31	6.7	38	-1	-33	...	...

VK EAST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	21.7	13	16.5	-35	17	18	14	6
2	22.4	13	17.1	...	17	18	15	7
3	22.9	13	17.4	...	17	18	15	9
4	23.2	13	17.7	-39	18	19	16	10
5	23.4	13	17.8	-34	19	20	17	10
6	22.6	14	17.3	-24	21	21	17	9
7	20.9	15	16.0	-9	24	20	14	4
8	18.6	17	14.1	14	26	19	9	-4
9	16.3	21	12.4	37	28	14	0	-18
10	14.2	23	10.8	41	22	4	-13	-38
11	12.9	24	9.8	43	18	-4	-25	...
12	12.3	25	9.3	45	15	-9	-32	...
13	11.8	25	8.9	45	12	-14	-39	...
14	11.4	26	8.8	44	10	-18	...	...
15	11.1	26	8.5	44	8	-21	...	...
16	11.2	26	8.5	44	8	-20	...	...
17	10.3	26	7.9	42	1	-31	...	...
18	8.7	28	6.7	37	-16	...	...	...
19	8.3	28	6.4	35	-22	...	...	...
20	9.2	28	7.1	39	-8	...	...	...
21	13.2	22	10.3	33	18	-1	-20	...
22	19.2	16	14.8	2	24	18	11	-1
23	20.7	14	15.9	-16	22	19	13	3
24	21.1	13	16.2	-27	19	18	13	4

VK SOUTH — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	17.3	10	13.1	-35	12	9	2	-9
2	18.1	10	13.7	...	12	10	5	-5
3	18.6	11	14.0	...	12	11	6	-3
4	18.7	11	14.1	...	12	12	6	-3
5								

VK EAST — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	10.8	-1	7.8	-39	3	-4	-15	-33	
2	10.7	-6	7.7	...	1	-4	-14	-30	
3	11.5	-7	8.3	...	0	-2	-10	-23	
4	13.1	-4	9.2	...	-2	0	-5	-15	
5	15.1	-1	11.0	...	-3	1	-1	-8	
6	16.6	2	12.2	...	-4	3	1	-4	
7	17.4	3	12.7	...	-2	4	3	-2	
8	17.8	6	13.0	...	0	6	5	-1	
9	17.1	7	13.0	...	4	6	3	-5	
10	14.9	7	11.4	...	6	4	-2	-14	
11	13.0	7	9.9	-29	7	1	-9	-25	
12	11.9	9	9.0	-15	8	-3	-16	-36	
13	11.4	12	8.6	-3	8	-5	-21	...	
14	10.9	16	8.3	8	8	-8	-26	...	
15	10.6	20	8.0	18	8	-11	-32	...	
16	10.5	25	7.9	30	9	-14	-37	...	
17	10.5	27	8.0	35	10	-14	-37	...	
18	9.9	29	7.6	38	6	-21	...	...
19	8.6	30	6.6	35	-4	-37	...	...
20	8.3	30	6.4	35	-7	...	...	...
21	10.3	30	7.9	40	11	-13	-36	...	
22	10.2	24	7.7	25	9	-12	-33	...	
23	11.9	15	8.4	-2	12	0	-14	-34	
24	11.3	5	8.0	-24	6	-3	-15	-34	

VK SOUTH — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	11.3	8	7.9	-18	7	-3	-16	-36	
2	11.0	0	7.7	-37	3	-4	-15	-33	
3	11.8	-3	8.4	...	1	-1	-9	-24	
4	13.7	-1	9.5	...	0	1	-3	-13	
5	16.1	1	11.4	...	-3	3	1	-6	
6	17.8	3	12.6	...	-4	3	3	0	
7	18.5	4	13.2	...	-4	4	4	0	
8	18.0	5	13.4	...	-1	5	3	-2	
9	16.2	4	12.2	...	1	4	1	-7	
10	14.1	3	10.6	...	3	2	-4	-16	
11	12.3	3	9.2	-38	5	-1	-11	-27	
12	10.9	4	8.1	-22	4	-6	-20	...	
13	10.2	9	7.6	-6	4	-11	-29	...	
14	10.1	14	7.5	5	5	-14	-34	...	
15	9.9	19	7.3	17	5	-17	-39	...	
16	9.7	25	7.2	29	4	-21	...	...
17	9.7	27	7.2	34	5	-22	...	...
18	9.7	29	7.3	37	5	-23	...	...
19	9.5	29	7.2	38	3	-25	...	...
20	8.9	30	6.8	36	-1	-33	...	...
21	8.9	30	6.9	36	-1	-33	...	...
22	9.7	30	7.5	38	7	-20	...	...
23	9.8	26	7.5	30	7	-17	...	...
24	11.8	18	8.2	9	13	0	-15	-37	

VK WEST — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	11.8	18	8.2	10	12	-2	-18	...	
2	11.4	8	7.9	-16	6	-5	-18	-39	
3	12.3	2	8.6	...	4	-2	-12	-28	
4	14.3	2	9.8	...	2	2	-4	-15	
5	16.9	4	11.9	...	0	4	1	-5	
6	18.8	5	13.2	...	-1	5	4	-1	
7	19.6	6	13.8	...	-2	5	5	0	
8	20.0	6	14.1	...	-2	6	6	1	
9	20.4	6	14.4	...	0	6	6	1	
10	18.7	6	14.2	...	3	7	4	-2	
11	16.4	7	12.4	...	6	6	0	-10	
12	14.3	8	10.9	-34	8	3	-6	-20	
13	12.6	10	9.5	-15	8	-2	-15	-34	
14	11.6	13	8.7	0	8	-6	-23	...	
15	11.2	18	8.5	15	9	-9	-28	...	
16	10.9	24	8.2	30	10	-13	-34	...	
17	10.7	26	8.1	35	9	-15	-39	...	
18	10.5	27	7.9	38	8	-17	...	...
19	10.6	27	8.0	39	9	-16	...	...
20	10.1	28	7.7	38	6	-21	...	...
21	9.0	28	6.9	36	-2	-35	...	...
22	8.8	29	6.8	35	-4	-38	...	...
23	9.6	29	7.4	38	3	-25	...	...
24	9.4	27	7.2	33	2	-27	...	...

VK EAST — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	13.1	15	8.9	-3	14	5	-5	-21	
2	12.3	17	8.3	5	14	3	-9	-27	
3	11.6	19	7.9	13	14	0	-14	-34	
4	11.1	24	7.7	27	15	-2	-19	...	
5	10.9	24	7.6	26	14	-3	-20	...	
6	11.8	25	8.2	30	18	2	-24	-36	
7	12.7	24	9.4	28	20	5	-8	-28	
8	11.2	19	8.6	13	13	-1	-16	-38	
9	9.1	10	7.0	0	4	-13	-30	...	
10	8.8	0	6.8	-13	2	-12	-28	...	
11	9.9	-1	7.3	-26	2	-8	-20	...	
12	9.7	-7	7.1	-36	1	-7	-19	-37	
13	9.6	-12	7.1	...	0	-6	-17	-34	
14	9.5	-15	7.0	...	0	-6	-15	-31	
15	9.4	-17	7.0	...	0	-5	-14	-29	
16	9.2	-21	6.9	...	-2	-6	-16	-31	
17	8.7	-33	6.6	...	-7	-13	-24	...	
18	8.8	-30	6.7	...	-6	-11	-22	-39	
19	10.2	-13	7.4	...	-1	-4	-13	-27	
20	12.8	2	9.9	...	0	0	-6	-18	
21	15.4	5	11.8	...	3	4	0	-10	
22	15.9	10	10.9	...	9	8	3	-6	
23	14.9	12	10.1	-23	12	8	1	-10	
24	13.9	14	9.4	-12	13	7	-2	-15	

VK SOUTH — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	12.4	12	8.6	-8	11	2	-9	-29	
2	11.6	16	8.1	4	11	-1	-14	-34	
3	11.0	19	7.7	15	12	-4	-20	...	
4	10.7	24	7.5	26	12	-6	-25	...	
5	10.7	24	7.5	26	12	-7	-25	...	
6	11.5	25	8.2	30	16	-1	-18	...	
7	12.9	22	9.2	28	18	3	-11	-32	
8	11.4	18	8.9	15	11	-5	-22	...	
9	10.1	13	7.9	4	4	-12	-30	...	
10	9.3	6	7.2	-6	1	-14	-32	...	
11	9.1	0	7.1	-16	0	-14	-30	...	
12	9.1	-5	6.9	-34	0	-12	-27	...	
13	8.9	-10	7.0	-21	0	-10	-24	...	
14	8.8	-15	6.7	-37	0	-9	-21	...	
15	8.7	-27	6.7	...	-6	-14	-26	...	
16	8.5	...	6.6	...	-13	-21	-34	...	
17	8.2	...	6.4	...	-21	-29	...	...
18	8.4	...	6.6	...	-20	-27	...	...
19	9.6	-25	7.3	...	-6	-10	-20	-35	
20	11.7	-9	9.3	...	-2	-2	-9	-21	
21	14.0	-2	11.2	...	-1	0	-4	-14	
22	14.9	2	10.5	...	1	3	0	-9	
23	14.0	4	9.8	...	5	3	-2	-13	
24	13.1	8	9.1	-27	8	3	-5	-19	

VK WEST — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	12.0	3	8.4	-31	4	-2	-12	-27	
2	11.3	6	7.9	-17	5	-4	-16	-34	
3	10.7	9	7.6	-6	5	-7	-21	...	
4	10.4	12	7.4	2	6	-9	-24	...	
5	10.4	14	7.5	6	6	-9	-25	...	
6	11.2	15	8.1	9	9	-4	-19	...	
7	12.5	16	9.1	9	13	1	-11	-29	
8	14.1	16	10.2	6	16	7	-3	-19	
9	12.9	13	10.6	2	11	0	-12	-31	
10	11.3	8	8.8	-9	5	-7	-21	...	
11	9.7	0	7.4	-18	0	-12	-26	...	
12	9.4	-6	7.2	-26	-1	-13	-27	...	
13	9.2	-11	7.0	-34	-2	-12	-24	...	
14	9.0	-16	6.8	...	-2	-10	-22	...	
15	8.8	-25	6.9	...	-6	-13	-24	...	
16	8.7	-38	6.6	...	-12	-19	-30	...	
17	8.6	...	6.6	...	-17	-23	-35	...	
18	8.5	...	6.5	...	-22	-28	...	...
19	8.1	...	6.3	...	-26	-33	...	...
20	8.3	...	6.5	...	-20	-28	...	...
21	9.5	-22	7.1	...	-5	-9	-18	-34	
22	11.6	-9	9.3	...	-3	-5	-12	-24	
23	13.6	-3	9.6	...	-2	-2	-7	-17	
24	12.6	-1	8.9	...	1	-1	-8	-21	

VK EAST — MEDITERRANEAN									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	11.8	6	8.9	-27	6	-1	-13	-31	
2	12.0	0	9.0	...	3	-1	-11	-26	
3	15.0	3	11.2	...	1	3	-1	-11	
4	19.3	6	14.6	...	-1	6	5	0	
5	22.0	7	17.0	...	-2	7	8	5	
6	22.4	7	17.0	...	-3	6	7	4	
7	21.3	6	16.1	...	-1	6	6	2	
8	19.4	6	14.7	...	1	7	5	0	
9	17.0	7	12.9	...	4	6	2	-7	
10	14.9	7	11.3	...	7	4	-3	-15	
11	13.0	8	9.8	-27	8	0	-10	-27	
12	12.0	11	9.0	-11	8	-3	-16	-37	
13	11.6	15	8.7	4	10	-5	-21	...	
14	11.2	20	8.4	18	11	-7	-26	...	
15	10.8	25	8.3	31	12	-9	-30	...	
16	10.8	27	8.1	36	12	-11	-33	...	
17	10.8	28	8.2						

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JUNE 1995
Volume 63 No 6

RADIO AMATEUR



Journal of the Wireless Institute of Australia



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Wireless Institute of Australia 1995

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Cover

Len Robertson VK3ALD Who says that home building of amateur radio equipment is a lost art? Len first went on the air in the early 1950s and has been a "home brewer" ever since. Not only that, but Len runs QRP with an output power of around three watts. A separate receiver and transceiver are used. The receiver (bottom left in the photo) uses a direct conversion tunable IF working from 5.1 to 5.6 MHz. Fixed tuned converters then provide coverage of the 40, 30, 20, 15 and 12 metre

Continued on page 2

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Editor's Comment

Freedom of Speech

One of the disadvantages of having written so many editorials for *Amateur Radio* is that I find I suffer a serious risk of repeating myself. This is my 116th, by the way! I was going to call it "Free Speech" until I checked the list and found that was the title of my effort for November 1991 (but followed by a question mark). There I was concerned more with what could or could not be published so as to offend only a minimum of readers. The question of individual opinions differing from WIA policy was also mentioned.

This time I am proposing, briefly, to say something about another angle. What does it actually cost people to speak? In this context it is worth noting that in our recent negotiations with the SMA on licence fees one point that was emphasised was that there are no licence fees in the USA. This is because the American Constitution guarantees free speech, and Congress has been persuaded that licence fees for amateur stations contravene this right. The Australian Constitution provides for free trade between States, and freedom of religion, but says nothing about freedom of speech.

We may also enquire what is the difference between paying for a licence, and paying for a transceiver, if both are necessary pre-requisites to use of the amateur bands? I suppose a licence, being essentially legal permission, no more tangible than the paper on which it is written, must differ from actual hardware. The cost of producing hardware must always greatly exceed the cost of producing a paper certificate.

Then, of course, there's the other angle of saying or writing something which someone else claims is defamatory, or affects their well-being in some way. This might be, not only in speech or print, but in electronic form on a BBS, or the Internet, or wherever. If the aggrieved party sues you and wins the case, your speech may well prove to have been very expensive indeed!

Possibly there is no such thing as freedom of speech in the real world. But perhaps some is cheaper than others!

Bill Rice VK3ABP

Editor
ar

Continued from page 1

bands. Cascaded audio filters give a bandwidth of 3 kHz for SSB reception. The transmitter starts with a 9 MHz phasing exciter and a 5 MHz VFO, which give coverage of 20 metres plus output on 4 MHz. Mixers then provide output on 7 and 21 MHz. These mixers and a broadband linear amplifier are in the cabinet on the right. Len admits to using a Drew Diamond design for the linear. The rest of the station is home designed. A full wave loop antenna, fed at the top with 75 ohm twin lead, is used on 20 metres. For 40 metre operation the loop is opened at the bottom so that it becomes a folded-in dipole. With this station, Len works all round Australia and, occasionally, even a bit of DX.

Photo by Ron Fisher VK3OM

WIA News

US Hams at Oklahoma Bomb Site

Radio amateurs assisted rescue operations at the horrific explosion which destroyed a US federal office building in Oklahoma City in April. Local amateurs set up an emergency coordination network within minutes of the event, providing vital emergency communications to rescue and relief organisations.

According to reports from Oklahoma amateur, Thomas Webb WA9AFM/5, circulated within hours

of the blast, city telephone circuits were jammed and often not operating. The network operated non-stop for almost 200 hours after the 19 April tragedy, providing point to point communications until the telephone service was able to be repaired and restored.

A net control station located at the Oklahoma City Salvation Army Emergency Coordination Centre coordinated the amateur radio operations which involved more than 20 stations located around the blast area.

The volunteer amateur operators provided communications for the five Salvation Army canteens attending the scene, the Salvation Army Headquarters in Oklahoma City,

the Red Cross Command Post and the primary search and rescue command post.

A combination of hand-held and mobile amateur equipment was used. A mobile repeater station was set up at a Salvation Army canteen to overcome blocking of signals by buildings in the area.

Amateurs assisting with communications to rescue workers also transported vital supplies required at locations around the disaster area, and handled health and welfare inquiries from friends and relatives outside Oklahoma City.

The volunteer communications support effort involved a total of more than 100 US radio amateurs, most from the Oklahoma City area.

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers	Weekly News Broadcasts	1995 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Rob Apathy Secretary Len Jones Treasurer Alex Colquitt	VK1KRA VK1NLJ VK1AC 3.570 MHz LSB, 146.950 MHz FM each Wednesday evening commencing at 8.00 pm local time.	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Michael Corbin Secretary Pixie Chappie Treasurer Peter Kloppenburg (Office hours Mon-Fri 11.00-14.00 Mon 1900-2100)	VK2PFQ VK2KPC VK2CPK From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. Voicemail highlights on (02) 724 8793. The broadcast text is available on packet.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 9885 9261 Fax (03) 9885 9298	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530)	VK3PC VK3XV VK3XLZ MONTHLY BROADCAST on the second Sunday of the month, starts 10.30 am. Primary frequencies 3.615 LSB, 7.085 LSB, and FM(R)s 146.700 Mt Dandenong, 147.225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH, VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Lance Bickford Secretary Rodger Bingham Treasurer	VK4ZAZ VK4HD 1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Garry Herden Secretary Maurie Hooper Treasurer Charles McEachem	VK5ZK VK5EA VK5KDK 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555, 7065, 10.125, 146.700, 0900 hrs Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 434 3283	President Cliff Bastin Secretary Ray Spargo Treasurer Bruce Hedland-Thomas	VK6LZ VK6RR VK6OO 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 52 Connaught Crescent West Launceston TAS 7250 Phone (003) 31 9608	President Andrew Dixon Secretary Robin Harwood Treasurer Terry Ives	VK7GL VK7RH VK7ZTI 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$69.00 (G) (S) \$55.65 (X) \$40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).			

Note: All times are local. All frequencies MHz.

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■ Antennas

Coaxial Travelling Wave Antenna

Leo Weller VK3YX* tells of his experiences with an experimenter's delight antenna.

This antenna experiment was initiated by an article written by George VK2EHN in *Amateur Radio*, September 1993. It became more interesting after I read the letter from Peter VK6IS in *Amateur Radio*, November 1993. Actual work was started after re-reading the original patent in *Amateur Radio*, October 1992.

I found that the performance is good. It has qualities not found in any other antenna. With so little information available it is an experimenter's delight. Nevertheless, looking through my notes, more than 80 different baluns have been wound with an endless number of readings. Although this was time consuming the result is most gratifying.

Theory of Operation

The antenna consists of a length of tubing with wire in the centre, similar to a coaxial cable. On one end the centre wire is connected to the tubing and centre wire at the other end. The RF current flowing in the centre wire is fully shielded by the tubing. The radiation is from the returning current as skin effect on the outside of the tubing. For efficient working resonance cannot be in an amateur band. Power must be supplied balanced and SWR must be high. An antenna tuner is required to match into a 50 ohm transceiver. Being a low impedance device, there are no high voltage spots and current is high and equal in the whole circuit.

Observations

With an antenna so different from all accepted theories and practices one does not know what to expect and every observation is a discovery

for which one tries to find an explanation.

- (1) I noticed no reversed TV interference. I have been plagued with that for years.
- (2) No TV interference. As a matter of fact I removed all suppressors, braid-breakers and the like from my own TV set.
- (3) No earth wire or radials on the antenna. Every attempt to do so reduced receive sensitivity.
- (4) Easy and smooth tuning with a Z match antenna tuner. After setting C_1 in the middle of the band, C_2 will tune to give an SWR of 1:1 right across the band, even on 15 metres.
- (5) Good signal to noise ratio. This compared favourably with an 80 m dipole with open feeders.
- (6) Sensitivity on receive and field strength on transmit increases step by step on each higher frequency amateur band.
- (7) No high voltage spots. Even at 50 watts a sensitive neon globe did not glow. Touching the antenna with the hand pushes the SWR meter off the scale.
- (8) High current. I measured 0.5 A at 5 watts on all bands, except the 40 m band, including 160 m and all WARC bands.
- (9) The 40 metre band needs more power to achieve 0.5 A and tuning is different. This does not affect performance.
- (10) Three turns of heavy, insulated wire around the tubing and short circuited reduced receive sensitivity. This is the reason for the PVC saddles and clamps.
- (11) A two way switch to the centre wire or outside tubing was connected to a Bearcat DX 1000 communication receiver right on

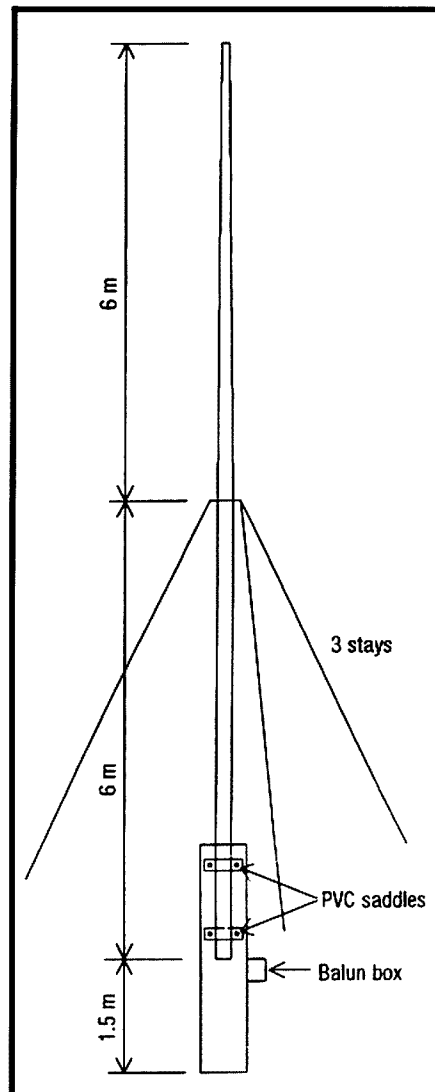


Figure 1.

the base of the antenna. Most stations were received on the same S meter reading in either position. However, some stations indicated up to two S points more on the centre wire. This does not correlate to frequency. George VK2EHN indicates the same phenomenon.

Testing

All testing was performed on 3.5444 MHz for which a crystal was on hand. On the first test this crystal, in a crystal tester connected to a one metre long antenna at a distance of eight metres, gave S 2 on the receiver. By the end of the experiment the distance was twice that and the antenna was only 12 cm to achieve S 6.



Photo 1 — Coaxial travelling wave antenna.

For transmitting I used 5 W of power with a 1:1 SWR. Firstly, a tuned field strength meter was used with a one metre antenna. Finally, an aperiodic field strength meter was used with a 30 cm antenna.

Construction

The antenna is constructed from three equal lengths of imperial aluminium tubing, total length 12 metres. The diameter of the lowest section is 1.75 inches, the middle section is 1.5 inches and the top section is 1.25 inches. The wall thickness is .125 inch. This tubing is perfect for telescoping. Both joints slide into each other for 25 cm. Four thin saw cuts, 12 cm long lengthwise, plus a good quality stainless steel hose clamp, ensure intimate electrical contact.

In the centre of the tubing is a PVC covered wire of 5 mm diameter, or 47/03. It is kept in the centre with triangular perspex spacers 2 mm thick and 30 cm apart. A centre hole in these spacers fits the centre wire and they are held in place with a

suitable plastic to plastic glue (see Fig 2).

The centre wire is connected to the outside on the top of the tubing, via two crossed copper strips. After soldering the strips are bent down over the outside of the tubing and secured with 8 self tapping screws (see Fig 3).

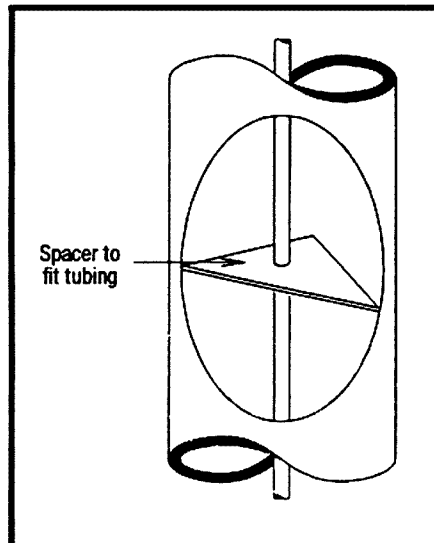
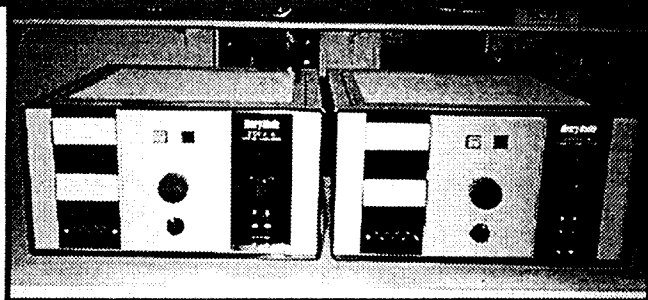


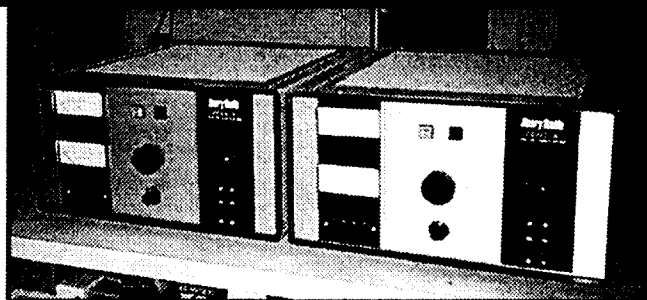
Figure 2.

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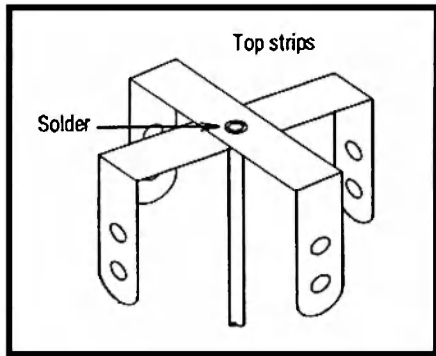


Figure 3.

On the bottom of the antenna, on the outside, are two solder lugs 180° apart. These are fastened with 6 mm copper screws, washers and nuts (see Fig 4). Half way up the mast is a PVC clamp holding three 6 mm polyester stays (see photo 1). The antenna is fixed to a mast stub with PVC saddles (see Fig 1 and Photo 2).

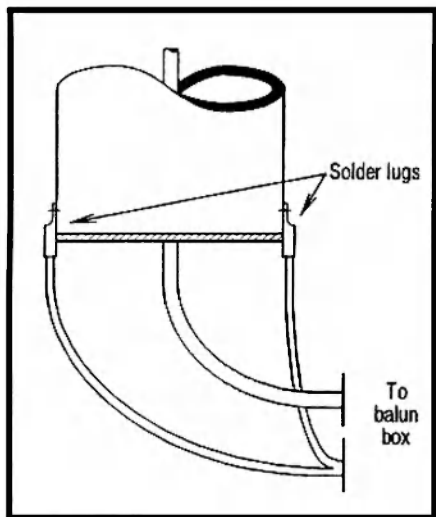


Figure 4.

Practical Installation

The simplest and most effective way of installation is with open transmission line. With the single coil Z match (*Amateur Radio*, April 1993, p14) this produced the highest receive sensitivity and easiest tuning. Not more than 9 m of transmission line, 2 mm wire, 40 mm spacing and perspex spacers 25 mm apart. If output from the tuner is not exactly balanced the centre wire must be connected to the highest output.

Another way of installation is with a good quality coaxial cable up to 15 m, a 50 to 200 ohm balun on the

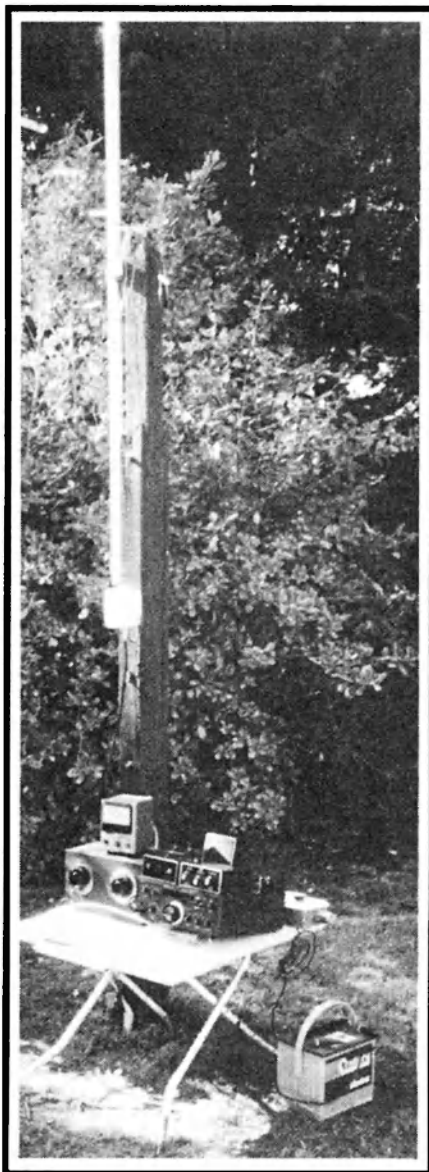


Photo 2 — Base of antenna under test. Note the antenna mounting.

antenna and a T match network tuner. Two different baluns are satisfactory. Number one made with the Amidon balun kit from Dick Smith. Number two on a 12 mm diam, 75 mm long ferrite rod.

For the Amidon core, two lengths of 7.8 mm (13 B&S) 90 cm long laced together and 16 turns wound neatly on the whole circumference.

For the rod, two lengths of wire, 7.45 mm diam. (15 B&S) and 60 cm long, twisted to one twist per cm and wound closely-spaced for 12 turns.

Conclusion

It is unlikely that, in the first experiment, maximum performance

can be achieved. Much more work will be needed to arrive at fully understanding this system and the real design considerations.

I would like to collect data from other experimenters by letter, telephone or amateur radio regarding their experience with this project.

*46 Peperell Avenue, Syndal, VIC 3150

ar

QSP News

The World's Rarest Callsign Prefixes

Below are listed some, but not all, of the world's rarest prefixes. If you are a really excellent DXer you may just have one, maybe two or even three of them.

If you are very generous as well as being a top DXer, you might send them to the Honorary Curator of the WIA QSL Collection, Ken Matchett VK3TL at 4 Sunrise Hill Road, Montrose VIC 3765 (tel 03 728 5350) for inclusion in the WIA's own national QSL collection.

Please lend a hand in building up the Collection as an historic reference library. All donations are acknowledged both personally and in the pages of *Amateur Radio* magazine.

AC5 (USA); AI4; CM4, 0; CO4, 9, 0; CP4, 9; CU9; CY4, 8; CY9 (St Paul); DG0; DM1; EM9; EO7; ES9; DT1, 5, 9; EL6; F4; FE4, 7, 0; GD8; HH6, 8, 0; HP5, 7; HR7, 8; HS8; JW3, 4; JY0; JX0; KQ0; LB4, 0; LX4, 5; LZ4, 8; NB2, 4; NC4; NE2; NG8; NO3; NT3; NV5, 9, 0; NW5; OG9; OK9; OL6; ON3; OT1, 8, 0; OY0; OZ0; SK8; SL9; SM9; SN2, 3; SV6; TF8, 9; TK1, 2; TM4, 7, 8; TO1, 4, 7; U7; WD7; WF0; WG1; WI2; WM8; WU1; WV7; WW2, 3; WZ3; Y70, 77; ZS0; 4M8, 9; 4N8; 4O5, 8; 4Z7.

Sign up a new member today, we need the numbers to protect our frequencies and privileges.

■ Filters

The VK5BR Audio Filter Modifications to Include an Adjustable Rejection Band.

Lloyd Butler VK5BR* describes improvements to his adjustable audio filter system for the receiver.

Introduction

In the March 1995 issue of *Amateur Radio*, I described an adjustable audio filter system which can be added to the receiver. One feature of the system is a rejection notch which has a 3 dB band rejection width of about 100 Hz. This is fine to reject an interfering carrier or CW signal. However, I pointed out in the text that some means to increase the width of the rejection band width might be a useful addition to reject wider bandwidth interfering signals.

The 100 Hz rejection notch remains unchanged, but I have added a simple modification to enable the high pass (HP) and low pass (LP) filter sections to be set up for a variable width rejection band. This is an alternative to their normal function of setting the limits of the pass band. The modification is simple in that it is achieved by the addition of one switch and one resistor and changing the value of one other resistor.

HP and LP Filters in Parallel

To understand how the system works, refer to figures 1 and 2. To achieve the bandpass characteristic of figure 1, the signal is first fed through the HP filter which sets the low frequency cut-off and then through the LP filter which sets the high frequency cut-off. Observe that the HP cut-off is lower than the LP cut-off.

To achieve the band reject characteristic of figure 2, the two filters are connected in parallel with

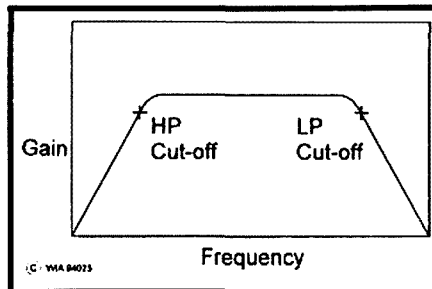


Figure 1 — Normal sequential operation of HP and LP filters with cut-off frequencies set for a wide bandpass.

inputs both connected to the input signal and outputs combined after filtering. Observe that, for this operation, the HP cut-off is now set to a higher frequency than the LP cut-off.

The block diagram for the whole system, as published in the previous article, is repeated in figure 3 but with the additional switch S4 to enable the filters to be switched from their normal sequential connection to the parallel connection. Detail of the circuit changes is given in figure 4.

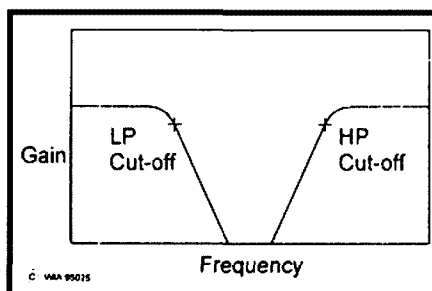


Figure 2 — Parallel connection of HP and LP filters with cut-off frequencies set for a wide band rejection.

Resistor R33 and capacitor C18 form the original post anti-alias filter. Addition of resistor R42 to this circuit enables it to be also used as a mixer to combine the output of the LP filter via R33 with the output of the HP filter via R42.

The maximum setting of the cut-off frequency in the HP filter was originally 1.2 kHz. This has been altered to 2 kHz so that the upper frequency roll over of the rejection trough could be extended a little higher. Resistor R17 in the HP Clock circuit has been changed from 10 k to 4.7 k ohms to achieve this alteration.

Operation

To operate in the discussed band reject mode, switch S1 is set to the HP/LP position, notch switch S2 is left off, and the new switch S4 is set to the band reject position. The LP adjust potentiometer is set for a cut-off at the low frequency side of the rejected band and the HP adjust potentiometer is set for a cut-off at the high frequency side of the rejected band. It is desirable to have a frequency calibration on the adjustment controls otherwise it is difficult to know exactly what one is doing. Pointer knobs are coupled to each of the three filter adjustment controls in the filter box. As originally assembled, no calibration to indicate the setting of the pointers was provided. A back plate of paper is now glued to the box and this is marked to show the approximate frequency cut-off indicated by the pointing of each of the three knobs.

It is not intended that a condition be set up whereby the LP cut-off is set higher than the HP cut-off (as in bandpass operation). This crosses over the two pass bands of the two filters causing what might initially appear to be an all-pass condition. Actually, it is not quite all-pass, as the phase of the output from one filter does not track with the other and, when the outputs are combined, troughs occur in the frequency response curve due to signal cancellation. The problem does not occur when the parallel filters are set up for wide band rejection as there is no frequency at which both filters together provide an appreciable output.

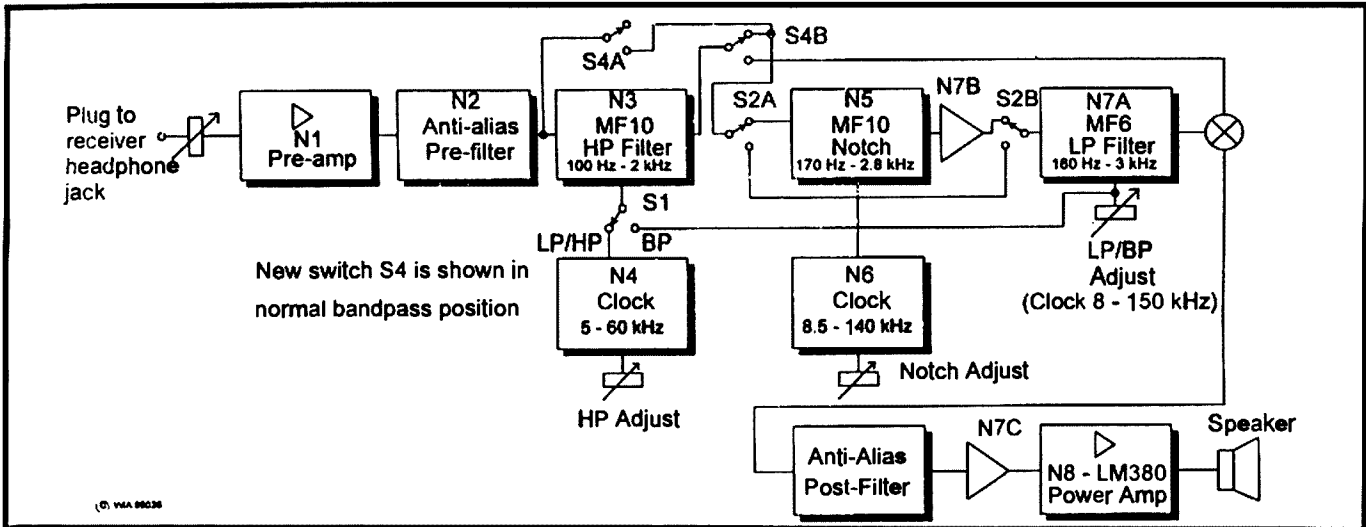


Figure 3 — Block diagram of the Audio Filter Unit with the addition of switch S4 to enable the Band Reject function.

For all other modes of operation, such as wide bandpass, narrow bandpass, and notch (as described in my previous article), switch S4 is returned to the normal position.

Some Observations

It is interesting to observe the effects on speech intelligibility when part of the middle of the speech frequency band is taken out. Inserting the 100 Hz bandwidth notch has no effect and you can't detect that it has been switched in. Taking out a large slice of the band alters the speech quality, as one would expect. However, I have observed that, if the rejected band is between around 500 Hz to 1.5 kHz, quite good intelligibility and tonal balance is retained. Loss of intelligibility and change of tonal balance seems to really occur when frequencies are cut below 500 Hz or above 1.5 kHz. It seems that if speech

is troubled by interference concentrated within the frequency range of 500 to 1500 Hz, the interference can be reduced, without loss of intelligibility, by rejecting this part of the band.

Another consideration is a speech signal received in the presence of broadband noise which spreads right across the audio spectrum. The level of noise can be reduced by restricting the audio bandwidth up to a point, but intelligibility is reduced when low frequencies are cut above 200 Hz or high frequencies are cut below 2.5 kHz. As an alternative, one might consider cutting between 500 and 1500 Hz and I have tried this on a number of noisy signals. Whilst the effect is not dramatic, it can give a few dB of signal to noise improvement whilst still retaining reasonable intelligibility and tonal balance.

On a slightly different subject, there are various ways of processing speech into a transmitter to improve the effective speech power. Speech clipping and speech compression are two well used techniques. I now wonder whether a reduction of frequency components in the 500 to 1500 Hz range would also be worthwhile. This would allow an increase in power of frequency components which are more critical in determining intelligibility and tonal balance. This gets away from the subject in hand concerning filtering of received audio but it is an interesting idea leading from the band reject tests on received speech.

Conclusion

A simple modification has been added to the audio filter described in a previous issue of *Amateur Radio*. Switching in parallel operation of the HP and LP filters allows them to be used in an adjustable band reject mode.

Some tests using the band reject mode seem to indicate that a band of frequencies in the range of 500 to 1500 Hz can be taken out of a speech signal whilst still retaining a reasonable intelligibility and tonal balance. This is a characteristic of speech which can be useful in improving intelligibility in the presence of an interfering signal or noise in this part of the audio spectrum.

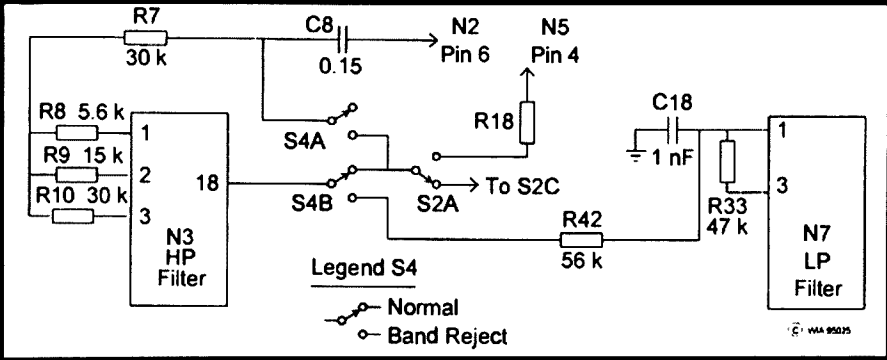


Figure 4 — Changes to the original circuit to include the Band Reject function. Delete the link between N3-18 and S2A. Add Switch S4 (DPDT) and Resistor R42 (56 k). Also replace R17 (10 k), not shown, with R17 (4.7 k).

*18 Ottawa Avenue, Panorama SA 5041

Novice Notes

Peter Parker VK1PK*

This popular column has reappeared in *Amateur Radio* magazine following comment that the magazine contained little information specifically for newcomers to amateur radio. This month I will talk about receivers.

Whatever your amateur radio interest, you are going to need a receiver. Whether part of a transceiver or a stand-alone unit, a good receiver is essential to enjoy amateur radio. If you do not have a receiver, you need to build or buy one covering the bands on which you hope to operate. This article will outline the basic types of receivers and the advantages and limitations. Then, in part two, the factors that make a receiver good will be described.

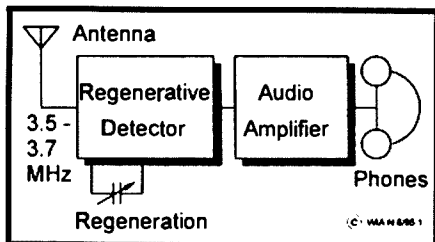


Figure 1 — Regenerative receiver.

Figure 1 shows a block diagram of a regenerative receiver. This is the simplest practical receiver for HF amateur band reception. It consists of two stages, a regenerative detector and an audio amplifier. The function of the detector is to convert Radio Frequency (RF) signals to Audio Frequencies (AF). The audio amplifier increases their strength so that they can be heard in a pair of headphones.

Regenerative receivers include a control to vary the degree of positive feedback. More feedback means the receiver can hear weaker signals, but increasing the feedback past a certain point will produce a howling noise. This indicates the detector has gone into oscillation, and may cause interference to other radio users. For this reason, many regenerative

receivers include a radio frequency amplifier to isolate the antenna from the regenerative detector. Positive feedback in an oscillating regenerative receiver is analogous to a howling PA system; move the microphone away from the speaker (back off the regeneration control) and the feedback will disappear.

A regenerative receiver is fun to build and is capable of receiving many long distance voice and Morse code transmissions. It does have its limitations, however, and is not recommended for serious operating. Limitations include poor strong-signal performance, frequency drift and an inability to separate signals in a crowded band.

The direct conversion receiver of Figure 2 provides improved performance, is quite simple to build, and can be incorporated as part of a Morse and/or voice transceiver. It includes a separate local oscillator tuned to the received frequency and a product detector to convert the received signal to audio. Most of the receiver's gain is in the audio stages. Unlike the regenerative receiver, DC sets do not receive AM transmissions at all well. The almost universal use of SSB on our HF bands means this is not a serious limitation.

To separate signals properly, a good DC receiver needs sharp cutoff low pass audio filtering. Nevertheless,

unless special techniques are employed, DC receivers are always less selective than superhet receivers because of the audio "image". I will not say more here, but this problem can be overcome with special circuitry.

A DC receiver is a fine beginner's project as it can be readily converted to a CW or voice transceiver. A basic DC receiver is simple to build and additional modules, such as buffers, audio filters and RF amplifiers can be added to enhance performance.

Superhet receivers are the most commonly used today, and are the norm in commercially-manufactured equipment. They are generally more complex than direct conversion receivers, but can be built by the constructor who has already experimented with other forms of receivers. Their main feature is the conversion of all incoming signals to a fixed frequency, which is referred to as the Intermediate Frequency (IF).

Much of the amplification in a superhet receiver occurs at the IF. Older receivers use a 455 kHz IF, while VHF receivers normally use 10.7 MHz. A common IF for homebrew receivers is 9 MHz. The use of crystal filters has made it possible to obtain high selectivity in modern superhet receivers. The choice of IF is critical to success of a superhet receiver. It is easier to amplify signals at lower frequencies, but a low frequency IF makes the receiver susceptible to reception of signals on frequencies other than that which is wanted.

Figure 3 shows a simple superhet tuned to 14 MHz. It has an IF of 9 MHz and includes a crystal filter for

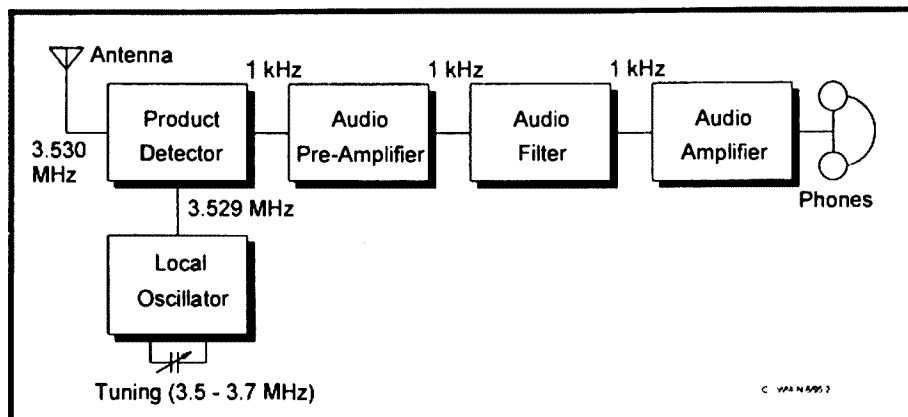
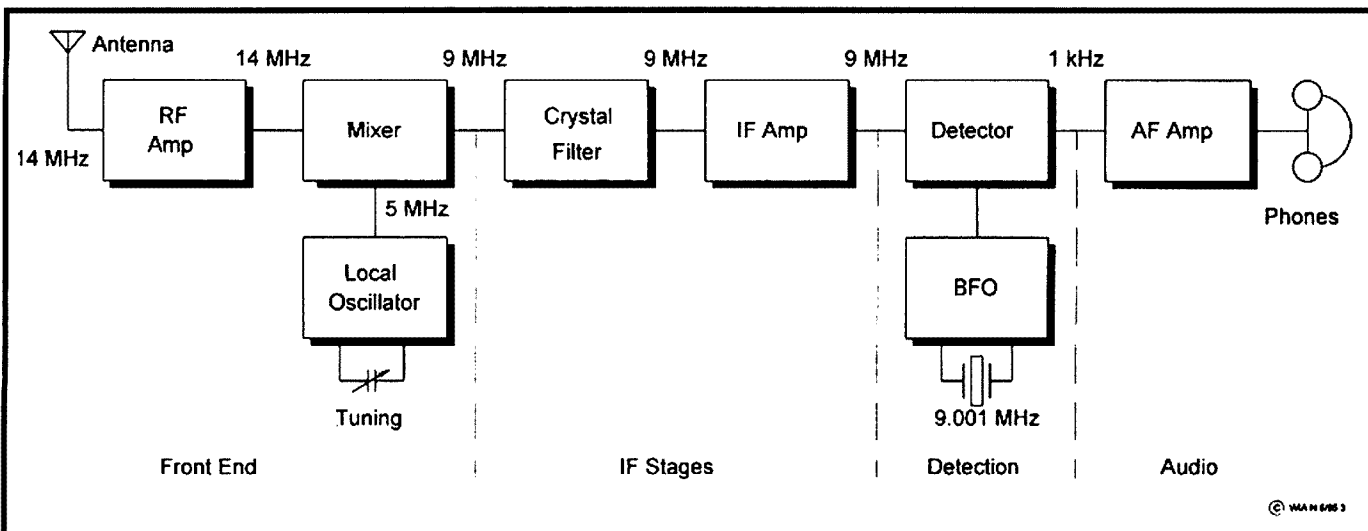


Figure 2 — Direct Conversion receiver.



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Figure 3 — Superhet receiver.

high selectivity. The local oscillator runs at 5 MHz. The 14 MHz signal at the antenna is converted to the 9 MHz IF in the mixer stage. This is achieved by mixing the incoming signal with the 5 MHz from the local oscillator to produce a difference equal to the IF. Hence, if we wished to listen to the beacons on 14.1 MHz, we would need to move the local oscillator to 5.1 MHz. The example described here includes a Beat Frequency Oscillator

(BFO) to resolve CW and SSB signals.

As it features only one IF and one mixer, this receiver is of the single-conversion type. It is possible to build receivers with more than one mixer, but greater care in their design is necessary to minimise the reception of unwanted signals. Many commercial transceivers use multiple conversions to provide a general coverage receive facility.

With the correct detection and IF

circuitry, superhet receivers can receive signals of any mode. It is also worth noting that superhet receivers lend themselves well to incorporation in SSB transceivers as the expensive crystal filter can be shared between the transmitter and the receiver.

That ends part one of this series. Join me in two months for part two. In the meantime, if you have any questions, please mail them to me at the address below.

*71 Garran Place, Garran ACT 2605

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WIA News

Family Membership

The recent Federal Convention adopted a policy regarding a Family Membership grade which would allow households having three or more amateurs in the family to obtain membership of their Division at a considerable discount.

The Tasmanian Division first proposed that the Family Membership be looked into at the 1994 Federal Convention. The NZART has a Family Membership option.

There are a number of options available under which households could apply for Family Membership, but a general discount of 25% would apply. The principle behind it is that there would be a "cap" on the total amount of membership

subscription from the one household, the total amount being decided by the individual Divisions. As Divisions have differing membership subscription rates, the maximum payable will vary from Division to Division. There would be only one copy of *Amateur Radio* magazine sent to each Family Membership household.

For a three-amateur household applying for Family Membership, one option is for one Full grade membership, one X-grade membership and one Student membership. Or, it might be a combination of two G-grade (concessional) memberships and one Student, for example. In households with more than three amateurs (or, say, three amateurs and an interested SWL), only the international and national representation components of a

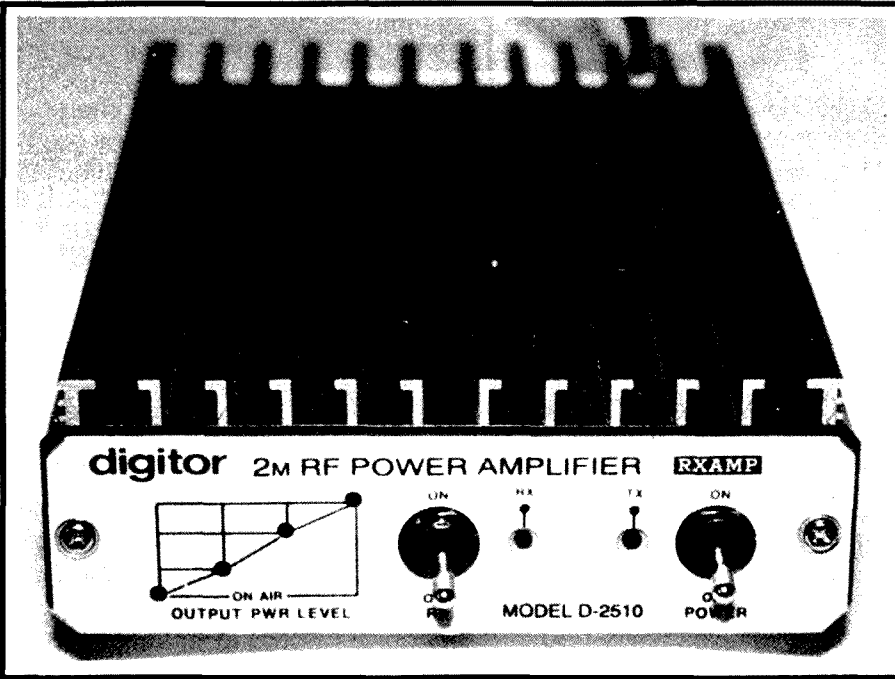
membership subscription may be charged (\$2.90 at present) for each additional member. As an example (only), a household applying to the VK3, VK4 or VK5 Divisions, where three amateurs might want one Full, one X-grade and one Student membership, the present total amount would come to \$174. The proposed capped Family Membership, with the 25% discount, would only have to pay \$130.50, a saving of \$43.50.

As a general rule, the policy is that a household applying for Family Membership must all have the same surname (but allowing for de-facto and special exceptions), they must live at the same address and only one copy of *Amateur Radio* is sent to the household. Further information may be obtained from your Division, NOT from the Federal Office.

Equipment Review

Dick Smith DIGITOR D-2510 2 m RF Power Amplifier

Reviewed by Ron Fisher VK3OM



Do you ever get the idea that the power output from your two metre hand held transceiver is just not quite enough? If so, this little power amplifier from Dick Smith Electronics might be just what you need. It can boost the output of your two watt hand held up to around 30 watts. This is so close to the 45/50 watt output of most current two metre mobile transceivers that you won't pick the difference.

Features

This amplifier is compact and light weight. The overall measurements are 100 mm wide, 36 mm high and 175 mm deep. Weight is just 550 g. The case is well designed with no sharp corners and there are four rubber feet on the bottom so there is little chance of it scratching other

equipment. As well as providing a boost for your transmitted signal there is also a built in receiver pre-amp which gives about 13 dB of gain.

Input and output impedance is 50 ohms and standard SO-239 coaxial connectors are used. Transmit/receive switching is controlled via an RF sensing circuit so no external wiring is needed for operation of the amplifier. The D-2510 is designed for FM and CW operation only. It will not work on SSB and, with the relay switching used, it probably won't work with packet transmissions. Naturally, the unit operates from a 13.8 volt supply and requires about five amps. The attached DC lead is 720 mm long and is fused in the positive lead. A mobile mounting bracket is also included.

On Test

I used a variety of two metre hand held transceivers to drive the amplifier, including a Yaesu FT-23 and an FT-411. These were powered with 7.2 and 12 volt batteries to produce a typical range of output power and the following figures were obtained. All tests were carried out with 13.8 volts applied to the amplifier.

... boost the output of your handheld up to around 30 watts.

Drive Power	Output Power	Current Drain.
0.3 watt	11.0 watts	2.6 amps.
0.5 watt	21.5 watts	3.5 amps.
2.0 watts	30.0 watts	4.3 amps.
5.0 watts	37.0 watts	4.6 amps.

The input SWR to the amplifier was measured at 1.5:1 with the amp in operation and 1.6:1 in the through position (amplifier switched off).

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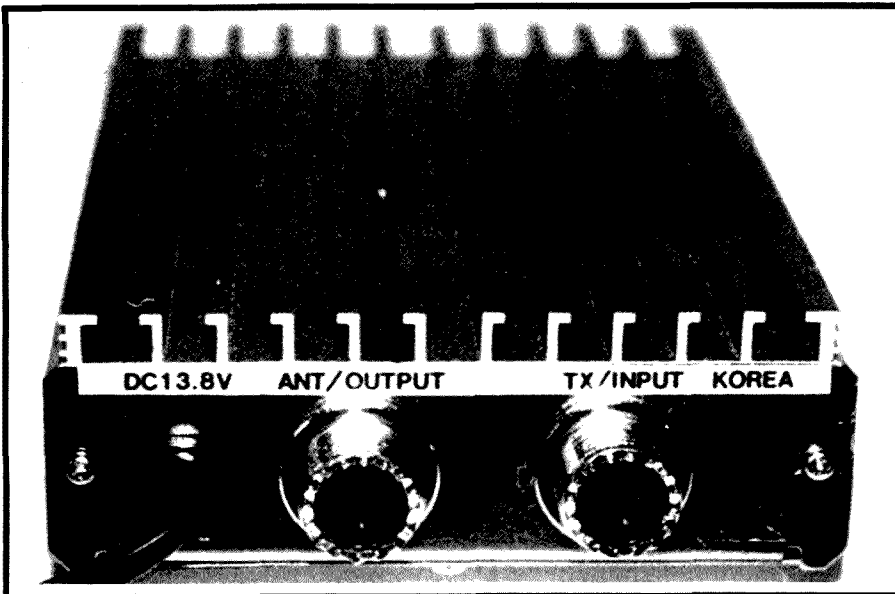
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Rear panel view of the compact amplifier.

Current drain with the pre-amp on but the amplifier off was 95 mA; and 110 mA with the amplifier on but with no drive.

The pre-amp was checked with several transceivers as noted above and was found to be very susceptible

to interference from out of band signals. It is worth noting that the instruction sheet states, "When using the D-2510 in crowded RF areas and especially when used with handheld transceivers, it is recommended that the GaAs FET be left switched off

unless receiving a weak signal as this will result in less interference from strong out of band signals".

Well, maybe out in the middle of the Simpson Desert it might be of use, but certainly nowhere near a big city. Unfortunately, no circuit diagram is supplied so it's hard to say what the pre-amp is and whether anything could be done to improve its performance.

Conclusions

No doubt about it, this is a very useful little amplifier. If you like to use your handheld in the car the extra power will make a big difference to your signals, especially if you are operating simplex.

The instruction sheet is short but covers most things quite well. However, there is no circuit. The catalogue price is \$169.95, but has been on special at \$149.95 and might still be available at this price. Check your local Dick Smith store.

Our review amplifier was supplied direct from the Dick Smith head office.

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Antennas

Random Radiators

with Ron Cook VK3AFW and Ron Fisher VK3OM*

T-Match Antenna Tuners

Do you own and use an antenna tuner similar to the two illustrated in this column? Most commercial tuners these days use a "T" circuit. This even applies to most automatic tuners built into transceivers.

The basic circuit is simple. A series capacitor in, a series capacitor out, and a variable inductance to ground from the junction of the two capacitors (see Fig 1). Often a few fixed capacitors might be switched in parallel with the variable capacitors and the inductance might be tapped and switched, or it might be a variable rotary type.

Our good friend Graham Thornton VK3IY maintains that an "L" network will do everything that a "T" network

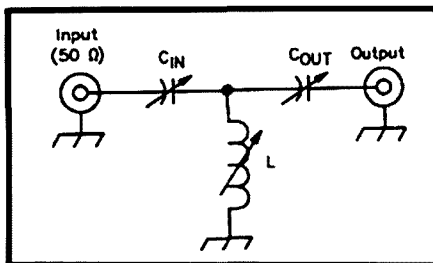


Fig 1 — Today's built-in and outboard antenna tuners most commonly use this generic circuit, the T network. (Reprinted from QST, January 1995).

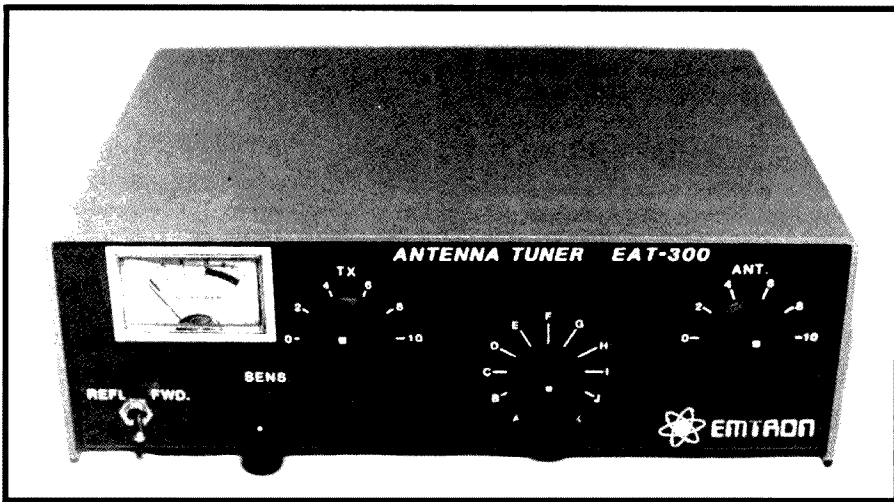
will do (see his recent article, "An L of a Network", published over three issues of *Amateur Radio*), but, nonetheless, 90% of the commercial ATUs are "T" networks. We know that this is getting well away from our old favourite, the "Z" Match, but we feel

that they are perhaps used in different situations. At least one of the Rons has both types in his shack and uses them in quite different ways.

In the January 1995 issue of *QST*, Andrew Griffith W4ULD presented an article on "Getting The Most Out Of Your T-Network Antenna Tuner". This is one of the best articles I have seen on just how to use an antenna tuner. After reading the article, our first thought was why don't we see this information in the instruction books that come with these tuners.

So, here are a few extracts from the article that we are sure you will find most interesting. First off, here is what Andrew says about the matching range of the "T" Match.

"For purely resistive loads, a T network with Figure 1's C_{in} , C_{out} (20 to 240 pF) and L (adjustable from 0.1 to 35 μ H) values can match loads of about 10 ohms to 3 kilohms from 160 through 15 metres. At 10 and 12 metres the range narrows to about 10 ohms to 1.5 kilohms because C_{in} and C_{out} cannot be adjusted to less than 20 pF. When the load impedance to



down. The worst case occurs at 160 metres where power losses of over 20% can occur even though the tuner is adjusted for maximum efficiency. In the T-network, the loss is also proportional to tuning sharpness (the sharper the tuning, the higher the loss). Low load impedances don't just cause high losses; they also cause relatively high voltages to appear across the network's capacitors."

"Practical T-Network Tips

What I have covered so far about loss and capacitor flash-over suggests two practical hints for T-networks with values like those of Fig 1:

- To achieve the highest possible efficiency at a given impedance transformation, tune the network with the highest output capacitance that allows a match.
- When matching loads of less than 25 ohms on 80 metres and 160 metres, you may have to reduce your output power to reduce tuner heating or to keep it from arcing. With loads like this, you may not be able to use a legal limit amplifier even with a tuner specified to handle 400 watts."

be transformed is reactive, the matching range narrows. Even with reactance present, very few cases should occur in which the antenna cannot be matched with proper tuning technique."

Andrew then explains that the "T" match is a high-pass network and therefore does not attenuate harmonics to any extent. As the harmonic attenuation of modern HF transceivers is usually very good this is not a detrimental factor.

An important consideration with any antenna tuner is power loss and power limitations. Back to Andrew.

"Because tuner components are not 100% efficient, some of the RF power applied to a tuner's input turns into heat instead of showing up at the tuner's output. It's often said that these losses are "not worth worrying about". The truth of this statement depends on how much power your tuner can safely dissipate and how much loss you want to worry about. Power loss in a tuner occurs mostly in the inductance and is inversely proportional to the inductor's quality factor (Q) — the higher an inductor's Q, the lower its loss".

"Losses can also occur in a tuner's connections and balun (if used), but let's neglect these additional losses and assume that the tuner's inductor is good quality, with a Q of 200. A typical tuner task is to extend the range of a dipole over an entire band. Curve "C" of Fig 2 shows the tuner loss for this situation. At 40 through 10 metres the loss is less than 0.1 dB; that is 2.3%. At 160 metres, the loss rises to about 0.32 dB, or about 7%.

Even a purist might agree that a loss this low is "not worth worrying about", but in saying so, we'd be assuming that the tuner components doing the "lossing" can safely dissipate 7% of the power applied. Seven percent of 100 watts is 7 watts; 7% of 400 watts is 28 watts. Depending on your transmitter power and your tuner's loss and dissipation capability, any decibel of tuner loss may be worth worrying about!"

"At any frequency, T-network loss goes up as the load impedance goes

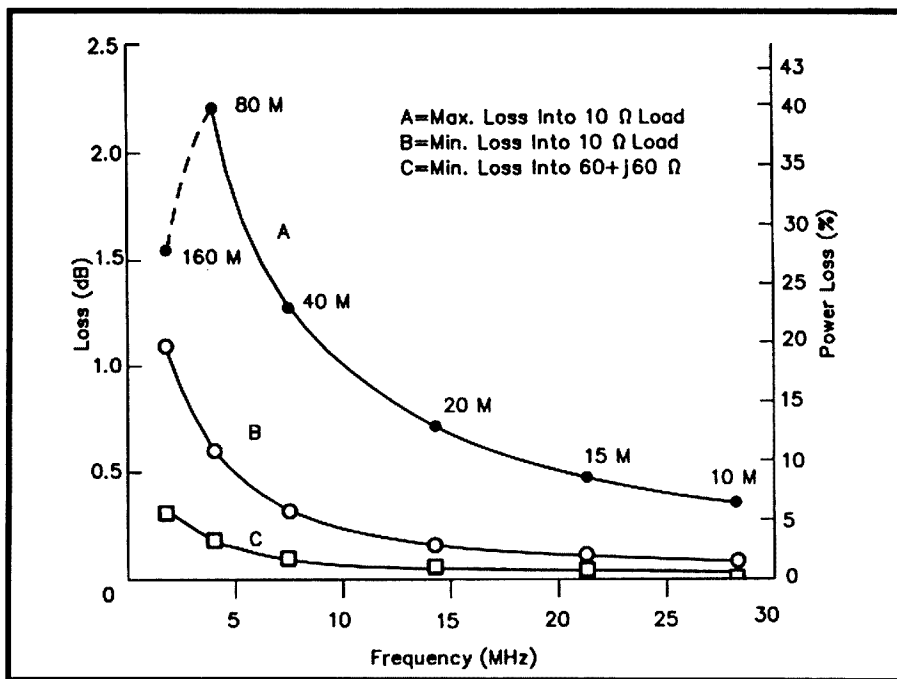


Fig 2 — How lossy can a T network be? Curves A and B show the Fig 1 network's maximum and minimum losses when transferring a $10 + j0 \Omega$ load to $50 + j0 \Omega$. Curve C shows a network's minimum loss when matching a 50Ω antenna slightly off resonance ($60 + j60 \Omega$). Depending on the transmitter power and tuner type involved, even a network loss on the order of 0.3 dB can cause tuner components to overheat or fail. (Graph by W4ULD, reprinted from QST, January 1995).

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A Tried and True Tuning Technique

The only disadvantage of a tapped inductor T network is that its limited inductance resolution may not let you set C_{out} to its maximum possible value at match. Set C_{in} and C_{out} to mid scale. Select an inductance switch position and rotate the C_{out} through its range to look for an SWR dip. The dip may be very slight. If you don't find a dip set the inductance to another position and repeat the adjustment of C_{out} .

When you find a dip, adjust C_{in} for minimum SWR. Inch C_{out} in one direction or the other and redip with C_{in} . If the SWR is lower now than it was with the previous C_{out} setting, inch C_{out} in the same direction until you obtain a 1:1 SWR. In some cases an SWR dip can be obtained with two inductance settings. Chose the setting with the lower inductance to get a larger output capacitance.

So there it is. The main points are to tune for maximum capacity in the output capacitor, and watch out for heating when using the tuner on frequencies lower than 40 metres when matching into low load impedances.

Trap Tri-Band Beams — How Good Are They?

One of us has had a feeling for some time now that many trap tri-band beams don't deliver the gain that is often claimed for them. In fact, do they deliver any gain at all compared to a dipole?

As an example, one of the Rons has just replaced a three element monoband 20 metre Yagi with a four

element trap beam. The printed specification for the trap beam quotes a gain of 10.1 dB. Sounds a bit high?

When working into Europe on long path, the three element monobander was neck and neck with a four element monobander. Most reports indicated that they were the same with a very few giving the four element beam a slight advantage. The four element is always 6 to 8 dB better than the trap beam which, to our way of thinking, gives the trap antenna maybe two dB gain at the most.

Perhaps some tri-banders are better than others. Or are they? What do you think? More on this subject in the near future.

See you all in a couple of months. So it's goodbye from me and goodbye from him.

The two Rons
*Cb PO Box 2175, Caulfield Junction, VIC 3161
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Technical

Technical Abstracts

Gil Sones VK3AUI*

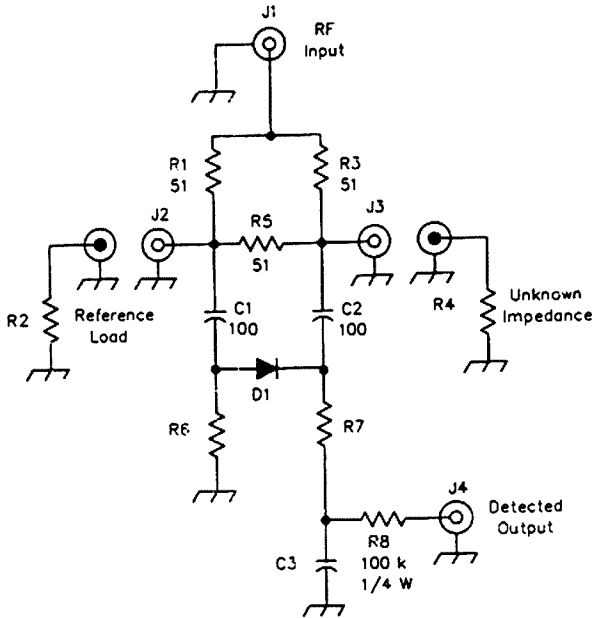


Fig 1 — VSWR Bridge Circuit Diagram — R6 and R7 are 10 k to 15 k. C3 is non critical and any chip cap from 100 pF to 0.01 mF will do.

UHF+ VSWR Bridge

Measuring VSWR at UHF and Microwave frequencies can be a problem as most amateur equipment does not operate at these frequencies. The other problem is in low power circuits or even measuring VSWR out of the amateur band. A simple resistive VSWR bridge can be used with either a low power source or even a signal generator. A suitable design was published in the February 1995 issue of QEX by Paul Wade N1BWT.

The design uses a small circuit board to mount chip resistors and capacitors. The impedance is preserved by using striplines on the circuit board for the RF connections. The design given worked up to the 2304 MHz band and was usable on the 3456 MHz band.

The circuit is shown in Fig 1. Resistors are chip types with the exception of R8 which is a 1/4 watt

type. The capacitors are all chip types. The diode detector is a small surface mount microwave mixer diode.

The circuit board used was 1/32 inch Teflon and the etching pattern is shown in Fig 2. However, if the line

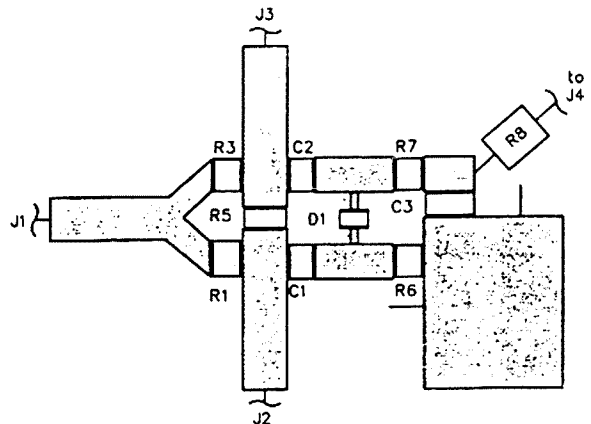


Fig 3 — Component Placement Diagram.

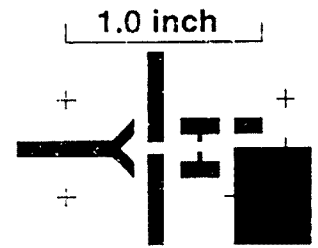


Fig 2 — PCB Etching Pattern for 1/32 inch Teflon Board.

widths are adjusted, G10 fibreglass could be used but the upper frequency performance may be affected. The whole bridge was enclosed in a box made from an offcut of waveguide. However, a suitable enclosure could be made from hobby brass. The placement of components is shown in Fig 3.

The original used SMA connectors for the RF connections but any suitable connectors could be used. To maximise the upper frequency performance, some attention should be paid to the connection of the connectors to the PCB so as to minimise the impedance discontinuity.

In operation, a modulated signal is applied to the bridge and an audio millivoltmeter is used to measure the detected output. The bridge should balance with 50 ohm terminations on both ports. The degree of unbalance when measuring is an indication of the SWR. Infinite SWR can be used as a calibration by connecting a coaxial short circuit to the unknown port.

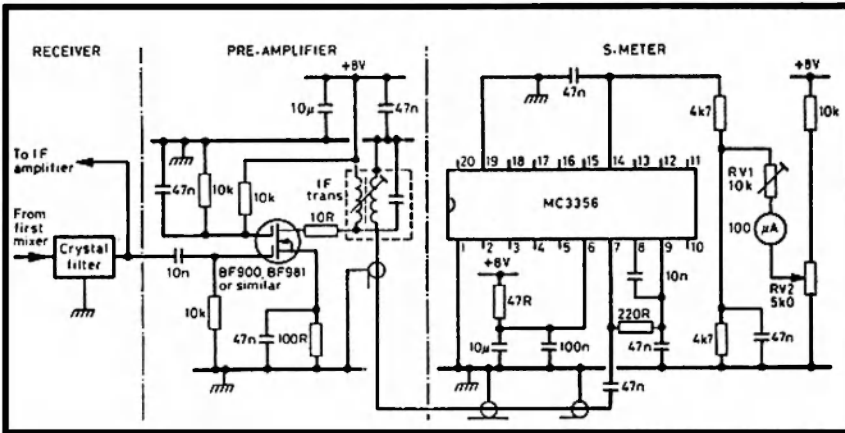


Fig 4 — dB Linear S Meter Circuit.

If you do not have an audio millivoltmeter then an output meter with an audio amplifier will do.

The same sort of bridge can be used on HF with a low power source or a signal generator as the source. For HF, ordinary 1/4 watt resistors would be adequate. However, the use of chip components provides the wider frequency coverage.

Mention was made in the article that PC boards were available from Down East Microwave which is a well known supplier of No Tune kits and boards. The address of Down East appears to be changing so check a recent US magazine for their current address. The chips would be available from suppliers such as Daycom in Huntingdale, Victoria or Truscott Electronics in Croydon, Victoria. Another source would be the VK5 component service.

dB Linear S Meter

The usual S meter is rather arbitrarily calibrated. However, a circuit which can provide a dB linear

reading over a wide range of input signals appeared in the "Eurotek" column of Erwin David G4LQI in the June 1992 issue of *Radio Communications*. The design originally was described by Erich Zimmerman HB9MIN in the February 1992 issue of *Old Man*.

The circuit is shown in Fig 4. The integrated circuit is a Motorola MC3356 which provides a signal strength output function. The current delivered is proportional to the RF input. The function is shown in Fig 5 and in Fig 6. The function is logarithmic and so the meter can have a linear scale calibrated in dB.

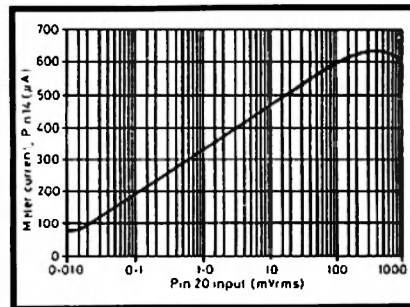


Fig 6 — Meter Current versus Signal Input from the Motorola MC3356 data sheet.

An isolation amplifier allows you to pick off the signal after the filter. The stages ahead of the filter must not be AGC controlled. The IC can be used with any IF from 5 MHz to 22 MHz. The linear range is 70 dB at 10.7 MHz and is 58 dB at 21.4 MHz which should provide an adequate range for giving meaningful signal reports.

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Changes in Federal WIA

The Federal Council of the WIA voted at the Federal Convention, held over the weekend of 29-30 April, to amend the Articles of Association to change its structure.

The Federal organisation, simply known as The Wireless Institute of Australia, is a public company, with the seven state Divisions being the only members of the company. The Divisions appoint a Federal Councillor to represent them at company meetings, known as Federal Conventions. Each Division, through its Federal Councillor, has one vote.

Being a company, the Federal WIA must have directors, who are collectively called the Executive. Their role under Corporations Law and the Articles of Association is to oversee the operation of the company, which principally involves the activities conducted by the Federal Office in Melbourne. Effectively, the Executive is the Board of Directors of the Federal organisation.

The Federal Council's role is one of determining Institute policy in matters pertaining to the Institute, such as how the Federal budget is spent, as well as issues for the benefit of the hobby of amateur radio, including such things as, for example, liaison with the Spectrum Management Agency over amateur frequencies and licence conditions, etc.

Some five years ago, the Federal Council merged the roles of Councillors and Executive, having the seven Federal Councillors appointed to the Executive, in addition to a number of other Executive members, the Federal President being Chairman of the Executive as well as Chairman of the Council, as had always been the case. In 1993, the Council executed a policy to limit the members of Executive to just the seven Federal Councillors. Federal Councillors then acted in a dual role, wearing "two hats", the intention being that the management of the Federal organisation then lay entirely with the "Board", as it was then called, in the belief that the Council's and the Board's views and interests did not, and were unlikely, to differ. This action was taken pending a complete revision of the Institute's Articles, which was then in progress.

At this year's Federal Convention, which is effectively the annual general meeting of the company, the Federal Council voted to change the Articles and separate the

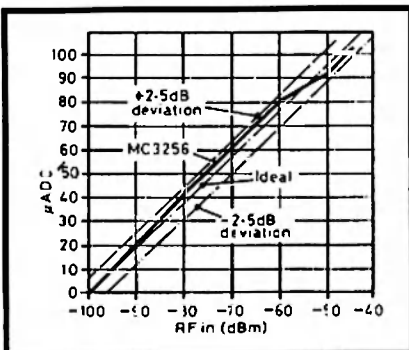


Fig 5 — Measured deviation from linearity of the MC3356P in Fig 4.

Council and the Executive, and to reduce the number of Executive to three, in addition to the Federal President, making a total of four only, where previously the Articles provided for ten (nine, plus the President).

The Council formed the view that the arrangement of the past two years was unworkable, with everyone wearing "two hats", and that members of Council/Executive had to make decisions which conflicted with individual Councillor's Division's views. In addition, some confusion had arisen among Divisions, as well as Division's members, in the past as to the roles of Council and Executive — just who was running what. There had been misinformed opinions expressed about "tails wagging dogs", when "tail" and "dog" were effectively one and the same.

The general view among Divisions is that the Council is the supreme policy-making and management body of the Federal organisation. The Council is where Divisions have their democratic say and vote on any and all issues regarding the Institute and its activities. The Corporations Law prevents members of the Executive "representing" their Division's views in Executive (or Board) meetings as such may conflict with the interests of the Federal organisation as a company.

Legal advice obtained before the Federal Convention confirmed that the Council, being the members of the company (equivalent to shareholders in other public companies), could run the company's affairs by means of decisions made in general meetings, that is, a Federal Convention or Extraordinary Federal Convention. This is the intent of the changes to the Articles. The four members of the Executive are to fulfil the statutory requirements of the Corporations Law and any lawful instructions resulting from Council decisions.

However, the changes are subject to being accepted by the Australian Securities Commission (ASC) and will not come into effect until the Institute's application is approved.

For the time being, Council voted to maintain the present situation regarding Councillors and members of Executive, as previously elected. It is not known how long the ASC will take to advise the Institute regarding the application to amend the Articles, which was submitted the week following the Federal Convention.

■ Book Review

In Marconi's Footsteps Early Radio

By Peter R Jensen VK2AQJ, G4GZT

Published by Kangaroo Press

ISBN 0 86417 607 4

Reviewed by Bill Rice VK3ABP

This impressive 176 page hard-cover volume was published in 1994 to coincide, for some years to come, with the centenary of the period 1894 to 1920, during which Guglielmo Marconi laid the foundations for radio communication.

Marconi was born in Italy in 1874, but moved to England in 1896 in the expectation, eventually fulfilled, of finding more interest than in Italy in his embryonic communication system. By the time he died in 1937, his name was familiar world-wide.

Peter Jensen, who is an architect and town-planner by profession, has obviously spent years on this "labour of love" to give Marconi's centenary the attention it fully deserves. The book is unique in that it consists of two sections with many cross references, one being essentially historical and the other giving in fine detail all necessary information to reproduce actual working models of early "wireless" hardware.

Notable items so described are the induction coil (Ruhmkorff, not Rhumkorff, incidentally), the coherer detector, various tuning devices, and a 1920s era crystal receiver. There is a caution about the potential of a working induction coil to produce interference to most present day communications. It might perhaps have been understated that, even though the coil may be able to generate 200 kV, it simply must not be used (except perhaps in a screened room!).

Regrettably, the book contains a number of typographical and/or spelling errors. It would seem not to have had quite as thorough a proof-



reading as we try to apply to *Amateur Radio!* Nevertheless, it is a fascinating dissertation on the life and times of one who has been called "the world's first radio amateur". The author, Peter Jensen, was interviewed on the ABC Science Show on 1 April 1995, and also heard was an actual 1930s recording of the voice of Marconi himself.

The book is already listed at your Divisional Bookshop for \$49.95, and is highly recommended.

ar

Help stamp out stolen equipment — keep a record of all your equipment serial numbers in a safe place.

WIA FEDERAL 1994 ANNUAL REPORTS

These are the 1994 annual reports adopted by the Federal Council of the WIA at the 1995 Annual Federal Convention.

FEDERAL PRESIDENT

Each year one looks back to see if any significant events took place so that when a reader has finished the report it will be apparent that the company is moving with the times and will pay a dividend. The WIA is a non-profit company with a paid office staff and therein is the difference.

Representatives from all divisions met several times in the past 12 months to promote Amateur Radio and steer it through the labyrinth of problems encountered.

EXECUTIVE MATTERS

Bruce Thorne resigned after a short period and Donna Reilly stepped into the breach, carrying on the duties till the appointment of Lewis Badge was completed. So the office staff experienced an upheaval but nevertheless their functionality and performance remained high.

Barry Wilton shouldered the responsibility and load in the process of replacing Bruce Thorne. Thanks are extended to him in giving the Councillors and Directors the short list of candidates for the Secretary's position, enabling the weekend meeting to make a decision on employing Lewis Badge.

In 1994 it was reported that the Articles of Association were nearing completion. 1995 and that goal is still to be achieved with work still proceeding. Obtaining agreement from all concerned, and arranging legal technicalities is very time consuming.

MEMBERSHIP

The overall view is one of disappointment as the attraction to join, or even to remain a member of the WIA, still appears a problem. When it is considered that the benefits of membership form a long list, then the prospective member or members say "What do I get for membership?". The intangibles are just that, and the questioner wants something in the hand. AR is great, QSL OK, then.....

With so many options available in the hobby field, amateur radio does a very poor job in selling itself. So what is the answer?

AR MAGAZINE

Continues to be the "tangible" of membership. The organisation and effort expended with its production is a great unknown to the membership. Small praise is ever received but let an issue be late, and people become agitated to say the least. So far, the magazine's lateness has not been the fault of the WIA's production group.

INTERNATIONAL

The Region 3 meeting took place in Singapore, with the WIA being well represented. The Region 3 IARU report covers this meeting in depth. An International Beacon Co-ordinator for Region 3 has been appointed and his first efforts will be to place a new HF Beacon in VK, probably VK6 Perth area. Suitable locations are difficult to find, as most operators do not want it near their locations for obvious reasons.

EXAMINATIONS

This area of WIA operations, run efficiently from the office, continues to play a most important role in amateur radio. Stats show that the numbers seeking exams has declined and the pass rate is variable. It is of concern that the costs of sitting exams may be a deterrent to people. It must be pointed out that many appear to fail due to lack of preparation, and then have to pay again to sit the exam.

During 1994 VK4 proposed that the exam service be moved to Queensland and that division take on the work. However, the memorandum of understanding has yet to be completed between the Federal WIA and SMA. In the meantime after the initial proposal was agreed to, several divisions reassessed their position and want to open the discussions again on the move to VK4.

FEES/SMA/WIA

This area of concern is reported fully elsewhere.

Many thanks are recorded here to the many volunteers who manage the various aspects of Amateur Radio. To the WIA office staff, *Amateur Radio* magazine editor and his publication group and the Federal Coordinators whose efforts are very much appreciated.

AMSAT	G RATCUFF	VK5AGR
AWARDS	J KELLEHER	VK3DP
CONTEST MANAGER	P NESBIT	VK3APN
EDUCATION	B EDMONDS	VK3KT
FTAC	J MARTIN	VK3KWA
HISTORIAN	J EDMONDS	VK3AFU
IARU	K OLDS	VK1OK
INT TRAVEL HOST EXCH	A NALLAWALLA	VK3CIT
INTRUDER WATCH	G LOVEDAY	VK4KAL
MEDIA LIAISON	R HARRISON	VK2ZRH
OSL MANAGER (VK0/9)	N PENFOLD	VK6NE
STANDARDS	R HARRISON	VK2ZRH
VIDEOTAPES	B GODFREY	VK48OB
INT REG AND RSG	D WARDLAW	VK3ADW
WICEN	L BAKER	VK3TP

N Penfold VK6NE
President

ALARA

The Australian Ladies' Amateur Radio Association has had a successful year with membership holding about the same number as the previous year. Contest numbers were down slightly but propagation plays a major part in that. Very good publicity is being achieved with our column in *Amateur Radio* magazine.

During the year a long time member and a licensed operator of 64 years, Austine VK3YL, became a Silent Key.

ALARA has been represented at the Gosford Field Day and the Riverina Convention at Renmark. Plans are well in hand for the next ALARAMEET to be held in VK6 in September 1996. Alterations to the Committee have been Bev VK4NBC as our second vice-president, Gwen VK3DYL became our sponsorship secretary, our new Publicity Officer and VK4 Representative is Sally VK4SHE, and our Minute Secretary is Nora VK5NYD.

Lunches have continued to be held in various States and the VK4s had a weekend gathering.

1994/1995 Committee:

President	Christine Taylor	VK5CTY
Immediate Past President	Maria McLeod	VK5BMT
First Vice-President	Judy Atkins	VK3AGC
Second Vice-President	Bev Clayton	VK4NBC
Secretary	Bron Brown	VK3DYF
Treasurer		
Souvenir Custodian	Margaret Schwerin	VK4AOE
Minute Secretary	Nora Young	VK5NYD
Publicity Officer	Sally Grattidge	VK4SHE
Awards Custodian	Jessie Buchanan	VK3VAN
Historian/Contest Man.	Marilyn Syme	VK3DMS
Librarian	Kim Wilson	VK3CYL
Sponsorship Secretary	Gwen Tilson	VK3DYL
Editor	Dorothy Bishop	VK2DDB

State Representatives:

VK1/2	Dorothy Bishop	VK2DDB
VK3	Bron Brown	VK3DYF
VK4	Sally Grattidge	VK4SHE
VK5/8	Meg Box	VK5AOV
VK6	Bev Hebiton	VK6DE
VK7	Helene Dowd	VK7HD

Bron Brown VK3DYF
Secretary

AMSAT

The number of amateur satellite operators has once again steadily increased during 1994 lured by the attraction to use the 9600 baud digital packet radio satellites such as UoSAT-OSCAR-22, KitSat-OSCAR-23 and KitSat-OSCAR-25. The 1200 baud digital PACSAT continue to have an ever increasing but small number of devotees.

With respect to the non-digital satellites there still continues to be a steady trickle of newcomers to amateur satellites who are more interested in using amateur satellites for CW or voice communications and have found great satisfaction in using the Russian Low Earth Orbit satellites like RS-10/11 and RS-12/13, AMSAT-OSCAR-21(RS-14) with its Digital Signal Processing (DSP) FM repeater and more recently RS-15 which was successfully launched on 26 December 1994. The highly elliptical orbit (Phase 3) satellites AMSAT-OSCAR-10 (AO-10) and AMSAT-OSCAR-13 (AO-13) still remain very popular as they provide almost complete global coverage once every 11 days or so. It is worth noting that there has been an upsurge in the number of stations experimenting with the Mode-S transponder (70 cm uplink and 2.4 GHz downlink), particularly in Western Australia.

The major international amateur satellite project during 1994 has been the building of the next Phase 3 satellite currently known as Phase 3D. The frame was manufactured in the US while the other various bits of electronics and hardware were manufactured in Germany, England, Hungary, South Africa, Japan and the US, to name a few. The launch of Phase 3D is expected to be sometime in the middle of 1996. In December 1994, the AMSAT Phase 3D Uplink and Downlink Bandplans were published by AMSAT-DL. Copies of these bandplans are available from AMSAT-Australia for a SASE but in summary there will be uplinks on 10, 21, 145, 435, 1268, 2400 and 5668 MHz and downlinks on 29, 145, 435, 2400, 10451 and 24048 MHz. Also I should mention that I have accepted the task of being one of the Command Stations for Phase-3D and plan to attend a Command Station seminar in either Germany or the US later in 1995 or in early 1996.

Many Australian amateurs continue to communicate with the Russian Cosmonauts onboard MIR on both voice and packet radio. Maggie Iaquinto VK3CFI continues to arrange both voice and packet radio contacts with the Soviet space station MIR for secondary school students. Thanks must go to Maggie for her untiring efforts in this endeavour.

In 1994 Australian schools were once again given the opportunity to talk to the astronauts aboard the space shuttles which carried SAREX (Shuttle Amateur Radio EXperiment). Australian schools are again invited to send a SASE to AMSAT-Australia C/GPO Box 2141, Adelaide SA 5001 if they would like to have students contact astronauts onboard future Shuttle SAREX missions carrying amateur radio. Such contacts can be either direct on 2 m or via a phone link to my QTH. The SAREX experiment not only provides the school contacts but allows any amateur with a 2 m transceiver to talk to the Astronauts or work the SAREX robot Terminal Node Controller (TNC).

During November 1994, AMSAT-OSCAR-21 (RS-14) with its Digital Signal Processing (DSP) FM repeater was switched off when the Russian government

decided as a cost cutting measure to switch off the primary spacecraft INFORMATOR-1.

Throughout 1994 Bill Magnusson VK3JT has again continued to keep the readers of *Amateur Radio* up to date with the timely material he has provided in his AMSAT-Australia column. Bill's efforts continue to generate a steady trickle of interest in the amateur satellite service. In 1994 I received over 1000 mail items requesting general information on amateur satellites and satellite tracking software. Also, the AMSAT-Australia monthly NEWSLETTER has increased its total number of subscribers (started in April of 1985) from 844 to 890 in 1994.

Finally, I would like to thank the WIA for its continued support of the amateur satellite service via the activities of AMSAT-Australia and ask that the 1994 Federal Convention recommend that the WIA continue to support AMSAT-Australia financially at the present level.

Graham Ratcliff
AMSAT-Australia National Coordinator

AWARDS Achievements

Members have given written and verbal acceptance of the bi-annual DXCC listings. More members have been admitted to the WIA DXCC Roll of Honour. There has been a general upsurge of interest by overseas amateurs in the WIA Awards program. Transcription of DXCC additions and upgrades has been greatly speeded up by the introduction of more modern and innovative logging programs. The DXCC database has been well organised and amended quickly as alterations and additions have been received. The existing active members of WIA DXCC continue to support me, by sending upgrades at least twice per year.

Problems

Clubs: A survey carried out by one of my predecessors indicated that there were, in 1989, between 25 and 30 club stations actively operating Awards Nets. Recently, I requested information from any and all club stations still actively engaged in the issue of awards, with the promise that free publicity would be given through the pages of AR magazine. To my dismay, only four responded. Does this mean that at least 25 radio clubs have become defunct, or have they just "shut up shop" for the duration of the present solar cycle? Maybe more participation by Club stations in Contests would help to publicise their existence, and availability on bands other than 80 metres, and utilising varied modes. Needless to say, I have kept my end of the bargain, in the publishing of any and all details received. I hesitate to mention the word "apathy", but in this instance, it is clearly in existence.

To Federal Council: 1994 was a year of lost opportunities. It is my opinion that Australia as a whole should be publicised at every opportunity. With some exceptions, no positive action was taken at WIA level to support this theory. Some would say that Hervey Bay RC was being opportunistic in offering awards concerning the passage of whales. I openly support this club, because they are not only progressive, but are publicising their portion of Australia through amateur radio. Consider the level of activity if stations at WIA level showed interest in such occurrences as Australia Day, WPX Contesting, Moomba, Anzac Day, Queen's Birthday, VP Day, CQ WW Contesting, and maybe the Melbourne Cup.

It is my considered opinion that somebody should lead by example, and it might just as well be the WIA.

In conclusion, could I suggest that instead of applying for the use of VI and AX prefixes individually, that a "blanket" application be made every 12 months, for use in such instances as have been listed above. Such an action would raise activity over the entire Australasian region. I would indeed hate to have this great country referred to generally in the same manner as was recently done by our honourable Prime Minister.

John Kelleher VK3DP
Awards Manager

CONTESTS

The past year has been a period of relative stability for WIA contests, and I would sincerely like to thank the following WIA contest managers for their valued contributions:

John Martin VK3KWA Ross Hull & VHF/UHF Field Day

Phil Raynor VK1PJ John Moyle Field Day
Alek Petkovic VK6APK Remembrance Day Contest
Ray Miliken VK2SRM VK Novice

During the year, notable events include the introduction by John Martin VK3KWA of a new scoring system for the Ross Hull Contest, based on the best 100 QSOs. From all accounts this change has worked well, leading to an increase in activity and general revitalising of the contest. Well done John.

Another notable event was the appointment of Alek Petkovic VK6APK as the new RD Contest manager, replacing Neil Penfold VK6NE. On behalf of members and entrants I would like to thank Neil for the sterling service he has given over the last few years as RD Contest Manager, and wish him well in his future endeavours with the Institute.

Whilst on the subject of the RD Contest, judging from the many excellent comments and suggestions put forward by entrants over the past year, it is apparent that significant changes are needed in order to restore this contest to its former glory. I will shortly be discussing a number of options with the RD Contest Manager, Alek VK6APK, and hopefully we can come up with something which meets with members approval, and brings that traditional spark back into the Contest.

Finally, the wife of a recently deceased member has very kindly offered to sponsor a trophy for the VK/ZL DX CW Contest, in memory of her late husband who was a very keen, and highly respected, CW operator. Details are yet to be finalised, but if all goes well, the trophy will be available for the Contest later this year. I will advise further details in the column in due course.

Peter Nesbit, VK3APN
Federal Contest Coordinator

Education

The main activity in 1994 was the continuation of the work started in 1993 on the examination question banks. The Sub-Committee met for five to six hours almost every Monday evening of the year.

Early in the year it became apparent that both existing syllabuses were in need of revision and updating, so work on the questions was suspended until this revision was carried out. Discussions with the SMA established the areas where the emphasis needed to be changed. Drafts of the revised syllabuses were sent to the SMA in July. By the end of 1994 no formal response had been received from the SMA, but we did not carry out any active follow-up as further refinements became necessary as work on the questions progressed. It is considered that the AOC/AOLCP theory syllabus is now ready for final discussions with the SMA.

By the end of 1994, draft copies of all sections of the AOC/AOLCP bank had been circulated to the Divisions for comment, and a substantial response had been received. Questions which were amended as a result of the comments received began to circulate early in 1995.

It is expected that most of the work on the regulations bank and the Novice bank will be completed in 1995. The lack of progress on finalisation of the revised regulations has been disappointing, as the delay is holding up progress on the regulations bank.

I would like to extend the thanks of the Sub-Committee to all who have had input into the production of the banks. I cannot express too strongly my personal appreciation of the effort, interest and enthusiasm of the members of the Sub-Committee. There is no way this task could have been undertaken or progressed without the Monday meetings.

A highlight of 1994 was my attendance at the IARU Region 3 Conference in Singapore, where I was able to meet representatives of several other Societies, and discuss education matters with them. Several papers on examinations and devolution which I had drafted for the conference were appreciated by countries trying to achieve a similar system. The formal discussions on the harmonisation of amateur radio examinations and on proposals for assisting the establishment of amateur radio in developing countries were very stimulating. These fields will need input from the WIA for some years. Some correspondence is continuing with delegates from other countries.

The recommendations from my 1993 report with regard to the publication of the question banks still stand. In addition, I would like to recommend that, as the banks are completed, they be made available either free or for a nominal charge to any interested countries of Region 3.

Brenda Edmonds VK3KT
Education Co-ordinator

EXAM SERVICE

There was a dramatic drop in demand for examinations during 1994 as compared to 1993, however, it is anticipated that this will change when the new Novice Category is introduced by the SMA hopefully in the near future.

The income derived from Examinations was \$13185 below budget and \$13098 below actual income from 1993. In addition, although the Examination Service showed a loss of \$2991 for 1994 the service still shows a surplus of \$4560 since commencement in 1991.

Due to these circumstances some restructuring of the Examination Service in the Federal Office has been undertaken in order to offset the deficit. However, as it was apparently the intention of the Federal Body for the WIA Exam Service to be self supporting, there does not appear to be a cause for concern at this stage.

Among some of the events of 1994 for the WIA Exam Service was the review of the Memorandum of Understanding with the SMA. It is hoped that this will be concluded in the near future, which also will result in some further restructuring of the Examination Service.

In addition, the proposal from VK4 to take over administration of the WIA Exam Service is of concern. I trust this matter will be resolved soon as already the insecurity of the situation has resulted in the resignation of one Federal Office staff member. I wish to thank Chris Russell VK3ARZ for her valuable input and service to the WIA Examination Service and wish her good luck in her new position.

Donna Reilly
Manager

FEDERAL TECHNICAL ADVISORY COMMITTEE (FTAC)

Activities and Achievements

A major activity during the last year has been the preparation of material for submissions on our new licence conditions. Submissions were also prepared on the new SMA interference guidelines and proposed amateur allocation in the 190 kHz and 900 MHz bands. A submission for exclusive segments in each of our shared bands is also being prepared.

The beacon and repeater data base has been further updated and a revised policy and geographic allocation plan has been developed for beacons. A number of new beacons are in the planning stages at present. Draft guidelines for unattended transmitters, including repeaters and links, are almost complete.

There was an increase in the number of record claims. A number of claims for new state and national records, and two world records, were processed.

Problems

There are still problems in encouraging amateurs to abide by the national plans. A major reason appears to be that an increasing number of amateurs do not regard the WIA as relevant. There have also been problems in consultation on band planning and related matters due to a lack of responses from some Divisions.

Recommendations

That attention be given to improving communication and consultation processes, and restoring the WIA's standing in the eyes of Australian amateurs.

John Martin VK3KWA
Chairman

INTERNATIONAL AMATEUR RADIO UNION MONITORING SERVICE (IARUMS) — INTRUDER WATCH

Achievements: Early in the year the SMA through Quoin Ridge (VK7) suggested trying a database system, for the observer log sheets; this I gave some thought to, I said I would give it a go. Dave Thorne VK7MR sent me the program, based on PC-FILE5, called SMA WIA/WATCH. This move certainly speeded up the processing of log sheets. "We" had something like 156 notable intruders, representing X number [on log sheets] of about 1,361 loggings. This was further enhanced by the purchase of a fax machine, enabling speedy transfer of info to Hobart....one month via Canberra down to approx five minutes direct. Speed is the essence of success of Harmful Interference complaints to be sent to the IFRB. Now the SMA can send a copy to monitoring stations in each state for further ID's. May 94 saw the idea of targeting 6 intruders, for both observers & also SMA monitors; this proved to be a time saver, enabling more SMA time to be spent on our behalf. Following SMA's suggestion adopted SINPO and SINPFEMO in place of the more usual "S" meter reading. This is expressed by IARUMS as the preferred report system.

The database has been upgraded to only holding observations of about three months; many are only heard once (possibly come on again on another freq). Otherwise the system was getting "bogged down" with once only intruders.

During the past twelve months the relationship between myself and SMA, particularly Dave VK7MR, has been positive and extremely helpful, making the job much easier and interesting. Thanks Dave. The WIA seems to have taken a back seat, not so, although at times I could've wished for quicker notification re queries. We all tend to get things out of "kilter" at times.

Problems: The old one of insufficient observers Australia wide; we have good representation in VK4 and VK6. The other states are falling down on "having a go"! We want co-ords in VK2, 3, 8, VK5 and 7 have co-ords but a lack of interested amateurs on a regular basis. Most observers are "old-timers". Tom VK5TL has become SK recently, Tom was in IW from the start, I believe. Now who will step up in VK5, I wonder? I think maybe the modes tape scares them. This tape has been popular, but no results yet in the mail. It is after all a reference tape only, no need to learn it by "heart", just refer to it.

Recommendations: That Radio Clubs introduce IW to their members and appoint a club co-ord, each member to be given a couple of intruders to check out. In VK4 we have the Sunshine Coast ARC trying it. The co-ord joins the IW net, run by State co-ord VK4BTW on 3578 MHz, so novices can join in, on air Friday at 0700z. VK4KAL has standing skeds, Mondays on 21.1800 to ZL1CVK, at 0100z also weekends on 21.150 with VK6RO around 0430z. Please call in with your queries.

Conclusions: The Service is in reasonable shape, but the amateurs involved would be much happier

if more positive effort was forthcoming. The SSARC is making good progress I believe with their experiment. I'm of the opinion that a similar plan of action is being undertaken in ZL. This may be the way to increase interest; time I guess will tell. "We" would like much more input from the southern states; they hear intruders OK — why don't they send them to me? At the moment I cannot see a lasting future for amateur radio in VK. Come on, PROVE ME WRONG. I wish to personally thank each observer for his efforts over these last 12 months. I look forward to the next.

A G Loveday VK4KAL
IARUMS Co-ordinator

IARU Region 3

1994 was a busy year on the IARU front, being the year in which the triennial IARU Region 3 conference was held in Singapore. Preparation for the conference began in May with the preparation of papers for consideration by the Federal Council prior to submission to the conference. The WIA was represented at the conference by Kevin Olds VK1OK, Gavan Berger VK1EB, Roger Harrison VK2ZRH, Brenda Edmonds VK3KT, John Aarsee VK4QA and Wally Watkins VK4DO. Brenda and Wally funded their own attendance at the conference while the remainder were funded by the WIA from the International Representation fund. Of the 25 societies that constitute Region 3, 18 were present in person while another three were represented by proxy.

The conference was held over five days in early September. A full report on the conference was published in the November issue of *Amateur Radio* magazine so this report will only include a summary of the major outcomes. Some of the major areas of discussion at the conference included:

The replacement of the old Promotion of Amateur Radio in Developing Countries group by the "Support of the Amateur Radio Service in Region 3" group, or STARS*** for short, to handle all the promotional and support activities necessary in all the countries and societies in the Region, regardless of their state of development.

Amateur Radio Direction Finding (ARDF) — the next Region 3 Championships will be held in Townsville.

HF and VHF Beacons, where an IARU Region 3 Beacon Co-ordinator position was established. At least one and probably two international time share HF beacons will be established in Australia, a part of a Regional and international program.

The conference saw the retirement of Masayoshi Fujioka JM1UXU, Region 3 Secretary after 12 years in the position — he will be missed. Keigo Komuro JA1KAB is the new Secretary. The election for the Board of Directors saw the election of Fred Johnson ZL2AMJ, Park Young-soon HL1JMJ, David Rankin 9V1RH, Yoshiji Sekido JJ1OEY and Sangat Singh 9M2SS. Fred Johnson is the new Chairman of Directors. Our own David Wardlaw VK3ADW was not re-elected as a Director of Region 3 but continues to work on behalf of the IARU Administrative Council on the international scene.

One significant outcome of the conference for the WIA was the selection of the WIA to host the Year 2000 conference. Preparation has already begun for that conference.

In other areas, 1994 was the WIA's turn to host two delegates from NZART at our Federal Convention in May 1994. This continuing interchange between the two societies is of benefit to both societies as they strive to represent their members to their respective administrations.

On the wider international scene, the IARU Administrative Council continues to co-ordinate efforts at the international level to advance the hobby of amateur radio. With the move to more frequent, but more focussed international radio conferences, their work has increased and that increase is being reflected in the increasing range of issues which Region 3 is being called upon to consider.

The WIA effort at the international level could not be maintained without the funding available through the international representation levy component of the WIA fees.

Recommendation

I recommend to the Federal Council that the international levy component of subscriptions be maintained to continue the international work of the WIA.

Kevin Olds VK1OK
IARU Liaison Officer

INTERNATIONAL TRAVEL HOST EXCHANGE (ITHE)

The International Travel Host Exchange (ITHE) is a voluntary scheme administered by the American Radio Relay League (ARRL) wherein interested radio amateurs are able to meet or host fellow operators from other countries. Your name does not have to be on the list for you to take advantage of such hospitality, and you can do so when travelling around our own country. This is another free service from your Institute. If you wish to join the ITHE scheme, please send a SASE to the Federal Coordinator for an application form.

One Australian ITHE participant reported a meeting with an overseas visitor and this office received three direct enquiries this year.

The total Australian membership remains at 21 individuals or couples, and continued publicity at suitable intervals should improve the situation. All ITHE members are requested to write to the Coordinator when their contact details change.

Ash Nallawalla VK3CIT
ITHE Coordinator

FEDERAL OFFICE MANAGER

Membership

Actual membership at the end of 1994 was 5838 as compared to 6185 in 1993. This should be of some concern to all Divisions of the WIA. Although the Federal Office conducts an ongoing recruitment program through several avenues by mailing out Recruitment or Study packages, a recruitment program needs to be incorporated at a Divisional level. The costs of recruitment to the Federal WIA for 1994 was \$547 out of your Federal Component of fees. Following are the recruitment statistics which represent a 10.5% success rate:-

Total Number of Packages sent.....	338
Total New Members joined.....	38
New Callsign packages sent.....	583
Total New Members joined.....	54

1995 promises to be an interesting year, particularly in light of VK4's decision to administer their own membership.

Federal Office Administration

During 1994 there were improvements in some work practices and overheads which can be seen from the financial report.

Bruce Thorne resigned as Federal Secretary in September 1994 and I assumed his role until Lewis Badge was employed. Restructuring is continuing in the Federal Office and the financial benefits will be passed onto the Divisions.

My thanks go to the office staff during a difficult and uncertain 1994, for their hard work and support.

Donna Reilly
Manager

HISTORIAN

The most useful task in Federal history during 1994 has been in preparation for the centenary of Federation in 2001. The consolidation of relevant material has been part of the routine of collection of information and material.

The oral history project on the RAAF Wireless Reserve has developed beyond the original intention because of the response to the project. Among the items now held are notes and early drafts of a history written by an original member of the Reserve and very active member of the WIA, Bob Cunningham VK3ML. The VK7 Division has loaned, on promise of good care by the Historian, the original log of the VK7 Guard Station, the most valuable single item we hold. We have also been given, by various amateurs, copies of Reserve membership lists and other printed material. I am very grateful to all those amateurs who responded.

The project on women amateurs is proceeding slowly. We tend to see history as looking back as far as possible. I have tried to balance this out by seeking material from more recently qualified amateurs. The encouragement and active help of ALARA members is particularly appreciated. I must emphasise that this is a long term project and we will catch up with everyone who has offered to contribute.

The Council should be aware that the two projects have incurred minimal costs so far, but we are now at the stage where there will be a requirement for about 100 tapes over this year. The main problem I have is that of coping with too much diversity at once. I have been offered help with taping and transcription. I have asked to borrow the small Federal tape recorder to make this simpler.

The Federal history records include a good collection of Federal minutes. This has been put together at irregular intervals with some gaps which occurred between historians. I would suggest that the Federal Office provide copies of all minutes regularly. One package per year would be adequate for historical purposes.

I have had requests for some information, generally from other amateur organisations, about the IARU and the ITU. It is difficult to put any strict time limit for the collection and storing of Federal material, but it is desirable that we tighten up the procedure for dealing with material from overseas which should eventually be part of the historical archive.

The most difficult time for the Historian has been during the past controversial year. It is inevitable that whenever an active, vigorous controversy arises in the amateur service information will be sought from the Historian. Examples are relating to licence fees and the constitution of the Federal organisation. The role of the Historian is to provide historic fact whether it pleases the inquirer or not.

The most pleasing duties have been to supply excess material to clubs and to provide talks or material on request. The Historian always has some duplicated material, mostly magazines, which could find a better home. My priority list has been Division, Club then individual amateur. There will be a list of excess material in *Amateur Radio* later in the year. It will be available on the stated priority, then first in, first returned basis.

I have recently been told that some amateurs who were relicensed after the Second World War intend to celebrate the fifty year anniversary during 1995. We hold a fair bit of material from 1945 and we should offer any help we can give to the organisers of the celebration.

John W E Edmonds VK3ATG/AFU
WIA Federal Historian

PUBLICATIONS COMMITTEE

Achievements Not without some "hiccups" the Publications Committee and staff successfully produced an issue of *Amateur Radio* magazine for each month of 1994, at a cost per issue posted to each of the 5000 plus members of \$1.88, 20 cents below the budget expectation. This was much better than the figure of \$2.24 for 1993 which was itself better than expected by that year's budget. The main areas of improvement were in advertising (\$14,000 above budget) and total expenses (almost \$10,000 below budget). Savings were made in the areas of postage, salaries as apportioned, and typesetting.

Problems Unfortunately, the success described has earned a "sting in its tail" in that Council has reduced the budget allocation to the magazine for 1995. This has reduced the space available for technical articles, which has been aggravated by a tendency for some of the special-interest columnists to expand their space needs from time to time. The February "data issue" has consequently been much attenuated, and due to the obligation to publish the annual reports such as this, there is little space left over!

In August, Council proposed to revise the *Amateur Radio* pre-print production system to open it to commercial tenders, other editorial arrangements remaining unaltered. The Committee declared itself unanimously and vigorously opposed to the concept as proposed on grounds of increased cost and reduced efficiency. Short lead time and closeness of control are also factors. Council was therefore persuaded to rescind the proposal and to extend the Assistant Editor's contract to produce *Amateur Radio* and the Callbook until the end of 1996.

Concerning the Callbook, following the marketing of unauthorised reproductions on CD-ROM there was some uncertainty about the Callbook copyright, as a result of which production of the 1994-95 book was delayed until action by the Australian Government Publishing Service confirmed its copyright position. Eventual production was accelerated and the Callbook was published only a few weeks later than usual.

Summary Altogether, 1994 was a challenging year in the history of *Amateur Radio* magazine. The present Committee (unchanged since last year) have had much to keep them occupied, and some members have served for more years than they care to remember. An appeal in the November 1994 *Editor's Comments* for "new blood" on the Committee has produced no response so far. Having read this report to this point, is it possible that YOU might be interested? We need literate, technically competent, WIA Full Members resident in or around Melbourne and looking for a challenge! Can you help to keep *Amateur Radio* and amateur radio alive into the 21st Century and the 3rd Millennium?

Bill Rice VK3ABP
Editor

FEDERAL QSL COLLECTION

As reported in the April 94 edition of *Amateur Radio*, the Federal Council passed a motion on 20 February 1994 which transferred the WIA Collection from Victorian Division control to the Federal body, thus in effect giving the Collection a national status. The Victorian Division had previously supported the Collection financially for four years.

The Collection is now one of the largest in the world, cards numbering close to 850,000. Although enquiries have been made it would seem that only Austria has set up a similar project. Duplicate cards are exchanged with that country every three weeks.

Some use of the Collection is made by writers of radio history, but we would like more use to be made of the Collection in this regard. In some cases photographs of QSL cards have been used to illustrate articles written for *Amateur Radio*. This is in addition to the regular bi-monthly articles entitled "QSLs from the WIA Collection" written by the honorary curator of the Collection.

Selections of QSL cards have been exhibited at several ham conventions and clubs. We would like to see further use of the Collection being made in this way. For this reason, Secretaries of Clubs are asked to make enquiries of the Curator (who is willing to give a short illustrated talk on the development of amateur radio and DXing). The Collection contains QSL cards of every DXCC country in the world including all deleted countries. A selection of cards of each country has been mounted in display boards. Any offer of assistance from people who would like to lend a hand in maintaining this historical collection would be greatly appreciated.

Ken Matchett VK3TL
Honorary Curator

VK9/O QSL BUREAU

The past year was very quiet, with a drop in licences taken out by visitors to the various VK9 call areas.

With the high costs associated with DXpeditions there has come a reluctance by DXpeditioners to answer bureau cards. Where this becomes known, overseas DX Bulletins are advised and hopefully this stems the flow of bureau cards.

Other than those two items there is nothing further to report.

N Penfold
VK9/O QSL Bureau Manager

WARC AND CCIR

ITU Conference and Study Group Report

The new structure of the ITU is now well established with its increased encouragement of "small m" members, that is to say organisations representing users such as the IARU and ICAO, and private operating agencies such as Telecom Australia and AT&T. This has meant increased involvement by the IARU in ITU meetings and conferences.

The "big M" members are the administrations of the countries that make up the membership of the ITU. It is the "big M" members who, of course, make the binding decisions on the substance of the International Radio Regulations. These Regulations have international treaty status.

While the IARU work with the Radiocommunications Bureau (BR) is extremely important even more important is amateur participation with individual administrations. The next stage in the reform of the ITU on the Radiocommunications side is the possible simplification of the radio regulations. A Volunteer Group of Experts was set up to tackle this task and has produced a voluminous report which will be presented at WRC 95. The recommendations from this report will be discussed as part of the agenda of WRC 95.

Currently there are no proposals to change Article 32 which deals with the amateur and amateur-satellite services. There is also no perceived scope to alter the international frequency table in Article 8 in so far as the amateur services are concerned. However there are proposals to look at the footnotes to the frequency table and this could have important implications for the amateur services.

Two critical footnotes for the amateur-satellite service are 664 and 808. It is only by virtue of these footnotes that the amateur-satellite service has access to any bands between 148 MHz and 10 GHz. Footnote 808 is simple in that it says "The band 5830-5850 MHz is also allocated to the amateur-satellite service (space-to-earth) on a secondary basis". Inclusion of the amateur-satellite service in the frequency table 5830-5850 MHz (space-to-earth) would be entirely consistent with the philosophy of the VGE Report concerning footnotes.

Unfortunately footnote 664 our world wide means of access to a further five bands for the amateur-satellite service gives the amateur satellite service an apparently less than secondary status. The origin to this footnote goes back to 1971 when at the WARC to deal with Space Services there was resistance to the inclusion of the amateur-satellite service in any shared bands. Only at the last minute, following strong lobbying by the IARU, was the footnote which then only covered 435-438 MHz with strict restrictions included.

CCIR studies carried out between 1972 and 1978 showed that there were no peculiar sharing problems caused by the amateur-satellites. Although the move from a footnote to inclusion in the table would not change the amateur-satellite services access to the bands it would render it much more visible to the frequency managers who plan the spectrum. This is a problem that I have already encountered a number of occasions in Australia.

Another matter to be considered arising out of the VGE report is the fate of the resolutions and

recommendations which make up part of the Radio Regulations. There are several resolutions that are vital to the operation of the amateur service. Such as that concerned with earth stations in the amateur-satellite service resolution 642.

Another matter to be considered at WRC 95 which will concern the amateur services will be the recommendations on matters to be included on the agenda of future WRCs. There are several matters pending such as the harmonisation at 7 MHz. The Radiocommunications Bureau Study groups have a number of Working Parties and Task Groups which over the last year have covered matters of concern to the amateur services. Task Group 2/2 sharing matters between 1000 MHz and 3000 MHz. Task Group 8/2 technical parameters and preferred frequencies for Wind-profiler radars. Working Party 8A dealing with the amateur services and the mobile services in general.

Meetings were held of the Radiocommunications Advisory Group, set up to advise the director of the Radiocommunications Bureau, and the Conference Preparatory Meeting (CPM) for WRC 95. The CPM is an ongoing committee that will prepare reports on both technical and regulatory matters from the Study Groups of the (BR) for each future WRC. The Australian International Advisory Committee (IARC) and its sub-committee for world radiocommunications conference preparation has met regularly during the year.

Representation

I represented the WIA at these meetings which have wide representation from all users. My presence at the meetings maintained a continuous awareness of the amateur service. As representative of the IARU I attended the December meeting of Task Group 2/2 and some of the sessions of WP 8A. While in Geneva I had a chance to attend some of the Task Group 8/2 meetings not clashing with meetings of TG 2/2. Task Group 8/2 has given significant consideration of the amateur bands which are in the region of the preferred wind profiler frequencies around 50 MHz, 400 MHz, and 1000 MHz.

The Radiocommunications Bureau Study Groups have their equivalents in Australia. I attended meetings of Australian Study Group 8. This study group deals with amateur and mobile matters. I also attended all meetings dealing with Task Group 2/2.

WRC 95

This conference is to be held from 23 October-17 November 1995 in Geneva. There are two major items on the agenda of this conference. One concerning the mobile satellite service looks as if it will not affect the amateur services although the feeder link frequencies will need watching. The second, the consideration of the VGE report will definitely have issues that concern the amateur service.

Australia has indicated that it supports the deletion of the amateur satellite footnotes with the inclusion of the amateur-satellite service in the table. It also supports the retention of the resolutions concerning the amateur services in the Radio Regulations. WRC 95 is to recommend to the council the agenda for the 1997 WRC and give its views on the preliminary agenda for the 1999 Conference and on possible agenda items for future conferences. Discussion of the agendas of future conferences will certainly raise matters that affect the amateur services.

Recommendations

That as a matter of priority the WIA seeks membership of the Australian Delegation to WRC 95, in order to assure that Australia's favourable stance on amateur issues is pursued thoroughly to further the cause of amateur radio.

That the WIA continues to participate in the IARC and the relevant Australian Study Group meetings
David Wardlaw VK3ADW

WIRELESS INSTITUTE CIVIL EMERGENCY NETWORK (WICEN)

High Points

The high points for WICEN during this last year are difficult to list as there are quite a few. I should start this report with the Presentation to WICEN Victoria of a Certificate of Recognition for their effective emergency response in the October 1993 floods in North East Victoria in October 1993 by the Government of Victoria. The Certificate was presented by Pat McNamara, Deputy Premier and Minister for Police and Emergency Services. 45 Members of WICEN were involved in the activation.

The WICEN New South Wales response to the Bush Fires was recognised by the State Government through the Volunteer Rescue Association and each of the 130 plus amateurs involved (whether WICEN Members or not) received a Certificate of Appreciation. The scope of our involvement in the NSW fires was very diverse and attracted much interest from the emergency services in other States. As a result, David Thorncraft from NSW WICEN was invited to travel to Melbourne in October to address some 400 people at the 1994 Combined Emergency Services Seminar at La Trobe University on his experiences with the bushfires. David's presentation was very well received and increased our exposure to many people from the many agencies attending. Particularly those attending from NSW. WICEN involvement also gets a mention in a recently published book on the fires.

The Senate Committee reviewing Disaster Management in Australia released its report and WICEN got very good treatment from them. One of their recommendations was for a member of WICEN to be appointed to the National Communications Advisory Group. This Group investigates and reports on communications issues to the Director of Emergency Management Australia. This recommendation was taken up by Emergency Management Australia and WICEN is now represented on this Group.

Low Points

During the last year (plus a bit) WICEN has been involved in two very large activations and several minor ones. I believe that the lack of publicity that we amateurs are getting from these activations is pitiful. The blame for this does not lie totally within WICEN as to them the publicity aspects of amateur involvement in emergency service is secondary to their role during the activation. There are, however, the publicity arms of the WIA Divisions which could and should swing into action whenever WICEN has people in the field. Radio Clubs should also get information to local newspapers as well.

It has been said to me that lack of support and publicity in NSW came from some personality differences. To me this is not a good enough reply. Amateur radio in Australia today is undergoing much pressure from Government re spectrum. I do not believe that we can afford "misunderstandings" or "personality conflicts" to deprive us of excellent opportunities to get evidence of the worth of amateur radio before the general public and the Federal Government.

Summary of Year

Most Divisions are still developing their Regional structure and are trying to recruit appropriate members. The current membership of WICEN is about 1200 nationally with about the same number of people indicating that they would support WICEN in activations but who do not wish to formally join. WICEN has made more than 50 presentations to members of Police, State Emergency Services and other agencies during the year. There is a growing number of requests from Radio Clubs, Service Clubs and others for speakers. The feedback that we receive from these presentations is very favourable of both WICEN and amateur radio.

The WICEN Information Network has been expanded and so Queensland and Tasmania can now communicate directly with New South Wales, Victoria and South Australia. The network has a limited availability in Western Australia.

There are several project groups working on standardising documentation nationally. While there is general agreement as to content there are many small inconsistencies due to different Incorporations, operating through different agencies, etc. These will eventually be overcome and a National Operators Manual, etc will result. During the year WICEN has had an offer from a Historian and we will shortly be asking for assistance in getting information from all amateurs on our past for her to collate and research. This request will be published in *Amateur Radio* shortly.

Many WICEN Divisions are taking advantage of the Courses for Emergency Management Australia and are nominating members for the Introduction to Emergency Management, Emergency Planning and Emergency Response Courses. All courses are multi agency and so increase our exposure to Police, Fire Services, SES members etc. The introductory course is done on a regional level and also has the effect of making sure that people will know the people that they will actually work with in an activation. Our members report that these courses are very worth while attending.

Ken Ray (ACT), Ian Watson (SA) and Brett Wilkinson (NSW) all stood down from senior positions during the year. I would like to thank them for their hard work and to wish their successors, Rob Apathy (ACT), Phil Pavay (SA) and David Thorncraft (NSW) a very quiet but productive time in their new positions.

Conclusions

WICEN is still developing towards a national unity of planning and effort and at the same time is trying very hard to develop a regional response plans rather than just Capital City response to activations. Emergencies affect local communities and it is the locals who need input to planning as well as to any response.

Recommendations

(1) There needs to be a conscious, deliberate agreement between WICEN and the WIA to allow amateur radio to more effectively use and promote WICEN activities to the community and to Government.

(2) To assist in the more rapid development of WICEN administration and documentation there needs to be a face to face conference of the members of each WICEN Division.

Leigh Baker
Co-ordinator
WICEN Australia

**Repeaters —
Additions,
Deletions,
Alterations.
Have you advised
the WIA of
changes needed
to the Repeater
list?**

ALARA

Sally Grattidge VK4SHE*, ALARA Publicity Officer

ALARAMEET 1996

28 and 29 September in Perth, WA. Put these dates on next year's calendar NOW.

Incorporation

A Special General Meeting was held on 80 metres on 27 February 1995 with 14 members on air. Those who could not attend sent postal votes. The decision was for ALARA to be incorporated in Victoria. The response of members to the question shows that ALARA is alive and well.

Traveller's Tales

Several members have been on the move lately, so here are some of their stories.

Eyeball at 220 Springvale Road, Glen Waverley

Bev VK4NBC managed a rather rare eyeball during a recent visit to points South. Following an enjoyable ten days in Taradale with Judy VK3AGC and OM Ron VK3BYM, the Queensland "Crocodiles" arrived in Melbourne, or rather Mulgrave, and set about arranging an eyeball with Mavis VK3KS and OM Ivor VK3XB.

However, next morning found the Nice Bright Crocodile rather lame. Somehow, somewhere, Bev had wrecked her back and getting mobile was both difficult and painful. What to do, with two weeks to go on the trip? They decided to wait a day or two and hope things would improve.

The evening before they were to meet, during the AFARN net, a message came over the airways from Mavis via Judy to say that Ivor was not well and was to have a scan the following day. Meanwhile, Bev had gone in desperation to a chiropractor who insisted on X Rays before treating her back. At the diagnostic clinic, Bev found herself at the end of a very long queue. While amusing herself with walks and drinks of water she observed a couple of familiar faces coming through the door. Mavis and Ivor had come to keep their appointment!

Much later, after the chiropractor had administered the "big crunch", and Bev was able to move a bit more easily, she and OM Graham VK4BGC went in search of the QTH of Mavis and Ivor, with help via two metres, and spent an enjoyable hour over a cuppa and goodies.

Cooling Off?

Bev VK6DE and OM Brian VK6AI visited Tasmania, where they enjoyed the scenery but found 16 degrees a bit of a shock after Geraldton, WA. While in South Australia they stayed with Meg VK5AOV and David VK5OV at Murray Bridge, where they were able to meet Christine VK5CTY, Geoff VK5TY, Jenny VK5ANW and Bill VK5AWM for afternoon tea. Plans for ALARAMEET 1996 were discussed. While in VK3, they stayed with Marlene VK3WQ and Jim VK3DL.

Family Matters

Sally VK4SHE and OM Rex went south on the family history trail, and spent three weeks in Victoria, mainly at Happy Valley near Myrtleford, and a lot of time on the road. There was not much opportunity for radio contacts, but they were able to enjoy a tea break at the beautiful QTH of Mary VK4PZ and Gordon VK4GM near the Caves outside Rockhampton, and another with Margaret VK4AOE in Dalby on the way down; also a chat on two metres with Robyn VK4RL in Rockhampton.

A couple of days were spent in Melbourne, but they were too busy with family to make any radio contacts. On the way back they were able to visit Bev VK4NBC and Graham VK4BGC, while staying with a daughter in Brisbane. The last day was a 13 hour drive from Eidsvold, so just a quick word on two metres with Mary while going through Rockhampton. Thanks to Merv VK4DV for being there and telephoning Mary.

The HF antenna had been taken down and all the gear packed away in "cyclone mode", and SHE decided to leave it that way while cyclone Agnes decided where to go, then made a late decision to put it up anyway for the Friday night net. Almost beaten by failing light, and completely entangled in shoulder high grass, it ended up about half mast, but it worked anyway.

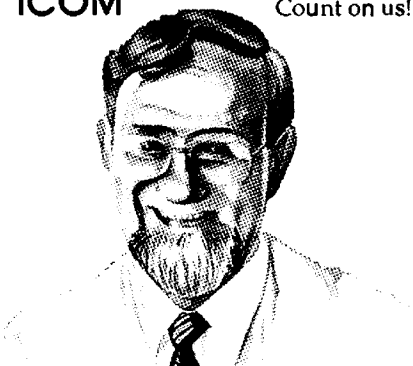
Signal Reports Bron VK3DYF

Signal reports can be a problem for some amateurs. A good idea is to practice deciding on the figures when you are on the air in a group, but not necessarily in need of giving a report.

Too often we hear someone say "I will look at the meter", but the best meter is your ears. If you can hear clearly enough to give a readability report, then there must be some signal strength being

ICOM

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The IC-775DSP has now arrived. This mid-range unit replaces the IC-765. With everything on board and a host of features it sets a new standard for its class. Give us a call and we'd be happy to send you a brochure.

Some slight delays on the exciting new IC-706.

There has been tremendous interest in this new mobile with a detachable front panel and a combination of HF, 6M and 2M. Unfortunately there has been a slight delay and August is the likely release date. It was exhibited at Dayton but that was an early prototype.

We'll keep you informed!

"...73"

Call me at Icom on
free call 1800 338 915
ph: (03) 9529 7582
fax: (03) 9529 8485

ACN006 092 575

received despite the fact that the needle may be lying down and showing a 0 figure. So if you can read the signal, you must give a strength figure even if it is only a one or two.

(I have always found the figures confusing and prefer the method used in SES — Loud and Clear, Good Readable, Readable, Weak Readable, Unreadable, Nothing Heard. Sally VK4SHE.)

From the Newsletter

The VK5 ladies were pleased to meet Yvonne VK5AYK at one of their lunches and welcome her as a member of ALARA. The Birthday Luncheon will be held on Sunday, 30 July and will take the place of the usual Friday get-togethers for July and August.

Marilyn VK3DMS and OM Geoff have recently become "adopted" grandparents of Anna and Hayley, with another one on the way. What a great way to overcome the problems of distance and separation which leaves many children without contact with the older generation.

Maria VK5BMT and OM Keith have been fishing at Edithburgh. Good fishing, but not much radio due to a broken vertical. They are off on their winter travels, soon, to Canberra to see the Queen's pictures, and then on up the Queensland Coast to Cairns. (Don't forget the NQ Convention in Townsville on 16 and 17 September!)

Poppy VK6YF and daughter Lynda enjoyed lunch with Aimee FK8FA and Michel FK8GO in Perth in February. Aimee and Michel were stopping over on their way to France for a holiday. They are going to buy new equipment in Singapore on the way home, so look out for super signals from Aimee next ALARA contest.

Mavis VK3BIR/2 hopes to have her antenna up soon. She has been busy assisting the Merimbula Coastal Patrol, doing a five hour shift once a week. Mavis and OM Jim are planning to travel to Queensland for the winter, also Melbourne and Adelaide. Listen for them on two metres.

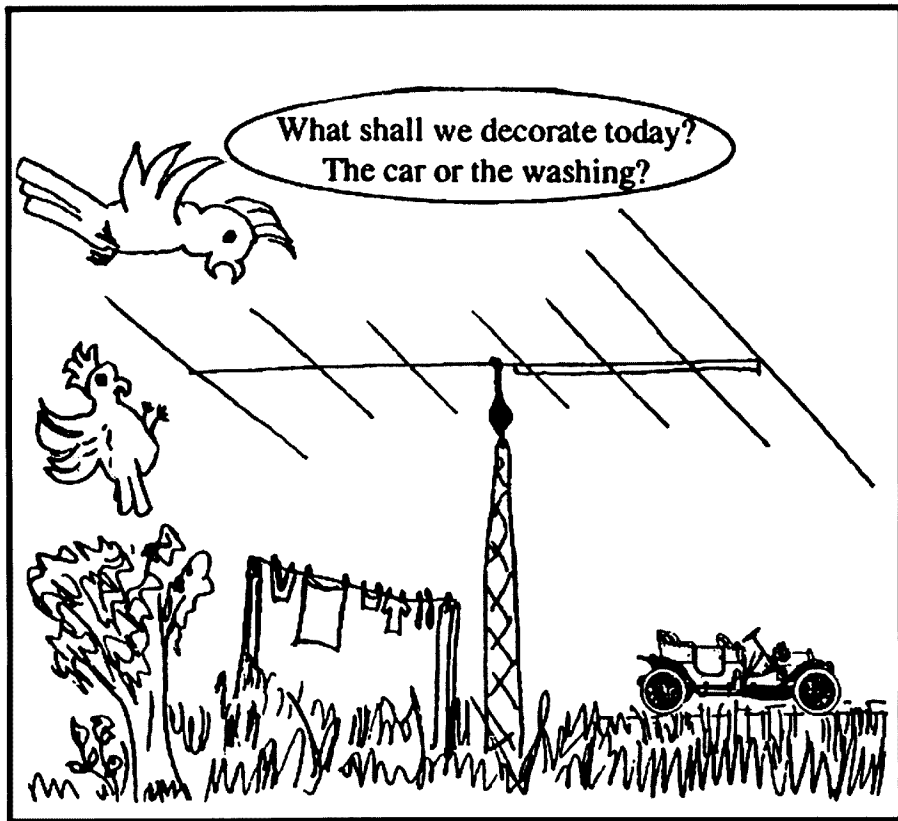
Helen VK7HJ is not very radio active being away at boarding school, but has been involved in the RD contest, JOTA and WICEN (wonder what she does when she is active?).

Jeanne ZL4JG has moved to a new house with more room for antennas. She has been elected to NZART Council. In WARO, she is changing jobs from Editor to Contest and Awards Manager.

Christa DJITE plans to retire soon and spend more time hamming and travelling.

Robyn VK3ENX married Colin VK3DEV just before Christmas 1994.

Margaret VK3DML and OM George are



Mary VK3FMC has a problem. When the beam is set one way, the birds leave their calling cards on OM Dick's (VK3DLC) vintage Mercedes. If it is turned the other way, Mary's washing receives the "donations". Passers-by think they have a lot of DX contacts!

first time grandparents to Oscar Thomas born 13 January 1995.

Ronnee VK4STS has a daughter, Stephany Louise, born 11 February 1995. With a new baby, young son, and OM starting a new business, we may not be hearing much from Ronnee for a while.

The Townsville YLs met for lunch in April to discuss plans for activities for the ladies at the North Queensland Convention on 16 and 17 September 1995. Several ideas were considered, but if any

YLs hoping to attend have thoughts about things they would like to do while in Townsville for the Convention, please contact Sally VK4SHE.

Dot VK2DDB is recovering from a "valve grind and decoke, and a muffler overhaul and reposition". She was in the WARO contest with Margaret VK2MAS doing "more talking than knitting" despite noisy conditions.

**Cb PO Woodstock, QLD 4816*

af

WIA News

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of April 95.

L20998 MR A R FARRAR
L20999 MR R A F CHEVIS
L70128 MR E GOWER
L70129 MR P N DENNE

VK2DIL MR G K WILSON
VK2EVK MR V BENNETT
VK2LSH MR J F SMITH
VK2NMH MR M E HALL
VK2NSC MR J CORRIGAN
VK2TL MR S A WATSON
VK2WMS MR M SACHAROWITZ
VK5LR MR P J PTOLOMEY
VK5MAP MR P A MEIER
VK6OA MR A HEADLEY
VK7KIH MR I R HART

AMSAT Australia

Bill Magnusson VK3JT*

National co-ordinator
Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI
AMSAT Australia net:
Control station VK5AGR
Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):
Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/- 5 kHz for QRM.
AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

American Presence on MIR Space Station

Astronaut Dr Norm Thagard is the first of a number of American astronauts scheduled to fly on the Russian space station MIR over the next two years. Their presence on MIR is part of the on-going co-operative program to establish a joint space station and carry out further space exploration. Amateur radio has assumed such a high profile at NASA that we can expect many, perhaps all, of these Astronauts to be active via the MIR amateur radio station during their time on board. There has been a flurry of activity on packet and all amateur radio related news groups and forum areas of Internet during Norm's flight. It shows no sign of diminishing.

Future missions will include (information from NASA) *Astronaut Shannon W Lucid, PhD, who will be the second American to be a prime crew member during a five-month stay aboard Russia's space station MIR in 1996; and Jerry M Linenger (Commander, Medical Corps, USN) who will be the third American to fly to the orbital laboratory, also in 1996. These assignments continue the US/Russia human space flight*

cooperation, which consists of a three-phased program.

Phase one includes seven planned Space Shuttle-MIR missions between 1995 and 1997, including rendezvous, docking and crew transfers. The Space Shuttle will assist with crew exchange, resupply and payload activities for MIR. Russian cosmonauts have flown on two Shuttle Missions, STS-60 in 1994 and STS-63 last month. Four or more US astronaut stays aboard MIR are planned, totalling nearly two years of on-orbit time. Phase two is the joint development of the core international Space Station. Phase three is the expansion of the Space Station to include all of the international partners.

The next few years should provide some very interesting opportunities for contacts with the MIR visitors and crew. I'll include a segment on how to contact MIR in the column over the next couple of months, outlining the equipment requirements and operating etiquette.

Editing Large Keplerian Element Files

I had occasion, recently, to download a large zipped set of keps from the Kelso data base. When expanded it resulted in a file some 700 kilobytes long. You may run into some difficulty when trying to edit files of this length. I did. None of my editors would handle it and eventually I imported it into a word processor and did it that way. I subsequently came across a better way which may be old hat to some but not known to others. It is a small shareware utility called "chunker". There are probably others but chunker is the one that came my way. It breaks up long files into smaller chunks to allow editing by most screen editors. It will also combine small files into one large file. It works well. Let me know if you would like a copy. Please send a disk and return postage.

Source of Rare RF Connectors for Home Brewers

Some time ago James Miller wrote an article on the construction of a small helix for 2.4 GHz operation on OSCAR 13 mode S. In the course of the article he mentioned that he had used a rather rare "N" type connector in order to reduce the number of connectors between the helix and the pre-amp (to minimise losses). The connector was a panel mounted "N" type plug. The normal "N" type panel mount could be described as a socket rather

than a plug. James warned they may be hard to find.

Indeed, they did prove hard to find locally. Fortunately I have a friend who works in the Aero-Space industry. His job includes searching out unusual components and he came to the rescue. I have now located a source of such rare connectors in Melbourne and have purchased the two I needed. The suppliers have a large range of RF connectors including many which are normally not found around the amateur radio traps. Write to Hardie Networks, 205 Middleborough Rd, Box Hill, VIC 3128.

WISP latest

Chris Jackson ZL2TPO, the author of this ground breaking piece of software, is now resident in England. He holds the call sign G7UPN. Chris continues to write and test newer versions of the program. The most current version is usually available from the digital satellites but, if you are just starting out, that may be difficult (Catch-22!). The latest versions of this, and most other amateur radio satellite related software, may be found on the AMSAT-NA FTP site on Internet. The host name is FTP.AMSAT.ORG and the directory structure to get to the latest WiSP files is, `amsat/software/windows/wisp`. The `wisp95xx.zip` file with the highest xx is the latest upload. There will be an associated .txt file giving details of installation, etc. Remember, you still have to register your copy of WiSP in order for it to function properly.

Windows Based Tracking Program

Whilst on the subject of Internet, an interesting Windows based satellite tracking program is available from the Oakland FTP server. The address is `oak.oakland.edu` and the directory structure is, `pub3/hamradio/pc/satellite`. The file to look for is `winorbit24.zip`. It has lots of good features but I found it complicated and clumsy to configure and use. If you like the Windows way of doing things you may like it, but don't expect it to be a substitute for IT.

Next Month

The regular half-yearly update of amateur satellite frequencies and modes.

*359 Williamstown Rd, Yarraville VIC 3013
Packet: VK3JT@VK3BBS.#MEL.VIC.AUS.OC
CompuServe: 100352.3065

ar

Club Corner

Special Event Callsign for LFARFG

This year sees the 50th commemorative year of the cessation of hostilities in the Pacific and Europe, which is of particular interest to the Land Forces Amateur Radio Group (LFARG). The group has had approval from the International Telecommunications Union (ITU) in Geneva to use the special event call sign V150WW2 for their operations from 6 May 95 to the end of August.

The call sign will be used by group members to make contact with amateur radio operators both in Australia and overseas. The group proposes to issue a QSL card to all who make contact with the station using the special event call sign. Shortwave listeners will also be able to receive a QSL card where they can confirm a contact between two operators. An award certificate is being designed for use over the August period. Further details will be advised. The group is also liaising with the Department of Defence for use of its facilities at Watsonia, Victoria during the month of August.

The group members consist of serving and ex-service personnel from various armies from around the world, and are spread over all the states of Australia. The LFARG operates on 3.590 MHz LSB each Wednesday evening at 2000 hrs sharp (some members have been known to be AWOL), where discussions are generally of a military nature. The membership of the group is currently at 80 and in this special year the club is actively seeking the enlistment of its 100th member. The running of the special event call sign V150WW2 has been welcomed by the RSL and the Department of Veteran Affairs who are responsible for "Australia Remembers".

Information on the group can be obtained from the group president, VK1NCO/3 Sergeant John O'Brien, business hours telephone, HQ Log Comd, (03) 282 6685.

A W Mosely
Publicity Officer
Land Forces Amateur Radio Group

Armidale and District Amateur Radio Club Inc

The following were elected at the Annual General Meeting held on 9 March 1995: President, Phill Beard VK2AFX; Secretary and Public Officer, Roger Chubb VK2FGE; and Treasurer, Ron Clark VK2CRD.

Meetings are held on the second Thursday of each month at 7.30 pm at 32 Grafton Road, Armidale.

The New England Amateur Radio Regional Conference Group meets twice a year, March and September.

Geoff Bastow
Past Secretary and Committeeman

Waverley Amateur Radio Society Inc

This society has just completed its 75th year and is the oldest continuously licensed radio society in the country, although its callsign VK2BV has seen little use for a number of years due to the lack, until this year, of permanent premises.

The past 12 months have been a busy time during which a new club room has been set up in the old Scout Hall at Vickery Avenue, Rose Bay (next door to the RSL Club). Much has been done by members to make it comfortable and to provide a good range of equipment.

Both Morse and theory classes are now being conducted for prospective amateurs and those wishing to upgrade their licences.

Our most successful meeting was held in February when we were fortunate to have one of our founding members from 1919, Gordon Thompson VK2AVT, as our guest speaker. He gave us a fascinating insight into the early days of ham radio and broadcasting. Gordon is the oldest licensed ham in the country and has since been made an honorary life member of the society.

Meetings are held on the first Friday and third Wednesday of each month at 7.30 pm, with the former being an informal technical session and the latter usually more a formal meeting with a guest speaker.

Anyone interested in amateur radio is always welcome to come along.

Simon Buxton VK2EII
Publicity Officer

Radio Amateur Oldtimers Club

The committee met on Tuesday, 9 May. Office bearers for this year are President, John Fullagar VK3AVY; Vice President and Broadcast Co-ordinator, Allan Doble VK3AMD; Secretary/Treasurer, Arthur Evans VK3VQ; Magazine Production, Stewart Day VK3ESD; Committee, Ron Fisher VK3OM, Bill Gronow VK3WG, Ken Seddon VK3ASC, and John Tutton VK3ZC.

Annual subscriptions, due by 30 June, will remain at \$5.00 for the coming year, or \$10.00 for two years.

50th Anniversary of Return to Amateur Licences

A suggestion has been made that this could be marked in a simple way by adding figures 50 to the CQ call for this year's Remembrance Day Contest, ie "CQRD50".

Allan Doble VK3AMD
ar

A. J & J COMAN ANTENNAS

6M std 6 ele 40 mm boom	\$216
2M co/linear 2 5/8 7dbd	\$ 97
12 ele 2M broad B/width	\$135
160M vert top loaded	\$327
6 M co/lin 6 dbd rad 4.NEW	\$157
6 ele 6 M N.B.S 50 mm Boom	\$310
Duo 10-15 M	\$295
3 ele 15 M	\$199
3 ele 20 M	\$333
20 m log-yag array 11.5 dbd	\$755
M B Vert NO TRAPS 10-80 M	\$265
Tri band beam HB 35 C 5 ele	\$690
40 M linear loaded 2 ele	\$516
13-30 M logperiodic 12 ele	
all stainless/steel fittings	\$951
70 cm beam 12 ele bal/Feed	\$102
23 cm slot fed 36 ele brass cons	
s/solder-assembled. 18 dbd	\$170
80 m top load/cap/hat vert.	\$260
3 ele 40m l/cap hats 60mm boom	\$860
2 m 144.100 2.2 wavelength boom	\$145

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UNBEATABLE VALUE!

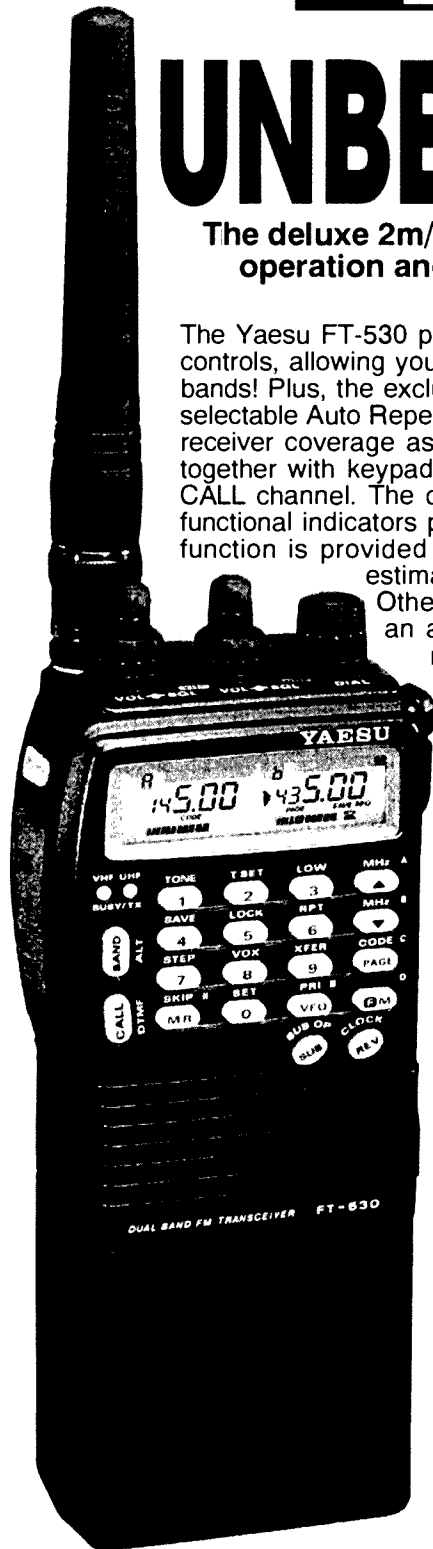
The deluxe 2m/70cm dual-band hand-held Transceiver that offers easier operation and more features than ever before is still available at an unbelievably low price!

The Yaesu FT-530 provides a flexible dual receiver facility with separate volume and squelch controls, allowing you to listen on two frequencies in the same band or one frequency on both bands! Plus, the exclusive Australian version features full 70cm band coverage (420-450MHz), selectable Auto Repeater Shift on both 2m and 70cm (suits Australian band plan), and extended receiver coverage as standard. Two VFOs and 41 tunable memories per band are provided, together with keypad or dial frequency entry, seven selectable tuning steps and a one-touch CALL channel. The dual 5.5-digit LCD screen is back-lit for easy viewing and includes many functional indicators plus separate signal/P.O. bargraphs for both receivers. An LCD voltmeter function is provided so you can even monitor your battery's performance under load and estimate remaining battery life.

Other top features include: Inbuilt CTCSS encode/decode, CTCSS scanning, an auto battery saver (ABS) for extended battery charge life, a cross-band repeater facility and an inbuilt clock with alarm and snooze functions.

Also provides VOX circuitry for use with the optional YH-2 headset, a user-replaceable Lithium back-up battery, and DTMF selective calling and paging. A DC supply jack allows simple transceiver powering and NiCad charging, with RF output in four selectable steps up to 5W at 12V. The FT-530 comes complete with an ultra high-capacity 1000mAh NiCad battery, belt clip, carry case and approved AC charger.

Cat D-3620



Specifications

Frequency range:

Transmit:

144-148MHz, 420-450MHz

Receive:

130-174MHz, 420-500MHz, 800-950MHz

Current consumption:

Auto power off

150uA

Standby (saver on)

16.8mA (both bands)

Dimensions:

55(W) x 163(H) x 35mm (D)

Transmitter:

Power Output:

5, 3, 1.5, 0.5 (at 12V)

RF Power Output:

2.0W (2m), 1.5W (70cm)

(Supplied 7.2V 1000mA/H NiCad)

Receiver:

Sensitivity:

2m: < 0.158uV, 70cm: < 0.18uV

(Ham bands only, 12dB SINAD)

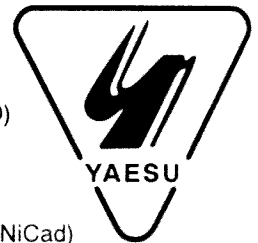
Selectivity:

>60dB

Audio Output (12V):

300mW at 8 ohms

2 Year Warranty



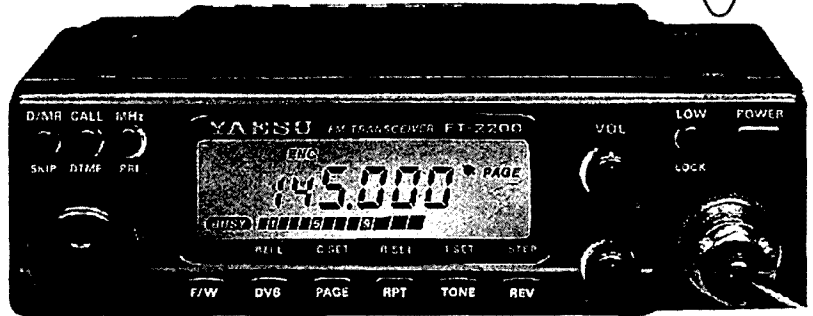
\$699 STILL AVAILABLE AT THIS
SPECIAL LOW PRICE!!

A GREAT RANGE OF TRANSCEIVERS

FT-2200 2m Mobile Transceiver



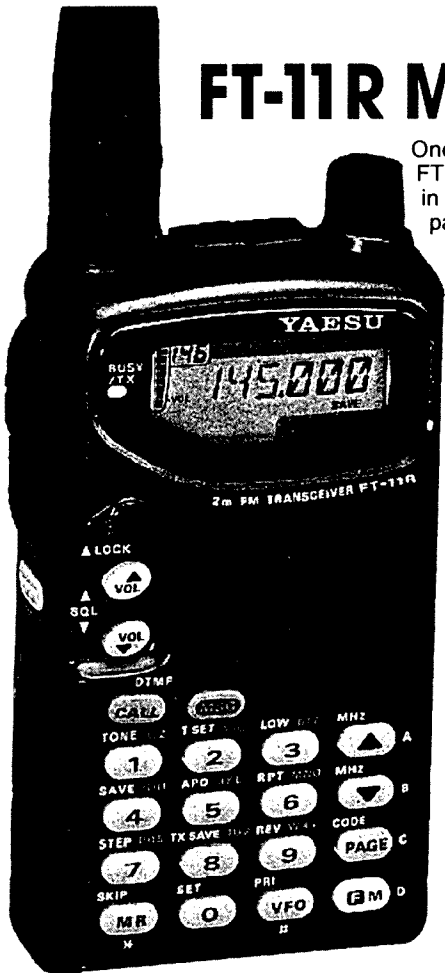
The new FT-2200 is a compact, fully featured 2m FM transceiver providing selectable power output of 5, 25 and 50 watts, and includes the latest convenience features for more enjoyable mobile or base station operation. Built around a solid diecast chassis, it provides 49 tunable memories, a large variety of scanning modes, an instant recall CALL channel, 7 user-selectable channel steps from 5kHz to 50kHz and is just 140 x 40 x 160mm (not including knobs). Backlighting of the large LCD screen, knobs and major buttons is even automatically controlled to suit ambient light conditions. Also provided is a 38 tone CTCSS encoder, DTMF based paging and selective calling with Auto-Page/Forwarding features, and 10 DTMF auto-dial memories. The LCD screen provides a highly legible bargraph Signal/P.O. meter plus indicators for the various paging and repeater modes. An optional internal DVS-3 digital recording/playback board can also be controlled from the front panel, giving even greater messaging flexibility. Supplied with an MH-26D8 hand microphone, mobile mounting bracket and DC power lead. Cat D-3635



\$699

2 Year Warranty

FT-11R Micro Deluxe 2m Handheld



One of the world's smallest 2m FM handhelds with a full-size keypad, the Yaesu FT-11R has been reduced in size, but not in features. Designed to fit comfortably in your hand, it's just 57 x 102 x 25.5mm (W.H.D) including the FNB-31 NiCad pack, and weighs only 280 grams. The result of the latest in miniaturisation, microprocessor control and FET technology, the FT-11R provides a large backlit LCD screen with full frequency readout, 150 memories (75 in alpha-numeric mode), full function keypad with easy SET mode, and up/down thumb control Volume and Squelch settings. A new high efficiency FET RF amplifier provides 1.5W output standard from the compact 4.8V battery pack, and up to 5W output from 9.6V (using an optional battery pack or PA-10 mobile adaptor). A range of battery life extenders, including Auto Battery Saver, Tx Save, and Auto Power Off (with ultra-low 20uA consumption) are included. Australian version Auto Repeater Shift, DTMF based selective calling and paging, extended 110-180MHz receiver coverage (including the AM aircraft band), and a variety of scanning modes are also provided. Other new features include naming of memory channels, DTMF Auto-dial memories, and DTMF Message Paging with up to 6 alpha-numeric characters. A large range of accessory lines are also available for easier customisation of your transceiver. The FT-11R comes with an FNB-31 600mA/H NiCad, belt-clip, approved AC charger, CA-9 charge adaptor and antenna. Cat D-3640

\$599

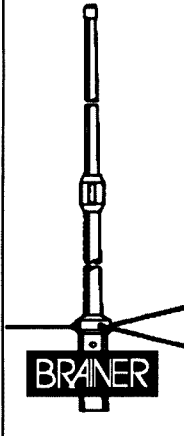
2 Year Warranty



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Our range of top-name Brainer base station antennas offer outstanding quality and exceptional value. They are stacked collinear types providing high gain, wide bandwidth and a low radiation angle for extended range. The fibreglass reinforced polyester (FRP) outer tubing random and gasket seals provide excellent all-weather operation, and they are supplied with compact ground-plane radials for a clean radiation pattern. Stainless-steel mounting hardware ensures a long trouble-free life. They also feature comprehensive instruction sheets to make installation and set-up easier. Both come with a 1 year warranty, and are made in Japan.

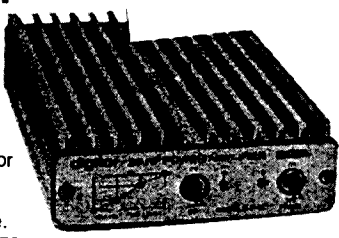


2m/70cm GST-1
 Frequency: 144-148MHz, 430-450MHz
 Gain: 6dB on 2m, 8dB on 70cm
 Max. Power: 200W
 Length: 2.5m
 Type: 2 x 5/8 wave (2m)
 4 x 5/8 wave (70cm)
\$199
 Connector: SO-239 socket Cat D-4830

2m/70cm GST-3
 Frequency: 144-148MHz, 430-440MHz
 Gain: 7.9dB on 2m, 11.7dB on 70cm
 Max. Power: 200W
 Length: 4.4m
 Type: 3 x 5/8 wave (2m)
 7 x 5/8 wave (70 cm)
\$299
 Connector: SO-239 socket Cat D-4835

2m RF Power Amplifier

Boost your 2m hand-held's performance with this compact amplifier. Works with 0.3 to 5W input and provides up to 30W RF output, plus has an inbuilt GaAsFet receive pre-amp providing 12dB gain. A large heatsink and metal casing allow for extended transmissions at full output, and a mobile mounting bracket is supplied for vehicle use. Requires 13.8V DC at 5A max. Size 100 x 36 x 175mm (W x H x D).



Cat D-2510
digitor \$119⁹⁵
Special pricing expires 30/6/95

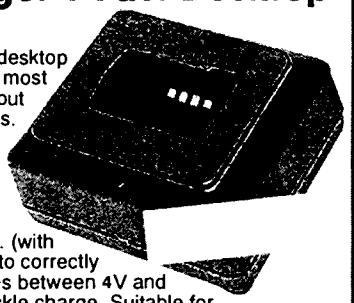
Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV is a 5-band HF trap vertical which continues the Hustler tradition of quality and performance. It incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1 kW (PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, < 2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability.

At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike some other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.
HUSTLER \$299
 Cat D-4920
Price valid until June 30th '95

Master Charger 1 Fast Desktop Charger

At last, an intelligent, fast desktop charger that not only suits most current Yaesu handhelds but also many previous models. Made in USA, the MasterCharger 1 operates from 13.5V DC and uses switch-mode technology plus a Philips battery charge monitor I.C. (with -ΔV full charge detection) to correctly fast-charge NiCad batteries between 4V and 13.2V, then switch to a trickle charge. Suitable for the FT-23/73, FT-411/411e, FT-470, FT-26, FT-415/815 and FT-530, its charging cradle can easily be replaced, allowing for the insertion of a new cradle to suit other Yaesu transceivers (eg FT-11R) or different brands/model handhelds. The MasterCharger 1 requires 12-15V DC at 1.3A, and is supplied with a fused cigarette lighter cable for vehicle use.
 Cat D-3850



\$149⁹⁵
Now available - charging cradles to suit various Kenwood, Icom, and Alinco handhelds. Special pricing expires 30/6/95

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AWARDS

John Kelleher VK3DP — Federal Awards Manager*

It is with deep regret, and with some personal feeling, that I announce the passing of Dorothy H Johnson, who was custodian of the *CO Magazine's* Worked All US Counties Award.

In the past few months I have received correspondence in regard to the passage of QSL confirmations between Australian operators and some of the new independent states of the ex-USSR. To help many to obtain these necessary confirmations for Awards, twelve addresses of QSL bureaus are listed below.

EK — Box 22, Yerevan 375000 Armenia.
ER — Box 6637, Kishinev 50, 277050 Moldavia.

EU — Box 469, c/o EU1AO, Minsk 50, 220050 Belarus.

EX — Box 1100, ARUK Bishkek 720020 Kirghizia.

EY — Box 303, TARL Glavpochtamt, Dushanbe 734025 Tadjikistan.

EZ — Box 555, Ashgabat 744020 Turkmenia.

UK — Box 0, Tashkent 700000 Uzbekhistan.

UN — Box 112, c/o UN9PC, Karaganda 470055, Kazakhstan.

UR — Box 56, UARL Kiev 1, 252001 Ukraine.

4K — Box 165, c/o 4K7DWA, Baku 370000 Azerbaijan.

4L — Box 1, Tbilisi 380002 Georgia.

UA — Box 59, URR c/o RZ3AZO Moscow 105122 Russia, and also Box 88, CRCRF, Moscow, Russia.

Many thanks to Valery Kharchenko RA6YR for this information.

Now, as promised, details of the DX Dynasty Award. This is a fun award, sponsored by *73 Magazine*, and primarily reserved for crusty old DX Honour Roll members, who find that they have nothing better to do, and those eager beavers who have no hope of working countries that haven't been on air for 20 or more years. From a total list of 400 "countries", you may qualify for the basic 100, then continue on with endorsements for 150,

200, 250, 300, 350, 375 and 400 "countries" worked. The basic award is mixed mode. Special endorsements are available for single-band operation, and for specific modes, including CW, SSB, Satellite, Baudot RTTY, ASCII RTTY, Amtor, packet, spread-spectrum, QRP (less than 5 watts output), EME, FM, AM, FAX, SSTV and SWL.

Rules

Only contacts made after 0001z on 1 January 1987 will be eligible for the DXD Award. Contacts may be made on any amateur band. Any mode available to amateurs in your particular country may be utilised. Cross-mode contacts are allowed! There is no minimum signal report. Just as long as you make a reasonable contact. QSL cards are not required, but applications must be made on the official DXD form, normally available from *73 Magazine* at the WGE Centre, Peterborough NH 03458 USA. I say normally, because I could be coerced into running off a few copies for one IRC, and an SAE.

On the form, list your contacts in alphabetical call sign order, with all the usual log entry paraphernalia, plus power.

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- B&W all frequencies 1.8-30MHz end-fed vee. All frequencies 3.5-30MHz folded dipole. 10W, 100W, 1kW. No radials required. Diamond 80-40 & 80-10 trapped dipoles and accessories.
- Hard-drawn copper antenna wire and insulators.
- High gain VHF & UHF amateur, scanning & TV antennas.
- Butt-section triangular aluminium towers for fixed or tilt-over applications also HAZER ASSEMBLIES.
- Selections of power chips and TX tubes at friendly prices.
- VSWR/PWR metres by Diamond to 1300MHz; 10 models. All in stock. New 2m, 70m + 2/70cm for mobiles from \$132.
- WARNING WARNING WARNING. Manufacturers worldwide are ceasing production of "VALVES", "VACUUM TUBES", ETC. JAN/ECG/PHILIPS in the USA have run last production of 6146W a rugged version especially for Collins S-Line ETC. Shortly, users of transceivers will have to discard them due to no replacement tubes. "WE HAVE GOOD STOCKS" 6146W \$50.00: MP \$115.00. ACT NOW & DON'T MISS OUT!!!

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2/- 7-30-11 HD. BOOM 12MX. \$2550.00 & FRT

3/- 7-30-11 EHD. BOOM 14MX. \$2775.00 & FRT
MONOBANDERS FROM 7MHZ IN HD & EHD. 1,2,3 & 4EL.

NEW MATCHALL FULLY AUTO COUPLER 1.5-30 MHz 150 WTS TO ANY RANDOM WIRE LENGTH. NO KNOBS OR EXT. POWER INCL. AIR FREIGHT \$299.00

NEW AEA SWR 121 HF & SWR 121 VHF/UHF ANTENNA ANALYST. SELF-CONTAINED SIG. GEN., SPECTRUM ANALYSER & GRAPHIC DISPLAY OF VSWR. OPTIONAL SOFTWARE FOR PRINTOUT. HF \$750. V/U \$850 incl. fragile freight.

4/- NEW: SOLE DISTRIBUTOR (AUST/NZ) FOR HI-SIERRA REMOTE CONTROLLED, CENTRE LOADED MOBILE WHIP ANTENNA — 3.5-30 MHz CONTINUOUSLY SPECIAL INTRODUCTORY PRICE: \$659.00 (incl. freight) ALSO SOLE DISTRIBUTOR AUST/NZ FOR RAMSEY INC. TEST EQUIPMENT & KITS — SIMILAR TO HEATHKIT — MORE DETAILS AVAILABLE SOON.

ATN IS AN AEA DIRECT IMPORTER.

The committee reserves the right to inspect your untidy logs, so no funny business! Fee for the basic award, due upon application, is \$US6.00. IRCs are not accepted. Each following endorsement is \$2.00.

Country Criteria Countries on the DXD Award list are taken from the awards programs of IARU member nations. Take note of the following "countries" list. I have printed them by callsign in order to conserve space.

YA, 3B, OH0, KL7, ZA, VQ9 Aldabra, 7X, KH8, FT8Z, VU4, C3, D2, VP2E, 3C0, KC4 Antarctica, V2, ZL (The Antipodes), EJO Aran Island, LU, UG Armenia, P4, ZD8, ZL9, FO0 Austral Is, VK, OE, 4M0 Aves Is, UD Azerbaijan, CU2, C6, A9, KH1, EA6, T33, S2, 8P, JW Bear Is, ON, V3, TY, VP9, A5, CP, PJ Bonaire Is, JD1 Bonin, H5, A2, ZL Bounty Is, 3Y, PY, ZC, VP2V, V8, LZ XT, 1Z (Hidden in Burma!), 9U, UC Byelorussia, TJ, ZL Campbell Is, VE, EA8, D4, IC8 Capri, ZF, YB Celebes Is, TL, T31, EA9, TT, VQ9 Chagos, ZL7, FK8 Chesterfield Is, CE, BY, VK9X, S4 Ciskei, FO0 Clipperton Is, TI9, VK9Y, HK, 9H Comino Is, D6, TN, 3D2 Conway Rf, ZK1, TK, TI, SV9, FT8W, CO, PJ Curacao, 5B4, OK, OM, OZ, KP5, VQ9 Desroches, VQ9 Diego Garcia, J2, SV5, J7, HI, KC6 East Caroline Is, T32, CE0 Easter Is, HC, SU, YS, G, 3C, UR/ES, ET3, FR/E, VP8 Falklands Is, OY, VQ9 Farqhar Is, PY0 Fernando de Noronha, 3D2 Fiji Is, OH, F, UA10 Franz Josef Land, FY, FW Futuna Is, TR, HCB/HD8 Galapagos Is, C5, UF Georgia, 9G, ZB2, FR/G, ZD9 Gough Is, 9H4 Gozo, VP8 Grahmland, SV, OX, J3, FG, KH2, KG4, TG, GU, 3X, J5, 8R, HH, KH6, VK0 Heard Is, HR, VS6/VR2, KH1 Howland Is, HA, TF, EA9 (Ifni, now W Sahara), VU, YC Indonesia, EP, YI, EI, IC Ischia Is, GD, 4X, I-Z, TU, 6Y, JX, JA, KH5J Jarvis Is, YC0 Java, GJ, KH3, JY, FR/J, CE0 Juan Fernandez Is, UA2 Kaliningrad, VS9 Kamaran Is, XU, UL Kazakh, 5Z, FT8X, ZL8, KH5K, UM Kirghiz, HL, KH7, 9K, KX6 Kwajalein Is, VO2 Labrador, VU7, IG9 Lampedusa Is, XW, UQ Latvia, OD, 7P, PJ Lesser Antilles, IF9 Levanzo Is, 5L, 5A, HB0, T30, UP Lithuania, VK9L, LX, 4J, XX, VK0 Macquarie Is, 5R, IM Maddalena Is, IL Maddona de Monte Is, CT3, 7O, 9M2, 8O, TZ, HK0 Malpelo, 9H Malta, ZK1 Manihiki, JD Marcus Is, KH0, ZS2, OJ0, FO Marquesas Is, V7, PY0 Martin Vaz Is, FM, 5T, 3B8, FH, VK9 Mellish Rf, XE, KH4, 7J Minami Toroshima, FP, UO Moldavia, 3A, JT, VP2M, CN, SY, C9, ZS3/V51, C2, KP1 Navassa Is, 9N, PA, PJ2, V4, FK New Caledonia, YJ New Hebrides/Vanuatu, ZL, VO1 Newfoundland, YN, VU4, 5U, 5N, ZK2, VK9N, GI, LA, KA2/JD1 Ogasawara Is, 7J Okino Tori Shima, A4, AP, KH5 Palmyra Is, HP, IH Pantellaria Is, P29, ZP,

ZS9 Penguin Is, OA, 3Y2 Peter 1 Is, DU, VR6, SP9, IB0 Ponziani Is, CT, ZS2 Prince Edward Is, VE1 Prince Edward Is, S9, KL7 Pribiloff Is, HK0 Provedencia Is, KP4, A7, FO Rapa Is, FR Reunion Is, XF4, 3B9, YO, HK0 Roncador Cay, KH0 Rota Is, 3D2 Rotuma Is, UA0, UA6, UA9, 9X, JR6 Ryukyu Is, PJ7 Saba Is, 9M6 Sabah, CY0 Sable Is, KH0 Saipan, UAOF Sakhalin Is, HK0 San Andres Is, XQ0X San Felix Is, T7, S9 Sao Tome, 9M8 Sarawak, IS Sardinia, HZ7Z Saudi Arabia, GM, 6W, S7, IT9 Sicily Is, 9L, 9V1, PJ8 Sint Eustatius Is, PJ7 Sint Maarten, 1A0, FO0 Society Is, H44, T5, ZS, VP8 Sth Georgia Is, VP8 Sth Orkney Is, VP8 Sth Sandwich Is, VP8 Sth Shetland Is, ST0, EA, 1S, 4S7, 3B7, ZD7, V4 St Kitts, J6, FS/FG, CY9, PY0 St Peter & Paul Rocks, FP5 St Pierre Is, J8, ST, YB4 Sumatra, PZ, JW Svalbard, 3D6 Swaziland, SM, HB9, YK, UJ8 Tadzshik, BV, 5H3, VK7, HS, KH0 Tinian Is, 5V, ZK3, A3, S8 Transkei, PY0 Trinidad Is, 9Y, ZD9, FR/T; FO8 Tuamotu Arch, FO8 Tubuai Is, 3V, TA, UH8 Turkmen, VP5 Turks & Caicos Is, IA Tuscan Archipelago, KH8 Tutuila Is, T2, 5X, UB/RB, A6, 4U1

Geneva, 4U1 UN NY, 4U1 UN Vienna, WKNA USA, CX, IE9 Ustica Is, UI8 Uzbek, HV3, YV, 3W, KP2, KH9, GW, FW Wallis Is, ZS9 Walvis Bay, W2NSD/1 Wayne Green, KC6 West Caroline Is/Belau, DL Germany, 5W1 W Samoa, VK9 Willis Is, 4U1 World Bank, 7O Yemen, YU, VY1 Yukon, 9Q, 9J, 5H1 Zanzibar, Z2 Zimbabwe, and of course, add Eritrea, Slovenia, Croatia, B-Herzegovina and Macedonia.

The astute will have already noticed that, even though the above listed callsigns look like the wreckage of a typhoon, there is immediate recognition of the listings of actual geographical countries in alphabetical order. Also bear in mind that this listing is circa 1991, and that some "countries" have since been deleted from the actual ARRL list. Also many islands have been added to make your task more difficult.

The next Australian DXCC listings will appear in the August edition of *Amateur Radio*.

*PO Box 2175 Caulfield Junction 3161 ar

Contests

Peter Nesbit VK3APN — Federal Contest Coordinator*

Contest Calendar Jun-Aug 95

Jun 3/4	RSGB Field Day CW	(May 95)
Jun 10	Merv Stinson Memorial (SSB)	(May 95)
Jun 10/11	ANARTS WW RTTY	(May 95)
Jun 17/18	WIA Novice Contest	(May 95)
Jun 17/18	All Asia CW DX Contest	(May 95)
Jun 24/25	ARRL Field Day	(May 95)
Jul 1	Australasian Sprint 80 m CW	
Jul 1	Jack Files Memorial 80 m CW	
Jul 1	West Australian 80 m CW	
Jul 1	NZART 80 m Memorial Contest	
Jul 1	Canada Day CW/Phone	
Jul 1/2	Venezuela SSB DX	(Jun 94)
Jul 8	Australasian Sprint 80 m Phone	
Jul 8	Jack Files Memorial 80 m Phone	
Jul 8	West Australian 80 m SSB	
Jul 8/9	IARU HF Championship	
Jul 22/23	Venezuela CW DX	(Jun 94)
Aug 5/6	YO DX Contest	
Aug 12/13	Worked All Europe CW	
Aug 12/13	SARTG RTTY Contest	
Aug 12/13	SEANET SSB DX Contest	
Aug 19/20	Keyman's Club of Japan (CW)	

Anyone who is not yet active on 80 m should rectify the situation forthwith, in preparation for a couple of extremely interesting evenings in early July. This year, for the first time ever as far as I am aware, the various Australian sprints have been coordinated to take place on the same evenings, ie 1 July for CW, and 8

July for SSB. To make things even more interesting, the NZART Memorial CW Contest also runs on 1 July, coinciding with our CW sprints. Consequently, the band should be well and truly jumping with activity both nights, not to mention the extra appeal of trans-Tasman QSOs on 1 July. Even the hot-shots will be kept on

their toes; but isn't that what sprints are all about? The organisers of these events are to be commended for their forward thinking and mutual coordination, so let's get on and show them just how busy 80 m can be!

Entrants in the different contests are, of course, allowed to work each other; and, in fact, inter-contest working as such is encouraged. Also, you can submit logs in any, or all of them, as you wish.

My suggestion is to use a single log and (unless you're sending a Shire Code) to use a single set of serial numbers for all of them. Then, after the event, either extract the relevant QSOs into separate logs for each contest, or else photocopy the log and highlight the relevant QSOs. Just make sure you only claim points for the QSOs which are relevant! Gaps in the numbers sent during a particular contest are of no consequence, providing you mention in the log where they were used. These guidelines are, by the way, equally applicable to other contests as well.

Because things will be happening very quickly on the day, I strongly recommend that you read and understand the rules well before the starting time. To minimise the possibility of confusion, make up a chart showing (1) who you can work, (2)

when and how often you can work them, (3) the type of number you should send, and (4) the type of number you need to receive. With a little bit of organisation, things should flow smoothly, and you should have a great deal of fun!

On a more conventional note, the unusual but nonetheless popular ANARTS RTTY contest takes place this month, and for once the Canada Day Contest is on a weekend (an opportunity to work VOs and CYs on 80 perhaps?) Finally, the IARU HF Championship takes place in late July. I'm not sure if any VKs are joining one of the teams in Washington this year, but if they are, I am sure you will join me in wishing them the best of luck.

I had hoped to include a full list of VK4 and VK6 Shire Codes in this month's column but, with the results of the VK/ZL DX Contest arriving from NZART, unfortunately there wasn't enough room. So, if you're a VK4 or VK6 and unsure of your Shire Code (for the sprints), please refer to this column for June 93 (VK4), or June 94 (VK6). Alternatively, a call to the relevant contest manager, your local divisional office, or else myself on 03 9525 5300, will have it sorted out.

Many thanks this month to VK4LW, VK5OV, VK6NK, VE2ZP, ZL1AAS, CQ, QST, and Radio Communications. Until next month, good contesting!

73,
Peter VK3APN

10th Australasian CW and Phone Sprints

1 July (CW), 8 July (Phone); 1100-1159z Sat.

Presented by David Box, VK5OV.

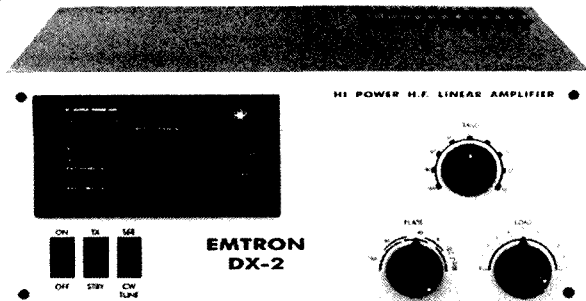
The Adelaide Hills Amateur Radio Society is pleased to announce the 10th Australasian Sprints, which are open to all amateurs and SWLs in VK, P2 and ZL. The object is to make (and SWLs to hear and log) as many contacts with amateurs in VK, ZL and P2 as possible, without duplication, on 80 m during a one hour period. Groups of amateurs using a single call sign, eg clubs, are also eligible. Frequencies are 3500-3700 (CW) and 3535-3700 (phone). Call "CQ Sprint", "CQ Contest" or "CQ Test". RS(T) is optional, and the minimum exchange is a serial number starting at any number between 001 and 999, reverting to 001 if 999 is reached. (Note: RS(T) will be required for QSOs with contestants in any of the other

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Specifications:

- **FREQ. RANGE:** All HF amateur bands 1.8 - 29.7 MHz
- **MODES:** SSB, CW, AM, RTTY, SSTV
- **POWER OUTPUT:** 1500 watts PEP, CW or continuous carrier
- **DRIVE POWER:** 40 to 60 watts
- **INPUT SWR:** Better than 1:3
- **ALC:** Negative going, rear panel adjustment
- **HARMONIC OUTPUT:** 50dB below rated output
- **INTERMODULATION DISTORTION:** 35dB or better below rated output
- **FAULT PROTECTION:** Ip, Ig, temperature, other
- **COOLING:** Full cabinet ducted-air, temperature controlled two speed blower motor, pressurised forced air chassis
- **TUBES:** 2x4CX800A/GU74B ceramic tetrodes designed and built for military use.

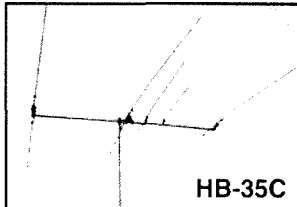
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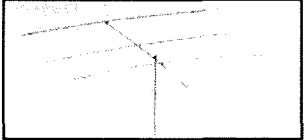
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- TE-23 2-element beam.....\$414
- TE-23M 2-ele. mini-beam.....\$440
- TE-33 3-element beam.....\$575
- TE-43 4-element beam.....\$750
- HB-35C 5-element trapless beam\$770



FOUR BAND BEAMS FOR 7-14-21-28 MHz BANDS



- TE-14 rotatable dipole.....\$275
- TE-34 3-ele beam on 14-21-28MHz, 1-ele on 7MHz.....\$695
- TE-44 4-ele beam on 14-21-28MHz, 1-ele on 7MHz.....\$870

New EMTRON switching mode power supply

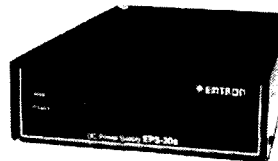
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Specifications:

- Input:** 240 VAC +/- 15%, 50 or 60 Hz
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- Output:** 13.8 VDC (nominal) 20 A peak
- Regulation:** +/- 0.25V at nominal mains
- Ripple:** less than 25 mV peak at 15A
- Size:** 60mm x 185mm x 300mm



VK or NZART contests, which take place at the same time).

For each QSO, logs must show the date and time (UTC), callsign worked (or both callsigns for SWLs), and serial numbers sent and received. Logs must be accompanied by a summary sheet showing the name and date of the sprint, the operator's name and address, points claimed, a declaration that the operator has observed the rules and spirit of the contest, and any additional interesting information. Multioperator/club entries must show the callsigns and names of all operators.

Send logs to **AHARS, PO Box 401, Blackwood, SA 5051** to be received by Friday, 11 August, with the envelope endorsed CW, Phone, or SWL Sprint. Alternatively, logs can be sent via packet to **VK5AOV@VK5WI.#ADL.#SA.AUS.OC**.

Certificates will be awarded to the highest scoring station (and SWL) in each VK, ZL, and P2 call area in both the CW and Phone sections. Trophies will be awarded to the outright winners of both. A certificate will also be awarded to the highest scoring Novice entrant in the CW Sprint, providing that the recipient is not entitled to another CW Sprint award. Other awards may be made at the Contest

Manager's discretion. Standard disqualification criteria apply, and the Contest Manager's rulings and decisions are final.

1995 Jack Files Memorial Contest

1 July (CW), 8 July (Phone); 0800-1400z Sat.

(Presented by Rick Chilcott, VK4LW)

This contest honours the late Jack Files, a long-serving VK4 WIA Councillor. The object is for amateurs throughout VK/P2/ZL to work VK4s for the "Worked All Queensland" and other awards, to encourage portable/mobile activity from the less populated VK4 towns and shires, and to serve as a warm-up for the Remembrance Day contest.

Sections are: (a) Single Operator Home; (b) Club Fixed; (c) Single Operator Mobile/Portable; (d) Club Mobile/Portable; (e) Stations outside VK; (f) SWL. Operate on 160, 80 and 40 m. If using 160 m, please avoid interfering with any DX operations. No cross band.

Exchange RS(T), followed by (for single operator stations) a serial number starting at 001 and incremented by 1 for each QSO, continuing when changing bands;

or (for multi-transmitter stations) a serial number starting at 001 for each band; or (for VK4 entrants) a two letter shire code.

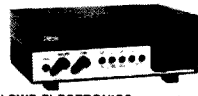
Score one point per QSO with non-VK6, and two points per QSO with VK6. Each VK4 Shire/Town Code per band counts as a multiplier, also each prefix per band. To stimulate portable/mobile activity, portable/mobile stations can also claim one multiplier per band for each VK4 Shire/Town from which they operate. The final score equals total points times total multiplier.

In this contest only, single operators are allowed to have a log keeper. Club stations can use multiple transmitters, providing there is only one station on each band at any one time. These transmitters need not be co-located, and may even be in different shires. Note: Stations can be re-contacted on the same band after 1 hour. Contacts with entrants in other contests are valid, and those with VK6 stations are encouraged.

Attach a summary sheet showing the name, address and callsign of the entrant, section entered, points claimed, and a declaration that the rules and spirit of the contest were observed. Send logs to **Rick Chilcott VK4LW, Awards Manager WIAQ, GPQ Box 638, Brisbane QLD 4001** to be

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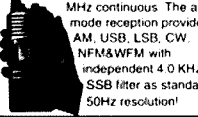
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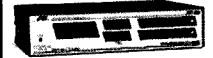


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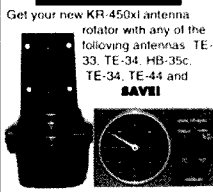
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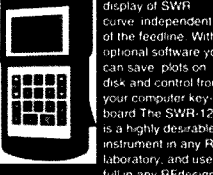


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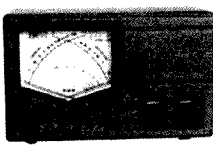
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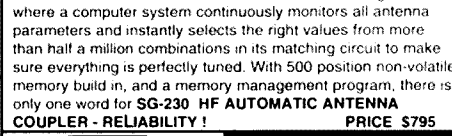


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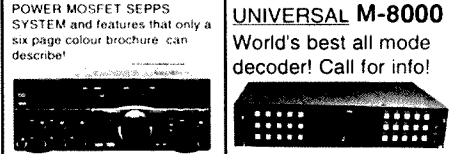
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received by Monday, 7 August. Trophies will be awarded to the highest scorer in each section and the highest Novice overall, providing there are at least five entrants in that section. Certificates will also go to the three highest scores in each section.

19th West Australian 80 m

1 July (CW), 8 July (SSB); 1030-1330z Sat. (Presented by Cliff Waterman, VK6NK)

The object of this contest is to promote contacts between VK6 and the rest of Australia and overseas, and for SWLs to hear and log as many VK6 stations as possible. All contacts must be made in the 80 m band. Call "CQ WA", "CQ WAA", or "CQ Contest", keeping CQs brief (three x three max), as excessively long CQs risk disqualification! Prearranged contacts are not allowed.

VK6 stations will send RS(T) plus Shire Code. All others should send RS(T) plus a serial number commencing at 001. Stations may be worked twice on the night, ie once during 1030-1300z, and again during 1300-1330z.

VK6 stations should claim five points for each QSO with VK6, two points for VK1/2/3/5/8, six points for VK4, four points for VK7, and ten points for VK9/0 and overseas. Stations outside VK6 should claim three points per QSO. Multiply the total number of points by two per VK6 Shire worked. Note: VK6 stations north of the Tropic of Capricorn should apply a further multiplier of 1.3 to their overall score.

Log sheets should be headed with the date and operator's callsign, and include UTC time, callsign worked, RS(T) sent, RS(T) and shire code received, shire multiplier, and points claimed. Total the points on each page and bring the running total forward. Attach a summary sheet showing total points, Tx power, equipment and antennas used, declaration that the rules and spirit of the contest were observed, plus any comments. SWL participants score as above using the outgoing Tx score.

Address logs to WAA Contest Committee, C/o 1 Cottrill Street, Myaree WA 6154 and post in time to arrive not later than 4 August for both contests.

NZART 80 m Memorial Contest (CW)

1 July, 0800z-1400z Sat.

VKs are invited to join ZLs in this yearly contest to commemorate amateurs lost in World War II. It is open to single operator stations on 80 m, fixed and mobile. The contest has six operating periods, each of one hour, from 0800z-1400z.

A station may be contacted TWICE during each operating period, once on phone and once on CW, providing that such contacts are not consecutive. Exchange RS(T) plus serial number commencing at any number between 001 and 300 for the first contact. On phone, score 15 points for the first QSO with a scoring area, 14 points for the second QSO with that area, descending to one point for the 15th and subsequent QSOs with that area. The same scoring system is used for CW, except that QSO points remain at five for the 11th and subsequent QSO with that scoring area. Scoring areas are VK and ZL prefixes/areas, and DXCC countries. The rules for SWL entrants are similar except that the callsigns of the stations heard and being worked must be given, and only the cipher of the station heard is required.

Send logs and summary sheets ASAP to *Memorial Contest, PO Box 20 332, Auckland 7, New Zealand*. Nominate the category entered (Open; Phone; CW; Beginners CW; QRP; Homemade SSB), and include a points summary showing the number of QSOs and points for each VK/ZL call area worked. Certificates will be awarded to the top three scoring VKs.

Canada Day Contest (CW & Phone)

1 July, 0000z-2359z Sat.

This popular Canadian contest, which runs on 1 July each year to celebrate Canada's confederation, occurs on Saturday this year. This is good news for those VKs who are unable to participate during the week, as it is a good opportunity to pick up some VOs, VYs, CYs, etc.

Bands are 160-2 m, CW and phone. Suggested frequencies are (CW) 25 kHz up from the band edge, and (SSB) 1850, 3775, 7075, 7225, 14175, 21250, 28500. Check for CW activity on the half hour. Note: CW QSOs in the phone sub-bands, and phone QSOs in the CW sub-bands, are invalid.

Any station can work any other for QSO credit, and you can work the same station once on each band and mode. Exchange RS(T) and serial number; Canadians will send RS(T) and province/territory. Score 10 points for Canadian QSOs including VE0 (ie maritime mobile), and two points for others. Canadians with RAC suffixes are worth 20 points. Multiplier is Canadian provinces and territories (max 12), and count once per band and mode: VO1/2 (Newfoundland); VY2 (Prince Edward Isl); VE1/CY9/CY0 (Nova Scotia); VE2; VE3; VE4; VE5; VE6; VE7; VE8; VE9; VY1 (Yukon). Final score is QSO points x

multiplier. Send log and summary sheet in standard format, including dupe sheet, by 31 July to RAC, PO Box 356, Kingston, Ontario, K7L 4W2, Canada.

Venezuela DX Contest

1/2 July (SSB), 22/23 July (CW); 0000z Sat to 2400z Sun.

For rules, see this column, June 94.

10th IARU HF Championship

8/9 July, 1200z Sat to 1200z Sun.

This popular contest runs on the second full weekend of July each year. Bands are 160-10 m. Categories are single operator, CW only, phone only, mixed; multioperator single transmitter mixed mode only. Multioperator stations must remain on a band for at least 10 minutes at a time (with the exception of IARU member society HQ stations which may operate simultaneously on more than one band with one transmitter on each band/mode, providing only one HQ callsign per band is used).

Exchange RS(T) and ITU zone (P2 = 51, VK4/8 = 55, VK6 = 58, and VK1/2/3/5/7 = 59). HQ stations will send RS(T) and official society abbreviation.

Claim one point for QSOs within own zone or with an HQ station, three points for QSOs with a different zone in own continent, five points for QSOs with different continents. Multiplier is total ITU zones plus IARU HQ stations worked on each band. Final score is total QSO points from all bands x sum of multipliers from each band.

Include a dupe sheet for 500+ QSOs. Send logs postmarked by 9 August to IARU HQ, Box 310905, Newington, CT 06131-0905, USA. Official forms and an ITU zone/prefix/continent map can be obtained from the same address on receipt of a large SASE with two IRCs or equivalent. Certificates to the top scorers in each category, in each state, ITU zone, and DXCC country. Also, stations with 250+ QSOs or 50+ multipliers will receive achievement awards.

Results of 1994 IARU HF World Championship

(call, score, QSOs, multipliers, class):

Zone 55:
 VK4EMM 318,240 648 104 CW
 VK4EET 132,840 364 82 CW
 VK4TT 4,950 69 15 CW

Zone 59:
 VK2VM 27,324 118 54 Mixed
 VK5GN 91,350 304 63 Phone
 VK2APK 364,302 696 111 CW
 VK2AYD 152,978 345 98 CW

RESULTS OF 1994 VK-ZL-OCEANIA DX CONTEST

Presented by John Litten, ZL1AAS

CONTINENTAL LEADERS:

CONTINENT	SINGLE OPERATOR		MULTI OPERATOR		SWL MIXED
	PHONE	CW	PHONE	CW	
Oceania	VK5GN	VK2AYD	VK1DX	—	—
Africa	—	—	—	—	—
Asia	JA3USA	UA0JQ	RK0Q	RU0L	JA4-4665/1
Europe	US1DX	HB9ADD	UU5J	UT7WZA	QM3-0001
North America	VE7SV	K7QQ	—	—	—
South America	PR7FB	—	—	—	—

(Shown in order: Callsign, Band, Band Scores, Final Score. Band Score = Band Points x Band Multiplier; Final Score = Total Band Points x Total Multiplier. * = Certificate Winner)

CALL BND 160 80 40 20 15 10 SCORE

PHONE, SINGLE OPERATOR:

CALL	BND	160	80	40	20	15	10	SCORE
Oceania:								
DUI1SAN *	20				34034			34034
VK1JE	160	240						240
VK1JR *	A	80	210	1254	23714			50064
VK1KLB	80		1320					1320
VK2APK *	A	20	480	19345	56661	29160	192	393792
VK2ARJ	A		2900	600	13904	11252	12	118944
VK2IVK	A		1360	1190	8541	107748		163296
VK2PS	A	180	1800	210	4350	6192	46	62744
VK2QG	A			5510	29082	37168	3	205146
VK2VM	A	20	1530	315	30960	7384		122166
VK2XT	A	560	4500	405	27025	56576	12	346724
VK3EW *	A	3640	102300	39990	17820	39750		1075125
VK3TZ	A	1200	98640	23180	51086	13482		931380
VK4BB	20				12900			12900
VK4LEE *	A		450			27216		36846
VK4OD	A				483	1748		4356
VK5GN *	A	40	5720	69825	64702	187520		1187145
VK5OE	20				1764			1764
VK6WOG *	A		200	910	21094	76160		226969
VK8BE *	20				484			484
YB2BKJ	A		20	975	672	3850		17009
YB6ZZ *	15					39208		39208
ZL1JAW	80		6500			6500		6500
ZL1RGR *	A		2300	5	19	7620		7620
ZL2TT *	20				17877			17877
Asia:								
BV2FI	A			100	253	468		2400
BV2CD/7 *	A				300	1378		3275
JA1AAV	A				6	6		28
JA1AB	A			5	60	168		559
JA1HF	A			45	88	270		1120
JA1IT	A				12	96		180
JA1JLP	15					210		210
JA1KVT	15					1560		1560
JA1STY	15					208		208
JA1YKX	A			2030	696	2482	72	17249
JG1EHF	20				28			28
JG1GCO	15					32		32
JG1JQJ	15					270		270
JG1RRU	20				1			1
JG1TVK	15					360		360
JH1RMH	15					48		48
JH1TYU	15					208		208
JH1UUT	A			40	200	638		2024
JH1RCB	15					24		24
JN1FRL	15					70		70
JN1OVF	40			240		240		240
JQ1TTB	A				198	256		918
JR1MRG	A			20	24	256		672
JA2ESR	40		385					385
JA2GHP	15					440		440
JA2IZA	15					154		154
JE2IEQ	20				1444			1444
JH2HFD	40			75				75
JH2WHS	15					48		48
JJ2QX1	20				63			63
JK2VOC	15					160		160
JL2HUJ	15					192		192
JR2TRC	15					2		2
JA3SSB	20					60		60
JA3USA *	A		40	3440	931	3306	18	27086
JF3EIU	10						120	120
JI3MVO	A				70	192		546
JQ3JUG	15					132		132
JR3KAH	15					96		96
JA4CUU	A			140	465	342	3	3103
JA4ESR	A			20	153	220		1029
JK4DBT	20					432		432
JA1XCZ/4	A					15	374	546
JE4VSC	20					512		512

CALL	BND	160	80	40	20	15	10	SCORE
JG40OU	15						18	18
JH4OYA	15						20	20
JL4CMT	15						702	702
JR4GPA	15						858	858
JAS1P	20					98		98
JAS1P *	A					112	288	800
JA5OP	15						1260	1260
JA6ODU	20				12			12
JA6YJQ	15						18	18
JE6FPP/6	A					16	182	330
JL6ATO	15						154	154
JN6XCZ	15						48	48
JS6GIM	A			5	77	720	6	1722
JA7ASD	A			20	84	320		1054
JA7AXP	20					45		45
JA7BEW	A			45	330	800		3000
JA7EID	A			1035	384	2484	18	12054
JA7ODY	40				1375			1375
JA7LVK	15						50	50
JA8SW	A			20	72	256		864
JA9KUG	20				128			128
JA9XAT	20				12			12
JA9XBW	20				80			80
JR9NVB	A			20	84	210		832
JA0CJK	15						196	196
JA0HYU	A					30	18	96
JEOEHE	15						672	672
JF0SGW	20					198		198
JH1BXH/0	15						216	216
JH0HON	10						420	420
7L1JHN	10							189
RK9CYA	20					8		8
RK9UZT	A			10	1440	420	832	8702
RW9WA	20					240		240
RK0SXF	A				100	128	856	2675
UA0JQ *	A			10	3420	896	2516	21008
UA0SJ	20					280		280
Europe:								
DL3KDV *	A				440	297	84	2400
DJ5LA	A					952		952
DL7JBA	20					170		170
EA3BOX *	20					4		4
G3NAS *	A			120	60	216	168	2331
HB9IK *	A			10	600	70	540	4061
IK4SWX *	A				40	280	196	1444
JW8GV *	20					72		72
LY2OU *	A			40		15		564
LZ1PM	40				100			100
LZ1ZJ *	40				245			245
OH3MIG *	20					15		15
OZ5KF *	20					290		290
OZ8T	A					4	18	40
PA0KDM *	15						8	8
RA3XO *	20					48		48
RZ4AYT *	20					48		48
UA6ART	20					2		2
US1DX *	A			10	630	672	160	4736
UU2JQ	A					12	8	40
UX2VZ	A				120	312	50	1386
UT4I	A			10	45	854	260	3136
SM2KAL *	A					24	108	240
SM5BUS	20					8		8
SM0KV	15						192	192
SP2FOV *	20					153		153
SP5CJQ	20					80		80
SP7VCK	A					6	8	30
SP8EEX	20					15		15
North America:								
VE7SV *	A			700	5440	300	252	21199
WB0O *	A			20	100		80	610
PHONE, MULTI-OPERATOR:								
RU0L	A			10	350	800	238	4464
RK0Q *	A				6615	1080	1008	22608
VK1DX *	A	80	5400	3770	18530	104788	3	473760
CHECK LOGS:								
BV2A, SP8GEY, VK4VHF								
CW, SINGLE OPERATOR:								
Oceania:								
V63KZ *	A			6300	12180		19370	840
VK1FF *	40				141240			141240
VK2AYD *	A	80	25620	28420	17136	36200	1020	1263140
VK2PS	A	40	2660	15640		5280		70902
VK2QF	A					8632	16422	51984
VK2VM *	20					26460		26460
VK2ZC	A			3000	15435	1050	798	66896
VK3APN	40				23010			23010
VK3KS	A					64	18	154
VK3TI *	A			1540	81885			106590
VK3XB	A			240	245	270	646	6493
VK4AAR	20					61380		61380

CALL	BND	160	80	40	20	15	10	SCORE	CALL	BND	160	80	40	20	15	10	SCORE
VK4EMM	40			960840				960840	Europe:								
VK4TT	20				37200			37200	DF3OL	A			350	60			671
VK4XA	15					32400		32400	DL3RD	20				144			144
VK5AGX	20				12420			12420	DL6YK	A			350	112			924
VK6HG	A		280	8100	1435	6336	330	63973	DL7VOX	A			60	6			115
VK6IT	40			18200				18200	DJ9RR	40			520				520
VK6IV	40			22940				22940	EA3ALV	A		10	180	8			352
VK6ZH	A			105875	27797	58320	810	634280	EA5CKP	A			75	18			186
YB2BKJ	A		40	650	812	312		7280	EA5SM	40			245				245
YB2UDH	20				4960			4960	ER10A	A			80	84	12		494
YB6TI	15						31878	31878	EW2AA	20				170			170
YJ0AAY	A		16120	9540	342			68340	EU6EU	A			175	66	2		576
ZL1AIZ	A	1260	77280	99475	672	11590	3	660922	G3GLL	A		10	315	35			808
ZL1AIH	40			1710				1710	G5MY	A			315	6			423
ZL1HV	15					8580		8580	G0TDX	40			5				5
ZL2AGY	40			772350				772350	GM3ITN	A			650	12			897
ZL2VS	40			490620				49620	HA5BSW	A			30	60			189
ZL3GO	40			1254170				1254170	HA5LZ	A			400	154	2		1320
ZL4OY	80		8800					8800	HA8IE	A			100	128	12		658
Asia:									HB9ADD	A		10	480	448	48		3078
HL5AP	A			30	84	144		765	HB9IK	A		10	585	315	18		2856
JA1AAT	A				9	56		119	IK2BUF	A			495	32	2		910
JA1AB	A			100	30	70		630	I0ZUT	A			200	27			392
JA1AUD	A		360	880	84	460		6732	LA8WG	20			18				18
JA1KVT	15					990		990	LZ1LZ	A			900	184			2034
JE1SCJ	A		10		30	50	3	348	OH3MIG	20			16				16
JE1SPY	80		40					40	OH6IU	20			28				28
JE1VTZ	15					702		702	OH0/OH3TY	A			385	112			1035
JG1RRU	A			120		2		160	OK1AD	20			144				144
JG1UKW	15					108		108	OK1ZJ	A			60	20			175
JH1BDS	A			75	40	48		517	OK1ZJ	20			112				112
JH1RCB	A			80	16			192	OK2SBJ	A			60	1	2		115
JK1JHB	40			120				120	OM3MB	A			20	72			180
JK1VSL	20				9			9	OZ1EUO	40			45				45
JM1NKT	40			520				520	PA0LOU	A			30	98			261
JM1THS	40			400				400	RA3XO	A			315	81			864
JO1OZI	40			350				350	RZ4AYT	A			60	4	2		144
JO1VNM	A		90	480	84	380	90	5214	SM0DZH	40			45				45
JA2ESR	40			675				675	SP1MHV	40			175				175
JA2GTW	40			765				765	SP2FOV	20				190			190
JA2KPV	40			675				675	SP2PI	50				54			54
JA9DDF/2	A			600	66	42	12	1911	SP5CJQ	20				56			56
JR7OMD/2	40			900				900	SP6SYF	20				30			30
JE2IEQ	10						84	84	SV2AP	A		350	32	8			792
JF2VIP	15					2		2	UU2JA	A		100	15	2			256
JH2ECB	15					696		696	UU2JO	20			12				12
JH2XTV	15					70		70	UY5ZZ	20			220				220
JK2VOC	A			175		48	12	583	UT7QF	A			800	290	30		2737
JL2LPX	A			330	4	40		804	YL2DX	A		10	100	276			986
JO2FFS	40			175				175	YU7SF	40			20				20
JA3ARM	A			440	170	256	12	3080	ZA1AJ	40			75				75
JE3CYH	20			4				4	9A2AJ	A			315	280	8		1406
JA3EA	A		40	800	98	132		3400	North America:								
JA3JOT	10						3	3	HP1AC	20				4			4
JE3UHV	A			60	28	96		559	VE3MX	40			45				45
JF3IUC	A			900	253	660	27	6370	VE7BS	160	320						320
JO3JUG	40			180				180	WB2DVU	40			5				5
JA4CUU	A		160	675	190	696	60	8073	N6RO	A	2200		2310	16	414	3	16302
JA1XCZ/4	A			45	1	100	12	462	K6XO	A		10	400	12	48		1216
JA4ESR	A			350	24	126		1332	K7QQ	A	720	2100	2700	351	624		32984
JH4OYA	A				1	56		75	South America:								
JR4GPA	15					120		120	PR7FB	20				1			1
JA5OP	15					126		126	CW, MULTI-OPERATOR:								
JA6BWH	A			210	1	24		440	UU5J	A			5	286	50		703
JA6GCE	40			760				760	UR7IYU	A				9	2		20
JA6TO	15					320		320	UT7WZA	A			200	242	80		1638
JH6SQI	15					60		60	CHECK LOGS:								
JA7ASD	A			350	1	306		1445	VK2APK, SM2KAL, SM2UJW, SP8GEY								
JA7JW	A			175	48	24	3	810	SWL, PHONE:								
JA7ODY	15					920		920	DE1TKW	A							72
JF7OUE	15					126		126	JA4-4665/1	A				60	304	3	765
JA8AJE	A			20	42			136	SP-3003 LG	A				245	152	8	986
JA9XAT	20				4			4	SP-0189 GD	A				20	8		54
JA9XBW	40			850				850	OM3-0001	A		160	150	260	4		2000
JA9ZRF	15					108		408	OM3-27707	A				60	390	18	1040
JR9NVB	A			80	15	192		735	ONL-383	A			5	35	2		98
JA0LFV	15					216		216	UA9-154-800	A					144	8	220
JG0WLS	40			990				990	SWL, CW:								
7K1EOG	15					108		108	JA4-4665/1	A				100	12	132	663
7M2MEF	A				180	720	90	2592	JA9-2421	A					96		96
RW9WA	A			1875	640	380	3	8652									
RW9WM	40			175				175									
UA9USK	15					120		120									
UA0JO	A		200	2325	384	884	27	14758									
UA0LCZ	A		90	1045	98	154		4508									

*PO Box 2175, Caulfield Junction, VIC 3175

BT

Divisional Notes

Forward Bias — VK1 Division Notes

Peter Parker VK1PK

Mt Ginini Repeaters Vandalised

Amateur communication in the Canberra area suffered a setback over the Easter weekend as thieves made off with the VK1RGI, Mt Ginini two metre voice and packet radio repeaters. The repeater's shed was broken into at about 10.15 pm on Saturday, 15 April. The door was severely damaged, cables were cut and all equipment, except the cavities, removed. Also stolen was a UHF CB repeater. Fortunately, the 70 cm repeater was being worked on, so it was not taken.

Police are investigating. Amateurs are requested NOT to discuss this matter on-air, and should contact the Divisional President, Rob Apathy VK1KRA on (06) 247 0387 if they have any information, no matter how insignificant, that may assist the investigation.

The following equipment was stolen:-
2 m FM Voice Repeater: Philips RX814/TX814 combination. Many internal modifications, particularly to the receiver. Includes a Transmit programmable encoder, Fabelec Repeater Control Board, Selectone ST104 CTCSS decoder (186.2 Hz), Sigtec C116 access decoder (97.4 Hz) and custom interface board with 555 IC.

2 m Packet Repeater: Philips FM828 (25 W out) on 144.800 MHz in rack mounting tray. Companion TNC included.
UHF CB Repeater: Philips RX815/TX815 with internal modifications, AEA ferrite isolator, Fabelec repeater controller mounted in receiver.

Lambda Programmable Power Supply — 12 V, 20 amps.

A special Divisional meeting on 24 April established a repeater fundraising committee composed of amateurs keen to see the restoration of our full complement of repeaters. The following local amateurs are on the Committee: VKs 2EJC (Convenor), 1KMP, 1ZRB, 1ZBG, 1KTM, 1KCM, 1ZDJ and 1ZAO.

Rebuilding a repeater of the calibre of the Mt Ginini installation is a very costly and time-consuming task, and your patience is requested; completion and installation are unlikely before early 1996. Work on repeater linking has been postponed for the time being. Donations to the Repeater Fund from ALL amateurs (WIA members or not) are welcome. Post your contribution to VK1 Repeater

Restoration Committee, WIA ACT Division, GPO Box 600, Canberra, 2601 (Phone (06) 247 7006).

Contributions from the other users of the Mt Ginini site are also being solicited.

On a brighter note, our 438.525 MHz 70 cm repeater will be moved to Black Mountain. This will provide an excellent coverage of the city area and beyond. It should be operational later this year. Thanks to Paul VK1BX and Rob VK1KRM for their work on this project and efforts in maintaining the Mt Ginini site over many years.

VHF Notes

The demise of the Mt Ginini repeaters does not mean an end to long-distance VHF operation from Canberra. Thanks to well-equipped stations such as VK2DVZ, VK2FLR, VK2ZAB and VK3BRZ, VK1 2 m SSB operators enjoy regular contacts with places like Sydney, Taree and Melbourne. The time to listen is around 8 am local, when there is often activity on 144.200 MHz during the weekends. Sydney stations can be contacted with a few watts into a small Yagi if you are on a good hill (there are many around Canberra, maybe even in your suburb). Beacons to listen for include Sydney on 144.420, and Geelong on 144.530. With Mt Ginini off the air for some time, and summer approaching, there is now no better time to upgrade your VHF/UHF station in time for the coming Remembrance Day, Ross Hull and VHF Field Day contests.

Junk Sale at this Month's Meeting

Mark Monday, 26 June in your diary as this is the evening of the VK1 Division's Radio Junk Sale. Starting after the June General Meeting at the Griffin Centre, Civic, you're sure to find some esoteric part or accessory you have been after for months. Now is the time to clean out your overflowing shed or junk box and pass on your bits to someone who will use them. Be there by 7.30 pm.

Theory Lecturers Wanted

Do your part in training tomorrow's amateurs — volunteer to become a Theory lecturer for the 1996 Divisional AOCF/NAOCP amateur radio course. The weekly classes normally run for 33 weeks, and each session takes about two hours. Contact Graeme VK1GN on 295 3008 if interested.

Internet Talk a Success

The highlight of April's WIA meeting was a talk given by Don Nethercote from the ACT Education Department on the exciting world of Cyberspace. The use of a large projection screen made it possible for all to comfortably view the display. We thank Don for a most interesting presentation, and Athol VK1JAG for organising it.

Thanks

The quality of this column should start to improve, the *Amateur Radio* editor will be happier, and I'll use much less correction fluid as *Forward Bias* is now written on computer. My thanks to Richard VK1RJ and Peter VK1NPW for their efforts in making this come about.

VK2 Notes

Richard Murnane VK2SKY

AGM and Council Election

The Division's court application to call an AGM and hold fresh elections, was heard in late April, and went through unopposed. Consequently, as advised in the insert to *Amateur Radio* last month, the Annual General Meeting has been set down for Saturday, 1 July.

The venue for the AGM is Doonside Community Centre, where the last AGM and preceding two EGMs were held. In response to feedback from country members, Council has retained this venue, to spare attendees from outside Sydney the ordeal of dealing with city traffic.

Please note also that the meeting will take place on Saturday, rather than the traditional Sunday, so you will still have some of the weekend left when the AGM is over. The start time will also be earlier, 11 am, allowing the meeting to end earlier, so country members can get back home at a respectable hour. There will be a break for lunch, so you won't starve either.

It is important for the VK2 Division to put itself back on a sound footing in order to serve the needs of New South Wales amateurs effectively. Whether or not you attend the AGM, please read the Council reports carefully, and register your vote for the 1995-96 Council. The information contained in the reports is more reliable than some of the comments you are likely to read on packet.

A selection of publications from the Divisional Bookshop will be on sale during the break, so you can stock up your library while you're there, and save yourself the postage and packing.

Licence Fees Again (Still)

Have you sent your fees submission to the Division yet? How about a list of specific examples where you or your local club has used amateur radio to assist your community. The government has asked the VK2 Division to produce another submission, with a view to setting a level of fees that reflects the true worth of the amateur service to Australia, and we still need *your* input.

This submission must represent a consensus view of amateurs all over Australia, so the VK2 Division is seeking contributions from all Divisions.

Thought for the month: The progress of the world is the history of men who would not permit defeat to speak the final word.

VK6 Notes

John R Morgan VK6NT

Annual General Meeting

At the AGM, held in Perth on 17 April 1995, the following were elected to the VK6 Divisional Council for the year 1995/96:

President	VK6LZ	Cliff Bastin
Vice President	VK6DY	Don Reimann
Councillor	VK6ZLZ	Christine Bastin
Councillor	VK6HK	Don Graham
Councillor	VK6OO	Bruce Hedland/Thomas
Councillor	VK6UU	Will McGhie
Councillor	VK6NE	Neil Penfold
Councillor	VK6TS	Tony Savory
Councillor	VK6IW	Dave Wallace

The VK6 Division meets on the third Tuesday of each month, at the Westrail Centre, East Perth, commencing at 8 pm. The bookshop and QSL bureau open at 7 pm. All interested persons (members and non-members, licensed or listener) are encouraged to attend these meetings. Coffee and biscuits are available at "half time".

Progress at VK6QC

From Rob VK6VP comes news of progress from the WIA-affiliated club station at the Para-Quad Centre in Shenton Park, Perth.

After 18 months of negotiations, it was recently confirmed that provision has been made in the Centre's recreation budget for the purchase of an IC-707 HF transceiver (which has a built-in general-coverage receiver) and a new tri-band HF beam antenna. Funds have also been secured for a dual-band vertical antenna, which will be used for voice operation on 2 m and 70 cm FM.

On the first week-end in May it was planned to lower the tower for about six

weeks of refurbishment work, including the re-galvanising of some parts.

Never one to be idle, Rob is now looking for a way to replace the Club's 2 m transceiver, which expired in mid-April, and also to upgrade the packet station's mono-screened 286 PC.

WA Repeater Group AGM

This well-attended meeting was held on the evening of Monday, 1 May 1995. The following members volunteered to serve on the committee for the next year:

President	VK6MS	Trevor Solomon
Vice President	VK6LZ	Cliff Bastin
Secretary	VK6JKR	Jeff Richards
Treasurer	VK6YBP	John Bearsby
Technical Officer	VK6UU	Will McGhie
Membership	VK6ZLZ	Christine Bastin
Committee	VK6JI	Chris James
Committee	VK6ZTN	Joe Nevin
Committee	VK6NT	John Morgan

Charlie King VK6ZCK and Cliff Bastin VK6LZ were appointed as the auditors, and the following members volunteered to act as managers for each of the Group's repeaters:

VK6RAP	VK6UU	Will McGhie
VK6RBN	VK6QB	Ron Baker
VK6RCT	VK6ZPE	Peter Eaton
VK6RHW	VK6CA	Jim Nicol
VK6RLM	VK6UU	Will McGhie
VK6RMS	VK6ZTN	Joe Nevin
VK6RMW	VK6LZ	Cliff Bastin
VK6RPD	VK6MS	Trevor Solomon
VK6RTH	VK6ZAZ	Renzo d'Orazio

WARG invites you to take part in its VHF net, held every Sunday morning, commencing at 10.30 am. Listen for VK6RRG on Perth repeater VK6RLM (146.750 MHz).

General meetings of WARG are held at the Scout Hall on the corner of Gibbs Street and Welshpool Road, East Cannington, on the first Monday of every odd-numbered month, starting at 7.30 pm.

Morse Practice Beacon

The Morse practice Beacon VK6RCW (147.375 MHz) has been installed at the new site in Welshpool, giving coverage of most of the metropolitan area. Feedback from users of this system will be appreciated.

Club Secretaries

Please note that all material for inclusion in this column must arrive on or before the first day of the month preceding publication. Items from country members and clubs will be especially welcomed. Write to PO Box 169, Kalamunda WA 6076, or telephone (09) 291-8275 any time. Packet mail may be sent to VK6NT@VK6ZSE.

"QRM" — News from the Tasmanian Division

Robin L Harwood VK7RH

Over the past weeks, there has been some discussion over the question of site fees. The Northern Branch, which has operated VK7RAA from Mount Barrow for 25 years, recently received a bill from the CAA as site fees. The budget of the Northern Branch is rather limited and it was felt that the amount requested was excessive. As there was a narrow deadline, the Branch president, John Gelston VK7JL, wrote to the CAA requesting more time to consider the options. The CAA has now replied and after consideration of the letter, the Northern Branch appointed a committee to negotiate with the CAA over the site fees.

Licence fees have been in the news for the past months and the increased licence charges have now come into effect. The Northwestern Branch, which has operated an ATV repeater for a number of years, were quite staggered to receive a licence fee of \$345! Fortunately, it subsequently turned out to be a computer error and the licence fee should have been much less! Our thanks go to our Federal Councillor, Jim Forsyth VK7FJ and Federal President, Neil Penfold VK6NE, who managed to sort out this mix-up with the SMA Head Office.

In the March column I happened to mention that a hidden Fox would be operational on 146.000 MHz, prior to the combined North/Northwestern branch meeting at Deloraine. Well, the Fox wasn't activated and, as it has been pointed out that the chosen frequency was right at the end of the satellite band, any future activity from the Fox will be on another channel, well away from the satellite band. The Fox is pretty much a veteran coming from the days when all of the FM simplex activity was on channel "B". It is somewhat cumbersome and a more simple and yet sophisticated smaller device is the norm these days. Really, it is a museum piece!

The annual Targa Motor rally around Tasmania was held at the end of April. This event has become something of an institution although it has been only going for four years, with over 250 competitors. This year saw several celebrity competitors, such as Kirsty Marshall and Glenn Ridge, mix it with seasoned touring class drivers and rally champions. This year WICEN was again involved in providing communications back-up to the Targa comms. This mainly involves vehicle tracking during several of the stages where individual competitors are timed over a measured distance. These stages are held over stretches of the

normal highways and roads, which are closed to the general public whilst these trials take place.

Our WICEN ops were tracking individual cars as they negotiated these stages and notifying Targa officials of any vehicle who failed to complete the stage, so that recovery and/or emergency vehicles could be dispatched.

Thanks go to the many amateurs who

were involved with the WICEN Exercise associated with Targa 1995 and a big vote of thanks must go to Divisional WICEN Co-ordinator, Tony Bedelph VK7AX, for organising it so capably. It certainly must have been a trial on the final day, especially on the Northwestern stages, in the pouring rain and mist. It truly was a miracle that there weren't any serious accidents.

Your Division now has an Internet address to which you can send e-mail messages. It is wiatas@tamarcom.com.au. It is not a BBS. However, WICEN Tasmania does have a Phone BBS, (004) 256035. Its Fidonet node is :3:670/403. Don't forget it is a voluntary run BBS and the Sysop is Tony VK7AX. A small contribution would be appreciated to assist with the upkeep of the BBS, if you would like to utilise the facilities.

The next Council Meeting will be held on 24 June. The venue will be the "Pizza Pub", at the corner of Frederick and Wellington Streets, in Launceston at 11 am. At the meeting, it is hoped that a meeting with Branch Executives will take place to discuss insurance and other associated costs with the operation of the various Branches.

Meetings for June are Southern Branch; Wednesday, 7 June at 2000 EAST, at the Domain Activity Centre (VK7OTC); Northwestern Branch, Tuesday, 13 June at 1945 EAST, at Penguin High School, Ironcliffe Road, Penguin; and Northern Branch, Wednesday 14 June at 1930 EAST, at the Launceston Institute of TAFE (Alanvale Campus) Block "B" Level C Room 17.

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QSP News

Historic Re-Broadcast

At 3.00 pm on Sunday, 7 May 1995 an historic broadcast was made from Great Britain, announcing the surrender of all German Forces in Europe. It occurred because of the cooperation of British Telecom's Portishead long range maritime radio station at Highbridge and the Morsecodian Society of NSW.

The thought that the cable announcing victory in Europe be re-enacted was made to the Federal, State and local Australia Remembers Committees but developed no interest. The Australian War Memorial was asked to advise how the news reached Australia, but wouldn't. The Imperial War Museum, London determined that it was a cablegram, but not the wording. The office of the Federal Member, Mr P Ruddock provided the wording of the cable within 24 hours.

With the message, but no official interest, yet determined not to allow this event to pass unmarked, on 2 May Portishead were faxed, requesting similar cooperation to that provided 18 months earlier for the Armistice message which had also been re-enacted. Guests then were 10 veterans of the Great War. A characteristically cheery telephone call that evening assured support. The Morsemens were contacted and all was set for Morsing the message by telephone line, call incoming at 3.00 pm, 7 May.

At the arranged 8.00 pm telephone call on 5 May to confirm details, Portishead's Radio Officer, Larry Bennett, announced that the station management and staff felt

that such an historic occasion might also be broadcast, advised of frequencies 8591.5 and 12790 kHz, and asked if I would publicise the event.

Saturday, 6 May was frantic; how do you advise amateurs of an event at such short notice? Friends who might know operators were rung and asked to pass it on; critical time was wasted in awaiting return calls from one radio station; one Sunday paper wasn't interested; the local community radio station wasn't organised; Wireless Institute telephones advised no weekend service. Fortunately, the Dural, Sydney transmitter answered on Sunday morning. A determined conversation followed; the event was now less than five hours away.

The telephone rang. Our small party, listening to the signal and watching the Morsecodians write, felt mixed emotions. No message in history was preceded by more human misery or devastation, yet offered so much hope to the world. We lifted our gaze across the valley to the mast at Dural. Five minutes later the telephone rang. A chap 30 miles away across Sydney had heard the broadcast. Dural had announced the event and the message from half a world away had got through both by "cable" and wireless.

Both BT, c/o RO Larry Bennett, BT Radio Station, Highbridge Somerset, England who will issue QSL cards, and myself, originator of the idea, address below, would value correspondence from anyone who heard the broadcast.

George Cochrane
23 Western Crescent
Westleigh NSW 2120

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An Amateur Radio Licence would be an advantage and a broad knowledge of RF techniques and test methods with microprocessor based circuits and systems from HF to 2 GHz.

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Written applications only, specify qualifications, experience and personal details to:

Managing Director
Icom Australia Pty. Ltd.
7 Duke Street
Windsor 3181, Victoria

Education Notes

Brenda M Edmonds VK3KT* Federal Education Coordinator.

The IARU Region III Conference in Bandung in 1991 set up a Task Force for Promotion of Amateur Radio in Developing Countries (PARDC). Its brief was to consider ways in which the IARU and member societies can help with the establishment of amateur radio in countries which are not already actively involved. This committee reported back to the Conference in Singapore in September 1994, where it met for nearly a day to discuss progress and consider possible further action. As part of the considerations, the name of the Task Force was changed to "Support of The Amateur Radio Service in Region 3" (abbreviated to STARS***) to align it with a similar committee (STARS*) in Region 1. This change allowed it more scope to include promotional and support activities in all countries of the Region regardless of their level of development.

There are still a number of countries in Region 3 in which amateur radio is unknown, extremely rare or illegal. In addition, it was felt that amateurs and amateur societies in some other countries, while being permitted to operate, are not encouraged or looked upon with favour by the administrations of those countries, and that support from some of the more long established societies might help to increase the community standing of both individual amateurs and the societies. In some countries the authorities are known to oppose amateur radio in the belief that it poses a threat to the national security.

Why should the IARU and the established Societies become involved in these matters? There are many reasons, ranging from the "missionary" approach of wishing to spread the information on our hobby, to the more altruistic belief that a body of active amateurs has considerable resources to offer to their country; from the logical argument that more voices mean more strength at international level, to the purely personal desire for more countries on the DXCC list.

Perhaps the "how" is more important than the "why". In the years between 1991 and 1994 the IARU Secretariat in Japan began collecting text books, videotapes and other resource materials for distribution to some of these countries, and identified a small number of countries for the first distribution. It was agreed at Singapore that this approach should continue, with the Secretariat both storing and distributing collected materials and

setting up a database for recording needs and responses.

A number of other strategies were considered and endorsed, including some which can be carried out by individuals as well as societies. A national body, such as the WIA, might become a "mentor" for an emerging society, to help in its approach to the local administration and to provide resources in the form of study materials, examination syllabuses and question papers, technical assistance and even some equipment. It might also sponsor the new society to technological symposia or IARU Conferences. An individual might form a similar bond with an individual in such a country, or be able to act as an ambassador for amateur

radio on the occasion of a visit to the country. Region 1 provides a standard package of resource materials which are provided at the request of a country in need.

Several countries are presently negotiating with their administrations on topics which the WIA has covered in recent years. These include an increase in the number of levels of licence, administration of examinations, self regulation, and provision of civil emergency networks. The WIA should be able to provide considerable help in many of these efforts.

Other possible methods of contribution to STARS*** will be discussed in my next column, after which members may feel that they have other suggestions to offer. I am sure the WIA representatives on the STARS*** Task Force will be happy to receive any ideas.

*PO Box 445, Blackburn VIC 3130

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How's DX

Stephen Pall VK2PS*

From time to time, tucked away in the quiet corners of 40 and 80 metres, one hears interesting discussions. The other day somebody said that there are more than two million radio amateurs in the world. His discussion partner disputed this, quoting the total number of amateurs as listed in the well known "Flying Horse" call book as being 1,314,000. I am afraid the first person is closer to the mark. The Radio Amateur Callbook (North America and International) include only those amateurs for whom they have address listings.

The February issue of *QST*, the official publication of the ARRL, throws an interesting light on the question. Let me quote freely from that article.

How Many Hams?

According to the most recent statistics of the International Amateur Radio Union (IARU), there are 2.6 million licensed radio amateurs in the world. Whom does the IARU count as radio amateurs? In general, only those individuals who hold both an operator's licence and a station licence. In Japan, for instance, operator's licences are issued for life (as in Australia — Certificate of Proficiency) and the total number of operator's licences issued is well over two million. Station licences, on the other hand, have five year terms and are a more accurate indicator of potential activity.

The "Top 10" list of countries, where about 90% of the world's hams reside,

makes interesting reading. I am quoting from IARU statistics of 1994. First spot is occupied by Japan with 1,300,000; next is the United States of America with 632,000; then Germany with 64,000; United Kingdom with 62,000; Indonesia with 60,000; Spain with 47,000; Canada with 44,000; Russia with 38,000; Italy with 30,000 and tenth is Brazil with 27,000.

Japan has half the world's amateur radio population with 1.3 million. The Japan Amateur Radio League (JARL) has a membership of 194,000. The United States of America has 25% of the world's radio amateurs. About 30 years ago the world amateur population was barely more than 400,000 and the US had, at that time, more than half of the world's total. Amateur radio has grown in the US but has been growing faster in a number of other countries, not just Japan. Out of the 632,000 amateurs in the USA, the ARRL membership is about 172,000, or 27%.

Germany (after the reunification) has the largest number of amateurs of any European country. The Deutscher Amateur Radio Club (DARC) has a remarkable 77% of the licensed amateurs in Germany as members. Not far behind is the United Kingdom. The Radio Society of Great Britain (RSGB) has 44% of licence holders as members with a total membership of about 30,000.

Amateur radio barely existed in Indonesia as little as 25 years ago. Today the Indonesian amateurs number about

60,000 and membership is compulsory in the Organisasi Amatir Radio Indonesia (ORARI). Spain is another European country where amateur radio has experienced rapid growth in recent years. The number of amateurs is growing rapidly in Canada thanks to recent changes in the licensing structure.

Accurate statistics for Russia are difficult to come by at present, but the estimate of amateur numbers is about 38,000. The new national organisation Soyuz Radiolyubitelej Rossii (SRR) was accepted into the membership of IARU in 1994. Italy has about 30,000 amateurs and Brazil leads the South American countries with 27,000 amateurs. Not far away are Argentina, France, and Venezuela; and somewhere in that queue is also Australia with (according to the International Callbook) 22965 licences, which number, I am sure, includes all the beacon and repeater licences as well.

There are 417,000 amateurs in IARU Region 1 (Europe, Africa, Middle East and the former Soviet Union); 780,000 amateurs in Region 2 (North and South America); and 1.4 million in Region 3 (the rest of Asia and Oceania). A country that should soon join the top ten is Thailand, where 92,000 operator's licences have been issued and 38,000 amateurs have requested a station licence.

Huang Yan Dao — BS7H

Just after the deadline closed on last month's issue of *Amateur Radio*, the Chinese Radio Sports Association (CRSA) and the South China Sea DX team (SCSDX) announced a second DXpedition to Huang Yan Dao, also known as Scarborough Reef. The reef lies at Latitude 15° 07' N and Longitude 117° 51' E, according to some sources. The Australian Macquarie World Atlas describes it as Scarborough Shoal, and shows it as a circular shoal comprising seven small rock islets at 15° 08' N and 117° 46' E, some 250 km west of the Philippines mainland.

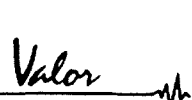
Six operators, Chen BZ1HAM, Wang BZ1OK, Olli OH0XX, Martti OH2BH, Petri OH2KNB and Tim KJ6VH set out at about 0200 UTC on 11 April from Subic Bay, the former US airbase on the Philippines. The trip was estimated to take 24-30 hours and there was hope they would arrive at the reef between 0000 and 0400 UTC on 12 April. Captain Tony Hookway, master of the 70 foot MV Taoibuga, together with his five man crew, saw that the operating team was safely transported to and from Scarborough.

The weather was mild, about 80° F, there was no storm activity in the region and it was morning, local time. The team

found the desirable operating sites and put the stations together in the shortest possible time. The first contacts into VK were made around 1126 UTC on the 20 metre phone band on 12 April. The signals were very strong on 40 metres CW on the same day, around 2030 UTC. Most of the activity was on 15, 20 and 40 metres and a total of approx 12,000 QSOs was made in 80 hours of operating.

This activity was very different from the first one in June 1994. It was not mounted on platforms attached to metal pipe scaffolding on the reef. This time it was mounted on actual rock surfaces. The expedition used two Yaesu FT-990s, Cushcraft vertical antennas and two new Alpha 91 B amplifiers for severe environment testing purposes. Unfortunately, the amplifiers failed but the experience will enable the manufacturers to redesign their product. It was frustrating to have available 5 kW of generator power only to be limited to 100 watts basic power. The expedition closed its activity around 0200 UTC on 16 April.

An application for separate DXCC status for Scarborough Reef is pending before the ARRL DX Advisory Committee. The present expedition was conducted with the firm belief that Huang Yan Dao — Scarborough Reef — fully meets existing DXCC rules. For this reason, all



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those who worked the station last year in June, were urged to have a new contact with the second DXpedition.

The pile-up was huge but propagation was favourable in VK and ZL and quite a few of the local DXers worked the station.

BZ1HAM, JA1BK, and KJ4VH were to attend the Visalia DX Convention and the Dayton Hamvention at the end of April, and present their story to those attending. The presentation of the necessary documentation to the ARRL in Newington, was to follow shortly afterwards.

The QSL manager for this activity is the well known Japanese DXer, Kan JA1BK. Send your QSL card to the following home address (not the Callbook address!) Kan Mizoguchi, 5-3 Sakuragaoka 4 Chome, Tama City, Tokyo, 206 Japan. Do not send "green stamps" but send at least one IRC.

International Marconi Day VK2IMD

The Wahroonga Amateur Historical Radio Association (WAHRA) reports that Australian activity on Saturday, 22 April was an outstanding success. 19 amateurs were active for 137 hours in a 24 hour period. Impossible? Not at all, if you consider that at times there were up to four stations active on different bands.

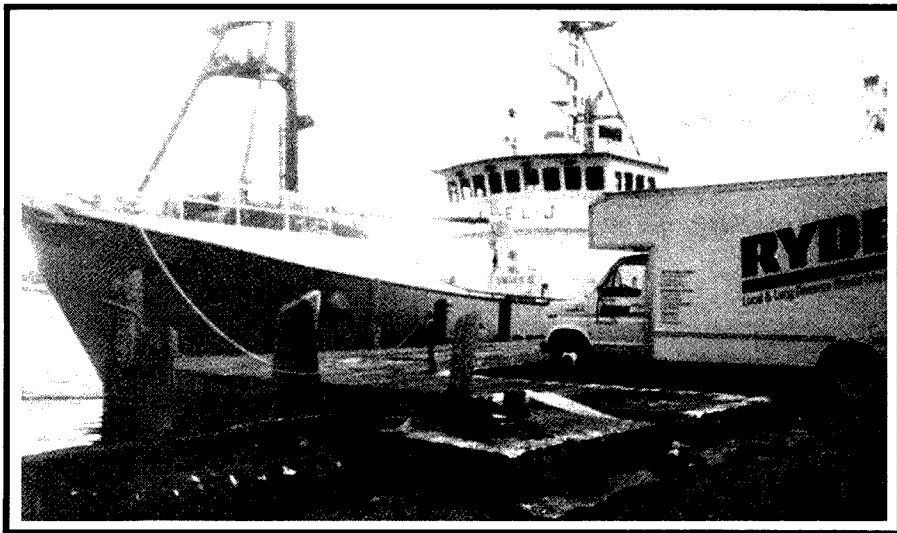
Activity was on the 15, 20, 30, 40 and 80 metre HF bands, on two metre and 70 cm FM, and on two metre and 40 metre packet band segments. The 10, 12, 17 and 160 metre bands were not used. The total number of contacts was just under 800, and 261 prefixes were worked in 49 countries on all continents except Africa and Antarctica. Approximately 450 of the contacts were on CW on the 15, 20, 30 and 40 metre bands.

Changes in the IIS Callsign System

According to Bob KI4RU, some of the familiar US callsign are going to change soon. The FCC was reported to have announced changes to the US prefixes as follows. In future Hawaii will use KH6, NH6, AH6, KH7, AH7, and NH7 prefixes. Amateurs active from Kure Island will use the KH7, NH7, AH7 prefixes, their standard suffix and an additional /K suffix.

Alaska presently uses the KL7, NL7 and AL7 prefixes. In the future the Alaskan prefixes will be KL0-9, NL0-9, and AL0-9, except for the special block of KL9KAA to KL9KHZ which will indicate US Military Personnel in South Korea.

Puerto Rico at present uses KP4 and NP4 prefixes. In future, additional prefixes KP3 and NP3 will also be used. This ruling does not include the island of Desecheo.



Loading the VP8SGP equipment on board the Abel-J.

New Minimum Island Size Rule — DXCC

The ARRL Awards Committee voted five to two to accept a modified ARRL DX Advisory Committee (DXAC) recommendation to add a minimum size rule to point two (separation by water) of the countries list criteria in the DXCC rules. This change adds the following paragraphs to the existing rules under point 2:

"(c) An island is defined as a naturally formed area of land surrounded by water, the surface of which is above water at high tide. Rocks which cannot sustain habitation shall not be considered for DXCC country status.

(d) An island must meet or exceed size standards. To be eligible for consideration, the island must be visible and named on a chart with a scale of not less than 1:1,000,000. Charts used must be from recognised national mapping agencies. The island must consist of a single unbroken piece of land not less than 10,000 square feet in area, which is above water at high tide. The area requirements shall be demonstrated by the chart."

Future DX Activity

- The Belcher Island Group (NA-196), a group of low lying islands located in Hudson Bay (56° 30' N, 80° 00' W), will be activated for the IOTA program by VE3WFS at the end of June.
- Mike W0YR is on a three year assignment in Moscow until about August 1997. He will be active as R3/W0YR primarily on CW and RTTY. QSL to AA9DX, PO Box 923, Wooddale, IL 60191-0923, USA.
- Paul 5Z4FO (also known as W4PFM, O48V and KP4AWH) will be moving to Uganda for a one year work

assignment starting in July. He will sign as 5X1MV on all bands on CW and SSB. QSL via KB4EKY.

- The proposed DU0K activity from North Danger Reef, one of the Spratly Islands claimed by the Philippines, has been cancelled according to T14CF and WH0AAV. No reason was given.
- AI P29EP, formerly H44AP, is now in New Guinea. QSL to AI Pearce, 1828 Boroko, NCD, Papua and New Guinea.
- Sanyi XU95HA was heard on 3507 kHz calling CQ DX on 20 April without any takers.
- Eric OH2BBF will be in Ngara, Tanzania until mid June with UNHCR. He hopes to be active from 5X, 9Q, 9U, 9X and from 5H.
- It has been reported that Oleg YA/UT9XL is active from the Ukrainian Embassy in Kabul for the next two to three months. QSL via PO Box 207, Pavlograd, 323012, Ukraine.
- Jim TJ1JB (ex-5X1B) is active on 20 metre CW around 1900-2300 UTC. He is presently working for the American Embassy in Cameroon. QSL via KE9A.
- ZS50PAX is active on 3700, 7076 and 14170 kHz until 8 October, celebrating the end of hostilities fifty years ago.
- 9L1PG. Paul will be in Sierra Leone until August 1996. His new QSL manager is Cecil NW8F.
- Follow the raft "Ilia Tiki" sailed from Ecuador on 30 March en route to Hawaii with an American, Ecuadorian and Austrian crew. The trip is estimated to take five to six months. They are using an FT900 and Hustler antenna and have a schedule to work schools on Tuesday and Thursdays at 1900 UTC with the callsign KC5KHA/mm; otherwise they might be heard on 40, 30, 20, 17 and 15 metres.

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The QSL manager is AA5NT who can also supply additional information.

- Carl will be working from Bonaire, Netherland Antilles for a few months operating as PJ0/KB5DZP.

Interesting QSOs and QSL Information

E = East coast; W = West coast; M = the rest of Australia

- XX2MD — Dias — 14220 — SSB — 1205 — Mar (E). QSL to Antonio M Dias, PO Box 1339, Macau, SE Asia.
- J37LF — Thor — 14188 — SSB — 0601 — April (E). QSL to PO Box 117, St George's, Grenada, West Indies, Caribbean.
- EL2RR — Sekou — 14226 — SSB — 2215 — April (E). QSL to Sekou Kamara, PO Box 165, Monrovia, Liberia (Note — mail service is not secure).
- TA2DS — Selim — 14222 — SSB — 0620 — April (E). QSL via WA3HUP Mary A Crider, 2485 Lewisbery Rd, York Haven, PA 17370 USA.
- 9N1ARB — Dick — 14217 — SSB — 0905 — April (E). QSL to VK6UE.
- 5N8NDP — Paolo — 14186 — SSB — 0627 — April (E). QSL to IK5JAN, Marcello Ceccherini, via Toricella 165, 1-50017 Campi Bisenzio, Italy.
- BV9AYA — 14003 — CW — 1056 — April (E). QSL to BV2KI, Bruce Yih, Box 84-609, Taipei, Taiwan.
- 9N1RHM — Rich — 21205 — SSB — 0522 — April (E). QSL to PO Box 5147, Kathmandu, Nepal, Asia.
- D68QM — Marcel — 14179 — SSB — 0512 — April (E). QSL to ON4QM, Marcel Dehonin, Everestr 130, B-1932, Sint Stevens Woluwe, BT, Belgium.
- KG4ZE — 7009 — CW — 1135 — April (E). QSL to K4SXT, Julius Gostel JR, 2217 Hunters Wood Way, Virginia Beach, VA-23454, USA.

- N2PQE/KH0 — 7009 — CW — 1155 — April (E). QSL to JE2HCL, Yoshihiro Sugimoto, 1-18-15 Iguchi, Mitaka City, Tokyo, 181, Japan.
- 1P0U — 14005 — CW — 0711 — April (E). QSL to DL7UHR, Hans-Rainer Uebel, Am Goldmann Park 47, D-12587, Berlin, Germany.

From Here There and Everywhere

- Received a QSL card from Monica EL2PP with a small note from her QSL manager, Toni N2CYL. Writes Toni, "It is next to impossible to get mail in or out of Liberia. Monica has been in Liberia since 1990 with her family, her husband being employed by the Italian Consulate. Monica speaks four languages. She is using a TS850S, a TH7DX beam and dipoles. Monica is not active on CW".
- TMORAD will be active on 3-4 June. QSL to F6KNN, which is a radio club station.
- Oleg UA4CIF and Valery RA6YR produced an up to date list of the present QSL Bureau addresses of the former USSR republics. Says Oleg, "I hope this list will be useful for better QSLing with ex-USSR territories".
EK — Box 22, Yerevan 375000, Armenia
ER — Box 6637, Kishinev-50, 277050 Moldavia
EU — Box 469, c/o EU1AO, Minsk-50, 220050 Byelorussia
EX — Box 1100 ARUK Bishkek, 720020 Kirghyzstan
EY — Box 303 (TARL) Glavpochtamt, Dushanbe 734025 Tadjikistan
EZ — Box 555 (TARL) Ashgabat 744020, Turkmenistan
UK — Box 0, Tashkent, 700000, Uzbekistan.

UN — Box 112, c/- UN9PC, Karaganda, 470055, Kazakhstan
UR — Box 56, UARL Kiev-1 252001 Ukraine.

4K — Box 165 ROSTK DVPSTO, 4K7DWA, Baku 370000 Azerbaidjan
4L — Box 1, Tbilisi 380002 Georgia
UA — Box 59 URR c/o RZ3AZO Moscow 105122 Russia, or Box 88, CRCRF Moscow, Russia.

- Many of us remember Mark VR6ME who was quite active on Pitcairn Island in 1993-94. Mark is now in Geraldton, Western Australia and uses the callsign VK6BLW.
- Ron ZL1AMO was active from Fiji in the last days of April as 3D2RW. He left Fiji on 29 April for Nauru.
- If you worked J28GR with his special call J20SF from Isle des sept Freres (seven Brothers Island), send your QSL to F5LBM, 38 Chemin Du Plateau, 67 500 Haguenau, France.
- 9H50VE was active from Malta from 6 to 8 May celebrating the 50th anniversary of the ending of World War II. QSL to PO Box 114, Valletta, CMROI, Malta.
- The Norwegian Station LN1V was active at the beginning of May celebrating the end of the war in Norway. QSL to LA4LN.
- Peter ON6TT has made about 12000 contacts as 4U0ITU, 9Q5TT, and 4U9Q. Most of it on SSB, a few RTTY contacts and a few thousand on CW. Due to time and other restrictions he was not able to work from 9X and 9U. Alex 9X5EE will take up Peter's duties in Goma, which is near a Rwandan refugee camp in Zaire.
- Monique ON6BY, QSL manager for some Kuwaiti stations, reports that the callsign situation in Kuwait has been "reversed" (see *Amateur Radio*, May issue) because of the confusion created by the previous decision. Lots of non Kuwaiti amateurs had discussions with the Ministry of Communications with the result that all the non Kuwaitis got their old call back for a period of one year. To be safe, ask the QSL route on each occasion if you want a 9K2 card.
- There were a number of pirates on the air lately. ET3/I2MQP T5/I2MQP, T19US, 1A0/I2MQP, 1A0/IK2MQ, ZL8RN, 3W1AS, P5BK, KH7DU, AA2JS/T19, 5A1D, 5A0CW, TN9DX, 5A0/WA2MT, ZL8RS/VK0, F5PPF/ZC6 are all suspected to be pirates, therefore the advice is, save your money, do not QSL.
- Are you still interested in the, so far, officially "non-existent" Principality of Seborga? On 23 March the Principality re-issued its old coin, and the dealers

paid \$US6.00 for one "Luigino", the old coin which dates back to 1666. Paul, 11RBJ moved into the "officially recognised" extraterritorial "Il Palazzo". Paul had not applied yet for official DXCC recognition because he was waiting on the outcome of a vote on the new constitution on 23 April which would include a vote on the map of the territory of the Principality.

- The address of N4GAK, QSL manager for V73C is Bruce Smith, 15 Henderson Drive Fayetteville, TN-37334, USA.
- Patrick HH2PK advises to use registered mail for direct QSLs because, as he put it, there is QRM in the local Post Office.
- FM5CD will use the special call T02DX in major contests during 1995.
- YW0RCV, Aves Island, cards have not yet been printed says YV5EED as relayed by YV5DTA.
- End of April saw two noted international conventions holding "their annual get-together". Visalia DX Convention on 21 to 23 April, and the Dayton Hamvention on 28 to 30 April.
- Members of the Royal Omani Amateur Radio Society conducted a DXpedition to Al Ghanan Island from 20 to 27 April with the callsign A43GI. QSL via A47RS, PO Box 981, Muscat, 113, Sultanate of Oman.
- The NSW Division of the WIA (VK2) activated the special commemorative callsign, AX2ITU on 17 May 1995, commemorating the establishment of the International Telegraph Convention in Paris in 1865. The organisation was renamed after the war, in 1947, as The International Telecommunication Union and became a specialised agency of the United Nations with headquarters in Geneva, Switzerland. Among the many functions carried out by the ITU, it regulates the electromagnetic spectrum, including amateur radio frequency band allocations. 17 May is designated in each country as World Communication Day and this year the ITU is 130 years old. Contacts with AX2ITU can be QSLed via the Bureau or directly with VK2PS (QTHR) with the necessary reply envelope and return postage.
- According to Jim Smith VK9NS, as quoted by the DXNS, Marni VU2JPS is a real operator on Andaman Islands. He works for All India Radio in Port Blair, Andaman Islands and he will be there for the next three to four years. Apparently he is on 7050 kHz SSB regularly but he can be also found on 14002 kHz CW. He hopes to receive a VU7 callsign shortly. Has any VK/ZL worked him yet?

- The American "CQ Amateur Radio" magazine celebrated the 50th anniversary of its existence in January 1995 with a 234 page special collectors' edition issue, which has a nostalgic look at the progress of amateur radio and amateur radio publications in the USA during the past fifty years. It is interesting to read that the President of the United States, Mr Bill Clinton, the Vice President, Mr Al Gore, the Chairman of the Federal Communication Commission, Mr Reed E Hundt and David Sumner, Executive Vice President of the ARRL, have all written congratulatory letters to the magazine, praising not only the magazine but the role and importance of amateur radio on the American and on the international scene.

Mr Hundt, Chairman of the FCC (similar body to our SMA) wrote, among other things, "Many scientists, engineers, astronauts and technicians took their first steps toward their careers when they became amateur radio operators . . . The amateur service not only provides an enjoyable activity for technically inclined persons but also plays a vital role during times of disaster . . . During the 1980s amateurs were among the first to apply the vast potential of personal computers . . . Amateur operators are always on the very cutting edge of communication technology"

The President, Mr Bill Clinton, wrote, "Since its inception amateur radio has been far more than a hobby for its users. It is a way to communicate with people

across international boundaries and cultures, to express ideas and share opinions, and to make new friends."

Vice President, Mr Al Gore, wrote, "As technical innovators and scientific leaders, ham radio operators are already working hard to build the National Information Infrastructure, a seamless web of communication networks that will forever change the way we live, learn, work and communicate with each other."

I found the above lines to be a very nice appreciation and acknowledgment of the value and importance of amateur radio in the US. Yes, in the USA they do things differently.

QSLs Received

ST2AA (7 w WB2RAJ) — HV4NAC (1 m IK0FVC) — TN4U (1 m DL7VRO) — HV3SJ (5 w I0DUD) — T32A (3 w JA5EXW) — T77C (1 m op) — 5U7AA (1 m HH2HM) — VS6WV (7 m K0TLM) — EL2PP (3 m N2CYL).

Thankyou

Many thanks to my helpers without whose support this column could not exist. Special thanks to VK2KAA, VK2KCP, VK2KFU, VK4AAR, VK6HD, A47RS, EX0A, KI4RU, N2CYL, RA6YR, UA4CIF, and the publications QRZ DX, The DX Bulletin, The DX News Sheet, QST, CQ Amateur Radio, INDEXA and GOLIST QSL Managers List.

73 and good DX
*PO Box 93, Dural NSW 2158
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Over to You — Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Overseas Membership

With regard to Roth Jones' letter in February *Amateur Radio*, it is a good idea to belong to one of the international societies to get a better feel for the international scene. Belonging to the WIA alone can lead to parochialism. I am a long time member of the Radio Society of Great Britain (RSGB) and recommend it as a second society and an alternative to the American Radio Relay League (ARRL).

Consider the following. The RSGB annual subscription for 94/95 was \$AUS66.00, including postage of their journal *Radio Communications*, which often arrives at Lakes Entrance before *Amateur Radio*. *Radio Communications*

'94 included more than 50 items especially for beginners and novices.

The special rates to members for technical and general interest books could save the cost of a subscription. For example, the 1995 ARRL Handbook at \$AUS38.65 posted as against the WIA price of \$66.00.

Both the RSGB and the ARRL are very influential representatives of the amateur radio movement at ITU, WARC and IARU conferences. Both are very progressive societies with management very conscious of the need for product improvement to retain and attract customers.

Lindsay Lawless VK3ANJ
Box 760
Lakes Entrance VIC 3909

Compulsory CW

I wish to thank VK2GRY for his carefully considered article on compulsory CW in the May issue of *Amateur Radio*. He addressed the fundamental issue of whether compulsory CW is in the best interests of amateur radio, and did this very well.

Bob made references to past comments of mine, which seems to bring me back into the battle. In looking back over this earlier correspondence the point that, more than any other, raises my ire, relates to a letter from an amateur incapacitated by a stroke who was unable to advance his CW beyond 5 wpm, and was thus denied a full call. My sympathy went out to him and I was appalled at a regulatory process that could not, or would not, make allowances for such situations.

One response in *Amateur Radio* was "It would be unfortunate . . . if a licence was issued on the production of a medical certificate no matter what our personal compassionate thoughts might be" and finished with the unfeeling comment "Stick with it, Ian, you have only 5 wpm to go."

I request the executive of the WIA approach the Minister, seeking whatever

legislative, or regulatory, changes are necessary to enable the Minister to waive the requirement for CW for a full call, where the applicant can demonstrate he/she is not able to fulfil the CW requirement because of a physical disability.

Before any of you fire off your broadsides, let me make three points:

1. Reflect on the various pieces of anti-discrimination legislation that have come into effect in recent years.
2. As far as international agreements are concerned, it seems other countries make unilateral changes when it suits them, so why not Australia?
3. Forget those wise-cracks about criticism coming from people who haven't the fortitude to achieve a full call — I passed 10 wpm in order to deny the use of that spurious argument.

Graham B Jackson VK3GBJ
PO Box 39
Beaconsfield Upper VIC 3808

Portability of Call Signs

I understand the SMA is proposing that the current system of call sign allocation

be altered so there will be no need to change call signs on moving interstate (ie if I were to move to Perth I could retain VK3DD!) I wonder if the membership of the WIA (indeed the amateur population in general) is to be given the opportunity to comment on this matter, if indeed the proposal is genuine?

The current system of numeric indicators for each state would seem to me to be appropriate and not in need of alteration. This system identifies the state of residence during contacts and has distance advantages in contesting (RD, Novice, etc, the "Training Grounds" of our pastime).

I, for one, would not like to see the present system changed and I wonder what others (including the WIA) think of such a proposal.

Derek Thurgood VK3DD
PO Box 234
Yarra Glen 3775

(There is a problem looming with VK2 and VK3 in that, while the initial suffix letters continue to designate the class of licence, the number of callsigns available to new licensees is steadily diminishing. A new additional prefix could be one solution. Ed)

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An Old Timer Reflects....

Des Greenham VK3CO (SK) finishes his series of looking back over 50 years of amateur radio operation.

In pre-war (WW2) days it was customary to build crystal locked transmitters because, at that time, the use of variable frequency oscillators was not an option. The reason being that components were not good enough to guarantee satisfactory frequency stability. It was a strict requirement that you must have a crystal locked rig or equivalent. So, we all used crystals. To buy a commercial crystal was very expensive hence, with the usual ingenuity, we made other arrangements.

It was found that old spectacles were made from genuine quartz crystal and these were available from second hand shops and pawn brokers at a very low price. But, it could not be certain that they were quartz. So, after purchase, it was necessary to check if the spectacles were quartz or just plain glass. A simple test

was to place the lenses on the grid cap of a regenerative receiver and tune the dial. If the lens was quartz, you could hear "joeys" or "beeps" across the band indicating that the lens was, in fact, a piece of quartz.

After having proved it to be quartz, came the job of grinding it flat. It was absolutely necessary to have a micrometer to check on the parallel flatness. A piece of heavy plate glass was obtained and some grinding powder. This was carborundum of varying grades. The action was in a figure of eight motion with a coarse powder and water. One's fingers also received some grinding resulting in very sore fingers. However, this was the price we paid.

After getting the lens down to a parallel slab it was then necessary to check its

natural frequency. When it was truly parallel it was placed in a crystal holder between two light metal plates and placed into a valve oscillator circuit. If you were lucky it would oscillate at some frequency, usually around 2 — 3 MHz. Then, with very fine powder, you rubbed away again making sure you kept the slab parallel by doing regular micrometer checks. Using great care, you could get the crystal down to 3.5 MHz, in the 80 metre band. With patience you could then get it where you wanted it in that band.

But if, by bad luck, you suddenly found it to be 3.9 MHz, outside the amateur band, then what to do? Oh well, what's wrong with a 40 metre crystal? So, more grinding and down to 7 MHz.

Then, around 1950, the first stable commercial variable frequency oscillator became available. It was the Gelofo VFO using a 6J5 oscillator and 6V6 buffer. This was a kit and was very popular. At this time, of course, many crystals, ex army, etc, became available and the need to look around Pawn Shops for old spectacles was gone. ar

Pounding Brass

*Stephen P Smith VK2SPS**

This month there are two important events happening in the way of contests. The first is the "VK Novice Contest", which takes place over the weekend of 17 and 18 June, and the other, also on the same weekend, is the "CW Operators QRP Contest" (the band will be active!). It doesn't matter if you are "QRP" or a "QRO" operator, let's all pull the keys out and put in a good showing to support these two fine contests.

Recently I received a request from Pat VK2DMY, seeking information on the Curtis K5 ("Lil Bugger"). Unfortunately, I was not able to comply with Pat's request. I would appreciate any information in relation to the Curtis K5 (to be used on a straight key), particularly regarding the connections for the four wires (red, black, grey and brown) coming from the unit.

Passive CW Filter

I hope the last two columns about the CW Filters have kindled your interest in homebrew construction. If you decided to purchase the parts from Ed, I am sure you will not be disappointed as his kits rate extremely highly in performance and price, especially when you compare them with some of the commercial units. Further information can be obtained from Ed Wetherhold, 1426 Catlyn Place, Annapolis, MD, 21401, USA.

We will now conclude the series with a procedure for calculating the number of turns to remove from a bifilar-wound 88 mH inductor to obtain a desired inductance.

1. A bifilar-wound inductor is identified by its red and green coloured insulated wires. The polyurethane film insulated wires are solderable at 750 to 800 degrees F, and the leads do not have to be scraped to remove the insulation. CAUTION! The fumes generated during soldering are toxic to the lungs and eyes, so keep your face away from the fumes and solder only in a well ventilated area.
2. Measure the original inductance, L_0 , with the two windings connected in series aiding. To do this, connect the red start lead to the green finish lead, and connect the other two leads to an inductance bridge. An alternate method of finding the inductance is to resonate the inductor with a known capacitance and calculate the inductance based on the capacitance and the resonant frequency measured to the nearest hertz with a digital frequency counter. For example, connect the inductor in parallel with a $0.27 \mu\text{F}$ capacitor (with an accuracy of better than 0.5%) and lightly couple an audio signal generator to the inductor

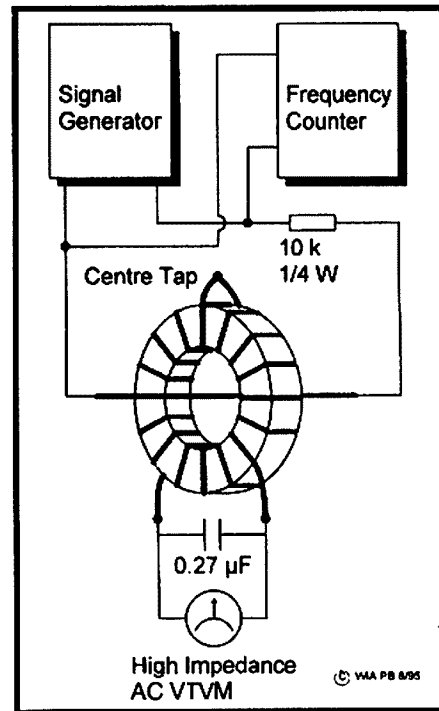


Figure 1 — Test setup for measuring the inductance of a toroidal inductor.

and capacitor using the circuit shown in Fig 1. Vary the generator frequency until an AC voltmeter peak is obtained. Record the frequency indicated on the frequency meter (it should be around 1033 Hz) and calculate the inductance using the equation $L_0 = 25.33/f^2C$ where L_0 , f and C are in mH, kHz and μF . For example, if $f = 1.033 \text{ kHz}$ and

$C = 0.27 \mu\text{f}$, $L_o = 25.33/(1.33 \cdot 27) \text{mH} = 97.92 \text{mH}$.

After determining L_o , continue with steps 3 to 6 below.

- Remove 50 turn-pairs (total turns removed = 100) and again connect the windings in series-aiding. Measure the modified inductance L_m .
- Calculate using $T_o = 100 \cdot R/(R-1)$, where $R = \sqrt{(L_o/L_m)}$, T_o = the original number of turns on the inductor core, L_o = the original inductance in the series-aiding connection, and L_m = the modified inductance after removing 100 turns. For example, if $L_o = 89.10 \text{mH}$ and $L_m = 67.09 \text{mH}$, then $R = 1.152417796$ and $T_o = 756$ turns.
- Calculate using $S = (T_o - 100)/\sqrt{L_m}$, where L_m is the modified inductance after removing 100 turns from the inductor. For example, if $L_o = 89.10 \text{mH}$, $T_o = 756$ and $L_m = 67.09 \text{mH}$ for 100 turns removed, then $S = (756 - 100)/\sqrt{67.09} = 80.0894$.
- Use the following general equation (applicable to all bifilar-wound inductors where $L_o = 89.10 \text{mH}$) to find the number of turns to remove to obtain a specific inductance. $T_d = T_o - (S \cdot \sqrt{L_d})$, where T_d is the number of turns to remove from an unmodified 89.10mH inductor, T_o is the number of original turns on the inductor core, L_d is the desired inductance in mH , and S is the value calculated in 5. above. For example, for the values given in 5. above, and if the desired inductance (L_d) is 43.48mH , then $T_d = 756 - (80.0894 \cdot \sqrt{43.48}) = 756 - 528 = 228$ turns, or 114 turn-pairs to be removed from the original inductor. Because 100 turns have already been removed, an additional 128 turns (or 64 turn-pairs) must be removed to achieve 43.48mH .

Determining the Source Impedance of Your Receiver Audio Output

The manuals of most commercial receivers specify the load that is to be connected to the audio output jack, and four or eight ohms are common values. However, this load specification is not applicable for defining the actual source impedance of your receiver's audio output. It is therefore advisable to confirm by measurement that the CW filter input will be properly terminated by the impedance at the 8/200 ohm transformer high impedance winding before starting the filter assembly.

To do this, obtain an AC voltmeter, several half watt resistors between 1000 and 1500 ohms, and one of the 8/200 ohm transformers. Use these items in the following procedure:

- Connect the eight ohm winding of the 8/200 ohm transformer to the plug cable provided in the parts kit. Use your ohm meter to determine which of the two transformer windings is the eight ohm winding. This winding will have a DC resistance of about one ohm, while the 200 ohm winding will have a DC resistance of about 12 ohms.
- Turn on your receiver. Apply a tone modulated RF signal to the antenna terminals and tune the receiver to pick up the modulated signal. Or, if your receiver has an audio input jack, apply a 400 Hz tone to it.
- Plug the eight ohm transformer into your receiver phone jack.
- Connect the AC voltmeter to the high impedance winding (with no load at this time) and adjust the receiver audio gain to get a steady voltage indication of about one volt on the AC scale, or a level well above the noise level. The voltage level should be reasonably constant for valid test results. Vary the receiver audio gain control up and down to check that the meter responds in a corresponding manner to confirm that the audio output stage is not overloaded. Overload is indicated by the audio level not increasing upwards as the gain is increased. Then set the gain control, record the AC voltage and call it V_1 .
- Without changing any control settings, connect one of the resistors you previously selected across the 200 ohm winding and note that the voltage level drops. Record the new level and call it V_2 . From this data you can

calculate the impedance that the filter will see when it looks into the 200 ohm winding of the transformer.

- Calculate the impedance from the equation $Z = R(V_1-V_2)/V_2$, where R is the selected resistance in ohms and V_1 and V_2 are in AC volts. For example, if $R = 1100$ ohms, $V_1 = 1.0$ volt and $V_2 = 0.83$ volt, then $Z = 1100(1.0 - 0.83)/0.83 = 1100(0.17)/0.83 = 225$ ohms. Since this is within ten percent of the filter design impedance (R_t) of 220 to 230 ohms, your filter is satisfactory terminated at its input. If the measured impedance is substantially lower than 200 ohms, repeat the measurement procedure except, this time, connect the centre tap of the eight ohm winding to the receiver audio output jack.
- Because the impedance specification of your speaker or headset is a reliable indication of the load impedance, it is sufficient to read the impedance from the speaker or headset label and use the 8/200 ohm transformer to match them to the filter output. If you are using a high impedance headset, the output transformer may be omitted and the output lead of C_5 may be connected directly to the headset. However, a resistor should be connected from the output lead of C_5 to ground so the parallel resistance of the headset and resistor is about 225 ohms.

Once again I would like to thank Ed Wetherhold for giving me permission to reproduce this article for *Founding Brass*.

**PO Box 361, Mona Vale NSW 2103*

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Technical Correspondence

All technical correspondence from members will be considered for publication, but should be less than 300 words.

A 240 Volt AC Line Monitor

I was pleased to see the warning box at the start of the above article on page 10 of the March issue of *Amateur Radio*.

It surprised me to see the note about the existence of mains potential, even when the unit is switched off, and then observe the circuit diagram with only a single-pole mains switch.

Can I make a suggestion in the interests of safety?

Could *Amateur Radio* make it policy that, where a mains switch is included in a published circuit, it be specified and drawn as double-pole, despite what the

author used in his or her own version (I'm sure authors will not overly complain about this).

Warnings should still include "All parts of the circuit must be assumed to be operating at mains potential, even when the unit is switched off", but probably no longer need "this can happen if the active and neutral leads are reversed, an all too frequent occurrence".

Gareth Davey VK1ANF

89 Jemalong St

Duffy ACT 2611

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Repeater Link

Will McGhie VK6UU*

Crystal Harmonic RF Signal Generator

This month's column concludes the signal generator article commenced last month. Refer to last month's *Repeater Link* for the circuit diagram.

Level

A signal generator for testing two metre FM receivers is of limited use if there is no means of level control. This is where I had a big win. My previous design used a 100 ohm carbon potentiometer in the RF output to the receiver under test. It was not good, as the potentiometer had limited range and changed the source impedance to the receiver. I found the easiest way to vary the signal level was to vary the supply voltage to the crystal oscillator and the buffer amp.

At first thought this idea seems fraught with problems, not least of which was the probability of the frequency shifting. Varying the oscillator and buffer from 12 volts down to two volts, where the two metre harmonic disappeared into the noise, did result in several kHz of frequency shift, usually down. This was not acceptable. However, I found that by restricting the supply voltage shift from five volts to two volts, the frequency shift was less than one kHz down. The trade off was lower signal level on two metres from 1000 microvolts to about 100 microvolts. However, in practice, 100 microvolts maximum signal level is a good signal level for two metre receiver testing.

One problem with signal generators can be difficulty in isolating the signal source from the receiver through the attenuation method used. At weak signal levels, moving the connecting coax between the signal generator and the receiver can see the signal level change. This design, by reducing the actual signal source level, overcomes this.

While on the subject of level, crystal oscillators used as harmonic generators don't produce the same harmonic level from crystal to crystal. A given crystal producing a particular level on two metres, when replaced with another crystal on a different frequency (or even the same frequency) usually results in a different level.

I tried several different crystals and found signal variations of up to 10 dB. This means that it is not possible to calibrate the signal source against a known signal generator and expect it to be true for all crystals. If you only use the signal

generator with one crystal then this is not a problem. Different crystals could be calibrated against a signal generator and the RF level control labelled to suite. This level variation from crystal to crystal is probably due to the different degrees of activity between crystals. Some crystals drive the oscillator circuit harder and hence produce higher levels of harmonics. Placing a clipper circuit after the crystal oscillator may overcome this. A modification for another time.

FM Modulation

Now that I had a two metre signal source, the next task was to frequency modulate it. Placing a varicap diode in series with the crystal was the easiest way. You will notice that there are two varicap diodes in series. The reason for this was due to the capacitance of the varicap biased at about half the five volt regulated supply producing 30 pF. This left little room to add a trimmer capacitor for frequency adjustment.

Placing two varicaps in series lowered the series capacitance and allowed for the inclusion of a 10 pF variable capacitor for frequency netting. Placing two varicaps in series without a bias resistor to the lower diode seems to work, with the lower varicap receiving its DC bias through the leakage in the top diode. That's my guess. Note also that the bias for the varicaps does not come from the RF level control.

As the DC voltage to the oscillator and buffer is varied, the DC bias voltage remains constant so as not to frequency shift the crystal. A more advanced design could vary the voltage to the crystal oscillator and buffer over a greater range, to achieve a larger signal level difference between high and low. The bias to the varicaps varied to compensate for the greater frequency shift.

Varicap Diode

The BB809 varicap diode was used because it is cheap (about 80 cents) and I could actually buy it locally from World Wide Electronics in Western Australia. You may not easily find this diode, but any BB series diode with a capacitance ratio (Cd) of around five would be suitable. The old BA 102, now replaced with the BB119, only has a Cd ratio of 1.3. This means less deviation for a given audio input. With a low Cd ratio diode you may find only a couple of kHz deviation at best. Dick Smith Electronics sells the BB212 with a high Cd ratio of 22. This should produce lots of deviation but is a little pricey.

Tone Source

Now that the signal generator can be frequency modulated, a one kHz tone source is required. It had to be simple,

have low power consumption and a distortion level under five percent. My final choice was the simple one transistor phase shift oscillator. The phase shift between the base and collector of a transistor is 180 degrees, the extra 180 degrees required for oscillation produced by using three RC combinations, each providing 60 degrees. The base input resistance is the third resistor, in case you are looking for it.

There is one problem with this simple phase shift oscillator, and that being its high distortion content, typically 20%. The waveform as seen on an oscilloscope is usually flattened on one half of the cycle and or peaked on the other. The solution is to introduce some negative feedback into the oscillator, in the form of an un-bypassed emitter resistor. The value is somewhat critical, in that too much negative feedback and the oscillator won't oscillate, and too little and the oscillator has a high distortion level. With a five volt regulated supply, 33 ohms is about right. A 100 ohm trim pot can be placed in the emitter lead and adjusted for lowest distortion, while still maintaining oscillation.

Deviation

Due to different crystal activity, different crystals produce different levels of deviation, for the same audio input to the varicap diodes. The amount can be considerable, with some crystals producing over twice the deviation as compared to another crystal. I also noticed that a given crystal producing a given deviation, when plugged into the series capacitance circuit, would more than double its deviation when plugged into the series inductor circuit.

If the level of deviation on a given crystal is too low, even with the audio level control at maximum, then an audio amplifier could be added between the output of the level potentiometer and the varicap diode. The LM386 IC would be my choice.

CTCSS

CTCSS decode is used in some repeaters for various functions and for my signal generator, I included a CTCSS encoder. The encoder used is a commercial unit made by Sigtec, the C1000. This encoder is crystal locked and uses the FX315 chip. If anyone knows a source of these chips please let me know. There are many commercial CTCSS encoders available and this one is switch programmable to any of the 37 CTCSS tones.

I have tried several CTCSS encoder circuits published in various amateur publications and have had mixed success. Most have been free running

VHF/UHF — An Expanding World

Eric Jamieson VK5LP*

All times are UTC.

Vale — Tom VK4ZAL

John VK4KK phoned to sadly report that Tom VK4ZAL had died from a heart attack on 26 April 1995 at the age of 82 years.

Tom was first licensed in 1963 and was an avid supporter of the six metre band. He built much of his own equipment and also used an SCR-522 with a Command transmitter VFO in the AM days of the 1960s. His confirmed score of countries worked on six metres stands at 68, using 50 watts to a Channel 0 television Yagi!

He was one of that ardent group of six metre operators which included Mick VK4ZAA, Dane VK4ZAX, Lance VK4ZAZ, Peter VK4ZPL, John VK4ZJB and Bill VK4WD.

I first worked Tom on 23/11/63 which would have been his first Es season. A notation in my log shows that we discussed at length the subject of "old times," which included our exploits during World War II.

Such was the man that, during recent times, he sent me a cheque for \$5, to cover the cost of postage for the occasional copy of my record on his Six Metre Standing List. I did not seek the money and he refused to take back the cheque! Tom regularly sent me news for my column either by letter or telephone.

Tom was also involved with the WIA QSL Bureau, WIA Disposals Officer, the RSL Club and other community organisations. He will be missed from amateur VHF circles and other areas of interest.

Long-distance Tropospheric Propagation

In response to my request in the April issue of *Amateur Radio* for details of tropo openings to ZL and other areas of the Pacific regions, on 144, 432, 1296 and above, I have received a FAX from long time friend Ross VK2DVZ with details of contacts he had to ZL on 144, 432 and 1296 on 17/1/93. In accordance with the details outlined in my request, he told me what I wanted to know and in due course this can go to Emil W3EP, who is preparing a special article regarding tropo openings in the Pacific regions. I urge other operators to likewise send information so that the VK input to any article is worthwhile. Do it now please!

Beacons

Dave Horsfall VK2KFU has kindly sent information received via e-mail from Geoff

GJ4ICD, the latest dated 28/4, which includes the most recent update of a world-wide 50 MHz beacon listing with 158 entries running to more than two A4 pages! As far as is known the list does not include private non-24-hours beacons.

Geoff GJ4ICD makes a very generous offer that if anyone requires a beacon and is willing to maintain and look after it, he will supply one free of charge! I assume that also means a VK station, for instance, could undertake to cover the running costs of a beacon placed in a Pacific island country with the consent of their administration and a willing amateur to house it.

When I update my own world listing I will need to dust-off the scanner to save time typing such an extensive list. Including VK there are 44 beacons listed for the Asia/Pacific regions. Anyone requiring a list can have a copy from me on receipt of an SASE.

In the May issue of *Amateur Radio* I listed the various six metre records for each state of Australia. For Queensland, I listed John VK4KK as having worked G4CCZ on 15/2/92 at 16,515 km. Geoff GJ4ICD writes, *I also worked John in 1992 for a distance of 16,730 km; however, in 1989 I worked Tom VK4DDG in QG61 at 16,820 km. I think this may be extended as well, but nobody in the UK has replied to my request.*

The situation is much the same here; until someone enters a claim then alterations are not possible, so the present distance remains.

Northern Hemisphere News

Geoff GJ4ICD writes that the following are new beacons. Some may not be helpful to us at the moment but you may wish to add them to your list. 50.0155 LU9EHF, 50.003 BV2FG, 50.070 SK3SIX, 50.0825 LU8DCH and 50.061 WB0RMO. Frank PA0BFM reported good auroral opening on 7/4. Heard/worked OK, S59A, G, GM, GW, OZ, SM, LA, DL, ON, PA, OH and ES.

CO2OJ worked LU on 10/4 via TEP. On 12/4 strong Es opening in Arizona. 15/4 first European Es — I stations worked OKs. 23/4: CO2OJ good Es to W8 and W9 with more than 40 contacts. Also California working Florida via Es. 25/4: First Es in Europe from UK to Italy, also 9H5DM, from 0930 to 1200. 26/5: More Es in Europe with TV copied from SM, LA to GJ4ICD.

The above Es is an early start for the season but it can also mean an early

and required setting on a given frequency. Also their frequency stability has often been poor, usually due to difficulty in finding the correct frequency determining capacitor. It may seem strange, but it is difficult to build a low frequency oscillator around 100 Hz that has a frequency stability of better than half a cycle.

Construction

I built the harmonic generator and audio oscillator on separate boards, to allow for ease of experimentation. There is no reason why they could not be on the same board. The board material was Tandy vero board. This material is different from the normal vero board, in that the copper pads are all isolated, and have to be joined either by wire or solder bridges. Many projects have been constructed on this material and I have found it very useful and easy to make modifications to. Instead of cutting copper tracks, joining tracks lends itself to easy construction. There are several sizes of this board. I used the 276-148 size and 10 pin SIL connectors for all connections to the board, including the RF output. There should be nothing critical in the layout.

One point about bridging the solder pads. If you use the Tandy vero board, use a low temperature soldering iron. Higher temperatures make it difficult to bridge pads.

To make sure the first crystal harmonic signal generator was not a one off, I constructed a second one. The same construction material was used, but I cleaned up the layout using better RF construction. The result was more harmonic output. I made the connections shorter, with the RF output from the buffer amplifier as close to the output SIL connector as possible. I also made the earthing over as many tracks as possible. This is not critical but did show that the harmonic output could be increased if required.

Conclusion

This is one project I feel well pleased with. A "new" idea on controlling the level output of an RF generator, by changing the supply voltage. It is also a signal generator that could be improved on in several ways. I powered mine with a standard 9 volt "transistor" battery that should run for hours, as the basic circuit draws 10 mA and, with the CTCSS encoder on, 15 mA.

As many repeater sites are only accessible on foot, this signal generator could be a worth while addition to your test equipment. I look forward to any improvements you may come up with.

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finish. Last year the northern Es contacts were plentiful and we followed with a good season also. I am sure the same will apply in both areas this year.

Ted Collins G4UPS had a quiet month in March. Apart from his daily sked stations of G3CCH and SM7AED his other contacts were SP6CPH, OY6A, OZ7DX, SM7FJE, G3HBR and 5T5JC. Five G and two OZ beacons heard. Quite a lean month.

The Doughnut Effect

Emil Pocock W3EP reports on the above Effect in the April 1995 issue of *Six News*, the quarterly magazine of the UK Six Metre Group. It came following a request for information in the previous issue as to why it seemed difficult to work via Es at distances between 2400 and 2800 km, particularly as the phenomenon was most evident during the JY7SIX expedition, whereas longer and shorter distances were more common.

Emil writes, *Your appeal to explain why it is more difficult to work 2400-2800 km on sporadic E than shorter or longer distances has a relatively straightforward answer. We have seen that same effect time and again over here. I call it the doughnut effect.*

Sporadic-E paths between 2400 and 2800 km are more difficult to complete than longer and shorter paths. The maximum single-hop distance for Sporadic-E contacts is about 2300 km, a geometric restraint based on an average height of E-layer ionisation of 105 km or so. Curiously enough, sporadic-E paths in the 1800-2200 km range are probably the most common. This is because the single-hop distances near the maximum useable frequency (MUF) are also longest. As the MUF rises above 50 MHz, the path shortens.

It may be possible that some sporadic-E paths at 2400 km or even longer are also completed by unusually long single hops, perhaps from patches of E-layer ionisation that are somewhat higher than the average 105 km. Even so, it is more likely that sporadic-E paths longer than 2400 km are via multiple hops.

If that is indeed the case, then a 2400 km path must involve two hops with an average of 1200 km each (the hops do not have to be of equal length, so long as they total 2400 km). The problem is that 1200 km paths are unusual at 50 MHz, because the required MUF to create such short hops is high, perhaps in the 100 MHz range. Thus to complete a 2400 km path at 50 MHz, two separate sporadic-E centres with MUFs of 100 MHz and spaced 1200 km apart are needed. That is a pretty stiff requirement!

As the path lengthens from 2400 km, the required MUF for the two sporadic-E

centres drop, thus making it more likely that the required geometry will be achieved. In theory, this suggests that as the distance approaches 4600 km, there should be a greater incidence of double-hop sporadic-E.

When the probability of sporadic contacts is graphed in two-dimensional space, a sort of doughnut shape emerges. Sporadic-E contacts are rarely shorter than 400 km. That is the hole. As the distance lengthens from 400 km, the occurrence of sporadic-E contacts increases until 2300

km is reached. That is the main part of the doughnut. There is a sharp drop-off at 2300 km amounting to a sharp boundary until around 2800 km or so, then contacts become more and more likely until 4600 km, when the second, but less sharply defined boundary is reached.

At 4600 km and longer, there are many possible configurations of hops that make the 4600 to 5200 km void less clearly defined. A 4800 km path could be completed by three 1600 km hops, for example. The MUF requirements for 1600

WIA News

New Licences and Operating Conditions

The long-awaited new licence and operating conditions and privileges for amateur stations were expected to be announced by the Spectrum Management Agency (SMA) by the end of May. It was not known in early May when they might come into effect.

These have been delayed since 1992, when foreshadowed amendments were first announced by the then Minister for Communications, David Beddall.

A lot of hard work by the WIA went into revisions of the Radio-communications Regulations and the Technical Licence Specifications (TLSs), and negotiating acceptance of a whole variety of issues over operating conditions and privileges with the SMA.

While many of the conditions and privileges the WIA sought have been incorporated, we didn't win on everything. But that won't stop continuing effort by the WIA to gain advances in privileges and conditions in the future.

The new privileges and conditions granted by the amended Regulations and new TLSs provide increased freedom for amateur operators, freeing up some of the technical and operating restrictions which have existed up to now, and are certain to improve the experimental foundation of the hobby.

There are to be two new Licence sub-types under the general Amateur licence type recently created by the SMA. These are: the Intermediate Licence, replacing the old Combined Licence, and the Novice Limited Licence, a totally new class.

In addition, there is to be the Unrestricted (AOCP) and the Limited licences (AOLCP), and separate

licences for amateur beacons and repeaters, making seven licence sub-types in all.

The Novice Limited will be a no-code licence giving Novice licence privileges on the 2 m and 70 cm bands, with access to digital (packet and RTTY) and FM voice modes. Novice Limiteds will be able to use a maximum RF power of 30 watts (average). Reciprocal licence agreements are yet to be negotiated with other countries, the SMA advised.

The Novice licence will have enhanced privileges above 30 MHz, providing access to the 70 cm band and to packet and RTTY digital modes on both 2 m and 70 cm. Permitted output power will increase to 100 watts pX (peak) and 30 watts pY (average). Novices will also get access to more band space on the 15 m and 2 m bands, in addition to 433-435 MHz and 438-440 MHz on 70 cm.

Limiteds are to get access to the 10 m band, but negotiations over the final details had not been completed by early May.

Intermediates are to get access to the full 15 m and 10 m bands and power restrictions below 50 MHz are to be lifted, allowing the use of 400 watts pX (peak) and 120 watts pY (average).

Unrestricted and Limited licensees will be permitted wideband modes, such as spread spectrum or pulse modulation above 420 MHz, including those "not yet invented". Restrictions on repeater cross-linking have been removed.

The amended Regulations affecting amateur radio were signed by the Governor General on 28 March, but the TLSs were not finalised by early May. These details are not complete. We'll have further, complete details, for *WIA News* when they come to hand.

km hops are not as high as for 1200 km, although finding three sporadic-E centres lined up optimally is not common either. You can make your own calculations and discover the various possibilities for difficult distances.

This line of logic suggests that there may be some prime distances for multi-hop sporadic E. If the most common single-hop contacts near the MUF fall into the 1800 to 2200 km range, then the most common multi-hop paths might be expected at 3600-4400, 5400-6600 km, and so forth.

On the basis of the above, the last sentence could logically explain the relative ease with which it was possible to work Darin VK0IX from southern Australia at distances between 3800 and 4000 km. But it still would not have been done, without the diligence shown by a few operators, who took appropriate steps to ensure that Darin was sufficiently convinced of the need to leave a warm room, tramp half a kilometre over ice to a cold shack, come on the air, and remain there for several hours! This he did on several occasions, so we are very grateful. However, the actions of all involved has ensured that Antarctica has at last been firmly placed on the VHF map of contacts.

Beacon Award

Six News, the UK Six Metre Group magazine, mentions the following award. *Funk Telegramm*, announce the VHF beacon award. A glass painting 21 x 30 cm engraved with callsign and OP name, costing DM 25 including postage, will be awarded to those meeting the following criteria:

Effective Jan 1 to Dec 31 UTC 1995. 6 m: Class 3 for 10 beacons, Class 2 for 15 beacons with 10 DXCC countries, Class 1 for 20 beacons with 15 countries. Send applications with date, UTC, frequency, beacon text, text repeat time, propagation mode (Es, Aurora, Tropo, MS etc.), to: Dieter Traxel, DK5PZ, Mainzerstr 5, D-54550 Daun, Germany. (Thanks to JA1VOK/HB9AMZ).

Although I said earlier that there are 44 beacons operating in the Asia/Pacific regions, just how many will be heard at the present time is difficult to predict. For Class 1 and 2 awards I think we would be beaten by the DXCC countries requirement. European amateurs will be best placed to meet DXCC requirements. I mention it here because it is something different, somewhat akin to SWL reporting.

Closure

Winter is approaching, evidence of which is the scarcity of reports of contacts on any bands. June/July may provide

winter Es on six metres. In the absence of active operating, now may be the time to search your records for the information I have requested on tropo openings to other countries on 144, 432, 1296 and above.

Closing with two thoughts for the month:

1. When it pays better to talk than listen, change your company, and

2. Patriotism depends as much on mutual suffering as on mutual success. It is by that experience of all fortunes and all feelings that a great national character is created . . . Benjamin Disraeli.

73 from The Voice by the Lake

*PO Box 169, Meningie SA 5264

Fax: (085) 751 043

Packet: to VK5ZK for VK5LP

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Spotlight on SWLing

Robin L Harwood VK7RH*

Winter has well and truly arrived, which means that daytime listening is producing some interesting monitoring. Recently, Radio Moscow, also known as the "Voice of Russia", substantially reduced their foreign language output, which has made it easier to observe signals which have been blanketed for some time. I am noting many Middle Eastern signals, particularly on the 31 metre band, at around 0400 UTC. They stand out as some are operating on split channels and often are variable in frequency.

On 17 April a massive bomb demolished a Federal Government building in Oklahoma City with a huge number of casualties. Investigations that followed quickly led to the capture of a suspect with strong links to extremist right wing groups in the Midwest. These loosely knit groups have formed themselves in so-called citizens' militia and are hostile to the Federal Government. It also became apparent that several of these groups have utilised American domestic shortwave broadcasters to propagate their messages of hate and impending doom.

One of these leaders has a regular show over WWCR in Nashville Tennessee. This was highlighted on the prime time TV evening news, which had the effect of increasing the WWCR audience. One of the militia groups openly alleged that the terrorist bomb was in reality an FBI plot to discredit the militia and wipe them out. Therefore, it called on "responsible people" to arm themselves and prepare themselves for the coming "Armageddon". In last month's column, I mentioned that another extremist group in Japan had come under suspicion, after people were gassed in a Tokyo subway with a deadly nerve agent called sarin. This group also used shortwave radio extensively to propagate their message that "Armageddon" was imminent. This group "Aum Shinryko" or "Supreme Truth" hired time over the huge transmitter network of Radio Moscow's

World Service. About 12 months ago, they suddenly reduced their English release, yet continued their Russian and Japanese language releases. After the sarin gas attacks, the Russian broadcasting authorities quickly terminated "Radio Aum Shinryko" and deregistered the religious organisation in the Russian Federation. Media reports from Japan state that the Tokyo Government will be doing likewise.

These two separate incidents have highlighted a new and worrying trend. That is the utilisation of shortwave radio by extremist doomsday groups to broadcast their hate-filled messages against the established order. WWCR seems to be the main vehicle for many of these extreme right-wing American groups, which are lumped in between various religious groups who also use the Nashville station. "Radio Aum Shinryko" has been closed down in Russia and its leaders are in hiding in Japan, following the assassination of one of its alleged "scientific" experts by a Japanese of Korean extraction.

As mentioned earlier, the Russian external services have made some cutbacks to their output. A further eight languages were axed on 2 April, which means that there are only about 35 language services left. To contrast this, at the height of the Cold War Moscow was broadcasting in 69 languages. At the same time, the number of simultaneous frequencies carrying the English releases of the VOR World Service have also been reduced. It is strange, now, not being able to hear Moscow on a multiplicity of channels simultaneously.

Well, that is all for this month. Don't forget, if you have any news you would like to pass on, I can be reached at the addresses below.

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HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μV (dBμ) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μV in 50 ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μV at the receiver's input and the S-meter scale is 6 dB per S-point.

μV in 50 ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10

1.56	S4	4
0.78	S3	-2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 16.5.

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBμ	FOT	7.1	14.2	18.1	21.2	24.9
1	15.2	16	11.4	8	19	7	-6	-26
2	15.7	16	11.7	9	20	9	-4	-23
3	15.9	17	11.9	12	21	10	-3	-21
4	15.7	18	11.8	18	22	10	-3	-23
5	14.7	20	11.1	29	22	6	-10	-33
6	12.4	24	9.3	39	16	-7	-29	...
7	10.3	27	7.8	40	4	-26	...	...
8	8.8	30	6.7	38	-9	...	...	...
9	7.8	32	5.9	36	-21	...	...	...
10	7.2	33	5.4	34	-34	...	...	...
11	7.1	33	5.3	33	-35	...	...	...
12	7.3	33	5.4	34	-31	...	...	...
13	7.4	33	5.5	35	-29	...	...	...
14	7.4	33	5.5	35	-29	...	...	...
15	7.5	33	5.6	36	-28	...	...	...
16	6.9	34	5.3	33	-37	...	...	...
17	6.7	34	5.2	32	...	...	...	...
18	7.1	34	5.4	34	-35	...	...	...
19	7.0	33	5.4	33	-37	...	...	...
20	7.8	26	6.1	29	-21	...	...	...
21	9.8	21	7.6	24	-1	-31	...	...
22	11.7	18	9.0	17	9	-12	-33	...
23	13.3	17	10.2	12	14	-2	-19	...
24	14.2	16	10.8	8	16	2	-12	-34

VK WEST — SOUTH PACIFIC

UTC	MUF	dBμ	FOT	7.1	14.2	18.1	21.2	24.9
1	17.5	13	13.2	-15	17	12	3	-9
2	18.6	13	14.0	-17	18	14	7	-5
3	19.3	13	15.0	-15	19	15	9	-2
4	19.5	14	14.6	-9	21	17	10	-1
5	19.3	15	14.5	2	24	18	10	-1
6	17.3	18	13.1	21	26	16	5	-10
7	14.6	22	11.0	33	24	6	-6	-27
8	12.2	26	9.2	39	17	-3	-23	...
9	10.4	29	7.8	40	9	-16	...	...
10	9.2	32	6.9	40	1	-30	...	...
11	8.7	33	6.5	40	-3	-37	...	...
12	8.5	33	6.4	39	-4	-39	...	...
13	8.8	32	6.5	40	-2	-35	...	...
14	8.9	32	6.6	40	0	-34	...	...
15	8.9	32	6.7	40	0	-34	...	...
16	9.1	32	6.7	41	0	-32	...	...
17	8.3	33	6.4	39	-5	...	...	...
18	8.1	34	6.3	36	-7	...	...	...
19	8.6	33	6.6	40	-3	-38	...	...
20	8.5	28	6.5	32	-5	-38	...	...
21	9.6	22	7.0	23	2	-23	...	...
22	12.1	18	9.3	14	12	-4	-22	...
23	14.5	16	11.1	2	16	5	-7	-25
24	16.4	14	12.5	-10	17	10	0	-14

VK EAST — AFRICA

UTC	MUF	dBμ	FOT	7.1	14.2	18.1	21.2	24.9
1	8.3	14	6.6	12	-6	-34	...	...
2	7.6	6	5.8	4	-8	-34	...	...
3	7.3	0	5.7	-2	-9	-34	...	...
4	9.8	3	7.6	-14	1	-14	-31	...
5	14.1	7	10.9	-33	7	1	-7	-22
6	16.2	7	12.6	...	8	5	-2	-14
7	15.1	7	11.3	-37	7	3	-4	-18
8	12.9	7	9.7	-25	6	-1	-13	-30
9	10.6	5	8.0	-16	3	-11	-26	...
10	9.0	4	6.7	-7	-2	-21	...	...
11	8.0	5	5.9	0	-7	-31	...	...
12	7.9	10	5.8	8	-8	-36	...	...
13	8.1	17	6.0	17	-7	-37	...	...
14	8.2	25	6.1	27	-6	-38	...	...
15	7.5	27	5.8	29	-15	...	...	...
16	7.4	30	5.7	31	-16	...	...	...
17	7.6	30	5.8	33	-15	...	...	...
18	7.8	30	5.9	33	-13	...	...	...
19	7.9	30	5.9	33	-12	...	...	...
20	7.8	30	6.0	34	-11	...	...	...
21	8.0	30	6.1	34	-10	...	...	...
22	8.0	30	6.2	34	-10	...	...	...
23	7.5	25	5.9	26	-14	...	...	...
24	7.5	18	5.9	18	-13	...	...	...

VK SOUTH — AFRICA

UTC	MUF	dBμ	FOT	7.1	14.2	18.1	21.2	24.9
1	8.4	24	6.4	26	-4	-34	...	...
2	8.1	18	6.3	17	-5	-34	...	...
3	10.5	17	7.8	12	7	-12	-31	...
4	14.4	14	11.4	0	14	4	-7	-25
5	15.8	11	12.8	-18	13	7	-2	-16
6	17.0	10	13.7	-27	12	8	0	-11
7	16.0	9	12.8	-27	11	6	-2	-15
8	14.3	9	11.3	-20	9	1	-9	-25
9	12.1	9	9.6	-12	6	-6	-20	...
10	9.8	7	7.7	-4	0	-19	-39	...
11	8.3	7	6.5	3	-8	-34	...	...
12	7.4	9	5.6	9	-15	...	...	...
13	7.4	15	5.7	15	-17	...	...	...
14	7.5	24	5.8	25	-17	...	...	...
15	7.7	27	5.9	29	-16	...	...	...
16	7.8	29	6.0	32	-14	...	...	...
17	8.0	29	6.1	33	-13	...	...	...
18	8.0	29	6.2	33	-13	...	...	...
19	8.0	29	6.2	33	-13	...	...	...
20	7.6	29	6.0	32	-17	...	...	...
21	7.7	29	6.0	32	-17	...	...	...
22	8.3	29	6.5	34	-9	...	...	...
23	8.0	30	6.2	34	-11	...	...	...
24	7.9	28	6.2	31	-11	...	...	...

VK WEST — AFRICA

UTC	MUF	dBμ	FOT	7.1	14.2	18.1	21.2	24.9
1	7.5	28	5.8	30	-13	...	...	...
2	7.3	19	5.6	19	-15	...	...	...
3	9.9	16	7.4	11	3	-18	...	...
4	14.4	14	11.1	-1	14	4	8	-26
5	16.3	11	12.5	-20	13	8	0	-14
6	17.3	10	13.1	-31	12	9	2	-10
7	17.9	9	13.4	-35	12	9	3	-8
8	17.1	9	12.6	-34	11	8	0	-11
9	15.2	9	11.4	-27	10	4	-5	-19
10	13.1	10	9.8	-15	6	-2	-14	-34
11	10.7	10	8.0	-3	4	-13	-31	...
12	9.1	12	6.8	6	-2	-26	...	...
13	8.0	17	6.0	17	-9	...	...	...
14	7.9	26	5.9	26	-11	...	...	...
15	8.1	28	6.0	32	-9	...	...	...
16	8.3	30	6.1	35	-8	...	...	...
17	8.3	31	6.2	36	-7	...	...	...
18	8.4	31	6.2	37	-6	...	...	...
19	8.5	31	6.4	37	-5	...	...	...
20	8.5	31	6.4	37	-5	...	...	...
21	8.0	31	6.1	35	-10	...	...	...
22	7.9	31	6.1	35	-12	...	...	...
23	8.9	30	6.5	38	-2	-36	...	...
24	8.4	31	6.4	37	-6	...	...	...

VK EAST — ASIA

UTC	MUF	dBμ	FOT	7.1	14.2	18.1	21.2	24.9
1	20.5	12	15.6	-33	17	16	11	2
2	20.1	12	15.3	-37	16	15	10	1
3	20.4	12	15.5	-38	16	15	11	2
4	21.0	13	15.9	-36	17	17	12	4
5	21.6	13	16.5	-31	19	18	14	6
6	20.7	14	15.8	-21	20	18	13	3
7	18.7	15	14.3	-6	21	16	8	-4
8	16.0	17	12.2	15	22	10	-2	-19
9	13.5	21	10.3	33	18	-1	-19	...
10	11.4	23	8.7	37	8	-19	...	...
11	10.4	25	7.9	39	1	-30	...	...
12	10.1	26	7.7	40	-1	-36	...	...
13	9.8	26	7.4	40	-5	...	...	...
14	9.7	27	7.4	40	-6	...	...	...
15	9.6	27	7.3	40	-6	...	...	...
16	10.1	26	7.7	41	-2	-36	...	...
17	9.4	27	7.2	39	-9	...	...	...
18	7.8	28	6.0	33	-31	...	...	...
19	7.5	28	5.8	31	-37	...	...	...
20	8.1	28	6.3	34	-25	...	...	...
21	11.8	21	9.2	31	10	-13	-37	...
22	17.3	16	13.4	3	22	14	4	-10
23	20.1	14	15.5	-14	21	18	12	1
24	20.5	13	15.7	-25	19	17	12	2

VK SOUTH — ASIA

UTC	MUF	dBμ	FOT	7.1	14.2	18.1	21.2	24.9
1	16.2	10	12.3	-32	11	7	-1	-15
2	17.0	10	12.9	-38	11	8	1	-10
3	17.5	10	13.2	...	11	9	3	-8
4	17.7	10	13.3	-39	12	10	4	-7
5	17.6	11	13.3	-35	13	10	4	-7
6	17.0	12	12.8	-26	14	10	2	-10
7	15.4	12						

VK EAST — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	11.2	-1	8.0	...	3	-2	-12	-28	
2	11.3	-6	8.1	...	1	-2	-10	-24	
3	12.3	-5	9.0	...	0	0	-6	-18	
4	13.9	-3	9.8	...	-2	-1	-2	-11	
5	15.4	0	11.2	...	-3	2	0	-6	
6	16.2	1	11.9	...	-3	3	2	-4	
7	16.3	2	11.9	...	-2	4	2	-3	
8	16.3	4	12.0	...	0	5	2	-5	
9	14.7	3	11.2	...	3	2	-3	-14	
10	12.3	2	9.4	...	4	-2	-12	-28	
11	10.4	2	7.9	-24	2	-9	-23	...	
12	9.7	4	7.4	-13	1	-14	-31	...	
13	9.5	8	7.2	-4	1	-17	-37	...	
14	9.3	12	7.0	6	0	-21	...	...
15	9.2	17	6.9	15	0	-24	...	...
16	9.2	21	7.0	21	0	-26	...	...
17	9.6	25	7.3	30	3	-23	...	...
18	9.2	27	7.0	33	0	-30	...	...
19	8.0	29	6.1	33	-12	...	...	...
20	7.7	30	6.0	32	-15	...	...	...
21	9.9	28	7.6	38	6	-22	...	...
22	10.3	24	7.8	27	9	-12	-34	...	
23	12.6	16	8.9	-4	14	4	-7	-25	
24	11.7	6	8.3	-28	7	0	-11	...	

VK SOUTH — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	11.4	9	8.0	-17	8	-1	-14	-32	
2	11.4	1	8.0	...	4	-1	-11	-28	
3	12.6	-1	8.9	...	2	1	-6	-18	
4	14.4	0	9.9	...	0	2	-1	-10	
5	16.2	2	11.5	...	-2	3	2	-4	
6	17.2	3	12.2	...	-3	4	3	-1	
7	17.3	3	12.3	...	-3	4	3	-2	
8	16.1	2	12.1	...	-1	3	0	-8	
9	13.9	0	10.4	...	1	1	-5	-16	
10	11.4	-2	6.6	...	2	-4	-14	-30	
11	9.6	-4	7.2	-29	0	-11	-25	...	
12	8.5	-3	6.4	-16	-2	-19	-38	...	
13	8.4	2	6.3	-6	-3	-24	...	...
14	8.7	9	6.4	3	-2	-26	...	...
15	8.8	16	6.5	14	-2	-28	...	...
16	8.8	21	6.5	22	-2	-31	...	...
17	8.9	25	6.6	28	-2	-32	...	...
18	9.1	27	6.8	33	0	-31	...	...
19	9.1	29	6.9	36	0	-32	...	...
20	8.5	29	6.5	35	-6	...	...	...
21	8.3	30	6.4	34	-8	...	...	...
22	8.7	30	6.7	36	-2	-35	...	...
23	8.9	28	6.8	33	-1	-32	...	...
24	12.1	20	6.4	11	16	2	-11	-32	

VK WEST — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	11.9	19	8.2	12	14	-1	-16	-38	
2	11.8	9	8.2	-18	8	-2	-14	-33	
3	13.0	4	9.1	...	5	4	-7	-21	
4	15.0	4	10.2	...	3	1	-1	-11	
5	17.1	5	12.0	...	0	5	5	-4	
6	18.1	5	12.7	...	-1	5	5	-4	
7	18.2	5	12.8	...	-2	5	4	-1	
8	18.2	5	12.8	...	-1	5	4	-1	
9	18.3	5	12.9	...	0	5	4	-3	
10	16.5	4	12.5	...	2	4	0	-10	
11	13.9	3	10.5	...	3	3	-6	-8	
12	11.7	3	8.8	-29	3	-6	-19	-22	
13	10.0	4	7.6	-13	0	-15	-33	...	
14	9.5	9	7.2	-1	0	-21	...	...
15	9.5	15	7.2	12	0	-24	...	...
16	9.4	20	7.1	21	0	-27	...	...
17	9.4	24	7.1	29	0	-29	...	...
18	9.5	26	7.1	33	0	-29	...	...
19	9.8	27	7.4	37	2	-26	...	...
20	9.5	28	7.2	37	0	-30	...	...
21	8.4	28	6.5	34	-9	...	...	...
22	8.2	29	6.3	33	-12	...	...	...
23	8.7	29	6.7	35	-5	-39	...	...
24	9.2	28	7.0	35	-1	-32	...	...

VK EAST — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	14.1	19	9.6	5	19	10	1	-13	
2	12.9	20	8.8	10	18	7	-4	-21	
3	12.0	21	8.2	17	17	4	-9	-29	
4	11.5	25	7.9	27	17	1	-14	-35	
5	11.5	24	8.0	27	16	-1	-17	...	
6	11.1	24	8.4	27	14	-4	-21	...	
7	11.1	22	8.4	23	12	-5	-22	...	
8	9.5	16	7.1	11	4	-16	-36	...	
9	8.0	4	6.1	-1	-2	-22	...	...
10	7.8	-4	6.1	-11	-2	-19	-37	...	
11	8.5	-7	6.3	-21	0	-14	-30	...	
12	8.7	-11	6.3	-29	0	-11	-25	...	
13	8.7	-15	6.5	-36	0	-9	-21	...	
14	8.8	-17	6.5	0	-8	-19	-37	...	
15	8.9	-20	6.6	...	-2	-8	-19	-36	
16	8.9	-26	6.7	...	-5	-11	-21	-39	
17	8.3	-38	6.3	...	-10	-18	-31	...	
18	8.2	-38	6.3	...	-10	-18	-32	...	
19	9.2	-16	6.7	...	0	-6	-17	-33	
20	11.5	-4	8.9	...	1	-3	-11	-25	
21	13.9	4	10.6	...	4	2	-5	-16	
22	15.8	10	11.9	-31	10	7	1	-10	
23	16.3	15	11.1	-15	16	12	5	-6	
24	15.1	17	10.3	-3	18	12	4	-7	

VK SOUTH — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	13.4	16	9.3	-2	16	8	-2	-16	
2	12.4	19	8.7	11	16	5	-7	-25	
3	11.6	25	8.1	28	17	2	-13	-35	
4	11.3	25	7.9	29	16	0	-16	-39	
5	11.4	26	8.1	31	17	1	-15	-38	
6	12.5	22	8.9	28	17	1	-15	-37	
7	10.3	21	8.4	24	7	-14	-36	...	
8	8.7	14	6.8	12	-2	-27	...	...
9	7.7	6	6.0	3	-7	-32	...	...
10	7.7	0	5.9	-4	-6	-28	...	...
11	7.8	-5	6.0	-12	-4	-22	...	...
12	8.0	-10	6.1	-19	-2	-17	-34	...	
13	8.1	-13	6.4	-26	-1	-13	-28	...	
14	8.2	-24	6.3	...	-6	-17	-31	...	
15	8.3	-35	6.4	...	-11	-21	-36	...	
16	8.2	...	6.4	...	-17	-26	...	...
17	7.8	...	6.1	...	-26	-37	...	...
18	7.8	...	6.1	...	-27	-38	...	...
19	6.6	...	6.5	...	-16	-24	-37	...	
20	10.3	-12	8.2	...	-1	-4	-13	-27	
21	12.3	-5	9.9	...	-1	-2	-8	-20	
22	14.1	1	11.4	...	1	1	-4	-15	
23	15.3	7	10.7	...	6	5	-1	-11	
24	14.3	13	9.9	-21	13	8	1	-11	

VK WEST — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	13.1	7	9.1	-26	8	2	-5	-19	
2	12.1	11	8.5	-9	9	1	-10	-26	
3	11.4	12	8.0	-1	9	1	-10	-33	
4	11.1	15	7.9	6	10	-3	-17	-37	
5	11.3	16	8.1	8	11	-2	-16	-36	
6	12.3	18	8.8	10	14	-2	-10	-28	
7	13.4	17	9.7	8	16	6	-5	-21	
8	12.5	13	9.4	0	2	-14	-31	...	
9	10.2	9	8.4	0	-2	-14	-31	...	
10	8.6	1	6.7	-8	-4	-22	...	...
11	7.7	-8	5.9	-13	-6	-24	...	...
12	7.6	-14	5.8	-19	-5	-21	-39	...	
13	7.8	-17	5.9	-26	...	-17	-32	...	
14	7.9	-28	6.0	...	-8	-20	-35	...	
15	8.0	...	6.3	...	-14	-24	-39	...	
16	8.1	...	6.3	...	-19	-28	...	...
17	8.2	...	6.3	...	-22	-31	...	...
18	8.2	...	6.3	...	-25	-33	...	...
19	7.7	...	6.0	...	-30	...	...	...
20	7.7	...	6.0	...	-30	...	...	...
21	8.5	...	6.4	...	-14	-22	-35	...	
22	10.2	-13	8.2	...	-3	-7	-16	-31	
23	12.3	-4	9.9	...	-1	-4	-12	-25	
24	13.8	2	9.7	...	3	0	-7	-19	

VK EAST — MEDITERRANEAN									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	12.2	7	9.2	-27	7	0	-11	-28	
2	12.7	2	9.6	...	4	0	-7	-21	
3	15.6	4	11.6	...	2	4	0	-8	
4	18.9	6	14.3	...	0	6	5	0	
5	20.4	6	15.7	...	-2	6	6	2	
6	20.5	6	15.6	...	-2	6	6	1	
7	19.4	5	14.7	...	1	5	4	-1	
8	17.1	5	13.0	...	1	4	1	-7	
9	14.4	3	10.9	...	3	2	-5	-17	
10	12.1	2	9.2	-39	3	-3	-14	-31	
11	10.4	2	7.9	-22	2	-10	-25	...	
12	9.8	6	7.4	-9	2	-15	-33	...	
13	9.8	12	7.4	3	2	-17	-37	...	
14	9.7	18	7.2	15	3	-20	
15	9.6	25	7.3	29	3	-23	
16	9.7	27	7.3	34	4	-23	
17	10.0	28	7.6	38	6	-20	
18	9.7	29	7.4	38	4	-24			

HAMADS

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● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth.

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FOR SALE ACT

● **YAESU TCVR FT901DM, s/n 8M07222, \$900;** LINEAR Amp FL2100B with new 572B valves, s/n 8J310087, \$600, separately. As complete set, \$1,300 ONO. Charlie VK1WW OTHR.

FOR SALE NSW

● **DRAKE TR7 HF transceiver, solid state, accessories and manuals, s/n 149, \$900;** HF linear 600 W homebrew, \$250; 2 m FM transceiver, Quartz-16 crystal controlled, s/n 01055, \$100; ROTATOR Hygain Ham 3, \$350; 28 MHz transceiver, converted CB, s/n 033748, \$100. Steve VK2AXM OTHR (02) 419 3841.

● **TRANSMITTER valve 8906, similar 2C39A, \$18 ea;** DOOR KNOB capacitors 20 pF, 40 pF, 50 pF, 100 pF, 5 kV \$6.80 ea. D Dauner VK2EDD (02) 724 6982.

● **ICOM 725 solid state digital 100 W HF transceiver, \$750;** KENWOOD AT250 automatic antenna with 4 antenna inputs, \$400. Both radio

and tuner in very good condition and original boxes. Ernest (02) 906 2628 BH.

● **HP VECTRA COMPUTER 40 Mb hard drive, 1.44 Mb and 360 k floppies, VGA mono monitor, 2 Mb RAM, \$350 or exchange HF or 2 m gear.** Bill VK2WS OTHR (067) 75 2158.

● **6 M rigs, Philips 828E, with full details for conversion and necessary parts, not xtals, \$40.** David VK2BDT QTHR (048) 21 5036.

FOR SALE VIC

● **ICOM IC-W2A dual band hand held, expanded receiver, spare battery, leather case, extension speaker microphone, high performance aerial, DC adaptor, AC plug pack, carry bag suits lot, desk top fast charger, \$850.** Kerry VK3KFC (059) 96 3580.

● **ICOM IC-725 HF transceiver 100 W, EC, orig packaging, manuals and accessories, \$1,100;** ICOM IC-575A 10/6 M multimode transceiver, EC, PBT, DDS, internal PSU, 26-56 MHz with orig packaging, manuals (inc service manual) and accessories, \$1,500. Adam VK3ALM (015) 36 2799.

● **SPIDER QUAD, two elements, cast hubs, eight solid tapered spreaders (f'glass), enough hard drawn copper wire for three band operation 10, 15, 20 m, \$350.** Jim VK3YJ OTHR (03) 315 9387.

● **EX-ARMY HD gal tower, 15 m in 8 sections, rotator, 4 el mono Yagi, 20 m, 8 m boom, inducto match, balun, coax, guys, anchor plates (3), \$600.** Buyer to dismantle. W Timmermans VK3BTO OTHR.

● **DECEASED ESTATE. Complete Collins receiver and transmitter line up. Collins 75S 3B and a Collins 32S 3B, including remote speaker unit, full set of spare tubes all in pristine condition; KW107 antenna tuner, all bands 80 to 10 M; Heathkit HA1 Hi-Z linear amplifier; frequency counter 25 MHz, digital; Tech HF signal generator L200; Icom IC21A 2 m rig; Icom IC22 mobile 2 m rig; Leader 815 grid dip oscillator (as new); Oskerbloc SWR/PWR meter, as new. All prices are reasonable. Interested purchasers should contact the Victorian Division office for further information.**

● **KENWOOD TS-440S/AT, clean \$1,400;** ICOM IC2400A 2 m/70 cm mobile, \$900; ICOM IC575A with CWF, hi-stab oscillator, \$1,700; TOKYO HL1K/6 linear 10 W/500 W PEP, \$1,400; YAESU FT690R with leather case; YAESU FRDX400 receivers (2), FLDX 400 transmitter, \$150 each. Mike VK3RZ (018) 39 7565.

● **SHACK Clearance. OMEGA "T" noise bridge to 300 MHz \$50;** YAESU mobile whip set for 80, 40, 20 and 2, m \$100; MFJ 949 ATU, built in dummy load, etc, \$150; ICOM IC2A HH spkr mic, DC adaptor, nicad pack & charger, \$200; EIMAC 4CX350F tubes, new in box, \$25 ea; YAESU YD148 desk mic, \$50; SHURE 401A PTT mic, \$40; TECH TE15 GDO, as new in box, \$60. Ron VK3OM QTHR (059) 44 3019.

FOR SALE SA

● **ANTENNA 8 el log periodic for HF bands, 10-30 MHz continuous, with all hardware, instructions, good condition, \$450 plus freight.** Offers considered. Will not fit in my yard. Paul VK5MAP QTHR (086) 51 2398.

● **TOKYO Hi-power HL160V25A 2 metre amp, GaAsFET preamp, 160 watts out, \$450;** YAESU FT-209RH 2 metre HH with mike, battery case, nicad pack, charger, \$275. Terry VK5ATN QTHR (08) 863 1268 AH.

FOR SALE WA

● **AR 1500 H/held scanner, 500 kHz — 13 GHz, FM AM SSB, 1000 memories, as new, \$625;** YAESU FT-290 RII 2 metre all mode with case, ext mike, and battery holder, \$650; YAESU FT-620 6 metre base transceiver AM-CW-SSB, excellent condition, \$225; UNIDEN/PRESIDENT HR2510 10 m transceiver, brand new, still in box, never used, \$300. John VK6NU (09) 446 1345 6-7pm WST.

FOR SALE TAS

● **TL922 Linear amp, two new 3500Z tubes, 2000A Dentron tuner, SM220 Monitor, free standing tower with rotator, tri-band beam, quarter wave vertical 40 m antenna, golden bug, phone patch, co-ax cable.** Don VK7NN (003) 30 2688.

WANTED ACT

● **SERVICE manual or circuit diagram for Eddystone 990B VHF Communications receiver, will copy and return and cover all costs.** Dave VK1ZDW QTHR or (06) 291 7856 AH or (06) 280 2695 BH.

WANTED NSW

● **UNUSED 2 m transmitter, faulty or not, student cannot afford commercials, will pay postage.** Paul Titze VK2THN 2/84 Railway Parade, Granville NSW 2142.

● **MANUAL or circuit for RCA oscilloscope model WO-33A, will pay costs.** Nick L20106 OTHR.

● **ICOM IC12G, GE, GAT technical information (service manuals, layouts, etc). Will cover any copying and postage costs.** Bob VK2CAN OTHR (02) 416 3727.

● **INFORMATION about external microphone and speaker connection for Alinco DJ100T.** Noel VK2YXM QTHR (02) 871 3079.

● **SERVICE manual urgently required for Kenwood TS530S transceiver, will repay costs or copy and return.** Maurie VK2OW OTHR (02) 838 1834.

WANTED VIC

● **KENWOOD VFO120.** Jim VK3YJ OTHR (03) 315 9387.

● **DESPERATE — power supply for FT200; also circuit etc for Wireless set No 62.** Clem Jarvis VK3CYD QTHR (051) 27 4248 AH.

● **EX MILITARY aerial screw-in sections, approx 95 cm long 1.6 cm or 2.2 cm diameter**

or telescopic style mast. Don VK3DON QTHR (03) 848 3059 AH or (03) 675 3601 BH.

● INTEGRATED circuit TC5080P, or its internal design, or a substitute circuit for its use in tcvr IC22S or a damaged IC22S. Harley VK3CHK QTHR (03) 555 4698.

● EDDYSTONE EC10 MK2 or trio 9R59DS Comm RX, must be in good condx. Damien VK3CDI (054) 27 3121.

WANTED QLD

● CABLE mounting 4 pin sockets, also 4 pin cable mounting plug for a restoration job. Graham VK4WEM QTHR.

WANTED SA

● SERVICE manual or photo copy for Kenwood TS-440S, power lead for Kenwood TS-130S, TS-440S; 60 cm of orange pvc tubing 16 mm OD, 13 mm ID. Will pay costs. Paul VK5MAP QTHR (086) 51 2398.

WANTED WA

● 430 MHz MODULE for Yaesu FT-726R; also SAT-726 duplex module for same. John VK6NU, Not QTHR, (09) 446 1345 6-7pm WST.

MISCELLANEOUS

● THE WIA QSL Collection (now Federal) requires QSLs. All types welcome especially rare DX pictorial cards special issue. Please contact Hon. Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350. ar

What's New

Bob Tait VK3UI introduces new products of interest to radio amateurs.*

I recently met Kevin Cavanagh VK4SP at the EMDRC White Elephant Day held at Box Hill in Victoria. Kevin and his wife travelled down from Queensland with a whole pile of amateur radio goodies. These adorned their very impressive display of data controllers, modems and noise reduction systems. Their business specialises in digital modes, offering the amateur everything they are likely to need to get into packet, RTTY, AMTOR or Internet.

If you want Baycom, JVFax, Mscan, Packratt, or the new Pico-Packet, give Kevin a ring and compare his prices. Ask about his trade-in offer on your old packet modem. Among the many agencies are popular brands such as PacComm, AEA, Tigertronics, JSP Communications Inc filters, and Drake Communications Receivers. A large range of software is also available for SSTV and Weather Fax, plus many Windows based programs for the data enthusiast.

Kevin Cavanagh also offers a free call

service to his customers on 1800 639 099 as well as mail order service with same day dispatch anywhere in Australia. Bankcard, VISA, Mastercard, Money Orders and Personal Cheques accepted.

Kevin Cavanagh is located at 222 Brisbane Valley Highway, Wanora, Queensland, 4306 — Phone/Fax (074) 643 954.

*C/o PO Box 2175, Caulfield Junction VIC 3161 ar

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

J L (LEN)	GREY	VK2AKO
J H (Jim)	O'BRIEN	VK2BHU
A D	EYERS	VK5ADE

ar

Hamads

Please Note: If you are advertising Items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STO code), on both forms. Please print copy for your Hamad as clearly as possible.

*Eight lines per issue free to all WIA members, ninth line for name and address. Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.

*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.

*Copy typed or in block letters to PO Box 2175, Caulfield Junction, Vic 3161, by the deadline as indicated on page 1 of each issue.

*QTHR means address is correct as set out in the WIA current Call Book.

*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.

*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

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State:

Not for publication:

Miscellaneous

For Sale

Wanted

Name:..... Call Sign:..... Address:

TRADE PRACTICES ACT

It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with strictly.

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All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

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Telephone: 428 2958

MAIL DISTRIBUTION:

R L Polk & Co Pty Ltd, 96 Herbert St, Northcote, Vic. 3070. Tel: (03) 482 2255

CONTRIBUTIONS TO AMATEUR RADIO

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. "How to Write for Amateur Radio" was published in the August 1992 issue of AR. A photocopy is available on receipt of a stamped, self addressed envelope.

BACK ISSUES

Available only until stocks are exhausted. \$4.00 to members, which includes postage within Australia.

PHOTOSTAT COPIES

When back issues are no longer available, photocopies of articles are available to members at \$2.50 each (plus \$2.00 for each additional issue in which the article appears).

The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

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HOW TO JOIN THE WIA

Fill out the following form and send to:

The Membership Secretary
Wireless Institute of Australia
PO Box 2175
Caulfield Junction, Vic 3161

I wish to obtain further information
about the WIA.

Mr, Mrs, Miss, Ms:.....

Call Sign (if applicable):.....

Address:.....

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WIA Morse Practice Transmissions

VK2BWI Nightly at 2000 local on 3550 kHz

VK2RCW Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm

VK3COD Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz

VK3RCW Continuous on 144.975 MHz 5 wpm, 10 wpm

VK4WIT Monday at 0930 UTC on 3535 kHz

VK4WSS Tuesday at 0930 UTC on 3535 kHz

VK4WCH Wednesday at 1000 UTC on 3535 kHz

VK4AV Thursday at 0930 UTC on 3535 kHz

VK4WIS Sunday at 0930 UTC on 3535 kHz

VK5AWI Nightly at 2030 local on 3550 kHz

VK5RCW Continuous on 144.975 MHz, 5 wpm to 12 wpm

VK6WIA Nightly at 1930 local on 146.700 MHz and nightly (except Saturday)
at 1200 UTC on 3.555 MHz.

WIA Divisional Bookshops

The following items are available from your Division's Bookshop
(see the WIA Division Directory on page 3 for the address of your Division)

	Ref	List Price		Ref	List Price
ANTENNAS			MISCELLANEOUS		
Ant. Compendium Vol 2 Software 5.25" IBM Disk	BR293	\$22.00	Beyond Line of Sight	BR459	\$32.00
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If the items are carried by your Divisional Bookshop, but are not in stock, your order will be taken and filled as soon as possible.

Divisions may offer discounts to WIA members — check before ordering. Postage and packing, if applicable, is extra.

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The prices are correct as at the date of publication but, due to circumstances beyond the control of the WIA, may change without notice.



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JULY 1995
Volume 63 No 7



RADIO **AMATEUR**

Journal of the Wireless Institute of Australia



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Cover

Mai VK6LC operating VK6ISL in the present day homestead on Faure Island. For details of the Faure Island DXpedition, see Stephen Pall's *How's DX* column in this issue.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest National Radio Society
Founded 1910

Representing the Australian Amateur Radio Service
Member of the International Amateur Radio Union
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Editor's Comment

Remembrance Day

There are several places in this issue where next month's Remembrance Day contest is discussed. The rules are detailed in this month's Contest Column, but something else is also mentioned there and elsewhere. This is that, if desired, Contest participants should not just call "CQ RD" but "CQ RD 50" in commemoration of the 50th anniversary of the resumption of amateur radio in Australia after the end of World War II. Later, nearer to the actual anniversary date in November, there may be other activities as well.

In the meantime I just wanted to mention another fact or two about this, our most popular contest. Some people, hearing the call "CQ RD 50" might imagine that it is the 50th RD Contest. No, it is only its 47th year. Although the Contest commemorates the end of the Pacific war in August 1945, it was not actually established as a contest until 1948. So perhaps again in 1997 we would have reason to call "CQ RD 50" for the 50th Contest, and in 1998 for the 50th anniversary.

At the time of the first Remembrance Day Contest, I had been on the air as VK5BP for about eight months. Although I had joined the WIA when it re-formed in 1945, I obviously hadn't read my *Amateur Radio* for August 1948. Demonstrating my homebrew AM equipment to some visitors, I was surprised to hear all the serial numbers being exchanged on 40 metres. So I called a station (it was VK3TG) and asked what it was all about. He (Frank, not the present 3TG) "put me in the picture" and away I went for another five QSOs. One of them was Jim VK2BO, who has been in every RD Contest since! But I only put in a six QSO check log and didn't appear again in the Contest until years later as a VK3. Thinking back, I am glad I can say I was in the first RD, even if only for about one hour!

On The Grapevine

Years ago, even before I joined the WIA (and that was 50 years ago!) I asked the amateur who was my source of knowledge then (my "Elmer" as some would put it), "Was there an organisation of radio amateurs before the War?"

His response was, "Well, there was the old Wireless Institute". This was in a tone of voice, accompanied by a feeble grin, which in a few words gave the impression that the Institute was a rather ineffective body representing a minority of amateurs, and whose members were always squabbling!

Has anything changed? As some of you may have heard or seen, particularly on the "packet grapevine", there are disagreements and arguments, some involving our Publications Committee, still continuing, and mostly over trivialities.

Must we continue this way? If we do, we risk, at best, a disgruntled minority membership, becoming even smaller, or at worst, the demise of the WIA.

After 85 years that would be too sad to contemplate.

Bill Rice VK3ABP
Editor
ar

WIA News

No Changes to Contents of Amateur Licence Exams

Although the new amateur licence conditions and regulations were announced last month, there will be no change to the content of the amateur licence regulations examinations, for the time being.

The examination question bank for the regulations is now being revised to reflect the changed licence conditions and operating privileges. The final details of the new licence conditions and regulations were only completed a

few short weeks before being released. The regulations were signed by the Governor General on 28 March, and are much foreshortened to those which prevailed previously. Most of the operating conditions and privileges are set out in the new Technical Licence Specifications, gazetted on 2 June.

Those who are presently studying for the regulations examination, radio amateurs assisting them, along with invigilators conducting examinations, should put out of their minds the details of the new licence conditions to avoid confusion.

The regulations examination will continue, for the time being, to be based on the regulations applying

to the amateur radio service as detailed in the current Spectrum Management Agency brochures RIB70, 71 and 72, issued before 2 June, this year. The SMA advise that they will not be revising these documents until later this year.

The AOCIP and Novice theory syllabuses are also to be revised by the WIA, along with the respective theory question banks. Just as the Limited Licence requires a pass in the AOCIP theory and regulations, the new Novice Limited only requires a pass in the Novice theory and regulations examinations.

A formal announcement will be made by the WIA in due course regarding the introduction date of both the revised regulations and theory exam question banks.

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers	Weekly News Broadcasts	1995 Fees	
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Rob Apathy Secretary Len Jones Treasurer Alex Colquitt	VK1KRA VK1NLJ VK1AC	3.570 MHz LSB, 146.950 MHz FM each Wednesday evening commencing at 8.00 pm local time.	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Michael Corbin Secretary Pixie Chapple Treasurer Peter Kloppenburg (Office hours Mon-Fri 11.00-14.00 Mon 1900-2100)	VK2PFQ VK2KPC VK2CPK	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. Voicemail highlights on (02) 724 8793. The broadcast text is available on packet.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 9885 9261 Fax (03) 9885 9298	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530)	VK3PC VK3XV VK3XLZ	MONTHLY BROADCAST on the second Sunday of the month, starts 10.30 am. Primary frequencies 3.615 LSB, 7.085 LSB, and FM(R)s 146.700 Mt Dandenong, 147.250 Mt Macedon, 147.225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH, VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Geoff Sanders Secretary Lance Bickford Treasurer Rodger Bingham	VK4KEL VK4ZAZ VK4HD	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Garry Herden Secretary Maurie Hooper Treasurer Charles McEachern	VK5ZK VK5EA VK5KDK	1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555, 7065, 10.125, 146.700, 0900 hrs Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 434 3283	President Cliff Bastin Secretary Ray Spargo Treasurer Bruce Hedland-Thomas	VK6LZ VK6RR VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 52 Connaught Crescent West Launceston TAS 7250 Phone (003) 31 9608	President Andrew Dixon Secretary Robin Harwood Treasurer Terry Ives	VK7GL VK7RH VK7ZTI	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNV), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$69.00 (G) (S) \$55.65 (X) \$40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).			Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times.

Note: All times are local. All frequencies MHz.

Transmitters

80 Metre CW QRP Transmitter

Peter Parker VK1PK describes how to build a simple, low power transmitter which would be ideal as a first homebrew transmitter.*

It has never been easier or cheaper to construct amateur radio equipment. Modern technology, which has given us black boxes with every conceivable feature, has also provided a host of components which can simplify home construction.

A case in point is the 80 m CW transmitter described here. This transmitter is frequency agile and its one watt output is ample for local contacts. A power amplifier can be added later if desired. The basic design is not new (see Reference 1 and 2).

All components are available new and the total cost should not exceed \$30.00 using new components.

Circuit Description

Most simple transmitters are crystal controlled. This assures stability but limits the rig's utility. While a VXO is useful on the higher bands the frequency pulling range with 3.5 MHz crystals is small. The key to increased frequency agility on 80 m, without a conventional VFO, is the low cost 3.58 MHz ceramic resonator.

The pulling range of a 3.58 MHz ceramic resonator covers the Novice

80 m sub band and part of the CW segment below 3.525 MHz. A ceramic resonator is like a crystal but not quite as frequency stable. The main advantage is the large frequency pulling range.

The transmitter block diagram is shown in Fig 1. It is similar to a crystal controlled transmitter and includes an oscillator, buffer, and final amplifier. The final amplifier is keyed and the oscillator remains operating during the time that the operator is sending. Keying the oscillator would make frequency stability difficult to obtain and should generally be avoided. The oscillator must be switched off when receiving to avoid interference. An exception would be in a direct conversion transceiver. Transmit receive switching is by a panel mounted switch which switches both the antenna and power to the oscillator and buffer.

The transmitter schematic diagram is shown in Fig 2. An unusual aspect of this transmitter is the use of a digital CMOS IC type 4069 for the buffer and oscillator stages. The IC contains six inverters of which four are used in this circuit. One inverter

is used as the oscillator. Two inverters are used as the buffer stage. The fourth provides an output should a direct conversion receiver be added.

The frequency of the ceramic resonator oscillator is changed by varying added capacitance in the oscillator circuit. Greater downward shift is obtained by having a small inductor in series with the variable capacitor. In this respect this circuit operates like a conventional VXO but tunes a wider range and is more predictable in operation. The variable capacitor is a standard transistor radio type. While unsatisfactory in conventional VFOs, they provide acceptable stability in this circuit.

The power amplifier is a small MOSFET. The device is capable of providing an output power of two watts but, in this circuit, it is conservatively run to give 1.5 watts. The power output can be adjusted by varying the resistance of the three megohm gate resistor. Don't be greedy, though, as attempts to raise power by decreasing the value of this resistance may result in MOSFET failure.

A pi network provides impedance matching to 50 ohms, plus harmonic suppression. Like all inductors in this transmitter, the pi network inductor is a pre-wound RF choke.

Keying is accomplished through a PNP transistor switch. Closing the key earths the base and provides 12 volts on the collector of the BC640, allowing the power amplifier to operate.

Construction

All parts are available cheaply from retailers. The hardest component to obtain is the 3.58 MHz ceramic resonator. It is available from RS Components (Cat No 656-170) for a little over \$2 in single lot quantities. RS Components have branches in most capital cities. The VN10KM MOSFET is available from Dick Smith Electronics, as is the variable capacitor. All other components are available from a variety of stockists. Polystyrene capacitors are suitable for the pi network and the ceramic resonator oscillator stages. All capacitors can be disc ceramic and the resistors are all quarter watt, 5% tolerance.

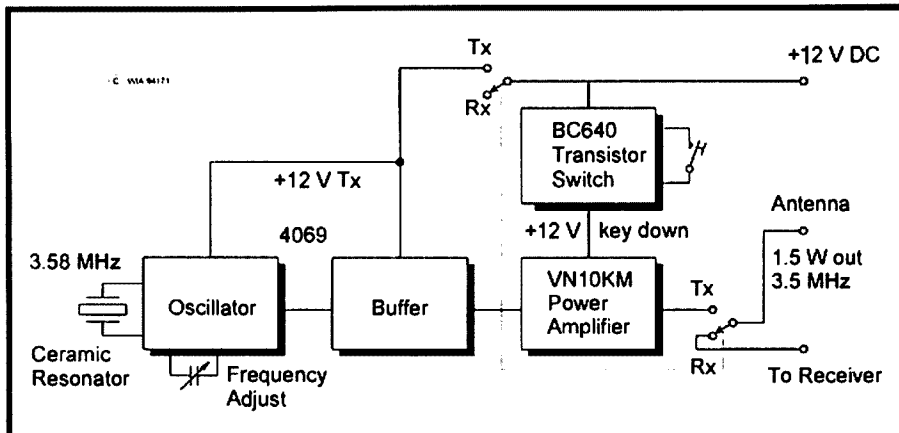


Fig 1 — Block Diagram.

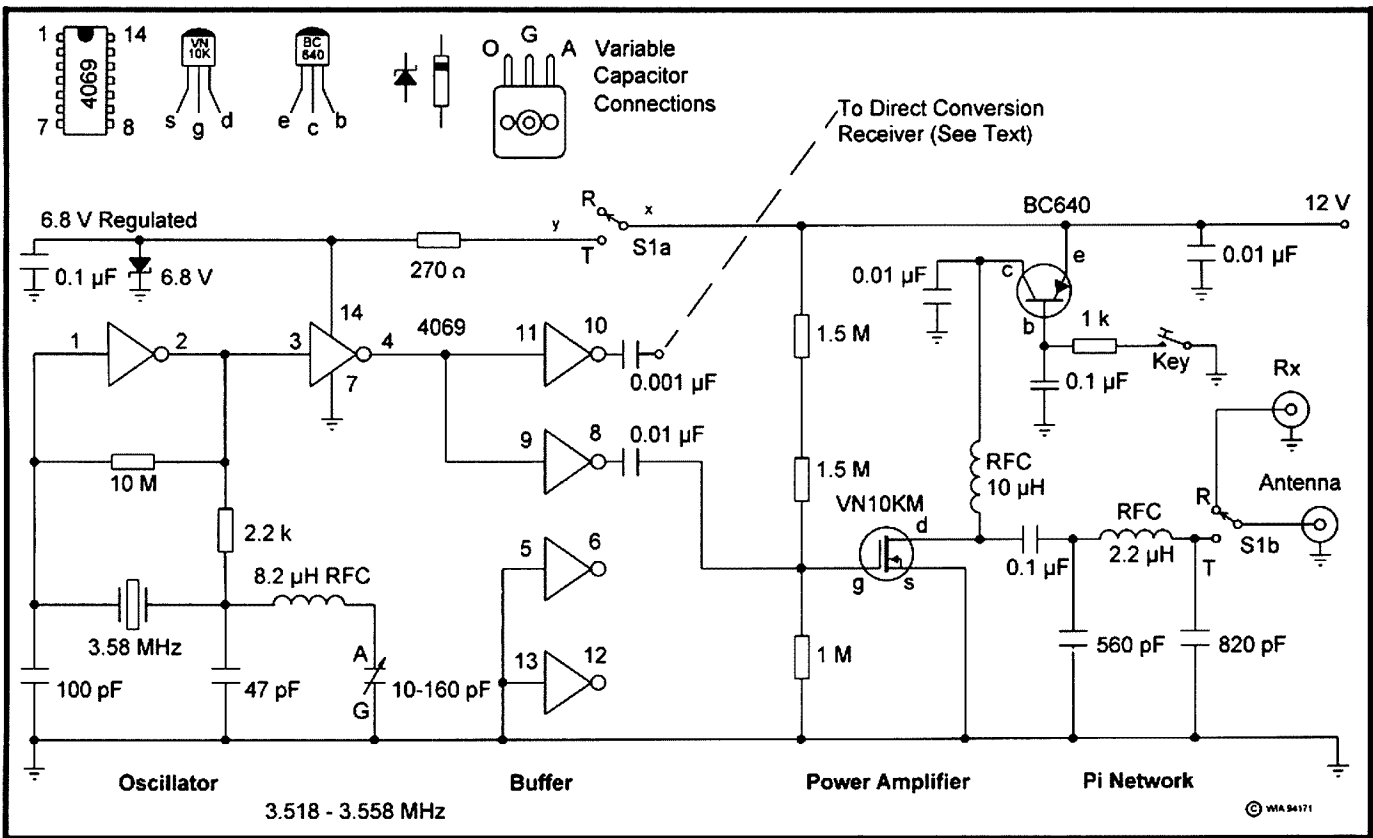


Fig 2 — Schematic Diagram.

* Australasian Digital Mode Specialist *

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A metal box should house the transmitter. It is generally poor practice to build transmitting equipment in plastic cases because of hand capacity effects and the increased risk of generating interference due to lack of shielding. Size is not important provided it is large enough to accommodate the transmitter without overcrowding components. While an ultra miniature transmitter may initially appeal to the beginner, it can be a source of frustration if trouble shooting is later required. You may wish to allow space for future additions and modifications to the rig. These may include a direct conversion receiver, break-in keying facilities, sidetone, or a small power amplifier. A good size is 5 x 15 x 15 cm. Your box can either be purchased or home made. Scrap printed circuit board material and aluminium are both good materials for fabricating cases at home. Loaf tins from your local supermarket also serve well as enclosures for home made transmitters.

Both front and rear panel components can now be mounted. The choice of connectors is a personal matter. A wide range is available but I would recommend the following:-

12 V power socket:-

2.1 mm panel socket — centre pin positive.

Key socket:-

6.3 mm mono headphone socket.

Antenna connector:-

RCA socket.

Antenna connection to receiver:-

RCA socket.

All these connectors are readily available, cheap and widely used by QRP operators and experimenters. Whatever your choice, make it your standard for all equipment you intend to construct. Particular caution must be exercised when mounting the variable capacitor. The hole for the shaft must be large enough for it to turn freely. Unfortunately, new capacitors are often not supplied with mounting screws. This may necessitate your gluing the capacitor to the front panel. Use glue sparingly and keep it away from the shaft and mounting holes.

A board size of 6 x 10 cm is sufficient. Fig 3 shows a suggested

board layout. It is up to you how you mount components. I prefer blank matrix board. Do not use strip type board as such boards have high capacitances between parallel tracks. Such capacitances degrade the operation of RF circuits and in this transmitter will reduce the range over which the ceramic resonator can be pulled.

Component leads are passed through holes in the board to be soldered underneath. It may be necessary to use short lengths of tinned copper wire to make some connections. Ensure that connections are rigid to prevent short circuiting. To facilitate servicing and testing it is desirable that circuit board pins be used for connections to the variable capacitor, Tx/Rx switch, antenna and power sockets. Use screws and spacers to mount the circuit board to the enclosure. Mounting the board horizontally aids trouble shooting.

It is desirable that a socket be used for the IC. Particular care should be taken to ensure that no IC socket pins are accidentally bridged when soldering. Excessive heat may damage the ceramic resonator and the semiconductors, so make each solder joint quickly. The negative earth line running across the bottom of the circuit board must be connected to the metal case by a short, stout lead. This connection could be made to the earthed part of the key socket. Normally, connections to the antenna socket are made with RG174 miniature coaxial cable. This cable is somewhat expensive and you

may choose, instead, to use lengths of standard insulated wire. At 3.5 MHz the inductance of these leads is less significant. Little degradation of transmitter performance should be noticed if short direct connections are used.

Testing

After checking your wiring against both the component layout and schematic diagrams, the transmitter should be tested for correct operation. You will need a multimeter, 80 m SSB receiver and a 50 ohm dummy load. Such a dummy load could consist of two 100 ohm, one watt resistors wired in parallel. An RF power meter and frequency counter will also be found useful. A one amp, 12 volt power supply, or rechargeable gel battery, is a suitable power source for the transmitter.

With the power connected and transmitter switched to receive, no current should be consumed. Switch to transmit and check that pin 14 of the 4069 is 6.8 V above earth. With the dummy load connected to the antenna socket, press the key. The voltage on the BC640 collector should now be 12 volts, dropping to zero once the key is released.

The ceramic resonator oscillator should now be checked for correct operation. With the rig in transmit mode it should be possible to hear a strong carrier signal in the receiver. Adjusting the variable capacitor should change its frequency. You may find that, at the lower end of the frequency range, the oscillator is

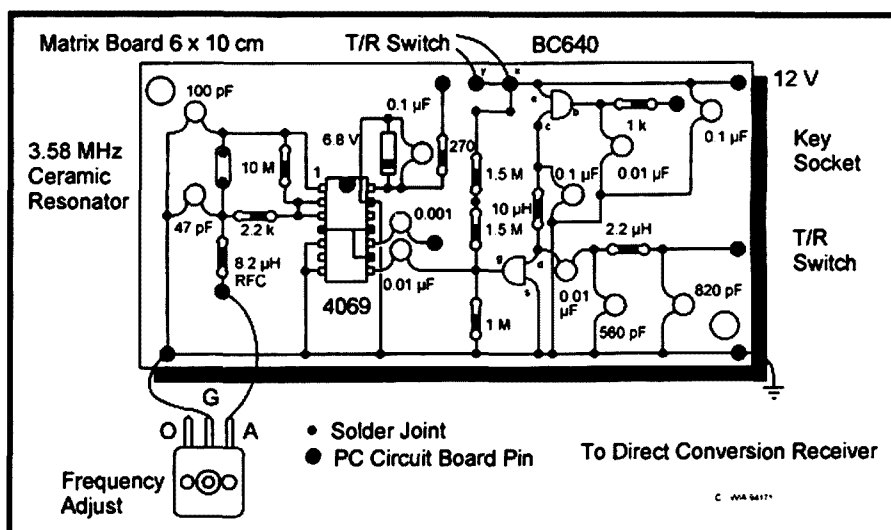


Fig 3 — Component Layout.

Update

Apology

In an article by Lloyd Butler VK5BR published in the January issue of *Amateur Radio*, "Capacitors At High RF Power", pages 7-9, is a diagram showing mica capacitors — Figure 1 (page 7).

This diagram is copyright, having previously appeared in an article on capacitors written by Roger Harrison VK2ZRH, published in the Australian edition of *Electronics Today International* (ETI) in 1976.

The author of "Capacitors At High RF Power", Lloyd Butler VK5BR, and the Editor of *Amateur Radio*, Bill Rice VK3ABP, unreservedly apologise to the original author, Roger Harrison VK2ZRH, and the publication *Electronics Today International* for this breach of copyright.

An Adjustable Audio filter System for the Receiver.

The following errors have been detected in the circuit diagram, Figure 3 on page 7 of March 1995 AR.

The 5 volt rail decoupling capacitors C10 and C15 should be connected to pin 4 instead of pin 2 on the 555 timers N4 and N6 respectively.

The 12 volt positive regulator N10 should be a 7812 type and not a 7912 type as designated.

Further tests have shown that the voltage drop across R39 is marginally high when all clocks are in operation. To correct this, R39 should be changed to 390 ohms.

My apologies for any inconvenience this might have caused and thanks to the Canberra radio amateur who assembled the circuitry and brought the errors to my attention.

Lloyd Butler VK5BR

It might be a good idea to correct your copy of the March issue of *Amateur Radio* now!

June Cover Photograph Caption

The caption on page 2 of last month's *Amateur Radio* should have stated that the front cover photograph was of Len Robinson VK3ALD, not Len Robertson. Our apologies to Len for this error.

Please correct your copy of the June issue of *Amateur Radio* now!

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system. The quality of emissions from this transmitter design is generally good and no problems should be encountered.

Frequency Tuning Notes

There are some peculiarities with this transmitter. The first is that the frequency tuning is non-linear. Stations will be more spread out and easier to tune-in near the lower end of the tuning range. However, for a CW transmitter, with Morse activities being in the lower parts of our HF bands, I consider this feature an advantage.

Although ceramic resonators are reasonably stable, one of their oddities is that, every now and then, their frequency may change abruptly by about 100 Hz, and then remain stable. Such a characteristic has been noticed on signals from ceramic resonator transmitters. Drift of this magnitude is noticeable, but in no way detracts from the quality of the QSO. Because ceramic resonators are susceptible to temperature variations, it is a good idea to mount them away from heat producing components such as power amplifier transistors.

It was mentioned above that 3.58 MHz ceramic resonators can cover the entire Australian Novice band. This circuit does not do this. It covers approximately 3.520 to 3.550 MHz. Removal of the 47 pF capacitor increases the maximum output frequency up to only about 3.590 MHz. In contrast, simple Pierce oscillators using discrete transistors can cover up to above 3.625 MHz (see Reference 2). Because this transmitter is CW only, it was considered that little would be gained by extending frequency coverage this far. A downward extension of the tuning range towards 3.500 MHz is possible, but at the cost of frequency stability. Possibly a better quality variable capacitor and shielded box may help here.

References

1 — *Variable Ceramic Resonator Oscillators*, John Townsend G3BBD, *Amateur Radio*, July 1991, page 21.

2 — *Some Experiments with Ceramic Resonators*, Peter Parker VK6BWI, *Lo-Key*, June 1992, page 5.

*71 Garran Place, Garran ACT 2605

unreliable in starting. This is because your circuit is attempting to pull the ceramic resonator too low in frequency. To remedy this, the trimmer on the back of the variable capacitor should be set to minimum capacity. Most variable capacitors have two trimmers, one for each section. If in doubt as to which one, set both to minimum capacity. If you still experience trouble in getting the oscillator to start, reduce the value of the 8.2 μ H RF choke. Try 6.8 or 4.7 μ H.

In all probability the unmodified circuit shown in Fig 2 will not require any of the changes outlined above. It should be possible to achieve a coverage of 3.518 to 3.558 MHz and preserve good frequency stability and reliable oscillation. This range includes much of the CW segment and frequencies used by the WIA Morse practice broadcasts.

Pressing the key should result in a stronger signal at the receiver as well as an increase in the transmitter's current consumption. An RF probe is useful to verify the operation of the power amplifier. Alternatively, an RF power meter can be used. Measured output should be in the neighbourhood of 1.5 watts and the transmitter should draw 200 to 300 mA. If the VN10KM becomes too hot to touch after a few seconds of transmitting, then the three megohm gate resistor should be increased to limit transistor heat dissipation.

Those without test equipment could use a small light bulb across the antenna socket to check operation of their transmitter. A 6.3 V globe is ideal. Depending on the transmitter power output, an orange to white glow on key down is an indication that the rig is operating satisfactorily.

The final test is to monitor keying quality. With the 50 ohm dummy load connected, press the key and listen to the note produced in the receiver. It should be free of chirps and clicks as well as being stable in frequency. Because the oscillator is running continuously during transmit you may notice a backwave when the key is up. Stations you contact will not hear this. If clicks appear on your transmission, try reducing the RF Gain as strong local signals can cause popping in the receiver AGC

■ Equipment Review

MFJ-206 Antenna Current Probe

Reviewed by Ron Fisher VK3OM



The MFJ-206 Antenna Current Probe.

Here is something for the real antenna experimenter. The MFJ-206 is another one of those wonderful antenna measuring devices manufactured by MFJ Enterprises, Mississippi State, USA. It is used to detect the magnetic RF field around

conductors used as antennas and feeders, or anything that might come within the influence of an antenna such as mast guy wires, household wiring, ground leads, radial systems, etc.

The probe also indicates the orientation of the field. It is tunable over the range of 1.8 to 30 MHz in three switched ranges. The relative RF current is indicated with a normal moving coil meter.

MFJ-206 Circuit

The circuit is fairly straight forward. The tuning coil is wound on a ferrite rod which passes through the top of the enclosure which has a slot to allow the full length of the rod to be exposed to the RF field. This is followed by a single diode detector which drives a 741 op amp to drive the meter.

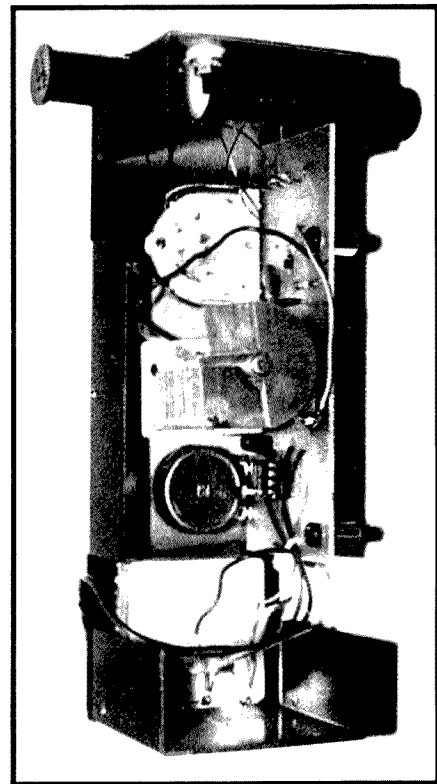
The unit is powered by a single nine volt transistor radio type battery. Current drain is about 8 mA so the battery should have a long life with normal use. An LED indicates power on.

MFJ-206 In Use

One of the things that you need to appreciate is that the magnetic field is not parallel to the conductor. The ferrite rod pick up antenna in the 206 has to be at right angles to the

conductor before you can get a reasonable indication.

One problem in using the MFJ-206 is that the transmitter must be on the air so, if you want to take a few measurements, it might be a good idea to enlist the aid of a friend to key the transmitter when needed. I found that I was able to get a good reading from a dipole on 40 metres with about 100 watts from about 12 metres.



A look inside the MFJ-206.

One of the important uses of the 206 is checking for RF on the outside of coaxial feeders. It will soon show if the balun is doing its job. I would think that it would show some interesting readings on a coax fed G5RV antenna. Unfortunately, I do not have one so I could not try this out.

Conclusions

A great little instrument with a host of uses around the antenna farm, be it big or small. The instruction manual covers the subject in six pages and includes a full circuit diagram.

The MFJ-206 is priced at \$199 and is available from Daycom Communications Pty Ltd, 37A Fenton Street, Huntingdale VIC 3166.

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■ History

An Anniversary to be Remembered

Roth Jones VK3BG*

Coming up later this year, in November, will be another chapter in Australian amateur radio ... the 50th anniversary of the resumption of our hobby after World War II when we were closed down and off the air for five dark years.

Old timers active in the 1930s remember receiving telegrams at the outbreak of hostilities to lock up their equipment "for the duration".

This was in sharp contrast to the resumption post-war when the atmosphere was full of joy and happiness.

This is an important anniversary we should all celebrate. It should not be restricted to old timers because it is a great chapter in our history.

There will be many suggestions and no doubt the WIA will be gearing up for the celebrations.

Amateur radio resumed after World War II in November 1945. To celebrate the event, why not combine it with the Remembrance Day Contest?

Old timer, Herb Stevens VK3JO has already started researching into those pre and post war days. No doubt, too, the WIA will have some plans for all of us to enjoy. (See below, and also in the Contests column for one result of Herb's activities. Ed)

Most of us had been active in the 30s, an era of AM and CW DX. The world of radio was bringing the people of the world together. When hostilities ceased all were wondering what would be the amateur radio scene in the post war years.

Getting back on the air was not a problem. Many of us, including yours truly, were soon on the air after we got the "all clear".

Radio communication had made tremendous progress during the war years and there was an abundance of gear through the many disposals

shops which sprang up like mushrooms.

They were great days with bargains galore. The tiny disposals shops were popular meeting places on Saturday mornings. There was a lot of useless junk, but there were pieces of equipment ideal for our hobby with little modification necessary.

Perhaps the two most useful pieces of equipment were the BC348

receiver and the small Command receivers and transmitters used in wartime aircraft and tanks. All were valve, as the transistor was not invented until 1948. The BC348 was solid, stable and built to last. By using the BFO the new SSB mode was tuneable.

Like the Scottish musical of yesteryear, "Brigadoon", amateur radio had wakened from a long, deep sleep. Everyone was busy again as the bands livened up, starting with 28 MHz which was open to the world.

It was a decade old timers remember well. But this is another story no doubt some younger old timer will tell another day.

(Agreement has been reached for participants in the 1995 Remembrance Day Contest in August to call, if they wish, CQ RD 50 rather than just CQ RD. Ed)

*23 Cherry Tree Grove, Croydon VIC 3136
ar

■ Try This

A Frequency Counter Preamplifier

Bob Gebhardt VK5RI* explains an interesting idea

I recently came up with the following idea, which I have found useful. I hope you find it of interest.

At times I use a Yaesu frequency counter to set up the transmit and receive crystals of older style transceivers to the desired frequency. The transmit crystal is usually no problem as there is enough output to give a valid readout on the counter. But with the receive crystal, with its multipliers and generally lower levels, it is harder to get a good reading.

In my junkbox I had a Philips OM350 hybrid circuit. It was designed as a masthead amplifier for TV purposes which means that it has wide bandwidth and good signal handling characteristics; just what we need. I connected it up as shown in Fig 1.

The amplifier makes a considerable difference to the

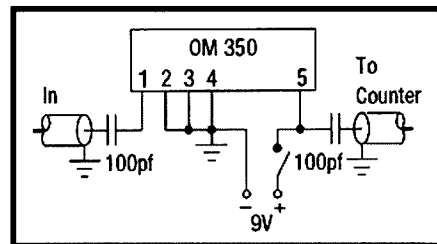


Fig 1.

counter's operation. I can now get a reliable readout from the low level stages of the receive oscillator/multiplier chain of all the VHF (2 metre) transceivers that I have tried. I see no reason why it would not help with 70 cm gear or even the UHF CBs that I occasionally get for repair. It would most likely be of use at the upper end of the HF band as well.

*Mokota, Mount Bryan, SA 5418
ar

■ Technical

Technical Abstracts

Gil Sones VK3AUI*

Microwave Oven HV PSU

Discarded microwave ovens are an unsuspected source of components for a high voltage power supply. The demise of the magnetron often leads to the oven being discarded. In addition to the box and screening materials the discarded oven contains a basic high voltage power supply.

Two articles concerning the use of components from discarded microwave ovens to make a high voltage power supply for a valve linear amplifier have appeared in the Pat Hawker G3VA *Technical Topics* column in *Radio Communication*. The first mention came from Dave Penny G3PEN in the November 1993 issue. A further item by John Harper-Bill G3IZM in the February 1994 issue gave more details and a suggested circuit using two discarded oven transformers to provide 3 kV at 600 mA. This circuit is shown in Fig 1.

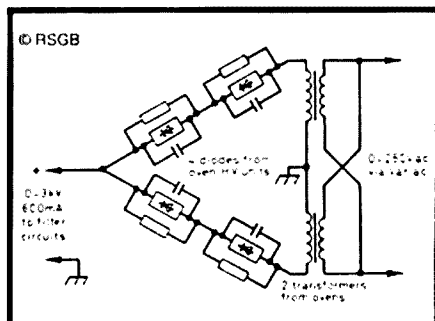


Fig 1 — High Voltage Power Supply based on two microwave oven power transformers. Transformers connected to provide full wave rectifier of bi-phase half wave type.

The oven power supplies were of the half wave type but with only a 1 μ F capacitor for fairly rudimentary filtering. The transformers were built in such a way that only a half wave rectifier was possible because the insulation on the earthy end of the high voltage winding was much less than on the high voltage end. This

precluded using a bridge rectifier as this would require high voltage insulation of the whole winding.

Using two transformers from the same type of oven the high voltage outputs can be combined to provide more current by synthesising the bi-phase half wave circuit. This is shown in Fig 1. The circuit is the same as that using a centre tapped secondary. Care must be taken to phase the primaries so that each rectifier string works on alternate half cycles. This makes filtering easier as the ripple frequency is then 100 Hz.

An improved filter capacitor will have to be provided and a series string of high voltage electrolytics would be appropriate. These would, of course, require equalising resistors in parallel with each electrolytic. The filter capacitor has two functions in smoothing ripple and in providing a reservoir to supply the current peaks to the linear amplifier.

The voltage rating of these transformers is in the 1.5 kV to 3 kV region. The power rating is in the 600 W to 1200 W area depending on the rating of the oven they were used in.

The construction of high voltage power supplies requires considerable care as they are extremely dangerous. Safety interlocks and means of discharging the HV filter capacitor must be provided. Similarly, an enclosure for the whole power supply is essential and must be designed so as to prevent contact with the high voltage parts inside. Do not work on a high voltage supply which is running or is still connected to the mains. Also ensure that the high voltage filter capacitors are discharged and are shorted out while working on the supply. A previously discharged capacitor can retain a memory charge which could catch you unawares if the capacitor is not shorted while you are working on the supply.

Other useful parts are inside these ovens. There are timers and switches and a variety of RF screening materials. One item of some interest is the magnetron. Even though it may be defunct, the magnets are useful as an antenna mount. They are often attached by clips which can be pried apart. However, watch out if they are glued as some insulating materials used in power valve manufacture contain highly toxic Beryllium.

Improved Ribbon J-Pole Antenna

An improved version of the 144 MHz ribbon J-Pole antenna appeared in Pat Hawker's *Technical Topics* in the May 1995 issue of *Radio Communications*. The design is from Dr John Belrose VE2CV.

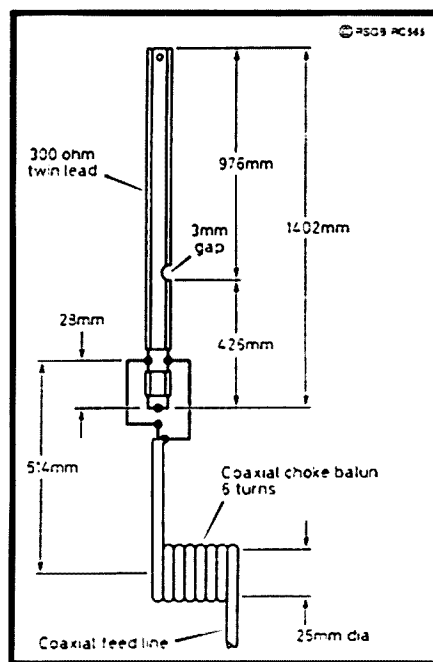


Fig 2 — Improved ribbon J-Pole by VE2CV.

The antenna is shown in Fig 2. The antenna is made from Belden 8230 twin lead which has a velocity factor of 0.83 and is 300 ohm impedance. The length of the radiator is 0.95 of the free space half wavelength, with 0.95 being the experimentally determined antenna factor. The quarter wave stub is 0.83 times the free space quarter wavelength due to the velocity factor of the twin lead. The tapping point was determined experimentally to be about 0.0136 of a wavelength with allowance once again for the velocity factor in the antenna shown in Fig 2.

The improvement consists of the insertion of an RF choke one quarter wave from the feedpoint in the feedline. This choke is six turns of the feedline coiled into a 25 mm inside diameter coil. The choke minimises feed line radiation. VE2CV had noticed that running a hand along the feedline jacket caused a variation in the received signal. The choke minimises this effect caused by feedline radiation.

The antenna is shown in Fig 2 and the SWR curve is shown in Fig 3. The antenna should be suspended by a non-conductive cord from a tree branch or other support. If you encase the antenna in a plastic pipe then you will have to be prepared to trim the antenna to allow for the dielectric of the pipe used as a radome.

Of interest to many is the dual band performance of a J-Pole. VE2CV

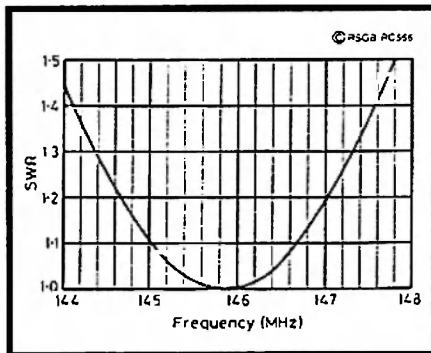


Fig 3 — SWR performance of improved J-Pole.

provided a computer generated vertical radiation pattern of a J-Pole on both 144 MHz and 432 MHz. The pattern on 432 MHz has an elevated main lobe which may not be desirable. However, if you are operating in a city or talking to a mountain top station you may not

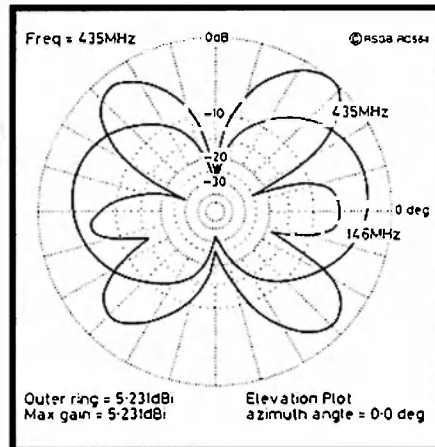


Fig 4 — Computer generated vertical radiation pattern, produced by VE2CV using ELNEC, showing patterns on 144 MHz and 432 MHz.

notice the problem. This pattern is shown in Fig 4.

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WIA News

Packet Gateway Demands Stat Dec From Amateurs

The Launceston Institute of TAFE in northern Tasmania, which runs an amateur radio packet-to-Internet gateway known under the acronym of LITGATE, is requiring radio amateur users to file a statutory declaration with them.

The relevant wording of the declaration says "That I agree to take full personal responsibility for any information or data which is sent from my station, or from a station operating under my callsign.

"That I will not hold the Launceston Institute of TAFE responsible for the content of data received through the LITGATE, whether such data is of an offensive, improper, illegal or other unacceptable nature."

Basically, what the Launceston TAFE requires is that radio amateurs wanting access to LITGATE must say they will accept responsibility for all messages under their callsign, whether

pirated or not, and agree they will absolve the Launceston TAFE from responsibility for any material placed on its system.

Whether such a statutory declaration is legally binding would be a matter of conjecture. (Thanks to Victorian Division President, Jim Linton VK3PC, for details on that item).

No Licence Fees for Volunteer Emergency Organisations

The Minister for Communications and the Arts, Michael Lee, announced on 7 May that volunteer, non-profit, emergency organisations would be exempt from licence fees for the radio equipment they use.

The announcement followed protests from surf lifesaving organisations and volunteer bushfire brigades, who objected to having to pay licence fees under

the new Apparatus Licence system brought in by the Spectrum Management Agency early in April. Some of these groups previously paid no fees.

Surf lifesavers, bushfire brigades and other volunteer community emergency organisations applied public pressure through the media as well as making direct representations to the government.

The Minister subsequently announced that organisations providing volunteer, non-profit, emergency services including rural fire fighting, search and rescue, coast guard, surf lifesaving, and remote area ambulance services would be exempt from radio licence fees.

Seems like they took a leaf from the radio amateurs' book.

WICEN is looking into the possibility of obtaining exemptions under this arrangement for WICEN repeaters and other WICEN-specific licensing requirements.

WIA Meeting with the SMA

On Thursday, 18 May, the WIA's SMA Liaison Team met with the SMA in Canberra. There were eight major subjects on the agenda. These were New Technical Licence Specifications and Regulations; Special Conditions on Repeater Licence Renewals; Action on the 80 metre DX window; Exam Service Memorandum of Understanding; Club Station Operations; Callsigns; SMA Information Paper; and Connection of Amateur Stations to the Telephone Network.

The members of the WIA SMA Liaison team who attended the Canberra meeting were Federal President, Neil Penfold VK6NE; Federal Vice Chairman, Roger Harrison VK2ZRH; Federal Coordinator International Study Groups, David Wardlaw VK3ADW; New South Wales Division President, Michael Corbin VK2YC; and South Australian Division Federal Councillor, Bob Allan VK5BJA.

Only brief comment on most of these topics can be offered at present, but more information will be available after the minutes of the meeting have been finalised and further information which the SMA has agreed to provide becomes available to us.

The then-imminent gazetting of the new Technical Licence Specifications and Regulations was discussed and the SMA agreed to provide a suitable "Stop Press" announcement, which they did, and which was supplied to Division broadcast officers in a WIA News release on 24 May. Following gazettal on Friday, 2 June, the SMA provided the WIA a confirmatory letter on 5 June, clarifying the position. Details are in a separate WIA News item, which was first released on 6 June, the day the new licences became available through SMA area offices.

Special Conditions on Repeater Licence Renewals

A number of repeater licensees have received renewals which have special conditions detailed on the licence, particularly with regard to interference. This reflects conditions which have existed up to now, but have not been attached to licences in the past.

However, the new Technical Licence Specifications for repeaters, not yet ready as of early June but due to be completed soon, will supersede these conditions. It is anticipated conditions regarding the operation of beacons and repeaters on a non-interference/no protection from interference basis, as has existed to now, will be watered down.

80 m DX Window

This matter was raised to get a progress report. The WIA Victorian Division has taken on the task of writing to primary users on the band adjacent to the 80 m DX window, above and below 3800 kHz, to ascertain possible willingness to share. This action is still under way.

The SMA has been monitoring the band and issuing infringement notices to amateurs allegedly breaching their licence conditions.

Exam Service Memorandum of Understanding

The agreement between the SMA and the WIA, under which the WIA Exam Service operates, is still being revised. It is expected provisions under which exams are to be conducted in remote areas will be eased.

Club Station Operations

Conditions applying to the operation of Club stations have long been a bone of contention. The WIA has sought an easing of the requirement to maintain a full log book and to notify portable

operation away from the Club licence's address.

The WIA is awaiting a reply from the SMA on this matter.

Callsigns

This is a complex matter. The issues discussed included callsigns for amateurs visiting from overseas, new callsign blocks, the "portability" of callsigns — retaining and using your old callsign when you move interstate (for example), suspending deceased amateurs callsigns from reissue for a period and the possible issuing of single-suffix callsigns, such as VK1A, VK2Z, etc.

In the more populous states — NSW and Victoria — callsigns for full and limited licensees are running out. The SMA canvassed the Institute's views about allocating callsigns to new amateurs in these states from unallocated callsigns in the less populous call areas, VK8 for example. This would mean callsigns would no longer relate to geographic call areas within Australia or its territories, similar to the situation in the USA. This would affect national and international contests, QSL bureaus and other issues relating to Australian amateurs. A move on this is not imminent and the WIA is developing a response to put to the SMA. If you have any ideas of opinions on it, write to your Division who will forward the information to the Federal Council for discussion.

The WIA's SMA Liaison Team explained the sensitive issue of reserving deceased amateurs' callsigns. Apparently, the SMA's new RADCOM computer system has no mechanism at present to permit this. The SMA said the matter would be taken up with their RADCOM Enhancement Committee. Other administrative arrangements on this issue are to

WIA News

be explored between the SMA and the WIA.

The single suffix VKx callsign blocks are presently issued for Scientific licences (Experimental under the old Apparatus Licence system). As there are only 26 in each callsign block, and some are already allocated in each call area, the SMA advised they don't propose to issue them to amateur licensees, even for special purposes. However, the SMA indicated they would consider future submissions from the WIA on the subject.

As there are lengthy issues and explanations necessary on these matters, and further information is to come from the SMA, more details will have to wait for a later release.

SMA Information Paper

The SMA is releasing an information paper on the new licence conditions and Regulations. Its contents were discussed, and the changes the WIA had suggested might be made to improve it.

The final Information Paper was released along with the new Technical Licence Specifications and Regulations on 6 June, all of which are now available for the asking through SMA area offices. Addresses are listed in the 1995 *Australian Call Book*, page 6.

Connection of Amateur Stations to the Telephone Network

While voice "phone patch" has been permitted for some years, the connection of packet stations to the Public Switched Telephone Network (PSTN) is forbidden under the Regulations.

The WIA is seeking a relaxation of this requirement and has asked the SMA to clarify the issue more fully, and to provide reasons for it.

Intruder on the 14 MHz Band

A Vietnamese diplomatic station is continuing to intrude on the 20

m amateur band. Signing VRQ, the station has a centre frequency of 14.330 MHz and operates in A1A mode — CW telegraphy.

WIA Intruder Watch Coordinator, Gordon Loveday VK4KAL, says the intruder has as many as 30 transmissions a day. The station passes traffic to other stations in Vietnam, including those with the callsigns P7A, VLQ, NZB and VMO, to name a few.

Amateurs and shortwave listeners are asked to listen out for this intruder and file observation reports directly to Gordon, whose address is QTHR in the current Call Book.

Intruder watch does work. Gordon reports that a land-based Greek station operating AMTOR on the bottom end of the 15 m and 20 m amateur bands has been recently moved. Located at Athens, the station was transmitting to ships at sea about provisions required when they reached port.

Following pressure from intruder watch reports, this intruder has adopted a new frequency outside the amateur bands.

Recommencement of Amateur Radio — 50th Anniversary

More material and information related to the recommencement of amateur radio after the end of World War II has come to light.

When Australia declared it would join the war, its radio amateurs were all sent a telegram from the Director General of Posts and Telegraphs, with a direction that they cease all transmissions.

Sent in September 1939, this telegram also directed that all valves, transformers, tuning coils, operating keys and microphones be disconnected.

A follow-up letter received by VK2AHJ, and possibly others,

stated: "Will you please note that your aerial, if especially designed for transmitting, must also be dismantled."

Was this follow-up letter received by other Australian radio amateurs?

Herb Stevens, VK3JO, who is the focal point for research into the recommencement of amateur radio, has also received copies of logs. The earliest post-war contact appears to have been on 28 MHz, on 22 December 1945, between VK3DH and VK3VM, now both silent keys. Herb VK3JO is keen to receive any further information about immediate post-war contacts. He says he'd also like to learn if any radio amateur encountered problems recovering their impounded radio gear after the war.

An article on the recommencement is planned for the December edition of *Amateur Radio* magazine. Herb VK3JO, who was the WIA Victoria President during the war period, can be contacted at his Call Book address.

In another development, as a suggestion to mark the occasion of the 50th anniversary of recommencement, it has been proposed to be tied to the Remembrance Day Contest. In a low-key approach, the suggestion is that operators use "CQ RD 50" when putting out calls.

While at first glance this appears to be a good idea, others suggest it should not be forgotten that the RD Contest has particular significance as it commemorates those WIA members who paid the supreme sacrifice during World War II. It is suggested that the CQ RD 50 proposal is inappropriate as the RD Contest is not allied with the 50th anniversary of the end of the war, nor the recommencement of our hobby. (Thanks to Victorian Division President, Jim Linton VK3PC, for details on that item).

■ Construction

Home Brew is Alive and Well

John Drew VK5DJ says the evidence is there that amateurs are still building excellent equipment.*

Each year at the South East Radio Group Convention in Mt Gambier, SA, prizes totalling \$200 attract beginning and experienced home brewers. On the long weekend of 11-13 June 1994, there was gathered one of the finest displays of home brew seen for some time.

The competition is divided into three sections. Here are the rules followed on the day:

Guidelines for the Home Brew Competition At SERG Conventions

This is an honesty system and entrants use these criteria. It is permissible for an entrant to enter above but not below their section.

A Novice Builder is a person who:

1. is, or was, NOT professionally involved in the design or building of equipment;
2. has no ham licence or has held a licence for less than two years; and
3. has built less than 5 projects (kits or own design).

An Experienced Builder is a person who:

1. is, or was, NOT professionally involved in the design or building of equipment;
2. has held a licence for more than two years and less than 10 years, OR has built more than 5 simple projects (kits or own design).

An Expert Builder is a person who:

1. is, or was, professionally involved in the design or building of equipment; or
2. has held a ham licence for 10 years or more; or
3. is anyone who doesn't fit any of the above.

The Projects Will Be Judged on Criteria Which Include:

Workmanship, which includes mechanical construction, soldering, layout of the sections using good practice for the frequencies used, use

of suitable materials, controls with knobs and labels, serviceability, safety, and appearance. Originality will be considered as will complexity of the project and the documentation.

There were about 30 entries in all and they varied in complexity from a simple one valve CW transmitter for 80 metres to a 2 metre transceiver and high power linear amplifier to suit.

In the novice section some of the entries were an active antenna, a novice valve Tx, J-pole antenna, and a Z match antenna matcher. In the experienced section entries included a 10 metre fox hunting system, home brew copies of a communications receiver and a regenerative receiver, a home brew paddle and a DFing auto ranging receiver. In the expert



The judges of the homebrew competition Chris VK5MC, John VK5DJ and Kevin VK5OA examining one of the entries.

section there was a large gathering of UHF/SHF equipment. Chris VK5MC was moved to say "This was the largest and best collection of 10 gigahertz gear in the country, without a doubt".

The winner of the novice section was Paul VK5PSG for his 80 m QRP crystal locked transmitter. It included an AC power supply and a single tube Colpitts oscillator.

In the experienced section the winner was VK3BMV with his 10 metre direction finder. The circuit boards were well laid out and neatly etched, the shielding was excellent and the whole construction was mechanically sound. The documentation was good.

In the expert section the winner was VK3ZQB for his 2 metre transverter and high power amplifier. The documentation was superb and would surpass many commercial efforts. Russell made use of surplus parts, the engineering skills were of

a high level, and the front panels were labelled neatly. His construction showed excellent VHF practice including filtering of the output and his consideration for safety in the wiring of the high voltage to the final was excellent.

Documentation was a highlight of almost all projects. It showed the influence of word processors, circuit drawing programs and PCB layout programs. Parts lists also featured. The judges made special mention of the documentation for the "Ultimate Sniffer" by VK3TJN and VK3XAJ.

The judges saw that there was an increasing interest in satellite TV and UHF/SHF communications. Roger VK5NY entered boards for the G3WDG 10 GHz systems while David VK5KK entered a very portable DB6NT design as described in DUBUS magazine. This latter system was compact enough to fit into a small bag and he did this for one of his portable contacts while at Mt Gambier. Chris VK5MC and Trevor

VK5NC also entered DB6NT systems.

The general overall standard was very high and judges found it very difficult to make their decisions. Another strong competitor over the years has been Bill VK5WV. This year Bill showed his all valve communication receiver and a reaction type valve receiver much like those built by many of us in the fifties. Bill's love of vintage radio certainly shows in the care he puts into their faithful reconstruction.

The judges commend the competitors and thank our anonymous benefactor who each year contributes \$200 towards prizes for this event. Thank you who ever you are.

Judges were Chris VK5MC, Kevin VK5OA, and John VK5DJ. Apologies were received from Eric VK5LP, club patron and usual judge of this event. Eric was absent through ill health.

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■ Power Supplies

Solar Power — Learning the Hard Way

Ray Turner VK2COX finds that alternative power has its problems, particularly when it needs to be alternating current.*

The following may be of interest to hams heading for the countryside, and anticipating making use of solar energy.

Having purchased a small property out in "the sticks", I was faced with the decision of using solar powered energy to satisfy our electrical needs, or to have the local electrical authorities connect us to their system.

I first checked with the authorities as to how much it would cost to be connected to their grid. Our small home is only 50 metres away from an 11 kV line. The electrical authorities quoted \$3,900 to put up a substation on an already existing pole. The substation would consist of a transformer and outlet box and sundry other small bits and pieces. This would still leave us with a 50 metre connection to the house. The authorities also told us that a pole and cables for the additional 50 metres would cost about another \$1,100. And that STILL left us with the cost of arranging with a separate contractor to do the final connection. (The local power people have decided "not to

compete" with local contractors for this service).

My hackles were well on the way up by then, especially when I learned that the sum total for the substation (\$3,900) consisted of about \$1,600 for materials, and about \$1,200 for labour. Remember this is for the substation only, on an already existing pole, with still 50 metres to go to the house.

I worked out that four men over 4-5 hours could do the job. They wished to charge 36 man-hours. So I decided to go solar, based on the fact that our electricity requirements are small, a couple of 40 watt globes at any one time, and a small freezer. Everything else uses alternative energy. I could also put in a good solar/wind system (including 5 kVA generator for emergencies) for much less than the cost of connection from the 11 kV mains. Also, I would have no bills to pay, apart from a little petrol from time to time.

My intention was to house my solar/wind system in the garden shed, pass it through a 12/240 inverter, and

simply "plug the house wiring in". Fine, except that I then found problems with the inverter. The first inverter I tried was the square-wave type, alternating at 50 Hz. It operated most items well, including our small 240 V freezer. But it would not even look at my ham equipment.

My ham gear is 240 V operated, and uses the usual linear (transformer input) type of power supply. I can only imagine that the transformer would pass energy into the secondary only at times coinciding with the leading and trailing edge of each square-wave. This was confirmed when the next inverter I tried was a modified square-wave model (which the manufacturers like to call a "modified sine-wave") having a true peak of about 340 volts and RMS of 240 V. My ham equipment operated to some 60% of its power output capability, vastly better than the square wave version which had a peak/RMS rating of 240 V only.

Even a small power supply (transformer input) which, on the normal mains, put out 500 mA would only give 60 mA when using the modified sine-wave inverter. So the only answer is a true sine-wave inverter. They of course are the dearest of all!

I would be pleased to hear from any member who has had similar experience. I am also on the look-out for a wind generator of 12 volt, 5 amp, at 20 kph capability, or similar.

*6/276 Bunnerong Rd. Hillsdale NSW 2063
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■ Construction

Modified Twist Drills for Sheet Metal

Drew Diamond VK3XU describes some useful hints for the home workshop.*

When used with sheet metals, ordinary jobber twist drills larger than about 5 mm rarely make a nice round

hole. Unless the work is clamped securely upon the table of a drill press, and backed with a piece of

hardwood, a ragged three cornered or triangular hole is usually what we get. This is because the point breaks through the material before the straight part of the drill has entered the work, allowing the drill to thrash about in the hole, or worse, to catch in the burr. If not properly clamped, the job will spin around dangerously. Here's a crafty method of producing clean round holes, every time.

Before we go further, let me say, we have only two eyes, neither of which is a spare. Always, when using power tools of any kind, wear appropriate

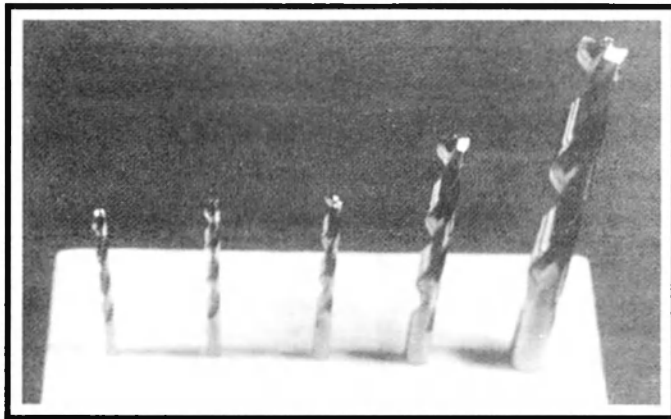


Photo 1 — Torpedo drills.

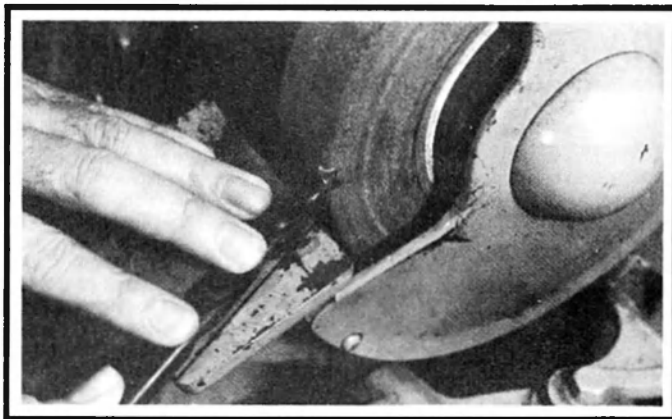


Photo 2 — Re-grinding the point.

eye protection, such as safety spectacles or goggles. Make it such a habit that you feel "naked" without them. Furthermore, whatever drill type is used, the job should be suitably clamped onto the work table. Do not rely on your ability to grip the job with your fingers. You may damage them, or something else!

Mark the job out as accurately as possible. Black or blue felt tipped pen is ideal as a background medium. Measure precisely and mark with a sharp scribe. Centre-punch where holes are required.

Torpedo (TM) drills are now available from some hardware suppliers (Photo 1). These are a pleasure to use, not only in sheet metal, but also in wood, plastics and thicker metal. They have a built-in pilot drill point, which accurately starts the hole in the punch mark. Then the outer diameter makes contact with the job. Thus, in sheet, removing a washer of waste and thereby producing a truly round hole with very

little burring. Torpedo drills are available in sizes from about 3 mm to 13 mm. However, they are costlier than ordinary drills.

Or you can make your own sheet metal drills down to about 4 mm. For example, at Wantirna market I bought a metric set of rather good quality drills quite cheaply. Here's how to convert such a set into sheet metal drills.

Present each cutting edge in turn to the corner of the grinding wheel as shown in Photo 2. With care, an angle-grinder would also serve. Remove sufficient material to achieve the shape shown in Photo 3. The clearance angle should be about the same as for ordinary drills, that is 12 degrees. A line marked on the grinder rest acts as guide. Make sure that the resulting centre pip is 2 or 3 mm longer than the outside cutting edges, which in turn must be equidistant from the centre pip. Test on a scrap of sheet metal backed with wood. As the straight part enters the work there

should be no wobble or tendency to grab, and when the outer cutting edges break through you should have a clean round hole with little or no burr.

The fluted twist drills sold as "brad-point" for woodworking are also quite good in aluminium and plastics (but not steel or brass).

Shown in Photo 4 are some demonstration test holes in aluminium. Note the ability to drill a clean hole adjacent to, or even overlapping the circumference of the next hole. Thus, it is easy to cut out large openings in panel work using the "chain of holes" method.

References and Further Reading:

1. Sheet Metal Drills; W R Smith; *Model Engineer*, Nos 3851 and 3853.
2. Large Holes In Sheet Metal; "In Practice"; I White G3SEK; *Radio Communication*, Oct '93.

*45 Gatters Road, Wonga Park VIC 3115

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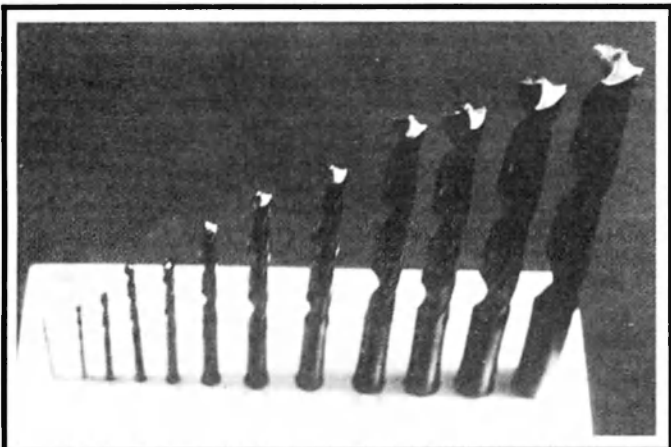


Photo 3 — Modified point.

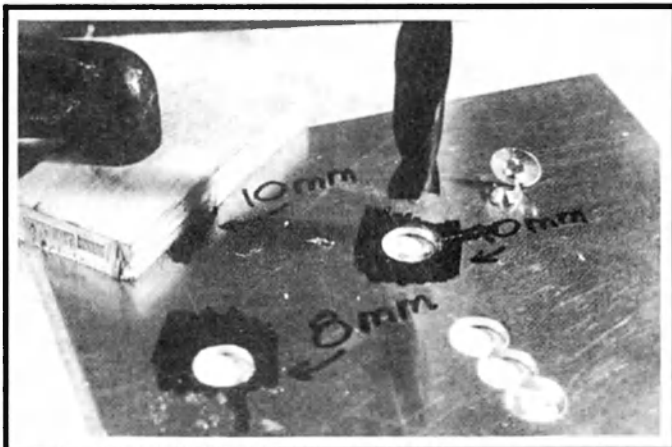


Photo 4 — Testing the drill — note the "chain of holes".

WIA FEDERAL 1994 ANNUAL REPORTS

Most of the 1994 annual reports adopted by the Federal Council of the WIA at the 1995 Annual Federal Convention were published in last month's magazine. Here are the remaining annual reports.

Standards

Electromagnetic interference and electromagnetic (EMI/EMC) compatibility issues were catapulted into prominence in 1994 with the setting of 1 January 1996 as the date for all electrical, electronics and communications equipment to meet set-down compliance standards which are principally based on existing European standards.

Overseeing the compliance regime is Standards Australia which have set a stiff pace in upgrading past standards and developing new ones through their committee system which comprise representatives from related industries.

The Spectrum Management Agency (SMA) signed a memorandum of agreement with Standards Australia which sees the standards organisation taking responsibility for the RF EMI/EMC compliance program. As a result, a system of "EMC Networks" is being set up to provide information and training in EMC (reported in *WIA News*). This is being organised and coordinated by the Australian Electronics Development Centre (AEDC), a Melbourne-based private, industry-funded training centre. The first training courses were announced by TAFE in NSW earlier this year.

Some companies within the telecommunications manufacturing industry sought to have the 1 January 1996 compliance date postponed, and the industry's representative body, the Australian Telecommunications Industry Association (ATIA — an affiliate of the Australian Electrical and Electronics Manufacturers Association — AEMA) approached the Parliamentary Secretary to the Minister for Communications and the Arts, Paul Elliott, in late 1994 seeking to have the date changed to 1 January 1997. They were not successful (reported in *WIA News*).

The electrical and electronics industry, both manufacturers and importers, have responded to the EMI/EMC compliance regime. Specialist companies providing EMI/EMC compliance testing and certification services have sprung up in response.

The rush to commercial cable television has caught the standards community napping, however. Cable TV standards are the province of both Standards Australia and AUSTEL, the telecommunications regulatory authority, and development of the necessary standards is running well behind installation of the cable networks. Telstra (Telecom's corporate parent) is in the lead with their roll-out, the pace of which they accelerated late last year, and this, together with the hurried entry of Optus into the cable TV arena at the start of this year, has resulted in plans to manufacture the network cables in Australia. Olex Cables in Melbourne will build a factory and begin supplying cable to Optus and Telstra within a year.

The pace of Cable TV network installation is staggering. By January this year, Telstra's network had passed 100,000 homes Australia-wide, which will rise to 400,000 by year's end. In the main Telstra's system is laid underground, although in some areas where underground cabling is uneconomic for them, they are planning to string the cable between power poles in the street. Optus had a belated start, but is making up for it. They began running cables between street-side power poles in Sydney's western suburbs in February.

The EMI/EMC issues surrounding the cable network, subscriber household connections and set-top converters are best described as being in a hiatus. Despite the fact the cable will carry RF transmissions spanning the 5-550 MHz range, standards and thus EMI/EMC are the province of the telecommunications regulatory authority, AUSTEL.

While I have had a number of discussions with AUSTEL people on the issue, it is apparent that there is considerable ignorance within the authority on EMI/EMC matters. Basically, they're passing the buck to Standards Australia.

Discussions with technical people within Standards Australia have revealed that the pace of network installation and development has far exceeded the development and drafting of relevant standards, including standards related to EMI/EMC. This is not only worrying but somewhat concerning when I learned from both Standards Australia and Telstra's cable TV engineering section that transmission standards — for both analogue and digital technologies — are by no means settled. Even equipment suppliers (eg Philips Electronics Australia) admit to being caught "flat-footed" on this issue, but are probably able to meet equipment needs when decisions are finalised. Telstra has opted for a network design they describe as "substantially future proof". Most of these developments have been reported in *WIA News*.

Probably the greatest potential for interference problems, both from amateur stations and to amateur station operations, is from the set-top converters and subscriber-to-street cable link. There may be some small inherent EMI/EMC threat from street-mounted cable distribution electronics.

On another front, and of particular interest to amateurs, is a new standard for lattice tower masts, which came into force last year (also reported in *WIA News*).

I have sought avenues where the Institute may become involved in input in EMI/EMC and other standards matters. The WIA does not have the resources to participate in the EMC Networks, as they exist, as my approach to the AEDC elicited. However, there may be an avenue through the training sessions presenters and I will approach NSW TAFE on the matter.

Both David Wardlaw VK3ADW and Dr Vince McKenna VK3AOY are active on committees examining standards issues.

Recommendations

The Institute urgently needs someone to fill the vacant EMC Coordinator's position. As there is considerable overlap with the standards environment, it may be possible, for a period, to combine the two positions, although I still see a need for someone to provide the sort of practical information Hans Ruckert so ably sought out and provided in the past. The two roles are possibly too much for a single volunteer, although, should there be two coordinators, there is a need for liaison.

A continuing, and as close as practicable, watch on standards development needs to be maintained, with participation from the Institute where it can be obtained.

Roger Harrison VK2ZRH
Standards Coordinator

Media Liaison

The striking thing about the past year's operations has been the escalation in preparation and dissemination of releases necessitated by a range of new pressures, not the least being the amateur fees issue.

The Media Liaison role has been considerably expanded as a result, and now parallels the role of public affairs officers in major corporations, with the need to generate releases for internal (within-Institute) circulation, general media circulation (print,

electronic and broadcast), to field press enquiries, organise interviews for regional media with local identities, participate in broadcast and print media interviews, etc.

For the first time, the development and dissemination of general media releases, in addition to those specifically targeting members of parliament, was undertaken, with considerable success.

The press release on the fees issue and amateur radio community reaction to the news of proposed fee rises, was spectacularly successful, as detailed in *Amateur Radio* earlier this year. Likewise, press releases targeting particular members of parliament occasioned some direct responses — particularly from the federal opposition, and effectively countered many misleading or specious arguments heard in parliament.

This is not to claim singular responsibility for the (albeit limited) "change of heart" of the government, but certainly bolstered the campaign conducted by the amateur community. The arguments and views put by the peak body certainly carry more cachet than individuals alone. The government and the SMA, after all, have evinced a definite predilection for dealing primarily with the "peak body" among each user community, and their approach is no different with radio amateurs.

Having gained recognition of the Amateur Radio Service by the government as a result of the 6 March 1995 meeting with Parliamentary Secretary to the Minister for Communications and the Arts, Paul Elliott, along with the attention of the opposition and key members on both sides of the house in the Senate and House of Reps, it is contingent on the WIA maintaining the lines of communication.

Material generated for *WIA News* this past year has been put on the amateur packet radio network, and sent to Division broadcast officers, at intervals more frequently than monthly, as had been the past practice. The necessity to keep *WIA News* timely for publication in *Amateur Radio* magazine, as well as the practice of getting prior "approval" from Divisions, together with the incidence of fast-breaking events, has meant some difficulty in meeting *Amateur Radio* publication deadlines. No one appreciates publication deadlines more than I do, and I have on occasion had to arrange for the Assistant Editor to "cut a little slack" here. The cooperation under the circumstances is appreciated — no less so by the members.

Apart from distributing *WIA News* to Division broadcast officers (noting that not all *WIA News* items get, or got, broadcast — including some important ones regarding fees and SMA issues), and to the packet radio network, it is clear from a great deal of feedback that there is considerable demand for Institute communications in the form of more-frequent *WIA News*, particularly from non-metropolitan amateur radio clubs; neither the packet network nor Division broadcasts seem sufficient. This is not through any particular lack or limitation, but the wider amateur community does not always have access to these media.

The question arises — is it in the Institute's interest to disseminate *WIA News* more widely in printed form at intervals more frequent than monthly as the need arises? Certainly such action would have gone a long way to counter or pre-empt much of the unwarranted and uninformed comment about and against the Institute and inaccurate assumptions about what the WIA did or didn't do in the matter of fees, let alone other issues. For the critics, talk is cheap.

The lesson learned is this: more information on Institute activities on "representation" matters could

and should be generated. There should be fewer embargoes on such information, as has been the — albeit tacit — policy in the past.

On the issue of putting *WIA News* to the packet radio network, I "inherited" a small group of recipients who take it on disk. Late last year I was asked to put *WIA News* onto the packet network myself. There being no other recourse available, I did so under my own callsign. This seems to have (initially, anyway) "trodden on a few toes", quite inadvertently. While I have done some toe-reading, a curious artefact remains: multiple copies of *WIA News* under several callsigns doing the rounds. I am endeavouring to find a solution satisfactory to all. In addition, posting it under my callsign, rather than the VK3WIA "official" callsign has engendered comment that readers have more "faith" in it, and appreciation that it comes "direct from the horse's mouth."

Recommendations

1. To continue the Media Liaison position and to take the opportunity to disseminate information and public comment more widely on issues affecting the amateur radio community.
2. Disseminate *WIA News* releases more frequently than monthly and more widely than at present, as the needs demand.
3. To maintain contact with the print and broadcast media and parliamentarians, where it is appropriate to serve the Institute's interests.

Roger Harrison VK2ZRH
Federal Media Liaison Officer

International Beacon Project

At the IARU Region 3 Conference last September in Singapore, Region 3 embraced the International Beacon Project (IBP), which has been established in Regions 1 and 2 over the past 15 years. Brief details of the Region 3 decision and its implications for Australian amateur radio were included in the IARU Liaison Officer, Kevin Olds' (VK1OK), report in the October 1994 issue of AR.

The IBP began with beacons on 14,100 kHz initially, later expanding to three-band beacons on 14, 21 and 28 MHz. More recently, live-band beacons (14, 18, 21, 24 and 28 MHz) are being added to the network, replacing older beacons in some locations. An article on the network, its history and current operations was published in the October and November 1994 issues of *QST*.

The beacons serve as HF propagation "indicators" and for various propagation investigation or research purposes. With the network well established, the next phase of operations is to encourage propagation investigation and research.

The beacons are based on standard commercial amateur transceivers of the same or similar type, transmitting in an accurately timed sequence, each beacon being allocated a time "slot". On each frequency, they transmit a CW identification and then a series of key-down sequences at power levels of 100, 10, 1.0 and 0.1 watts. This permits the determination of path loss and propagation characteristics.

The only IBP beacon in Region 3 to date has been JA11GY in Japan.

At the February 1995 Institute meeting, the position of IBP Coordinator was created, which I was appointed to fill. At the 1994 Region 3 Conference, I made initial application for the position of Region 3 IBP Coordinator and the Institute agreed at the February meeting to endorse my application and subsequently notified the Region 3 Secretariat.

The IARU IBP Coordinator is John G Troster W6ISQ, who resides in Belbrook, California. The proposal put in a Conference Paper to the 1994 Region 3 Conference was for one, or possibly two, beacons in Australia and one in New Zealand, plus one in West Asia and another in South East Asia. Sri Lanka "adopted" one (funded by Region 3) and Chinese Taipei (Taiwan) will install the other. The

NZART delegation indicated they proposed installing a beacon in NZ, while the WIA delegation proposed to explore the possibility of installing one or two here.

The "prime" site favoured for Australia is in West Australia — Perth, or environs, to be precise. The additional site is in the East, Sydney or environs being the suggested location.

Since my appointment in February, I have written to John Troster advising him of my appointment and providing cogent reasons for having two operational beacons on either side of the Australian continent. I'll detail these in a future report. Following a VK6 Division meeting in Perth at which President Neil Penfold VK6NE outlined brief details of the IBP, a number of local amateurs expressed enthusiasm for the project. It was suggested one of the Perth universities would make a suitable location. Neil has supplied me with names so I can make further contact.

Regarding a Sydney location, opposition expressed by the appointed VK2 Division Dural Officer, David Horsfall VK2KFU/VK2ZTB (before any approach was made to see if Dural would be suitable or available), led me to seek another suitable site and I have received favourable encouragement from a federal government department which controls a site in the rural region West of Sydney. Two secondary sites are possible, both in the rural West, one university owned, the other owned and operated by another federal government department.

The next step is funding, followed by provision for long term maintenance arrangements. Basic cost is US\$2500 per beacon and controller (through John Troster). Antenna and installation costs are additional. Typically, vertical antennas are used for omnidirectional radiation.

The Region 3 IBP Coordinator's personal costs are funded by the Region 3 Association, which includes travel to each Region 3 Conference at the Association's expense. Should I be appointed by Region 3 to this position, the WIA would thus gain one delegate for each Region 3 Conference fully-funded at no (direct) cost to the Institute.

Recommendations

As the IBP bolsters the Amateur Radio Service's position in justifying its HF allocations at the ITU level (and would provide good argument in current government-SMA negotiations), it is within the scope of the Federal WIA's Memorandum of Association, and likewise the seven Divisions', to provide funding in some form or other. This leaves it open to funding being part a Federal, part a Divisional, responsibility. It might be that donations from the wider (non-member) amateur community should be sought — and even the equipment supplier community.

As I see it, the options are:

1. Capital and recurrent costs fully funded by the Federal WIA (all Divisions share the costs).
2. Only capital costs fully funded by the Federal WIA, with recurrent costs funded by the relevant Division (perhaps shared with a local affiliated club).
3. Capital costs funding raised through a donation drive "seeded" by a Federal WIA (or Federal plus Divisional) capitation. Recurrent costs as per (2).

The object would be to have at least one, and preferably both, beacons operating by the next Region 3 Conference in 1997 (Beijing).

Postscript

A fax from John Troster W6ISQ on 2 May, advises that the beacon equipment is, in fact, donated so any consideration of capital costs is now unnecessary, only installation and recurrent costs need be considered, which makes the project that much more viable.

The President of the NSW Division, Michael Corbin VK2YC, has invited a submission for siting a beacon at Dural, to be considered by the NSW Council. A submission was faxed to the Division on 1 May.

Roger Harrison VK2ZRH
Australian Coordinator, International Beacon Project

Australian Naval Amateur Radio Society Highlights

ANARS achieved the highest growth rate of any naval amateur radio society in the world.

We have been approved by the director of Naval Corporate Management (with specific permission to use the word "naval" in our title) and recognised by the Department of Defence, Royal Australian Navy, the Naval Association of Australia, the Navy League, the Association of (war)ship societies and the Corvette Association.

We have become only the second national amateur radio society to be affiliated to the federal WIA (the other is ALARA). Overseas we have been recognised and accepted by the British RNARS, the German MF-Runde, Dutch MARAC, Italian INORC, Romanian YO-MARC and the American SOWP.

We are the largest naval Amateur Radio Society in Australia (by a factor of at least two). Frequent publicity has been achieved in *Amateur Radio*, *Amateur Radio Action*, *Electronics Australia*, *Silicon Chip*, *Corvette and Navy News*.

Our society has maintained a high public profile by staging displays at the Riverina Field Day, Gold Coast Hamfest, Wyong (Gosford) Field Day (for the second year running), BARCfest, Moorabbin Hamfest, Summerland Hamfest and the Riverina Field Day (for the second year running), the Shepparton Communications Day, Gympie Hamfest, Ballarat AR Convention, Adelaide Hills Hamfest, Northern Corridor (Perth) Hamfest, as well as return visits to the previous venues.

The special event station VI4VHF was staged to mark the de-commissioning of HMAS Moreton. Four editions of our newsletter QUA-ANARS were published in the first year. The standard began high and has steadily improved, making QUA one of the best club newsletters in the country. Commodity trading has been run at a profit (although the Hon Secretary would like to sell more stock). Our commodity purchases have been kept below 25% of assets in order to maintain adequate cash flow.

All in all, not a bad start. Sincere thanks to the retiring committee VK2ALG, VK4CY, VK3EUL, VK6APW, VK2BBE, VK2GWE, VK2NCE, VK4GY, L20508 AND VK3QU for a job well done.

New Committee

The new ANARS committee is Terry Clark VK2ALG, Honorary Secretary; Jon Walton VK4CY, Honorary Treasurer; Ian Fraser VK2UG; Barry Bennetts VK2BBE; Peter Saunders VK6APW; Jeff Fletcher VK3EUL and John Garvey VK5OJ. Barry VK2BBE is the "HMAS Canberra memorial" award custodian.

In accordance with our constitution, I have been nominated by the committee for a second term as Chairman.

G C Dunstan VK1XX
Chairman ANARS
ar

Don't buy stolen equipment — check the serial number against the WIA Stolen Equipment register first.

■ Book Review

The ARRL UHF/Microwave Projects Manual

Published by the
American Radio Relay League
Reviewed by Norm Eyres VK3ZEP
and Bob Tait VK3UI



This new book covers everything from 1.2 GHz to Optical communications. Yes, that's right. There is even a light wave transceiver project using Laser diodes. There is also an infra-red (IR) transceiver if you want to try something different.

The idea of this publication, according to the many authors involved, was to provide modern designs that would remain useable for many years to come.

Some of the designs are well proven. Detailed drawings, circuits and photographs provide the reader with easy to follow construction details. Some of the practical projects in this book give details of where to obtain special components and printed circuit boards.

If you have never played with microwave before there are many hints and tips and safety precautions to follow. You can "roll your own" without getting into too much trouble.

We would thoroughly recommend this book to anyone even remotely interested in microwave construction projects. Think of a question on the

subject and you will find the answer in this excellent publication.

It is very good value at \$52.00. The order number is BR55 and may be obtainable from your Divisional Bookshop. The review copy was supplied by Daycom Communications Pty Ltd. ar

WIA News

Beacons Aid 80 m DX

As the solar cycle slides into the minimum, European beacons on 80 m may prove useful as a propagation aid for 80 m DXers.

A recent issue of International Amateur Radio Union (IARU) Region 1 News lists current HF beacons operating in Region 1, including one in Germany and one in the Czech Republic.

Martin Harrison G3USF, Region 1 Coordinator for the IARU International Beacon Project, maintains a list of Region 1 HF beacons which he makes available on the Internet. If you're on the World Wide Web, you can reach Martin at poa01@keele.ac.uk.

The 80 m beacon in Germany is DK0WCY, on 3558 kHz. Located at Scheggerott (locator JO44VQ), it runs 25 watts erp to a dipole.

Identifying in CW (A1), it operates between 0700-0800z and 1530-1700z.

The Czech 80 m beacon is OK0EN, on 3600 kHz. Running only 0.1 watt erp to a dipole, it's unlikely to be heard here.

DK0CWY is also on 10.144 kHz, running 30 watts erp to a horizontal loop, operating 24 hours a day. (Thanks to John VK4QA, and Martin G3USF).

ALARA

Sally Grattidge VK4SHE*, ALARA Publicity Officer



ALARA is Twenty This Year

I wonder what the small group of ladies who formed LARA back in 1975 would think of ALARA now. We have over 200 members, many of them from other countries, sponsored by VK girls. ALARA is recognised by other YL organisations all over the world. They didn't know what they had started when they held that first meeting.

To celebrate that beginning, birthday luncheons are held in several states each year in July, and we run a special Activity Day on the Saturday nearest to the date of that first meeting (26 July 1975). Activity day this year is Saturday, 22 July. The times are 0900 to 1300 UTC, and the frequency is 3.588 MHz +/- . Do try to participate. It is very lonely for those who are there if no one answers their calls.

This special 20th year will be acknowledged at the birthday luncheons, but the committee agreed that celebrations should be continued into next year when the ALARAMEET in Perth will be held during the 21st birthday year. We realise that only some of us can actually be in Perth at that time, but to be together will make it special, and those who are there will hold all the others in their thoughts so they can share the 21st "party". (How about a special call sign/station so those who cannot make it to Perth can call in and say "Happy Birthday"? VK4SHE).

The VK3 birthday celebration will be held on 14 July 1995 at our usual venue, the Vista Cafe in Little Collins Street, Melbourne (next door to the Victoria Hotel). Our birthday lunch falls during the school holidays this year so we hope it will be possible for most people to come and join us, from 11 am onwards.

In VK5 the gathering will be on Sunday, 30 July 1995 at the same venue as has

been used for the last couple of years (visitors contact VK5CTY for details). The OM lunch will also be held at its usual venue and the coffee finale will no doubt also occur.

The VK6 ladies gather for lunch on the fourth Thursday each month at the Hyde Park Hotel in North Perth (contact Poppy VK6YF). The group, including licensed ladies and those interested in radio, celebrate the formation of the lunch group in June, and will celebrate ALARA's birthday at the same time.

Christine Taylor VK5CTY

Is ALARA Really Necessary?

While reading some of the YL histories, I came across a comment which made me stop and think. The writer questioned the value of ALARA, arguing that having a separate organisation is counter-productive, in that we cease to be just amateurs like everyone else, and become a different group.

I can well appreciate the early YLs feeling this way, as they had to make considerable efforts to be accepted into the amateur fraternity, and prove that a woman was capable of passing the tests required to gain a licence. Why go to such lengths to attain equality, and then stand up and declare you are different? Maybe that is what equality is all about, not being the same as everyone else but being accepted while being different.

Becoming an amateur has given me my first taste of being labelled as belonging to a minority group. As I am not aware of any discrimination or persecution, this is not a problem. I regard ALARA as an interest group, rather than a separate organisation. Like other groups, such as the Old Timers, ALARA makes it easier to me to meet and talk to people with similar interests.

It would be interesting to hear comments from members and non-members regarding the value of ALARA.

Sally Grattidge VK4SHE

New Callsigns

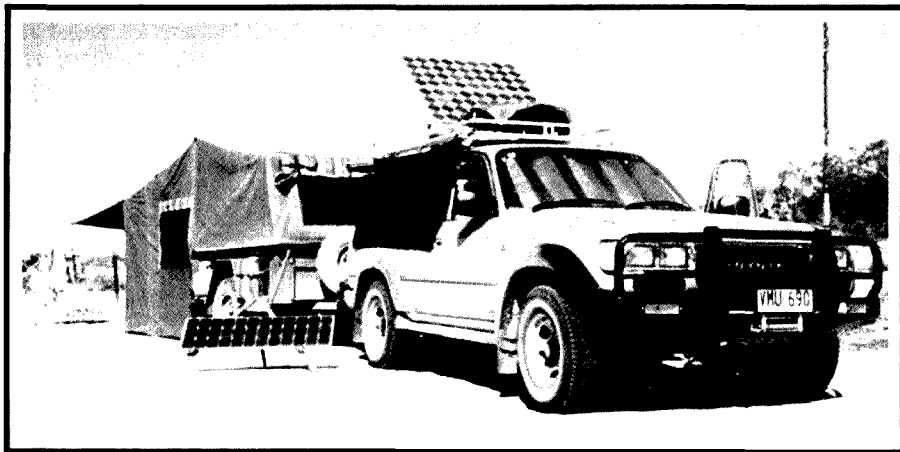
Congratulations to Jean VK5TSX, and Deb VK5JDM.

News From the West

Bev VK6DE has been on the road again covering great distances, including Tasmania which she found particularly enjoyable. Plans are going ahead for the ALARAMEET next year and the details we are all waiting for will be in the October newsletter.

Annual General Meeting

There were 16 members on the net for the AGM of ALARA held on Monday, 22 May 1995 near 3.580 MHz at 1030 UTC. The election of Office Bearers was as follows, all nominees being unopposed.



We have all heard of the travels of Maria VK5BMT and Keith VK5MT, and most of us know that they have a mainly solar powered set-up. This is the car and its array at Dalhousie Springs in SA.

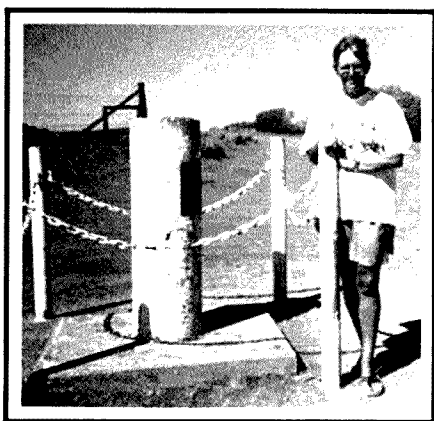


The Barossa Picnic is held on the last Sunday in March at the Mount Pleasant Oval. It usually clashes with the Walk Against Want which is frustrating for WICEN organisers but, because of commitments for cricket and football, that is the only weekend available. Left to right, Marilyn VK3DMS, Sue Mahoney, Meg VK5AOV, Christine VK5CTY.

Executive: President, Christine Taylor VK5CTY; Senior Vice-President, Judy Atkins VK3AGC; Junior Vice President, Bev Clayton VK4NBC; Secretary, Bron Brown VK3DYF; Treasurer, Margaret Schwerin VK4AOE; Publicity Officer, Sally Grattidge VK4SHE; Newsletter Editor, Dorothy Bishop VK2DDB.

Office Bearers: Historian, Deb Matthews VK5JDM; Awards Custodian, Jessie Buchanan VK3VAN; Contest Manager, Marilyn Syme VK3DMS; Sponsorship Secretary, Gwen Tilson VK3DYL; Souvenir Custodian, Margaret Schwerin VK4AOE; Librarian, Kim Wilson VK3CYL.

State Representatives: VK1/VK2, Dorothy Bishop VK2DDB; VK3, Bron Brown VK3DYF; VK4, Robyn Pye VK4RL; VK5/VK8, Meg Box VK5AOV; VK6, Bev Hebiton VK6DE; VK7, Helene Dowd VK7HD.



Maria VK5BMT at Cameron's Corner where New South Wales, Queensland and South Australia meet (29° S, 141° W).

Welcome to all new and returning office bearers, and thanks to all who held office last year for work well done. A Minute Secretary is urgently needed, preferably someone who can hear what is going on! Special thanks to Christine VK5CTY for taking on the role of president for another year, and Judy VK3AGC who is frequently called on to relay for the more distant stations.

DRL News

The District Radio Ladies (VK4DRK — Rockhampton) have changed their net times to the first Thursday of the month on 146.900 MHz at 2000 hrs EST, and 3.565 MHz (+/-) at 2030 hrs EST. The DRLs had a night out in Gladstone in June, when they saw Pam VK4PCP performing in "Les Miserables".

Robyn VK4RL

**Cb PQ Woodstock, QLD 4816 ar*

AWARDS

*John Kelleher VK3DP — Federal Awards Manager**

I am pleased to see that my continual suggestions about local awards have at last begun to bear fruit. From all our friends at WIAQ comes the Worked All Queensland Award. I can openly recommend this award. In fact, I will recommend any Australian award which will promote general activity and serve to publicise any portion of this fine country!

This award is divided into two sections, Worked all Cities and Towns, and Worked all Shires. There are 23 incorporated Cities and Towns in Queensland: BN Brisbane, BU Bundaberg, CA Caloundra, CS Cairns, CT Charters Towers, DY Dalby, GC Gold Coast, GD Gladstone, GI Goondiwindi, GY Gympie, HB Hervey Bay, IP Ipswich, LC Logan, MB Maryborough, MC Mackay, MI Mount Isa, RC Redcliffe, RH Rockhampton, RM Roma, TH Thuringowa, TO Toowoomba, TV Townsville, WA Warwick.

The initial award is for 15 contacts. A silver sticker is issued if ALL Cities and towns are successfully worked.

There are presently 108 shires in Queensland:

AA Allora, AC Aramac, AL Albert, AN Arakun (R), AT Atherton, BA Banana, BC Barcaldine, BD Bendenere, BE Burnett, BG Biggenden, BH Bauhinia, BI Bungil, BK Burdekin, BL Balonne, BO Booringa, BO Barcoo, BP Bulloo, BR Burke, BS Broadsound, BT Beaudesert, BV Boonah, BW Bowen, BX Blackall, BY Belyando, BZ Boulia, CB Caboolture, CD Cardwell, CF Clifton, CH Chinchilla, CK Cook, CL Calliope, CM Cambooya, CN

Crows Nest, CO Cooloola, CP Carpentaria, CR Croyden, CY Cloncurry, DG Douglas, DI Diamantina, DL Dalrymple, DU Duinga, EA Eacham, ED Eidsvold, EK Esk, EM Emerald, ET Etheridge, FL Flinders, FZ Fitzroy, GH Gayndah, GL Glengallan, D, GM Gooburrum, D, GT Gatton, HK Hinchinbrook, HT Herberton, IF Isisford, IL Ilfracombe, IS Isis, IW Inglewood, JE Jericho, JO Johnstone, JY Jondaryan, KG Kingaroy, KK Kilkivan, KO Kolan, KY Kilcoy, LA Laidley, LO Longreach, LV Livingston, MA Mareeba, MC Mackay*, MG Mulgrave, MH Murweh, MK McKinlay, ML Milmerran, MM Mount Morgan, MN Mirani, MO Maroochy, MR Moreton, MT Monto, MU Mundubbera, MV Miriam Vale, MX Murilla, MY Murgon, MZ Mornington (R), NE Nebo, NN Nanango, NO Noosa, PD Peak Downs, PI Pioneer, D, PO Paroo, PR Pine Rivers, PT Pittsworth, PY Perry, QL Quilpie, RD Redland, RI Richmond, RL Rosenthal, D, RO Rosalie, SA Sarina, ST Stanthorpe, TA Tara, TB Tambo, TE Torres, TI Tiaro, TM Taroom, WA Warwick*, WC Woocoo, WD Wondai, WE Widgee, D, WG Waggamba, WH Whitsunday, WI Winton, WN Woongarra, D, WO Wambo, WR Warroo.

(R) Restricted area for radio transmissions — permit required.

* Town, City, and Shire.

D Deleted as from 1 July 1994.

The initial award is for 51 contacts, and stickers for 61, 71, 81, 91 and 101 shires may be claimed. A Gold sticker is available for working ALL Shires.

The Rules

Only one certificate is issued, and is updated when additions are received. Any SWL or transmitting amateur may apply for this award. All modes and bands may be used. Cross-band contacts are definitely not allowed.

Special VK ruling. As a number of areas are not normally very active, expeditions to these areas are encouraged. A copy of your portable log can be forwarded to the Queensland Awards Manager for use as a check list. The VK/P operator will automatically be credited with "having worked" that particular area if and when he has successfully worked at least 10 (ten) different stations from that area.

To apply for this award, submit a certified log extract, and a fee of \$5.00 or five IRCs, to: The WIAQ Awards Manager, GPO Box 638, Brisbane, QLD 4001, Australia.

Please note that upgrade stickers are issued free.

Contacts made as from 1 January 1976 will be valid for this award, with the exception of Arakun, Burnett Shire, Caloundra City, Cooloola Shire, Hervey Bay Town, Logan City, Mackay Shire, Mornington, Thuringowa City, Warwick Shire, and Whitsunday.

After 1 June 1981, contacts with Arakun, Mornington, Hervey Bay Town, and Logan City will be accepted. The following were added later: 1 January 1986, Thuringowa City; 19 December 1987, Caloundra City; 1 September 1989, Whitsunday.

Warwick Shire now combines Allora, Glengallan and Rosenthal Shires, and Warwick City as from 1 July 1994. From the same date, Cooloola Shire now consists of Gympie City and Widgee Shire. Burnett Shire now incorporates Woongarra and Gooburrum Shires and, finally, Mackay Shire now consists of Mackay City and Pioneer Shire.

With a start date of 1 January 1976, this award should be easy to earn. Some of the locations mentioned above are steeped in Australian history and culture.

The Diplom Sveridge

Evert Kallander SM5BDY, the Swedish Diploma Manager, suggests that *The Diplom Sveridge* is that country's equivalent of Britain's WAB, or the USA Counties Award. This award is issued by Nykoping's Sandareamatorer/NSA or the Nykoping Amateur Radio Club, and is valid from 15 June 1978. SWL stations may also apply.

The basic diploma is issued for contacts with a minimum of 100 different parishes, regardless of region. The total number of parishes in Sweden is 2543. Additional stickers and plaques are subsequently issued up to the final total. Norrland — SM2, SM3 (271 parishes);

Svealand — SM4, SM5, SM0 (759 parishes); Gotaland — SM1, SM6, SM7 (1513 parishes).

All bands and modes are permitted. Stationary, mobile and portable contacts are recognised. QSL cards are not required, but the Club reserves the right to examine log entries.

The Record Book, bearing its registered number, contains a list of all parishes in Sweden, and may be obtained from NSA Diploma Manager, Box 25, S-611 22 Nykoping, Sweden. Cost of the Record Book is SEK 120 or \$US18 or 20

IRCs. Full documentation for the award is contained in every copy of the Record Book. The Club would prefer that applications be in this book, but will accept a certified list of worked stations and parishes.

The fee for the basic diploma is \$US5.00 or five IRCs. Many SM stations have their parish number printed on their QSL cards. If not, perhaps the Diploma Manager can fill the empty spaces for you.

*PO Box 2175 Caulfield Junction 3161
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Club Corner

Eastern and Mountain Districts Radio Club Inc

EMDRC Inc held its Annual General Meeting on Friday, 2 June 1995. The new committee for 1995/96 is President, Jack VK3WWW; Vice President, Carl VK3EMF; Secretary, Max VK3WT; Treasurer, John VK3ZJH; General Committee, Len VK3COD, Ernie VK3FCX, Dave VK3KAB, Chris VK3KCP and Chris VK3XGT.

For more information about the club, please contact Jack VK3WWW on (AH) 03 9873 2459.

Jack Bramham VK3WWW
President

Moorabbin and District Radio Club

The MDRC Annual General Meeting will be held on 21 July 1995 at the Combined Clubs, Turner Road Reserve, 33 Turner Road, Highett. For further information, please telephone (03) 9704 3655. Election forms will be left at the club rooms.

Gerry Viscal

Radio Amateurs Old Timers Club

Membership is increasing and, as at the end of June, we have seven members who have notified the Secretary that they are 90 or more years old and are now listed as Honorary Life Members. As a matter of interest they are Alan Vagg VK3AVG, Arnold Lawrence VK3BHI, Bill Sievers VK3CV, Frank Clarke VK3FC, Alf Chandler VK3LC, Norman Hurrl VK4HH and Leith Cotton VK5LG.

If you are a member, and have reached the age of 90, please send a note to Arthur Evans VK3VQ at 237 Bluff Road, Sandringham, VIC 3191. (NB: Our records do not show date of birth.)

50th Anniversary Celebrations — Return of Amateur Licences

Herb Stevens VK3JO, who started people thinking about finding a way to celebrate the post war return of amateur radio licences in 1995, reports that the response to our request for information about stations who resumed transmitting after WW II has not been up to expectations. However, we acknowledge with thanks the following contributions from log books, all on 28 MHz. VK3DH-VK3VM, 22/12/45; VK3BQ-VK3DH, 26/12/45; VK3YP-VK3DH, 26/12/45; VK3VQ-VK3HT, 15/1/46; VK3RZ-VK3JT, 2/1/46; VK3NW-VK2NY, 22/1/46; VK2AHJ-VK2VP, 15/3/46.

George VK2AHJ also sent photocopies of the telegram dated 2 September 1939 from the director General of Posts and Telegraphs directing him to "cease all transmissions and disconnect valves, transformers, tuning coils, operating keys and microphones". A separate letter of 5 September 1939 reads "Further to telegram of 1st Sept. 1939, will you please note that your aerial, if especially designed for transmitting, must also be dismantled."

VK2RP and VK2UB have sent written advice that their first post war QSOs were made on 18/5/46 and 16/2/46 respectively, VK2UV contacting VK2ALP.

VK3BG has contributed a paper entitled "An Anniversary to be Remembered" published elsewhere in this issue.

At this time we have no information of operations prior to those of VK3DH/VK3VM on 22/12/45. The main object of gathering this information is to use it in an article commemorating the 50th anniversary of the resumption of amateur activity, for publication in *Amateur Radio* in November/December this year. Any problems encountered recovering impounded gear would also be an acceptable contribution. Please send

all information to Herb Stevens VK3JO who is QTHR.

Incidentally, we are delighted to see that a suggestion made to the Federal Contest Manager, Peter Nesbit VK3APN, has been accepted. In this year's Remembrance Day Contest it will be optional to call CQ RD 50. That's great news.

Allan Doble VK3AMD

Summerland Amateur Radio Club

Computer Expo

The most successful Summerland Computer Expo was held on Saturday, 27 May in the Lismore City Hall

Sponsored by the Summerland Amateur Radio Club, this was the third and best Expo held so far with over 1000 people inspecting displays by 20 exhibitors. Most exhibitors were local but ranged from Grafton to Brisbane.

The latest computer developments were presented.

Over 20 Club members, family and friends were involved in running the Expo which is held twice a year, the next to be in November.

Radio Assistance to Australian Red Cross

The Lismore Disaster Welfare Committee conducted an Evacuation and Registration Exercise on Saturday, 3 June 1995 using the Evacuation Centre in the Union Building of the Southern Cross University.

The Summerland Amateur Radio Club provides comms assistance to the Red Cross and took part in the exercise. The situation was that extensive fires in South Lismore had caused the evacuation of about 250 persons. These were to be registered and cared for at the Evacuation Centre. Our task was to set up a comms centre at the EC and have a mobile with a Red Cross person in the evacuation area.

We used the chance to test our call out, Commcentre set up, equipment and propagation from the site to difficult points around Lismore. Six club members, VK2s EA, DLR, DIL, XVR, KXK and JWA took part. Five of these are also WICEN members.

The exercise from 0830 to 1100 was followed by a debrief all around. Everything worked well but our location could become too noisy. In an air conditioned building, most windows, etc do not open thus restricting cable runs.

Propagation was satisfactory to all points tried and the backup crossband rig worked OK. Thanks to all who assisted.

J W Alcorn VK2JWA
ar

AMSAT Australia

Bill Magnusson VK3JT*

National co-ordinator

Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI

AMSAT Australia net:

Control station VK5AGR
Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/- QRM.

AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

To Flip or Not To Flip

Computerised automatic antenna tracking devices are common these days and they vary from the ubiquitous *Kansas City Tracker* to various free standing "Track-boxes". Most have a feature which is generally referred to as a "flip" option. This is designed to overcome a problem inherent in all common rotators. They are 360 degree devices and, for stations in the southern hemisphere, they are set to stop mechanically at south.

If the path of the satellite you are tracking crosses south the rotator will try to move from (say) 179 degrees to 181 degrees. To do so it will have to cross the mechanical stop and of course it can't do that. So off it goes around the other way on an almost 360 degree excursion to get to 181 degrees. This usually takes about a minute and during this time the signal will be lost. In the case of the digital data birds, data will be lost. If you are in QSO you will probably lose contact. If you are tracking a weather satellite the software will paint an annoying series of black lines across the picture.

With the "flip" option turned on and a particular satellite selected, the software does a quick scan of the up-coming pass. It looks to see if the satellite is going to cross the mechanical stop. If this appears

likely the track box flips the antennas over 180 degrees in elevation, that is upside down, and turns the azimuth rotator around 180 degrees. This brings the antennas back to where they were pointing originally but now the rotators can move freely through the 180 degree point that would have stopped them without the flip.

The solution, however, presents the operator with another problem and, because of this, many operators do not turn on the flip option. The problem is to do with the winding up of feed lines. It can be difficult to arrange the feed lines so the "flipping over" does not tangle them. Difficult but by no means impossible. The temptation is to run the feed line down the antenna boom to the rotator boom and along to the rotator. This will surely distort the Yagi radiation pattern and all good text books warn against this practice.

I wrestled with this problem and came up with an answer. I use the fine tip section from a fibreglass fishing rod cut to about a metre or so and bound to the reflector end of the Yagi so that it sticks out behind the antenna. The feed line can be run along the antenna boom and taped along the fibreglass rod. This gets it out of the way of the antenna in a gentle arc so that it can be brought back up to the rotator boom, wound around it once or twice and then formed into a circular loop around the rotators. With a bit of thought you can do this quite successfully and the flip option is well worth the trouble.

Computer Time Setting Program

I came across an excellent piece of shareware recently. AccuSet 3.5 is designed to work with a telephone modem and the Telecom computer time setting service which is available in all capital cities. Many such services exist around the world and AccuSet seems to accommodate them all. It is Windows based and can be fully automated to work each time you switch on or go into Windows.

It calculates the error rate of your hardware clock and can be set to automatically or manually correct this either from its own records or periodically by re-synchronising with Telecom. It will graphically display the error rate to indicate long term and short term variations. It has a screen display giving the present computed time, the estimated correct time and the daily error rate. You can configure it for any Telecom service

and can display the times in any six world cities from a data base containing 3000 entries. I find it useful for this feature alone as each entry has the city latitude/longitude given.

AccuSet will remind you that it is time to re-synchronise with Telecom after a set number of internal updates. I have tried a number of these programs and this is by far the best. The author maintains a support BBS where the latest version can be down loaded. The BBS is located in Pennsylvania and the ISD number is 0011 1 717 732 4067. There is a professional version available which includes a number of features useful to amateur astronomers.

Yet Another Keplerian Element Format Change

Not long ago, in a galaxy quite close to home, a lot of amateur satellite tracking software was thrown into mild confusion. USSPACECOM, who supply two line keps to government agencies, decided to change the format slightly. The bad news is, it's happened again. The good news is that the keps reaching us from most amateur radio sources have been worked on to correct any problems and this time some tracking programs don't seem to mind the changes anyway.

Word is that USSPACECOM will re-introduce the check sum soon but may retain some of the other changes. I guess time will tell. Just be careful and, if you have any problems, seek another source of keps. The AMSAT format should not have changed in any way as these are treated by AMSAT-NA before release. The keps I receive from CompuServe are OK. The Goddard Space Centre BBS has discontinued publication of the two line elements in zipped format due to changes in Internet access restrictions for government installations. The keps arriving from the US through various packet radio sources seem to be OK at present.

Six Monthly Amateur Radio Satellite Frequency and Mode Update

Here is the latest update of current amateur radio satellite frequencies and modes. I have simplified the list by removing all reference to satellites that are defunct and listing only the mode A transponders on the three most popular Russian RS satellites. For full details refer to the January 1995 column.

Satellite	UPLINK (MHz)	DOWNLINK (MHz)
Oscar 10 (AO-10)		
General Beacon (Carrier only)		145.810
Engineering Beacon (irregular and garbled)		145.987
Mode B (SSB,CW-Inverting)	435.030-435.180	145.825-145.975
Oscar 11 UoSAT-2 (UO-11)		
Beacon (1200 AFSK,FM) telemetry only		145.826
Beacon (1200 AFSK,FM) telemetry only		435.025
Beacon (1200 AFSK,FM) carrier only		2401.500
Radio Sputnik 10 (RS-10)		
Mode A (SSB,CW-Inverting)	145.86-145.90	29.360-29.400
Beacon/Robot (CW)		29.357
Beacon/Robot (CW)		29.403
Robot Mode A (CW)	145.82	29.357 or 29.403
Radio Sputnik 12 (RS-12)		
Mode A (SSB,CW-Inverting)	145.91-145.95	29.410-29.450
Beacon/Robot (CW)		29.408
Beacon/Robot (CW)		29.454
Robot Mode A (CW)	145.831/840	29.408 or 29.454
AMSAT-OSCAR-13 (AO-13)		
General Beacon (400 BPSK,CW,50 Baud RTTY)		145.812
Mode B (SSB,CW-Inverting)	435.420-435.570	145.825-145.975
Mode S (SSB,CW,FM)	435.601-435.639	2400.711-2400.747
Beacon (PSK) ON 1st 2 MA counts of "S" time		2400.664
Radio Sputnik 15 (RS-15)		
Mode A (SSB,CW non-invert)	145.858-145.898	29.354-29.394
Beacon (CW)		29.352.5
AMSAT-OSCAR-16 (AO-16) Callsign = PACSAT		
Mode J (1200 BPSK BBS,FM-SSB)	145.90/92/94/96	437.025 or 437.050
Mode S (1200 BPSK BBS,FM-SSB)		2401.1 or 2401.1428
AMSAT-OSCAR-17 (DO-17) (Dove)		
Beacon 1 (1200 bps AFSK,Digital Voice,FM)	145.82516	
Beacon 2 (1200 bps AFSK,Digital Voice,FM)	145.82438	
Beacon 3 (1200 BFSK,Digital Voice,SSB)	2401.2205	
AMSAT-OSCAR-18 (WO-18) (Webersat)		
Mode J (1200 BPSK,RC,SSB)	144.30-144.50	437.075 or 437.10
ATV (TV,AM)	1265.000	
AMSAT-OSCAR-19 (LO-19) Callsign = LUSAT		
(1200 PSK,FM-SSB)	145.84/86/88/90	437.15355 or 437.1258
FUJI-OSCAR-20 (JAS-1b) (FO-20) Callsign = 8J1JBS		
Beacon JA (CW,Analog)		435.795
Code JA (SSB,CW)	145.90-146.00	435.80-435.90
Beacon JD (CW)		435.910
Mode JD (1200 BPSK,FM-SSB)	145.85/87/89/91	435.910
UoSAT-OSCAR-22 (UO-22) Callsign = UoSAT5		
Mode JD (9600 Baud FSK,FM)	145.90/975	435.120
KITSAT-OSCAR-23 (KO-23) Callsign = HL01		
Mode JD (9600 Baud FSK,FM)	145.85/90	435.175
KITSAT-OSCAR-25 (KO-25) Callsign = HL02		
Mode JD (9600 Baud FSK,FM)	145.980	436.500
ITAMSAT-OSCAR-26 (IO-26) Callsign = ITMSAT		
Mode JD 1200 baud PSK	145.875	435.867
	145.900	435.822
	145.925	
	145.950	

*359 Williamstown Rd, Yarraville VIC 3013
 Packet: VK3JT@VK3BBS.#MEL.VIC.AUS.OC
 CompuServe: 100352,3065

ar

Help stamp out stolen equipment — always include the serial number of your equipment in your Hamad.

Contests

Peter Nesbit VK3APN — Federal Contest Coordinator*

Contest Calendar, July-September 1995

Jul 1	Australasian Sprint 80 m CW	(Jun 95)
Jul 1	Jack Files Memorial 80 m CW	(Jun 95)
Jul 1	West Australian 80 m CW	(Jun 95)
Jul 1	NZART 80 m Memorial Contest	(Jun 95)
Jul 1	Canada Day CW/Phone	(Jun 95)
Jul 1/2	Venezuela SSB DX	(Jun 94)
Jul 8	Australasian Sprint 80 m Phone	(Jun 95)
Jul 8	Jack Files Memorial 80 m Phone	(Jun 95)
Jul 8	West Australian 80 m SSB	(Jun 95)
Jul 8/9	IARU HF Championship	(Jun 95)
Jul 22/23	Venezuela CW DX	(Jun 94)
Jul 22/23	SEANET CW DX Contest	
Aug 5/6	YO DX Contest	(Jul 94)
Aug 12/13	Remembrance Day Contest	
Aug 12/13	Worked All Europe CW	
Aug 12/13	SARTG RTTY Contest	
Aug 19/20	SEANET SSB DX Contest	
Aug 19/20	Keyman's Club of Japan (CW)	
Sep 2/3	All Asia DX Contest Phone	(May 95)
Sep 2/3	Bulgarian DX Contest	
Sep 9/10	Worked All Europe Phone	
Sep 16/17	SAC DX CW	
Sep 23/24	SAC DX Phone	
Sep 23/24	CQ WW RTTY DX Contest	

Anyone who has been entering the Remembrance Day Contest for any length of time will be well acquainted with its many and varied changes over the years. Initially, the contest was only open to VKs, and contacts were scored according to a "points table". This allocated between one and six points per QSO, depending on the distance between the call areas concerned, and relative activity. In 1971 the rules were amended to include ZL, and again in 1974 when P2 emerged from VK9.

1974 also saw an experiment in which different call areas within the same WIA division were precluded from working each other for the purpose of the contest, which excluded VK7 — VK0, VK2 — VK9/LH, VK4 — P2, VK6 — VK9/C/X, and VK5 — VK8. Not surprisingly, many people were quite upset about this, and the idea was quietly dropped the following year.

The points per QSO continued to change from year to year, and in 1978 the minimum points on HF doubled from one to two. The intention was to improve the scoring ability of HF stations (given that on VHF one could work the same station, in the same state, every two hours). However, other entries in the table remained the same, which had the unfortunate effect of halving the relative value of higher scoring HF QSOs. In

retrospect, it would probably have been better to double all the entries in the table; however, this is easy to say in hindsight. In any event, the table only survived a couple more years and, in 1981, was replaced by fixed points per QSO, which has lasted to this day.

It is evident that, throughout this period, the contest organisers were putting a lot of effort into optimising the table in order to make it equally fair to everyone. However, whereas one would have hoped to see the table spiral in towards a final solution, by the end of the decade it was just as volatile as it had been ten years earlier. A graph of the points per QSO between representative Divisions, plotted from 1970 to 1980, illustrates this vividly.

Coinciding with these scoring changes, various formulas were also tried to determine the winning Division. Despite their differences, they shared a reliance on weighting factors, moving averages, linear regressions, and other complex techniques. The intention was to try and identify the different scoring abilities of the various call areas, and encapsulate them in a set of weighting factors, to bring the Divisions to a perfectly level playing field.

Now, any statistician will tell you that this is a realistic enough goal, providing you feed huge numbers of QSOs, extracted from many years of RD logs, into a set of complex formulas, and then

repeat the process each year thereafter. Despite requests for such a person to step forward, no-one did, which is not surprising considering the huge amount of work involved. Consequently, for the past two to three decades we have been stuck with formulas which, although well intentioned, have not been up to what is really quite a complex task.

By the 90s, the contest was getting into serious difficulty, due to steadily declining support. This decline had in fact been noticed as far back as 1986, in an excellent article by the late Ron Henderson VK1RH in *Amateur Radio*, August 1986. In that article he showed that the average number of contacts per log peaked in 1982, following which it fell each successive year after that. It is interesting to speculate whether the fall in support was related to the introduction of fixed points per QSO in 1981, or was mere coincidence. This aspect will be looked at more closely in the near future.

Over the past year many letters regarding the contest have been received, two of the most cogent being those from Bruce VK3JWZ and Vince P20VH. Extracts appeared in the March column, but both basically said that "many people now refuse to operate HF, as they can keep all QSO points within their state by operating VHF only. Something must be done to bring operators back to HF..."

I am pleased to say that their comments, and those of many other entrants, sparked a great deal of investigation into the overall objectives of the contest, its rules, and discussions about how it might be improved. Some suggestions have already been implemented for this year's contest, for example double points on CW, and others are under serious consideration for the future.

Two things are certain. Firstly, we do take notice of your letters, and secondly, there is no way we will let the RD Contest languish. The rules of the new, refurbished RD Contest appear below, and I would like to thank Alek VK6APK for a superb effort in preparing them. If you haven't been entering the RD lately, I strongly recommend you enter it this year, because it shows all the signs of being a roaring success. Not only will you have a lot of fun, but you will be helping your Division as well. Enter, and enjoy!

Addendum to results of 1994 RD Contest

In the results published in February 1995 issue of *Amateur Radio*, please delete VK3GHZ (66 points) from the VK3 HF Phone results, and add VK2GHZ (66 points) to the VK2 HF Phone results. Apologies to VK2GHZ.

DICK SMITH ELECTRONICS



UNBEATABLE VALUE!

The deluxe 2m/70cm dual-band hand-held Transceiver that offers easier operation and more features than ever before is still available at an unbelievably low price!

The Yaesu FT-530 provides a flexible dual receiver facility with separate volume and squelch controls, allowing you to listen on two frequencies in the same band or one frequency on both bands! Plus, the exclusive Australian version features full 70cm band coverage (420-450MHz), selectable Auto Repeater Shift on both 2m and 70cm (suits Australian band plan), and extended receiver coverage as standard. Two VFOs and 41 tunable memories per band are provided, together with keypad or dial frequency entry, seven selectable tuning steps and a one-touch CALL channel. The dual 5.5-digit LCD screen is back-lit for easy viewing and includes many functional indicators plus separate signal/P.O. bargraphs for both receivers. An LCD voltmeter function is provided so you can even monitor your battery's performance under load and estimate remaining battery life.

Other top features include: Inbuilt CTCSS encode/decode, CTCSS scanning, an auto battery saver (ABS) for extended battery charge life, a cross-band repeater facility and an inbuilt clock with alarm and snooze functions.

Also provides VOX circuitry for use with the optional YH-2 headset, a user-replaceable Lithium back-up battery, and DTMF selective calling and paging. A DC supply jack allows simple transceiver powering and NiCad charging, with RF output in four selectable steps up to 5W at 12V. The FT-530 comes complete with an ultra high-capacity 1000mAH NiCad battery, belt clip, carry case and approved AC charger.

Cat D-3620

Specifications

Frequency range:

Transmit:

144-148MHz, 420-450MHz

Receive:

130-174MHz, 420-500MHz, 800-950MHz

Current consumption:

Auto power off

150uA

Standby (saver on)

16.8mA (both bands)

Dimensions:

55(W) x 163(H) x 35mm (D)

Transmitter:

Power Output:

5, 3, 1.5, 0.5 (at 12V)

RF Power Output:

2.0W (2m) 1.5W (70cm)

(Supplied 7.2V 1000mA/H NiCad)

Receiver:

Sensitivity:

2m: < 0.158uV, 70cm: < 0.18uV

(Ham bands only, 12dB SINAD)

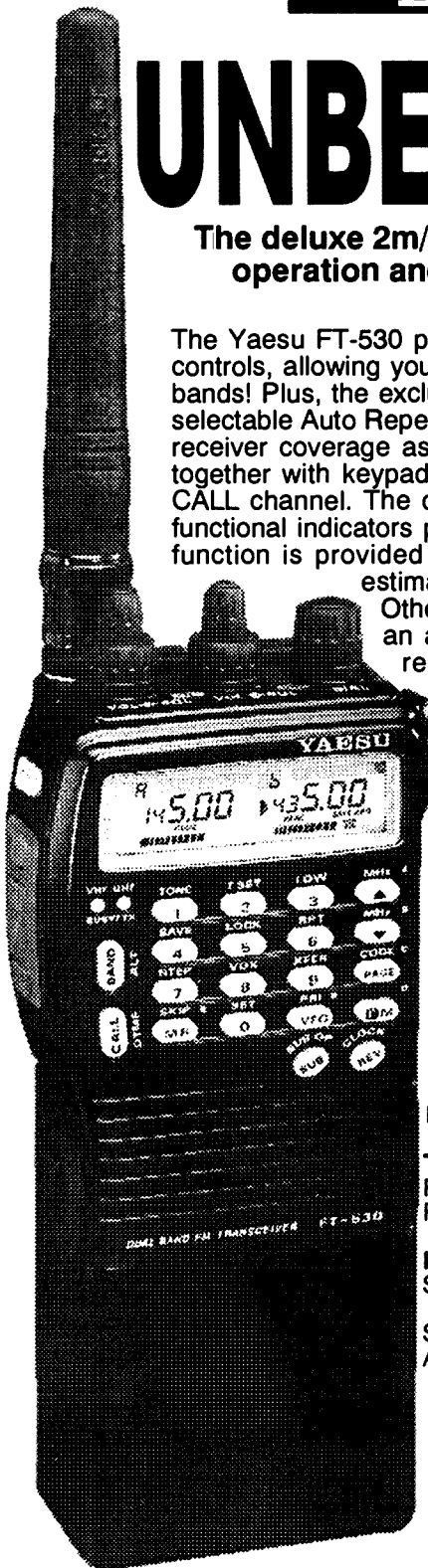
Selectivity:

>60dB

Audio Output (12V):

300mW at 8 ohms

2 Year Warranty



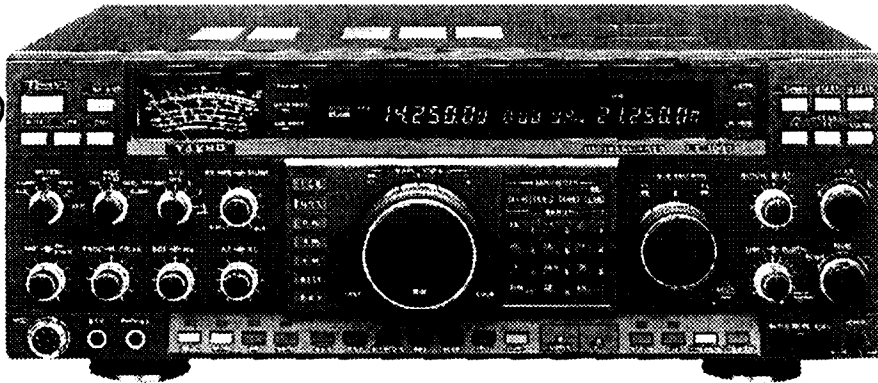
\$699

**Still Available At This
Special Low Price!!**

DICK SMITH ELECTRONICS



EX-DEMO CLEARANCE! YAESU FT-1000



**SAVE
\$1000**

Now's your chance to get the 'Best of the Best' at a bargain price! Right now you can pick up an ex-demo FT-1000 deluxe HF all-mode transceiver and save \$1000. Here's what the experts have to say about this incredible transceiver...

On Operation

"The layout of the front panel of the FT-1000 is just right...I reckon the FT-1000 is (operationally) far less complex than either the Icom IC-781 or the Kenwood TS-950S." - ARA
"I found the FT-1000 easier to learn and use than any other radio in its class." - QST

On Documentation

"Clearly written and complete, and includes a complete set of schematics and many high quality photos." - QST
"The quality of printing and presentation of the book is the best I have ever seen..." - ARA

On the Receiver

"... this rig has a very strong receiver; it has the best overall performance (in terms of sensitivity and dynamic range) and the highest third order input intercept of any commercial radio ever tested in the ARRL lab." - QST*
"The direct digital synthesizer works very well and produces receiver performance that sets new standards." - AR
"I found the receiver in the FT-1000 to be astonishingly sensitive and immune to cross modulation..." - ARA

Transmitter -SSB

"The FT-1000 is easy to adjust and use...The processor adds quite a bit of punch to SSB signals; hams I worked on SSB with the FT-1000 gave me good audio quality reports" - QST

Transmitter - CW

"CW keying was a delight... power output was checked in the CW mode and found to be well in excess of 200 watts on all bands..." - AR
"CW operation with the internal keyer is a breeze..." - QST

Conclusion

"...the FT-1000 represents unbelievable value..." - AR
"It's an excellent set worthy of accolades and rave." - ARA
"... the FT-1000 needs little for me to consider it the ultimate contesting and DXing machine available today..." - QST*
* Review with optional filters fitted.

The FT-1000's combination of Direct Digital Synthesis, high output power, ultra-high performance receiver and easy to use controls put it far ahead of the competition. Hurry in today and check out our limited number of ex-demo models all with a full 2 year warranty. Wouldn't you rather be using the "Best of the Best"?
Cat D-3200

\$4995

(Ex-demo models only, microphone extra)

Interested in more information? Copies of our 12 page colour brochure are available upon request. Phone (1800)226610 or (02) 9373366.

SPECIAL OFFER

Purchase an FT-1000, and we'll provide an MD-1 Desk Microphone, SP-5 or SP-6 extension speaker, BPF-1 Band Pass Filter, TCXO-1 Temp Compensated Oscillator, and four 455kHz 3rd IF crystal filters for just \$500 (valued at over \$1300 if purchased separately) This offer is only valid from 27/6/95 when purchased with the FT-1000.

Some models may be shop soiled. However all come with a full 2 year warranty.

Ex-demo models units are available at these stores:
Please phone to check availability. York St (02) 267 9111,
North Ryde (02) 878 3855, Brisbane City (07) 229 9377,
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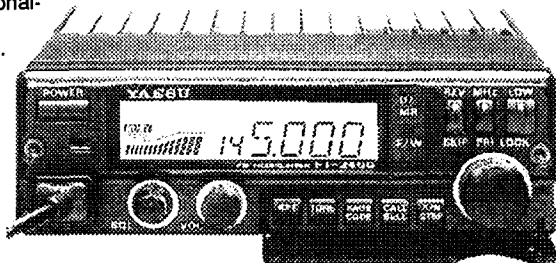
Don't Go Mobile Without A Yaesu Mobile Transceiver!

Whether you're going bush or operating around town, a quality mobile transceiver from Yaesu delivers the best performance.

FT-2400H Rugged 2m Transceiver



The ultimate in dependability and reliability! The FT-2400H is built using commercial grade mechanical and electronic construction techniques and meets the tough USA MIL-STD-810C shock and vibration requirements, so you know you're getting the highest quality. A one-piece die-cast chassis/heatsink allows three-step output of up to 50 watts without forced air cooling. Plus, fibreglass circuit boards and chip components provide professional-grade reliability. It has a large backlit LCD screen, backlit knobs and 31 tuneable memories (which can store frequency and a four-character name of your choice). A customised microprocessor also provides Auto Repeater Shift to suit Australian conditions. Two-stage track-tuning and a dual FET mixer improve receiver intermod performance. Scanning functions include programmable scan limits, selectable scan resume modes, memory skip, and priority monitoring. Seven selectable channel-steps and CTCSS encode are standard features. Comes complete with MH-26 hand mic., mobile mounting bracket and DC power lead.



2 Year Warranty

Cat D-3630

Specifications

General
 Frequency range: Transmit 144-148 MHz
 Receive 140-174MHz
 Channel steps: 5, 10, 12.5, 15, 20, 25 & 50kHz
 Current Consumption: Receive: 400mA
 Transmit: 12 Amp (Hi power)
 Dimensions: 160 x 50 x 180mm (w/o knobs)

Receiver
 Intermediate Freq: 21.4MHz & 455kHz
 Image Rejection: Better than 70dB
 Maximum AF Output: 2.0 watts into 8 ohms @ 10% THD

Transmitter
 RF Output power: 50/25/5 watts (Hi/Med/Low)

\$649

FT-890 All-Mode Transceiver

The outstanding FT-890 is a rugged, 100-watt PEP mobile transceiver that covers all HF amateur bands in SSB, CW, FM and AM modes, plus provides continuous reception from 100kHz to 30MHz. Two direct digital synthesisers (DDS) provide pure local signals and fast 1/4 changeover, while the low noise receiver front-end offers excellent receiver dynamic range performance. The switchable RF amplifier and a 12dB attenuator provide clear copy of even extremely strong signals, while interference rejection is facilitated by both IF Shift and IF Notch filters. Two independent VFOs per band are provided, plus 32 memories which store data from both VFOs. There's also an effective variable noise blanker, and a CW iambic memory keyer plus an adjustable passband-shifting speech processor which lets you tailor SSB transmitter audio to your own voice and microphone characteristics. The FT-890 weighs less than 6kg, uses modular design and surface-mount components to ensure highly reliable operation and comes complete with an MH-1 hand mic. An optional internal automatic Antenna Tuner (ATU-2) is also available, which can be controlled from the front panel.

Cat D-3270



2 Year Warranty

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Many thanks this month to VK6APK, CQ, QST, and Radio Communications. Until next month, good contesting!

73,
Peter VK3APN

SEANET DX Contest

CW: Jul 22/23, 0000z Sat — 2400z Sun
SSB: Aug 19/20, 0000z Sat — 2400z Sun

This annual event is sponsored by the Radio Society of Thailand. The objective is to promote contacts between amateurs worldwide and stations in the "SEANET" area on 160-10 m (this area includes Southeast Asia, neighbouring oceanic countries, VK and ZL). Categories are single operator, single and all bands; and multioperator single transmitter all bands. Exchange RS(T) plus serial number starting at 001 on each band. Multipliers are SEANET country prefixes: A4, A5, A6, A7, A9, AP, BV, BY/BZ, DU/DV/DX, EP, HL, HS, JA, JD1, JY, KH2, P2, S7, VK1-9, VQ9, VS6, VU, V8, XU, XV, XW, XX, YB/YC/YE, ZK, ZL/ZM1-4, ZL/ZM6, ZL/ZM9, 3B6/3B7, 3B8, 3B9, 4S, 4X/4Z, 8Q, 9K, 9M2, 9M6/9M8, 9N1, 9V.

Scoring is complicated! For QSOs with stations outside the SEANET area, SEANET stations should score 10 points for each QSO on 160 m, five points on 80/40 m, and two points on 20/15/10 m. For SEANET to SEANET QSOs, count six, three and one points respectively. Exception: double points apply for QSOs with DU/DV/DX, HS, YB/YC/YE, 9M2/6/8, 9V, V8. Contacts with stations in one's own country are not permitted for contest credit. The multiplier equals the number of SEANET countries worked times two, plus the number of non-SEANET

countries worked (ie DXCC) times three. The final score equals the total points times the total multiplier.

Although VK is a large country within the contest jurisdiction, the organisers continue to overlook that fact when deciding who to send rules to. Consequently, the mailing information is a couple of years old. If you enter, try sending your log to the last known manager, "Eshée Razak 9M2FK, Box 13, 10700 Penang, Malaysia". Include three IRCs for current rules. Logs must be received by 31 October (without current rules, there is no guarantee of future publicity through this column!).

Worked All Europe DX Contest

August 12/13 (CW), September 9/10 (SSB), November 11/12 (RTTY); 0000z Sat — 2400z Sun.

The object is to work European stations (except in the RTTY section, where anyone works anyone). Bands are 80-10 m. In the contest, avoid 3550-3800 and 14075-14350 on CW, and 3650-3700 and 14300-14350 on SSB. The minimum time of operation on a band is 15 minutes, although bands may be changed within this period if, and only if, the station worked is a new multiplier. Categories are single operator all bands; multioperator single or multi-transmitter (transmitters must be within 500 m dia area); and SWL all bands. DX cluster support is allowed. A maximum of 30 hours is allowed for single operator stations, with up to three rest periods (mark them in the log).

Exchange RS(T) plus serial number. Additional points can be gained using QTCs, as follows: After working a number of European stations, details of those QSOs (ie QTCs) can be reported during a current QSO with another European station. In the CW and phone sections, QTCs are sent from non-European stations to European stations. In the RTTY section, QTCs can be sent to any station outside one's own WAC continent. A QTC contains the time, call sign, and QSO number of the station being reported, eg: "1307/DA1AA431" means you worked DA1AA at 1307z and received serial number 431. Commence QTC traffic by sending the QTC series and number of QSOs to be reported, eg "QTC 3/7" indicates this is the third series and that seven QTCs will be sent. A QSO may be reported only once, and not back to the originating station. A maximum of ten QTCs can be sent to the one station, who can be worked more than once to complete the quota. Only the original QSO, however, will have points value.

The multiplier is determined from the number of European countries worked on each band (or on RTTY only, the number of DXCC/WAE countries). On 80 m the number of countries is multiplied by four, on 40 m by three, and on 20/15/10 m by two. The total multiplier is the sum of the individual band multipliers. Final score = (QSOs + QTCs) x multiplier.

SWLs log each station only once per band. Logs must contain both call signs and at least one of the control numbers. Count one point for each station logged, and one point for each complete QTC received (max ten per station).

Use standard log and summary sheet format. Include a checklist for more than 100 QSOs on any band, and if more than 100 QTCs have been sent, include another checklist to show that the quota of ten QTCs per station is not exceeded. Logs can be submitted in ASCII on a DOS disk, providing a paper summary sheet is included. Send logs to: WAECC Contest Committee, Box 1126, D-74370 Sersheim, Federal Republic of Germany. Deadlines are 15 Sept (CW), 15 Oct (SSB), 15 Dec (RTTY).

European countries are: C3 CT CU DL EA EA6 EI EM/NO ER ES EU/W F G GD GI GJ GM GM (Shetland) GU GW HA HB H80 HV I IS IT JW (Bear) JW (Spitzbergen) JX LA LX LY LZ OE OH OJ OK/L OM ON OY OZ PA RA1-RZ6 S5 SM SP SV SV5 SV9 SY T7 TA1 TF TK UA1-UI6 UR1-UZ6 YL YO YU ZA ZB2 1A0 3A 4K 4N 4U (Geneva) 4U (Vienna) 9A 9H.

16th Keyman's Club of Japan CW

Aug 19/20, 1200z Sat — 1200z Sun.

This contest is designed for CW enthusiasts, and will particularly suit those who are collecting Japanese prefectures for awards. An interesting variation is the inclusion of 6 m. The only category is single operator multiband. Suggested frequencies are 3510-3525, 7010-7030, 14050-14090, 21050-21090, 28050-28090, and 50050-50090. Exchange RST plus continent code (OC), JAs will send RST plus district code. Score one point per QSO. The multiplier on each band is the total number of JA districts (max 60). Final score equals total points x total multiplier. Show duplicate QSOs with zero points, attach a summary sheet showing all usual information, and send the log to: "Yasuo Taneda JA1DD, 3-9-2-102 Gyodacho, Funabashi, Chiba 273, Japan", to be received by 29 September 1995. ASCII logs on a DOS disk are most welcome.

Results of 1993 ARRL 10 m Contest

(Call/Score/QSOs/Mult/Hrs/Class/Pwr

Class: A = Mixed, B = Phone, C = CW, D = Multiop;

Pwr: A = 5 W max, B = 150 W max, C = over 150 W;

* = award winner

VK2APK*	93024	337	72	36	A	B
VK8BE	1976	35	19	36	A	B
VK4NEF*	2600	65	20	36	B	A
VK2ARJ*	5400	108	25	36	B	B
VK2GAH	1024	32	16	36	B	B
VK4LW	1760	80	11	36	B	C
VK4XA*	93600	390	60	21	C	B
VK2VM	22196	179	31	9	C	B
VK4ICU	2304	72	8	36	C	B
VK3EFO	1548	43	9	36	C	B
VK2QF*	69688	281	62	36	C	C
VK4TT	54180	301	45	36	C	C
VK1DX*	114800	646	82	36	D	—

1995 RD Contest: VP Day 50th Anniversary

Presented by Alek, VK6APK

Introduction

Marking the 50th Anniversary of the end of World War II, this year's contest sees substantial changes to the scoring system and method of determining the winning division. These changes are considered necessary to ensure a future for what must still be regarded as the best contest in Australia today.

It is hoped that they will also enable a wider understanding of how the winning Division is determined. There are changes to the points scored per QSO, which are designed to promote greater activity in the CW mode, and also on the 160 m band. The new points system will be implemented for this year's contest.

We will see an end to the present over-complicated method of determining the winning Division which, with its participation factors, weighting factors and moving averages, has been very difficult for most entrants to understand. The deciding factor, however, was the realisation that the present formula favours those Divisions where most activity is on VHF, which has led to a considerable reduction in HF activity. This is contrary to the original aim of the contest, which was to promote interstate contacts and encourage participation from all Australian amateurs, regardless of whether they operate on HF or VHF.

Starting this year, a much simpler formula will be used, which pits Divisions against themselves rather than each other. For each Division, its total score for the current year will be divided by its total score for the previous year, calculated separately for HF and VHF. The HF and VHF factors will then be averaged, to give an overall "improvement factor" for that Division. The Division with the highest improvement

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factor will be declared the winner. From now on, Divisions will have to pay equal attention to both HF and VHF, in order to do well.

A benefit of the new formula is that by calculating separate improvement factors for HF and VHF, the relative scoring differences between HF and VHF become irrelevant. This equalises the playing field for all Divisions, regardless of their number of licensees, relative HF and VHF activity, geography, and propagation on the day. In addition, this change makes it possible to independently fine-tune the HF and VHF scoring systems, should it ever be necessary, without introducing scoring imbalances.

The only other change to the scoring system is that SWL logs will not be used in determining the scores for any Division.

An open section has been introduced for entrants who wish to use both phone and CW. It is hoped that this change will encourage more phone entrants to use CW, and vice-versa, thus increasing the amount of activity on both modes. Entrants will no longer be stuck with one mode for the duration of the contest, but will be able to try the alternative mode during the contest, and enter the open section if they find they do well. A side effect of this change is that entrants may now only submit one HF log, plus one VHF log.

For the first time, entrants who operate from outside their own call area will be able to elect to have their points credited to their home Division, simply by indicating their wishes clearly with their logs. It is hoped that this change will encourage more activity from entrants outside their home state, and perhaps even some DXpeditions to the various islands outside the mainland.

The practice of sending just the summary sheets has not resulted in the increase of submissions which had been hoped for, and has made it impossible to gather important statistical information from the logs. Therefore, this year sees a return to the requirement for sending complete and legible logs and summary sheets, as is the practice for every other contest in the world today.

Peter VK3APN is to be thanked for his efforts to inject new life into this contest (*thanks Alek — Peter*), and it is to be hoped that the enhancements will encourage greater activity and enjoyment for all who participate.

CONTEST DETAILS

Purpose: This contest commemorates the amateurs who died during WWII, and is designed to encourage friendly participation and help improve the operating skills of participants. It is held annually on the weekend where the Saturday is closest to 15 August, the date when hostilities ceased in the south-west Pacific area.

It is preceded by a short opening address by a notable personality, transmitted on various WIA frequencies during the 15 minutes immediately before the contest. During this ceremony, a roll call of those amateurs who paid the Supreme Sacrifice is read.

A perpetual trophy is awarded annually to the WIA Division with the best performance. It is inscribed with the names of those Australian amateurs who made the Supreme Sacrifice, to perpetuate their memory through amateur radio in Australia.

The name of the winning Division each year is also inscribed on the trophy, which is presented at the Annual Federal Convention. The winning division holds the trophy for the following 12 months, and receives a certificate. The leading entrants will also receive certificates.

Objective: Amateurs in each VK call area will endeavour to contact other amateurs in other VK call areas, P2 and ZL, on 1.8-30 MHz (10, 18 and 24 MHz excluded). On 50 Hz and above, amateurs may also contact other amateurs in their own call area.

Contest Period: 0800 UTC Saturday, 12 August to 0759 UTC Sunday, 13 August 1995. As a mark of respect, stations are requested to observe 15 minutes silence prior to the start of the contest, during which the opening ceremony will be broadcasted.

Rules:

- The contest categories are:
 - High Frequency (HF) — for operation on bands below 50 MHz;
 - Very High Frequency (VHF) — for operation on the 50 MHz band and above.
- Within each category the applicable sections are:
 - Transmitting Phone (AM, FM, SSB, TV);
 - Transmitting CW (CW, RTTY, AMTOR, PACTOR, packet, etc);
 - Transmitting Open (a) and (b);
 - Receiving (a), (b) or (c).
- All amateurs in Australia, Papua New Guinea and New Zealand may enter the contest, whether their stations are fixed, portable or mobile.
- Cross mode and cross band contacts are not permitted.
- Call "CO RD", "CO CONTEST", or "CO TEST". In addition to honouring those who lost their lives in World War II, for this year only entrants have the option of using "CO RD 50", specifically to commemorate the post-war resumption of amateur activity.
- Stations may be contacted once on each band using each mode, ie up to twice per band using Phone and CW.
- On the 50 MHz band and above, the same station in any call area may be worked using any of the modes listed at intervals of not less than two hours since the previous contact on that band and mode.
- Multi-operator stations are not permitted (except as in Rule 9), although log keepers are allowed. Only the licensed operator may make a contact under his or her own callsign. Should two or more operators wish to operate a particular station, each will be considered as a separate contestant and must submit a log under their own individual callsign.
- Club stations may be operated by more than one operator, but only one operator may operate at any time, ie no multi-transmission.
- For a contact to be valid, numbers must be exchanged between the stations making the contact. The number will comprise RS (for phone) or RST (for CW), followed by three figures commencing at 001 for the first contact, and incrementing by one for each successive contact.
- Contacts via repeater (including satellite) are not permitted for scoring purposes. Contacts may be arranged through a repeater. The practice of operating on repeater frequencies in simplex is not permitted.
- On all bands except 160 m, score one point per completed valid contact, and on 160 m, score two points per completed valid contact. On CW, score double points.
- Logs should be in the format shown below, and accompanied by a summary sheet showing the following information:
Callsign: Name: Address:
Category (HF or VHF):
Section (Phone, CW, Open, or Receiving):
Total score:
Declaration: "I hereby certify that I have operated in accordance with the rules and spirit of the contest."
Signed: Date:
- Entrants may submit one HF log, and one VHF log. Separate logs and summary sheets are preferred.
- Entrants temporarily operating outside their allocated call area, who wish to have their points to be credited to their home division, should make a statement to that effect on their summary sheet/s.
- Forward the log/s and summary sheet to "RD Contest Coordinator, A Petkovic VK6APK, 26 Freeman Way, Marmion, WA 6020". Endorse the envelope "Remembrance Day Contest" on the front outside. Entries *must* be forwarded in

time to reach the Contest Coordinator by Friday, 15 September 1995.

- Certificates will be awarded to the leading entrants in each section, in each VK call area, P2, and ZL. Entrants must make at least ten contacts to be eligible for awards, unless otherwise decided by the Contest Coordinator.
- Any station observed as departing from the generally accepted codes of operating ethics may be disqualified.

Determination of Winning Division: Scores of VK0 stations will be credited to VK7. Scores of VK9 stations will be credited to the mainland VK call area which is geographically closest. Scores of P2, ZL, and SWL stations will not be included in these calculations. Entrants temporarily outside their allocated call area may elect to have their score credited to their home Division. If no such election is made, their score will be credited to the Division representing the call area in which they operated during the contest, as defined herein.

For each Division, an "improvement factor" will be calculated as follows:

- For transmitting logs only, the Division's total HF points will be divided by its total HF points for the previous year;
- The same will be done for VHF;
- The average of (a) and (b) will be the improvement factor for that Division.

The Division with the highest improvement factor will be declared the winning Division.

Receiving Section Rules

- This section is open to all SWLs in Australia, Papua New Guinea, and New Zealand. No active transmitting station may enter this section.
- Rules are the same as for the Transmitting Section, as applicable.
- Only completed contacts may be logged, ie it is not permissible to log a station calling CQ. The details shown in the example must be recorded.
- The log should be in the format shown below.

Example Summary Sheet

Remembrance Day Contest 1995
Callsign: VK1XXX
Name: Joe Brown
Address: PO Box 123, Farm Orchard, ACT 2611
Category: HF
Section: Transmitting phone
Total Score: 505
Declaration: *I hereby certify that I have operated in accordance with the rules and spirit of the contest.*
Signed: J. Brown **Date:** 20/8/95

Example Transmitting Log

Remembrance Day Contest 1995
Callsign: VK1XXX
Category: HF
Section: Transmitting phone

Date Time (UTC)	Band (MHz)	Mode	Call	No. Sent	No. Rcvd	Pts
0800	14	SSB	VK2QQ	58001	59002	1
0802	14	SSB	VK6LL	59002	59001	1
0805	14	SSB	VK5ANW	59003	58011	1
0807	14	SSB	ZL2AGO	57004	57003	1
0809	14	SSB	VK4XX	59005	59007	1

Example Receiving Log

Remembrance Day Contest 1995
Name/SWL No: L30371
Category: HF
Section: Receiving phone

Date Time (UTC)	Band (MHz)	Mode	Calling	Called No.	No. Sent	No. Rcvd	Pts
0800	14	SSB	VK1XXX	VK2QQ	59001	59002	1
0802	14	SSB	VK1XXX	VK6LL	57002	57001	1
0805	14	SSB	VK5ANW	VK1XXX	59011	59003	1
0807	14	SSB	ZL2AGO	VK1XXX	58003	59004	1
0809	14	SSB	VK7AL	VK2PS	59007	58010	1

*PO Box 2175, Caulfield Junction, VIC 3175

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Divisional Notes

Forward Bias — VK1 Divisional Notes

Peter Parker VK1PK

New Broadcast Officer Appointed

Your scribe has been appointed the new VK1 Broadcast Officer following the resignation of Peter Westerhof VK1NPW in May. Peter, who had been involved with the broadcast for approximately eighteen months, has decided to devote more time to his career and family. The Division thanks Peter for his efforts, and wishes him well in his endeavours. His unique broadcasting style will be missed. Fortunately, we have not lost Peter altogether as he remains a Divisional Councillor.

Richard VK1RJ (our Federal Councillor) continues to keep us informed via the broadcast on the progress of the new regulations. Because things are still uncertain as I write this column, I have not attempted to cover these matters in *Forward Bias* and, instead, refer you to other parts of this magazine and the VK1WI broadcast for the latest information.

The broadcast is transmitted each Wednesday at 8 pm local time. Canberra residents can tune to 146.900 MHz, and those further afield can listen on 3.570 MHz for the relay by John VK2EJC. It is good to see that more people are contributing to the broadcast, so that VK1WI can continue to provide a comprehensive news service to the Canberra region and beyond.

Disposals Segment Returns

One of the most popular features of the VK1WI broadcast has been its disposals segment. This service had been provided by Gavan VK1EB and, later Peter VK1NPW, but for a brief time we had no disposals officer at all. It is thus, with great pleasure, I report that Tex VK1TX has volunteered for the position.

If you have radio gear you wish to sell, or are looking for equipment to buy, phone Tex on 296 2508. Please ring between 5 and 9.30 pm only.

Division Celebrates ITU Day

The VK1 Division commemorated ITU Day (May 17th) by holding a special two metre scramble after the VK1WI broadcast. The contest, which lasted for just five minutes, was a surprise to VK1WI

listeners as no prior notice was given. The event was a great success, and participation was good, with at least ten stations exchanging numbers. Maybe the good turnout was because people had no time to find excuses not to enter! Eight participants provided their score on a callback held after the scramble. Competition was very tight, and the winning score was shared by four entrants, Clint VK1CX, Richard VK1SW, Tex VK1TX and Bernie VK1ZBG with seven points each. Then followed Scott VK1PWE with six points, Richard VK1RJ five points, Graham VK1MGT two points and John VK1ZAO one point.

The Divisional callsign, VK1WI, was also active, and made six contacts. Stations working it received a one point bonus. The popularity of this event makes it likely that further scrambles will be held by the Division. VK1WI will keep you informed as to when these might occur.

ACT BBS Gets New Sysop

The VK1BBS packet bulletin board system now has a new sysop. He is John VK1ZAO. John replaces Gavan VK1EB, who previously performed this important task. All packet users thank Gavan for his efforts, and welcome John, who previously lived in Alice Springs. At the time of writing, the BBS operates under the VK1ZAO callsign, but it will have reverted to VK1BBS by the time you read this.

John's BBS operates 1200 baud on 147.575 MHz, and 4800 baud on 144.800 MHz. Both J-NOS and FBB software are supported by the BBS. VK1ZAO is situated in the Belconnen area, and can be reached from Yass. Packet operators in the South could try the ACT's other BBS, VK1KCM, located in the Tuggeranong locality. Those of us who live in the middle, and can't access either direct, could digipeat through stations such as VK1GN (Narrabundah) or VK1ZX (Rivett)

Sailors Sold

All of the Division's Sailors transmitters have been sold. These transceivers were purchased as surplus equipment by the Division some time ago, and were eagerly snapped up by members. The sale raised \$2500 for the Division. The May general meeting thanked Peter VK1NPW and Len VK1NLJ (our hard-working secretary), for their efforts.

Repeater News

Much work is being done in this area, and the Ginini Repeater Replacement Fund now stands at \$575. Donors will be acknowledged through this column. Special thanks to the West Australian Repeater Group for their donation, after hearing of our loss.

Contributions are welcome, and can be sent to Ginini Repeater Replacement Committee, C/- WIA ACT Division, GPO Box 600, Canberra, 2601.

VK1WI/Forward Bias Now on Packet

Thanks to the assistance of Richard VK1RJ, Peter VK1NPW and Leon VK2DOB, your Broadcast Officer is now on packet. This makes it easier than ever before to submit items for publication or broadcast. Items can be sent to VK1PK@VK1KCM. Concurrent with this change has been the posting of VK1WI Broadcast headlines on packet as a general bulletin.

VK2 Notes

Richard Murnane VK2SKY

A Fresh Start

By the time you read this, all the excitement and flurry of the Annual General Meeting and Council elections will be over, and the new Divisional Council can get on with the business of promoting the interests of Institute members.

Hopefully, the "packet racket" from the usual knockers will die down, and they'll find some other way to occupy the idle hours of their days.

A Bug in the Software?

"To err is human, but to really foul things up requires a computer." Most amateurs will be aware that the SMA is in the process of implementing its new RadCom computer system for handling radio licences. Several amateurs have reported on packet that the issuing of licence renewal notices (or "offers" as they call them now) has been delayed in some cases.

It is possible that some renewal notices have become lost altogether, so that if your licence was due for renewal in the last month or two, you might not have received yours. Be aware that the SMA does not send reminders, so you could lose your licence without knowing it! Please check your current licence and contact the SMA if your renewal notice is overdue.

Lowering Those Fees

As you may have heard on the Divisional broadcast, there is the possibility of negotiating a discounted licence fee for pensioners and veterans. This has been due to the efforts of Andy VK2KOX who has been lobbying his local member. Well done, Andy! Those members who want to make sure that this reduction becomes a reality should contact Andy or the Divisional Office for details.

In the meantime, the Division is still seeking input from amateurs from all states for a submission, requested by the government, to justify a reduction in licence fees for ALL amateurs. Feedback has been coming in, albeit rather slowly so far. Special thanks go to Vince Roche VK8NVR on Bathurst Island, 50 km north of Darwin, who has provided us with a comprehensive list of incidents in which he has used amateur radio in recent years to preserve and protect human life, when telephone and even Outback Radio could not help.

On a more "mundane" note, my radio club (the Manly-Warringah Radio Society) recently provided communications for a local riding club's cross-country event. Three of the competitors fell and required ambulance treatment (one went to hospital, but nothing too serious, I gather).

The point is that there are many ways, both dramatic and ordinary, in which amateur radio proves its worth as a community benefit. Making our government representatives fully aware of the full extent of its worth, and of our value to the community as radio amateurs, can help us to raise the status of amateur radio in their eyes. The more they view amateur radio as a community resource, the less they'll view us as a cash cow.

Thought for the Month

This slight adaption of a line from the Alan Parker film, *The Commitments* is something each of us perhaps should do each day. "Say it loud — I'm an amateur, and I'm Proud!"

VK3 Notes

Murray Lewis VK3EZM

Welcome to Newcomers

A very warm welcome is extended to the holders of Australia's first new amateur licence grade in two decades. The no-code Novice Limited Licence is now available. A few of the distinctive H-series suffix call signs have already been heard on air, and seen on packet. This new amateur operator class can use FM telephony and packet on portions of the 2 metre and 70 centimetre bands. Please

give these new licensees any help and encouragement they need as they join our ranks.

Amateurs will also be aware that the old Combined class, a hybrid of the Novice licence and Limited licence, has been replaced. Those who pass the Limited licence theory, regulations, and Novice level 5 wpm Morse code, are now issued with the Intermediate class licence. This gives greater than Novice privileges on the Novice HF bands and, as its name indicates, is Intermediate between the Novice and AOC full call.

Limited licensees have also been given FM telephony privileges on 29 MHz. All five classes of licence have benefited from the new regulations freeing the hobby from some previous restrictions and encouraging experimentation.

The '95-96 Council

The new WIA Victoria Council is confronted with considerable work for the next 12 months. The eight councillors are Jim Linton VK3PC (President), Barry Wilton VK3XV (Secretary), Rob Hailey VK3XLZ (Treasurer), Peter Mill VK3APO, Bill Trigg VK3JTW, George Hunt VK3ZNE, Rob Carmichael VK3DTR and Murray Lewis VK3EZM. In addition to duties as a councillor, most of the council members hold portfolios which keep them busy.

Repeater Licences

The increase by the Spectrum Management Agency in licence fees, effective from 1 April 1995, has an impact on our repeaters and beacons. WIA Victoria has an extensive network of repeaters, which has grown considerably in the past 15 years. Expansion of the repeater network has mainly resulted from two policies of the WIA Victoria Council. The first was in response to needs identified after the Ash Wednesday disaster in 1983. The Council also considered, in the mid-1980s, that WIA Victoria should support the then emerging use of packet radio. More recently, WIA Victoria licensed a number of new frequencies for possible future use by beacons. The substantial increase in licence fees has meant a necessary review of all the licences held by WIA Victoria.

Repeaters and beacons are licensed on an "assigned frequency" basis. The licence cost of many sites will rise. We have been checking our database of repeaters and beacons, and how to cut our licence fee expenditure. Changes will be made to achieve savings and minimise licence costs. Most of the review, and preparation of the 1996 budget item covering this major membership service, will be completed this month.

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QSL Bureau

An upturn in propagation on the DX bands brought with it an increase in the number of QSL cards being sorted, distributed and despatched. A recent review of the WIA Victoria QSL Bureau has found it to be working extremely well, with Inwards and Outwards cards flowing efficiently. The system of QSL distribution points throughout Victoria, mostly WIA Victoria affiliated clubs, is getting the task done, and the Bureau is a membership service which receives considerable positive comment. Any member who wants to take advantage of the QSL Bureau service must first lodge a written application so that registration can be recorded on the database. Information sheets on the QSL Bureaux, including the card size and other requirements, are available on request.

RD Plaques Galore

Following our win in Remembrance Day Contest '94, the WIA Victoria office received not one, but two new winner's plaques. The plaques have now joined three others on the office wall. Why two plaques, you ask? Well, the issuing of plaques to the winning state is a relatively new practice, introduced in 1991. To recognise appropriately our fifth win in a row, WIA Victoria has obtained an additional plaque for our victory in 1990.

There are now renewed efforts by some amateurs to stop Team Victoria's winning streak, with more talk about changing the nature of the contest, or its rules, to keep us out of the running. Our fifth consecutive win equals the record of VK5, which won the Remembrance Day Contest from 1972 to 1976.

Team Victoria, with a little greater effort, will again be aiming for another win next month.

VK6 Notes

John R Morgan VK6NT

May General Meeting

Bruce VK6BMD was the volunteer speaker at the May GM, and he offered a user's perspective of the various amateur radio satellites. The description of the operating modes and frequencies of each machine was much as expected, but in recounting some of his more memorable contacts via satellite, Bruce both conveyed the camaraderie among satellite experimenters, and captured the audience's attention. As is often the case, the 45-minute limit was restrictive.

In answering a question from Will VK6UU, Bruce agreed that there was an urgent need for a dedicated satellite gateway station in Perth, to handle VK6's

ever-increasing volume of international packet-radio traffic. The recent extremely poor conditions on HF, which have degraded the packet link between Perth and its nearest SatGate, which is in Adelaide, have reinforced this point.

In the General Business part of the meeting, the VK6 Federal Councillor (Bruce VK6OO) and the current Federal President (Neil VK6NE) took questions, many of which related to the Federal Convention which they had recently attended. A dynamic discussion rapidly evolved, and those members who departed at the coffee-break missed-out on a real treat!

One of the main points expressed by the members was their wish that they should receive much greater and more timely feedback from interstate gatherings, and especially after meetings between the Federal WIA and the senior management of the SMA. *(It should be noted that this request would seem to have been promptly acted upon, in that details of a meeting between the Federal WIA and the SMA, which took place two days later, were able to be reported at length (by Tony VK6TS on his VK6WIA News Broadcast) only 10 days after it occurred.)*

There was also general agreement on another point, that the Federal WIA should cease the seemingly-endless "tinkering" with its bureaucratic internal structure, and concentrate its energy upon the issues which the members (the "share-holders", as one member described us) consider to be important.

The VK6 Division meets on the third Tuesday of each month, at the Westrail Centre, East Perth, commencing at 8 pm. The bookshop and QSL bureau open at 7 pm. All interested persons (members and non-members, licensed or listener) are encouraged to attend. Free coffee and biscuits are available at "half time".

Repeater VK6RLK

Readers may remember the old Channel 10 repeater VK6RWC (147.100 MHz), which was only occasionally active over the past decade. The machine has recently been refurbished, and given a new callsign. It is now permanently on-air from a fixed site near "The Lakes", which is about 50 km east of Perth.

VK6BBS Packet BBS

The equipment of this system was recently sold to the Western Australian Repeater Group Inc (known as WARG) by its long-time owners Joe VK6ZTN and Laurie ex-VK6ZLD, both of whose interests have changed somewhat over recent years. The sale surprised many users, who had thought the system was already owned by WARG or WAADCA, since it

was located at the former's site, and was maintained by the latter's volunteers.

It is understood that Laurie wishes to retain the VK6BBS callsign, so the system will shortly have to change to a yet-to-be-decided callsign. All the equipment will, however, remain at the Roleystone site, where it is co-located with WARG's VK6RAP (146.700 MHz) and VK6RUF (438.525 MHz) voice repeaters, and WAADCA's VK6RAP (144.875 MHz and 439.050 MHz) ROSE-node digipeaters.

Club Secretaries

All material for inclusion in this column must arrive on or before the first day of the month preceding publication. **Items from country members and clubs will be especially welcomed.** Packet mail may be sent to VK6NT@VK6ZSE.#PER.#WA.AUS.OC, or write to PO Box 169, Kalamunda WA 6076, or telephone (09) 291-8275 any time.

"QRM" — News from the Tasmanian Division

Robin L Harwood VK7RH

The June meeting of Divisional Council was held in Launceston on the 24th. At that meeting, valuable interchange between the various Branches and your Divisional Council took place over some outstanding issues on a local as well as a Divisional level. More about this in the August issue.

There have been developments as well as some hiccups regarding the packet-Internet gateway idea. The Southern Branch recently received some donations to assist their efforts to establish this in the Hobart area. Whilst the Launceston Institute of TAFE has been experimenting with this in the Launceston area, it still is only in the embryonic stage in both areas. Your Divisional Council wishes to see an orderly, smooth introduction to this and we do not wish to rush along headlong without sorting out the legal and technical parameters required. There has been an effort to "hurry along" the process by a few with the opposite effect to that intended by the proponents. As you are aware, there are a few legal questions being addressed at the highest levels about interconnections between Public connections and the packet network at present. Once this is resolved, this may clarify things and progress should be achieved.

VK7RTY, the Northern Branch Packet Digipeater, has been relocated to 7EX Hill, from Mount Barrow. Difficulties with access to where it was previously, could mean that it is a permanent fixture. This site is not favourable to forwarding to the Southern Packet network but, ideally, a

further site in the Midlands for a suitable digipeater should alleviate the problem. However, suitable sites and access are difficult in the short term. If a system such as the packet-Internet gateway was operational, this could overcome the necessity for a suitable Midlands digipeater. At present, traffic has to be routed out via HF to a mainland BBS to be relayed south on another frequency and network. Incidentally, there is a rather humorous acronym for the Packet-Internet Gateway System — PIGS!!!

In conclusion, just a few details with regard to two Divisional officers. Clarrie Hilder VK7HC was elected to be Divisional Awards Officer at the Annual General Meeting. His address is QTHR in the callbook and he recently presented a rather detailed submission with respect to

both Special Event Stations and Awards. Council has asked him to continue with this, nominating one suitable event to be further investigated. Also at that AGM, I was delegated to investigate if a suitable candidate could be found to fill in. Unfortunately, I was unsuccessful in this endeavour and I will be continuing to be IARUMS Co-ordinator for this Division. Intruders seem to be rather light at present, fortunately, with long-term stations in Yogyakarta on 7098.7 kHz being transferred to the 90 metre band. The Radio Pakistan signal at 1200 on 7085 kHz is definitely a spurious transmission from 7310 kHz. When the sender has been noted on other channels, similar spurious spots have also been noted nearby.

ar

RTTY Frequencies

Most RTTY operation is on 146.600 MHz but the band plans now include the following extra RTTY channels: 145.600, 433.750, 1294.750, 2425.750 MHz.

WICEN Frequencies

The following frequencies for WICEN use have been added to the band plans:

Simplex — 53.150, 433.800, 438.800, 1294.800 and 2425.800 MHz; Portable Repeaters — 438.275 and 438.625 MHz (existing), 439.925 and 439.975 MHz (new).

A two metre simplex frequency for WICEN is still to be finalised. A frequency with Novice access is needed and it has been suggested that WICEN could share the use of 146.625 MHz. Any comments would be appreciated.

ARDF (Foxhunting) Frequencies

ARDF activity is becoming more popular but different frequencies are used in each state and there is a need for a nationwide set of frequencies. Since most ARDF activity uses FM, the logical choice for frequencies is in the FM segment of each band. After consultation with Wally Watkins VK4DO, the following national ARDF frequencies have been included in the band plans: 53.300, 145.300, 145.700, 438.850, 1294.950 and 2424.850 MHz. The 145.700 MHz channel is suggested for use by homing beacons only.

Other Special Purpose Frequencies

Frequency pairs for linear translators have also been reserved on two metres and higher bands. The two metre frequencies are 144.625-144.675 and 145.225-145.275 MHz.

A frequency of 145.575 MHz has also been reserved for use by information beacons, for example, digitally recorded information services. Further details next time.

Availability of New Band Plans

All band plans have been revised to incorporate the changes approved by Federal Council and the new licence conditions announced by the SMA. Copies of the revised band plans will be available from WIA offices. The full details will, of course, be included in the next Call Book.

The FTAC information paper "Guidelines for Unattended Transmitters" will also be circulated as soon as possible after the SMA releases our new beacon and repeater licence conditions.

Satellite Bands

The latest IARU Region III Journal asks all national societies to publicise the satellite segments of each band and draw

FTAC Notes

*John Martin VK3KWA, Chairman, Federal Technical Advisory Committee**

New Licence Conditions

Details of our new licence conditions are given elsewhere in this issue. Now that our new regulations have been gazetted, some of the band plan changes approved by Federal Council can now take full effect.

10 Metre Band

Limited licensees can now operate above 29 MHz but with modes limited to voice FM only. The international FM simplex calling frequency is 29.6 MHz, and the band plan now includes a new segment for domestic FM operation which provides nine channels at 20 kHz spacing from 29.12 to 29.28 MHz. FM operation on 29.30 MHz or below 29.52 MHz would overlap the satellite band and could interfere with satellite downlinks.

The recommended domestic FM calling frequency is 29.20 MHz. Another frequency of interest is 29.12 MHz, which is now in use by VK2WI for its Sunday broadcasts.

Limited licensees do not have access to the 28.885 MHz VHF liaison frequency, but a channel in the FM segment could be useful. I would suggest 29.18 MHz. Any comments would be appreciated. The new SMA licence conditions for repeaters have not been finalised at the time of writing, but it is understood that repeater linking will still be permitted only above 52 MHz. Use of simplex gateways for interstate repeater linking on 10 metres will continue to be illegal.

Packet Radio Channels

The SMA now permits Novices to use digital modes above 146 MHz and also in

the expanded two metre packet radio segment from 144.700 to 145.200 MHz. The 145.200 MHz channel has been reserved in the band plan for WICEN use.

On the 70 cm band, the simplex packet channels are now 434.050 to 434.250 inclusive, plus 439.050, 439.075, 439.200, 439.225 and 439.250 MHz. Three repeater pairs have been earmarked for regenerative packet repeaters, namely 439.500, 439.525 and 439.550 MHz.

Two Metre Packet Channels and SAREX

The Morse practice beacons were moved from 144.950 to 144.975 MHz so that 144.950 MHz could be kept clear for SAREX uplinks. These beacons are now due to move to 144.650 or 145.675 MHz so that 144.975 can become a packet channel.

However, there is more SAREX activity planned and the list of uplink frequencies is now 144.910, 144.930, 144.950, 144.970 and 144.990 MHz.

It would be good to keep any clashes between SAREX and packet stations to a minimum. There are now plenty of packet channels above 145 MHz and I would suggest that both 144.950 and 144.975 MHz should be kept clear for SAREX use. I would also suggest that, for the time being at least, it would help if packet stations could avoid 144.900, 144.925 and 145.000 MHz as much as possible.

SSTV/FAX Frequencies

These modes are becoming very popular and the band plans now include the following recommended channels for them: 145.625, 433.775, 1294.775 and 2425.775 MHz.

attention to the need to avoid terrestrial operation in these bands. Of special interest at present is the 29.30-29.51 MHz satellite segment mentioned above.

On two metres, a reminder that the satellite band extends up to 146.000 MHz and any FM operation on this frequency would cause half of the station's occupied bandwidth to fall inside the satellite band. Novice stations operating as low as 146.000 MHz would also be breaching their licence conditions because half of their occupied bandwidth would be below their lower band limit of 146.000 MHz.

Data Base Update

The 1995-1996 Call Book will be in preparation soon and it is time to update the beacon and repeater listings. It would be much appreciated if beacon and repeater licensees could check the 1994-1995 Call Book listings and send details of any changes to me via the WIA Federal Office.

*PO Box 2175, Caulfield Junction, VIC 3161
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WIA News

US Amateurs Win Auto-control for HF Digital Operation

Effective from 1 July, United States radio amateurs are permitted automatically controlled HF RTTY and data operation on segments of the 80, 40, 30, 20, 17, 15, 12 and 10 metre bands, which was previously not available to them.

Automatic control of amateur digital stations on VHF and higher bands had been authorised by the FCC back in 1986. The new rules provide for unattended, automated forwarding of digital messages between stations on HF. Automatically controlled HF digital stations must occupy a bandwidth of 500 Hz or less. The FCC adopted provisions to minimise interference to other amateurs from automated HF digital stations.

The FCC responded to proposals filed by the American Radio Relay League (ARRL) and the American Digital Radio Society (ADRS). The ARRL's petition resulted from a study conducted by the league under FCC Special Temporary Authority. (Thanks to *The ARRL Letter*, 4 May, 1995).

How's DX

Stephen Pall VK2PS*

"Rejoice, the end is near!" This sounds like a "hot gossellers" cry, but it is not.

As the bands continue to be riddled with poor propagation, the immediate question of the average DXer is, How much longer will it take, before there is any change for the better in band conditions?

Last year (see May 1994 *Amateur Radio*) the experts had a variety of opinions. Patrick McIntosh, space scientist at Boulder, USA thought that the minimum of solar cycle 22 would be in the last quarter of 1995. Peter Taylor, from the American Association of Variable Star Observers, had the opinion that the minimum might occur sometime during the first portion of 1996. Andre Koecklenbergh, from the Sunspot Index Data Centre in Belgium, gave four possible dates for the minimum, August 1994, April 1995, December 1995 or March 1996. Dr Richard Thompson, a scientist at IPS Radio and Space Services, indicated that the earliest solar minimum would be in April 1996. These predictions were made 14 months ago.

I contacted Dr Thompson again in May 1995 to seek his views on this subject. According to him, the solar flux and the corresponding sunspot numbers are still in gradual decline. There had already been a number of days when the solar flux had reached the critical number of 67. This did not mean that there were no sunspot numbers at all but, for practical purposes, that their number was not significant. For instance, the sunspot numbers were 20 on 26 May when the solar flux number was also 67.

The next twelve months will see a constant movement up and down of the solar flux number. The deterioration of the cycle will continue but rather slowly and we will have more frequent periods when the solar flux will be as low as 66.

Dr Thompson said that a useful guide for the beginning of a new solar cycle is the signs of the changing magnetic structures in certain regions of the Sun. These magnetic changes occur usually 12 to 18 months prior to commencement of a new cycle.

No such change in the magnetic structure of the sun has been observed yet. The last minimum of the previous cycle occurred in August 1986 when the smallest smoothed monthly sunspot number was 12. Dr Thompson thinks that we will reach the minimum of the cycle in mid to late 1996.

The rise of a new cycle is usually much

quicker. The time to reach the maximum of the cycle in 1964 was four years, in 1976 3.4 years, and in 1986 only 2.8 years. If the pattern of recovery is repeated then, by the year 1999-2000, we will be enjoying again the maximum propagation of cycle 23.

In the meantime, the DX is still there. Openings are short, sometimes from the wrong direction or from both directions, and the propagation can be lost in a matter of few minutes. One has to "chase" the openings these days, and one has to be on the right band at the right time, but the DX is still there.

Kermadec — ZL8/G4MFW

Barry ZS1FJ/G4MFW was active from Raoul Island (29° 15' S, 177° 55' W) in the Kermadec group of islands. Barry's venture basically was a scientific one, observing bird life and collecting data and photographs to produce a book about the "Birds of the Antarctic and Other Rare Islands." A number of scientists were with him on the island. This could explain why, after lengthy negotiations and approaching a number of NZ Government bodies, he was finally granted approval to land, stay and also operate an amateur radio station from the island. His activity had nothing to do with the Government Meteorological Team, which is usually in residence on the island.

Barry had some difficulty when landing. He reportedly lost some equipment in the sea and was heard to say that he had to scale a solid rock-wall to gain access to the island.

There were other difficulties. Propagation was not the best and only a limited number of Europeans were able to have a contact with him. However, North America and the Pacific had reasonable propagation. Barry also had accommodation problems with his station. I heard him saying to his USA QSO partner that he was working from the lavatory. This was the only free place and, if he wanted to go outside to turn his beam by the "Armstrong method", he had to move everything out of the way.

Barry's activity came as something of a surprise to a number of New Zealand radio amateurs, among them Ken ZL2HU and Ron ZL2TT who have been involved in protracted negotiations to get permission to operate from Kermadec this year. Cards to ZL8/G4MFW (direct route preferred) should be sent in the usual way, SAE and return postage, to KATJC, Phyllis Davis, 5282 Boyle Terrace, Port Charlotte, FL 33981, USA.

North Korea — P5

Martti Laine OH2BH, the well known DXer who is now based in Hong Kong, issued the following press release via JA1BK and N7NG. "Martti Laine OH2BH announced today (May 16) from Vladivostok Russia, that the first authorised amateur radio operation took place from North Korea on May 14. They signed P5/OH2AM. The Finnish business delegation, including OH2BC, OH2BH and OH0XX, experienced difficulties with Russian border guards while trying to enter North Korea (DPRK). The delegation was held for 26 hours awaiting clearance. During that time they activated R0/OH0XX from the border region. Once in the DPRK, they report, they were warmly hosted by government and Telecom officials. During their 17 hour stay they were part of a series of business activities and their on-air time was limited. Some 20 QSOs were made on two occasions (14 MHz SSB and 7 MHz CW). The group presented four Yaesu HF/VHF transceivers for training purposes, and for actual amateur radio activity which is now scheduled for later this year. The DPRK Telecom delegation will be participating in the first Beijing DX Convention this October while there they will observe amateur radio in action at BY1PK and will meet with CRSA officials including IARU Liaison, Mr Chen Ping, BZ1HAM."

The Finnish amateur group was part of an important Finnish business delegation, therefore amateur radio played only a minor secondary role. The first QSOs were made with DU9RG, JA1BK and OH3YI and contact was made later with

OH2H, a demonstration station for the Democratic Peoples Republic of Korea (DPRK) diplomats in Helsinki, which station was operated by OH2BU (President of the Finnish National Society, SRAL), OH2KI and OH2BDP.

Readers with good memories might remember how amateur radio was introduced some years ago to Albania, culminating in the first official DXpedition with the callsign ZA1A in September 1991. Maybe history will repeat itself again.

Faure Island — VK6ISL

This was the tenth island activity around the Australian coastline undertaken by Malcolm VK6LC. According to him, this was a small one consisting of himself and his son Rhyon (see *Amateur Radio*, May 95). Rhyon, not being an amateur, was the general help, cook, and the provider of fresh fish for breakfast as well as being the runner, back and forth 300 metres up to the top of a sandhill to change the direction of the beam antenna by the "manual rotating method".

The four day activity (12 to 16 May) resulted in 1800 contacts working six continents, 96 DXCC countries and 72 island references. Approximately 1000 contacts were made with Europe, 500 with North America and 300 with the Asia-Oceania region.

Faure Island is located in Shark Bay, North Western Australia, approximately 1000 km north from the West Australian capital city of Perth. The island is 15 km from the mainland and is about 20 km long and five km wide.

The whole island is covered by a pastoral lease which has been owned by the Hault family since 1904. Dick Hault, the present owner, has two to three thousand merino sheep and numerous Angora goats on the island. His assistance in providing support and facilities was very much appreciated by Mai. Dick was thrilled when, with the assistance of Mal, he was able to talk directly to an Austrian amateur.

Malcolm has sent me a long list of prefixes worked on 20 metres showing many rare DX countries. His experience is contrary to the opinion of some ill-informed amateurs who say that, because "the sunspot numbers are low, propagation is poor, and therefore there is no DX". The DX is there alright, but you have to spend quite a lot of effort and time to catch it.

Tung Sha Dao — BV9P

Hot on the trail of the Chinese Scarborough Reef activity, there was some new development from Taiwan. Pratas Island, as it is known by its anglicised name, was active from 25 May to 5 June. An international group of amateurs, and a team of 13 Taiwanese operators led by Ken Chang BV2RA, a Senator in the ROC government, and Dr

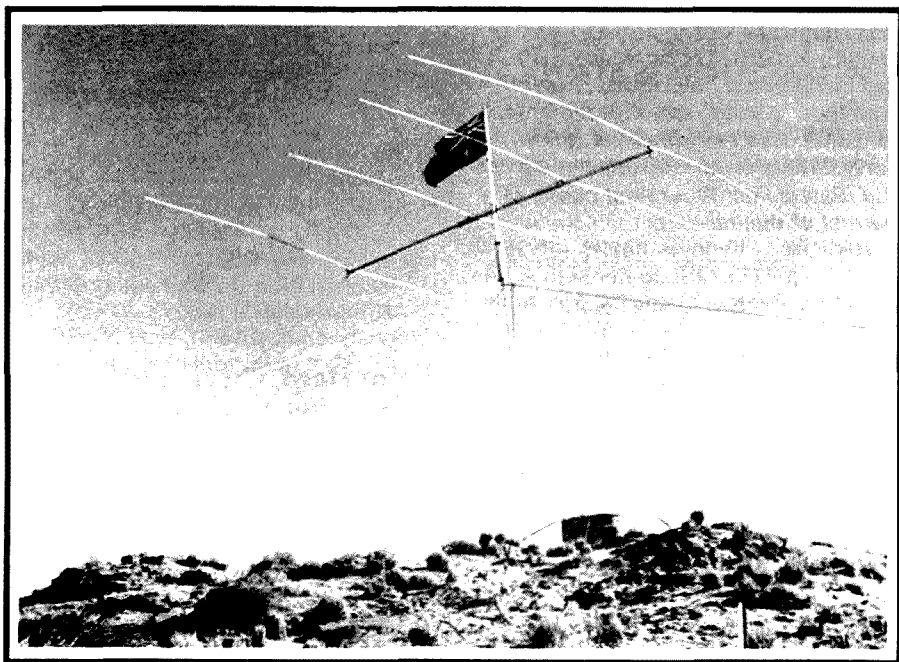
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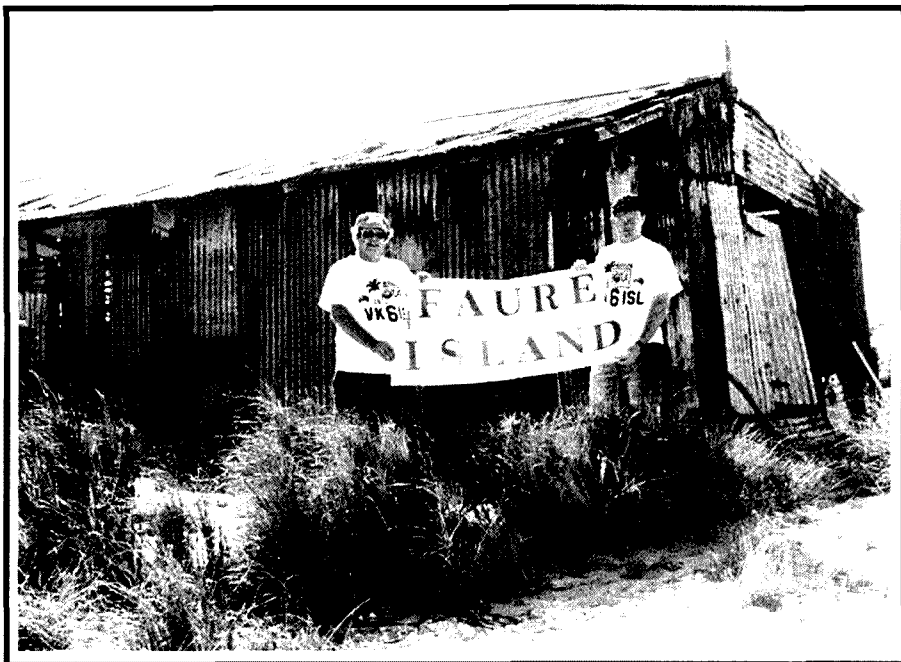


Faure Island, VK6ISL, 20 m four element monoband Yagi on the hill.

Bolin Lin BV5AF, president of CTARL, were active on all bands and modes, SSB, CW and RTTY. The Chinese Taipei Amateur Radio League in its press release stated that "The BV9P DXCC application has been pending for the past two years because of procedural difficulties within the ARRL but it now seems clear that all potential concerns have been removed". Only time will tell. In the meantime, send your card to the QSL manager, KU9C, Steven Wheatley, 12 Netherton Terrace, Morristown, NJ 07960 USA.

Future DX Activity

- Claus DK9FE will be active from Faeroes Island as OY/DK9FE using mainly CW from 10 to 27 July. With a vertical antenna he will be active on all bands including WARC, 15 Hz above the lower band edge. QSL to his callbook address.
- Peter KC1QF and Andreas SV1BKN will operate from Mount Athos using the callsign SV0GV/3 from 6 to 9 July. They will operate on the 10, 15, 20, 40 and 80 metre bands on SSB and CW. This operation will feature a special split frequency on a per region basis. The QSOs will be computerised and, if you call out of turn (ie not from your allocated frequency region), you will receive no QSL card. The regional SSB listening frequencies, for VK/ZL, described as the "rest of the world" are 14135-14150, 21235-21250, 28500-28525, and ITU Region 3 7050-7075. The regional listening frequencies for CW are also described as "rest of the world", 7020-7035, 3520-3535, 14015-14030, 21015-21030 and 28015-28030. The transmitting frequencies will be CW, 3510, 7015, 14010, 21010 and 28010, and SSB, 7075 (USB), 14255, 21355 and 28555. To my knowledge this is the first time that such an "interesting and elaborate" split frequency system will be used by a DXpedition. I wish you luck.
- Ron AA4VK, Murray WA4DAN, Bob KW2P and Vance W51JU will be active from Saint Paul Island from 27 July to 2 August. They will operate on all bands, CW, SSB and RTTY. They will use their own callsigns with the suffix /CY9. QSL to WA4DAN.
- Alex PA3DZN is now active in the Republic of Zaire using the callsign 9Q2L. He was heard on 20 metres CW between 2100 and 2330 UTC. QSL to PA3DLM.
- Bear Island in the Svalbard group will be activated by JW2FL from the end of May, mainly on the 20 metre band.
- Ken (ex-VP9MN) is on a two year assignment in Guantanamo Bay with



The original 1904 homestead, now a shearing shed on Faure Island.

the callsign of KG4MN. He is active on all bands using CW and SSB, but mostly in the CW mode on the WARC bands. QSL to WB2YQH.

- Popof Island in Alaska will be activated from 12 to 15 July with the callsign W5BOS/KL0. QSL to home call.
- FR5HG was heard saying that he will be returning to Glorioso Island around August/September.
- Valy Y03YX is in Angola for the next six months. He is running low power into wire antennas and operates at the bottom of the CW sub-bands. His callsign will be D2YX or YO3YX/4U.
- Paul 5Z4FO moved to Uganda and hopes to be active as 5X1MW.

Interesting QSOs and QSL Information

E = East coast; W = West coast; M = the rest of Australia

- HR1KAS — Kenny — 14226 — SSB — 1315 April (E). QSL to Kenneth A See Jr, Box 67, Tegucigalpa DC, Honduras.
- ZP6CW — Doug — 18073 — CW — 2201 — April (E). QSL to Douglas J Woolley, PO Box 73, Caacupe, Paraguay.
- V47XC — Jim — 14226 — SSB — 1153 — April (E). QSL to G0IXC, J H Martin, 27 Firs Cres, Harrogate, North Yorkshire, HG2 9HF, United Kingdom.
- V31BR — Buzz — 14226 — SSB — 1325 — May (E). QSL to N5FTR, William M Loeschman, 717 Milton, Angleton, TX 77515, USA
- 6Y5DA — Don — 14226 — SSB — 1130 — May (E). QSL to VE4JK,

Joseph Nudd Knowles, Box 365, Carman, Manitoba, ROG OJO, Canada.

- RX10X/P/FJL — Slava — 14201 — SSB — 0812- April (E). QSL to DL6YET, Nikolai Pfanenstiel, Pfarrer Muller Str 10, D-48268 Greven-Reckenfeld, Germany.
- E050HZ — 14207 — SSB — 1313 — May (E). QSL to W3HNC, Joseph L Arcure Jr, POB 73, Edgemont, PA 19028, USA.
- 3W5FM — Nikolai — 14195 — SSB — 2354 — May (E). QSL to UA0FM, Nikolai, PO Box 49, 693006, Yuzhno-Sahalinsk, Russia (recommended to use registered mail).
- V150NAVY — Eric — 3585 — SSB — 1111 — May (E). QSL to PO Box 2018, Kambah, ACT, 2902, Australia.
- 5Z4BP — Ben — 14164 — SSB — 0409 — May (E). QSL via the Bureau.
- US100ITU — 14245 — SSB — 1350 — May (E). QSL to F5MKD, Michel Jacob, 8 Rue du Chevreuil, F-67450, Mundolsheim, France.

From Here There and Everywhere

- The Radio Club of Venezuela started processing QSL requests for the July 1994 YW RCV DXpedition on 15 May.
- It was announced that the Peoples Republic of China will have their first DX Convention between 13 and 16 October 1995. A special amateur station, BT1DX, will be active during the convention.
- 4U9U and 4U9Q QSL cards are now

good for DXCC credit for Burundi and Zaire.

- For the time being, Graham's ZL4MV QSL cards for the Auckland/Campbell Islands operation, ZL9GD, are not acceptable for DXCC credit. It appears that Graham, who is not a DXer and is not familiar with the DXCC rules, was not on land at the time of operations. He was operating mostly from aboard the boat, or off the dock and using the power from the boat.
- The proposed DXpedition to Navassa Island, KP1, has been cancelled because of transportation problems.
- Bob AA1M reports that the QSL manager for JW0E is US5MV.
- According to Laci HA0HW, who is the QSL manager for XU95HA and XU7VK, Sanyi and his wife Judit, who work for the Hungarian Embassy in Phnom Penh, left Cambodia on 12 June.
- The decision of the DXCC to apply the minimum size to island operations went into effect on 20 April 1995. The petition for Scarborough Reef to be granted a new DXCC country status was in the hands of DXAC before that date. It will be interesting to see the result of the voting on a possible new DXCC country.
- The QSL address of XV7SW is Rolf Salme, Embassy of Sweden, Box 9, Hanoi, Vietnam.
- The new QSL route for Romeo Stepanenko's operations as YA0RR, IS1RR, IS0XV, 9D0RR, XY0RR, 3W3RR, US8R, UR0RR, US0RR, and E07RR is via Vladimir Stepanenko, US1RR, PO Box 28 Chernigrov Postamt, 250000, Ukraine.
- Chen BZ1HAM reports that there are 110 club stations in the Peoples Republic of China (BY) and 120 individual licences (BZ).
- Brendan McCartney G4DYO, who was the editor of the RSGB's *DX News Sheet* for over 10 years, has resigned from his position.
- A group of very active Paraguayan DXers (ZP5MAL, ZP6XR, ZP5AZL, ZP5KW, ZP6CC, ZP5MKW, ZP5VBA, ZP6SC and ZP6VS) banded together and formed their own QSL Bureau because of the problems involving the "Radio Club of Paraguay and the Post Office". They will continue to do so until the above mentioned "conflictive" situation is solved. The address is Dr Juan F Duarte Burro ZP5MAL, PO Box 34, Asuncion, Paraguay, South America.
- There will be a World Radio-communication Conference (WRC-95) in Geneva from 23 October to 17 November 1995. As is usual at these

conferences, revision of radio regulations, including the table of frequency allocations, will be discussed. One hopes that there will be no changes to the present status of the amateur radio service.

- HS50A is a special call in Thailand to celebrate the 50th anniversary of ascension to the throne by King Bhumibol Adulyadej HS1A.
- The latest news from Paul I1RBJ on Seborga is that, as from 17 May, all IP licences and temporary permits have been suspended. The first locally licensed station is T88A (ex IP1A) which operates from the Palace. T8T is the call of the official station of the Principality Telecommunication Directorate. T8/I1A is also active for radio tests from different locations. Rumour has it that the ITU has allocated the prefix group of T8A-T8Z to Seborga.
- QSLs to the special stations UR100IYU and EO50IK should be sent to US7IGF, Shevchenko Slava, 343212, Donetsk Obi, Slavinsk-12, PO Box 11, Ukraine.
- DXCC administrator, Bill Kennamer K5FUV says that the last BS7H/Scarborough Reef activity was "land based". Prior to the activity the DXpeditioners checked with the DXCC desk for exact requirements for land based operation. These included having all support structures above the high tide line, and not increasing the size of the rock above the high tide line, etc. The DXpedition met all these requirements. The only question to be resolved is to decide to which DX country the reef belongs — China, or is it a new "DXCC country"?
- The activities on the Andaman Islands (VU7) of Marni VU2JPS are unfolding slowly. Marni, who is employed by All India Radio, has "mixed" equipment, which transmits AM and CW on 20 metres and SSB on 40 metres. I heard

Sudhakar VU2AU coordinating a net operation for Marni. VU2AU took a list on 14195 kHz in the SSB mode, and called each station on the list. The station used CW mode to call Marni on that frequency and Marni replied in CW. VU2AU then verified the contact and took the next one on the list.

- If you listen around 0700 UTC on 7072 kHz you can hear a marine "cruisers net" operating which covers the central Pacific. The interesting part is that there are quite a number of American (US) callsigns heard with the additional suffix of /VK. Some new system of licensing?
- FT5XK was heard on 4 June on the 20 metre band. QSL to F6KQD. 6V1A was also active on the same day from Goree Island, AF-45 (IOTA). QSL to 6W6JX.
- The RSGB Islands on the Air (IOTA) Contest will take place for 24 hours starting at 1200 UTC on Saturday, 29 July. Bands to be used will be 80, 40, 20, 15 and 10 metres and the modes, SSB and CW. Many a new country can be worked from these "island" DXCC localities activated specially for this contest.

QSLs Received

CE0/JA7AYE (3M JA7ZF) — S79FT (3W DL7FT) — C56/DL7FT (3W DL7FT) 9M8BT (5W N5FTR) — 9Q5TT (7W ON5NT) — HP8ADU (6M HP8AQF).

Thankyou

Many thanks to my faithful helpers who supply me with information which makes this column possible. Special thanks to VK2AOY, VK2KFU, VK3DP, VK4AAR, VK4BX, VK6LC, US7IGF, 9V1RH and the following publications *QRZ DX*, *The DX Bulletin*, *The DX News Sheet* and *DX Enterprises Go List-QSL Managers list*.

*PO Box 93, Dural NSW 2158
ar

Stolen Equipment

The following equipment has been reported stolen. If you have any information that may lead to the recovery of the equipment, please get in touch with the advised contact as soon as practicable.

Make: Kenwood
Model: TH215A
Serial Number: 8091054
Type: Hand held transceiver
Owner: J Charlton
Callsign: VK2TGA
Contact details: 360 Brush Road, Ourimbah NSW 2258

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Packet World

Grant Willis VK5ZWI*

Introduction

Hello everyone. It has been some time since I have been able to contribute to the *Packet World* column. Things are settling down now and I hope to be able to return it to a monthly event. I have also prepared a series which will appear in the future on how the SA Packet Radio network is structured which should interest both users and BBS operators alike.

There are a couple of things I want to do this month. First of all, I have several outstanding questions that have been asked of the *Packet Doctor* that I thought I would answer. I also have an interesting bulletin originated by Dave VK2GDM, and to which I responded, which raised some interesting questions about the direction of packet radio.

I would also like to take this opportunity to welcome all the new Novices and Novice Limited class licensees to the world of packet radio. Thanks to the new Technical Licence Specifications issued by the SMA, these people can now experiment with the world of packet communications. I urge all BBS and Network Operators to give a hand to the newcomers. Remember, we all started out knowing nothing at one stage.

Packet Doctor: Some Answers

Packet Digipeating — A question was raised by an amateur in the Far North of SA, regarding digipeating and what was allowed? My current understanding of the regulations is that packet radio digipeating is allowed to be done by any packet radio station. You do not have to be licensed as a repeater to allow digipeating through your station. Packet radio is allowed in unattended mode, so it would seem feasible under the current regulations to install a simple packet repeater and licence it as a Limited Call. (The cost effectiveness of this would now be in doubt, however).

Adelaide Wormhole — Another question that was raised was, How do people access the Adelaide Internet wormhole? The particular question came from a Melbourne station who found that when VK3ERM dropped the "XXX" alias command for accessing Adelaide, that he could not work out how to maintain a link to the Adelaide wormhole. The current ways to access the VK5 network through the wormhole is to either connect to VK5_GW:VK5XXX-11 NET/ROM node (which should be visible from many parts

of the Wormhole NET/ROM network), or you can telnet to bbs.vk5xxx.ampr.org (44.136.188.220). The faster of the two is likely to be telnet. If you have not come across the telnet command before, contact your local wormhole or TCP/IP operator and ask them to explain it. I do hope to present some more information on wormholes and navigating the network in future editions.

Using the Yapp Program — A correspondent in Sydney wrote asking some specific questions on, How to use the Yapp terminal program? This is one of the early terminal programs but still one of the better basic ones for its generation. His specific questions related to how to capture and print mail as well as prepare mail for transmission. When using Yapp, you can capture mail to disk using the "F4" command, which will prompt you for a file name to write to what is to be captured. Type a file name of your choice, and then hit the <Enter> key. From then on, anything that appears as text from the TNC will be written to disk. To stop writing to disk, use the "F3" command. Then, to display the received file, you can either obtain a copy of a program like "LIST.COM" which can be found from many sources (ask your friends, they probably have a copy) or you can use a DOS command like "type [filename.ext] | more" which will display the file a page at a time (provided you have a full copy of DOS). If you have a printer, you should be able to print the file using "copy [filename.ext] prn:".

To generate mail on disk before connecting and sending it, just use any DOS text based editor. Some popular ones are QEDIT, EDIT, QED, NE etc, etc. Write your message into a text file and then save it. Once saved, start up the Yapp program again, connect to your local BBS, send the relevant mail sending commands and addresses, enter the message subject at the prompt, and then use the "F5" command in Yapp to send the text file. This command will prompt for the file name you wish to send. Once the file name is entered, type <Enter> and the program will retrieve it from disk and send it to the TNC. At the end of the file, control will be returned to the keyboard (don't touch the keyboard before all of the file is sent or you will abort the transfer). To terminate the message, use the Ctrl-Z keys and the BBS should respond with a message indicating that the mail was received ok.

I hope these little tips are helpful. I have had several comments from people writing that they are not able to get help from their local clubs. I hope this is not widespread. Packet can be a bit bewildering to a newcomer and I would hope that the clubs in each area would be a good source of people to assist with problems.

Packet Radio Band Plans Ratified

After over 12 months of discussion, lobbying and consultation, the new packet radio segments in Australia have finally been ratified in the WIA band plans. A proposal was originally conceived in VK5, by the SA Technical Advisory Committee, to expand the packet radio allocations on 2 m and 70 cm to help cope with the huge explosion in interest in this mode of operation as well as provision for some of the newer packet technologies that are appearing. The proposal was put to FTAC and given national circulation through each state TAC. The proposal requested space for more high speed services, new types of service delivery systems and expanded space on both 2 m and 70 cm. The results are 2 m, 144.700-145.200 (excluding 144.950 for SAREX) Note 1. 147.550-147.600; 70 cm, 434.050-434.250 inclusive (gained 434.100-434.175), 439.050-439.075, 439.200-439.250, and 439.500-439.550 (regenerative high speed repeaters — 5 MHz offset).

The 2 m extension has a number of provisions. It firstly cannot be completed until the CW training beacons move to their new sub-bands around 145.650-145.675 and secondly, the segment 145.100-145.175 was set aside especially for high speed (up to 9600 baud) services. 145.200 is to become the national WICEN packet frequency.

All packet operators are asked to respect the band plans and operate within the agreed segments. The band plans are set up and promoted to help all modes live in harmony and to assist in the prevention of interference between modes like packet, FM Voice and SSB/CW.

Packet Radio Future

The following questions were put to the VKNET Bulletin network by VK2GDM earlier this year. They are valid questions, especially for the new breed of amateurs that may be enticed from the Internet and Telephone BBS world through the new Novice Limited licence grade.

1. I can get 14k4 and 28k8 on my phone BBS system, my modem cost \$400, what has packet radio to offer for the same bucks?

Depending on the radios, 9600 baud is achievable within that sort of figure BUT

high speed HALF DUPLEX packet has the usual problem of turn-around time and hidden transmitters. Regenerative repeaters (discussed in earlier *Packet World* columns) solve hidden transmitters and are a good way to deliver access to this (but are expensive to build — they require the same types of RF hardware as voice repeaters). Mass access full duplex is not really practical (there is no way of providing DCD on the radio for more than one user at a time). Higher speeds than, say, 4800 baud also require certain types of radio, and speeds above 2400 baud are, until very recently (and with expensive radios), certainly not "PLUG AND PLAY". This aspect alone stifles a wider uptake.

2. I have access to hundreds of BBSs in Sydney with GIGABYTES of files on line and able to download five Mbytes plus per hour for the cost of a local call. Can we obtain the same files on packet radio ??

Within the scope of the amateur regulations you can! The speed is the problem and again go back to question 1. SPEED COSTS, and it costs more than on the phone world where you are not worried about multiple access with other users on the same twisted pair!

Mind you if, for example, 9600 baud became much more widely accepted, one would hope that the manufacturers would be able to drop their prices too.

3. Does packet radio have a "Classified Section" similar to Fido-net?

NO. This is forbidden by SMA REGULATION. If you don't like it, help lobby to change it! Some countries do allow limited "Amateur Classifieds" but not in Australia at this time.

4. Why is Australia predominantly 1200 whereas overseas they use 9600 plus?

This is not really accurate. The majority of packet overseas is also 1200 baud for the average user. Yes, there is a higher penetration of 9600 baud, and 19.2 kilobit using Kantronics D4-10 radios (expensive) as well as some 56 kilobit in the USA and 38.4 k in Europe (that I know of, there are bound to be others) BUT the average access speed for the MAJORITY is 1200 baud!

Why is this, you might ask? I suggest it might be because TNC manufacturers have, until recently, only produced 1200 baud TNCs. 9600 baud systems have only just started to appear in the last one to two years, ten years or more after packet started. I would also suggest that it is because the radio manufacturers have only just started providing data sockets on commercial radios in the last 12 months. The majority of packet users I have seen want plug and play. Only 10%, I guess,

are prepared to get out the soldering iron, attack their radio and build a modem to run faster!

Another interesting sideline to high speed is that the data switching boxes (known to most as TNCs) do not like high speeds. They have, in many cases, not progressed past the humble 1970's processor, the Z80. Those that have (like the Gracillis P10, the TNC3 and TNC4 680x0/68302 based boxes, etc) are all very expensive. Plug in cards have become available that can run the data rates required, but then even the processing limits of the XTs that are useful for repeater sites can be easily reached with three or four high speed ports and software like NOS.

5. What has packet radio to offer me as a new user?

My answer to this question is:

a. An experimental playground for low

speed computer networking. It may not transfer huge quantities of useful data, but if you ever wanted to learn about computer networking protocols, low speed is ideal because you can see each link step in real time and the protocol exchanges that occur.

b. A basic introduction for the radio amateur who is new to computing.

c. A vast horizon for people to develop plug and play high speed CHEAP packet radio facilities.

Conclusion

Next month I hope to present at least the start to a glossary of packet terminology that I hope will help the newcomers find their way around the packet bands.

*C/o GPO Box 1234, Adelaide SA 5001
VK5ZWI @ VK5TTY.#ADL.#SA.AUS.OC
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Over to You — Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WWA accepts no responsibility for opinions expressed by correspondents.

Novice Needs

Regarding a Novice column, I must say that I am not too sure what material suits a novice and I am even less clear on what defines a novice. Is a novice one who has a Novice licence or is there some line one can draw on his knowledge to define him as a novice?

Is novice material that which is below this line or is it material to raise him above the line? In reading the VK1BPT *Over to You* letter carefully (*Amateur Radio*, January 1995), I got the impression that he was actually after material which would help him pass his full amateur licence, a sort of answer column to typical exam questions, I guess.

From what I can recall of the old Novice Notes column, it was not of that form at all. More so, it was random information on practical problems which the less experienced experimenter (even the experienced experimenter) might encounter. Sometimes it was the best technical material in the particular *Amateur Radio* issue.

I used to read it — not as a novice. Good straight forward material on fundamentals is interesting for all of us. One's ability to solve advanced problems is only as good as one's knowledge of the fundamentals.

Lloyd Butler
18 Ottawa Avenue
Panorama SA 5041

Ex-RAAF, Ballarat

Staff, Instructors and Trainees who served at ANGRAS and later, Radio School, Ballarat (1945-1961) are cordially invited to a reunion to be held in that city from 18 to 25 March 1996.

The reunion will include welcome and farewell functions in addition to a main dinner function, sporting events, tours, etc. Suggestions for other activities which could be included in the agenda in the time available would be welcome.

Persons to contact are: NSW — Ron Usher, 18 Norton St, Evatt ACT 2617, tel 062 583 1159; Bill Aubrey, 214 Caringbah Road, Caringbah 2229, tel 02 524 8782; Ossie Maguire, 1/41 Orient St, Kingscliffe 2481, tel 066 741 638; OLD — Toby Paine, 10 Talasea St, Trinity Beach 4879, tel 070 556 589; Reg Maloney, 7 Sotel Ave, Cranbrook 4814, tel 077 231 580; Nev Olive, 51 Flinders St, Monto 4630, tel 071 661 273; SA — Kingsley Jamieson, 80 Park West, Col Light Gardens 5041, tel 08 277 1206; Margaret Heath, 15/14 Yorktown Road, Elizabeth East 5112; Neville Kirwan, 4 Wren Street, O'Halloran Hill 5158, tel 08 382 3329.

M L (Toby) Paine

(We publish this letter in the knowledge that many of those invited are radio amateurs. Ed)

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Pounding Brass

Stephen P Smith VK2SPS*

This month's issue of *Pounding Brass* will feature a number of miscellaneous subjects received over the last few months from overseas letters and publications relating to telegraphy in general.

From America comes the news that the company "Vibroplex", which started production early this century and is still producing fine quality keys, has been taken over by a new owner, S Felton "Mitch" Mitchell. Mitch WA4OSR has been a licensed amateur since the early 1960s and will continue to produce the large range of Vibroplex products with a hint of some new keys being introduced later in the year.

Also from America we learn that Harry A Turner W9YZE, the world hand key champion, became a silent key on 21 December 1994 at the ripe old age of 88. Harry gained this prestigious title on 9 November 1942 by sending 35 wpm for five minutes and then copying the recorded text back without a mistake. His record appears in the "Guinness Book of Records" (his record still stands unbroken).

Most old timers will be aware of the "McElroy Chart of Codes and Signals". This was produced in 1943 by the McElroy Manufacturing Corporation, maker of the "Mac Keys", which are highly sought after by collectors from around the world. The chart was printed in six colours with a linen backing and measured 25" wide by 38" long. If you are unfamiliar with this chart and would like more information, refer to page 24 in Dave Ingram's book entitled "Keys Keys Keys" where a drastically reduced copy of the original is shown.

I have been informed that J F Rilinger KC1MI has produced a coloured version of the chart measuring 9" by 14"; not as large as the original but it would make a handsome attraction to any shack wall.

The "McElroy Chart of Codes and Signals" can be obtained from the publishers of "Morsum Magnificat" in Britain for the sum of UK nine pounds and 35 pence via surface mail.

Further information can be obtained from G C Arnold Partners, 9 Wetherby Close, Broadstone, Dorset, B H 18 8 JB, England.

From Europe we have the high speed telegraphy championships which will take place in Hungary during October this year. The venue, I believe, will be Siofok and the event has been organised by the MRASZ Hungarian Radio Amateur Society. More information on rules, etc,

will appear in a later issue. As far as I am aware no Australian amateur has ever entered this event.

I believe Morse would greatly benefit if we could organise and run an event similar to our European friends. Perhaps an Inter Division Competition? If anyone has any thoughts on the subject, drop me a line. Like the old saying, "A river is started by one drop of water".

I have just recently received information from an overseas operator that, in October 1994, a new QRP club was formed, known as the "I QRP Club". Further information can be obtained from Franz Falanga (I7FFE), PO Box 243, 70059 Trani CBA, Italy.

I recently received, from the WIA Publications Committee, a book entitled "The Story of the Key", by the late Louise Ramsey Moreau W3WRE, for review in *Pounding Brass*. I anticipate this review will appear in next month's issue.

Ms Louise Ramsay Moreau became a silent key only recently. Her large collection of keys (over 300) will be housed in the AWA Museum in New York. If you are interested, the address for the museum is Village Green, Rts 5 & 20, Bloomfield, New York. The opening hours are from 2 to 5 pm on Sundays from May 1 to October 31; also from 7 to 9 pm on Wednesdays from June 1 to August 31. The museum telephone number (716) 657 6260.

Coming issues: "The Story of the Key"; Preparing for and undertaking a Morse examination; NSW Morse Practice nets.

*PO Box 361, Mona Vale NSW 2103
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QSLs from the WIA Collection

Ken Matchett VK3TL* Honorary Curator WIA QSL Collection

Qatar — Oil Rich Emirate

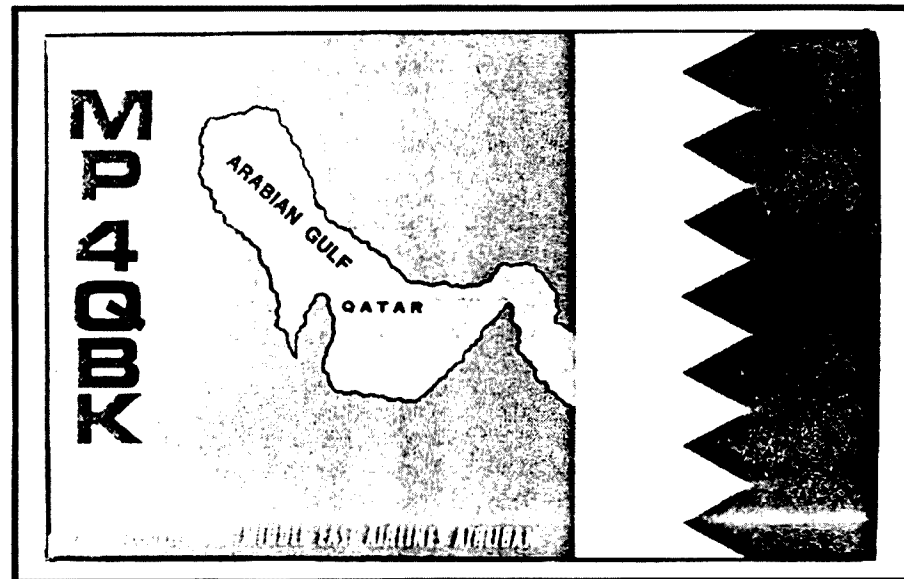
MP4QBK

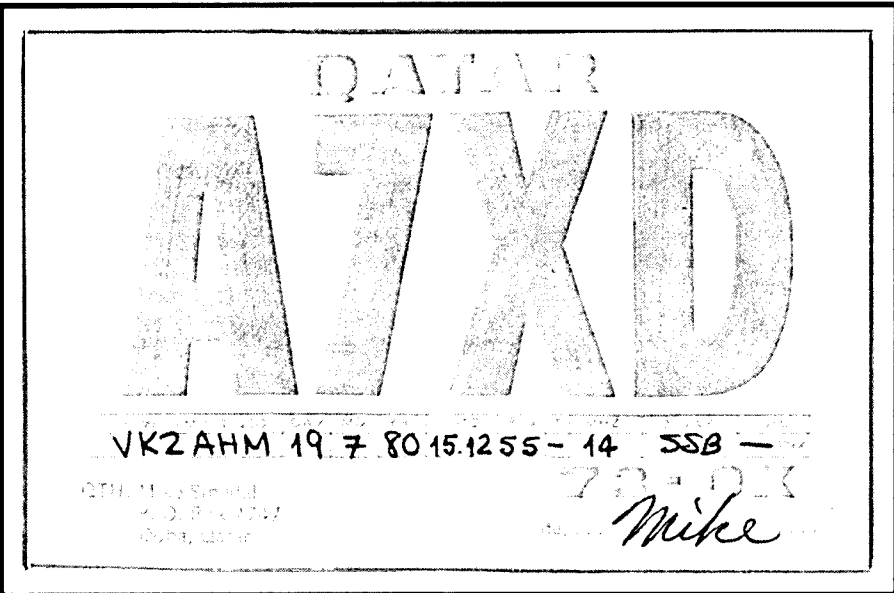
This QSL shows the geographical location of Qatar. It is a small emirate, only about a third of the area of Tasmania, jutting out into the Arabian Gulf. The better known island of Bahrain is just west of the peninsula and Saudi Arabia, and the United Arab Emirates border is to the south.

It is a desert country of sand and salt marshes. Years ago the lack of rainfall was the greatest problem impeding the development of the country. However, with

its great oil reserves, much of the country's potable water is now derived from the distillation of sea water.

In the October 1952 edition of *QST*, the announcement was made of the addition to the ARRL post-war countries list of Qatar. The announcement added that "to our knowledge no official prefix has been assigned to this country". DXCC credit was dated from 15 November 1945. The prefix MP4 came to be used by Middle East forces occupying the country. This widely used unofficial prefix was similar to the series of MD prefixes issued to





its oil deposits (discovered in 1940, but not exploited at the time due to the war in the Middle East), it has a very high per capita income. Less than a quarter or so of the population are native born Qataris, the others being imported workers. Free education and medical benefits are available to all Qatari citizens. Although Qatar was opened up to tourism in the late 1980s, this enterprise is still in its infancy. In any case, over 90% of the country's income is derived from oil and gas. One of the country's future difficulties is the lack of employment opportunities for its increasingly well educated population. Nevertheless, recently discovered natural gas deposits of incredible size would seem to ensure a promising future for Qatar.

Thanks

The Federal body of the WIA would like to thank the following for their kind

British Occupation Forces in such locations as Eritrea, Cyprus and Tripolitania. The MP4 prefix was shared with Bahrain and Trucial Oman.

At the time of their use the official M prefix had been allocated to Great Britain, which country chose to use the G series of prefixes in preference to the M prefix. (We did see Great Britain use the prefix M in 1991 when the call MORSE was used to celebrate the bicentennial of Samuel F B Morse.)

The serrated edge of this QSL is part of the Qatari flag which is maroon with a white serrated border at the hoist.

There were a considerable number of operators using MP4Q calls. MP4QAD, QAH and QAO were active in the 1950s, and QAQ, QBF, QBB, QBG, QAR and QAL in the 1960s. One of the most active hams was Don MP4QBF (G3IZU) who gave so many operators their first confirmed QSO with Qatar. This QSL was sent to Mavis AX3KS for a QSO in February 1970.

A7XD

Qatar had been a British Protectorate since 1916 but, on 1 September 1971, the country gained its independence. From this time to the early 1980s the new prefix A7 was used. This A7XD QSL was sent from the QTH of Doha, the capital of Qatar and really the only city of importance. Almost all of the operators at this time were, in one way or another, connected with the oil industry. The QSL was sent to "SK" Jeff Whyte in August 1980.

A71BK

This most attractive QSL was sent to "SK" Ken Gott VK3AJU for a QSO held in December 1986. It used the new A71 prefix which was issued in the early



1980s. The mosques in the background indicate that the country is a Muslim one. Arabic is the official language although English is used extensively for commercial purposes. The current Emir is of the al-Thani family, whose members dominate all major ministries. The current Emir has absolute power with authority to enact all laws. He rules under the guidance of strict Islamic law. However, such rule would seem to be a little less puritanical than that obtaining in Saudi Arabia, in that picture theatres are allowed and women may be issued with drivers' licences. Bans on alcohol are strictly enforced.

Before oil production started in 1947, Qatar was one of the world's poorest and least developed countries. Today, due to

donation of QSL cards towards the collection: Mike VK6HD, Jim VK9NS, Tad VK3UX, Ossie VK3AHK, George VK3GI, Peter VK3QI and John VK4AAF. Also to the family of "SK" Ron O'Connor VK3BRC.

Author's Note

If you enjoy reading this series of articles on QSLs of the WIA collection, would you like to contribute a few QSLs yourself? Commemorative (special issue), pre-war and rare DX QSLs are particularly appreciated. All donations are personally acknowledged.

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Repeater Link

Will McGhie VK6UU*

On Holiday

Having spent two weeks in Bali, coming back to the fees debate was not my favoured choice. The only amateur radio I thought about in Bali was to wonder at the two metre antennas all over the island. All sorts of two metre commercial amateur antennas are in evidence right round the island. I gather part of the 144 to 148 MHz band is used for other than amateur radio.

Whingeing

This month's *Repeater Link* does a fair bit of whingeing. I make no apology for this, as I believe amateurs are not receiving a fair go, particularly in the voice repeater scene. The invasion of our two metre band by pagers, the fees situation, and the long awaited change to the repeater regulations, has me stirred up. I have tried to keep to the facts as I believe them to be. Unfortunately, I have more questions than answers. What is written in this column are my views and may not be accurate. Any input, particularly your views on the pager invasion into two metres, would make for a wider discussion.

Pagers World Wide

Ever wondered if Australia is the only country in the world that has pager transmitters located right alongside our prime VHF band, two metres, with no guard band? I know I have. I have not seen any reference to pagers causing a problem to any amateur bands elsewhere in the world.

This started a request via packet radio for information on where pager transmitters are located in other countries. I have received several replies so far and this is a summary of that information.

From 4F3AAL Philippines: 148.975 MHz is the only pager. The amateur band is 144 to 146 MHz only but this pager causes considerable problems.

From VS6XFK Hong Kong: 172 MHz, 280 MHz and 922 MHz pager bands with no pager problems to amateur bands.

From G0GTF Great Britain: Tim sent me a long list of pager frequencies from around the world too detailed to reproduce, so I have only included a couple from the UK. Of the 40 or so pager bands used around the world that Tim has recorded, none come anywhere near any amateur bands, the closest being the 454.025 MHz shown below. 454.025-454.825 MHz, UK private paging

systems. 138.175 MHz, UK nationwide pagers, with power up to 100 Watts.

From DG5MEC Germany: Paging frequencies around 465 MHz with power outputs up to 100 watts ERP.

From HB9AYH Switzerland: 4 channels at 147.300, 147.325, 147.375 and 147.400 MHz. The new European ERMES paging system uses frequencies around 169 MHz. We still have two high power paging networks with Tx powers around 1 kW at 72 and 87 MHz using AM modulation, but these networks will be phased out soon.

I have tried to obtain information from the USA but, to date, no luck. Even though this is a small sample it supports what I already thought. Australian amateurs have a world first in having a high power pager band right alongside a primary amateur band, with no guard band. In light of the fees debate and what the SMA do for us amateurs, and charge for, perhaps the time has come to tackle the SMA in a serious way over pagers.

Time has shown that this decision of pagers so close to our two metre band has had a detrimental effect. It has resulted in an increased work load for the SMA and, one could conclude, an increased cost to us amateurs with increasing SMA charges. It all seems a bit unfair. Poor decision on the location of the pager band, resulting in serious interference to our band and, as a final insult, we pay more to administer the result.

How Did It Start?

In VK6 the first pager appeared in Perth about 15 or more years ago. There was only one and it was located at the ABC Television tower in the hills overlooking the city, on a frequency of 148.0125 MHz. That's right! No messing around. It was put as close to the top end of two metres as could be.

Right from the start this pager caused some problems to our two metre band although of a minor nature by today's standards. Some rude comments were made by a few amateurs inconvenienced by its tendency to produce loud noises on their two metre equipment. It had fantastic coverage and was even used by some as a beacon source to gauge propagation.

There was little effort to tackle the authorities over this one pager and, anyway, it might just go away. How wrong could you be? The number of pagers continued to grow along with the number of commercial companies providing

competitive services. Today two metres is invaded by pagers. This poses a number of questions.

Questions

Who decided to place these high powered transmissions so close to another service? Were they aware that this decision would cause considerable interference to the amateur two metre band? What investigations were carried out prior to making the decision? Was the location of pager bands around the world taken into consideration? Was the WIA consulted?

Answers to any or all of these questions would go a long way towards a better understanding of how frequency planning is carried out in Australia. In my opinion it is a waste of time and money to try and have the pager band moved due to the two metre interference alone. Other factors may see the pager band move or be phased out. What I would like to see is an honest answer to questions about the pager band and an admission that errors were made. Also, I would like to see an undertaking that no other services be located so close to another amateur band. At the very least, consultation with us amateurs before such a decision is made. The final chapter on the pager band is yet to be written.

Repeater Licence Costs

At the time of writing the change in repeater licence costs has just been announced by the SMA. \$24 per year for each transmitter, links excluded. Depending on your licence situation this can be good or bad. If your club has only one transmitter and doesn't plan to add any extra, then you are in front. However, for many repeater clubs the change will result in large increases. Here are some examples.

The Southern Electronics Group in VK6 operate two voice repeaters, one digipeater, four beacons, a club station and a BBS at several sites. The result is that their old licence fee increases from \$148 to \$219.

The North West Amateur Group operate two HF transmitters and two VHF transmitters at one site while, at another site, a VHF repeater and digipeater. The result is that the old licence cost is \$74 and the new \$124.

From the Elizabeth Amateur Radio Club an impressive list of systems. The club runs the following on the VK5RLZ license. Voice repeaters on 29.620 MHz, 146.625 MHz, 438.475 MHz, and 1273.550 MHz. An ATV repeater on 2.415 MHz, and 10.350 GHz FM. Beacons on 1296.550 MHz, 2403.550 MHz, 3456.550 MHz, 5760.550 MHz, and 10368.550 MHz.

Currently the club pays \$76 per year. Mark VK5EME, who sent me this information added, "The new overall cost will be \$315.00, so we will have no choice but to turn off some of the equipment. Looks like the amateur radio operators in Australia will be left behind compared with the rest of the world, if we have to pay big bucks to advance our experiments. I find it hard to accept that the hobby has so many restrictions placed on repeaters and beacons, and that we cannot just build them up and let the WIA know where the thing is so that everyone can use it."

In VK6, our Repeater Club WARG is looking at an increase from \$370 to \$540. This figure has made a few assumptions. For example, there is a WIA news link on 146.3 MHz, which is not a normal link frequency. Will this attract a \$24 charge? There are also plans to add a 29 MHz FM system and two 53 MHz systems, one voice and one packet, along with another digipeater. The result an additional \$96.

Consultation?

When the new fees for our amateur licences were announced, consultation was rumoured to have taken place between the WIA and the SMA. Note I say rumoured, as the WIA make the claim that there was no consultation, some others have said there was, and the SMA have said nothing. So, was there any consultation between the SMA and the WIA, or someone representing repeater and beacon systems, before the change in licence costing for repeaters, etc? I have a strong interest in all matters

relating to voice and digital repeaters and like to think I'm in touch, yet I heard nothing. It appears to me that the SMA presented the changes to repeater licensing without consultation.

The changes to the way repeaters are to be licensed is a fundamental change with far reaching consequences. Many clubs or individual amateurs have a long term view of where their repeater systems are going. The time frame is often open ended as amateur radio does not conform to deadlines. Suddenly the licensing structure is changed and the annual licence cost for some developing systems goes up by several times. This increase in costs could effect the whole viability of the project, or require it to be modified considerably. As if the technical difficulty of the project is not enough, now added costs occur with no meaningful consultation.

Even as I write this I have heard that the \$24 per transmitter licence may be changed back to the one licence for all systems on a given site. It sure makes it hard to know just where we are at. With so many changes coming and going, how can amateurs be expected to make much sense out of it all? But comment we must because our silence will be taken as acceptance. Even though by the time you read this the ground rules may have shifted several times, at least there will be some record of policy on the run. Did I really say that?

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International Amateur Radio Union Monitoring Service (IARUMS) — Intruder Watch

Gordon Loveday VK4KAL*

It alarms me that most of the Intruder Watch observers are elderly. The younger amateurs and SWLs seem to be reluctant to use pen and paper as has been required to maintain a log and post it away each month.

One of our elderly observers here in VK4 approached me about the use of packet radio instead of Australia Post, which occasionally loses a package. We discussed the matter and I'm prepared to give it a trial. For those not on the packet system, it will still be by post. My packet address is shown below.

The packet format should be: Date;

Time UTC; Frequency; Mode; ID if heard; Bearing, if you are using a beam; and Signal Strength, preferably using SINPO.

I leave it to the observer to decide how often they forward to me, that is daily or weekly.

(Space was unavailable for the list of intruders, numbering 25 on all bands 3.5 to 24 MHz and reported by VKs 4EKA, 4AKX, 4BBX, 4BTW, 4BXC, 6XW and 6RO. Ed)

*Federal Intruder Watch Co-Ordinator,
Freepost No 4 Rubyvale QLD 4702
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ar

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Spotlight on SWLing

Robin L. Harwood VK7RH*

In last month's column I mentioned that it is increasingly difficult to find the "Voice Of Russia" these days. Well, just a few days ago I received their English schedule for the Australia/Pacific area from them:

0600-0700 hrs 21625, 17870, 17590, 17570 and 15560 kHz;

0700-0800 hrs 17870, 17695, 17590, 17570 and 15560 kHz;

0800-1000 hrs 17870, 17765, 17695, 17590, 15560, 11900, 11800 and 9835 kHz (15560 off at 0900);

1000-1100 hrs 17870, 17765, 17590, 11800 and 9835 kHz.

I also received a program schedule which indicated that they are still broadcasting a full 24 hour World Service English output, yet I am not receiving Moscow beaming to other areas, which is indicative that there have been severe cutbacks to their transmitter output. They also state that the number of foreign languages is now 31.

For the past 50 years, the International Committee of the Red Cross (ICRC) in Geneva, Switzerland has been making monthly broadcasts over senders supplied by the Swiss PTT. Programming was also included in transmissions of Swiss Radio International. Well, the Red Cross Broadcasting Service suspended their monthly broadcasts in March and have begun to re-organise their output, which will allow them to make increased use of their facilities on a more regular footing than at present. 7210 kHz has been allocated to the ICRC for their broadcasts, although other broadcasters do make use of this channel also. It would perhaps be a good idea to keep this channel in mind although, clearly, they will need to use other channels to reach audiences outside continental Europe. I believe that programming from the Red Cross Broadcasting Service will continue to be made but incorporated into existing SRI output and not separate as present.

We all have been rather confused with the rapidly changing maps of Eastern Europe since the end of the so-called Cold War. Now comes news that Liechtenstein, that tiny principality sandwiched between Switzerland and Austria, has also switched allegiances. On the first of January 1995, Liechtenstein opted to join the EEU with Austria whilst the Swiss rejected joining it. The result is that Swiss customs and border guards moved from the Austrian-Liechtenstein border, where they had been for six decades, to the almost non-existent

Swiss-Liechtenstein border. The Austrian public broadcaster has already installed FM repeaters in Liechtenstein and TV translators will soon follow. This probably means that Liechtenstein will use the OE prefix instead of HB0. The following information came from Celia VK7NBH/HB9ZBH who recently toured around Tasmania.

The United Nations in Geneva has reintroduced broadcasts after an absence of five years. You may have been one of the very few to hear their weekly broadcasts to the Soviet Union, close to the 14 MHz amateur band. Now they have commenced broadcasts in French and English on weekdays around 10471 kHz between 0600 and 0700. However, these do not seem to be regular broadcasts and they could be varying about in time and frequency. Target areas are in the former Yugoslav republics and in the Mid-east. They are on the R3E mode (upper sideband with reduced carrier).

There was a station earlier this year on 1341 kHz broadcasting continuous music, for example the "The Three Tenors in LA" without any identification announcements. Then it went off for a few months and has now re-appeared with Chinese pop music, yet I still haven't heard any voice announcements identifying the station or its location. I have heard rumours that it is in the Geelong area which matches its daytime signal strength here. Anybody able to elucidate?

Does anybody know if the Fidonet echo called "OZ-SW" is still active in your area? The feed to my local Fidonet BBS has been idle for six months and, despite repeated enquiries, I have drawn a blank. It would be a pity that a local echo devoted to SWLing would die through either apathy or indifference as there is sufficient information for a local, Australian base. The Internet "rec.radio.shortwave" echo is supposedly international but at present is filled with comments on WWCR's broadcasting of far-right extremist groups. Not really relevant for this area, I would think.

Well that is all for this month. Don't forget if you have any information, I can be reached at the postal and electronic addresses listed below.

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Internet: robroy@tamarcom.com.au
Fidonet: Robin.Harwood 3:670/301@fidonet.org

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

A	GRIFFARD	VK2AGN
R E	JAMES	VK2DZI
G W (Geoffrey)	THORNTON	VK2IP
E H R (Erich)	REIMANN	VK2WH
S (Samuel)	BROWN	VK2ZBN
A E (Albert)	CARLYLE	VK3AUN
H G (Hubert)	WILLIAMSON	VK3GW

Hubert Gordon Williamson VK3GW

It is my sad duty to report that Gordon became a silent key on 28 May 1995.

Gordon was born in 1907 and was first licensed in 1927. He became a member of the Citizen Air Force in 1934 and was called into active service in July 1940. He saw active service with No 4 Radio Installation and Maintenance Unit in Nadzab, New Britain, Aitape, Noemfoor Island and Morotai Island.

He was discharged with the rank of Warrant Officer in 1945 and bought a property in Rainbow, Victoria which he worked for several years. When he left the land, he worked in the programming section of the ABC's Radio Australia until retiring.

He was an active member of Doncaster RSL, being honoured with life membership in recognition of his work.

Amateur-wise he was active on the bands until the Thursday before his death. He will be sadly missed.

Gordon is survived by his sons Ross, Barry VK3HT, daughter Pam and five grandchildren.

David Parry VK2CX
On behalf of the family.

Albert Ernest (Bas) Carlyle VK3AUN

"Bas" became a silent key when, at the age of 81, he passed away suddenly at home on May 25, 1995.

"Bas" was educated at Scotch College in Melbourne and was both a Master Mariner and pilot. He became interested in amateur radio in his later years and was a staunch supporter of WIA Victoria and a keen DXer.

"Bas" is survived by four daughters, eight grandchildren and a great grandchild.

Barry Wilton VK3XV
ar

VHF/UHF — An Expanding World

Eric Jamieson VK5LP*

All times are UTC.

Six Metres Standings List

The corrections to the last Six Metres Standings List appeared in April. John VK4KK has asked if, in the future, I will be accepting any further up-dates for my records. I see no reason why I should not do so. Now that the database is organised, it takes little effort to make an upgrade, so, if anyone, including newcomers, would like to send me details and confirmations of countries contacted, as in the past, I will accept them. Who knows, down the line I might decide to run a list again! My records already provide information of an historic nature, which will become more valuable with the passage of time.

Packet Radio

As you may note from the packet line with my QTH information, thanks to Steve VK3OT initially, and Grant VK5ZWI recently, I now have my packet arrangements organised and am in a position to receive and send messages. I'm still a bit nervous so please be patient — an old hand entering new territory!

State Visit!

Recently, I was favoured with a "state visit" from Garry Herden VK5ZK, President of the VK5 Division of the WIA; Charlie McEachern VK5KDK, Vice-President; Bob Allan VK5BJA, Federal Councillor and Journal Editor; and Grant Willis VK5ZWI, Co-FTAC representative. With so many "heavies" of the WIA in the house, my wife Merna thought it prudent to invite them to lunch!

After lunch they were part of a small ceremony where Garry presented me with the recently awarded "G A Taylor Medal." I almost felt nervous in front of so many high-ranking people, and the cameras, but I survived. It was a happy occasion and one I will always remember. The medal now has its place on the mantelpiece amid nine other awards of various types.

Antarctica

The subject of working Antarctica surfaces again. In the May issue I mentioned that VK3OT, VK5NC and VK5KK formed an exclusive club to have worked seven continents on six metres. I now find Roger VK5NY and Nev VK2QF also qualify for that club, a total of five. I

am not sure whether anyone from Melbourne qualifies — if so, please advise me. So perhaps the wording should have been, "VK3OT, VK5NC and VK5KK appear at this stage, to be the only amateurs to form an exclusive world club of operators who have worked seven continents on six metres." That should give me a "let-out" if more names appear. Sorry, Roger and Nev.

While we are on the subject of Antarctica, about 8 am local on 17 May, 5ADFM in Adelaide broadcast a short telephone interview with Darin Roberts VK0IX at Casey Base. The occasion was his mother's birthday and Geoff Sunderland, the announcer, had dragged Darin from his bed at 4 am, to send birthday greetings. Darin said the morning was a little warmer than usual with the temperature at -18°C! The wonders of the modern telephone network.

King Island

A brief message states that Bob Jordan VK7JR, of Currie (QF10), on King Island in Bass Strait, is coming on six metres with a Tokyo Tri-band hand-held, for a start; this may lead to further ventures. King Island is a large island, about mid-way between Cape Otway in Victoria and Cape Grim in Tasmania, or about 120 km in either direction. Currie is on the western side. Except for the necessary part of King Island, the remainder of the path will be all-water, which should provide signals to VK3, VK5 and VK7. It would provide a fantastic take-off to Albany and other places in Western Australia if use could be made of the bands 144 MHz and above. I wonder what it costs to move there?

Western Australia

Graham Rogers VK6RO sent me a FAX to say that since 1 March 1995, six metres has been very quiet; the only suggestion of signals has been video carriers on 46.171, 48.240, 48.250 and 57.250 MHz, the latter at S9 from Port Pirie, South Australia. The carriers are usually heard between 0700 and 0900. Graham's FAX number is 094513561 and provides another means for operators to warn him of potential contacts.

The May 1995 issue of *The West Australian VHF Group Newsletter* reports that during past months Al VK6ZAY and Alan VK6ZWZ have made successful 5.4 GHz contacts over a distance of nine km, S3 reports each way. These efforts are likely to see the WA 5.4 GHz record fall.

Also included was news that the 1296 MHz beacon had been rebuilt by Al VK6ZAY as part of a upgrade of beacons by the beacon committee. The 1296 unit has been delivered to Don VK6HK who is rebuilding the exciter. No doubt I will be informed when the beacon becomes operational.

The Newsletter includes helpful construction information for building your own 2.4 GHz satellite down-converter from the VK5 VHF Group kit. If you need assistance to obtain best results, I am sure that a SASE to the Group at PO Box 189, Applecross, WA 6153, will produce a copy.

Beacons

In the June issue I mentioned the receipt of a list of world-wide 50 MHz beacons, initially on e-mail from Geoff GJ4ICD and sent to me by Dave VK2KFU, also from Tony VK5KTY via BBS. An updated list at 16/5/95 has been received with more than 20 corrections.

Beacons of particular interest to VKs are 50.019 P29BPL Q130 Port Moresby; 50.005 VK9RNI FK52 25 watts Norfolk Island; 50.050 FO5DR BH52 50 watts Mahina; 50.061 KH6HME BK29 20 watts, and 50.073 (changed from 50.064) KH6HI BL01 60 watts, both Hawaii. Useful places for beacons would be FK8, 5W1, YJ8, H44, 3D2 to mention a few.

From Europe

Ted Collins G4UPS reports for April that the first Es opening of the coming season occurred on 15/4 and was confined mainly to southern UK. The band opened to I, S5, YU, with G3HBR near London reporting hearing 9H5EE. A selective opening on 20/4 produced SP6GZZ.

A major aurora on 7/4 from 1445 to 2030. Countries worked: DL, EI, F, G, GD, GI, GM, GW, ON, OZ, PA, SM and S59.

Ted reports that since 1 January this year, he has worked 25 countries with a four element Yagi at 30 feet and with 25 watts. This represents 25% of his DXCC on six metres in four months, which he considers "not bad!" Also, Ted is pleasantly surprised at the frequent QSOs managed with SM7AED every morning that he is available. He says, "Despite what the experts say I feel there is some element of enhanced tropo involved — why are we not hearing of more regular QSOs on 6 m than the morning skeds between myself and G3CCH and SM7AED and occasionally SM7FJE, and between G3CCH and SM7AED? None of us regulars has a big station so why are we not hearing other regular signals on the band?"

A reminder that the distance between myself and SM7AED is 1200 km! Despite

repeated requests I have yet to meet others that work over this kind of distance, even with a large setup, on such a regular basis."

I can remember that, back in the AM days of the 1960s, Bob VK5ZDX (now VK5MM) and Wally VK5ZWW (now VK4DO), were for some time involved in forward scatter experiments on six metres between Adelaide and Sydney (1200 km) and Adelaide to Alice Springs (1350 km). Both paths were all-land and I believe they had reasonable success. Wally operated from an elevated site near Blackwood and

ran about 100 watts to a nine element Yagi, so his ERP would have been greater than that of Ted, but his contacts were AM, without the advantages of CW when the going became tough. In Ted's case I am sure there is a forward scatter component, with tropo enhancement at times, particularly as a water path is involved.

I see from Ted's report that 7 April was an interesting day, with contacts spread over much of the UK, and into Europe to DL, EI, ON, OZ, PA and S59, with many signals having an auroral content. With the approach of the Northern Hemisphere

summer, it will be interesting to see how many European countries activate their six metre gear for Es contacts, or whether, in the main, they are content to wait for the next F2 peak in several year's time. For many years, we in Australia have been conditioned to expect continent-wide Es openings each summer and for a short period mid-winter, hence the bands fill with signals for the appropriate time.

At the time of this writing, Geoff GJ4ICD would be settled in D4 (Cape Verde) for his DXpedition and hoping for propagation enhancements to include

WIA News

New Licences Available Now!

The new amateur radio station licence privileges and operating conditions were gazetted by the government on Friday, 2 June 1995 in a 76 page issue of the Government Gazette devoted entirely to the five relevant Technical Licence Specifications (TLSs).

There are now seven amateur licence sub-types under the general amateur licence type created by the SMA earlier this year, following revision of the Apparatus Licence system. The sub-types are: Unrestricted, Intermediate, Limited, Novice and Novice Limited, all for individual amateur operators, in addition to Amateur Beacon and Amateur Repeater sub-types, the TLSs for which have not yet been finalised.

The Novice Limited is an entirely new licence. It will be issued to people who have gained passes in the Regulations and Novice Theory Examinations. No Morse code is required. The new Intermediate licence replaces the old Combined Limited and Novice.

According to official advice received on 5 June from the manager of the Compliance and Licensing Directions Team, Business Directions Group of the Spectrum Management Agency, Alan Jordan, new and renewed

licences, including the new Novice Limited licence, issued from 6 June 1995 will reflect the gazetted changes. Reference to the Technical Licence Specification (TLS) will be printed on the licences.

The SMA advice said amateurs with existing licences may operate under the TLS relevant to their existing licence. For example, amateurs with a current Combined Limited and Novice Licence issued before 6 June may operate within the provisions specified in the Amateur Intermediate TLS. Similarly, amateurs with a current Novice licence issued before 6 June 1995 may operate within the provisions specified in the Amateur Novice TLS. New Novice Limited licensees will be issued with callsigns in the VKxHAA to HZZ block, the letter "H" being the identifier.

The new no-code Novice Limited licence allows operation on the 2 m and 70 cm bands, using digital (packet and RTTY) and FM voice modes and a maximum RF power of 30 watts (average).

Novice licensees are now able to use more power: 100 watts peak (eg SSB) and 30 watts average (eg CW and FM). They are allowed more frequencies and operating modes: an extra 100 kHz on 15 m, more than 500 kHz on 2 m below 145 MHz, 433-435 MHz and 438-440 MHz on 70 cm, and to use digital (packet and RTTY) modes.

Limited Licensees can now use 10 m, from 29.0 to 29.7 MHz, FM, and wideband emissions are permitted on bands above 420 MHz, providing the necessary bandwidth is within a band's limits. Wideband modes include such things as AM and FM television, spread spectrum and pulse modulation transmissions, high speed data transmissions and those "not yet invented".

Intermediate Licensees are no longer restricted to low power on the bands below 50 MHz, now being permitted 400 watts peak and 120 watts average, as well as use of the full 80 m, 15 m and 10 m bands and additional Limited licence privileges.

Unrestricted licensees gain the use of wideband emissions above 420 MHz. Although gazetted on 2 June, the new licences could not be issued by the SMA until 6 June as the Agency's new RADCOM computer system was not ready to issue them around Australia until that date.

Copies of the TLSs and related documents are available from your nearest SMA office. There are eight documents: the five TLSs, a relevant extract from the Radiocommunications Act 1992, a relevant extract from the Radiocommunications Regulations and amendments, and a relevant extract from the Definitions Determinations No 1993 (Amendment No. 2).

contacts in the 4000 km range. More later.

The July issue of *Six News*, the UKSMG journal, will include an article titled "Radio & the Internet", by Geoff GJ4ICD. The Internet is described and he tells of all the interesting subjects to which you can gain access. One item which interested me related to the average monthly solar flux levels as issued by NOAA in the USA. July 1995 is listed as 12 and the predicted figures decrease until the low of 7 is reached during April and May 1996; twelve months later they will be 23 and 26 and 60 at December 1997. The highest reading for Cycle 23 is listed as 175 in February 1991, with the next highest 172 in February 1992!

The Brendan Trophies

Emil Pocock W3EP, in the June 1995 edition of *The World Above 50 MHz* in QST, reports, "*The Irish Radio Transmitters Society (IRTS) announces that it will award the Brendan Trophies to the first pair of stations to make a two-way contact on 144 MHz between Europe and America, using terrestrial propagation.*"

The trophies are named after St Brendan the Bold, a 6th-century seafaring Irish monk. Irish sailors certainly reached Iceland prior to 800 AD, but Irish legend credits Brendan with sailing to some more distant land — presumably the American continent. Although there is no evidence for this remarkable achievement (Brendan never returned from his last voyage and all traces of him were lost), the Brendan legend has inspired centuries of transatlantic explorers. Now Brendan inspires a 20th-century version of the legend. Who will be the first to cross the Atlantic on 144 MHz?

During November, 1946, "World Above 50 Mcs" editor Ed Tilton, W1HDQ, began transmitting tests with G6DH on the new 6 metre band. On the 24th, G6DH called frantically on 10 metres that he was hearing Ed on 50 MHz! British stations could transmit only above 58 MHz, but the MUF never got that high over the hour or so W1HDQ was heard in England. The first two-way transatlantic 6 metre contacts had to wait until the following year, when the British got temporary authorisation to operate as low as 50 MHz. On November 5, 1947, W1HDQ finally made it official with G5DH for an all-50-MHz transatlantic first.

That is where the record highest-frequency transatlantic QSO, using terrestrial propagation modes, has stood for the past 48 years. The Atlantic has been spanned countless times on 144 MHz and higher via EME, of course, but no one has yet been able to confirm a two-way without the use of the moon, or repeaters on artificial satellites. That is the challenge of the Brendan Trophies.

The Brendan Trophies are specially

inscribed cut glass vases provided by Waterford Crystal of Ireland. One trophy will go to the European station and the other to the North or South American station that completes the first authenticated 144 MHz transatlantic contact using natural terrestrial means of propagation."

I wonder what form of award we would receive if someone from VK accomplished the task? Should we send signals across the US or Asia/Europe? However, joking aside, Hawaii is about 8000 km from Sydney and 7000 km from Auckland. In the light of confirmed two metre contacts at 6763 km between VK4 and Japan using low power, the Hawaii distances don't seem impossible, but the angle across the equator may be the stumbling block. It will also take dedicated operators at both ends of the circuit, with much time spent listening to receiver noise.

End of an Era

With the June issue of *ARA*, Steve VK3OT provided his last column, having written *About Six* for the magazine since Issue 1 in 1977. As someone who has always read his columns, I say thank you Steve for the time and dedication given to the provision of news for others to read, and in doing so much to promote the use of the 50 MHz band.

Steve and I swapped information on many occasions and our telephone accounts were quite large, particularly during the peak of Cycle 22. Steve closed his column by saying, "*Don't forget to keep the magic-band alive. Have fun and be considerate.*" I would like to add, "*Thanks Steve for your part in keeping the magic-band alive!*"

South Africa

Hal ZS6WB believes that a concerted effort should be made to contact Australia on six metres using the path over Antarctica. He is of the opinion that, last year, missed opportunities occurred in working Australia.

The ZS operators suggest that there be three dedicated beacons at each end of the path beaming over the South Pole, and running 50 watts or more of CW. They suggest all beacons should operate within a few kHz of each other, so any station listening need only monitor one frequency.

Beacon sites in South Africa are proposed for ZS1, ZS5 and ZS6, the areas of greatest activity, and they will try to have the beacons in place by October. Hal will attempt to arrange a telephone alerting list of participating stations at each end.

They would like to see a prime contact point in each country, and two alternate

stations who are prepared to be on call. These stations would be responsible for a general propagation alert.

Two suitable beacons in Australia would be VK3SIX on 50.0535 and VK7RNW on 50.057. The VK4RGG beacon may be too distant, but it was observed during the 1991 ZS openings that the path to VK4 opened about 30 minutes after the VK3/5 path occurred, so it could be useful. Reliability and useful power seem to be prime requisites, the latter being achieved more readily by the use of a high gain directional antenna rather than increasing output power from the transmitter, the latter being less cost effective.

Hal will eventually report details in the *50 MHz DX Bulletin* which is edited by K6FV. Hal Lund ZS6WB can be contacted at PO Box 27746, Sunnyside 0132 RSA or FAX to 012 45 2735. Home/Office phone is 012 45 2737. Packet to ZS6WB@ZS0CLRTVL.ZAF.AF for least fastest mode.

Closure

From the lack of reports there appears to be little overall activity on any band in VK, except for the continuation of interest in 10 GHz, of which we will read more in later months.

Closing with two thoughts for the month:

1. If people fought sin as hard as they do middle age, earth would be a moral paradise, and,
2. Politicians are people who, before election, promise a car in every garage. After an election? They get busy putting up parking meters.

73 from The Voice by the

STOP PRESS ITEM

Steve VK3OT has just telephoned an item of interest, following a message from Peter VK1RX.

A notice is published in the *June Government Gazette* to the effect that amateurs on the east coast of Australia are now permitted the use of the band 50.000 to 50.300 MHz, bringing them into line with the rest of Australia. This has been a gain of the lower 50 kHz and the upper 100 kHz. An additional facility is that RTTY is now sanctioned.

The above is a brief outline of the changes. No doubt *Amateur Radio* will carry the full story. Thanks to those amateurs who placed submissions to the SMA regarding extended use of the band.

*PO Box 169, Meningie SA 5264
Fax: (085) 751 043

Packet: VK5LP@VK5WI.#ADL.#SA.AUS.OC
ar

HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μV (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μV in 50 ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μV at the receiver's input and the S-meter scale is 6 dB per S-point.

μV in 50 ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10

1.56	S4	4
0.78	S3	-2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 16.0.

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	14.4	15	10.8	7	16	2	-12	-34
2	14.8	16	11.1	8	17	4	-9	-30
3	14.9	16	11.2	11	18	5	-9	-29
4	14.9	18	11.2	17	20	6	-9	-30
5	14.0	20	10.6	27	19	1	-16	...
6	12.1	24	9.1	38	13	-10	-34	...
7	10.4	27	7.9	39	3	-27	...	...
8	9.0	29	8.8	38	-8	...	...	...
9	8.1	31	6.1	37	-20	...	...	...
10	7.5	32	5.6	35	-30	...	...	...
11	7.1	33	5.3	33	-37	...	...	...
12	7.1	33	5.3	33	-37	...	...	...
13	7.0	33	5.2	33	-38	...	...	...
14	7.0	33	5.2	32	-39	...	...	...
15	7.1	33	5.3	33	-37	...	...	...
16	6.2	34	4.8	28	...	...	...	...
17	6.2	34	4.8	28	...	...	...	...
18	6.5	33	5.0	30	...	...	...	...
19	6.6	33	5.1	30	...	...	...	...
20	7.6	26	5.9	28	-26	...	...	...
21	9.7	20	7.5	23	-3	-34	...	...
22	11.5	17	8.9	15	7	-14	-36	...
23	12.9	16	9.8	10	12	-5	-23	...
24	13.7	15	10.4	7	14	0	-16	...

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	16.8	12	12.7	-16	15	9	0	-13
2	17.2	12	13.3	-17	16	11	3	-10
3	18.2	12	14.1	-16	17	13	5	-7
4	18.3	13	13.7	-10	19	14	6	-7
5	18.6	15	13.7	0	22	15	6	-7
6	16.6	18	12.5	18	24	13	1	-15
7	14.3	21	10.8	32	22	6	-9	-31
8	12.3	25	9.3	38	17	-4	-24	...
9	10.8	28	8.0	39	9	-16	...	...
10	9.5	30	7.1	40	2	-29	...	...
11	8.5	32	6.4	40	-2	-35	...	...
12	8.5	32	6.4	39	-5	...	...	...
13	8.5	32	6.4	39	-6	...	...	...
14	8.4	32	6.3	39	-6	...	...	...
15	8.4	32	6.3	38	-7	...	...	...
16	8.5	32	6.3	39	-6	...	...	...
17	7.5	34	5.8	36	-16	...	...	...
18	7.6	34	5.8	36	-16	...	...	...
19	7.9	33	6.0	37	-12	...	...	...
20	8.0	27	6.2	29	-1	0	...	...
21	9.3	21	6.8	21	0	-28	...	...
22	11.9	17	8.2	11	10	-7	-25	...
23	14.2	14	10.9	-1	14	3	-10	-29
24	15.8	13	12.1	-11	15	7	-2	-18

VK EAST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.1	12	6.2	10	-9	-37	...	...
2	6.9	2	5.3	3	-13	...	...	...
3	6.9	-5	5.3	-3	-12	-39	...	...
4	9.3	1	7.3	-15	-1	-17	-35	...
5	13.4	5	10.3	-33	5	-1	-11	-27
6	15.4	6	12.1	...	6	3	-5	-18
7	14.9	6	11.1	-39	6	2	-6	-20
8	13.1	6	9.8	-28	8	-2	-13	-30
9	11.1	5	8.3	-17	3	-9	-24	...
10	9.5	5	7.1	-8	0	-18	-38	...
11	8.3	5	6.2	0	-5	-29	...	...
12	7.9	10	5.9	7	-9	-37	...	...
13	7.9	16	5.8	16	-10	...	...	...
14	7.8	24	5.8	26	-12	...	...	...
15	7.8	27	5.7	29	-12	...	...	...
16	7.5	29	5.8	31	-17	...	...	...
17	7.4	30	5.7	31	-18	...	...	...
18	7.4	30	5.6	31	-19	...	...	...
19	7.3	30	5.5	31	-19	...	...	...
20	7.4	30	5.6	31	-19	...	...	...
21	7.4	30	5.7	31	-18	...	...	...
22	7.3	30	5.7	31	-20	...	...	...
23	7.0	24	5.4	23	-22	...	...	...
24	7.1	16	5.6	16	-18	...	...	...

VK SOUTH — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	7.6	21	5.8	22	-12	...	...	...
2	7.6	16	5.8	15	-11	...	...	...
3	10.0	14	7.4	9	3	-17	-38	...
4	14.0	13	10.8	-2	13	2	-10	-28
5	15.3	10	12.4	-21	11	4	-5	-20
6	16.0	9	12.9	-29	10	5	-3	-16
7	15.3	8	12.3	-29	9	3	-5	-19
8	14.1	8	11.2	-22	8	0	-10	-27
9	12.4	8	9.8	-14	6	-1	-5	-19
10	10.5	8	8.3	-6	1	-4	-28	...
11	9.0	8	7.0	1	-1	...	...	...
12	7.9	10	6.2	7	-11	...	...	...
13	7.4	14	5.7	14	-17	...	...	...
14	7.3	23	5.6	23	-22	...	...	...
15	7.2	26	5.5	27	-23	...	...	...
16	7.2	28	5.5	29	-24	...	...	...
17	7.2	29	5.5	30	-24	...	...	...
18	7.3	29	5.6	30	-24	...	...	...
19	7.2	29	5.6	30	-24	...	...	...
20	7.0	29	5.4	29	-28	...	...	...
21	7.2	29	5.7	30	-24	...	...	...
22	7.7	30	5.9	32	-16	...	...	...
23	7.3	30	5.7	31	-21	...	...	...
24	7.5	26	5.9	27	-17	...	...	...

VK WEST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	6.9	27	5.3	26	-23	...	...	...
2	6.8	17	5.7	17	-21	...	...	...
3	9.4	14	7.1	9	0	-23	...	...
4	13.6	13	10.5	-4	12	0	-2	-32
5	15.7	10	12.0	-22	12	6	-3	-18
6	16.6	9	12.6	-32	11	7	0	-14
7	16.3	8	12.7	-36	10	7	0	-12
8	16.3	8	12.2	-35	9	5	-2	-15
9	15.0	8	11.3	-29	9	3	-6	-22
10	13.2	9	9.9	-17	8	-2	-15	-34
11	11.2	10	8.4	-4	5	-11	-29	...
12	9.6	12	7.2	5	0	-23	...	...
13	8.4	17	6.3	17	-7	-38	...	...
14	8.0	25	5.9	28	-12	...	...	...
15	7.9	28	5.9	31	-13	...	...	...
16	7.9	30	5.8	33	-14	...	...	...
17	7.8	31	5.9	34	-14	...	...	...
18	7.9	31	5.9	35	-13	...	...	...
19	8.0	31	6.0	35	-13	...	...	...
20	7.8	31	5.9	34	-14	...	...	...
21	7.4	31	5.8	33	-20	...	...	...
22	7.5	31	5.8	33	-18	...	...	...
23	8.3	31	6.3	36	-9	...	...	...
24	7.7	31	5.9	34	-15	...	...	...

VK EAST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	19.2	12	14.6	-32	15	13	8	-2
2	19.6	12	14.9	-37	15	14	8	-1
3	19.7	11	15.0	-38	15	14	9	0
4	20.0	12	15.2	-36	16	15	10	0
5	20.1	12	15.3	-30	17	16	10	1
6	19.3	13	14.7	-21	18	15	9	-2
7	17.6	14	13.5	-7	20	13	4	-9
8	15.6	17	11.8	14	20	8	-4	-23
9	13.6	21	10.4	34	18	0	-19	...
10	11.8	23	9.0	38	10	-15	...	...
11	10.8	24	8.2	39	4	-26	...	...
12	10.3	25	7.9	41	0	-33	...	...
13	9.8	26	7.4	40	-5	...	...	...
14	9.4	27	7.2	39	-9	...	...	...
15	9.2	27	7.0	38	-12	...	...	...
16	9.3	27	7.1	39	-10	...	...	...
17	8.6	27	6.6	36	-19	...	...	...
18	7.2	28	5.5	29	...	...	...	...
19	7.1	28	5.5	29	...	...	...	...
20	7.8	28	6.1	33	-30	...	...	...
21	11.4	21	8.9	30	7	-17	...	...
22	16.8	16	13.1	2	21	12	2	-13
23	18.7	14	14.4	-14	19	15	8	-4
24	19.0	12	14.6	-25	17	14	8	-3

VK SOUTH — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	15.4	9	11.7	-32	10	4	-4	-19
2	16.0	9	12.1	-37	10	6	-2	-15
3	16.5	9	12.4	-39	10	7	0	-13
4	16.6	9	12.5	-39	10	7	0	-12
5	16.6	10	12.5	-34	11	8	0	-12
6	16.1	11	12.1	-26	12	7	-1	-15
7	14.9	12	11.2	-13	13	4	-7	-24

VK EAST — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	10.0	-5	7.2	-36	1	-7	-19	-39	
2	10.0	-10	7.0	0	-6	-17	-35		
3	11.0	-9	8.0	0	-3	-11	-26		
4	12.7	-6	8.9	-1	0	-6	-17		
5	14.5	-2	10.6	-3	1	-2	-10		
6	15.7	0	11.5	-3	2	0	-7		
7	16.1	2	11.8	-2	3	1	-6		
8	16.3	3	12.0	0	3	0	-6		
9	14.3	3	10.9	3	2	-4	-16		
10	12.4	2	9.4	4	-2	-12	-28		
11	10.7	3	8.1	-24	3	-8	-22		
12	9.9	5	7.5	-12	1	-14	-31		
13	9.5	8	7.2	-3	1	-18	-38		
14	9.1	12	6.9	6	-1	-24	...		
15	8.8	17	6.6	15	-3	-30	...		
16	8.7	21	6.6	22	-4	-34	...		
17	8.9	24	6.7	28	-3	-34	...		
18	8.3	27	6.4	31	-9	...	...
19	7.2	29	5.5	30	-23	...	...
20	7.2	29	5.6	30	-23	...	...
21	9.0	30	6.8	37	0	-31	...		
22	9.3	23	7.0	25	2	-23	...		
23	11.2	13	7.9	-2	4	-4	-19		
24	10.5	3	7.4	-23	4	-7	-20		

VK SOUTH — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	10.3	6	7.2	-15	14.2	18.1	21.2	24.9	
2	10.2	-3	7.2	-34	2	-7	-19	-39	
3	11.3	-4	8.0	...	1	-3	-12	-27	
4	13.2	-2	9.1	...	0	0	-5	-16	
5	15.3	0	10.9	...	-2	2	0	-8	
6	16.6	2	11.8	...	-3	3	1	-4	
7	17.0	2	12.1	...	-3	3	1	-4	
8	15.8	2	11.9	...	-1	2	0	-9	
9	13.9	0	10.5	...	1	1	-5	-16	
10	11.8	-1	8.9	...	2	-3	-13	-29	
11	10.1	-2	7.6	-30	1	-9	-23	...	
12	8.9	-1	6.6	-16	-1	-18	-36	...	
13	8.4	3	6.2	-5	-4	-25	...		
14	8.3	6	6.2	14	-6	-35	...		
15	8.3	16	6.2	24	-6	-35	...		
16	8.3	24	6.1	27	-8	...	...
17	8.4	27	6.3	31	-7	...	...
18	8.5	29	6.4	34	-9	...	...
19	8.3	29	6.3	34	-9	...	...
20	7.8	29	5.9	32	-15	...	...
21	7.9	29	6.1	33	-14	...	...
22	8.2	29	6.3	34	-10	...	...
23	7.8	25	6.0	27	-13	...	...
24	10.9	18	7.6	10	10	-6	-24	...	

VK WEST — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	10.8	17	7.4	11	8	-10	-28	...	
2	11.6	6	7.3	-15	3	-10	-25	...	
3	11.6	1	8.1	-38	2	-4	-15	-33	
4	13.8	1	9.4	...	0	0	-6	-18	
5	16.1	3	11.3	...	-1	3	0	-8	
6	17.5	4	12.3	...	-1	4	2	-4	
7	17.9	4	12.6	...	-2	4	3	-3	
8	18.1	4	12.7	...	-2	4	4	-3	
9	17.7	4	12.9	...	0	4	4	-2	
10	15.9	3	12.1	...	2	3	0	-12	
11	13.7	3	10.4	...	3	0	-9	-23	
12	11.9	3	9.0	-29	3	-6	-18	-38	
13	10.3	5	7.8	-13	1	-14	-32	...	
14	9.6	9	7.2	0	-1	-21	...		
15	9.4	15	7.1	13	-1	-26	...		
16	9.1	20	6.8	22	-3	-32	...		
17	8.9	24	6.8	28	-5	-37	...		
18	8.9	26	6.7	32	-5	-38	...		
19	9.0	27	6.8	35	-4	-37	...		
20	8.6	28	6.6	34	-8	...	...
21	7.7	28	5.9	31	-20	...	...
22	7.7	28	5.9	31	-20	...	...
23	8.0	29	6.1	32	-15	...	...
24	8.3	27	6.3	31	-11	...	...

VK EAST — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	12.4	16	8.4	1	13	3	9	-27	
2	11.5	17	7.8	8	12	-1	-15	-35	
3	10.7	19	7.4	15	11	-5	-21	...	
4	10.3	24	7.1	25	11	-8	-27	...	
5	10.2	24	7.1	25	10	-9	-28	...	
6	11.3	24	7.8	28	14	-4	-22	...	
7	10.9	23	8.2	25	12	-6	-24	...	
8	9.6	16	7.3	12	5	-13	-33	...	
9	7.6	3	5.8	0	-4	-26	...		
10	7.5	-5	5.8	-9	-3	-22	...		
11	8.3	-7	6.1	-19	-1	-16	-32	...	
12	8.2	-13	6.0	-26	-1	-13	-28	...	
13	8.2	-18	6.1	-32	-1	-11	-25	...	
14	8.2	-27	6.1	...	-5	-15	-28	...	
15	8.3	-34	6.2	...	-9	-18	-31	...	
16	8.1	...	6.1	...	-14	-23	-37	...	
17	7.6	...	5.8	...	-20	-31	...	...
18	7.7	...	5.9	...	-17	-28	...	...
19	8.9	-18	6.5	...	-1	-8	-19	-37	
20	11.4	-5	8.8	...	0	-3	-12	-26	
21	13.6	3	10.4	...	3	1	-6	-18	
22	15.3	9	10.5	-34	9	6	-1	-12	
23	14.3	13	9.8	-17	13	7	-1	-14	
24	13.3	14	9.0	-6	13	5	-5	-20	

VK SOUTH — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	11.8	13	8.2	-4	10	0	-13	-31	
2	10.7	17	7.7	9	10	-10	-29	...	
3	10.3	24	7.2	27	9	-12	-32	...	
4	10.0	24	7.1	26	9	-12	-32	...	
5	10.1	24	7.1	27	9	-12	-32	...	
6	11.1	24	7.9	28	14	-4	-22	...	
7	10.9	21	8.9	25	9	-10	-30	...	
8	9.4	15	7.3	13	0	-22	...	...
9	8.2	8	6.4	3	-5	-28	...	...
10	7.6	-1	5.8	-4	-6	-28	...	...
11	7.6	-6	5.9	-11	-5	-24	...	...
12	7.6	-11	5.8	-17	-3	-20	-38	...	
13	7.6	-22	6.0	-29	-6	-21	-39	...	
14	7.6	-38	5.8	...	-14	-28	...	...
15	7.6	...	5.9	...	-20	-34	...	...
16	7.5	...	5.8	...	-28	...	...	...
17	7.2	...	5.6	...	-37	...	...	...
18	7.4	...	5.8	...	-35	...	...	...
19	8.4	...	6.4	...	-20	-29	...	...
20	10.2	-12	8.2	...	-1	-5	-13	-28	
21	12.2	-5	9.8	...	0	-2	-9	-21	
22	13.8	0	10.2	...	1	0	-5	-17	
23	13.6	4	9.5	...	5	3	-4	-15	
24	12.6	9	8.7	-21	9	2	-8	-23	

VK WEST — EUROPE (Long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	11.5	3	8.0	-25	4	-4	-15	-31	
2	10.7	6	7.5	-11	4	-7	-21	...	
3	10.1	9	7.1	-2	3	-11	-27	...	
4	9.8	12	7.0	4	3	-13	-31	...	
5	9.9	13	7.1	7	4	-13	-31	...	
6	10.9	15	7.8	8	8	-7	-22	...	
7	12.2	16	8.8	9	12	0	-13	-33	
8	12.8	13	9.9	5	10	-1	-15	-34	
9	10.9	10	8.9	1	4	-11	-27	...	
10	9.3	3	7.2	-8	-2	-19	-37	...	
11	8.2	-5	6.3	-14	-5	-22	...	...
12	7.7	-12	5.9	-19	-5	-21	-39	...	
13	7.6	-20	5.6	-26	-6	-20	-36	...	
14	7.5	-38	5.7	...	-14	-28	...	...
15	7.5	...	5.9	...	-22	-35	...	...
16	7.6	...	5.7	...	-28	...	...	...
17	7.6	...	5.8	...	-32	...	...	...
18	7.5	...	5.8	...	-36	...	...	...
19	7.1	...	5.6	...	...	...	...	...
20	7.3	...	5.7	...	-34	...	...	...
21	8.3	...	6.2	...	-18	-27	...	...
22	10.2	-13	8.1	...	-3	-8	-17	-32	
23	12.1	-4	9.3	...	1	-5	-12	-26	
24	12.2	-1	8.6	...	-1	-2	-10	-24	

VK EAST — MEDITERRANEAN									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	10.6	3	8.0	-24	4	-7	-21	...	
2	11.2	-2	8.4	...	2	-4	-15	-32	
3	14.3	1	10.6	...	1	1	-4	-14	
4	18.0	5	13.6	...	0	5	3	-3	
5	19.8	5	15.0	...	-2	5	4	-1	
6	19.5	4	14.8	...	-2	4	3	-1	
7	18.3	4	13.9	...	-1	4	2	-4	
8	16.4	4	12.5	...	1	3	0	-9	
9	14.2	3	10.7	...	3	1	-6	-19	
10	12.3	2	9.3	-39	3	-3	-14	-31	
11	10.7	3	8.1	-22	2	-9	-24	...	
12	9.9	6	7.5	-9	1	-15	-33	...	
13	9.7	12	7.3	4	1	-19	...	...
14	9.3	17	7.0	15	0	-24	...	...
15	9.1	24	6.9	28	-1	-30	...	...
16	9.1	27	6.8	32	-1	-31	
17	9.2	28	7.0	36	0	-30	
18	8.8	29	6.7	36	-4	-37	
19	7.7	30	5.9	33	-14	
20	7.7	30	6.0						

HAMADS

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● **AIDON FERRROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth.

● **WEATHER FAX programs for IBM XT/ATs** *** "RADFAX2" \$35.00, is a high resolution shortwave weatherfax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" \$45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" \$75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add \$3-00 postage. ONLY from M Delahunty, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

● **HAM LOG v.3.1** — Acclaimed internationally as the best IBM logging program. Review samples....AR: "Recommend it to anyone"; The Canadian Amateur: "Beyond this reviewer's ability to do it justice. I cannot find anything to improve on. A breakthrough of computer technology"; ARA: "Brilliant". Simple to use with full help, the professional HAM LOG is immensely popular (now in its 5th year), with many useful, superb features. Just \$59 (+ \$5 P & P), with a 90 page manual. Special 5 hour Internet offer. Demos, brochures available. Robin Gandevia VK2VN (02) 369 2008 BH fax (02) 369 3069. Internet address rhg@ozemail.com.au.

● **Transmitter valves 4X150D**, original packed in tin can, \$24 each. Military receiver AN/PRC9, 47-55 MHz (6 metre amateur band), one channel, xtal controlled, 10 V DC, \$20 each. D Dauner Electronics, 51 Georges Crescent, Georges Hall NSW 2198, tel (02) 724 6982, fax (02) 725 7850.

FOR SALE NSW

● **SYNTHESISER** for Philips FM828 transceiver, with documentation, \$100. John VK2WW (02) 546 1927.

● **FOR SALE by Tender, Deceased Estate.** KENWOOD TS430S HF Transceiver s/n 3110485; KENWOOD AT130 Antenna tuner s/n 3080302; KENWOOD TH25AT VHF transceiver s/n 0080510; KENWOOD TR7730 2 m FM Transceiver s/n 2010850; YAESU FRG965 VHF/UHF Comm receiver s/n 5M09082; KENWOOD PS430 power supply; KENWOOD MC50 Microphone; KENWOOD Ham clock;

KENWOOD HS5 Headphones; GENERAL TF181 8 band receiver; REALISTIC PRO32 scanner s/n 515731; SONY FET airband direction finder with AC adaptor (TFM-8600W); HOME BREW tower crank up with TH6DX and rotator; BUTTERNUT HFV-II vertical antenna. Offers in writing to Deceased Estate Officer, PO Box 1066, Parramatta NSW 2124. Enquiries as to condition, etc. Michael VK2YC (02) 626 9288.

● **DECEASED ESTATE VK2AGN.** FT227R 2 m mobile \$150; FT101B \$300; SP102 \$25; FT400 \$200; MICRONTA swr meter \$25; MICRONTA 12 V7 A power supply \$125; PRO 2011 scanner \$100; HOMEBREW 12 V/5 A power supply \$75; YAESU YD844 desk mic \$25; TRIO 9R59DS Comm receiver \$50. All prices plus freight. N Chivers VK2YO QTHR (047) 51 2464.

● **ICOM IC320A 2 m/70 cm mobile transceiver**, 30 W/25 W, 22 mem, LCD, s/n 1586, vgc, used as base, with bracket, \$650. Greg VK2CAT QTHR (066) 53 4601.

● **STANDARD nicad battery pack CNB161**, 700 mAh, for Standard handheld transceiver, good condition, \$60; SCANNER PRO 2022 210 channel desktop/mobile, mains plus 12 V, in original packing, as new, cost \$550, sell \$320. Brad VK2KQH day (02) 906 5855; otherwise (018) 64 0377.

● **YAESU FT7 transceiver with instruction manual**, very good order and good performer, \$350. Ric VK2PH (02) 817 0337.

● **SATRACKER satellite antennas 2 m 70 cm**, KENWOOD dual rotators, pre-amp, tower cables, Kansas City program, \$1250; YAESU FT1, \$1000; YAESU ATU, FC902, \$250. Boy VK2DTH North Star 2408 (076) 76 3153.

● **KENWOOD BC-6 fast charger for HT transceiver**, \$75; TS930S in excellent condition, narrow filters fitted, some spares included, offers invited; IBM XT computer and colour monitor with lots of extras, any offers? Horst (02) 971 9795.

● **MOBILE SHACK 1976 Ford m/home Falcon**, hand throttle, wired for AR, 5 ant mounts, triple swr, some ants supplied, coaxed and 12 V, suit full call, mech minded retiree. See AR May 1978 p19, \$9,500 ono. Arthur VK2IK QTHR (02) 876 1465.

● **KENWOOD station monitor model SM-220** with pan 8 adaptor fitted and operating manual, vgc, \$350 firm. Tony VK2CAM QTHR (02) 638 3569.

● **MARCONI signal generators model TF2011** 130-180 MHz, TF2012 400-560 MHz, TF887 10-470 MHz, \$275 each; HP Audio generator to 625 kHz, \$175. Peter VK2CPK QTHR (02) 605 4790 or (02) 689 2417.

● **Free to anyone who can use them.** Six rolls TTY paper 7 ply with carbon. Siemens M100 teleprinter in working order. Also reperforator, working. Peter VK2BEU QTHR (02) 872 3381.

● **DECEASED ESTATES.** Sale by tender only. KENWOOD ITEMS:- TS450SAT transceiver, s/n 30300612; DSP100 digital speech processor, s/n 20900011; PS53 power supply, s/n 30800324; PS50 power supply, s/n 7060307; TS50 antenna tuner, s/n 41101920; PS30 power supply, s/n 0060760; VFO120 external VFO, s/n 930551; SP120 external speaker, s/n 920267; R5000 receiver, s/n 9120255; AT200 antenna tuner, s/n 950637; PS520 extension speaker, s/n 521464; TS900 transceiver, s/n 8401012; PS900 power supply, s/n 840190; MA4000 transceiver, s/n 6050749; DB81 dip meter, s/n 2040175. ICOM IC R7000 receiver, s/n 504002621; BWD Model 506 oscilloscope; EINS Model PHP/11 RF power meter, s/n 801501032; Oskerblock SWR200 power/SWR meter, s/n 59081; Alinco ALX2T handheld, never used, s/n 30173548; YAESU ITEMS:- FT730R 70 cm transceiver, s/n 3F070985; FT230 2 m transceiver, s/n 4C220129; FT290R 2 m transceiver, s/n 3D220498; FRG8800 receiver, s/n 5F070526; FRA7700 preamp, s/n 2G040804; FRV7700 VHF converter, s/n 2J050267; FP707 power supply, s/n 1N160303. Please forward tenders to WIA NSW Division Deceased Estate Officer, PO Box 1066, Parramatta 2124. Enquiries after 6.00 pm to Michael VK2YC (02) 626 9288.

FOR SALE VIC

● **HAM HEAVEN.** Modern BV house, three bedrooms, kitchen, lounge, dining room, laundry and bathroom — 50 km from Melbourne. Air conditioner, gas fire, elec HWS. Carpets throughout. Power and telephone underground. Local state school, buses to secondary schools and fast electric trains to Melbourne from nearby Cranbourne. Mail delivered. Nine separate paddocks with water points from bore. Portable spray irrigation if needed. No floods, fires or droughts here. Melbourne water supply, sewerage. Extensive lawns and gardens. Tree lined drive. Good growing soil. Area suitable for market gardening, flower growing or horse agistment. Self contained radio operations from bungalow consisting of shack, bedroom and an office with telephones. 11 acres of rhombics in elevated position covering clover leaf pattern. Suit DXer or contest operator. Price negotiable. VK3MR Snow Campbell, 059 985 363.

● **ICOM 271A with pre/amp**, \$950; ICOM 735 100 W, \$950; ICOM PS30, \$300; MFJ 949D tuner, \$300; MFJ 1701 6 ant switch, \$60; WERNER WOLF 10/15 m duoband, \$150; ELECTROPHONE CB, \$200. Ken VK3WAL (051) 52 3984.

● **DECEASED ESTATE, VK3DPO.** ICOM 271A s/n 02134 25 watt 2 m base station FM, SSB, \$995; ICOM 02A, s/n 03989, LCD, 2 m h/h, \$195; YAESU FT-703R, s/n 5D040090, 70 cm, h/h, thumbwheel, \$215; KENWOOD TS-430S

transceiver, s/n 4080838, (inc WARC), 100 watts, \$1,200; YAESU FP707, s/n 2D180330, power supply to suit TS430, \$400; YAESU linear amp FL2100Z, suit 430S, (inc spare O/P valve), \$900; DAIWA ant tuner modified, s/n 160072, \$275; KENPRO KR400 rotator with antenna CA-33, complete with instructions, wind up tower extendable to about 35ft, \$700 as is on site complete; KENWOOD MA-5 antenna 5 band helical mobile, \$125. All offers and enquiries to Kathy VK3XBA (03) 9872 3411 phone or fax.

● YAESU FT620 6 m all mode, original condition, \$400; YAESU FT290R MKII plus Tokyo HL-85v Gaasfet amp, \$700; SSB ELECTRONICS 2.4 GHz power amp, 4 watts, \$175. Roger VK3XRS, Box 98, Bairnsdale Vic 3875 (051) 52 2115.

● YAESU FT102 transceiver, little used, FC102 antenna tuner with remote antenna selector, owner upgrading equipment, best offer. Peter (03) 9822 3783.

● DRAKE TR7 transceiver, excellent condition, complete with MC50 desk mic and workshop manual, RX covers 10 kHz to 30 MHz, \$700 ono. Harold VK3AFQ QTHR (03) 9596 2414.

● DENTRON linear amplifier MLA2500, s/n 001498, plus tuner MT3000A, s/n 2723, \$1,200 the pair; FRONTIER Electric SSB xcvr with ancillaries, not operative, \$100. Laurie VK3DPD QTHR (03) 9818 6009.

FOR SALE QLD

● TENDER FELL ESTATE. KISMET 60 ft tower, WWII radio cables, official radio service manuals, trade journals, Morse keys, telephone parts 1890-1940, transformers, coax cable, car mobiles, PSUs, books, var capacitors 300 pF 3 kV. Peter VK4APD QTHR (07) 397 3751.

● KENWOOD TS440S/AT, narrow filters for SSB and CW fitted, PS50 power supply with amp and volt metres in front panel, MC60 desk mic, leads and manual, all vgc, \$1950 the lot. Ted VK4OW QTHR (071) 28 3489.

● ANTENNA HyGain TH7DXCC 10/15/20 m, tower Kismet 60 ft telescopic 3-stage 13.5 in triangular base, AR7 coil boxes, reg PSU 12 V/10 A, valve B/C receiver chassis (working), large rotary inductor, transmitting capacitors. Peter, 17 Paxton St, Holland Park Qld 4121 (07) 397 3751.

● SWAN 350 txcvr 80-10 m, vox, plus handbook, \$300. "Doc" VK4CMY (076) 85 2167.

● PRINTER Star NX-1000C, s/n 315280100151, multi-font dot matrix modified for Commodore 64 packet, manual, new ribbon, plus spares, connecting cord with 5 pin plugs, ready to go, \$150. Sally VK4SHE QTHR (077) 78 8642.

● 8 ELEMENT ATN log periodic antenna, \$500; 2 SECTION triangular Hills 40 ft tower with winch & guys, \$250; HEAVY DUTY Diawa rotator CR4, \$600 or the lot for \$1,100; 70 cm 80 Element slot array ATV antenna, \$50. Jeff VK4CEM QTHR (079) 78 5458.

● VALVES for amateurs, restorers. Valves for QRP rigs. Octals, novals, 5 stars, sockets. 6146, 807, 6V6. All tested. Reduced prices. Send 9" x 4" SASE for list. Ted VK4YG PO Box 245, Ravenshoe QLD 4872 (070) 976 387.

● SWAN 700CX/SS-16B special transceiver, power input 700 watts PEP, 400 watts DC input CW, spare 8950 PA tubes included and 240 volt AC power supply and manuals, GC, \$750.

RADIALL attenuators 50 W 3 dB 0-1 GHz, EC, \$100. 15 W 3 dB 0-8 GHz, EC, \$30. Eric VK4NEF QTHR (07) 395 5327.

FOR SALE SA

● FT107M HF xcvr WARC, scanning mic, inbuilt pwr supply, manual, \$750 ono. Dale VK5AFO QTHR (08) 391 2300.

● COLLINS HF380 transceiver, vgc, \$1800 ono or swap for valve Collins trcvr or S line plus cash difference. Josef VK5QQ QTHR (085) 263 6377.

● ICOM IC730 solid state 100w HF transceiver, s/n 12623, including service manual, \$600. Keith VK5APN (08) 371 0044.

● SATELLITE antenna, Andrew 7.5 m Rx only professional solid with C band feed. Call Mat (086) 25 3396 AH or (086) 25 2505 BH.

● YAESU FT411 2 m handheld, s/n 9D080112, as new in original carton, with charger FNB-14, PA6 adaptor, ant and soft case, \$350 ono. John VK5KBE QTHR (08) 250 7259.

● DRAKE RECEIVER R4B, s/n 14818B, Drake transmitter T4XB, s/n 18627B, Drake power supply AC4, s/n 399781, \$800 — will not split. YAESU FT7B HF transceiver, s/n 9N1000096, \$400. Five mobile whips for 80, 40, 20, 15 and 10 metres, Yaesu type RSM-2, complete with gutter mount, used once, \$150. Kenwood TS700SP two metre transceiver, \$500. Chart recorder Rustrak 88, s/n 41609, \$100. Decibel meter model 837-7 in superb polished wooden box, \$100. Lunar 432 MHz pre-amp PAG-432, s/n 123216, \$300, never used. Two large air blowers, suitable for linears, \$60 each. Two CS201 coaxial switches, new, \$80 each. Two 144 MHz coaxial sleeve antenna baluns, \$80 each; 144 MHz coaxial sleeve combiner, \$100 — all three for use with stacked antennas. GME Electrophone 40 channel UHF CB handheld FM transceiver Model TX475S, s/n 03Z310392, good battery, AC battery charger, unused carry-case and belt fitting, original condition, never been out of house, \$350. All equipment in good condition. Transmitting valves — 4CX250B, two new \$100 each; 4CX250R, one new \$150; 4CX250B, 4 used \$10 each; 2C39A, 12 used \$10 each. New 4CX250B sockets, 3 at \$80 each. QQEO6/40, four new \$60 each; QQEO3/20, one new \$50; QQEO3/20 two used, \$10 & \$15 (latter, gold plated pins); CV2798 (QQEO3/10) two new \$30 each; QQVO3/10 (look unused) four \$10 each; QQEO2/5 two new \$20 each, QQEO2/5 (look unused) four \$10 each; QQEO3/12 used \$5; 2E26 new \$15; 12BY7 used \$5; 6CH6 used \$5; 6AK5 four used \$2 each; (Condition of used valves unknown, they look OK, but you take your chances at the low prices!) There are several QQEO6/40 sockets, if I can find them. Ask if interested. Model VS-3 panel meter 0-1 mA, 82 x 60 mm, 45 mm round hole mount, new \$20. Eric VK5LP, QTHR, (085) 751 531 after 0100 UTC.

FOR SALE TAS

● ROTATOR Kenpro KR400RC 240 volt control unit cables and rotator, \$300 ono; YAESU 411E 2 m FM hand held, 5 W, speaker mike, 12 V pack and charger, leather case, manual, \$420 ono; TOWER Telescopic base, 360 mm triangular top 180 mm square bottom, 25" high, top 24" high, over all height 49", cable operated, \$300 ono. Martin VK7ZBG QTHR (002) 65 3106.

● ICOM 760PRO HF transceiver 150 W o/p, same as IC765, 100 kHz to 30 MHz inc SM8 desk mic, voice synth, tone enc, new cond, new price \$6000, sell \$3,500. Allen VK7AN (003) 27 1171.

WANTED NSW

● CIRCUIT diagram for oscilloscope BWD 506; also Ham related programs for Commodore 64. Will pay all expenses. V Dostoupil VK2EVD, 17 Orlando Cr, Voyager Pt NSW 2171, (02) 772 2411.

● PHILIPS FM828 UHF models T and U band. Ken VK2SX (02) 413 1846.

● AWA AMR100 sig strength meter and signal corps ID tag. Brian VK2GCE QTHR (02) 545 2650 AH or (02) 221 7700 BH.

● KENWOOD STATION MONITOR SM220 in good condition. Maurie VK2OW QTHR (02) 838 1834.

WANTED VIC

● CIRCUIT and information to modify AWA model 25 m Mark 2 SEC version to six metre band, will pay costs. Lindsay VK3WOM (056) 72 2563.

● AC POWER SUPPLY SW117, includes speaker, for Swan 240 transceiver. Or a suitable supply in working condition. Also single coil Z match antenna tuner. Dick VK3LDC QTHR (053) 301 927.

WANTED QLD

● REQUIRE GWO General coverage 150 kHz-30 MHz receiver solid state DX160, FRG7 or similar for serious monitoring. Reply with price to Gordon VK4KAL QTHR or PH/Fax (079) 85 4168 Fax on auto — 24 hr/day.

● CIRCUIT and relevant data alignment for receiver AMR101 costs covered. John VK4PM QTHR (074) 94 2917.

● ANY UNWANTED Heathkit equipment given a good home by collector, also AR88 receiver required. Please contact "Doc" Wescombe-Down VK4CMY (076) 85 2167 AH Granite Belt Amateur Wireless Group.

● ROTOR unit for "Telechron" 240 volt 50 Hz 2 pole electric clock 12 hour model 3F61 Pat Des 97453. Allan Bull VK4FBB QTHR (074) 92 1948.

● AR88 HF RX, Drake L4B, Yaesu FLDX2000, Heath SB200 or cheap homebrew linears for collection. "Doc" VK4CMY (076) 85 2167.

● COPY OF proceedings of the 23rd Conference of the Central States VHF Society 1989. All copying and postage costs plus \$10 for your trouble. Stuart VK4YFI, PO Box 143, South Gladstone Qld 4680, (079) 79 2276.

MISCELLANEOUS

● THE WIA QSL Collection (now Federal) requires QSLs. All types welcome especially rare DX pictorial cards special issue. Please contact Hon. Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350.

**Tell the advertiser you
saw it in the WIA
Amateur Radio Magazine.**

WIA Submission on Spectrum Licensing

The WIA has responded to the Spectrum Management Agency's Discussion Papers on "Implementing Spectrum Licensing", released in the first week of April, delivering a 13 page detailed submission to the SMA in the last week of May.

The body of the submission was largely drafted by Grant Willis VK5ZWI, John Martin VK3KWA and Roger Harrison VK2ZRH, with advice and assistance from David Wardlaw VK3ADW and Michael Owen VK3KI. The final submission was amalgamated and compiled by John Martin VK3KWA, the Chairman of the Federal Technical Advisory Committee. Each Division was consulted through its Federal Councillor during the drafting stage, before the final submission was compiled.

The 100 page "Implementing Spectrum Licensing" booklet set out, in the first Discussion Paper, the SMA's plans for introducing spectrum licensing and the types of measures they anticipated would be applied for it to operate; and in the second Discussion Paper, covered consideration of 132 bands between 39 MHz and 3100 MHz and bands the SMA would propose to the Minister for Communications as suited to spectrum licensing. (See "UHF Amateur Bands Earmarked for Spectrum Licensing", *Amateur Radio*, May 1995, pp 7-8).

The WIA argues for continued access to the presently allocated amateur bands between 39 MHz and 3100 MHz. "The WIA would seek the exclusion of current amateur spectrum from designation for spectrum licensing ... failing this, the WIA would argue for the continuation of current band sharing arrangements." In addition, "... the WIA would wish to argue strongly that no band should be offered in its entirety for spectrum licensing, and that a portion of each band should be excluded from consideration for spectrum licensing so that secondary services can retain

access to the band under the apparatus licensing system."

The submission pointed out that the Amateur Radio Service shares its allocated bands between 148 MHz and 24 GHz as a secondary service, highlighting the importance of the fact that Australian amateur bands coincide closely with international amateur allocations and that there is increasing experimentation on the amateur bands above 420 MHz, particularly with wideband transmissions, such as FM television and high speed data, which require provision for sufficient bandwidth.

The submission put it that the WIA is opposed to spectrum licensing in bands where the Amateur Service currently shares spectrum space with other services. "In the event that the SMA plans to designate a band for spectrum licensing where the Amateur Service is currently a secondary user, the WIA seeks retention of shared access as a secondary user particularly . . . band segments allocated to the Amateur Satellite Service."

The Institute's argument is that this would promote spectrum efficiency, particularly where spectrum space is readily shared geographically or technologically in such a way that harmful interference is minimised or avoided, which is what applies now. "In many cases it is not essential for spectrum licensees to have exclusive use of their bands, and alternative sharing arrangements should be considered," the Institute argues.

As sections of the 23 cm and 13 cm bands were earmarked as suited to spectrum licensing in the Discussion Paper, the Institute's submission put strong arguments that these bands were unsuitable for spectrum licensing.

The 1260-1270 MHz segment of the 1260-1300 MHz band earmarked for spectrum licensing is used for amateur satellite uplinks and, as such, is a world-wide allocation. Amateurs also share the band with CAA and defence radars (although the former are being

phased out). Use of the band is increasing and amateurs have established propagation beacons, voice repeaters and digital data links. The band is also used for conducting experimentation in EME, tropospheric and aircraft scatter propagation, and FM television. The Institute argues that spectrum licensing would cause considerable disruption to the Amateur Service.

With the 2300-2400 MHz band, the Institute argues that there is no reason why the primary user would require sole and exclusive use of the band as antennas are highly directive and a high degree of band sharing is possible. The submission pointed out that existing amateur use successfully shares the band with multi-point distribution services (MDS) with no harmful interference to MDS, many areas will not have an MDS service for some years and others, not at all. Amateurs' frequently agility enables avoidance of MDS frequencies, but withdrawal of the 2300-2400 MHz band would unnecessarily crowd amateur operations at 23 cm and severely limit the variety of technologies which amateurs could explore and exploit.

The WIA submission also commented on the SMA's proposal that the 148-149.9 MHz band was suited to spectrum licensing, arguing that this could result in increased interference to the Amateur Service (on 144-148 MHz) from pager services and the possibility of interference to Low Earth Orbiting Satellites (LEOS) operating within the same band.

Two annexes were attached to the submission. One covered, in general terms, the purpose of the Amateur Radio and Amateur Satellite services; the other detailed the 23 cm and 13 cm band plans.

Members wanting copies of the submission should request it from their Division.

The SMA received more than 60 submissions, one third of which were from amateurs and amateur radio groups, including the WIA.

WIA Morse Practice Transmissions

- VK2BWI Nightly at 2000 local on 3550 kHz
- VK2RCW Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm
- VK3COD Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz
- VK3RCW Continuous on 144.975 MHz 5 wpm, 10 wpm
- VK4WIT Monday at 0930 UTC on 3535 kHz
- VK4WSS Tuesday at 0930 UTC on 3535 kHz
- VK4WCH Wednesday at 1000 UTC on 3535 kHz
- VK4AV Thursday at 0930 UTC on 3535 kHz
- VK4WIS Sunday at 0930 UTC on 3535 kHz
- VK5AWI Nightly at 2030 local on 3550 kHz
- VK5RCW Continuous on 144.975 MHz, 5 wpm to 12 wpm
- VK6WIA Nightly at 1930 local on 146.700 MHz and nightly (except Saturday) at 1200 UTC on 3.555 MHz.

Have you advised the WIA Federal Office of your new callsign? Use the form on the reverse side of the Amateur Radio address flysheet.

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*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.

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*QTHR means address is correct as set out in the WIA current Call Book.

*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.

*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

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Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. "How to Write for Amateur Radio" was published in the August 1992 issue of AR. A photocopy is available on receipt of a stamped, self addressed envelope.

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AUGUST 1995
Volume 63 No 8

AMATEUR RADIO



Journal of the Wireless Institute of Australia



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Cover

It is a tradition of IARU Region 3 that retiring Directors are presented with a Certificate of Appreciation. David Wardlaw VK3ADW was a Director of Region 3 from 1988 to 1994, and

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Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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ITU Conference and Study Group:	David Wardlaw	VK3ADW
WICEN:	Leigh Baker	VK3TP

SMA LIAISON TEAM

Richard Jenkins	VK1RJ
Michael Corbin	VK2YC
Roger Harrison	VK2ZRH
David Wardlaw	VK3ADW
John Martin	VK3KWA
Bob Allan	VK5BJA
Neil Penfold	VK6NE

Editor's Comment

Morse Code

In an article published in *Amateur Radio* last May, and also in recent letters to "Over to You", opinions have been expressed regarding Morse code proficiency being a compulsory pre-requisite to obtaining an amateur HF licence. Some have supported the present rule, which is almost as old as amateur radio itself, and some have opposed it. We have published these divergent viewpoints in support of members' rights to freedom of speech.

Nevertheless, debate within Australia cannot be isolated from the international situation. There is an officially recognised international understanding and policy on this subject. Many legal, technical, diplomatic and sociological factors are involved, not all as widely known as might be desirable. One of our readers, Col Harvey VK1AU, has prepared a summary of the official IARU position and the multiplicity of factors which influenced its evolution. Col's contribution is rather too long to reproduce in full, but I thought it would be worth quoting some of its essential points in a tabular format.

1. Factors Influencing Choice of Mode
 - a. Suitability for task.
 - b. Equipment cost and availability.
 - c. Personal preference.
2. Reasons for Choosing Morse Code
 - a. Simple, cheaper equipment.
 - b. Easier for home construction.
 - c. Useful even with low power.
 - d. Less affected by interference.
 - e. Tolerant of propagation difficulties (eg auroral reflection).
 - f. Overcomes language barriers better than other modes.
 - g. Operator satisfaction from exercise of acquired skill.
3. Technological Changes
 - a. Morse little affected by complex digital systems.
 - b. Developments in keyers, receiver performance, etc continue to improve communication by Morse.
4. Need for Understanding
 - a. All amateurs should understand evolution of international regulations and appreciate value of Morse competence.
 - b. Relative merits of all modes should be widely understood. Debate should be informed, not emotional.
5. HF Environment
 - a. Inherently international.
 - b. Propagation may vary rapidly.
 - c. Amateur service needs frequency agility due to narrow bands.
 - d. Consequently, operator skills important.

Continued on page 55

WIA News

No Cancer Link to Power Line Fields

An American study on "Power Line Fields and Public Health", concerned with the possible link between cancers and low frequency electromagnetic fields from power lines and electrical appliances, has determined that there is no consistent or significant connection.

As reported in *The ARRL Letter* for 7 June 1995, the study from the Council of the American Physical Society (APS) concluded that: "While it is impossible to prove no deleterious health effects occur

from exposure to any environmental factor, it is necessary to demonstrate a consistent, significant, and causal relationship before one can conclude that such effects do occur.

From this standpoint, the conjectures relating cancer to power line fields have not been scientifically substantiated," said the APS.

They found that the scientific literature on the subject and reports of reviews by other panels did not reveal any consistent, significant link between cancer and power line fields and that "the great preponderance of . . .

research findings have failed to substantiate those studies which have reported specific adverse health effects from exposure to such fields."

There has been some litigation in this area in the US in recent years and the APS commented that the money spent by states and municipalities in litigation actions was not commensurate with the risk, if there was any. For those with Internet access, and who want to read more on the subject, the APS has a background report by David Hafemeister which can be found on their World Wide Web Home Page at: <http://aps.org>.

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers	Weekly News Broadcasts	1995 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Rob Apathy Secretary Len Jones Treasurer Alex Colquitt	VK1KRA VK1NLJ VK1AC 3.570 MHz LSB, 146.900 MHz FM each Wednesday evening commencing at 8.00 pm local time.	(F) \$70.00 (G) (S) \$58.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Michael Corbin Secretary Pixie Chappie Treasurer Peter Kloppenburg (Office hours Mon-Fri 11.00-14.00 Mon 1900-2100)	VK2PFQ VK2KPC VK2CPK From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. The broadcast text is available on packet.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 9885 9261 Fax (03) 9885 9298	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530)	VK3PC VK3XV VK3XLZ MONTHLY BROADCAST on the second Sunday of the month, starts 10.30 am. Primary frequencies 3.615 LSB, 7.065 LSB, and FM(R)s 146.700 Mt Dandenong, 147.250 Mt Macedon, 147.225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH, VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Geoff Sanders Secretary Lance Bickford Treasurer Rodger Bingham	VK4KEL VK4ZAZ VK4HD 1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Garry Herden Secretary Maurie Hooper Treasurer Charles McEachem	VK5ZK VK5EA VK5KDK 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555, 7065, 10.125, 146.700, 0900 hrs Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 351 8873	President Cliff Bastin Secretary Mark Bastin Treasurer Bruce Hedland-Thomas	VK6LZ VK600 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(H), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$60.75 (G) (S) \$48.80 (X) \$32.75
VK7	Tasmanian Division 52 Connaught Crescent West Launceston TAS 7250 Phone (003) 31 9608	President Andrew Dixon Secretary Robin Harwood Treasurer Terry Ives	VK7GL VK7RH VK7ZTI 148.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$69.00 (G) (S) \$55.65 (X) \$40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).			

Note: All times are local. All frequencies MHz.

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■ Antennas

The VK4EMM Tower Delta Vertical Phased Array (TDVPA) A Winning DX Antenna for 40 m

John Loftus VK4EMM* describes a useful 40 m gain antenna suitable for the small suburban block.

Here is a steerable 40 m system that meets all of the challenges of a small suburban block and fits under the local town planning restrictions. This vertical phased array is a real winner for 40 m DX operation. It provides directive gain, directive nulls and a very fast rotation system at relatively little cost. On air reports confirm better than three "S" points variation as the beam is steered through 360 degrees. Reports indicate two "S" points gain over a

single mono pole vertical, for low angle DX propagation. The rotation allows the beam to be turned as fast as it takes to turn an eight position rotary switch — about two seconds! Best of all this dream come true is easy to build.

Array Design

Figure 1 provides an elevation view of how two independent verticals are combined to produce the phased array. Vertical one (V1) is a

commercial multiband vertical, which is fed directly with 50 ohm RG213 coax. Vertical two (V2) is a self supporting tower. Its primary role is to carry a commercially manufactured five element triband Yagi (HB35C) for 20, 15 and 10 m. Its secondary role is to form part of the vertical system. I am pleased to be able to say that both of the commercial antennas were manufactured in Australia to very high standards by Andy Coman VK3WH who advertises in *Amateur Radio*.

Vertical two is fed with RG213 via a switched delay system, as shown in Figure 2. The relay switching provides eight combinations for the connection of three coaxial delay lines made from RG213. Electrical lengths for the three delay lines are 1/8, 1/4 and 1/2 wavelength. The physical lengths are determined by the velocity factor of the coax, which is 0.66 for RG213. The switching design ensures that there are no opened coax stubs across the active feeder. Both the centre conductor and the shield conductor are switched. Accordingly, all coax connectors are mounted on a plastic box which houses the DPDT relays.

Tower Delta Match

The method of matching the grounded tower, shown in Figure 1,

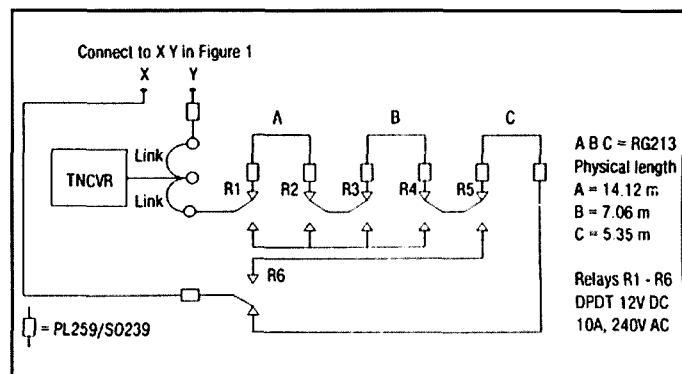
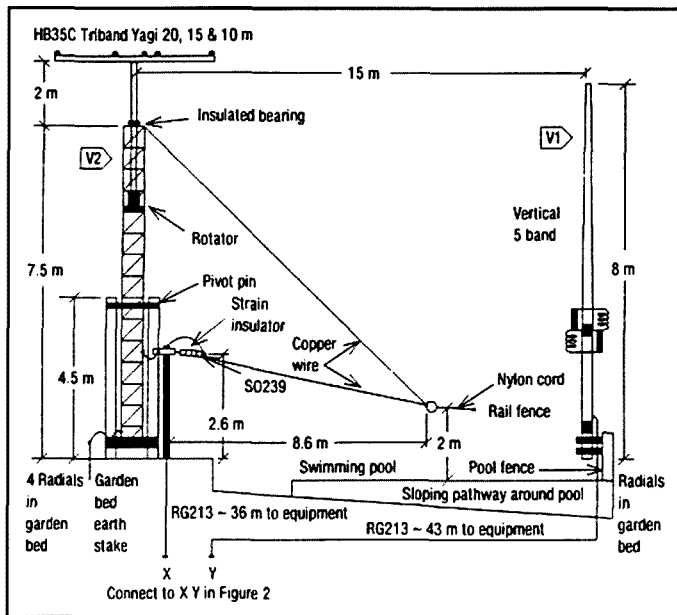


Fig 1 and 2 — VK4EMM 40 m vertical phased array.
A B C are RG213 delay lines.
Physical length A = 14.12 m
B = 7.06 m
C = 5.35 m
Relays 1 — 6 are DPDT 12 V DC, 10 A, 240 V AC.

Notes: 1. Use pole 1 to switch centre conductor; use pole 2 to switch to outer conductor. 2. SO239 sockets mounted on plastic box, 190 x 60 x 100 mm. 3. My delay lines A B C sit on the floor of the shack under the operating table. 4. Point to point wiring to relay contacts works fine (keep short). 5. Design ensures that no open ended coax sits on feedline.

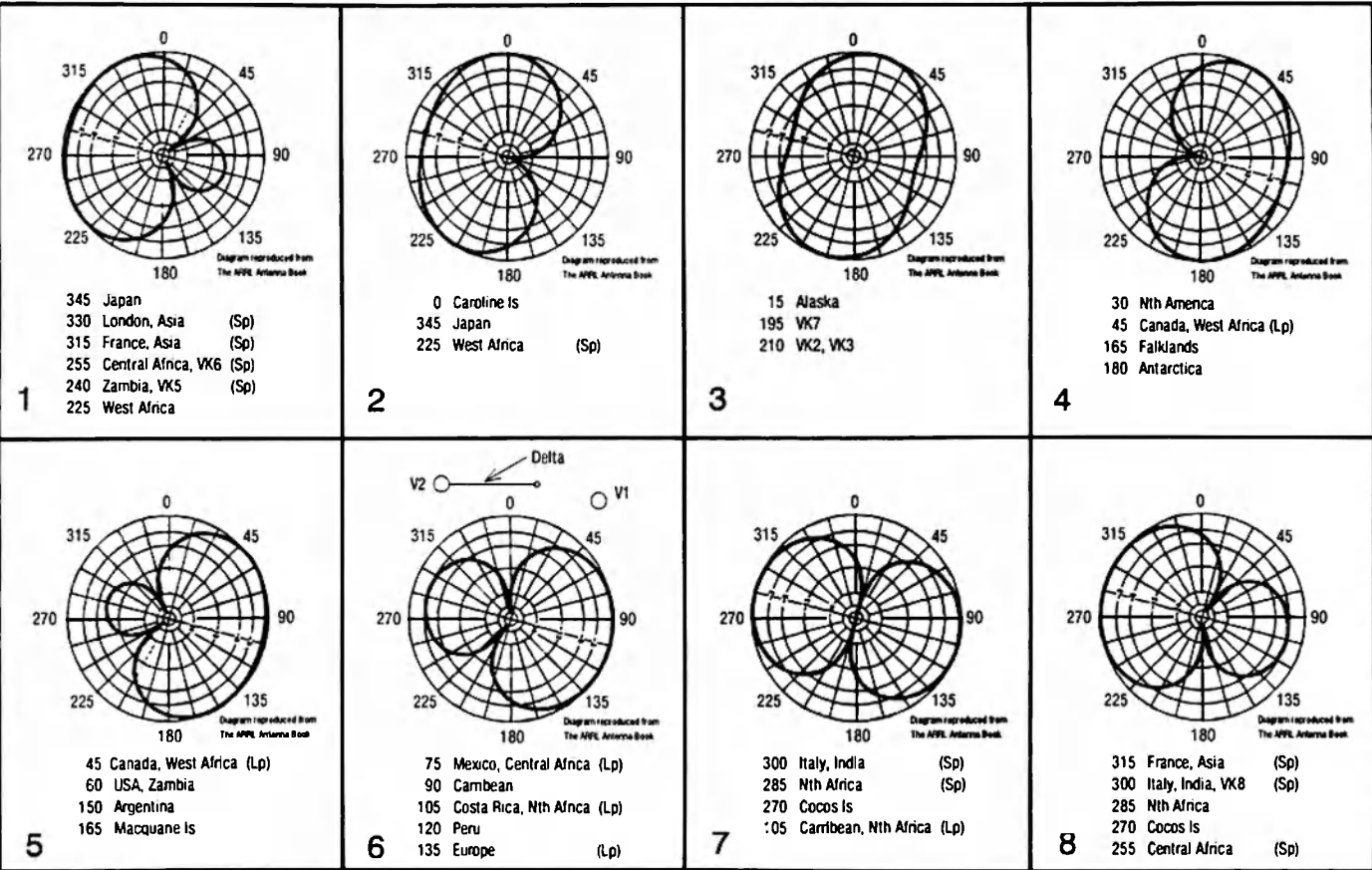
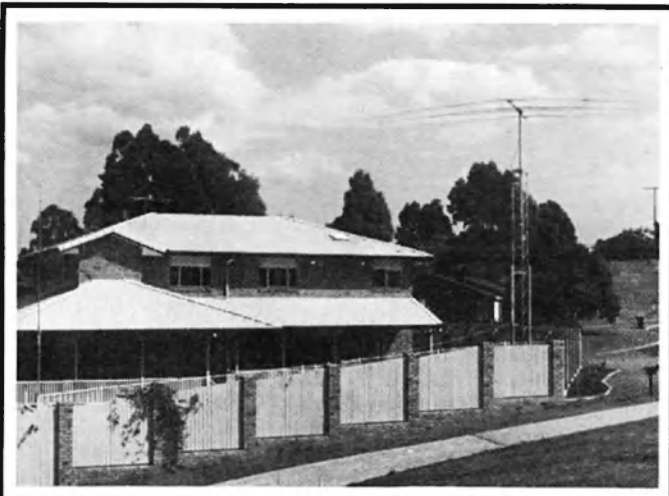


Fig 3 — ARRL patterns¹ for the two verticals spaced 3/8 of a wavelength, shown in modified form for the 0 degree elevation angle.

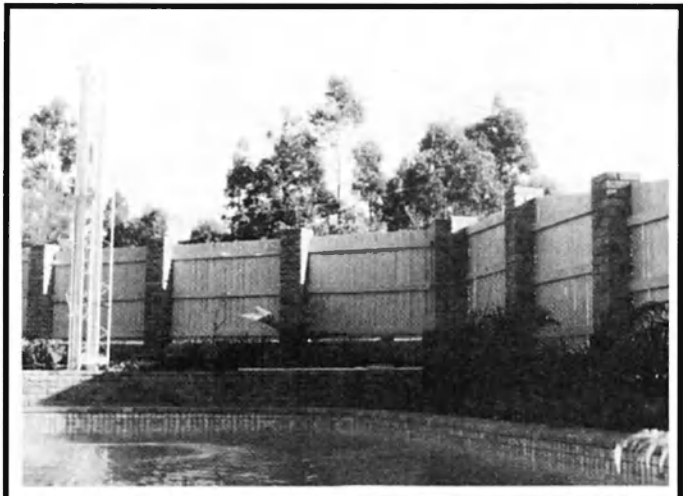
was developed after many months of trial and error using a variety of conventional and unconventional methods. The conventional gamma match and the omega match were the first implemented. However, both of these methods left too much to be desired. They were characterised by

very narrow bandwidth and very high voltages close to the feed point. Performance as an independent vertical was well below the first vertical, which was used as a performance benchmark. The adopted matching method is a form of delta match, with the tower

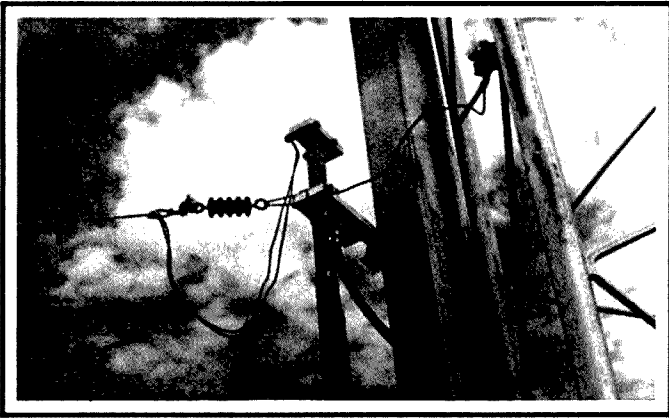
providing one side of the triangle. This Tower/Delta (TD) system provides significant benefits including 50 ohms at the feed point, broad bandwidth and low SWR across the full 40 m band, no tuning capacitors or loading coils required, high efficiency without an extensive earth



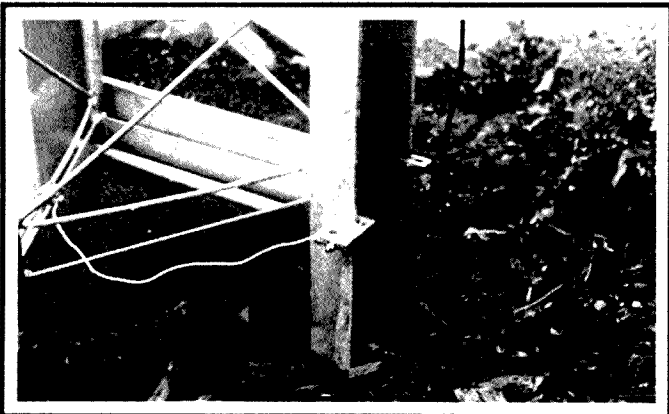
The small suburban setting for the VK4EMM HF antenna system.



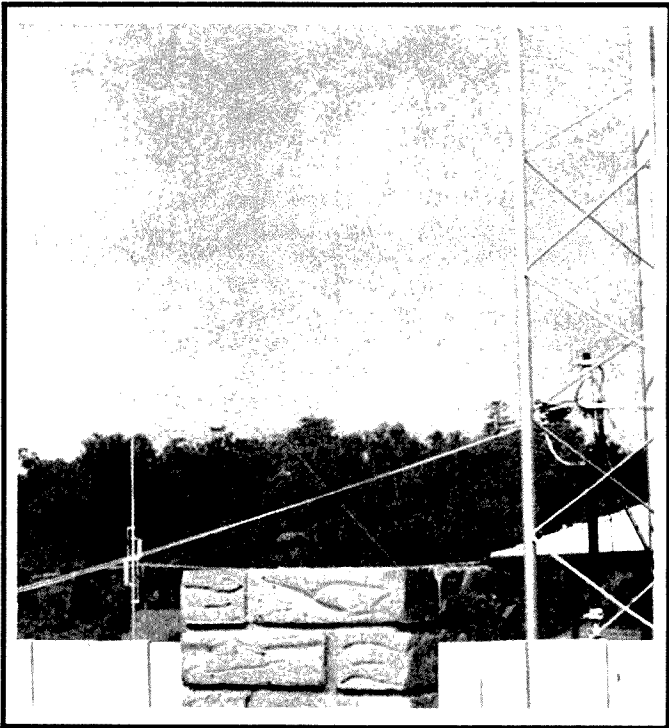
Delta matching wire extended from tower to supporting fence rail.



Coaxial feedline connected to tower and delta match wire (also visible is a black nylon insulator and experimental loading coil for 80 and 160 m).



Base connections to a 2 m earth stake and four random length radials which sit on the surface of the garden beds. One radial (approx a half wavelength long) connects to the base of the second vertical. However, this connection has no noticeable affect on performance. The tower supports sit in one cubic metre of concrete, 1.5 m deep.



Pool fence mounting for the multiband vertical.

Switch Position	1 = Coax In Cct			1 = Relay ON					
	A	B	C	R1	R2	R3	R4	R5	R6
8	0	0	0	1	0	0	1	1	1
7	0	0	1	1	0	0	1	0	0
6	0	1	0	1	1	0	0	1	1
5	0	1	1	1	1	0	0	0	0
4	1	0	0	0	0	1	1	1	1
3	1	0	1	0	0	1	1	0	0
2	1	1	0	0	0	0	0	1	1
1	1	1	1	0	0	0	0	0	0

Fig 4 — Relay control logic

system and predominantly vertical polarisation. Moreover, the TD vertical equals the peak performance of the benchmark vertical, and outperforms the benchmark vertical at the band edges.

Polar Patterns

Without an adequate computer modelling program it is difficult to determine the expected H-plane patterns for varying angles of propagation. Nevertheless, a good representation of the actual DX performance results is provided by the ARRL patterns¹ for the two verticals spaced 3/8 of a wavelength, which are shown in modified form in Figure 3 for the 0 degree elevation angle. The forward lobes are relatively broad for each of the eight patterns, whilst the nulls are relatively narrow and deep. This arrangement

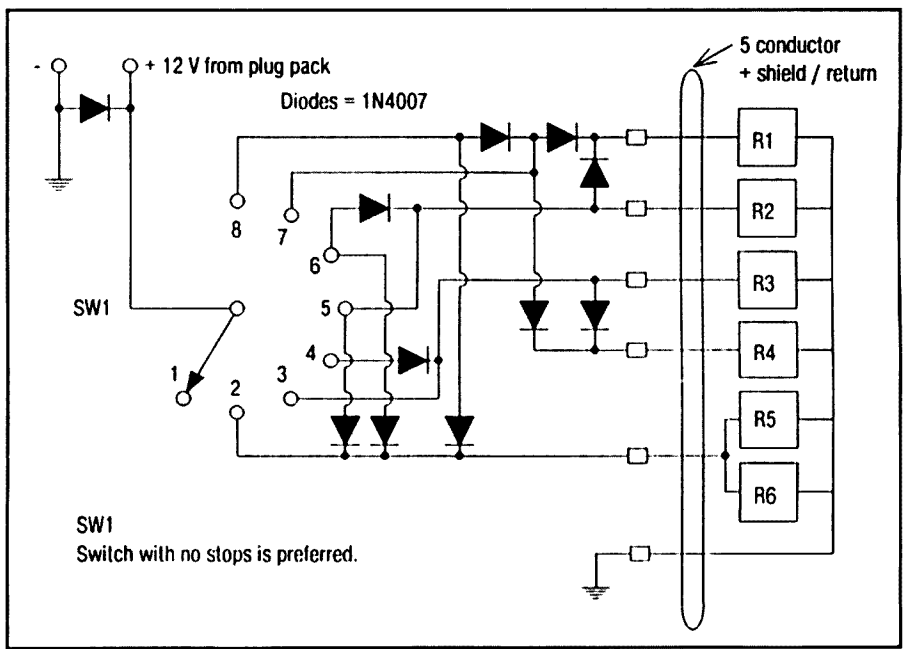


Fig 5 — Relay control unit.

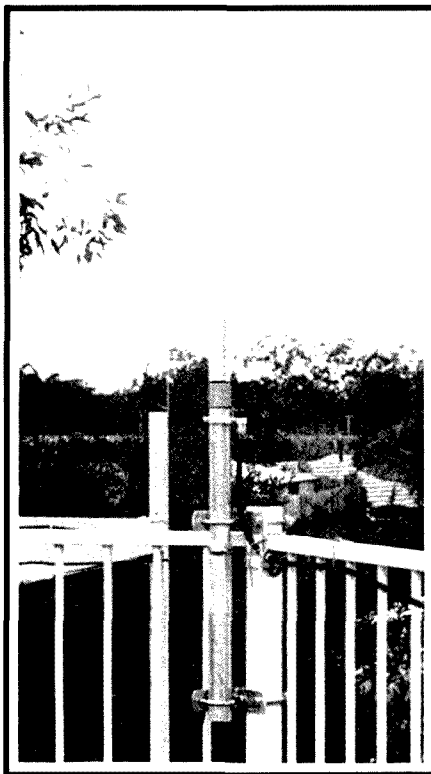
allows some useful movement of the null while maintaining forward gain. The precise operational performance could be the subject of further theoretical modelling.

Control System

Figures 4 & 5 present design details for the relay control logic. The single wafer rotary switch and diodes are mounted in a small box which sits on the operating table. The control box is connected via shielded 5 core cable to the delay switching system, which is placed on a shelf (out of the way) behind the transmitter. The three coaxial delay lines are simply rolled up and sit on the floor under the operating table.

Performance

The dividends from successful antenna development are very high, for both transmit and receive. Since completing the system on Tuesday, 16 August 1994, I have been able, for the



first time in 26 years of operation, to exchange good reports long path to West Africa, and have solid copy from many QRP (5 watt) stations in USA. A single call in a pile-up is often enough to get an immediate response. These are some of the magic moments that make all of the development effort with antennas worthwhile.

The outstanding success of this vertical system has inspired a great deal of interest among 40 m DX operators worldwide. The minimal requirements on height and space lead to further possibilities for high performance systems on 80 m and 160 m. To this extent Bill W8JGU is preparing to build a similar model for 80 m. The results will certainly be watched with keen interest.

Reference

1ARRL Antenna Book (1991) 16th Edition, page 8-6.

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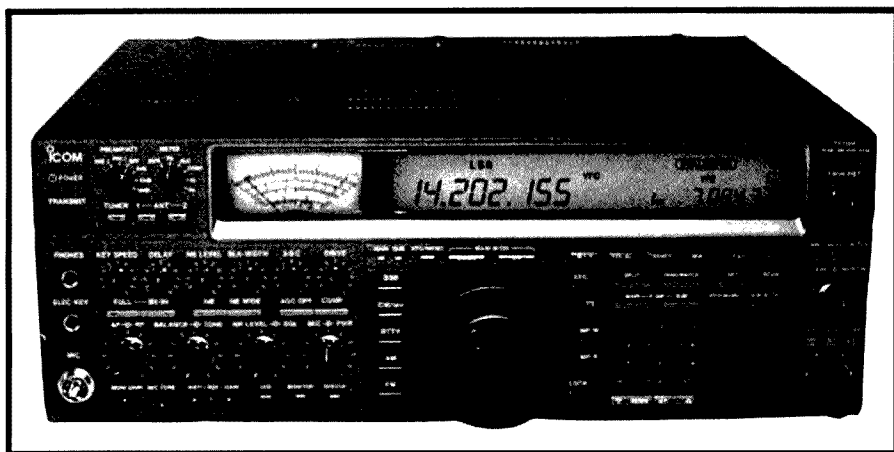
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■ Equipment Review

ICOM IC-775 DSP HF All Mode Transceiver

Reviewed by Ron Fisher VK3OM.



ICOM IC775 DSP HF Transceiver.

What Is It?

The ICOM IC-775 DSP is a new top line transceiver. It takes over from the now aging IC-765. Of course, the IC-781 is still the highest priced transceiver that ICOM produce but this is only available on special order at a price of around \$13,000. No stocks of this transceiver are available in Australia. The IC-775 DSP retails at \$7849.65 which puts it out of reach of many amateurs but, for those lucky enough to afford one, it has a multiplicity of facilities that are not available in many other transceivers. Of course, in time, many of the unique features of a top line transceiver will filter down to lower priced equipment.

The IC-775 comes in two levels of sophistication, the IC-775 and the IC-775 DSP. The DSP equipped model will be the only one available in Australia. It makes more sense to build the DSP unit in than to offer it as an optional extra. After all, if you are spending over \$7,000, why not spend a bit extra and have the benefit of digital signal processing for both transmit and receive. I think this would be money very well spent.

Features

The IC-775 is a full featured base station transceiver. It transmits on all the HF amateur bands from 160 to 10 metres with a power output in excess of 200 watts. The receiver section covers all frequencies from 100 kHz to 30 MHz and, like the transmitter, has all mode capability. In addition, there is a second receiver built-in which allows you to listen on two separate frequencies at the same time.

A switched mode power supply is also built-in to allow operation from normal AC mains power. There is no provision for operation from a 13.8 volt DC power source. The switched mode power supply helps to keep the size and weight of the IC-775 down but, even so, it weighs in at 16.7 kg and measures 424 mm wide, 150 mm high and 390 mm deep. This is exactly the same size as the earlier IC-765 and almost 1 kg less in weight. But the new IC-775 has double the transmitter power output.

The fluorescent display on the old IC-765 has been updated with a large LCD similar to the display of the

IC-736/IC-738. However, the information the display provides to the user is vastly increased over the two lower priced models. We will cover the facilities provided later in this article.

Probably the most interesting aspect of the new transceiver is the digital signal processor. Facilities available with the processor include receiver noise and heterodyne reduction, and independent adjustment of transmitted and received bandwidth with separate settings for high and low frequency response. The transmitted signal is generated from the DSP to produce low distortion audio on SSB and AM and clean carrier for CW.

A new feature for ICOM is the provision of twin pass-band tuning controls. This allows independent adjustment of the high and low frequency ends of the received band pass. There is also a manual notch filter which doubles as an audio peak filter. However, separate controls are included for each function.

Of course one of the highlights of the IC-775 DSP (as with most of the current ICOM range) is the incredible memory system. To start with, there are one hundred and one programmable memories. Channels one to ninety nine can accept frequency and mode while memories 100 and 101, actually labelled P1 and P2, can be used to set the band edges for the programmed scan function. As usual, all memories are tunable so you can tune away from them with the normal main tuning control but return to the memorised frequency at the touch of a button. In addition, there are two VFOs with the usual facilities for split operation.

As this transceiver is large, the front panel controls are of good size and are well spaced. There are also more of them than you will find on your standard transceiver. It's good to see that the AF and RF gain controls are concentric, not separated as on some of the other ICOM HF transceivers. A new control on this class of rig is a "tone" control. This provides top cut only, but is useful none the less.

The Preamp/Attenuator control has been changed. There are now two preamp selections. Preamp 1 gives 10 dB gain on all HF bands, while

preamp 2 gives an additional 16 dB gain above 21 MHz. The attenuator has been changed from 10 dB steps on the IC-765 to 6 dB steps. With three steps, this gives a maximum of 18 dB attenuation as against 30 dB on the old model. I would have preferred to have had at least four positions to give 24 dB cut and possibly five to bring it up to 30 dB. Carrying out antenna and IMD tests requires at least this amount of attenuation.

Again, there are two antenna connectors on the rear panel. These are controlled either by front panel switching or programmed via the band switching for automatic selection.

Missing from ICOM transceivers since the days of the old IC-745 has been the variable AGC decay control. I used a 745 for many years and always thought that this was the best thing ever put on a transceiver. For some reason it disappeared with the demise of the 745 and hasn't been seen since, until now, with the exception of the high priced IC-781. This control should be on all transceivers.

On The Air

The first thing noted with the IC-775 DSP is that the microphone is an optional extra. Luckily I have a couple of ICOM microphones tucked away for such emergencies. I usually like to include a short review on microphones supplied with transceivers; however, this will not happen in our current review. Perhaps ICOM might like to supply a few of their current series of microphones for separate review.

Considering the complexity of the front panel, the transceiver is very easy to get up and going. However, an hour spent reading the instruction manual beforehand is very worth while. Many functions are not self evident, in particular the "Set" mode where you can optimise 26 different functions. Let's look at a few of these.

The CW operator can set his preferred pitch from 300 to 900 Hz in 20 Hz steps. RTTY keying polarity can be reversed to give mark/space for either key open or closed. Transmitted and received bandwidth can be set independently. On receive,

the low frequency can be varied in 18 steps from 80 to 500 Hz. The high frequency cut can likewise be set to 14 frequencies between 1.5 and 3.3 kHz. The transmitted response can be varied in a similar way. Another nice feature for the CW operator is that the CW pitch mentioned above can be assigned to the squelch control for normal front panel operation. The squelch is then set to the full off position. You will have fun exploring all of the other variable parameters. When in the "Set" mode the various functions are identified on the main LCD so you can see what is happening.

The transceiver was used over a four day period on various antennas, including beams and long wires and, overall, the performance was faultless. Received audio quality was good on the internal speaker, which is mounted facing up in the cabinet top panel. Received audio quality using a good external speaker was top class.

For SSB operation I found that setting the band pass to 250 Hz at the low end and 2.5 kHz at the top end produced the best results. However, with ease of changing the response you can, of course, set it to your own taste. ICOM have carried over their two antenna connectors from the earlier 736/738. This is a great "why didn't they think about that before?" idea. If you run a tri-band beam for high frequencies and, say, a trap dipole for 80 and 40 metres, all your antenna switching can be carried out automatically by the transceiver. Also, with the above set-up you might find the automatic ATU ideal to flatten the SWR out to the band edges.

The twin band pass tuning controls now allow you to control the selectivity at both ends. With a single BPT you can cut either the low end or the high end but not both. With the twin BPT system one control can set the low end while the other sets the high end. The result is very effective QRM elimination. On the subject of interference rejection, the digital signal processor built into the IC-775 DSP does a magical job in removing heterodynes but not quite as good in removing random noise as compared to our external DSP unit. It's a start, but maybe ICOM needs to tap into

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some of the USA technology to get things right.

The most used thing on a transceiver is, without doubt, the tuning control. Not only is the mechanical smoothness of the control important, but also what goes on behind the panel with the electronics is important. I think that ICOM have both factors exactly right. The tuning knob is large enough to provide a good "feel". With the smallest tuning step of one Hz the knob has a 500 Hz per revolution tuning rate. At this rate, the tuning is silky smooth. Push the "TS" button and the speed increases ten times. Push it again and you select one kHz steps to get to the other end of the band in a hurry.

For some years now, ICOM have produced the best memory systems in the game. The IC-775 DSP continues and improves on this. There is now a triple band stacking register which means you can recall the last three frequencies and modes used on a particular band which, in conjunction with the second receiver, gives unsurpassed band monitoring.

The second receiver, or "Dual Watch" as ICOM call it, works well but perhaps not as well as others. It shares the IF strip and front end band filters with the main receiver which means two things. Firstly, whichever mode is chosen for the main receiver is the one you get on the second receiver. You cannot, for instance, listen on the opposite sideband or on SSB and AM at the same time. Secondly, you can only use the second receiver within the band

chosen for the main receiver. This might extend a MHz or so but you cannot listen to, say, 3.5 and 7 MHz at the same time. Perhaps not too serious but I can think of many cases where full coverage with the second receiver would be useful.

For transmitter tests on SSB, I used two fairly old ICOM microphones, an HM-12 and an SM-6. If you were to purchase an optional hand microphone for your new ICOM you would get an HM-36 which, as far as I can tell, has identical characteristics to the HM-12. Both of my old microphones performed very well with IC-775 DSP. If it proved one thing it was that these microphones can produce excellent quality and any criticism of them in the past must have been due to the transceiver used with them. With the DSP band pass optimised the transmitted quality was high class.

Keen CW operators are well looked after. Some of the features they will appreciate are the CW reverse mode and the audio peak filter which, combined with the DSP automatic audio peak filter, produces superb audio selectivity that makes even weak signals stand out from the crowd. The DSP CW filter has a band width of 80 Hz which must surely be the narrowest CW filter ever. Combined with the one Hz tuning steps, this is very easy to use. You can also plug your key into the front panel socket, no more fumbling around the back.

On Test

I carried out the usual series of

tests on the IC-775 DSP, starting with transmitter power output. RF power output is variable on all modes via the front panel "Power" control. Minimum power output was about seven watts on all bands. I measured a minimum power output of 200 watts on 10 metres and a maximum output of 225 watts on 80 metres. Again, the IC-775 DSP specification does not include a figure for transmitter intermodulation distortion. The same IMD tests were carried out that we have used on previous HF transceiver tests. We arrived at a figure of -27 dB. This is not as good as the figure we obtained on the IC-736 in the July 1994 review. In fact, it seems that transmitter IMD figures have improved very little over the years. With all the improvements we have had, such as high voltage FET final amplifiers, why are we still around the — 30 dB mark for average amateur transceivers?

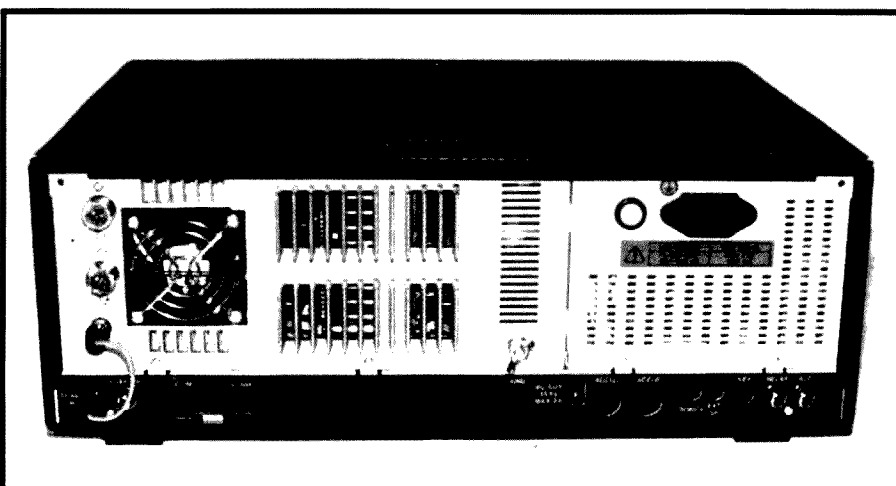
Receiver Tests

The first test was for "S" meter calibration. This was carried out at 14.2 MHz with the preamp switched off.

"S" Reading	μV input
S1	2.0 μV
S2	2.2 μV
S3	2.5 μV
S4	2.8 μV
S5	3.8 μV
S6	5.4 μV
S7	9.0 μV
S8	18.0 μV
S9	30.0 μV
+10 dB	120 μV
+20 dB	420 μV
+30 dB	1600 μV
+40 dB	5500 μV

The preamp gain was measured at 10 dB and the 6 dB steps of the attenuator were spot on. Preamp 2 was also spot on at 16 dB. AGC threshold was about 2.0 μV and increasing the signal generator to full output produced an audio output increase of less than one dB. AGC action was very smooth. The variable decay control could produce a range of 8 seconds from S9 (maximum delay) to less than 1 second at minimum delay. In between these, you should be able to find a setting that will suit your taste. It is also possible to switch the AGC off, which should please CW operators.

Receiver sensitivity was measured



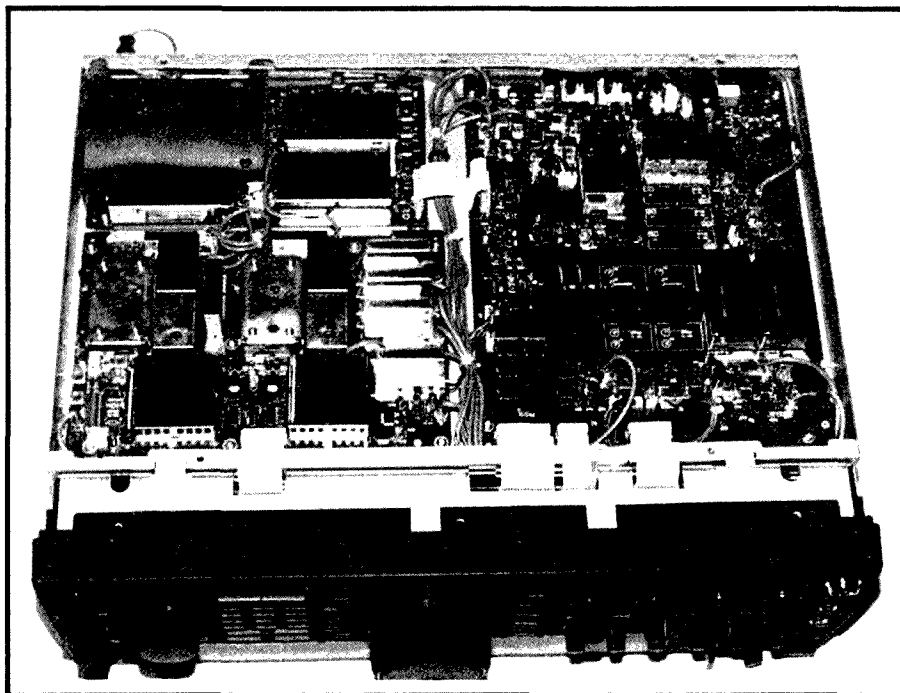
The uncluttered rear panel of the IC-775 DSP.

in the SSB mode at 14.2 MHz with the preamp switched out. It was 0.14 μV for 10 dB SINAD, which is identical to the figure obtained with the IC-736 (*Amateur Radio*, July 94). AM sensitivity again was the same as the IC-736 at 2 μV for 10 dB S/N (30% modulation). Both of these figures are spot on with the specified sensitivity.

The quality of AM broadcast reception was very much better than the earlier models. It seems that there is far less audio response tailoring employed in the IC-775 but, if you prefer bassy sounding audio, the "Tone" control will produce the desired result. It is a straight top cut control producing -4 dB at the centre and -8 dB full on, both at 2 kHz.

Audio power output measured, with the extension speaker socket terminated with an 8 ohm load, was 2.7 watts maximum and 2 watts for 10% distortion. This is a little less than the specified output. However, by using a 4 ohm speaker the output increases to a maximum of 4.2 watts and 3.0 watts for 10% distortion. Distortion with around 250 milliwatts output (a little above normal listening level) was only 0.6%. While this is an excellent figure, it is higher than I measured on the IC-736 at 0.3%.

Frequency readout accuracy and



Underneath view of the IC-775 DSP with the case removed.

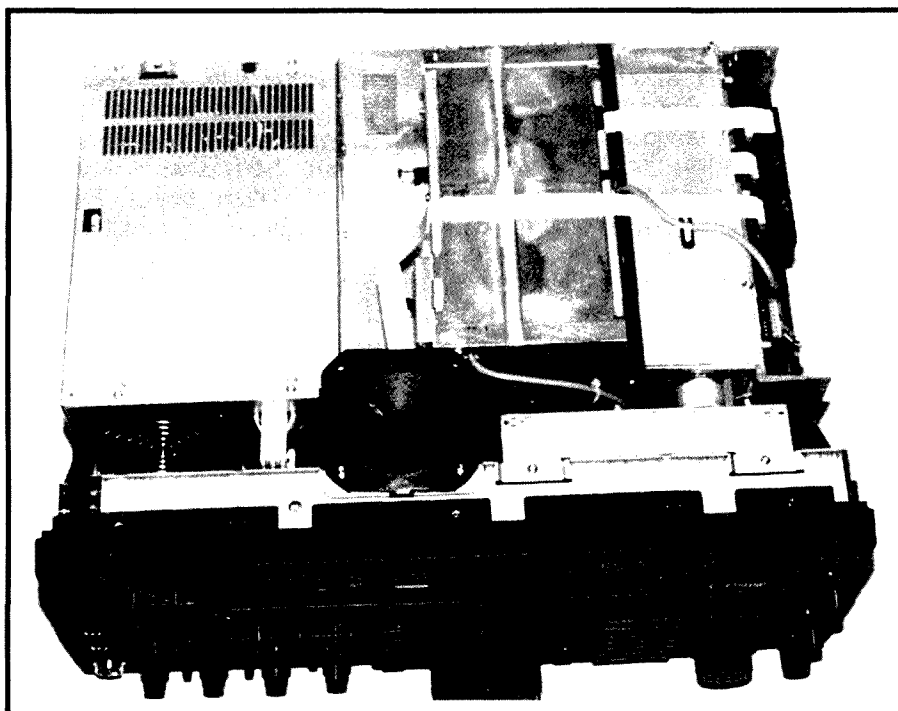
stability are superb. With the one Hz readout selected the total estimated error in the readout and total drift did not exceed ± 5 Hz. If the optional high stability crystal oscillator (the CR-282) had been installed, this would have reduced to about ± 1 Hz. In basis, if someone tells you that you are not on the frequency you say

you're on, then they must have access to some rather fancy measuring equipment.

With the exception of the transmitter intermodulation distortion, the performance of the IC-775 DSP is beyond reproach. As opposed to some earlier ICOM transceivers, I find that both transmitted and received audio quality are very much to my liking. However, I feel that a transceiver in this price range should have much better IMD performance. Commercial equipment is, in general, 10 dB better than the best amateur equipment. Why?

Instruction Manual

The instruction manual supplied covers both the standard and the DSP versions of the transceiver. The 63 page book has excellent coverage of the operation and functions of the rig. A full circuit diagram is included as a loose separate insert. There are dozens of line drawings to illustrate the operation procedures. However, if you want an overview of the facilities that the transceiver has, you will need to get hold of the advertising brochure. Perhaps ICOM assume you have obtained this before your purchase of the transceiver. So, I come back to my old grouch. Why not include a few pages of technical information that would at least cover



A top view of the IC-775 DSP with the case removed.

the features of the equipment? Perhaps one day!

Conclusions

If you are in the market for a \$7000/\$8000 transceiver (half your luck) then the IC-775 DSP would have to be on your short list of possibilities. With the 200 watt power output capability there is really no need for a 400 watt linear, the difference is almost imperceptible.

ICOM have looked at the requirements of the amateur looking for a top line transceiver very closely and have come up with a rig that should please the most particular.

A good range of optional filters allows the demanding operator to optimise the transceiver for DX or contest use. Filters available include the FL-101, 250 Hz at -6 dB for narrow CW, price \$158.76; the FL-102, 6 kHz at -6 dB for wide SSB, medium AM or narrow FM, price \$117.60; and the FL-223 with a 1.9 kHz at -6 dB band pass for narrow SSB, priced at \$141.12. All of these filters are for use in the 9 MHz IF.

There are two filters available for use in the 455 kHz IF. These are the FL-53A, a 250 Hz CW filter priced at \$298.70; and the FL-222, a 1.9 kHz narrow SSB filter at \$346.92. While these filters are not cheap they are reported to have superb characteristics. It was unfortunate that no options were installed in our review transceiver.

What would I change with the IC-775 DSP if I had the opportunity? Not much, I have to admit. Perhaps the feature that disappoints the most is the second receiver. There is no provision to use the receiver outside the band pass filter used with the main receiver so you can really only use it within the confines of the chosen amateur band. Pity that ICOM don't offer an optional band pass filter for the second receiver as Yaesu have done with the FT-1000. Also, you are stuck with the same IF selectivity as you have chosen for the main receiver. I guess it's all a matter of price, but I think ICOM could well extend their options list to include some of the above facilities.

My thanks to Daycom Communications Pty Ltd for the loan of the review transceiver. ar

■ Transceivers

ICOM IC-22S Revisited Modifications to 48 Channels

Clem Maloof VK2AMA describes another method of getting even more out of this classic transceiver.*

The humble IC-22S 2 metre FM mobile transceiver has earned a special place in history. It was the first to offer a synthesised VCO, doing away with the large number of expensive crystals. It uses a rotary switch to change channels so you don't drive off the road, you simply count the clicks. Over the years there have been many modifications to improve the 22S, including extra channels.

Over some twenty years the author has been tinkering and fixing the occasional dry joint. One such modification was to add diodes to receive the Hornsby ARC Morse beacon on 144.850 MHz. This channel is represented by a dot on the dial.

This set was designed to operate from 146.00 to 148.00 MHz in +600 or -600 kHz offsets. It will, however, work quite well in simplex mode down to 144.400, which is the lower limit of the VCO.

The author uses a scheme which utilises the HI/LO power switch to

provide the 25 kHz or 50 kHz selection with the centre position being power OFF.

Here's how:

1. Remove the (brown) high power ALC biasing wire from the central terminal of the HI/LO switch and connect it to the Tx 9 V point on the main board, that is to the same point as the lower wire on the switch (white).
2. Remove the white wire from the switch and relocate it to the 9 V rail of the PLL/VCO board. It is connected to the common contact of the rotary switch (red wire).
3. Connect the reverse side of the D0 pin on the PLL/VCO board to the vacant central pin of the HI/LO switch.
4. Disconnect the purple wire (R149 wiper contact) from the switch, insulate the wire (no low power bias is now available).
5. The blanked out position on the dial can be used for 146.000, eliminating all 22 diodes on the D6 rail. This is achieved by using a

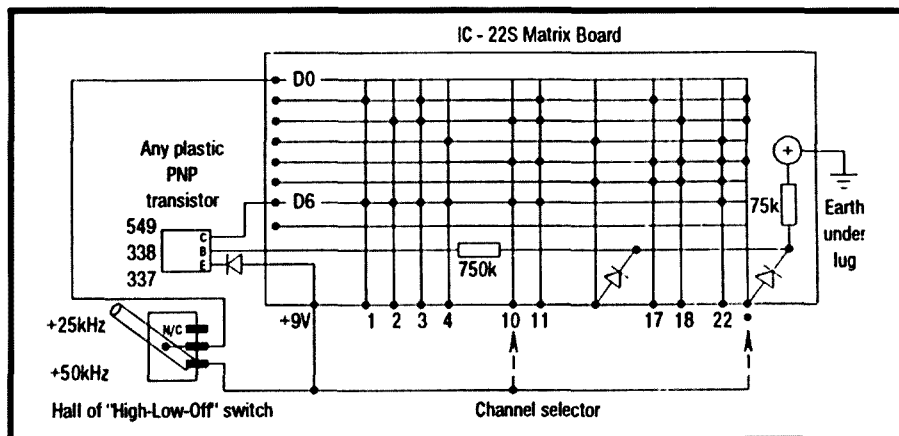


Fig 1 — IC-22S switching modifications.

Frequency	Octal	Binary	Frequency	Octal	Binary	Frequency	Octal	Binary
144.400	0	00000000	145.600	60	00110000	146.800	140	01100000
144.425	1	00000001	145.625	61	00110001	146.825	141	01100001
144.450	2	00000010	145.650	62	00110010	146.850	142	01100010
144.475	3	00000011	145.675	63	00110011	146.875	143	01100011
144.500	4	00000100	145.700	64	00110100	146.900	144	01100100
144.525	5	00000101	145.725	65	00110101	146.925	145	01100101
144.550	6	00000110	145.750	66	00110110	146.950	146	01100110
144.575	7	00000111	145.775	67	00110111	146.975	147	01100111
144.600	10	00001000	145.800	70	00111000	147.000	150	01101000
144.625	11	00001001	145.825	71	00111001	147.025	151	01101001
144.650	12	00001010	145.850	72	00111010	147.050	162	01101010
144.675	13	00001011	145.875	73	00111011	147.075	153	01101011
144.700	14	00001100	145.900	74	00111100	147.100	154	01101100
144.725	15	00001101	145.925	75	00111101	147.125	165	01101101
144.750	16	00001110	145.950	76	00111110	147.150	156	01101110
144.775	17	00001111	145.975	77	00111111	147.175	157	01101111
144.800	20	00010000	146.000	100	01000000	147.200	160	01110000
144.825	21	00010001	146.025	101	01000001	147.225	161	01110001
144.850	22	00010010	146.050	102	01000010	147.250	162	01110010
144.875	23	00010011	146.075	103	01000011	147.275	163	01110011
144.900	24	00010100	146.100	104	01000100	147.300	164	01110100
144.925	25	00010101	146.125	105	01000101	147.325	165	01110101
144.950	26	00010110	146.150	106	01000110	147.350	166	01110110
144.975	27	00010111	146.175	107	01000111	147.375	167	01110111
144.000	30	00011000	146.200	110	01001000	147.400	170	01111000
144.025	31	00011001	146.225	111	01001001	147.425	171	01111001
144.050	32	00011010	146.250	112	01001010	147.450	172	01111010
144.075	33	00011011	146.275	113	01001011	147.475	173	01111011
144.100	34	00011100	146.300	114	01001100	147.500	174	01111100
144.125	35	00011101	146.325	115	01001101	147.525	175	01111101
144.150	36	00011110	146.350	116	01001110	147.550	176	01111110
144.175	37	00011111	146.375	117	01001111	147.575	177	01111111
144.200	40	00100000	146.400	120	01010000	147.600	200	10000000
144.225	41	00100001	146.425	121	01010001	147.625	201	10000001
144.250	42	00100010	146.450	122	01010010	147.650	202	10000010
144.275	43	00100011	146.475	123	01010011	147.675	203	10000011
144.300	44	00100100	146.500	124	01010100	147.700	204	10000100
144.325	45	00100101	146.525	125	01010101	147.725	205	10000101
144.350	46	00100110	146.550	126	01010110	147.750	206	10000110
144.375	47	00100111	146.575	127	01010111	147.775	207	10000111
144.400	50	00101000	146.600	130	01011000	147.800	210	10001000
144.425	51	00101001	146.625	131	01011001	147.825	211	10001001
144.450	52	00101010	146.650	132	01011010	147.850	212	10001010
144.475	53	00101011	146.675	133	01011011	147.875	213	10001011
144.500	54	00101100	146.700	134	01011100	147.900	214	10001100
144.525	55	00101101	146.725	135	01011101	147.925	215	10001101
144.550	56	00101110	146.750	136	01011110	147.950	216	10001110
144.575	57	00101111	146.775	137	01011111	147.975	217	10001111

Chart 1 — IC-225 diode matrix frequency chart.

forward biased PNP transistor as a switch with its emitter on the 9 V rail and its collector on the D6 rail. The base is connected as shown in Fig 1.

Use a plastic transistor as it will minimise the risk of short circuits. When selecting a frequency lower than 146.00, such as 144.950, the D6 rail is low. The channel switch automatically removes the forward bias on the transistor switch. If more than one simplex channel is required

below 146.000, then each channel has to be isolated with diodes as drawn in Fig 1. In the author's case no additional diodes were required since only 144.950 was incorporated.

In conclusion, 48 out of the 50 valid 25 kHz channels are now available to the author. Not bad for the old rig!

A detailed print out of the diode matrix is included to assist you in programming the diode matrix board.

* 7 Harrow Road, Bexley NSW 2207

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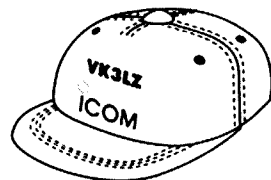
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■ Technical

Technical Abstracts

Gil Sones VK3AUI*

Variable Voltage Multiplier

An interesting voltage multiplier rectifier circuit, which can provide a multiple of from one to four depending on the setting of two switches, appeared in Technical Topics in the April 1995 issue of the RSGB *RadCom* (*Radio Communication*). The circuit is the work of Frits Geerligts PA0FRI who described its use in a grounded grid 400 watt linear amplifier. The linear had a power supply using a 1:1 transformer with this voltage multiplier to provide around 1300 volts for the anode supply which could be reduced to 650 volts or 325 volts when needed.

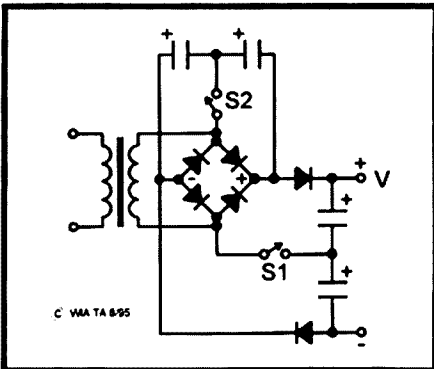


Fig 1 — Variable Multiplier Power Supply.

The circuit of the voltage multiplier is shown in Fig 1. By opening and closing S1 and S2 the circuit can be made to operate as a rectifier or as either a voltage doubler or voltage quadrupler. The switch settings are given in Table 1.

Table 1 — Switch Settings for Variable Multiplier

S1	S2	Multiple	Voltage Output
Open	Open	x1	V Volts
Closed	Open	x2	2V Volts
Closed	Closed	x4	4V Volts

The circuit requires the use of a transformer capable of the high

currents inherent in such a voltage multiplier circuit when capacitors of suitably high capacity are used. In the linear described, six electrolytics of 470 μ F 385 V working were used. In order to obtain the output voltage rating, four had to be connected in series as the output capacitance with the other two being connected to S2. The diodes used were type BY228 with a 1500 V 5 A rating. The transformer used was a mains isolation type. Do not be tempted to try the circuit direct on the mains. A supply such as this is dangerous enough even when using the isolation transformer. The hazard of 1300 volts and many amps is very real and should be treated with healthy respect.

Such techniques can be used to obtain voltage supplies from available transformers. They could be helpful to obtain, say, a 50 volt supply from a low voltage transformer or to obtain high tension supplies in old valve radios. In all cases high voltages should be treated with respect.

JS "Snap On" RF Current Probe

A simple and useful instrument was described by Jim Smith VK9NS in the June 1995 issue of the RSGB *RadCom* (*Radio Communication*). The device is a simple RF current probe using one of the snap-on ferrite cores designed for treatment of computer EMC problems. These cores are readily obtainable and eliminate the tricky job of splitting a toroid which used to be the main problem when making a snap-on RF current probe.

Jim VK9NS used the probe to check the performance of radials for a vertical antenna. Each radial should have a share of the current which flows into the earth radial system. After the radials have been installed the use of a snap-on current probe

means you can check that they work and have not been shortened by gardening or by corrosion.

The circuit of the probe is shown in Fig 2. The circuit is simple and the components are not unduly critical. The construction of the probe is shown in Fig 3. The hinge and clamping action are provided by two plastic clothes pegs. The meter used was a transistor radio tuning meter.

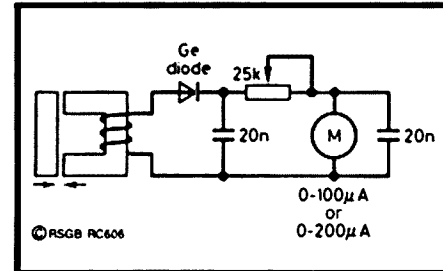


Fig 2 — Circuit Diagram of Current Probe.

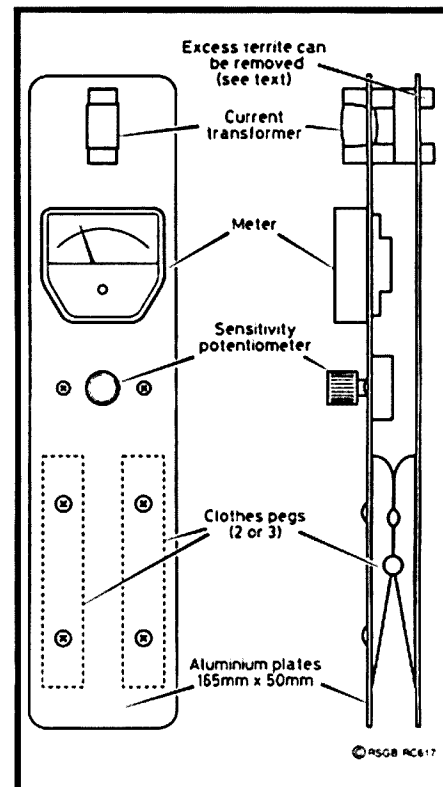


Fig 3 — Construction Of Current Probe

The current transformer was wound on a split ferrite core of the type used to clip around computer cables for EMC purposes. The winding consists of 12 to 14 turns of 22 SWG enamelled copper wire wound on the top core. The core is wrapped with tape prior to the

winding and the turns are then covered and secured with more tape. The core is then glued with Araldite into a hole in the top plate. The other part of the core is glued to the bottom plate. The plates are attached to the clothes pegs with self tapping screws. Care should be taken that the epoxy does not dribble and glue the whole lot into one blob.

In use the clamp is applied around the radials and the relative currents noted. For comparison purposes a test radial laid out along the ground can provide a reference. The instrument can also be used to find stray resonance and induced currents

in wiring which may lead to a variety of problems.

The snap-on ferrites are available from a number of suppliers. If you were having difficulty in locating one then Daycom Communications Pty Ltd would be a likely source. The original used a Cirkuit UF4 and one could be obtained from suppliers in the UK; however, the problems of such a long supply line should not be underestimated. The cores are designed for the treatment of computer EMC problems and should not be hard to locate.

**C/o PO Box 2175, Caulfield Junction VIC 3161*

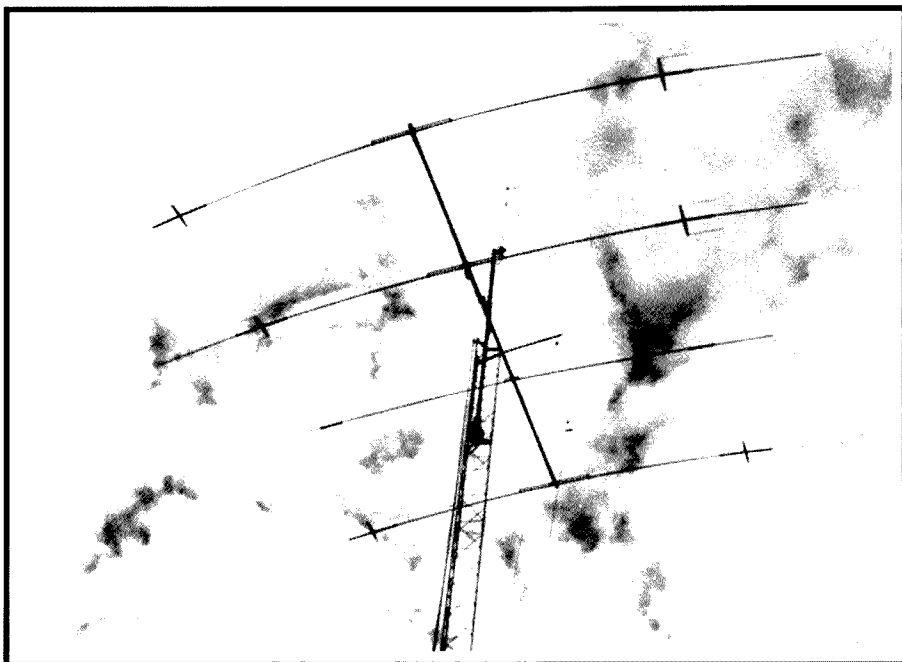
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"The two Rons posed the question of how good are trap tri-band antennas. As I see it the answer to that question depends on what you want from your antenna. If you want the versatility of three band operation with a useful degree of directivity, relatively compact dimensions and the capability of working a lot of good DX, then you won't go far wrong with a trap tri-bander. However, if you expect to get 8 dBd forward gain on 20 metres, as regularly claimed by some advertisers, you are likely to be disappointed.

On moving into my present location in 1984, a 20 metre dipole was hastily installed in the roof space of the house. This dipole had an inverted V configuration with the apex at 28 feet. Using this antenna, regular contacts were made with VK, including many with one of the two Rons. About a year later a crank-up tower was installed with a trap tri-bander from an English manufacturer and substantial improvements in signal reports were expected.

It was disappointing. For a time both antennas were available for use and I could switch rapidly between the two. Following many tests, it was found that with the tri-bander cranked down to 28 feet the two antennas produced identical reports from VK.

the right direction. What would have happened if you had put up a rotary dipole in the same spot. To answer that question let's see what our old friend Ron (yes, another one!) G4JNH has to say.



The four element trap beam of one of the two Rons which prompted the question "Trap Tri-Band Beams — How Good Are They?" (see June 1995 *Random Radiators* column).

■ Antennas

Random Radiators

*with Ron Cook VK3AFW and Ron Fisher VK3OM**

Trap Tri-Band Beams — How Good are They?

We posed that question in the last edition of *Random Radiators*. We have received two replies both suggesting that tri-band beams may not be as good as the manufacturers would have us think. But, before publishing what our readers think, a few more thoughts from us.

Firstly, we were mainly referring to the twenty metre performance of these antennas. As they go higher in frequency, there is not much doubt that the performance relatively improves because there are less traps to absorb power and, of course, the boom of the antenna becomes longer in terms of wavelength. Still perhaps not up to a mono-bander, but maybe not too bad either.

Now, we can hear you saying, "I put up a three element trap tri-bander and it runs rings around any of the wire antennas I have ever had". That's probably very true, so let's look at a few of the reasons.

Firstly, you no doubt went to a fair bit of trouble to get it well up in air. Maybe you even bought a tower and put it up at 15 or 16 metres. And, of course, you use a rotator to point it in

With the tri-bander cranked up to 56 feet it showed an advantage of 2 or 3 dB.

Whilst it would be hasty to conclude from observations on one antenna that all trap tri-banders are the same, claims of 8 dBd gain for a three element trap tri-bander should be treated with some caution".

Thanks for your thoughts Ron. Some food for thought there. Now for our second letter from Felix Scerri VK4FUQ.

"The short discussion in the June Random Radiators column has reinforced my somewhat cynical belief that gain figures quoted in HF beam advertisements originate primarily in the advertising departments far from any antenna test range. Anyone who knows anything about Yagi design will know that, for any given boom length, there is a fixed theoretical limit to gain and even that assumes a fully optimised array with carefully tuned elements. This condition can be closely approached at VHF and UHF but, at HF, this is rather unlikely

When one considers that an optimised three element Yagi gives slightly more than 7 dBd (not dBi) and a five element a little less than 10 dBd, then suggesting 10 dBd for a trap Yagi is rather silly. Losses in traps and compromises in other aspects of design, such as reduced boom length and even tuning for an improved front to back ratio, make the potential gain even less.

This is not to say that HF Yagis do not work well. There are plenty around that obviously do, but gain figures continue to be wildly optimistic."

Thanks for your thoughts, Felix. At about the same time that we put the June *Random Radiators* column together, a very interesting article appeared in *CQ Magazine* by their resident antenna expert, Lew McCoy W1ICP. Entitled *Antenna "Efficiency" — What is it?*, Lew looks at the efficiency of beam antennas and makes some interesting points, including the following:

"Let's look at beams. We must first consider the impedance. Many newcomers get hung up when they assume that the impedance of all beams is on the order of 50 ohms — or very close to that figure. They do

this because the antenna is fed with 50 ohm cable and produces a match or 1 to 1 SWR, or very nearly 1 to 1.

Keep this in mind, however. Nearly all Yagi-type beams have some sort of "matching" device in order to transform the actual or real impedance of the Yagi, up to 50 ohms. Let's examine this for a moment. A mono-band three-element beam using close-spaced elements, say one-tenth spacing, will have a rather low overall impedance. How low? How about 4 to 5 ohms? This is very possible with close element spacing. Of course, with modern transceivers we could never feed such an antenna directly with coax; the mismatch and SWR would be horrific, probably 8 or 10 to 1. So of course a matching network is installed to step up that very low impedance to 50 ohms. But what about efficiency?

A beam with a 5 or 10 ohm impedance is certainly going to have ohmic losses as an important factor. We have telescoping element connections, possible boom losses, the matching network itself, and so

on. Assuming that a 10 ohm impedance has 5 ohms radiation resistance and 5 ohms ohmic loss, then we are looking at 50 percent efficiency. In a beam with lots of traps, such as a three bander, there is no doubt that ohmic losses are going to increase so that the majority of power is lost as heat. The trap beam, if it is well designed and tuned properly, will probably still end up having about 6 dB gain compared to a dipole. But bear in mind that this 6 dB gain is for the useful power that gets into the beam. There is no real way of knowing what the ohmic losses are, but you can be assured that they are present. There is the old cliché that what you don't know won't hurt you, but I dislike seeing people live in a dream."

Well, that's it for another month. If you have any thoughts on trap tri-band Yagis, good or bad, please let us know. So it's goodbye from him and goodbye from me.

The two Rons

*C/o PO Box 2175, Caulfield Junction, VIC 3161
ar

■ International Events

SEAnet '94 Convention

David Rankin 9V1RH/9M2QV* and Sangat Singh 9M2SS

Malaysia, through the National society MARTS, had since 1971, hosted SEAnet five times before but never in the historic city of Malacca. And so with all that experience, the 22nd event was well organised under the Chairmanship of William Tan 9M2WT and Organising Secretary Sangat Singh 9M2SS. It was well attended too.

An amateur station with a distinctive callsign 9M0SEA was located on the top of a hill near a large water tank. Dipoles were used for 80 and 40 metres and a four element tri-band beam for the higher frequencies. There was also a two metre station used to talk-in some who could not find their way into the venue.

As usual, Friday, the first day, was set aside for arrivals, registrations and renewal of old friendships. The first official function was the Opening Banquet that evening. 250 people sat down to a sumptuous dinner Chinese style by courtesy of the Malaccan State Government. The Chief Guest was the Deputy Chief Minister of Malacca.

On Saturday morning everybody assembled for the official photo from around 0900 to 0945 hours but the group was so large that much manoeuvring was required to fit everyone into the picture. Then the tour of historic Malacca began. Four buses took delegates through the historic parts of the town, some of which go back to the sixteenth

9MØSEA



Malaysian Amateur Radio Transmitters Society

11th - 13th November 1994

The evening meal was a buffet, alfresco style, around the swimming pool at d'Village Resort. The weather was kind, the food and company excellent and, without doubt, every one enjoyed themselves.

All play and no work — what a marvellous prospect! But life is not like that and so on Sunday morning, after the usual Malaysian breakfast, about one hundred delegates gathered to listen to four short technical presentations and then to participate in the all important Plenary Session.

The first session of two technical papers was chaired by D D Devan 9M2DD. Colin Richards 9M2CR, of "chop stick helical" antenna fame, first spoke on Amateur Satellites, followed by Gordon VK2AGE describing his comprehensive HF/UHF BBS.

After a coffee break, the second session, under the chairmanship of "Jumbo" Godfrey ZL1HV, began.

century. Later there was a short "pit stop" at one of the newest shopping malls only one year old. Quite a contrast.

In the afternoon, delegates visited

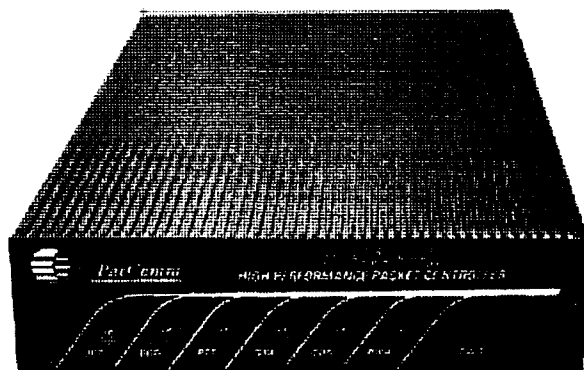
the shack of John 9M2GV who had an impressive antenna for 20 metres. A visit to the nearby rubber plantation proved very educational and was a novel experience for most.

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Ahmad 9M2DX talked about ELF (30-300 Hz) propagation, and the final paper was by Haji Rafaai Samsi of Telekom Malaysia Bhd (the Malaysian regulatory authority) on the topic of ISDN.

The Business Meeting was chaired by Andy Lingham 9M2PV/9M8PV who has recently shifted QTH to Malacca. Leading delegates from previous SEAnet Conventions were invited to join Andy at the head table to form a panel which consisted of Kun Mayuree HS1YL, Pornpun HS1GA, Thida HS1ASC, Selva 9V1UV, Saif S21A, Gerald V85GA, Anuar 9M2MO, Gary VK8GW and Keith YB5AQK.

Each leading delegate was asked to speak on venues for SEAnet which

resulted in S21A proposing India and HS1YL offering Southern Thailand.

From the floor, and following on from S21A's proposal, Suri VU2MY offered either Hyderabad or New Delhi in India. Hans Ehlers DF5UG/9M2QQ spoke on behalf of the Kerala Club and offered Kerala in South India. 9M2PV put the offers to the meeting and the house voted in favour of Southern Thailand.

Other matters discussed during the Plenary included the SEAnet Contest and selection of future venues.

After a chorus of "Auld Lang Syne", Andy 9M2PV declared the meeting closed at around 1300 hours. All delegates then adjourned for lunch and to prepare for the homeward journey after spending a most

enjoyable weekend in the company of fellow amateurs and their families.

SEAnet '94 attracted 250 amateurs, wives, children and girl-friends from 14 countries. Not surprisingly, the Malaysian contingent at 108 was the largest with Singapore next but well behind with 31 attendees. There was also good support from Japan with 23, Australia 21 and Thailand 16.

Despite poor propagation conditions, SEAnet continues on air at 1200z on 14320 kHz +/- QRM seven times a week. So join in and learn about SEAnet '95 at Koh Samui Island in Southern Thailand on the weekend of 17 to 19 November 1995.

*PO Box 14, Pasir Panjang, Singapore 9111 ar

WIA News

Radio Amateur — Tape Recording Pioneer Dies

An American radio amateur who has been credited with the invention of magnetic audio tape recording and was awarded more than 500 patents for his work in the field, recently passed away.

He was Marvin Camras W9SX. He worked and taught at the Illinois Institute of Technology for more than 50 years, according to a *New York Times* report. As a student in the late 1930s, Marvin built a magnetic wire recorder and later experimented with magnetic tape, discovering that tape made splicing of recordings easier. His extensive series of patents were licensed to more than 100 manufacturers.

Marvin showed an early interest in electrical technology and an aptitude for building things. He is reported to have made a battery-powered torch at age four, working his way up to the construction of a transmitter three years later. Undoubtedly, his early interest in such things led to his success as an inventor of one of the 20th century's most pervading consumer and commercial technologies. He was first licensed as W9SX in the late 1930s and

held the callsign until his recent death. (Thanks to Victorian Division President, Jim Linton VK3PC, for details on this item).

Operating Under the New Licence Conditions — Beware!

Amateurs need to take care when interpreting the new licence conditions, gazetted in June. There are a few things to remember.

For instance, now that Limited licensees are permitted to use FM on the 29.0-29.7 MHz band, some increased activity has been observed, with both Unrestricted and Limited operators appearing on the band.

However, operators must remember that FM operation, or modes 16K0F3E and 16K0G3E, must be confined between 29.0-29.7 MHz. No one — Full-calls, Limiteds or Intermediates — can use FM below 29 MHz.

In addition, operators are asked to observe the 10 metre band plan and stay clear of the amateur satellite downlink segment between 29.300 and 29.510 MHz. The Russian "Radio Sputnik" satellite series — RS-10, RS-11,

RS-12 and RS-15 — are currently active and can be heard at various times.

Please consider other users and keep your FM activities clear of 29.300 to 29.510 MHz. Satellite enthusiasts will thank you for it.

In another area, operators have raised questions about cross-band retransmissions — that is, retransmitting another amateur's signal from one band onto another. This has arisen because some popular brand commercial transceivers include a "cross-band repeat" function as a pushbutton feature. Such operation is permissible, provided you have the permission of the operator whose signal you wish to retransmit, that you announce that it is a retransmission and give your callsign at intervals of at least 10 minutes (for lengthy transmissions).

It is not permissible to leave your rig unattended while it's in cross-band repeat operation — this would be an unauthorised repeater station.

Don't confuse this with in-band (single frequency) packet radio digipeating, which is permissible as it is a "store-and-forward" operation.

■ Book Review

RSGB Radio Communication Handbook Sixth Edition 1994

By Dick Biddulph G8PDS

Published by the

Radio Society of Great Britain

Revue by Norm Eyres VK3ZEP

and Bob Tait VK3UI

An improved and updated edition, this book would be an asset to any radio shack.

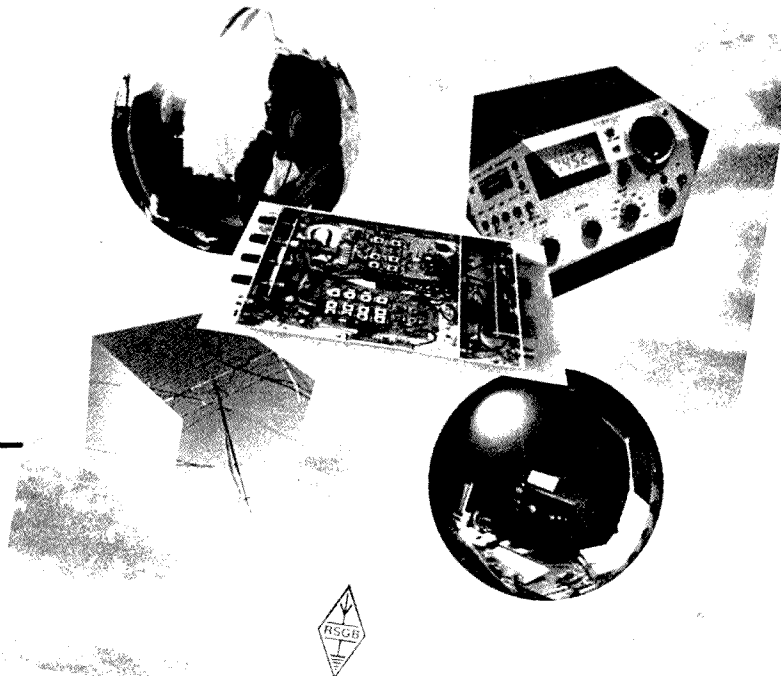
It comprises 22 sections covering every aspect of amateur radio. Some new features have been introduced, notably a chapter on building blocks which has been designed to encourage you to get out your pencil and paper and design something. The new chapter on construction and workshop practice is there to help you realise your project.

One very obvious improvement over the previous edition is the inclusion of many more photographs, and layouts for receivers and transceivers. The microwave buff is well catered for with many construction articles covering 1.3 GHz through to 10.5 GHz. Items covered include injection oscillators, multipliers, mixers and amplifiers, receiving converters and transverters.

The antenna section gives some practical construction projects for high efficiency horn feeds or dish feeds. An item that has been dropped from this edition is a separate mobile and portable section. This speciality is now incorporated into other relevant chapters.

This new edition is written with current technology in mind, unlike the previous edition which still included many valve projects.

RADIO COMMUNICATION HANDBOOK



It is very good value at \$66.00. The order number is BR266 and it may be available from your Divisional Bookshop. The review copy was

supplied by Daycom Communications Pty Ltd. ar

WIA News

Reservation of Deceased Amateur Callsigns

Callsigns of recently deceased amateurs may once again be reserved for a period of two years. Following representations to the Spectrum Management Agency (SMA) at the WIA-SMA meeting on 18 May (see *Amateur Radio*, July issue, page 12), the SMA advised the WIA in late June that the RADCOM computer system is now able to handle the reservation of deceased amateurs' callsigns.

The SMA said that this will be a similar arrangement to that which

operated under the previous SMIS computer system. The callsign can only be reserved as having belonged to a recently deceased amateur, and cannot be "warehoused" in the name of another amateur.

A deceased amateur's callsign which has been reserved now only becomes available for re-issue after the two-year reservation period. In the event of an amateur's death, any request for the reservation of their callsign, or callsigns, must be made in writing to the closest SMA area office, address details for which are given in the current WIA Call Book.

■ Technical

A VXO for the Back to Basics 40 or 80 m Receiver and Transmitter

Neville Chivers VK2YO* tells how to use his previously described receiver and transmitter in a transceive arrangement.

The previously published articles about the Back to Basics 40 or 80 m Receiver and Transmitter for SSB operation (see January and April 1995 issues of *Amateur Radio*) described the units as either stand-alone, or used together, projects. As each unit did not depend on the other they could be operated independently.

However, it would be nice if these two simple units could be operated in transceive mode. This is the subject of the article that follows.

As mentioned in the original receiver article, the VFO is good enough for a receiver, but is not good enough for transmitter operation due

to heat causing instability in the 1N914s. If varicap diodes had been used in the original circuit the results may have been better; perhaps something to investigate at a later date. As I had a 7555 kHz crystal on hand, this was tried in the transmitter to produce an SSB output on 7100 kHz. The crystal was certainly stable enough for transceive operation, but a bit limited at one frequency only. What was needed was a cross between a VFO and a crystal oscillator. How about a VXO?

Over the years I have tried many VXO circuits with some success on VHF.

On 40 metres the swing would be

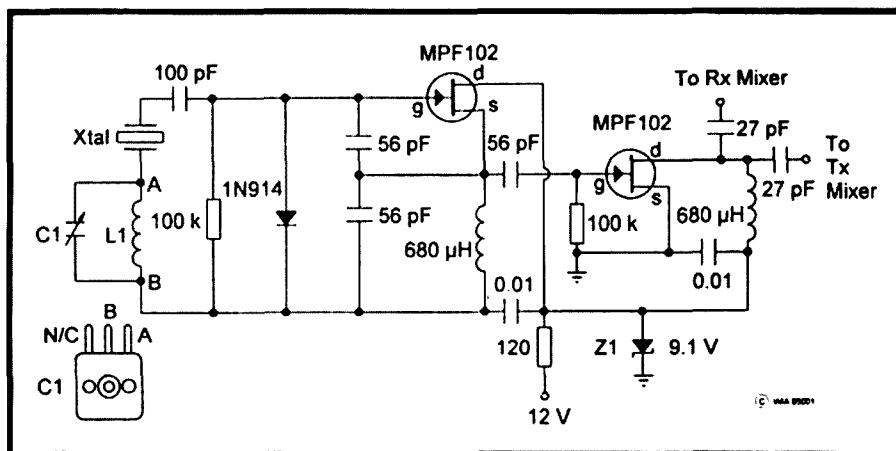
about 5 kHz, better than nothing. I have read that more coverage can be obtained if the right crystal and circuit combination are used. The circuits in the *ARRL Handbook*, *QST*, and *Amateur Radio*, etc usually use a split stator or butterfly capacitor. But these are not available in the local Tandy, Dick Smith, or Jaycar stores, etc. Wishing to stick to commonly available parts, as I did with the Back to Basics receiver and transmitter, I located a capacitor used in transistor radios, 60-160 pF, Jaycar Cat No RV5728.

The circuit shown evolved after much trial and error. It is basically a Colpitts oscillator using a JFET MPF102 as the active device with a crystal in series with the tuned circuit. Bridge out the crystal and the circuit will oscillate, depending on the position of C1, somewhere between 6 and 8 MHz. The stability is about the same as that of the Back to Basics receiver.

With the crystal in circuit, stability is assured over the range that the crystal can be pulled, in my case 30 kHz. The crystal used was 7555 kHz, HC6/U plated, at a 32 pF load at room temperature. I obtained mine from Hy-Q in Melbourne at a cost of \$30.00, including tax and delivery charges.

I tried other crystals in the circuit, including ex WW2 FT243 pressure types, and found the amount of frequency shift variation was about 2 kHz. At 4 MHz for the 80 metre version, it was worse, about 1 kHz frequency shift being typical. I wondered what the shift would be if I used an HC6/U at 4 MHz, but I was unwilling to part with another \$30.00 when I had a couple of FT243 crystals on hand. I suspect that I should be able to get 5 to 8 kHz shift using crystals for 4 MHz, as I measured 7 kHz for a 5.2 MHz plated crystal I tried.

The only non standard item in the circuit is L1, which is 25 turns of 22 SWG close wound on a piece of 20 mm wooden dowel. With the crystal out of circuit, the tuned circuit L1/C1 should dip in the 7 MHz range. The frequency swing is, unfortunately, non-linear over the range of C1 but, wherever C1 is set, the frequency is stable.



VXO for Back to Basics Receiver and Transmitter.

Xtal HC6/U Plated, 32 pF load at room temperature, frequency approximately 455 kHz above the required operating frequency (eg if upper frequency required is 7100 kHz, crystal approximately 7555 kHz).

C1 AM radio type, Jaycar Cat No RV5728.

L1 25 turns of 22 SWG on 20 mm wooden dowel.

Z1 Zener diode 1H4739 9.1 V, Tandy Cat No 275-562.

The VXO should be enclosed in a shielded box with L1 individually shielded within the box to minimise hand capacitance effects. The oscillator minor components were rigidly mounted using a tag strip.

To couple the VXO to the receiver I connected G2 of the receiver MPF131 mixer to a Belling and Lee socket on the rear of the receiver case. A switch to disable the internal

VFO was installed. The BFO was retuned to 453.5 kHz to ensure that the receiver and transmitter were on the same frequency.

The VXO injects into pin 10 of the MC1496 mixer in place of the existing HF oscillator in the SSB transmitter. I will leave the send/receive switching to the individual constructor.

**51 Meeks Crescent, Faulconbridge NSW 2776*
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time in Luoyang City, Henan Province. Since then Chinese ARDF teams have joined in many international contests, and the Chinese team is one of the strongest teams at the world championships.

Meanwhile, in Japan ARDF also started early in the 1960s. Although we can find some articles or reports written by JA7AZP and JA1AYO about "Foxhunting", it is not exactly known who introduced the sport into Japan. ARDF games in the 1960s, which they called Foxhunting, used two or three foxes but the rules were much simpler than now.

In 1981 JARL visited CRSA and acquired the current ARDF International Rules and JA1AN and JA6AV joined in the games with China. Since then JARL and CRSA have held combined games on many occasions, usually once a year. After 1981 and in 1985, JARL had an ARDF competition called "Kanto Foxteering Competition" in Kunma which was completely based on international ARDF rules. At that time, seven

■ History

ARDF Then and Now

Wally Watkins VK4DO explains some of the history of Amateur Radio Direction Finding as a sport.*

IARU Region 1

It is widely known that radio direction finding tests were made by British and German amateurs sometime in the 1930s. Even though their testing of radio direction finding was very similar to current ARDF it was not exactly the same as the ARDF sport which we are now performing.

World War 2 made no further developments to this sport, and current ARDF rules were completed only in the 1950s, mostly by eastern European countries such as Yugoslavia, Czechoslovakia and Hungary. During these years, ARDF was called Foxhunting or sometimes Foxteering or more widely as Radio Sport. Present ARDF rules and principles are mostly based on a publication prepared by Mr Wojciech Nietykaza SP5FM (presently region 1 Vice-Chairman) sometime during the 1950s. The current ARDF rules were officially approved by the Region 1 conference in 1987 in the Netherlands and the name "Amateur Radio Direction Finding" became the official name of the sport.

Region 1 has had its permanent ARDF working group since 1987, with Mr Krzysztof Slomezynski SP5HS as the Chairman. Its activities include exchange of information relating to ARDF, development of ARDF

materials and answering enquiries from other IARU bodies. In Region 1, every two years the ARDF World Championships have been held. In 1992, the 6th Championships took place in Siofak, Hungary, and the 7th were held in 1994 in Sweden.

Region 3

China was the first country in Region 3 to develop ARDF in the 1950s as the name Radio Sport gained government support. The Peoples Radio Club of China in Beijing had a state team. In those days, however, a radio club in China did not mean a ham radio station.

Early in the 1960s China adopted international rules. They then developed and designed their own equipment and assembled 80 metre receivers (which were very big) using vacuum tubes.

The first ARDF national competition in China was in 1961 in West Beijing, near Fragrant Hill. In 1964 championships were held nationwide, in Harbin, Xian, Wuhan and Chengdu. ARDF was so popular at that time in China that many schools, universities and factories had their ARDF event. However, because of the cultural revolution, further development of ARDF was stopped ten years later. In 1978 China held its first ARDF event again, this

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Chinese competitors joined in the games using 144 MHz, their equipment creating quite an impression.

Almost every year, JARL and their local branches hold ARDF competitions and it is becoming very popular. Recently JARL has been taking part in all international events.

In Korea ARDF was introduced to hams in the early 70s, but it was Foxteering with two or three transmitters. Modern rules and further development were introduced by HL1IFM and HL1IE, from information supplied by JARL. In 1986 KARL sent their first team to the World Championships in Yugoslavia. Since then, every year, they have held national level competitions and the number of participants is growing very well.

As a result of attendance at the first Region 3 competition in China in 1993, a start has been made in the introduction of ARDF in both New Zealand and Australia. The first developments will be in Queensland where the name Radio Sport is being used in order to attract people other than amateurs into the sport.

*PO Box 432, Proserpine QLD 4800
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equipment
— check
the serial
number
against
the WIA
stolen
equipment
register first.**

■ Interference

Pager Interference, Another Source

Stan Ellis VK2DDL explains another source of the dreaded pager interference on the two metre band.*

The incidence of pager interference to amateur two metre repeaters resulting from receiver front-end overload, where the repeater and the pager are co-sited or in close proximity, is well known. But there is a second cause which can occur when the repeater is remote from any pager and over which the repeater operator has no control.

This interference is a third-order intermodulation signal, generated when two or more pagers are co-sited and connected via a combining unit to a single aerial, which appears to occur when a non-linear component is present in the combining unit. Identification of the offending pagers can be complicated by two additional factors.

One is that, assuming that pagers may be licensed to operate at any multiple of 12.5 kHz between 148.0125 and 149.9875 MHz, there are up to 78 combinations of pager frequencies capable of producing a third-order intermod (2A-B) signal on ANY particular repeater input frequency in the amateur two metre band.

Similarly, signals can be produced either 12.5 kHz below or 12.5 kHz above a repeater input frequency, which, with deviation, can come within the pass band of the repeater receiver. At this point it is impossible to filter them out.

The second factor is that, once a combination of two particular pager frequencies is brought into service, it is likely to be duplicated at a number of pager sites in order to extend the range of access to customer pager units. Consequently, the offending pagers often have to be located by triangulation from various receiving points.

VK2RGL, a repeater established by the Great Lakes Radio Club Inc, at a site 40 km due west of Forster, on the NSW mid-north coast, operates at an input frequency of 147.975 MHz (output frequency of 147.375 MHz), the highest available two metre repeater channel. It has, since its inception, suffered this form of pager interference, although the nearest pager installation is over 20 km away.

Due to excellent co-operation from the SMA District Radio Inspector, Peter Bailey, and his staff, various sources have been tracked down and eliminated, in most cases by the insertion of circulators, or ring isolators, in the individual pager aerial leads. Unfortunately, because of periodical staff replacement at these sites, which may result in the removal of these additions, and also because of the establishment of new services with new pager combinations, this form of interference has recurred.

The repeater, at an elevation of 665 metres, has particularly good coverage to the south, and is frequently accessed by Sydney stations. There is also at least one pager site in that direction still producing an interfering signal. Its location is out of the ambit of the DRI and has been referred to the SMA Sydney office, which is currently investigating a possible source at Mt Elliot, near Gosford.

However, given the potential for interference illustrated above, it would appear desirable for the SMA to make the insertion of circulators mandatory in all cases where two or more pagers are co-sited and thus avoid this problem.

*President, Great Lakes Radio Club Inc.
ar

WIA News

President visits NZART

In June, Wireless Institute of Australia Federal President, Neil Penfold VK6NE, attended the annual conference of the New Zealand Amateur Radio Transmitters (NZART), the WIA's counterpart in New Zealand. He was accompanied by ACT Division Federal Councillor, Richard Jenkins VK1RJ.

Each other year, WIA Federal representatives attend the NZART annual conference, while NZART representatives attend the Institute's annual Federal Convention in the intervening years. This year it was the WIA's turn to go to New Zealand.

Neil Penfold and Richard Jenkins were to report to the Federal Council at the July Extraordinary Convention.

Among items of interest, Neil Penfold noted the extensive repeater linking in New Zealand, an aspect of amateur radio which is yet to get under way in Australia. Perhaps the pending new repeater Technical Licence Specifications may clear the way this year.

The NZART is preparing to undertake some significant amateur radio administration tasks previously carried out by the New Zealand regulatory authority, the Ministry of Commerce. This looks like including the issuing of licences and callsigns, among other administrative services. The NZART has set up a special not-for-profit company to take on the task.

Another item of note is NZART's Youth Award Program, which recognises particular achievement by a young amateur. This year's award went to an 11 year-old girl whose interest is satellites, and who had been making contacts with the Russian astronauts aboard the MIR spacecraft.

Neil Penfold thinks such a Youth Award Program might be considered by the WIA for Australia. If you have any ideas, contact your Division's Federal Councillor.

ALARA

Sally Grattidge VK4SHE*, ALARA Publicity Officer.

YLRL Sponsored Contest — Howdy Days

This contest will take place from 1400 UTC on Wednesday, 13 September to 0200 UTC on Friday, 15 September 1995.

Eligibility All licensed woman operators.

Procedure Call "CQ YL"

Operation All bands, all modes. No crossband, repeaters or nets. A station to be worked once on each band. Max power 750 W CW, 1500 W PEP SSB.

Logs Operating breaks must be indicated. Date, time, band, callsign RS(T) number sent and received, YLRL status (member, non-member), score claimed and signature.

Scoring Two points each YLRL member, one point each non-YLRL member, no multipliers.

Duplicates Penalty for duplicate contact is loss of that contact plus three equal contacts.

Awards Top scoring YLRL member receives her choice of YLRL pin, charm or stationery. Top scoring non-YLRL member receives a one-year YLRL membership certificate.

Suggested frequencies: CW — 3.540 to 3.725, 7.040 to 7.070, 14.040 to 14.070, 21.120 to 21.150, and 28.150 to 28.200 MHz. SSB — 3.940 to 3.970, 7.240 to 7.270, 14.250 to 14.280, 21.380 to 21.410, and 28.300 to 28.610 MHz.

Send Logs to: Carla Watson WO6X, Palo Verde Drive, Sunnyvale CA 94086. Logs

must be postmarked no later than 16 October 1995.

Note Band allocations in other countries differ from USA. NA-YLs should look for DX-YLs in other parts of the bands especially on 80 and 40 metres.

Help!

Helen Sterrett KC7BMY is interested in YL history. She particularly wants to know the names and callsigns of the first women licensed in various areas around the world. If you are a "first" in your area, or know of one, please contact Christine VK5CTY or any ALARA member. ALARA is collecting YL history for the Federal Historian, and any information will be passed to John Edmonds and to Helen.

Congratulations

Congratulations to Dorothy VK2DDB for gaining second place in the 12th BYLARA Contest. Quite an achievement considering DX conditions at this time. Watch for this contest next year (open to all YLs, OMs and SWLs) on 11 and 12 February 1996.

Travelling North

Maria VK5BMT is in north Queensland and has been heard on the Townsville Ladies Net, and the VK4YL net. Last known relaxing and listening to the birds in Mount Spec National Park.



Mildura Hanfest May 1995. ALARA was on display represented by (left to right) Marilyn VK3DMS, Jean Day, Angola VK3MDA, Christine VK5CTY and Tina Clogg.

Welcome

To new member Marian VK3FMR.

DX

The 222 net (Mondays, 14.222 kHz at 0600 UTC — call in from 0545 UTC) boasts a total of 217 YLs and 57 countries.

Valery Postnikov from Kazakhstan is the only Russian to gain the BYLARA Award. He is looking for YL contacts worldwide and is interested in YL awards. Listen for him on Saturdays and Sundays on 21.230 MHz between 1000 and 1100 UTC. He uses home brew equipment, 50 watts and a Delta loop antenna. He is ex-UL7023406/ex-UN7PJQ, and would like everyone to listen out for him.

DRL News

The Rockhampton District Radio Ladies had a great weekend in Gladstone in June. They were there to see Pam VK4PCP performing in "Les Miserables" and a good time was had by all.

NQ Convention

The NQ convention will be held in Townsville on 15, 16 and 17 September 1995. Hope to see lots of YLs there. There has been plenty of publicity about this.

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160M vert top loaded	\$327
6 M co/lin 6 dbd rad 4.NEW	\$157
6 ele 6 M N.B.S 50 mm Boom	\$310
Duo 10-15 M	\$295
3 ele 15 M	\$199
3 ele 20 M	\$333
20 m log-yag array 11.5 dbd	\$755
M B Vert NO TRAPS 10-80 M	\$265
Tri band beam HB 35 C 5 ele	\$690
40 M linear loaded 2 ele	\$516
13-30 M logperiodic 12 ele	
all stainless/steel fittings	\$951
70 cm beam 12 ele bal/Feed	\$102
23 cm slot fed 36 ele brass cons	
s/solder-assembled. 18 dbd	\$170
80 m top load/cap/hat vert.	\$260
3 ele 40m l/cap hats 60mm boom	\$860
2 m 144.100 2.2 wavelength boom	\$145

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PHONE 054 285 134

Registration forms to be returned by 25 August at the latest.

Friday YL Net

Conditions have not been good on 15 metres and Bev VK6DE has not had too many YL contacts lately on 21.188 MHz. Don't forget this net at 0400 UTC. Things will improve!

ALARAMEet

ALARAMEet will be held in Perth, WA on 28 and 29 September 1996. Bev VK6DE is the ALARAMEET Co-ordinator. The program at this stage is as follows:

Friday Night — An informal dinner.

Saturday Morning — Official registration and photographs, followed by a buffet lunch at the main venue.

Saturday Afternoon — Visit to the Wildflower Festival at Kings Park.

Saturday Evening — A social occasion with a buffet meal.

Sunday Morning — Bus trip to the ferry, cruise to Fremantle with a tour of the market, drawing of the "Special Effort" and official close. More information later, but it is sounding good already. Be there.

**C/o PQ Woodstock, QLD 4816*

ar

AMSAT Australia

*Bill Magnusson VK3JT**

National co-ordinator

Graham Ratcliff VK5AGR

Packet: VK5AGR@VK5WI

AMSAT Australia net:

Control station VK5AGR

Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/- QRM.

AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia

GPO Box 2141

Adelaide SA 5001

Phase 3D Launch Delayed Slightly

It has been reported by AMSAT News Service that the launch of Ariane 502, the mission scheduled to carry phase 3D aloft, has been re-scheduled to 29 May 1996 from 3 April 1996 as originally planned. The change was caused by a delay to an earlier planned launch.

Viewing Satellites... (With a Difference)

The recent historic docking of the space shuttle Atlantis with the Russian

space station MIR fell at a time which allowed only very limited pre-dawn viewing opportunities in Australia. I haven't heard of anyone who actually saw it in VK. Viewing conditions were much more favourable in USA. The various Internet newsgroups have been buzzing with reports of sightings (it's interesting to note that most of the respondents referred to it as "The Atlantis/MIR Complex".....Oh, well).

One such report stood out from the rest. It came from Ron Dantowitz of the Hayden Planetarium at the Museum of Science, Boston, USA. In part he said, "We have been successful in tracking MIR/Atlantis in our twin 12" SCT/7" refractor set up. We wrote our own software to drive the scopes in RA/Dec. We had the MIR/Shuttle complex rock steady at 100x in the 12" Schmidt Cassegrain, and it was fantastic! Easily saw six solar panels, the modules of MIR, and the space shuttle Atlantis docked at one end! The shuttle was easy to see hanging there on the MIR complex, and the solar panels were larger and brighter than I thought they'd be. While practising on other satellites we started doing some fun stuff. We locked our computerised scope onto a rocket booster that was in Earth's shadow, and tracked it.

Looking in the eyepiece it's invisible (just stars) but then the computer beeps (when the object is supposed to come into sunlight) — and — Whoosh! There it appears, in the centre of the eyepiece. First grey, yellow-orange (penumbra) then white! The satellites are even centred at 200x, and we expect to be able to go higher".

Support Phase 3D.

Here is a novel way to support the new Phase 3d satellite. It has been floated by

Ron Broadbent G3AAJ on the suggestion of a number of AMSAT-UK members. It may not appeal to all but it is worthy of mention. The idea is that recognition would be given for larger donations to the Phase 3d Building Fund by engraving the names or call signs of the donors on an aluminium plate to be attached to the spacecraft prior to launch. The rules are simple, 1000 pounds Sterling and above for individuals and 5000 pounds Sterling for companies, organisations or universities. The launch has been delayed a little but is still only a matter of months away. ALL donations are welcome and will receive a certificate if requested. In connection with the above appeal send donations to AMSAT-UK, c/o Ron Broadbent MBE G3AAJ, 94 Herongate Rd, Wanstead Park, London, E12 5EQ, England.

FAQ (Frequently Asked Questions Department) New Novices, New Regulations and Amateur Radio Satellites.

With the advent of the long awaited changes to the regulations and the new Novice Limited licence category, we have seen a welcome influx of new stations on the air. Packet radio is one mode that seems to have already attracted its share of newcomers. This is understandable due to the high digital component in the new Novice Limited licence. I have been asked the following question several times already at our radio club, and inevitably the question will be asked again. Can Novice or Novice Limited licence holders operate through the OSCARs? Well, life wasn't meant to be easy and, as far as I can ascertain, the answer is quite simple, YES and NO!

YES, in as much as the regulations do not expressly forbid such operation. The official SMA attitude appears to be that a satellite transponder "down-linking" a Novice's signal in another band does not contravene the regulations. Effectively, however, the answer is NO. The Novice Limited licence does not allow any operation in any band segment containing an amateur satellite uplink segment.

In the case of the Novice licence, the 15 metre band allocation overlaps the mode "K" and mode "T" uplink segments used by some of the Russian RS series satellites. Theoretically, a Novice licensee could operate through these transponders but they are rarely, if ever, turned on these days. Since RS-15 will likely be the last RS satellite in the series, we have probably seen the last of any opportunity for the Novice licensees to take part in working the RS satellites.

The proposed frequency plan for Phase 3d lists a 21.210 MHz to 21.250 MHz receiver. It remains to be seen how this will be switched into the matrix and one would assume it would have a fairly low priority. As far as I know, with the possible exception of the SunSat "Parrot" repeater (see below), this represents the only hope on the horizon for Novice operators to work the OSCARs.

OSCAR-13 Countdown

Best estimates still put the AO-13 re-entry at early to mid December 1996. That gives us about 15 months of operation. Get in there and use it!

STSorbts Plus.

A new version of this program is appearing around the traps. It has a host of new features including a 3D map (satellite's eye view). It is an interesting program but in no way compares to InstantTrack or QuickTrack for amateur use. It is very colourful and would be useful to "amaze your non-amateur friends". Be warned, it needs a FAST computer.

Keplerian Elements

Some keplerian element sets are still coming through from some sources in the "new" format with odd characters, usually + signs here and there. They cause the checksums to be rejected by some tracking programs. The keps originating from K5ARH are OK.

SunSat Update

In the May column I mentioned the SunSat project under development in South Africa. A few more details are coming to hand. Analog capabilities include a "PARROT" system on two metres which will record and replay up to eight seconds of speech. A 2.4 to 1.3 GHz linear transponder will be open for TV experimentation. Digital capabilities include a BBS and mailbox, a simple two metre 1200 baud packet system and a mode "J" 9600 baud FSK device. An imaging system will be connected to all downlinks. The orbit will be polar elliptical, about 100 minutes period. Its height will range from 400 to 840 km.

**359 Williamstown Rd, Yarraville VIC 3013
Packet: VK3JT@VK3BBS.#MEL.VIC.AUS.OC
CompuServe: 100352,3065
ar*

Club Corner

Hervey Bay Amateur Radio Club Inc

Special Event Station V150PEACE — 1 August to 31 October 1995

This year's callsign is rather spectacular in that it is the first time that a nine character call has been issued from Australia and, indeed, perhaps from anywhere. We have departed from our "Whale Series" Award this year because of the special significance of 50 years since the ending of hostilities in WW II. But this in no way means that any of us condone the "Act of War". To the contrary, this special event has been initiated to commemorate the men, women and children who lost their lives in acts of aggression throughout the war years.

We hope to be on all HF bands, as well as six and two metres, where propagation permits, for the entire three months realising, of course, that some of these bands will be local only. Some preferred frequencies will be 1.820, 3.615, 7.058, 10.150, 14.215, 18.120, 21.195, 24.945, 28.580, 50.110 and 144.100 MHz SSB, as well as the usual CW frequencies, shifting off recognised call frequencies as and when required. Packet frequencies will be notified on BBSs worldwide, with correct addresses.

The normal \$US5.00 will help us with the printing costs and airmail return postage for the award; for QSL only, an SASE or one IRC. Address to the QSL Manager, HBARC Inc, PO Box 829, QLD 4655 Australia.

Jim White VK4BX
Secretary

Eastern and Mountain Districts Radio Club

At the 1 September meeting of the EMDRC, David VK3UR will be giving a talk on Internet. Readers who have attended David's talks on other subjects will be well aware of his ability to lecture. For this talk, David intends to project the computer display on to the theatre screen to enhance the live demonstration. If you are interested in learning about this medium, this lecture is not one to be missed. Visitors are always welcome. For more information please contact Jack VK3WWW at home on 03 9873 2459.

In early September, the EMDRC are planning another balloon launch. For this launch, the payload will be Radiation Monitoring Equipment. We are expecting the launch to take place shortly before the French tests. Another balloon is planned to go up shortly after the completion of the

tests. For more information, please write to EMDRC Inc, PO Box 87, Mitcham, VIC 3132.

Radio Amateur Old Timers Club

Members of the RAOTC are reminded that the winter QSO Parties will be held on 80 metres on Monday, 7 August, and on 40 metres on Monday, 14 August. Both Parties will run from 0800 — 1000z on the usual frequencies.

John Tutton VK3ZC
ar

Update

80 Metre CW QRP Transmitter

Peter Parker VK1PK, author of this article which appeared on pages 4 to 7 of the July 1995 issue of *Amateur Radio* magazine, advises of the following errata:

1. The 6.8 V zener diode in Fig 2, the schematic diagram, is shown the wrong way around. The layout diagram, Fig 3, is correct.
2. On Fig 3, the components layout diagram, the left hand lead going to the T/R switch S1a should connect to the free end of the 270 Ω resistor, not to the 12 V rail.
3. For use with a direct conversion receiver, S1a should be omitted and a link placed across x-y (on schematic) so the oscillator is permanently on. This was alluded to in the text, but was perhaps unclear.

Apologies for any inconvenience, though the worst that could have happened is a blown-up zener.

It might be a good idea to correct your copy of the July 1995 issue of *Amateur Radio* now.

QSLs from the WIA Collection

Ken Matchett VK3TL advises that the late VK3BRC's surname was incorrect in his column in last month's *Amateur Radio* magazine. The last sentence under *Thanks* on page 43 should read "Also to the family of "SK" Ron Cannon VK3BRC."

Ken apologises for this error.

How about correcting your copy of the July 1995 issue of *Amateur Radio* now?

ar

AWARDS

John Kelleher VK3DP — Federal Awards Manager*

"Pobeda" (Victory) Award

From Russia, details of the "Pobeda" (Victory) Award. This Award is sponsored by The Krenkel Central Radio Club of RF on the occasion of 50 years of Victory and Peace, 1945-95.

The Award is available to all licensed radio amateurs and SWLs for contacting radio stations in Russia, during 1995. There are no band or mode limitations. The requirement for WW2 veterans is 10 different QSOs. For other radio amateurs, 50 QSOs with different radio stations of Russia, including five QSOs with radio amateurs who are veterans of WW2.

The "Pobeda" Award is issued free of charge. Please send applications, signed and confirmed by two radio amateurs, to The Krenkel Central Radio Club of RF, PO Box 88, Moscow, Russia.

Accompanying this information was a letter from Professor Yu Zubarev, President of the above Club, imploring amateurs the world over to maintain communications with PO Box 88 in Moscow. While admitting that the Union of Radio Amateurs of Russia (SRR) has some membership, Professor Zubarev maintains that the old faithful, Box 88, is the best and most reliable source of business and information from the present Russia.

Until word to the contrary is received, I will continue to correspond with the old faithful.

VI50PEACE

From 1 August to 31 October, 1995, Hervey Bay Amateur Radio Club will be transmitting a message of peace around the world as part of the *Australia Remembers* commemorations. Operations will continue 24 hours a day. The certificate and QSL card for this operation are of excellent quality, so your participation is recommended.

Grid Square Standings

Here are the Grid Square Standings as at 28 June 1995.

Band	Call sign	Grids
2 Metres	VK3BRZ	42
	VK3TU	62
	T30JH	56
10 Metres	VK2CMV	104
	VK4ARB	89
15 Metres	VK2CMV	104
	VK4ARB	143
	VK3DP	109
20 Metres	VK2CMV	104
	VK3BRZ	19
40 Metres	VK3BRZ	19
	VK3ZJC	13

VI50PEACE



Celebrating the 50 year Anniversary of the Cessation of Hostilities of World War II and in remembrance of the men, women and children who lost their lives during time of war.

AWARDED TO

AWARDS MANAGER

ACTIVATED BY HERVEY AMATEUR RADIO CLUB QUEENSLAND AUSTRALIA

**Have you advised
the SMA of your
new address?**

The attractive VI50PEACE certificate is in dark green and cream, with a touch of gold, and measures 280 by 226 mm.

DICK SMITH ELECTRONICS

UNBEATABLE VALUE!

The deluxe 2m/70cm dual-band hand-held Transceiver that offers easier operation and more features than ever before is still available at an unbelievably low price!

The Yaesu FT-530 provides a flexible dual receiver facility with separate volume and squelch controls, allowing you to listen on two frequencies in the same band or one frequency on both bands! Plus, the exclusive Australian version features full 70cm band coverage (420-450MHz), selectable Auto Repeater Shift on both 2m and 70cm (suits Australian band plan), and extended receiver coverage as standard. Two VFOs and 41 tunable memories per band are provided, together with keypad or dial frequency entry, seven selectable tuning steps and a one-touch CALL channel. The dual 5.5-digit LCD screen is back-lit for easy viewing and includes many functional indicators plus separate signal/P.O. bargraphs for both receivers. An LCD voltmeter function is provided so you can even monitor your battery's performance under load and estimate remaining battery life.

Other top features include: Inbuilt CTCSS encode/decode, CTCSS scanning, an auto battery saver (ABS) for extended battery charge life, a cross-band repeater facility and an inbuilt clock with alarm and snooze functions. Also provides VOX circuitry for use with the optional YH-2 headset, a user-replaceable Lithium back-up battery, and DTMF selective calling and paging. A DC supply jack allows simple transceiver powering and NiCad charging, with RF output in four selectable steps up to 5W at 12V. The FT-530 comes complete with an ultra high-capacity 1000mAH NiCad battery, belt clip, carry case and approved AC charger.

Cat D-3620

Specifications

Frequency range:

Transmit:

Receive:

144-148MHz, 420-450MHz

130-174MHz, 420-500MHz, 800-950MHz

Current consumption:

Auto power off
Standby (saver on)

150uA

16.8mA (both bands)

Dimensions:

55(W) x 163(H) x 35mm (D)

Transmitter:

Power Output:
RF Power Output:

5, 3, 1.5, 0.5 (at 12V)
2.0W (2m) 1.5W (70cm)

(Supplied 7.2V 1000mAH NiCad)

Receiver:

Sensitivity:

2m: < 0.158uV, 70cm: < 0.18uV

(Ham bands only, 12dB SINAD)

Selectivity:

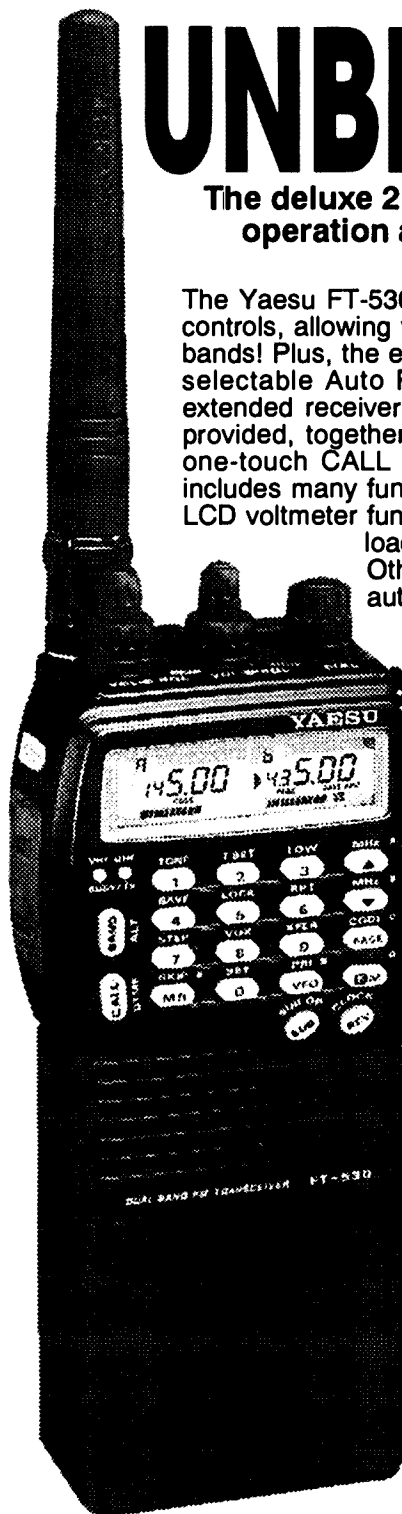
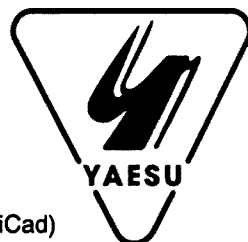
>60dB

Audio Output (12V):

300mW at 8 ohms (at 12V)

\$699

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Special Low Price!!



DICK SMITH ELECTRONICS

Don't go mobile without a Yaesu Mobile Transceiver!

Whether you're going bush or operating around town, a quality mobile transceiver from Yaesu delivers the best performance.

FT-2200 2m Mobile Transceiver

The FT-2200 is a compact, fully featured 2m FM transceiver providing selectable power output of 5, 25 and 50 watts, and includes the latest convenience features for more enjoyable mobile or base station operation. Built around a solid diecast chassis, it provides 49 tunable memories, a large variety of scanning modes, an instant recall CALL channel, 7 user-selectable channel steps from 5kHz to 50kHz and is just 140 x 40 x 160mm (not including knobs). Backlighting of the large LCD screen, knobs and major buttons is even automatically controlled to suit ambient light conditions. Also provided is a 38 tone CTCSS encoder, DTMF based paging and selective calling with Auto-Page/Forwarding features, and 10 DTMF auto-dial memories. The LCD screen provides a highly legible bargraph Signal/P.O. meter plus indicators for the various paging and repeater modes. An optional internal DVS-3 digital recording/playback board can also be controlled from the front panel, giving even greater messaging flexibility. Supplied with an MH-26DB hand microphone, mobile mounting bracket and DC power lead.

Cat D-3635

2 year warranty \$699



FT-5200 2m/70cm Mobile Transceiver

The FT-5200 uses the latest innovations in compact cross-band full-duplex and detachable front-panel design for brilliant mobile performance. It has 32 tuneable memories, a built-in antenna duplexer, dual full-frequency LCD screen (with signal strength/power output bargraphs for each band), 8-level automatic display/button lighting dimmer and dual external speaker jacks (one for each band). A thermally-activated fan allows up to 50 watts output on the 2-meter band and 35w on the 70cm band. Plus, scanning features include programmable scan limits, selectable scan resume modes, memory skip, priority monitoring and one-touch recall CALL channels. In addition, 6 user-selectable channel steps are provided and a FRC-4 DTMF paging selcall option lets you program a three-digit ID code so you can be paged by other transceivers, or page up to 5 other stations yourself. An optional YSK-1 remote panel lets you relocate the main rig (under the front seat, for example) and mount the control panel on the dash. The FT-5200 comes with hand-mic, mobile mounting bracket and DC power lead.

Cat D-3310

2 year warranty \$1399



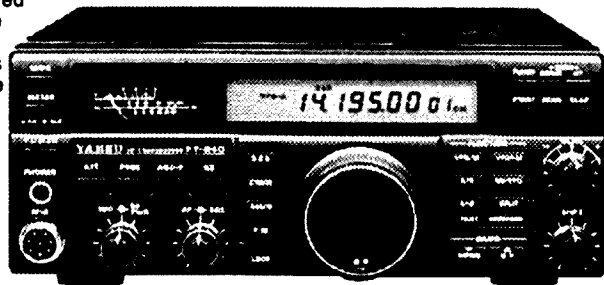
Yaesu FT-840 HF Transceiver

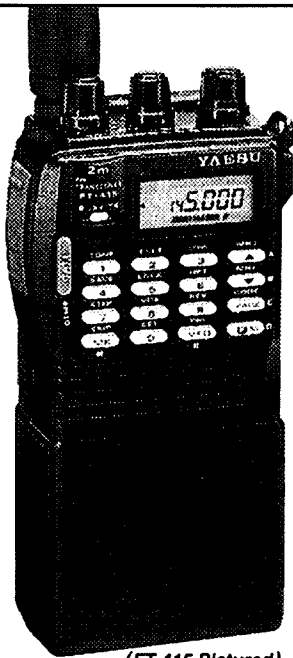
The FT-840 HF mobile transceiver sets the new standard for high performance in affordable transceivers. Covering all HF amateur bands from 160m-10m with 100w P.E.P. output, and with continuous receiver coverage from 100kHz to 30MHz, the FT-840 provides SSB/CW/AM operation (FM optional), 100 memory channels, a large back-lit LCD screen, two independent VFOs per band, an effective noise blanker and an uncluttered front panel, all in a compact case size of just 238 x 93 x 243mm (WHD). The FT-840 provides an SSB Speech processor for greater audio punch, and IF Shift plus CW Reverse to fight interference. Dual Direct Digital Synthesizers ensure clean transmitter output and fast Tx/Rx switching, while the low noise receiver front-end uses an active double-balanced mixer and selectable attenuator for improved strong signal handling. An extensive range of accessory lines are available, including the FC-10 external automatic antenna tuner, so you can customise the FT-840 to suit your operating requirements.

Cat. D-3275

2 year warranty \$1595

Limited Stocks. Some units may be slightly shop-soled, but full warranty applies.





(FT-815 Pictured)

GET ACTIVE ON 70cm Handheld Way Below Cost!

Yaesu FT-815 Deluxe 70cm Handheld

While stocks last, grab a deluxe FT-815 at a great bargain price! Ideal for Novice and Novice Limited licences.

Covers 430-450MHz, with selectable step sizes, 41 memories, 2 VFOs, and a CALL channel memory. Includes Keypad and dial frequency entry. Back-lit LCD screen and keypad, DTMF paging, variable Auto Battery Saver, Auto Power off, VOX, and DC power socket. Complete with long life 1000mA/H NiCad (1.5w RF out), carry case, belt-clip and AC charger.

Cat D-3615

Only \$399
2 year warranty



High Performance 2m/70cm Base Station Antennas

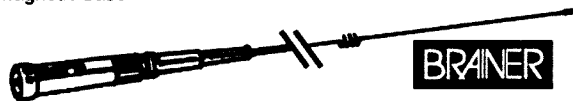
Our range of top-name Brainer base station antennas offer outstanding quality and exceptional value. They are stacked colinear types providing high gain, wide bandwidth and a low radiation angle for extended range. The fibreglass reinforced polyester (FRP) outer tubing random and gasket seals provide excellent all-weather operation, and they are supplied with compact ground-plane radials for a clean radiation pattern. Stainless-steel mounting hardware ensures a long trouble-free life. They also feature comprehensive instruction sheets to make installation and set-up easier. Both come with a 1 year warranty.

2m/70cm Mobile Antenna

The ST-7500 is a high quality medium-sized dual-band antenna that uses a ground independent design and tiltable stainless steel whip structure to provide excellent mobile results. It's just 1m long, yet provides approximately 3dB gain on 2m and 5.5dB on 70cm with a maximum power rating of 150 watts. Requires an SO-239 antenna base or SO-239 magnetic base

Cat. D-4810

\$8995

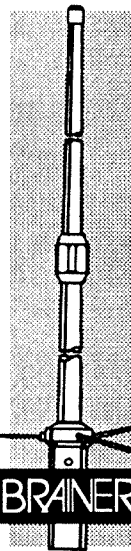


2m/70cm Hi-Gain Mobile

The ST-7800 is our best long-range, dual-band mobile antenna providing high gain (4dB on 2m and 7.2dB on 70cm), while only 1.5m in length. It incorporates an inbuilt tilt-over mechanism and has a maximum power rating of 150 watts. Requires an SO-239 antenna base.

Cat. D-4815

\$12995



2m/70cm GST-1

Frequency: 144-148MHz, 430-450MHz
Gain: 6dB on 2m, 8dB on 70cm
Max. Power: 200W
Length: 2.5m
Type: 2 x 5/8 wave (2m)
4 x 5/8 wave (70cm)
Connector: SO-239 socket

\$199

Cat. D-4830

2m/70cm GST-3

Frequency: 144-148MHz, 430-440MHz
Gain: 7.9dB on 2m, 11.7dB on 70cm
Max. Power: 200W
Length: 4.4m
Type: 3 x 5/8 wave (2m)
7 x 5/8 wave (70cm)
Connector: SO-239 socket

\$299

Cat. D-4835

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ACT • Belconnen (06) 253 1785 • Fyshwick 280 4944 VIC • Ballarat 31 5433 • Bendigo 43 0388 • Box Hill 9890 0699 • Coburg 9383 4486 • Dandenong 9794 9377 • East Brighton 9592 2366 • Essendon 9379 7444 • Frankston 9783 9144 • Geelong 232 711 • Highpoint 9318 6300 • Melbourne City 399 Elizabeth St 9326 6088 & 246 Bourke St 9639 0396 • Richmond 9428 1614 • Ringwood 9879 5338 • Springvale 9647 0522 QLD • Alderley 356 3733 • Booval 282 6200 • Brisbane City 229 9377 • Buranda 391 6233 • Cairns 311 515 • Capalaba 245 2870 • Chermside 359 6255 • Indooroopilly 878 4944 • Maroochydore 791 800 • Mermaid Beach 5578 5600 • Rockhampton 27 9644 • Southport 5532 9863 • Toowoomba 38 4300 • Townsville 72 5722 • Underwood 341 0844 SA • Adelaide City Pulteney St 232 1200 & Myer Centre 231 7775 • Elizabeth 255 6099 • Enfield 260 6088 • St Marys 277 8977 • Westlakes 235 1244 WA • Balcatta 240 1911 • Cannington 451 8666 • Fremantle 335 9733 • Perth City 481 3261 • Midland 250 1460 • Northbridge 328 6944 TAS • Glenorchy 732 176 • Hobart 31 0800 • Launceston 344 555 NT • Darwin 8981 1977

MAJOR AMATEUR STOCKISTS STORES SHOWN IN RED.

B 2048

WIA DXCC Standings

Here are the DXCC listings as at 1 July 1995.

Phone	Honour Roll
Callsign	Countries
VK5MS	326/379
VK4KS	326/372
VK4LC	326/372
VK5WO	326/361
VK6HD	326/350
VK6LK	326/350
VK4RF	326/344
VK3QI	326/339
VK3AKK	326/337
VK2FGI	326/331
VK3DYL	326/331
VK6RU	325/379
VK5XN	325/345
VK4OH	325/331
VK5QW	325/329
VK4UA	324/337
VK1ZL	324/329
VK5EE	322/327
VK6NE	320/335
VK3YJ	317/322

VK3OT	315/327	VK2SG	253/274	VK7TS	170/171
General Listing		VK2AVZ	251/257	VK2BQS	162/165
VK7BC	314/323	VK4QO	251/255	VK4BAY	158/160
VK3AMK	313/329	VK3DP	245/248	VK2NO	157/
VK3CSR	312/320	VK2PU	244/247	VK4IT	153/154
VK6AJW	312/317	VK6YF	238/241	7J1AAL	149/150
VK4AAR	309/312	VK2CKW	234/237	VK4ARB	149/150
VK6VS	309/312	PS7AB	233/237	VK4DMP	147/148
VK6PY	307/312	VK3DS	226/336	VK3DNC	141/142
VK5WV	305/324	VK2ETM	226/227	VK6LC	139/140
VK3RF	304/311	VK4SJ	220/	VK2EQ	139/
VK2DEJ	304/309	VK5IE	219/221	VK4CHB	137/138
VK3WJ	303/308	VK5BO	218/222	VK2SPS	135/137
VK6RO	299/304	VK3UY	217/217	VK4VJ	135/137
VK3JI	298/312	VK6APW	216/217	VK6LG	135/135
VK2WU	292/296	VK3DD	214/217	TI2YLL	129/
VK4DP	289/300	VK4XJ	204/216	VK4IL	129/
VK2AKP	289/294	VK4CY	202/203	LU5EWO	125/
VK4BG	287/302	ON6DP	200/202	SM6PRX	122/126
VK2DTH	287/289	VK4KRP	199/201	VK3TI	122/125
VK2APK	285/313	VK2VFT	198/201	VK7WD	115/116
VK3CYL	283/290	VK4DDJ	198/198	VK3BRZ	114/116
VK3DU	282/290	VK3CIM	196/199	VK4NJQ	111/115
VK5OU	281/286	VK3DVT	196/198	VK4VIS	111/113
VK3VU	272/275	VK4AU	191/191	VK5GZ	108/110
VK4OD	272/275	VK6BQN	186/190	VK5AGM	105/107
VK3GI	264/267	VK4ICU	182/184	N4JED	104/105
VK3VQ	259/276	KA1TFU	176/179	VK3EHP	103/105
ZS6IR	259/262	VK4LV	174/176	VK4BJE	102/104
		WA1MKS	171/	JH3OHO	101/103

Communications

INCORPORATING AMATEUR RADIO ACTION AND CB ACTION

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- **Pro-Am HF whip antennas.** These mobile antennas produce amazing signals...

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VK6APH	100/101	VK6BHW	150/152	VK3OT	318/330	VK2VFT	202/205
VK4KGE	099/101	VK4UA	143/155			VK7TS	201/202
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General Listing		VK7TS	125/	WA3HUP	306/330	VK6NV	154/156
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VK2APK	274/304	VK5QJ	107/109	VK2SG	289/314	VK4EZ	129/138
VK3JI	267/291	VK2FYM	106/108	VK2AKP	289/294	YB8GH	127/129
VK3AKK	267/272	VK8KV	102/103	VK4OD	285/288	VK7HV	114/117
VK7BC	230/239	VK2CXC	101/103	VK3CYL	283/290	VK5BWW	111/112
VK3DP	227/230	Open		VK3VQ	274/291	VE7BS	106/107
VK4LV	223/230	Honour Roll		VK3UY	272/274	VK3COR	102/104
VK4DA	221/223	Callsign	Countries	VK5BO	264/301	VK3VB	102/104
VK2CWS	210/212	VK4KS	326/372	TF5BW	260/264	SM7WF	101/
VK4DP	203/214	VK5WO	326/364	VK4CY	256/257	VK7DS	099/102
VK6PY	191/194	VK4RF	326/361	VK4LV	242/249	RTTY	
VK4OD	185/188	VK6HD	326/351	VK2ETM	239/240	Callsign	Countries
VK3CIM	184/185	VK3QI	326/340	VK3CIM	236/239	VK3EBP	198/200
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VK3DNC	154/157	VK4UA	324/339	VK4DA	222/224		
VK4CY	154/	VK3JA	323/370	WA5VGI	216/218		
				VK2CWS	214/216		

*PO Box 2175 Caulfield Junction 3161
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How's DX

Stephen Pall VK2PS*

The other day a direct QSL card arrived from an Australian Novice operator who was thrilled at having worked his first AX prefix on 80 metres.

Being the QSL manager for AX2ITU, I replied with our card, encouraging him to study and to pass the examination for the full call, suggesting to him that he will have plenty of good fun working DX on the other bands. To my surprise he replied. I quote below most of his letter. For obvious reasons his name, callsign, location and the name of the amateur radio club he is referring to, remain confidential.

He wrote, "Stephen, thanks so much for the AX QSL card and short note. Yes, I know I will have more fun with a full call. I have only been an amateur for two years and I have not been very active due to work. Anyway, about upgrading to a full call. To be honest I do not care anymore as I have lost my interest in radio due to the fact that here in (QTH) there is an old timers' group of amateurs and, because

I am a young bloke, I just don't fit in. I have been a WIA member since I got my licence and I must say that they have done a good job in getting Novice stations packet radio, but here there are full calls who are saying that in my day you had to be able to build your own station and packet radio should be for the smart people. Yes, I have heard this, Stephen. Even though I can do CW at 20+ wpm, my theory is not up to their standard so I am not a smart person. This is why this year in November when my licence runs out I do not think I will pay for the renewal and will sell all my gear.

You might think this is too much. Well, when you go to a club meeting and ask for help from the club in doing the upgrade theory, they forget you asked."

His letter ends here. Are you shocked? I was when I read the letter, and I am still shocked. Is this a true picture of the so-called "old timers"? Do old timers or clubs behave everywhere like those in that locality? Is snobbishness about certain

callsigns still part of our amateur life? You, the reader, should be the judge!

In the meantime I have written to my young friend suggesting a few good books which could be useful for his home study. I hope he changes his mind and will stay with the hobby.

Australia Remembers — VI50PEACE

The Hervey Bay Amateur Radio Club of Queensland is promoting the above award by activating the special event station VI50PEACE from 1 August until 31 October 1995.

The activity will commemorate the men, women and children who lost their lives due to the acts of aggression experienced during the war years. Activity will be across all bands from 160 to 2 metres, including the WARC bands and packet radio. Some preferred frequencies will be 1.820, 3.615, 7.058, 10.150, 14.215, 18.120, 21.195, 24.945, 28.580, 50.110 and 144.100 MHz SSB, plus all the usual CW frequencies, shifting off recognised call frequencies as and when required. Packet frequencies will be advertised on Bulletin Boards worldwide with correct addresses.

A very attractive QSL card and award certificate have been produced by the Club. The Award itself will cost \$US5.00, which includes airmail return postage. The direct QSL requires only a SASE or one IRC to QSL Manager, HBARC Inc, PO Box 829, QLD 4655, Australia.

Heard Island — VKO

For many months there have been rumours that two interested DX groups are in the process of organising a DXpedition to Heard Island, one of the most wanted DXCC countries.

Heard Island is a gale-swept volcanic island in the south of the Indian Ocean, lying at latitude 53° 10' S and longitude 73° 23' E. It is approximately 1500 km north of the Antarctic Circle and about midway between South Africa and Australia, at a distance of 4100 km south-west of Perth. It is about 27 miles long and 13 miles wide formed around a volcanic mountain mass named Big Ben, the highest point of which, Mount Mawson, rises to slightly more than 9000 feet. There are no secure anchorages around the coastline and all land above 1000 feet is perpetually covered with snow. The island became Australian Territory on 26 December 1947 when a permanent station was established there for scientific and meteorological research.

Heard Island was first sighted by the British sealer Peter Kemp, Master of the brig MAGNET, on 27 November 1833, but Kemp did not publish his discovery and the island takes its name from Captain Heard of the American ship ORIENTAL, who independently discovered the island in 1853 when on passage from Boston to Melbourne. When the research ship HMS CHALLENGER visited Heard Island for a short survey in 1874 they found about 40 sealers established there, but subsequently the number of seals declined and a German party in 1902 found the island to be deserted. A passing British ship reported in 1910 that Big Ben was in violent eruption. A South African company had sealing and mineral rights over Heard and nearby McDonald islands in the years between 1929 and 1934.

A British, Australian and New Zealand Antarctic Research Expedition under Sir Douglas Mawson visited the islands in the ship DISCOVERY in November 1929, but it was not until the arrival of the Australian National Antarctic Research Expedition (ANARE) in 1947 that a permanent scientific research station was established. This permanent station was discontinued in 1954, but a base camp was maintained as a staging point for expedition vessels en route to the Antarctic mainland.

Heard Island is visited regularly by

ANARE scientists, but these days with modern communication methods at their disposal, the humble amateur radio operator is not considered to be a necessity for such scientific undertaking. It was quite a different story in the "good old days". The first amateur activity from Heard Island came in 1947 when Allan Campbell-Drury signed VK3ACD/Heard. He was on the island for 15 months and returned to the island for the two following years with ANARE. It was also reported that in the years of 1948-50 Michael Vause was signing as VK1HV/Heard. According to CQ Magazine, N T Lied used the VK0NL callsign in 1963. Bob Allison was also reported in the same year using the callsign VK1RA. Don Miller W9WNV "used" the call VK2ADY/VK0 in 1966. In 1969 Bill Rohrer W7ZFY was heard with the callsign VK0WR when the USCG SOUTHWIND stopped to unload some scientific equipment. Hugh Milburn WAGEAM signed VK0HM in 1976 when he was on Heard Island in connection with a group making celestial observations for the National Mapping Authority.

There is also a suggestion that a year later a French group visited the island and F2JD was reported to be active using the VK0HM callsign. The national mapping group apparently visited Heard Island several times. In 1980 the ship CAPE PILLAR took some members of the mapping group to the island. The call VK0RM was used by the radio officer of the ship. He made only a limited number of contacts before his equipment failed.

There was no reported amateur radio activity between the years of 1980-1983. 1983 saw the start of the properly organised combined scientific-amateur DXpeditions to the island. To the delight of the "deserving", not one, but two independently organised DX groups visited the island in January-February 1983. The West Australian VK6 DX Chasers Club combined with a mountaineering group on the island from 21 January to 21 February 1983 and made 30,000 contacts under the callsigns VK0HI and VK0CW. The operators were Dave Shaw VK3DHF and Al Fisher K8CW.

Jim Smith VK9NS was the leader of the other group, HIDXA, which visited the island more or less at the same time as the VK6 DX Chasers Club expedition. HIDXA, The Heard Island DX Association was formed in 1980 with the sole objective of activating this rare DXCC country. The HIDXA group of five amateurs and 13 scientists landed on the island on 5 February. The operators were VK9NS, VK9NL, VK0SJ, WA8MOA and OE1LO, using the callsign VK0JS, and made 14,000 plus contacts with 138 countries. The adventurous and very often dangerous sea voyage in the old whaling ship CHEYNES II to Heard Island and back to Albany, WA is a separate story in itself.

No radio amateur activity was then noticed from Heard Island until late 1986, early 1987, when Frank VK0DA spent two months on the island as a member of the ANARE Team.



Rachid 3B8FQ in his shack in Mauritius.

This brings us up to the latest proposed DXpedition. A group from the Peter Island 3Y0PI team intends to visit Heard Island in November this year. Permission to land has been obtained from the Australian Antarctic Division. All environmental assessments and letters of indemnification have been filed and approved. Separate scientific work during the stay of the expedition has been planned and is expected to be approved. A 140 ft vessel has been chartered for the trip. The team will sail from Fremantle, WA on 1 November and is expected to land on 12 November.

Intended return to Fremantle is to commence on 1 December, arriving there on 12 December 1995.

Activity on all bands and all modes, including digital and satellite, is promised. The group of intending operators includes K0IR, KK6EK, ON6TI, HB9AHL, N6EK, PA3DUU, K5VT, DJ9ZB and JH4RHF. Donations to defray the high cost of transportation should be forwarded to K0IR, Heard Island DXpedition, PO Box 563, Waite Park, MN 56387-0563 USA.

Huang Yan Dao — BS7H

The Scarborough Reef DXpedition made a total of 11,832 QSOs out of which 5,539 were made with Japan, 238 QSOs with the US and 3,955 QSOs with the rest of the world. The expedition produced a colour QSL card which shows a sizeable rock above the watermark accommodating six operators and their equipment, with an operating desk, umbrellas for shelter and a vertical antenna.

The latest news is that a new expedition is being prepared to go to Scarborough Reef. Wayne N7NG advises that a licence, with a new callsign BS7A, has been obtained from the Peoples' Republic of China authorities, and an international team of operators including N7NG, OH1RY, SM7PKK and JH4RHF, is now being assembled. The operation is expected to last six days including a full weekend. The expedition will be supported by the Philippines IARU Society (PARA) and the CRSA, the Chinese IARU society. The operation will include the low bands and RTTY, and a beam antenna will be used for the first time.

Tung Sha Dao — BV9P

The Pratas Island DXpedition closed the station around 2300 UTC on 4 June. The predicted typhoon fortunately avoided Pratas. The DX group achieved a total of 25,000 QSOs. 4,000 contacts were made with the US, 6,500 with Europe and nearly 13,000 with Japan and the local area. Some contacts were made on

80 and 40 metres but the primary objective was to get as many different callsigns in the logs as possible.

North Korea — P5

Tim KJ4VH reported that full documentation of the recent P5/OH2AM activity has been submitted to the ARRL DXCC desk for approval and the addition of North Korea to the DXCC countries list is expected soon. North Korea is the last of the United Nations member countries to be added to this list.

There is further good news about North Korea. Two members of the recent P5 activity, OH0XX and OH2BH, have received an invitation already for a full scale amateur radio activity. The respective callsigns will be P51XX and P51BH. This operation is expected to take part later on this year.

Future DX Activity

- The new Baghdad Radio Club is now on the air with the callsign Y11RS. QSL to Box 55072, Baghdad, Iraq.
- The DXpedition to Easter Island will be from 2 to 23 September with the callsign XR0Y.
- Pres N6SS will be at Diego Garcia for a four months stay. He will use the callsign VQ9SS. QSL to home call via the W6 QSL Bureau.
- In September there will be activity from Juan Fernandez island. Bob K4UEE and Randy K0EU will be on the island from 13 September for seven days.
- The South Sandwich Island DX Group led by Tony WA4JQS is also preparing an activity from Heard Island early in 1996.
- Wake Island KH9 will be active in the northern autumn 1995. A group of US amateurs plans to be active for one week.
- Selim OE6EEG will be in Tunisia and will operate the Club station 3V8BB from 3 to 17 August.
- Dominik DL5EBE will be active from Svalbard Island as JW0K. QSL to his home call.
- Jose T12JJP is planning a new activity from Cocos Island (Pacific) in October.
- Eric 5T5JC will be active until 25 August as 5T6E on all bands and modes. QSL to F6FNU.
- The activity from Salas y Gomez island will take place from 1 to 22 October. The expedition will be led by Carlos NP4IW and will sign as XR0Z. SyG will count as Easter Island CE0 for DXCC purposes but it will become a new IOTA reference number.
- Valy D2/YO3YX is with the Romanian Army Contingent in Angola until the end of the year, attached to the United Nations Medical Corps. QSL via

YO3YE, Box 55-36, Bucharest, Romania.

- NH6YK will be active from Belau with the callsign KC6YK until 25 August.

Interesting QSOs and QSL Information

E = East coast; W = West coast; M = Rest of Australia.

- 9J2BO — Brian — 14195 — SSB — 0618 — June (E). QSL to W60RD Norm Friedman, PO Box 19055, Encino, CA 91416-9055, USA.
- VP2VF — Dirk — 14226 — SSB — 1252 — June (E). QSL to Dirk de Jong VP2VF, PO Box 137, Road Town, Tortola, British Virgin Islands, West Indies.
- V44KBP — Terry — 16121 — SSB — 0422 — May (E). QSL to PO Box 827, St Kitts, West Indies.
- YM0KK — 14260 — SSB — 0705 — May (E). QSL to Box 93, 81031 Istanbul, Turkey.
- HV4NAC — Francesco — 14195 — SSB — 0617 — May (E). QSL to IK0FVC, Francesco Valsecchi, via Bitossi 21, 1-00136 Roma, Italy.
- 5N9ABY — 14164 — SSB — 0528 — June (E). QSL to Alhaji Y Abu Bakar, PO Box 1915, Sokotu, Nigeria.
- IP0JN — Joe — 14263 — SSB — 0411 — June (E). QSL via IK0DYD, Francesco Benenatu, Via Acquaviva 85, 1-81100, Caserta, Italy.
- T30EG — Bry — 7083 — SSB — 0655 — June (E). QSL to KH6JEB, Richard Senones, 95-161 Kauopae Place, Mililani Town, Hawaii, 96789, USA.
- 7P8SR — Ray — 14164 — SSB — 0540 — June (E). QSL to Ray Shankweiler, PO Box 333, Maseru 100, Lesotho, Africa.
- T20XC — Masa — 10.107 — CW — 0637 — June (E). QSL to JE1DXC, Masayoshi Mihara, 4-22-23, Honda, Urawa, Saitama 336, Japan.
- C21DJ — Darkey — 14160 — SSB — 0435 — June (E). QSL to PO Box 217, Republic of Nauru.
- 4H1TR — 14260 — SSB — 0608 — June (E). QSL to I2CBM, Umberto Cambieri, Via Bucella 32 6, 1-27029 Vigevano, Italy.

From Here There and Everywhere

- The British Virgin Island (VP2V) QSL Bureau is run by Dirk de Jong (see address above). He will accept cards for VP2V stations only.
- DU97RG, a special event station, celebrated the 97th anniversary of the independence of the Philippines on 12 June.
- T30EG, Bry, is a maths/science teacher seconded to a Kiribati high school by the American Peace Corps

administration. As he is 18 km from the nearest town, and he has only three hours of power a day, his rig is dependent on a battery/solar power combination. He will stay on Kiribati for a further one and half years. So far he has made 1,000 QSOs.

- Ron ZL1AMO was on Tokelau Island activating the callsign ZK3RW. He arrived on 21 June and had to wait many weeks for the returning boat which took him off the island.
- The RSGB has appointed Chris Page G4BUE as the new editor of *DX News Sheet* (DXNS). Chris promises a fast turn around of news and, as a result, he has reduced the newsletter size to four A5 pages. He also announced that other DX information will be published in a new DX Magazine which will appear each month and will contain 16 A5 pages.
- If you need Mauritius, look out for Rachid 3B8FQ who is QRV on the "old bands" in CW at around 1400 UTC on 20 metres. His preferred frequencies are 7008, 14008, 21008 and 28008 kHz. Rachid is running 100 watts into a TH3JR and also a long wire antenna. His daughters will be soon on the air with the callsigns 3B8AA and 3B8AH.
- The following stations have been reported by various DX Newsletters as being pirate operations: A73CW (K7CW is not the QSL manager), 3A5OA and 3A2CC.
- Canadian stations will use XK, XJ, XO and XN prefixes between 8 July and 8 September to mark the 50th Anniversary of the end of World War II.
- 9N1ARB is an American in Nepal working for the UN and will stay there about five more years. The Nepalese amateurs want to establish a club station with the call 9N1MM in memory of the late Father Moran.
- There are some unconfirmed reports that the YVORCV cards are starting to arrive in the mail.
- VU2JPS on Andaman Island can be heard in list operations on 14205 kHz at 1750 UTC. It is rumoured that VU2RKC and other VU radio amateurs are planning a trip to the Andamans in October this year.
- There is news that the Kergulen station FT5XJ will be active until 15 December, and again from January to March 1996.
- The price of IRCs in the USA post offices has increased by 10 cents to \$US1.05 and the redemption value increased to \$US0.60 cents. At the same time international postage rates in the US have increased to \$US0.60 to overseas countries.
- TA2ZW is Zdenko OK2ZW who will be in Turkey for the next three years. QSL

to the OK DX Foundation, PO Box 73, 293 06 Bradlec, Czech Republic.

- The new address of IOTA expeditioner Bernhard Stefan DL2GAC is Moeggenweiler Str 18, 88677-Markdorf, Germany.
- 7Z5OO, Mike, will be active from Saudi Arabia for another year until June 1996. QSL to W1AF.
- The Beijing International DX Convention will happen between 13 and 16 October 1995. Presentations on the Pratas and Scarborough Reef DXpeditions are on the agenda. The convention will be held at the China Resources Hotel. The registration cost is \$US300 which includes lodging and meals, tour admissions and local transportation.
- Seborga again. The ITU has reported that the TB callsign block has not been issued to Seborga or to anyone else. As Seborga is not a member of the ITU yet, its application has to be supported by a country which has full membership of the international organisation. Due to administrative reasons, this move apparently takes longer than anticipated. All the T88 activity has now been suspended from the Principality. Back to square one.

- Tim 4U/KC0PA is active from Western Sahara. QSL to VE9RHS.
- Do you remember Frank or "Zig" VK2EKY? In 1990 Frank was very active in the Pacific region as ZK2EKY, ZK3EKY, 5W1KY, A35KY, KH8/VK2EKY, KH2/VK2EKY and as 7J1AGD/6. Frank now lives in Japan and is active on 20 metres around 14245 kHz at about 0600 UTC as 7J6AAK/2. He sends his greetings to all his friends in Australia.

QSLs Received

ST2AA (2 w WB2RAJ) — N2PQE/KH (4 w JE2HCJ) — ZS6P (4 m Op) — KG4ZE (5 w K4SXT) — 5U7Y (6 w JG3UPM) — RX1OX/FJL (2 m DL6YET).

Thank You

Many thanks to my friends and supporters who supply me with news and information. Special thanks to VK2CJH, VK4AAR, VK4BX, VK4CY, VK4MZ, VK4OH, 7J6AAK/2, HBARC Inc, *The Australian Encyclopedia*, *CQ Magazine*, and the following publications *QRZ DX*, *The DX Bulletin*, *The DX News Sheet*, *Indexa* and *GOLIST QSL Managers List*.

*PO Box 93, Dural NSW 2158
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Contests

Peter Nesbit VK3APN — Federal Contest Coordinator*

Contest Calendar Aug — Oct 95

Aug 5/6	YO DX Contest	(Jul 94)
Aug 12/13	Remembrance Day Contest	(Jul 95)
Aug 12/13	Worked All Europe CW	(Jul 95)
Aug 12/13	SARTG RTTY Contest	
Aug 19/20	SEANet SSB DX Contest	(Jul 95)
Aug 19/20	Keyman's Club of Japan (CW)	(Jul 95)
Sep 2/3	All Asia DX Contest Phone	(May 95)
Sep 3	Bulgarian DX Contest	
Sep 3	Panama Anniversary Contest	
Sep 9/10	Worked All Europe Phone	(Jul 95)
Sep 16/17	SAC DX CW	
Sep 23/24	SAC DX Phone	
Sep 23/24	CQ WW RTTY DX Contest	
Oct 1	RSGB 21/28 MHz Contest Phone	
Oct 7/8	VK/ZL/Oceania DX Contest Phone	
Oct 14/15	VK/ZL/Oceania DX Contest CW	
Oct 15	RSGB 21/28 MHz Contest CW	
Oct 21/22	Worked All Germany Contest Mixed	
Oct 28/29	CQ WW DX Contest Phone	

New VK/ZL Trophy

This month's column contains the rules for the 1995 VK/ZL/Oceania DX Contest. They are the same as last year, except that the highest scoring CW station will now be awarded the Frank Hine VK2QL

Memorial Cup, and receive a wall plaque, thanks to the generous support of Ms Susan Hine, daughter of the late VK2QL. Frank was a keen contester and superb operator, and it is fitting to see him remembered in this way. Many thanks are extended to Ms Hine for her gesture.

Kiwis beat Aussies?!

The CW leg of the combined Australian sprints took place last weekend, and all I can say is that you VKs are such an unadventurous lot! Those who took the plunge and operated in more than one contest, were rewarded with a good number of QSOs, several interesting hours, and a feeling of real achievement by the end. Unfortunately, with VK activity at its usual low ebb, one had to rely on working ZLs for the majority of contacts. Thankfully, the ZLs showed none of the characteristic Aussie reticence when it came to getting on air and "having a go"!

Admittedly, the ZLs were on mainly for their own Memorial Contest, but where were the VKs for their own VK contests? I found it ironic, even amusing, that last night's lead story on "60 Minutes" was that, despite our superior reserves of land, people, and natural resources, the Kiwis are beating the pants off us on several fronts, including economic success and community confidence. Following last weekend's effort, one should probably add contests to the list as well (and that is despite all my haranguing over the last few years, about the need for more VK activity)!

As testers, how many times are we asked "please QSY to another band for another QSO, because you are my only VK in this contest"? As I've said before, there are many superb testers in Australia; however, we need to be more active and adventurous if we are to catch up with the rest of the world. Hopefully, by this time next year, a few more of you might realise that it can be just as much fun (or even more so) to enter a local event as a DX one, even if you're not working countries ten to the dozen. There is a saying "charity begins at home", and I believe the same applies to contesting. So, see you in next year's sprints (and if I don't hear you on, I'll be around personally to chop your antenna down)!

Remembrance Day Contest Survey

Over the last couple of years a number of letters have been received inquiring about the possibility of reinstating the old HF points table, in lieu of the current fixed points per QSO. For those who may be unfamiliar with the table, this was a system used for many years prior to 1981, wherein points were awarded on a scale of 1 to 6, according to the degree of difficulty of the QSO. For example, whereas QSOs between adjacent states were worth minimal points, those with VK0 attracted six points. Other QSOs attracted intermediate points. The objective was to encourage entrants to search for distant

stations, and also to exercise their skill at balancing the relatively easy cross-border QSOs with the weaker, but more valuable, long-distance ones.

The downside was that logs took a bit longer to prepare, and scoring errors were somewhat more likely to occur. A modern objection would be the inability of most contest logging software to cope with such a table, making it necessary to enter the points by hand (or better still, by macro).

However, as part of the ongoing effort to improve the RD Contest, it is fair to ask whether the existing fixed points per QSO should be retained, or should the points table system reinstated, or should another scoring system altogether be tried?

Because this is the sort of decision best made by entrants themselves, YOU are invited to nominate your preferred scoring system for next year's contest, when submitting your log for this year's contest. Note that this nomination is entirely voluntary, and will not affect the scoring system used this year, which was described in the rules last month. Your vote on this issue, and any other applicable comments you wish to make, will be greatly appreciated.

Many thanks this month to VK1PJ, DL2DN, LA4YW, CQ, QST, and *Radio Communications*. Until next month, good contesting!

73,
Peter VK3APN

Addendum to Results of 1993 CQ-WPX CW Contest

Due to an apparent error in the information supplied to the WIA, the CW winner for VK5 was shown in the May column as "VK5AGS", whereas it should have been VK5AGX. Please amend your issue accordingly.

SARTG RTTY Contest

12/13 August, 0000-0800z & 1600-2400z Sat, 0800-1600z Sun.

This is the 25th annual contest sponsored by the Scandinavian Amateur Radio Teleprinter Group. Use 80-10 m; classes are single operator, single and multiband; multioperator single Tx; SWL. Exchange RST and QSO number. Claim five points for QSOs with own country, 10 points for other countries on the same WAC continent, and 15 points for other WAC continents. Multiplier is total DXCC countries plus each call area in USA, VE/VO, and VK. Final score equals total QSO points (all bands) times total multiplier (all bands). Use a separate log for each band. Send logs and summary sheets to be received by 9 Oct to SARTG Contest Manager, Bo Ohlsson SM4CMG,

Skulsta 1258, S-710 41 Fellingsbro, Sweden.

Bulgarian DX CW Contest

3 September, 0000-2400z Sun.

This contest runs on the first Sunday of September each year on 80-10 m, CW only. Exchange RST plus ITU zone (P2 = 51, VK4/8 = 55, VK6 = 58, VK1/2/3/5/7 = 59). Score six points for each QSO with an LZ, three points for each QSO outside your WAC continent with a non-LZ, and one point for each QSO within your WAC continent. SWLs score three points if both exchange numbers are copied, and one point if only one exchange number is copied. Multiplier equals the total ITU zones worked on each band. The final score equals the total QSO points (all bands) times the total multiplier (all bands). Send logs postmarked within 30 days (3 Oct) to Central Radio Club, Box 830, 1000 Sofia, Bulgaria.

Panama Anniversary Contest (SSB)

3 September, 0000-2359z Sun.

The Panama Radio Club invites all radio amateurs to participate in their 24th annual contest. The only category is single operator all band SSB. Exchange RS plus serial number. Score two points for QSOs with HP club members, and one for others. The multiplier is the total DXCC countries worked on all bands. Certificates of participation will be sent to all amateurs working 10 or more HP stations, upon receipt of three IRCs, and a plaque to the highest scoring station in each continent. Send log postmarked by 30 November to Radio Club Panama Contest, Box 10745, Panama 4, Panama.

35th Scandinavian Activity Contest

16/17 September (CW), 23/24 September (Phone); 1500z Sat — 1800z Sun.

The CW and phone sections of this contest run on the third and fourth full weekends of September respectively, each year. The object is for amateurs worldwide to contact as many stations in Scandinavia as possible, on 80-10 m (no WARC bands). Scandinavian prefixes are LA/LB/LG (Norway); JW; JX; OF/OG/OH/OI (Finland); OF0/OG0/OH0 (Aaland Isl); OJ0 (Market Reef); OX; OY; OZ; SI/SJ/SK/SL/SM/7S/8S (Sweden); and TF.

Categories (all band only) are single operator; single operator QRP (max 10 W I/P); multioperator single transmitter; and SWL. Exchange RS(T) plus serial number starting at 001. For each QSO, score one point on 20, 15 and 10 m, and three points

on 40 and 80 m. The multiplier is the number of call areas (0-9), not prefixes, for each Scandinavian country worked on each band. Portable stations without a district number count as area 0, eg G3XYZ/LA counts as LA0. OH0 and OJ0 are separate call areas. The final score is total QSO points (all bands) times total multiplier (all bands).

Use standard format for logs and summary sheets. Show duplicate QSOs with 0 points. Dupe sheets are required for 200+ QSOs. Forward separate logs for CW and phone sections. Logs on DOS disk in lieu of paper are preferred, if possible. Disk logs must be in ASCII, one QSO per row, and labelled with the call, contest name, section/s, and contest date. Include an SASE if you want your disk returned. Summary sheet must be on paper. The mailing address alternates between EDR (Denmark), SRAL (Finland), SSA (Sweden), and NRRL (Norway) in that order. For 1995, send logs postmarked by 31 Oct to SRAL HF Contest Manager, M Toijala OH2BQZ, Kiskontie 26A, SF-00280 Helsinki, Finland. Comprehensive awards to top scoring stations.

CQ WW RTTY DX Contest

23/24 September, 0000z Sat — 2400z Sun.

In this contest the object is to contact as many stations worldwide as possible using digital modes (Baudot, ASCII, AMTOR (FEC & ARQ), packet on 80-10 m (no unattended operation or operation through gateways or digipeaters), etc. Note new rule! All stations may now operate for the full 48 hours.

Categories are single operator unassisted, single and multiband; single operator assisted, all band; multioperator single Tx, all band ("10 minute" rule applies to this category EXCEPT that one — and only one — other band may be used during the 10 minute period, if — and only if — the station worked is a new multiplier); multioperator multi Tx, all band. Single operator entrants can enter the low power section (up to 150 W) or high power (more than 150 W).

Stations may be contacted only once per band, regardless of the mode used. Send RST plus CQ zone; W/V/E will send RST, state or area, and CQ zone. Count one point for each QSO with stations in your own country, two points for each QSO outside your country but inside the same WAC continent, and three points for each QSO with stations outside your continent. On each band, the multiplier equals the sum of US states (max 48) and Canadian areas (max 13) PLUS DXCC countries (including W and VE) PLUS CQ zones (max 40). Note: KL7 and KH6 are

claimable as country multipliers only, not state multipliers. Canadian areas are VO1, VO2, VE1 (NB), VE1 (NS), VE1 (PEI), VE2, VE3, VE4, VE5, VE6, VE7, VE8, and VY. The final score equals total QSO points times total multiplier from all bands.

Submit a single summary sheet including scoring calculations for all bands, plus for each band a separate log, duplicate check list, and multiplier check sheet. Send logs postmarked by 1 December to Roy Gould KT1N, CQ WW RTTY Contest Director, Box DX, Stow, MA 01775, USA. (Box "DX" is not a misprint!) A comprehensive range of plaques and certificates is offered.

Results of 1994 WAE DX Contest

VK5GN was continental winner on phone, and VK2APK on CW.
(callsign/score/QSOs/QTCs/mult):

CW:				
VK2APK*	180320	490	490	184
VK3APN	264	11	0	24
VK4TT	168	12	0	14
Phone:				
VK5GN*	39864	163	139	132
VK2APK	30456	141	141	108

Results of 1995 John Moyle Field Day Contest

Presented by Phil, VK1PJ

I am pleased to report that the President's Trophy, awarded to the portable single operator with the highest CW score, this year goes to Laurie VK4BLE. Well done Laurie!

I did not get the chance this time around to see what people ate and drank whilst roughing it (roughing it; that's a joke!). I believe that some even took the TV so that they would not miss their favourite shows. And what was that "brown stuff" they had in the fridge? Crikey, some people have it easy these days! However, I must admit doing the same when organising VK1WI. We even took champagne, cheeses, nibbles and a telescope, so that at 2 am we could have a party while trying some EME (EHE?) on Halley's Comet. Not one response though; there must have been a fault in the handheld!

I note from the comments that at least someone in VK4 had good weather this year. Also, VK4WIP had their share of Murphyitis, including trouble with an EFTPOS breaking down, the Fairlane almost blowing its poofer valve, sorehead-Pete (who was that man) sleeping in, and one poor soul trying to sleep without a sleeping bag (it's freezing where they went). At least the weather held off until after the contest. Another station, VK4WIT, must be the best organised ever

with their specially prepared folder, operating hints, and operation orders.

This year I received comments only from VK4. Next year I would like to see comments from others as well, but be careful; you never know what incriminating stuff I might use!

Logs were noticeably neater this year. Thanks also for the entries sent on floppy disk, which made them very easy to check using my log checking program. If you are considering a disk next year, I will only need the cover sheet and disk.

Many thanks to Barbara V85BJ for her log. Pity there aren't more logs submitted by DX stations. I would also like to thank the following home stations whose participation in the contest was much appreciated by the portable operators: VK1FF, VK1PJ, VK1PK, VK2APK, VK2RJ, VK3ALD, VK3KS, VK3VQ, VK3WB, VK3XB, VK4AJH, VK4BTS, VK4KMA, VK4PJ, VK6BK, VK6CSW, V85BJ.

Stations with a "*" next to their score have been awarded certificates for their efforts in their section.

6 Hour Results:

Multioperator, All Mode, HF:
VK4WIN 206*
VK2HZ 190

Multioperator, CW, HF:
VK4CHB 50*

Multioperator, Phone, All Band:
VK2FRE 726*
VK3APW 580*
VK4YH 256*
VK8DA 40

Multioperator, Phone, HF:
VK7SHV 54*

Single Operator, CW, HF:
VK4BLE 102* Trophy

Single Operator, Phone, All Band:
VK4OE 884*
VK5DL/3 224

Single Operator, Phone, HF:
VK5SK 132*
VK5UE 10

Single Operator, Phone, VHF:
VK2ANK 544*
VK4IS 212*
VK5AV 58

24 Hour Results:

Multioperator, All Mode, All Band:
VK4WIS 2356*
VK6ANC 2208*
VK4WIP 1005*
VK3BTX 794
VK3DXH 330

Multioperator, All Mode, HF:
VK2CW 534*
VK4WIT 190

Multioperator, Phone, All Band:
VK3ER 3878*
VK3APC 2838*

VK2WBP	2688*
VK3SAA	2668
VK5GRC	1098
VK2WG	344
VK2CD	151

Multioperator, Phone, HF:
VI4RC 1860*

Multioperator, Phone, VHF:
VK4WIE 3898*
VK3SCE 119

Single Operator, Phone, All Band:
VK6UA 330*

Single Operator, Phone, HF:
VK5ANB 348*
VK4EV 100

Single Operator, Phone, VHF:
VK5BW 5162*
VK3XBA 926

1995 VK/ZL/Oceania DX Contest

Date: This contest takes place each year on the first and second full weekends of October (Phone and CW sections respectively). For 1995, these dates are:

Phone: 7/8 October 1995, 1000 UTC Saturday to 1000 UTC Sunday

CW: 14/15 October 1995, 1000 UTC Saturday to 1000 UTC Sunday

Object: The object is for stations throughout the world to contact as many stations as possible in VK, ZL and Oceania (WAC boundaries apply), on 1.8-30 MHz (no WARC bands). Contacts between different countries in Oceania are permitted on all bands (eg VK to ZL, ZL to 5W, VK4 to VK9), but contacts within the same country in Oceania are permitted on 160 m and 80 m only (eg VK5 to VK6, ZL4 to ZL4, 3D2 to 3D2).

Categories: Single operator all band; single operator single band; multi-operator all band; and SWL. Single operator stations are where one person performs all operating, logging, and spotting functions. The use of DX spotting nets will place the station in the multi-operator category.

Exchange: RS(T) plus a three or four digit number starting at 001 and incrementing by one for each contact.

Multiplier: On each band this is the number of prefixes worked on that band. A "prefix" is the letter/numeral combination forming either the first part of the callsign, or else the normal country identifier for stations using their home callsign in another DXCC country. For example W8, AG8, HG7, HG73 are all separate prefixes. The prefix for both N8ABC/KH9 and KH9/N8ABC is KH9. Portable designators without numbers are assumed to have zero after the letter prefix, eg N8ABC/PA becomes N8ABC/PA. Any calls without numbers

are assumed to have a zero after the first two letters, eg RAEM becomes RAEM. Suffixes indicating maritime mobile, mobile, portable, alternate location, and licence class do not count as prefixes (eg /MM, /M, /P, /A, /E).

Scoring: For each contact score 20 points on 160 m; 10 points on 80 m; five points on 40 m; one point on 20 m; two points on 15 m; and three points on 10 m. The final score will be the total QSO points multiplied by the total number of prefixes worked. The same prefix can be claimed on different bands.

Logs: Use a separate log for each band, with times in UTC. Show new prefix multipliers the first time they are worked. Logs should be checked for duplicates, correct points, and prefix multipliers. Logs must be accompanied by a sorted list of prefix multipliers, and a summary sheet showing callsign, name, address, category, number of valid QSOs, points and multipliers on each band, claimed score, and a signed declaration that contest rules and radio regulations were observed. Logs on DOS disk in ASCII format are welcomed, although the summary sheet must be on paper. Comments on the contest and interesting anecdotes are invited.

SWL Logs: SWL logs should show date/time, the callsign of the station

heard, the callsign of the station being worked, RS(T) and serial number sent by the heard station, points claimed, and new multipliers.

Log Submission: Send logs postmarked by 17 November 1995 (Phone) or 24 November 1995 (CW) to the manager for the 1995 event, Peter Nesbit VK3APN, Federal Contest Coordinator, Wireless Institute of Australia, PO Box 2175, Caulfield Junction, Victoria 3161, AUSTRALIA. Overseas entrants please use airmail. Indicate Phone or CW on the envelope.

Awards: Special certificates will be awarded to the top scorers on Phone and CW in each continent, country, and VK, ZL, and JA call area. Where returns justify, second place, third place, and single band awards may also be made.

New Award: The CW entrant with the highest score will be awarded the Frank Hine VK2QL Memorial Cup, and receive an inscribed wall plaque in permanent recognition of their achievement.

Disqualification: Entrants may be disqualified for taking credit for excessive duplicates, unconfirmed QSOs or other scoring discrepancies, or unsporting conduct. In matters of dispute, the Contest Manager's decision will be final.

*PO Box 2175, Caulfield Junction, VIC 3175 ar

Divisional Notes

Forward Bias — VK1 Divisional Notes

Peter Parker VK1PK

Ginini Theft

A few days before June's *Amateur Radio* hit the streets, two juveniles and an adult male were apprehended in connection with the theft of the Mt Ginini amateur and CB repeaters. Many thanks to those who have sent donations, especially from interstate. VK1WI will keep you up to date with the latest developments in this area.

RD Contest

This month brings the annual Remembrance Day Contest. Last year's effort by VK1 was virtually non-existent, despite the current contest rules, which work in our favour. See February's *Amateur Radio*, page 30, to gain an idea of how miserable our participation really was — only ten people bothered to put in their logs. Being a small Division in a densely populated portion of the country, together with the low solar activity (which

makes contacts harder for the outlying states), VK1 should do better than any other Division. Instead, we did worse than any state, and would have received the wooden spoon award if it wasn't for VK8. VK8s, however, sometimes find it hard to get through to other states on HF, and VHF activity there wouldn't be much better. VK1s can make no such excuses, with most bands being open for cross-border communication for at least part of the contest period.

Make sure you set aside at least part of the weekend of the 12th and 13th of this month for your involvement in Australia's most popular contest. The rules appeared on page 30 of last month's issue of *Amateur Radio*.

Conversion Night This Month

August brings the long-awaited conversion night. This evening is for those members who bought transceivers capable of being converted to six or two metres from the Division. The session will be run at the August Divisional Meeting on the 28th. Paul VK1BX and Rob VK1KRM will be running this event.

Beacons Stay in VK2

You would have read in May's *Forward Bias* that the VK1 Beacons were being moved to VK1. There has since been a change of thinking on this matter, and the beacons will be remaining at their current site, just outside the ACT. By the time you read this, the beacons may have resumed operation, this time under a VK2 callsign. The present site has served VHF/UHF operators well, and is far away enough from Canberra so as not to interfere with weak-signal work.

QSL Cards to be Claimed

The VK1 incoming QSL bureau currently has on hand a large number of unclaimed cards for VK1 callsigns dating back to the early 1980s. The bureau is in the process of "cleaning house" and requests anyone who wants to claim their cards to get in touch with Jim VK1FF, the Division's QSL Manager. You can write to Jim care of the Division's address (GPO Box 600, Canberra, 2601), or via packet at VK1FF @ VK1KCM. Unless special arrangements are made, the bureau will now only hold unclaimed cards for a few months before returning them to their senders.

VK2 Notes

Richard Murnane VK2SKY

AGM and Council Election

What a difference a year makes! As you will have heard on the Divisional news bulletin, the Council elections and the Annual General Meeting went ahead without a hitch, and there has been no objection from any quarter about irregularities in the conduct of the ballot.

The results of the ballot were (* indicates those elected) Corbin, 708* votes; Fossey, 697*; Jensen, 708*; Kelly, 232; Kloppenberg, 694*; Liolio, 664*; McGrawery-Clark, 359; Miranda, 574*; Perry, 232; Rosser, 662*; Van de Weyer, 698*; and Westerman, 594*. Total formal votes were 758, plus 15 informal votes, making a total of 773. This represents 56.71% of the membership, an increase on last year.

Where to now? The following statement, which was read at the AGM, sums it up:

Short Term Objectives and Strategy for the NSW Division 1995.

Introduction

The last twelve months have offered little scope for innovative thinking and action in New South Wales. This situation has been very much dictated by the lack of legal status of the Division and ongoing problems of a political nature. However,

with the installation of a new and legally sound Divisional Council, it will be essential to change from what has been, in essence, a defensive position to an aggressively pro-active innovative stance. The position of *Radio Amateurs* is clearly under challenge and no more obvious is this than in the application of a form of Spectrum Tax to our activity.

It is now appropriate to put behind us the problems and personality clashes that have marked the recent activities of the Division and set up a comprehensive mechanism for change so as to meet the challenges of the near future. As an immediate goal for the Division, apart from cementing into place the stable working environment that has now been attained in its operations, there is an urgent need for closer liaison with the members at large and more particularly with the Metropolitan and Country Clubs. The weekly broadcast has gone some way to achieving such a goal but much more remains to be done.

Short Term Objectives

In the short term it is proposed that a limited range of objectives be established as a basis for a far more detailed analysis of the needs of the membership. It is anticipated that, in the longer term, it is essential the Division undertake the preparation of a proper strategic plan to respond to what is seen as requiring attention.

Particular short term objectives might include the following:—

- Consolidate and stabilise the Council organisation and institute a system of special purpose committees to undertake the main business of the Institute.
- Establish a budget on the basis that within not more than two years the Institute return to a balanced arrangement in which outgoings are matched by income and reserves are no longer required to provide income.
- The Policy and Strategy Committee commence a program of research and survey designed to establish the needs of the members and the most appropriate directions to be taking in the future.
- The Council organise a series of regional seminars designed to assist the Council to obtain feedback and support from the Country members and Clubs.
- Apart from the existing Committee responsibilities of the Institute, immediate activities requiring Committee support could involve public relations and recruitment; licensing and the SMA liaison function; expansion of the method of broadcasting of information to include

both packet, fax and, in the longer term, television; development of education and technical resources including liaison with educational institutions; projects and kit development; and comparable and related technology (computers).

The theme of these Institute operations may well be expressed in the words "*Amateur Radio is Worth Fighting For*".

Your Council actively seeks your input and assistance in achieving these goals. We have closed the door on the mistakes and ill feeling of the past. Now it's time to move forward.

Thought for the Month "*Most people never realise that all of us here shall one day perish. But those who do realize that truth settle their quarrels peacefully.*" Dhammapada, ca 500 BC.

VK3 Notes

Murray Lewis VK3EZM

Remembrance Day Contest: Rumours Become Reality

Last month I mentioned there had been talk by some amateurs about changing the rules of the Remembrance Day Contest for this year. It was a great surprise to read in the July issue of this magazine that rules for the RD Contest, to be held on 12 and 13 August, have been considerably altered. Among the changes, it has been decided that complete contest logs and summary sheets must be submitted. The previous requirement for submission of summary sheets only, has been scrapped.

The manner in which the winning WIA Division is determined has also been changed. At the time these notes were going to press, WIA Victoria was making internal WIA inquiries in attempts to discover how the rule changes occurred.

Despite these changes, Team Victoria, winners of the past five RD Contests, will do their utmost to achieve another victory this year. It will be an extremely difficult task, faced with the changed contest rules and the confusion created by them. Basically, every VK3 who entered last year's contest must enter again this year, and encourage at least one other VK3 operator to enter. We need your support.

Please read the new rules which appeared in the July 1995 issue of *Amateur Radio* magazine, pages 30-31. Do your bit to help Team Victoria defend its title of RD Contest Champion. A win this year will make history by creating an unprecedented six victories in a row. Heads high Team!

Database Update

Perhaps you have recently obtained a callsign, or changed your callsign, or

changed your address. If you have, please let WIA Victoria know the details, so that the membership database can be updated. The QSL Bureau should also be advised of any changes, to ensure the correct distribution of QSL cards. Please write to either the Membership Secretary, or the QSL Bureau, WIA Victoria, 40G Victory Blvd, Ashburton 3147. Information sheets on the QSL Bureau, a free membership service, are also available on request.

Club News

WIA Victoria welcomes the reproduction of its broadcast news and information in club newsletters. Major items which are included in the voice broadcast through VK3BWI are also put in the packet network under the callsign VK3WI on BBSs serving Victoria. Editors of club newsletters and other members find the packet news service a convenient way to obtain information, which can be located among the hundreds of other packet messages by looking for "News and Info" from VK3WI.

Each of the VK3WI bulletins includes a number, indicating its date and sequence. Several "News and Info" bulletins are sent for each broadcast. Major items of news which break between voice broadcasts are immediately announced on VK3WI packet bulletins, and included in the next VK3BWI broadcast.

It is disappointing that most WIA Victoria affiliated clubs have not

publicised their activities through the broadcasts. A letter to the clubs about this matter achieved minimal response. A WIA Victoria councillor is now telephoning office bearers of each club to ask them for written material suitable for VK3BWI and VK3WI broadcasts.

Propagation Beacons

Six metre band enthusiasts often track the progression of propagation by listening for TV and utility signals below 50 MHz. In Europe amateur radio beacons on a centre frequency of 40.68 MHz, to help with propagation monitoring, are being considered. Is there any interest in Australia for such an allocation for amateur beacons? WIA Victoria is prepared to put this matter on the WIA/SMA Liaison Agenda if the idea has support among the membership. Please register your support for the WIA to seek a 40 MHz allocation by writing this month to the WIA Victoria Secretary.

VK6 Notes

John R Morgan VK6NT

June General Meeting

The volunteer speaker at the June General Meeting was Will VK6UU, who is well-known to readers of *Amateur Radio* for his regular "Repeater Link" column. Will had chosen the topic of Computer-Aided Design (CAD).

After trying a number of CAD software systems, Will had settled on the "Draft

Choice" shareware package as his favourite, and he showed the meeting how it can be used for drawing circuit diagrams, as well as both two- and three-dimensional designs. Will's practical demonstration included many examples of interesting repeater-related circuits, and was greatly enhanced by use of an LCD device attached to the standard overhead projector, so that the entire audience could clearly see the computer's colour screen.

Following the demonstration, the business part of the meeting was curtailed by the illness of numerous Councillors, and by the fact that the position of Secretary was vacant.

The VK6 Division meets on the third Tuesday of each month, at the Westrail Centre, East Perth, commencing at 8 pm. The bookshop and QSL bureau open at 7 pm. All interested persons (members and non-members, licensed or listener) are encouraged to attend. Free coffee and biscuits are available at "half time".

Club Station VK6QC

The members of Club Station VK6QC, which is located at the Recreation Centre of the Paraplegic-Quadriplegic Centre in Shenton Park, would like to express their thanks to the WIA (WA Division) for a recent donation of \$300 worth of up-to-date technical books. These will form the core of a technical library, without which the Club's NAOCP classes could not have started.

WIA News

More News on the Hobby's 50th Anniversary of Rejuvenation

Further news of historic early contacts between amateurs, following the recommencement of amateur radio in late 1945 after the end of World War II, has been received by Herb Stevens VK3JO.

A copy of a log from Jim Gowen VK2ZC records his first post-war contact on 5 February 1946, with VK3AHM on 28 MHz, the first band released. Interestingly, the log details many DX stations heard — W, VS and VE stations.

WIA QSL Collection custodian, Ken Matchett VK3TL, has

unearthed QSL cards which reveal something of a mystery. Among cards from VK3DG, one confirms a January 1946 contact with VK3ND on 7 MHz, but the 40 m band wasn't released to amateurs until later that year!

Herb VK3JO is providing a focal point for research into the recommencement of amateur radio after World War II. He's keen to receive further information about the immediate post-war era of amateur radio to compile an article for the December issue of *Amateur Radio* magazine. He can be contacted at his Call Book address. (Thanks to Victorian Division President, Jim Linton

VK3PC, for details on the above item).

Meanwhile, Canadian amateurs have been authorised to use special prefixes to mark the 50th anniversary of the end of World War II. According to *The ARRL Letter* of 20 June 1995, from 0000 UTC on 8 July, through 2359 UTC on 8 September, Canadian amateurs may use the following special prefixes, as listed (regular prefix, then special prefix): VA2 — XK2; VA3 — XK3; VA7 — XK7; VE1 — XK1; VE2 — XJ2; VE3 — XJ3; VE4 — XK4; VE5 — XK5; VE6 — XK6; VE7 — XJ7; VE8 — XK8; VE9 — XK9; VO1 — XO7; VO2 — XO8; VY1 — XN7; VY2 — XN8.

Maintenance Visit to Tic Hill

On Sunday, 19 June 1995, your correspondent accompanied three stalwarts of the West Australian Repeater Group (WARG) on their maintenance visit to the Tic Hill site, which is about 23 km North-East of Perth. At the highest point of the hill, surrounded by native bush, a small brick building houses the VK6RTH voice repeaters (146.800 MHz and 438.225 MHz) and digipeater (144.825 MHz). There is no mains power available, so the entire site runs from a set of 500 Ah solar-charged batteries.

The site had not been visited for more than a year, since access is extremely difficult. However, these blokes really knew what they were doing, and were well-prepared. Their six-wheel-drive ex-army truck had a built-in crane, and carried a generator and a compressor, amongst plenty of other useful equipment.

Users of the site's systems should thank Trevor VK6MS, Renzo VK6ZQA, and Peter VK6ZPE, when they next hear them.

WARG Meetings

The West Australian Repeater Group (WARG) meets on the first Monday of each month, at 7:30 pm, in the Scout Hall, on the corner of Welshpool Road and Gibbs Street, East Cannington. The even-numbered months are technical meetings, and the odd-numbered ones are business meetings, although this demarcation gets a bit blurred sometimes!

If you wish to join the WARG, and so help support their network of repeaters, please contact Christine VK6ZLZ, who is the Membership Secretary, on (09) 458-6218, or via PO Box 425, Cannington WA 6107.

Club Secretaries

Members who live in the country may be wondering why the content of this column is biased towards activities in and around Perth. The reason is, of course, that no material has yet been received from other than Perth. I just thought I would mention it, before anyone complained.

All material for inclusion in this column must arrive on or before the first day of the month preceding publication. Packet mail may be sent to VK6NT@VK6ZSE.#PER.#WA.AUS.OC, or write to PO Box 169, Kalamunda WA 6076, or telephone (09) 291-8275 any time.

"QRM" — News from the Tasmanian Division

Robin L. Harwood VK7RH

The Divisional Council had a meeting in Launceston on 24 June, with representatives from the three Branches

plus an observer from the West Coast Repeater Group. The purpose of this meeting was to establish what are the immediate priorities and problems of each branch and what Divisional Council could do in assistance.

It is apparent that there are common issues which do affect them all. It was also useful for both Divisional Council and the respective branches to have this interchange and it is planned to continue this communication on a more regular basis.

The Northern Branch has decided to pay the site fee of approximately \$600, after negotiations with the CAA. They are hoping that non-members of the WIA, who do use the VK7RAA repeater, will contribute donations to its upkeep.

The Northwestern Branch has had a hefty increase in electricity charges, which is presently beyond their present budgetary plans. At their June monthly meeting, which was well attended by non-members as well as WIA members, the plight of the Branch was raised and ways to overcome the problem were actively discussed. It was pointed out that the Branch has as a service, provided various VHF beacons over the years, for the mainland hams. Maybe some users, who have utilised their beacons on 144 and other VHF channels, may like to contribute a small donation to have this facility continue.

The Southern Branch still has the saga of Mt Wellington and the NTA. As the dome on the mountain is still incomplete and the status of VK7RHT is still far from clear, the Branch is hamstrung with the very real possibility that they may have to relocate. The Mt Wellington site would be

ideal, if it could be retained, yet there is so much high-powered RF floating about there, from everything from pagers through to cellular phones, with four television channels plus four FM channels. A pay television system, also from the site, with up to eight channels on microwave distribution, is also scheduled to commence shortly, if not by publication time.

The meeting also gave all of us the opportunity to discuss another common issue. This is public liability insurance. Further discussion will be continued, after further research, at the next scheduled meeting at the end of this month.

There was concern expressed at the trend of some to aggressively push new technology to the detriment of existing systems and users. We are not against the development of new technological systems. Rather we see these complementing existing systems and not in competition. We also favour an orderly balanced plan where these newer systems can be trialed without causing any disruption to users.

I think that this combined meeting, between the Council and representatives from the Branches, was a success and improves communications between the two. It should enhance the consultative process between the Branches and Council, to the betterment of the WIA in Tasmania.

VK7WI has been trialing two 40 metre relays of the Sunday morning Divisional broadcast. The regular 7090 kHz transmission is usually based in the northern half of the island. A second relay is on 7080 kHz, based in the southern half of the island. We do welcome reports from interstate on these two relays, as we have had indications that some of the 7090 kHz signals have been selectively propagating. A similar 80 metre trial may also be considered later.

In conclusion, here are the meeting dates for August: Southern Branch on Wednesday, 2 August at 2000 hours at the Domain Activity Centre — VK7OTC; Northern Branch on Wednesday, 9 August at 1930 hours at Block "C", Level Three, Room 17, Alanvale campus of Launceston Institute of TAFE; Northwestern Branch on Tuesday, 15 August at 1945 hours at the Penguin High School, Ironcliffe Road, Penguin; and Divisional Council on Saturday, 26 August at 1100 hours at the Domain Activity Centre — VK7OTC.

Don't forget, with the 50th Anniversary Celebrations of the end of World War II, and as part of "Australia Remembers", to participate in the annual Remembrance Day Contest on the weekend of 12 and 13 August.

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**Help stamp
out stolen
equipment
— always
include the
serial number
of your
equipment
in your Hamad.**

Over to You — Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

QSY Contest?

As an operator new to contesting, I operated for a few hours in the recent VK Novice Contest, and made about 30 contacts. I was more than a little disappointed with a number of operators who set up on a frequency, and woe to any operator who tried to exchange with any one except them. As far as I'm concerned, no one has "their own frequency" from which other operators ought to be excluded.

Perhaps a "QSY Contest" may sort this one out, scored like this. Five points for the first contact on a frequency, four points for second contact, etc, and zero points for sixth contact. In order to get five points again, a QSY of at least 4 kHz is needed.

To keep a check on QSYS, the exchange might be FFPnn, where: FF is the frequency tens of kHz and single kHz. P would be the points I get for the exchange, and nn a serial number from 00 to 99.

As an example, if I work 3.590, I would give 90501 as first exchange, 90402, 90303, then QSY to 3572, and give 72504, 72405, 72406. The more often you QSY, the more points per contact you get.

Confusing? Why not give it a try, it may produce some interesting results, and people would soon get used to it. The playing field would be levelled somewhat. Can't wait for the bedlam of the QSY contest.

Wally Hunt VK3JWH
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West Footscray VIC 3012

To CW or Not CW — That Is the Question

For what its worth, I'd like to add my "two bobs' worth" on the CW requirement subject. As an active amateur since 1955, I have witnessed many changes to the licensing rules and regulations. In my opinion, most of them have been for the good of amateur radio.

There are many instances in obtaining qualifications for any licence (ham radio, driving, etc) where a few of the requirements seem to be of no relevance. The Morse code requirement for the unrestricted amateur licence is universal. ALL Governments of the world still REQUIRE MORSE CODE for an unrestricted licence. Why? How relevant is CW these days? Is it really an "out-moded mode"? Why do the non-code

advocates want to access the top DX bands?

There's certainly been a lot of comment, both pro and con, and here's mine.

Amateurs are supposed to be able to assist with providing radio communications during natural disasters, and this they do with enthusiasm. During poor propagation or heavy QRM, which mode can get the messages through when others can't? Yep, CW! Granted, some of the digital modes might also be useful, but not always. Emergency communications must be as reliable as possible. So, knowing CW provides this extra mantle of reliability. Although a little melodramatic, it can truthfully be said that it is possible that someone could die if it were not for CW proficiency in a serious emergency during poor propagation.

CW is still relevant in commercial professional communications, too. It is definitely not an out-moded mode! I have just returned from Antarctica where I was a communications officer. We had to exchange weather information with a Russian expedition on a daily basis. Due to the very poor propagation most of the time, and language barriers, we found that the only reliable mode to use was CW. Yes, we had satellite access, SITOR and SSB, but none were as reliable or inexpensive as CW.

What is the real reason that non-code advocates want access to the top DX bands? Some are too lazy to learn the code or have been "brainwashed". They want an easy way to gain access to these top DX bands and they will continue to undermine the importance and relevance of CW. If they shout long and hard enough perhaps the Morse code requirement will be dropped. This would be one of the worst events in the history of amateur radio. The "quality" of operators might even deteriorate to the level of chaos of the Citizen Bands.

At the present time, non-code licences ARE available. They have access to all VHF/UHF/SHF amateur bands. They can use satellites, repeaters, etc to communicate in digital, CW, SSB modes. They can experiment, gain knowledge, share knowledge and enjoy that aspect of our great hobby, all without a Morse code requirement.

A simile I'd like to present is that of a licence to drive a family car to that of driving a racing car. The bottom line is, if you want to drive on the racing circuit, you have to gain extra qualifications. To

operate on the top DXing HF bands, you have to gain extra qualifications (ie Morse code proficiency). Can you imagine a race track "chock-a-block" with drivers holding only an ordinary licence? Can you imagine a top HF band "chock-a-block" with operators holding nothing more than a "glorified" CB licence?

I, for one, advocate the retention of CW for unrestricted amateur radio licences. But, how about this for an idea? Offer access to the non-DX voice only portions of the HF bands to no-code advocates. This would keep them "officially" off the CW portions and DX portions of the HF bands while still giving them access to the HF communications they desire. Allow them access to 28.7 to 29.7 MHz, 21.35 to 21.45 MHz, 14.3 to 14.35 MHz, 7.1 to 7.3 MHz and 3.7 to 3.8 MHz. (*Perhaps not 20 metres! Ed*)

That is quite a lot of HF SSB space for them, and it wouldn't affect the advocates of CW and serious DXing (those people who made an effort to pass the CW exam). The most positive aspect of this would be to fill up the little used portions of the HF voice sub bands and give access to the HF bands for non-code advocates.

But I will be one of the first to sell my equipment and resign from the amateur ranks if it should ever become anything like the chaos we hear on the Citizens Bands. Amen!

Eddie De Young VK4EET
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CW Comment

May I make a few points about Bob Hawksley's article **Morse Not Required** and about the CW mode in general.

Firstly his analogy that "one doesn't have to touch type to operate a PC" is a bit silly. If such a need did exist, I'd take this into account before purchasing one. I certainly wouldn't buy one and then try to change the rules later! No, I knew what I was getting into before I went for my licence.

Having said this, I must generally agree with Bob. There are many Novice licence holders who would lose me on the technical side of our hobby. Perhaps they deserve access to all the privileges that I enjoy, just on the strength of this.

However, what I really care about is being left alone to do my thing. I like to work CW, especially for DX, but find increasing pressure on the CW only portions of the bands. Apart from all the pirate SSB stations there are actually people who hold daily skeds in the CW portion of the band. The chaps on 10.118 MHz SSB know who I am talking about!

Finally, a few suggestions. Firstly, why not take a vote of WIA members? I'm sure that 75% of amateurs would vote to drop the mandatory CW requirement. Secondly, instead of mandatory CW, why not compulsory "gentlemen's agreements", the WIA band plans being the guideline. Bob and I would both be happy.

The only cloud on the horizon is that the WIA only represents about one third of all amateurs in Australia. And VKs only make up a small proportion of hams world-wide. Still, Bob, we can both dream, can't we?

Mal Harrison VK6NV,
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St James, WA 6102

Interesting News

Two items of relevance to the Amateur Service appeared in our daily newspaper on 9 June.

In one, reporting the rescue of American pilot Capt Scott O'Grady in north-west Bosnia, stated, "Tuesday June 6: US monitoring equipment detects single Morse code transmission".

Rumour has it that the Australian Defence Force is to delete Morse code

from its teaching program. This raises two questions. Is the rumour correct? If so, WHY?

The second item announced the possibility of an FM radio service in the south-west of WA (situation not significant) with the possibility that two frequencies would be made available. It seems that one of the problems which the Australian Broadcasting Authority has is that a small number of video recorders use channel 4 as a link with a TV set. Their Director of engineering is quoted as saying, "We don't think it is reasonable to cause interference, even to a minority of people".

Given that the Federal Government has quite immorally assumed the mantle of the Deity to tax the spectrum which even they must realise they did not create, can we ask the whole to embrace the philosophy of the part (the ABA) and cut out the obscene interference to amateurs (another minority) caused by the pager system? Why should we have to wait until a federal election to get some satisfaction?

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Novice Notes

Peter Parker VK1PK

Receivers — Part Two

Receivers — Part One looked at the types of receivers used for amateur band reception. This month we will look at receiver performance characteristics and their effects. Some receivers may fall short in areas which do not matter much, while others have failings which make them almost unusable. Where possible, I will mention receiver tests you can do without elaborate test equipment.

Sensitivity

A good receiver must be able to receive weak signals. That is, it must be sensitive. The importance of having a sensitive receiver increases with frequency. As frequency rises, the ambient RF noise level gradually falls. Transistor gain falls with ascending frequency also. Thus, a receiver may have good sensitivity on 80 metres, but poor on 10 metres. Whether a receiver has sufficient sensitivity can be ascertained by this simple test:—

Disconnect the antenna from the receiver. Switch on the set and adjust to the required band. Reconnect the antenna. If you hear a substantial increase in noise, then the receiver is

sensitive enough (any increase will merely increase the noise and not the readability of signals).

This test should be done with the receiver set to SSB or CW. For VHF FM equipment, comparison is needed against a receiver of known performance. Better, use a calibrated signal generator. On 80 metres, an SSB receiver that responds to a one microvolt signal is acceptable. On VHF, an FM receiver which shows substantial quietening on a 0.2 microvolt signal is performing well.

If the receiver sensitivity is too low, an RF preamplifier (preferably tuned to the incoming signal) can be added. This may help but might also degrade ability to handle strong signals. More on this later.

Selectivity

The ability of a receiver to separate signals is called its selectivity and is an important factor on crowded bands. A 6 kHz wide signal may be acceptable on 160 metres during the day, but would be inadequate for 7 MHz CW DX. For SSB reception, a receiver bandwidth of 2.5 to 3.0 kHz is good, while CW operators employ filters of 500 Hz or narrower. Narrow filters reject signals on adjacent

frequencies and so increase the readability of the station to which you are tuned. Modern receivers usually use a crystal filter, while older or cheaper sets rely on IF transformers alone for filtering. Some receivers use mechanical filters.

A crystal or mechanical filter in the receiver is desirable, as it will reject more unwanted frequencies. In Figure 1, curve A shows the selectivity characteristics of a fairly mediocre receiver, while curve B is typical of a crystal filter in a modern SSB receiver. The noise received by the receiver is proportional to the area under the filter's response curve, thus the crystal filter will reject more off-frequency noise.

Find a carrier and tune across it several times. If the signal abruptly disappears with only a small movement of the tuning knob, then it is likely that the filter in the receiver is a crystal or mechanical one.

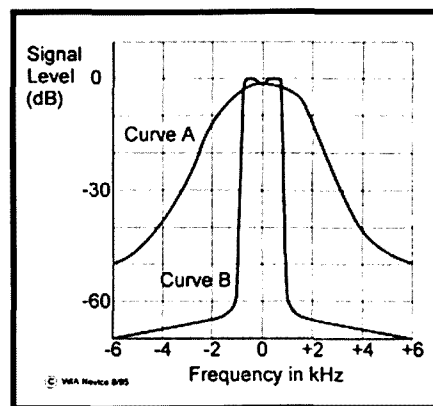


Figure 1 — Receiver selectivity curves.

If, on the other hand, the loudness of the tone only gradually falls away as its frequency rises to several kilohertz, then the set is less selective. Don't worry, the human brain is a marvellous audio filter and, with practice, you will soon be able to pick out signals amongst the noise.

Set the receiver up for SSB reception. If you can separate two conversations on frequencies only 3 to 4 kHz apart, then the receiver's selectivity is acceptable. CW operators will probably want a narrow (500 Hz) crystal filter, but audio filtering is an alternative. Such filters can be built from two 741 op-amps.

On VHF, tune in a weak FM simplex transmission. Ask a nearby amateur to transmit 25 kHz away. The weaker signal should still be readable in spite of the strong local signal. Since most VHF sets employ crystal filters, they are usually acceptable.

Frequency Stability

Once tuned into a signal, a good receiver does not drift. Most modern synthesised sets are very good in this regard, but older models sometimes

suffer problems. A drift of 100 or 200 Hz every thirty minutes would probably go unnoticed by most users. However, if you operate digital modes, better performance would be required.

Drift problems increase with ascending frequency. This is particularly the case with regenerative and direct conversion receivers, and superhets with a low first IF and free running oscillator. The construction techniques employed in the cheaper, older receivers are such that drift reduction may well require major surgery.

Drift can be minimised in direct conversion and regenerative receivers by building the set as you would a transmitter VFO, that is with rigid wiring, a metal box, good quality components, and voltage regulation, etc. Since most VHF receivers are either crystal controlled or synthesised, drift will rarely be a problem.

For casual listening, a small amount of receiver drift can be tolerated. In contrast, a receiver which drifts a kilohertz in just a few minutes is more trouble than it is worth, and only fit for the junk box.

Strong Signal Performance

Of increasing importance has been the strong signal performance of both HF and VHF receivers. A receiver should be able to resolve weak signals while remaining unaffected by nearby local signals. If you can only contact local stations on the HF bands, you will probably get by with a receiver of sub-standard signal handling performance, but the DXer would rapidly become frustrated with such a set.

In this area, older valve receivers often outperform their newer solid state counterparts, but less so with current designs. To test a receiver for strong signal performance, connect it to an omnidirectional antenna and tune around the band while a local station is transmitting, looking for weaker signals. If the local station's signal affects the weaker signal in any way, your receiver's signal handling is not as good as it should be. This effect can be heard on both CW and SSB transmissions.

Regenerative receivers, due to the non-linear (oscillating) detector, are particularly poor. Adding an RF preamplifier can reduce a receiver's strong signal handling capacity if its mixers and product detectors are designed only to cope with weak and medium strength signals.

The advent of pager transmissions just above the two metre band has made strong signal performance an important factor to consider when purchasing a two metre receiver. Unfortunately, many modern hand-held and mobile rigs are built down to a price, not up to a standard, and exhibit quite mediocre performance in this area. Their broadband front-end

tuning and weak mixers often limit their usefulness in many inner-city areas. In contrast, older crystal controlled ex-commercial transceivers, which have been converted to two metres, can often be almost immune to this problem.

Images

A good superhet receiver should not produce image signals or other spurious responses. Otherwise you will hear non-amateur signals while tuning the amateur bands. If strong enough, these signals can mar reception. A relatively high first IF frequency, sharp front-end tuning, and use of shielding within the receiver, guard against these problems which are more likely on the higher HF bands. Direct conversion and regenerative receivers do not suffer from images as no mixers are employed.

Other Factors

A receiver should be a pleasure to operate. Tapping the top of the case should not alter the frequency being received, while the tuning mechanism should allow for easy tuning of SSB and CW stations. Otherwise, it may be possible to modify the receiver by adding a fine-tuning (RIT — Receiver Incremental

Tuning) control using either a small variable capacitor or a potentiometer and varicap diodes.

An analogue dial is no handicap, but it is desirable that it can indicate frequencies to at least the nearest 5 kHz. For casual listening this is not very important.

An "S" meter is useful if you intend to use the receiver as a piece of test equipment, but does not contribute one iota to overall receiver performance.

A workable HF receiver should receive at least SSB and CW for amateur reception, though AM and FM capabilities would be a bonus. A novice receiver for VHF need only receive FM signals.

Conclusion

It might seem that an expensive receiver is necessary for successful amateur band listening. This is not so!

A well built direct conversion receiver, or a good second hand valve communications receiver are both capable of excellent performance on the HF amateur bands. On two metres, a basic scanner should suffice for monitoring local activity.

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Pounding Brass

Stephen P. Smith VK2SPS*

Over the next couple of months I will review a number of very interesting and informative books relating to telegraphy which, I believe, will assist a number of beginner operators in overcoming initial difficulties when faced with this mode of operation.

The first book we will look at is the *Story of the Key* by the late Louise Ramsey Moreau W3WRE. The *Story of the Key* was first published in *Morsum Magnificat*, edition six (1987), and continuing through to edition eleven (1989). This authoritative six-part series covered the history of the telegraph key from its humble birth to the keys of today.

Some readers might be lucky enough to have the above editions, or the earlier Dutch language editions of *Morsum Magnificat*, numbers 14 to 19 which appeared from 1986 to 1987.

The *Story of the Key* is the combined series of articles as mentioned above, containing 60 pages in a soft cover format, with over 75 indexed photographs. Some of the photographs which appear in the book have been reprocessed and, in some cases, substituted with better detailed ones.

Before I detail some of the book for you, I believe a little history on the author, the late Louise Ramsey Moreau, is called for first. Louise was born and raised in Johnstown, PA, where she attended school and university in Pittsburg. During her university studies Louise became fascinated with telegraphy while studying early American History. To satisfy her interest she purchased a few keys, believing she had covered the field of telegraphy.

From this modest start grew a collection of over 300 keys, ranging from early hand keys of the 1840s to modern electronic keys of this century. Louise was a highly respected telegraph historian, writer and collector of Morse keys. One of the first books written by Louise covered some 3000 years of early communications.

For her writings and devotion to telegraphy, Louise received many awards including the Houck Award for telegraph history in 1974; being nominated in 1976 to the telegraphic Hall of Fame; the Presidents Award from the YLRL for her investigation into the history of women in the communications field; and, in 1980, the Ralph Batcher Memorial Award from

the Radio Club of America. Louise was also a member of the ARRL SOWP and MTC.

Louise held the call of W3WRE and worked CW 99.99% of the time. Sadly, on 15 April 1994, Louise became a silent key at age 77. Her collection of keys was passed on to the "Antique Wireless Association".

Turning to the book *The Story of the Key*, we find it is broken down into six chapters, (1) Milestones; (2) Variation on the Vail Theme; (3) The "Lighting Slinger" Vibroplex; (4) Good Guys, Bootleggers and Bastards; (5) Semi-automatics...Open Season; and (6) The first of King Sparks. Also included is American Telegraph Instrument Makers 1837-1900, and an index to the keys pictured in the book.

Chapters (1) and (2) look at the birth of the key invented by Alfred Vail in 1844, and used in the famous transmission from Baltimore to Washington. The key was named the "Correspondent".

As telegraph spread, the key underwent major changes. Some notable ones were the "Camelback" in 1848, when Thomas Avery introduced the coil spring in 1850, and when the solid trunnion lever was introduced in 1881 by James Bunnell.

Chapter (2) goes more into design changes of hand keys, covering manufacturing organisations of the time.

Chapter (3) covers the production of the semi-automatic key known as a "Bug" or, the Australian term, "Jigger". Horace Martin brought out the "Autoplex" then the famous "Vibroplex" which the company is still producing to this very day.

Chapter (4) looks at a number of manufacturing organisations of the time copying Martin's patents. Some of the companies covered include Dunn, McDonald and Dixon. One company I thought particularly interesting was the "Mecograph Company".

As you know, Vibroplex made dots by creating tension in the spring, while Mecograph utilised release of spring tension. This design allowed Mecograph to stay in the running with Vibroplex.

Chapter (5) continues with semi-automatic keys. Companies discussed are Bunnell, Lytle and Logan, just to name a few.

Chapter (6) is dedicated to "Spark Transmission" and keys used during this period of time before the mode was outlawed in the mid 1920s. To some people a key is a key. However, "Spark Keys" are easily identified by the size of the contacts giving a much broader surface area. Some measured from half an inch, to one inch in diameter.

The *Story of the Key* concludes with the American Telegraph Instrument Makers (1837 — 1900) to include address, city of

production, dates and products produced.

I highly recommend this book to all amateur radio operators, especially those of us who collect keys, as a fine reference source, and an excellent means of key identification. The book makes interesting reading and is a must for any telegraph book collection.

The book can be obtained direct from the publishers, G C Arnold Partners, 9 Wetherby Close, Broadstone, Dorset BH18 8 JB, England. Price is four pounds and

25 pence (UK) by surface mail and four pounds 75 by air mail. Orders by credit card, Access, Eurocard, Mastercard or Visa are welcome by phone or fax on 01202658474 (overseas + 441202658474).

I wish to thank the WIA Publications Committee for inviting me to review the *Story of the Key* and lending me the review copy.

*PO Box 361, Mona Vale NSW 2103
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Education Notes

Brenda M Edmonds VK3KT* Federal Education Coordinator

In my last column I wrote about the setting up of the STARS*** Task Force to assist in the promotion of amateur radio in countries in Region 3, and outlined some ways in which Australia and the WIA can assist.

There are many ways individuals can help without a lot of effort, and without travelling overseas. Most of us talk to overseas amateurs at some stage, and amateurs have a tradition of being willing to help newcomers to the hobby. If the amateur population of a country is very small in proportion to its total population, the amateurs may be greatly in need of the type of contact with other amateurs which we take for granted. Whether it is technical discussion or simply general chat about local conditions and experiences, all such contacts offer some support to the more isolated amateurs. If assistance or advice is sought, I am sure most Australian amateurs are willing to help.

The major Australian cities play host to many overseas students at secondary or tertiary institutions. These students may be already familiar with amateur radio, in which case contact with local amateurs can be very helpful to them, or they may be unaware of it as a hobby. Are amateurs willing to take some of these students into their shacks to show the possibilities and scope of amateur radio?

Region 3 of the IARU publishes a newsletter several times a year, which is distributed to all member societies. Items for this publication are always welcome. Material which shows amateur radio in a positive light, such as reports of WICEN activities or involvement of amateur radio in community activities, can be used by amateurs in other countries as evidence of the value of amateur radio to the community. The WIA has agreed to pass on such information, but it needs WIA

members to submit the local information in the first place.

Many Australian towns have developed a "sister city" agreement with an overseas city. In some instances, I know, amateur radio has been used to reinforce that link. Any amateurs involved in such arrangements may consider working towards strengthening the link by more conscious and considered use of amateur radio.

A copy of *Amateur Radio* magazine is sent each month to the IARU representative of each society in Region 3. Perhaps some of our many clubs would consider sending a copy of their magazines or newsletters to some of the emerging societies, or sponsoring a subscription to one of the well known amateur radio journals for that society.

The WIA representatives on the STARS*** Task Force will be very pleased to receive any further ideas from members. If they are sent to me care of the Federal Office, I will ensure that they are passed on and considered.

I will also try to keep members informed of developments as they occur.

*PO Box 445, Blackburn VIC 3130
ar

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

MJ (Michael)	YEATES	L40321
RV (Ray)	JOHNSON	VK2AVR
R K	DODD	VK2RE
K C	HAMMOND	VK6KN

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Repeater Link

Will McGhie VK6UU*

CTCSS Distortion

An interesting and perplexing problem has arisen with one of our repeaters, VK6RMW. The site is 100 km south of Perth and is a wide coverage system with a large number of users. This repeater re-transmits the WIA news via a feed from Perth direct on the repeater's input frequency. A CTCSS tone of 67 Hz placed on the feed from Perth turns off the time out and Morse ident. The reason for removing the Morse ident is because this repeater is used as a source for a re-transmission on 80 metres. The Morse ident on 80 metres might be a problem, hence its removal.

During the WIA News this repeater transmits a 77 Hz CTCSS tone for future use in the expansion of the WIA news coverage. The 67 Hz tone from Perth to this repeater does not pass through the repeater without attenuation, for a couple of reasons. If it did then it could have been used to do the job that the 77 Hz tone is intended for. The 67 Hz tone from the repeater's receiver is attenuated by the poor low frequency response of the phase modulator in the transmitter and is too low for any decoding equipment listening to this repeater.

Why not use the same frequency of 67 Hz, you must be asking? The reason is that, in a phase modulated repeater

transmitter, most of the 67 Hz is attenuated, but not all. With direct FM modulation there is little attenuation. This re-transmitted 67 Hz mixes with any added 67 Hz in the repeater and, because the two are not phase and frequency locked, the result is an addition and subtraction between the two. The result is the 67 Hz output goes up and down in level, causing any decoder trying to decode the tone, to drop in and out of lock. The solution is, of course, to remove the incoming 67 Hz by means of a high pass audio filter, but this repeater did not have one fitted. It was easier to install a different tone generated on site when the incoming 67 Hz was detected. Hope you followed all that.

Hum?

With the introduction of the 77 Hz CTCSS tone on the repeater's transmitter, reports of hum started to filter through. Now, on installation of the 77 Hz encoder, test equipment to set up the correct level of this tone on site did not work properly. Therefore the tone level was set by slowly increasing its level until it could be decoded on a hand held. Not very accurate but it was the best that could be done.

When reports of hum on the WIA news re-transmission were received, it was

assumed that the 77 Hz had been set too high and would need to be adjusted on the next site visit. An added complication was that a fault had developed on the link transmitter from Perth, placing 100 Hz power supply hum on the transmission. In the process of fixing this problem, the output of the repeater (VK6RMW) was examined more closely.

The 77 Hz CTCSS tone on this repeater was not as high as was originally thought. It was producing a deviation of 650 Hz, instead of 500 Hz, and was not high enough to account for the audible hum that could be heard on the transmission. I had simply listened to the transmission and concluded that the setting of the level during the installation had been too high. In fact, it was almost spot on. So why could the 77 Hz tone be heard? Closer inspection on a CRO of the repeater's output showed that the 77 Hz tone was not a good sine wave. It was distorted, not much, but enough to produce harmonics. It was these harmonics of the 77 Hz tone that were being heard, not the 77 Hz. The next question was, why was the 77 Hz tone distorted?

Phase Modulation

The 77 Hz CTCSS encoder module fitted to the repeater produced a low distortion tone. This was checked thoroughly before the unit was installed. The reason for the distortion was the type of modulation used, phase modulation. This repeater was an earlier design using the ever reliable FM 828 but not fitted with the direct FM modification. The receive

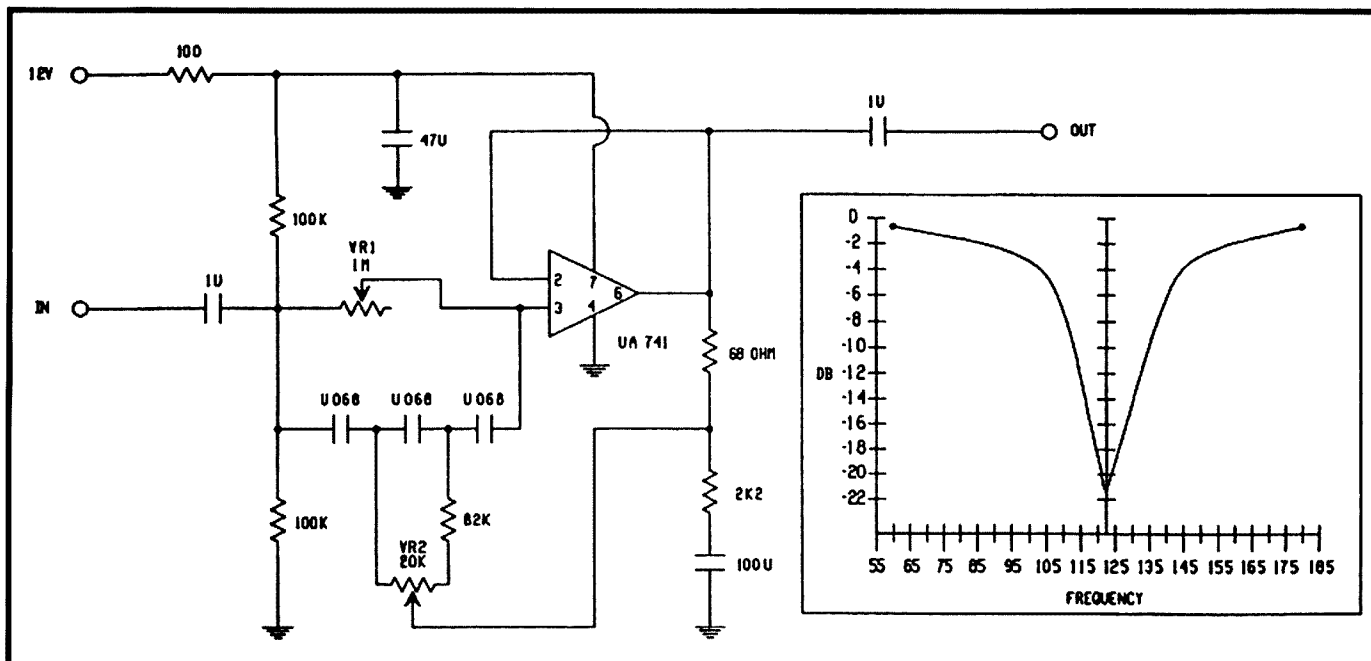


Figure 1 — Circuit diagram of the CTCSS notch filter, and a frequency versus dB attenuation graph of the notch filter centred on 123 Hz.

audio and 77 Hz tone are fed into the existing phase modulator.

In order to achieve the 500 Hz deviation at 77 Hz, the phase modulator has to be driven fairly hard, as phase modulators produce deviation proportional to level and frequency. As the frequency goes down, for the same audio input, the resultant deviation goes down. In a phase modulator deviation is proportional to rate of change. The harder you drive a phase modulator the higher the distortion. Previous tests I had done on phase modulators surprised me just how much distortion.

A 1 kHz tone producing 5 kHz deviation measured as high as 10% distortion. I had not measured the distortion of a low tone like 77 Hz but, due to the higher level required to produce even small amounts of deviation, this was most likely the cause of the distortion and, as a result, the harmonics being heard.

The fix is to replace the phase modulator with a direct FM modulator of the transmit crystal. Direct FM modulation produces the same deviation for a given level regardless of the modulation frequency and inherently has lower distortion. The result is that only a small 77 Hz tone level is required to produce the required 500 Hz deviation, and there is little distortion.

The Point

The point of all this is, if you place a CTCSS tone on a repeater that uses phase modulation, be prepared to hear the tone to some degree. The amount you hear the tone will also depend on the receiver you are listening to. Speaker size, and low frequency cut-off in many newer transceivers to remove CTCSS tones, all play a part. Phase modulated repeaters will produce harmonics of the CTCSS tone and there is little you can do, unless the phase modulator is changed for direct frequency modulation of the transmit crystal. Using direct frequency modulation results in the CTCSS tone being almost undetectable, particularly below 150 Hz.

Notching Out

If your repeater has a CTCSS tone on its transmission, and has good low frequency response due to direct frequency modulation of the repeater's transmitter, then a problem can occur. I have covered this before so I will be brief. Many transceivers, when in the CTCSS decode mode, also transmit the same tone when in transmit. This can not be turned off. The result is the tone transmitted by the user mixing with the repeater's tone and, as the two are not exactly on the same frequency, adding and subtracting at a rate dependent on

the difference between the two frequencies. This causes other users' receivers to mute at a regular interval when in the CTCSS decode mode. What is required is an audio filter to notch out the tone as received by the repeater so it is not retransmitted along with the encoded tone on the repeater's transmission.

Circuit Diagram

The accompanying circuit diagram is an audio notch filter that will notch out a given CTCSS tone by about 20 dB. It has a notch range from below 67 Hz to above 250 Hz, with an overall gain for all other frequencies of 0 dB. The two pots VR1 and VR2 are multi turn. VR1 sets the balance of the notch network and VR2 the frequency. A CRO is the easy way to adjust these two pots. Inject the CTCSS tone into the input and look at the output on the CRO. Adjust VR2 for best rejection of the tone and VR1 for best symmetry of the resulting wave form. The result should be the remaining harmonics of the CTCSS tone. If you do not have access to a CRO then a multimeter on the AC range should work. Adjust VR1 and VR2 for minimum reading.

Also included in the diagram is a frequency versus dB attenuation graph of the notch filter centred on 123 Hz. Note the 6 dB down points of the filter are about plus and minus 30 Hz, so several CTCSS tones close to 123 Hz would also be attenuated while most others would not. If all CTCSS tones are required to be attenuated, then a high pass filter is required that rejects all tones below a given frequency. I have such a filter installed in one of our repeaters in VK6

and will present the circuit diagram in a latter addition of *Repeater Link*. If you require the circuit sooner please contact me.

29 MHz

Regular readers of *Repeater Link* will be aware of the 29 MHz gateway idea and the efforts to place these systems on air. Correspondence from the SMA indicates that it is legal to place such a gateway between an existing repeater and a simplex frequency using one of the repeater frequencies between 29.500 and 29.700 MHz. Our repeater group has applied for a licence using 29.680 MHz simplex for this purpose. Links to other repeater systems using the same idea are not allowed as no link frequencies are designated below 50 MHz (the next area to try and bring about change). Efforts so far have gone as far as FTAC, where it has stopped due to no WIA band plan frequencies set aside for this use.

Correspondence from the SMA is of considerable interest as the addition of the 29 MHz simplex gateway can only be licensed as a separate callsign, attracting a licence fee and an additional fee for investigation of the licence application. Efforts will be made to see if the SMA will itemise what is involved in this procedure.

Also of considerable interest in this correspondence from the SMA was reference to the "new" repeater regulations not being available till December 1995, another 6 months away at the time of writing this in late June!

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VK6UU @ VK6BBS
ar

Spotlight on SWLing

Robin L Harwood VK7RH

During these winter months, I have been concentrating increasingly on the lower HF allocations, due to the combination of low sunspots and poor propagation. It has been interesting to hear many American international shortwave broadcasters have opted to use non-standard frequency allocations in the 5 to 6 MHz range. I have mentioned before that Tennessee's WWCR uses the 60 metre tropical band for their programming within the North American continent. Now I have noticed WEWN on 5865 kHz in Dutch with the Rosary. Other stations I have heard are WHRI, in South Bend, Indiana on 5745 at 0557 UTC, and an unidentified station carrying Dr Gene Scott's so-called "University Network" on 5810. It is possibly the former KCBI in

Dallas, which is owned by that network. The same program was simultaneously broadcast from WWCR on 5935 and KVOH in Van Nuys on 9785 kHz.

The increasing use of these channels has caused problems for some Australian fixed and land mobile stations which are licensed to use them by the SMA. When Monitor Radio International fired up on 5850 kHz, the Australian authorities protested to the FCC about significant co-channel interference and MRI had to alter their frequency. Fortunately, other international broadcasters have not followed the example of these American independent/religious semi-commercial operators.

With the sunspot minimum probably now at its trough, I would expect that the

slow haul back to reasonable propagation could see higher allocations gradually come back. I think the use of frequencies outside the normal allocations will continue, however. These operators seem to want the almost impossible luxury of a clear channel.

International broadcasters are frequently mentioning that they are now on satellite systems and quote details of what transponder and subcarrier are being employed. This trend is most apparent in programming directed to Europe and North America. Some wiser heads in the industry have been evaluating this and have come to the conclusion that the numbers of individuals using the appropriate technology can be measured in the hundreds and not the millions who have shortwave access.

Later on this year, there is another World Administrative Radio Conference being held in Wiesbaden Germany, where the subject of direct satellite broadcasting is on the agenda. As you are no doubt aware, the receiving technology for the proposed frequencies will be sophisticated and costly and certainly not available in commercial quantities at the present time.

There are two differing technologies competing, one European based and the other in the United States. The choice of frequency allocations in Europe and North America for direct satellite broadcasting is also non-compatible. The industry has not easily forgotten the AM stereo fiasco, where four competing systems were trialed in the USA. The manufacturing industry, as a result, were reluctant to run four different receiving systems and AM stereo receivers were neither produced or widely promoted by them. The Motorola system as used in Australia eventually became the industry standard but, by that time, FM had gained market dominance.

DSB is mainly used as a point to point between the international broadcasters

and co-operating AM, FM or cable operators who either give time or lease their facilities to such stations as DW, BBC World Service, RFI and the VOA. There are very few individuals with their private receiving setups. It is also worth noting that the majority of the shortwave listeners are in developing countries in Asia and Africa. These satellite receiving systems will be beyond them and cheap shortwave analogue models are more readily available. Hence, you can easily see that the demise of shortwave broadcasting is not imminent.

The use of satellite technology is revolutionising maritime and aeronautical communications, especially in regions that were formerly dependent on HF communications. INMARSAT has largely taken over telephone and telex traffic from

all but the smaller marine vessels. Some fleets have not yet converted and will still require HF for a few years. Some carriers on HF are still more economical than INMARSAT, yet the costs are rapidly coming down.

Does anybody know if the Australian fidonet echo OZ-SW is still operational? My provider has not run any messages in it for nine months and my pleas seem to be unanswered. I do receive the Internet "rec.radio.shortwave" echo. However, this echo is often not relevant to Australian interests.

Well that is all for this month. Until next time, the very best of listening and 73.

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Technical Correspondence

All technical correspondence from members will be considered for publication, but should be less than 300 words.

The Choice of ATUs: L Z or T?

The article *T-Match Antenna Tuners* by "The Two Rons" (Random Radiators, *Amateur Radio*, June 1995, page 12) made very interesting reading indeed. It was kind of them to make reference to my recent published work. While I am in total agreement about being their "good friend", the remainder of that sentence is the exact opposite to what I took some pains to point out!

For quite fundamental reasons, there are certain combinations of load resistance and reactance with which an L-Match cannot cope, but a T-Match can. Exactly the same difficulty applies to the Z-Match. However, the two-coil version neatly side-steps this problem; changing the coil shifts the "black hole" to another region. This property makes it, in effect, a universal coupler. The single-coil Z Match, as published, must have its "black hole" in a region not normally encountered by amateurs, but it must exist somewhere!

One can understand the preference shown by manufacturers for the T-Match. The L has an awkward discontinuity in the transition from below to above 50 Ω . The whole thing needs to be switched end for end (this is not really a problem for home-brewers). The T can cover a wide range of loads, without any "black holes". However, it imposes a third variable for the operator to adjust. Certainly, it is capable of higher efficiency, but this is only relevant for quite high resistance loads.

The adjustment of "Q" can, however, be quite useful in the suppression of harmonic radiation. ("But", you say, "it's a high pass filter!" True, but please bear with me just a little.)

A long coaxial link between the rig and a high Q ATU acts as a dissipative harmonic filter. The higher the Q of the termination, the greater the mismatch for harmonics, and the higher the harmonic SWR and hence the higher the dissipation. Likewise, the greater the length of coax, the greater the loss for harmonics, with negligible effect on the matched fundamental signal. The harmonic energy is safely converted into heat. It is quite unrewarding to filter harmonics from an antenna system, only to radiate them from an earth lead! This is quite a consideration where the shack is at some elevation above ground. (Using this technique with 60 feet of coax, I operated 100 W on all bands into a tuned antenna only ten feet from an indoor TV antenna, with no TVI whatever on any channel.)

It should be born in mind that either the L or the Z can easily be converted into an equivalent T by the simple expedient of adding series reactance to the output.

So what system to use? My choice would be an L for a random wire, a Z for a balanced system, and a T for a voltage fed antenna or if TVI is a problem.

Graham Thornton VK3IY
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ar

**Sign up a new
WIA member
today. We need
the numbers to
protect our
frequencies and
privileges.**

VHF/UHF — An Expanding World

Eric Jamieson VK5LP*

All times are UTC.

Two Metres and Above

A most unusual occurrence for winter was a slow moving high pressure system up to 1036 hPa, which encompassed a large area of the south-eastern portion of Australia. It first came to our notice on 19 June and continued through the Solstice to 23 June, five days of enhanced propagation favouring 144, 432 and 1296 MHz, but also briefly on 50 MHz, and involved operators in VK1, 2, 3, 5 and 7.

Fred VK2YZU, at Peake Hill, near Dubbo in central NSW, phoned me at 0500 on 20/6 to say he was hearing the VK5VF beacon on two metres. I could not hear Fred, but I did leave a message on Roger VK5NY's answering machine that the band was open. When Roger returned from work he quickly assessed the situation and started the ball rolling, although he had worked a number of VK3s and VK7XR the night before, so my message was all he needed to push things along. I tried to alert Doug VK4OE but could only obtain an engaged signal.

the entire area. Such extreme conditions one generally assumes not to be conducive to sustained enhanced propagation. Very strange.

There appeared to be no operation from VK6, but this is not aided by the news that the Albany beacon, VK6RTW on 144.465, has been closed for the winter! The weather maps for 21/6 and 22/6 indicate the extent of the large high pressure system centred near Melbourne. The better conditions did not reach to Sydney which appeared to receive only the spill-over from the conditions in central NSW.

From the VK5 end, Roger VK5NY was in the prime position, operating from his mountain-top mansion near Mount Wilson, PF94, with contacts throughout the period to the other States which were involved. There is no doubt the propagation favoured the inland sited stations. Here at Meningie I was on the air each day but could not work the number of the stations which were available to Roger. My house is less than three metres asl, despite being 15 km from the coast. Bill VK5ACY on Kangaroo

VK3AFW 5x9; 1207 70 cm VK3AUI 5x2-5; 1216 2 m VK3AUI 5x5; 1230 2 m VK3KWA 5x6; 1249 2 m VK3BRZ 5x9; 1252 70 cm VK3BRZ 5x2-5; 1300 70 cm VK3KWA.

20/6: 0826 2 m VK5MC 5x9; 0830 2 m VK5LP 5x9; 0850 2 m VK2YZU 5x2; 0925 2 m VK2EMA 5x9; 0932 2 m VK2ZAB 5x2; 0939 70 cm VK2EMA 5x4-7; 1005 2 m VK3DUT 5x2; 1053 2 m VK1DO 5x2; 1113 2 m VK1BG 5x3; 1115 70 cm VK1BG 5x2-4; 1143 2 m VK2FLR 5x2; 1153 2 m VK5ACY 5x9; 1156 2 m VK3BRZ.

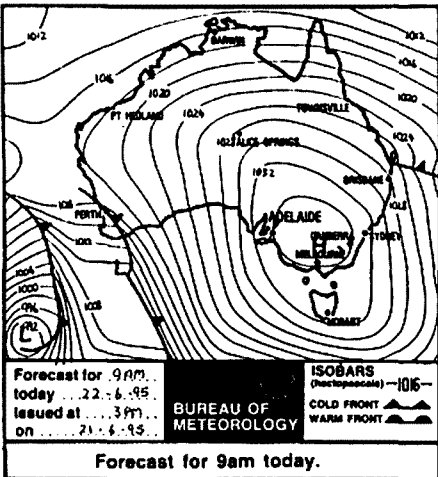
21/6: 0032 2 m VK3ZQB 5x9; 0033 2 m VK3AUI 5x8; 0036 70 cm VK3AUI 5x2-3; VK3, 5, 7 beacons on 2 m; 0432 2 m VK3AUI; 0434 2 m VK3ZQB; 0806 2 m VK2EMA 5x6-7; 0831 2 m VK3DUT 5x5; 0947 2 m VK3KWA 5x8; 1001 70 cm VK3KWA; 1043 2 m VK3AFW 5x8; 1056 2 m VK3AXH 5x9; 1057 2 m VK3BRZ 5x2; 1059 70 cm VK3AXH 5x2; 1101 70 cm VK3BRZ 5x2-4; 1129 2 m VK3ZQB 5x5; 1147 2 m VK3AFW 5x5-6; 1149 2 m VK7XR 5x2; 2243 2 m VK3AFW 5x9; 2246 70 cm VK3AFW 5x6-9; 2310 2 m VK3AFW 5x2; 2314 VK3 repeaters.

22/6: 0943 2 m VK3AUI 5x9; 0946 2 m VK3DUT 5x9+; 0951 2 m VK3EW 5x9; 0956 2 m VK3AJN 5x6-9; 1003 70 cm VK3AJN 5x2; 1009 2 m VK3KWA 5x6; 1010 70 cm VK3AUI 5x2-5; 1016 6 m VK3DUT 5x9; 1019 70 cm VK3ZGL 5x5; 1023 23 cm VK3AUI 5x2; 1028 23 cm VK3KWA 5x2; 1034 23 cm VK3ZGL 5x2-9+; 1106 2 m VK3ALZ 5x9; 1111 70 cm VK3ALZ 5x5-9; 1112 70 cm VK3BRZ 5x2-6; 1115 23 cm VK3ALZ 5x6-9; 1129 70 cm VK3AFW 5x6-9; 1135 2 m VK3CY 5x8-9; 1138 70 cm VK3CY 5x7.

23/6: 0028 2 m VK3ZQB 5x9; 0029 2 m VK3BRZ 5x9; 0033 70 cm VK3BRZ 5x5; 0034 70 cm VK3AUI 5x2-3; 0037 2 m VK3AUI 5x8; 0045 2 m VK5ACY 5x9; 0046 6 m VK3BRZ 5x1-2; 0122 2 m VK3EU Q5.

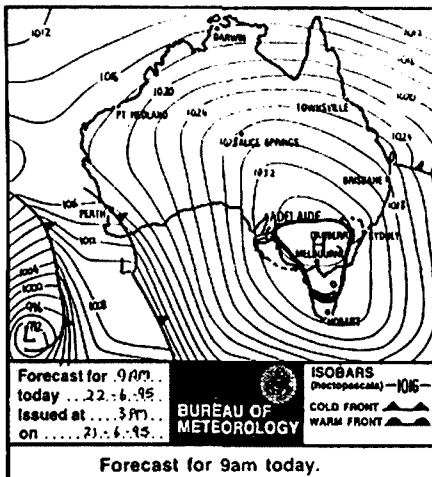
Roger had two contacts on 6 metres, 43 on 2 metres, 19 on 70 cm and four on 23 cm. It is worthy of note that the 23 cm contacts occurred towards the end of the fourth day only. The two six metre contacts are interesting, the first on 22/6 at 1016 with VK3DUT at 5x9 almost suggesting an Es component providing short skip. The other on 23/6 at 0046 to VK3BRZ at 5x1 is more in keeping with the tropo propagation.

Overall, signal strengths varied considerably at VK5NY as they did here. I noted that, at first, Roger was working stations to 5x9 which were inaudible here, then conditions changed and some stations came to me. On two metres I worked VK2YZU, VK2EMA, VK3KWA, VK3BRZ, VK3DUT, VK3ZQB, VK3ZGL, VK3AUI, VK3ALZ, VK3AFW and VK3CY. On 70 cm I managed VK2EMA, VK3BRZ, VK3ZQB, VK3ZGL, VK3AUI and VK3ALZ.



Map 1 — Weather map from The Adelaide Advertiser showing the extent of the high pressure system (thanks to the Bureau of Meteorology).

It is interesting to note that, during the period of operation, Sydney had some of its coldest weather for 96 years, and there were wide-spread frosts and snow over much of the involved areas of NSW, Victoria and Tasmania. On 21/6, the temperature range in the capital cities was, Adelaide 6-15, Melbourne 8-11, Hobart 4-9, Canberra -1-9, Sydney 7-10. Strong winds and rain were prevalent over



Map 2 The same map but showing the footprint of the coverage of enhanced conditions. The dotted line is the area on the fringe of the better conditions.

Island was there but did not enjoy particularly favourable conditions. Neither did Phil VK5AKK at Hallet Cove, Barrie VK5KXC at Gawler or John VK5PO at Kapunda. Adelaide stations were strangely silent.

Following is the log from Roger VK5NY:

19/6: 1155 2 m VK7XR 5x2; 1205 2 m

On 23 cm I tried with VK3AUI and VK3ZGL but was unable to complete a QSO. VK1DO, VK1BG, VK2FLR and VK7XR were all heard weakly on two metres but they obviously did not hear me. No sign of Gordon VK2ZAB.

At varying times on each day the beacons VK3RGL, VK5RSE, VK7RNV were audible with VK3RGL making 579 at times. Also, on 21 and 22/6, VK3RTG in Melbourne was heard at strength one for long periods. This is the first time I have heard the Melbourne beacon for at least ten years.

A few points worth noting. Fred VK2YZU is at Peake Hill in the Dubbo region at QF47BG and 750 km from VK5NY, and Mark VK2EMA is at Tottenham at QF37QU, about 1000 km. On two metres, Mark runs 400 watts to a pair of Cushcraft 17B antennas at 27 metres; on 70 cm he runs 130 watts to a pair of eight elements. Tom VK3EU ran eight watts to a 11 element Yagi at five metres. He was able to copy Roger VK5NY but at virtual zero signal strength; at least he tried.

Bob VK3AJN used a QEQO6/40 on two metres to a 32 element phased array at 26 metres, and a similar array on 70 cm. These days such antennas are rare but have always been acknowledged as good performers. Years ago I used a 32 element extended expanded phased array with good results on 70 cm from my location in the Adelaide Hills.

On 22/6, from about 1140, Roger left all the good signals and went portable on 10 GHz with a view to contacting Russell VK3ZQB in QF11. However, their efforts were in vain. To compound a number of problems they found the two metre link poor which was unusual in view of the prevailing propagation. To add salt to the wound, on the return journey Roger caught his 13 element two metre link antenna on a tree. The tree survived but not the antenna!

Roger says these various episodes all add up as good experience. So much so, that he warns Lyaal VK2ALU the time may come when he will receive a late night call to get on 10 GHz! My spies have mentioned that VK6KZ and VK6BHT have virtually deserted 10 GHz and are now concentrating on 24 GHz, so expect to hear something about that band soon.

The Sydney End

Mike VK2FLR forwarded both a fax and letter with information on how Sydney saw the opening of 20/6, detailed above. He writes, *Fred VK2YZU at Peake Hill alerted me about 0900 that the VK5VF beacon had been audible since 0400 and that he had just worked VK5NY VK5VF not audible in Sydney but VK2ZAB and*

VK2DXE were working. Gordon reported working VK5NY at 0930 5x2.

I could hear Fred VK2YZU working VK5NY on 144, complete with a couple of loud meteor pings from Roger. I contacted Fred who said he and Mark VK2EMA at Tottenham had worked VK5NY, VK5LP and VK5AKK on two metres, and that VK2EMA had worked Roger on 70 cm.

Shortly afterwards Chas VK3BRZ came on the 3695 KHz VHF net as did Roger, and Chris VK1DO. Roger then worked Chris on 144.200, and reported hearing consistent CW from me, while I could hear weak SSB from him when he was working Canberra. Roger and Chris tried 70 cm — successfully, I understand, (not so ... 5LP), — he also worked VK1BG on 70 cm. My CW was still audible at VK5NY so we moved to SSB and exchanged 5x1 and 5x2 reports at 1145. Other VK5 stations were on frequency but none were detectable and none could hear my CW except for meteor pings. Then VK2EMA advised he was hearing VK5VF on 70 cm.

I gave it away for the night, however Roger and I tested the path the following morning but the propagation had gone. It started to rain an hour later.

An interesting aspect of this large opening was that almost all contacts were made over land, the exceptions being VK5NY to VK7XR and contacts made by VK5ACY, which had a small sea component. The second map shows a footprint of the area involved.

Mike VK2FLR also reports that, *East coast aircraft enhancements contacts continue, and these now include Bob VK3AJN at Wangaratta, who, despite relatively low power, can be worked by most of the more active Sydney stations. VK3ELV, VK3XRS and VK3AUU have been recent contacts. A new-comer from Canberra is VK1PK/1 who operates portable with 2.5 watts to a three element beam: just shows what can be done.*

On the EME front, the European window coincides with early evening in eastern Australia, limiting EME opportunities for those who live in densely populated areas, hence I have operated on non-activity weekends when I can avoid prime TV times. I have worked S51LM, LZ2US, IK5UBM, DL5MAE, DLGP, IK2DDR and W2CRS in recent months, plus one-ways with W9QXP, SM6CMU and DL3BWW, which should completed in July.

In May, I arranged two metre meteor scatter skeds with VK8GF in Alice Springs to coincide with the eta-Aquarids shower, one of the best in the southern hemisphere for 144 MHz. A couple of pings and bursts were heard both ways on the two mornings we tried, but it seems the 2100 km between us is just too far. Our only other

opportunity to work VK8 is via rare Es openings.

The VK5VF beacon is audible in Sydney via meteors, and I expect the Sydney beacon on 144.4196 MHz can be heard in Adelaide the same way — does anyone listen? The next shower period is the delta-Aquarids in July which has always been good for six metres, although less suitable for two metres as the meteor velocity is fairly low.

The Perseids are inaudible in Australia as they are too far north, however, we get a reasonable shot at the Orionids in October and the Geminids in December. During the peak of the Geminids last year, I was recording up to 80 bursts per hour from VK5VF on 144.450, so there is no excuse for not having a contact! Thanks for the news Mike.

A letter from Peter VK4APG responds to my request for information re tropo openings, particularly to New Zealand and other far points, and this will eventually find its way to Emil W3EP.

Peter has journeyed to the UK to be part of the celebrations of 100 Years of Radio in 1995 by establishing for a week, a six metre station at The Lizard, Cornwall, UK, IN79. He will be as close as he can get to Marconi's Poldhu Point trans-Atlantic Station. IN79 has only a small part of England in it, so it becomes a rather rare grid square, if there is such a thing as a rare grid square in Europe!

He is taking a TS60s, AC psu, five el K6STI Yagi, two el delta quad, 1/4 wave whip with mag mount, 55 feet 213 coax plus the incidental bits and pieces. Peter has worked out that there will be no room for clothes, and all the heavy bits and pieces will be in his wife's luggage, so she pays the excess baggage bill! He is hoping for a bumper northern Es season to overcome the F2 withdrawal symptoms he's suffering during the bottom of the sunspot cycle. A report of the UK activities will be sent to me if there is worthwhile propagation. Thanks Peter.

News from Europe

Ted Collins G4UPS sends his report for May 1995. Six metre stations which will be operational during their summer include IK0FVC from the Vatican City, JN61FV; San Marino will be represented by the Club station T70A, operating with a permit for CW and SSB until December 1995, no private activity permitted; Madeira will have CT3FT; Canary Island with EH8BPX, IL18SK, who had his first QSOs to the UK on 21/5. He is on a different island from EH8ACW so a new grid square; Market Reef — Ted worked OJ0/OH8AA on 27/5 in JP90NH, presumed to be a DXpedition.

The Es season in Europe appears to have had a good start, with openings on

almost every day in May (equivalent to our November), with 20/5, 21/5, 27/5, 28/5 and 30/5 being wide open.

Countries worked/heard for May: 4N1, 4Z4, 5B4, 9A3, 9H5, CN, CT0, CU3, DL, EH, ES, EU, F, G, GJ, GM, GW, HB9, I, IS0, LA, LX, OD, OE, OH, OK, OM, OZ, PA, S51, SM, SP, SV, YL, YT, YU, ZB2. A total of 37 countries for one month — that should satisfy most operators! Many stations were worked in Italy, Yugoslavia and Poland, indicating good Es distances from Ted. A total of 22 beacons were heard.

From the USA

Emil W3EP reports in his *The World Above 50 MHz* in QST, that long-time Six Metre International Radio Klub secretary-treasurer Ray Clark K5ZMS is stepping down due to other commitments. Pat Rose W5OZI will assume his position. SMIRK will continue to sponsor the SMIRK 6-metre contest. There are no plans to revive the newsletter, dormant since 1991.

Closure

Apart from the small openings on 22/6 and 23/6, six metres has been quiet, which is normal for winter. Most activity occurs on 144 MHz and above, while operators spend time building or upgrading equipment.

Closing with two thoughts for the month:

1. The most beaten paths are certainly the most sure; but don't expect to scare up much game on them, and
2. The chief value of money lies in the fact that one lives in a world in which it is over-estimated.

73 from *The Voice by the Lake*

Late Item

After completing these notes, ready for placing on disk and posting, a further two metre opening has occurred. On 5/7 Roger VK5NY phoned to say the band was open again to central NSW. At 0030 I worked Mark VK2EMA on 2 m 5x2, and 70 cm also 5x2. Fred VK2YZU on 2 m was 5x2 with signal strength improving. I worked VK2EMA again at 0104 with signals to 5x5. Roger VK5NY was also working the stations.

The good conditions continued into the night, but later than previously. Again, I was on the edge of the system, but this time unable to work anyone. Roger VK5NY, at 0856 worked Mark VK2EME on 2 m 5x2-6, then again at 1324 5x3-6, 1343

VK2BIT at Wollongong 5x2/5x1, briefly heard VK2FLR, and VK2ZAB or VK2ZRU, but signals were too marginal for correct ident. At 1406 VK2FLR 5x2-1 on 2 m, 1328 VK2EMA 5x4-4 on 2 m, then 70 cm 4x1/5x3. VK5RO could hear VK2EMA but unable to make contact.

Earlier in the evening, Barry VK5KCX at Gawler worked VK2EMA, VK2BIT, VK2FLR and possibly VK2YZU. VK2BIT is situated on top of the escarpment at Wollongong, 350 m asl and runs 150 watts to a 20 el phased array, so he should be available quite often.

So there it is, another large high pressure system is enveloping the continent, so more good conditions could be on the way. If this system is as good as the last one, it will be a very unusual occurrence for the time of year. The beacons VK3RGL and VK7RNW were just audible. Mark VK2EMA said he received early notice of the opening when he heard the VK5VF beacon on 144.450.

This beacon is so well sited at about 750 m asl, and reliable, that it must be one

of the better beacons in Australia, responsible for alerting many operators on countless occasions. It sits about midway between Perth and Sydney, and services a vast area with its ten watts and omni-directional antenna. The beacon's usefulness and reliability over the past 30 years is unlikely to be matched by any other, may it continue!

From the VK5 viewpoint, we are disappointed that there are no comparable beacons anywhere for which we may listen, so we need to rely on others to advise that they are hearing the VK5 beacon.

There also appears to be emerging evidence that there exists aircraft enhancement of signals between VK5NY and VK2EMA, the effect having been noted later in the evening, probably Asian flights from Sydney. Attempts to work VK2ZAB via that medium have so far been unsuccessful.

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What's New

Bob Tait VK3UI* introduces new products of interest to radio amateurs.

Two Year Warranty

Bob Wiley, National Sales and Marketing Manager for ICOM (Australia) advises that ICOM are pleased to announce that, beginning 1 July 1995, a two year warranty period has been introduced to cover all transceivers, receivers and serial numbered items. Other accessories still have a twelve month warranty period.

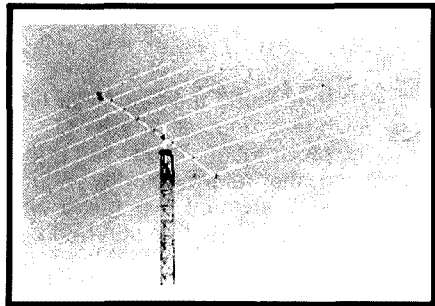
Australian Amateur Packet Radio Association

We have been advised of the formation of the Australian Amateur Packet Radio Association, which is a non-profit group providing assistance to individuals and clubs who wish to set up and operate packet systems and digipeaters.

The association currently has 300 members, most of whom are members of the Wireless Institute of Australia. The association imports and sells packet equipment to members at reasonable rates. They also produce modem kits for those who want to roll their own equipment.

If you require further information about the AAPRA they can be contacted by writing to the Acting Secretary, Geoff Page VK2BQ, 59 Westbrook Avenue, Wahroonga, NSW 2076.

Cushcraft Skylog ASL-2010 Log Periodic Antenna



The new Cushcraft ASL-2010 is the answer for those amateurs who would like a single antenna to cover 20 to 10 metres. It uses a single feedline and balun, no band switching is necessary and it has no traps to increase wind loading.

The total area is just 10.1 sq ft and the boom length is 5.48 metres (18 ft) long. There are eight elements, the longest being 11.58 metres (38 ft) long. The gain is quoted as being 6.4 dBd.

The local supplier is Daycom Communications Pty Ltd, 37 Fenton St, Huntingdale, VIC 3166. Phone (03) 9543 6444.

*C/o PO Box 2175, Caulfield Junction VIC 3161
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**Amateur Radio
helping our community.**

■ Book Review

Disaster Management

Senate Standing Committee on Industry, Science, Technology, Transport, Communications and Infrastructure. June 1994

Reviewed by Gil Sones VK3AUI

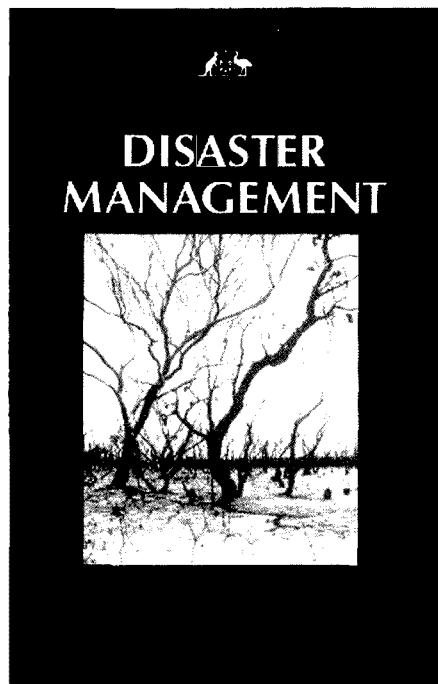
This report is available from the Commonwealth Bookshop. It is of interest to radio amateurs, and members of WICEN in particular, because of the favourable mention of WICEN and its role. This is in part due to the excellent job done by Leigh Baker VK3TP who, as Federal WICEN Coordinator, presented a paper to the Senate Standing Committee and was in turn questioned by the Committee.

The WICEN submission was received favourably and WICEN receives a favourable mention in the report. This is both recognition of the value placed on WICEN and sets in place a very high standard for us to live up to.

In 1993 the Senate Standing Committee on Industry, Science, Technology, Transport, Communications and Infrastructure advertised the terms of reference and

invited submissions. The Terms of Reference were "The capacity of public sector authorities to plan for, forecast and respond to major disasters and large scale emergencies, fully respecting and utilising the skills and capacities of volunteer organisations." In response to this advertisement, Leigh Baker VK3TP, as Federal WICEN Coordinator, made a submission and appeared before the committee on 14 July 1993.

As a result of all the submissions, the committee has published its findings and made recommendations. These are contained in the book which is of interest to radio amateurs. One of the recommendations was that a representative of WICEN be invited to join the National Communications Advisory Group which provides communications



advice to Emergency Management and thus to the Government of Australia. This invitation has been made and Leigh Baker VK3TP has accepted the position.

The book is interesting if rather tough reading. It has significance to radio amateurs as an example of meeting Government Agencies on their ground and on their terms and doing so successfully.

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■ Poetry

Deceased Estate

(with apologies to
Percy Bysshe Shelley)

Bob Hawksley VK2GRY*

I met a fellow at a garage sale
Who said "Two masts and yards of cable lie
Right out the back. And near them, on a stand,
You'll find equipment piled though what it is
Or was, I cannot say. Here lived a ham,
So called, who radioed across the world
To speak with thousands whom he never met
Nor ever will for now he's gone. And all
That's left is lying here on sale today.

What deeds or feats he claimed are lost in time
His triumphs, yes, and conquests too are shrunk
To being but a tag tied quickly on
His silent key, his muted phones, his gear,
All bleakly labelled now Deceased Estate."

*21 Wallumatta Road, Newport NSW 2106

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Continued from page 1

the Directors of Region 3 asked the IARU Vice President, Michael Owen VK3KI, to make the presentation on their behalf.

The cover photograph, taken by Peter Jensen VK2AQJ, shows Michael (left) making the presentation to David at the WIA Annual Dinner on 20 April 1995 in Melbourne.

In making the presentation, Michael thanked David for his valuable contribution to the Region. He also described how the IARU had responded to the restructuring of the International Telecommunications Union in 1993, which had required the ongoing involvement of experts representing the amateur service in ITU activities. David was one of a pool of experts from all around the world, and has attended a number of ITU meetings representing the IARU. He also thanked David for that contribution, not only to date, but for the future.

David responded, thanking the Directors and stressing the importance of the ongoing involvement of the IARU in the ITU.

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HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μV (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μV in 50 ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μV at the receiver's input and the S-meter scale is 6 dB per S-point.

μV in 50 ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4

0.78	S3	-2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 16.1. The predicted value for September is 14.4.

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	15.1	15	11.4	3	17	5	-6	-27
2	15.6	15	11.7	4	18	7	-5	-24
3	15.6	16	11.7	7	19	8	-5	-24
4	15.6	17	11.7	13	21	8	-5	-24
5	14.9	18	11.3	22	21	6	-9	-31
6	13.2	23	10.0	37	18	-2	-22	...
7	11.7	26	8.9	41	12	-13	-38	...
8	10.3	28	7.7	41	3	-28	...	...
9	9.2	30	6.9	40	-6	...	...	...
10	8.4	32	6.3	39	-15	...	...	...
11	7.8	32	5.8	37	-24	...	...	...
12	7.5	32	5.6	35	-28	...	...	...
13	7.3	33	5.4	34	-32	...	...	...
14	7.2	33	5.3	34	-33	...	...	...
15	7.2	33	5.5	34	-32	...	...	...
16	6.3	34	4.9	29	...	...	...	...
17	6.5	34	5.0	30	...	...	...	...
18	6.6	33	5.1	30	...	...	...	...
19	6.9	32	5.3	30	...	...	...	...
20	8.2	23	6.4	25	-17	...	...	...
21	10.5	19	8.1	20	2	-24	...	...
22	12.5	16	9.6	12	11	-7	-26	...
23	13.8	15	10.6	7	14	0	-15	-38
24	14.7	15	11.1	4	16	4	-10	-31

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	17.9	12	13.6	-21	16	11	4	-8
2	18.5	12	13.9	-23	16	12	5	-6
3	19.0	12	14.8	-21	17	14	7	-4
4	19.1	13	14.3	-16	19	15	7	-4
5	19.1	14	14.3	-6	21	16	8	-3
6	17.8	16	13.5	11	24	15	6	-8
7	15.7	20	11.9	28	25	12	-1	-20
8	13.9	24	10.4	39	23	5	-11	-34
9	12.1	27	9.1	41	7	-4	-25	...
10	10.7	29	8.0	42	11	-15	-39	...
11	9.8	31	7.3	42	5	-24	...	...
12	9.4	31	7.0	41	0	-29	...	...
13	9.1	32	6.7	40	0	-33	...	...
14	8.8	32	6.5	40	-2	-37	...	...
15	8.7	32	6.5	39	-3	-38	...	...
16	8.7	32	6.6	40	-3	-37	...	...
17	7.7	34	5.9	37	-13	...	...	...
18	7.9	33	6.1	37	-11	...	...	...
19	8.0	32	6.1	37	-10	...	...	...
20	8.3	24	6.4	26	-7	...	...	...
21	10.0	19	7.3	18	3	-20	...	...
22	12.9	16	9.9	5	13	-1	-17	-39
23	15.4	13	11.8	-8	15	7	-4	-20
24	17.0	12	12.9	-17	16	10	1	-12

VK EAST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.4	9	6.4	4	-4	-28	...	...
2	7.1	-2	5.5	-2	-10	-37	...	...
3	7.3	-8	5.6	-10	-8	-31	...	...
4	10.0	-1	7.8	-24	0	-12	-27	...
5	14.2	5	11.0	...	5	4	-7	-21
6	16.4	6	12.9	...	5	4	-2	-13
7	16.2	8	12.1	...	5	4	-2	-13
8	14.6	6	10.9	...	5	1	-6	-20
9	12.7	6	9.5	-28	5	-3	-14	-32
10	11.0	5	8.2	-17	3	-9	-24	...
11	9.6	6	7.1	-6	0	-18	-37	...
12	8.7	8	6.5	2	-3	-26	...	...
13	8.4	14	6.2	12	-5	-32	...	...
14	8.2	21	6.0	22	-7	-39	...	...
15	8.1	25	5.9	27	-9	...	...	...
16	8.2	28	6.0	31	-8	...	...	...
17	8.0	30	6.1	33	-10	...	...	...
18	7.8	30	5.9	33	-13	...	...	...
19	7.4	31	5.6	32	-16	...	...	...
20	7.7	30	5.8	33	-14	...	...	...
21	7.7	30	5.9	33	-14	...	...	...
22	7.4	29	5.8	30	-16	...	...	...
23	7.1	19	5.6	19	-18	...	...	...
24	7.5	14	5.9	14	-13	...	...	...

VK SOUTH — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	7.7	16	5.9	16	-9	...	...	...
2	7.9	11	6.1	8	-7	-34	...	...
3	10.7	12	7.9	0	5	-11	-29	...
4	15.0	12	11.6	-15	12	5	-4	-19
5	16.6	9	13.5	-32	10	7	0	-12
6	17.4	8	14.1	...	9	7	1	-9
7	17.0	8	13.6	...	9	6	0	-11
8	16.0	8	12.8	-34	9	5	-2	-15
9	14.6	8	11.5	-25	9	2	-7	-23
10	12.8	9	10.0	-15	7	-3	-16	-36
11	11.0	9	8.6	-6	4	-11	-28	...
12	9.6	11	7.5	4	0	-21	...	...
13	8.6	15	6.7	13	-6	-33	...	...
14	8.1	21	6.2	23	-10	...	...	...
15	7.9	25	6.0	27	-13	...	...	...
16	7.7	28	5.9	30	-15	...	...	...
17	7.7	29	5.9	32	-16	...	...	...
18	7.6	30	5.9	32	-17	...	...	...
19	7.5	30	5.8	32	-18	...	...	...
20	7.4	30	5.8	31	-20	...	...	...
21	7.9	29	6.2	33	-14	...	...	...
22	7.9	30	6.1	33	-13	...	...	...
23	7.6	29	5.9	31	-16	...	...	...
24	8.0	23	6.3	24	-10	...	...	...

VK WEST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	7.1	23	5.5	23	-18	...	...	...
2	7.2	14	5.6	4	3	...	...	...
3	10.1	13	7.6	4	3	-16	-37	...
4	14.5	12	11.2	-12	12	3	-7	-24
5	16.8	10	12.8	-29	11	7	0	-13
6	17.6	9	13.4	-39	10	8	2	-9
7	17.8	8	13.4	...	9	6	2	-9
8	17.4	8	13.0	...	9	7	0	-11
9	16.4	8	12.3	37	9	5	-2	-15
10	14.7	9	11.1	-24	9	2	-7	-23
11	12.8	10	9.6	-10	8	3	-17	-37
12	11.1	12	8.3	1	5	-11	-30	...
13	9.6	16	7.2	13	0	-23	...	...
14	8.8	21	6.5	23	-4	-34	...	...
15	8.5	26	6.3	29	-7	...	...	...
16	8.2	28	6.1	32	-9	...	...	...
17	8.1	30	6.1	34	-10	...	...	...
18	8.2	31	6.1	36	-9	...	...	...
19	8.2	31	6.2	36	-9	...	...	...
20	7.9	31	6.0	35	-12	...	...	...
21	7.5	31	5.7	33	-18	...	...	...
22	7.8	31	6.0	35	-14	...	...	...
23	8.3	31	6.3	36	-7	...	...	...
24	7.7	31	5.9	34	-14	...	...	...

VK EAST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	20.2	12	15.4	-35	16	15	10	1
2	20.7	12	15.8	-39	15	15	11	2
3	20.9	12	15.9	...	15	16	11	3
4	21.1	12	16.1	-38	16	16	12	4
5	21.1	13	16.1	-33	17	17	12	4
6	20.2	13	15.5	-24	19	17	11	1
7	18.7	14	14.3	-9	21	16	8	-4
8	17.0	17	12.9	13	23	13	2	-13
9	15.2	21	11.7	37	25	9	-6	-27
10	13.5	23	10.3	41	20	0	-20	...
11	12.4	24	9.5	43	15	-9	-31	...
12	11.8	25	9.0	44	11	-15	...	...
13	11.0	26	8.3	43	6	-24	...	...
14	10.3	26	7.9	41	0	-33	...	...
15	9.9	26	7.5	40	-4	-39	...	...
16	9.8	26	7.5	40	-5	...	...	...
17	8.9	27	6.8	37	-15	...	...	...
18	7.4	28	5.7	31	-39	...	...	...
19	7.6	28	5.9	31	-36	...	...	...
20	8.3	28	6.4	35	-23	...	...	...
21	12.0	22	9.4	32	12	-11	-34	...
22	17.8	16	13.8	1	22	15	6	-7
23	19.6	14	15.1	-16	20	17	10	0
24	20.0	13	15.3	-27	18	16	10	0

VK SOUTH — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	16.4	9	12.5	-35	11	7	-1	-14
2	16.8	9	12.7	...	10	7	0	-12
3	17.3	9	13.0	...	10	8	2	-9
4	17.3	9	13.0	...	10	8	2	-9
5	17.3	10	13.0	-38	11	9	2	-9
6	16.9	11	12.8	-30	13	9	1	-11
7	16.0</							

VK EAST — EUROPE										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9		
1	9.3	-6	6.7	-30	0	-11	-26	...		
2	9.1	-11	6.6	-37	0	-10	-23	...		
3	10.1	-11	7.3	...	0	-6	-16	-33		
4	12.1	-6	8.5	...	-1	-2	-9	-21		
5	14.3	-2	10.4	...	-2	0	-3	-12		
6	15.8	0	11.6	...	-3	2	0	-8		
7	16.5	2	12.1	...	-2	3	1	-6		
8	17.0	5	12.5	...	1	5	2	-5		
9	15.6	5	11.9	...	4	4	1	-11		
10	13.9	6	10.6	...	6	2	-6	-20		
11	12.2	7	9.3	-24	6	-2	-14	-33		
12	11.2	9	8.5	-10	6	-7	-22	...		
13	10.7	12	8.1	0	6	-11	-29	...		
14	10.0	16	7.6	11	4	-17	-38	...		
15	9.5	19	7.1	19	1	-23	...	...
16	9.3	24	7.0	28	0	-28	...	...
17	9.2	27	7.0	33	0	-30	...	...
18	8.5	29	6.5	34	-6	...	...	...
19	7.4	29	5.7	31	-20	...	...	...
20	7.5	29	5.8	32	-18	...	...	...
21	8.6	30	6.6	36	-3	-35	...	...
22	9.0	22	6.8	23	0	-26	...	...
23	10.3	12	7.3	0	5	-11	-29	...		
24	9.7	1	6.9	-18	1	-12	-28	...		

VK SOUTH — EUROPE										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9		
1	15.8	2	11.1	...	-1	4	2	-4		
2	15.9	-5	11.2	...	-11	-1	0	-4		
3	16.5	-10	11.6	...	-20	-5	-2	-4		
4	19.2	-7	13.2	...	-31	-10	-4	-2		
5	22.7	-4	16.2	...	...	-16	-6	-2		
6	25.5	-1	18.2	...	...	-19	-8	-2		
7	26.5	-1	19.3	...	...	-19	-8	-2		
8	25.2	-1	18.9	...	...	-15	-6	-1		
9	23.4	-1	17.6	...	-34	-11	-3	0		
10	21.3	0	16.0	...	-22	-5	0	0		
11	18.5	0	13.9	...	-12	0	1	-2		
12	16.3	1	12.2	...	-3	2	0	-6		
13	14.3	4	10.6	...	4	3	-3	-14		
14	12.7	7	9.4	-31	7	1	-9	-25		
15	11.8	12	8.7	-8	10	-1	-15	-35		
16	11.4	19	8.4	14	12	-3	-20	...		
17	11.0	25	8.2	29	13	-6	-26	...		
18	10.9	27	8.2	35	14	-7	-28	...		
19	10.2	29	7.7	38	10	-14	-37	...		
20	9.6	30	7.3	39	7	-20	...	...
21	10.4	30	8.0	40	12	-12	-35	...		
22	13.7	27	10.6	41	25	9	-6	-26		
23	17.8	21	12.1	7	26	20	13	1		
24	16.8	13	11.7	...	12	12	8	-1		

VK WEST — EUROPE										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9		
1	10.2	15	7.1	8	4	-15	-35	...		
2	9.8	4	6.8	-13	1	-15	-32	...		
3	10.9	0	7.6	-33	1	-8	-21	...		
4	13.3	1	9.1	...	2	-1	-8	-22		
5	16.0	3	11.3	...	0	3	-1	-9		
6	17.8	4	12.5	...	-1	4	2	-4		
7	18.5	4	13.0	...	-2	4	3	-3		
8	19.0	5	13.3	...	-2	4	4	-1		
9	18.8	5	13.7	...	0	5	3	-3		
10	17.1	5	13.0	...	2	4	0	-8		
11	15.2	5	11.5	...	5	3	-4	-16		
12	13.4	6	10.2	-31	6	0	-11	-27		
13	11.7	9	8.9	-12	6	-6	-21	...		
14	10.8	13	8.1	4	5	-13	-32	...		
15	10.3	18	7.8	17	4	-18	...	...
16	9.8	23	7.4	29	2	-25	...	...
17	9.5	25	7.2	32	0	-30	...	...
18	9.4	27	7.1	35	-1	-32	...	...
19	9.4	28	7.1	36	-1	-32	...	...
20	8.8	28	6.7	35	-7	...	...	...
21	7.8	28	6.0	32	-18	...	...	...
22	8.0	28	6.2	32	-15	...	...	...
23	8.2	29	6.3	33	-11	...	...	...
24	8.5	29	6.5	33	-8	...	...	...

VK EAST — EUROPE (long path)										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9		
1	11.3	11	7.6	-7	8	-3	-16	-36		
2	10.6	13	7.2	1	7	-6	-22	...		
3	9.9	15	6.8	9	6	-11	-29	...		
4	9.6	18	6.6	16	5	-14	-35	...		
5	9.4	23	6.5	24	5	-18	...	...
6	10.4	25	7.2	29	11	-9	-29	...		
7	11.7	24	8.7	28	16	0	-17	...		
8	10.3	19	7.8	15	6	-9	-27	...		
9	8.0	7	6.2	2	-2	-23	...	...
10	7.9	-3	6.1	-9	-2	-19	-39	...		
11	8.8	-5	6.5	-21	0	-13	-28	...		
12	8.6	-11	6.3	-29	0	-11	-25	...		
13	8.5	-16	6.3	-35	0	-9	-22	...		
14	8.6	-24	6.3	...	-4	-12	-24	...		
15	8.6	-34	6.4	...	-9	-16	-28	...		
16	8.2	...	6.2	...	-14	-22	-35	...		
17	7.7	...	5.9	...	-21	-31	...	...
18	8.1	...	6.2	...	-16	-25	-39	...		
19	9.6	-15	7.0	...	0	-5	-15	-30		
20	12.4	-4	9.5	...	0	-1	-8	-20		
21	14.8	3	10.7	...	2	2	-3	-13		
22	14.1	6	9.6	...	6	3	-3	-15		
23	13.0	7	8.9	-28	8	2	-7	-21		
24	12.0	9	8.2	-15	8	0	-11	-29		

VK SOUTH — EUROPE (long path)										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9		
1	10.6	7	7.3	-12	5	-7	-21	...		
2	9.9	10	6.9	0	4	-12	-29	...		
3	9.3	14	6.5	8	2	-18	-38	...		
4	9.1	22	6.4	24	1	-23	...	...
5	9.0	23	6.4	25	1	-25	...	...
6	10.0	24	7.1	28	7	-15	-37	...		
7	11.7	22	8.4	26	15	-2	-19	...		
8	11.1	19	8.7	18	9	-8	-27	...		
9	9.7	13	7.5	7	2	-17	-38	...		
10	8.0	3	6.1	-2	-4	-25	...	...
11	8.2	-2	6.3	-11	-3	-20	...	...
12	8.0	-8	6.2	-18	-2	-18	-35	...		
13	7.9	-15	6.2	-25	-2	-15	-30	...		
14	7.9	-32	6.1	...	-10	-22	-38	...		
15	7.9	...	6.1	...	-18	-29	...	...
16	7.7	...	6.0	...	-25	-37	...	...
17	7.4	...	5.8	...	-34	...	...	...
18	7.8	...	6.2	...	-30	...	...	...
19	9.1	-38	6.9	...	-13	-19	-30	...		
20	11.3	-10	9.0	...	-2	-3	-10	-22		
21	13.5	-3	10.2	...	-2	-1	-6	-16		
22	13.3	-1	9.3	...	0	0	-5	-16		
23	12.2	0	8.5	...	2	-1	-9	-23		
24	11.3	3	7.8	-27	4	-4	-15	-32		

VK WEST — EUROPE (long path)										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9		
1	10.2	-3	7.2	-30	0	-9	-21	...		
2	9.6	0	6.7	-18	0	-13	-28	...		
3	9.0	2	6.4	-9	-1	-18	-35	...		
4	8.8	5	6.3	-2	-2	-21	...	...
5	8.8	9	6.3	3	-2	-23	...	...
6	9.8	12	7.0	6	2	-16	-34	...		
7	11.4	15	8.2	8	8	-6	-22	...		
8	13.2	15	9.6	8	13	2	-10	-28		
9	12.7	13	10.4	3	10	-2	-15	-35		
10	11.0	8	8.5	-5	4	-10	-25	...		
11	9.0	-1	6.9	-14	-1	-16	-32	...		
12	8.3	-9	6.4	-21	-3	-17	-33	...		
13	8.2	-14	6.3	-27	-3	-16	-31	...		
14	8.0	-28	6.0	...	-8	-20	-35	...		
15	7.8	...	6.1	...	-18	-30	...	...
16	7.8	...	6.0	...	-24	-35	...	...
17	7.8	...	6.0	...	-29	-39	...	...
18	7.6	...	5.9	...	-34	...	...	...
19	7.3	...	5.7	...	-38	...	...	...
20	7.7	...	6.1	...	-31	...	...	...
21	9.0	-35	6.7	...	-12	-18	-30	...		
22	11.2	-11	9.0	...	-3	-6	-13	-26		
23	11.8	-7	8.3	...	-2	-4	-11	-24		
24	10.9	-6	7.6	...	-1	-6	-16	-32		

VK EAST — MEDITERRANEAN										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9		
1	9.7	0	7.4	-23	1	-11	-27	...		
2	10.4	-4	7.8	-38	1	-7	-20	-39		
3	13.9	1	10.3	...	1	-5	-17	...		
4	16.1	5	13.7	...	-1	5	3	-3		
5	20.6	5	15.6	...	-2	5	5	1		
6	20.4	5	15.5	...	-3	5	5	0		
7	19.4	5	14.7	...	-2	5	4	-1		
8	17.7	5	13.4	...	1	5	2	-5		
9	15.7	5	11.8	...	4	4	-2	-12		
10	13.9	5	10.5	...	5	1	-7	-21		
11	12.2	7	9.2	-24	6	-3	-15	-34		
12										

HAMADS

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FOR SALE NSW

● **TOWER HILLS** winch-up cyclonic galvanised 13 m. Rotator Kenpro KR1000, antenna Tet-Emtron TE46 6 band with coax, installed 2 years, sell \$1,500. Rod VK2BRN ex VK4FRW (0755) 24 3722 Tweed Heads.

● **3 METRE "Hero"** KU band mesh dish inclined orbit polar mount 3" pipe mount \$1,250; 2 CHAPARRAL "Sidekick" II 20 degrees k 4 GHz LNB's \$240ea. John VK2WW QTHR (02) 546 1927.

● **YAESU FT757GX** s/n 4J121004 with mobile mount, manual and mic, vgc, \$950; **YAESU FRG7700** comms rcvr 150 kHz — 30 MHz with memory module, manual, vgc, \$490. Tibi VK2COD (047) 51 4398 or fax (047) 51 6294 LAO.

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adaptor/charger s/n 9H120549; **YAESU FT-230R** s/n 4C220340; **YAESU FT-101Z** s/n 9H090667; **YAESU FRG-7** Communication receiver s/n 269M-2700. All equipment to be sold by tender. Please forward offer to WIA NSW Division, PO Box 1066, Parramatta NSW 2124 or fax (02) 626 6066. Enquiries to Michael VK2YC (02) 626 9288.

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FOR SALE VIC

● **KENWOOD TS-930S HF TRANSCEIVER**, 160 — 10 m, inbuilt auto ATU, professionally modified to include Fox Tango narrow SSB dual filters and switching, additional 8 memories, memory scanning, etc. Complete with mic, users manual and workshop manual. As new condition, \$1745. **KENWOOD SP-930** speaker with selectable frequency response, EC, \$145. **KENWOOD TS-50S HF TRANSCEIVER**, 160 — 10 m, matching auto ATU, professionally modified to include high stability TXCO, IRCI narrow SSB filter (switchable) and IRCI RF speech processor. Complete with matching mic, user manuals and workshop manual. Little used, immaculate condition, original cartons, \$2345. **YAESU FT7 HF TRANSCEIVER**, 80 — 10 m, complete with mic and handbook, original carton. Very clean, excellent performer, \$375. Bill Roper VK3BR, QTHR, (03)9584 9512.

● **COMMAND RECEIVER BC-453-B** 190-550 kHz, Command Receiver BC-454-B 3-6 MHz, CQ Command Sets handbook, \$30 the lot, will not split; **PALEC VCT-3** valve circuit tester complete with handbooks, \$200. Allen VK3SM QTHR (03) 9386 4406.

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● **HY-GAIN QUAD** tri-band, manual, single coax feed, light weight aluminium constrn, 8"

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● **KENWOOD TS440S/AT HF transceiver** s/n 9110294, top condx, manual, orig carton, \$1,400 ono. Damien VK3CDI (054) 27 3121.

FOR SALE OLD

● **KENWOOD TL922** linear amplifier, 2 1/2 months old, complete \$4,000; **KENWOOD TL922** linear amplifier 3 years old, complete \$3,000 ono. Bob VK4RM (074) 49 7151.

● **VALVES** NEW boxed QE010/5763, QQE03/12, 6CB5, 6DQ5, 5842/417A, 12BY7, 6BQ5, 6AK5, 6CL6, 6BQ7A, 6ES8, 6AN7A, 6M5, 6N8, 6CA4, 6AM6, 6CB6, 6A8G, 6B6G, 1R5, 1S5, 1T4, 3V4 plus numerous others, all \$10 each; 813 new \$30; **EIMAC T172/8295A** with SK184 socket and chimney, \$250; **NEW COAX URM57**, any length, \$1.00 per metre, 500 metres, \$350; **TRANSMIT** gangs 250 pF and 500 pF, .375"; new, \$50 ea. John VK4KK QTHR (07) 269 6647.

● **VALVES** FOR restorers, amateurs, collectors. Octals novals, all tested. Sockets, transmitter ceramics, unused 6146Bs, 12BY7s, 6K8GTs now available. Reduced prices. Send 9" x 4" sase for list. Ted VK4YG PO Box 245, Ravenshoe Qld 4872 or (070) 97 6387.

● **TENDER**, 60' guyed tower, TH7 DXCC tribander, receivers, HiFi amps, transformers, earphones, microphones, variable fixed capacitors, roller inductors, meters, Morse keys, official radio service manuals. Catalogue 85 cent stamp. Hadgraft, 17 Paxton St, Holland Park Qld 4121 or (07) 397 3751.

FOR SALE SA

● **KENWOOD TL922** linear, TS940S transceiver, mint cond, top of the line performance, the ultimate, selling health below par, price negotiable; **AKAI R/R** tape recorder Hi-Fi 20/20,000 audio frequency response. A Sheppard VK5DC, QTHR, (08) 31 4194.

● **ANTENNA** 8 el log periodic for HF bands, 10-30 MHz continuous, with all hardware, instructions, good condition, \$450 plus freight. Offers considered. Paul VK5MAP QTHR (086) 51 2398.

- YAESU FT-411 2 metre handheld, s/n 9D080112, as new in original carton, with charger, FNB-14, PA6 adaptor, ant, and soft case, \$350 ono. John VK5KBE QTHR (08) 250 7259.
- FOUR ELEMENT dual band cubical quad for 10/15 m, \$200 ono or swap for 2 m 100 W amplifier. Rob VK5CS (085) 68 5411 after 7 pm.

WANTED NSW

- KENWOOD TS-711 all mode 2 metre plus at least 60 watt amp. Also MFJ-259 SWR analyser, all items to be as new, books, etc. A Walsh VK2TBW (048) 61 2092.
- LINEAR HF amplifier working or not; CAPACITOR approx 20 mF 4 kV DC. Malcolm VK2BMS QTHR (02) 257 4583 BH or (02) 958 1114 AH.
- CIRCUIT and/or handbook for Heathkit GR-1 receiver. Will repay all costs. Jim VK2IB QTHR (067) 61 5215 after 6 pm weekdays.
- NOISE and distortion meter AWA F240 or similar, any condition. Please advise if workshop manual or circuit available for copy or purchase. A Hinkler VK4AO (066) 46 6587.

WANTED VIC

- IC202 S or E model; also Crystal for 144.6 to 144.8 MHz to suit IC202. Roger VK3XRS PO Box 98, Bairnsdale Vic 3875 or (051) 52 1163.
- KENWOOD TS-711A 2 m Tx. Ian VK3YIC (052) 26 9301 BH or (053) 41 5656 AH.
- GELOSO transmitter G-222-TR, any components which might assist in restoration, such as knobs, switches, etc.; RECEIVER to match Geloso G-222- TR; DOCUMENTATION on Heathkit station monitor, model SB610;

DITTO for a Leader RF signal generator, model LSG11; CIRCUIT/MANUAL/WHATEVER for a Leader LDM810 GDO. Michael Krochmal VK3ZIP/VK3KRO, PO Box 112, Ormond VIC 3204, (03) 9578 9124 AH, (03) 9596 8065 BH, fax (03) 9596 8369, email mike=krochmal@vut.edu.au.

- ANTENNA Highgain MK2-3 or similar tri-band beam on 16'18' foot boom, will pick up VK3, old or in need of service OK if price is right (pensioner). Jim VK3YJ QTHR (03) 9315 9387.

WANTED QLD

- CIRCUIT or info for AMR300 or STC A-679 Rx, also 455 crystal to suit. Ron VK4CRO QTHR (07) 390 7762.

WANTED SA

- SERVICE MANUAL or photocopy for Kenwood TS-440S; POWER lead for Kenwood TS-440S or 130S or similar type radios. Will pay all costs. Paul VK5MAP QTHR (086) 51 2398.
- RECEPTION SET No. 8C (Aust) AWA type C51061, preferably with carrying frame. Also wanted Antenna Rods "B", approximately 12" long by 1/4" diameter. Tony VK5UA QTHR or (08) 269 4095 AH.

MISCELLANEOUS

- THE WIA QSL Collection (now Federal) requires QSLs. All types welcome especially rare DX pictorial cards special issue. Please contact Hon. Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350.

Editor's Comment

Continued from page 2

6. Necessary Skills

- Working effectively on crowded bands.
- Flexibility and procedure awareness.
- Q code and abbreviations (common to all languages).

7. International Agreements

- IARU Region 3 re-affirmation of ITU policy in 1994. Regions 1 and 2 in 1992, 1993.
- NZART member survey likewise in 1994.
- JARL and 38 other Pacific countries support ITU in June 1994.
- ARRL policy January 1993 to retain Morse.

In conclusion, Col reports the finding of the IARU CW Committee that there should be no change to the present ITU regulations on Morse proficiency unless supported by all three IARU Regions. The WIA, as a long standing member of the IARU, complies with this position.

Bill Rice VK3ABP
Editor

Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.
 *Eight lines per issue free to all WIA members, ninth line for name and address
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 *Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.
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 *QTHR means address is correct as set out in the WIA current Call Book.

*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.
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Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. "How to Write for Amateur Radio" was published in the August 1992 issue of AR. A photocopy is available on receipt of a stamped, self addressed envelope.

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VK2BWI Nightly at 2000 local on 3550 kHz

VK2RCW Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm

VK3COD Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz

VK3RCW Continuous on 144.975 MHz 5 wpm, 10 wpm

VK4WIT Monday at 0930 UTC on 3535 kHz

VK4WSS Tuesday at 0930 UTC on 3535 kHz

VK4WCH Wednesday at 1000 UTC on 3535 kHz

VK4AV Thursday at 0930 UTC on 3535 kHz

VK4WIS Sunday at 0930 UTC on 3535 kHz

VK5AWI Nightly at 2030 local on 3550 kHz

VK5RCW Continuous on 144.975 MHz, 5 wpm to 12 wpm

VK6WIA Nightly at 1930 local on 146.700 MHz and nightly (except Saturday) at 1200 UTC on 3.555 MHz.

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WIA Tape — Sounds of Amateur Radio		\$7.00			

Not all of the above items are available from all Divisions (and none is available from the Federal Office).

If the items are carried by your Divisional Bookshop, but are not in stock, your order will be taken and filled as soon as possible.

Divisions may offer discounts to WIA members — check before ordering. Postage and packing, if applicable, is extra.

All orders must be accompanied by a remittance.

The prices are correct as at the date of publication but, due to circumstances beyond the control of the WIA, may change without notice.

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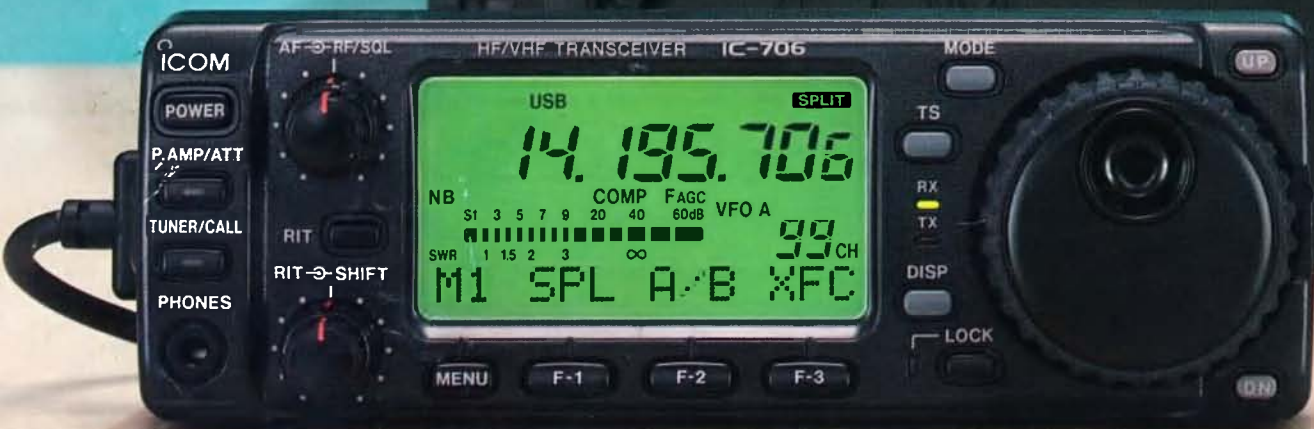
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SEPTEMBER 1995
Volume 63 No 9

RADIO **AMATEUR**



Journal of the Wireless Institute of Australia



Full of the latest amateur radio news, information and technical articles including:

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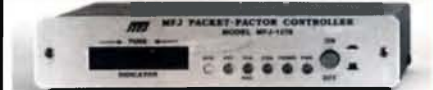
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Cover

Garry Herden VK5ZK, President of the WIA South Australian Division, presenting the G A Taylor medal to well known VHF/UHF enthusiast, Eric Jamieson VK5LP on Sunday, 28 May 1995. The medal was awarded to Eric in recognition of his long service (over 25 years) in writing the *VHF/UHF — An Expanding World* column for *Amateur Radio* magazine. The presentation ceremony took place in Eric's radio shack in front of Eric's wife Merna and three other members of the South Australian Division Council.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editor's Comment

Multiple Jubilees

By now everyone must know that World War II ended in Europe in May 1945, and in the Pacific in August, precipitated by the Hiroshima atom bomb on 6 August. Following on from this, the United Nations was established on 24 October in the hope that it could prevent World War III. So far it has succeeded, although with disastrous difficulty in places like Korea, Vietnam, the former Yugoslavia, several countries in Africa and Kuwait/Iraq. Not to mention smaller conflicts in Afghanistan, the Falklands, Chechnya and elsewhere.

None of these wars has made it necessary to restrict amateur radio in the way it was during WWII. As we have discussed before, we also celebrate in December the jubilee of our licences being returned to us in 1945.

Also of local interest in VK, we celebrate this month (September) the 50th anniversary of the last wartime duplicated typewritten copy of *Amateur Radio* in 1945, and the first post-war printed issue in October. I am indebted to Herb Stevens VK3JO for information about the magazine production during the war.

Our magazine goes back much further, to October 1933, when it began as an octavo size printed journal (about half the present page size) and continued every month until January 1941. One month was missed (February 1941) and the wartime duplicated newsletter (quarto, near A4 size) began in March 1941 with five pages and a printed cover. It would be gratifying to be able to say that February 1941 was the only missed issue, but Herb's statistics show that 51 issues were published from March 1941 to September 1945, a total of 55 months. So, four issues were missed during the war. Not a bad achievement considering the rather primitive duplicator, of which Herb has less than fond recollections!

From 1941 to 1956, Tom Hogan VK3HX was the editor, but as Victorian Division President during the war years, Herb Stevens was closely involved with producing *Amateur Radio*. He also helped with wrapping and posting for several subsequent years.

Callsigns of people responsible for *Amateur Radio* over this period were VK3s CR, HX, IE, IK, JB, JO, NY, OJ, TO, WQ and YS. Only three of these are still living (IK, JB and JO). The WIA owes them, their predecessors and their successors a debt of gratitude for maintaining our magazine for so long.

Bill Rice VK3ABP
Editor
ar

WIA News

WIA-SMA Liaison Team Changed

At the July Extraordinary Convention of the Federal WIA, the WIA's Spectrum Management Agency (SMA) Liaison team was reduced from six members to three in a majority vote of the Federal Council. The new team consists of Roger Harrison VK2ZRH, Neil Penfold VK6NE and David Wardlaw VK3ADW.

It is anticipated that Roger Harrison and David Wardlaw will attend all future WIA-SMA

meetings, and WIA Federal President Neil Penfold will join them at meetings where his attendance is felt to be necessary. Anchor person for the team is Roger Harrison.

In reaching the decision, the Federal Council took into account amateur radio and Institute backgrounds, together with technical and administrative expertise and experience.

The Federal Council said that, where necessary, the expertise of other people should be called upon, for example Federal Technical Advisory Committee

(FTAC) Chairman, John Martin VK3KWA.

A report on SMA Liaison matters in progress was also discussed by the Federal Council at the July Extraordinary Convention. Of 18 items to be actioned arising from the WIA-SMA meeting held in Canberra on 18 May, nine items had been completed, one item (concerning conditions for remote examinations) is still with the WIA to complete, and the remaining eight items had yet to be completed by the SMA as of the end of July. As matters are resolved, they will be advised in *WIA News*.

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers	Weekly News Broadcasts	1995 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Rob Apathy Secretary Len Jones Treasurer Alex Colquitt	VK1KRA VK1NLJ VK1AC 3.570 MHz LSB, 146.900 MHz FM each Wednesday evening commencing at 8.00 pm local time.	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Michael Corbin Secretary Pixie Chapple Treasurer Peter Kloppenburg (Office hours Mon-Fri 11.00-14.00 Mon 1900-2100)	VK2YC VK2KPC VK2CPK From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. The broadcast text is available on packet.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
		e-mail address: wainsw@sydney.dialix.oz.au		
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 9885 9261 Fax (03) 9885 9298	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530)	VK3PC VK3XV VK3XLZ MONTHLY BROADCAST on the second Sunday of the month, starts 10.30 am. Primary frequencies 3.615 LSB, 7.085 LSB, and FM(R)s 146.700 Mt Dandenong, 147.250 Mt Macedon, 147.225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH, VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Geoff Sanders Secretary Lance Bickford Treasurer Rodger Bingham	VK4KEL VK4ZAZ VK4HD 1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Garry Herden Secretary Maurie Hooper Treasurer Charles McEacham	VK5ZK VK5EA VK5KDK 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555, 7065, 10.125, 146.700, 0900 hrs Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 351 8873	President Cliff Bastin Secretary Mark Bastin Treasurer Bruce Hedland-Thomas	VK6LZ VK6OO 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 52 Connaught Crescent West Launceston TAS 7250 Phone (003) 31 9608	President Andrew Dixon Secretary Robin Harwood Treasurer Terry Ives	VK7GL VK7RH VK7ZTI 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$69.00 (G) (S) \$55.65 (X) \$40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).			
	Note: All times are local. All frequencies MHz.			
			Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times.

■ Receivers

VK6 80 — An 80 m Direct Conversion Receiver

Peter Parker VK1PK (ex VK6BW) supplies all the information needed to build a simple, but effective, receiver, ideal for beginners.*

The VK6 80 is a basic direct conversion receiver which will allow you to receive signals on the amateur 3.5 MHz (80 metre) band. For a \$30 outlay you can construct this rig which can pick up WIA news and Morse practice broadcasts in addition to general amateur activity. All components required to build this receiver are available over the counter in retail quantities and only simple tools are needed to complete the project.

Circuit Outline

This receiver is of the direct conversion type. The incoming signal is combined with a signal produced by the beat frequency oscillator in the mixer. The product of this mixing is a third signal which is amplified and fed to the speaker. The frequency of the third signal is equal to the frequency difference between the incoming signal and the signal from the beat frequency oscillator. In simple terms, the receiver converts signals whose frequencies are above the 20 kHz limit of human hearing (such as 3.5 MHz transmissions from radio amateurs) to frequencies we CAN hear. The receiver consists of a

number of stages, each performing a different function. This can be represented in the form of a block diagram, such as that shown in Fig 1.

Circuit Description

Now refer to the schematic diagram, Fig 2. This shows what is contained in each block and is useful for construction and troubleshooting. The desired signal is fed via the 33 pF capacitor to the anode of D1, the 0A95 mixer diode. Also present at D1 are dozens of other signals which have been attenuated by the tuned circuit formed by L1 and VC1. The desired signal, however, is not attenuated by the tuned circuit.

TR2, a BC548, is the set's beat frequency oscillator which produces a signal for the mixer. The frequency of this signal is determined by VC2, L2 and associated capacitors. As VC2 can be varied in capacitance, the receiver can tune a range of signals from 3.500 to 3.650 MHz.

The mixer combines the received signal with the signal generated by the beat frequency oscillator to produce an audio frequency signal which is within human hearing range. TR1 and IC1 amplify the signal

enough to drive the speaker. The 5 k Ω variable resistor acts as a volume control, an essential item if you intend to use the set with headphones.

Construction

Tools required:-

15-30 watt soldering iron
wire cutters
wire stripper
long nose pliers
screwdrivers
hand or electric drill
multimeter (analogue or digital).

To build this receiver you will need to know how to solder. If you have no experience in electronic soldering, it is suggested that you get some practice before commencing this project. The receiver is built on two pieces of blank matrix board; one for the beat frequency oscillator and the other for the mixer/audio stages. The board consists of plastic insulating material punched with many small holes for component leads to pass through. The components sit on top of the board and are anchored by their soldered leads below the board (see Fig 3).

In the prototype, the BFO board measured 35 by 50 mm while the mixer/audio board was 50 by 90 mm. These sizes are not critical, but avoid overcrowding. To house the receiver a metal box is required. A good size case is 25 cm by 7 cm by 5 cm, but this is not critical if there is enough front panel space for all the controls and sufficient room inside for the electronics.

There are several ways to procure such a box. They are:-

- 1 Buy a ready made box.
- 2 Build your own from sheet aluminium or PC board material.
- 3 Use a loaf tin. Loaf tins are readily available from the large chain stores, and are ideal for this and other projects when a cheap, ready made case is required. Avoid the non stick type as the coating is a poor conductor. Other sources for these useful enclosures are swap meets and op-shops.

Once you have your enclosure, start mounting the variable capacitors, 5 k Ω pot, switch, headphone socket, external power connector and antenna socket. The last two are mounted on the rear panel and the rest are on the front.

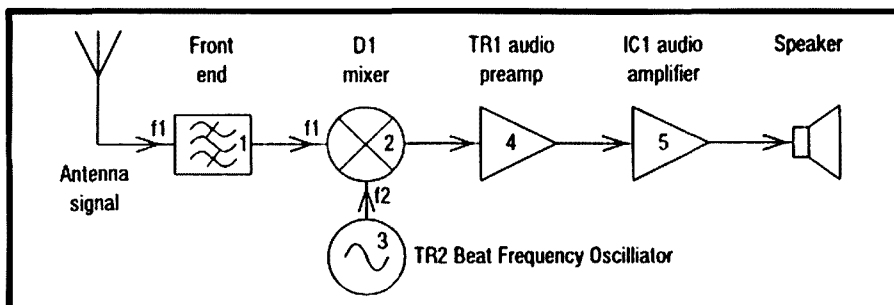


Fig 1 — Block diagram of the VK6 80.

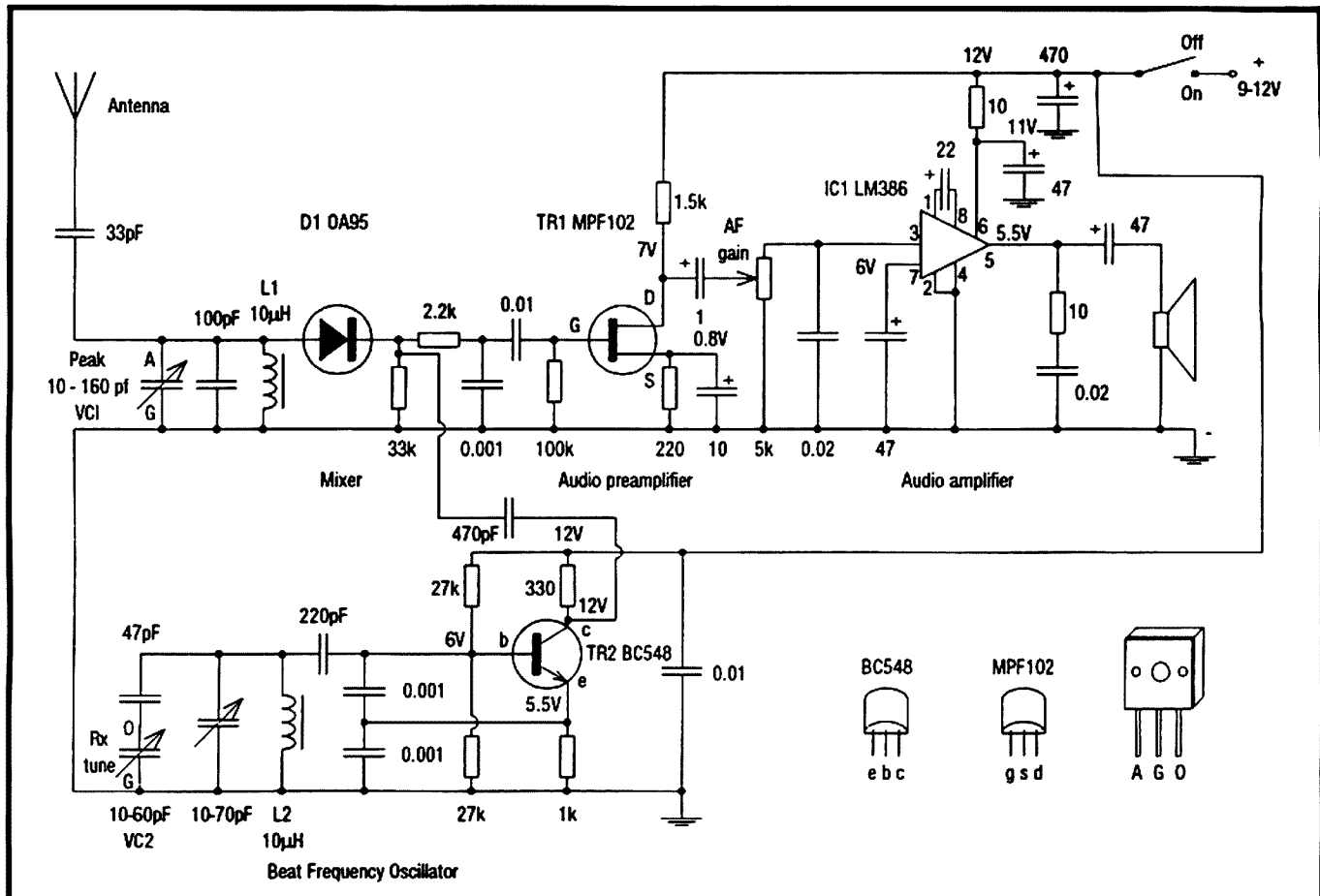


Fig 2 — VK6 80 receiver schematic diagram.

If you choose to glue the two variable capacitors to the front panel, ensure that the glue is kept away from the two screw holes on VC1 and VC2. Now instal a metal partition between the BFO tuning capacitor and the rest of the front panel controls. The purpose of this is to electrically isolate the BFO (which determines the receiver's frequency of reception) from the rest of the receiver.

With the matrix board available, consider how it should be mounted and cut it to size. If matrix board stock of the size you require is not available, you can purchase a printed strip board (sometimes known as

Veroboard) and place it in ferric chloride printed circuit board etchant until the copper has been etched away. Ferric chloride solution easily stains clothes and is poisonous, so handle it with care.

Before starting on wiring the two boards, install the two fixed capacitors behind the front panel. The first of these is the 470 μ F electrolytic capacitor which is wired in parallel with the power connections to the receiver. More specifically, the positive lead is soldered to the on/off switch and the negative lead connects to earth (negative(-)) via the earth connection on the headphone socket. The other capacitor involved is the 100 pF across the "G" and "A" terminals of VC1.

Firstly wire up the mixer/audio pre-amp/AF amplifier board, working from the LM386 stage back to the 2.2 k Ω resistor. Remember to observe polarity in the case of TR1, the AF gain control, the 1 μ F tantalum capacitor and all electrolytic

capacitors (see page 8 for more information).

Check your wiring and, if satisfied, connect the speaker or a pair of headphones between earth and the 47 μ F electrolytic. Insert the IC into its socket, taking note of the polarity, and apply between nine and twelve volts power. Place your finger on the free end of the 2.2 k Ω resistor and listen for any noise or hum from the speaker. The hum should disappear, or nearly so, when your finger is removed and its loudness should be controllable with the AF gain (volume) control. Should you hear nothing as you touch the 2.2 k Ω resistor, touch pin 3 of the IC. If nothing is heard, there is a problem in the LM386 circuit, but if there is a noise, the problem is around TR1. In a correctly functioning audio stage the hum from touching the resistor is louder than the hum from touching pin 3 of IC1; this proves that TR1 is amplifying.

Assemble the rest of this board, taking note of the diode's polarity.

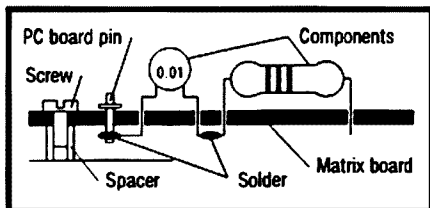


Fig 3 — Mounting of components on the matrix board.

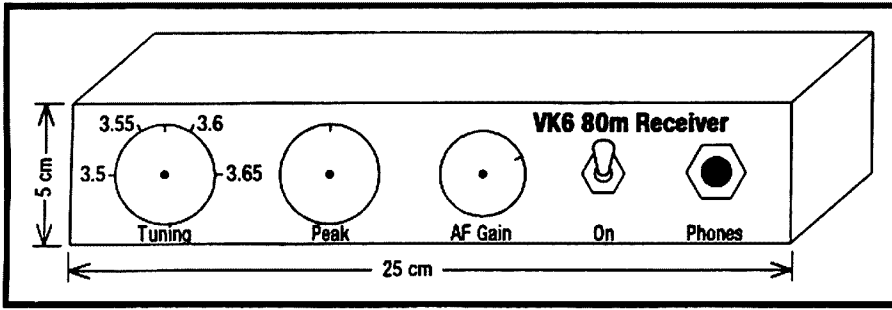


Fig 4 — Layout of front panel.

When mounting L1, use printed circuit board solder pins to facilitate experimentation by making it easier to convert the receiver to another band by altering the value of L1. Some RF chokes are liable to be damaged by excessive heat, so do not hold the soldering iron on the joint for too long. Diodes, transistors and tantalum capacitors can also be heat damaged, so the use of a heat sink clip is recommended if you are inexperienced at soldering.

After completion, place this board to one side and start on the BFO board. Use PCB pins for L2 and ensure that TR2 is properly connected. Check your wiring and connect VC2, the +12 volt line and the free lead of the 470 pF capacitor to the BFO board. Also ensure that the earth connection on the board is attached to the metal box. This can be achieved by use of a solder lug and a nut and bolt. Make the lead from the board to the lug as short as possible.

Now check again for short circuits and wrong connections and, when satisfied that the receiver has been wired correctly, measure the current consumption. To do this set your multimeter to the DC current range of not less than 100 mA, set the switch to the off position and place the positive (red) probe on the battery + terminal. Once you have put the negative (black) probe on the positive lead of the 470 μ F electrolytic capacitor, a crackle from the speaker should be heard and the current consumption, typically 20 mA, should be indicated on the meter.

To test if the BFO is working, apply an RF probe to the collector of TR2 to check the BFO output. The next task is to align the BFO so that it tunes the correct band of

frequencies; in this case from 3500 kHz to about 3650 kHz. The simplest way to do this is to use a digital frequency counter and adjust the 10-70 pF trimmer with a screwdriver until the BFO tunes the desired range. An alternative method is to align the receiver with the aid of received signals of known frequency. These signals may be generated by a RF signal generator. Alternatively a crystal oscillator using a cheap 3.58 MHz crystal could be used.

At this point it is suggested that an outdoor antenna be erected to get the most out of your receiver. A suitable antenna can be as simple as a piece of wire of any length fed out of a window to the top of the nearest tree. Never erect the antenna above or under power lines and ensure that, should your antenna blow down, it will not endanger public safety. To minimise noise pick up, avoid running your wire parallel to the power lines if at all possible. If you intend to gain

an amateur licence soon, put up an antenna which will work well for transmitting, such as an 80 metre dipole or, for those with less room, a G5RV. Information on the above two antennas plus others can be found in the ARRL or RSGB handbooks which, if too costly to purchase, can be ordered through your local library.

Before operating the receiver, adjust VC2 to the approximate centre of the band (around 3580 kHz) and adjust VC1 for maximum received noise with the antenna connected. Signals can now be tuned with VC2, but some practice will be required to tune in single sideband voice signals easily. On some receivers adjustments of VC1 alter the received frequency slightly, so VC1 can act as a fine tuning control to make tuning easier. The reason this happens is that there is no isolation between the BFO and the mixer. Such isolation, essential when the BFO is used in a transmitter, is provided by a buffer amplifier, which was considered by the designer to be an unnecessary complication for a simple receiver as the effect of VC1 was not thought objectionable.

Should a separate fine tuning control be desired, it can be included by adding a small variable capacitance in parallel with VC2. If this modification is performed, the 10-70 pF trimmer must be readjusted to compensate for the extra parallel capacitance.

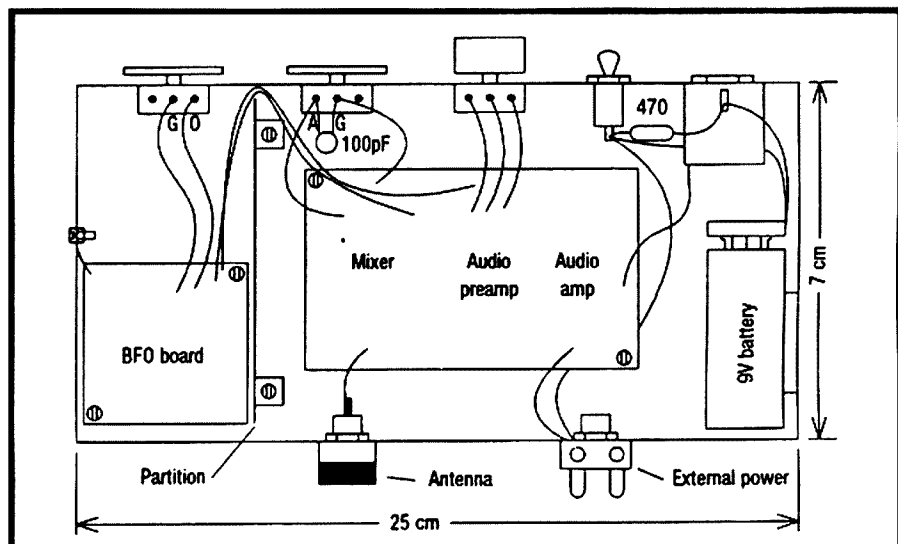


Fig 5 — Layout of components inside case.

One other modification is to fit an internal speaker, if there is enough room inside the box. To do this, the headphone socket should be one that includes a switch, so the speaker is switched in when the headphones are unplugged from the socket, and the speaker is disconnected when the headphones are in use.

Troubleshooting

Should your receiver fail to work, you must initially check all connections and component polarities. If you find a transistor misconnected, unsolder it and test it before reinserting it correctly, for the wrong polarity may have damaged the transistor. If in doubt, use a brand new replacement. If the above proves fruitless, compare the voltages at various points of the circuit and compare the measurements with those shown on the schematic diagram.

If there is a major discrepancy at any point, the surrounding components should be removed and tested. Capacitors can be short circuited, so should be measured for resistance, which should be very high (no less than many M Ω). However, electrolytic capacitors can have less resistance and still be sound. It is suggested that, because of the low cost of ordinary resistors and capacitors, new components be used, as this will make it less likely that the receiver will refuse to work due to a faulty component. The main savings on projects such as these accrue from the use of salvaged cases, hardware, switches and the like, as these are the most expensive components.

What can be heard on this receiver depends on the time of day, the state of the ionosphere and your antenna. Eighty metres is a night time band, so there is very little, if any, activity during the day time. The best time for listening is generally between 7.30 pm and 10.00 pm. During this time, the receiver should easily be able to receive signals up to about 500 km away with occasional reception of more distant operators if conditions are good. There is also regular activity on Sunday morning, but signals drop as the morning progresses, until 10.30 am or 11.00 am

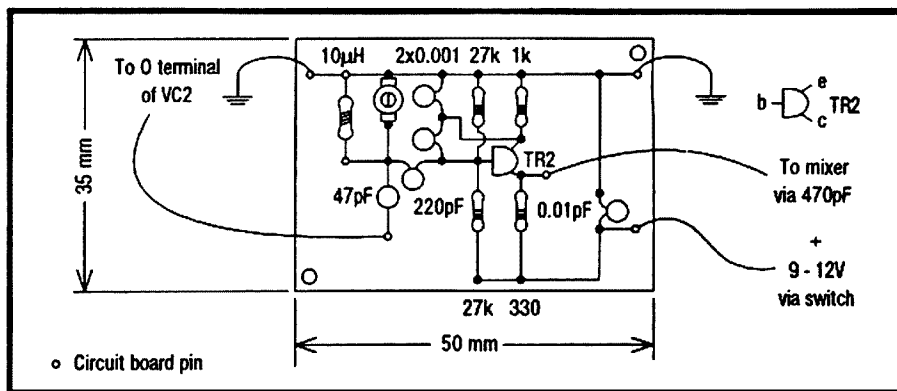


Fig 6 — BFO board.

when nothing can be heard, except noise.

This receiver, being simple, has its limitations (particularly an inability to separate closely spaced stations) but, once its tuning has been mastered, it should provide many evenings of enjoyment.

Thanks are due to James McBride VK6FJA for testing the original prototype.

Parts List VK6 80 receiver

Resistors

- 2 10 Ω 0.25 watt
- 1 220 Ω 0.25 watt

- 1 330 Ω 0.25 watt
- 1 1 k Ω 0.25 watt
- 1 1.5 k Ω 0.25 watt
- 1 2.2 k Ω 0.25 watt
- 2 27 k Ω 0.25 watt
- 1 33 k Ω 0.25 watt
- 1 100 k Ω 0.25 watt
- 1 5 k Ω variable resistor

Inductors

- 2 10 μ H RF chokes

Semiconductors

- 1 OA95 germanium diode
- 1 BC548 NPN transistor
- 1 MPF102 FET
- 1 LM386 audio IC

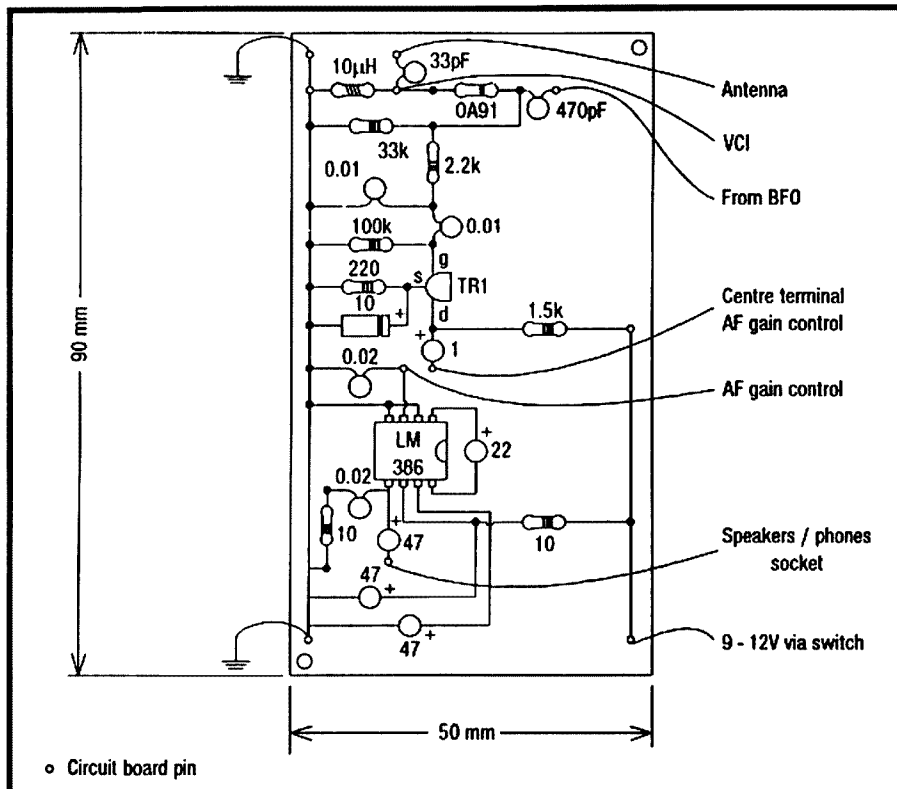


Fig 7 — Mixer/audio board.

Capacitors

- 1 33 pF disc ceramic
- 1 47 pF disc ceramic
- 1 100 pF disc ceramic
- 1 220 pF disc ceramic
- 1 470 pF disc ceramic
- 3 0.001 μ F disc ceramic
- 2 0.01 μ F disc ceramic
- 2 0.022 μ F disc ceramic
- 1 1 μ F tantalum
- 1 10 μ F electrolytic
- 1 22 μ F electrolytic
- 2 47 μ F electrolytic
- 1 470 μ F electrolytic
- 1 10-70 pF trimmer capacitor
- 2 60-160 pF variable capacitor

Miscellaneous

- 1 case (see text)
- 1 SPST (or SPDT) switch
- 1 knob (to fit 5 k Ω variable resistor)
- 1 speaker (8 Ω)
- 4 spacers (metal or plastic)
- 8 screws (to fit spacers)
- 4 screws (to mount VC1, VC2)
- 1 8 pin IC socket (for LM386)
- 1 RCA socket (for antenna)
- 1 RCA plug
- 1 two way terminal block (for power)
- 1 3.5 or 6.5 headphone socket
- 1 9 Volt battery snap
- Perforated circuit board

A Note About Component Values

Except for all fixed capacitors in the BFO circuits, the values of the resistors and capacitors used in the **VK6 80** are not critical and can vary by up to 10% from the specified value without impairing performance. The capacitors in the BFO must be of specified value, but the trimmer capacitor may have a maximum capacitance of between 60 and 80 pF. Both RF chokes must be 10 microhenries.

*7/1 Garran Place, Garran ACT 2605
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**Remember to leave
a three second
break between
overs when using
a repeater.**

Receivers

Receiving Converter for 2 Metres

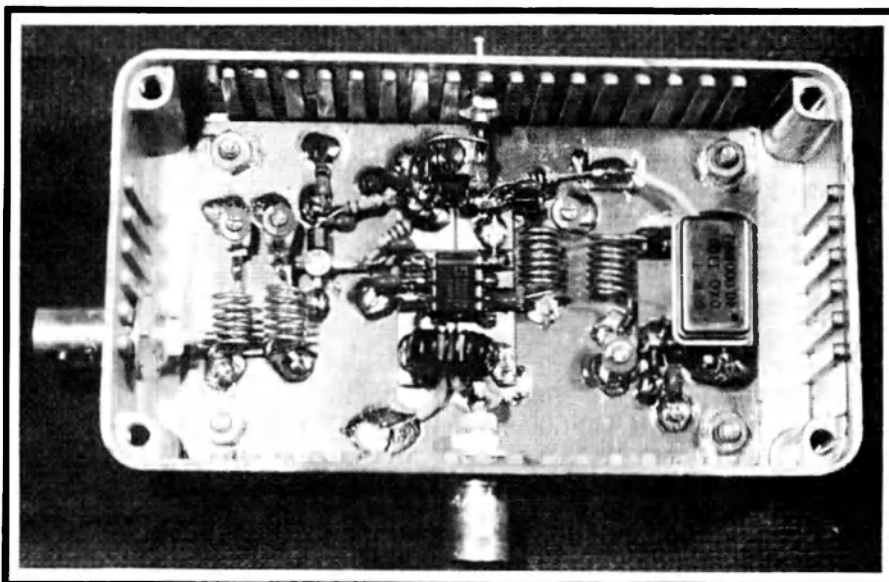
Drew Diamond VK3XU describes yet another excellent project for you to build.*

According to the Signetics/Philips data sheet, the NE602 balanced mixer IC can handle signals to 500 MHz. Having played with the NE602 in HF receiving and transmitting projects, I thought it would be instructive to see how effectively the chip may be applied to a VHF job. It is some years since a 2 m converter has been described in these pages (see References *below*), so perhaps it is timely to offer plans for a relatively simple converter to access this interesting band.

Most HF general coverage receivers tune from about Broadcast to maybe 30 MHz. If we wish to receive signals on higher frequency bands, the usual approach is to precede the receiver with an appropriate converter. To tune from 144 to 146 MHz, for instance, we could use a 116 MHz oscillator crystal and mixer to "frequency-convert" the required band down so that it may be

tuned from 28 MHz (144 minus 116) to 30 MHz (146 minus 116).

For this project there has been a deliberate attempt to employ "off the shelf" components, and to keep the circuit as simple as is reasonably possible consistent with satisfactory performance and ease of duplication. I have no ready access to equipment for measuring noise figure. Suffice to say, however, that a 0.05 microvolt CW signal from a (laboratory grade) generator plainly stands out from the internally generated noise, and even a 0.02 microvolt signal can be perceived. The biggest annoyance on 2 m appears to be the powerful pager signals operating near the amateur band, in and near the cities. I believe some of the transmitters are only about 10 km from here. However, apart from the odd appearance of pager type signals of equivalent sub-microvolt strength near 144.7 MHz, there have been few instances of



The complete converter.

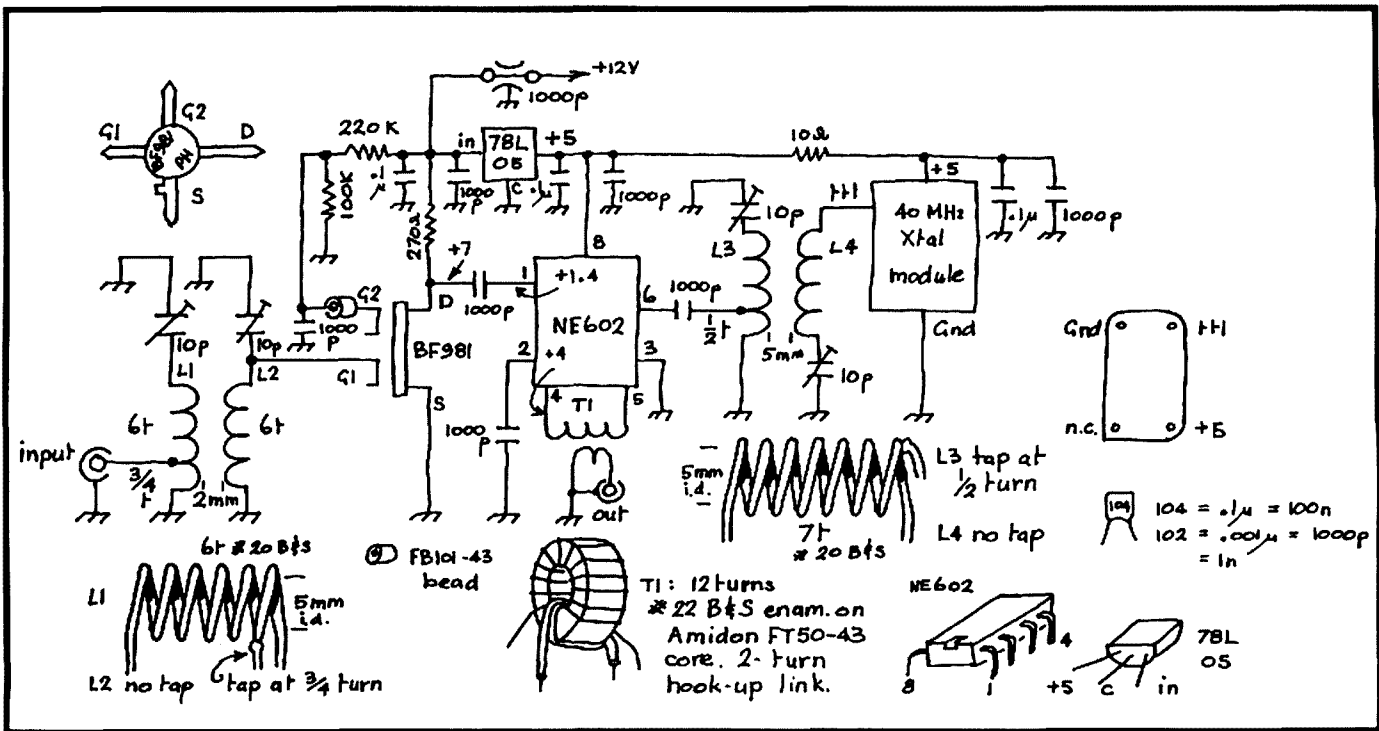


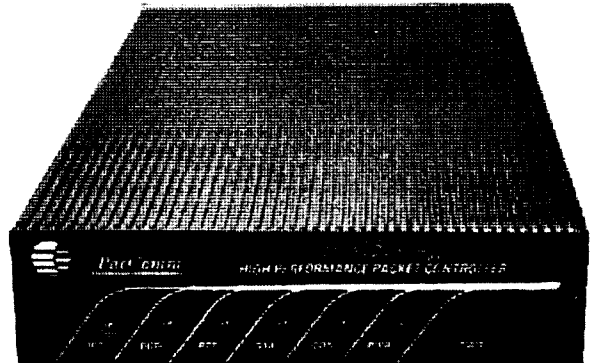
Fig 1 — Circuit diagram of the receiving converter for 2 metres.

SPIRIT-2 High Performance Packet Controller

The newest 9600 baud TNC from the oldest 9600 baud manufacturer. PacComm has built more 9600 baud modems than all other US amateur manufacturers combined! What does this unequalled experience mean to you?

Performance, Reliability, Expandability, Economy.

- A genuine G3RUH modem (not a 'compatible' version) supports 9.6kbps and 19.2-57.6 kbps.
- Both modem and terminal baud rates up to 57,600 bps for future networking and satellite service.
- 10 MHz CPU clock speed (20 MHz optional), 128k RAM standard, 64k EPROM.
- Comprehensive support for Global Positioning System receivers and Automatic Packet Reporting System.
- Personal Message System with 96k message storage space and many advanced features.
- Deviation and signal strength of received signals, voltage and temperature measurements using the optional AD-4 Analog to Digital Accessory board (\$39/\$49).
- Extensive EMI and power spike filtering, quiet four-layer circuit board, NMOS RS-232 interface.
- Ideal for network use - TheNet, ROSE, or Texnet. Built in CoaxLAN avoids complex diode matrices.
- Satellite model can uplink at 9.6kbps and downlink at 38.4kbps, full duplex or 9.6kbps both links.



email address : kevcav@gil.ipswichcity.qld.gov.au

Kevin Cavanagh
 222 Brisbane Valley Highway
 Wanora (Ipswich) Qld 4306
 Tel (074) 643-954 Fax (074) 643-963

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 It's the putting RIGHT that counts



harmful interference observed. So, whilst it cannot be claimed that this circuit is "bomb-proof", it does an admirable job considering the low cost and relative simplicity.

Circuit

The circuit is greatly simplified by using a 40 MHz crystal oscillator module (of the type intended for computer applications) for the local oscillator. A series tuned tank, L4, at the TTL square-wave output of the oscillator selects the 3rd harmonic at 120 MHz, where a second coupled 120 MHz tank, L3, cleans up the LO signal, which is then applied to the oscillator port of the NE602 balanced mixer. The 120.000 MHz signal thus obtained is quite acceptably stable, accurate and spectrally pure. Harmonically-related components at 80 and 160 MHz measured about -40 dB down on the wanted 120 MHz signal. IF at 24 MHz (to receive 144 MHz) is extracted via the broad band matching transformer T1 connected between output pins 4 and 5 of the NE602.

For the RF amplifier, dual-gate FET devices type 3N204, MFE131,

NTE222, 40673 and BF981 were tried, and proved by experiment to be satisfactory. However, in practice, the BF981 gives the lowest noise. These are reasonably priced and available (see Parts below). To improve immunity to out of band signals, a double tuned circuit band-pass filter was found necessary at the front end at L1 and L2. The NE602 is an active mixer with a published NF of 5 dB, so we only need a moderate amount of gain to improve this figure. Note that the drain circuit of the BF981 is untuned. The more usual tuned arrangement gave too much RF gain and, although bench tests with a signal generator yielded spectacular sensitivity, "on-air" the amount of gain obtainable by tuning the drain made the circuit rather too susceptible to overload from pager signals.

Construction

A meld of "paddyboard" and "ugly" was used for the prototype. A board size of about 54 x 90 mm is suggested (please do not be put off by this construction method, and the non-availability of a ready made

circuit board — the plain circuit board approach is quite appropriate to a project of this kind). The NE602 is soldered to a small substrate pad board which, in turn, is soldered or glued centrally to the main board. The oscillator module may also be mounted upon a small substrate, where the pad for the TTL output should be fairly small to avoid capacitive loading. Or the crystal module may simply be inverted "dead bug" fashion upon the main board.

All connections and component lead lengths should be as short as is reasonably practicable. By-pass and coupling capacitors must be either ceramic, ceramic chip or monolithic types. Take care when soldering monolithic capacitors! Too much heat for too long may unsolder the lead from the actual component. It is recommended that the completed converter board be housed in a die-cast or aluminium box with coax connectors to suit your set-up. Tuning holes are not required.

The BF981s are shipped in foil. During bread-boarding, my own little collection of these devices survived being soldered in and out of circuit

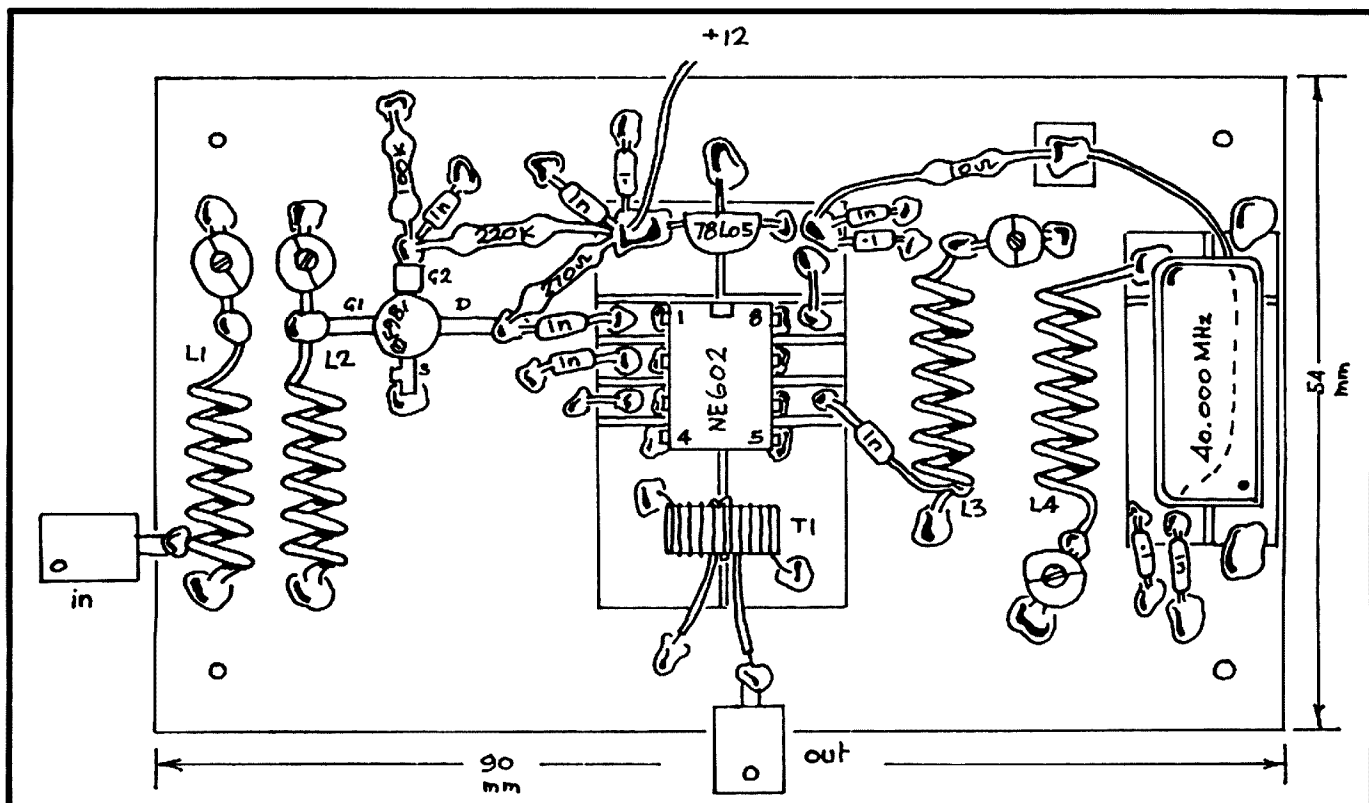


Fig 2 — Board layout for the receiving converter for 2 metres.

many times. So, under normal circumstances, I don't think we have to be paranoid about static electricity (according to the data book they have internal protection diodes at each gate). However, make sure that your soldering iron is properly earthed before starting work. Note that the drain lead of the BF981 is the longest, and that the source lead has an additional little identifying tag.

The filter coils were wound using the shank of a 5 mm drill to obtain correct internal diameter. Use #20 B&S (0.81 mm) tinned or enamelled copper wire spaced at about wire diameter between turns, six turns for each of the input coils, and seven for each of the LO filter coils. To avoid the possibility of tuning up on a wrong band, use variable trim capacitors with a maximum capacitance of 10 pF. Observe that the rotor of the trimmers (which connects to the slotted ferrule) is the lead soldered to the circuit board foil.

For the output transformer T1, wind about 12 turns of #22 B&S (0.63 mm) enamelled wire on to an Amidon FT50-43 toroidal core spread to occupy about 2/3rds of the circumference. The link is two turns of ordinary hook-up wire wound in the gap.

Tune-up

It is possible to get the converter going entirely without fancy test equipment. With a coax cable, connect the output of the converter to the input of your general coverage receiver which should be tuned to about 24 MHz and set to receive SSB or CW. Apply +12 Vdc supply to the converter rail. Background noise should increase a little. Check that the 78L05 is supplying +5 V to the NE602 and oscillator module. If you have a diode RF probe and matching voltmeter, apply the probe to the tap on L3 of the 120 MHz filter. To get a meaningful indication, the probe and its ground connection must be very short (ie the ground connection must also be a probe type, not a flying clip lead). Peak the two 120 MHz tank trimmers for maximum output, which should be about 200 mV occurring at about the 80 % capacitance point (ie 8 pF) for each trimmer. When the 120 MHz LO signal is peaked, you should

hear an increase in background noise as the mixer begins functioning. Squeeze the coil turns a little closer together if the trimmers won't quite make it.



Wind the coils on a 5 mm drill.

Connect a 2 m antenna to the input. As a prelude, adjust the two input trimmers for maximum noise, which should occur at about 5 pF each. Tune to a (preferably beacon or Morse practice) signal. To make tune-up easier, temporarily weaken the signal by (perhaps) turning the antenna away from the signal or, much more preferably, by inserting a stepped attenuator between the antenna and the converter input which is switched for a signal level that just exceeds the internal noise level. Now adjust the input trimmers for what you consider best signal strength at lowest noise. Maximum signal and maximum noise will probably occur at different points, particularly for the second tuned circuit. Aim for best signal at lowest internal noise.

Troubleshooting

To help in any necessary troubleshooting, voltages are shown on the schematic. There have been one or two circuits published which show ambiguous pin-outs for the BF981 making it possible to reverse G2 and source leads. Check again that you have the source as the

tagged lead, the drain as the long lead and so on. BF981 drain voltage should be about +7 V. G2 should have a ferrite bead installed to discourage parasitic oscillation. Check voltages around the NE602A — a badly wrong voltage at any pin would be a vital clue.

Parts

The BF981, Amidon core, NE602AN and most passive components are available from Stewart Electronics [(03) 543 3733] and Truscotts Electronic World [(03) 723 3860]. Not least, check out the WIA SA Division Equipment Supplies Committee — you can obtain a price list by writing to PO Box 789, Salisbury, SA 5108. The 40 MHz crystal oscillator module was purchased from Rod Irving Electronics [(03) 543 2166], and is also available from Rockby Electronics [(03) 562 8559]. If you have genuine problems in obtaining any of these components, I have a few spares. Drop me a line (SASE please) should you need any of these. Disclaimer:- apart from being an ordinary customer, the writer has no connection with any company mentioned herein.

References and Further Reading

1. *VHF-UHF Manual: Jessop — RSGB.*
2. *Using the BF981 in 2 M Preamps: McDonald, VK2ZAB — AR June '84.*
3. *Two Metre Receiving Converter: Hepburn, VK3AFQ — AR Oct '84.*
4. *VK5 Low-noise 2 M Preamplifier: Maitland, VK5ZAW — AR Feb '85.*
6. *Modern VHF/UHF Front End Design: White, G3SEK — Rad Comm April through July '85.*
7. *Low-noise 144 MHz Pre-Amplifier using Helical Tuned Circuits: Dobricic, YU1AW — VHF Communications Vol 19, number 4/87.*
8. *Pre-amplifier — Pros and Cons: Dobricic VHF Comms Vol 19, number 4/87.*
9. *NE602 Primer: Carr — Elektor Electronics Jan '92.*
10. *Small Signal FET Data Book — Philips.*

11. *Australian Amateur Radio Call Book and AR Sep '94 (list of 2 m beacons).*

Parts List

	Qty
<u>Capacitors</u>	
10 pF trim cap	4
1000 pF or 820 pF monolithic	7
1000 pF feedthrough	1
0.1 μ F monolithic	3
<u>Resistors</u>	
10 ohm 1/8 W	1
270 ohm 1/8 W	1
100 k Ω 1/8 W	1
220 k Ω 1/8 W	1
<u>Semiconductors</u>	
BF981	1
NE602AN	1
78L05 +5 V chip	1
<u>Miscellaneous</u>	

40 MHz crystal module, FB101-43 bead, FT50-43 toroidal core, metal box, coax connectors to suit, double sided circuit board material for main board and scraps for paddyboards, #20 B&S wire, #22 B&S enamelled wire, hook-up wire, screws, nuts, solder, and enthusiasm (1 oz).

*45 Gatters Road, Wonga Park, VIC 3115
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WIA News

Novice Privileges Revised

The five amateur radio Technical Licence Specifications (TLSs) originally gazetted on 2 June 1995 were gazetted again on 5 July. The TLSs gazetted earlier are now out of date. The only change apparent seems to have been to the Novice licence.

Novice licensees are now permitted to use digital modes on both the 80 m and 10 m bands.

Copies of all the TLSs are available free for the asking from your local Spectrum Management Agency Area Office. Novices are permitted eight additional modes on the 3.525-3.625 MHz and 28.1-28.6 MHz bands, which covers the popularly-used narrow-band radioteletype (RTTY) and packet radio transmission modes.

It is understood that these changes reflect the original intention of the SMA regarding Novice operating privileges.

Equipment Review

ICOM IC-Z1A Dual Band Handheld Transceiver

Reviewed by Paul McMahon VK3DIP*

What Is It?

The IC-Z1A is a dual band (2 m and 70 cm) handheld transceiver, with up to five watts of transmit output power on both bands, plus a wide coverage receiver with a nominal range of 50 MHz to 1 GHz. The unit is of mid size (57 x 36 x 125 mm) and has a solid feel (380 g). The review unit was kindly supplied by ICOM and had the serial number 01091. Recommended retail price is \$1131.17.

First Impressions

The first thing I noticed about this handheld was that it coincidentally had the same serial number as an IC-2GXAT which I reviewed last year. Perhaps ICOM always uses the 1091st handheld produced for reviews, perhaps all ICOM handhelds have the same serial number, or perhaps I should just buy a Tatts ticket.

Enough with the metaphysical, on with the review.

ICOM claims that this is the first of a new generation of handhelds in that it is the first dual-band handheld with a removable remote control panel. The idea is that the upper part of the front control panel, including the display, can be detached from the body of the radio. This remote control panel comes with an extension cable and lapel clip. It provides a full functional display (that is, the normal display) of all operations, including bands and frequencies, plus control of operating modes, volume, tuning, scanning, band selection, ON/OFF and PTT, but not the numeric keypad, or the squelch level. It can be backlit for night operation.

Basically the idea is the same as the removable front panel found on a number of mobile VHF/UHF boxes these days. I'm not too sure how well



the idea transfers to the handheld, however, so perhaps it will also be the last of its generation.

The problems here, I foresee, involve two main areas. Firstly, the contacts connecting the display and the rest of the handheld, despite ICOM obviously going to great lengths and, probably, expense to fit a spring loaded, gold plated, water resistant, connector. I still can't help but worry about the life of these contacts given the environments that people use handhelds in, and the repeated use as people swap backwards and forwards each time they need a speaker mic. Secondly,

in order to get everything that you would want on the detachable bit, several compromises have been made. The most annoying one I found was the placement of the PTT which, when not detached, is on the side of the handheld as usual but placed towards the front, rather than being in the middle. This has the effect of making the handheld feel fat and could lead to people with shorter fingers having some difficulty in using it.

Forgetting the detachable panel for the moment, the unit comes in standard foam packaging, complete with rubber-ducky antenna, panel extension cord, charger, and 700 mAh nicad pack. It also includes an instruction manual, and quick reference card.

Apart from the compromises on the detachable panel, the remaining ergonomics of the radio are reasonably good. Each band has a separate concentric tuning/squelch knob set, and display section, with its own LCD S-meter. Simultaneous receive on both bands, or full duplex (Tx on one band while Rx on the other) is possible. Also offered is the so called V/V and U/U ability, where it is possible to have the two bands both on VHF or both on UHF. This can be very useful if you have, say, two 2 m repeaters that you wish to monitor simultaneously.

The top of the set has the standard BNC connector for the antenna, as well as the normal ICOM speaker/mic connector and a power-cum-charging socket.

The 60 page instruction manual has, as is unfortunately usual these days, little in the way of technical detail. This manual, while explaining how to do most of the things that this radio can do, does not mention a number of the extras that are possible. For instance, the US press release mentions a standard VHF Rx range of 136-174 MHz which is keyboard modifiable for 118-136 AM. There is no mention of how to do this in the manual nor, for that matter, was I able to find it by trial and error.

I did, however, work out what one extra feature in the SET menus did. This item was labelled PLCE and, as I discovered, controlled frequency entry via the keyboard. In default

mode the first digit pressed was the MHz (eg 6675 on VHF gave 146.675 MHz). By changing the place variable in SET you could have five or six digits as the entry string. This is especially necessary when using the wide range Rx capabilities of the set. Any other way of moving around just takes too long. There was no mention of this place variable in the manual. Perhaps the manual was written before the actual radio was finished.

Technical Bits

Despite what the manual says, the Rx frequency coverage of this radio seems to be basically 50-1000 MHz (VHF 50-300, UHF 300-999 MHz), though not at all well at many points in the spectrum. The Tx does seem to be as advertised at 144-148 and 430-440 MHz. More on this later. No circuit diagram was provided so, as usual, any real technical details are restricted to what small amount is in the manual and things that I could manage to measure from the outside.

As far as the bits from the manual are concerned, we find that it has a dual conversion superhet with a 43.1 MHz and 35.8 MHz first IF on VHF and UHF respectively, with both bands using a 455 kHz second IF. Sensitivity for 12 dB SINAD is claimed as less than 0.16 μ V except when using the V/V or U/U feature, when less than 0.32 μ V is stated (that is when using both halves of the set on the same band).

The tests detailed later confirm this as the case, at least in the relevant ham bands. Selectivity is on a par with other similar boxes, as is spurious and image rejection. While only claiming more than 180 mW audio output, I must admit to the subjective feeling that it was producing much more with very clear and clean sounding audio. For the Tx the rated power outputs were 5, and 0.5 Watt, with 15 mW (all when driven from 13.5 V) also selectable. This low, low power could also be automatically selected when low battery voltage was detected.

As far as memories and extras are concerned, this set has a total of 104 user programmable memories, each with the neat feature of a six character alpha-numeric display. Typically this could be used to store

the callsign of the repeater or, perhaps, some other note to remind you of what it is.

The memories are arranged as 46 regular and three pairs of scan edge memories per band. The six character display can also be used in conjunction with the paging and selective call functions to transmit and receive text messages such as the callsign of the calling party. Ten receive and ten transmit memories are available for this purpose so that, given a matching handheld at the other end, you could come back after being away from your handheld and see who had called you. I personally feel that this sort of feature is nice but perhaps more suited to a more "commercial" version rather than an Amateur Service one.

All the usual scan features are present, as are the pager and code squelch functions, but it should be noted that they only work on one band at a time, and they do limit the effectiveness of the receiver duty cycle power saver modes. Speaking of the power saving, the supplied

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40 M linear loaded 2 ele	\$516
13-30 M logperiodic 12 ele	
all stainless/steel fittings	\$951
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nicad pack is a 700 mAh 4.8 V unit which is claimed to provide some five hours and 50 minutes of use when using VHF only (in a 1:1:8 Rx:Tx:Power Saver type ratio) and some four hours and 20 minutes in similar conditions with UHF. The supplied charger will supposedly charge the nicads in some 15 hours, and you can expect some 300 recharges out of the battery pack. A one hour fast charger is available as an option; however, this may reduce the life of the pack.

I would probably invest in the optional dry cell pack, and just use the slow charger. This brings us to the display and its ability to tell you the voltage of the pack. This is a very useful feature, although the manual notes "the battery indication is only for your reference and may not be accurate".

waiting for a call. You do, however, need to be a bit careful here as receive sensitivity on both channels will be affected, the secondary by about 6 dB and the primary by about 2 dB as, shown in my tests.

Tests

The results noted below are more or less limited to the VHF side of the set, more because of the available test equipment rather than anything else. I feel, however, that, based on "on-air" performance, they are probably representative of the UHF band as well.

The LCD S-meter had a strange quirk. While it is probably the most linear (or should that be logarithmic?) I have ever come across, it did have the strange effect that, when opening the squelch on an unoccupied frequency, the reading increased

band and perhaps around 120 MHz. This also was born out in "on-air" tests with broadcast FM stations only just being there, local CFA traffic on 160 MHz being unusable, and no sign of a nearby 6 m repeater. Similarly, on UHF, while mobile phone signals were detectable, you had to be in a pretty ideal location to have reliable reception. Within the 2 m and 70 cm ham bands though, the unit was everything you could ask for. Perhaps the manual was correct after all in not mentioning the possibility of out of band receive.

Operation

In general operation the set was pretty much as you would expect from ICOM. The audio quality was particularly good, and frequency setting, etc, once you had the hang of it, pretty straight forward. There are some problems with the ergonomics due to the detachable front panel as mentioned before, but on the whole it is a quite useable box.

One thing that disappointed me was the manual which, even with the 60 odd pages, didn't satisfy my requirements for something I may have just paid over \$1000 for. In particular, there were things that the radio could obviously do which were just not mentioned. ICOM is not, of course, alone in this. It seems to be the industry norm these days.

I believe that there is a really good opportunity for some ham to enjoy their hobby and to make money too, by filling this void. It's now done as a matter of course with every new piece of software that is produced. Several people test it out and write the book, which invariably is better than the supplied manual.

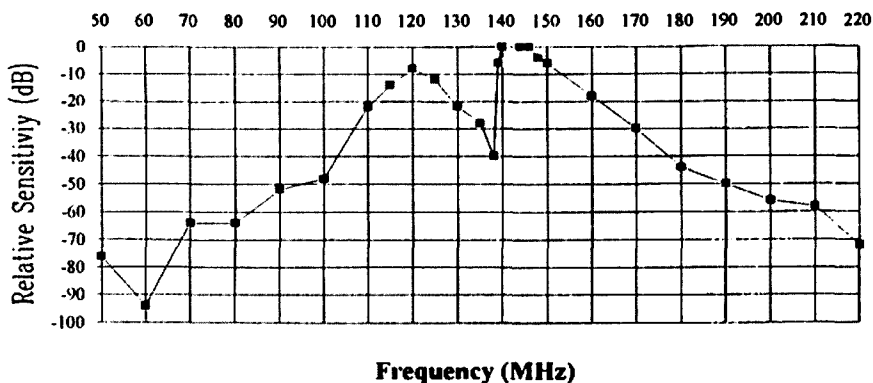
Conclusion

I didn't like the detachable panel idea though, perhaps for some, it will be just what they wanted. Likewise, I don't think it is really a wide band receiver. I also think that the pricing of this box is a little steep, considering that the US RRP is \$US600 (approx \$AUS830) and that dual-band handhelds with similar or better features are currently on sale from at least one local vendor at \$AUS699.

*47 Park Avenue, Wattle Glen VIC 3096

ar

IC-Z1A VHF Frequency Response



IC-Z1A VHF frequency response.

The set can operate in so called V/V and U/U mode as well as normal dual band. This can be useful when you want to listen to one conversation while monitoring another frequency

from none to one little square! The display has eleven of these little squares with each one being close enough to a one dB increase in signal level. How these effects are achieved will have to stay a mystery as no circuit details are provided.

The VHF receiver performance is shown in the accompanying graph.

For these tests the set was configured for monoband operation. A test at 146 MHz confirmed that the V/V option second 2 m frequency is 6 dB down on the prime; also in this mode the prime is 2 dB down on normal operation.

As can be seen, the receiver is really only useable in the amateur

Don't buy stolen equipment — check the serial number against the WIA Stolen Equipment Register first.

■ Operating

1995 Remembrance Day Contest Opening Address

This year's Remembrance Day Contest Opening Address was delivered by Mr J C (Ces) Williams RAN (Retd), Chairperson, Commemorations Committee, "Australia Remembers", New South Wales.

Born at Homebush, New South Wales on 8 July 1928, Ces was educated at Marist Colleges Lidcombe and Parramatta, joined the RAN as an Ordinary Seaman in February 1946, saw service in Korea, Malaya and Vietnam, and commanded two RAN Ships, HMA Ships Curlew and Acute. Ces is married and has four sons, all of whom joined the Navy.

He resigned from the RAN in July 1975 at the rank of Lieutenant Commander and spent years in the Merchant Navy as Third, Second and First Mate.

In 1977 he joined the Maritime Services Board of New South Wales

as Tug Master and, during the next eleven years, held the positions of Regional Inspector, Senior Regional Inspector, Marine Safety Officer, Acting Superintendent Marine Survey and, finally, Deputy Harbour Master. He retired at the end of 1988.

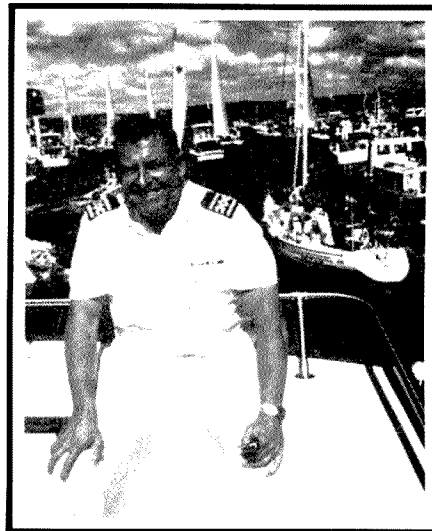
The Opening Address

"I consider it an honour for the opportunity to deliver the opening address to the 1995 Remembrance Day Contest as a tribute to the sacrifices made by Australian Radio Amateurs in the service of this great country of ours.

This year has been designated "Australia Remembers" and, as well as remembering all who enlisted in the armed forces during World War Two, we are indebted to the Radio Amateurs who, armed with their expertise, provided a most valuable extension of service within the Navy, Army and Air Force and therefore maintained the lines of communication when most needed.

We commemorate those who became Coast Watchers in the Pacific areas of operations and passed on intelligence to the allies regarding enemy shipping movements, and also those who operated behind enemy lines in Europe. In both theatres of operations, where operations were detected, they paid for their loyalty and skills with their lives.

Today, of course, we celebrate the great advances in radio which can be largely attributed to the Amateur Radio operators. The industry of today is far removed from that of 1939. Because of the development of satellite radio, operators are now able to communicate on international frequencies more clearly with sets of greater efficiency and much smaller construction.



Ces Williams, Chairperson, Commemorations Committee, "Australia Remembers", New South Wales.

The development of radar during World War Two gave the allies a tremendous advantage over the enemy and contributed in no small manner to the final victory in 1945.

Education for persons displaying a keen interest in radio is now more readily available but is more complex and covers far greater fields than in the past. However, the industry is well served, and will continue to be, whilst ever people of the calibre of radio enthusiasts maintain their interest.

Whilst ever the Radio Amateurs continue to foster their fraternal attitude with other Radio Amateurs throughout the world and exchange technical data, friendships are formed which in turn make a significant contribution to harmonious international relations and is therefore the legacy enjoyed today.

In this year of "Australia Remembers", it is appropriate that all Radio Amateurs who lost their lives and all those who were wounded as a result of their war service be remembered. Also the widows and children of "those who did not return" or have since passed on from this world due to disabilities caused during that time. It is with great respect and affection that we say "Lest We Forget".

Let us now celebrate this, the 1995 Remembrance Day Contest which I have much pleasure in declaring open."

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WIA News

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of July 95.

L30912	MR A COLE
L30913	MR E TULLER
VK3LEN	MR L HENSON
VK3XHV	MR B STRAEDE
VK5EX	MR A T MCDADE
VK5GC	MR G C COOK
VK5MAC	MR S C MCMANUS
VK5NOT	MR J T BURFORD
VK6MOT	MR T J HEANEY
VK6TTV	MR B G PILCHER
VK7ZSP	MR S COURTNEY-PRATT
VK8NSM	MR S C MITCHELL
ZL1WTV	MR M R BISHOP

Technical

Technical Abstracts

Gil Sones VK3AUI*

TRF Receiver

An interesting TRF receiver was described by C F Fletcher G3DXZ in the May and June 1995 issues of the RSGB's magazine *RadCom*. The articles covered what the author described as a 1-T-1 Receiver. This was in line with the description of valve TRF receivers as 1-V-1 receivers. The significance of this description is that the receiver consists of an RF amplifier followed by a regenerative detector and an audio amplifier stage.

The RF amplifier in this case is untuned and is used to isolate the regenerative detector from the antenna. This overcomes the problem of stray radiation from an oscillating regenerative detector and isolates the regenerative stage from loading by the antenna.

The circuit is shown in Fig 1 and the parts list in Table 1. Alternative regeneration control options are shown in Fig 2. The arrangement of Fig 2a is intended only as an initial setup. With Fig 2a, find the voltage at point A which gives the onset of oscillation. Then connect Fig 2b and adjust RV3 to give this voltage at point

A with RV4 set to mid range. This will provide a sufficient range of adjustment and will provide a low impedance voltage source at point A which will assist in the smooth operation of the regenerative detector. The reason for this setting-up is that the FET characteristics cover a fairly wide range.

A dual band coil switching circuit is shown in Fig 3. The 47 k resistor is used to trim the gain of the lower frequency coil so that operation on both bands is similar. The value may need to be trimmed. Some experimentation may be needed to duplicate the coils. However, the main idea is to have coverage of the bands you want with the particular tuning capacitor and coil cores you are using.

The bands covered are 1.8, 3.5, 7, and 10 MHz. VC1 is the Bandset capacitor and VC2 is used for fine tuning. Some careful adjustment of the regeneration and the front end attenuator RV1 will be needed to achieve best performance. For CW and SSB the detector must be just oscillating. Best sensitivity is found on the brink of oscillation.

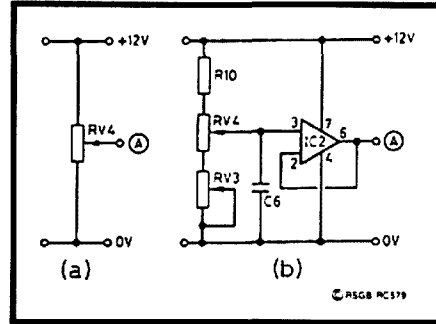


Figure 2 — Regeneration Control Options.

9600 Baud Packet

The performance of a number of transceivers handling 9600 baud data was tested in the May 1995 issue of the ARRL magazine, *QST*. The article was written by Jon Bloom KE3Z, ARRL Senior Engineer. Also in the same issue, a review of the Azden PCS-9600D 440 MHz voice/data transceiver by Steve Ford WB8IMY, Assistant Managing Editor, provided similar data. The information is of interest to anyone contemplating 9600 baud packet.

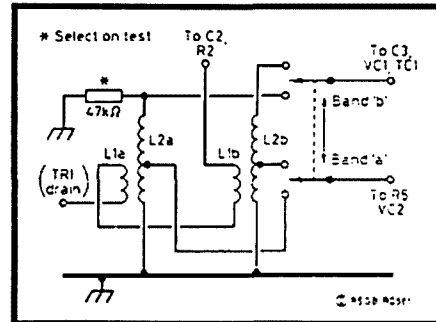


Figure 3 — Dual Band Coil Switching.

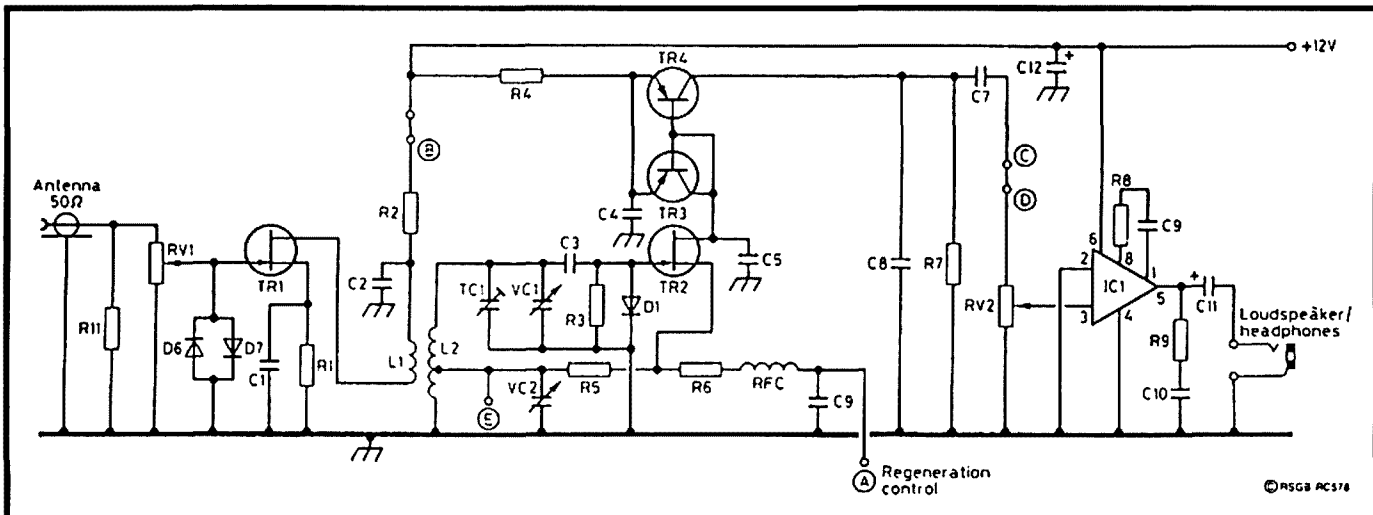


Figure 1 — "1-T-1" TRF Receiver.

Table 1

Resistors

All Fixed Resistors are 1/4 W or 1/2 W Carbon.

R1	330R
R2,R8	470R
R3	100R
R4	1k
R5,R6	2k2
R7,R12	47k
R9	10R
R10	33k
R11	56R
R16	8k2
RV1	47k Log
RV2	47k Preset
RV3	4k7 Lin

Capacitors

C1,C5	22nF 63 V Polyester
C2	100nF 63 V Polyester
C3	100pF 63 V Polycarbonate
C4,C12	47µF 16 V Electrolytic
C6	2µ2F 16 V Electrolytic
C7	330nF 63 V Polyester
C8	4n7F 63 V Polyester
C9	10µF 16 V Electrolytic
C10	47nF 63 V Polyester
C11	220µF 16 V Electrolytic
VC1	270pF Air Tuning Capacitor
VC2	15-50pF Ceramic Trimmer
VC3	30pF Air Tuning Capacitor

Inductors

Tuning coils wound on Ferromagnetics T50/2 iron dust toroidal cores.

L2a (1.74 MHz)	78 turns, tap 30 turns, 30 SWG
L2b (4-10.2 MHz)	34 turns, tap 13 turns, 24 SWG
L1a	10 turns over earthy end L2a
L1b	5 turns over earthy end L2b.
RFC	330 µH
D1, D6, D7	1N4148
TR1,TR2	2N3819
TR3,TR4	BC558
IC1	LM386
IC2	LM741

In general, 9600 baud operation is considerably more difficult than the usual 1200 baud VHF/UHF operation. This is reflected in the results obtained in the tests. If you are actively involved in 9600 baud work, or contemplating such operation, then I would recommend obtaining a copy of *QST*, May 1995.

The results obtained are contained in Table 2. The BER or Bit Error Rate may be unfamiliar to readers. The

BER is a measure of the performance of a digital communication circuit. It is simply a measure of the number of bits which are sent through the system incorrectly. A packet contains around 1000 bits so, if the BER is around 1 x 1000, the system will be just about unusable. If the BER is 100 times better at 1 error per 100,000 bits, then the system will be much better and you may not notice the losses.

In Table 2, the only radios meeting the BER of <1 x 10 were the ICOM IC-820H, Azden PCS9600D, and the TEKK KS-900. The TEKK is a specialised UHF data transceiver made in the USA.

Modulation Hum

An old problem has revisited us. Modulation hum was a common problem for valve broadcast and short wave radios. The causes were explored thoroughly in the *Radiotron Designers Handbook* edited by F Langford Smith and solutions suggested. This book was a major reference for radio designers from the mid 1930s till the late 1950s while radio receivers were a big local industry. The handbook was sold around the world.

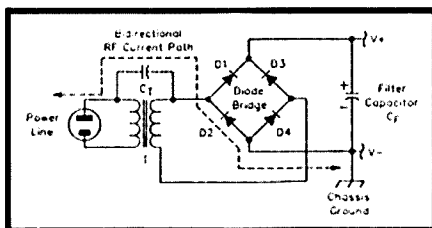


Figure 4 — Hum modulation signal path. The capacitor CT is the interwinding capacitance.

In the April 1995 issue of *QST*, an article entitled "An HF Hum Interference Mystery Solved!" by Lyle Russell Williams KC5KBG appeared which discussed modulation hum. The hum appears when signals are being received using the AC mains wiring either accidentally or intentionally as part of the receiver antenna and earth circuit. The effect of superimposing the mains frequency hum on the received signal is due to non-linearity in the signal path. This can occur in the rectifier in the power supply.

The signal path is shown in Fig 4. The use of plug-pack type supplies,

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ILLUSTRATION BY JOHN HARRIS

Table 2 — 9600 Baud Performance

	12 dB SINAD level (dBm)	Receiver			Transmitter	
		BER at 12 dB SINAD	BER at 16 dB SINAD	BER at -50dBm	BER at 12 dB SINAD	BER at 12 dB SINAD +30 dB
2 m FM Radio						
Icom IC-281H	-113.2	4.8×10^{-4}	$< 1 \times 10^{-5}$	$< 1 \times 10^{-5}$	7.4×10^{-3}	1.1×10^{-3}
Kenwood TM-251A	-114.3	3.6×10^{-4}	1.3×10^{-5}	$< 1 \times 10^{-5}$	2.2×10^{-3}	2.9×10^{-4}
Standard C-1208DA	-108.8	3.9×10^{-4}	1.7×10^{-5}	$< 1 \times 10^{-5}$	3.7×10^{-3}	7.0×10^{-4}
Yaesu FT-2500M	-113.3	8.6×10^{-4}	$< 1 \times 10^{-5}$	$< 1 \times 10^{-5}$	4.9×10^{-3}	3.8×10^{-4}
2 m/70 cm Multimode						
Icom IC-820H	-113.0	2.7×10^{-4}	$< 1 \times 10^{-5}$	$< 1 \times 10^{-5}$	5.1×10^{-4}	$< 1 \times 10^{-5}$
70 cm Data Radio						
Tekk KS-900	-110.4	2.6×10^{-4}	$< 1 \times 10^{-5}$	$< 1 \times 10^{-5}$	3.8×10^{-4}	$< 1 \times 10^{-5}$
70 cm FM Radio						
Azden PCS-9600D	-113.0	2.8×10^{-4}	$< 1 \times 10^{-5}$	$< 1 \times 10^{-5}$	5.9×10^{-4}	$< 1 \times 10^{-5}$

or transformers without screening, leads to the signal being coupled to the diodes in the bridge and the signal to the receiver ground being chopped or modulated by the AC. The earth from a three core mains lead may be at a fairly high RF impedance and so may not be an effective RF shunt.

The signal causing the problem is that picked up on the mains lead and is called a common mode pickup. The signal may be reduced by winding several turns of the mains lead through a toroid or around a ferrite rod. This reduces the amount of signal which can be modulated by the rectifier diodes. The antenna and

signal earth system may need to be improved also.

Antenna systems using coaxial cable are less likely to be affected as the signal has a much better RF return. The signal pickup on the mains will exert less influence.

**C/o PO Box 2175, Caulfield Junction VIC 3161*
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■ Operating UN50

Peter Hughes VK6HU, National JOTA Co-ordinator, has extracted the following from the World Scout Bureau JOTA circular 10/95.*



The special logo designed to promote the scout activities linked with the UN50 program.

The United Nations organisation is celebrating its 50th anniversary this year. Several activities are being organised to celebrate this anniversary which is on 24 October, two days after JOTA.

The World Organisation of Scout Movements, WOSM, with headquarters at the World Bureau in Geneva, co-operates with several UN agencies in different parts of the world. The World Scout Committee decided to pay tribute to this relationship and has linked two large Scout events to the UN anniversary. They are the World Jamboree in the Netherlands (PA6SWJ) in August, and Jamboree-on-the-Air (AAnaa -ZZnzz!) in October. A special logo has been designed to promote these activities and is included on the international JOTA Participation Card.

Three UN50 initiatives have been organised for the 38th JOTA. Firstly, scout stations will operate from several UN premises with UN officials present at their various locations. Secondly, the special stations will transmit a message from the different UN agencies offering their views on World Scouting and JOTA. And finally, three projects are being offered to scouts taking part in JOTA. These

consist of a game, identification of a problem and a discussion on the problem for which points for discussion are given. The three projects are Nature and Environment, Education and Health, and Relief Operations.

Participating Groups may choose any or all of the projects. The games are for the younger sections and the discussion part is aimed at the older scouts.

It is expected that preliminary discussion and suggestions will be undertaken before JOTA and that the thoughts and ideas which are developed will be discussed with other radio counterparts during JOTA. It is expected that scouts will soon discover their views differ from those living in other towns or other parts of the world. But, as everyone is concentrating on the same three projects, it should be easy to compare each other's point of view.

Each member country has established a national committee for the celebration of the 50th anniversary of the UN. The National UN Association will have details.

*58 Preston Street, Como WA 6152
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WIA News

Good Publicity for Amateur Radio

The Channel 10 television network's nationally broadcast "Healthy, Wealthy and Wise" lifestyle program generated some good publicity for amateur radio on 17 July. The program was repeated the following weekend.

A segment on communicating covered letter writing and pen pals, electronic mail and amateur radio. Veteran radio amateur Ron Fisher VK3OM talked about how he'd made many friends through the hobby. The segment included good visual shots of Ron at his equipment, along with his tower and beam antenna and the Institute's journal, *Amateur Radio*.

Ron told viewers wanting to know more about the hobby to contact the Wireless Institute of Australia, which resulted in a number of telephone enquiries in the days following the program.

■ Book Review

Radio Projects for the Amateur

Author — Drew Diamond VK3XU
Reviewed by Gil Sones VK3AUI

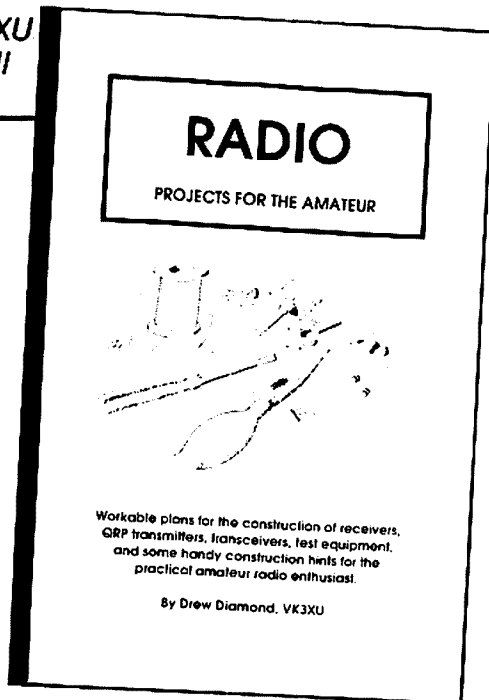
Radio Projects for the Radio Amateur is a fascinating book in that it collects such a range of projects and practical construction together in one publication. Drew Diamond VK3XU is a very enthusiastic home brewer and has produced very many projects which can be duplicated with only a basic workshop and using very readily available parts.

The sections of the book concerning basic workshop techniques are excellent. Drew shows how to make things with only basic tools and materials which are easy to obtain. You will not need to find special parts suppliers and specialist tool suppliers. There is also a very practical list of the suppliers that Drew has used to produce the projects. Even the second-hand and disposals type parts are readily available and simple to obtain.

A wide variety of projects is presented and you can choose from receivers, transmitters, and transceivers, all providing a useful level of performance and without a great deal of complication. All the projects have been built by Drew with the aim of making them easy to duplicate. They are all designed to be easy to build for a beginner.

As well as the receivers, transmitters, and transceivers there are items of station equipment. The book includes power supplies and some items of basic useable test equipment, such as a dip meter, bridges, and a power meter and dummy load.

One interesting item is an article on making your own air-wound inductors. These are now hard-to-find items and Drew shows you how to make your own using only the most basic tools and materials.



Circuit boards are not mandatory for these projects and layouts are given for boards that you can make yourself, if you wish. Drew tells you how to make boards and provides several alternatives to the use of circuit boards for projects of this type.

The book is a fascinating collection of projects built by a true home-brewer, for other home-brewers ranging from the rank beginner to the most experienced. The photographs have suffered in the reproduction process but are quite adequate to illustrate the projects. All the projects are "goers" and have been duplicated by others. It is a most impressive collection and deserves a place in your ham shack.

The book has been self published by Drew Diamond VK3XU and is available from Daycom Communications Pty Ltd. The price is \$18.50 over the counter and \$20 including post and packing. The book will also be obtainable from Truscotts Electronic World.

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■ Antennas

Efficiency of the Z Match

Lloyd Butler VK5BR* tests the efficiency of the Z Match Tuner over a wide range of antenna load conditions

Introduction

In past issues of *Amateur Radio* I have tabled a lot of measurement data on the performance of Z match tuners including the range of load resistance that can be matched. However, in retrospect, measurement of power efficiency has been limited to loads of 50 ohms and efficiency over the whole load resistance range tested has not really been assessed.

The question of carrying out a wider range of efficiency tests came up when I received a small QRP (low power) version of the single coil Z match for examination. This unit was made with a coil of similar inductance to the original AR single coil Z match but this was achieved with a much smaller diameter coil with more turns. By setting the taps on the coil in the same proportion to the original AR unit, it produced the same performance in terms of load resistance range. However, the constructor of the unit was a little concerned that, in reducing the coil size, he might have degraded the efficiency too much. So, I set about measuring efficiency over the resistance load range of 10 to 2000 ohms. While I was on the job, I thought it would be of value to do this for other designs which have been well documented. As a result, I have produced curves for the efficiency of four of these designs at frequencies of 3.5, 7 and 14 MHz. I also looked at the AR single coil unit padded up with capacity for 1.8 MHz.

It has been said that we have already had enough published on the design of the Z match but I felt that the curves demonstrated some important characteristics which should be documented.

Method of Measurement

The curves were formed by taking efficiency measurements at a number of different values of load resistance over the load resistance range and interpolating between measured values.

To start the test, the Z match is fed from a noise bridge connected to a receiver tuned to the required frequency. The noise bridge is set to 50 ohms and zero reactance. The selected load resistance (R_L) is connected to the output of the Z match which is then adjusted for a match indicated by a signal null in the receiver. The impedance presented by the input of the Z match is now a resistance of 50 ohms.

The bridge input is replaced by a signal from the 50 ohm output of a signal generator tuned to the same frequency as the receiver. Using a high impedance probe, a reference

voltage (V_i) is recorded across the 50 ohm input of the Z match and an output voltage (V_o) is measured across the load. Power efficiency is then calculated from the square of the ratio V_o/V_i multiplied by 50/R_L.

Voltage ratio between V_o and V_i is all that is required, rather than exact voltages, and I used the scale calibration of my CRO in conjunction with high impedance divide by 10 probes. Such probes have a shunt capacitance of 10 pF which can considerably modify the effective load impedance, particularly at the high values of load resistance at the higher frequencies. It is important when adjusting the Z match for the matching null that the probe be left across the load. The Z match adjustment then includes correction for the capacitive reactance caused by the probe.

Efficiency tests were carried out at 3.5, 7 and 14 MHz for loads ranging from 10 to 2000 ohms. I did not attempt measurements above 14 MHz as the test set-up was getting a little "touchy" at 14 MHz and I did not think I could rely on the validity of the results at any higher frequency.

The Models Tested

The curves (Figures 1, 2 & 3) have been taken on the following Z match models:

(1) AR Single Coil Z match as described in *Random Radiators*, *Amateur Radio*, August 1992 and in

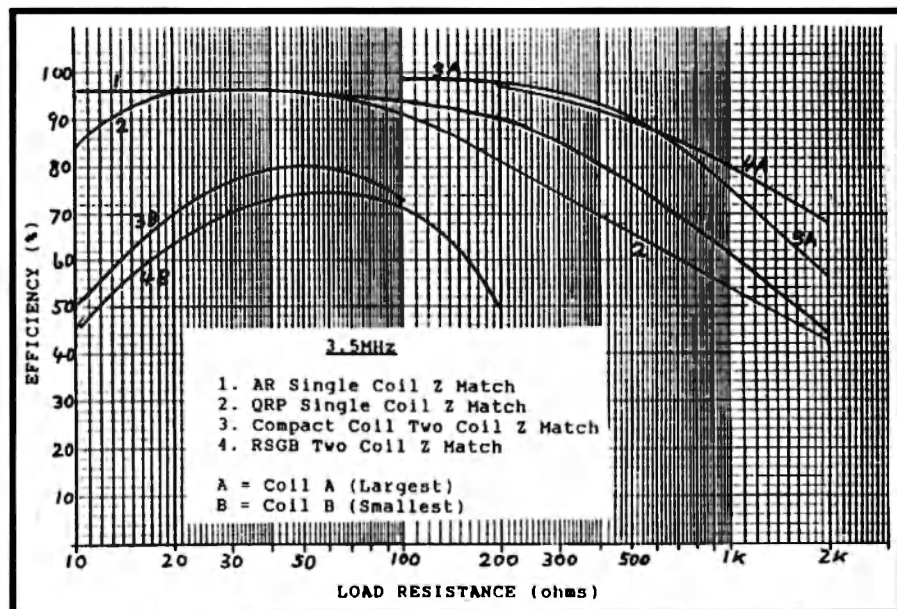


Fig 1 — Efficiency of Z Match Tuners at 3.5 MHz.

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80m to 10m

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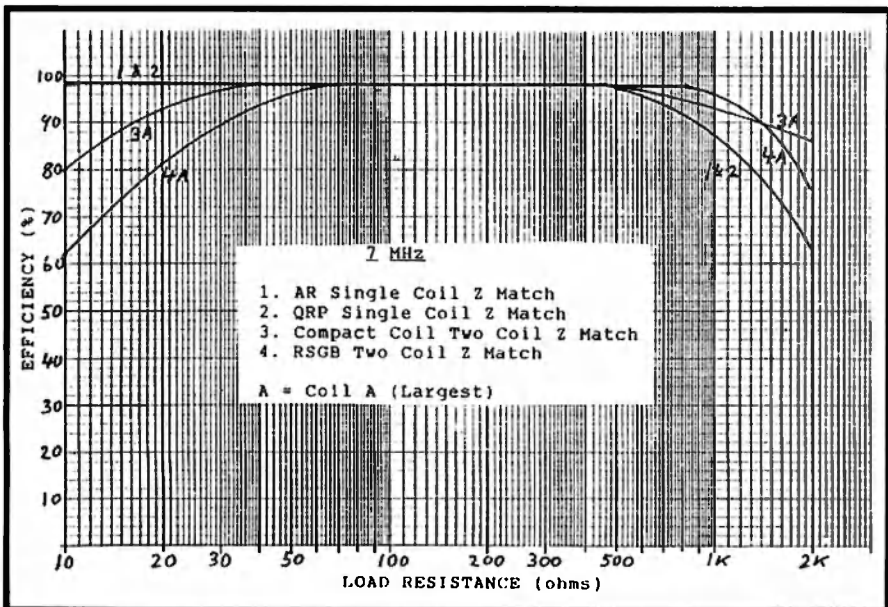


Fig 2 — Efficiency of Z Match Tuners at 7 MHz.

my report in Amateur Radio, April and May 1993.

(2) The QRP Single Coil Z match, similar in circuit design to the AR unit but which has a smaller coil construction as follows;

Primary 25 turns, 26 mm diameter, length 64 mm

Primary Taps — 13 and 17 turns

Secondary 6 turns, 32 mm diameter, length 13 mm

(3) The Compact Coil or Rononymous Two Coil Z Match as described in *Random Radiators, Amateur Radio*, March 1990 and in my report in *Amateur Radio*, December 1990.

(4) The earlier Two Coil Z match as described in the RSGB Handbook and based on an early design by Allen King W1CJL.

The samples of the AR single coil Z match and the Compact Coil two coil Z match were my own. The QRP single coil Z match was sent to me for testing and the RSGB type two coil unit was kindly loaned to me by Rob Gurr VK5RG.

The Results

Test results for 3.5, 7 and 14 MHz are shown by the curves of Figures 1, 2 & 3 respectively and these reveal

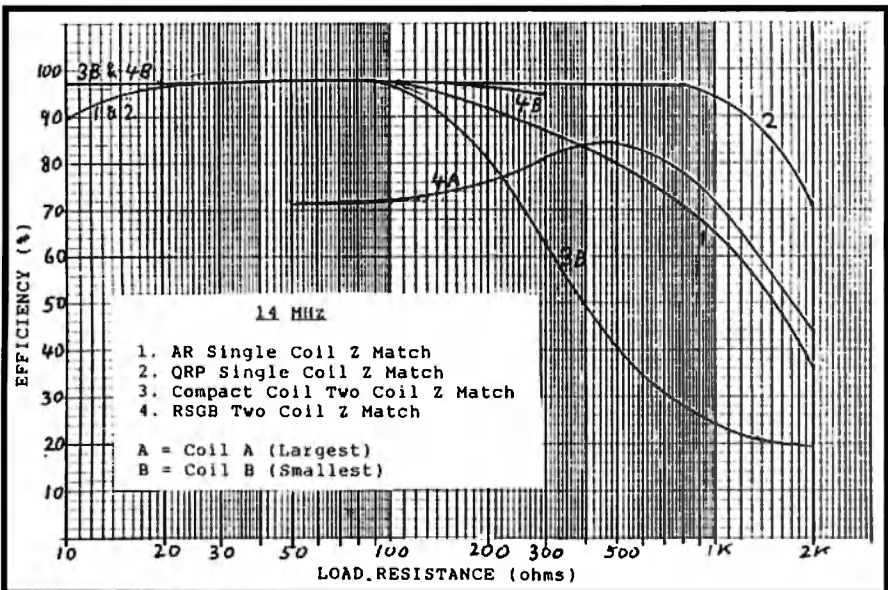


Fig 3 — Efficiency of Z Match Tuners at 14 MHz.

some interesting characteristics. Let's first look at the two coil Z matches on 3.5 MHz. The original idea of the two coil unit was to use the larger coil (coil A) for 3.5 and 7 MHz and the smaller coil (coil B) for the higher frequencies. Experimenters soon found that, to make the Z match work over a range of load conditions, they sometimes had to deviate from that rule. In my experiments, I found that at 3.5 MHz it was necessary to switch to coil B of the RSGB circuit below loads of 200 ohms resistance and coil B of the Compact Coil unit below loads of 100 ohms resistance. Figure 1 shows that, whilst the values above these figures using coil A give quite high efficiency, the lower resistance loads using coil B give efficiencies in the order of only 60% to 70% — quite a discouraging result for the two coil unit.

All units have the tendency to fall off in efficiency as load resistance is increased above 200 to 300 ohms. For high resistance loads at 3.5 MHz, the two coil units show a better result than the single coil units. As might be expected with its lower value of unloaded Q, the smaller coil QRP single coil unit degraded in efficiency to the greatest extent, falling in value for loads beyond 100 ohms.

Referring now to Figure 2 for 7 MHz, all units do quite well. Over the load range of 30 to 1000 ohms, efficiency is at least 90%. Below 30 ohms the efficiency of the two coil units is reduced and above 500 ohms the single coil units fall away a little more than the two coil units.

At 14 MHz (refer Figure 3), the smaller QRP single coil Z match gave the best result maintaining at least 90% efficiency over a load range of 10 to 1000 ohms. The RSGB unit using coil B produced high efficiency up to a load of 300 ohms above which I couldn't get a match and had to switch to coil A which gave a lower efficiency result. The AR single coil unit produced an efficiency of at least 90% for loads up to 250 ohms above which efficiency deteriorated considerably as the load resistance was increased. For some reason or other, the Compact Coil two coil unit really suffered in its result for loads above 150 ohms, falling to the greatest extent of all the units tested at this frequency.

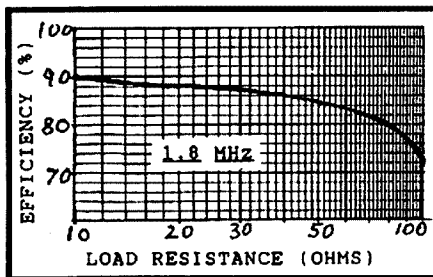


Fig 4 — Efficiency of Single Coil Z Match Tuner at 1.8 MHz.

In my article in *Amateur Radio*, April 1993, I showed how the AR Single Coil Z Match could be extended down in operation to 1.8 MHz and further in my article in *Amateur Radio*, October 1994, I included a circuit of my own constructed version which matched a load range of 10 to 100 ohms. Whilst I was on the job of measuring efficiencies, I also included this unit at 1.8 MHz and the result is shown in Figure 4. For the typical 1.8 MHz Marconi antenna arrangement (often less than 1/4 wave), we might expect antenna resistances in the order of 15 to 35 ohms. From the results (Figure 4), the anticipated tuner efficiency for these loads is in the order of 85% to 90%.

Some Conclusions

The curves show that efficiency of the various Z match tuners varies considerably with variation in frequency and load resistance. The AR Single Coil Z match which we promoted in 1993 is shown to have high efficiency for load resistance between 10 and 200 ohms. On some frequencies, it becomes less efficient as the load resistance is increased above the 200 ohm point. For the general run of antenna systems, the resistance component reflected by the system is more likely to be less than 200 ohms and hence loss of efficiency for high resistance loads is not as great a concern as loss of efficiency at low resistance loads.

However, for the two coil Z match units, the need to use coil B below 100 to 200 ohms on 3.5 MHz gives a loss in the unit of about one third of the power (or about 1.8 dB). This represents a fraction of an S point and on the air could go unnoticed. However, it is a loss of power we

would prefer to do without for the usual low resistance antenna load. The good news is that it can be fixed.

The two coil Z match units can be made to tune low resistance loads on coil A by simply tapping back the secondary turns of that coil. On my Compact Coil unit, I tapped back the secondary of coil A from the designed seven turns to four turns and found that I could still tune over the whole load range of 10 to 2000 ohms for both 3.5 and 7 MHz but using only coil A. Of course this was what coil A was supposed to do in the first place. Efficiency for low resistance loads was now restored to much higher values and comparable with those achieved using the Single Coil unit. I did not feel I should mess around with the RSGB design unit I had borrowed from Rob but I anticipate that the RSGB unit would produce similar results if its coil A secondary was tapped back.

If nothing else, my tests have highlighted a deficiency in the performance of the two coil units and shown how this can be rectified. Considering the original reason for commencing the tests, they should also provide some assurance to our QRP Single Coil constructor that his unit is reasonably efficient provided that high resistance loads at 3.5 MHz are avoided.

Why the Compact Coil Two Coil Z match showed so poorly above 200 ohms at 14 MHz is a job for another day.

References

1. *AR Single Coil Z Match* — Lloyd Butler VK5BR — *Amateur Radio* April & May 1993. — Also refer to *Random Radiators*, *Amateur Radio* February 1993.
2. *Tests on the Compact Coil Z Match* — Lloyd Butler — *Amateur Radio* December 1990. — Also refer to *Random Radiators*, *Amateur Radio* March 1990.
3. *Radio Communications Handbook* — RSGB — Section on HF Aerials including Z Match.
4. *Feedback on the Design of the AR Single Coil Z Match Tuner* — Lloyd Butler VK5BR — *Amateur Radio* October 1994.

* 18 Ottawa Avenue, Panorama SA 5041

ALARA

Sally Grattidge VK4SHE*, ALARA Publicity Officer.

YLRL Sponsored Contest YL Anniversary Party (YL-AP)

CW: 1400 UTC Wed 11 Oct to 0200 UTC
Fri 13 Oct 1995

SSB: 1400 UTC Wed 25 Oct to 0200 UTC
Fri 27 Oct 1995

These contests are open to all licensed women operators worldwide. Non-YLRL members receive certificates only. All bands. No cross-band, net or repeater operation. Call "CO YL". Logs must show time, band and transmitter power, QSO number sent and received, callsign, RS(T) sent and received, US ARRL section/Canadian Province/Country of station worked and operator's call and YLRL membership status. Separate logs for each contest. Logs to be readable and signed. No logs will be returned. Send to Carla Watson W06X, 473 Palo Verde Drive, Sunnyvale, CA 94086, USA postmarked no later than 30 days after each contest.

Frequencies to be CW on 3.540 — 3.725 MHz, 7.040 — 7.070 MHz, 14.040 —

14.070 MHz, 21.120 — 21.150 MHz and 28.150 — 28.200 MHz; and SSB on 3.940 — 3.970 MHz, 7.240 — 7.270 MHz, 14.250 — 14.280 MHz, 21.380 — 21.410 MHz and 28.300 — 28.610 MHz. NA-YLs should look for DX-YLs in other parts of the bands.

Scoring (DX-YL), separate logs for CW and SSB, NA-YL located in US ARRL section or Canadian Province, DX-YL all others. One point for each QSO on the same continent. Two points for each QSO on a different continent. Multiply by the sum of each US ARRL Section, Canadian Province or country worked. Multiply again by 1.5 if using less than 100 W CW or 200 W PEP SSB (low power multiplier) at all times. Power limit 750 W CW, 1500 W PEP SSB for other contestants.

Silent Operator Bill Woodger

(from *Backscatter*, Newsletter of the
Townsville Amateur Radio Club)

Bill passed away in July 1995, leaving his mark with the Townsville Amateur Radio Club and ALARA. He was an active CB operator who attended classes some

twelve years ago pursuing that elusive call, but somehow never made it. During his involvement with the Townsville club he was the instigator and prime mover in the creation of the "Florence McKenzie Memorial Trophy" which TARC donated to the fledgling ALARA group.

This magnificent trophy has two tiers, with a small Morse key in the centre of the base, surrounded by four supports. The top tier has a large face analogue clock which almost doubles its height. Bill and Bob VK4WJ presented this trophy to then ALARA President, Helene VK7HD, in Townsville at a barbeque on 1 June 1984.

Bill will be remembered each year as the trophy is awarded, as part of the ALARA Contest in November, to the highest scoring Australian YL Novice operator on CW. The trophy is highly valued and winners are respected for their skill and determination.

Helping Hands

Frances Wooley G3LWY —

Richard Pedder VK4BBA/G3NEE

Back in the early 50s, Frances and her husband Joe G3ESR noted that many stations they made contact with on a particular band had some disability. They published a note in the Radio Society's monthly magazine asking amateurs or

radio an Communications

Incorporating  and *CB Action*

You may be wondering whether there's *really* enough to interest you in a radio magazine which also has news about CB in it. The answer is a very definite *yes!*

This month, we tell you all about working the US Space Shuttle and the Russian Space Station Mir, review the outstanding new Australian linear amplifier made by Emtron (it *must* be good — it's the front cover review in the latest *JA Mobile Ham* magazine!), continue our antenna series with a long look at GSRVs of all sizes, review a couple of Morse keyboards, consider the pros and cons of privately importing your own equipment, take another look at radio on the Internet... and a whole lot more! Why not check out this month's edition yourself?

At only \$3.95, it's darned good value for amateurs... oh yes, *and* for SWLs, CBers...

SWLs who were housebound with disabilities to write to them.

The response was remarkable, and Frances and Joe decided to form a club. Weekly transmissions started on 80 metres. George G6JP and Digs G3WJT, an ex submariner, offered to help, and in 1954 the Radio Amateur and Bedfast Club (as it was known then) was formed. The club grew rapidly and more supporters were called in to help with the education side of becoming an amateur, and to assist in putting up antennas and keeping equipment in good repair.

In the late 60s, Peter G3TWF, a doctor, gave tremendous help keeping an eye on the members, and was often heard mobile, racing around the countryside in his Porsche. He was known as "flying doctor". Frances' husband Joe was Postmaster of Wigan Post Office in Lancashire and could only help after office hours, but he did manage to obtain free postage for blind members.

Meanwhile, Frances and her helpers were gathering momentum, as well as new members, and in the early 60s they began publishing a quarterly magazine named RADIAL which was an immediate

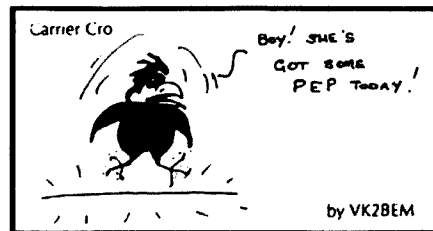
success. Lack of funds was an on-going problem and members and supporters often sent a little extra with their subs to help out.

Peter G3MUM was an early member who gained his full call with help from the club and his mother. As a young man Peter was struck down with polio and confined to an iron lung. He lost speech and the only movement he had was in his left foot. He passed his 12 wpm Morse with flying colours, gaining him the nickname "Twinkle Toes" by which he is still known today.

The Radio Amateur Invalid and Blind Club, as it is now known, began to have a small stand at various hamfests (known in the UK as rallies) to spread the word and hopefully collect a few donations. At one such event several of the commercial companies present made generous donations, and since then the club has been supported by them and by other clubs.

Richard G3NEE was a supporter for many years before rheumatoid arthritis turned him into a full member. During this time he was active on daily nets and spoke often with Joe and Frances, had visits from Digs and his wife Margaret, and the "flying doctor". He now lives in VK, but maintains contact with the club.

Frances is still active with RAIBC as Vice President along with George G6JP. Unfortunately, Joe became a silent key in the 70s. He would have been proud to see the club today with over 1600 members and supporters. Fifteen percent of the



members are "white stick" operators and thirty of these are YLs. There are many SWLs, both blind and disabled, whose lives have been enriched by amateur radio. The club has even been able to supply equipment to members unable to purchase their own and assist them in many ways.

Frances is a special lady who played a large part in bringing together many disabled people through amateur radio.

20th Birthday Party

On Saturday, 22 July, ALARA held its Birthday net on 80 m. The net ran from 7 pm to 11 pm with fifteen call signs participating, several of whom were there for the full four hours.

Taking part were Christine VK5CTY, Judy VK3AGC, Bron VK3DYF, Bev VK4NBC, June VK4SJ, Val ZL2PZ, Sally VK4SHE, Robyn VK4RL, Pat VK3OZ, Dot VK2DDB, Margaret VK2MAS, Margaret VK4AOE, Bev VK6DE, Velma VK4NVM and Celia ZL1ALK. A special welcome to Margaret VK2MAS as it was her first time on air.

*Clo PQ Woodstock, QLD 4816

ar

Carrier Cro by VK2BEM

Boy, THESE LONG WORDS TICKLE YOUR FEET!



VK2BEM is Mary, a member of ALARA.

WIA News

Spectrum Licensing Not Popular?

The Australian Electrical and Electronics Manufacturers Association (AEEMA) has expressed disagreement with the Spectrum Management Agency's proposed spectrum licensing regime. Introduction of a spectrum licensing regime is presently being considered by the SMA following public comment on their recent discussion papers on the issue.

In the July *ATIA News*, the newsletter of the Australian Telecommunications Industry Association (an AEEMA affiliate), a report on spectrum licensing said: "The Association has maintained that the Apparatus Licence system which allows ready

trading in licences is the most appropriate mechanism to meet the needs of the radio communications and telecommunications industries and requirements for efficient use of spectrum."

The report went on to say that the introduced reforms to the Apparatus Licence System (including the revised fee structure) offers many advantages over spectrum licensing. "It is the Association's belief that some of the assumptions of the Agency underlying its reasonings are flawed and excessively reliant on accounting principles rather than the effective and efficient management of spectrum resources."

The Association also has a major disagreement with the proposed 10 year term for spectrum licences, maintaining that, should spectrum licences be introduced, fifteen years is more appropriate as it "...is a more accurate reflection of technology time frame."

AEEMA said they will maintain close involvement in the reforms in this area. They are represented on the SMA's Radiocommunications Consultative Council (RCC) through AEEMA's Radio Communications Division Chairman, Bernie O'Shannassy of Motorola Communications. The WIA is represented on the RCC by David Wardlaw VK3ADW.

AWARDS

John Kelleher VK3DP — Federal Awards Manager*

The only significant change to the general awards information this month is the addition of North Korea to the ARRL DXCC listings. DXAC have accepted and recognised the operation by OH2AM/P5 earlier this year. This raises the DXCC countries list to 327 countries.

The previous operation by P5RS7 cannot be accepted for addition to your current listings (what a pity!).

Applications for update are being received in respect to I2RAO/HK0, claiming either Columbia, or Malpelo Island. In actual fact, this short operation by Ermanno I2RAO was merely a chance to operate from a remote island, and to have it accepted for IOTA credit. It is Gorgona Island, IOTA SA-017. Consequently it cannot be claimed for either of the above (again, what a pity!).

Another operation to come under scrutiny was 4K5ZI — EK5ZI Snake Island. This island was, and probably still is, a Russian military base. As a result, no documentation was ever received for submission to DXAC. Yet again, what a pity! I had contacts with all three.

In later information, the DXAC voted 15 to 1 to suspend further study of the status on Aruba, until the Netherlands and Aruba announce any change in the current move toward independence for Aruba, originally slated to occur in 1996.

In the same ballot meeting, the DXAC voted 9 to 7 against recommending the addition of Scarborough Reef to the DXCC Countries List (any bets on Pratas Island?).

My commiserations to those whose upgrades and additions to their WIA DXCC were not received in time for processing and publication in last month's *Amateur Radio* magazine. To be sure, time your upgrades, etc to reach PO Box 2175, Caulfield Junction VIC 3161 at least six to seven weeks before publication date of the magazine. Deadlines are usually published near the bottom of page 1 of the magazine, eg the October deadline is 11 September 1995.

The Bulgarian Federation of Radio Amateurs (BFRA) presents an interesting awards program of six events, with six attractive certificates which are available

to all amateurs throughout the world for two-way contacts or SWL reports on CW, SSB/AM, or mixed. A properly certified list of contacts, specifying stations worked, date, time, band and mode, together with a fee of 10 IRCs should be sent to BFRA Award Manager, PO Box 830, BG-1000 Sofia, Bulgaria.

Republic of Bulgaria

For this Certificate, QSOs/SWL reports after 1 January 1965 are valid. For DX applicants, 20 QSOs with different LZ stations are required, 10 with LZ1/LZ3/LZ5, and 10 with LZ2/LZ4/LZ6, irrespective of the band.

5 Band LZ Award

QSOs/SWL reports after 1 January 1979 are valid. A total of 10 QSOs is required; one QSO with LZ1/LZ3/LZ5 and one QSO with LZ2/LZ4/LZ6 on ALL bands (3.5, 7, 14, 21 and 28 MHz).

W 100 LZ Award

QSOs/SWL reports after 1 January 1979 are valid. 100 QSOs with different LZ stations during one calendar year are required.

W 28 Z ITU Award

QSOs/SWL reports after 1 January 1979 are valid. Contacts and reports with the following countries from ITU zone 28 are required: DL, HA, HB9, HB0, HV, I, IS0, LZ, OE, OK, OM, SP, SV, SV5, SV9, SY/A, S5, TK, T7, T9, YO, YU, ZA, Z3, 9A, 9H and 4U1ITU.

Black Sea Award

QSOs/SWL reports after 1 January 1979 are valid. 60 QSOs/SWL reports with different amateur stations located in the countries bordering the Black Sea are required. A minimum of one QSO/SWL report with each of the following countries, LZ, TA, YO, UA6 and US, is mandatory.

Sofia Award

QSOs/SWL reports after 1 January 1979 are valid for this award. Amass 100 points for contacts with stations located in Sofia, capital city of Bulgaria, in the following manner. Contacts on 3.5 MHz = 15 points; 7 MHz = 5 points; 14 MHz = 1 point; 21 MHz = 2 points; 28 MHz = 3 points.

Each station may be worked/reported once per band irrespective of the mode.

In conclusion, here is a tale of woe from a good friend, John Saunders VK2DEJ. I will only quote excerpts from his letter. John wrote "In early 1992, I received a

direct return QSL card from a contact with MONGOLIA. Like so many such QSLs, it was accompanied with details of some Mongolian awards. I checked and found that I had enough OSLs to claim their top award. I sent off the claim, and six months later was informed that I had indeed won their top award No 001, and that the award should be on its way.

I have written some eight letters, some duplicating the award fees, the latest being registered, and to date have not received any reply."

This is a classic example of what seems to be happening all over the world. It seems that an avid award chaser has to be very careful in his choice of subject. It could very well be that we have dishonest postal workers along the route to Mongolia, or that, for some reason, the Mongolian Amateur Radio authorities forgot to read or to speak English for three and a half years.

On John's behalf, and because I don't want to see awards hunting getting a bad name, I will pass a short letter to MRSF Awards Manager, PO Box 639, Ulan Bator, Mongolia. Hoping that some of you will do the same.

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Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/- QRM.

AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia

GPO Box 2141

Adelaide SA 5001

A Plethora of Tracking Programs

Last month I reviewed a new version of STSorbits Plus. It occurred to me that over the past 12 months or so we have seen many new satellite tracking programs come onto the market. Some are freeware, some are shareware and some are commercial products. They track satellites, but it doesn't end there. There seems to be a trend to make them ever more "feature filled".

The tracking algorithm cannot be much different from W3IWI's or G3RUH's original work. If a printout program is required, BASIC ORBITS or one of its derivatives will still do the trick. If a multiple footprint graphics program suits your purpose, SATFOOT still has it all. For general use in amateur radio satellite users' shacks, INSTANTRACK has earned a place as industry standard. Why? These programs set out to do ONE thing and do it very well. Some late runners in this game are so complex and filled with so many "features" that they require your undivided attention to make them work. To fully exploit their features they would need to be run up on several machines at once with all screens viewed simultaneously.

All this is fine if the aim is to impress one's friends. Practically, however, the simpler programs win overwhelmingly and, importantly, they do not demand a super fast PC to run. The message is, evaluate carefully before spending lots of money. Will it do what is required or is it just a pretty face? Will it just sit there and occupy lots of disk space? Will it be dragged out only to show off to your friends?

I recently down-loaded one such Windows based product from the Internet. It promised the world. It turned out to be so clumsy in operation that I immediately deleted it and did not even save a floppy disk copy.

Space Station MIR

What follows should be useful information for all satellite users who have

had contact with MIR. For those yet to try, the MIR station is among the easier satellite contacts. The FM voice signals are strong enough to work on a hand held transceiver at times and the digital PMS is usually turned on.

Its callsign is ROMIR-1. The frequency most used by MIR is 145.550 MHz. Finding MIR can be a problem for two reasons. It is in a very low earth orbit and therefore subject to a lot of atmospheric drag and it is also subject to manoeuvring by the controllers. You will need to have the very latest set of keps in your computer tracking program to be sure to find MIR.

Being a LARGE complex, MIR is quite visible to the naked eye given the right circumstances. The best times are just after sunset and just before dawn. The sky has to be fairly dark and MIR has to be in sunlight. Your tracking program will tell you when the conditions are right. The information that follows was collected from bulletins appearing on packet radio and CompuServe.

A Retrospective of Amateur Radio Activity on the MIR Space Station (including QSL Information)

From (and in his own words) Serge Samburov RV3DR provided the following information.

Amateur radio on board the Soviet Space station "MIR" started on November 1988. Equipment used: Transceiver Yaesu FT290R, 2 m FM, 2.5 watts output; many thanks to UA6HZ, antenna GP specially installed. 144-146 MHz FM Voice. The CALL was U#MIR (U-USSR, #-HAM number cosmonaut, MIR-space station "MIR"); U0MIR is collective station call.

#	CALL NAME	# CREW	FLIGHT DATE
01	U1MIR VLADIMIR TITOV	3	21.12.87-21.12.88
02	U2MIR MUSA MANAROV	3	21.12.87-21.12.88
03	U3MIR VALERY POLYAKOV	3/4	29.08.88-27.04.89
04	U4MIR ALEKSANDR VOLKOV	4	26.11.88-27.04.89
05	U5MIR SERGE KRIKALEV	4	26.11.88-27.04.89
06	U6MIR ALEKSANDR VIKTORENKO	5	06.09.89-19.02.90
07	U7MIR ALEKSANDR SEREBROV	5	06.09.89-19.02.90
08	U6MIR ANATOLY SOLOVYEV	6	11.02.90-09.08.90
09	U7MIR ALEKSANDR BALANDIN	6	11.02.90-09.08.90
10	U8MIR GENNADY STREKALOV	7	01.08.90-10.12.90
11	U9MIR GENNADY MANAKOV	7	01.08.90-10.12.90

From February 1991 new equipment was installed: Transceiver Icom IC228A/H, 2 m FM, 5/25 watts output, same GP, TNC-PacComm HandiPacket packet controller and IBM PC AT "Laptop". 144-148 MHz FM Voice and packet.

From 4 October 1991 beginning Austrian Ham-Radio experiment AREMIR (Austrian device: transceiver Alinco DJ-120, TNC-2 -packet controller). Thanks to Ham Austria! Especially to: OE3GPA, OE3MZA and OE6VND for a very interesting experiment. AREMIR — 2 m FM voice, CW and packet beacon. And from 10 October packet.

From 19 March 1992, Ham-Radio experiment GERMANY-DVM MKF. Digital-Voice-Memory Microphone. Thanks to HAM GERMANY and especially to DL9MH and DL2MDE. Call was U#MIR. PMS call was U#MIR-1. U0MIR-call collective station.

#	CALL NAME HAM	# CREW	FLIGHT DATE
2	U9MIR VIKTOR AFANASIEV	8	02.12.90-26.05.91
13	U2MIR MUSA MANAROV	8	02.12.90-26.05.91

DICK SMITH ELECTRONICS

UNBEATABLE VALUE!

The deluxe 2m/70cm dual-band hand-held Transceiver that offers easier operation and more features than ever before is still available at an unbelievably low price!

The Yaesu FT-530 provides a flexible dual receiver facility with separate volume and squelch controls, allowing you to listen on two frequencies in the same band or one frequency on both bands! Plus, the exclusive Australian version features full 70cm band coverage (420-450MHz), selectable Auto Repeater Shift on both 2m and 70cm (suits Australian band plan), and extended receiver coverage as standard. Two VFOs and 41 tunable memories per band are provided, together with keypad or dial frequency entry, seven selectable tuning steps and a one-touch CALL channel. The dual 5.5-digit LCD screen is back-lit for easy viewing and includes many functional indicators plus separate signal/P.O. bargraphs for both receivers. An LCD voltmeter function is provided so you can even monitor your battery's performance under load and estimate remaining battery life.

Other top features include: Inbuilt CTCSS encode/decode, CTCSS scanning, an auto battery saver (ABS) for extended battery charge life, a cross-band repeater facility and an inbuilt clock with alarm and snooze functions.

Also provides VOX circuitry for use with the optional YH-2 headset, a user-replaceable Lithium back-up battery, and DTMF selective calling and paging. A DC supply jack allows simple transceiver powering and NiCad charging, with RF output in four selectable steps up to 5W at 12V. The FT-530 comes complete with an ultra high-capacity 1000mAh NiCad battery, belt clip, carry case and approved AC charger.

Cat D-3620

Specifications

Frequency range:

Transmit:

144-148MHz, 420-450MHz

Receive:

130-174MHz, 420-500MHz, 800-950MHz

Current consumption:

Auto power off

150uA

Standby (saver on)

16.8mA (both bands)

Dimensions:

55(W) x 163(H) x 35mm (D)

Transmitter:

Power Output:

5, 3, 1.5, 0.5 (at 12V)

RF Power Output:

2.0W (2m) 1.5W (70cm)
(Supplied 7.2V 1000mA/H NiCad)

Receiver:

Sensitivity:

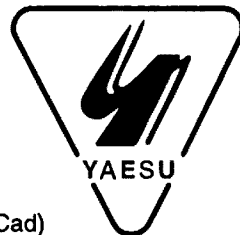
2m: < 0.158uV, 70cm: < 0.18uV
(Ham bands only, 12dB SINAD)

Selectivity:

Audio Output (12V):

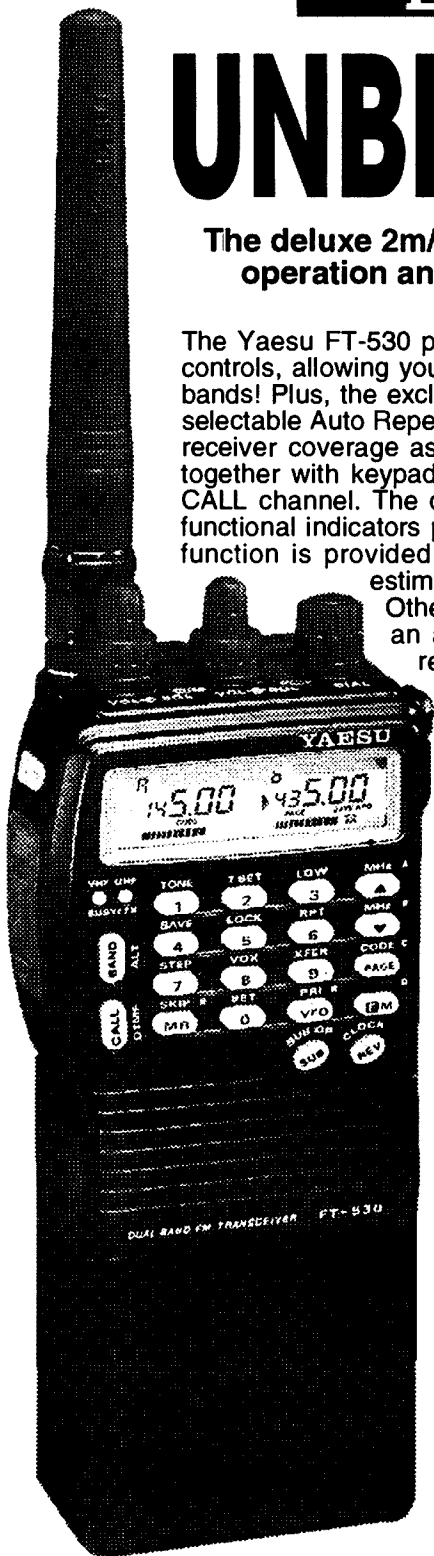
>60dB
300mW at 8 ohms

2 Year Warranty



\$699

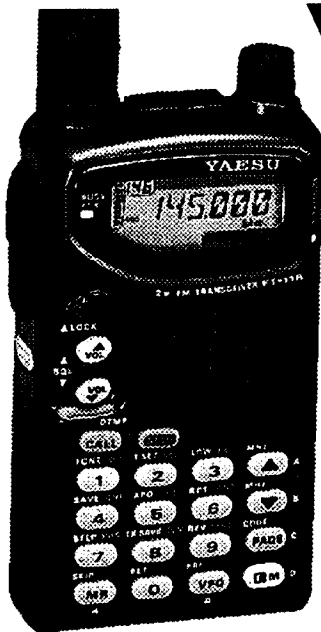
**Hurry, Limited Stocks
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DICK SMITH ELECTRONICS



We Have A Great Range Of YAESU Transceivers



FT-11R Micro Deluxe 2m Handheld

One of the world's smallest 2m FM handhelds with a full-size keypad, the Yaesu FT-11R has been reduced in size, but not in features. Designed to fit comfortably in your hand, it's just 57 x 102 x 25.5mm (W.H.D) including the FNB-31 NiCad pack, and weighs only 280 grams. The result of the latest in miniaturisation, microprocessor control and FET technology, the FT-11R provides a large back-lit LCD screen with full frequency readout, 150 memories (75 in alpha-numeric mode), full function keypad with easy SET mode, and up/down thumb control Volume and Squelch settings. A new high efficiency FET RF amplifier provides 1.5W output standard from the compact 4.8V battery pack, and up to 5W output from 9.6V (using an optional battery pack or PA-10 mobile adaptor). A range of battery life extenders, including Auto Battery Saver, Tx Save, and Auto Power Off (with ultra-low 20uA consumption) are included. Australian version Auto Repeater Shift, DMTF based selective calling and paging, extended 110-180MHz receiver coverage (including the AM aircraft band), and a variety of scanning modes are also provided. Other new features include naming of memory channels, DTMF Auto-dial memories, and DTMF Message Paging with up to 6 alpha-numeric characters. A large range of accessory lines are also available for easier customisation of your transceiver. The FT-11R comes with an FNB-31 600mA/H NiCad, belt-clip, approved AC charger, CA-9 charge adaptor cradle and antenna.

Cat D-3640

2 Year Warranty \$599

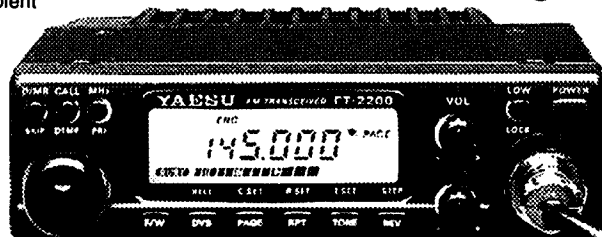


FT-2200 2m Mobile Transceiver

A compact, fully featured 2m FM transceiver with selectable power output of 5, 25 and 50 watts, it includes the latest convenience features for more enjoyable mobile or base station operation. Built around a solid diecast chassis, it provides 49 tunable memories, a large variety of scanning modes, an instant recall CALL channel, 7 user-selectable channel steps from 5kHz to 50kHz and is just 140 x 40 x 160mm (not including knobs). Backlighting of the large LCD screen, knobs and major buttons is even automatically controlled to suit ambient light conditions. Also provided is a 38 tone CTCSS encoder, DTMF based paging and selective calling with Auto-Page/Forwarding features, and 10 DTMF auto-dial memories. The LCD screen provides a highly legible bargraph Signal/P.O. meter plus indicators for the various paging and repeater modes. An optional internal DVS-3 digital recording/playback board can also be controlled from the front panel, giving even greater messaging flexibility. Supplied with an MH-26D8 hand microphone, mobile mounting bracket and DC power lead.

Cat D-3635

2 Year Warranty \$699

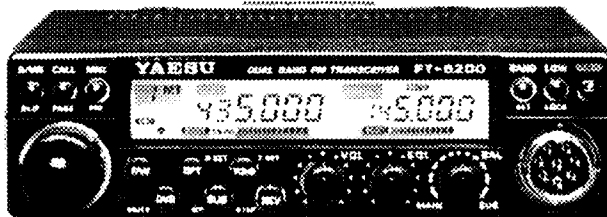


FT-5200 2m/70cm Mobile Transceiver

Uses the latest innovations in compact cross-brand full-duplex and detachable front-panel design for brilliant mobile performance. It has 32 tuneable memories, a built-in antenna duplexer, dual full-frequency LCD screen (with signal strength/power output bargraphs for each band), 8-level automatic display/button lighting dimmer and dual external speaker jacks (one for each band). A thermally-activated fan allows up to 50 watts output on the 2-meter band and 35 on the 70cm band. Plus, scanning features include programmable scan limits, selectable scan resume modes, memory skip, priority monitoring and one-touch recall CALL channels. In addition, 6 user-selectable channel steps are provided and a FRC-4 DTMF paging selcall option lets you program a three-digit ID code so you can be paged by other transceivers, or page up to 5 other stations yourself. An optional YSK-1 remote panel lets you relocate the main rig (under the front seat, for example) and mount the control panel on the dash. The FT-5200 comes with hand-mic, mobile mounting bracket and DC power lead.

Cat D-3310

2 Year Warranty \$1399



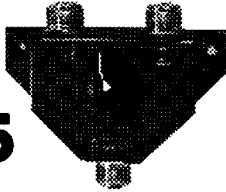
And All The Accessories You Need!

2-Way Coax Switch

A heavy-duty, 2-way coax switch that's suitable for Amateur, CB or commercial applications. It's well constructed with a die-cast case and can handle up to 2kW P.E.P. or 1kW CW at 30MHz with less than 0.2dB insertion loss.

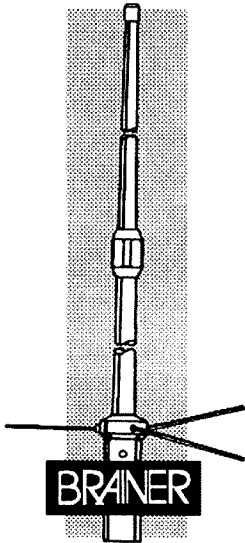
Cat D-5200

\$3995



High Performance 2m/70cm Base Station Antennas

Our range of top-name Brainer base station antennas offer outstanding quality and exceptional value. They are stacked colinear types providing high gain, wide bandwidth and a low radiation angle for extended range. The fibreglass reinforced polyester (FRP) outer tubing random and gasket seals provide excellent all-weather operation, and they are supplied with compact ground-plane radials for a clean radiation pattern. Stainless-steel mounting hardware ensures a long trouble-free life. They also feature comprehensive instruction sheets to make installation and set-up easier. Both come with a 1 year warranty.



2m/70cm GST-1

Frequency: 144-148MHz, 430-450MHz
Gain: 6dB on 2m, 8dB on 70cm
Max. Power: 200W
Length: 2.5m
Type: 2 x 5/8 wave (2m)
4 x 5/8 wave (70cm)
Connector: SO-239 socket

\$199

Cat. D-4830

2m/70cm GST-3

Frequency: 144-148MHz, 430-440MHz
Gain: 7.9dB on 2m, 11.7dB on 70cm
Max. Power: 200W
Length: 4.4m
Type: 3 x 5/8 wave (2m)
7 x 5/8 wave (70cm)
Connector: SO-239 socket

\$299

Cat. D-4835

6m 1/2 Wave Base Antenna

A rugged Australian-made vertical antenna designed to cover the 51 to 54MHz range, with minimum SWR around 53MHz. Built using high tensile T81 grade aluminium, it's just 2.9m long with a sealed base section and 100W minimum power rating. Complete with mounting hardware.

Cat D-4825

\$6995

Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV is a 5-band HF trap vertical which continues the Hustler tradition of quality and performance. It incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1 kw (PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, < 2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike some other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.

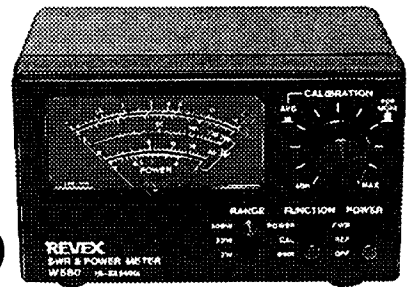
Cat D-4920

HUSTLER \$329

Revex W560N HF/VHF/UHF SWR/PWR Meter

Another quality Revex wide-band SWR meter, offering 2 inbuilt sensors for 1.8MHz to 525MHz coverage! Provides measurement of 3 power levels (3W, 20W, 200W), SWR (at low and high power levels) and uses an N-type socket for the VHF/UHF sensor to ensure minimal loss. Measures 120 x 80 x 85mm.

Cat D-1375



\$369

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Sydney and Enquiries - 9937 3366

Fax: (02) 805 1986 or write to:

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*MAJOR AMATEUR STOCKISTS STORES SHOWN IN RED.

B 2096

DICK SMITH ELECTRONICS

Club Corner

Riverland Radio Club

The Riverland Radio Club held its Annual General Meeting on 6 July 1995.

The following members have another year to serve: Tony VK5ZAI, President; David VK5NAP, Vice-President; Kingsley VK5AKN, Committee; and Malcom Gardener, Committee.

The following committee members have been re-elected for a two year term: Mike VK5CK, Adrian VK5AJR and Doug VK5GA. Chris VK5PBI is a newly elected member.

Doug VK5GA was re-elected as Secretary/Treasurer.

The President, Tony VK5ZAI, made reference in his annual report to the club's first successful Hamfest. The financial position of the club has also enabled the club to own and operate its own BBS which is being managed most efficiently by Richard VK5AET.

Gary VK5CWP, David VK5NAP and Chris VK5PBI have been enthusiastically involved with promoting amateur radio through JOTA over the past years.

Tony VK5ZAI also thanked John VK5ARK, Kingsley VK5AKN, Ivan VK5HS and Doug VK5GA for their dedication in broadcasting the slow Morse practice session every week.

Ivan VK5HS has also promoted amateur radio with his involvement with the communications of the Variety Club Bash.

In closing, Tony VK5ZAI thanked all members for their participation in club activities and looks forward to another successful year.

Doug Tamblin VK5GA

Radio Amateur Old Timers Club of SA

The annual luncheon will be held on Tuesday, 24 October 1995 at 11.30 am (for a 12.30 pm lunch) at the Marion Hotel, Marion Road, Mitchell Park and it will be pay-as-you-go.

Amateurs age 60 years or over, who are eligible to hold the AOCPC certificate for 10 years or more, are invited to join us.

Committee members at present are President, Jack Townsend VK5HT (tel 295 2209); Secretary Ray Deane VK5RK (tel 271 5401); and Lew Schaumloffel VK5AKQ (tel 263 0882). RSVP to any of the above committee before 20 October for catering purposes. On public transport you can reach the venue on TA Bus 43, stop 24.

Ray Deane VK5RK
Secretary

#	CALL	NAME HAM	# CREW	FLIGHT DATE
14	U7MIR	ANATOLY ARTSEBARSKY	9	18.05.91-10.10.91
15	U5MIR	SERGE KRIKALEV	9/10	18.05.91-25.03.92
16	GB1MIR	HELEN SHARMAN (ENGLAND)		18.05.91-26.05.91
17	U4MIR	ALEKSANDR VOLKOV	10	02.10.91-25.03.92
18	OE0MIR	FRANZ VIEHBOECK (AUSTRIA)		02.10.91-10.10.91
19	U6MIR	ALEKSANDR VIKTORENKO	11	17.03.92-10.08.92
20	U8MIR	ALEKSANDR KALERI	11	17.03.92-10.08.92
21	DP1MIR	KLAUS FLADE (GERMANY)		17.03.92-25.03.92
22	U6MIR	ANATOLY SOLOVYEV	12	26.07.92-01.02.93
23	U3MIR	SERGE AVDYEV	12	26.07.92-01.02.93
24	F5MIR	MICHEL TOGNINI (FRANCE)		26.07.92-10.08.92

From 1 January 1993 amateur radio activity continued using the same equipment. Transceiver Icom IC228A/H, 2 m FM, 5/25 watts output, GP antenna, TNC-PacComm HandiPacket packet controller and IBM PC AT Laptop. AREMIR: Austrian device: transceiver Alinco DJ-120, TNC-2 packet controller. AREMIR — 2 m FM Voice and packet. Germany device — DVM MKF (Digital-Voice-Memory Microphone).

From 1 January 1993 cosmonauts had a new series call R#MIR. Old series U#MIR still valid. Call was R#MIR (R-Russia, #Ham number cosmonaut, ROMIR-call collective station, ROMIR-1 — call PMS; F = 145.55 MHz Pkt or voice.

#	CALL	NAME HAM	# CREW	FLIGHT DATE
25	U9MIR	GENNADY MANAKOV	13	24.01.93-22.07.93
26	R2MIR	ALEKSANDR POLESCHUK	13	24.01.93-22.07.93
27	ROMIR op.	VASILY ZIBLIEV	14	01.07.93-14.01.94
28	ROMIR op.	ALEKSANDR SEREBROV	14	01.07.93-14.01.94
29	F6MIR*	JEAN-PIERRE HAIGNERE(FRANCE)		01.07.93-22.07.93
30	U9MIR	VIKTOR AFANASIEV	15	08.01.94-14.07.94
31	R3MIR	YURIJ USACHEV	15	08.01.94-14.07.94
32	U3MIR	VALERIJ POLYAKOV	15/16/17	08.01.94-22.03.95
33	ROMIR op.	YURIJ MALENCHENKO	16	01.07.94-02.11.94
34	ROMIR op.	TALGAT.MUSABAIEV	16	01.07.94-02.11.94
35	ROMIR op.	ALEKSANDR VIKTORENKO	17	03.10.94-22.03.95
36	ROMIR op.	YELENA KONDAKOVA — !	17	03.10.94-22.03.95
37	ROMIR op.	ULF MERBOLD (ESA-GERMANY)		03.10.94-02.11.94
38	U6MIR	GENNADY STREKALOV	18	14.03.95-31.05.95
39	ROMIR op.	VLADIMIR DEZHUROV	18	14.03.95-31.05.95
40	ROMIR op.	astronaut NASA — ???	18	14.03.95-31.05.95
41	ROMIR op.	ANATOLY SOLOVYEV	19	10.06.95-30.08.95
42	R4MIR op.	NIKOLAI BUDARIN	19	10.06.95-30.08.95
43	ROMIR op.	YURIJ GIDZENKO	20	22.08.95-30.12.95
44	U9MIR	SERGE AVDYEV	20	22.08.95-30.12.95
45	ROMIR op.	..... (ESA-....)		22.08.95-30.12.95
46	ROMIR op.	YURIJ ONUFRIENKO	21	25.12.95-17.06.96
47	R3MIR	YURIJ USACHEV	21	25.12.95-17.06.96
48	ROMIR op.	astronaut NASA — ???	21	25.12.95-17.06.96

Notes

#29 Cosmonaut (France) — used Ham Radio, but his amateur radio activity was not included in the space program. Therefore, I cannot confirm QSO with F6MIR! #37 Astronaut ESA ROMIR/DL (DP3MIR) — ULF MERBOLD. Astronauts NASA #40 (NORMAN THAGARD) and #48 not included in Ham radio activity in space program today.

From 1 January 1993 the new QSL Manager for cosmonauts is RV3DR. Also I confirm all QSOs with station MIR from 1988.

RV3DR-Serge Samburov, Space "MIR" QSL Manager, Chief of Cosmonaut Amateur Radio Department RKK "Energia". All QSLs should be sent direct to PO Box 73, Kaliningrad-10 City, Moscow Area, 141070, Russia. Send me MSG via PKT: RV3DR@ROMIR or RV3DR@RK3KP.#MSK.RUS.EU

BEST: 73 RV3DR

*359 Williamstown Rd, Yarraville VIC 3013
Packet: VK3JT@VK3BBS.#MEL.VIC.AUS.OC
CompuServe: 100352,3065

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Ballarat Amateur Radio Group Inc (BARG)

1995 Hamvention

Keep the weekend of 28 and 29 October free, as BARG will once again be conducting their Hamvention. You are assured that it will be much bigger and better than ever. New activities are being planned and this year we have moved to A NEW VENUE — the Wool Pavilion at the Ballarat Showgrounds, on the corner of Howitt St and Creswick Road (Midland Highway).

Entrance will be from White Ave, which is at the rear of the complex. Tom VK3DMK and Cliff VK3CCB are organising this year's show and you are advised to contact them ASAP if you require trestle space or are intending to come to the Saturday night counter tea.

An extended series of fox and sniffer hunting will be conducted over both full days and plenty of activity is assured if fox-hunting's your game.

Apart from the usual commercial and pre-loved displays and sales, there will be demonstrations of packet, ATV, SSTV/FAX, CW, QSL Cards, WICEN, satellite coms, a homebrew competition and a Club Equipment Display. All displays and sales will be "under cover" to offer protection from the Ballarat sunshine.

"Take Away" type meals will be available and coffee and tea will be FREE all day. Don't forget to bring the family as the Rotary Club "Trash and Treasure" market will be operating on an adjacent

site. More information will be available in the insert to *October Amateur Radio*. We look forward to seeing you there.

Doug Raper VK3VBA
Publicity Officer

Moorabbin and District Radio Club Inc

At the recent Annual General Meeting of the M&DRC, the following members were elected to office; President, Lee Moyle VK3GK; Vice President, David Armstrong VK3JJP/PNL; Secretary, Paul Girling VK3ALE; Treasurer, Morrie Lyons VK3BCC; Committee, Ian Southwell VK3NIS, Wally Hunt VK3JWH, Ken Millis VK3TKR and Harold Hepburn VK3AFQ.

The meeting was very well attended for such a cold winter's night, with over 40 members in attendance, something not seen for some years. Following the meeting, members availed themselves of the refreshments and light supper supplied by the club.

All amateurs are reminded of the club net each Monday night, commencing at 8 pm on 3567 kHz, plus or minus QRM. The club award is available to those amateurs wishing to collect awards. The easiest way to get this award is every Monday night during the club net. Details of the award will appear in a future edition of these notes.

For details about the club, please write to The Secretary, Moorabbin and District Radio Club, PO Box 58, Highett VIC 3190.

Denis Babore VK3BGS
ar

With this column being prepared at the eleventh hour (due to work commitments), and accepted only due to the good graces of the production editor, it hasn't been possible to put together the usual ruminations on contest matters (well, not anything you'd want to read anyway). I had hoped to present some information on a proposed contest rating system, forwarded by Martin VK5GN, but that will have to wait until another time. At least the editors will be pleased at the unusually short column this month!

Thanks to DL2DN, CQ, QST, and *Radio Communications*. Until next month, good contesting!

Peter, VK3APN

Addendum to Results of 1995 John Moyle Field Day Contest

An error occurred when I was compiling the results of this contest which were published on page 36 of last month's *Amateur Radio* magazine. Terry VK4KAC achieved first place in the Portable, 24 hour, Single Operator, all band, Phone section. He is awarded a certificate denoting first place for his section.

Phil Rayner VK1PJ

RSGB 21/28 MHz DX Contest

Phone: 1 October, Sun 0700 — 1900z
CW: 15 October, Sun 0700 — 1900z

The object is to work as many UK stations as possible on 21 and 28 MHz (UK includes G1, but *not* E1). Categories are: single operator, multioperator, and SWL. The CW section includes a QRP category for stations not exceeding 10 W output. The recommended frequencies for phone are 21150-21350 and 28450-29000 kHz.

Send RS(T) plus serial starting at 001; UK stations will add their county code. Score three points per QSO. The final score equals the total points times the total multiplier (ie counties worked on each band added together). Use a separate log for each band. Send logs and summary sheets, to arrive by 1 December (phone) or 11 December (CW), to: RSGB HF Contests Committee c/o G3UFY, 77 Bensham Manor Road, Thornton Heath, Surrey CR7 7AF, England. A comprehensive range of awards is offered.

SWLs may only log UK stations making contest QSOs with overseas stations. SWL logs should be headed time UTC; callsign heard; number sent by that station; callsign of station being worked; new multipliers; points. In the column headed "station being worked" the same callsign may only appear once in every three QSOs except when the logged

Contests

Peter Nesbit VK3APN — Federal Contest Coordinator*

Contest Calendar Sep — Nov 1995

Sep 2/3	All Asia DX Contest Phone	(May 95)
Sep 3	Bulgarian DX Contest	(Aug 95)
Sep 3	Panama Anniversary Contest	(Aug 95)
Sep 9/10	Worked All Europe Phone	(Jul 95)
Sep 16/17	SAC DX CW	(Aug 95)
Sep 23/24	SAC DX Phone	(Aug 95)
Sep 23/24	CQ WW RTTY DX Contest	(Aug 95)
Oct 1	RSGB 21/28 MHz Contest Phone	
Oct 7/8	VK/ZL/Oceania DX Contest Phone	(Aug 95)
Oct 14/15	VK/ZL/Oceania DX Contest CW	(Aug 95)
Oct 15	RSGB 21/28 MHz Contest CW	
Oct 21/22	Worked All Germany Contest Mixed	
Oct 28/29	CQ WW DX Contest Phone	
Nov 11	ALARA Contest	
Nov 11/12	WAE RTTY DX Contest	(Jul 95)
Nov 11/12	OK-DX CW Contest	
Nov 11/12	ARRL International EME Competition	
Nov 18/20	All Austria CW Contest	
Nov 25/26	CQ World-Wide DX CW Contest	

station counts as a new multiplier. HF Tx licence holders are ineligible to enter the SWL section.

Iberoamericano Phone Contest

7/8 October, 2000z Sat — 2000z Sun
For rules, see this column September 1994.

Worked All Germany DX Contest (CW & Open)

21/22 October, 1500z Sat — 1500z Sun
In this contest, which occurs on the third full weekend every year, the world works Germany. Categories are: Single operator all band (CW, Open, and Open QRP max 5 W output); Multioperator single Tx; SWL. Open means CW and phone. Use 80 — 10 m, and exchange RS(T) plus serial number. German stations will add their DOK (ie location code). Each station may be worked once per band per mode.

Score three points per QSO, and determine the final score by multiplying by the total number of DOKs from each band. Send logs, summary sheet, and duplicate check sheet (if 100 plus stations have been worked per band) to arrive by 20 November to: Klaus Voigt DL1DTL, PO Box 72 04 27, D-01023 Dresden, Germany. Logs on DOS disk are also welcome, if accompanied by a signed summary sheet.

CQ WW DX Contest

Phone: 28/29 October, 0000z Sat — 2400z Sun
CW: 25/26 November, 0000z Sat — 2400z Sun

Sponsored by *CQ Magazine*, these contests are undoubtedly the premier HF events of the year, and present the opportunity to work many rare countries and zones even with modest equipment. They are open to all stations world-wide, on 1.8-30 MHz (no WARC bands). Categories are: single operator; single operator low power (max 100 W output); single operator QRPp (max 5 W output); single operator assisted (for those using DX spotting nets); multioperator single transmitter; and multioperator multitransmitter.

Single operator stations can enter as single or all band, and can change bands at will. Multioperator stations must enter as all band. Multioperator single Tx stations must stay on a band for at least 10 minutes, EXCEPT that one — and only one — other band may be used during the 10 minute period, if — and only if — the station worked is a new multiplier. Multi Tx stations are exempt from this rule, but can only radiate one signal per band at any one time.

Exchange RS(T) plus CQ zone. Score three points for QSOs with stations in a different continent, and one point for QSOs with stations in the same continent (for VKs this means Oceania as defined for WAC). Stations in the same country or call area can be worked for additional multiplier credit, but have zero points value. The total multiplier is the number of DXCC countries plus zones worked. Final score equals total points times total multiplier.

Use a separate log for each band. Show new multipliers in the log the first time they are worked, and duplicates with zero points. Entrants are encouraged to include a "dupe sheet" for each band, which becomes mandatory for 200 QSOs or more. Computer logs are welcome, and must be in ASCII on DOS disk, using separate files for each band, eg VK7AAA.20 for a 20 m log; alternatively in K1EA "CT" .BIN format, eg VK7AAA.BIN. Label the outside of the disk with the callsign, the files included, mode,

and category. Disks MUST be accompanied by a paper printout satisfying logging instructions. The committee may request a disk from high scoring stations to enable the log to be checked by computer, if the log originally submitted was a computer printout.

Include a signed summary sheet, showing power output for low power and QRPp entries, and send the log postmarked by 1 December (phone) or 15 January (CW) to: *CQ Magazine*, 76 North Broadway, Hicksville, NY 11801, USA. Indicate Phone or CW on the envelope. Numerous awards, trophies and plaques will be awarded to the leading entrants in the various categories and countries.

Result of 1994 RSGB 21/28 MHz Contest

VK4NEF was the only Oceania entrant, and came equal 21st with 585 points.

*PO Box 2175, Caulfield Junction, VIC 3175
ar

Divisional Notes

Forward Bias — VK1 Divisional Notes

Peter Parker VK1PK

Technical Symposium on Soon

The 1995 Canberra Amateur Packet Radio Group Technical Symposium is a one-day event containing a series of lectures, discussion groups and forums on topics of interest to the radio amateur. The lectures are split into two streams, one aimed towards amateurs interested in the fundamentals, and the other aimed towards those interested in investigating topics in depth.

It will be held at the Hughes Community Centre, Wisdom Street, Hughes (near the shopping centre) on Saturday, 23 September. Registration starts at 9.00 am, while sessions commence at 10 am. A fully catered lunch will be provided and is included in the \$30 registration fee. The symposium ends at about 4.00 pm.

Presentations and discussions on a variety of amateur radio topics (mostly packet-related) will be held during the day. Each participant will receive a copy of the Symposium proceedings.

If you have any queries, please contact Carl Makin (VK1KCM) between 8 pm and 10 pm (Canberra local time) weekdays on (06) 292-7057.

Junk Sale a Success

The VK1 Junk Sale, held to raise money for the replacement of our stolen

repeaters, was an overwhelming success, with approximately four thousand dollars being raised. More than seventy people attended the event, which was held after the monthly WIA meeting.

Repeater Fund Grows

At the time of writing, the repeater fund stands at approximately six thousand dollars. The VK1 Division thanks all donors for their continued generosity.

A raffle, run by the VK1 Repeater Replacement Committee, was held recently to raise money for the Repeater Fund. Congratulations to Mike VK1MJ who won the prize, a digital multimeter kindly donated by Jaycar's Fyshwick store. The raffle, which was drawn at the July Divisional meeting, raised \$131. The VK1 Division thanks Jaycar for providing the prize, and John VK2EJC for organising the raffle.

Possible Threat to Amateur Towers?

Canberra's National Capital Planning Authority has released a draft ACT Telecommunications Plan for public consultation. The plan applies to all ACT land, and aims to reduce "visual pollution" caused by radio transmitting towers. It was released in mid-July, and all interested parties have eight weeks to comment.

There is a possible risk that the plan could be applied to amateur antennas in residential areas, and not just cellular

telephone installations in non-residential areas. This is why I'm asking you to obtain a copy of the plan from the National Capital Planning Authority and make your opinions known by 15 September. As the plan requires ministerial approval and must be passed by Federal Parliament, you should ensure that your local MHRs and senators also hear your concerns, where warranted. Remember, there is a Federal election coming up, and now is the ideal time to make the politicians work hard for your vote.

The address for the National Capital Planning Authority is 10 Brisbane Ave, Barton, ACT 2600. You can telephone the Authority on 271 2888. Faxes may be sent to 273 4427.

Earlier this year amateurs lobbied to oppose the SMA's new licence fees. Our efforts resulted in reductions being made to the fees initially proposed. Once again our activities are under threat, and it's time to make a stand. Though amateurs are very much a minority group, well-focussed and disciplined lobbying can bring results. Our ability to communicate, through broadcasts, packet radio and general conversation, gives us an advantage other community groups lack. I can promise that we will be using these media to the maximum extent possible, and urge all amateurs to obtain a copy of the NCPA draft plan so that we can construct reasoned arguments based on fact. VK1WI will keep you informed on further developments in this area.

VK1 Needs Your Log

If you participated in the Remembrance Day contest a few weeks ago, you are urged to send in your RD log **NOW** to ensure it contributes to a VK1 win in Australia's premier contest. Remember that you need to send in your full log for it to be valid. Logs should conform to the rules (July *Amateur Radio*, page 31) and be sent to RD Contest Co-ordinator, A Petkovic VK6APK, 26 Freeman Way, Marmion, WA 6020.

If you have any problems preparing your log and/or summary sheet, do not hesitate to ask for assistance. Remember that the deadline is 15 September, so you've only got a few days to get your entry in.

VK2 Notes

Richard Murnane VK2SKY

Who's Who on Council

The 1995-96 Divisional Council, elected at the July AGM, is now firing on all cylinders. For your reference, your elected Councillors and their portfolios are Michael Corbin VK2YC, President and Broadcast Officer; Peter Jensen VK2AQJ,

Senior Vice President; Ken Westerman VK2AGW, Junior Vice President; Eric Fossey VK2EFY, Secretary; Eric Van De Weyer VK2KUR, Treasurer; Cesar Miranda VK2TCM, Member Services, Affiliated Clubs, Advertising and Publicity; Pieter Kloppenburg VK2CPK, Parramatta Property and Security, Trash & Treasure Sales; Steven Pullan VK2QZ, Broadcast Team Manager; Tony Liolio VK2ZLT, Dural Committee Chairman; Ian Rosser VK2XB, NTAC Committee Chairman.

It's worth reminding everyone that the well-being of the NSW Division depends heavily on many volunteers, to provide support for the amateurs listed above. Whether it's in a technical capacity, repairing equipment, helping run various Divisional events, reading a news bulletin, supervising exams, providing advice, wielding a paintbrush or broom, or stuffing envelopes, there's always something you can do to help make the VK2 Division that little bit better for everyone. You can tailor your involvement to suit yourself. As the saying goes, you get out of the hobby (or Institute) what you put into it.

Crossed Field Antennas

In late July, we were fortunate to receive, at short notice, a lecture from Professor Maurice Hatley GM3HAT, one of the developers of the Crossed Field Antenna. The lecture was well-attended, and was recorded on video by Pat VK2JPA of the Gladesville Amateur Radio Club in Sydney. We'll have further details here when video editing has been completed. In the meantime, copies of the original patents and "Electronics and Wireless World" articles have been circulating around Sydney.

Fine Business, "Old Man"!

Also in July, a new Australian record was set in Sydney. A candidate sitting for the amateur certificate at Amateur Radio House passed the Novice Theory and Morse exams, but just missed out on the Regulations. Because this candidate was so keen to have another go, Pixie Chappie VK2KPC and Eric Fossey VK2EFY arranged another examination at short notice. This time, with a little advice on exam technique from Pixie, the candidate passed the regulations exam without difficulty.

What makes this particular individual stand apart from the crowd was not just his enthusiasm (although no doubt that helped), nor the fact that he breezed through the Morse sending test in one minute 38 seconds, error free (and just three errors on receive). No, what makes this particular candidate special is that he is just eight and a half years old, and he becomes the youngest amateur in the

history of Australian amateur radio! Well done! I'm told that, by way of congratulation, his radio amateur father bought him a new Nintendo game system.

Our youngest ever amateur, who sports the rather fitting callsign VK2LAD, had his first contact with VK2 Divisional President, Michael Corbin VK2YC. Keep an eye out for him, and don't be surprised if you see him on the cover of *Amateur Radio* in the near future.

VK2WI on the Net(s)

Those of you who "surf the Internet" can contact the NSW Division by e-mail. The Division's address is wiansw@sydney.dialix.oz.au. You can send your club news items there, though the usual deadline applies, that is by close of business on the Friday preceding the broadcast. The Divisional packet BBS is being reincarnated as a TCP/IP switch (thanks in no small part to the Trojan efforts of Dave Horsfall VK2KFU/VK2ZTB).

For the past year and a half, Barry White VK2AAB has provided for NSW packeteers the "de facto" Divisional BBS, a service for which many of us owe him our sincere thanks. Early in August, Barry "retired" his BBS; until the Division's own system is fully operational, you can contact the Division on packet at VK2WI @ VK2OPNSW.AUS.OC (thanks to Sysop Nat Cohen VK2OP).

On the subject of Divisional news bulletins, the VK1, VK2, and VK4 Divisions are now exchanging significant amounts of news on packet. One wonders if the other Divisions are interested in coming to the party.

Thought for the month: "The significant problems we face cannot be solved at the same level of thinking we were at when we created them." — Albert Einstein.

VK3 Notes

Murray Lewis VK3EZM

RD Contest: Controversy and Effort

Thanks are due to all who took part in this year's Remembrance Day Contest. But please remember that we need your log and summary sheet to be part of Team Victoria's entry to win again this year.

It was pleasing to hear the considerable increase in HF activity by VK3 stations, which will boost our score. Strong support was also evident on the VHF and UHF bands. Although the new rules for the contest are a handicap, our biggest problem may be the apathy about putting in entries. It is important for every VK3 who made at least ten contacts to submit a log and summary sheet. Do it now, this week, to avoid missing Team Victoria's

campaign to win the contest for a historical sixth time in a row. Check the rules, complete and sign the required declaration.

The contest rules were published in the July edition of *Amateur Radio* magazine on pages 30-31, and a photocopy of them can be obtained on request to the WIA Victoria office. Mark the front of the envelope "Remembrance Day Contest", and mail your completed log, summary sheet and signed declaration to the RD Contest Coordinator, Alek Petkovic VK6APK, 26 Freeman Way, Marmion, WA 6020. Entries must reach the contest coordinator by Friday, September 15.

Young Radio Amateur of the Year

The WIA Victoria Council are pleased to announce establishment of an award to recognise achievement of a young person in amateur radio/electronics during 1995.

All members and affiliated clubs are urged to obtain the necessary application forms, and to nominate a young person, 20 years of age or younger, whom they believe has made some outstanding achievement in amateur radio/electronics during the year. The person nominated does not need to hold an amateur licence, or need to be a WIA member, but must

be resident in Victoria or in the Murray River border region.

Guidelines and details of the award are included on the application form, which is available from the Secretary, WIA Victoria. All applicants will receive a special certificate from WIA Victoria, and the winner will be announced and presented with prizes in February next year. Completed application forms must be submitted by 31 December 1995. The award will be presented each year, and is the first WIA award of this type in Australia.

80 Metre Band DX Window

A letter and questionnaire were recently mailed by WIA Victoria to 296 licensees who use frequencies between 3.750 and 3.900 MHz. The questionnaire was compiled by Peter Forbes VK3QI, and replies will aid preparation of a submission by the WIA to the SMA seeking expansion of the 80 metre DX window.

Encouraging responses have been received from the Department of Defence, Royal Flying Doctor Service, Australian Maritime Safety Authority, and other government users. Many commercial users have also replied promptly. The majority are supportive of the Amateur Radio Service having secondary use of

the frequencies on a non-interference basis. Several objections have been raised by users in the Northern Territory and in Western Australia.

Results of the survey are still being correlated by WIA Victoria, who will provide a final submission on the DX Window for the SMA Liaison Team of the WIA to present to the SMA.

VK3BWI Broadcast

The WIA Victoria Council thank Dave Williams VK3KBA and Chris Piatt VK3KCP, members of EMDRC, who have volunteered to produce six broadcasts a year for VK3BWI. Their commitment is for one broadcast every second month. But at least one other producer is still required to enable a fortnightly broadcast, which is not possible at present.

Thanks to Dave, Chris, and their club, for the offer to gather, edit and produce news and information for these half-hour broadcasts, and so increase the number of our production teams.

New Packet Node

VK3RNU-8 packet node is now fully operational in the VK3 packet network, and is providing a link from Mt Stanley to the VK2RCS wormhole in Albury and the VK2RAY node covering Albury-Wodonga. Installation of the new node has

WIA News

Morse Code and the ITU Regulation

The Federal WIA ITU Conference and Study Group Coordinator, David Wardlaw VK3ADW, reported to the Federal Council at its July Extraordinary Convention that the New Zealand Department of Commerce, the authority which regulates the Amateur Service in New Zealand, proposed to have the October World Radio Conference in Geneva (WRC'95) consider suppression of the ITU regulation RR2735, which requires amateurs to pass a test in sending and receiving Morse code before being licensed to operate on the amateur bands below 30 MHz.

The New Zealand Amateur Radio Transmitters (NZART) does not support the proposal. NZART put a submission to the Department of Commerce that

they not proceed with the proposal, but this was rejected.

The issue will be discussed at a forthcoming meeting of the Spectrum Management Agency's International Regulatory Advisory Committee (IRAC) meeting. The WIA is represented on this committee by David Wardlaw VK3ADW, the Institute's ITU Conference and Study Group Coordinator. David will be attending WRC'95 in Geneva for the Institute.

As this is a sensitive issue, the WIA Federal Council determined at its July meeting to develop an appropriate policy. Federal Councillors at the meeting reported that most WIA divisions did not have a current policy. The International Amateur Radio Union (IARU) policy says that the IARU neither proposes nor supports change to the Morse code requirement.

Meanwhile, comment circulating within the amateur radio community has raised concerns about the Australian Morse code examination syllabus.

These concerns revolve around the contents of the Spectrum Management Agency's 1994 RIB70 brochure which includes procedural signs such as question marks and oblique strokes in the telegraphy examination syllabus.

While these signs are included in RIB70, they have not been used in amateur examinations and the WIA, which sets the telegraphy tests, does not intend to use them. It is suggested that to teach or learn them in preparation for the licence examination is a waste of time.

The SMA has advised that they will be revising RIB70 in due course, in the light of the recent changes to the amateur licensing system and regulations.

considerably speeded up packet radio traffic from VK3RNU to Albury and beyond. VK3RNU-8 is a "hash node" which is only displayed by using the N* command. The node uses a Paccorn Tiny-2 TNC donated by WIA Victoria. The site works were carried out in a joint project by the Northern Repeater Group and the Shepparton and District Amateur Radio Club.

For operational details on the node contact either David Harms VK3XDJ/VK3YDJ, Bruce Riley VK3ZSR, or Peter O'Keefe VK3YF. Thanks are due to this trio, who performed most of the installation work. WIA Victoria was pleased to assist with this necessary packet node, and appreciated the detailed submissions seeking its financial help.

Packet Reporting for Intruder Watch

The IARU Monitoring Service, or Intruder Watch as it is better known, is now accepting reports concerning intruders via packet radio. Observations must include frequency, time, mode and signal strength. A brief remark about the nature or content of the intruder's transmission will also help to identify it.

Gordon VK4KAL, who is the Intruder Watch Coordinator, writes a column in *Amateur Radio* magazine mentioning some intruders, and the successes in having them removed from the exclusive amateur bands. Gordon now welcomes reports via packet, and his packet address is VK4KAL@VK4UN-1.

Further information about Intruder Watch can be obtained by contacting Gordon at his packet address, or by a written request sent to Gordon Loveday VK4KAL, Freepost No 4, Rubyvale, Qld 4702.

VK6 Notes

John R Morgan VK6NT

July General Meeting

Packet radio has been active in VK6 for more than 10 years, so it is easy to assume that most stations can, and do, run this mode. In fact, only about 25% of stations are so equipped. It was, therefore, timely that, at the Institute's July GM, Phil VK6AD presented an introduction to "Amateur Digital Communications" to a well-attended gathering.

Phil's presentation began with an analysis of the digital nature of Morse code, and proceeded to analyse RTTY, AMTOR (both ARQ and FEC), SSTV, and packet radio. The various modulation methods involved were briefly described, and the combination of diagrams on the over-head projector, and appropriate

"sound bites" from a portable cassette-player, was most rewarding.

The VK6 Division meets on the third Tuesday of each month, at the Westrail Centre, East Perth, commencing at 8 pm. The bookshop and QSL bureau open at 7 pm. All interested persons (members and non-members, licensed or listener) are encouraged to attend. Free coffee and biscuits are available at "half time".

Note: Members will be pleased to learn that Mark Bastin SWL has volunteered to fill the vacant post of Secretary, and should you need to contact him, the memorable telephone number is (09) 351-8873.

Special Station VI5ONAVY

The Australian Naval Amateur Radio Society (ANARS) has been commemorating the 50th anniversary of the end of World War II, with a special amateur radio station, callsign VI5ONAVY. From 0001z to 2359z on 20 September 1995, the callsign will be active in Perth. Listen on or around the usual ANARS frequencies of SSB on 3620, 7075, 10125, 14175 and 21175 kHz; CW on 3527, 7020, 10105 and 14052 kHz; and FM on 146.550 MHz.

A special QSL card will be available for contacts with VI5ONAVY, by sending the usual details of your QSO, and a self-addressed stamped envelope, to PO Box 2018, KAMBAH ACT 2902, Australia.

Maintenance Visit to Hoddywell

On Sunday, 23 July 1995, your correspondent accompanied Will VK6UU and Jim VK6CA on their maintenance visit to the West Australian Repeater Group (WARG) site at Hoddywell, which is about 10 km South of Toodyay.

After an identification visit to the farmer who owns the site, access by car was quite easy, if a little rocky! The site is located on the top of a north-south ridge, offers a good view to the west, and a superb one to the east. The mast is approximately 50 m tall, and a small "tin" shed at its base houses all the equipment except the batteries; these live nearby, in an old 'fridge.

Normally, the VK6RHW voice repeater (147.275 MHz) can be linked to the VK6RLM (146.750 MHz) machine in Perth, but the UHF link had failed (at the Hoddywell end) some weeks prior to the visit. The problem was quickly located. Water had entered the link transceiver via the coaxial cable from its antenna. The "white fur" corrosion on the transceiver's PCB was not a pretty sight!

The site is shared with a commercial system, and both are solar-powered. Some months ago, however, the commercial system had been connected

in parallel across the WARG's batteries. The 'fridge seemed to be full of red and black wires, of various cross-sections, joined at random! It took almost three hours, and yet another set of WARG batteries, to sort-out the mess, and separate the systems once more.

Upon leaving the site, all present agreed that a major maintenance visit will be required as soon as the weather improves, to re-work all the WARG's equipment at the site. If you wish to join the WARG, and so help support their network of repeaters, please contact Christine VK6ZLZ, who is the Membership Secretary, on (09) 458-6218, or via PO Box 425, Cannington WA 6107.

Club Secretaries (and Others!)

All material for inclusion in this column must arrive on or before the first day of the month preceding publication. Packet mail may be sent to VK6NT@VK6ZSE.#PER.#WA.AUS.OC, or write to PO Box 169, Kalamunda WA 6076, or telephone (09) 291-8275 any time.

"QRM" — News from the Tasmanian Division

Robin L Harwood VK7RH

The Internet has been in the news here lately and, as I pointed out in last month's column, this Division may be one of the first to have their own Internet address. It is wiatas@tamarcom.com.au.

The address has to be completely in lower case. Already this facility is being tentatively employed for executive traffic but is now being used for inter-Division mail. Now we have complete on-line access, we are getting instant turnaround instead of waiting for mail-polling as was the case previously. Thanks to John VK7AD for his assistance and enthusiasm to promote Internet. Last month's Southern Branch meeting had, I believe, a lecture on the workings of the Internet.

WICEN in Tasmania has been operating their own phone BBS for about 12 months now and has made arrangements with a Hobart BBS for the exchange of bulletins, files and PR traffic. "The Communications Nut BBS" will be online between 10 pm and 8 am on (002) 63 4424. The Sysop is Danny Moss.

The WICEN BBS is operational 24 hours a day on Phone BBS (004) 256 035. The e-mail address is VK7AX@3670/403.fidonet.org or, as it is in the Internet format, vk7ax@f403.n670.z3.fidonet.org. However, the Internet/Fidonet connection is unreliable these days. I am certain that the Northern part of the state will eventually be linked up with their own BBS facility very soon.

Over the winter months, there have been trials on 7 MHz, connected with the Sunday morning VK7WI broadcast. Normally a transmission is sent out from the northern half of the island. However, propagation being somewhat fickle, it is skipping about and missing various regions. To overcome this anomaly, a trial was conducted just 10 kHz down from 7090, carrying a relay of VK7WI and is based in the south. Results so far indicate that it is being heard well in VK3 whilst the northern one is rather flighty. Once the sunspot numbers increase again, I am certain it will become audible within VK7.

Meetings for the month of September are Southern Branch on Wednesday, 6 September at 2000 hrs at the Domain Activity Centre, VK7OTC; Northwestern Branch on Tuesday, 12 September at 1945 hrs at the Penguin High School, Dial Road, Penguin; and Northern Branch on Wednesday, 13 September at 1930 hrs in Room 17, Block "C", Level 3, Alanvale campus of Launceston Institute of TAFE. Note that if there is an alteration to this, you will be advised on the weekly VK7NB net on Wednesday evening on Repeater 147.000.

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WIA News

Changes at ARRL and RSGB

President of the American Radio Relay League since 1992, George S Wilson III W4OYI, resigned on 1 July citing health reasons. He suffered a stroke last February and is in a rehabilitation hospital in Indiana.

The ARRL appointed Rodney J Stafford KB6ZV to succeed George Wilson. A resident of San Jose, California, Stafford has been First Vice President of the ARRL since January 1992, and has performed the duties of League President since Wilson fell ill in February. Stafford is presiding judge of the Municipal Court in Santa Clara County, California. His wife, Patricia, is also an amateur, N6KLI.

The Council of the Radio Society of Great Britain (RSGB) on 8 July elected Peter R Sheppard G4EJP as the Society's President for 1996.

How's DX

Stephen Pall VK2PS*

The ARRL DXCC Award Program was introduced in 1937, halted in December 1940, and restarted in 1947. Since then well over 60,000 awards have been issued to US and foreign amateurs and the number of DXCC countries has grown from 250 countries in 1940 to over 326 in 1995.

The decision to add a new, or delete an existing, DXCC country is made by the 16 members of the DX Advisory Committee (DXAC). These members make their decisions according to the rules of what constitutes a DX country, as detailed in Section 11 of the DX Century Club Rules.

Once the DXAC recommends approval of a new country, the recommendation goes before the DXCC awards committee, and they decide if the recommendation is accepted or not. If there is no recommendation for adding a new country to the list, the petition dies a natural death and the subject matter is removed from the agenda.

The non-approval as a new country of the Scarborough Reef DXpedition caused a very heated debate. It was mainly among US DX circles but there were a few overseas comments directed at the DXAC. Also, Martti J Laine OH2BH/VR2BH/AH3D, in a four page special supplement attached to issue 796 of *The DX Bulletin*, was highly critical of the negative decision by the DXAC. He titled his article "Has the DXCC Program come to the end of the road...by an Act of God?"

Packet radio and Internet DX Mailing lists were overcrowded with a variety of comments by individuals. Claims, counterclaims, retractions, confusion, alleged favouritism, distortion of the truth, alleged political bias, influence and/or consideration, the threat of resignation from committees and membership, "flaming" and "counter-flaming" (I assume that computer-heads know the meaning of these words), were freely flowing on the fibre-optic cables.

How do I know this, having no access to these facilities? A friendly amateur colleague showed me what goes on, on these computer generated communication channels. The situation was very similar to the packet radio war which, not so long ago, was a common day occurrence in some WIA quarters.

However, I did like the comment made by KA2DFO on the Internet: "To err is human, but to really foul things up, one requires a computer".

Libya — 5A1A

By the time you read these lines the

Libyan activity by Ukrainian amateur operators is over. As usual with these rare DX activities, no advance warnings were given and the first filtered news was "scratchy".

It was in the last days of June the rumour spread that Toly UY3UY, Peter UT2UA, UT3UX and UX4UM would start operating from Libya on 2 July. Nothing happened. A fax from the UA group early in July stated that there was an official visit, that they were invited by the Bureau of Communications of Libya, they had a visa for 30 days, they intended to operate for 15 days and would leave on 24 July (which they did).

According to the Ukrainian group, the DXpedition was the result of three years hard work between the respective Ministers and Governments and they expected to receive an official licence to operate upon arrival. The team of four amateurs was accompanied by the Vice President of the International Youth League. However, the issue of the operating licence and the start of the activity was delayed until 13 July. The group was reported as being active on the 10, 15, 17, 20, 30, 40 and 80 metre bands, but they operated mostly in the CW mode.

Apparently they had two transceivers, an R5 vertical and some wire antennas. Signals were weak here in the Pacific and only a handful of VK and ZL amateurs were able to contact them. It was very difficult to overcome the US and Japanese "spectrum curtain".

The DXpedition operated from the new radio club station in Tripoli, and it was expected that they would leave their equipment behind for a possible future activity.

According to rumours again, they were not allowed to have SSB contacts with the USA; however CW contacts were flowing freely between the two countries. Some of the unconfirmed news sources said that they would be training Libyan operators in the club. Others said that they will train the Libyans in the Ukraine. Also it was said that there will be another Libyan amateur activity in September this year.

The QSL route is also unclear at this stage. Originally it was John Parrott W4FRU who was to act as a QSL Manager. However, by 15 July the QSL manager of their CW contacts was nominated as LZ2UA (Vlad Vladov, Box 100, 5600, Troyan, Bulgaria).

Unconfirmed Internet messages alleged that Toly was required to

"renounce" any contact with the USA and he had to arrange for a non-American manager as part of his negotiations to get an operating permission. Later reports said that cards for CW contacts should be sent to LZ2UA, but SSB contacts would be confirmed by OM3JW, Stefan Horecky, Mlynska 2, Stupava, IBV 90031 Slovak Republic. However, on 18 July on a 15 metre QSO, the Libyan operator said that the QSL for the SSB contact was to go via OM3IP. Hopefully, the QSL route will be cleared up in the coming months.

Your columnist, unfortunately, was not successful in contacting the 5A station. If I were you, I would wait with QSLing until the necessary documentation is accepted by the DXCC.

The expeditioners, once the activity is accepted by the DXCC, are looking for donations, as the trip was self-financed with the assistance of bank loans which have to be repaid.

Various other Libyan callsigns were heard during the activity in the vicinity of the frequencies used. 5A0UY, 5A4SB, 5A3UY, and 5A/UT3UY. are suspected pirates.

North Korea — P5

The ARRL DXCC desk announced on 6 July that documentation for the P5/OH2AM activity has been approved. In accordance with a news release dated 16 July, North Korea (Democratic Peoples Republic of Korea) will now be added to the DXCC countries list.

This addition will increase the number of DXCC countries to 327. QSLs for this country will be accepted after 1 October 1995.

According to *The DX Bulletin*, this action will dramatically change the placings on the Honour Roll, unless there is another more extensive operation from North Korea before the next Honour Roll deadline. The 2000 top-of-the-Honour Roll-ers will drop back to the number two position and about 400 will drop off the honour Roll.

Martti Laine OH2BH, however, has stated that the next North Korean operation will take place before the Beijing Convention in October. It will be much smaller than his ZA activity, due to the delicate situation in North Korea.

Huang Yan Dao — Scarborough Reef

ARRL DX Bulletin No 35, dated 30 June 1995, carried an announcement that "*The DXAC (DX Advisory Committee) voted 9 to 7 against recommending the addition of Scarborough Reef to the DXCC countries list. Those who voted against the recommendation cited membership opinion within their respective divisions. Some went on to state an opinion that the rocks that comprise the reef do not constitute islands and for that reason no operation from the reef can be considered as "land based". Those who voted in favour felt that Scarborough Reef meets the criteria that was in effect at the time the petition was received.*"

Several cited membership opinion in their divisions. In membership correspondence in accordance with the entire DXAC, 157 persons (72%) were against adding Scarborough and 61 (28%) were in support of the new country status. DXAC Chairman, Garth Hamilton VE3HO

stated "the minimum size rule" was not applied to this petition. DXAC members made a judgement in accordance with the DX communities they represent".

FM DXing on 10 Metres

Under the new regulations the opportunity is now given to two classes of Australian licensees to enjoy the thrill of DXing on the HF bands. The holders of Intermediate and Limited licences are now permitted to operate with 120 Watts pY on 10 metres FM in the frequency range of 29 to 29.7 MHz. This gives quite a good opportunity to work the world if conditions are right and you have the proper equipment.

Graham VK6RO is a long time devotee of VHF and HF FM DXing. He wrote me a lengthy letter of his experiences as an FM DXer going back 11 years. Let me quote from his letter. "Back in the early 80s I would hear all these "wobbly" signals just above 29 MHz on my SSB/CW only rig. I was intrigued as to what they were, then I realised they were JA stations working locally. On 20 January 1982 I plugged my three hour old Kenwood TS-660 into my two element quad and called CO DX at 1121 UTC on 29.600 MHz. To my great surprise, JE6QJV came back to me and we exchanged 5x9 reports. I was hooked. We all know FM is used on two metres for local work, and here I was talking to Japan on FM, the "local" mode.

The technical aspects of FM on HF make for rather interesting propagation and signal reception. Phase distortion, or the capture effect by receivers, can make signals hard to copy, or stronger signals can completely swamp the wanted signal. If you want to be a true FM DXer you must be able to accept these limiting factors.

Some FM DX signals can give full scale readings on S meters. I have used powers as low as one watt to have contacts with friends in the UK on FM 29 MHz.

FM DXers around the world are a friendly group. Many repeaters exist around the world in the Philippines, USA, JA, VK and various European countries. Some repeaters are linked to local two metre inputs. It seems unusual to work an amateur. In his house watching TV. in Hungary using a two metre handheld.

Being a serious FM DXer involves many hours of waiting for openings and looking for new countries. My total of DXCC countries worked on 10 metres FM now stands at 132.

Most FM DXers follow some rules concerning FM HF DXing and the most important is to QSY from 29.600 MHz immediately upon establishing contact.

The international frequency for calling DX is 29.600 MHz and local ragchews should not be carried out there. You might



Frank DL7FT, the well known DXer because of his past prefixes such as D68, 879, HU1, 8R8, J87, C56 and 6W6.

not think the band is open, but it could be, and your local ragchew could prevent DX contacts. Please keep an ear out for me on 29.600 FM mode. I usually QSY to 29.510 MHz and I hope to meet you on the band."

So ends the story of Graham VK6RO, a keen DXer on 10 metre FM. What about you? Now is the time to make preparations for the expected improvements on the 10 metre band once we start the new solar cycle sometime in 1996.

Australian Amateurs ARRL DXCC

Looking through the pages of the July issue of the ARRL magazine *QST*, it is interesting to look at the DXCC Honour Roll listings for 1995.

This year it takes five pages to list the more than 3,800 individuals making up the record of 6,004 Honour Roll listings. Based on the 7,800 plus individuals who made up the 1994 annual list it appears that 49% of all active DXers are now on the Honour Roll.

Further research shows that 1,375 individuals made up the 2,004 listings of the "Top of the Honour Roll" for the various modes. This would indicate that 360 of those on the Honour Roll have worked all the DXCC countries.

To be on the Honour Roll you must have at least 317 countries confirmed from the present total of 326. In other words, you must have a total confirmed country count that places you among the numerical top ten DXCC countries of the current DXCC countries list. To be on the Top of the Honour Roll means that you have worked all the DXCC countries.

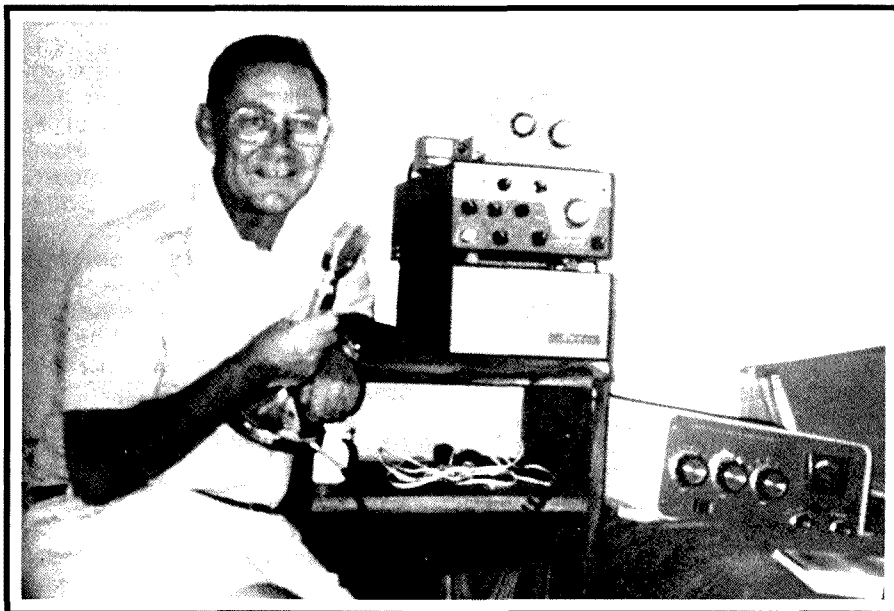
Below is a roll call of Australian amateurs listed in July 1995 *QST* for the ARRL DXCC Honour Roll list in the Mixed, Phone and CW modes.

Mixed Top of the Honour Roll (326) VK3DYL, VK5WO, VK6HD, VK9NL, VK9NS. **Honour Roll (325)** VK1DH, VK5QW. (324) VK2FH. (318) VK3AKK. A total of nine.

Phone Top of the Honour Roll (326) VK3DYL, VK5MS, VK5WO, VK6HD, VK6LK, VK9NL, VK9NS. **Honour Roll (325)** VK4LC, VK5QW, VK6RU. (324) VK1ZL. (323) VK3SX. (322) VK1DH. A total of thirteen.

CW Top of the Honour Roll (326) VK9NL, VK9NS. A total of two.

The ARRL DXCC Year Book of 1994 lists all the amateurs who reached DXCC status (confirmed at least 100 DXCC countries as at 30th September 1994). The number of Australian amateurs listed in the various sections is Mixed 12, Phone 19, CW 5, RTTY 1. 160 metres 1, 80 m 1, 40 m 1, 10 m 1, 6 m 1. A total of 24 VK stations for 43 listings.



Brian 9J2BO who can be found on the ANZA net almost every week.

Future DX Activity

- F5XL will be active from Corsica for two to three weeks in September, including many of the islands surrounding Corsica.
- The proposed Kermadec activity of ZL amateurs, according to rumours originating from New Zealand, has been postponed to May 1996.
- Sergio PUOTRI is active on Trindade Island but can operate only SSB on 80 and 10 metres. QSL to PU1LOK.
- At present there are three Russian stations active on Franz Josef Land, RX1OX/FJL, R1FJC and R1FJZ.
- Nicolai 3W5FM has been heard from Vietnam on 14195 kHz around 1330 and 1930 UTC.
- It is rumoured that Barry, of Kermadec fame, ZS1FJ/G4MFW, is planning some activity from C30 Andorra.
- Adam A92MM is very active from Bahrain on 20, 17 and 12 metres SSB/CW. QSL to Box 116, Manama, Bahrain, Persian Gulf.
- Karl YS1ZV is active on 10 to 40 metres, including WARC bands. QSL to KB1PQ.
- Larry operates from Mali as TZ6VV on 20 and 10 metres. QSL via AA0GL, or Larry's direct address, Larry Erwin BP2786, Bamako, Mali, Africa.
- Andy VP8CQS is active on 40 metres CW on 7004 kHz around 2100 UTC. QSL via DL1EHH
- Easter Island (as previously announced) will be active from 2-23 Sept on all bands with the callsign XR0Y, and the Sala y Gomez activity will be under the callsign of XR0Z. QSL for both operations to WA3HUP.

Interesting QSOs and QSL Information

- OA4COZ — George — 3798 kHz — SSB — 0732 — June (E). QSL Bureau.
- 6Y5KF — Ken — 7020 kHz — CW — 0800 — June (E). QSL Bureau.
- YJ0ALS — Koji — 14024 kHz — CW — 0615 — June (E). QSL to Koji Endo, 66-2, Kusonoki, Naka, Kakamigahara, Gifu, 504 Japan.
- XE2Z — Gaby — 7047 kHz — SSB — 0724 June (E). QSL to Gabriel Valdez, PO Box 65, Tijuana, Baja California, Mexico.
- H44FB — Fred — 14200 kHz — SSB — 0740 — June (E). QSL to PO Box 986, Honiara, Solomon Islands, South Pacific.
- C21JJ — John — 14164 kHz — SSB — 0518 — July (E). QSL to John, PO Box 518, Republic of Nauru, Central Pacific.
- OH0XX/DU1 — Olli — 7002 kHz — CW — 1148 — July (E). QSL to Olli Rissanen, PO Box 373, Ayala-Alabang Village, 1799 Muntinlupa, Metro Manila, Philippines.
- HG100R — 14223 kHz — SSB — 0059 — July (E). QSL to HA1KSA, Radio Club Gyor, Box 79, H-9002, Gyor, Hungary.
- YT50AT — Zika — 14195 kHz — SSB — 0444 — July (E). QSL to YU1SZ, Zivota Stanojevic, Box 21, 37210 — Cicevac, Yugoslavia.
- YW5LO — 7002 kHz — CW — 1055 — July (E). QSL to WS4E, Scott M Cronin, 1909 N 41st Ave, Hollywood Hills, FL-33021, USA.
- OK1EE/OD — 14018 kHz — CW — 0430 — July (E). QSL to OK1FMR,

Martin Picek, Vancurova 158, CS-56301, Lanskroun, Czech Republic.

- BV9G — 14023 kHz — CW — 2308 July (E). QSL to BV8BC, Sky Chen Box 222, Taitung, Taiwan, Republic of China.

From Here There and Everywhere

- One has to be lucky sometimes. King Hussein JY1 was active on 22 and 23 June at 2200/2300 UTC on 14240 kHz, working the USA via a list operation by WA3HUP his QSL Manager.
- 7W5J was activated by Moctar 7X5JF to celebrate Algerian Independence Day on 5 July.
- 8S3BG marks the 50th anniversary of the Swedish Sundsvalls Radio-amateur Club. QSL via the SM QSL Bureau.
- The 5th World Lithuanian Sports Games were held in July and August. Some Lithuanian amateurs used the prefix LY95 during that period.
- ZS42SQN special call is active from 16 Sept to 8 October celebrating the 50th anniversary of the 42nd Swarkop Airbase in South Africa.
- Scott VE7QT was active for about three weeks (end of July to mid August) from Pitcairn Island as VR6QT. Scott is a highschool chemistry teacher and his ambition was to visit this remote Pacific island so rich in history. If you worked him, send your direct QSL card with return postage to Box 1622, Grand Forrks, BC, V0H-1H0, Canada.
- Message to the holders of the special call signs VI2CQ, VI75CUB, and VI2JC. Please send me a SASE for forwarding QSL cards to you, which were sent to me by mistake. My address is at the end of this column.
- About 140 Spanish stations are now authorized to be active on 6 metres in the frequency range of 50.000 to 50.200 MHz only on SSB and CW with the prefix EH.
- Doug N3ADL and his friends will be active on 28 and 29 October from Antigua using the call V26B. QSL to WT3Q.
- David T30DW will be in Kiribati for the next two years. QSL to PO Box 29, Bairiki, Tarawa, Republic of Kiribati, Central Pacific.
- If you worked Oli YO/DL9ABF/p on the weekend of 29-30 July, he was operating from the Castle of Dracula in Transylvania.
- FW0DX, asking that cards to be sent to F6FNU, is a suspected pirate.
- ET3AA can be heard around 0200 UTC on 14,224 kHz. QSL via PO Box 60258, Addis Ababa, Ethiopia. ET3YU can be

heard on CW on the low end of 20 metres. QSL to YU1FW.

- AP2JZB can be heard often on 15, 17 and 20 metres SSB. QSL contact point is K2EWB.
- Gene VE7GAS/VP9 will be active from Bermuda for the next two years, mainly on 20 metres SSB. QSL to Gene Graham, Unit 26, Waters Edge, St Georges, GE05, Bermuda.
- Jose TI9JJP will be on Cocos Island (Pacific) from 4 to 20 October. QSL to Jose Pastora, PO Box 330, 1000 San Jose, Costa Rica.
- Just as I was closing this column, Alan VK2FH phoned me to say that the Aves Island card, YW0RCW, had arrived in the mail. This is good news for many of us who are still hoping to get a QSL card for a contact made more than a year ago. Incidentally, the local newspaper ran quite a lengthy

article on VK2FH's amateur radio activity which was followed by an interview on the air by the local FM community radio station.

QSLs Received

TY1IJ (6 w — DK8ZD); A71CW (2 m — op); 9K2MU (6 w — WA4JTK); 5R8ED (4 w — LA1SEA); 9X5EE (5 w — PA3DLM); YW0RCW (12 m — YV5AJ).

Thankyou

This column was made possible with the help of VK2CJH, VK2FH, VK2KFU, VK2TJF, VK5WO, VK6RO and the following publications, *QRZ DX*, *The DX Bulletin*, *The DX News Sheet*, *Indexa News Bulletin* and DX Enterprises, publishers of the *GOLIST* QSL Managers list.

73 and Good DX.

*PO Box 93, Dural NSW 2158
ar

International Amateur Radio Union Monitoring Service (IARUMS) — Intruder Watch

Gordon Loveday VK4KAL*

What is IARUMS?

The International Amateur Radio Union Monitoring System (IARUMS) is set up to record, report, and encourage the removal of non-amateur stations from amateur band allocations. Stations targeted are usually broadcast or commercial stations from other countries. Priority is not given to local "pirates". Each country appoints a Co-ordinator, who is responsible for collating reports and forwarding them to the appropriate regulatory authorities (the Spectrum Management Agency in Australia).

Each WIA Division, apart from VK3, has a Divisional Co-ordinator to collect reports from that Division and forward them to the Federal Intruder Watch Co-ordinator. But the main strength of the service is in the individual amateurs who spend time regularly listening on the bands and identifying types of signals and stations.

More Intruder Watch listeners are always required. Volunteers who contact either their Divisional Co-ordinators or me direct will be supplied with information, log sheets and tapes to assist in identifying modes.

Observations Required

information is required urgently from observations of the following frequencies:
14.122 MHz — two letter callsign — A1A

14.258 MHz — hand sent CW — (A1A) random groups

14.292 MHz — SITOP — any information at all — text or whatever!

7038.6 kHz — hand sent CW — (A1A) random groups.

Please report your observations to me either by Freepost, or via my packet address below.

*Federal Intruder Watch Co-ordinator, Freepost No 4
Rubyvale QLD 4702 or VK4KAL@VK4UN-1
ar

Update

Cover of August Amateur Radio

I hope that owners of IC-225 transceivers were not too disappointed when, after noting that the cover suggested the magazine contained an article "ICOM IC-225 Revisited", they discovered the article was about the ICOM IC-22S.

My apologies for the very prominent "typo"!

It might be a good idea to correct the cover note on your copy of the August 1995 issue of *Amateur Radio* now.

Bill Roper VK3BR
Production Editor
ar

Packet World

Grant Willis VK5ZWI*

Introduction

This month I thought I would provide an insight into what makes up a packet BBS station. In particular, I will look at the VK5TTY system in Adelaide and show how it all fits together.

The packet glossary that was mentioned in July is still in production, so I am hoping to place it in a later edition of *Packet World*. To assist in this project, I would be happy to receive, via packet radio, words or terms that packet users would like explained that would be worth including in such a glossary. Please send these in a personal message to GLOSS@VK5TTY.#ADL.#SA.AUS.OC.

Insides of a BBS station

One of the first packet radio services many people come into contact with is a "Bulletin Board Station" (BBS). These stations are responsible for handling the personal mail and bulletins carried by the packet network, as well as providing many of the specialised services available. Often, users may not be aware of what goes into a BBS installation, in particular a remotely operated one. To give you some idea of what a BBS station might consist of, let's take a look at one of the typical BBS stations in Adelaide, VK5TTY, operated by the South Coast Amateur Radio Club.

The History of VK5TTY

VK5TTY has been operating for about six years in various forms. Initially it was the RTTY BBS serving Adelaide, back in the days before packet became popular, with the packet access as a sideline. VK5TTY was used as the development platform for the RTTYGate BBS software written by Andrew VK5EX and myself. Access to the RTTY BBS was via the VK5RSV repeater on 146.675 MHz, with packet operating on 147.575 MHz. Later, as packet radio's popularity grew, VK5TTY moved to 144.900 MHz and a 439.050 MHz UHF radio was added, enabling linking with the VK5WI BBS. Packet Mail forwarding via the dedicated UHF link began in Adelaide during 1990.

Initially, the computer used at VK5TTY was an Amstrad-1512 PC-XT with a 10 Mb hard disk and 640 kbytes of memory driven by an NEC V30 processor. At the time the machine was purchased, it cost close to \$1000 (circa 1988). The RTTY modems were based partially on the designs featured in ETI magazine several years before, and the packet TNC in use was a Shepparton TNC-220+. The early

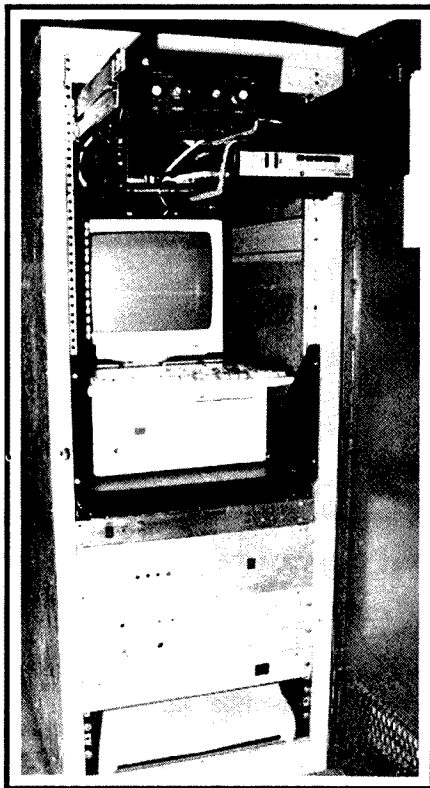


Photo 1 — The VK5TTY BBS equipment rack (see text).

antennas were three five-eighth wave verticals on 2 m, supported on short poles.

In 1992, moves were finally made to upgrade the computer and most of the other hardware in the system.

Present Hardware

Today, VK5TTY supports operations on 1200 baud packet (144.900) and 45-110 Baud RTTY (147.525 MHz simplex). It has a UHF link to the Adelaide BBS Network on 434.050 MHz (4800 Baud horizontal polarisation) and a planned UHF 4800 baud user port for 439.075 MHz. The system is located on O'Halloran Hill which divides Adelaide's southern suburbs from the Adelaide Plains.

The VK5RSV RTTY repeater has also been rebuilt and became a multi-mode system in 1993. It was also relocated to Willunga Hill about 25 km south of its original site.

VK5TTY's antennas are now carried on a 12 m guyed mast. The main transmit antenna consists of a "Dual Band J-Pole" located at the top of the mast which carries 144.900 and 439.075 MHz packet. A second Dual Band J-Pole installed at approximately 2.5 m provides the 147.525

MHz RTTY service and a spare UHF antenna. The 434.050 MHz UHF link uses a 10 element horizontal Yagi.

The current computer system is based on a 80386 DX 40 MHz PC with four megabytes of memory. The hard disk can now hold up to 120 megabytes and the TNCs used are DRSI PC*PA 8530 based HDLC cards allowing a total of four packet transceivers to be connected to the system.

The equipment rack (shown in photos 1 and 2) also houses a number of pieces of ancillary equipment. Photo 1 shows the front of the rack where, from the bottom up, there is a fan box (cooling and dust control), AC power distribution box (also includes a mains line filter), and 2 x 10 A 13.8 V DC power supplies (in the next box). Above the power supplies is a box containing the RTTY modems, transmitter watchdog timers and a remote command reset controller.

The box immediately below the computer houses the 4800 baud packet modems (with capacity for three high speed modems). Above the computer is a roll out radio rack where the transceivers are mounted. On VHF, Philips FM828As are used, while on UHF, Philips FM747s are presently used.

Photo 2 shows the rear of the rack including the two VHF cavity filters (which

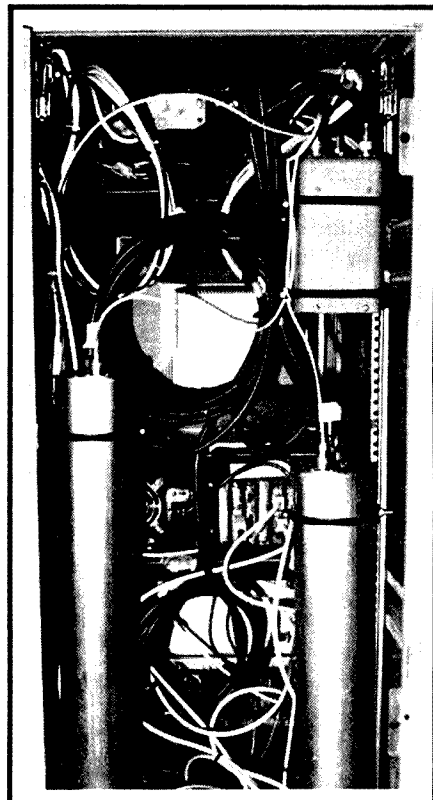


Photo 2 — The rear of the VK5TTY BBS equipment rack, clearly showing the cavity filters.

allow 144.900 and 147.525 MHz to operate together at the one site without receiver overload), and a UHF cavity which is used on 434.050 MHz to help separate it from 439.075 and the local ATV repeaters. A second UHF cavity will be added when the extra radio is installed.

Present Software Facilities

The present software facilities are quite extensive. There is a full service FBB BBS system providing access to electronic mail, bulletins and file transfer facilities. This program also provides access to satellite tracking servers, usage statistics and various other servers that are being developed. Many people on the packet radio network will at some stage have already come across the FBB program, as it is in very wide use across the network around the world.

The RTTY Gateway BBS software is still operational, allowing RTTY users to send and receive packet mail. The RTTY BBS

is accessible at its default speed of 50 baud and can then be commanded to switch to one of a number of speeds between 45 and 110 baud. The other major software services provided on VK5TTY include TCP/IP and NET/ROM networking.

NET/ROM services are provided by the G8BPQ NET/ROM switch software, which also doubles as the software driver for the DRSI PC*PA TNCs used by the system. The TCP/IP capabilities are provided through the NOS package, which is multi tasked on the same computer as the FBB program. The particular version of NOS used is known as JNOS version 1.10bX written by WG7J (with local enhancements added by VK5XXX). TCP/IP services available include the "Converse" conferencing network, POP3 electronic mail delivery, SMTP mail delivery, Telnet login access, FTP file transfers and IP routing between all available radio ports.

All the software is managed using a combination of DOS 5.00, DESQview multi tasking and QEMM memory management. Figure 1 shows a block diagram of the layout of the software sub-system as well as the hardware.

Conclusion

VK5TTY BBS is only one example of a BBS station. Each system will be configured differently, and provide various combinations of services. The basic requirements, eg power supplies, computer, TNCs, antennas and radios, remain the same, however.

Hopefully this has given an appreciation of what goes on. If you are thinking of building your own BBS, you must keep in mind the responsibilities that go with that and, if you are in an area already well serviced by BBS stations, consider whether the extra service is really required. Most of all, if you are going to start up a new BBS, discuss it with your neighbouring SysOps. They are likely to know many tricks and tips that will assist you.

The Changing Face of the Amateur Packet Radio Network

To finish off this month's column, I want to make mention of some activity that has appeared on the packet network increasingly in 1995. There are some new trends that appear to be creeping into the network with regards to the types of material that people are posting.

Specifically, there is an increasing instance of personal attacks being made on people across the packet network. Recent examples have been particularly noticed as they were distributed to VKNET (which covers all of Australia, New Zealand, New Caledonia and the Solomon Islands). Such attacks are surely NOT in the spirit of amateur radio. What's more, they put the operators of BBS stations throughout the region in a very awkward position with regards to carrying such traffic, particularly when the traffic falls into grey areas within the Amateur Service Regulations. It is very easy for people to sit behind a keyboard and write things these days for general consumption. Just remember, folks, that there are also real people at the other end of the connection, and that you should treat them as such on air.

Traffic volume generated by individuals is another growing concern. This is particularly a problem for regions that are only served by HF forwarding services. Some stations are generating vast quantities of material in short spaces of time. The result has been effectively to monopolise the limited HF bandwidths available to some regions. Tasmania,

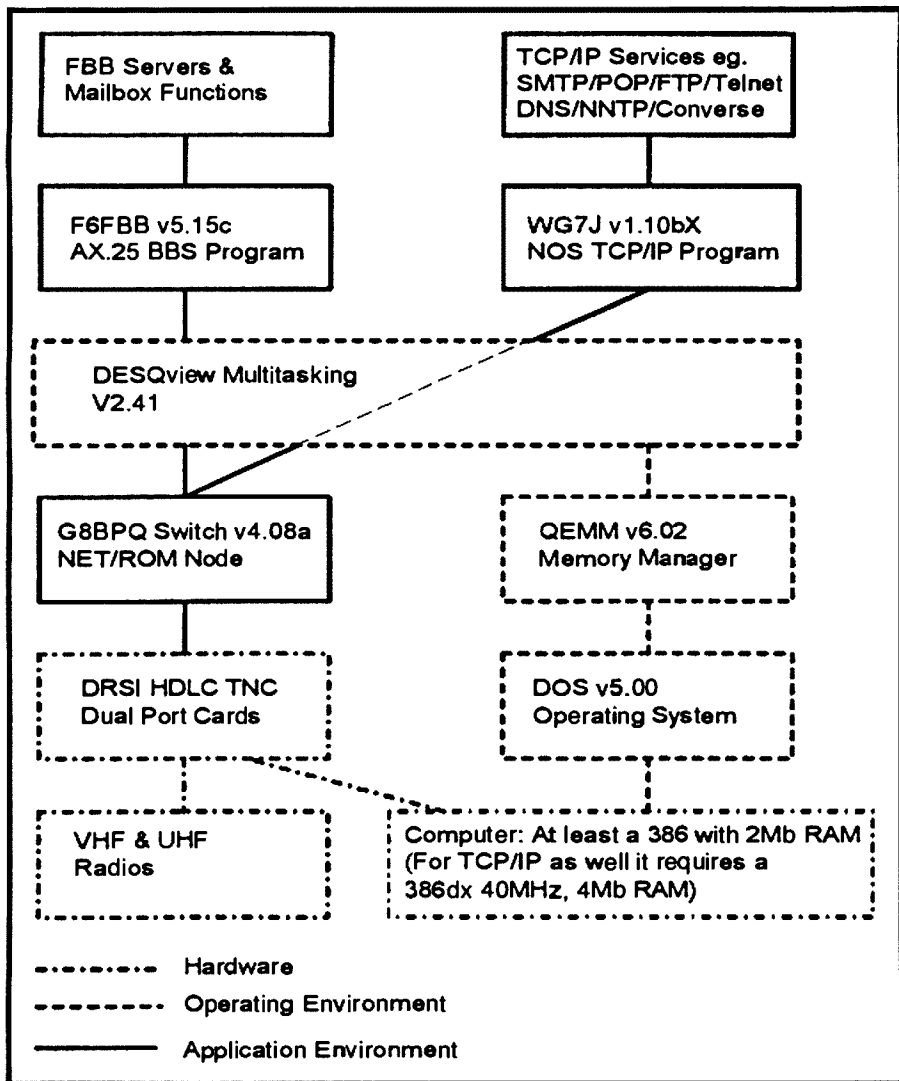


Figure 1 — Block diagram of the layout of the VK5TTY BBS software sub-system and hardware.

South Australia, Northern Territory and, to a lesser extent Western Australia and parts of Queensland, all rely on HF services. Please be considerate.

If you do have a large series of articles, or large single messages, that you feel all of VKNET would be interested in, please consider the following guidelines:

1. Only send a maximum of 15 kb total bulletin traffic a day;
2. Keep each individual part of a series to less than 3 kb;
3. Make sure the article's scope fits within the broad definitions of the Amateur Radio Service in Australia; and
4. Don't post long series to WW — it is rare that all parts of a long series will achieve full distribution. (Also remember that WW traffic is not always accepted by some BBS stations).

A more equitable share of limited resources will be possible for everyone if these simple guidelines are observed. Please respect the fact that HF networks exist, and will be with us for some time to come. If you really do want to send large quantities of material regularly, keep its distribution within an area totally served by VHF networks (eg @VK2).

Finally, a reminder to all packet

operators appears to be warranted regarding FOR SALE, DISPOSAL ETC ETC style bulletins and personal mail. Such items are ILLEGAL on the Australian Packet Radio Network. Do not post such bulletins or send personal messages relating to such activities. Such traffic may be permitted in other countries but not here. There is a clause in the regulations that directly prohibits this traffic.

These trends, if not reversed, are potentially detrimental to the packet network in Australia. The abuse the packet network has received in recent times has only harmed its image. All packet radio operators should remember the wording of the Amateur Regulations and consider the nature of the packet network before posting bulletins and personal mail. Operators should also remember that there wouldn't be a packet network if it was not for those who set up and operate the BBS and repeater networks. Please be considerate when using the network.

*C/o GPO Box 1234, Adelaide SA 5001
Packet: VK5ZWI @ VK5TTY.#ADL.#SA.AUS.OC
Internet: gwillis@eleceng.adelaide.edu.au
ar

Or up at Doodlekine.
Chasin poddies rnd t yd
Shd b ur chf pastime.
T tnk u cndt wrk tt out
It nrly mks me sik.
Ani ole gin or rousabt
Cd write it wi a stik.

Fanci a man wo calls hmslf
A tgst askg tt!
A record O S vacuum
Is located neath ur hat.
D'u want it in oils bi Lambert?
Or carved on a marbl stone?
Ole "Winja" Mortill cd tke it
& ud nvr hr a moan;
Not spelt out li lve dun fr u
Bt cut dwn t te bone.

"We l mst sa te bst dspla
Of ignrce lve hrd,
O all te sqrts in W A
Ur crtnli te "bird"
& ani hrsh remks lve mist
Ty all cn b inferd
"CRTB" — its knwn bi rote,
Wt wd u ha me snd?
Its cmg rnd te bnd — u goat,
Coming round the bend!"

The following poems are from the 1900's era.

That Station

Of all the stations I have worked,
This station is the best.
A "Haunt" for all the lazy boys
And those who need a rest.

Hard at work at six o'clock,
Off come coats and vests,
You carry in a pile of wood
To smoke away the pests.

These pests are mainly different bugs,
(The skeeters are the worst),
And on the war-path all the time
For naught but blood they thirst.

With head phones on at seven bells
You shoot some N-I-Ls.
The spiders get so thick just then
You pray for shrapnel shells.

At eight o'clock the "Larm is set,
To wake you up for lunch;
You dim the glim and pull the shades —
And roll up in a bunch.

At one o'clock you Q-R-U,
And set the clock for four;
To get that M-S-G report,
The P & O waits for.

At four o'clock your work is done,
You've got that M-S-G;
So nap till six, then doctor up
That log, artistically.

The above poem was written by D Plectiff Inslater, published in *Wireless Age* in November 1915, and re-published in *Morsum Magnificat* in October 1994 (*I think R Kover also had something to do with it!* Ed.)

Pounding Brass

Stephen P Smith VK2SPS*

As promised, a number of book reviews will appear in coming issues. However, in this issue I will introduce you to a number of selected poems I have accumulated over the years. Some of you should be familiar with these, others not so. (*Some have been published in Amateur Radio before; the first one on several occasions. Ed*)

The first poem I believe to be an Australian classic, "Coming Round The Bend", probably better known as "CRTB". It was written by Frank Spruhan, known by his contemporaries affectionately as "SPRU". Spru was one of those telegraph legends one hears about while pounding brass. In the 1960s a collection of his works was published. Spru put many of his thoughts about the Telegraph service into verse, and CRTB is one such poem.

Spru, who became a silent key in 1965, rested in the Jiliby cemetery in an unmarked grave until November 1988, when the Sydney based Morescodian fraternity decided Spru deserved something better. They arranged to place an inscribed headstone on his grave, something of which Spru would have been very proud.

Coming Round the Bend

I well remember Charlie Teede,
Who used to work the races;
No need, indeed, to ask for speed,
He'd pace it with the pacers.
Lord help the man who broke him once
Or questioned his "creations";
On him a flood of scorn was turned,
The atmosphere with brimstone burned
And Pitman, green with envy, squirmed
At his abbreviations.

"Te field got wl awa to ti
& as ty settld dwn
Te Shicer 1st t bk te li
Ws flwd bi Jo Brown.
In close proxim ws Tired Tim,
Tn cme Arbatn,
Bhnd te bunch ws Cntr Lunch,
Gd luck and Hi Taxatn.
Ty whizzed alng (and so did Charles)
Without te least cessatn.

Crtb te topwt jumped
& got on trms ws Shicr,
Wo tn & tre hs bundl dumped
Wh labld him a twicer,"
I scrambled after Charlie
Like a trailer round a bend,
Then gave OK — but queried
"CRTB" u send.
Now what is that in aid of?
Enlarge a bit my friend."

The sounder nearly hit the roof
As Charlie scorched the line.
"U ort t b on te rabtproof

Ode to a Wireless Operator

When the air is fine and balmy
And the ether's free and clear
And the sigs come in like thunder
With a biff that jars the ear,

Then the PBO* is happy
And he wears a sunny smile
And doesn't curse the traffic
That keeps coming all the while,

But when the X's come on steady
With a sizzly frizzly roar
And the sigs die down to nothing,
Then the common Op gets sore

And the language that he uses
Melts the contacts off his key
Burns the "Bradfield" to a cinder
Leaves the aerial hanging free,

And the Old Recording Angel
Wears a stern and saddened look
As he logs the bad Op's language
In the big Recording Book.

* (PBO = Poor Bloody Operator)

The above poem was written by Harry Pearson of Sable Island in 1905 and was re-published in *Morsum Magnificat* in 1992.

Infatuation

O mystic fascination,
O fate idealised,
I'm but a mass of molecules,
Reversely polarised.

I'm vanquished by sorcery
No amulet can cure,
For love, you are the magnet,
And I the armature.

The more I circle round you,
Love's current stronger grows,
Till leaping forth from heart to heart,
Love's arc electric glows.

Against the ardour of that flame,
Insurance won't insure,
For, Love, you are the magnet,
And I the armature.

The messages un-numbered,
Of fond endearment fly,
At once, in all directions,
The wireless they outvie.

A throbbing heart is at the key,
Its dot and dashes sure,
For, Love, you are the magnet,
And I the armature.

I dwell within your field of force,
In that blest region where,
Your strength is to the distance,
Inversely as the square.

No influence external,
Can me from you allure,
For, Love, you are the magnet
And I the armature.

At last we'll cling together,
Apart no more to roam,
With hearts attuned harmonic,
We'll sing of ohm, sweet ohm.

One circuit never broken,
While life and love endure,
Forever you the magnet,
And I the armature.

This poem was written by Park Benjamin, was published in *Wireless Age* in 1915, and appeared in the April 1994 issue of *Morsum Magnificat*.

And finally a short one from the "Air Signallers" of World War Two, credited to John Hall G3KVA, and which appeared in the August 1994 issue of *RadComm*.

The Air Signallers Prayer

In days of old,
When W/Ops were bold,
And sidebands not invented,
The word would pass
By sounding brass,
And all were well contented,
Amen.

I hope you enjoyed the poems as much as I did.

*PO Box 361, Mona Vale NSW 2103
ar

Over to You — Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Loss of Hudson A16-198

I am assisting in research into the loss of the above aircraft near Byron Bay on 6 July 1942. I would like to hear from W/T operators or radio trades of the day as to whether Hudsons were fitted with radio compass equipment, and whether an MF beacon was operational in July 1942 at Archerfield, Amberley or Evans Head.

Of course, any information or reminiscences from 32 Squadron members of the time, who might have information about the flight, would be greatly appreciated.

Ron Burr VK4BUR
16 Don Street
Lowood QLD 4311

Ex-RAAF, Maryborough, Queensland

A reunion is proposed for all airmen and airwomen who served at the RAAF Station, Maryborough from 1941 to 1946. They will be from all the musterings which went to operate the Training Schools for Wireless Air Gunners, Radar Mechanics and Recruits. It will be centred around the

weekend of 20 and 21 July 1996 and will include a welcome, an evening dinner, an airport revisit and other functions, but the emphasis will be on providing as many opportunities as possible to catch up on friends and places.

If you might attend, register now. If you can't attend but would have liked to, still register now. Tell us your name, address and phone number, your rank and number, course number or position and any stories you would like to share.

We intend to offer all who register a booklet describing the station, the town, its pubs, dance halls, picture theatres and skating rink at a nominal price.

Register with John Ryan, ex RM, 103 Russell St, Maryborough QLD 4650, tel 071 213 342; Kevin Grimshaw, ex WAG, 78 Dale St, Maryborough QLD 4650, tel 071 221 441; or fax RAAF Reunion on 071 231 884.

Many thanks and best wishes to the amateur fraternity, amongst whom I have many friends.

John Ryan
ar

Spotlight on SWLing

Robin L Harwood VK7RH*

It was recently revealed that the UK Government decided to slash funding of the BBC World Service. The Whitehall bureaucrats have been able to direct funding and nominate what language services are broadcast, but do not have any control over programming. It is too early to determine what technical and programming alterations will occur, but they are going to cause a serious rethink in the board rooms of the BBC external services.

One service, which has largely been responsible for the funding blow-out, is probably the BBC World Television

Service. This has been operational for about three years now and has expanded, despite losing its relay over the Hong Kong-based "Star" satellite system. Apparently the Chinese took exception to several BBC stories and the worried commercial entrepreneurs didn't want to lose the lucrative Chinese market and ditched the "Beeb" TV. I believe that they have since relocated to a satellite over the Mid-East on "Arabsat".

In April, the single BBC World Service program in English was broken up into six or seven different streams, eg the Americas, Europe, Asia and Africa. It is

now common to hear alternative WS programming, which has made it easier to identify the various relay sites throughout the World. Australia seems to be on the Asian stream, judging by the medium wave relays of the BBC, yet I do find the European and American streams are more easily heard in the afternoon and early evenings.

Recently, ground-breaking ceremonies were held in Thailand for a new BBC relay site to service northern and eastern Asia. It will be jointly operated by the BBC and Radio Thailand. The present Hong Kong site will be unavailable after 30 June 1997, when the Crown Colony reverts to China. The Beijing authorities made it known some time ago that they were not going to allow the BBC World Service to continue operations from there.

I often tune in to Kol Israel in Jerusalem on 9435 kHz at 0400z, to hear the daily English news bulletin. I find that here is a more in-depth coverage of what is happening in that region. However, over the past months, I haven't been able to hear it because there is a Farsi program to Iran on the same channel.

Where is it coming from? Would you

believe it is in Washington DC and from the "Voice of America". Possibly it is from the Kavala site in Greece or from the CIS, yet it demonstrates bad frequency planning and lack of co-ordination. Anyhow, Israel reverts to Standard Time at the beginning of this month and the 15 minute English bulletin will be at 0500 UTC. Farsi will stay at 0400 as Iran doesn't advance its clocks for summer.

Recently I was entertaining a friend from Connecticut USA, whom I met through the "Letterbox" program on the "World Service of the Christian Science Monitor". We both were featured in a Christmas Day special a couple of years back and kept in touch via e-mail. Since then the station has shortened its name to "Monitor Radio International" and the "Letterbox" program has been whittled back to a three minute spot at the conclusion of its hour long transmission.

The only shortwave "Letterbox" type program is "Saludos Amigos" on evangelical broadcaster Radio HCJB in Quito, Ecuador. It is on Sundays at around 1010 UTC. If you are wondering where the Pacific service of Radio HCJB has gone, it is now on 5900 kHz between 0700 and

1100 UTC. They had to move from 6135 as there is another South American regional station that was being drowned out by the 500 kW sender. 5900 kHz does not seem to be as loud as it was on 6135 kHz.

Notice that most of those Volmet stations on HF are now automated. The Sydney operation on 6676 and 11387 kHz at the zero and 30 minute marks uses a synthesised male voice, which is identical to that used by the US Coastguard for their HF Marine weather broadcasts on 8743 and 8764 kHz. The NZ Volmet on 6679 and 8828 kHz uses a synthesised female voice with a Kiwi accent.

In conclusion, I would like to thank David VK4PUP for sending an e-mail to inform me that the OZ__SW echo is still functioning. The problem seems to be local and I'm sure that it will be restored by now. Don't forget, if you have any news, you can reach me at the addresses given below.

*52 Connaught Crescent, West Launceston TAS 7250
VK7RH@VK7BBS.LTN.TAS.AUS.OZ
Internet: robroy@tamarcom.com.au
Fidonet : Robin.Harwood 3:670/301@fidonet.org
ar

QSLs from the WIA Collection

Ken Matchett VK3TL' Honorary Curator WIA QSL Collection

3Z50PW

This QSL, 3Z fifty PW, was one of several that celebrated the 63 days of the Warsaw uprising fifty years ago. The dates were from 1 August 1944 to 2 October 1944, the prefix 3Z50 being used for this special occasion. The suffix PW is also of significance, the letters PW standing for Powstania Warszawskiego, or Warsaw Uprising.

This is said to have been the largest underground uprising against the

Germans, an estimated 100,000 Poles having perished in the savage reprisals. QSL donated by Jan SP5NE, through courtesy of Tad VK3UX.

VI5EXP

This special event station celebrated the Innovations and Inventions Exposition held in Peterborough, SA during April 1994. The station was operated by Paul VK5MAP on three bands, 10, 15 and 80 metres, as was the special station VI5XPO, operated by Peter VK5KD.

This was the first time such an exhibition had been held in the city and it attracted considerable interest. Many of the inventions and innovations shown (many of them used in farming) would seem to have a commercial future. Stations fortunate enough to have contacted any of the stations may still obtain their special QSL from Paul at PO Box 76, Peterborough by enclosing an SASE.

HFOPOL

The QSL, HF zero POL, was sent to OT Austin Condon VK5WO of Laura, SA in September 1992 for a 40 metre 2 x SSB

POLAND

1 - 08 - 1944 2 - 10 - 1944

63 DNI POWSTANIA WARSZAWSKIEGO

3Z 50 PW

AMATEUR RADIO
INTERNATIONAL FRIENDSHIP

SPECIAL EVENT STATION
VI5EXP
FOR THE
INNOVATIONS & INVENTIONS
EXPO
PETERBOROUGH,
SOUTH AUSTRALIA
April 25th — 29th, 1994

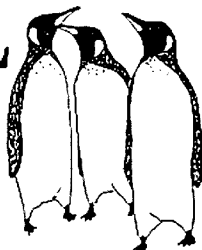
STATION	DAY	MTH	YEAR	UTC	FREQ	REPORT	MODE
JJ4DTG MASA.	30	04	94	0848	21.155	5/5	2xSSB

Best 73's Paul A.

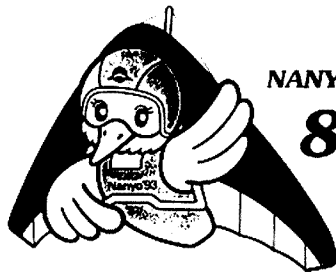
South Shetland Islands

The 10th Polish Antarctic Expedition

HFØPOL



1993年 第3回 女子ハンググライディング世界選手権
THE 3rd WOMEN'S WORLD HANG GLIDING CHAMPIONSHIP 1993



NANYO YAMAGATA JAPAN

8J7YLH



日本アマチュア無線連盟
The Japan Amateur Radio League, Inc.



QSO with the Polish Academy of Sciences' station in the South Shetlands.

This station was founded on King George Island in 1977, its staff of 19 carrying out research in biology, meteorology and geo-physics throughout the year. As well as the Polish station, other countries, such as Russia (eg 4K1F), Great Britain (eg VP8AK), Chile (eg CE9AH), Argentina (eg LU5ZI) and Uruguay (eg CX0XY), have used the amateur bands from the island group.

8J7YLH

There seems to be no limit to the number of other interests of amateur radio operators which are displayed on their QSL cards. A very wide range of sports from table tennis to mountain climbing can be seen on the QSLs which we receive. This QSL, 8J7YLH, served to mark the Third Women's World Hang-Gliding Championship held in 1993 in Nanyo, Japan.

The Japanese prefix 8J has been used extensively as a special event prefix mainly for expositions, sporting events of international significance, and ham conventions. The suffix of this particular callsign would seem to be most apt.

VK3NAY

The introduction of the NAOCP (Novice Amateur Operators Certificate of Proficiency) in 1976 opened up a world of communication for thousands of radio enthusiasts who did not qualify for full licence privileges. The full licence necessitated a pass at a Morse code proficiency level higher than that prescribed for the Novice licence. Callsigns were allocated from the block NAA-NZZ. Three letter callsigns beginning with N and V were the first to be issued followed by P, M and L. In 1980, the DoTC issued the three letter series starting with the letter K for holders of both the Novice and Limited licences.

The first Novice licence in Victoria was received on 20 August 1976 by Dick VK3NAY. Operations commenced on the same day from his station on two crystal-locked frequencies in the 80 m band, one of the three HF bands on which Novice licensees could operate. The antenna was a half-wave dipole and the transceiver was home-brew. The accompanying QSL was an acknowledgment of a SWL report from SK Eric Trebilcock BERS195 on the third transmission from the station one day after the issue of this first Novice

licence in Victoria. Card from the estate of the late Eric Trebilcock.

YAØCDRC

The callsign, YA zero CDRC, is that of the Camel Drivers Radio Club of Afghanistan. It was sent to SK Len Wilson VK6LG for a QSO in September 1969. A suffix of four letters was, at that time, rather unusual although we were introduced to such an allocation when we all received QSL cards from UB5ARTEK back in the early 1960s and wondered what it was all about. There is provision on the reverse side of this YA card for indicating whether the QSO was mobile, portable or from a fixed station. This QSO was from a fixed location — a pity, really, since the collection lacks a QSL for camel-mobile operation!

Thanks

The WIA would like to thank the following for their kind contribution to the collection: Brian VK4LV, Steve VK2PS and Hans VK4/HE9RFF.

*4 Sunrise Hill, Montrose VIC 3785
Tel (03) 728 5350

ar

DICK GOSLIN, 40 Hardwicke Street, Balwyn, Vic. 3103
MELBOURNE AUSTRALIA

Electorate of Kooyong

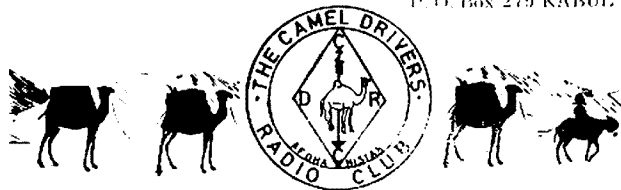
VK3NAY

To BERS- glad to confirm our QSO on 21.6.76 at 1050 G.M.T. when CW sigs were R.S.T. 5.4.9 on 3.536 M.C. Band.
Transceiver: HBK 100. R. REGEN. SH. ANT. 1/2 DIPOLE
Remarks: Many thanks Eric. Much appreciated!

QSO N=3. (1st time transmitting in VK3!)
HAM PRINT, 20 WEBSTER ST., 3175, VIC.

AFGHANISTAN

P. O. Box 279 KABUL



CLUBSTATION

YA Ø CDRC

Repeater Link

Will McGhie VK6UU*

Low Cut

Last month's *Repeater Link* contained a circuit for notching out a particular CTCSS tone to prevent it being retransmitted through a repeater. This circuit attenuated a given CTCSS tone by more than 20 dB and allowed most other tones to pass. This would allow users to send other CTCSS tones through a repeater provided the repeater used direct frequency modulation of the transmitter.

However, as an alternative, most CTCSS tones, along with power supply hum, can be attenuated. The accompanying circuit does just that. The capacitors C1, C2, C3 and C4 determine the -3 dB point. Depending on how much attenuation you require, three combinations are shown.

With capacitors C1 to C4 having a value of 0.01 μF , the response is as shown in the drawing as A. With C1 and C2 being 0.01

μF , and C3 and C4 being 0.015 μF , the response is as shown as B. With all four capacitors having a value of 0.015 μF , the response is as shown as C.

If a higher amount of attenuation of the low frequencies is chosen, then the repeater's audio suffers to some degree. This may not be obvious if your repeater is using phase modulation due to its poor low frequency response. However, with direct frequency modulation it may come as a surprise how attenuation of frequencies below 300 Hz affects the quality of the retransmitted audio. The audio as transmitted from a user's transmitter already has the low frequencies attenuated on purpose, but reducing them even further results in thin sounding repeater audio.

With C1, C2, C3 and C4 all 0.01 μF , the -3 dB point is 320 Hz. With C1 and C2 at 0.01 μF and C3 and C4 at 0.015 μF , the -3 dB point is 250 Hz. With all capacitors at

0.015 μF the -3 dB point is 200 Hz. As you can see, not all CTCSS tones would be attenuated by a significant amount; the low tones by 20 dB or more but the higher ones by only a few dB.

If a steeper cut is required, extra stages could be added. What is shown is a two pole filter. The ideal filter would offer 20 dB or more below 250 Hz with no attenuation above 250 Hz. The circuit offers room for building to your requirements. The gain is unity for frequencies above 400 Hz.

RPTR

In a letter from Peter VK1PK came an observation on information addressed on packet relating to repeaters. Several different bulletin addresses are used, such as *repeat*, *rptr* and *reptr*. It makes it hard to find this information due to this variation. As a start towards standardisation may I suggest *RPTR*.

New 29 MHz Repeater

I saw a message on packet that a 29 MHz repeater is on air in VK5. The user frequency is 29.620 MHz receive and

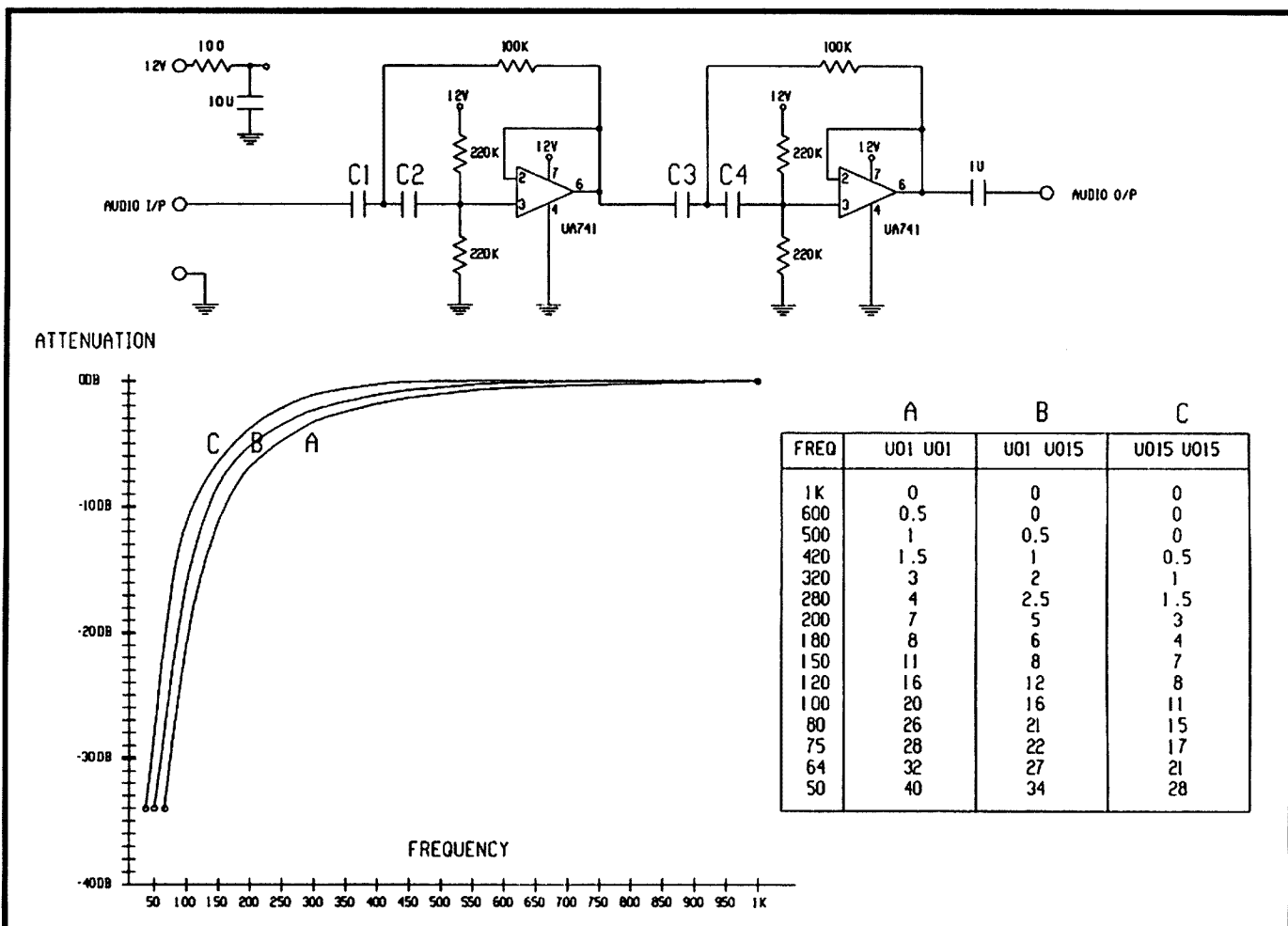


Figure 1 — Circuit and frequency response of a low cut filter for FM repeaters (drawing by Will VK6UU).

29.520 MHz transmit. I look forward to working it.

HF FM

Also on packet I read a WIA news release from Roger VK2ZRH that FM is not allowed below 29 MHz by full call amateurs. My understanding is that narrow band FM is allowed on all HF bands.

Timer

Ever needed a clever timer that could switch on equipment at a remote repeater site; say, once a week for the WIA news broadcast? One of our remote solar repeater sites uses a receiver to link the WIA news onto the repeater from another repeater. It is only needed for two half hour periods every Sunday. The rest of the time it sits there doing nothing but using scarce solar power. I have found such a clever timer that is commercially available from your local hardware store, costs \$50, draws 0.8 of a milliamp from 12 volts and can do all sorts of timing functions. This will be featured next month.

*21 Waterloo Crescent, Lesmurdie 6076
VK6UU@VK6BBS
ar

WIA News

Changes at Federal WIA

The foreshadowed changes to the WIA Federal Articles of Association (see *WIA News*, July), were finally accepted and registered by the Australian Securities Commission (ASC) on 6 July.

The three new directors appointed to the Federal Executive were subsequently registered with the ASC. They are Lance Bickford VK4ZAZ, Rowland Bruce VK5OU, and Peter Naish VK2BPN. Federal President Neil Penfold VK6NE remains a director and is Chairman of Executive.

WIA Federal Secretary Lewis Badge tendered his resignation to the Federal Council at its July meeting. He leaves to pursue other interests, including an extended trip overseas.

The new Federal Executive appointed Peter Naish VK2BPN as temporary Federal Secretary until another appointment can be made.

VHF/UHF — An Expanding World

Eric Jamieson VK5LP*

All times are UTC.

Transatlantic Contacts on Two Metres

Emil Pocock W3EP, in *The World Above 50 MHz* for August, is doing his best to stir into action suitably placed amateurs for a terrestrial contact between North America and Europe on 144 MHz. He cites the 4000 km distance from Hawaii to California as being similar to that across the Atlantic, which extends from 3500 to 5000 km.

However, the amateurs on the Hawaiian path are well organised at both ends and make good use of beacons as devices for warning of possible openings. Emil says that for the Atlantic crossing to succeed it will require similar dedicated effort and, with this in mind, W5IJU plans to operate six and two metres from CY9 from 27 July to 2 August.

Emil says, *There are at least two dozen beacons in the 70, 144 and 222 MHz bands on both sides of the Atlantic that could provide a starting point for probing sporadic-E and tropospheric ducting. These are the two modes most likely to produce transatlantic contacts on 144 MHz. There are dozens of two metre FM repeaters in most countries, and television stations also make excellent beacons, with their high power and strategic placement and VHF operation.*

We will await with interest, news of progress towards such contacts. At the same time, we in Australia should be concentrating more on achieving a path to South Africa. Contacts have been made on six metres via F2, but the total via that medium is rather small. As far as I am aware, no contacts have been made via Es and certainly none via two metres. The distances are greater than the Atlantic path, so, as I wrote previously, in the main it's up to the VK6s to become involved. But no one in the southern regions of Australia should overlook the path to South Africa, which appears to exist over Antarctica, in the light of reports of VK3OT having been heard there during contacts to VK0IX.

Emil also reports that Nestor LW5EJU in Argentina, had TEP propagation on April 2, 3, 4, 5, 10, 24, 25 and 27, mostly to Venezuela and Costa Rica, although on 10 April he made contact with CO3ZD and heard the W5VAS beacon. W5VAS worked four Argentinians but missed LW5EJU.

News from Europe

Ted Collins G4UPS reports the first opening to the UK occurred on 7 June with the first alert coming from the beacon W3VD on 28 MHz, then EH7KF was heard calling a VE1 station. VE1PZ was heard 5x5 working several G/GW stations. On 16/6 W3VD again and VO1ZA six metre beacon at 1853. Similar events on 19/6.

Ted also reports that, during June, three stations commenced operation from the Western Sahara Democratic Republic. 4U/KC0PA is Tim with the United Nations group, and the others are S0RASD and S07URE. Hungarian stations became active in June with HA6ZB worked and HA8BE heard. From Mauritania, Eric 5T5JC is using a new callsign 5T6E, while 5T5BN is located on the coast. RV6HF operates from Russia and YL2DX from Latvia. It seems that Europe can provide fresh contacts on a continuing basis.

Whilst these new stations may not be available to VK at present, it is always useful to know what new countries make six metres available, as has been the case in Hungary.

It also appears that more European operators have removed the wraps from their six metre equipment, realising there is life after F2 through the medium of sporadic-E. Ted Collins sent nine pages of contact details for June, with outstanding days on 2, 4, 5, 6, 7, 9, 10, 12, 19, 20 and 27. The band usually opens around 0630 (that's 6.30 am local), and often continues through to 2300, so there is much to keep operators amused!

A typical day was 12/6. Band opened at 0645 with OE activity and much in-band TV. Worked IK0FTA 5x9, 4N1SIX/b 579, YU1SIX/b 599, ZB2VHF/b 599, 9A/OK/SP activity. 0745 SV1NN 579, SV1SIX/b 599; 0753 SM7AED 579; 0758 G3CCH 579 good tropo, CT0WW/b 599, SM/YU/SP stations; 0845 OH0/DL5FF 579, OZ6VHF/b 569, S55ZRS/b 599; 0859 OZ/F1OIH 5x9; 0917 OH6MPC 5x9, heard SV1AB 5x7; 1008 LA3EDA 5x9; 1011 SV1EN 5x9; 1014 SV1OH 5x9; 1047 Y02IS 579; 1140 GM0ILB 5x9; 1200 GM7SVK 5x9; 1205 GS7UEG/p 5x9, GM0PKW 5x9; 1252 EH3FLN 5x9; 1303 EH2BGZ 5x9; 1340 propagation mostly to north east with SP/OK/OE/YU/S5/9A/OM; 1357 DL3HRM 5x9.

1401 OK1FAV; 1422 DL7ANR 5x9; 1441 OK1VQ 599; 1455 SV9SIX/b, LX0SIX/b both 599; 1459 LX1JX 5x9; 1510 ON4PS 5x9; 1514 PA3FYM 599; 1533 DL6FBJ 5x9; 1536 OK1NR 599; 1543 DJ3OS 5x9;

1622 SM7CMV 5x9; 1630 ES0SIX/b 579; 1647 LA1IC 5x9; 1705 ES2RW 5x9, OH1SIX/b 579; 1753 ES5MC 5x9, same activity through to 2003 OH0/DJ2PJ 599; 2004 SM5PRE 5x9; 2010 ES1CW 599; 2043 LA9DM 5x9, plus SM/OH/OH0/OZ/ES/YL activity; 2114 LA8WF 5x9; 2119 LA3BO 5x9; 2147 LA8PV 599; 2202 LA6MP 599, still wide open to Scandinavia and strong in-band TV to 2230 when QRT.

I have provided the above day in detail to give VK stations an idea how the scene unfolds in the UK. Changes to antenna direction would be frequent, countries involved being 9A, DL, EH, ES0, G3, GM, IK0, LA, LX, OE, OH0, OK, OM, ON, OZ, PA, S5, SM, SP, SV, YL, YO and YU, a total of 23 for a day's work! In addition, beacons logged were 4N1SIX, YU1SIX, ZB2VHF, SV1SIX, SV9SIX, CT0WW, S55ZRS, LA0SIX, ES0SIX, and OH1SIX, a total of ten.

If you study the progression of contacts, it often appears that there is quite a time lapse between contacts, although it is possible Ted has not included every contact. Here in VK, under conditions of good Es, up to three contacts per minute are possible, especially during contests, and definitely during a two metre ES opening! On the other hand, we have no need to sort out countries except for periods when ZL, P29 and FK appear. When Ted reads this he may comment.

QSL Cards

Some cards do finally make an appearance. At the end of March 1989 news emanated that Steve VK3OT had worked BY4RB in China, on six metres. If I remember correctly, at the time there were comments from some people that it

was a doubtful contact, so in deference to comment, the contact was not claimed.

Recently, quite "out-of-the-blue," Steve received a QSL confirming that contact on 30/3/89, complete with a hand-written message in Chinese symbols, on the rear. The QSL is printed in three colours on thin white card, and is reproduced in these columns for those who wish to peruse it. At last, any doubts about the contact have been cleared.

Also, from time to time I receive cards from overseas countries claiming a contact with me on the HF bands. The most recent is from SP9EMV in Poland, for a 14 MHz CW contact on 30/3/94. My signal report was 599. I am flattered to think that with my "sloper" antenna, I can land a 599 HF signal into Europe. If my signal was that strong then the callsign should not have been mis-read! Obviously, someone out there knows I am glued to the VHF bands, so feels free to use my callsign with little chance of detection. Good luck to the person, but I shall return the card to the sender, stating the reason for no card from me.

Somewhere amongst hundreds of QSLs, I have a card from a Canadian station for a two metre contact I was supposed to have made with him. I know my signal can cover considerable distances at times, but to Canada on two metres must have placed a deal of strain on the antennal! It's a bit like trying to fire too far with a gun, you may stretch the barrel!

Two Metres to Japan

I recently had an interesting telephone conversation with Rex VK8RH in Darwin. This confirmed a query I had in regard to whether Darwin amateurs were still

contacting Japan on two metres. He replied that they were indeed and such contacts were commonplace.

Signals still closely follow the original north/south path with limited spread at each end. JA6 is the more common area of contact with FM signals around 5x4 and TEP flutter. It is quite easy to work the JAs with 10 watts to a 1/4 wave antenna and Rex has completed around 200 contacts. The JAs usually appear during August/September and again in February, but may be worked at other times. Usually heard between 1100 and 1200, but may commence around 1000.

Rex said it is interesting to note that when JAs were available, he tried to contact Louis KG6UH/HL9 in Korea. But he was unsuccessful, despite the high power and large array used by Louis, so it is still a matter of the narrow angle of propagation being the criteria for a contact. It is not known how far south the signals travel, as there are no operators at Katherine. Contacts are usually around 6000 km.

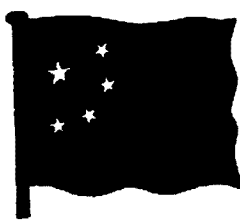
More on Two Metres

Following the big opening during June (reported last month), another smaller opening occurred on 5 July, when I again worked to central NSW. Mark VK2EMA was worked on 144 and 432 and Fred VK2YZU on 144, all between 0030 and 0104. Signals here were more marginal at around 5x2 on both bands. Roger VK5NY fared somewhat better, working the above two stations, also Peter VK2BIT near Wollongong and Mike VK2FLR in Sydney. This was late at night after 1300. VK2BIT also worked Barry VK5KCX at Gawler around 1100.

Mike VK2FLR sent a BBS message to me which confirmed most of the above, but indicated he too had worked VK5KCX at 1115 exchanging 5x1 and 5x3 reports. Mike said, *Around 1145 I had a brief word with VK1BG and we both noted that the path between Sydney and Canberra seemed no better than normal.*


We then waited around for Roger VK5NY to get home and come on, which he did after 1300. Roger was an easy contact to VK2BIT but somewhat more difficult into Sydney. As in the June opening, my CW was generally audible at VK5NY and we duly exchanged 5x1 and 5x2 on 144.200 MHz just after midnight (why is it that no-one uses CW in VK5?). Col VK5RO was listening to the activity on 144 MHz and on the 3695 kHz liaison frequency and reported he was hearing meteor pings from me but no consistent propagation. At no time was the VK5VF beacon audible in Sydney.

This was the second tropo opening into the Adelaide region in four weeks, associated with a very strong inland high



BY4RB

AMATEUR RADIO STATION OF
ZHENJIANG CHILDREN'S PALACE
P.O. BOX 413 ZHENJIANG JIANGSU CHINA



10-X*50440

SMIRK*5464

CONFIRMING QSO WITH	DAY	MONTH	YEAR	UTC	MHZ	RST	2-WAY
VK3OT	30	3	89	0315	50	55	SSB

镇江市无线电运动协会镇江市少年宫业余电台

very glad to meet you on 6meter!

OP *Huang*
TNX
PSE UR QSL

pressure system. While we normally expect good inland tropo during autumn, it is very unusual to see it persist so late into winter. I guess the other factor is the presence of a couple of well equipped 144 MHz and 432 MHz stations in western NSW.

VK5 Beacon Information

A BBS message from David VK5KK says that, After much negotiating at the Mt Gambier Convention, the beacon officer VK5AVQ and his side kick VK5KK, have set about improving the Mt Lofty beacons for the summer season. The first visit to Mt Lofty was made on 2/7/94 where the following points were noted: 6 m beacon, fully operational with intact antenna; 2 m beacon, fully operational with intact antenna; 70 cm beacon, fully RF operational but antenna in need of repair; 23 cm beacon, not in service, antenna intact and operational.

The 70 cm beacon has been removed and is in VK5KK's shack to investigate its operation, with the only apparent problem due to the damaged antenna ... high SWR. Power output is OK at four watts. The computer controller for power levels (60 mW/250 mW and one watt) is not functioning correctly from the off-air receiver. This will be looked at in the next few months.

What Is Going Back Up?

At this stage it is 90% certain that the CW Morse practice beacon will now be

located at the beacon site. Current frequency is 144.975 MHz, but this is likely to change to 145.650 MHz, according to licensing requirements. Operation will be approximately 10 watts FM to a half wave vertical.

After two seasons off air, the 23 cm beacon will be reinstated. The specs are the same as before, 1296.450 MHz, EIRP is 10 watts average to a bi-directional antenna. Keying is to be controlled by the 70 cm beacon.

The 13 cm beacon will be returned, the frequency 2403.450 MHz, subject to SMA approval ... licence application for the new frequency has been in for six months. The beacon will run two watts RF to a bi-directional antenna pointing towards VK6 and the South East. To be keyed by the 70 cm beacon.

The beacon for 3 cm will be ready this season and run one watt into a slotted waveguide omni-directional antenna. EIRP TBA. Frequency 10368.450 MHz.

Schedule

The 70 cm beacon should be back at the end of August, followed by the 23 cm/13 cm beacons September/October. It is envisaged that the CW beacon will be moved in about three months.

The 3 cm beacon is a separate item. Its development is a result of the kind donations of equipment from Des VK5ZO (waveguide antenna), Roger VK5NY (one watt PA) and David VK5KK (10 GHz driver,

stabilised oscillator and digital works). It is intended that the beacon will be of primary use to 10 GHz operators in VK3/VK5 region to the South East. If it is heard in VK6, that's a new world record anyway ... but mind you, VK5KK is now 0.5 km further east than Mt Lofty!

Its antenna is to be omnidirectional. However, if sufficient interest is shown, this can be upgraded to a horn feed with around 15-17 dB gain and pointed towards VK3 or VK6. I would like to encourage all those interested in using the beacon to register interest via your column, or by people contacting me via my answering service (24 hour pager) on 08 239 8804.

At this stage, plans for a 3.4 GHz and 5.7 GHz beacon have been halted, as there seems little interest in these frequencies with the current advances on 10 GHz. The WIA may not renew the 5.7 GHz frequency until further notice. The 3.4 GHz frequency will be kept as part of this beacon; the crystal and oscillator have been built.

Should any of your readers have any interest in these frequencies, we may open the books for these next season ... If anybody would like a contact on 3.4 GHz SSB this season, please contact me!

Thanks, David, for your information. All are now informed of the 1995 state of the beacons in South Australia, which seem to be the most sought-after beacons in Australia. Mount Lofty will be positively bristling with antennas!

While dealing with beacons, a report in the West Australian VHF Group Newsletter says that the Beacon Committee is arranging to move the beacons to a new site at the 22 m level on one of the Channel 9 masts. More details later.

ARRL HQ Message

Via a fax from Ron VK3AFW comes the following Special Bulletin issued by ARRL HQ to all radio amateurs:

Extraordinary conditions for tropospheric propagation in the US Midwest have resulted in a new overland record on the amateur 3456 MHz band.

At 1224 UTC on 12 July, Al Ward WB5LUA, in Allen, Texas, worked Gary Morhant WA0BWE, in Maplewood, Minnesota, a distance of 841 miles. The previous record of 736 miles was set on 1 May 1992, between WB5LUA and W9ZIH, in Malta, Illinois.

As is often the case, this record-breaking activity began lower in frequency, with an initial contact between WB5LUA and WA0BWE on 432 MHz, with signals 5x9 both ways, according to Ward. An equipment problem forced them to skip 1296 MHz, where the overland record is 1287 miles.

Next came 2304 MHz, and the first Texas-Minnesota 2304 MHz QSO, where

QSP News

EMDRC Balloon Launch

The Eastern and Mountain Districts Radio Club will conduct a helium filled balloon launch on Saturday, 16 September 1995 from the Vermont South Shopping Centre, Burwood Highway, Vermont South at 10.00 am.

The balloon will carry with it a maze of electronic wizardry designed by Brian VK3YNG which will measure time, temperature, altitude, radiation levels and hopefully send global positioning system information. The information will be transmitted in standard packet format and voice on the 2 metre band at a power level of about one watt. The device does not include a receiver and amateurs are advised that it will not be possible to connect to the device.

The nearby Vermont South Community Centre will be used as

the operations centre with nets to be run on 80, 40 and 20 metres.

The balloon is (subject to the prevailing winds) expected to land in the Victorian Alps where it will be located by the expert skills of our Melbourne fox hunters.

A special QSL card will be available for stations who log data from the device, together with the time, signal strength, receiving antenna direction (if applicable) and a cheque or money order to the value of \$5.00. Further information will be provided on the WIA VK3 Division broadcast and the EMDRC club net on 3.585 MHz at 2000 hrs local on Wednesdays, 29.240 MHz FM at 2030 hrs local on Wednesdays, or 28.340 MHz at 0900 hrs local on Sundays. Alternatively, direct requests for further information to Chris VK3KCP on (03) 629 2653

the record is 940 miles. Contact was then easily established on 3456 MHz. WAQBWE was running about five watts, WB5LUA running 100 watts to a five foot dish at 65 feet.

On 13 July, excellent tropospheric propagation continued in the midwest, with perhaps more distance records to come as a result. Thanks to WB5LUA for prompt reporting of these developments. Thanks Ron.

Jersey Island

Geoff GJ4ICD sent an e-mail message to me via Dave VK2KFU, outlining the high degree of Es activity around Europe and across the Atlantic to North America. The Europeans are now witnessing what we have known and enjoyed for years, that during the low part of the solar cycle considerable improvement to Es propagation occurs. However, I still

wonder if they are so concerned with myriads of contacts on 50 MHz, that they are ignoring Es on 144 MHz and the thrills that can provide. If it occurs in Australia it must occur in Europe; Emil W3EP frequently reports two metre Es contacts in his QST columns, but no reports emanate from Europe.

On 1/7 50 MHz was well open in Europe. GJ to SV, 5B4, OD5, CT3, EA9, EA6, I, EA, C31, T9, 9A. 2/7: GJ4ICD to UX0FT, LZ2FT, UT6X, 9H, 5B4CY, OD5, OZ, SP, OK, OM, EH6, EH9, S5, 9A, SM. Also big JA opening to Seattle area. Jim W7FI reported working 120 JAs in all districts. 3/7: UK to W opening. 4/7: Band open all over Europe during morning, 2000 VO1ZA S3/4, WA1AYS 589, VE1YX, VE1ZZ. 5/7: GJ4ICD 1000 to ZB, EA, CT; 1350 S0RASD; 1350 FY7/b until 1640; CT3FT on FM on 50.100!

6/7: GJ4ICD to KP4EIT/S9, N1GDP,

W3EP, VE1YX, WA1AYS, WA1OUB, W1JRA, K1JRW, KM1H, WA1RVI, VY2KX, EH8BPX. 7/7: Band open again from GJ to VE1YX, VE2, VE3 and W1, W2, W3, W4 and W8; OX3LX for new country, number 151; Geoff said he had never heard so many stations from USA even during F2 period, most signals S9 plus. 8/7: GJ4 to W1, W3 and VO1/b.

I hope VK this summer will follow the excellent conditions of the northern hemisphere. If so, there will be Australia-wide coverage, also ZL, P29 and at least FK. But two metres Es will not be neglected!

Closure

Originally, I thought there would be little to report, but last minute info arrived to swell the copy, so I hope the Editor will not look too closely!

Closing with two thoughts for the month, Children are not things to be moulded, but are people to be unfolded, and In eating corn on the cob or watermelon, you have a choice — you can be fastidious, or you can enjoy it.

73 from The Voice by the Lake.

**PO Box 169, Meningie SA 5264*

Fax: (085) 751 043

Packet: VK5LP@VK5WI.#ADL.#SA.AUS.OO

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WIA News

Demise of 70 cm Greatly Exaggerated

To paraphrase a famous quote, the demise of 70 cm — or at least part of it — has been greatly exaggerated. Rumours circulating within the amateur community in July and August variously had it that amateur operations in a 3 MHz segment of the 70 cm band, between 440-443 MHz, were now forbidden and/or the segment had been "sold".

The rumours have no foundation.

They arose following a request from the Spectrum Management Agency to the Queensland Digital Group to avoid interference from a packet radio link system to a radar system operating from a barge in the Port of Brisbane. As amateur radio is a secondary service on the 420-450 MHz band, and "radiolocation" (ie radar) is the allocated primary service (under the Australian Radiofrequency Spectrum Plan), amateurs are obliged to avoid or rectify any "harmful" interference to primary users and to accept any harmful interference from them.

The Queensland problem was

resolved by the installation of beam antennas for the link system in question and a reduction in power levels used, and co-existence of the primary and secondary users continues.

Amateur radio has been a secondary service on the 70 cm band since it was made available to us in the early 1960s, when we lost the 288-296 MHz band to broadcasting. Repeater systems in the NSW Iilawarra and Jervis Bay coastal regions, south of Sydney, suffered some interference in recent years from defence force Syledis radar systems. Other examples have been reported in other regions around Australia.

However, Federal Technical Advisory Committee Chairman, John Martin VK3KWA, advises that these 70 cm radar systems are on the increase. As they operate on 441 MHz, +/- 2 MHz, they affect amateur links in our band plan link segment of 440-443 MHz in the general region where they are established. The matter has been referred to the WIA's SMA Liaison Team for discussion with the relevant Spectrum Management Agency section.

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

M (Mark)	WESTON	VK2CM
W L	TREVENA	VK3DTP
C (Cec)	DODDRIDGE	VK5CD

Robert Keith Dodd VK2RE

Keith died suddenly at home on 15 June, aged 67 years. He lived all his life at Tumut and, leaving school in 1942, started work with local garages as an apprentice and then as a motor mechanic. He was in the motor trade for 14 years, the last eight as workshop foreman.

Radio was a schoolboys' hobby and he built his own receivers from disposals gear. He also assisted his friend and fellow amateur Ross VK2PN in servicing receivers.

In 1954 he gained his LAOCP (one of the first in NSW) with call VK2ZAA. In 1958 he joined the Forestry Commission. In 1959 he was appointed radio technician, then Senior radio technician, a position he held until his retirement in 1988.

Keith was a foundation member of the Tumut ARC and, through his enthusiasm and expertise, our VHF repeater VK2RTD was established. In 1985 he upgraded to AACP and callsign VK2RE.

Keith had experimented with all facets of amateur radio and was an inspiration to us all. Always ready to guide others, with advice and practical help, he was a worthy ambassador for our hobby. He is survived by his wife Jean, sons Rickie and Terry, daughter Keryl, son-in-law Bruce, grandson Philip and sister Lorna.

Vince Nugent VK2ALZ
Hon Secretary Tumut ARC

J L (Len) Grey AFC VK2AKO

Len, who was born in Scotland, came with his family to Australia as a young lad and grew up in Brisbane. Always keen on flying, at 17 he was a pilot and, at 21, joined QANTAS, flying in DH86 aircraft, mostly to Singapore.

He remained with the company until his

retirement, finishing on Lockheed Electras. His flying time exceeded 24,000 hours.

During World War II Len was seconded to the RAAF because of his experience with flying boats. He was awarded the AFC for flying a Catalina to beaches south of Rabaul which, at the time, was in enemy hands, on one occasion taking 50 men to safety.

Later, Len rejoined QANTAS for a secret assignment to set-up an air link between Western Australia and Ceylon. Using Catalinas fitted with extra tanks, these flights took 30 hours or more, observing radio silence and flying at low altitudes. These flights were never detected by the enemy.

Len is survived by his daughter Caroline, her husband John, and granddaughter Nicole, to whom we extend our sincere condolences.

G W (Bill) Dukes VK2WD
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HOW TO JOIN THE WIA

Fill out the following form and send to:

The Membership Secretary
Wireless Institute of Australia
PO Box 2175
Caulfield Junction, Vic 3161

I wish to obtain further information about the WIA.

Mr, Mrs, Miss, Ms:.....

Call Sign (if applicable):.....

Address:.....

State and Postcode:.....

Technical Correspondence

All technical correspondence from members will be considered for publication, but should be less than 300 words.

TV Twin Lead

In recent times 300 ohm TV twin lead has been specified for use in matching sections and antennae. However, users should be warned that this lead only works for the purpose in fair weather.

When a film of water covers the web between the two conductors, the nominal impedance nose-dives as the capacitive reactance increases dramatically with the "K" factor of the water now forming a large part of the dielectric. This factor is about 80 (para 3.3 — ARRL Antenna Handbook). When compared to the "K" factor for polythene (2.3) which forms the web itself, it does not require much water in the field between the two conductors to cause vast changes.

As a rough test, the 16 pF or so of a one metre length of twin lead rises to 60 pF when only half immersed in a bucket of water.

In the *Technical Abstract* item on the "J-Pole" antenna on page 14 of January 1995 *Amateur Radio*, it does mention that it could be slipped into a plastic pipe radome, but does not specify why. This appears to be a simple solution to keep the twin lead dry.

Slotted web twin lead still has about half the web which gives a large change when wet. So, the only variety of twin lead for non critical outdoor use appears to be the

"Super Low Loss Foam Enclosed"* variety which excludes water from the immediate field between the conductors, though fringing could still have some effect. However, measurements cannot be directly transposed as the velocity constant is about 0.77 compared to 0.82 for the common webbed variety.

For similar reasons, antenna loading coils and traps should be enclosed to keep them dry. Alternatively, they should be self supporting with spaced turns separated by insulating supports to prevent moisture bridging between turns. Capacitors can be short open stubs of coaxial cable with sealed ends. For example, RG58 co-axial cable has a capacity of some 100 pF per metre.

These effects are not new as many will remember those extra "ghosts" on the black and white TV picture on wet evenings. Fifty years back, the early US radars, using four-wire 300 ohm feeders, had lots of false responses from dew covered doughnut insulators. The use of correctly matched coaxial lines has eliminated many of these types of problems.

* *Super Low Loss Foam Enclosed TV Foam Twin Lead — Archer Brand. Tandy Catalogue No. 15-1174*

Bill McLeod VK3MI
42 Capon St
Chadstone VIC 3148
ar

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HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μV (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μV in 50 ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μV at the receiver's input and the S-meter scale is 6 dB per S-point.

μV in 50 ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10

1.56	S4	4
0.78	S3	-2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	16.0	15	13.3	0	18	8	-3	-21
2	16.4	15	13.9	1	19	10	-1	-18
3	16.4	15	13.8	4	20	10	-1	-18
4	16.5	16	13.7	9	22	11	0	-18
5	16.2	18	13.3	17	23	11	-1	-20
6	15.0	21	12.2	32	23	8	-8	-30
7	13.5	24	10.7	42	21	1	-19	...
8	11.9	26	9.5	43	14	-10	-34	...
9	10.4	29	8.3	43	5	-26	...	...
10	9.3	30	7.4	42	-4	...	...	...
11	8.6	31	6.8	40	-13	...	...	...
12	8.1	32	6.4	38	-19	...	...	...
13	7.7	32	6.1	36	-25	...	...	...
14	7.5	33	6.0	36	-27	...	...	...
15	7.6	33	5.9	36	-26	...	...	...
16	6.7	35	5.2	32	...	...	...	...
17	6.8	34	5.2	32	-39	...	...	...
18	6.7	34	5.1	31	...	...	...	...
19	7.2	28	5.4	28	-32	...	...	...
20	8.8	20	6.6	22	-10	...	...	...
21	11.4	17	8.7	15	7	-15	-37	...
22	13.6	16	10.6	8	14	-1	-17	...
23	14.9	15	11.9	4	17	4	-9	-29
24	15.7	15	12.8	1	18	7	-4	-23

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	19.2	11	15.6	-27	16	13	7	-3
2	19.5	11	16.1	-28	16	14	8	-2
3	20.0	11	15.0	-26	17	15	9	-1
4	20.0	12	16.8	-21	18	16	9	0
5	20.1	13	16.6	-12	21	17	10	0
6	19.7	15	15.8	4	25	19	11	0
7	17.7	18	14.1	20	27	17	7	-7
8	15.9	21	12.6	34	27	13	0	-18
9	14.0	24	11.1	40	24	7	-9	-32
10	12.1	27	9.6	42	18	-3	-24	...
11	10.8	29	8.6	43	12	-13	-37	...
12	10.2	31	8.1	43	9	-18	...	...
13	9.7	31	7.6	42	5	-24	...	...
14	9.2	32	7.3	41	2	-30	...	...
15	9.1	32	7.2	41	0	-32	...	...
16	9.1	32	7.1	41	2	-30	...	...
17	8.0	34	6.2	38	-7	...	...	...
18	8.2	33	6.3	38	-7	...	...	...
19	8.1	30	6.2	34	-8	...	...	...
20	8.7	22	6.6	22	-3	-33	...	...
21	10.7	17	8.4	13	7	-13	-34	...
22	14.0	15	10.7	0	14	3	-10	-29
23	16.7	13	13.0	-14	16	10	1	-13
24	18.2	12	14.5	-22	16	12	5	-7

VK EAST AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.1	8	7.0	-2	0	-19	-39	...
2	7.7	-4	6.0	-10	-5	-26	...	...
3	8.1	-8	6.2	-18	-4	-21	...	...
4	11.3	0	8.6	-36	2	-5	-17	-35
5	16.1	5	12.4	...	4	4	-1	-12
6	17.5	5	12.9	...	4	5	0	-9
7	17.7	6	13.2	...	4	5	1	-8
8	16.3	5	13.0	...	5	4	-2	-13
9	14.4	6	11.4	...	6	1	-7	-21
10	12.6	6	10.0	-26	5	-2	-14	-32
11	10.9	6	8.6	-14	4	-9	-25	...
12	9.7	8	7.6	-3	1	-17	-37	...
13	9.0	13	7.1	8	-1	-24	...	...
14	8.6	19	6.8	19	-3	-31	...	...
15	8.4	25	6.6	27	-5	-36	...	...
16	8.5	27	6.4	32	-4	-36	...	...
17	8.5	29	5.9	34	-4	-37	...	...
18	8.0	30	5.6	34	-9	...	...	...
19	7.6	31	5.4	33	-13	...	...	...
20	8.0	30	5.5	34	-9	...	...	...
21	7.9	30	5.5	34	-10	...	...	...
22	7.6	25	5.4	26	-12	...	...	...
23	7.4	16	5.2	15	-13	...	...	...
24	8.0	10	5.8	7	-7	-35	...	...

K SOUTH — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.2	12	6.3	9	-4	-30	...	...
2	8.7	7	6.6	0	-2	-23	...	...
3	11.8	10	9.3	-11	7	-4	-18	-38
4	16.6	10	12.5	-28	12	8	1	-10
5	18.1	8	13.4	...	9	8	3	-6
6	18.7	8	13.9	...	8	8	4	-4
7	18.9	8	13.6	...	8	8	4	-4
8	18.2	8	13.0	...	8	8	3	-6
9	16.9	8	12.0	-38	9	7	0	-11
10	15.2	9	10.7	-26	10	4	-4	-18
11	13.2	10	9.2	-14	9	0	-13	-31
12	11.5	11	8.0	-4	6	-8	-24	...
13	9.9	13	6.9	7	2	-18	-39	...
14	9.1	18	6.3	18	-1	-28	...	...
15	8.6	24	5.9	27	-5	-36	...	...
16	8.2	27	5.6	30	-8	...	...	...
17	8.2	29	5.7	33	-9	...	...	...
18	8.1	30	5.7	34	-10	...	...	...
19	7.9	30	5.6	34	-12	...	...	...
20	7.8	30	5.6	33	-13	...	...	...
21	8.4	30	5.9	35	-6	...	...	...
22	8.1	30	5.7	34	-9	...	...	...
23	7.9	24	5.6	25	-10	...	...	...
24	8.6	18	6.2	17	-4	-32	...	...

VK WEST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	7.8	20	6.0	20	-8	-39	...	...
2	8.2	12	6.3	9	-5	-31	...	...
3	11.6	12	9.1	-3	8	-5	-21	...
4	16.4	11	12.8	-21	13	8	0	-14
5	17.9	9	14.0	-37	11	9	3	-8
6	18.7	8	15.3	...	10	9	4	-5
7	18.8	8	15.6	...	9	9	4	-5
8	18.5	8	15.2	...	9	8	3	-6
9	17.9	8	14.4	...	9	8	2	-8
10	16.4	8	13.1	-35	10	6	-1	-14
11	14.5	10	12.3	-20	10	2	-8	-24
12	12.7	12	10.1	-5	10	-3	-17	-38
13	11.0	15	8.7	8	6	-12	-31	...
14	9.7	20	7.7	21	2	-23	...	...
15	9.1	25	7.2	30	-1	-31	...	...
16	8.6	28	6.8	33	-4	-38	...	...
17	8.4	30	6.7	35	-6	...	...	...
18	8.6	31	6.7	37	-5	...	...	...
19	8.5	31	6.6	37	-5	...	...	...
20	8.1	31	6.2	36	-10	...	...	...
21	7.6	32	5.8	34	-15	...	...	...
22	8.2	31	6.2	36	-8	...	...	...
23	8.5	31	6.5	37	-5	...	...	...
24	7.8	27	6.0	30	-12	...	...	...

VK EAST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	22.9	13	18.9	-36	18	19	16	9
2	23.6	13	18.1	...	17	19	16	10
3	23.8	13	19.0	...	17	19	17	10
4	23.9	13	19.7	...	18	20	17	11
5	23.7	13	19.4	-34	19	20	17	11
6	22.8	14	18.5	-25	21	21	17	9
7	21.3	15	17.2	-11	23	21	15	5
8	19.7	17	16.6	13	28	21	13	0
9	18.1	20	14.5	35	31	20	9	-6
10	16.3	21	13.0	40	28	14	0	-18
11	15.0	22	12.0	44	26	9	-7	-29
12	14.2	23	11.3	46	23	4	-14	-39
13	13.0	25	10.3	47	19	-3	-24	...
14	11.9	25	9.5	45	13	-13	-37	...
15	11.3	26	8.9	44	9	-19	...	...
16	10.9	26	8.5	43	6	-24	...	...
17	9.8	27	7.6	40	-4	-39	...	...
18	8.2	28	6.4	35	-23	...	...	...
19	8.6	28	6.6	37	-18	...	...	...
20	9.0	28	7.0	38	-12	...	...	...
21	14.0	21	10.8	33	21	3	-13	-37
22	20.7	16	16.3	2	26	21	14	4
23	22.1	14	17.7	-16	23	21	16	7
24	22.4	13	18.2	-28	20	20	16	8

VK SOUTH — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	17.5	10	14.3	-37	12	9	3	-8
2	17.7	10	14.7	...	11	9	3	-7
3	18.3	10	15.5	...	11	10	5	-5
4	18.3	10	15.3	...	11	10	5	-5
5	18.3	11	15.1	...	12	11	5	-5
6	18.0	11	14.7	-32	14	11	5	-6
7	17.4							

VK EAST — EUROPE										
UTC	MUF	dBu	FOT	7.1	14.2	18.1	21.2	24.9		
1	8.5	-7	6.2	-21	-1	-17	-34	...		
2	8.1	-13	6.0	-27	-1	-15	-31	...		
3	9.1	-12	6.8	-38	0	-9	-23	...		
4	11.3	-7	7.9	...	0	-4	-12	-27		
5	13.9	-2	10.4	...	-1	0	-5	-15		
6	15.8	1	11.9	...	-2	2	-1	-9		
7	16.8	3	12.6	...	-1	3	1	-6		
8	17.6	8	13.3	...	1	6	3	-4		
9	17.7	8	13.6	...	6	8	4	-4		
10	16.1	10	12.8	-39	10	8	1	-9		
11	14.4	12	11.4	-19	12	5	-4	-19		
12	13.1	15	10.4	-2	13	2	-10	-29		
13	12.3	18	9.8	10	13	-1	-16	-38		
14	11.4	21	9.0	21	12	-6	-25	...		
15	10.6	25	8.4	31	9	-13	-35	...		
16	10.3	27	8.1	35	8	-17	...	...
17	10.0	28	7.8	38	6	-20	...	...
18	9.1	29	7.1	36	0	-31	...	...
19	7.9	30	6.1	33	-12	...	...	...
20	8.3	30	6.4	34	-8	...	...	...
21	8.7	31	8.7	36	0	-32	...	...
22	9.1	21	7.0	21	2	-22	...	...
23	9.3	10	6.6	2	0	-20	...	...
24	8.7	0	6.3	-12	-1	-19	-39	...		

VK SOUTH — EUROPE										
UTC	MUF	dBu	FOT	7.1	14.2	18.1	21.2	24.9		
1	9.3	2	6.6	-13	0	-16	-34	...		
2	8.7	-7	6.3	-24	-1	-15	-31	...		
3	9.8	-8	7.1	-39	0	-8	-21	...		
4	12.2	-3	8.3	...	0	2	-9	-23		
5	15.1	0	11.2	...	-1	2	-2	-10		
6	17.2	2	12.7	...	-3	3	1	-5		
7	18.1	4	13.4	...	-3	4	3	-2		
8	18.6	5	14.0	...	-2	5	4	-1		
9	17.0	5	13.6	...	1	5	2	-5		
10	15.0	5	11.9	...	4	4	-2	-13		
11	13.2	6	10.4	-35	6	1	-8	-24		
12	11.4	8	9.0	-16	6	-5	-19	...		
13	10.1	12	8.0	1	4	-14	-33	...		
14	9.5	17	7.5	14	2	-21	...	...
15	9.1	24	7.2	27	-1	-30	...	...
16	8.9	27	7.1	32	-2	-33	...	...
17	9.1	28	7.1	36	0	-32	...	...
18	9.1	29	7.1	36	-1	-32	...	...
19	8.5	29	6.6	35	-6	...	...	...
20	8.0	29	6.1	33	-12	...	...	...
21	8.5	29	6.5	35	-6	...	...	...
22	10.3	28	7.4	37	9	-16	...	...
23	8.8	20	6.8	20	-1	-27	...	...
24	9.6	12	6.7	3	2	-17	-38	...		

VK WEST — EUROPE										
UTC	MUF	dBu	FOT	7.1	14.2	18.1	21.2	24.9		
1	9.8	13	6.9	7	2	-19	...	...
2	9.2	3	6.5	-9	-2	-20	...	...
3	10.2	-1	7.4	-27	0	-11	-26	...		
4	12.9	1	8.7	...	2	-2	-10	-25		
5	16.1	3	11.8	...	1	3	-1	-10		
6	18.3	4	13.4	...	0	4	2	-4		
7	19.3	5	14.2	...	-1	5	4	-1		
8	20.1	6	14.8	...	-1	6	5	0		
9	20.5	6	15.3	...	0	6	6	1		
10	18.9	6	15.2	...	3	7	4	-2		
11	17.1	7	14.4	...	7	7	2	-8		
12	15.4	10	12.2	-29	10	6	-2	-16		
13	13.6	13	10.8	-6	12	2	-10	-29		
14	12.3	17	9.8	11	12	-3	-19	...		
15	11.6	21	9.2	25	12	-8	-27	...		
16	10.9	24	8.6	31	9	-14	-37	...		
17	10.3	26	8.2	35	6	-20	...	...
18	10.2	27	8.0	38	5	-22	...	...
19	10.0	27	7.8	38	4	-24	...	...
20	9.1	28	7.1	36	-2	-34	...	...
21	8.1	29	6.2	33	-13	...	...	...
22	8.6	28	6.6	34	-8	...	...	...
23	8.9	29	6.9	36	-3	-35	...	...
24	9.1	22	7.0	25	-1	-29	...	...

VK EAST — EUROPE (long path)										
UTC	MUF	dBu	FOT	7.1	14.2	18.1	21.2	24.9		
1	10.0	4	6.7	-15	3	-9	-24	...		
2	9.6	6	6.5	-7	3	-12	-29	...		
3	9.0	9	6.2	1	1	-17	-36	...		
4	8.8	14	6.1	10	0	-21	...	...
5	8.4	23	5.9	24	-2	-29	...	...
6	9.4	23	6.8	24	-4	-19	...	...
7	11.7	24	8.5	30	15	-2	-20	...		
8	12.0	23	9.3	23	17	2	-12	-32		
9	9.3	14	7.1	7	5	-12	-30	...		
10	9.0	4	6.9	-8	3	-11	-27	...		
11	9.5	-1	7.5	-22	1	-10	-25	...		
12	9.0	-10	7.1	-31	0	-10	-23	...		
13	8.8	-15	7.0	-38	0	-8	-20	-38		
14	8.9	-19	7.0	...	-1	-8	-18	-35		
15	8.9	-28	6.9	...	-6	-12	-22	...		
16	8.4	...	6.4	...	-14	-21	-34	...		
17	7.9	...	6.0	...	-21	-30	...	...
18	8.4	...	6.4	...	-13	-20	-32	...		
19	10.3	-14	8.1	...	-1	-4	-12	-25		
20	13.4	-3	10.2	...	0	0	-5	-15		
21	14.4	0	9.7	...	0	1	-3	-13		
22	12.7	0	8.6	...	2	0	-8	-21		
23	11.5	1	7.8	-35	3	-3	-13	-29		
24	10.7	2	7.2	-24	4	-6	-18	-37		

VK SOUTH — EUROPE (long path)										
UTC	MUF	dBu	FOT	7.1	14.2	18.1	21.2	24.9		
1	9.2	-1	6.3	-17	0	-14	-30	...		
2	8.6	3	6.0	-6	-2	-20	...	...
3	8.2	6	5.7	2	-4	-27	...	...
4	8.0	12	5.7	10	-7	-33	...	...
5	7.7	21	5.6	22	-11	...	...	...
6	8.8	21	6.4	23	-2	-30	...	...
7	10.7	23	7.9	29	9	-12	-32	...		
8	12.9	22	9.0	29	18	2	-13	-34		
9	11.2	18	7.8	15	10	-7	-25	...		
10	8.7	10	6.7	4	0	-20	...	...
11	8.9	3	6.2	-8	0	-17	-35	...		
12	8.6	-4	5.9	-18	-1	-16	-33	...		
13	8.3	-12	5.8	-26	-1	-13	-28	...		
14	8.3	-21	5.7	-38	-4	-14	-28	...		
15	8.2	-39	5.8	...	-12	-22	-37	...		
16	7.9	...	5.6	...	-22	-33	...	...
17	7.7	...	5.5	...	-30	...	...	...
18	8.3	...	6.1	...	-22	-30	...	...
19	9.9	-22	6.8	...	-5	-9	-18	-33		
20	12.5	-7	9.2	...	-2	-2	-7	-18		
21	13.2	-4	9.2	...	-2	-1	-6	-16		
22	11.7	-6	8.1	...	0	-3	-10	-23		
23	10.6	-5	7.3	...	0	-5	-16	-32		
24	9.7	-4	6.7	-29	0	-9	-23	...		

VK WEST — EUROPE (long path)										
UTC	MUF	dBu	FOT	7.1	14.2	18.1	21.2	24.9		
1	8.8	-11	6.1	-29	-3	-14	-28	...		
2	8.2	-10	5.8	-21	-4	-19	-36	...		
3	7.8	-7	5.5	-12	-6	-25	...	...
4	7.6	-3	5.5	-7	-8	-29	...	...
5	7.5	1	5.4	0	-10	-35	...	...
6	8.5	7	6.2	3	-5	-28	...	...
7	10.2	12	7.7	7	3	-15	-33	...		
8	12.4	15	9.3	9	11	-3	-17	-37		
9	14.2	15	10.6	8	15	4	-7	-24		
10	12.7	13	8.7	3	10	-1	-14	-33		
11	10.1	6	7.5	-9	3	-10	-25	...		
12	8.9	-4	6.5	-20	-1	-14	-29	...		
13	8.9	-9	6.0	-28	-2	-14	-28	...		
14	8.5	-17	5.7	-34	-3	-13	-26	...		
15	8.2	-36	5.6	...	-12	-21	-35	...		
16	8.2	...	5.6	...	-18	-27	...	...
17	8.1	...	5.6	...	-24	-32	...	...
18	7.8	...	5.5	...	-30	-39	...	...
19	7.5	...	5.3	...	-34	...	...	...
20	8.2	...	5.9	...	-23	-31	...	...
21	9.7	-22	6.5	...	-6	-10	-18	-33		
22	11.3	-11	7.9	...	-4	-5	-12	-25		
23	10.2	-14	7.1	...	-3	-7	-16	-31		
24	9.3	-14	6.5	...	-2	-10	-22	...		

VK EAST — MEDITERRANEAN										
UTC	MUF	dBu	FOT	7.1	14.2	18.1	21.2	24.9		
1	9.1	-2	7.0	-21	0	-14	-31	...		
2	9.9	-5	7.5	-36	0	-9	-22	...		
3	13.9	1	10.5	...	2	1	-5	-17		
4	18.9	6	14.5	...	0	6	4	-1		
5	22.0	7	17.2	...	-2	7	7	4		
6	22.0	6	18.0	...	-2	6	7	3		
7	21.2	6	17.2	...	-1	6	6	2		
8	19.6	6	15.7	...	1	6	5	-1		
9	17.7	7	14.9	...	4	7	3	-5		
10	16.0	9	12.7	...	8	6	0	-11		
11	14.1	10	11.2	-23	10	4	-6	-21		

HAMADS

TRADE ADS

● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albany; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth.

● **WEATHER FAX programs for IBM XT/ATs** *** "RADFAX2" \$35.00, is a high resolution shortwave weatherfax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" \$45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, plus 137 MHz Receiver. *** "MAXISAT" \$75.00 is similar to SATFAX but needs 2 Mb of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 35" disks (state which) plus documentation, add \$3.00 postage. ONLY from M Delahunty, 42 Villiers St, New Farm OLD 4005. Ph (07) 358 2785.

● **HAM LOG v.3.1** — Acclaimed internationally as the best IBM logging program. Review samples....AR: "Recommend it to anyone"; The Canadian Amateur: "Beyond this reviewer's ability to do it justice. I cannot find anything to improve on. A breakthrough of computer technology". ARA: "Brilliant". Simple to use with full help, the professional HAM LOG is immensely popular (now in its 5th year), with many useful, superb features. Just \$59 (plus \$5 P & P), with a 90 page manual. Special 5 hour internet offer. Demos, brochures available. Robin Gandevia VK2VN (02) 369 2008 BH fax (02) 369 3069. Internet address rhg@ozemail.com.au.

FOR SALE ACT

● **KENWOOD TS530S** s/n 1121013, SSB filter, hand mic, serv man, op man, orig carton, matching AT230 ant tuning unit s/n 2010766, serv man, op man, orig carton. Both exc condition, \$750 the pair, ono. Stirling VK1EV QTHR (06) 258 8023.

● **MORSE OSCILLATOR MFJ557** as new, complete with Morse key, earphone jack, volume and tone control \$70. Ernest VK2KYA (02) 771 2561 AH or (02) 906 2628 BH.

● **YAESU FT901D** complete station, FT901D YO-901 microscope, FV901DM VFO, FC901 500 W ATU, SP901 speaker, all exc, sell as complete package, \$1,300.00 no offers. Tex VK1TX (06) 296 2508 or (018) 48 1130.

FOR SALE NSW

● **YAESU FT101ZD**, mic, workshop manual, handbook, WARC bands, good order \$350. David VK2BDT Goulburn (048) 21 5036.

● **ICOM power supply IC PS-15**, \$300, in A1 order, new \$615. Peter VK2FFA (043) 24 4160.

● **FORD TRANSIT M/home**, 1976 Starcraft, hand throttle, 2 spare wheels, excel cond, two batts, 88 k km, \$9,500.00 ono. Suit licensed radio amateur. A J Brown VK2IK QTHR (02) 878 1465.

● **HF BEAM**, three element triband, 10-15-20 metres, little use, like new, \$420; COMMUNICATION receiver Realistic DX-200, AM SSB CW, \$120. Chris Tsoutis VK2GCT (02) 681 5772.

● **POWER SUPPLY 13.8 V 25-30 A**, fully regulated, "new" and over voltage protection, sell or exchange ham gear. S Marshall VK2KST QTHR (066) 72 2462.

● **YAESU FT747GX** txcvr s/n 91200267, HTX100 10 mtr mobile txcvr, b/new, 22 amp power supply, SX 200 Swr & Pwr, Kenroto KR-400 RC, Chirnside CE42 15x10 4 element Yagi, Addonis c/mike desk, CX201 c/axial switch, lots more, all mint condition, \$1,700.00. M Brooke VK2VMB QTHR (065) 68 6754.

● **YAESU FT101B** transceiver s/n 83N304018, good condition including 27 and 10 MHz, AC/DC operation with ext VFO, FV101 cw filter, handbook, spare valves, \$600. Karl VK2KM (063) 55 2671.

● **KAYPRO** portable computer, 10 Mb hard drive, ideal for logging, \$150 or offer. Bill VK2WS QTHR (067) 75 2158.

● **KENWOOD TR-751A** all mode 2 metre transceiver s/n 7050240 with manual, in mint condition \$850. John VK2ATU (02) 792 2275.

● **FREE FOR THE TAKING**, 18AVQ all band HF vertical, 5 metres length. Partially disassembled, moved to flat thus surplus. Duane Foster VK2VE (02) 818 5946.

● **YAESU FT901DM** (with 30 metres) HF transceiver, YD148 desk microphone, manual and original packing for shipment, \$600. Barry VK2AAB (02) 487 1428.

FOR SALE VIC

● **TO GIVE TO A young Novice**. Forty odd Amateur Radio magazines dated from mid 1970s. Will send COD or can collect from Elwood VIC. Glen (03) 9531 9301.

● **ICOM 271A** with pre/amp, \$950; ICOM 735 HF, \$950; TOWER 50ft windup, \$50; MFJ 949D tuner, \$250; MFJ 1701 SWT \$50; ELECTROPHONE CB with ant, \$200. Ken VK3WAL (051) 52 3984.

● **ROTATOR KR-400** complete and in good condition, \$400. Freight paid. Gilbert VK3CQ QTHR (057) 50 1158 BH.

● **NALLY** tower dismantled, ready to replant, \$1,400. Ted VK3TO (015) 67 4887.

● **ICOM 735** transceiver s/n 01783, keyer option, mike, service manuals, \$980; YAESU antenna tuner FC707, \$220; HEADSET, keyer, Shinwa LPF, Hokushin HS- HF5 5 band trap vertical, \$190 the lot or \$1,250 the whole lot. Hartmut VK3DYD QTHR (03) 9555 6714.

● **KENWOOD QR-666** communications receiver, \$100. Ian VK3IAN (059) 82 2323.

● **GREEN SCREEN** monitor 30 cm (12") gc, \$45; TETEMTRON TE23M minibeam 10-15-20, \$275 (list \$495); SABTRONICS Dig MM (req 6 V DC), \$20. Andrew Roudie VK3UJ, 24 Vista Dve, Chirnside Park Vic.

● **YAESU FT290R** all mode (AM FM SSB) 2 metre transceiver with LCD display, dual VFOs, 8 memories, nicad batteries, microphone, carry case, manual and original carton. As new condition, \$375. Chris VK3KCP (03) 9629 2653

● **RTTY** repeater, complete including 2 metre Philips FM828 transceiver and 240 V power supply. Professional RTTY controller, rack mounted, complete set of service manuals. Excellent condition. David VK3KAB (03) 9808 4035 AH.

● **OSCILLOSCOPE** Tektronix model 535A, dual beam, c/w trolley, type CA plug in and type B plug in preamps, handbooks, and Tektronix probe. Partly restored and in excellent order, \$300 or near offer; AUDIO AMPLIFIER Leak Variscope 2, valve type, 20 watt stereo and preamp new condition, \$200 or near offer. Ric VK3RC QTHR (057) 99 1388.

● **EDDYSTONE 1990R** VHF/UHF receiver, workshop manual, \$550; TEKTRONIX 564 dual beam storage cro, many plug-ins, probes, includes all manuals, \$300; ICOM IC-729 HF & 6 m all mode transceiver, \$1,600. Chas VK3BRZ (052) 25 0937 BH or (052) 82 3167 AH.

● **FM828** Eband FM radios suitable for conversion to 6 metres, local or remote control, Mk1s, \$30, Mk2s, \$40 inc. p&p; ATV transmitter (Rider design) on 576 MHz, suit conversion to 70 cm, 2C39 final, \$250 ono. Geelong Amateur Radio Club, PO Box 520, Geelong Vic 3220 or Lee VK3PK (052) 50 1105.

● **HYGAIN TH3** with instruction booklet, coax and balun, \$120; DAIWA SWR & power meter, \$65; DAIWA new antenna switch \$60. Selection of Morse keys and baluns, cheap coax. Ken VK3TL Montrose (03) 9728 5350.

● **ICOM IC735** s/n 3152, PS-15 s/n 11313, ICSP3, \$1,450; ICOM auto ant tuner IC-AT500 s/n 3671, \$450; HEATHKIT kW HF amp HA14, PSU HP24, \$420; ICOM IC27A 2 m, \$390; ICOM IC22S, MDRC freq sel & display, \$200; PAKRATT PK232, \$20 Nally tower, wind up/tilt with tri-band & Ham-M, offer; MODEM MAESTRO 2400ZXR, \$40. Maxwell VK3BAX QTHR (052) 29 7401.

● **PLESSEY PR155** 0.5-30 MHz prof solid-state Rx with manual, \$190; EDDYSTONE 770 Rx 19-165 MHz with manual, \$60; COMMAND Rx BC453 190-550 KHz & BC454 3- 6 MHz, \$10 ea; RACK-MOUNTED 144 MHz AM Tx, QQE06/40 final, power supplies, etc, triple 19" rack, 2.3 m high, 3 cm tail-end radar ex Canberra bomber; 2.7 m dia dish (ex Telecom); self supporting steel tower, 10 m (33") high; parts, valves, etc. SASE for list, offers invited. Ian ex VK3ZAM (03) 9729 4359.

- ICOM IC28A 2 m transceiver, 25 w, mic, manual, mobile mount, cables, ec, \$395 ono; KENWOOD TM241A, 50 W, 2 m transceiver, as new, \$495 ono; KENWOOD TS930S HF transceiver, ec, \$1495 ono; IRC 2.1 kHz narrow SSB filter set (8 MHz and 455 kHz), suit Kenwood TS850/930/940/950, \$215 ono; KENWOOD SP820 spkr, filters, ec, \$100 ono; YAESU FP300 20 A PSU, vgc, \$295 ono; YAESU RS series mobile whips, 80, 40, 20 and 2 m, \$100 ono; GM270 2 m/70 cm 'on glass' mobile ant, brand new, unused, \$90; BENCHER non-iambic key, vgc, \$90 ono. Bill VK3BR, QTHR, (03) 9584 9512.

FOR SALE QLD

- YAESU 707 HF SSB base or mobile station comprising FT707 transceiver s/n 2E230089, FP707 power supply s/n 11130580, FC707 antenna tuner s/n 2F190309 WARC bands, all manuals, perfect condition, \$900 the lot. Brian VK4YBW QTHR (07) 3816 0714.
- PK232MBX multimode TNC including Pactor/fax, Pakratt2 and Pakratt-for- Windows software, manuals and mods/cct diagrams, vgc, \$550 the lot, user upgrading. Frank VK4DFM (071) 29 4311.
- KENWOOD MC-43S microphone with up-down switch, brand new, \$70. C King VK4OZ QTHR (07) 5532 4078.
- YAESU YP-150 dummy-load watt-meter, 150 W, vgc, \$100. Ron VK4AJV (071) 62 3445 anytime.
- VALVES FOR amateurs restorers collectors, octals, novals, QRP rigs, transmitters, sockets, shields, 807, 6146, 12BY7, 5 stars, rectifiers, regulators, all tested. Reduced prices. Send 9" x 4" SASE for list. Ted VK4YG PO Box 245, Ravenshoe Old 4872 or (070) 97 6387.

- SWAN 350 txcvr inc vox and manual, all vgc. Doc VK4CMY (076) 85 2167.
- PK232MBX MULTI mode controller, includes phase mod board for satellite operation, latest software cables, etc, s/n 37025, \$600 ono. Jim VK4BS QTHR (073) 286 4730.
- KENWOOD TS140S (10-30 MHz) transceiver, \$1,100; KENWOOD SP430 matching speaker, \$100; AMERITRON AL811H amplifier, \$1,800; ICOM 701 transceiver (10-30 MHz), \$500; ICOM IC701PS matching power supply and speaker, \$300; MFJ VERSA tuner III 1.5 kilowatt MFJ962C, \$600; MFJ815B SWR/watt meter peak reading, \$200; TRIO 15 MHz Oscilloscope CS1560All, \$300; GME electrophone, 35 amp power supply, \$2,000; ICOM 28A VHF transceiver 5-25 watts, \$600; ICOM SM8 desk mike, \$400; EMTRONIC HB35C tribander, 10-15-20 bands, \$600; FREE STANDING 45" tower, hot dip gal, 4 leg, \$2,000; KR400 Rotator (adapted to tower, top sleeve only), \$900; MFJ Power board 1118 with meter, \$400; MC60 Desk mike adapted to a boom or moving arm, \$200. All equipment in good order. Neil VK4ANF (07) 201 0956 AH.

FOR SALE WA

- TS440S/AT, \$1,600; IC735, \$1,000; FT301S, \$200; FTV650 and PSU, \$200; TS130V, \$250; HF linear amp 150 W, \$150; TWO 500 MHz frequency counters, \$50 each. Elliot VK6ELL QTHR (09) 364 5297.

WANTED NSW

- PHILIPS FM828 UHF U band. Ken VK2SX (02) 413 1846.
- ICOM 271 and Yaesu FT290R. Ian VK2MW QTHR (02) 44 4985.
- TECHNICAL manual for Collins transceiver model 618T and connecting cables for same.

All costs paid. Peter VK2CPK QTHR (02) 605 4790 or (02) 689 2417.

- KENWOOD TM-733A, good quality antenna and down converters for 1.2 and 2.4 GHz, Drake PS-7 power supply (working or not), Collins SM-1 or SM-2 mike, four new 811 valves. Tom VK2OE (046) 26 2631 evenings.

WANTED VIC

- TYPE BC 375E aerial tuning unit — ex US wartime equipment, required for restoration project. Ric VK3RC QTHR (057) 99 1388.
- SAILORS communication receiver R1120, purchase or swap, have some Sailor R1121 telex/SSB scanning HF receivers available. Ian VK3IAN (059) 82 2323.
- ANY INFORMATION Philips FM321 70 cm FM transceiver, circuit diagram, channel allocation, etc. Ray VK3FQ QTHR (054) 36 8301.
- MARC RX info req re DIN plug, Rx covers LF to SHF in 12 bands; also wanted antenna TH3M3 or similar, eg Cushcraft or Telrex, etc. Pick up within VK3 if cheap. Jim VK3YJ QTHR (03) 9315 9387.
- HUB FOR triband quad similar to VK3ASC design in Amateur Radio March 1970. Also Microphone for IC2A hand-held 2 m transceiver. David VK3ANP QTHR (057) 27 6210.
- BC348RX, good price for a good unit, will tradesell manuals for AT5/AR8, RA17, R390, SCR522, AR88, etc. Peter VK3IZ 1585 Kinglake Rd, St Andrews VIC 3761 or (03) 9710 1153.

WANTED QLD

- 250 W dummy-load Bird model 43 wattmeter, must be vgc. Ron VK4AJV (071) 62 3445 anytime.

Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.

- *Eight lines per issue free to all WIA members, ninth line for name and address
- Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.
- *Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.
- *Copy typed or in block letters to PO Box 2175, Caulfield Junction, Vic 3161, by the deadline as indicated on page 1 of each issue.
- *QTHR means address is correct as set out in the WIA current Call Book.

- *WIA policy recommends that Hamads include the serial number of all equipment offered for sale.
- *Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

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State:

Not for publication: Miscellaneous For Sale Wanted

Name: Call Sign: Address:

- 300 TV ladder line for antenna experiments, sundry lengths ok, also give good collector's home to unwanted Heathkit equipment. Doc VK4CMY (076) 85 2167.
- 70 CM SSB Transceiver. Bill VK4YWY (07) 3285 1462.
- TENTEC speech processor, model 123. Henry VK4CQH QTHR (070) 92 1994.

WANTED SA

- COPY OF Circuit and alignment details for Gonset GSB-100 TX, costs covered. Also WW2 ATR2-B circuit or info valve RX wanted. SKY RAIDER made by Craven Wyld Sydney in 1940 or similar RX. A Gluis VK5AAQ QTHR (08) 322 1010.

WANTED WA

- HANDBOOK for AWA communications receiver type CR-6 series C60600, or good photocopy, will pay fair costs. John VK6XJ QTHR (09) 295 3333.
- SOFTWARE for C64 to suit ETI 755 RTTY modem, also ETI 733 decoder. Costs reimbursed with thanks. Terry VK6NTJ QTHR.
- HANDBOOK and/or circuit diagram for GEC communications receiver type BRT400 or BRT402, made in England in early 1960's. Will pay fair price. John VK6XJ QTHR (09) 295 3333. Please help if you can.

MISCELLANEOUS

- THE WIA QSL Collection (now Federal) requires QSLs. All types welcome especially rare DX, pictorial cards, special issue. Please contact Hon Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 9728 5350.

VK QSL Bureaux

The official list of VK QSL Bureaux. All are Inwards and Outwards unless otherwise stated.

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- VK2 PO Box 73 Teralba NSW 2284
- VK3 40G Victory Boulevard, Ashburton VIC 3147
- VK4 GPO Box 638 Brisbane Old 4001
- VK5 PO Box 10092 Gouger Street Adelaide SA 5001
- VK6 GPO Box F319 Perth WA 6001
- VK7 GPO Box 371D Hobart Tas 7001
- VK8 C/o H G Andersson VK8HA
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Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. "How to Write for Amateur Radio" was published in the August 1992 issue of AR. A photocopy is available on receipt of a stamped, self addressed envelope.

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Available only until stocks are exhausted. \$4.00 to members, which includes postage within Australia.

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The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

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WIA Divisional Bookshops

The following items are available from your Division's Bookshop
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	Ref	List Price		Ref	List Price
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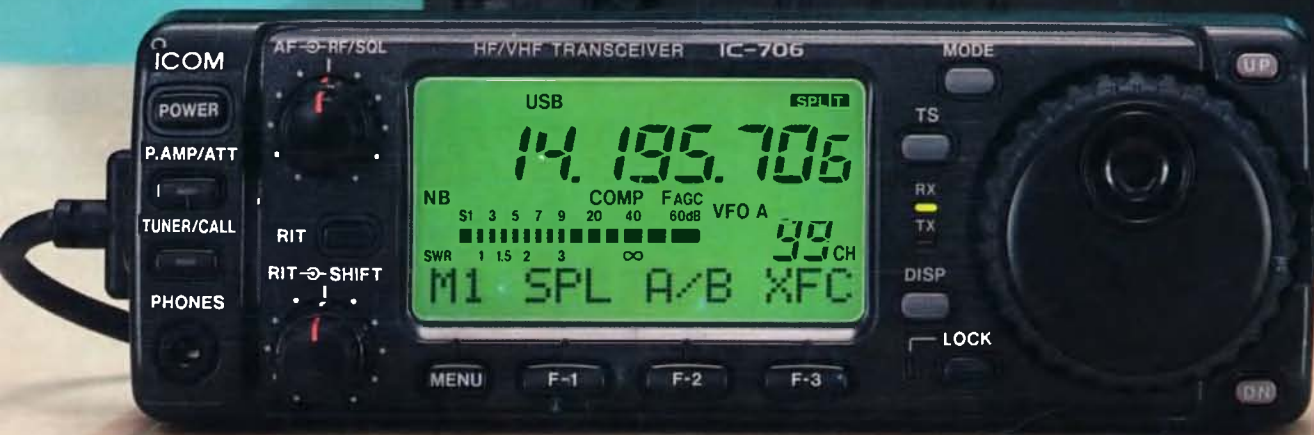
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OCTOBER 1995
Volume 63 No 10

AMATEUR RADIO



Journal of the Wireless Institute of Australia



Full of the latest amateur radio news, information and technical articles including:

- * The WIA — How it Works
- * The Travellers' Net on 14.116 MHz
- * Short Vertical Antennas and Ground Systems

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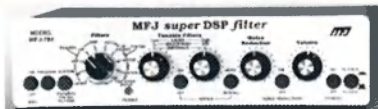
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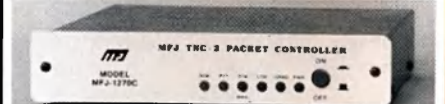
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Cover

Roy Chamberlain VK6BO (left) and Peter Harrison VK6HH, managers of the daily 14.116 MHz Travellers' Net which has become an institution in Australian amateur radio. To learn more about this invaluable service, see the article by Maria VK5BMT and Keith VK5MT on page 7 of this issue of *Amateur Radio*.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editor's Comment

Travelling

Your Editor and XYL Margaret have been fortunate so far in our retirement years (*retirement* — what's that?) in that we have been able to travel quite widely around Australia, for our own education, and at our own expense. On 28 July 1995 we were sitting in a restaurant on Norfolk Island, enjoying an excellent meal, when the thought occurred to us "where were we on this day last year?". Reference to my pocket diary showed that then we were travelling (in convoy with VK3OM and others) from Vlaming Head through Exmouth to Coral Bay. This is nearly (but not quite) as far west as the Australian mainland goes. Exactly twelve months later we were about as far east as one can be on Australian territory!

In a few days (I write this on 28 August, just a month after Norfolk) we will be back on the road again, this time right up the Centre to Alice Springs. Although perhaps our tenth trip to the Alice, we hope this time, in our old 4WD, to see several places we've missed on previous trips. And, as always on these road safaris, we will be on the 20 m Traveller's Net every day around 0230z, so that our whereabouts each night can be confirmed, and urgent messages can reach us if necessary.

It is very satisfying to know that safety and personal contact can be so well provided in the 1990s by amateur radio. To cover a continent such as Australia (eight million square kilometres, and nearly 5000 km from east to west) can only be done economically by HF radio. It may not be long before HF is superseded by hand-held ground transceivers working through a constellation of satellites, but much of the continent is still HF country. The Royal Flying Doctor Service has a network of HF transceivers linking outback station properties with their nearest medical and supply centres, but it isn't much use to the casual traveller. The Citizen's Band is even less useful, except when Sporadic E propagation opens up on 27 MHz.

Long live the 20 metre Traveller's Net and its fellow service on 15 metres. You may read more about it in an excellent article by Maria VK5BMY which appears elsewhere in this issue of Amateur Radio.

Bill Rice VK3ABP
Editor
ar

WIA News

International Amateur Radio Permit for the Americas

The International Amateur Radio Union (IARU) in Region 2, which covers the North and South American continents and surrounding island nations, has developed an International Amateur Radio Permit (IARP) which will allow, in conjunction with an amateur's home country licence, temporary operation in any

other country in the Americas that has signed the agreement, reports *The ARRL Letter*.

The IARP was developed in IARU Region 2 through the Inter-American Telecommunication Commission (CITEL). Following approval, it was adopted by the General Assembly of the Organisation of American States on 8 June 1995. Permits will be issued in two categories: Class 1, equivalent to US Amateur Extra Class privileges, and Class 2,

equivalent to US Technician class. The American Radio Relay League (ARRL) has urged the Federal Communications Commission (FCC) to implement United States participation in the IARP.

The ARRL said the International Amateur Radio Permit would eliminate paperwork for the FCC and for foreign licensed amateurs visiting the US, and US amateurs visiting participating countries in the region.

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers	Weekly News Broadcasts	1995 Fees															
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Rob Apathy Secretary Len Jones Treasurer Alex Colquitt	VK1KRA VK1NLJ VK1AC 3.570 MHz LSB, 146.900 MHz FM each Wednesday evening commencing at 8.00 pm local time.	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00															
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Michael Corbin Secretary Pixie Chapple Treasurer Peter Kloppenburg (Office hours Mon-Fri 11.00-14.00 Mon 1900-2100)	VK2YC VK2KPC VK2CPK From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. The broadcast text is available on packet.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75															
e-mail address: wainsw@sydney.dialix.oz.au																			
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 9885 9261 Fax (03) 9885 9298	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530)	VK3PC VK3XV VK3NC VK3BWI broadcasts on the 2nd and 4th Sunday of the month, starts 10.30 am. Primary frequencies 3.615 LSB, 7.085 LSB, and FM(R)s 146.700 Mt Dandenong, 147.250 Mt Macedon, 147.225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH, VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00															
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Geoff Sanders Secretary John Stevens Treasurer John Presotto	VK4KEL VK4AFS VK4WX 1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00															
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Garry Herden Secretary Maurie Hooper Treasurer Charles McEachern	VK5ZK VK5EA VK5KDK 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555, 7065, 10.125, 146.700, 0900 hrs Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00															
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 351 8873	President Cliff Bastin Secretary Mark Bastin Treasurer Bruce Hedland-Thomas	VK6LZ VK6RR VK6OO 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busselton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday, relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75															
VK7	Tasmanian Division 52 Connaught Crescent West Launceston TAS 7250 Phone (003) 31 9608	President Andrew Dixon Secretary Robin Harwood Treasurer Terry Ives	VK7GL VK7RH VK7ZTI 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$69.00 (G) (S) \$55.65 (X) \$40.00															
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).																		
Note: All times are local. All frequencies MHz.																			
<table border="0" style="width: 100%;"> <tr> <td colspan="2">Membership Grades</td> <td colspan="2">Three-year membership available</td> </tr> <tr> <td>Full (F)</td> <td>Pension (G)</td> <td colspan="2">to (F) (G) (X) grades at fee x 3</td> </tr> <tr> <td>Needy (G)</td> <td>Student (S)</td> <td colspan="2">times.</td> </tr> <tr> <td colspan="4">Non receipt of AR (X)</td> </tr> </table>				Membership Grades		Three-year membership available		Full (F)	Pension (G)	to (F) (G) (X) grades at fee x 3		Needy (G)	Student (S)	times.		Non receipt of AR (X)			
Membership Grades		Three-year membership available																	
Full (F)	Pension (G)	to (F) (G) (X) grades at fee x 3																	
Needy (G)	Student (S)	times.																	
Non receipt of AR (X)																			

■ Administration

The WIA — How it Works

Val Bergman-Harrison* explains the structure and operation of the Federal WIA.

It is apparent that the structure and operation of Federal WIA is not widely appreciated among Division's members. Indeed, some WIA Federal Councillors have expressed the view that there is considerable confusion and misunderstanding about the structure of the WIA, the Divisions and the membership and how they all relate to one another. The changes foreshadowed at the 1995 Federal Convention at the end of April, as detailed in *WIA News* in the June issue, have probably engendered further puzzlement.

This article attempts to clarify the situation for all and is based on a presentation given to the Federal Council at the April 1995 Federal Convention.

The WIA is a Company

The Wireless Institute of Australia, which we commonly know as 'WIA Federal', is a public company, but a little different from familiar public companies such as BHP and Woolworths, etc which are listed on the stock exchange. These companies sell shares to people and other companies, and distribute a portion of their profits to the shareholders. The shareholders are known as the members of the company.

The WIA is a special class of public company in that it does not issue shares and has no registered shareholders, as such. In terms of company law, that is the Corporations Law, it is known as a "Section 383" company and is permitted to omit "Limited" from its name. All this you can see in the accompanying reproduction of the company extract from the Australian Securities Commission (Figure 1).

But if the WIA doesn't have shareholders, how can there be "members" of the company? In this type of company, "members" pay a

subscription to belong to the company. In the case of WIA Federal, there are only seven members. These are the seven state organisations, the Divisions, which are actually separate, autonomous bodies. They are not "branches" or "subsidiaries" of WIA Federal.

The purposes for which the WIA Federal company is formed differ from public companies with shareholders in that the WIA does not, and cannot, distribute any of its surplus funds — or profit — to the members of the company. The WIA exists for basically altruistic purposes — to foster and promote the hobby of amateur radio, promote and conduct national and international contests, and represent the amateur radio service at the national and international levels.

In international amateur radio affairs, WIA Federal has an exclusive role in dealing with the amateur radio organisations of other countries, the International Amateur Radio Union (IARU) and international regulatory


authorities such as the International Telecommunications Union (ITU).

A Section 383 company, such as the WIA, is also known as a "not-for-profit" company. That doesn't mean to say that the company cannot undertake activities which earn it a surplus over costs, a profit. It simply means that the purpose of the company is not to make money and distribute it to the members — the shareholders — as do public companies listed on the stock exchange. What surplus funds WIA Federal may generate are used to foster the interests of the Institute and the amateur radio service.

But, shareholders or not, the structure of the WIA Federal company otherwise closely parallels those public companies listed on the stock exchange. Under the Corporations Law, public companies have three fundamental components:

1. The company itself, which is regarded as an entity on its own;
2. The members of the company — those who want the company formed, and run, for a specific purpose or purposes;
3. The directors of the company — who manage its operation or activities on behalf of the members of the company.

You can see the three basic components of the company in the "map" shown in Figure 2. The WIA's Articles of Association establish the structure you see in this map.

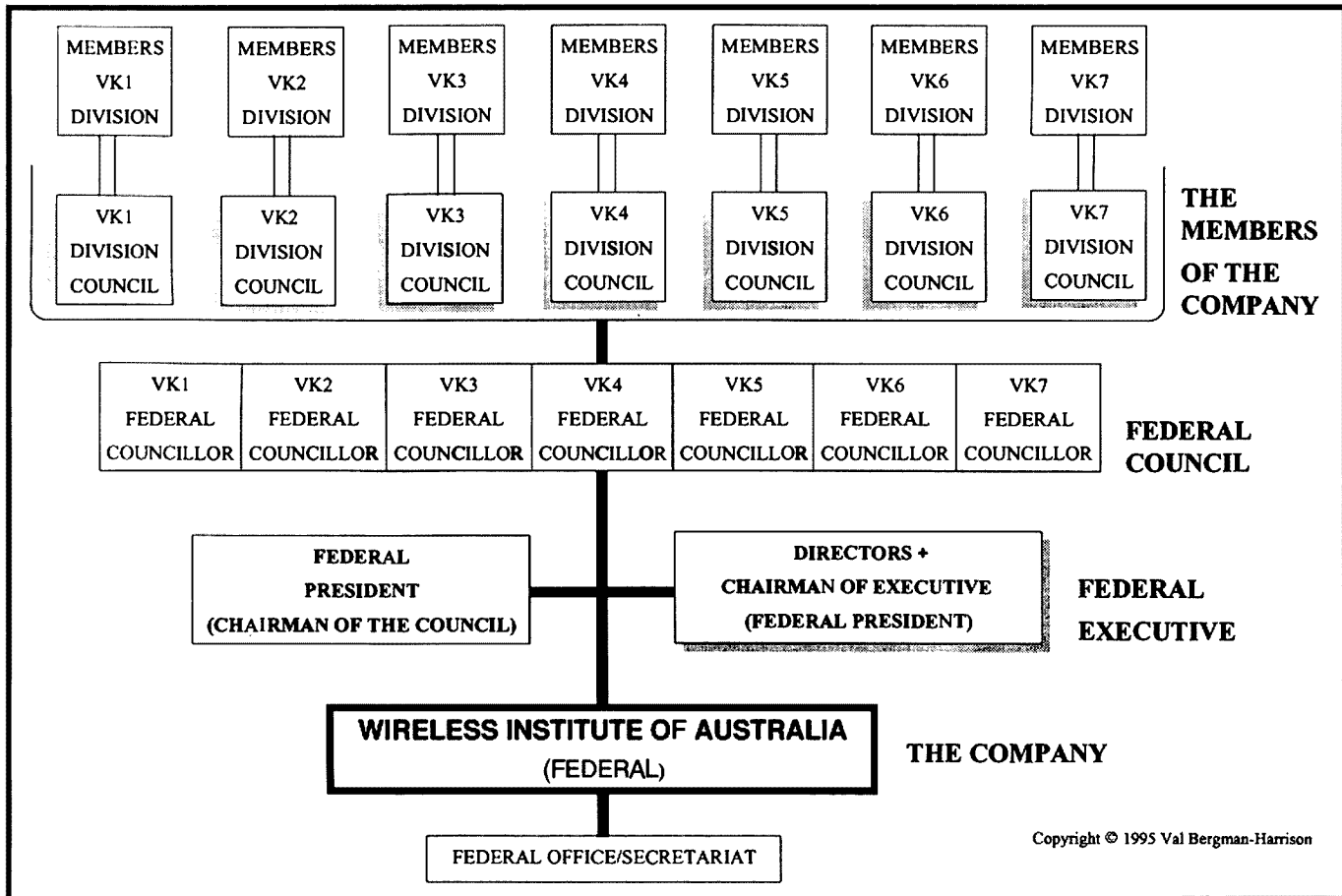
COMPANY EXTRACT		25/07/1995 13:20:39	PAGE: 1	
004 920 745 THE WIRELESS INSTITUTE OF AUSTRALIA		DOCUMENT NO		AUSTRALIAN SECURITIES COMMISSION

Australian Company Number: 004 920 745				
Incorporated in: VICTORIA				
Previous State Number: C0091915R				
Registration Date: 17/01/1972				
Principal Activity: AMATEUR RADIO MEMBERSHIP SOCIETY				
Current Organisation Details				

Name	: THE WIRELESS INSTITUTE OF AUSTRALIA	001 367 010		
Name Start	: 17/01/1972			
Status	: REGISTERED			
Type	: AUSTRALIAN PUBLIC COMPANY			
Class	: LIMITED BY GUARANTEE			
Subclass	: COMPANY LICENCED TO OMIT "LIMITED" FROM NAME			
Registered Office				

STE 3, 105 HAWTHORN RD, NORTH CAULFIELD, VIC 3162		001 367 010		
Start Date: 27/05/1991		(AR 1990)		

Figure 1 — Company extract for the WIA (Federal), from the Australian Securities Commission's companies database.



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Figure 2 — “Map” of the WIA Federal company structure, which is a federation of the Divisions, showing relationships between the Federal Executive, the Federal Council, the seven WIA Divisions and the Divisions’ members. This should not be confused with a conventional “organisation” chart, which shows directional “lines of command”.

WIA Federal and the Divisions

The members of WIA Federal — the seven state Divisions — are, as explained above, autonomous, in the same way a person is autonomous. The members of each Division — who are subscribers to their Division (whether it be an incorporated association, as in South Australia, or another Section 383 company, as in NSW and Victoria) — are separate and connected directly *only* with their own Division. As a “member of the WIA”, you are a member of the particular Division to which you have subscribed. That is, you are a member of the WIA ACT Division, or the WIA NSW Division, or the WIA Victorian Division, etc, as the case may be.

The Division councils each appoint a representative — the Division Federal Councillor — who “stands in” for their Division at meetings of the WIA Federal company. As a

group, the seven Federal Councillors are called the *Federal Council*.

The **directors** of the company form the *Federal Executive*, otherwise known as the board of directors in other public companies. The directors on the Federal Executive are appointed by the Federal Council under the rules of the Articles of Association.

The **Federal Secretary** is the company (WIA Federal) secretary.

WIA Federal — How it Works

Under the Corporations Law, the directors of a company “stand between” the members of the company and the company as a corporate body, and see that, through the employees, the company pursues the purposes for which it is formed.

The meetings of members of a company serve to set out the broad lines of policy of the company. In those familiar public companies of

the stock exchange, the members of the company effectively “stand back” and leave the month-to-month management of the company to the directors. In turn, the directors leave the day-to-day activities to the employees, but provide aims and direction according to the policy lines determined at meetings of the shareholders (the members). A company’s employees work for, and owe their loyalty to, the company as an entity.

The WIA’s Articles of Association, however, differ from this general scenario in that they allow the Council to manage the Institute generally, as well as providing some specific powers. So, the members of the WIA Federal company, through their Federal Councillors, establish the Institute’s activities, its operating policies and direction. The Federal Executive is responsible for seeing that the company operates as the Federal Council intends, manages

the financial operations and reports on the financial performance to the Federal Council.

Under the Corporations Law, the directors owe the company what is known as a "fiduciary" duty. That is, the directors are entrusted to manage the company on behalf of the shareholders (the members). The nature of that duty is of "good faith and loyalty". Directors have an obligation to act in the interests of the company as a whole — *not* to individual shareholders (or members).

In the case of the WIA Federal company, while the individual members of the Federal Executive (being directors) will belong to a Division, they are not, and cannot act as, their Division Council's "delegate" or "representative" on the Federal Executive. They cannot act under instruction from their Divisional Council. Such would be contrary to their duties under the Corporations Law.

Each WIA Division has a "representative voice" *only* on the Federal Council. At Federal Council meetings, the Divisions' Federal Councillors may act under general instruction, or specific instruction, on

business being considered by a meeting.

The annual general meeting of the Federal WIA company is called, according to the Articles of Association, a *Federal Convention*. This is a meeting of the members of the company to hear reports of its financial affairs, and the operations and activities carried on throughout the previous year. In addition, matters of policy are also decided. In recent years, the Federal Council has held three other general meetings between Federal Conventions, as a matter of policy, at more or less quarterly intervals. These are called *Extraordinary Conventions*.

The Federal President is both the Chairman for Federal Council meetings and the Chairman of the board of directors — the Federal Executive. When chairing the meetings of Federal Council, he has no vote, only the seven Federal Councillors may vote. When chairing meetings of the Executive, however, the President may vote. The Federal President, being the President of the Council and the appointed chairman at Federal Council meetings, provides the only direct link between the

Federal Council and the Federal Executive (the board of directors).

The Federal Office

The WIA Federal Office acts as a secretariat, to perform functions as set down by Federal Council policy, such as centralised maintenance of the Divisions' membership records, the publication of *Amateur Radio* magazine and the annual Call Book, secretarial functions relating to WIA Federal's various activities such as correspondence with international amateur radio societies, the keeping of the company's accounts, etc. The Federal Office is *not* WIA Federal.

The Federal Secretary is an employee of WIA Federal and under the Articles of Association is responsible for the preparation of company financial reports for the Federal Executive (the directors) and the Federal Council, the calling of company meetings, along with performing statutory duties of the company — that is, preparation and submission of the company's annual report to the Australian Securities Commission, preparation and submission of statutory notices (eg change of directors), etc.

This, in a succinct summary, is how the Federal WIA conducts its affairs.

Dispelling Some Fallacies

- The Wireless Institute of Australia (Federal) is not a "Division" — there is no "Federal Division".
- Members of, say, the WIA ACT Division or the WIA Victorian Division, are just that — not generic "members of the WIA".
- Each Division Council has a "representative voice" on the Federal Council, in determining policy for the Federal WIA.
- While the individual members of the Federal Executive (being directors) will belong to a Division, they are not, and cannot act as, their Division Council's "delegate" or "representative" on the Federal Executive.
- The Federal Office is not "the WIA". It is an administrative office, or secretariat, for the Federal WIA.

**LMB 888, Woollahra NSW 2025. Val Bergman-Harrison, a member of the NSW Division, is a company change management consultant.*

ar

WIA News

New Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of August 95.

L21001 MR P J LOCKLEY
 L21002 MR J C CRAIGEN
 L21003 MR K W PILLEY
 L21004 MR E SEDDEN
 L30915 MR I BENSON
 L60343 MR M J SAXON
 L60344 MR D J PETERKIN
 VK2IDS MR B KATES
 VK2IN AAPRA
 VK2NCE MR J W GAYNOR
 VK2TGR MR B WINTER
 VK2UBF MR B FARRAR
 VK2WGY MR G KAMAT

VK3OD MR D J GOSS
 VK3SX MR R ROBINSON
 VK3ZLN MR L N CLARKE
 VK6VE MR H M GILMOUR
 WB4ZDU MR R G SMITH

The WIA also bids a warm welcome to the following new members whose names were accidentally omitted from publication in the April 95 issue of *Amateur Radio*.

L30908 MR R RAMM
 VK3APK MR P PERKINS
 VK3CAP MR A P POWER
 VK3DPI MR D R WATSON
 VK3LPM MR R C MACKAY
 VK3TUE MR B P MITCHELL
 VK3ZIP MR M KROCHMAL

■ Operating

The Travellers' Net on 14.116 MHz

Maria McLeod VK5BMT and Keith McLeod VK5MT explain all you need to know about this popular net.*

Australia is a large country and the realisation of this becomes apparent when travelling by vehicle. It is this vastness of distance that creates a degree of anxiety for first time travellers (and for some of the more experienced).

Many travellers now stay on the road for periods of, typically, three to five months every year, mainly during the southern winter months. During this period, those travellers who are licensed amateurs (full call) regularly use the very professional services of

the VK6 Perth based Travellers' Net which is managed by Roy VK6BO and Peter VK6HH.

As we are regular users of the 14.116 MHz Net it has become apparent that, due to the ever increasing number of amateurs now travelling, a set of guide lines on how best to operate on the Net would be appropriate.

During the peak of the "season" (June, July and August) we have logged as many as 60 amateurs on any one day calling in to the Net to

report their geographic position and to inquire of any traffic of a personal nature. In order to improve the overall efficiency of the Net, Peter VK6HH has prepared a set of guide lines for those amateurs using, or contemplating using, the facilities provided.

AIMS

To provide:—

1. Any urgent or priority traffic or relays to and/or from travellers as required.
2. A time/frequency for travellers to meet and arrange a QSY up the band (a central "get together" point).
3. A terminal point (Peter's and Roy's phone numbers) where messages can be left by family or friends for relay to travellers when they call in; or just an enquiry from friends or relatives if they want to know where travellers are located at last call.
4. A known time and frequency where a traveller can guarantee a

ATN ANTENNAS P/L

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Phone: (054) 92 2224 Fax: (054) 92 2666
PO Box 80, Birchip, 3483

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We manufacture a comprehensive range of HF, VHF and UHF antennas, baluns, power dividers etc. Log periodics provide continuous coverage from 13-30MHz (incl. WARC bands) and replace outdated tri-banders. Also 10/30 & 7/30 MHz. Now in use in 42 overseas countries and all continents.

- Rotators by Create. Coax cables. Non-conducting guy/halyard materials by Phillystran.
- B&W all frequencies 1.8-30MHz end-fed vee. All frequencies 3.5-30MHz folded dipole. 10W, 100W, 1kW. No radials required. Diamond 80-40 & 80-10 trapped dipoles and accessories.
- Hard-drawn copper antenna wire and insulators.
- High gain VHF & UHF amateur, scanning & TV antennas.
- Butt-section triangular aluminium towers for fixed or tilt-over applications also HAZER ASSEMBLIES.
- Selections of power chips and TX tubes at friendly prices.
- VSWR/PWR metres by Diamond to 1300MHz; 10 models. All in stock. New 2m, 70m + 2/70cm for mobiles from \$132.
- WARNING WARNING WARNING. Manufacturers worldwide are ceasing production of "VALVES", "VACUUM TUBES", ETC. JAN/ECG/PHILIPS in the USA have run last production of 6146W a rugged version especially for Collins S-Line ETC. Shortly, users of transceivers will have to discard them due to no replacement tubes. "WE HAVE GOOD STOCKS" 6146W \$50.00: MP \$115.00. ACT NOW & DON'T MISS OUT!!!!

BANKCARD MASTER & VISA CARDS ACCEPTABLE

AUSTRALIAN COMMERCIAL AND AMATEUR ANTENNA MANUFACTURERS — SINCE 1952

For declining HF propagation conditions we are introducing our latest range of Log Periodic Antennas for the discerning Amateurs. We use all stainless steel hardware, 6351-TE aluminium for booms & elements. Phillystran hangers & anti-sway braces on all models.

1/- 10-30-10 (10-30 MHz CONTINUOUS COVERAGE WITH 10 ELEMENTS). 10.5MX BOOM. \$1995 & FRT

2/- 7-30-11 HD. BOOM 12MX. \$2550.00 & FRT

3/- 7-30-11 EHD. BOOM 14MX. \$2775.00 & FRT MONOBANDERS FROM 7MHZ IN HD & EHD. 1,2,3 & 4EL.

NEW MATCHALL FULLY AUTO COUPLER 1.5-30 MHz 150 WTS TO ANY RANDOM WIRE LENGTH. NO KNOBS OR EXT. POWER INCL. AIR FREIGHT \$299.00

NEW AEA SWR 121 HF & SWR 121 VHF/UHF ANTENNA ANALYST. SELF-CONTAINED SIG. GEN., SPECTRUM ANALYSER & GRAPHIC DISPLAY OF VSWR, OPTIONAL SOFTWARE FOR PRINTOUT. HF \$750. V/U \$850 incl. fragile freight.

4/- NEW: SOLE DISTRIBUTOR (AUST/NZ) FOR HI-SIERRA REMOTE CONTROLLED, CENTRE LOADED MOBILE WHIP ANTENNA — 3.5-30 MHz CONTINUOUSLY SPECIAL INTRODUCTORY PRICE: \$659.00 (incl. freight) ALSO SOLE DISTRIBUTOR AUST/NZ FOR RAMSEY INC. TEST EQUIPMENT & KITS — SIMILAR TO HEATHKIT — MORE DETAILS AVAILABLE SOON. ATN IS AN AEA DIRECT IMPORTER.

contact in the event of a breakdown (it is assumed that anybody driving into the hinterland will take the normal precautions of having sufficient food and water to sustain them for at least a couple of days).

5. A relay service between travellers where required.

Urgent Traffic

A call is made at 0250 UTC for anyone who may have urgent or priority traffic; all stations cease transmissions and listen for possible weak signals.

This is repeated by the South Australian relay station or, if it is not available, then the Victorian relay station.

Modus Operandi

All call/traffic should initially go through the Net control station, otherwise the system will fail and become unmanageable!

1. The Net commences at 0300 UTC for 365 days of the year and includes all holidays, even Christmas day. One of the operators is normally listening at least 30 minutes earlier (0230 UTC) in case anybody wishes to call in early.
2. At 0300 UTC the Perth based net control station opens the "Travnet" and does a readback of all reports which have come in early. At the end of the readbacks he asks for any contacts for those who reported in early.
3. After any contacts have been finalised, and the necessary QSYs made, the beam initially is pointed towards the east (from Perth) and calls are made for mobiles or portables in southeast Australia.
4. The Perth Net Control station then rotates his beam anticlockwise around Australia passing through Queensland/Central Australia, Northern Territory, Northwest Australia and finally the Indian Ocean, making appropriate announcements of beam direction and requests for any calls.
5. When that is completed the relay stations (listed later) are requested to go through the same procedure. The South Australian station rotates his beam clockwise from west to east and makes the

appropriate announcements. The Victorian station normally points west, and then north, and makes appropriate calls. Other NSW relay stations, using omni-directional antennas, make a couple of general calls for travellers who have no contact with the Net Control Station. The Queensland station normally goes through a similar procedure but with some change in beam direction.

6. A final call is made from Perth for any mobiles/portables who have not yet been acknowledged, followed by a call for any general enquiries for the "Travnet".
7. The South Australian relay station then makes a final call to the west for any latecomers. This is followed by a general call from Perth for anybody at all for the Net, prior to closing. If nothing is heard, the "Travnet" is closed for the day and the Perth station monitors the frequency generally for 15 to 20 minutes after closure.

Points to Note

There are times when there can be many mobile stations waiting to check in and get on their way. In order that they not be delayed too long, it helps if reports by mobile and portable stations are concise and to the point; that is, where you are and where you will be overnight. Any travellers wanting to pass road and/or weather information to another traveller can QSY up the band. This leaves the net frequency free for use by other mobiles reporting in.

As a general rule the Net controllers try to finish the "Travnet" by 0330 UTC. This is because there is another net (the DDD Maritime Net operating out of Vancouver with relay stations in New Zealand and Tasmania) which commences its warm up period at 0330 UTC on 14.115 MHz. We have an arrangement where we try to keep the frequency clear of QRM where possible. Urgent matters, of course, must be attended to and finalised. However, if that causes a run over of time then we live with it.

General Comments

At the time of writing, the following stations participate regularly in the Net.

Control Stations

VK6BO Roy or VK6HH Peter

Relay Stations

SA VK5RI Bob

Vic VK3ZT Maurie

NSW VK2IV Roy, VK2BIK Max,
VK2AMM Bill, and
sometimes VK2ALH Les,
VK2CJD Jack

Qld VK4FA Don

The above list is not complete. There are many others who help out from time to time. We hope they will excuse us for not listing them as it would make it too long. Rest assured your presence is very much appreciated by the Net Controllers when you can make it.

How Family Can Contact the Net

The telephone numbers are:—
VK6HH Peter, 09 397 5772; VK6BO Roy, 09 331 1825; VK5RI Bob, 088 93 4001; and VK3ZT Maurie, 03 803 2336.

It would be appreciated if, when family or friends are ringing for information or to pass a message, they remember the time difference of two hours (summer time, three hours) between east and west. If the matter is urgent, of course, this doesn't apply — ring anytime. Also, travellers please make sure your family/friends have your callsign and quote it when ringing as the Net often has more than one traveller with the same name.

Net Operation

The Net recognises that, in a mobile situation, you are often subject to noise, and maybe weak signals, and sometimes misunderstand what the Control Station is saying. This can cause you to come in at the wrong time. Well, it's not that important. The Net tries to keep a more or less strict system in operation so that it flows smoothly, but there is always room for some variation.

If you are not familiar with the Net procedure, then listen on the frequency for a couple of days and you will soon get the idea. Just drop your callsign into the system — it will smooth out as the Net goes along.

The following are some technical tips for base stations and mobile operators:

Base Station Operators (who are part of the Net or interested listeners)

1. When not actually transmitting, ensure that your VOX is switched off (frequently a weak mobile station is drowned out by extraneous background noises in the shack being sent to air).
2. Ensure that your transmit frequency is netted exactly to that of the Perth Control Stations. Use your receive "clarifier" if you must; however, it is very helpful to the mobile station if you are transmitting on the same frequency as the control station (or at least within 50 Hertz!).

It is very difficult when operating mobile to adjust the receive frequency with the "clarifier". However, on most modern HF transceivers all that is required is to dial up 14.116.00, operate "FREQ LOCK" or place in "MEMORY", and the frequency will be correct.

Mobile/Portable Operators

The most common and frequent problem which seems to plague mobile stations is one of low voltage. Most modern transceivers are designed to operate with a voltage of 13.8 plus or minus 15%. This voltage is required at the input connector at the rear of the set. When this voltage falls the various phase-locked loops in the transceiver can become unstable causing severe distortion of the transmitted signal.

The poor man's cure for this is to start the engine of the vehicle, thus causing the vehicle battery to be charged by the vehicle alternator which, in turn, raises the voltage at the transceiver towards the required 13.8.

The correct remedy for this problem is to ensure that the cable from the vehicle battery to the transceiver is of sufficient diameter to carry 20 amps with minimum voltage drop. Page 203 of the 1994 Dick

Smith catalogue will help in determining the correct size of cable.

Typically the power requirements are expressed as a percentage variation centred on 13.8 V, or as simply a spread, eg 12-16 V. All of these specifications are for a current drain of 20 amps. In case of a percentage variation relative to 13.8 V of plus or minus 15%, the allowable voltage variation at the radio power input connector would be 11.73 — 15.87, that is plus or minus 2.07 volts.

If the particular transceiver has a specification of 12-16 volts, it then follows that the only method of obtaining 12 volts at the radio input (when transmitting at maximum power output) is to start the vehicle engine which will raise the voltage at the radio towards the required minimum of 12.

All we need to say now is safe travelling.

**1 Hawkins Avenue, Flinders Park, SA 5025*

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■ Antennas

Short Vertical Antennas and Ground Systems

Ralph Holland VK1BRH details his approach to designing an efficient vertical antenna.*

Introduction

There has been a number of articles discussing the merits or otherwise of various types of ground systems. The analysis of such systems is complicated by the facts that practical ground system parameters are difficult to quantify, antennas are situated in less than ideal locations, and literature, that may provide insight into what is happening, often does not present the information in a practical or applicable form. Often the reader is left to extrapolate beyond the bounds of presented data and arrive at the incorrect conclusion. Some folk-lore

has been generated as a result of these types of difficulty; one such lore is "the higher the better", which is an over-generalisation if said without qualification.

Activities

I am interested in 160 m operation; it is a challenge to develop reasonably efficient antennas for this "top band". I am also interested in mobile and portable work so I constructed antennas and experimented a bit. It was difficult to quantify the results and performing alterations was rather tedious, so I turned to computer simulation.

After performing several different simulations I developed the feeling that it should be possible to optimise the efficiency of an antenna by altering its earth currents and through the interactions with the mutual impedance of the antenna and its ground image. This turned out to be a very fruitful study, although I initially thought the results were dubious!

Simulations

Fortunately non-ideal antennas have been under analysis by various organisations and many papers have been written covering the theoretical aspects. One organisation of note is the Lawrence Livermore National Laboratory, which was commissioned by the US Department of Defence to perform theoretical and practical analysis of various antenna systems. Some of this material has been declassified and is now publicly available.

During this period several computer-based antenna simulation programs were developed; of note is the Numeric Electromagnetic Code (MINI-NEC, NEC-2 and NEC-3).

NEC-81 is the name for the PC version of NEC-2. NEC-81 and MINI-NEC are available through the

Applied Computation
 Electromagnetic Society (ACES);
 contact Dr R W Adler, ECE
 Department, Code EC/AB, Naval Post
 Graduate School, 833 Dyer Road,
 Rm 437, Monterey California,
 93943-5121, USA (Fax 1 408 649
 0300, E-mail 554-1304@mcimail.com)
 for the conditions, membership and
 handling fees if you want to obtain
 these programs.

NEC-81 can model antennas in
 proximity to lossy ground. The lossy
 ground analysis is based on work by
 Sommerfeld; and appears to yield
 realistic feed-point impedances and
 reasonably quantifiable losses.

System Performance

The simulation goal was to
 determine the relative merits of
 elevated groundplanes for short
 vertical systems, ie up to 0.25
 wavelengths.

Traditionally, it has been convenient
 to measure the feed-point impedance
 of the lossy antenna system and
 compare it with the ideal (theoretical)
 case. The feedpoint resistance for
 vertical antennas is called the base
 resistance (Rb); Rb is composed of

the useful radiation resistance (Rr)
 and the collective loss resistance (Rl).
 Rr can be evaluated theoretically —
 it would be the Rb of an antenna over
 ideal infinite ground.

Rr can be obtained by the
 additional simulation of the ideal
 ground model, effectively doubling
 the simulation time to obtain results.
 Fortunately, NEC-81 calculates the
 amount of power radiated around the
 region of the antenna and divides this
 by the applied power. This ratio
 depends upon whether the model is
 simulated in free space or over
 ground.

The radiation region of an antenna
 in free-space is a solid sphere so this
 ratio should be unity. The radiation
 region is a hemi-sphere when the
 antenna is situated against an infinite
 ground, in which case the value
 should be close to two; this is due to
 the ground reflecting power into the
 upper hemisphere (effectively up to 3
 dB of gain). This ratio is also used to
 gauge the stability of the model; if its
 value greatly exceeds the expected
 value then the model has failed.

It is a simple means to use this
 power ratio to determine the antenna's

efficiency. Note that the radiation
 resistance can be derived via: $R_r = R_b / \text{efficiency}$. I used this analysis to
 cross-check the results of some
 simulations.

Results

The term displacement is
 employed for the height of the
 groundplane above ground; this
 avoids confusion with antenna
 element lengths. All lengths, heights
 and displacements are measured in
 wavelengths (λ) unless
 otherwise indicated.

Resistance versus Groundplane Displacement

Figure 1 shows the effects of
 various displacements upon a 0.10
 wavelength vertical antenna with
 three 0.10 wavelength radials at 1.825
 MHz. I chose the average ground
 parameters: relative dielectric
 constant 13 and conductivity of 5 milli-
 Siemens per metre (13,5); which are
 typical for dry clay and indicative of
 the Canberra region.

Note that the Rb is high at zero
 displacement, much higher than Rr,
 so Rb is largely composed of loss

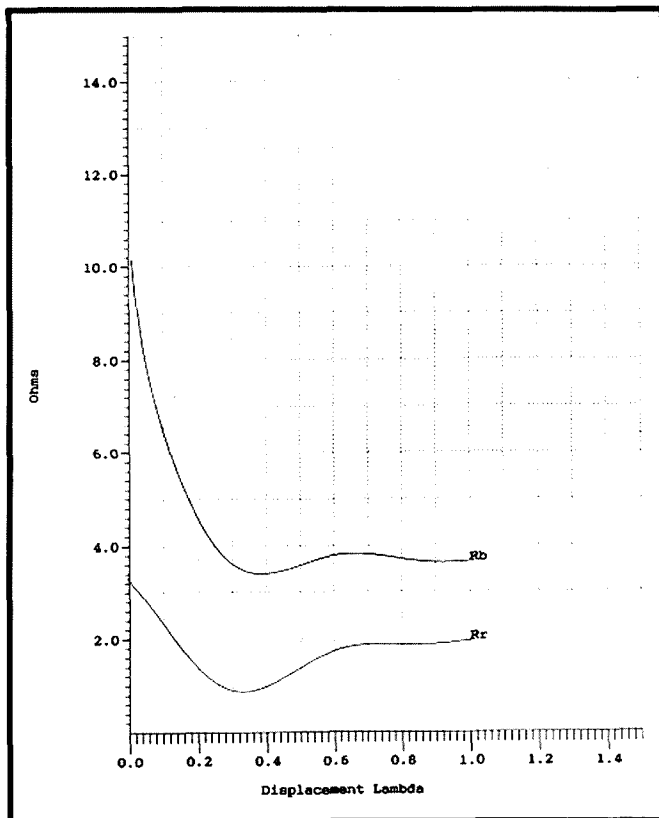


Fig 1 — 0.10 wave radiator/radials * 3 @ 1.825 MHz (13,5).

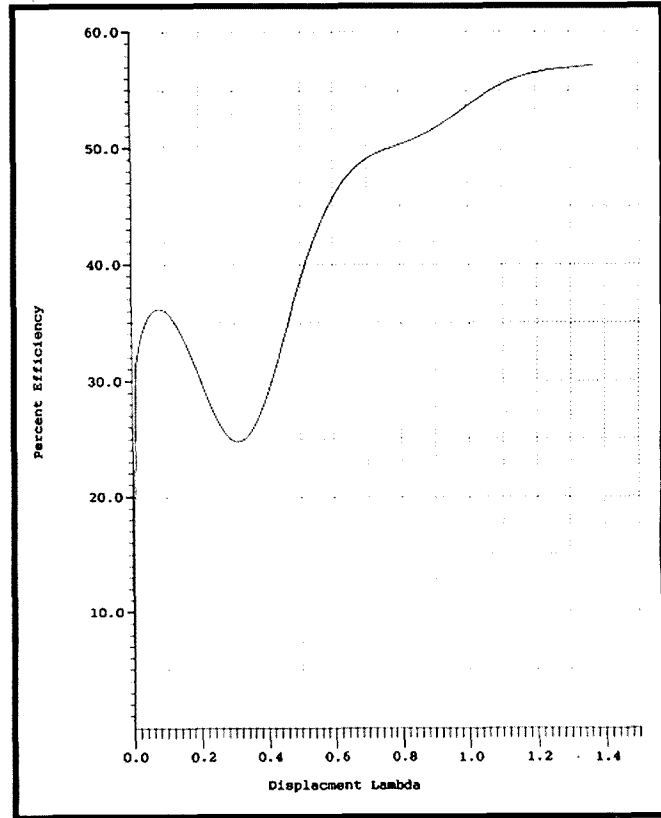


Fig 2 — 0.10 wave radiator and radials * 3 @ 1.825 MHz (13,5).

resistance at this point, and the antenna is primarily heating the ground! Notice how difficult it is to determine the optimal displacement from the Rb and Rr curves on this graph.

Efficiency versus Displacement

Figure 2 shows the antenna's efficiency over the same range. Notice that there is an initial peak at fairly low displacements. Advantage will be taken of this effect.

Displaced Antennas versus the Number of Radials

Figure 3 is the comparison between the conventional groundplane, situated on or in the ground, and the elevated groundplane. The simulation parameters are 1.825 MHz, 0.25 wave radiator and radials, and ground parameters (13,5). The integer simulation points are joined to form curves (I did not actually simulate a non-integral number of radials).

Notice that the elevated curves are asymptotic to a horizontal line about 37 percent efficiency. The elevated

curves are more than satisfactory at the three to four radial mark; the traditional ground screen does not even get near this at 32 radials. Recall that the typically quoted commercial design figure is to strive for 120 ground-based radials.

Variable Radiator, Radial Length and Displacement versus Number of Radials

Figure 4 illustrates the effect of radiator and radial lengths. The simulation is at 1.825 MHz and for ground parameters (13,5). The top curves represent the elevated groundplane, while the bottom curves are for ground-based antennas. The upper curve of each set is for a 0.25 wave radiator with 0.25 wave radials, while the less efficient curve in the set is for a 0.10 wave radiator and 0.10 wave radials. Notice the large degradation for the short ground-based system!

Variable Radiator and Radial Length at a constant Displacement

Figure 5 is the graph for a 1.825 MHz vertical, which was simulated for

Eric VK3AX. This simulation was based on three radials mounted at 20' (woolshed height) over typical clay soil (13,5). We were interested in the affect of the antenna height and radial length. The radiator length was labelled on the graph in wavelengths and feet. You will notice that short radiators performed quite well with radial lengths of 0.15 wavelengths and appear worthwhile constructing. When the radiators are lengthened from 0.06 wavelengths to 0.15 wavelengths, the efficiency improves by 5 percent. Not much gain results from extending radiators up to the full 0.25 wavelength; in fact, this length was noticeably less efficient than the 0.148 wavelength radiator. In all curves there is an optimal radiator and radial length. Notice how the optimal radial lengths are noticeably less than a quarter wave for the shorter radiators.

Efficiency of Elevated Groundplane and Frequency

Figure 6 shows the effects of changing frequency. The analysis has been performed for the 160, 80, 40 and 20 metre bands so you can apply

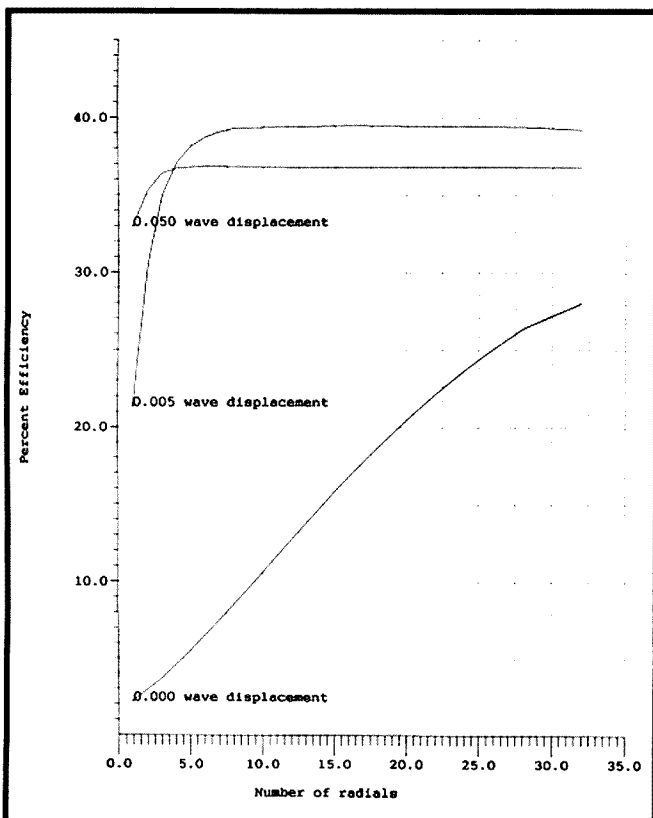


Fig 3 — 0.25 wave radiator/radials labelled by displacement.

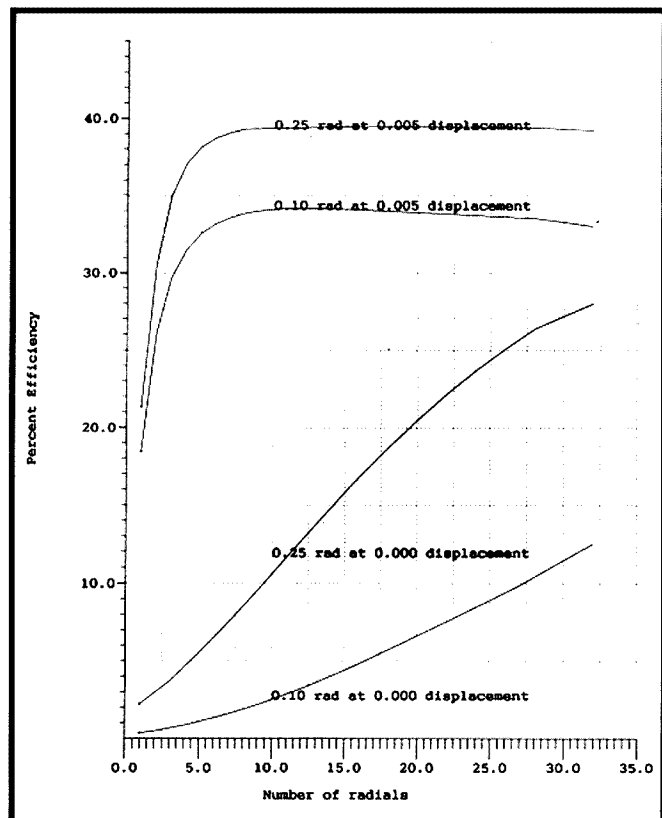


Fig 4 — Radiator/radial length and displacement.

these results to your favourite band. All radiator and radial lengths were 0.25 wavelength and in all cases only three radials were employed.

Each curve is labelled by its ground parameters. The curves could be named from top-to-bottom as: Perfect, Sea water, Good, Average, and Poor respectively. Recall that the Average curve, labelled (13,5) is indicative of the dry clay soils.

Notice that the curves peak between 0.002 and 0.05 wavelengths displacement. A more difficult observation, due to the scale of the graphs, is that the curves point steeply towards zero efficiency at zero height (you can obtain a better indication from Figure 2).

Conclusions

From the Figures it is obvious that the simulated antenna efficiency declines dramatically when the groundplane displacement approaches zero.

With three or more radials the radial length is more important to the overall efficiency than the number of radials, with a few exceptions. An interesting side-effect I noticed is that under certain conditions a vertical antenna with one radial was substantially more efficient than an antenna with any other number of radials; such a hybrid antenna has been studied before and been applied in marine and land-based systems. (I would like to present the analysis of this and horizontal antennas at a later stage.)

Points to Remember

1. Short radiators have a low base resistance and a relatively low radiation resistance and consequently you can expect lower

efficiency. However, short radiators can still be quite efficient; the shorter radiators require shorter groundplanes and are more optimum at lower groundplane displacements — don't write-off a short radiator! Do take into account the lower feedpoint resistance and consequential difficulties with feeder and element losses. Some form of ATU at the base is the best. Also note that a short radiator has a very high base impedance, caused by its capacitive reactance, and that the RF voltages at the base are very high!

2. There is an optimal height for an elevated groundplane. That height is not at ground zero, and is typically around 0.05 wavelength. (The statement "the higher-the-better" is not always true for such systems.) Do not place your ground system on or in the ground unless you have space, time and materials for about 120 radials, and you are fortunate to have excellent ground, or the desire to hide your ground system. (You may be able to see from Figure 4 that there is a lot to be gained from watering an inadequate ground system — so don't write-off that folk-lore!)

3. The efficiency curves are forgiving and somewhat broad; displacements as little as 0.005 wavelengths can be tolerated; some curves actually peak around 0.01 wavelengths.

4. Large numbers of radials are not required for elevated groundplane systems. Three or four radials are sufficient, doubling the number does not double the efficiency.

5. The elevated groundplane system is more efficient at lower frequencies.

6. A lot can be gained by placing your antenna near swamps, lakes and in close proximity to the sea; you should expect substantial improvement, often more than 3 dB in these cases.

7. Lastly, these results are only as good as the simulation program. However, this program is good at modelling linear antennas close to lossy ground. NEC-81 has been validated numerous times; even so, the model has failed even more times due to inappropriate use.

I have also performed simulations for elevated groundplanes with an underlying secondary ground screen

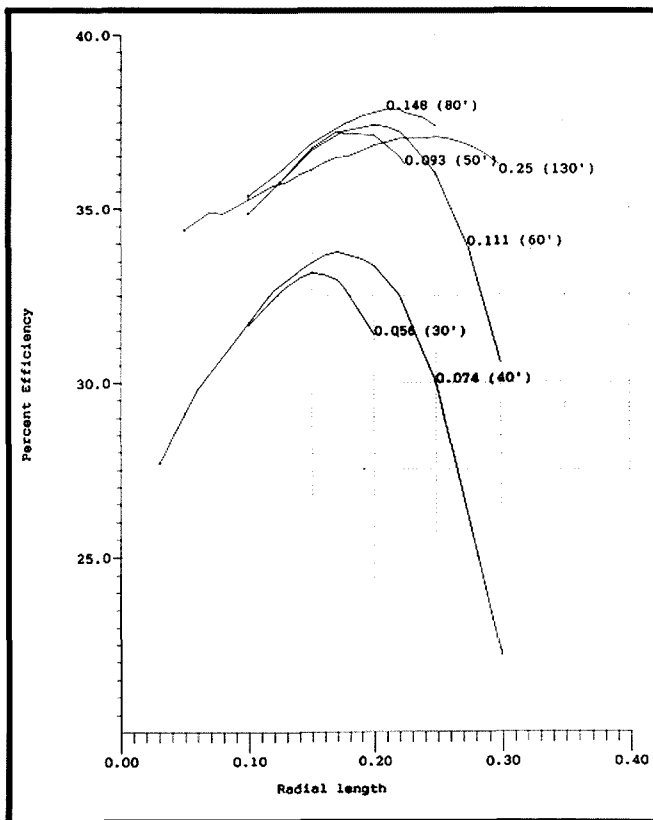


Fig 5 — Fixed displacement at 1.825 MHz 20' (13,5).

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placed on the ground. It is detrimental to connect the elevated groundplane to this form of lower ground system. Note the recommended commercial practice to terminate radial systems with a ground stake — I would highly recommend against such practice. The situation is made even worse if the ground stake is under the feedpoint rather than at the ends of the screen.

I originally thought that this grounding anomaly was an artefact of NEC-81, but I have subsequently read the preliminary publication "Recent Advances to NEC: Applications and Validation" by G J Burke, which investigated these effects and others; he used the new improved and classified NEC-3 (which he developed) to model situations for several typical broadcast antennas and antennas below the ground. He found, to my surprise, and others, that the recommended grounding

practices are detrimental. By this stage of writing, G J Burke should have released these findings for publication, so you may be able to find references to this material. His findings were based on the relative communication efficiency (RCE) of the antenna measured in terms of field strength at some distance outside the near field, a more appropriate value, rather than the efficiency figure I employed.

Bibliography

The MINI-NEC and NEC programs are based on the Method-of-Moments (MoM); you can find a description of this method in "Antennas, Second Edition", by John D Kraus, McGraw Hill 1988.

Another book, said to be the foundation of the technique, is "Field Computation by Moment Methods", by R F Harrington, McGraw Hill 1961 (I have never seen a copy).

The hybrid vertical-horizontal

marine dipole, developed by VK3AM, is described in "HF Antennas for All Locations", by L A Moxon G6XN, on page 154.

The "ARRL Antenna Compendium", Volumes One and Two, are also interesting reading for antenna construction and modelling.

The book review "Computational Electromagnetics: Frequency Domain Method of Moments" by Edmund K Miller, Louis Medgyesi-Mitschang, and Edward H Newman was extracted and reprinted in an ACES newsletter. The extract stated that the review contains 528 pages and recommends several books; one book of recent publication is "Generalised Moment Methods in Electromagnetics", by J H Wang, John Wiley and Sons, NY, 1991. I believe this would be for the serious MoM enthusiast (I have never seen this either).

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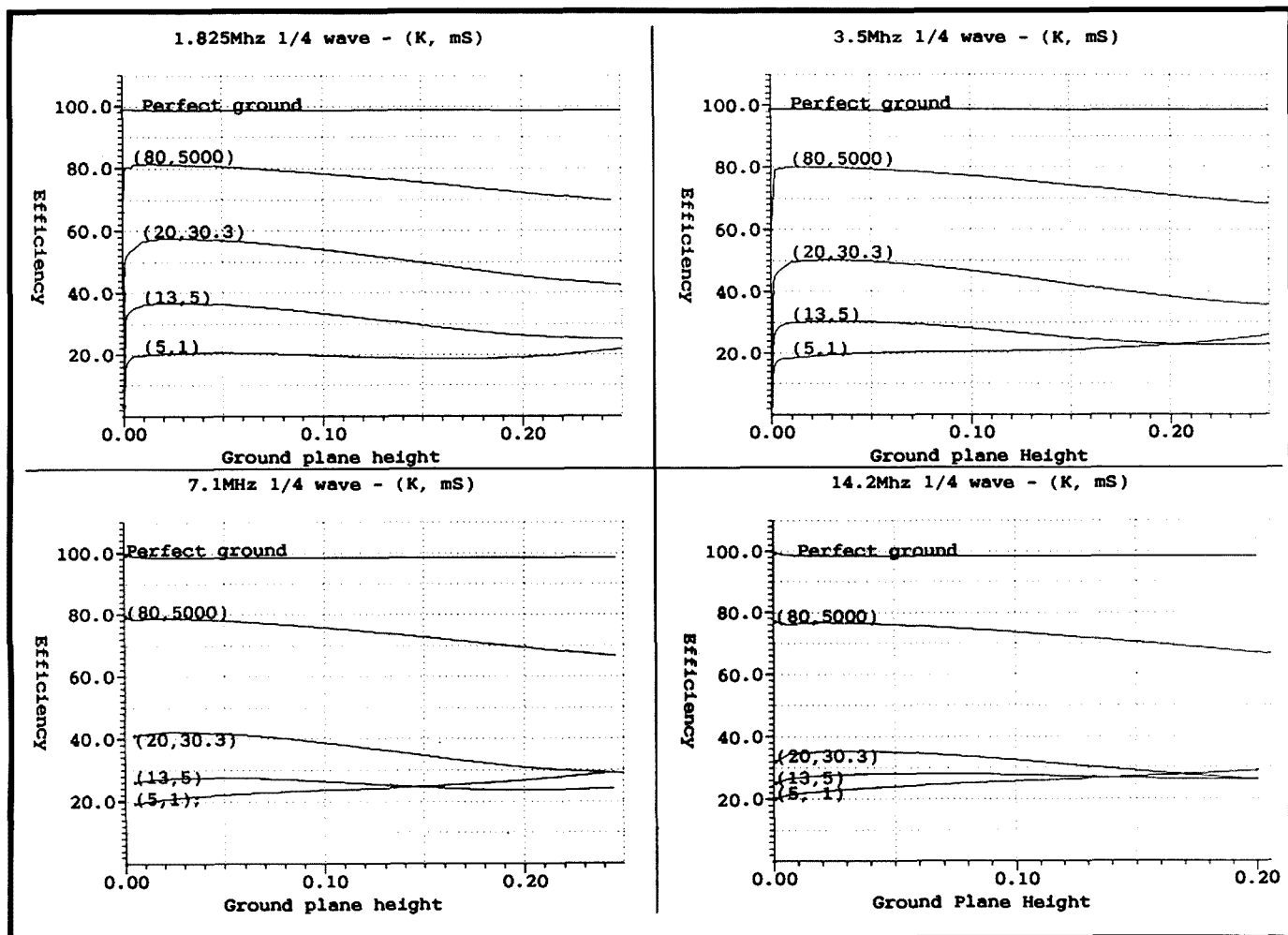


Fig 6 — The effects of changing frequency.

■ Technical

Technical Abstracts

Gil Sones VK3AUI*

New Version of Helical Beam Antenna

Dr John D Kraus W8JK devised the helical beam antenna over 50 years ago. In its original form the antenna consisted of a spiral element with a screen reflector. Now Dr Kraus has provided a new variation of this classic aerial. In an article in *IEEE Antennas and Propagation*, April 1995 and reported in *Technical Topics* by Pat Hawker G3VA in *Radio Communications*, August 1995, the new antenna, which uses circular loops to replace the ground plane screen, is described. This construction offers lower wind resistance with similar performance.

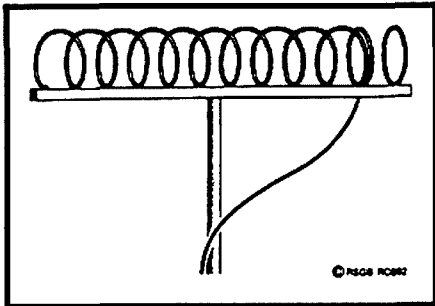


Figure 1 — Ten turn helical using loop ground plane equivalent.

The description of the antenna shown in Fig 1 is as follows. The inner conductor of the coaxial line feeding the antenna is connected to the end of the helix, and the outer conductor to the base of an adjacent loop. A second (buffer) loop may be situated 1/3 to 1/2 wavelength from the feedpoint. This loop may or may not be continuous. A third loop, one wavelength or less from the feedpoint, is optional. The helix and all loops are approximately one wavelength in circumference at the centre frequency of operation. A typical pattern is shown in Fig 2.

The helix has a turn spacing of 0.27 wavelength and the gain is stated to be 15 dBi for a 10 turn design. The

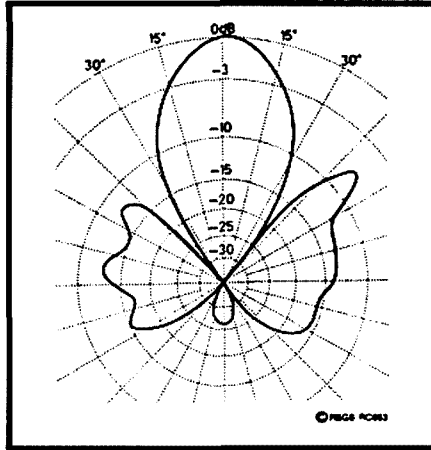


Figure 2 — Radiation pattern of helical with loop ground plane.

gain is referenced to an isotropic source and the polarisation is circular. The linear polarisation gain relative to a half wave dipole is somewhat less. The gain is worthwhile for a simple and wideband antenna. The beamwidth is 34 degrees at the half power points as shown in Fig 2.

To duplicate the antenna it would be wise to obtain copies both of *Radio*

Communication and the original IEEE magazine article. Some experimental work would be required to produce a working antenna.

Stealth Antenna Tuning Indicator

Tuning an antenna tuning unit (ATU) can cause a lot of trouble due to the radiated signal interfering with contacts already in progress. Reducing power to a level which minimises the interference often leaves the normal SWR meter with not enough RF to give a reading. An old technique which has been around for 45 years or more helps overcome this problem.

The technique has led to an article in *QST*, June 1995, by James "Jay" Craswell W6VNE/AAV5TH. The article is titled **Build the Stealth Tuning Indicator**. The stealth tuning indicator uses a dummy load to provide the transmitter with a load for up to full power. A small amount of the RF present across the dummy load is coupled via a resistor to a resistive bridge circuit. A diode detector and meter provide an indication of balance. The antenna, via the antenna tuner, is connected as the unknown leg of the resistive bridge. At match the load presented to the bridge is 50 ohms and the bridge is balanced.

The circuit of this simple device is shown in Fig 3. The circuit can be

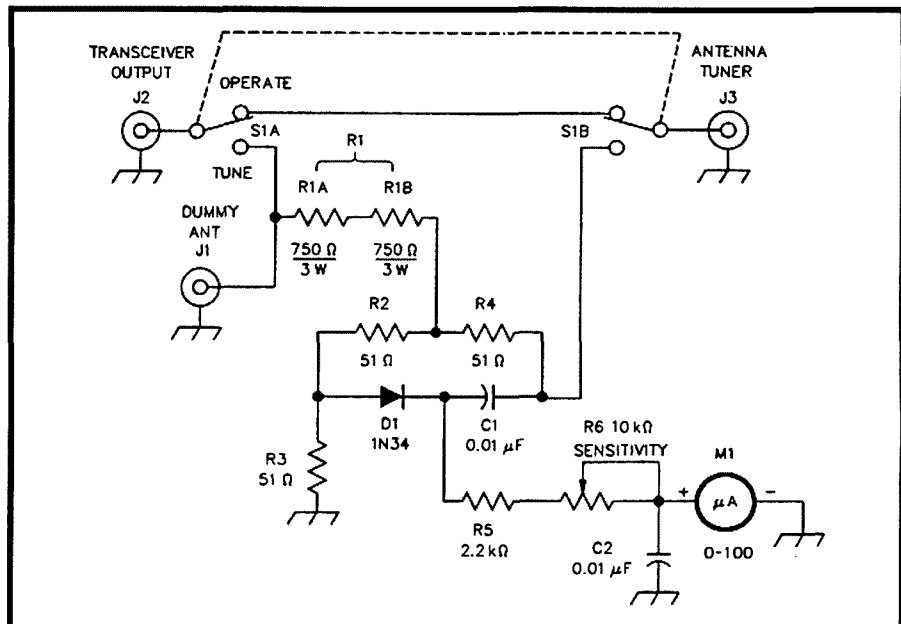


Figure 3 — Stealth antenna tuning indicator.

built into a small metal utility box. The switch can be a simple DPDT toggle switch. A full size one rated for AC mains use would be suitable. Resistor R1 is relatively non critical and a suitable combination of metal film power resistors would be suitable. An alternative for R1 would be a combination of some of the old 2 W carbon types often found at hamfests. The 51 ohm resistors should be metal film but, if these are hard to find, use some parallel 100 or 150 ohm carbon resistors. Two 100 ohm resistors in parallel give 50 ohms as do three 150 ohm resistors. The diode is a germanium type but a silicon one will work. A germanium diode is preferred due to the lower voltage needed for conduction.

The dummy load can be any of the

homebrew or commercial units. If you need one then I am sure Daycom Communications Pty Ltd could help either with parts or an MFJ unit.

This simple design using only a handful of parts will allow you to adjust your antenna tuner to a match whilst causing a minimum of disturbance. The power radiated is very considerably reduced during tune-up and the match obtained will be very close to that obtained using full power through an SWR bridge. As an added bonus you will lessen the chance of destroying the finals in your transmitter as they do not have to handle the high SWR in the off-tune condition.

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WIA News

Amateurs' Role in Emergency Communications Recognised by UN

The United Nations has given formal recognition of the role and value amateur radio can have in emergency communications.

In late July, a meeting of the Working Group on Emergency Telecommunications (WGET) of the UN Department of Humanitarian Affairs, drafted recommendations for overcoming barriers to improving disaster communications on national and international levels, as part of developing an "International Convention on Emergency Telecommunications".

According to a report in the 15 August 1995 publication of *The ARRL Letter*, the WGET proposed that one of the ways to overcome such barriers is to . . . *encourage the development of the amateur radio services and their application to disaster communications.*

The July WGET meeting was attended by American Radio Relay League (ARRL) Field Services

Manager Rick Palm K1CE. The group agreed on a draft that would *encourage the development of decentralised means of telecommunications such as, but not limited to, mobile and portable satellite terminals and the amateur radio service(s) and their application to disaster communications.*

The WGET's work arose from a 1991 UN study that found an urgent need to . . . *improve international cooperation in communications and enhance national communications capabilities.*

The Amateur Service received strong support from the UN Department of Humanitarian Affairs (UNHDA) spokesman, Hans Zimmerman, at the World Telecommunications Development Conference in March 1994, *The ARRL Letter* reported, which has led to further cooperation between amateurs and the UNHDA.

Meanwhile, the International Amateur Radio Union (IARU) now has 146 member societies with the recent admission to membership of the amateur radio societies of former USSR states, Burkina Faso and Turkmenistan.

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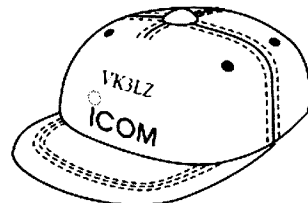


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I.L. BROWN, WIA-FT-100, 1995

■ Antennas

Spiral Top-Loading of a Short Vertical

Ralph Holland VK1BRH* describes an effective method to resonate a shortened antenna.

Introduction

Top-hat capacitance and inductive base-loading and centre-loading have traditionally been employed to bring short antennas to resonance. These methods are covered in detail in references 1 and 1A. However, this article describes how the self-capacitance and inductance of a spiral coil can be employed as a top-loading element for a short vertical, with the obvious extension to end-loading of dipoles.

Construction

A spiral coil was constructed on a form composed of 69 mm OD plastic drain-pipe and 15 plastic radials. The plastic radials are 7.9 mm OD tubes used as uprights for small sprays. They are cheap and readily available from garden supply shops. One end of the upright is terminated with a screw thread, which can be tapped into the 69 mm OD drain-pipe if suitable undersized holes are drilled (evenly) around the circumference of the drain-pipe.

The coil was wound with 0.6 mm enamelled copper wire from the junk-box. The wire was alternated over the radials in a basket-weave fashion (there must be an odd number of spokes to perform a basket weave). This resulted in a very neat and high Q coil. It should also be possible to stabilise the coil and remove the radial supports for even higher Qs.

The drain-pipe former was centred at the top of the 1.5 m vertical via a wooden insert. The inner-end of the spiral coil was clamped to the top of the radiator. The 1.5 m vertical had a 1 m square ground mat and was connected to an elevated ground system to stabilise measurements.

The computer simulations were performed for unloaded 1.5 m and 10 m monopoles with four 0.2 wavelength radials (at the various simulation frequencies) elevated three metres above the typical clay ground with a relative dielectric constant of 15 and conductivity of 5 milli-Siemens (15 K, 5 mS) (Ref 5). The results were extrapolated to loaded antennas.

Results

Starting from an initial one hundred turns on the top loading coil, the resonant frequency was determined with a grid-dip meter coupled into a half-turn loop connected between the radiator and the ground mat. The dip frequency was read from the dial of a digital communications receiver and recorded. One turn was removed from the top loading coil and the process was repeated.

Figure 1 shows how the spiral

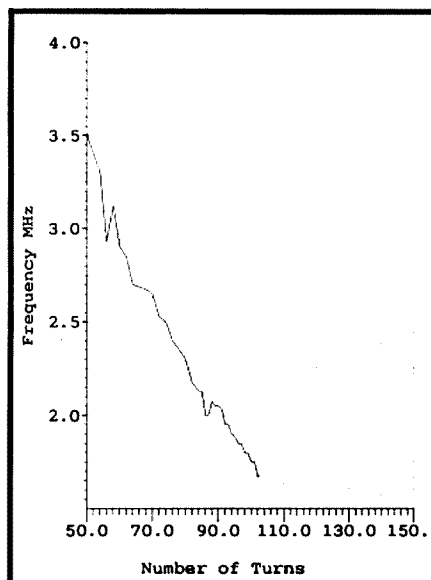


Fig 1 — Top loaded 1.5 m vertical.

loading reduces the natural resonant frequency of the vertical.

Figure 2 compares a 1.5 m spiral-top-loaded antenna against an unloaded antenna over ideal ground. The losses are due to the RF resistance of the coil. The loss resistance of the coil and antenna was calculated as 29.8 ohms at 1.68 MHz, decreasing to 19.6 ohms at 3.5 MHz.

Figure 3 compares the same antenna over typical clay soil (15 K, 5 mS). The calculated total loss ranged from 24.7 dB at 1.68 MHz to 17 dB at 3.5 MHz (4.1-2.8 S-points loss).

Figure 4 shows the vastly improved situation (1.5-0.6 S-points loss) when the radiator is lengthened to 10 m.

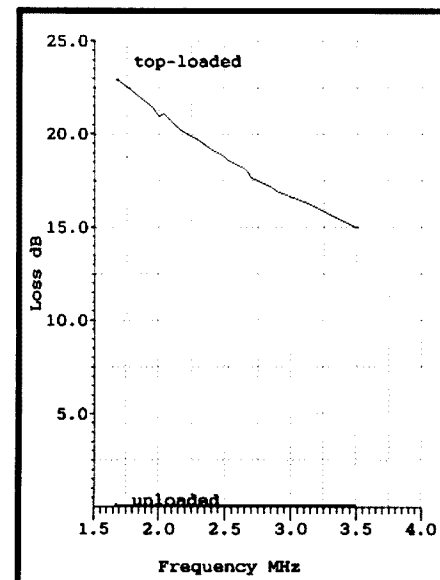


Fig 2 — 1.5 m vertical, ideal ground.

Assumptions

Figure 2 was derived from the following:

1. Radiation resistance. The current amplitude for the radiator was assumed to be almost uniform over the entire vertical section due to the top loading. The radiation resistance was calculated from the approximation: $R_r = 80 \cdot \pi^2 \cdot (I_{av}/I_0)^2 \cdot 2h^2$ attributed to Kraus equation 5-3-14 (Ref 3) (2h is the length of a short dipole in wavelengths). Other sources quote $R_r = 490 \cdot h^2$ for a short monopole (Refs 1, 1A and 2). The Kraus equation yields:
a. $R_r = 15791 \cdot h \cdot h$ — for uniform current (h in wavelengths)

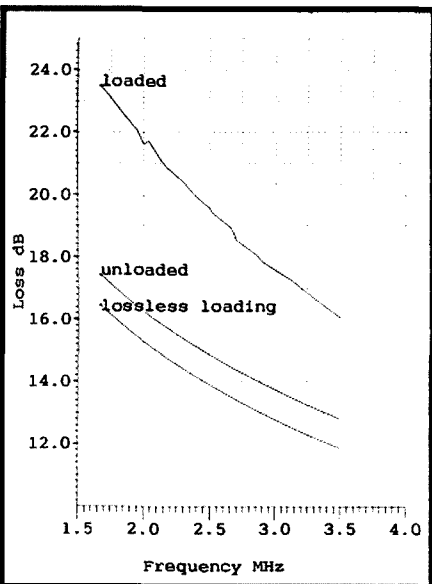


Fig 3 — 1.5 m vertical, clay ground.

resistance was calculated from the RF resistance of round copper wire (Ref 4) multiplied by the length of the wire in the spiral-loading coil. The assumed sinusoidal current taper requires this value to be divided by two as the average value of the current distribution is equal to the peak current divided by the square root of two. No allowance was made for current-bunching caused by proximity of turns.

3. The coil was assumed to lose power through heating of this RF resistance. The coil does not radiate as the radiation resistance of the coil is negligible. For a loop less than 1/3 wavelength in circumference: $R_r = 31200 * (A/\lambda^2)^2$; where A is the area, and lambda is the wavelength of operation (Kraus equation 6-8-10 — Ref 5).

Figure 3 was derived from Figure 2 calculations and the additional ground losses were derived from computer simulations of elevated ground planes (Ref 6).

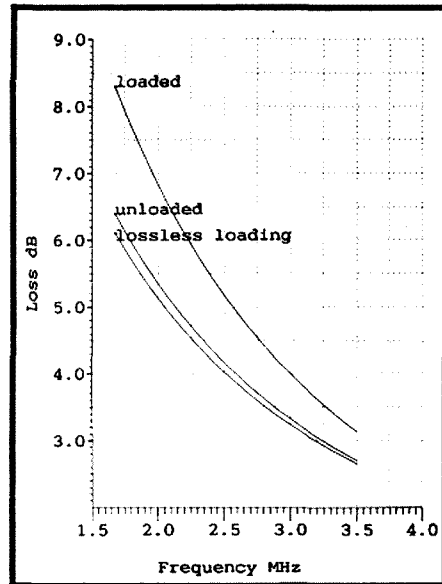


Fig 4 — 10 m vertical, clay ground.

Figure 4 is based on 0.18 lambda of spiral coil and radiator (the shortening factor observed in the 1.5 m antenna) with ground losses simulated for ground parameters (13 K, 5 mS).

b. $R_r = 789.6 * h * h$ — for sinusoidal current

c. $R_r = 394.8 * h * h$ — for triangular current.

2. The coil current was assumed to be near sinusoidal. The coil RF

Radio **Communications**

INCORPORATING *radio* AND *CB Action*

RADIO and COMMUNICATIONS has loads of material of specific interest to amateur radio operators.

After all, Amateur Radio Action was around for almost 20 years, and R&C is the former ARA - combined with CBA as a bonus!

This month's big feature review is one everyone has been waiting for;

*** The Alinco DX 70 HF + 6m mobile - very small and very good.**

plus

***The MFJ-1278 DSP - yet another revamp of this well known TNC - and DSP makes it even better.**

*** Construct a power supply - a simple DIY project for a useful little shack supply.**

But a good, well-balanced radio mag is much more than just reviews!

The former editor of *Ham Radio Today* continues his series on antenna theory and construction articles, this month discussing *Marconi verticals* which really work. Tom Sundstrom joins the party with an Internet primer written in simple English that even the editor understands!

There's also seven pages of DX news and updates...and lots more.

...and you won't know just how much interesting communication-type reading can be packed into a huge 100 pages if you don't buy a copy.

Check your local newsagent today!

Conclusion

The spiral basket-weave coil is certainly a compact way of top-loading or end-loading a radiating element. The overall efficiency will be improved, in expected order of effectiveness by:

1. a longer radiator;
2. larger diameter wire for the spiral coil;
3. a larger initial starting diameter for the spiral coil;
4. larger diameter conductor for the radiator; and
5. a more substantial ground system.

Low ground losses were achieved with an elevated ground-plane, see Ref 6.

Note the significance of starting with a reasonable length radiator and a lower loss coil.

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*8 Hardy Place, Kambah ACT 2902

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■ Poetry

SAFN Trip 1991

A poem by Jane Finch, a Londoner.

The following poem was sent in by Ronald Jones VK2VND (QTHR). It was written by Jane Finch, of London England, who participated in a round-Australia trip with VK2VND and ten others and was moved to describe it in verse.

*"Why don't you come over? The space can be found",
"We're seeing Australia, all the way round,"
"We're taking six caravans." I went along.
Eleven tough Aussies and one timid Pom.*

*"We'll show you our country", they told me with pride.
"We'll tell you its history about men who had died,
In trying to conquer these harsh barren plains,
With dreams for the future and prayers for the rains."*

*We followed their tracks, but without pain or grief.
On our bitumen road, in shaded relief,
From the sun which tormented each sparse tree in view.
Wall to wall scrub, under wall to wall blue.*

*Leaving the road we took plane and boat,
For gorges and caverns and caves far remote.
We battled with dust, reaching parts you'd not think,
From Kimberley red, to Pilbara pink.*

*And, oh what a joy when we reached the West coast,
To the beauty of Broome, I drink a quiet toast.
Then south with the ocean in view on our right,
Turquoise blue sea beyond sands of pure white.*

*There were tall trees, and small trees, and no trees at all,
On the Nullarbor Plains, where temperatures fall,
From fifty to ten in the space of a night,
As we travelled along the Australian Bight.*

*I'm trying to write of the sights which we saw.
Of the gold towns and ghost towns and crocs by the score.
A trip of a lifetime, remembered for long,
By eleven tough Aussies, and a toughened-up Pom.*

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WIA News

World Record for 2 m Band Contact

A new over-water distance record of 4333 km for the 144 MHz band has been claimed by two

United States amateurs for a contact between Hawaii and Washington state.

The contact occurred on 1 July 1995, The *ARRL Letter* of 15 August reports. It was between Paul Lieb KH6HME on Mauna Loa

volcano in Hawaii, and Jim Costello W7FI in Woodinville, near Seattle in Washington state. The previous record, of 4276 km, was set in July 1989 by a contact between KH6HME and XE2GXQ, on Baja California.

■ History

Post War Television

Karl Saville VK5AHK reminisces about his part in post World War II television*

As World War 2 came to an end in 1945, so did the contracts for making guns, tanks, planes and other war material. The companies which had benefited from these contracts had to look elsewhere to keep their machines and workers employed and, out there in the towns and cities, was a large domestic market just waiting to buy all those things that had been in short supply during the six years of war.

This story is about post war television and the very small part I had to play in it. There had been a regular television service in England since 1936 but, when the war broke out in 1939, the director of the television station at Alexandra Palace, near London, received a telephone call from the government telling him to shut down the station. The director immediately pulled the main power switch and cut the station off the air right in the middle of a program without any announcement.

The television system used at the time was based on a 405 line and 25 frame format which had been developed by EMI Co Ltd. There had been a lot of experimentation with television world wide in the prewar period and the French had a television station on the top of the Eiffel Tower. When France surrendered and the Germans entered Paris they carried on with the TV transmissions, not realising that the pictures might be picked up in London. The electronic intelligence service in England decided to use the transmitting antenna at Alexandra Palace as a receiving antenna and they were able to monitor the Eiffel Tower transmissions throughout the war and some useful information was picked up.

I joined EMI in January 1946 at their main factory at Haynes, Middlesex in England. It was about 20 miles from Slough, the town where I was living at the time. EMI Co Ltd

was the holding company of a group of companies that had been involved in radio, television, gramophone and recording before the war. These included His Master's Voice (HMV), Parlophone Records, Columbia Records, Regal Gramophone, Marconi and possibly others.

Early in 1946 it was announced that regular television programs would be recommenced by June of that year and two hour test programs each morning and afternoon would be transmitted immediately. In the meantime EMI had arranged with their prewar television set owners that, if the 12 months guarantee on their television sets had not expired when the war started, they would take the sets back into the workshops and overhaul them under the guarantee so that they would be serviceable when the regular TV programs started again.

I was, with nine other engineers, given the job of refurbishing these prewar TV sets. I found it very interesting because I had just left the army and had very little experience of television. I thought this would be a new and valuable experience for me.

EMI had leased a large workshop nearby, above a well known chocolate factory. Unfortunately, because of six years of war, the conditions at the chocolate factory had deteriorated and were very much below the standard one would accept today. And, because we had to go through the various chocolate preparation rooms to get to our workshop, we were able to see more than we should. We all vowed that we would not buy this company's chocolate. However, as we continually bathed in the sweet aromatic smell of chocolate throughout the day while we were working, this proved compensation enough for us.

There were many different types of the company's sets returned for

refurbishing and these ranged from small table TV sets with six inch tubes, combined receiver and TVs, cabinet TVs with 12 inch or more tubes, up to large back projection sets with screens of about 24 inches.

It is interesting to mention that the bandwidth of the 405 line system used at the time was about 2 MHz and the BBC were able to use the standard telephone lines for some of their outside broadcasts. I have no further information about this but I suspect that they would have needed some frequency compensation. I do remember that outside broadcasts of sports meetings were acceptable at the time, although they could not compare with today's OBs.

There was an amusing incident one day at the workshop. I was busy adjusting a set with the Alexandra Palace test pattern when suddenly a big hairy hand appeared on the TV screen and placed a full frontal photograph of a very attractive young woman in front of the test pattern. The initial annoyance at being deprived of the test pattern was soon overcome and I quickly applied myself to getting the best resolution from my set with the new test card. It was certainly a change from the normal card and it quickly received overwhelming approval from the rest of the engineers. However, I do not think that the director at Alexandra Palace shared our approval because its exposure was short lived. Someone, maybe the director, pulled the big power switch and the station went off the air, possibly the same switch that closed the station down when the war started! Some minutes later the old test pattern re-appeared.

We found that the best and quickest way to refurbish these prewar TV sets was to replace all the electrolytic capacitors, EHT transformers, picture tubes, and certain valves. We had to remove various other items such as dehydrated mice, beetles (some alive), flies, cigarette ends, etc. Some of the sets appeared to have suffered more than six war years use and some looked as they had taken part in the war, but we were able to get them back into an acceptable condition.

The prewar TV sets put out by the

EMI group did not use flyback EHT but used EHT transformers instead. Most of these were unserviceable now and we found it was better to replace them.

We managed to complete a large number of TV sets before the regular TV transmissions started and six of us were chosen to install the sets in the customers' homes. The rest of the engineers were left at the chocolate factory, refurbishing. We were not chosen because we were any better than those left behind, but because we each had a motor car, and a car was essential for the next stage of our work.

When I joined the company in January 1946, I placed an order for a new Morris motor car and was told that there was a two year wait before delivery. Just before the TV sets were ready to go out to the customers, I was told that there was a nice new Morris saloon waiting for me to pick up at the motor dealer. I came across a receipt for this car recently and it was for 365 pounds. Immediately I took possession of the car I was offered 600 pounds for it. It was tempting, as this was nearly 100 times my weekly salary. It was a complete mystery to me how I came to get delivery of the Morris car in so short a time.

Fortune seemed to smile on me at this time. Petrol was rationed in England after the war for several years, but because I lived out at Slough, about 20 miles west of Hayes, I was classed as living in the country. The other engineers mostly lived in the Metropolitan area around London. Country people were allowed a larger ration of petrol coupons than city folk and I was able to take on the long country run jobs.

Britain was one of the first countries to have a regular television service before the war, and even the United States of America did not have a public service until 1941. Generally speaking, only the well-to-do or rich people could afford a television set and these were the people who were having their television sets refurbished and installed free of charge.

Before we went out to a customer's home, a rigger team went along to check out the antenna system and to

deliver the TV. Then an engineer would arrive and check that everything worked.

On one occasion I was sent to an address at White Waltham and when I arrived I found it to be a large country estate with a mansion almost as big as Buckingham Palace. I climbed the steps to the huge front entrance and pulled on a handle attached to a long wire and in the distance I could hear a bell ring. After a few moments the door opened and a well turned-out person stood in the doorway. He was possibly the butler and he asked me what I wanted. I told him I had come to install the TV set and he said, "I will fetch Mary the housekeeper". After a few minutes Mary came to the door and she took me through the house to where the television had to be set up. On the way we passed through several rooms where there were some very pretty girls hard at work. They appeared to be counting diamonds. The owner was, in fact, a well known South African diamond dealer. I set up the TV set and was offered tea and biscuits. When I had finished Mary let me out and, as I was leaving, she said, "This is for you". Whereupon she put a pound note in my hand.

That was just how it was in those days. One pound seemed to be the going rate as a tip for installing these sets at the various houses in the country. It was a wonderful time. I could easily double my salary with tips and I was getting a good travelling allowance, and meals allowance. It was a great time for a while, but it was not to last.

On another occasion I had to go along to one of the EMI directors' home to install his TV set. When I arrived he was out, but his wife showed me where the set was. It was one of the large, heavy cabinet TV sets and it was between a sideboard and a large cabinet speaker. Possibly they were taking advantage of the high quality sound that the TV provided. I looked around for the TV mains lead and it appeared to be squeezed between the TV cabinet and the speaker. I retrieved the power lead and plugged it into the 240 volt power socket close by. There was a very loud bang. It sounded like I had been shot. What I had thought was a

mains lead was the lead to the loudspeaker and the 12 inch cone was now hanging out of the front of the chassis accompanied by a nasty burning smell. The director was a bit of an amateur electronics buff and he was using a standard 240 volt power plug and lead to connect his speaker to the television. There was an investigation over this, but I remember that the general comments were in my favour.

On another occasion I was sent down to a country house and the lady there seemed to be happy with what I had done and she asked a neighbour over to see me. It appeared that this neighbour wanted to buy a television set and wanted my advice. Being a good company employee I told the lady when she was in London to go into our His Master's Voice shop in Oxford Street and they would be able to show her the latest in television sets.

Later I was called into our office and told that the Head Office wanted to see me. I wondered what it might be about and thought that perhaps there was a commission awaiting me for selling a TV set. Was I surprised? When I arrived at Head Office they began to tear a wide strip off me for trying to sell TV sets. "In the future just stick to your job and leave the selling of television sets and any other EMI products to the salesmen who are specially trained and experienced in this work." There was another side to this episode and I learned later that what I had done was to take a sale away from the local dealer in the town where the lady in question was living, and he had complained that an EMI engineer had advised the lady to go up to London to buy her TV set.

Life was very sweet for a few months going down to these country estates and setting up their TV sets, but soon we began to receive reports that the refurbished TV sets had stopped working. At first not much notice was taken of these reports as one can expect a few problems, but too many reports of failure began to come in. The replacement EHT transformers and picture tubes appeared to have a life span of about four weeks. Where the customers had welcomed us with open arms when

Continued on Page 50

ALARA

Sally Grattidge VK4SHE* ALARA Publicity Officer

ALARA Contest, Saturday, 11 November 1995

The rules for this contest appear in the *Contests* column elsewhere in this issue of *Amateur Radio*. Do make the effort to join in this friendly contest. Chat with your regular contacts, and catch up with those you have not heard for a while. This is a great opportunity for non-member YLs to meet the ALARA girls. This is not just a "swap numbers" contest, so feel free to ask for information.

CW Operators — don't forget the Florence McKenzie Trophy. Novices — give it a go, and others please listen for them and reply, nice and slowly!

ALARAMEet 1996 Update

The ALARAMEet 1996 will take place in Perth on 28 and 29 September 1996. Bev VK6DE needs to have some idea of numbers attending before the end of 1995, so, if you are going, please let her know as soon as you can. When it comes to packing for the trip, please include a sample of any craft work you do, and a baby photograph of yourself!

Members will be travelling from far and wide. Elizabeth VE7YL plans to be there "with bells on", and there are rumours of a ZL invasion.



Also at the VK5 birthday lunch was VK5GAL, a doll made by Mog VK5AOV, complete with head phones, microphone and log book. Meg did a bit of PR by showing the doll to other diners and talking about Amateur Radio.

VK3 Birthday Lunch



The VK3 girls celebrated on 14 July with (left to right) Margaret VK3DML (not visible), Mary VK3FMC, Margaret VK3CWA, Jean Shaw, Jessie VK3VAN, Mavis VK3KS, Gwen VK3DYL (standing), Robyn VK3ENX (hidden), Bron VK3DYF, Muriel May, Raedle, and Marion VK3FMR. Mavis VK3KS provided a birthday cake, and a good time was had by all.

VK5 Birthday Lunch



The VK5 birthday lunch was attended by (left to right — standing) Jean VK5TSX, Mary VK5AMD, Meg VK5AOV, Myrna VK5YW, Debbie VK5ZDM, Tina Clogg, Denise VK5YL, Yvonne VK5AYK, Jenny VK5ANW, (seated) Christine VK5CTY, Janet VK5NEI and Beryl Bennet. Joy VK5YJ came too late to get in the photograph.

Old Photographs — YLs in Uniform

Bron Brown VK3DYF heard from Dorothy Archbold (nee Fletcher) who saw the photographs published in the May 1995 issue of *Amateur Radio* and was reminded of her involvement in the Womens Air Training Corps in Sydney during the second World War.

Dorothy was a member of the Australian Womens Flying Club, which became affiliated with the Womens Air Training Corps. She became a Squadron Commander of the Signalling Squadron in the WATC. She recognised the uniform, but could not recognise any of the girls pictured.

Part of the duties of members of the WATC was working voluntarily with the Air Training Corps, visiting squadrons of the ATC formed at schools and the headquarters of the WATC during the day. At night they instructed 17 year old girls and boys in Morse Code. Successful students were enlisted in the WAAAF and RAAF as Wireless Telegraphists.

The members of WATC also worked shifts with the WAAAF as members of the Voluntary Air Observers Corps. They worked at the "Tunnel", which was an uncompleted section of the underground railway near the Mitchell Library in Sydney. A plotting table was set up to

monitor movement of aircraft flying along the coastline.

As part of her involvement in the WATC Dorothy also sold "buttons" at Kings Cross and Martin Place to raise money for the Australian Comforts Fund which provided items of "comfort" to servicemen.

The photographs also stirred memories for a VK7 OM who was stationed at Tocumwal prior to discharge at the end of the war. He recalls some of the girls in the picture running a canteen which he thinks was called The Cupper Place.

It is interesting to learn of those who, for various reasons, were not able to join the Forces, but gave their time to assist in various ways on the home front. This year, as we remember back over fifty years, we can appreciate greatly the time given so freely by these volunteers.

District Radio Ladies (Rockhampton)

The DRLs are planning a Christmas party on 9 December. This energetic group has outings and activities, runs raffles and bring-a-plate get-togethers to raise funds, have their own distinctive T shirts, and are now designing a badge. Just goes to show what can be done with a bit of effort. Robyn VK4RL runs the DRL net on the first Thursday of the month on 146.900 MHz at 1000 UTC and 3.565 MHz at 1030 UTC.

Get Well Soon

Judy VK3AGC recently dislocated her hip, just bending down to pick up an

empty grain sack! She was alone at the time, but they breed 'em tough in the bush, and by using a short ladder and a rake for crutches she was able to reach her parent's house and call for help. If you see Judy sinking gracefully to her knees, she is not making a curtsy, just picking something up from the floor, very carefully.

Music Maker

Denise VK5YL plays with a bush band, but she does a bit more than rattle a lagerphone. She has been writing some music for the band, in two parts to make it "less boring".

Vintage Wheels

Mary VK3FMC visits many interesting place with her Vintage Car Club and Radio Club. She and her OM looked longingly at a 1913 Rolls Royce at a Vintage Car Museum Auction recently, but where would they store it, and how could they afford to keep it in petrol? It does gallons to the mile, not miles to the gallon. They were intrigued, but not tempted by the Fiat Dune Buggy and the vintage fire engine. Mary is not the only YL in Ballarat. She is joined by Marion VK3FMR who is assistant to the minute secretary for the Ballarat Radio Club.

Travellers

Marlene VK3WQ and OM Jim recently surprised Meg VK5AOV with a visit as they made their way home from their travels.

C/o PQ Woodstock, QLD 4816
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AWARDS

John Kelleher VK3DP —
Federal Awards Manager*

DXCC Signal Reports

During the first week in September, I was asked a question regarding the required minimum RS or RST to qualify DXCC contacts. I have always been of the opinion that the minimum acceptable RS report was 3 and 3.

However, it was brought to my notice that Rule 4 of the ARRL DXCC rules makes no mention of ANY signal reports. Since I find it necessary to generally follow the ARRL design, I am more than a little confused about the eventual outcome.

Does this rule apply to all followers of ARRL DXCC, or does it apply to US stations and DXCC field checkers appointed by the ARRL? I have, in the interim, sent a fax to the ARRL asking for clarification of this rule, and hope to supply an answer through the ANZA and 222 Nets. (Makes me wonder why I spent so long giving and receiving signal reports from that rare one, only to find that it is of no earthly use to anybody). For the further education of all concerned, I will quote Rule 4.

Confirmation data for two-way communications (ie contacts) must include the call signs of both stations, the country, mode, and date, time, and frequency band.

QSL Situation with Russia

I find it necessary to publish a kind of "retraction" regarding the correspondence and QSL situation in Russia. In a letter from John Allaway G3FKM/VK3FAE, he quotes: *No IARU member society should communicate with Box 88, which has been behaving disgracefully — all communications should now go to SRR (Box 59). SRR was quite correctly voted into IARU membership recently and now represents the Russian Federation. It's a bit of a mess and the Krenkel Central Radio Club (Box 88) recently changed its name to SRR.*

John Allaway is Secretary, IARU Region 1. I thank him for this information, which will be of great assistance to many.

VI5AGP

The NERC (North East Radio Club) will run a special event station for the 1995 Adelaide Grand Prix, and in doing so will provide an award for amateur radio operators, and short wave listeners. The station will be active from 0000 hours on

Club Corner

Hervey Bay Amateur Radio Club



Ritsle VK4FRZ receiving the HBARC President's Award for 1994/5 at the 19 July 1995 Annual General Meeting. Gray VK4OH ar

29 October to 2359 hours on 19 November 1995 using the callsign V15AGP, and operation will be on HF and VHF.

To obtain this award, licensed amateurs must contact an operator who is authorised and rostered to use the above callsign. SWLs need to send details of both sides of a contact between V15AGP, and another station.

Along with normal QSL information, a fee of \$AUS5.00, or three IRCs, will be required, and should be sent to: V15AGP, North East Radio Club, PO Box 36, Modbury North SA 5092.

The Silver Jubilee Award

The Royal Omani Amateur Radio Society have introduced the above award to commemorate the Sultanates' 25th National Day. From 1 November 1995 to 31 December 1995, all A4 stations (except the special event station A43SJ, which will be QRV in the third week of December 95) will use /25 after their callsign suffix, eg A41XX/25.

The award will be issued to any DX station which qualifies for eight points from the following scale: Special Event Station A43SJ — three points; club stations A47RS/25 and A47OS/25 — two points; and other individual /25 stations — one point. Contact with the same station on a different band or mode will double the points.

Please send your certified log copy with a fee of 10 IRC or \$US5.00 to: The Awards Manager, ROARS, PO Box 981, Muscat 113, Sultanate of Oman.

The Patron for this Award is His Majesty Sultan Gaboos Bin Said — A41AA.

Club Awards

I would like to make another appeal to Club stations who still run awards programs. This magazine is a world-wide forum for radio amateurs and I feel that you are missing a grand opportunity to publicise your Club and its Award. Besides, you would be saving me a monstrous postage bill if you were to let me know shortly what you have to offer.

*PO Box 2175 Caulfield Junction 3161

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**Have you
advised
the SMA of
your new
address?**

AMSAT Australia

Bill Magnusson VK3JT*

National co-ordinator
Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI
AMSAT Australia net:

Control station VK5AGR
Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):
Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/- QRM.

AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL.

It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Is It Time to Say Goodbye to 2 Metres as an AMSAT Down Link Frequency?

A very interesting article by Antonio F Fernandez EA4LE in a recent issue of the *AMSAT Journal* again asks this topical question. Others, including James Miller G3RUH and Graeme Wilson VK4FXL, have made this point before and their views have received international coverage.

Antonio points out that the increasing QRM and man-made noise on 2 metres is making this band very difficult to use as a down link for amateur radio satellite work. It is already impossible to use 2 metres for weak signal work in many countries. This is exactly the argument put up by the designers of phase 3D when they did not include a mode UV (B) transmitter in the original design. There was such an outcry from established mode B operators that eventually, when a volunteer (Mike G6JEG) was found to construct a 2 metre transmitter, mode UV was scheduled into the transponder matrix.

It remains to be seen whether the fears expressed by Antonio et al are justified.

I tend to agree with them in saying that the only way to go is UP. When considering a satellite which is looking to have a life of at least five and maybe ten or more years it would seem the major emphasis should be on UHF and microwave systems. I will certainly miss the old mode B when the time comes but then I've tried mode S, it's great and it's not all that difficult. Down converter and pre-amp kits are available for the adventurous, antennas are a breeze, there is no QRM and the only noise is the gentle background hiss from cosmic noise and the transponder noise floor.

Home Brewer's Corner

I received a letter from Dick VK3ABK updating his activities. He is now active on the digital satellites and making progress towards a fully automated station. Rod VK3AYQ is also a home constructor interested in weather satellites and putting together a computer system and amateur radio satellite station. The idea of this section of the column is to put home brewers in contact with each other, so let's know what you're doing and you may find some kindred spirits out there.

New Equipment for MIR Operations

German Cosmonaut Thomas Reiter DF4TR will be on board the space station MIR signing DP0MIR during the ESA EUROMIR 95 mission starting 3 September 95. He will use the 2 m ham radio rig aboard MIR during the 135 days of his flight. The primary frequencies to be used (preferably in SPLIT mode operation) are 145.800 MHz, 145.550 MHz, and maybe 145.200 MHz (as adopted for MIR and SHUTTLE activities at the IARU session of this year's AMSAT-UK Colloquium). The QSL information is DP0MIR, and QSLs will be handled via the usual German DARC QSL bureau.

A new piece of 70 cm equipment, called SAFEX II and built by Thomas Kieselbach DL2MDE (who also arranged DF4TR's activity together with Sergej Samburov RV3DR), will be installed in the MIR spacecraft permanently in the course of future missions. This will be primarily a FM repeater with a downlink at 437.925 MHz, 437.950 MHz, and 437.975 MHz, and an uplink in the lower part of the 435 MHz space segment. SAFEX II will later be improved by adding a 23 cm to 13 cm transponder, capable of broad-bandwidth modes (eg ATV).

SMA Provides Answers to Questions

At the 18 May meeting between the WIA and the Spectrum Management Agency (SMA) in Canberra, Federal President Neil Penfold VK6NE tendered a series of six questions to the SMA and asked if the Institute could be provided written answers for publication.

The questions were drafted by Don Graham VK6HK, and the WIA felt that they embodied widespread concerns expressed among the amateur radio community. Here are the six questions and the answers the SMA provided to the Institute in July.

Question (1) *A confirmation of the SMA's policy on the treatment of repeaters and beacons including the licensing fee arrangements?*

Further to the advice received by Mr Graham from Mr Martin Chape of the Perth SMA Area office, the SMA has no intention of charging \$91.00 per hour for a physical inspection of repeater or beacon equipment. The routine operational inspection of sites is a cost that is incorporated into the Spectrum Maintenance Component of the Licence fee and therefore will not attract additional individual charges.

Amateur Radio repeater stations and beacons are considered assigned services. They are required to have frequency coordination work carried out by the SMA to ensure they are able to operate compatibly with all other radiocommunications services, including those not in amateur bands.

The initial issue fee for repeaters and beacons is charged at an hourly rate of \$91 (minimum fee \$45.50 for half an hour). Once licensed the annual re-issue fee will be the minimum licence fee of \$24. For most such licences, the bandwidth would be between 0 kHz and 36 kHz and they will therefore attract the minimum

SAFEX I Frequencies (during EUROMIR'95 mission)

2 m Band
 Voice: Downlink 145.850 MHz
 Uplink 145.250 MHz
 Packet Radio: Downlink 145.550 MHz
 Uplink 144.625 MHz
 145.550 MHz
 Add. Uplinks: 145.200 MHz
 145.225 MHz
 144.675 MHz
 144.725 MHz

70 cm Band
 Voice: Downlink 437.925 MHz
 Uplink 435.725 MHz
 Packet Radio: Downlink 437.775 MHz
 Uplink 435.775 MHz

Additional Uplinks: 435.800 MHz to 436.000 MHz with 25 kHz spacing.
 Thomas Reiter DF4TR, Onboard Station Call DP0MIR

OSCAR-13 Status Report

AO-13: Current Transponder Operating Schedule: 31 Jul — 30 Oct 1995

Mode-B : MA 0 to MA 140

Mode-BS : MA 140 to MA 240

Mode-B : MA 240 to MA 256

Omnis : MA 250 to MA 140

[G3RUH/DB2OS/VK5AGR]

Alon/Alat 225/0

Move to attitude 180/0, Oct 30

It's Algonquin Time Again

Roll out your best OSCAR satellite gear and try for an EME contact. The Toronto VHF Society plans to use the 46 metre (150') dish at the Algonquin Radio Observatory (courtesy of the Institute for

Space and Terrestrial Science, York University) during the weekends of the 1995 ARRL International EME Competition. They will operate both weekends of the contest and hope to activate the 50, 144, 432, and 1296 MHz bands.

Band	Date (UTC)	Time (UTC)	VE3ONT Tx Frequency	VE3ONT Rx Freq Window
144 MHz	Oct 6/7	0000-0910	144.100	144.100-144.110
50 &	Oct 7/8	2305-1020	50.100	50.100-50.105
1296 MHz			1296.050	1296.050-1296.060
432 MHz	Nov 3/4	0000-0805	432.050	432.050-432.060
144 MHz	Nov 4/5	2135-0910	144.100	144.100-144.110
144 MHz	Nov 5	2205-2400	144.100	144.100-144.110

QSL to: Dennis Mungham VE3ASO, RR #3, Mountain, Ontario, Canada, K0E 1S0. Moon rise is in the wee small hours in eastern VK giving a couple of hours operation before moon set at Algonquin. Unfortunately, there will not be much chance of a contact from VK6.

G3YJO Honoured

Prof Martin Sweeting G3YJO of Surrey University Centre for Satellite Engineering Research has been awarded an OBE for his work in setting up this centre. Martin has been the moving force behind the UoSats. Starting with UoSAT-1 (OSCAR 9) he established a new department, acquired a Doctorate in

Space Sciences, a Professorship and now the OBE. Martin's role in promoting the standing of amateur radio and AMSAT in the scientific community can not be over emphasised. Thank you and congratulations, Martin.

*359 Williamstown Rd, Yarraville VIC 3013
 Packet: VK3JT@VK3BBS.#MEL.VIC.AUS.OC
 CompuServe: 100352,3065

ar

**Help stamp out stolen equipment —
 always include the serial number of your
 equipment in your Hamad.**

spectrum access tax and the minimum spectrum maintenance charge, amounting to around \$13. The administration charge for such a licence would be around \$11 giving the total annual reissue fee of \$24. The renewal fee applies to amateur television repeaters as well as to narrow band repeaters and beacons.

Question (2) *Is the licence fee for repeaters and beacons charged per site or per licence?*

The minimum fee will apply per transmitter (frequency or pair of frequencies), but any associated links are covered by that one transmitter licence. This licensing system differs to that operating previously, inasmuch as the licence fee does not cover multiple repeaters and beacons at any one site.

Question (3) *If the charge is "per frequency", do the SMA realise the massive fee increases that result at typical grouped sites? Is this justifiable considering the "no protection" attitude of the SMA?*

The new apparatus licence fees' structure, which came into force on 3 April 1995, arose out of a recent public inquiry by the Spectrum Management Agency (SMA) into the apparatus licence system. The inquiry concluded that the apparatus licence fee framework should be equitable, efficient and transparent, with licence fees reflecting the demand for and the amount and location of spectrum used as well as the level of SMA costs. Under the new licence fees' structure, some apparatus licence fees have increased while others have decreased, with overall licence revenue from licensed equipment remaining about the same in real terms. The fees paid by amateurs are still considerably less than the fees paid by other commercial users for similar sized and positioned segments of the Spectrum. The SMA will provide protection to any service that has primary status as stated in the

Australian Spectrum Plan. This includes amateur repeaters and beacons.

Question (4) *Is it the intention of the SMA to eliminate the Amateur Service from Secondary Service allocations above 30 MHz by the use of Spectrum Licensing?*

The intention of the SMA has never been to eliminate any secondary user in segments of the Spectrum that have been converted to Spectrum Licensing. Secondary users are free at any time to approach the incumbent Spectrum Licensee for access to their acquired spectrum as a secondary user on a no interference basis. This is not dissimilar to the system operating at present where secondary services are not granted any protection from interference from primary services and, conversely, may not cause interference to that service. Secondary services may be subject to relocation if and when spectrum is required for primary services. Under past practice for apparatus licensing, the SMA had a role in coordinating secondary services with primary services. However, the concept of a "spectrum property right" implies that the SMA delegate most of its powers to the spectrum licensee, who in fact becomes the manager of the spectrum defined within the spectrum licence. The management right implies a right to either grant or deny secondary access on whatever terms the licensee thinks fit. The analogy is that of a private landlord having the option of leasing his or her property to tenants.

Question (5) *In the first round of proposals, 1260-1300 and 2400-2450 MHz are said to be up for Spectrum Licensing. What consideration has the SMA given to the need to continue to make these bands available for Amateur Radio Service self training and technical investigation in coordination with international practice?*

Firstly, the description of the 2400-2450 MHz band segment that appeared in the discussion paper was an error. The band that the SMA proposes to spectrum licence is the 2300 to 2400 MHz band, which is allocated on a primary basis to ISM services. This error has been advised to the WIA. The segment from 2400-2450 MHz is unsuitable for Spectrum Licensing because of its use for ISM applications, including microwave ovens.

At no stage in the discussion paper did the SMA suggest that the 1260-1300 MHz band is "up for spectrum licensing". This band was identified as a band that may be potentially suitable for Spectrum Licensing, but only subject to much more detailed evaluation, which is not proposed at this stage.

Spectrum Licensing was designed as a tool to facilitate the best usage of the Radiofrequency Spectrum for the whole of the community. In keeping this in mind the SMA is required to consider the needs of all Spectrum users and not just the those of particular groups, commercial or otherwise.

Question (6) *Is the SMA aware of the existing WIA band plans for these allocations, which are indicative of current activities?*

The SMA has a statutory obligation to comply with the Statutory Spectrum and Frequency band plans developed under the Radiocommunications Act 1992. Whilst the SMA considers the views of all Spectrum users, it is ultimately the blueprint outlined in these band plans that is legally binding on the SMA in making decisions on use of the radiofrequency spectrum. The WIA band plan is modelled on the framework of these statutory plans.

(We regret that this WIA News item was held over from last month due to space problems. Prod Ed)

Contests

Peter Nesbit VK3APN — Federal Contest Coordinator*

Contest Calendar Oct — Dec 95

Oct 1	RSGB 21/28 MHz Contest Phone	(Sep 95)
Oct 7/8	VK/ZL/Oceania DX Contest Phone	(Aug 95)
Oct 14/15	VK/ZL/Oceania DX Contest CW	(Aug 95)
Oct 14/15	JARTS WW RTTY Contest	
Oct 15	RSGB 21/28 MHz Contest CW	(Sep 95)
Oct 21/22	Worked All Germany Contest Mixed	(Sep 95)
Oct 28/29	CQ WW DX Contest Phone	(Sep 95)
Nov 1/7	HA-QRP Contest	
Nov 4/5	ARRL International EME Competition	(QST Sep)
Nov 11	ALARA Contest	
Nov 11/12	WAE RTTY DX Contest	(Jul 95)
Nov 11/12	OK-DX CW Contest	
Nov 25/26	CQ World-Wide DX CW Contest	(Sep 95)
Dec 2/3	ARRL 160 m Contest	
Dec 9/10	ARRL 10 m Contest	
Dec 25 — Jan 28	Ross Hull VHF/UHF Contest	
Dec 31	ARRL Straight Key Night	

I recently received a letter and computer print-out from Martin Luther VK5GN, drawing attention to a number of amateur radio discussion groups on the Internet. He enclosed a list of 20 such groups, covering equipment, antennas, DXing and contests, to name just a few. There are many other groups as well.

One popular group is "CQ-Contest@TGVC.COM" which, despite the name, carries discussions on all contests, not just those run by CQ Magazine. Readers with access to the Internet may like to check it out.

One of the topics currently being discussed is a "System for Rating Contest Operators", represented by Ward NOAX. Martin's print-out runs to 14 pages plus supplements, but basically it describes a system in which circular regions are established for each significant contest, such that each region contains a certain number of entrants in the same category. The entrants' scores are then converted to "ratings", with the highest score producing a rating of 1000, and lower scores proportionally less. Therefore, in each region, entrants would receive a rating between zero and 1000, depending on their score. Different regions would apply to each contest.

Each operator's ratings for the contests entered during the preceding 12 months would then be averaged, using a sliding window. By comparing his current rating to his average rating, an operator could quickly see whether his performance is improving or declining, and how it compares to others in the same peer group ("his" also means "her", of course).

To compensate for variations in operator ability and commitment, the proposal suggests the establishment of three groups, corresponding to beginner, experienced and expert, and suggests that an operator move up or down one group if his average rating exceeds 900 or falls below 200. Within each group, ratings would be normalised only to the highest score in that particular group, not the highest score overall. By this means, the high scores consistently achieved by a very experienced operator would not depress the ratings of the less experienced operators in the lower groups.

It should be pointed out that the proposed system is not a contest, and there are no winners, losers, or awards. The objective is simply to provide contesters with a useful yardstick of their own performance against others, and also against their own previous performance. The ratings are determined solely from published results, the calculations are simple, and the only additional information needed is the approximate station locations from a callbook.

My initial reaction to the scheme was somewhat sceptical, mainly because the proposed scheme suggested that the size of the regions should be chosen so that there were 10 entrants in each category. For most contests in Australia, this would require regions to include south-east Asia and probably half of Russia as well! I don't think this was intended by the scheme's originators, who obviously designed it for the USA, which has a much higher level of contest participation than Australia.

However, smaller numbers of stations in each region should work just as well and, on further reflection, the proposal really does seem to have a lot of merit. If the ratings were to be published on a regular basis, then instead of having our scores buried in results somewhere or other (which are quickly forgotten and generally overlooked by most other competitors anyway), our callsigns and ratings would be there as a continuous reminder of where we stand in relation to other entrants, and also as a reminder not to rest on our laurels too much or we will be quickly overtaken!

What do you think of this idea? If you are lucky enough to have Internet access, I suggest you search out the above-mentioned discussion group and study the latest proposals. Otherwise, I would be happy to send a photocopy of Martin's print-out, upon receipt of an SASE (large envelope please). The above is highly summarised, and the full text will make much more sense. Would anyone be willing to administer such a scheme? If so, please let me know.

Many thanks to Martin for a most interesting and informative letter, and hopefully we will all be hearing more about a contest rating scheme for Australia in due course.

Thanks are extended to the contest managers and contributors to this month's column, including VK2DMS, VK2SRM, VK5GN, HA5JJ, OK2FD, CQ, QST, and *Radio Communications*. Until next month, good contesting!

73,
Peter VK3APN

Addendum to Results of 1995 John Moyle Field Day Contest

As hard as one tries to get it right the first time, the odd thing still slips through as a reminder that Murphy is alive and well. The addendum published last month not only failed to mention VK4KAC's score, it also got his name wrong! So here it is, properly this time: "Congratulations to Bernard VK4KAC, who obtained a score of 1820 points in this year's contest, gaining him first place and a certificate in the Portable, 24 hour, Single operator, All band, Phone section" (apologies to VK4KAC).

4th JARTS RTTY Contest

14/15 October, 0000z Sat to 2400z Sun

This contest is sponsored by the Japanese Amateur Radio Teleprinter Society, and is open to amateurs worldwide on 80-10 m. Categories are single operator all band, multioperator single Tx, and SWL. Use 3520-25, 7025-40, 14070-112, 21070-125, and 28070-150 kHz. Exchange RST and

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Now's your chance to get the 'Best of the Best' at a bargain price! Right now you can pick up an ex-demo FT-1000 deluxe HF all-mode transceiver and save \$1000. Here's what the experts have to say about this incredible transceiver...

On Operation

"The layout of the front panel of the FT-1000 is just right...I reckon the FT-1000 is (operationally) far less complex than either the Icom IC-781 or the Kenwood TS-950S." - ARA

"I found the FT-1000 easier to learn and use than any other radio in its class." - QST

On Documentation

"Clearly written and complete, and includes a complete set of schematics and many high quality photos." - QST

"The quality of printing and presentation of the book is the best I have ever seen..." - ARA

On the Receiver

"... this rig has a very strong receiver; it has the best overall performance (in terms of sensitivity and dynamic range) and the highest third order input intercept of any commercial radio ever tested in the ARRL lab." - QST*

"The direct digital synthesizer works very well and produces receiver performance that sets new standards." - AR

"I found the receiver in the FT-1000 to be astonishingly sensitive and immune to cross modulation..." - ARA

Transmitter -SSB

"The FT-1000 is easy to adjust and use...The processor adds quite a bit of punch to SSB signals; hams I worked on SSB with the FT-1000 gave me good audio quality reports" - QST

Transmitter -CW

"CW keying was a delight... power output was checked in the CW mode and found to be well in excess of 200 watts on all bands..." - AR

"CW operation with the internal keyer is a breeze..." - QST

Conclusion

"...the FT-1000 represents unbelievable value..." - AR

"It's an excellent set worthy of accolades and rave." - ARA

"... the FT-1000 needs little for me to consider it the ultimate contesting and DXing machine available today..." - QST*

* Review with optional filters fitted.

The FT-1000's combination of Direct Digital Synthesis, high output power, ultra-high performance receiver and easy to use controls put it far ahead of the competition. Hurry in today and check out our limited number of ex-demo models all with a full 2 year warranty. Wouldn't you rather be using the "Best of the Best"?

Cat D-3200

\$4995

(Ex-demo models only, microphone extra)

Interested in more information? Copies of our 12 page colour brochure are available upon request. Phone (1800)226610 or (02) 9373366.

SPECIAL OFFER

Purchase an FT-1000, and we'll provide an MD-1 Desk Microphone, SP-5 or SP-6 extension speaker, BPF-1 Band Pass Filter, TCXO-1 Temp Compensated Oscillator, and four 455kHz 3rd IF crystal filters for just \$500 (valued at over \$1300 if purchased separately) This offer is only valid from 28/9/95 when purchased with the FT-1000, and is subject to accessory availability.

Some models may be shop soiled. However all come with a full 2 year warranty.

Ex-demo models units are available at these stores:

Please phone to check availability.

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Adelaide (08) 232 1200

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FT-11R Micro Deluxe 2m Handheld

Designed to fit comfortably in your hand, it's just 57 x 102 x 25.5mm (W.H.D) including the FNB-31 NiCad pack, and weighs only 280 grams. The result of the latest in miniaturisation, microprocessor control and FET technology, the FT-11R provides a large back-lit LCD screen with full frequency readout, 150 memories (75 in alpha-numeric mode), full function keypad with easy SET mode, and up/down thumb control Volume and Squelch settings. A high efficiency FET RF amplifier provides 1.5W output standard from the compact 4.8V battery pack, and up to 5W output from 9.6V (using an optional battery pack or PA-10 mobile adaptor). A range of battery life extenders, including Auto Battery Saver, Tx Save, and Auto Power Off (with ultra-low 20uA consumption) are included. Australian version Auto Repeater Shift, DMTF based selective calling and paging, extended 110-180MHz receiver coverage (including the AM aircraft band), and a variety of scanning modes are also provided. Other advanced features include naming of memory channels, DTMF Auto-dial memories, and DTMF Message Paging with up to 6 alpha-numeric characters. A large range of accessory lines are also available for easier customisation of your transceiver. Comes with an FNB-31 600mA/H NiCad, belt-clip, approved AC charger, CA-9 charge adaptor and antenna.

Cat D-3640

2 YEAR WARRANTY.



\$599



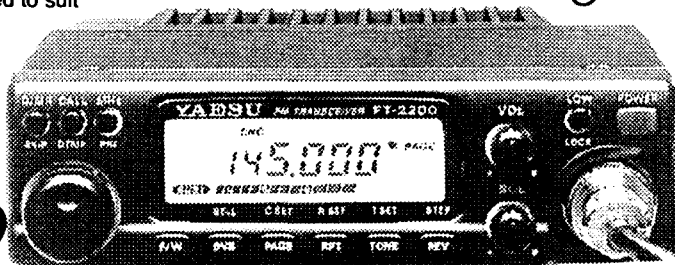
FT-2200 2m Mobile Transceiver

A compact, fully featured 2m FM transceiver with selectable power output of 6, 25 and 50 watts, it includes the latest convenience features for more enjoyable mobile or base station operation. Built around a solid diecast chassis, it provides 49 tunable memories, a large variety of scanning modes, an instant recall CALL channel, 7 user-selectable channel steps from 5kHz to 50kHz and is just 140 x 40 x 160mm (not including knobs). Backlighting of the large LCD screen, knobs and major buttons is even automatically controlled to suit ambient light conditions. Also provided is a 38 tone CTCSS encoder, DTMF based paging and selective calling with Auto-Page/Forwarding features, and 10 DTMF auto-dial memories. The LCD screen provides a highly legible bargraph Signal/P.O. meter plus indicators for the various paging and repeater modes. An optional internal DVS-3 digital recording/playback board can also be controlled from the front panel, giving even greater messaging flexibility. Supplied with an MH-26D8 hand microphone, mobile mounting bracket and DC power lead.

Cat D-3635

2 YEAR WARRANTY.

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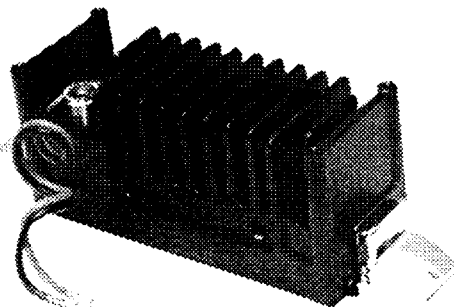
FT-290R11 2m All-Mode Transportable

Covers 144-148MHz and features FM, SSB (USB/LSB), and CW operation with 2.5W or 250mW switchable output power, twin VFOs and 10 memories that store mode and simplex or repeater frequencies. Selectable tuning rates are provided for SSB/CW and FM (SSB- 25Hz/100Hz/2.5kHz and 100kHz; FM- 5/10/20kHz and 1MHz). Mode specific features such as a noise blanker and clarifier control for SSB/CW, plus a full set of functions for FM repeater operation make this unit very simple to operate. It comes with a flexible rubber antenna, an FBA-8 battery holder, and a handheld microphone.

Cat D-2875

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FL-2025 2m Amp

Turn your FT-290R11 into a powerful mobile/base transceiver - this bolt-on RF amplifier will replace the FBA-8 battery holder on the FT-290R11, and boost the transceiver's output to 25 watts. Requires 13.8V DC.

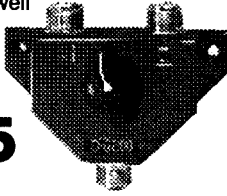
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A heavy-duty, 2-way coax switch that's suitable for Amateur, CB or commercial applications. It's well constructed with a die-cast case and can handle up to 2kW P.E.P. or 1kW CW at 30MHz with less than 0.2dB insertion loss.
Cat D-5200



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make installation and set-up easier. Both come with a 1 year warranty.

2m/70cm GST-1

Frequency: 144-148MHz, 430-450MHz
Gain: 6dB on 2m, 8dB on 70cm
Max. Power: 200W
Length 2.5m
Type: 2 x 5/8 wave (2m)
4 x 5/8 wave (70cm)
Connector: SO-239 socket

\$199

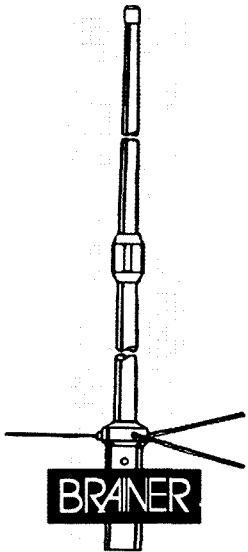
Cat. D-4830

2m/70cm GST-3

Frequency: 144-148MHz, 430-440MHz
Gain: 7.9dB on 2m, 11.7dB on 70cm
Max. Power: 200W
Length: 4.4m
Type: 3 x 5/8 wave (2m)
7 x 5/8 wave (70cm)
Connector: SO-239 socket

\$299

Cat. D-4835



6m 1/2 Wave Base Antenna

A rugged Australian-made vertical antenna designed to cover the 51 to 54MHz range, with minimum SWR around 53MHz. Built using high tensile T81 grade aluminium, it's just 2.9m long with a sealed base section and 100W minimum power rating. Complete with mounting hardware.
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The rugged 5BTV is a 5-band HF trap vertical which continues the Hustler tradition of quality and performance. It incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1 kw (PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, < 2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike some other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.

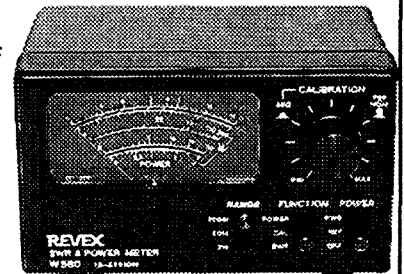
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HUSTLER \$329

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Another quality Revex wide-band SWR meter, offering 2 inbuilt sensors for 1.8MHz to 525MHz coverage! Provides measurement of 3 power levels (3W, 20W, 200W), SWR (at low and high power levels) and uses an N-type socket for the VHF/UHF sensor to ensure minimal loss. Measures 120 x 80 x 85mm.
Cat D-1375

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* STORES IN RED ARE OPEN SUNDAYS. STORES ACROSS AUSTRALIA AND NEW ZEALAND

operator age (00 for YLs; 99 for multiops). Score two points for each QSO in own continent (as per WAC boundary), and three points outside own continent. Multipliers are the total DXCC countries, plus JA/VK/W/VE call areas worked, per band. You can work your own country or call area for a multiplier. Final score equals total QSO points x multiplier. Send logs postmarked by 31 Dec to: "JARTS Contest Manager, Hiroshi Aihara JH1BIH, 1-29 Honcho, 4 Shiki, Saitama, 353 Japan".

HA-QRP 80 m CW Contest

0000z 1 November to 2400z 7 November

This international contest takes place each year during the first seven days of November, and is open only to stations running a maximum of 10 W input power. Use 3560-3600 kHz, CW only. Call "CQ TEST QRP", and exchange RST, OTH, and names. Score one point per QSO with own country, and two points per QSO with others. Stations can be contacted only once during the contest for points credit. The final score equals QSO points times DXCC countries worked. Logs must show date, time, callsign, reports, and

QTH and name of station worked. Summary sheet must include first name and QTH sent during the contest, Tx input power, and Tx output device. Send logs postmarked by 21 November to: Radiotechnika Szerkesztosege, Budapest, Pf 603, H-1374 Hungary. All entrants will receive participatory certificates, and outstanding scorers will receive a free subscription to Radiotechnika magazine for one year.

ALARA Contest

Saturday, 11 November, 0001-2359z

This Phone/CW contest is open to amateurs and SWLs throughout the world. In it, YLs can work anyone, whereas OMs and Clubs can work YLs only. Bands are 80-10 m, and the following frequencies are suggested: 3560-3590, 7070-7100, 14250-14280, 21170-21200, 21380-21410, and 28380-28410 kHz. Each station can be contacted twice per band — once on phone, and once on CW. No lists, nets or cross-mode contacts please.

YLs should call "CQ ALARA CONTEST" or "CQ TEST ALARA", and OMs "CQ YL". ALARA members will send RS(T), serial number, and name. YL non-

members, OMs and Club stations will send RS(T), serial number, and name. Club stations **must** identify as a club station each contact, and cannot use personal callsigns during club operation.

Score five points for each QSO with an ALARA member, four points for each QSO with a YL non-member, and three points for each QSO with an OM or Club station. On CW, if either operator is a Novice, score double points. SWLs should score five points per ALARA member logged, and four points per YL non-member logged.

Logs should show date/time UTC, band, mode, callsign worked, RS(T)/serial sent and received, name of operator worked, status of the station worked (YL ALARA, YL non-member, or Club), and points. Attach a cover sheet showing full name, callsign, operator's address, claimed score, and a signed declaration "I hereby certify that I have operated in accordance with the rules and spirit of the contest". Send the log to: "Mrs Marilyn Syme VK3DMS, Box 91, Irymple 3498, VIC, Australia" to be received by 31 December.

Certificates will be awarded for the following: top score overall; top phone

The *NEW* PacComm PicoPacket

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Powerful! Z-181 high integration MPU with one megabyte address space. A real powerhouse.

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On-Line HELP! So easy to learn! Type Help and a command name (or part of a command name) and receive the correct spelling, shortest abbreviation, default value(s), acceptable values, and a short explanation of its function.



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Personal Message System with all the state-of-the-art features

APRS (Automatic Packet Reporting System) compatible comprehensive GPS support built-in.

EPROM and RAM are socketed for ease in upgrading firmware and increasing memory.

RJ-45 serial cable with adapter to DE-9S. RJ-45 radio cable has real wire — solders easily to radio connectors.

Instruction manual, schematic, Quick Command listing, power cord included.

Options
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 **PacComm**

only score; top VK YL CW; top VK YL Novice CW (Florence McKenzie Trophy and certificate); top ALARA member in each country and VK call area; top YL non-member in each continent; top OM in each continent; top SWL in each continent; top VK Novice; top overseas YL CW; and top VK club station. Trophies will be awarded to the top scoring VK YL, and top scoring DX YL.

The Florence McKenzie CW Trophy will be awarded to the highest scoring VK YL Novice (minimum 50 points). Because of its size and weight, the actual trophy will not be forwarded, and instead a certificate bearing a photo of the trophy will be sent to the winner. To assist checking, Novices entering for this award are requested to indicate their CW scores separately.

Logs must be legible (no carbon copies please), and will not be returned. The contest manager's decision will be final, and no correspondence will be entered into.

OK-DX CW Contest

11/12 November, 1200z Sat to 1200z Sun

This CW contest occurs in the second full weekend in November each year. Bands 160-10 m. Categories are: Single operator, single and multiband; multioperator, single and multi Tx; QRP, single and multiband (max 5 W out); and SWL. Single operator stations operate max 20 hours, with minimum one hour rest periods. Multiband stations apply "10 minute band change rule" (multi Tx stations are exempt from this rule).

Send RST plus serial; OK stations will send RST plus three letter district code. DX (VK) stations score 10 points per OK/OL/OM QSO, and one point per QSO with another country. Multipliers are the sum of DXCC countries and OK districts on each band; final score is QSO points (all bands) times multiplier from all bands.

Note rest periods in the log, and use a separate log for each band. Cross-check sheets are required for 200+ QSOs. Logs can also be submitted in ASCII on DOS disk. Entries should be postmarked by 15 December, and sent to: "CSRK, Box 69, 113 27 Praha 1, Czech Republic".

Results of 1994 CQ WPX SSB Contest

VK3EW received the AH9B Trophy for top Single Band score in Oceania (7 MHz), and VK4LW achieved the top score on 28 MHz for Oceania. The following were all awarded certificates.

(Call sign/Band/Score/QSOs/Prefixes; Asterisk = low power):

Single Operator:

VK5GN	A	3,762,844	1921	668
VK3TZ	A	3,516,816	1705	656
VK6HQ	A	72,044	311	217
VK4LW	28	194,427	305	171

VK4AAR	14	437,976	499	308
VK3EW	7	2,022,804	843	414
*VK4ICU	21	214,848	382	192
*VK8BE	21	4,320	40	36
*VK1LC	14	16,416	76	72
*VK3SM	14	1,825	25	25
VK9NS	A	2,971,080	1696	567
P29DK	A	215,897	338	209
*P29NB	A	229,770	359	230

Single Operator QRPp:

VK4NEF	A	53,846	182	109
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Multioperator Single Transmitter:

VK1DX	3,302,352	1852	568
VK4IZ	1,971,576	1404	417

Results of 1994 CQ WPX CW Contest

VK2AYD had the top score on 21 MHz for Oceania. All VK entrants were awarded certificates. The results, from CQ May 95, are as follows:

VK4EET	A	1,311,240	762	392
VK1FF	A	962,082	802	339
(op WB2FFY)				
VK2AYD	21	256,410	381	231
*VK2AKP	A	1,064,362	828	338
*VK4EMM	A	515,890	449	230
*VK4XA	21	67,828	186	124
*VK4TT	14	190,548	324	201

Results of 1995 WIA Novice Contest

Presented by Ray Milliken, VK2SRM

28 logs were received for this year's contest, including 22 Section A (Phone) and 6 Section B (CW). No entries were received for Section C (SWL).

This year the Keith Howard VK2AKX Trophy went to VK4NBC, the Novice with the highest score in Section A (Phone), and the Clive Burns Memorial Trophy went to VK2VZB, the Novice with the highest score in Section B (CW). These perpetual trophies are on permanent display at the Federal Office, and in each case the winner will receive an inscribed wall plaque.

The number of entries received was well down on the 50 received last year, no doubt due to the very poor conditions this

year. Whilst a bit disappointing, hopefully conditions will be much better for next year's contest. Many thanks to the entrants who included comments with their logs, which have all been noted.

National Winners:

Section A, Novice	VK4NBC
Section A, AOCp	VK1PJ
Section B, Novice	VK2VZB
Section B, AOCp	VK2SPS

Individual Results, Section A (Phone):

= National winners
 ** = Highest Novice score for each state (excluding national winners)
 * = Special awards

(C) = Club	
VK1PJ #	980
VK4NBC #	629
ZL1RK * (C)	599
VK5MAP **	550
VK2RD *	481
VK4MOJ **	400
VK2VRA **	391
VK3MGK **	391
VK3BML * (C)	383
VK3MAZ	376
VK6WJH *	310
VK3MSL	266
VK7KSM **	230
VK5UE	209
VK2SPT	205
VK4BB	130
VK3LBA	126
VK2VGC	121
VK2NPH	111
VK6ABC	87
VK3CAM	86
VK1JE	69
VK8NSB **	67

Individual Results, Section B (CW):

VK2SPS #	66
VK2VZB #	60
VK1FF	51
VK2CW	47
VK2ALS	31
VK5UE	31

*PO Box 2175, Caulfield Junction, VIC 3175

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Divisional Notes

Forward Bias — VK1 Notes

Peter Parker VK1PK

VK1 Says No to Morse

To gauge members' opinions on whether Morse proficiency should remain an international requirement for amateur operation below 30 MHz, the VK1 Division held a discussion forum at its August general meeting. After a range of opinions was aired, the matter was put to the vote.

The result was clear-cut. 10 people voted to retain Morse as an international requirement, while 22 wanted it to be for national governments to decide their own policies on amateur access to the HF bands. The vote means that, should this question be raised at Federal WIA conventions, VK1 will be supporting a change to ITU requirements.

Conversion Night A Success

Members at the August General Meeting enjoyed a presentation on

converting AWA carphones to six and two metres. These transceivers were sold by the VK1 Division some time ago. Much of the information given was also applicable to converting other VHF transceivers to six or two metres. Thanks to Paul VK1BX and Rob VK1KRM for delivering the presentation.

Tan Minute Tan Metre Scramble Results

Buoyed by the success of the VK1 two metre scramble, held in May, the VK1 Division held a scramble on ten metres on August 2, just after the weekly broadcast. Five callsigns were heard in the event, which ran for ten minutes. While not as popular as the two metre scramble, those who participated enjoyed themselves.

Congratulations to Joe VK2NJG and Jim VK1OO who tied for first place, with a score of four points. Joe's effort was particularly noteworthy as he was operating from Murrumbateman. Harvey VK1HK came third with three points. The Divisional callsign VK1WI was also active during the scramble. Those who worked it received a bonus point.

JOTA on This Month

Just a reminder that the annual Jamboree of the Air is on later this month, on the weekend of 21 and 22 October. The success of the event depends on the participation of amateurs. Details of how you can be involved in this unique event will be given in the VK1WI Broadcast as they come to hand.

New Repeater Committee Established

To co-ordinate and construct future amateur repeaters in the ACT, a VK1 Repeater Committee was formed at the VK1 Division's July General Meeting. The committee's convener is Neil VK1KNP. The first meeting of the committee was held on 8 August, in Room 3 at the Griffin Centre. Held on the second Tuesday of the month, the next meeting is scheduled for 10 October. Neil would like to hear from any amateur in the Canberra region interested in experimenting with repeater techniques to join the Committee. Neil can be contacted on packet at VK1KNP @ VK1ZAO BBS.

VK1WI Now on Packet

In perhaps the biggest change to the weekly broadcast since it began, the text of the VK1WI Divisional broadcast is now posted on packet radio. The change will make it easier for those unable to listen on Wednesday evenings to keep in touch with local and national amateur radio

happenings. With the broadcast now being as close as your local packet BBS, you can easily refer to the packet edition if you miss an important address or telephone number on the voice broadcast. The hearing impaired, other Divisional Broadcast Officers and interstate amateurs are among those starting to benefit from the new service.

The contents of the Packet News Service are very similar to the voice broadcast. The only differences are that the packet edition does not include WIA Disposals and some Federal News items. You will find the bulletin by listing all messages addressed to "WIA".

VK2 Notes

Richard Murnane VK2SKY

No News is Good News, so perhaps the less said, the better! This has been a relatively quiet month for the VK2 Division, with no major dramas to report. However...

Tower Troubles

You probably would have heard on the weekly broadcast about community reaction to the increasing number of cellular phone towers springing up everywhere. Under current legislation, the telecommunication carriers are exempt from the usual planning requirements when erecting these towers.

Public concern, over possible health risks arising from exposure to electromagnetic radiation from mobile phones, has made itself felt at a couple of local Sydney councils. They're proposing to introduce new guidelines governing the installation of towers and aerials. The councils have not limited themselves to the health issues (as the health risks are still hotly debated), but are taking into account the visual impact of the installations as well. Sadly, non-amateurs don't always share our sense of aesthetics.

The Division is mounting a test case in court to ensure that these guidelines do not adversely impact amateur operations. Stay tuned to the Division's weekly broadcast for updates as they occur.

That Time of Year Again

"In Spring, a young man's heart lightly turns to thoughts of..." Let's not be sexist here; the young ladies have something of an interest as well. Yes, the international Scouts and Guides Jamboree of the Air (JOTA) is upon us once more, on the weekend of 21-22 October. While many will explore the joys of other hobbies that weekend, many will give thousands of

youngsters their first exposure to amateur radio. The event is as much fun as you make it; so, as the saying goes, *"Be In It"*.

Another major Amateur Radio event this month is the Hawkesbury Classic Paddle, on 14-15 October. This is one of the big WICEN training events of the year; it's terrific fun, a great challenge if you haven't operated portable before, and also helps raise money for charity. Amateur radio benefiting the community.

Thought for the Month

"Don't find fault. Find a remedy." — Henry Ford.

VK3 Notes

Murray Lewis VK3EZM

WIA VICTORIA MORSE SURVEY

The Morse code survey included in September Amateur Radio contained a printing error. The return date was indicated as 30.08.95. It should have been 30.09.95.

The return date is extended to 10.10.95. Additional survey papers may be obtained by telephoning WIA Victoria.

JOTA Help Wanted

This year the Victorian JOTA Council of the Scout Association of Australia aims to increase the activity of the annual event. Kent Cochran VK3TER, who is a member of the JOTA Council, says extensive publicity is aimed directly at scout and guide groups. The Jamboree of the Air will be held on October 20 to 21. Radio amateurs are required to assist with the work in this event, which always stimulates considerable interest among young people in amateur radio. Please contact Kent VK3TER, after business hours on phone (03) 9384 1610, with an offer to help or for further information.

Show the Badge

Most of the radio amateurs who are "old-timers" have the WIA winged emblem badge and a few words on their QSL cards to indicate they are WIA members. However, a recent survey of cards handled by the VK3 Bureau discovered that any indication of membership is neglected by most of the more recent radio amateurs. The outwards bureau is a free service only enjoyed by financial members of WIA Victoria. When designing your QSL cards, please give some thought to using the WIA badge. Make your QSL cards to show you're proud to be a WIA member.

Recycle Unused Equipment

New equipment is too expensive for many new radio amateurs, who consequently search for second-hand HF, VHF and UHF transceivers and ancillary equipment. Your unused rigs and gear can help many of these newcomers become operators. Commercially made equipment in proper working order can be placed on display for sale at the WIA Victoria office. The service is free for members, and certain conditions apply. For more information contact the Secretary/Manager, Barry Wilton VK3XV.

Pirate or Mistake?

Jock Walsh VK3UB has received over 200 QSL cards during the past 18 months for contacts he has not made. The cards confirm CW QSOs, mainly on 14 MHz. Jock does not operate CW, but the cards keep on coming. Enquiries to the SMA confirm that the call sign has not been "double issued", and they can provide no explanation. It would be appreciated if all CW operators could keep their ears open for this one, and we may be able to track down the source. There may be a pirate, or perhaps it could be a genuine error. There is some evidence that the operator is bilingual. If you can help with any information, please contact the WIA Victoria office.

Divisional Broadcasts

Members who attended the Annual General meeting will remember the President's statement that a priority of the Council for 1995/96 was to achieve a fortnightly broadcast through VK3BWI. This month Council is able to announce that a twice per month broadcast through VK3BWI will commence.

Paul Girling VK3ALE and Dennis Babore VK3BGS have now joined the roster as an additional production team. Thanks Paul and Dennis, who will commence with the broadcast on 8 October 95. The next broadcast will go to air on 22 October 95, and will be followed by broadcasts on the second and fourth Sunday of each month. Please note, however, there will be no broadcast on 24 December, Christmas eve, but VK3BWI will recommence on 14 January, with the first broadcast for 1996.

Until last month, VK3BWI broadcasts were produced by Bill Trigg VK3JTW, Jim Linton VK3PC, Rob Carmichael VK3DTR and Murray Lewis VK3EZM. All these volunteers will continue as producers on a rostered basis, resulting in our twice per month broadcast on VK3BWI. They are joined by the additional production teams of Chris Piatt VK3KCP and David Williams VK3KAB, who commenced on 10

September, and Paul Girling VK3ALE and Dennis Babore VK3BGS.

An encouraging response has been received from some affiliated Clubs who have sent material for the broadcasts. However, the production teams look forward to more news and technical items which could be supplied by other Clubs and individual members. Material suitable for the broadcasts can be sent by fax or mail to the WIA Victoria office.

"QRM" News from the Tasmanian Division

Robin L Harwood VK7RH.

On 26 August, the VK7 Divisional Council met at the Domain Activity Centre in Hobart. Several items were raised including site fees, Public Liability Insurance, and continuing problems within the state with packet radio.

The Northwestern Branch reported that, because of high power tariffs, the repeater site at Lonah, near Ulverstone, was turned off, and various VHF beacons were also de-activated. The aim is to have these re-located elsewhere and possibly solar powered. This means that the Divisional broadcast from VK7WI is now on VK7RMD, Mount Duncan, on 146.625 MHz. It was also pointed out that the ATV rebroadcast of the same service has not been aired for some time and hence has been deleted from the broadcast roster.

Other repeater news is that the Southern Branch continues to be concerned about the delays on the new multipurpose tower on Mount Wellington. Those interested in the future of Repeater Two have been meeting and been canvassing various options. However, at this time, no firm decision has been made.

The recent heavy snowfalls on Mount Barrow prevented repair work being carried out on VK7RAA on Mount Barrow, particularly the receive antennas. Difficulty was experienced with both the rebroadcast from Repeater Two on Mount Barrow of VK7WI and on-air contacts. By the time you read this, it will be hopefully rectified.

Council received from Clarrie Hilder VK7HC his resignation as Divisional Awards Manager. We thank Clarrie for his contribution and thoughts regarding the awards structure within Tasmania. As a vacancy now exists, Council calls for expressions of interest in filling this position. These should be directed to the Secretary at 52 Connaught Crescent, West Launceston TAS 7250 as soon as possible.

Problems are continuing on the packet network within Tasmania and these were discussed at the Council meeting. It is apparent that a lot of misunderstanding

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has been created through ignorance of how the various packet protocols operate. Congestion on the various designated channels and complaints about inter-BBS forwarding interfering with other packet users has largely contributed to a breakdown in communications between all sections of the packet community. Therefore, Council has suggested that a statewide forum be held to educate users on packet and overcome problems with the various protocols. It is obvious that these hassles are not confined to any one region but are statewide, hence the need to tackle it on a statewide basis.

It has also disturbed Council that on-air arguments on HF over the various protocols has degenerated into a slanging match and has not assisted the resolution of these problems, only added to them by airing them to a national forum. If you have differences with somebody, DO NOT TRANSMIT THEM, but try to iron them out off-air. On-air arguments, especially heated ones, are a no-no in amateur radio.

Therefore, Council would like submissions on organising a seminar on packet radio on a statewide basis, from interested individuals or groups, with a view to overcoming these difficulties. It is imperative that all facets and perspectives of packet activity be covered, from sysops to users, in a calm, rational manner.

Meetings for the month of October are Southern Branch on 4 October at 2000 hours EDT at the Domain Activity Centre; Divisional Council on 7 October at 1030 EDT in the northwest (possibly Penguin); Northwestern Branch on 10 October at 1945 EDT at Penguin High School, Ironcliff Road; and Northern Branch on 11 October at 1930 EDT at Room 17, Alanvale campus of Launceston Institute of TAFE, Block "B".

Well, that is all for this month. If you have any news, you can write to my postal address. Don't forget that the e-mail address is wiatas@tamarcom.com.au.

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latitude of the first spotted region has typically lain between 25 and 40 degrees.

The major significance of the new cycle spots lies in their predictive value for a solar minimum. Typically, minimum does not occur until at least 12 months following the appearance of the first spot group of the cycle. Details for the last three cycles are: Cycle 20, first spot 1963, minimum in October 1964; Cycle 21, first spot 15 Nov 1974, minimum in June 1976; and Cycle 22, first spot 31 Mar 1985, minimum Sept 1986. On the basis of past behaviour we would thus expect solar minimum to occur between June and December 1996, and the duration of Cycle 22 to lie between 9.7 and 10.3 years.

It appears that the first sunspot regions of Cycle 23 have arrived. Solar minimum and the rise of Cycle 23 may be more than a year away. Nevertheless, the first indication of the new cycle is an exciting event. It holds promise of all the events which make a solar cycle of great interest and affect global communications, satellite navigation, geophysical exploration and a host of other such effects.

Earlier on the same day, Dr. Thompson said: For a solar scientist it is now the time to crack a bottle of champagne. However, radio amateurs will be well advised not to crack the bottle yet, but put it in the fridge and look at it in a year's time, to see whether the solar minimum has arrived or not.

Libya — 5A1A

The Ukrainian operators left Libya on 25 July, confirming the QSL information shown in my September column (CW to LZ2UA and SSB to OM3JW). They made 35,527 CW/SSB QSOs on a variety of bands and have trained three local operators, Ali, Usaama and Mufti who are members of the Libyan Youth League which was established in Libya by the Ukrainians. 5A1A is the only authorised amateur activity in Libya. These operators are active from time to time on various bands and nets.

Dan W4BRE reported that all the 5A1A documentation was sent to the ARRL DXCC desk on 10 August by the International Youth League of Ukraine and it has been received by the DXCC. The European DX Net, conducted by Selim OE6EEG on 14243 kHz at about 0600 UTC on Saturdays and Sundays, had many VKs and ZLs patiently waiting for the opportunity to make their first contact with Libya, including yours truly.

The signal of operator Ali was not very strong but quite workable on the long path to Europe. The postal address for direct QSL cards varies with each operator, but no QSL cards had been printed as at 14 August for these operators. Those who

magnetic structure. This magnetic structure, or polarity, is opposite for regions in each hemisphere of the sun and reverse for each solar cycle. Thus, a new cycle region has the opposite polarity to that of the old cycle regions in the same hemisphere. Secondly, new cycle regions usually occur at higher solar latitudes than the old cycle regions. Around the time of solar minimum, old cycle regions are appearing at solar latitudes of 5-15 degrees, north or south of the equator. We may have seen the first regions of the new cycle, numbered as Cycle 23. On May 15, the Learmonth Solar Observatory — jointly operated by the Australian Government IPS Radio and Space Services and the US Air Force — observed a region at North 13 degrees. Equipment installed at Learmonth by the US National Solar Observatory measured the region as having reverse polarity to that expected for an old cycle region.

Since then, two further reverse polarity regions have been observed at Learmonth. These were seen on 26 July and on 13 August with latitudes of South 18 degrees and South 20 degrees respectively. The third potential new sunspot group was also observed by the Kitt Peak magnetogram and at the Big Bear Solar Observatory. All the new sunspot groups had the correct hemispheric magnetic polarity for Cycle 23. However, the low latitudes of these groups could possibly call into question their cycle allegiance. In recent cycles, the

How's DX

Stephen Pall VK2PS*

At the end of August, rumours started to spread on the bands that the new sunspot cycle had arrived. News snippets from the USA were quoting various US solar observatories as the proof of the source of information.

Having remembered that I discussed the prospects of the arrival of the new cycle with Dr Richard Thompson of IPS Radio and Space Services in May this year (see *Amateur Radio*, July 1995), I contacted him again to obtain up-to-date information on this matter. Dr Thompson is a scientist based in Sydney with the IPS and works in close co-operation with John Kennewell, a Principal Scientist at the West Australian Learmonth Solar Observatory. Both gentlemen were very willing to give as much information as possible to amateur radio operators about the change of the cycle. Here is a shortened version of a five page fax received from them at the end of August.

For watchers of the solar cycle an important milestone is the appearance of the first sunspot region belonging to the new solar cycle. Contrary to what many people believe, such regions first appear between 12 and 20 months earlier than solar minimum which marks the end of one solar cycle and the start of the next. For this period, old cycle regions co-exist with those of the new cycle.

But how do you distinguish regions of the new cycle from those of the old cycle? Firstly, solar regions have a characteristic

made the contact with Ali should send their cards with one or two green stamps (IRCs cannot be used in Libya) to: Ali Saleh, PO Box 80462, Tripoli, Libya, Africa.

Huang Yan Dao BS7H Tung Sha Dao BV9P

If there was ever controversy in granting DXCC status to a "new" country, Scarborough Reef and Pratas Island are good examples. The DXAC and the DXCC awards committee are trying hard to extract themselves from a very sensitive situation. There were several urgent meetings of the two Boards and even the President of the ARRL, Rodney J Stafford KB6ZV, found it necessary to issue a lengthy explanatory statement. The acceptance or non-acceptance of these two "new countries" representing two separate Chinas (PR of C and R of C) became a "hot" issue and, unfortunately, it seems also an amateur "political" problem.

At its 19 July meeting, the ARRL Membership Services Committee (MSC) of the ARRL Board of Directors voted to remove from the Awards Committee Standard Operating Procedure (SOP) an administrative interpretation of a Board motion. The deleted text said in part: *thus it requires a favourable recommendation by the DXAC to initiate a country status review by the Awards Committee.*

All ARRL Directors were present at the meeting, and it was the sense of the meeting that the Awards Committee should review negative as well as positive country status recommendations of the DXAC.

On 25 July, the ARRL Awards Committee voted unanimously that Scarborough Shoal (Huang Yan Dao) should be added to the DXCC list under point 2 (a) of the Countries List criteria. Committee members all felt that Scarborough meets the rules that were in place when the petition for a new country status was received. Further, they concluded that it meets the definition of an island under the UN Law of the Sea Conventions. China claims Scarborough, and there is an absence of other territorial claims. Finally, it is more than 225 miles from the nearest part (island) of China.

Awards Committee Chair, Chuck Hutchinson K8CH shared the results with DXAC Chair, Garth Hamilton VE3HO, immediately after the vote. As announced in a 30 June 1995 news release, the DXAC voted nine to seven against recommending the addition of Scarborough to the DXCC countries list.

Under procedures established by the ARRL Board, and because the Chairs are unable to effect a compromise, there is an

automatic appeal. In the next step, the two committees will report the reasons for their votes to the MSC for recommendation to the full Board, which ultimately will decide the matter.

The Membership Services Committee of the ARRL Board of Directors will ask Garth Hamilton VE3HO, Chairman of the DX Advisory Committee (DXAC) to waive the DXAC's internal two-year limit on re-voting petitions in the case of Pratas BV9. This would allow an immediate re-vote. Earlier this year, the DXAC voted eight to seven against adding Pratas to the DXCC Countries List, based on the now-discounted report of intervening rocks.

The Awards Committee size has been reduced to six members, being K8CH (Chair), KR1R (contest manager), K5FUV (DXCC manager), NX1L, N6BV and KH1HY. While it may seem strange to have an even number of members, in most cases an odd number of members will vote, as the DXCC manager does not vote on DXCC matters and the contest manager does not vote on contest issues.

The DXAC rejected a new-country status for Palestine based on insufficient evidence that Palestine met the DXCC country criteria.

The DXAC may also reconsider the wording of the minimum size rule, possibly eliminating the "ability to sustain human habitation" phrase. The DXAC may also consider whether there is evidence that Mt Athos SV/A prohibits amateur radio, leading to a possible deletion.

Heard Island — VKO

Following my notes on Heard Island (see *Amateur Radio*, August 1995), Ken Matchett VK3TL, the curator of the WIA national collection of QSL cards, was kind enough to send me a list of the Heard Island QSL cards which are held in the collection.

The following list contains the date of activity, the callsign used, name of the operator and/or the home call if known.

Jan 1948, VK3ACD/"In the Antarctic"; A Campbell-Drury; Feb-Aug 1949, VK1VU, Ronald O F Oatt; July — Sept 1949, VK1RA, Robert W Allison; Aug — Sep 1949, VK1FE, Arthur R Burton; Jul — Nov 1950, VK1HV, Michael Harry Vause; May — Dec 1950, VK1YG, Leo; Sep — Nov 1950, VK1PG, John H Gore (VK2PG); Aug — Oct 1951, VK1NL, Nils Leids (VK2EG); Oct — Nov 1952, VK1PN, Alan M Perriman; Jul — Aug 1954 and Jan 1955, VK1DY, George E Delahoy (VK3ADZ); Feb 1963, VK0NL (see VK1NL above), Nils Leids (VK2EG); Mar 1969, VK0WR, Bill Rohrer (W7ZFY) and Henry Roering (WB4HWP); Dec 1969 — Feb 1970, VK0HM and AX0HM, Hugh Milburn

(WA6EAM); Mar 1980, VK0RM, Bob McNamara Co Veenstra; Undated, VK0SJ, Sjoerd Jongens (VK7ZSJ); Jan — Feb 1983, VK0HI, David Shaw (VK3DHF) and Al Fisher (K8CW); Feb 1983, VK0NL, Kirsti Kenkins-Smith (VK9NL) and VK0JS, Jim B Smith (VK9NS); Oct — Nov 1985, V10CC, Colin Christiansen (VK2BCC); Dec 1986 — Jan 1987, VK0DA, Frank O'Rourke; Dec 1987, VK0HI, David Shaw (VK3DHF).

I am sure that those who are interested in the history of amateur radio on Heard Island will find the above list interesting.

Future DX Activity

- Pentii OH3TY will be active from OH0 Aland Island before and during the VK-ZL-O contest on 20, 40 and 80 metres. QSL to home call.
- 8Q7BY will be operational from the Maldives Islands starting 26 Sep. It is assumed that he will be active on all bands but, if you need him on 40 metres, look around 7047 kHz at 1900 UTC. QSL to JA0BYS.
- Hazel TN7OT is often heard on the ANZA net, 14164 kHz, around 0500 UTC. QSL to home call AL7OT Hazel C Schofield, HC 1 Box, 156 T, Soldotna, Alaska AK 99669 USA. Be Patient.

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160M vert top loaded	\$327
6 M col/in 6 dbd rad 4.NEW	\$157
6 ele 6 M N.B.S 50 mm Boom	\$310
Duo 10-15 M	\$295
3 ele 15 M	\$199
3 ele 20 M	\$333
20 m log-yag array 11.5 dbd	\$755
M B Vert NO TRAPS 10-80 M	\$275
Tri band beam HB 35 C 5 ele	\$690
40 M linear loaded 2 ele	\$516
13-30 M logperiodic 7 ele 7-V Boom	
all stainless/steel fittings	\$730
70 cm beam 33 ele 19.9 Dbi	\$228
23 cm slot fed 36 ele brass cons	
s/solder-assembled. 18 dbd	\$170
80 m top load/cap/hat vert.	\$260
80 m rotatable dipole lin/loaded	CALL
2 m 144.100 2.2 wavelength boom	\$145

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- Selim OE6EEG cancelled the trip to Tunisia which was to have taken place from 3 to 17 August. Instead, a large group of amateurs will go there in September. In the meantime, a variety of guest operators have activated 3V8BB and QSL routes vary according to instructions given by each operator. It was also reported that logs for the period 14 January to 29 April 1995 were lost in the mail and contact with 3V8BB cannot be verified for that period.
- Joe G3MRC will be returning to Zaire. He will be active as 9Q5MRC and, when visiting Burundi, he hopes to activate 9U5MRC. QSL to home call.
- Tom AL7EL will be active from Wake Island in late October as KH9/AL7EL.
- TT8NU in Chad is operating almost daily on 17, 20 and 30 metre CW. QSL to F6FNU.
- Michael F5IBZ is in Kenya for 18 months and is now operating under the call 5Z4BZ.
- Nikolay UA0FM is now active in Vietnam as 3W5FM on 7065, 14195, and 21400 kHz on SSB; and 3505, 7007, 10105, 14025, 18075, 21025 and 28025 kHz on CW. QSL via his daughter at a new address: Nataly Stchelokov UA0FFM/3, PO Box 66, Vladimir, 600011, Russia.
- 7P8SR is active from Lesotho until about Dec 1995, when he goes to Madagascar.
- S11GM, a Swedish special event station celebrating Marconi's birthday and 100 years of radio, will be active from 1 Sept to 30 Nov 1995. QSL via the Swedish QSL bureau.
- 8J9WGC is the special callsign of the station set up in Sabae, Japan, the site of the 1995 World Gymnastics Championships from 1 October to 10 October. All bands, all modes. Do not send a QSL card. JARL will send you the QSL card automatically for the QSO. You are invited to send encouraging messages to participating Australian gymnasts for delivery to them.

Interesting QSOs and QSL Information

- VR2GY — Lee — 14005 — CW — 0606 — July (E). QSL via the QSL Bureau.
- ZK1PN — Paul — 7010 — CW — 1130 — Aug (E). QSL to OH5UQ Paavo Miettinen, Jukankatu 4 B 16, SF-551000, Imatra 10, Finland
- UA3YH/KC4 — Nick 7015 — CW — 1150 — Aug (E). QSL to UA3BY Serge V Satyr, Lenina 12/4-40, 249020, Ubninsk, Russia.
- 9G1SB — Sewell — 14164 — SSB —

0714 — Aug (E). QSL to Sewell T Brewer, PO Box M114, Accra, Ghana, Africa.

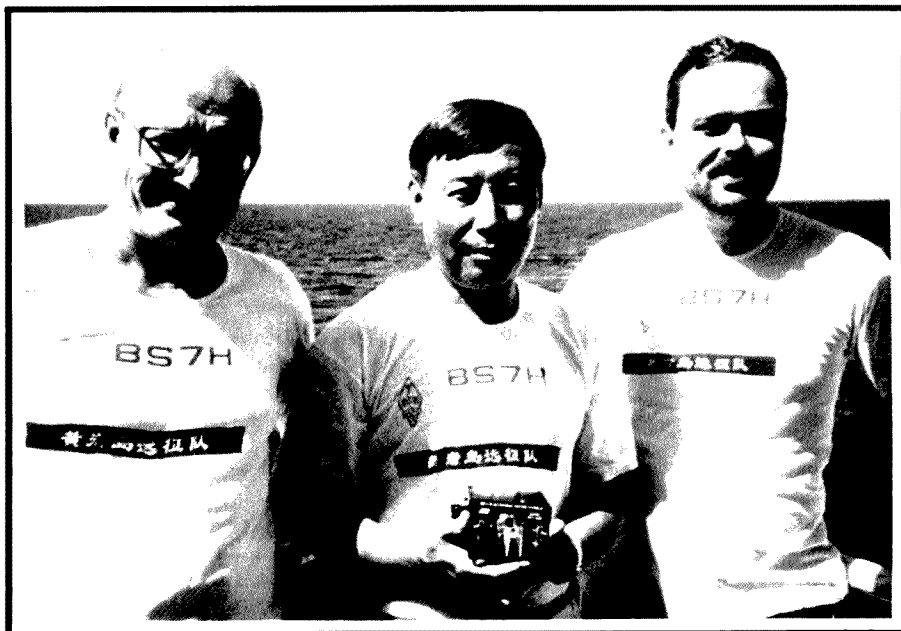
- YS1SC — Jose — 7045 — SSB — 0726 — Aug (E). QSL to Jose Ricardo Sandoval Campos, PO Box 4, San Salvador, El Salvador, Central America or via W6RKP.
- TI9JJP — Jose — 7064 — SSB — 0546 — Aug (E). QSL to Jose Pastora, PO Box 330-1000, San Jose, Costa Rica, Central America.
- TU2ZR — Allan — 7047 — SSB — 0648 — Aug (E). QSL to SM3DMP, Thomas Rylander, Berg 1980, S-87052, Nyland, Sweden.
- FY5YE — 7004 — CW — 0633 — Aug (E). QSL to W5JLU Leonard N Barrett, 1321 Lamar Ave, Nederland, TX 77627, USA.
- KG9N/C6A — Chuck — 7016 — CW — 1053 — Aug (E). QSL to KG9N Chuck van Hoon, 40 Maple RR1, Box 82, Congerville, IL-61729, USA.
- 3V8BB — Osamu — 14243 — SSB — 0633 — Aug (E). QSL to JF2EZA Kohichi Oguri, 4-81-46 Hirano, Tajimi, Gifu, 507, Japan.
- YJ8AM — "Mac" — 14214 — SSB — 0633 — Aug (E). QSL to Andrew "Mac" McIntyre, PO Box 743, Port Vila, Republic of Vanuatu.
- 5W1MH — Martin — 14164 — SSB — 0541 — Aug (E). QSL to PO Box 1084 Apia, Western Samoa, Southern Pacific.

From Here There and Everywhere

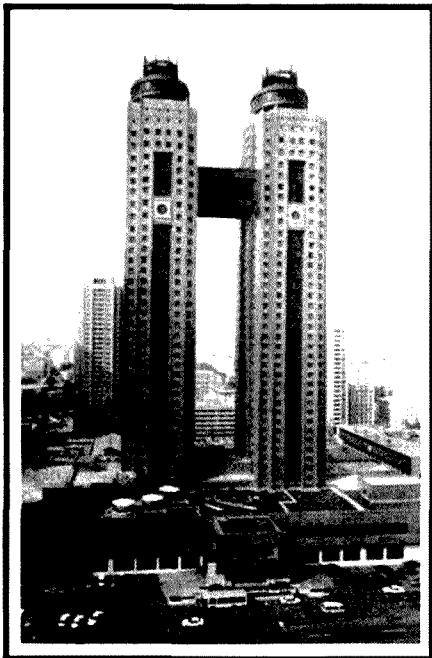
- Jim VK9NS passed through Sydney on his way to Europe. He will attend the RSGB International HF Convention

early in September. Then he will go on to Sweden for another DX gathering at Karlsborg on 7-8 Oct. Finally he goes to the south, to Bologna in Italy where he will attend the IOTA Convention organised by the Italian ARI on the weekend of 14 October. On his way to Europe Jim made a small fact finding detour from Madras, India to Port Blair Andaman Islands (VU4), to assess the situation there. He met Many VU2JPS, did some antenna work for him and, in general, had a good look around, whilst having in depth discussions with Many.

- I received an interesting note from Frank YJ8AA. Frank says that his QSL address in the International callbook has been incorrectly listed for the past four years as PO Box 629 Vila. The present holders of PO Box 629 do not hand over the incoming mail to Frank, so any mail addressed to that old PO Box number never reaches Frank. His correct address is (QSL Bureaux and info lists please note): Frank Palmer, PO Box 6, Port Vila, Vanuatu, South Pacific. Frank also suggests that because Simon YJ8GP (PO Box 38, Port Vila) is now very busy professionally and has less time for amateur radio than before, all mail, including QSLs to other YJs should be sent to him for attention. Frank notes that for 34 years before Vanuatu's independence he ran the YJ8 QSL Bureau.
- Pentii OH0/OH3TY advised me that he will be on 3501, 7008, and 14025 kHz before and during the VK-ZL-Oceania contest with a four element quad and



On the way to Scarborough Reef, (l to r) Olli OH0XX, Wang BZ1OK, Tim KJ4VH.



Remember the P5/OH2AM activity? This is the "Koryo" hotel in the centre of Pyongyang.

verticals and he is looking forward to working many VKs and ZLs.

- Canadian amateurs will celebrate the 50th anniversary of the establishment of the United Nations with special prefixes from 28 October to 29 December with special prefixes as follows (standard prefix in brackets): XL2 (VA2), XJ3 (VA3), CJ7 (VA7), VX1 (VE1), CG2 (VE2), XM3 (VE3), XB4 (VE4), XF5 (VE5), VG6 (VE6), XM7 (VE7), VC8 (VE8), VA9 (VE9), CZ9 (VO1), CZ0 (VO2), CK9 (VY1), and CK0 (VY2).
- QSL cards come in all shapes and with a variety of illustrations. If you worked BV7FC and asked for a QSL card you received one with an "unusual" picture.
- Radio amateurs in the Cincinnati, Ohio area will celebrate the steam boat festival of 1995 Tall Stacks by activating special event stations K8SCH/TS, W8VND/TS, and W8DX/TS from 11 to 15 October. QSL to N8FU.
- An international IOTA expedition is planned to active Deal Island (IOTA OC-195) in the Furneaux group between 31 January and 6 February 1996. The participants of the group are Mark VK3DO, Ed W6KCB, George VK3OO, Wim SP5DDJ, Tad VK3UX, Jack VK5CJC, Barry VK3XV, Mirek VK3DXI, Slav VK3TS and Andy VA3PL. The group has obtained various operational permits from the authorities as the island is off-limits to

the general public. Further news will be available later.

- The Scarborough Reef QSL card states on the front cover that it was a "land-based operation from the People's Republic of China" and on the inside it states that "Scarborough Reef qualifies as a new DXCC country by point 2 (a) of the DXCC countries criteria. It is an island separated by more than 225 miles of open water from its parent country". Did the DXAC say something different?
- When I had the QSO with Nick UA3YH/KC4 who was located at the South Pole and worked from the US base, he reported winds at 20 km per hour but the temperature was -55° Celsius.
- If you are interested to work the many thousands of US counties, join the "Down Under County Chasers" net at 0330 UTC on 14250 kHz on Fridays, Saturdays and Sundays.
- "Mac" YJ8AM is an old hand at moving around. Previously he operated as VK2ALD, H44MA, WH6AD and he is now in Vanuatu for a longer term. He is a keen DXer and can be heard often on the ANZA net at 0500 UTC daily.
- Gray VK4OH, one of the active operators behind the mike of VI50PEACE, has reported that as at 26 August the station had made 4476 QSOs with 70 countries. The station has been on the air since 1 August and will close down on 31 October 1995.
- Louis G40JW, ex-ST2AA, is in England and he is unlikely to return to the Sudan.
- Brendan G0UCT was active from the 3V8BB club station from 8 August to 0015 UTC on 13 August, mainly on 20 metres.
- EA9UK Juan is now a silent key. Cards are now managed by EA7HDO.
- The recent CY9 operation from St Paul island made 11,600 QSOs.
- Miriam Smith KB4C, who was in charge of production and circulation of the "QRZ DX" newsletter, died suddenly on 26 July. She was the wife of Carl Smith N4AA the editor of the newsletter. In these difficult times we extend our sympathy to Carl.
- JA1UT visited Myanmar on 31 July/1 August to demonstrate SSTV and RTTY. He was in company with G3NOM and they were active as XY1HT on 20 metres SSTV, RTTY on 15 metres and CW on 20 metres. They made 154 QSOs from the office of the Tourist department.
- Dick N7RO says the HZ1HZ logs between October 1994 and May 1995 have gone missing and he is unable to answer QSLs until they are found.

- Jean Jacques FB1LYF (ex-J28CW) will be on Kergulen for a year starting November.
- Jose TI9JJP will be active for the second time from Cocos Island from 4 October until 20 October.

QSLs Received

HP1XVH (6 m op); LA0CX (2 w op); OH0XX/DU1 (3 w op); BS7H9 (3 w JA1BK); 6Y5HN (3 m op); ZK3RW (1 m ZL1AMO); 5W0XC (4 w JE1DXC); T20XC (4 w JE1DXC); 3D2XC/P (4 w JE1DXC).

Thankyou

This column was made possible with the help of many people to whom I say many thanks, but especially to VK2FH, VK2CJH, VK2KFU, VK2SKY, VK2TJF, VK3TL, VK3UX, VK4MZ, VK4OH, VK4UA, VK9NS, OH3TY, OH0XX/DU1, YJ8AA, and W8DZ; and the following sources and publications, *IPS Radio and Space Services*, *QRZ DX*, *The DX Bulletin*, *The DX News Sheet*, and *DX Enterprises*, publishers of the "GQLIST" QSL managers list.

73 and good DX.

*PO Box 93, Dural NSW 2158

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Regulation of On-Line Information Services and the Amateur Packet Network

The WIA is seeking participation in the development of government self-regulation guidelines and practices for computer bulletin board systems.

Public concern over the content of information available on public computer bulletin board systems (BBSs) and "on-line" services such as the Internet, accessed by modem through the telephone network, caused the federal government to institute a study on the subject. Concern encompassed the use of such services for criminal purposes, the posting of defamatory statements and bulletins, and the provision of pornographic material. The Department of Communications and the Arts set up a Task Force in 1994 to look at the regulation of computer BBSs. The Task Force published a report in October 1994.

This report was considered by Commonwealth, State and Territory censorship ministers, who requested that there be further public consultation. The Task Force issued an 11-page public consultation paper on 7 July 1995, with a closing date for comment of 1 September 1995.

A number of radio amateurs provided significant input to the Task Force during the drafting of the consultation paper. The paper defined an "on-line information service" as: *a system of stored information accessed by computer through the use of a telecommunications network which allows bi-directional transfer of files or messages between the user and the system.*

Clearly, that includes amateur packet radio BBSs and the amateur radio packet network in Australia. Following requests from a number of amateur packet BBS

system operators (sysops), the WIA responded to the Department of Communication and the Arts with a submission to the Department of Communications and the Arts.

The Regulation of On-Line Information Services consultation paper detailed seven terms of reference, commented on possible offences, and outlined the definitions of objectionable and restricted material and material classified under censorship laws. The paper proposed a strategy for self-regulation which included a code of practice and a complaints handling procedure, an education strategy and the introduction of offence provisions to provide sanctions against people deliberately breaching community standards.

The WIA's submission in response to the paper on Regulation of On-Line Information Services was drafted by Grant Willis VK5ZWI following consultation with the WIA state Divisions, the SMA Liaison Team, the Federal Technical Advisory Committee, packet radio groups and individual amateurs from around Australia.

The submission briefly explained the hobby of amateur radio, the role of the WIA, amateur packet radio operation and the amateur packet BBS network, endorsed the proposals outlined in the paper and sought participation in further developments.

The WIA's submission recognised that the definition of an on-line information service was applicable to the amateur radio packet BBS service, addressed the Task Force paper's regulation proposals, and said: *... the self-regulatory approaches presented and the proposals for handling offences is seen as a positive step to addressing the concerns of the community at large as well as those of the operators of on-line information systems.*

Support for the education strategy as a means to inform people about on-line information services and ways to address possible problems was also expressed in the WIA submission. While explaining that the Amateur Radio Service operated within a self-regulatory framework, the WIA submission sought a consultative role for the WIA in the preparation of any voluntary codes of practice, as well as participation on any proposed complaints handling agency. In addition, it was pointed out that Australian amateur packet radio operators had been involved in and supported the preparation, writing and implementation of a basic code of packet radio practice, which had been effected through the WIA working in conjunction with the International Amateur Radio Union (IARU).

A practice of self-regulation regarding content on the amateur packet radio network already existed, the WIA submission pointed out, including some monitoring of traffic content and removal of material. The *Radiocommunications Act 1992* and Regulations already apply restrictions, which the WIA submission highlighted. Section 108 prohibits operation of an amateur transmitter which would *... cause reasonable persons, justifiably in all the circumstances, to be seriously alarmed or seriously affronted ... or for the purpose of harassing a person.* Paragraph 9 of the Regulations prohibit an amateur transmitting advertisements or entertainment.

While the On-Line Information Services paper covered the question of defamatory material appearing on on-line systems, there remains no means of "quarantining" BBS sysops from legal action under state defamation laws, unfortunately. The WIA is addressing this question separately in an effort to formulate guidance for packet radio BBS operators and sysops.

FTAC Notes

John Martin VK3KWA, Chairman, Federal Technical Advisory Committee*

1996 Call Book

Thanks to the following amateurs for supplying updated beacon and repeater information for the new Call Book: VK1BG, VK2BZ, VJ2R (eh?), VK2MT, VK2TGX, VK2XZP, VK2ZTM, VK3PC, VK3YF, VK5ZWI, VK6UU, VK7YSH, plus two others who sent in unsigned update sheets (and anyone else I have forgotten to mention).

80 and 40 Metro Band Plans — Digital Modes

The SMA has granted digital mode privileges to Novices on 80 and 10 metres. On 80 metres, the Novice segment overlaps the band plan digital modes segment by only 5 kHz (3620 — 3625 kHz). These new licence conditions raise the question of whether the band plan will need to be changed.

In favour of a change is the fact that 5 kHz may not be enough for Novice digital operation, and the idea that it would be more logical if the 80 metre digital segment followed the pattern of most other bands and was immediately above the CW segment, say at 3535 — 3550 kHz.

Arguments against a change would be that:

1. moving the digital segment would eat into spectrum space that is more heavily populated than the existing digital modes segment; and
2. it would inevitably lead to more SSB operation within the digital segment than there is now.

A compromise solution could be to move the digital modes segment down to 3615 — 3635 kHz. The net effect on Full and Intermediate licensees would be zero. However, all Novices would lose 5 kHz of SSB space so that some could use that space for RTTY or packet.

It will be impossible to find a solution that pleases everyone. Any comments would be appreciated.

The other question is the 40 metre digital modes segment, which is only 7030 — 7040 kHz. This is very narrow and does not overlap the Region I segment, which begins at 7040 kHz. Anyone wishing to work into Region I therefore must ignore the band plan.

I feel that it would be only fair to extend the digital modes segment, but the question is how far. Extension to 7045 kHz would be the minimum needed. Going any further — say to 7050 kHz — would be great for the digital people but may not

be popular with SSB operators. Comments please.

Linear Translators

Continuing the discussion of recent band plan changes, we turn to linear translators. On 2 metres, three frequency pairs have been set aside for linear translators: 144.625/145.225, 144.650/145.250, and 144.675/145.275 MHz. Segments have also been set aside beginning at 432.6, 1270.6, 1296.6 MHz and on all higher bands up to 10 GHz.

Linear translators are devices which translate the entire received passband "as is" to the output frequency range. For this reason they can handle all modes, including SSB and CW, in the same way as satellite transponders.

Linear translators use SSB-type IF strips and therefore have greater sensitivity than FM repeaters. They also have far better spectrum efficiency: a linear translator could handle six or eight SSB contacts in the same bandwidth occupied by a single FM signal. The penalty is that the IF circuitry is more complex, mainly because an effective AGC system is needed to limit the dynamic range of the drive applied to the transmitter. A noise squelch is also needed to prevent the translator from radiating wideband noise in the absence of a received signal.

Linear translators may be inband or crossband. The band plans do not recommend inband translators, especially on two metres. They could save spectrum space but only if their use was confined to CW or SSB. It would be virtually impossible to prevent them from being used as de facto FM repeaters, which

would be "no go" on frequencies below 146 MHz.

Crossband translators could help populate the higher bands and provide test signals which could be switched on by transmitting a signal anywhere within the input passband. Anyone scanning the output passband could be alerted to the presence of DX signals on the input. Satellite operators could use crossband translators to test their equipment, or to get extra value from it by making terrestrial contacts.

Two linear translators have been in operation in New Zealand for many years, and some in the USA, but nothing has been done in Australia. Maybe it is time to get moving!

Information Beacons

An "information beacon" is a transmitter that automatically sends out information such as telemetry or recorded speech. One use would be for radio clubs to provide recorded information for visitors to their town. A digital speech store with a two minute memory would be ideal for this. The beacon could transmit continuously or be triggered by reception of a short burst of carrier on its frequency.

Other features could be added; for example, a voice synthesiser which could announce the time, temperature and barometric pressure. Another possibility would be an automated frequency checker. Transmit a short burst of carrier and a voice would respond with "Your frequency is 300 Hz high", or whatever.

The two metre band plan now includes a recommended frequency of 145.575 MHz for information beacons. It is suggested that this channel be used throughout Australia for local area information beacons such as the club beacons suggested above.

*PO Box 2175, Caulfield Junction, VIC 3161

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Novice Notes

Peter Parker VK1PK*

A VHF/UHF Primer (or, what your black box's instruction manual doesn't tell you)

The creation of the new Novice Limited licence, and the expansion of Novice privileges to include digital modes and 70 cm operation, means that there will be more activity than ever before on the frequencies above 50 MHz. These Notes seek to answer the questions that many newcomers may have on amateur VHF/UHF operation. Although the

VHF/UHF bands support a wide range of operating interests, such as amateur television, satellite activity, long-distance SSB operation, moonbounce (EME) and packet radio, this article focuses on FM voice operation (note 1).

Propagation

Unlike shortwave (HF) bands, which are good for world-wide radio communication, the VHF frequencies are best at providing reliable coverage of local areas. Depending on factors, such as your location and antenna height, distances of

between about 25 and 100 kilometres can be readily covered with modest power and simple antennas. While not quite "line-of-sight", VHF/UHF signals are attenuated (reduced in strength) by obstructions such as city buildings and hills. This means that stations operating at higher altitudes are likely to have stronger signals than those transmitting from valleys. You will find that seventy centimetres provides similar coverage to UHF CB equipment, while two metres often permits slightly longer distances to be covered.

While there are some differences between daytime and night time radio conditions on VHF/UHF, they are far less marked than the variations experienced on HF bands such as 80 metres. The furthest distances on VHF/UHF are usually covered either early in the morning, or after dusk. At these times (particularly in the summer), tropospheric ducting can extend your transmitting range to several hundred kilometres. This means that you will be able to talk beyond your local area, and reach distant repeaters. VHF/UHF propagation is influenced by weather conditions. For example, inversions in the troposphere give rise to long distance VHF/UHF contacts. During these occasions, the difference between VHF and UHF can be quite marked, and there are times when long distances can be spanned on 70 cm, but not on 2 metres.

Equipment

A wide range of equipment is available for the VHF/UHF FM operator. Because of the popularity of two metres there is more VHF equipment around. In some areas, seventy centimetre activity is sparse, and few repeaters exist. If you live in the country, or are on a limited budget, I'd suggest that two metres be chosen as your first band.

The cheapest way to get on air is to purchase second-hand equipment. Solid-state equipment is preferred; the old transceivers with valve finals are heavy, bulky and consume a lot of power. Used VHF/UHF gear falls into two main categories, crystal controlled or frequency synthesised. Older crystal-controlled amateur or modified commercial rigs can be had from anywhere between a few dollars and \$100-150 at hamfests and radio junk sales. Depending on your operating habits, the purchase of such equipment, restricted to a few frequencies, can represent false economy. For the price of a few pairs of crystals, a second-hand synthesised transceiver may be a wiser choice. However, if a set that you are considering is in good order, cheap and includes the repeater and simplex frequencies used in

your area, it may represent a sound buy, especially if you seldom travel.

The more technically inclined could obtain a used VHF high band or UHF experimental FM two way radio, and convert it to the amateur bands. The crystals are the main cost of such projects. Suitable transceivers can be bought for a song at hamfests and junk sales. Ensure that any set you buy operates adjacent to the amateur band to which you wish to convert it. Converting a 70-85 MHz VHF low-band radio to two metres is possible, but not simple. Because the commercial VHF high band (148 — 174 MHz) is so close to 146 MHz, conversion of these sets is simple. All one needs to do is to plug in appropriate crystals, and adjust several tuned circuits inside the transceiver. Radios suitable for conversion to two metres include the Philips FM828, FM1680, and the STC151. All of these are crystal-locked, but newer synthesised sets (such as the Philips FM92) can also be converted.

Those intending to modify sets should know what they are doing, possess a schematic diagram, and have suitable test equipment when performing the operation. This is because excessive twiddling of internal trimmer capacitors and coil slugs can break them. Replacements are sometimes hard to come by.

Assuming you have a little spare cash, you may choose gear made especially for the amateur market. Most of this is synthesised, and you can choose between a handheld or mobile unit. Several models cover both the two metre and seventy centimetre bands. Apart from this difference, most radios do pretty much the same thing, and many features are not really necessary. If travelling overseas, resist the temptation to buy amateur gear there. It may not cover Australian frequencies, and after-sales service may not be available.

Whether to buy a handheld or mobile transceiver is up to you. Handheld equipment may have poor receivers (particularly apparent in inner-city areas near pager transmitters) and the inbuilt nicad battery packs often flatten mid-QSO. The small antennas supplied with handheld transceivers are normally quite inefficient. On the other hand, various accessories such as speaker-

microphones, larger battery packs and antennas can make the hand-held suitable for both home and mobile operation.

Mobile transceivers are capable of greater power output, and are good for home station operation in conjunction with a 13.8 volt power supply and outdoor antenna. While most operate FM only, some include SSB and CW capabilities. If you wish to use amateur satellites, or experiment with long-distance SSB operation, a multi-mode transceiver should be seriously considered.

Purchasing Equipment

A look through *Amateur Radio's* Hamads section for the first seven months of this year revealed the figures shown in Table 1 regarding second hand VHF/UHF FM transceiver prices and availability.

These prices are a guide only, as the sample taken was not large enough to be statistically significant. They refer to synthesised transceivers only. Only those advertisements specifying a price for the equipment on offer were included in this survey. When buying second hand gear, insist on receiving the manual with your purchase and, where possible, ask for it to be demonstrated.

The WIA maintains a stolen equipment register. This register lists the serial numbers of stolen amateur equipment, and is published periodically. It should be consulted if you have any doubts about equipment you are intending to purchase. New transceivers are typically 50 to 100 percent dearer than the prices quoted below.

New and used amateur equipment is obtainable from *Amateur Radio* advertisers, private sellers (see Hamads), and from junk sales or hamfests. Your weekly Divisional broadcast may include "Buy and Sell" or "Disposals" segments for second hand gear. Membership of a local radio club is another way you can get to know about equipment for sale in your area.

Antennas

The quality and performance of your antenna system is critical if you wish to do other than talk through local repeaters (which can get a bit boring after a while). It is not hard to build an antenna, and experimentation with them is highly recommended. As VHF/UHF antennas

Transceiver Type	Number for Sale	Range of Prices	Avg Price
2 metre mobile	7	\$150 — 450	\$290
2 metre handheld	18	\$195 — 450	\$300
70 cm mobile	1	\$280	
70 cm handheld	2	\$215 — 350	\$280
Dual band mobile	3	\$650 — 900	\$820
Dual band handheld	2	\$500 — 850	\$680

Table 1 — Second hand VHF/UHF FM transceiver prices.

are much smaller than those for 27 MHz CB, they are cheaper and easier to erect. As with UHF CB, vertical antenna polarisation is the norm for amateur FM operations.

While many operate handheld transceivers inside vehicles with no external antenna, operating range will improve with an antenna on the car roof. The most popular mobile antennas for two metres are 1/4 and 5/8 wavelength whips, preferably mounted in the centre of the roof. The longer antenna will normally deliver the better performance, but this may be short-lived; the low clearance of garage doors and multi-storey car parks are very good at damaging them!

Seventy centimetre antennas are shorter, and some provide appreciable gain over a dipole. It is not necessary to drill holes to mount a mobile antenna; a wide range of mounting hardware and magnetic bases is available. Mobile antennas may either be purchased or home made.

The performance of handheld transceivers can also be enhanced by adding a better antenna. A range of proprietary types is available, but they tend to be dearer than home-made devices. An example of an antenna, able to be used with a handheld transceiver when extended range is required, appeared in *Amateur Radio* a few months ago (note 2).

For most home stations, a 1/4 or 5/8 wave groundplane antenna will provide adequate omni-directional coverage for both repeater and simplex operation. While it should be mounted as high as possible, attention should be paid to feedline losses, which increase with frequency. A loss of three decibels means that half the transmitter's power output never makes it to the antenna. Thinner coaxial cable (such as RG58) has more loss than thicker cables (RG8, RG213). While RG58 is acceptable for short cable runs on two metres, its use on 70 centimetres would be unwise unless you are prepared to live with substantial losses and reduced station performance.

Constructional information on VHF/UHF antennas can be found in the *ARRL Handbook*. A simple groundplane for two metres was described in a previous issue of *Amateur Radio* (note 3). When building antennas, observe safety precautions, such as not erecting them near power lines. To prevent corrosion at the antenna, dissimilar metals must not be in contact with each other. This is to ensure antenna longevity, and to reduce the risk of harmonics being radiated. Moisture should be prevented from entering the coaxial feedline. Waterproofing at the antenna feedpoint

is essential, and various tapes and sealants are available for the job.

Repeaters

A lot of amateur (and CB) VHF/UHF communication takes place through repeater stations. Amateur repeaters consist of a receiver, transmitter, filters, and antenna. They are normally on hill tops. Repeaters receive a signal (often from a mobile or hand-held transceiver), and retransmit it on an adjacent frequency, so it can be heard over a much wider area. This means that with low power and compact antennas it is possible to communicate with people up to 100 to 150 km away, provided that you are within the service area of your local repeater. Figure 1 shows a case where two stations, unable to hear each other directly, can communicate, thanks to the existence of a repeater.

Repeaters are constructed and maintained by volunteers. If you intend using them, consider joining the local radio club, repeater group or WIA Division. *The WIA Callbook* provides a listing of all amateur repeaters in Australia, the clubs/groups that erect them, and the repeater frequencies. It is a useful reference, and every active amateur should have one.

Bandplans

To promote orderly usage of amateur bands, bandplans which set aside frequencies for various modes and uses have been developed. They are important to the Novice, as contacts will not be made if you are transmitting on the wrong frequencies. The bandplans presented here (figure 2) have been reproduced from the *WIA Callbook*.

Both two metres and seventy centimetres are divided into channels.

These are at 25 kilohertz intervals, again like UHF CB. To make things confusing, several different channel numbering systems are in use; for instance, a repeater transmitting on 146.900 MHz could be referred to as "6900" or "channel 6". The former convention is more common in most areas.

Operating

Conversations (QSOs) can be initiated either directly on a simplex frequency (eg 146.500, 439.000 MHz), or via a repeater. In most places you have a better chance of success by calling on a repeater. Do check that the frequency offset is switched in and correct for the repeater you intend using; some use offsets different to those specified in the bandplan.

Assuming that the repeater is free, you may either call CQ, or announce that you are listening. Though procedures vary between states, the former is suggested as it corresponds to standard practice on other bands, and more clearly announces your intention (ie you want a contact!).

An effective means of making contacts is to call people immediately after a conversation has ended. Alternatively, you could break in to a QSO still in progress. This is permissible if you have something to contribute to the discussion, or just want a quick signal report, but it is probably wise not to make it a frequent habit.

Once contact has been established on a repeater, it is courteous to move to a simplex frequency if possible. This makes the repeater available to those unable to do so. Another reason why simplex operation is preferred is that repeaters have time-outs, so you could find yourself cut off if you enjoy long overs on repeaters.

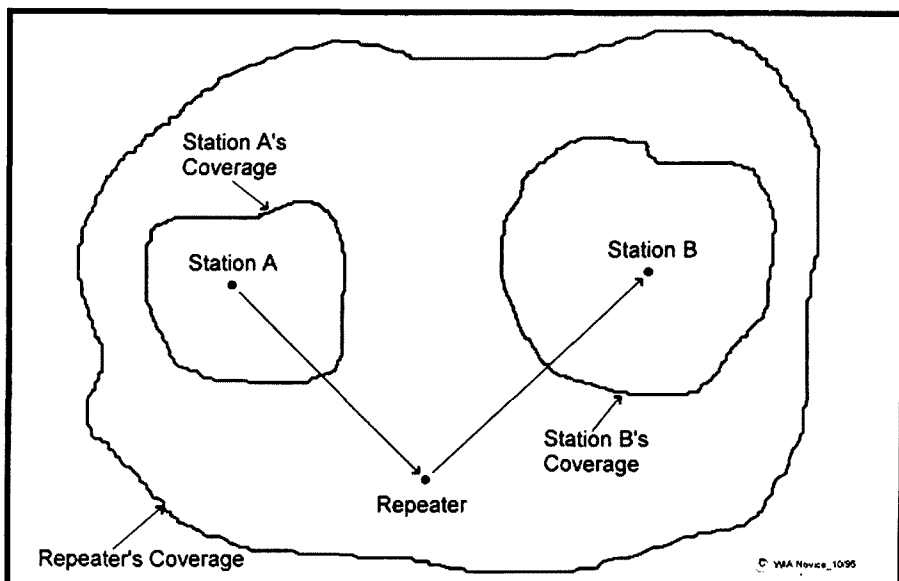


Figure 1 — The enhanced coverage provided by a repeater.

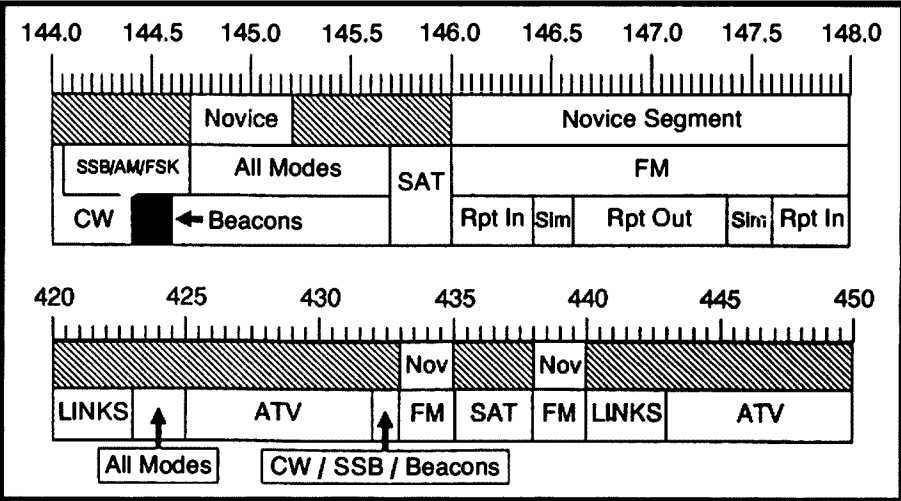


Figure 2 — Band Plans for two metres (144.0 to 148.0 MHz) and seventy centimetres (420 to 450 MHz).

During the contact, bear in mind that there are topics that should not be discussed on air. These include religion, politics and matters involving financial gain. Those with more than one amateur in the family should take special care; announcing on the local repeater that "the key is just under the doormat" is asking for trouble. Criminals have scanners, and your address is in the callbook!

Don't be too disheartened if few respond to your calls. Although many monitor repeaters, comparatively few actually talk. A lot of amateurs do nothing

other than talk to their narrow circle of mates. You will notice many little groups congregating on various frequencies, particularly in the larger cities. In the country, there are fewer amateurs, so this tendency is less apparent. Though there are still a few pockets of anti-Novice sentiment around, those who harbour such feelings are gradually dying off.

Despite the preceding comments, you will find that most amateurs you contact are courteous and helpful, though many are initially reticent in coming forward and picking up the microphone to talk to a new callsign. To get to know some of

these people, it is recommended that you join a local radio club and participate in some of their activities.

After an initial flurry of activity, one's enthusiasm for local FM operating (particularly through repeaters) can quickly dissipate. Fortunately, even within the conditions of the Novice Limited licence, there is scope for a range of activities including packet radio, antenna construction, repeater DXing, contesting, QRP, fox-hunting, portable operation and homebrewing. Books on most of these topics are available from your local WIA Division. Participation in one or more of these facets of our hobby can be highly rewarding. The practical experience gained will also make it much easier to move to a higher grade of licence, as your interest develops.

That's all for this month. Any questions can be sent to me at either of the addresses below.

Notes

1. Information on other VHF/UHF activities appear in the following Amateur Radio columns: VHF/UHF — An Expanding World, Repeater Link, AMSAT Australia and Packet World.
2. See Amateur Radio, July 1995, page 10.
3. Amateur Radio, July 1988 "Two Metres for the Newcomer", Ron Cook VK3AFW.

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Spotlight on SWLing

Robin L Harwood. VK7RH*

Well, spring is well and truly upon us now and it is being reflected on the bands with the higher frequencies becoming audible in the early evenings. Europe and North America have reverted to Standard Time, whilst the UK will revert to GMT on 15 October. A reminder that Tasmania went on to Summer Time on 1 October, which will put it one hour ahead of NSW, Victoria and Queensland, the southern states who have opted for Summer Time change over on the last Sunday in October. Fortunately, all the southern states have synchronised the date when they go back to Standard Time which will be the last Sunday in March. New Zealand will be on Summer Time from 8 October until the second Sunday in March 1996.

The endless cycle of violence and ethnic cleansing in the former Yugoslavia shows no signs of abating. When Croatia went into the Serbian enclave of Kryenia

and expelled hundreds of thousands of its Serbian citizens, it created a huge vacuum in information on the status of displaced families in this forced migration. This ethnic cleansing was going on in both directions, with the Serbs expelling an equal number of Croats from both Bosnian Serb positions and from Serbia proper. The VOA in Washington DC added a phone-in facility to both its Serbian and Croatian language services, where short messages could be deposited for later airing. Both the VOA and the BBC World Service have been extending their transmissions to this troubled region, particularly after the NATO bombing of Serbian positions throughout Bosnia in late August.

I believe that the UNPROFOR (United Nations Protection Force in Bosnia) mainly conduct their traffic between 3.7 and 3.9 MHz and have been heard in Tasmania just before our local sunrise.

Both SSB and digital modes are employed. Frequencies vary daily and they seem to be aware that all parties to the conflict are able to monitor what is transpiring, hence the need for this frequency hopping. Comms are reportedly between Split, Zagreb and Sarajevo. 75/80 metres is not an exclusive amateur allocation in Region 1.

Bosnian Radio has been reportedly heard in Europe on 7105 kHz, broadcasting from Sarajevo, but is moving about as the channel is rather crowded with other external services such as the BBC and Monte Carlo. It is also only a low powered sender.

The Croatian Radio in Zagreb is still heard within Europe but not as frequently in this hemisphere. The channel of 13,830 kHz is infrequently heard. There used to be a five minute news bulletin in English at five minutes past the hour, but I haven't observed it recently.

The voice of Yugoslavia used to be heard in English to North America on 11,870 kHz here at 0430 UTC but, as the senders were reportedly located in Bosnia

and not in Serbia proper, I have been wondering whether they may have been destroyed in the NATO bombardment, as they were not heard in the last week in August.

I recently received a sample copy of the Newsletter of the South Pacific Union of DXers (SPUD) based in Melbourne. There are many well-known DXers associated with it, with a wealth of experience. The contents of the Newsletter are friendly and well written, but I think that a magnifying glass may be needed as the print is small. However, my eyesight may be lacking as it does depend on the lighting. The subscription is \$30 per annum. Enquiries can be directed to David Diamond, the membership secretary, at PO Box 68, Sassafras VIC 3787. The postal address for SPUD Inc is PO Box 293, Coburg VIC 3058. It should be pointed out that SPUD isn't affiliated with any other club or organisation and is an independent group of DXers throughout the South Pacific.

With the imminent prospect of the French resuming their nuclear testing on Muraroa Atoll in Polynesia, many are tuning in to Papeete, Tahiti. It can be heard on the split frequency of 15,167 kHz but varies quite a bit up and down. Programming is in French and Polynesian and, although the carrier is strong, the modulation varies, as does the frequency. It is on the air continuously with a satellite feed from Paris during the local night time hours.

Thanks to those who informed me by e-mail that the OZ_SW echo on Fidonet is still functioning. Unfortunately, there seems to be a political problem with the Fidonet feed, which is strange but out of my control. So, I am mainly relying on my Internet feed as I've also found the Fido Netmails are unreliable. All of my correspondents have now switched over and we have determined that Internet is faster and it's reliability and scope leaves Fidonet for dead.

Just in conclusion, I have noticed a rather strong clandestine station on 7070 kHz at 1330 UTC. The language is Indian in origin and I do have suspicions that it is directed to Kashmir, judging by the Islamic chanting at the commencement of the broadcast. There is also some bubble jamming, but not as pronounced as the Mid-east jammers. Could be either in Pakistan controlled Kashmir or in Pakistan proper.

Well, that is all for this month. Until next time, the very best of listening and 73.

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 Fidonet: Robin.Harwood.3:670301@fidonet.org

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Update

The VK4EMM Tower Delta Vertical Phased Array (TDVPA)

John Loftus VK4EMM, the author of the interesting antenna article which commenced on page 4 of the August 1995 issue of *Amateur Radio* magazine, has pointed out to us that we made an error in the Fig 5 — Relay control unit diagram which appeared on page 6. The 1N4007 diode appearing in the lower left of the drawing was incorrectly shown as connecting between positions 2 and 5 of SW1. It should connect between switch positions 2 and 4 as shown on the corrected Fig 5 diagram published here.

It would be a good idea to correct your copy of the August 1995 issue of *Amateur Radio* now.

Australian Amateur Packet Radio Association (AAPRA)

It has been pointed out that the *What's New* item on AAPRA, which appeared on page 50 of the August 1995 issue of *Amateur Radio*, gave the false impression that AAPRA was a new association. In fact, AAPRA was founded in 1983 and has been a major player in packet radio ever since, with a current membership of around 300.

AAPRA has many items available to help amateurs to become economically involved in packet radio, including modems and software. We hope that further details of what's available from AAPRA will appear in future issues of *Amateur Radio*. ar

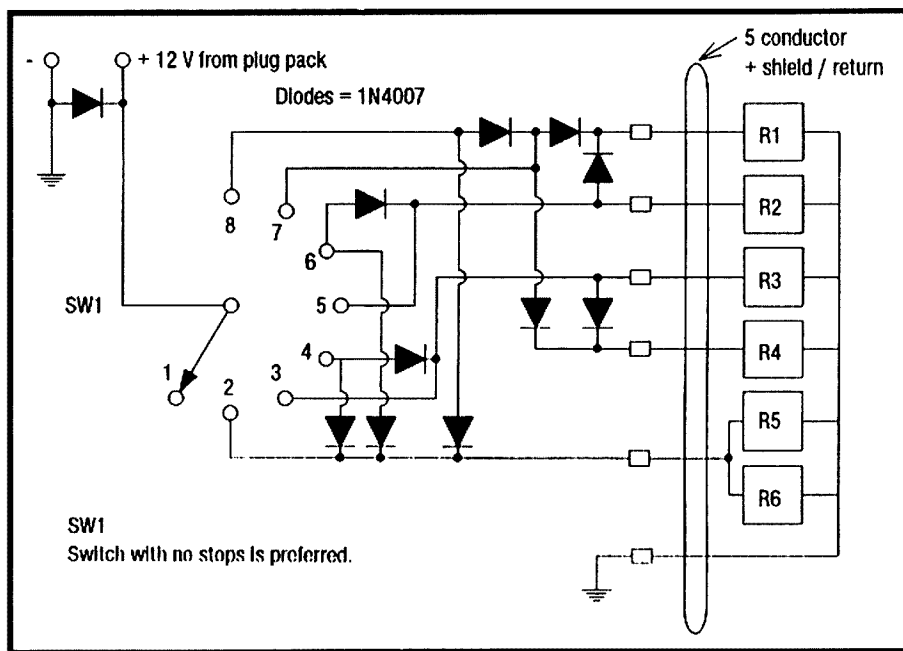


Fig 5 — Relay control unit.

Education Notes

Brenda M Edmonds VK3KT* Federal Education Coordinator

A few weeks ago I had the pleasure of renewing a friendship with Saif S21A, the President of the Bangladesh Amateur Radio League (BARL), whom I first met last year in Singapore. He and two colleagues were in Melbourne for the PC95 Computer Exhibition, so I was able to learn a lot about this most interesting country.

Bangladesh came into existence in 1971. It is a small country, about 144,000 square kilometres or 55,000 square miles,

or very approximately twice the size of Tasmania. However, it has a population of about 120 million. As well as extensive primary production, it is rapidly developing technological industries.

Over the years, Saif has put a lot of time and effort into lobbying and negotiation with the authorities to allow the introduction of amateur radio into Bangladesh. Finally, about three years ago, he won the battle. He and BARL now have full Government support for their

efforts to encourage more amateur radio activity in Bangladesh.

When I met him last year he told me that the amateur population of Bangladesh stood at 8, so I was most interested to hear that there are now 15 licensed and active amateurs (including one YL) in his country, using both HF and VHF. Examinations are being conducted by BARL in conjunction with the local licensing authority, using the RSGB syllabus.

It is hard for us to accept the idea of so few amateurs in such a large population, but their low numbers are compensated by their enthusiasm and drive. BARL sent two delegates to Singapore, where Saif played an active part on one of the sub-

committees. The League was only a couple of years old when it hosted the SEAnet 93 convention, which I am assured was a great success. Last year BARL nominated as host society for the 1997 IARU Region 3 Conference, but was narrowly defeated by the Chinese Radio Sports Association which will arrange the Conference in Beijing.

In a number of other South-East Asian countries, amateur radio is growing at an astounding rate. I am sure the amateur population of Bangladesh will show a similar pattern now that they have started. Keep listening for S21, and give them the encouragement they deserve.

*PO Box 445, Blackburn VIC 3130

Pounding Brass

Stephen P Smith VK2SPS*

During a recent QSO with a fellow amateur the great Morse debate raised its head again. My friend is very concerned about the future of amateur radio and especially those operators who exclusively use telegraphy as their means of communications. He also mentioned his belief that certain, well established organisations intend to bring this magnificent form of communications to an end and thus back-seat it for the more exotic forms of digital communications that seem to be encroaching upon our bands.

The pros and cons of telegraphy were discussed and one point we both agreed upon was that of home construction. Is this art being lost to black boxes and advancing technology? To a major extent, yes! We are losing our basic practical skills. Just think for a moment about the next generation of youngsters who will be so dependent on machines and computers to do virtually everything for them, that simple tasks of today will be almost impossible for them.

I personally believe that one learns by doing. With the required theory and practical skills, one can achieve almost anything if one really wants to.

Remember the required skills are only achieved through constant practice, practice and more practice.

Where can we acquire such skills? A good starting point is by being a member of a radio club. There you will find so much knowledge and talent that most problems encountered (whether you are a beginner or advanced operator) can quickly be overcome. Which brings me to one club in particular. This club supports telegraphy, promotes home brew construction and also something which some operators believe is quite insane, the use of low power operating (QRP).

The club I am referring to is the *CW Operators QRP Club Inc.* The club was founded by Ian Leonard O'Donnell VK5ZF, member number one, of Richmond South Australia in December 1983. Leonard was a radio technician by trade and spent most of his life servicing patients' radio systems at the Royal Adelaide Hospital. He later moved into radio paging systems.

Leonard held his amateur licence for some 47 years until he recently became a Silent Key at the age of 71. Out of respect to the memory of Leonard, his membership number one will not be reissued. *Lo-Key* is the official magazine of the *CW Operators QRP Club* and is

Over to You — Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Why CW?

May I add a few remarks about the CW debate in VK? As a CW operator I have read many articles both for and against CW. I would like to comment on Eddie's (VK4EET) remarks about extra qualifications to operate on the top DXing bands, ie Morse code proficiency.

I am a Novice operator but have passed the American extra class CW exam. However, with this skill which I worked hard to acquire, what extra bands do I get? None!

Why keep CW a part of the licence requirement when, after all the work of getting 10 wpm for the Australian licence you get no bonus or thanks for the hard work of getting the CW requirement in the first place.

I think if a Novice can prove ability to operate a CW station at fast speeds, eg a test at 15 wpm receive and send, they should be given extra portions of the HF bands in the CW segments only.

As I see it, the amateur with a K or J callsign now gets much more of the HF bands and also power increases. This in itself proves that CW is not the important factor. When you pass the CW exam you get nothing, but for the Full call theory from Novice you get three full HF bands plus VHF/UHF/SHF and power increases.

I think for CW to continue as an interest for the young ham, a bonus for doing the CW exam is due.

Stuart Birkin VK8NSB
PO Box 205
Karama, Darwin NT 0812

Telstra's RFI MODIFIED Touchfone 200R

My HF transmissions were clearly being received on my normal Telstra Touchfone. My search for Telstra's RFI modified phone started on a Thursday. My enquiries finally (five calls later) found one of Telstra's Business Offices which had experience with the RFI Modified phone.

I received a call from a Telstra technician on the Thursday afternoon and my old Touchfone was replaced with the new RFI Modified phone on Saturday afternoon. The new phone was immediately tested with no sign of HF interference.

The RFI Modified phone looks exactly the same as the normal Touchfone and it is said to have the same facilities. On the back of the "Telecom Touchfone 200R" is a sticker stating: *RFI Modified CB, FM & TV, Austel App No C89/88/0001.*

I was advised Telstra's policy is that it will replace one Telecom rented phone with a RFI Modified phone at no charge.

Congratulations Telstra on a speedy and effective service. This information may assist a lot of amateurs where a problem is occurring with their HF transmissions getting into neighbours' phones.

Alex Stuart VK2ALX
10 Wanganella Street
Balgowlah Heights NSW 2093

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edited by Don Callow VK5AIL, member number 75. The magazine is published quarterly and is posted to members in mid March, June, September and December.

The magazine contains some 32 pages of technical items on QRP and related equipment. Members are also encouraged to build their own gear. Many of the articles in the magazine are written with the inexperienced builder in mind, but it also includes technical articles for the more advanced.

Lo-Key also contains information on club contests and awards. You might be familiar with "scrambles" (I mentioned these some time back), which are usually held on 80 metres and are great fun to participate in. I should also mention that a handsome certificate is issued to each member who takes part in a "scramble". If you chase "wallpaper" it would make a fine addition to any shack wall.

The magazine also contains the CW Net (QRP) news, NSB "Natter Net News", articles from members, projects, modifications and a lot more. I believe the *CW Operators QRP Club* to be the only club in Australia that specialises in supporting the very satisfying combination of QRP, homebrew and CW.

Any amateur interested in becoming a member should write to Kevin Zietz VK5AKZ, 41 Tobruk Ave, St Marys SA 5042 for an application form. Membership is only \$10 per year for members within Australia and slightly more for DX members.

The following quote comes from one of their magazines: *It's not the amount of dog in the fight that counts; it's the amount of fight in the dog!*

*PO Box 361, Mona Vale NSW 2103

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There are a number of options available to address the major problem and I will detail some of the more logical ones below:—

1. Vacate the band above 147 MHz and leave it to pager noise.
2. Filter 2 metre repeater receivers so that they are not susceptible to overload or receiver intermodulation by the pager transmitters.
3. Filter amateur mobile, handheld and home receivers so they are not susceptible to over load or receiver intermodulation caused by the pager transmitters.
4. Alter the 146/147 MHz section of the band to 12.5 kHz channelling and fit the 147 MHz allocations in the space made available. This would mean a re-equipment program for all 2 metre users.
5. I have looked at the amateur bandplan and am convinced that the 145 MHz section of the band should not be used for voice repeater operation.

The fair course of action I believe is that we must overcome the pager interference problem affecting the amateur 147 to 148 MHz section of the spectrum. This problem has increased in magnitude over the years and I am aware that fault is on both sides, for the following reasons:

- (i) Pager transmitters are emitting high levels of out of band noise. Some particular transmitters have a separate problem of radiating noise from their power supplies.
- (ii) Pager transmitters sometimes emit spurious signals which are radiated. These signals are not just noise but are products of frequency synthesis and can be tuned out or the fault rectified. The signals are below the levels to be filtered out as required by the SMA pager specification but are still a serious interference problem to adjacent 2 metre repeater receivers.
- (iii) Pager transmitters are transmitting intermodulation products when their signals are combined with the transmitted signals of other on site paging transmitters. The mathematical combinations are often $2a-b = c$ where $a =$ the transmitter in which the intermodulation is occurring, $b =$ the second paging transmitter, and $c =$ the amateur receiver. An example is: $(148.1875 \times 2) - 148.1875 = 147.9625$ which is within the band pass of the receivers on 2 amateur repeater channels 147.975 and 147.950 MHz. A second combination is $(148.0375 \times 2) - 148.1875 = 147.8875$ which affects the amateur channels 147.875 and 147.900 MHz. These three paging

Repeater Link

Will McGhie VK6UU*

Last month I promised information on a cleaver timer for switching on equipment at a repeater site, all neatly packaged at a low price and available from several sources. However, in the meantime, I received from Barry Sullivan VK2BZ some thoughts on pagers and their impact on our primary service 2 metre band. Barry has corresponded with the SMA over this issue and has received a very interesting reply from the SMA. Note that the SMA in their reply say that ITU treaty agreements are not binding and the SMA can choose not to follow ITU treaty agreements they have made. This is an important point. The next time the SMA quote ITU treaty agreements preventing a particular course of action, this reply can be quoted. What follows is from Barry VK2BZ, followed by the SMA letter to Barry.

The Situation Concerning Pager Interference to the 2 Metre Amateur Band

I am concerned about paging interference to the 2 metre amateur band. There are numerous repeaters in the band 147 to 148 MHz that are virtually unusable because of this interference.

A letter dated December 1992 from the Department of Transport and Communications appears to signify a major policy change concerning pager interference. The second last paragraph reads: *It is not practice to address the resolution of specific interference problems in RALIs (Radiocommunications*

Assignment and Licensing Instructions), such as LM2 on "Paging Services" beyond those solutions implied by an expectation of compliance with the specification requirements and assignment criteria laid down in the document. With this in mind, I would like to explore with you the suggestion that the WIA seek in advance, in principle agreement to explore with the (major) paging service providers allowing you to pay for the installation of notch filters and the like, should the necessity arise in the future as one of the outcomes referred to above.

This letter and the RALI referred to meant that pagers were not required to be fitted with filters, etc as a standard condition of licence. Many had been installed without the required (by licence condition) band pass filters and were not known to cause problems (there were no 2 metre amateur repeater installations near by) and it was considered an unnecessary expense to require that filters be fitted to all paging transmitters. Reasonable? Yes, but they went too far. Now we have problems, a number of different problems, all resulting in interference to the amateur service.

I have noticed that the SMA has been inserting "no protection and no interference clauses" in repeater station licences. These clauses have been inserted as a matter of routine and not because of technical necessity. It is up to the licensee to check the issued licence for these clauses and "APPEAL" against them. With those clauses inserted you've had it if you require protection.

transmitters are found on the one tower with separate aerials on the same vertical level and only two or three metres horizontal separation. This installation can be found all over Australia. The transmitters are installed with no cavity filters or ferrite isolators between the transmitter and the aerial. Some have isolators and no cavity filters and others filters and no ferrite isolators. Ferrite isolators prevent the signal from the adjacent paging transmitter reaching the finals of the intermodulating transmitter from the aerial and via the coaxial cable. The cavity filter prevents the radiation of harmonics generated by the isolator and other stray or spurious signals which are outside the passband of the filter. These filters help remove the out of band signals which are below the (-70 dB on carrier) specification. The high transmit power of pagers makes this noise a real worry to co-sited receivers in the adjacent band. In situations where the pager aerials are all mounted on top of the same tower, and are therefore very close in the horizontal plane, the attenuation

of the transmitted signal causing intermodulation to the adjacent transmitter aerial is very low. Therefore, the unwanted signal reaching the finals of the intermodulating transmitter is extremely strong. The result is the transmitted intermodulation product is often only 3 dB down on the wanted carrier. This is an observation based on numerous measurements with spectrum analysers. We must remember that if the intermodulation or spurious is outside the pager specification then the SMA has an obligation to have the paging company remove it. It is possible, though, that they will want to charge you for the investigation and, in a number of regions, you may find it difficult to have the SMA undertake the investigation at all.

- (iv) Site external cross-modulation products are developed on-site but external to both transmitters and receivers. This occurs in naturally occurring diodes or non-linear junctions in fences, towers, etc. These problems are normally resolved by negotiation with the site

owners and often the owner of the receiver experiencing the problem has to fix it.

- (v) Amateur repeater receivers are not adequately protected by additional filters, etc and the receiver owners are responsible if the problem can be proven to be generated in the receiver. The interference is retransmitted by the repeater. The necessarily wideband design of modern front-ends exacerbates this problem.
- (vi) Amateur portable and mobile receivers are susceptible to overload and consequently receive the strong pager signals direct.
- (vii) Transmitter noise from the pager transmitters spreads out to over 1 MHz from the pager frequency at a level that desenses adjacent band amateur repeater receivers and it is this noise that the DoTC (SMA) suggests that amateurs spend over \$2000 on filters to be fitted to the pager transmitters to remove it.

It is evident the amateur fraternity has no control over emissions originating in pager transmitters. The SMA should ensure that the emissions comply with the

WIA News

WIA Representation at World Radio Conference

At the last World Administrative Radio Conference, held in Spain, in 1992 (WARC '92), a decision was taken to hold more frequent conferences in order that the world telecommunications community could react more quickly to rapid developments in technology and the needs of changing regulatory requirements.

It was decided to hold World Radio Conferences at two year intervals, rather than every 10 years or so, and a WRC was planned for 1995. This will be held in Geneva, Switzerland, from 23 October to 17 November.

At the WIA Federal Convention at the end of April, ITU Conference and Study Group Co-ordinator, Dr David Wardlaw VK3ADW, presented a report on Australian preparations for WRC'95 and submitted a budget for attending this Conference with the Australian

delegation, to represent the interests of Amateur Radio.

David Wardlaw highlighted a number of matters of concern to amateur radio on the agenda at that time, including among other things a foreshadowed move to have the amateur-satellite service formally included in world frequency tables, rather than being mentioned as a footnote, the operation of satellite earth stations and the amateur-satellite service, possible threats to amateur UHF bands from new service sharing proposals between 1000-3000 MHz, the effect of wind profiler radars close to our 50 MHz and 420 MHz bands, and work on the harmonisation of the amateur 7 MHz band.

At the July Extraordinary Convention of the WIA Federal Council, David Wardlaw reported on moves by the New Zealand authorities to suppress the ITU regulation that requires radio amateurs to have passed a test in Morse code before being licensed

to operate below 30 MHz, a late development (reported in *WIA News* last month).

The WIA has gained membership of the Australian Delegation to WRC '95 and David Wardlaw will attend the Geneva Conference to help ensure Australia's favourable stance on amateur radio issues is pursued to further the interests of the Amateur Radio Service. The WRC '95 meeting will consider the agenda for the next Conference in 1997 and a preliminary agenda for 1999.

The cost of sending David Wardlaw VK3ADW to WRC '95 has been budgeted at just over \$10,000 for the almost-four week-long Conference, contrary to highly inaccurate reports circulated which speculated a cost of \$27,000. The costs of international representation are met from a levy of \$2 from the annual subscription of each WIA Division member. Dr Wardlaw will take leave from his professional dental practice to attend WRC'95.

specification. The strong signals from these powerful transmitters below the specification level are the problem. However, there should be a way.

Australia is a signatory to the ITU (International Telecommunications Union) protocols and our government seems to always treat international agreements that it has ratified as being equivalent to Australian law. The pager specification used by Australia meets ITU standards, but there are other ITU regulations which should also apply.

ITU RR18-2 para 1812 states: *The out-of-band emissions of transmitting stations should not cause harmful interference to services which operate in adjacent bands in accordance with these regulations and which use receivers in conformity with Nos.301, 309, 310, 311 and relevant CCIR Recommendations.* These CCIR recommendations ensure that the receivers are of a reasonable quality.

ITU RR18-2 para 1813 states: *If, while complying with Article 5, a station causes harmful interference through its spurious emissions, special measures shall be taken to eliminate such interference.* ITU Article 5 refers to the technical characteristics of stations and the SMA technical specification for paging transmitters complies with this article.

What this means is that we can, therefore, expect to have to comply with the regulations of that agreement. It is not actual law to do so but the current government makes much of the fact that it does meet its international obligations. You would expect it to do so in this case. After all, ITU (revised) is one of the oldest international agreements to which Australia is a signatory.

Unfortunately, the SMA appears to think otherwise. I personally presented this case to the SMA and received the reply published below, with which I am far from satisfied. Are you?

Amateurs must "set their own house in order" first. We must take action to remove repeater receiver intermods. We must realise no-one can protect portables or mobiles from interference but we must do our best as equipment owners to protect our own receivers. Then, with SMA help, willingly or grudgingly given, we will achieve a satisfactory and equitable outcome to this entire sorry and protracted affair. This problem has gone on too long and too few have done too little to resolve it. The paging companies have used their muscle. Soon it will be the turn of amateurs to use their connections, and if necessary, their voting power. A Federal election is to be held within the next twelve or so months. Perhaps we should point out to the SMA that an incoming government of a different

political complexion might look upon SMA with less favour than currently exists. Amateurs should not have to fight for a law to be enforced. Amateurs should not have to pay for an investigation into the wrong doing of any telecommunications conglomerates. In any event, I hope the WIA will show leadership.

Here is the text of the response received by Barry Sullivan VK2BZ from the SMA.

SMA Ref: X94/1358

Contact: Peter Allen

06 256 5376

Dear Mr Sullivan,

I refer to your inquiry to Mr Peter Stackpole relating to Australia's obligation as a signatory to the ITU and your inference that the SMA is bound to follow ITU protocols. I have received legal advice in relation to this matter which I am happy to pass on to you.

The fact that Australia is a signatory to an international treaty does not mean that the treaty, and any decisions made under that treaty, are binding on Australia in a legal sense. International law, of which treaties are a part, has a completely different character than domestic law.

Although treaty obligations should be considered when a power is exercised, as one of the many factors involved in the decision making process, this does not mean that the SMA must blindly follow a

particular course of action merely because it puts into effect a commitment made under a treaty. The importance of a treaty obligation in exercising a power under the Radiocommunications Act. may vary according to the circumstances of the case, but it will never be the only consideration.

The statement in your letter that "the SMA should have to apply that law without favour" is incorrect. I trust this satisfactorily answers your inquiry

Yours sincerely

Peter Allen

A/g Manager

Technical Services Team

Customer Services Group

13 February 1995

I found the SMA letter to Barry particularly interesting. I don't necessarily disagree with the points made, as common sense and local domestic situations cannot be over-ruled just because Australia has a treaty with the ITU. However, there it is in writing from the SMA. To put it in my own words, the SMA are not bound to comply with ITU treaty agreements. Does this mean a code free licence below 30 MHz can happen in Australia?

*21 Waterloo Crescent, Lesmurdie 6076
VK6UU @ VK6BBS

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VHF/UHF — An Expanding World

Eric Jamieson VK5LP*

All times are UTC.

Activity

In the absence of letters, faxes or packet messages, it seems most of the continent must be quiet, possibly constructing additional equipment or waiting for the summer Es period; hence most news this month comes from overseas. If the incredible degree of summer activity in the northern hemisphere translates to similar summer activity in the southern hemisphere, then we are in for "a ball."

John VK4KK phoned to say that notice had been given of the first reverse sunspots, so it appears we have passed the low point between cycles and will now be climbing towards the peak of Cycle 23.

John also mentioned that he had noted 432 MHz contacts were recently completed between stations in Queensland and NSW to Noumea, but could not confirm. If such contacts have occurred, can anyone let me know the details please?

Beacons

A welcome letter from Karl VK6XW, who reports on the status of the VK6RTW beacons in Albany. Karl says, *I am the Beacon Officer for the Southern Electronics Group, VK6SR, and still run the beacon VK6RTW from my QTH. I always read your columns, which usually frustrate me when all these openings occur and I miss out, especially on 6 metres.*

You have complained before in your writing that this beacon is switched off during the winter, at least the 2 metre beacon; however, I watch the weather pattern very closely on TV, and when a pattern emerges like the one in June and again now over the past few days (August), the beacon is always switched on. Whether any contacts are being made I do not know. The chaps who use 2 metres and higher seldom come to the monthly meeting, there is very little traffic on the repeaters, and everybody, except me, is on packet these days. If I am going away, I usually get one of the other boys to switch on the beacon.

I have acquired a 50 watt solar panel and a bank of NIFE batteries, and by the end of the year I hope to come up with a reasonable power source for all the beacons, when the 6 metre beacon should also be on air. A power consumption of 100 watts will cost more than \$100 per year, when drawing all from the mains. I am converting a Phillips 828 for the 6 metre beacon as previous attempts to provide a reliable beacon over long periods have failed.

We have looked at the possibility of a new QTH for the beacons but this is not easy. We are either moving further away from the coast, are likely to attract vandals, or up against the cost. The last quote to go all solar in this location, with wind assistance, was \$5000 to \$6000!

Be assured, I will do all I can to keep the pot boiling in Albany. Since VHF is not good down here throughout the year, and HF is lousy from Albany compared with Narrogin, 300 km north, where I lived for 25 years, I am now involved in Intruder Watch.

Thanks Karl for outlining the beacon position. A letter like yours allows me to inform other amateurs, and provides answers to questions when they arise, often from overseas.

Winter Tropo

Charlie VK3BRZ writes that winter VHF operation was sustained due to a series of useful winter weather patterns. Though not entirely unusual, with a few more interested stations on air, particularly in central NSW, an increased number of contacts have been made.

On 12 August, together with Lee VK3PK, Barry VK3YXK and Bert VK3TU, he was operating the Geelong ARC station VK3ATL in the Remembrance Day Contest. Mindful of the presence of a high pressure system, he checked Channel 0 TV at Wagga on 51.740 MHz, and found it to be S9 and steady, indicating the presence of a tropo duct into VK2.

No replies were received to calls on 144.100, but he found Peter VK2BIT on 80 metres. Having often worked Peter via aircraft enhancement, they tried the direct path but failed to make contact.

At 1130 a phone call from Mark VK2EMA at Tottenham in central NSW, provided the news that he was hearing the Mount Anakie 2 m beacon at S6. Returning to two metres, a two-way contact ensued at S8-9, much to the surprise of the less informed operators then present. Further calls were made without result.

The following morning at 2230, Charlie VK3BRZ called VK2EMA and 5x9 signals were exchanged on two metres. On 70 cm they were almost as strong. Shortly after, Mark worked VK3TOP in Ballarat on 70

cm. Arie VK3AMZ also worked Mark, after which they conducted a three-way for half an hour, but no one interrupted for a contact. By Sunday evening, signals had dropped to around S2.

Charlie asked if the band was open to central NSW from VK5 at the time? No it wasn't, as best I can establish, but it was open on 28/8 when at 0011 I worked Mark VK2EMA at S2-3 on 144.100.

David VK3AUU sent an interesting letter to say that he had returned from an "unbelievable" trip, commencing on a train in Hong Kong, through China, across Asia to Berlin, then London, followed by six weeks touring Europe in a motor home.

In Frankfurt he met Jurgen DL3BWW, and was taken on a tour of the town and his moon-bounce shack. Jurgen asked that I give some publicity to the fact that there are many stations in VK who have the capability of using EME if they would only try. Any station running a pair of 4CX250s or the new Henry 3CX800 amplifier with a single Yagi, should have at least one hour on moon rise or set to work the better equipped European or American stations. If interested, contact David on 056 276 342.

David visited G3IMV, whom he had worked on EME. John lives on the edge of the town of Bletchley and has worked all but eight European grid squares on 144 MHz with a pair of modest Yagis. He is also on six metres. While in Lucerne, David had a long conversation with HB9CRQ, who is also keen to contact VKs via EME.

Referring to aircraft enhancement, David writes, *From close-up observation in several 747s, I note that the condensation trails are not produced by the engines but appear to be generated where large pressure gradients occur on the wings, and the adiabatic expansion (Dict: adiabatic = impassable to heat; occurring without heat entering or leaving system . . . VK5LP), produces cooling and condensation of the water vapour.*

The VK3AUU antenna system for 144 MHz has been evaluated with the following results: 4 x 5.6 wavelength DL6WU Yagis; horizontal beam width 13 degrees; 1st side lobes -15 and -16dB; 2nd side lobes -18dB; vertical beam width 12 degrees; 1st side lobe -14dB; 2nd side lobe -24 dB; front to back ratio -21dB; calculated gain 21.0 dBd. With this array David has worked many EME stations.

Finally, David says, *I continue to be amazed at the number of times I am able to copy the Adelaide beacon on 144.450 despite its low power and the antenna pointing the other way. It was in again Monday night 20/8. It is 700 km away; need I say more!*

I am sure there would be more contacts between VK5 and VK3 if the Melbourne amateurs provided a beacon which we could hear, on a basis similar to the number of times they hear VK5VF. I can often hear the Geelong beacon, in and out of the noise, but that doesn't mean propagation exists to Melbourne. Now that VK7RNW is silent, what can we listen for in a south easterly direction? By the way David, the VK5VF beacon antenna is omni-directional.

Extraordinary Six-Metre Sporadic E

No, unfortunately, it is not here in Australia, but one would hope that something akin to what has been happening in the Northern Hemisphere during their summer, may be repeated this year in our summer.

Emil Pocock W3EP, in *The World Above 50 MHz in QST* for September 1995, heads his four pages of information in the above manner. He reports that June was an incredible month for sporadic E (Es). Six metres opened to Europe and Africa on 15 days for a total of nearly 60 hours. On two additional dates, North American stations worked the Azores, Madeira and the Canaries. He says, *There have been European openings every June for the past half-dozen years or more, but never have there been so many, or the coverage so widespread. Although the Northeast often had the better of many of these events, stations scattered throughout the eastern half of the country were able to get into Europe.*

Much sought-after stations as EH9IE (Ceuta and Melilla), EH6FB (Balearic Islands), IS0QDV (Sardinia), S59A and S57A (Slovenia), SP6RLA and other Poles, YO2IS and YOTUJ (Romania) and S0RASD (Western Sahara). In all, Americans and Canadians collectively logged more than 30 countries in Europe and North Africa.

As if this were not sufficient, they also had exciting openings to the Caribbean and Central America. On at least nine days, propagation favoured the south from much of the US. TG9AJR (Guatemala), HP2CWB and HP3/KG6UH (Panama) and HR6/W6JKV (Honduras) were sought by all, and with others, US operators logged at least 16 countries from the Caribbean region.

Emil goes on, *Then there were the stations from the north! FP5EK (St. Pierre and Miquelon), VE8HL (just south of the Arctic Circle on Baffin Island) and OX3LX (Greenland) were in much demand from eastern USA and northern Europe. As always, not everyone worked every available station, as some did not necessarily have transatlantic propagation on dates when certain stations were available and so on.*

European TV video around 48.250 MHz gave first warnings to the US stations, but interestingly, not every video day brought transatlantic propagation, but it turned out to be an excellent indicator. Beacons on Azores CU3URA, Gibraltar ZB2VHF and Portugal CT0WW often appeared next and stayed in for the opening which usually followed. At times, the Es was quite selective as sometimes the W4s had the Europeans practically to themselves.

Emil prepared three charts which outlined the various openings. Two best days were 19/6 which had a first opening from 1350-1600 from W1 to EH, F, G, PA, ON, DL, I, S5, YU, OK, SP, YO, SV and CT beacon. Later in the day from 2015 to 0200 FP, VE1/2/3, W1/2/3/4/8 worked EI, G, GW, GI, GM, GD, F, PA, DL, ON, OE and LX beacon. On 27/6 W1/2/3/4 worked CT3, EH8, CT, EH9, 5T, S0, EH6, IS0, I, G, ON, DL, OE, S5, OZ, SM, SP and beacons SU and ZB.

On 7/6 K1TOL worked D44BC and was the only North American station to work the Cape Verde DXpedition. On 18/6 W5EU worked EH7CD around 1525 at

over 8200 km. On 19/6 WA10UB worked YU7FU, YO2IS and SP6GWB, while K1TOL logged YU7FV, YO7VJ, SP6RLA, SP6BTL and SV1DH. On 20/6 G and GW worked ZF1DC at 2300, and probably the most southerly North American station to make it to Europe during the entire month. Many of the contacts were three and four-hop Es, hence signals were weaker.

To the Caribbean, the two best days were 3/6 from 2000 to 2335 when W4/8/9/0 worked CO, ZF, KP4, V3, V4, TI, HP and YV. On 6-7/6 from 2030 to 0100 W1/2/3/4 worked C6, ZF, 6Y, TI, HP, KP4, V4 and beacons HI and FY. Most stations were strong SSB due to single-hop Es. During the month VE8HL on Baffin Island was worked by W2/3/4/5/8/9 and 0.

Emil said the Europeans were not often strong, and British and Dutch operators revealed that only the better equipped stations on both sides of the Atlantic were having consistent results, and most of their contacts were on CW. This has not always been the case, he said, as in previous years there had been huge pile-ups of European SSB stations with S9

signals both ways for more than an hour at a time.

Es contacts on two metres occurred on 3, 6, 11, 15, 17, 21 and 28/6 but generally they were one-hop affairs. However, seven days open on two metres is always acceptable!

All USA Grids

Emil W3EP confirms that Fred Fish W5FF has finally achieved his goal of working all grid squares in continental USA by working N1MLE on 19/6 for square 484. Emil writes, *W5FF deserves a big round of applause for his perseverance and great operating skill. His 1000 watts and six-element Yagi on a 75-foot tower at 7400 feet elevation no doubt helped. In all, Fred has 843 grids, and on the DXCC six metre ladder has 128 countries confirmed. Congratulations to Fred W5FF.*

Late News from the USA

Again from Emil, *On 1 and 2 July, KH6HME worked into Oregon and Washington on 144 MHz, via the Pacific duct, for what appears to be a new tropo distance record and the first time Seattle-area stations have heard Hawaii by this path. At the same time, 6 metre stations from British Columbia to California had several hours of sporadic-E propagation to Japan. Some stations in the Pacific Northwest logged more than 100 Japanese in all call districts. Details next month!*

With regard to the above, Geoff GJ4ICD reported a message from VE7SKA that on 2/7 at 0615 Merle W7YOZ worked Paul KH6HME on 144 MHz SSB at 5x7, also two others worked him from the same grid. Paul was in for about 45 minutes.

Europe

Ted Collins G4UPS sent page after page detailing his many six metre Es contacts for July. It reads like a story book, a never-ending saga! One cannot but feel envious that so much happens in the northern hemisphere; by comparison we are so limited. The vast area of the Pacific has few operators, Africa and South America appear to be too far away and probably would require five Es-hops, which would seem unsustainable over an all-water path — the Europeans find four hops not easy to work.

Ted commenced his holidays late July, but to 21 July he had logged 28 beacons, including VO1ZA, W2CAP/1 and WZ8D/b, and the following 53 call areas: 4Z4, 5B4, 5T, 9A, 9H, CN, CS0, CT, DL, EH, EH6, EH7, EH8, EI, ES, F, HB9, HV3, I, IS0, IT9, K4, K5, K8, KP4, LA, OE, OH, OK, OM, ON, OZ, PA, RA3, S0, S55, S59, SM, SP, SV, T97, UT, VE1, VE3, VE9, VO, VY2, W3, W9, WA1, YL, YO, YU. Its enough to make anyone's mouth water!

WIA News

Cutting the Cost

In 1994, the WIA Federal Council prepared and passed a budget for 1995 which aimed to cut the cost of the Federal company operations, and reduced the "Federal component" of each Division member's subscription by \$5, providing a larger slice of the "subscription cake" for the Divisions. Changes in the Federal secretariat operations in Melbourne saw reduction of a number of costs there, and a reduction in total Federal Convention costs was foreshadowed. While the practice of holding quarterly conventions of the Federal Council was started five years ago, for various reasons, there were five meetings called in each year from 1992 through 1994, with an attendant increase in costs.

However, in 1994, the 1995 WIA Federal budget for the first time included an amount for SMA Liaison expenditure. At the July Extraordinary Convention of the WIA Federal Council this year, it was decided to plan for only two

meetings to be held between each annual Federal Convention, which has to be held by law within five months of the end of the previous financial year (1 January to 31 December, for the Institute).

The next Extraordinary Convention of the Federal Council is to be held over the weekend of 28-29 October. This, barring unforeseen circumstances, will be the fourth this year, so the cost of having five meetings, as has happened in preceding years, will not be reflected in this year's expenses.

The location of the October Convention has not been decided. The cost of holding the July meeting in Sydney was only marginally greater than the previous meeting in Melbourne.

A draft budget for 1996, presently being drawn up by the Federal Executive, will be considered by the Federal Council at the October meeting. It is already anticipated that printing and production costs for *Amateur Radio* magazine will rise next year.

Ted said, *It was widely reported that a GW station on 7 July had worked a Brazilian station PT1WWS. Sad to say that if you write down the dits and dahs for that callsign they can also be read as WA1AYS who was very active that day!*

Cape Verde 95

Geoff GJ4ICD and Anthony GJ7DTA travelled to Cape Verde Islands and joined Julio D44BC from 1/6 to 13/6 for a six metre stint. The cost to the two GJs was about \$4000 each. 26 countries were worked, best DX at 5995 km being to SM3EQY on 6/6. Another good contact was V44KAO for country 25, a distance of over 4000 km. He was S9+ and running three watts!

The 26 countries worked were 5T6, 9A, CT, CT3, CU, DL, EH, EH8, F, FG5, G, GD, GI, GJ, GM, GU, GW, HV, I, K1, ON, OZ, PA, SM, V44, VP2, most of which were over 4000 km.

Thanks to Geoff GJ4ICD and *Six News* August 1995 for the above abridged information. I noticed on page 45 a picture of Geoff at the top of a tower, working on an antenna without a safety-belt. Tut! Tut!

Closure

Some news has been held over until next month, particularly an interesting letter from Quentin VK3DUQ.

Closing with two thoughts for the month:

1. Sometimes the man of action is a fellow who just got both feet in hot water, and
2. In growing older, we're supposed to get more like a peach inside, as we get more like a prune outside; otherwise, what's the point?

73 from The Voice by the Lake.

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Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

A E (Eddie)	DRISCOLL	VK2BI
W H	IRWIN	VK3WE
R J (Bob)	MILLGATE	VK4ADZ

Albert Edmund (Eddie) Driscoll VK2BI

Eddie passed away in the Tamworth Hospital on 28 August 1995 aged 81

years. Eddie lived all his life in Quirindi where he attended school and served his apprenticeship as a plumber with his father, A E Driscoll and Sons. In 1940 he married Freda Austin, a Quirindi girl.

While in his late teens, prior to 1933, Eddie obtained the callsign VK2KN. After WW2 he was allocated the callsign VK2BI which he held until his death. For the last 25 years, at 11.00 am on a Sunday morning, he would "chew the rag" with his mate Murray Parkinson in New Zealand. Eddie could possibly have been one of, if not the longest, active radio amateur in New South Wales.

Eddie is survived by three daughters, Beryl, Robyn and Julie, and their families, to whom we extend our sincere condolences.

W J (Bill) Perry VK2XWP

Marc Weston VK2CM

Marc became a Silent Key on 21 July 1995. He was licensed pre-war in Queensland and served as a marine radio officer for some years during WWII. Near the end of the war he joined Qantas Empire Airways as a radio officer, being one of a small band of operators flying the Perth to Colombo Indian Ocean service.

As a good amateur, he and his wife both enjoyed the amateur bands with their many friends. Living at Bateman Bay and Sydney he expressed interest in lots of things, particularly flying and radio operating.

The last five years he was dogged by ill health and welcomed visits by his mates. He passed away peacefully, a good amateur and a good Australian.

Gordon Lanyon VK2AGL
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Post War Television

Continued from page 20

we first installed their TVs, we were now becoming less welcome. No more smiles. No more tips!

The main reason for this problem was the substitution of mica with a synthetic mica. Japan had control of the sources of mica during the war and Britain had had to use a substitute. The EHT transformers and picture tubes that EMI had made for the refurbishing of the TV sets had used an inferior substitute for mica. EMI insisted that, as they had a store full of EHT transformers and picture tubes, they had to be used first before they would get any better ones.

It was a very bad time and I can remember changing EHT transformers five times at about monthly intervals on one particular customer's set. He gave up after the fifth change and bought a set from another company.

Raw materials for the domestic market were in very short supply when the war ended, and the government decided to allocate raw material to the various firms on the basis of their prewar production. EMI, with its many companies in the radio and associated industries, received the lion's share of raw material. People like Pye and the others, who were relatively small prewar but had

become big companies during the war, were handicapped through these postwar supply conditions.

EMI decided to carry on making the same range of sets that they had made prewar. The other companies decided to take advantage of the many discoveries, new techniques and materials that had been used and developed through five years of war. Where EMI were using the large prewar valves, Pye was using miniature valves, and instead of using EHT transformers they utilised line flyback for their picture tube EHT. They also did away with the mains transformer. The new sets that Pye and others put on the market were very much lighter, more compact, better and cheaper than the EMI models.

I stayed with EMI until March 1949 when I resigned to come to Australia with company recommendations of my television expertise, only to find that there was no TV here and it was to be seven years before it would arrive. In the meantime, I had to live and needed a job to live. In January 1950 I joined the Long Range Weapons Establishment at Penfield, South Australia as an Experimental Officer and that put an end to my television career.

*1290 North East Road, Tea Tree Gully, SA 5091

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Further Feedback From the Spectrum Management Agency

The Spectrum Management Agency (SMA) has provided further feedback to questions the WIA asked of it at the last joint meeting in May. Last month *WIA News* reported that, of 18 action items arising from the meeting, eight had yet to be completed by the SMA as of the end of July. Two letters received from the SMA in August have cleared a further four action items.

A number of issues were clarified regarding the operation of the Amateur Examinations Service. While most of these relate to internal security and procedural issues, the SMA did provide an answer to perhaps the most important issue, and that is — a clear summation of the objectives of the examination system. As provided by the SMA, these are:

- To conduct a visible examination system free of patronage and favouritism and which complies with established policies, plans, procedures, instructions and applicable statutes and regulations.
- To maintain accurate and complete records of the bank of exam papers, completed answer sheets, students and examiners.
- To administer the above in accordance with the agreed Memorandum of Understanding.

At the May joint meeting, the WIA sought from the SMA responses to comments the Institute provided on the draft Technical Licence Specifications (TLSs) through 1994 and earlier this year, before they were finalised and gazetted. Comments relating to simple errors and omissions were all acted upon, where relevant, the SMA said, while a number of clauses were amended to clarify the intent. The draft Amateur "Information Paper" was also amended . . . *in line with*

comments received. A copy of the revised Information Paper has been sent to the Institute.

The WIA had queried the TLS clause relating to "Operation of an Amateur station by a qualified operator", and suggested altering it to include mention of the attendance of the qualified operator. The SMA considered this not necessary . . . *because this was covered in the Regulations applicable to Amateur Stations.*

Objections were raised by the WIA over restrictions in the TLSs on connection to the telephone network. The Institute wanted these restrictions removed or reduced. The SMA advised that . . . *these restrictions are considered necessary to prevent unauthorised operation of Amateur stations operating in the "automatic" modes.* This means computer-controlled modes, such as packet radio. The WIA is pursuing this issue further with a submission seeking modification of this restriction. In responding to the draft TLSs, the WIA sought extension of the Limited TLS to provide operation for Limited licensees on the 10 metre band from 28.7 MHz to 29.7 MHz, all modes. The institute argued, among other things, that limiting the operating mode to wideband FM only and restricting the frequency range to 29-29.7 MHz was too restraining, limited the opportunities for experimentation, inhibited exploration of anomalous propagation modes on 50 MHz because it denied access to the 28.885 MHz 6 m liaison frequency, and fostered crowding.

The SMA said that restricting Limited licensees to 29-29.7 MHz FM reflected . . . *requirements for operation under 30 MHz and use typical of (the) band.*

For the Novice Limited TLS, the WIA also sought, among other things (subsequently granted), extension of the 2 m packet segment to cover 144.690-145.210 MHz, to accommodate inaccuracies in operation. However, the SMA retained the 144.692-145.208 MHz allocation for

Novice Limiteds, considering the asked-for extension unnecessary.

The Amateur Beacon and Repeater TLSs have not been finalised as of mid-August as they were still with the Attorney-General's Office of Legislative Drafting. The SMA has promised the Institute copies of the drafts for comment as soon as they are received.

At the WIA-SMA meeting in May, some time was spent discussing the issue of log book requirements for amateur club stations, which the Institute raised with the SMA. The SMA has said that the requirements for club stations to maintain a log book will be applied to club station licences by way of a "special condition". This reads as follows:

The licensee of a club station shall keep a log book in which must be entered:

- (a) a chronological record of all transmissions (including time/date);*
- (b) the frequency and time of emission used;*
- (c) the station(s) communicated with; and*
- (d) the name and call sign of the qualified person operating the station.*

The SMA is still to finalise a new draft of the Memorandum of Understanding (MOU) for the Amateur Examinations Service. This was awaiting a response from the WIA regarding the definition of "remote areas", where the need to have three accredited invigilators attend examinations could be relaxed. The SMA provided the Institute in June with three options to choose from. The WIA July Extraordinary Convention considered the SMA's options and the Federal Council chose what was considered to be the most administratively simple one. That is: *A Remote Area will be classed as an area/community which is included in either Zone A or Zone B, as described in the Income Tax Assessment Act 1936 (ITAA).*

The Amateur Examinations Service MOU is still with the SMA's legal department.

HF PREDICTIONS

Evans Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μ V (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μ V in 50 ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μ V at the receiver's input and the S-meter scale is 6 dB per S-point.

μ V in 50 ohms	S-points	dB(μ V)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4

0.78	S3	-2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 13.

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	15.9	15	13.2	0	18	8	-4	-22
2	16.3	15	13.8	1	19	9	-2	-19
3	16.3	15	13.7	4	20	10	-1	-19
4	16.4	16	13.6	9	21	11	-1	-19
5	16.1	18	13.2	17	23	11	-2	-21
6	14.9	21	12.1	32	23	7	-8	-31
7	13.4	24	10.6	42	20	0	-19	...
8	11.8	26	9.4	43	14	-11	-35	...
9	10.3	29	8.2	43	4	-27	...	...
10	9.3	31	7.3	42	-5	...	...	...
11	8.5	31	6.7	39	-14	...	...	...
12	8.0	32	6.3	38	-20	...	...	...
13	7.6	33	6.0	36	-26	...	...	...
14	7.5	33	5.9	35	-28	...	...	...
15	7.6	33	5.9	36	-26	...	...	...
16	6.6	35	5.1	32	...	...	...	...
17	6.8	34	5.2	32	...	...	...	...
18	6.7	34	5.1	31	...	...	...	...
19	7.1	28	5.4	28	-32	...	...	...
20	8.7	20	6.5	22	-11	...	...	...
21	11.3	17	8.7	15	6	-15	-38	...
22	13.5	16	10.5	8	14	-1	-18	...
23	14.8	15	11.8	4	16	4	-9	-30
24	15.6	15	12.7	1	18	7	-5	-24

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	19.1	11	15.5	-26	16	13	7	-4
2	19.3	11	16.0	-27	16	13	7	-3
3	19.9	12	14.9	-26	17	15	9	-1
4	19.9	12	16.7	-21	18	15	9	-1
5	20.0	13	16.5	-12	21	17	10	0
6	19.6	15	15.7	4	25	19	11	-1
7	17.6	18	14.0	21	26	17	6	-8
8	15.8	21	12.5	34	26	13	0	-19
9	13.9	24	11.0	40	23	6	-10	-33
10	12.0	27	9.5	42	17	-4	-25	...
11	10.7	30	8.5	43	11	-14	-38	...
12	10.1	31	8.0	43	8	-19	...	...
13	9.6	31	7.6	42	5	-25	...	...
14	9.2	32	7.2	41	1	-31	...	...
15	9.0	32	7.1	40	0	-33	...	...
16	9.1	32	7.0	41	1	-30	...	...
17	8.0	34	6.1	38	-8	...	...	...
18	8.2	33	6.2	36	-8	...	...	...
19	8.1	30	6.2	33	-9	...	...	...
20	8.6	22	6.5	22	-4	-34	...	...
21	10.6	17	8.4	13	6	-14	-35	...
22	13.9	15	10.6	0	14	3	-10	-30
23	16.5	13	12.9	-14	16	9	0	-14
24	18.1	12	14.4	-22	16	12	4	-7

VK EAST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.0	8	6.9	-1	0	-19	...	...
2	7.7	-4	5.9	-9	-6	-27	...	...
3	8.0	-8	6.2	-18	-4	-21	...	...
4	11.3	0	8.5	-35	-2	-6	-18	-36
5	16.0	5	12.3	...	4	4	-1	-12
6	17.4	5	12.8	...	4	5	0	-9
7	17.6	8	13.1	...	4	5	1	-8
8	16.2	5	12.9	...	5	4	-2	-13
9	14.3	6	11.3	...	6	1	-7	-21
10	12.6	6	9.9	-26	5	-3	-15	-33
11	10.8	6	8.6	-13	3	-10	-25	...
12	9.6	8	7.8	-3	0	-18	-38	...
13	9.0	13	7.1	8	-1	-25	...	...
14	8.5	19	6.7	19	-4	-32	...	...
15	8.5	23	6.6	27	-5	-37	...	...
16	8.5	27	6.3	31	-4	-37	...	...
17	8.4	29	5.8	34	-5	-38	...	...
18	8.0	30	5.5	34	-9	...	...	...
19	7.5	31	5.3	33	-14	...	...	...
20	8.0	30	5.4	34	-10	...	...	...
21	7.9	30	5.5	34	-10	...	...	...
22	7.6	25	5.3	26	-13	...	...	...
23	7.3	16	5.2	15	-14	...	...	...
24	7.9	10	5.7	8	-8	-35	...	...

VK SOUTH — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.1	12	6.2	9	-5	-30	...	...
2	8.6	7	6.5	0	-2	-24	...	...
3	11.8	10	9.3	-11	7	-4	-18	-39
4	16.5	11	12.5	-28	12	8	-1	-11
5	18.0	8	13.3	...	9	8	3	-7
6	18.6	8	13.9	...	8	8	4	-5
7	18.8	8	13.5	...	8	8	4	-4
8	18.1	8	12.9	...	8	8	3	-7
9	16.8	8	11.9	-37	9	7	0	-11
10	15.1	9	10.8	-25	10	4	-5	-19
11	18.2	10	9.2	-14	9	-1	-13	-32
12	11.4	11	7.9	-4	6	-8	-25	...
13	9.9	13	6.8	8	2	-19	...	...
14	9.0	18	8.2	18	-2	-29	...	...
15	6.5	24	5.9	27	-5	-37	...	...
16	6.2	27	5.6	30	-9	...	...	...
17	8.1	29	5.6	33	-10	...	...	...
18	8.0	30	5.6	34	-10	...	...	...
19	7.9	30	5.6	33	-12	...	...	...
20	7.8	30	5.6	33	-13	...	...	...
21	8.4	30	5.8	35	-6	...	...	...
22	8.1	30	5.7	34	-9	...	...	...
23	7.8	24	5.6	25	-11	...	...	...
24	8.5	16	6.2	17	-5	-33	...	...

VK WEST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	7.7	20	6.0	20	-8	...	...	...
2	8.1	12	6.2	9	-5	-32	...	...
3	11.5	12	9.1	-3	8	-6	-22	...
4	16.3	11	12.7	-30	13	8	-1	-14
5	17.9	9	13.9	-37	11	9	2	-8
6	18.6	8	15.2	...	10	9	4	-6
7	18.7	8	15.5	...	9	9	4	-6
8	18.4	8	15.1	...	9	8	3	-7
9	17.8	8	14.4	...	9	8	2	-9
10	16.3	8	13.0	-34	10	6	-2	-15
11	14.4	10	12.2	-20	10	2	-8	-25
12	12.6	12	10.0	-4	9	-3	-18	-39
13	10.9	15	8.6	8	6	-12	-32	...
14	9.6	20	7.6	21	1	-24	...	...
15	9.0	25	7.1	30	-2	-32	...	...
16	8.6	28	6.8	33	-5	-39	...	...
17	8.4	30	6.6	35	-7	...	...	...
18	8.5	31	6.7	37	-6	...	...	...
19	8.5	31	6.6	37	-6	...	...	...
20	8.0	31	6.2	35	-10	...	...	...
21	7.6	32	5.8	34	-15	...	...	...
22	8.2	31	6.2	36	-9	...	...	...
23	8.4	31	6.5	37	-6	...	...	...
24	7.8	27	5.9	30	-12	...	...	...

VK EAST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	22.7	13	18.8	-35	18	19	15	8
2	23.5	13	18.0	...	18	19	16	10
3	23.7	13	18.9	...	17	19	17	10
4	23.8	13	19.7	-39	18	20	17	11
5	23.6	13	19.3	-34	19	20	17	11
6	22.6	14	18.4	-24	21	21	16	9
7	21.2	15	17.1	-10	23	20	15	5
8	19.6	17	16.5	13	28	21	12	0
9	18.0	20	14.4	35	31	19	6	-7
10	16.2	21	12.9	40	28	14	0	-19
11	14.9	22	11.9	44	25	8	-6	-31
12	14.0	23	11.1	46	23	3	-15	...
13	12.9	25	10.2	46	18	-4	-26	...
14	11.8	25	9.4	45	12	-14	-39	...
15	11.2	26	8.8	44	8	-20	...	...
16	10.8	26	8.5	43	5	-25	...	...
17	9.7	27	7.6	40	-4	...	...	...
18	8.2	28	6.3	35	-24	...	...	...
19	8.5	28	6.6	36	-19	...	...	...
20	8.9	28	6.9	38	-13	...	...	...
21	14.0	21	10.7	33	20	3	-14	-36
22	20.5	16	16.2	2	26	21	14	3
23	21.9	14	17.6	-15	23	21	16	7
24	22.3	13	18.1	-27	20	20	15	7

VK SOUTH — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	17.4	10	14.2	-37	12	9	2	-9
2	17.6	10	14.6	...	11	9	3	-8
3	18.2	10	15.4	...	11	10	4	-5
4	18.2	10	15.2	...	11	10	4	-5
5	18.2	11	15.0	-39	12	11	5	-5
6	17.9	11						

VK EAST — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	8.4	-7	6.1	-21	-2	-17	-35	...	
2	8.1	-13	5.9	-26	-1	-15	-32	...	
3	9.1	-12	8.7	-38	0	-10	-23	...	
4	11.2	-7	7.9	...	0	-4	-13	-28	
5	15.8	-2	10.4	...	-1	0	-5	-16	
6	13.7	1	11.8	...	-1	2	-1	-9	
7	17.5	3	12.6	...	-1	3	1	-6	
8	17.5	6	13.2	...	-2	6	3	-4	
9	17.6	8	13.6	...	6	8	4	-4	
10	16.0	10	12.7	-38	10	8	1	-10	
11	14.2	12	11.3	-19	12	5	-5	-20	
12	13.0	15	10.3	-2	13	1	-11	-30	
13	12.2	18	9.7	11	13	-1	-17	...	
14	11.3	21	9.0	21	11	-7	-26	...	
15	10.5	25	8.3	31	9	-14	-37	...	
16	10.2	27	8.0	35	7	-18	...	...
17	9.9	28	7.8	38	6	-21	...	...
18	9.0	29	7.0	36	-1	-32	...	...
19	7.8	30	6.0	33	-13	...	...	...
20	8.2	30	6.3	34	-9	...	...	...
21	8.6	31	6.6	36	-1	-33	...	...
22	9.1	21	6.9	21	2	-23	...	...
23	9.2	10	6.5	2	0	-21	...	...
24	8.7	0	6.2	-12	-2	-20	-39	...	

VK SOUTH — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.2	2	6.5	-13	0	-16	-35	...	
2	8.7	-7	6.2	-24	-1	-15	-32	...	
3	9.7	-8	7.1	-38	0	-8	-21	...	
4	12.2	-3	8.3	...	0	-2	-10	-23	
5	15.1	0	11.1	...	-1	2	-2	-11	
6	17.1	2	12.8	...	-3	3	1	-5	
7	18.0	4	13.3	...	-3	4	3	-2	
8	18.5	5	13.9	...	-1	5	4	-2	
9	16.9	5	13.5	...	1	5	2	-6	
10	14.9	5	11.8	...	4	4	-2	-13	
11	13.1	6	10.4	-35	6	0	-9	-24	
12	11.3	8	8.9	-15	6	-6	-20	...	
13	10.0	12	7.9	1	3	-15	-34	...	
14	9.5	17	7.5	15	1	-22	...	...
15	9.0	24	7.1	27	-1	-31	...	...
16	8.9	27	7.0	32	-3	-34	...	...
17	9.1	28	7.1	35	-1	-33	...	...
18	9.1	29	7.0	38	-1	-33	...	...
19	8.5	29	8.5	35	-7	...	...	...
20	7.9	29	6.1	33	-13	...	...	...
21	8.4	29	6.4	35	-7	...	...	...
22	10.2	28	7.3	37	9	-16	...	...
23	8.7	20	8.7	20	-1	-29	...	...
24	9.5	12	8.7	3	2	-18	-39	...	

VK WEST — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.7	13	6.8	7	1	-19	...	...
2	9.1	3	6.5	-9	-2	-21	...	...
3	10.2	-1	7.3	-26	0	-12	-27	...	
4	12.9	1	8.7	...	2	-2	-11	-26	
5	16.1	3	11.8	...	1	3	-1	-10	
6	18.2	4	13.4	...	0	4	2	-4	
7	19.2	5	14.1	...	-1	5	4	-1	
8	20.0	6	14.7	...	-1	6	5	0	
9	20.4	6	15.2	...	0	7	6	0	
10	18.8	6	15.1	...	3	7	4	-3	
11	17.0	7	14.3	...	7	6	1	-8	
12	15.3	10	12.1	-28	10	5	-3	-16	
13	13.5	13	10.7	-5	12	1	-11	-30	
14	12.2	17	9.7	11	11	-4	-20	...	
15	11.5	21	9.1	25	11	-8	-28	...	
16	10.8	24	8.5	31	8	-15	-38	...	
17	10.2	28	8.1	35	5	-21	...	...
18	10.1	27	7.9	38	5	-22	...	...
19	9.9	27	7.7	38	4	-24	...	...
20	9.1	28	7.0	36	-3	-35	...	...
21	8.0	29	6.2	33	-13	...	...	...
22	8.5	28	6.5	34	-8	...	...	...
23	8.8	29	6.8	36	-4	-37	...	...
24	9.0	22	7.0	25	-1	-30	...	...

VK EAST — EUROPE (long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	10.0	4	6.7	-14	3	-9	-24	...	
2	9.5	6	6.5	-7	2	-12	-29	...	
3	9.0	9	6.2	1	1	-18	-37	...	
4	8.7	14	6.1	10	0	-22	...	...
5	8.3	22	5.9	23	-2	-30	...	...
6	9.4	23	8.7	24	4	-19	...	...
7	11.6	24	8.5	30	15	-3	-20	...	
8	11.9	23	9.2	23	17	-2	-12	-33	
9	9.2	14	7.1	7	5	-12	-31	...	
10	8.9	4	6.8	-8	3	-12	-28	...	
11	9.4	-1	7.4	-21	1	-11	-25	...	
12	8.9	-10	7.0	-31	0	-10	-23	...	
13	8.8	-15	6.9	-37	0	-8	-20	-39	
14	8.9	-20	6.9	...	-1	-8	-19	-36	
15	8.8	-28	6.8	...	-6	-12	-23	...	
16	8.3	...	6.4	...	-14	-21	-34	...	
17	7.8	...	5.9	...	-21	-30	...	...
18	8.4	...	6.3	...	-13	-20	-33	...	
19	10.2	-14	8.1	...	-1	-4	-12	-26	
20	13.4	-3	10.2	...	-1	0	-5	-16	
21	14.3	0	9.7	...	0	1	-3	-13	
22	12.6	0	8.5	...	2	0	-8	-21	
23	11.5	1	7.7	-34	3	-3	-13	-29	
24	10.6	2	7.1	-23	3	-6	-18	-38	

VK SOUTH — EUROPE (long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.1	-1	8.2	-16	0	-15	-31	...	
2	8.8	3	8.0	-6	-2	-21	...	...
3	8.1	6	5.7	2	-5	-28	...	...
4	7.9	12	5.6	10	-7	-34	...	...
5	7.7	21	5.8	21	-11	...	...	...
6	8.7	21	6.4	23	-3	-30	...	...
7	10.6	23	7.9	29	9	-12	-33	...	
8	12.9	22	9.0	29	18	2	-13	-35	
9	11.1	18	7.7	16	9	-8	-26	...	
10	8.6	10	6.7	4	0	-21	...	...
11	8.8	3	6.2	-8	0	-18	-36	...	
12	8.5	-4	5.8	-17	-1	-17	-34	...	
13	8.2	-12	5.8	-25	-1	-14	-29	...	
14	8.2	-21	5.7	-38	-4	-15	-29	...	
15	8.2	-39	5.7	...	-12	-23	-37	...	
16	7.9	...	5.6	...	-22	-33	...	...
17	7.6	...	5.5	...	-30	...	...	...
18	8.3	...	6.0	...	-22	-31	...	...
19	9.8	-23	6.7	...	-5	-9	-18	-33	
20	12.4	-7	9.2	...	-2	-2	-7	-18	
21	13.2	-4	9.2	...	-2	-1	-6	-16	
22	11.7	-6	8.1	...	0	-3	-10	-24	
23	10.6	-5	7.3	...	0	-6	-16	-33	
24	9.7	-4	6.7	-28	0	-10	-23	...	

VK WEST — EUROPE (long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	8.7	-11	8.0	-29	-3	-14	-29	...	
2	8.2	-10	5.7	-20	-4	-19	-36	...	
3	7.7	-7	5.5	-12	-6	-25	...	...
4	7.6	-3	5.5	-6	-8	-30	...	...
5	7.4	1	5.4	0	-10	-35	...	...
6	8.4	7	6.2	3	-5	-28	...	...
7	10.2	12	7.6	7	3	-15	-34	...	
8	12.4	15	9.3	10	10	-3	-17	-38	
9	14.1	15	10.6	8	14	4	-8	-25	
10	12.7	13	8.6	3	10	-2	-15	-34	
11	10.0	6	7.4	-8	3	-10	-26	...	
12	8.9	-4	6.5	-19	-1	-14	-30	...	
13	8.8	-9	6.0	-27	-3	-14	-29	...	
14	8.4	-17	5.6	-33	-3	-13	-26	...	
15	8.1	-38	5.6	...	-12	-22	-36	...	
16	8.2	...	5.5	...	-18	-27	...	...
17	8.1	...	5.6	...	-24	-32	...	...
18	7.8	...	5.4	...	-30	...	...	...
19	7.5	...	5.3	...	-34	...	...	...
20	6.1	...	5.8	...	-23	-32	...	...
21	9.7	-22	8.5	...	-6	-10	-19	-34	
22	11.2	-11	7.9	...	-3	-5	-13	-25	
23	10.2	-14	7.1	...	-3	-7	-16	-31	
24	9.2	-14	6.4	-39	-2	-11	-22	...	

VK EAST — MEDITERRANEAN									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.0	-2	6.9	-20	0	-15	-32	...	
2	9.8	-6	7.4	-35	0	-9	-23	...	
3	13.8	1	10.4	...	2	1	-5	-17	
4	18.8	6	14.4	...	0	6	4	-2	
5	21.9	7	17.1	...	-1	7	7	4	
6	21.9	6	17.9	...	-2	6	7	3	
7	21.0	6	17.1	...	-1	6	6	2	
8	19.4	6	15.6	...	1	6	5	-1	
9	17.6	7	14.8	...	5	7	3	-5	
10	15.8	8	12.6	...	8	6	0	-12	
11	14.0	10	11.1	-23	10	3	-6	-22	
12	12.7	13	10.1	-5	11	0	-13	-33	
13	12.0	19	9.5	14	13	-3	-20	...	
14	11.1	24	8.8	30	12	-9	-29	...	
15	10.5	26	8.4	35	10	-14	-37	...	
16	10.3	28	8.1	38	9	-16	
17	10.2	29	7.9	39	8	-18	
18	9.3	30	7.2	37	2	-28	</

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● **HAM HIDEAWAY** Mid Murray District near Swan Hill. 20 fertile irrigated acres of pasture and homestead. Run a few sheep to pay the rates and water bills and play with your antennae. Two roomed separate shack with HWS, outdoor shower and fuel stove. Great doghouse. Windmill tower and 7 m free standing tower both laddered and about G5RV apart. A row of 60/70 ft gum trees a 160 m half wavelength away from the shack. A four bay machine shed/car parking. Fordson Supermajor tractor with near new rubber and several implements. 1500 bale hayshed. For the XYL, 16 squares of fine old homestead (20 squares including verandahs), 3 glass window doors to verandahs. Formal lounge with Coonara heater for winter and summer room for the hot weather, 3 BRs, tiled bath/shower. Solar fresh water HWS. All fresh from glass lined concrete tank to kitchen and hand basin. Dam cold to shower, toilet and laundry. Fans in two BRs. WIWO, \$88,000. Further particulars call Max VK2CMS (050) 30 2464 or (03) 9354 5130.

● **AVO Vtester CT160**, \$275; VTVM CT38, \$150; MARCONI sig/gen TF995, \$175; TF801, \$375; TF2011, \$275; TF2002, \$800; HEWLETT Packard 412A DC/VTVM, \$175; 425A DC Micro volt, \$175; 430C/477B power meter, \$475; 410B RF VTVM, \$175. Peter VK2CPK (02) 605 4790.

● **YAESU FT901D**, desk mic, spare set valves, manual and w/shop manual, gc, \$750; YAESU Y0901 multiscopes, gc, \$250; YAESU FV901DM VFO, 40 mem, gc, \$250; YAESU FT209RH 2 m txvr, nicads, speaker mic, charger, car adapter, psu, never used, \$425; YAESU MD-1B8 desk mic, gc, \$100; PALOMAR HF 200 W linear amp, \$200; HI MOUND key model MK701, never used, \$85; HOME BREW roller inductor ATU, \$125. Peter VK2DBI QTHR (063) 67 5095.

● **YAESU 2 m linear amp FL2050**, IHO20094, instr sheets, \$150; YAESU 207R handheld t/m, OK120265, instr man, battery charger, \$100; REGULATED power supplies, Ferguson Transwest, 13.8 V 2 amp, \$45 ea; REALISTIC dynamic desk mike, \$30; ARLEC batt charger 240 to 6-12V, \$20; KINGRAY low pass filter, \$20. Licd Amats only, H Chapman VK2BHC (02) 664 1929.

● **AMATEUR Radio Magazines** from 1977 to 1994 plus many Amateur Radion Action, about 250 copies, in all. The lot for \$200. Frank VK2BFC QTHR (02) 9948 7111.

● **YAESU FT230R** 2 metre FM transceiver, 25 W output, \$350; FT730R 70 CM FM transceiver,

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FOR SALE VIC

● **KENWOOD TS520S**, good condx, with narrow CW filter, mic, etc, \$450. Ron VK3OM QTHR (059) 44 3019.

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● **TH3JR triband beam**. KENPRO KR400 rotator, 240 V controller and cable. Can deliver Melbourne, \$350. 28 MHz modified CB Johnson Viking 352D, 23 ch, SSB, \$100; TS520S HF transceiver, good goer, \$425, also can deliver Melbourne. Max VK2CMS (050) 30 2464 or (03) 9354 5130.

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● **APPLE 2E computer**, 2 disk drives, packet software and manuals, good order, \$120; RAINBOW Computer, good order, some software, OK for packet dumb terminal, \$20. Murray VK3EYM QTHR (03) 9803 1971.

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● YAESU FT107M & FTV107 ext VFO, s/no's 1F090281 & OH040107, DMS, WARC bands, new finals, very clean unit, manuals, \$600 ono. LAQ. Les VK5BM (085) 84 6402.

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● WESTERN ELECTRIC vacuum tubes. Examples; 1 pay VT52 \$50, 205D \$90, 211E \$90, 274A/B \$80, 252A \$250, 300A/B \$210, 350B \$80, 348A \$25, 349A \$25, 271A \$60. All types wanted. New or used. Also other brands wanted like RCA, STC, etc. Tim Metz, 221 Wheatland, Fairview, OK 73737, USA or phone 0011 1 405 227 2456, fax 0011 1 405 227 4602.

WANTED NSW

● YAESU FT767GX transceiver with or without 6 m, 2 m and 70 cm plug-in modules. Ric Havyatt VK2PH (02) 817 0337.
 ● KENWOOD PS50 power supply & SP430 speaker. Ken VK2SX (02) 413 1846 or pager, (02) 214 1111 quote 204557, anytime.
 ● MANUAL Collins 618T-3 system, also VALVE EA53, Nuvistor 8058, also 7895. Thermistor mount HP478A. Peter VK2CPK (02) 605 4790.
 ● TRANSFORMER 10 volt 5 amp, also socket for 813. Ben VK2AJE (044) 57 3220 anytime reverse charges.
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 ● COPY CIRCUIT or manual AWA modulated oscillator type C1070, Circa 1935, 100 kHz to 15 MHz, six range, two 30 valves. Stan Dogger VK2KSD QTHR (066) 77 9292 AH.

● MORSE KEYS old and new, plus any information relating to Morse code. Steve VK2SPS (02) 9999 2933 after 6.00pm.

WANTED VIC

● HY-GAIN 203 or 204BA, any condition or any bits thereof to repair mine. Ron VK3OM QTHR (059) 44 3019.
 ● COPY operating manual Kenwood TS670 quad bander. Will cover expenses. Damien VK3CDI (054) 27 3121.
 ● ARMSTRONG AM/FM receiver, model 226, circuit or any technical information, all costs met. Peter VK3DU QTHR (03) 9489 1385.
 ● PRINTER, Oki DP-125 for spares, also instr/h/book for same. Will copy and return or pay for photostats. John VK3ZA QTHR.
 ● WANTED for photocopying, instruction book and circuit diagram for Yaesu FV101Z external VFO. Guaranteed return and/or all expenses covered. Ross VK3WAC QTHR (03) 9728 3597.
 ● HALLICRAFTERS SX28. Any schematics, handbooks or copies thereof for Hallicrafters SX28 receiver. Fair price paid, no problem. Max VK2CMS (050) 30 2464 or (03) 9354 5130.

WANTED QLD

● WANTED S/W receiver BC to 30 MHz, quartz synthesised, must have ext SW aerial connection. Please advise price and availability or circuit manual. VK4AO (066) 46 6587.

WANTED SA

● EAT 300 Emtron tuner (not cross needle type) must be in good condition. Volt meter

0-20 V, 70mm x 70 mm, preferably Asia — Italia brand. Power lead to suit Kenwood TS130S, TS-440S. Paul VK5MAP QTHR (086) 51 2398.

WANTED WA

● CIRCUIT or info for TEAC stereo radio cassette recorder, model PC-25. Ron VK6FD QTHR (09) 362 1170.

MISCELLANEOUS

● THE WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards special issue. Please contact Hon Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350.
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IC-R100



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IC-R1

Amateur Radio

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Volume 63 No 11



Journal of the Wireless Institute of Australia



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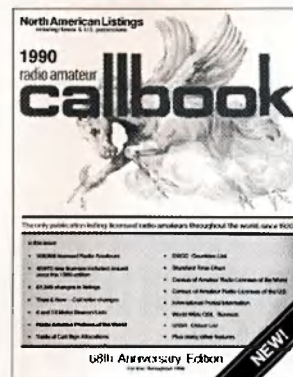
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Cover

More and more women are joining the ranks of radio amateurs. In recent years it has become usual to use the front cover of the November issue of *Amateur Radio* to portray women in amateur radio. In this year of "Australia Remembers" we feature one of Australia's early women in amateur radio, Joy VK7JL. The photo was taken in 1936 and shows Joy at the key of her station which included her homebrew five valve superhet receiver and a three stage "bread board" 25 watt transmitter. For more details see the ALARA column in this issue of *Amateur Radio*.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

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Founded 1910

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Editor's Comment

Springs and Timing

Being in the right place at the wrong time is almost as bad as being in the wrong place.

This became apparent on our recent trip to the Red Centre, towing an elderly light-weight caravan. Heading for Dalhousie Springs on the afternoon of 11 September a different kind of spring made its presence felt. One of the caravan springs broke its main leaf and brought us to a sliding halt.

Some years ago we had a bigger problem when our Commodore spat all the teeth off its timing wheel 76 kilometres "back o' Bourke". That happened only minutes before the Traveller's Net opened for the day, and we had a tow truck on the spot just over an hour later! But not this time!

It was mid-afternoon and the Net had long closed. Twenty metres was near dead, Forty was full of weak DX, and Eighty was ground-wave only. We were at least 30 kilometres from anywhere (we didn't see or hear another vehicle until the next day). Later in the evening we made a "sort of contact" with a VK2 on 80 m but he had a thunderstorm near him and could barely copy anything.

Next morning (our 42nd wedding anniversary!) we contacted VK5UY on 40 m. He was able to establish, with a couple of phone calls, that no suitable spring was in stock at Oodnadatta. It would have to come from Adelaide, probably taking several days!

But, to facilitate communication, it was agreed we should backtrack to Hamilton homestead, 30 km south. In true "bush blacksmith" style we tied up the caravan axle with fencing wire (it grows on trees in the bush!) and crawled back to Hamilton at 20 kph. This was where we found, not only that we were in the right place at the right time, but it is also better to be born lucky than rich!

In the station junk-yard, about to be dumped, was a half-wrecked box trailer. Its spring main leaves were near identical to our needs. A few hours work by the manager and me, and we had a usable caravan again. At no cost either, for which we cannot thank enough the manager of Hamilton Station! In true amateur fashion we knew him as Alan, with no surname needed.

We didn't make it to Dalhousie. Our rather tight schedule necessitated "back to the bitumen" at Maria, and on to Alice Springs. Maybe next year?

Bill Rice VK3ABP
Editor
ar

WIA News

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of September 1995.

L30915 MR S GRANT
 L30916 MR S FONTANA
 L50332 MR H G KIRK
 VK1SW MR R R WATTS
 VK2ASV MR R S DOYLE
 VK2GCY MR D W DAWSON

VK3CVZ MR L DAVIS
 VK3KKJ MR G FURR
 VK3TVV MR S A DOWTHWAITE
 VK4HAU MR A E BRIAN
 VK5DAS MR D A SAUNDERS
 VK5JDN MR D M TERRACE

Jammer Fined For Electronic Duck

A Tasmanian man was fined \$2000 and had his equipment confiscated in October under the

Radiocommunications Act, for transmitting duck noises. The 57 year-old man, Don Desmond Davey, made his presence felt on the CB frequencies by transmitting electronically generated quacks. The transmissions had been a persistent nuisance for some years. He pleaded guilty to 16 charges in Launceston court for making transmissions other than speech, in breach of CB class licensing conditions.

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers	Weekly News Broadcasts	1995 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Rob Apathy Secretary Len Jones Treasurer Alex Colquitt	VK1KRA 3.570 MHz LSB, 146.900 MHz FM each Wednesday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet aus.radio.amateur.misc newsgroups, and on the VK1 Home Page http://email.nla.gov.au/~cmakin/wiaact.html From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. The broadcast text is available on packet.	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Michael Corblin Secretary Pixie Chappie Treasurer Peter Kloppenburg (Office hours Mon-Fri 11.00-14.00 Mon 1900-2100)	VK2YC 3.570 MHz LSB, 146.900 MHz FM each Wednesday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet aus.radio.amateur.misc newsgroups, and on the VK1 Home Page http://email.nla.gov.au/~cmakin/wiaact.html From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. The broadcast text is available on packet.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 9885 9261 Fax (03) 9885 9298	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530)	VK3PC 3.570 MHz LSB, 146.900 MHz FM each Wednesday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet aus.radio.amateur.misc newsgroups, and on the VK1 Home Page http://email.nla.gov.au/~cmakin/wiaact.html From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. The broadcast text is available on packet.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Geoff Sanders Secretary John Stevens Treasurer John Presotto	VK4KEL 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 28.400 MHz SSB, 29.220 MHz FM, 52.525 MHz FM, 146.700 MHz FM, 147.000 MHz FM, 438.525 MHz (Brisbane only), regional VHF/UHF repeaters at 0900 hrs Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM, regional VHF/UHF repeaters at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET. 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555, 7065, 10.125, 146.700, 0900 hrs Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Garry Herden Secretary Maurie Hooper Treasurer Charles McEachern	VK5ZK 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 28.400 MHz SSB, 29.220 MHz FM, 52.525 MHz FM, 146.700 MHz FM, 147.000 MHz FM, 438.525 MHz (Brisbane only), regional VHF/UHF repeaters at 0900 hrs Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM, regional VHF/UHF repeaters at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET. 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555, 7065, 10.125, 146.700, 0900 hrs Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 351 8873	President Cliff Bastin Secretary Mark Bastin Treasurer Bruce Hedland-Thomas	VK6LZ 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busselton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday, relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 52 Connaught Crescent West Launceston TAS 7250 Phone (003) 31 9608	President Andrew Dixon Secretary Robin Harwood Treasurer Terry Ives	VK7GL 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$69.00 (G) (S) \$55.65 (X) \$40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).			

Note: All times are local. All frequencies MHz.

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 Full (F) Pension (G)
 Needy (G) Student (S)
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Three-year membership available to (F) (G) (X) grades at fee x 3 times.

■ Equipment Review

ICOM IC-706 All Mode HF, 6 m and 2 m Transceiver

Reviewed by Ron Fisher VK3OM



The small HM-103 microphone makes the IC-706 look even smaller than it really is.

If you think the title description looks interesting, just wait until you have read the whole story on this incredible piece of equipment.

Let's say you are looking for a new transceiver; what would you want it to do? Well, naturally, it would have to cover all the HF amateur bands. Oh, and why not include six metres? You would want 100 watts output on all of these bands for good measure. Having gone this far how about including two metres as well? I have to admit this is all pushing the bounds of possibility too far, or is it?

The new ICOM IC-706 will do all of this and more in a package about the same size as a ten-year-old two metre transceiver. Just imagine all of this (and more as you will later see), wrapped up in a package 167 mm wide, 58 mm high and 200 mm deep and weighing just 2.5 kg.

IC-706 Features and Facilities

I guess everyone will want to compare the IC-706 with the Kenwood TS-50S which has now been with us for two and a half years (doesn't time fly!). In round figures the IC-706 is 4/5ths the size of the TS-50S. It's also 0.4 kg lighter in weight. The two most significant differences are the extended frequency coverage and the removable front panel on the ICOM.

The extended frequency coverage is remarkable in several ways. First, of course, is the coverage of both the six and two metre amateur bands. This is not an optional extra which you have to purchase and plug in — both bands are built in as standard equipment. However, the extended frequency coverage goes even further with continuous receive coverage from 30 kHz to 200 MHz.

This will enable you to tune in the activity from your local air port, have a listen to the local fire brigade and, if the bands are really dead, relax to some music from the FM broadcast band. ICOM have included a wide FM selectivity position to allow this to happen.

Getting back to the amateur side of things, let's see what facilities you get and, believe me, you get plenty. With only five knobs and fourteen buttons on the front panel, ICOM had to come up with a way to control the numerous functions they have included in this transceiver. This has been achieved in two very unique ways. First, the incredible menu system to allow the operator to cycle through the various options; and second, the alphanumeric dot matrix LCD that tells you exactly what is happening. There are something like forty three functions that can be set and controlled via the menu setup. In addition to this, there are another twenty four parameters that can be set-up in the initial "switch-on mode". These are the set and forget items, such as display back lighting, scan speed, control beep on/off, etc.

Cooling is very important in a 100 watt transceiver of this size and ICOM have chosen to have the cooling fan run continuously while the transceiver is in receive mode, and increase in speed when in transmit mode. I found the fan noise slightly annoying when the transceiver was used in a quiet room but, if the rig was used mobile, this would not be an issue.

The tuning system is typical ICOM. Two VFOs, and 102 tunable memories made up of 99 normal memories, two scan edge setting points and one call channel. You can also give your memories a name, such as identifying a two metre repeater with its location. The keen CW operator has been well catered for with a built-in electronic keyer, and CW reverse mode so you can flip from USB to LSB to help reduce interference. Also, the receive CW pitch can be adjusted over a 600 Hz range from 300 to 900 Hz.

There is also a selection of CW filters available as options with 500 and 250 Hz bandwidth available. There are also two optional SSB filters available with a narrow

bandwidth of 1.9 kHz and a wide bandwidth of 2.8 kHz. I would very much like to try the latter. One slight problem with the optional filters is that the transceiver has only space for one extra filter. You will need to choose carefully.

ICOM HM-103 Microphone

The HM-103 is supplied as standard with the IC-706. It is a new design and certainly looks very smart. The curly cord easily extends to over a metre in length and is terminated in an eight pin plastic miniature connector. The internal element is an electret and, in fact, the circuit appears to be very similar to the earlier HM-12. The up/down buttons are on the top of the microphone rather than on the top edges of the HM-12. I found it difficult to get my fingers on these buttons due to their proximity to the metal "hang up" bracket.

If you want to use a standard ICOM microphone with your IC-706, an optional adaptor lead is available that connects from the eight pin metal to the eight pin plastic connector.

IC-706 Remote Front Panel

Push the lock button on the left hand side and the front panel slides off. There are no messy connectors to unplug. Amazing as it might seem, there are only eight connections between the front panel and the main transceiver and these mate automatically when the front panel is fitted to the main chassis.

IC-706 on the Air

This is one transceiver where you definitely need to read the instruction book fully before you start to operate.

With many of the controls tied up in the menu system, learning to access them can only be sorted out by digesting the manual first. However, back to the beginning. The DC power connector is a now-standard six pin plastic connector so there are no problems here. The supplied microphone (an electret) is terminated in an eight pin telephone type plastic connector which can be plugged into either the front panel or into the rear panel of the transceiver main chassis. Two SO-239 coax connectors provide a separate

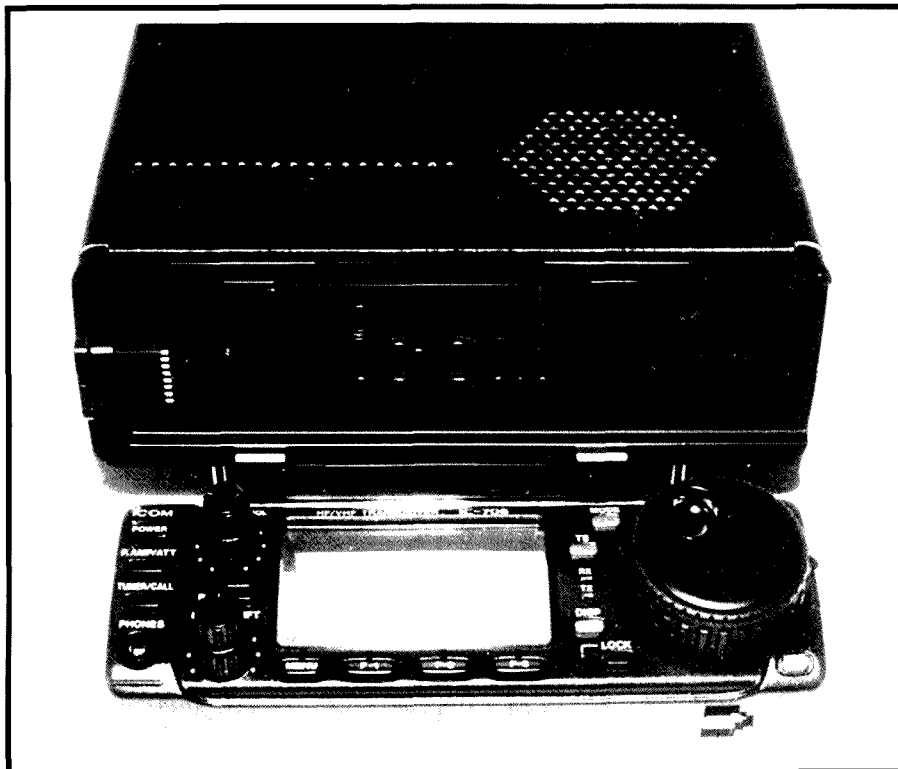
connector for HF plus six metres, and also for two metres as a dedicated outlet. For receive, the two-metre antenna connector covers from 60 to 200 MHz.

One of the nice features on the IC-706 is the ability to convert the squelch control into an RF gain control on SSB and CW. This is one of the features that can be set up in the initial "power-up" selection. In practice I found it to be a little tricky to use. Maximum RF gain occurs at the 12 o'clock position. At the same position the squelch should be just on. So if you advance the RF gain a little too far and then switch to AM you might find the receiver dead, and wonder why!

Tuning around, the receiver handles extremely well. The tuning control feels first rate. The finger hole actually rotates within the knob on its own bearing. You won't wear out your finger tip tuning quickly up the band. A small lever on the right side of the knob adjusts the tension from free spinning to firm with the action remaining smooth either way. Two tuning rates are selectable with the TS button and these give either 200 Hz per knob revolution in 1 Hz steps, or 2 kHz per revolution in 100 Hz

steps. You can also chose a 1 kHz stepping rate for quickly moving up or down the band. In addition to all of this, you can choose different stepping rates for different modes. For example, I set it up for 25 kHz steps for the two metre band and 9 kHz steps for the standard AM broadcast band.

Band changing is also arranged via the TS button in either one MHz steps or from one amateur band to the next. This was not always an easy procedure. It took one push of the TS button to get into the band change mode and then, after selecting the required band, two pushes of the button to get back into the normal tuning mode. At home on the bench this might not be any trouble but if you are mobile you might need some practice. I actually found the easiest way to change bands was to put them into memory, select your band with the up/down button on the microphone and tune to your required frequency from there. Talking about memories, you have one hundred and two to play with. Enough to enter your favourite amateur frequencies including all the two metre repeater and simplex channels, plus a few AM and FM broadcast stations.



The detachable front panel disconnected from the IC-706.

Received audio quality from the internal speaker was very restricted. However a reasonable external unit made a very marked difference. ICOM produce several excellent speakers to match the IC-706 and I suggest you look at one of these.

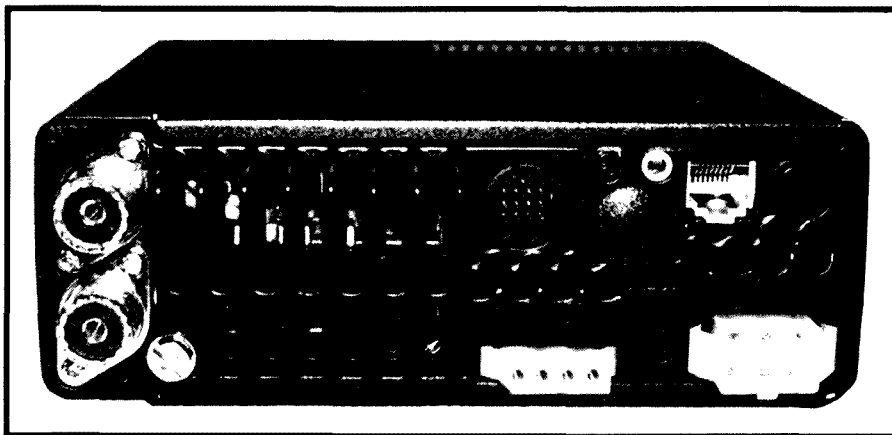
A single push-button operates the receiver pre-amplifier and attenuator. A small LED shows green with the pre-amp in and red with the attenuator in. I found that the use of the pre-amp was essential most of the time. The only time I could comfortably dispense with it was on 80 metres at night when signals were very strong. I found no use for the attenuator at all.

AGC action was very good. Either fast or slow decay times can be selected via the menu system. The slow setting gave about two seconds decay time from S9 which seemed just about right. I tried the noise blanker (again selected via the menu) and found it to be quite effective against car ignition noise but it had very little effect on power line noise. It didn't appear to introduce any noticeable cross modulation.

The IF shift was effective in reducing the effect of interference and you can even get a graphical representation of its position on the main display.

Talking of graphic displays, the IC-706 even includes a sort of spectrum analyser display. It's an interesting idea but I found it too small to be of much practical use; however, it does give an idea of the facilities packed into the transceiver.

Now over to the transmit side. Firstly, let's look at the facilities provided. Three metering scales can be selected, again via the menu system. These are power output, ALC and SWR. Other menu selectable or adjustable parameters are power output, microphone gain control, audio processor on/off and the SSB carrier point control. This last feature allows the audio band pass to be moved up or down relative to the filter and so increase or decrease the high or low frequency response by +/- 200 Hz. In theory this is an excellent idea, but in practice the audio bandwidth is so narrow that it's really not possible to set the response



The rear panel of the IC-706. Note the separate SO-239 sockets, one for 160 to 6 m, and the other for 2 m.

to a point that produces really good quality.

On air reports on SSB were conflicting. Many amateurs thought the quality sounded OK, and many suggested it sounded very restricted and of poor quality. I took the transceiver to a friend to put it on-air and listened to it myself. I have to admit the audio was not to my taste. The conflicting reports caused me to devise a method of measuring the overall audio response (see test results later).

IC-706 on Test

I carried out the usual series of tests on the IC-706 plus a new one which I will come to later.

First I checked the power output on transmit and the current drain on each band through to two metres. Maximum output in CW mode was:

BAND	POWER OUT
160	107 watts
80	107 watts
40	105 watts
30	105 watts
20	102 watts
17	100 watts
15	100 watts
13	100 watts
10	97 watts
6	80 watts
2	8.5 watts

Power output on HF and 6 metres is continuously variable up to the maximum from a low of three watts. On two metres the minimum power output is one watt. PEP power output was slightly in excess of the above figures.

Current drain was measured at 18 amps with 102 watts output on 20 metres, and at 3 amps with 8.5 watts output on 2 metres. On AM transmit on HF, power output was 40 watts and I found that 80% modulation was the maximum attainable. With the output power reduced to 25 watts, 100% modulation could be achieved.

I then carried out tests to estimate the transmitter intermodulation distortion. As I have mentioned before, I do not have access to a spectrum analyser so the figures obtained are estimated on a comparative basis with a transceiver with known figures of distortion. The tests were carried out on 14 MHz with normal speech modulation. The IC-706 produced a figure of -22 dB which is about average for a 12 volt powered transmitter.

Now to a new test which I intend to carry out on all HF transceivers in future. In this case the test was prompted by the conflicting reports I received on the transmitted audio quality. I therefore decided to actually measure the SSB audio frequency response. This was done by feeding an audio oscillator into the microphone input and then measuring the resultant RF power output, which was then converted into relative dB. The output power was kept at around the 10 watt level so that ALC action would not affect the result. Also, the audio compression was switched out. The published curve tells the story but, in basis, the response shows a sharp bass cut below 600 Hz, with 500 Hz being the -6 dB point and 400 Hz being -12 dB.

The response above 1 kHz is rather uneven with a 6 dB difference between 1.2 and 1.5 kHz and the upper -6 dB point being at 2.5 kHz. All of this shows why the audio reports mainly indicated a lack of lows. Of course, it's fair to say that many prefer their audio to sound this way.

I did the same test on an ICOM IC-735 and found that the low frequency response was even more restricted with a much sharper cut off below 600 Hz. Of course, this does not take into account the response of the microphone which might well change the overall curve to some extent. I have since checked the response of quite a few other transceivers and it's quite amazing to see the vast differences between different makes and models.

Both carrier and sideband suppression were excellent, each being in excess of -60 dB down.

Receiver Tests

As usual the first test was to check the S meter calibration. It is not a meter as such, but a series of bars on the LCD. It's always difficult to get an actual calibration as each bar section "hangs on" for a large spread in the input signal. Anyhow, here is how I measured it at 14.2 MHz:

S1	1.2 μ V
S3	1.4 μ V
S5	1.6 μ V
S7	3.0 μ V
S9	8.0 μ V
S9 + 20 dB	23 μ V
S9 + 40 dB	160 μ V
S9 + 60 dB	1400 μ V

This test was done with the pre-amp on. The pre-amp has a gain of 20 dB and the attenuator has a loss of 20 dB. Receiver sensitivity was checked and found to agree exactly with the specification which is 0.16 μ V for 10 dB S/N on SSB with the preamp on; 0.3 μ V for 12 dB SINAD on FM measured on 146 MHz.

Sensitivity was very even right across the entire HF range but a bit lumpy from 30 MHz up to the maximum of 200 MHz. However for general listening it was quite good enough.

Received frequency response on SSB measured quite a bit wider for receive compared to the transmit figures. The -6 dB point at the low end was 250 Hz with the top end point being the same as transmit at -6 dB at 2.5 kHz. This was actually measured at audio so indicates that ICOM have not used too much audio top cut filtering. The response for AM reception was also very satisfactory with the following results:

Frequency	Response
100 Hz	-12 dB
200 Hz	-6 dB
400 Hz	-2 dB
600 Hz	-0.5dB
800 Hz	0 dB
1 kHz	0 dB
1.5 kHz	-0.5 dB
2.0 kHz	-2 dB
2.5 kHz	-4 dB
3.0 kHz	-6 dB
3.5 kHz	-10 dB
4.0 kHz	-12 dB

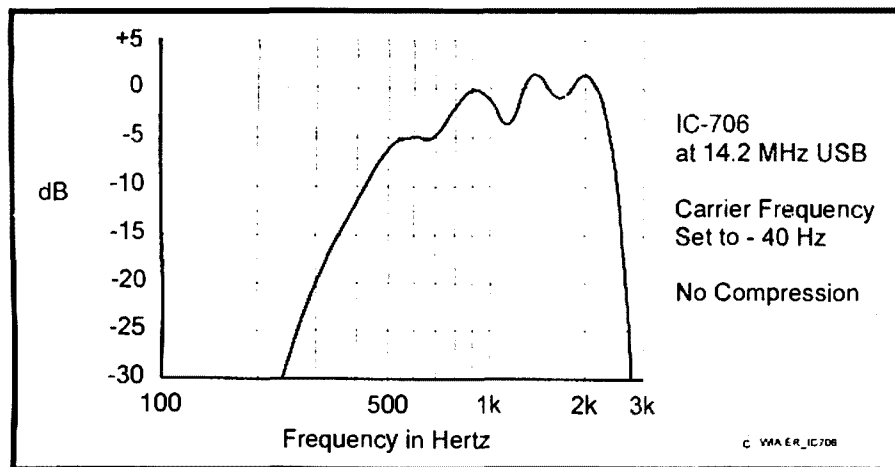
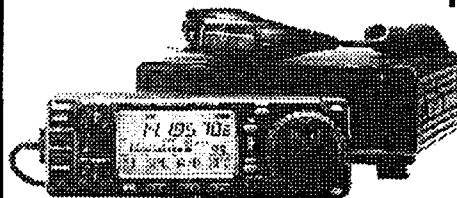


Figure 1 — A plot of the transmitted audio response of the IC-706, operating USB on 14.2 MHz with the carrier frequency set to -40 Hz.

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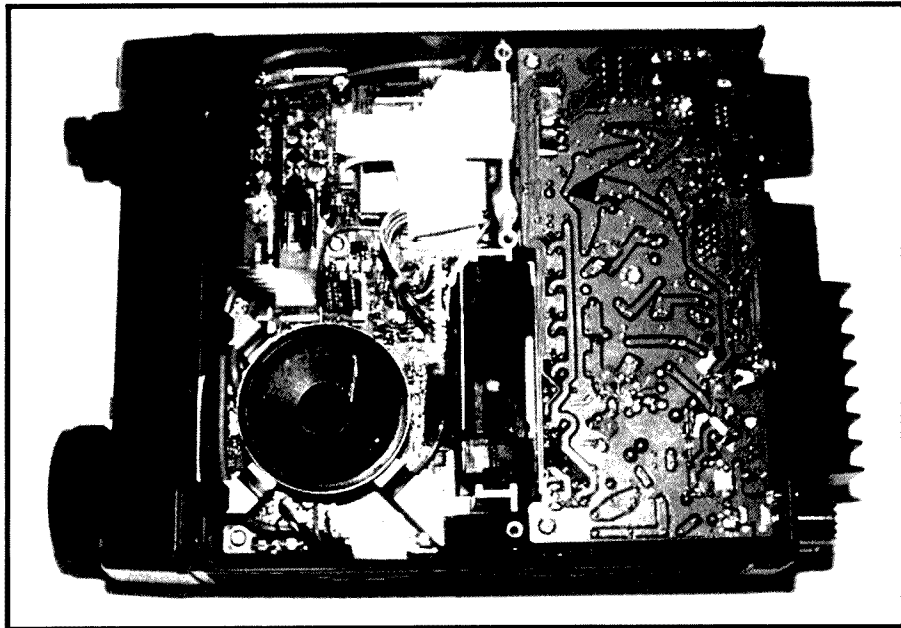
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- life members
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The IC-706 Txcvr prize, generously donated by Icom (Australia), will be awarded by way of a draw and the result published in July 1996.



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Further details are available from your Division, see contact details on p.3 of this issue.



Top view of the IC-706 with the cover removed, the centrally mounted cooling fan located just to the rear of the speaker.

description, installation and connections, frequency setting, receive and transmit, memory and scan functions, set mode, maintenance and trouble shooting, and installation of the optional filters, voice synthesiser and high stability master oscillator.

Operational instructions for this extremely complex transceiver are very well covered with plenty of diagrams. Several adjustment points are shown on the two photos of the top and bottom circuit boards, but there is no description on how these should be set. Or, for that matter, no warning to keep clear if you are not sure what might happen. However, in general it is a well written book which covers everything an operator would need to know. Again, there is no technical description and not even a circuit diagram is supplied. I score the instruction manual seven out of ten.

While this may not be Hi-Fi standards, the quality on a reasonable external speaker sounds very acceptable. I had no way to measure the received frequency response on either wide or narrow band FM but, again, they both sounded very acceptable on my usual external speaker.

My final test was to check audio output and distortion. The external speaker output was terminated with either an 8 or 4 ohm load and audio power and distortion measured. The specification shows "more than 2.0 watts with an 8 ohm load". I measured a maximum output of 2.6 watts with 2.0 watts with 10% distortion. With a 4 ohm load connected there was a very useful increase to 4 watts maximum output.

Overall the tests indicated a very high standard of performance. Two aspects might be open to some criticism. Firstly, the SSB audio response. Reports showed that it was not always liked but then again many amateurs found it quite satisfactory. I have to admit that it is not to my taste, so check it out for yourself. By the way, the transmitted audio on FM is quite reasonable.

Secondly, the transmitter intermodulation distortion could be better, although it is about the same for other transceivers in its class, if that's any consolation.

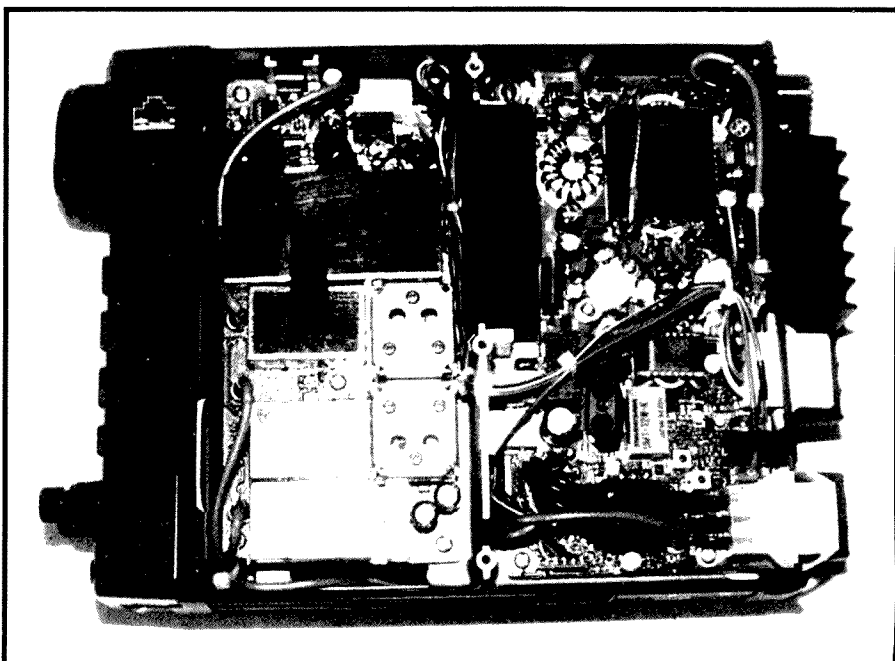
IC-706 Instruction Manual

This has a total of 58 pages plus a separate menu operating sheet printed on heavy paper. If you intend to operate the IC-706 portable or mobile could I suggest you photo copy both sides of this sheet and pop them in the glove box.

The book is presented in fourteen sections which include front panel

IC-706 Conclusions

The IC-706 takes over where the famous Kenwood TS-50S left off. It provides many more facilities in a slightly smaller overall size. But with the remote front panel, the versatility has been increased a thousand times. Add to this one hundred watts on six metres, ten watts on two



Bottom view of the IC-706 with the cover removed. Note the microphone socket mounted on the bottom of the front panel below the tuning knob (top left in the photo).

metres and a full coverage receiver up to 200 MHz and you virtually have a complete amateur station in one very small box.

The list price of the IC-706 is \$2478.84, but Daycom presently has it on special for \$2400 even.

A matching antenna tuner will be available shortly for \$999.60 and I hope I will be able to report on this as soon as possible. Other accessories you might be interested in include a 500 Hz CW filter at \$152.88, and a 3.5 metre extension cable to make use of the remotable front panel will cost you \$76.44. There is also a matching power supply, a small switched-mode unit which is designed to go with, but not to match, the appearance of the IC-706. It is the PS-85 and will be priced at \$570.36. There are many other accessories to go with the IC-706 and your ICOM dealer has a full list available.

The review IC-706 was supplied by Daycom Communications Pty Ltd.

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■ Technical

Negative Resistance Revived

Lloyd Butler VK5BR* takes a look at some interesting basic electronics

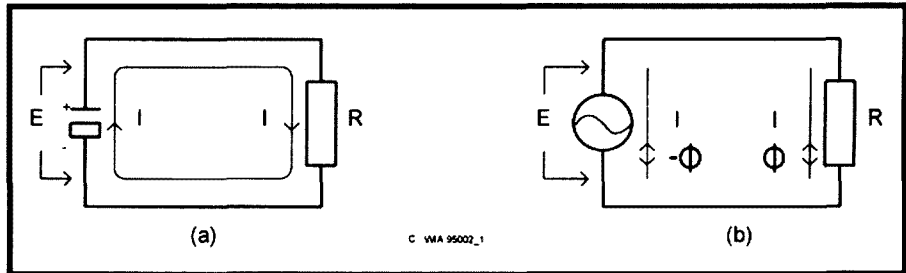


Figure 1 — Current and voltage relationships in generator and load.

Introduction

The concept of negative resistance to explain sustained oscillation in certain types of tuned oscillator has been around for many years. In fact, it can be found in publications even prior to 1930 and I thought it might be an interesting subject to revive. In doing so, a few circuits will be presented which take us back into the electron tube era.

A Concept

As a first idea, let's look at the circuit of Figure 1a showing a resistance R connected across a battery with an output voltage E. Current I flows around the circuit so that power is dissipated in the resistance equal to $E \times I$. Conventional current flow defines that current flows from positive to negative through the resistance. However, the same current also flows through the battery but in the reverse direction, negative to positive. Now the resistance R is a consumer of power and $R = E/I$. On the other hand the battery, as a generator of power, is exhibiting a characteristic defined by $-E/I = -R$, that is, a value equal to that of the resistance load but reversed in sign.

We look further at the AC circuit (Figure 1b) in which the current

through resistance R is in phase with the applied AC voltage E. Current through the generator, whilst equal in value to that through the resistance load, is 180 degrees out of phase with the voltage E. Again the generator characteristic is defined by a resistance equal to load resistance but reversed in sign. The instantaneous currents through the resistance load and through the generator, as a function of instantaneous AC voltage, can be plotted as shown in Figure 2. From this figure we see that the slope of the

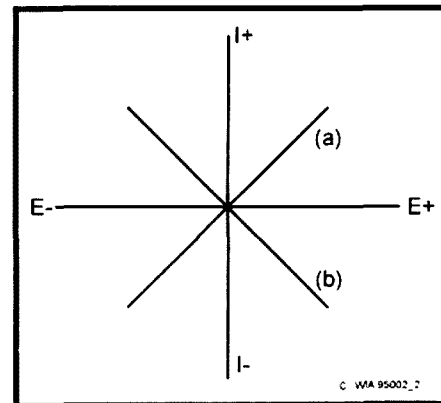


Figure 2 — Current versus voltage curves:-
(a) Current vs voltage through load resistance (positive slope)
(b) Current vs voltage through generator (negative slope).

WIA News

Spectrum Licensing Recommended

The Spectrum Management Agency (SMA) is to recommend to the Minister for Communications and the Arts that he designate the 501-505 and 511-515 MHz bands be allocated for spectrum licensing over parts of Australia.

Earlier this year, the SMA issued a booklet on *Implementing Spectrum Licensing*, calling for public comment. The Wireless Institute of Australia responded on 25 May.

The SMA advise that they received a total of 85 submissions from a range of radiocommunications industry groups and spectrum users. They issued a report in September, with a deadline for public comment of 27 October.

The WIA was to respond on a number of issues covered in the SMA's report, but this had not been completed at *WIA News* deadline in early October.

curve is positive for the resistance load but negative for the generator.

This leads us to the basis of what is defined as negative resistance. If the current versus voltage curve for a circuit has a negative slope, it looks like a resistance in reverse and is said to have negative resistance. As seen from the previous paragraphs, it is the same sort of I vs E characteristic as a generator and a negative resistance circuit can be considered as a generator. Placed in parallel with a real or positive resistance, it feeds energy to the positive resistance load.

Oscillatory Tuned Circuit

A tuned circuit is formed by the parallel connection of an inductor and a capacitor. If energised, the circuit oscillates at its natural resonant frequency but the intensity of oscillation decays as a function of time because of energy losses in the circuit. The loss can be represented by a resistance component either in series or parallel with the tuned circuit as shown in Figure 3. To maintain continuous oscillation, sufficient energy must be continuously fed into the tuned circuit to balance the energy lost. A typical electronic oscillator is formed by connecting the tuned circuit to the input of an amplifier and feeding part of the amplifier output signal back into the tuned circuit. This replaces the energy loss in the tuned circuit and hence maintains oscillation.

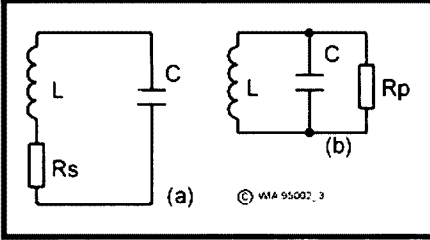


Figure 3 — Loss resistance can be represented as either a series (Rs) or parallel (Rp) component.

Feedback can be achieved by inductive coupling from a coupling coil or via a feedback tap on the tuned inductor. In doing this, a four terminal or three terminal coil assembly is required. However, a two terminal coil assembly is achieved by connecting the tuned circuit in parallel with a circuit arrangement

which has a negative resistance characteristic. Energy lost in the tuned circuit is supplied by the negative resistance circuit. One might imagine the negative resistance as cancelling the positive loss resistance and, in effect, making the series loss resistance look like zero, or the shunt loss resistance look like infinity.

The Screen Grid Tube or Tetrode

An early development of the electron tube was the addition of a screen grid between the plate and the grid of the triode amplifier. The screen grid was connected to a high positive voltage and bypassed for signal voltage and bypassed for signal voltage to ground. The presence of this extra element at high potential increased the amplification factor quite dramatically as well as providing a shield between grid and plate to reduce unwanted coupling between the output and input of the amplifier.

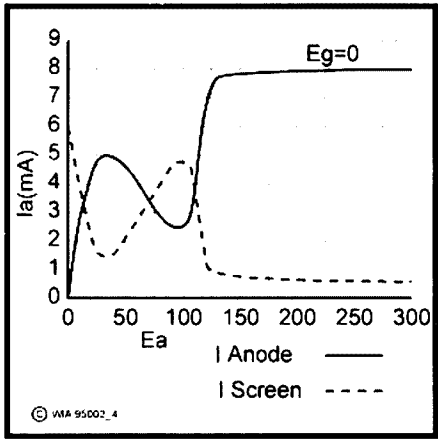


Figure 4 — Tetrode electron tube — plate and screen current plotted as a function of plate voltage showing negative resistance characteristic of plate circuit.

A problem with this tetrode tube is that, for signal conditions when the plate voltage is lower than the screen voltage, a phenomenon called secondary emission occurs. High velocity electrons attracted by the screen pass through the screen to the plate but, in doing so, dislodge even more secondary electrons, which are attracted to the screen. The plate and screen currents as a function of plate voltage are shown in Figure 4. It can be seen that, below a plate voltage of 130, the curves are somewhat erratic and unsatisfactory for linear amplification. To overcome this limitation, the suppressor grid was added between the plate and screen grid to form the pentode tube. The addition eliminated the secondary emission and linearised the curve down to a lower plate voltage point.

Returning to Figure 4, we see that, between plate voltages of 40 and 100, the secondary emission actually causes the plate current to decrease with an increase in plate voltage. Now this is a negative slope and, whilst it is a nuisance from the point of view of amplification, it is a negative resistance which can be used to sustain oscillations in a tuned circuit.

The Dynatron

At this point we introduce an oscillator circuit called the Dynatron in which the negative resistance of the screen grid tube (or tetrode) is utilised. The circuit as shown in Figure 5 is operated with its plate voltage set lower than its screen voltage so that the operating point is close to the centre of the negative slope region of the Ia vs Ea curve. For the curve of Figure 4 this would be about 70 volts. The tuned circuit is

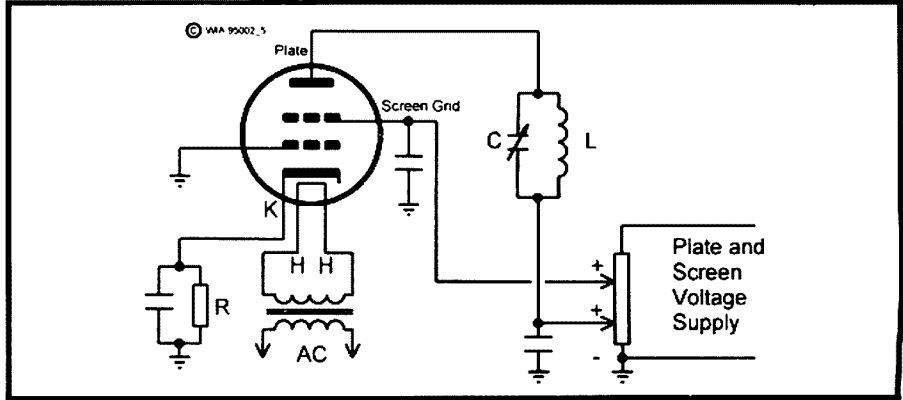


Figure 5 — Dynatron oscillator circuit.

placed in parallel with the plate and oscillation is sustained at the resonant frequency of the tuned circuit.

Another related circuit is the Negative Transconductance oscillator shown in Figure 6. This makes use of the 6A8 pentagrid converter tube which, if set up correctly, exhibits a reverse transconductance characteristic between the control grid (G4) and the plate of the oscillator section (G2). With G4 and G2 coupled together, their effect across the tuned circuit is much the same as connecting the negative resistance circuit and, of course, we still have the two terminal coil assembly. The oscillator is quite stable and works well up to frequencies of 18 MHz. I have a modulated oscillator with this type of circuit which I built for receiver alignment some 50 years ago in my youth. It tunes from 125 kHz to 18 MHz in 6 bands, selected with a single bank switch and, yes, it still works. I am almost certain I used a circuit published in *Radio & Hobbies* (now *Electronics Australia*) but I have lost track of the article. One day I might write to the editor, Jim Rowe, and see if he can locate it.

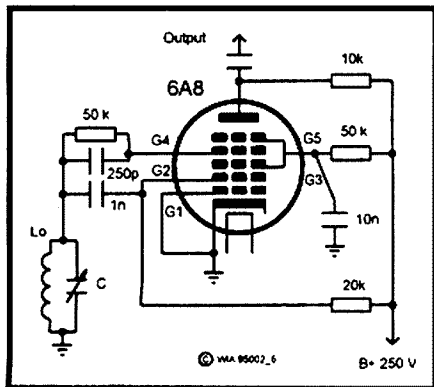


Figure 6 — Negative transconductance oscillator.

The Magnetron

The magnetron is well known as an oscillator at microwave frequencies using cavity resonators and phasing of feedback achieved by making use of the electron transit time delay. However, the magnetron was originally developed as a low frequency oscillator making use of a negative resistance characteristic exhibited by the device. A two

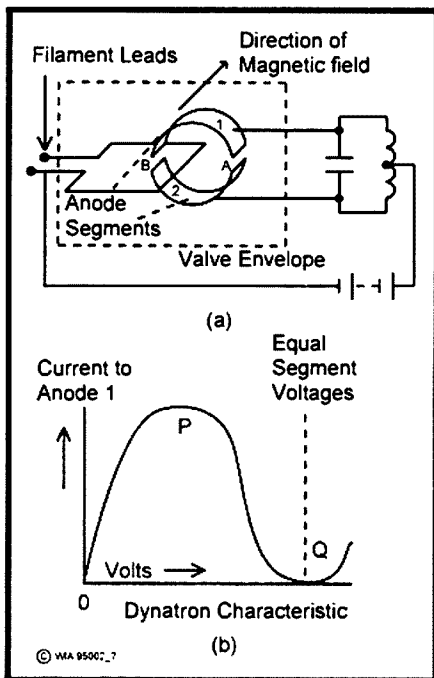


Figure 7 — The Dynatron magnetron.

segment split anode magnetron is illustrated by Figure 7. The two anode segments are connected to a tuned circuit and the electron stream is influenced by an external magnetic field which causes the electrons to travel radially within the evacuated tube. Figure 7b represents the static characteristic of the magnetron in which one anode segment (eg No 2) is held at a constant potential with reference to the filament and the magnetic field is set sufficient to cause circular rotation of electrons. If the potential of the other segment is varied and the anode current measured, the curve of Figure 7b is produced.

When the voltage on segment 1 is very small, it receives very few electrons, but large current flows in the other segment. As the voltage increases, electrons are drawn in increasing numbers (point P). However, when the voltages on the two segments approach equality, the action of the magnetic field (set to a critical intensity) becomes fully operative and the electrons follow circular paths missing both anode segments. The latter condition corresponds to point Q and the portion of curve PQ represents the negative resistance. By connecting a symmetrical tuned circuit between the two segments, as shown in Figure

7a, use is made of the negative resistance to supply energy to the circuit. This type of magnetron is called a negative resistance or Dynatron magnetron as distinct from the higher frequency transit time magnetron.

The Tunnel Diode

By around 1960, the bipolar transistor had been well established as an amplifying device to replace the electron tube. We were then introduced to a new semi-conductor device called the tunnel diode. A normal semi-conductor diode is characterised by low resistance in the forward direction and high resistance in the reverse direction up to a point where the junction reverse breakdown voltage is reached. By increasing greatly the impurity concentration in the PN junction, the reverse breakdown voltage is reduced to zero, the diode conducts in the reverse direction and a peculiar effect, called quantum mechanical tunnelling, occurs in the forward direction. This produces the forward current characteristic of Figure 8 which includes a significant section of curve with a negative resistance characteristic. Once again an oscillator circuit can be created by DC biasing the diode to some point in the negative resistance region of the curve and connecting a tuned circuit.

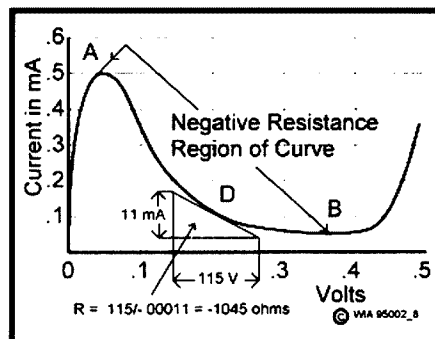


Figure 8 — Typical germanium tunnel diode characteristics.

The value of negative resistance is determined by the slope of the curve and, for stable operation at the operating point, the bias supply must have a lower source resistance than the value of negative resistance. On the other hand, too low a source resistance can cause the diode to oscillate at a frequency determined

by its inherent self inductance and capacitance. Hence the value of bias supply source resistance can be critical. Its value is represented by load line curve C in Figure 9. A circuit for a 100 MHz oscillator is shown in Figure 10. For the circuit to oscillate at the required frequency, the shunt resistance presented by the tuned circuit L-C1 at resonance must be not less than the value of negative resistance. The resistance presented by the tuned circuit is represented by load line D in Figure 9.

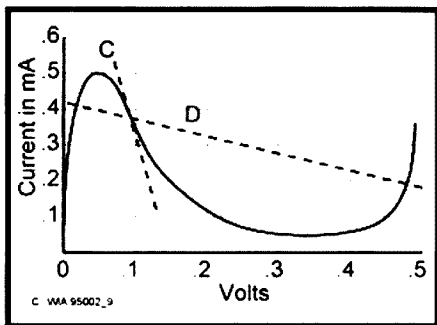


Figure 9 — Characteristics and load lines illustrating oscillator operation.

If the load resistance presented by the tuned circuit is less than the negative resistance, the circuit can also be made to operate as an amplifier. One might compare this to a regenerative amplifier where positive feedback is set to a level below the point of oscillation and the amplifier achieves increased gain resulting from the feedback. To operate as an amplifier, the input signal can be fed in series with the paralleled diode and LC combination and the output taken from the parallel circuit. Of course the input source resistance and output load resistance have to be carefully arranged to satisfy the criteria discussed above. A practical circuit designed to amplify

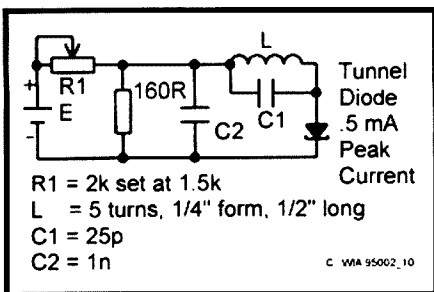


Figure 10 — Tunnel diode oscillator circuit — values for 100 MHz operation.

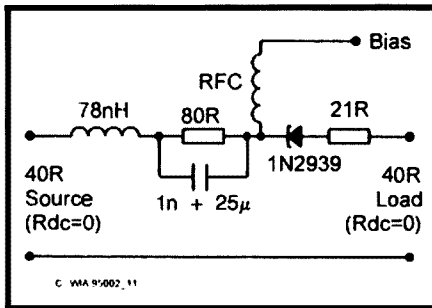


Figure 11 — A practical tunnel diode amplifier circuit for 145 MHz.

at 145 MHz, taken from an early issue of *Amateur Radio*, is shown in Figure 11. The designer of this circuit claimed gains of 30 to 40 dB at 145 MHz. The tunnel diode as an amplifier is somewhat limited to RF work as its linearity is hardly satisfactory for linear service such as in audio amplification.

One difficulty with the tunnel diode is the low voltage required for its operation. The negative resistance region is around 50 to 300 millivolts, requiring a bias voltage in the order of, say, 100 millivolts. It is a very high frequency device with operation possible at 1000 MHz, or even higher.

Conclusion

A relevant theme to finalise this article was extracted from an early copy of *Wireless World*: "There are two ways of regarding the action of any oscillator which uses a two terminal circuit to fix the operating frequency. One is to consider the passive network as a feedback element between the output and input terminals of a power amplifier. The other is to picture the amplifier as a negative resistance coupled to the passive network." What has been

highlighted is the second way using the negative resistance concept.

Some of the discussion is of historic interest. The Dynatron oscillator, as we have known it, has been passed by with the phasing out of the electron tube. At the time the tunnel diode was first introduced, it was thought to have a bright future at microwave frequencies because of its ability to perform at these frequencies with low noise. As it has turned out, it also appears to have been surpassed by better microwave performing devices.

There are various transistor circuits which have been made to look like a negative resistance source and work using a two terminal tuned network. There are also various integrated circuit packages which incorporate a tuned oscillator by connecting a two terminal tuned network. These days we tend to consider such packages as a black box and don't worry too much about how the circuit works inside the box. If we did, we might see a circuit which we could regard as a negative resistance source.

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■ History

Women in Radio — Our History Project

Christine Taylor VK5CTY*

As has been told many times before in these pages, and others, the first woman to hold an amateur radio licence in Australia was Mrs Florence McKenzie. She was first issued with the callsign VK2GA in 1921; her callsign was later changed to VK2FV. Mrs Mac was responsible during the war years for teaching thousands of men and women the Morse Code, and was responsible for the formation of the WRANS. Many of her students subsequently became amateurs. In the May issue of *Amateur Radio* two photographs were printed of one of Mrs Mac's classes of "girls". We hope they will have triggered some memories.

As a History Project, ALARA is seeking information about our earlier lady amateurs (those who gained their licences before 1980), among whom, we know, are a number who first became interested during the years of World War II. If you can add to our knowledge, or if you can remember any funny or interesting stories of those early days, we'd love to hear from you. In the following paragraphs is some of the information we have to date.



Poppy VK6YF

Heather VK2HD and Poppy VK6YF are both ex-WAAFs who later became amateurs, while Margaret VK2AHD, now an SK made the WAAF her career for several decades. Daphne VK2KDY, Jean VK3DJN, Margaret VK3QU, Moira VK8NW, and Kirsti VK9NL are all ex-WRANS, and members of the Australian branch of the RNARS (Royal Navy Amateur Radio Society). Margaret was still active with the key as Chief Operator on board the RNARS Club Ship HMAS Castlemaine, in 1984.

When Heather VK2HD applied to join the WAAF it was because she wanted to operate a teleprinter; but maybe she was misunderstood because she was sent to learn Morse code instead and became a telegraphist.

Not all the girls in the services learnt their Code from Mrs Mac. Many of them, like Gwen VK4AZC, grew up hearing their fathers sending Morse Code as Postmasters. However, in the Postal Service it was usual to use a sounder rather than an audio tone. There is a considerable difference between these. A sounder makes a double click with each operation so that the letter "a" sounds like click-click click --- click.

As a child Gwen learned Morse code from her father and, when the war came, she practised till she could read and send it at 20 wpm. But when she presented herself for the Morse entrance exam for the WAAFS she failed. They used an oscillator for the exam and she just couldn't "hear" it properly.

Although Gwen went home and re-learned the Code with an oscillator and a key, when she went for the next exam the WAAF had changed the rules so Morse was no longer required. She was accepted into the service as a trainee to learn the code



Austine VK3YL

along with all the other skills. She became a very competent operator.

Of course there were YL amateurs before WW2, just as there were OMs. We have records of some and

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information about some, but we would like as much help as possible before we all forget.

Before 1939 there was at least one other YL in VK2, a Miss N L Litchfield VK2YG, but we have no information other than the callsign.

The first YL in VK3 was Elizabeth Hutchings VK3HM, of whom we have some interesting recollections from her daughter, Marj (Williams) VK3HQ. Elizabeth was followed shortly after by Austine VK3YL who only became an SK last year. The third one, in 1938, was Mavis VK3KS, Honorary Life Member of ALARA.

In VK4 we had VK4DH Dorothy, licensed in November 1929 (but not given her callsign till February 1930), Ida VK4JH licensed in 1933 and Madeline McKenzie (no relation). At

12 years old she was the youngest amateur in the British Empire when she gained her licence in 1935. As you would have guessed, her father was an amateur but that doesn't detract from her achievement. Madeline did not reactivate her licence after the war preferring to give her attention to her family and her students.

In VK5 the first YL amateur was Betty VK5YL who passed her examination in 1936. She lived in Murray Bridge where she built her own transmitter and receiver and even a primitive battery using Marmite(C) jars as her power supply.

There were two early YL amateurs in VK6. The first one was Ruth, known as Vicki, VK6YL in 1936. She also built her own station but, when the war came, it was closed down and

she joined the WAAF. She did not continue her interest in amateur radio after the war. A Miss J C Chinnery held the callsign VK6JC in 1939 but we do not know whether her interest continued till the present.

Like amateurs everywhere, to begin with, the early YLs all used Morse code to talk to others and many kept their interest in this field. Later, amateurs were not so restricted in the choice of mode so their interests cover the whole field of amateur radio.

If you can help ALARA make this History Project a more interesting book, booklet, or accumulation, please do. You can send any material, written or on tape, to Christine VK5CTY or to Bron VK3DYF QTHR.

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■ Transceivers

ATU Modification for the Kenwood TS440-S/AT

Ralph Holland VK1BRH* describes a useful modification to a popular transceiver.

Kenwood has placed the TS440S antenna tuning unit (ATU) in the transmitter output chain only. This is a deficiency when operating the 440S mobile or into antennas that are mismatched to the nominal 50 ohms. In some cases the received signal strength can be several S points down compared to what would be recovered when the antenna

impedance is a conjugate match to the receiver's input impedance.

The ATU can be placed in both the receiver input and the transmitter output by a simple modification. Further, the ATU can still be taken in and out of the antenna circuit by the existing front-panel switch, when desired.

This change can be performed with

only one additional part, a piece of thin 50 ohm coax approximately 7 cm long (preferably with a multi-stranded centre conductor).

See Fig 1 for the old block diagram and compare this with Fig 2, the new block diagram. Figure 3 contains the approximate board and cable layout.

Procedure

- a. Remember the locations of all connections and wires that are mentioned in the following steps, or draw diagrams, as there are a lot of wires in this transceiver!
- b. Disassemble the transceiver by removing the top and bottom covers.
- c. Disconnect the speaker cable at the connector on the board behind the S meter.
- d. Turn the transceiver bottom-up and remove the cover plate for the filter unit.

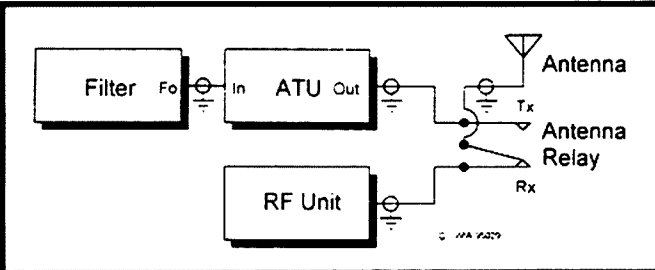


Fig 1 — The original block diagram

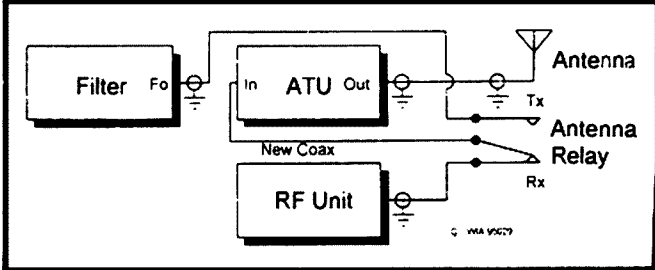


Fig 2 — The new ATU block diagram

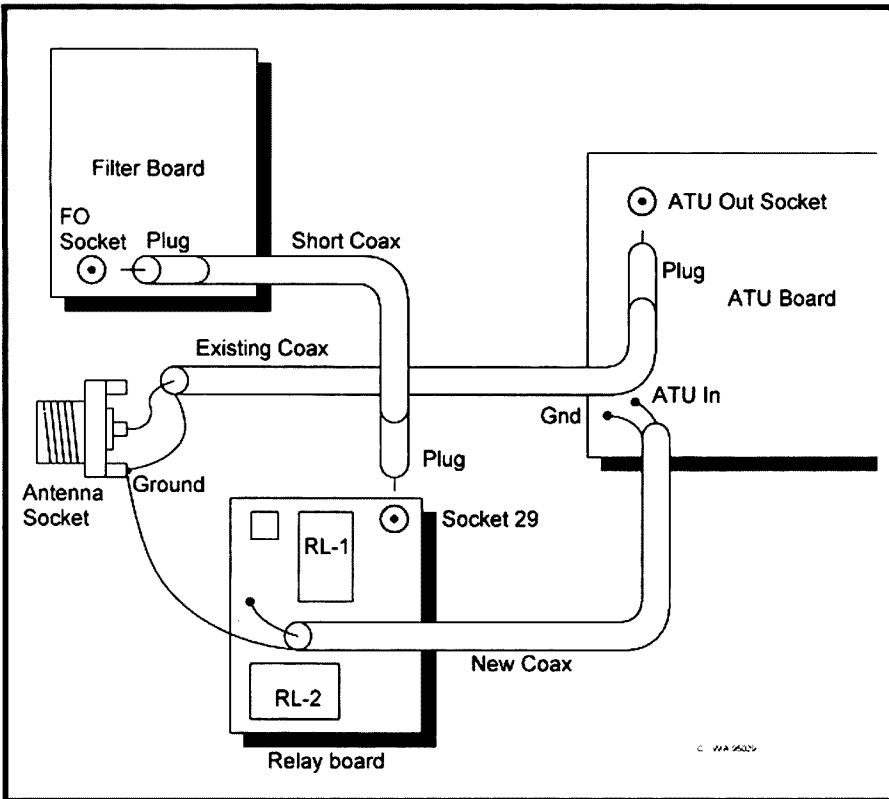


Fig 3 — The new arrangement (not to scale)

- e. Remove the five screws holding the heatsink (final and filter units).
- f. Turn the transceiver bottom-up again and disconnect the drive output coax from the main board near the antenna relay (black) — this wire will come out anyway if you don't remove it!
- g. Lay the transceiver on its side with the mic connector closest to the bench.
- h. Hinge the heatsink, carefully, towards the bottom of the transceiver so you can get access to the ATU control board.
- i. Remove the ATU control cable (3 connectors **J1**, **J2**, **J3** and one wire plug **14S**).
- j. Undo the ATU control board mounting screws and remove the board.
- k. Disconnect the FILTER-OUT (FO) to ATU-IN coax from the plug on the filter board and unsolder the coax from the ATU board. Keep this coax for step n.
- l. Unsolder the short wire going from the antenna coax connector to the Tx/Rx relay centre contact (the relay board is the small board behind the coaxial connector).
- m. Identify the short coax that runs from the ATU OUT to the Antenna relay coax socket marked **S29**. Remove this coax from the ATU OUT socket, re-route, and plug this into the FILTER OUT connector on the filter board. The short coax now runs from the Relay board **S29** to the Filter FO socket.
- n. Take the long piece of coax, removed in step k and plug the small connector into the ATU-OUT socket on the ATU board. Solder the braid of the free-end onto the antenna socket ground lug nearest the side of the transceiver. Solder the centre conductor to the antenna socket centre pin. The ATU-OUT is now connected directly to the antenna socket.
- o. Run a new short length of thin 50 ohm coax to the old ATU-IN connection wire on the relay board (centre contact of the Tx/Rx relay). Solder the braid to the same antenna socket lug as



"VK3LZ calling!"

More sound information from your friends at Icom

WIN AN IC-706!

Join the W.I.A. or renew your membership before May 1996 and you will go into a draw to win an IC-706. Watch for details in this and other magazines.

ICOM CAPS GOING FAST

Warranty cards have been flooding in to receive the Icom caps with call signs for the first one hundred IC-706 units ordered. Let's hope it's not too late by the time you read this.

FREE POWER SUPPLY

Order an IC-738 (HF including tuner), or IC-820H (2M/70cm base) during November and receive a free power supply. You still have a little bit of time, but don't delay in taking advantage of this offer.

"...73"

Call me at Icom on
free call 1800 338 915
ph: (03) 9529 7582
fax: (03) 9529 8485

ACN 006 092 575

before, insulate the centre conductor with a sleeve of plastic, solder the centre conductor to the short contact wire and pull down the sleeve.

- p. Solder the other end of this cable onto the ATU control board contact marked ATU-IN.
- q. Re-route the coaxial cable and re-insert the ATU control board into the ATU.
- r. Reconnect all four (4) connections on the ATU board (note the single wire is the ATU motor wire — don't forget it like I did!).
- s. Thoroughly check the wiring against Figs 2 and 3.
- t. Replace the heatsink unit in the chassis and reassemble.
- u. Reconnect the DRIVE-OUT to

power amplifier coax (near the relay on the bottom board).

- v. Reconnect the speaker connector.
- w. Replace top and bottom covers.

Results

This modification has not disrupted any relay-timings or introduced stray reactance into the transmitter chain, so the transceiver should work at least as well as it did before the modification. Also note that the ATU has a by-pass relay actuated by the front panel switch — this was not indicated in the block diagrams for clarity.

You can try the unit out on various antennas and do S point comparisons with the ATU tuned and in-line against the ATU off-line.

*8 Hardy Place, Kambah ACT 2902
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being outside the passband of the CW operator's receiver.

This simple device will allow the netting of a transceiver where the transmit frequency and the receiver frequency are set by internal adjustments.

Try zero beating your CW transmission by listening on the "Netter Monitor". Then return to receive mode and listen to the "Netter" signal, noting the pitch of the received signal. Adjustment of the RIT control will allow you to set the desired pitch for your comfort. Make a small pencil mark to reference the RIT position when operating in CW mode and you will find that you are calling that DX station very close to his calling frequency.

On SSB the transmitter carrier and the received signal should be in zero beat.

The crystal from my junk box was on 7070 kHz. You may find a suitable crystal in your junk box. The antenna is a short whip about 300 mm long. The headphones are low impedance types.

(The circuit is similar to the heterodyne frequency meters of a bygone era.

Maybe you could drag out the old BC221, dust it off, and use it as a "Netter Monitor". If you do not have a BC221, then try this simple project. Any in-band crystal will do. In effect you are calibrating your RIT. Tech Ed).

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Try This

A Netter Monitor

Vic Kitney VK7VK* describes a useful accessory for the amateur station

Here is a simple gadget that allows you to net or monitor your signal. From time to time one hears stations that are not on frequency during

network operation. Listening to CW stations this becomes even more noticeable. It is possible that many calls are missed due to the caller

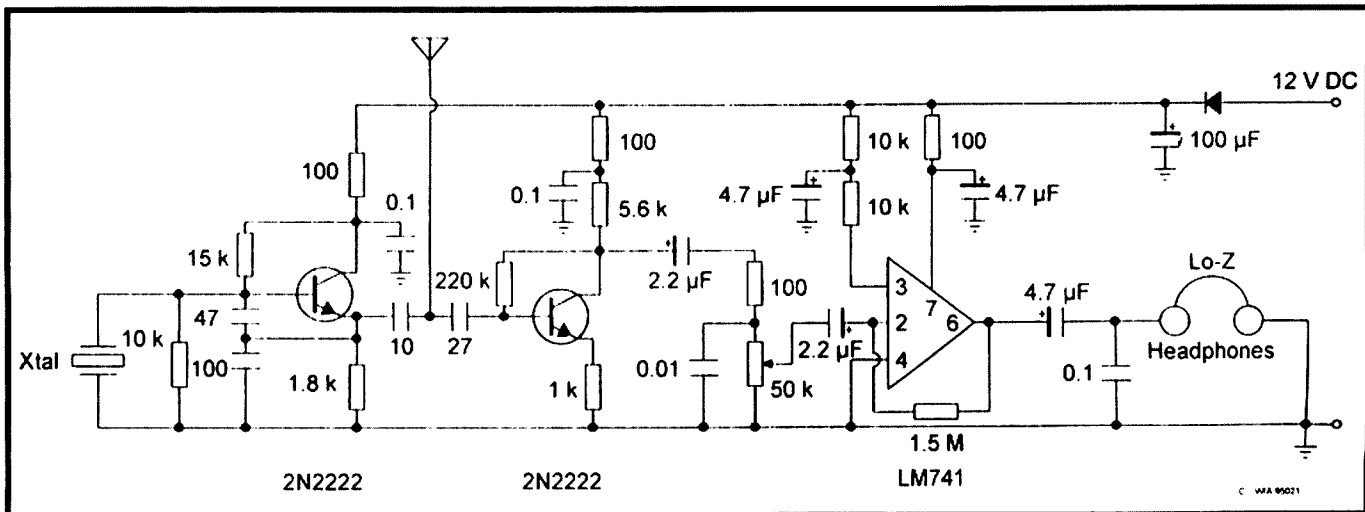


Fig 1 — Circuit of the Netter Monitor.

ALARA

Sally Grattidge VK4SHE; ALARA Publicity Officer

YLs Meet at North Queensland Convention

VK4 YLs took advantage of the North Queensland Convention in Townsville to have a YL Meet. At this Convention non-radio activities are always organised by the local YLs under the direction of Ann VK4MUM with XYLs of visiting amateurs in mind.

Around twenty ladies took part in the various activities, those with callsigns being Evelyn VK4EQ, Joscelyn VK4JJ, Merrell VK4HAJ, Bev VK4NBC, Robyn VK4RL, Sally VK4SHE, Cheryl ZL2VCC, Ann VK4MUM and Mary VK4PZ.

Friday night was a meet and greet evening at the Hermit Park Hotel. All met again at James Cook University the following morning to view the various displays, check out the car boot sale, enjoy a cup of tea and attend the opening of the Convention.

In the afternoon, while some stayed to hear Christine Goode speak, others climbed aboard a mini bus to see the sights of Townsville which included a visit to the Military Museum at Kissing Point, a trip to the top of Castle Hill and afternoon tea by the Marina. All, including the locals, were impressed by the knowledge of driver and tour guide Roger Fraser.

Saturday night was a buffet dinner at the Showgrounds. For many years the Convention was famous for its "Amateur Hour" where various clubs and groups provided after dinner entertainment. This once popular part of the weekend had gone into something of a decline, so the local ladies decided to try and revive it.

In spite of much of the local talent either being out of town or unwilling to make an exhibition of themselves, Jeanette Mann, Ann VK4MUM, Sally VK4SHE and Evelyn VK4EQ dressed up circa World War II clothes and gave a fairly tuneless and totally unrehearsed rendition of some wartime songs plus Waltzing Matilda, with much needed help from Bob VK4WJ.

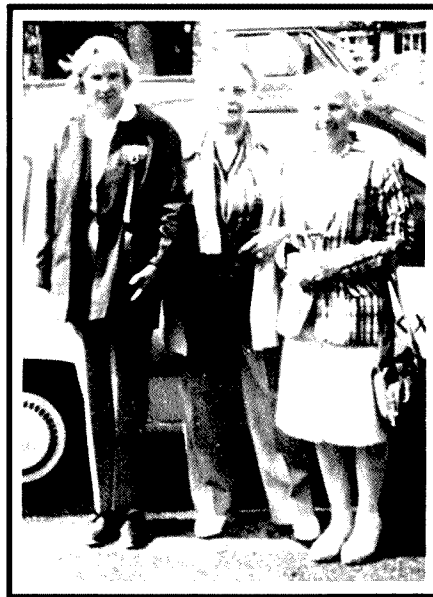
Sunday morning the bus took the YLs to see the antique showrooms. Then to the Cotters Market in Flinders Mall before returning to James Cook for a barbecue and the famous auction of ancient computer parts and cardboard boxes full of strange things which only dedicated home brewers appreciate. The ALARA display was set up with VK4DOL perched on top with her miniature radio. This must have caught the eye of one of the roaming TV camera operators as it appeared on TV that night.

Greetings From Germany

Anny Schwager DF2SL sent her good wishes to ALARA for the 20th Birthday. She also sent the photograph of herself with Lia WA2NFY from Rochester, USA, and Olive VE7ERA from British Columbia, Canada at "Ham Radio" in Friedrichshafen.

QSL Cards

Ron VK4BG has very kindly donated his collection of 50 YL QSL cards which will be passed on to our historian Deb VK5JDM. Here are two of the more amusing designs.



Anny Schwager DF2SL, with Lia WA2NFY from Rochester, USA, and Olive VE7ERA from British Columbia, Canada at "Ham Radio" in Friedrichshafen.

Early Women in Radio

Christine Taylor VK5CTY and Denise Robertson VK5YL

Freda VK2SU wanted to get into the army with some special qualifications so she attended Mrs MacKenzie's Morse classes. The army welcomed her with open arms and set her to reading Morse messages.

She spent the WW2 years writing down cipher groups from all over the world. She, and others like her, had no idea what information they were receiving, but they had to be extremely accurate. The messages they recorded were sent to another section to be deciphered and errors could have made quite a difference.

OP: Patsy "Pat" Hembree

WB4SVU

10-10#
17645

Patsy Hembree, 2911 Walmar Drive, Knoxville, TN 37920

EA3AIN

S P A I N

OM QRM FAMILY XVL

TO RADIO	DATE	GMT	Mc	RSI	Mode
VK4BG	9.9.78	05.50	14	59	LX SSB

RIG: R4C, T4XC, LINEAR 1KW P.E.P., ANT 3 elem. YAGI
 Op. JORGE ALEMANY PSE QSL TNX
 2° Op. CELIA MILLAN TNX Contact 450 Best 73 and DX
 P. O. Box 59 - MOLLET - (BARCELONA) 73+88 Celia

Once things had settled down after the war, Freda got her amateur licence but, because she had only had to receive for so long, she had little confidence in her ability to send Morse. However, long before the days of computers, a friend made a device to connect to her ordinary typewriter that converted keystrokes into Morse signals. With this device Freda became more active on the amateur bands.

One of Freda's first contacts was Mavis VK3KS. Later Brenda VK3KT and Denise VK5YL (originally VK1YL) joined the group along with Gwen VK3DYL and Moira VK3xxx?. Both Freda and Brenda reared six children and both lived in the country. Freda grew fruit trees, and all of Brenda's family now have licences.

Denise VK5YL got her licence in 1954 (after operating somewhat illegally while her husband was overseas, as a means of keeping in touch with him). She was the first amateur licensed in the ACT and it took nearly a year for her official licence to come through after she passed the exam. This was partly because, although her OM David had been licensed for many years in VK5, which licence he still retained, he and Denise were in Canberra so there was some confusion about the station licence.

At this time there was only provision for one operator per station which meant that either David or Denise would be using the station illegally. Sorting this out was another reason for the long delay.

Shortly after obtaining her licence Denise went to the US for a couple of years. At that time there were no reciprocal licensing arrangements, so both Denise and David were prohibited from operating.

During their second period in the US several years later, there were reciprocal licences but overseas operators had to use their home call signs with the appropriate suffix. This created enormous problems, particularly for Denise with a VK1 call sign. No-one over there had made a VK1 contact, so they all wanted to do so without waiting to hear the suffix and realise the operator was less than a hundred miles from them instead of half a world away. Up to ten stations all calling at once on CW and all continuing to call in the hope of outlasting the others so as to be the call sign that was heard in its entirety does not make for comfortable operating.

Denise overcame this problem by sending to a particular amateur using crossband operation. That way she could call and talk to him while ignoring all the stations calling on her transmit frequency because she could not hear them. This

technique worked but it meant that Denise did not increase her number of stations worked at all.

Freda's husband was not an amateur when Freda first became licensed, though he was interested in electronics. He later took out a licence but never operated much. Freda and Denise still have regular skeds. Denise's OM David was licensed in the 1930s and had a shack in the back yard when they were married. He was, and still is, by preference a CW operator. His equipment stayed in Adelaide when they went to Canberra where he had some disposals gear which was CW only, so that was what Denise learned first and probably why she still prefers that mode. Mavis's OM Ivor began as a CW operator and both he and Mavis prefer that mode.

Denise, and possibly others of the early women in radio, question the value of ALARA, arguing that having a separate organisation is counter-productive in that we cease to be just amateurs like all the other amateurs and become a different group of amateurs. To counter that, it could be argued that amateur radio has always been fraught with differences and divisions, such as CW versus telephony, HF versus VHF, and now ATV, packet, repeaters, RTTY, AMTOR, FAX and so on for all the other special interest groups.

Joy VK7YL

Joy first became interested in amateur radio in 1934 when a distant cousin and former neighbour, Ray, now VK7RK, enthused about his hobby.

Joy was invited to visit a shack, and was hooked! She joined an AOC class in February 1935, one girl in a class of 15 boys, but she passed. First she built a superhet receiver followed by a three stage bread-boarded transmitter which put her on air at last with 25 watts of power.

Her aerial masts were lengths of 4x4 Oregon spliced together to make two 95 foot masts. A centre fed Zeppelin aerial strung between the two masts gave her excellent service.

In those days your transmitter was crystal locked so, after calling "CQ", you tuned around to find an answering station, usually choosing the strongest for your QSO.

In the next three years before WW2 broke out, Joy contacted 87 countries and made many radio friends. She later married her AOC instructor, Jack, and both of them had active radio lives.

Joy still lives in VK7 and counts her radio friends among her best.

**C/o PQ Woodstock, QLD 4816*

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AWARDS

*John Kelleher VK3DP — Federal Awards Manager**

A question was raised recently concerning the minimum signal reports necessary to confirm contacts for DXCC purposes. In the past, the minimum required was RS 33 or RST 339.

I have been advised from a very reliable source that these parameters are no longer required, which may lead to some confusion. Daily, I hear stations worldwide still swapping signal reports. Are they wasting their time, in following old and essential methods, or are we to follow the new system, which may lead to erroneous claims, or are we to stick to the tried and true method? With ionospheric conditions the way they are, many would consider any contact, even down to 22 or 229 as sufficient.

Information had been forwarded to me by mail from Gary ZL1KJ and John VK4AU, specifying Rule 4 (which I published earlier). The confirmation data was identical on both submissions, but the 1992 version showed an RS(T) column on the DXCC application form, whereas the 1993-1995 showed no such column.

Therefore, I faxed the ARRL for clarification of this apparent anomaly. I received a reply dated 16 September from Bill Moore NC1L, DXCC Supervisor for the ARRL, which stated:

Here is the text of DXCC rule 4 which concerns confirmation information.

"Confirmation data for two-way communications (ie, contacts) must include the call signs of both stations, the country, mode, and date, time and frequency band."

For DXCC purposes there is no direct notation for the use of a signal report.

Austrian Special Event Award

From Dr Ronald Eisenwagner OE3REB, President of OVSV, in conjunction with the Austrian communications authorities, and the ITU, comes a Special Event Award to commemorate the Austrian millennium, in 1996.

All Austrian amateurs have been granted access to the special prefix OEM

from 0000 UTC 1 January 1996 until 31 December 1996. This prefix will be used on a voluntary basis and will count as OE for DXCC purposes. The Award has been divided into two sections, as follows.

WOEM — Worked OEM

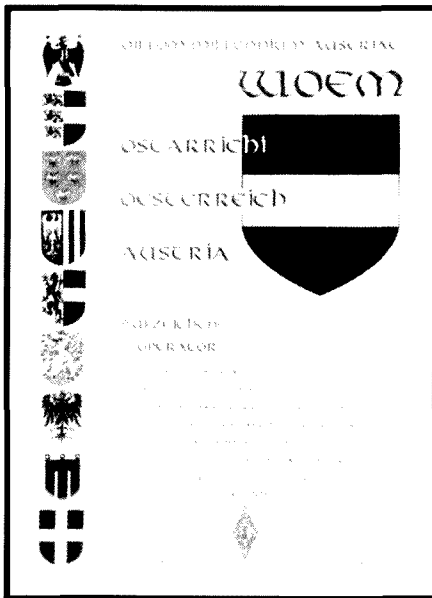
This Award applies to all licensed amateur radio stations and SWLs under the following conditions: European countries to contact 20 different OEM callsigns of which at least three must be from OEM 1 and OEM 3 call areas; and countries outside Europe must contact 10 different OEM callsigns, with at least two from OEM 1 and OEM 3.

WOEM — Worked 1000 OEM points

1000 points are required. OEM 4-7 and 9 stations rate as 20 points each; OEM 1-2-3-5-6 stations rate as 10 points each; and OEMnX stations (club stations where the first letter of the suffix is X) rate as 30 points each. A minimum of five different callsign areas must be worked. All bands and all modes are valid for this award.

Please send your applications/GCR list with 10 IRCs or \$US10.00 to: OVSV, Diplommanager, Theresiengasse 11, A-1180 Vienna, Austria.

Your participation in these two awards is very welcome, and you are free to apply for mixed or single-mode operation. Applications may be certified by two other amateurs, or by the Award Manager of your national society.



The WOEM — Worked OEM Award.

The TAD (or Ten American Districts) Award

The Lockheed ERC Amateur Radio Club (W6LS) is pleased to offer the TAD award to recognise operating achievements. It is available to all licensed amateurs and amateur radio clubs.

Contacts are to be made with all ten American callsign areas, and must have

been made from the same callsign area. However, all contacts do not have to be from the one location in that callsign area.

KH6 — Hawaii is 6 area, while KL7 — Alaska is 7 area. Contacts can be made to, and/or from, fixed, mobile, portable, or fixed/portable stations. Cross-band and cross-mode contacts are acceptable. If your callsign has been changed, contacts with your previous callsign are still accepted as long as they were made from the same callsign area. Hand-printed endorsements will be added to the award for code, one-band, OSCAR, QCWA, QRP RTTY, SSTV, YL, 10X and any other special operating achievement under which the award is earned.

Each application must be accompanied (in the case of DX operators) by a fee of \$US3.00. A verified list is preferred to QSL cards. The list must show all pertinent information including other station callsign, date, time, mode, and band or frequency. The list must be validated by an elected official (other than the applicant) of an amateur radio club, or two other licensed amateurs.

All TAD applications should be sent (not registered mail) to Bill Welsh W6DDB, 45527 3rd Street East, Lancaster, CA 93535-1802 USA. If you require the actual application form, I would be pleased to run a few off the copier, in exchange for a SASE.

**PO Box 2175 Caulfield Junction 3161*

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Club Corner

CW Operators' QRP Club

The CW Operator's QRP Club would like to thank all those amateurs who took part in the QRP Weekend on 17 and 18 June 1995, in what was the second year of the Club's contest to mark **World QRP Day**.

Congratulations to the first three place getters, Bill VK2FKE who came first with 367 points, Tom VK7LF second with 220 points, and Greg VK2CW third with 124 points.

Most people who participated seemed happy with the event, but we were grateful for comments on possible changes to make the occasion more interesting.

Once again, many thanks to you all and we look forward to your help next year.

Ian Godsil VK3DID

Awards and Contests Manager

Gold Coast Amateur Radio Society Inc

The venue for the Society's 18th Hamfest on Saturday, 11 November 1995

is again at the Albert Waterways Community Centre on the corner of Hooker Boulevard and Sunshine Boulevard, Mermaid Waters.

Doors will be open to the public at 0900 hours; exhibits can be set up from 0730 hours.

The Organisation Committee invites participation in this annual event by displaying and offering for sale goods and equipment, or just promoting your club and hobby interest. The charge for exhibitors is \$15.00, and two free entry passes will be given to each exhibitor.

For any queries, please contact Rosmarie or Jim Scholz on (07) 55251 886.

Jim Scholz
Club President

Adelaide Hills Amateur Radio Society (AHARS)

The club's annual electronic sale will be held on Saturday, 18 November from 0930 to 1400 hours. This is the Buy and Sell event of the year!

The venue is again the Westbourne Park Memorial Hall at 390 Goodwood Road, Westbourne Park, 300 metres south from the Cross Road intersection.

This is the day to get rid of that surplus gear or to find the odd special component you need. Apart from the trading, you will have the opportunity to have a friendly chat with your amateur radio colleagues. This year not only will the ALARA ladies provide refreshments, but they also intend to set up a trading table of their own special wares.

Those interested in selling gear must book table space by telephoning Geoff Taylor VK5TY on (08) 293 5615. The doors will open for trading at 9.30 am, but selling vendors should be there at 8.30 am to prepare their tables. The Club will charge a commission of 10% of gross sales with a maximum of \$10.00 on any one item. All sales are by negotiation between the buyer and seller.

As in previous years, Hans VK5YX will be there with his test gear to help you make simple checks on your selected components.

This is an event you should not miss. We look forward to seeing you there.

Lloyd Butler VK5BR
Vice President AHARS

Summerland Amateur Radio Club

Computer EXPO number four is on the way, and it's going to be bigger and better than ever.

It will be held at the Lismore City Hall on Saturday, 25 November from 9.30 am to 4.30 pm. The many displays will include the latest in computers software and electronics, as well as Internet Link and amateur radio demonstrations.

Local and interstate distributors will be there. Bring and Buy tables will be set up to help in the exchange of pre-loved gear. Lucky door prizes will be awarded throughout the day, and refreshments will be available.

Admission will be \$2.00, or \$4.00 per family.

Further information can be obtained from Rick VK2EJV via the Club packet BBS, VK2RPL-2, or phone 066 895 137.

Graeme VK2GJ
Publicity Officer

Australian Naval Amateur Radio Society (ANARS)

ANARS had a standard "display" stand and was the only service organisation represented at the Sunfest, Nambour. The event was held on 2 September at the showgrounds, an excellent venue, totally undercover with undercover car parking as well.

There was a first class display of WW2 and recent military equipment, mainly Army by a private group. As a consequence we had a constant stream of visitors at our stand including many ANARS members and AFARN members.

Extremely complementary comments were received, and much appreciated, from WIAQ executives regarding ANARS being the fastest growing and almost the largest Service Organisation within Australia.

Additionally, the praising comments received regarding V150NAVY and its overall contribution to the Australia Remembers celebrations were appreciated. Much praise is due to all those ANARS members who contributed to the success of this activity.

Jon VK4CY
Treasurer

Radio Amateurs Old Timers Club (RAOTC)

Seventy five members and friends attended the luncheon at the Bentleigh Club on Tuesday, 12 September. They

heard a most interesting talk about the development of the Northrop B2 "stealth" bomber, which was designed to be nearly invisible to radar, infra-red or other possible electronic counter measures.

The speaker was Dr John Cashen who now lives and works in South Australia.

Before moving there in 1993, John was vice-president in charge of the bomber program and its principal scientist.

He is a keen amateur and has held many call signs, his current ones being VK5AI and VK8AI. His wife is also a keen amateur. ar

AMSAT Australia

Bill Magnusson VK3JT*

National co-ordinator

Graham Ratcliff VK5AGR

Packet: VK5AGR@VK5WI

AMSAT Australia net:

Control station VK5AGR

Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):

Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/- QRM.

AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

near the Canadian border, a "hunk a wire" would work out there".

It's marvellous how quickly one forgets. I recall stressing this point in my satellite beginner series some years ago. It seems that many writers will include their very best pictures, their very best test results and perhaps leave out vital details like location. Try to duplicate these results in a noisy city suburb and you are doomed to failure. You may even have, as I do, an effective horizon of 20 degrees in some directions. Eventually, the only antenna that came anywhere near the published results was a 14 element circularly polarised Yagi on my auto-track az/el mount. A far cry from the omni-directional antennas written up in the original article.

Moral

Always try to ascertain the locale and prevailing conditions at the time of testing. A good writer will publish these details along with the text. Antenna matters are emotional matters. They touch all amateurs and certainly all satellite users. Many readers will be newcomers who may not have a wealth of experience to call upon in evaluating the claims made in an article.

Appeal to Technical Writers

Report your failures as well as your successes particularly where antennas are the subject. As a veteran of many mountain top expeditions I can confirm that nearly anything will work given the right location. But, how many of us live on a remote mountain?

Dove "S" Mode Beacon

The beacon on 2401.22 MHz has been turned off but may be on again soon. I find this beacon handy for testing "S" mode gear. It is very loud. A simple ground plane consisting of a 30 mm piece of wire soldered to a BNC connector on a small piece of circuit board will receive the beacon quite well.

AO-13 Schedules 1995/6 from the Command Team

I'll print this message in its entirety as AO-13 is expected to re-enter and burn up

Don't Believe All You Read

Over lunch with some amateur friends I was bemoaning the fact that no matter how hard I tried, I could not seem to duplicate the results claimed in some written articles. I thought it was just me but one by one they reiterated similar experiences. My most recent episode was to do with omni-directional antennas for weather satellite reception. I had just about run the gamut of different types. Turnstile, J Pole, Lindenblad, Egg-beater, Quadrifilar Helix. All had been recommended by various authors but all had problems, some serious enough to render the antenna unusable.

In my frustration I sent out a "feeler" over CompuServe about one particular design. This brought the usual batch of responses, many concurring with my experience. One respondent solved it in a single sentence. "Yeah, I know that guy, he lives on a remote mountain ridge up

WIA News

What a Lad!

At the age of eight, Ved Kemat of Sydney is Australia's youngest licensed radio amateur.

Sporting his new Novice grade callsign of VK2LAD, Ved can be found on the HF and VHF Novice bands.

Ved progressed from an interest in electronics at the age of six, when he was given a hobby electronics kit, to his Novice licence in two years, according to his proud father.

Ved plans to study electronics, according to a report, with his photograph, featured in the September issue of Australian Electronics Engineering.

Meanwhile, in the United Kingdom, the Radio Society of Great Britain (RSGB) has awarded the Young Amateur of the Year Award to 16 year-old Leroy Kirby GW0ULC, from Cardigan in Wales.

According to the RSGB *Press Bulletin*, the lucky lad received a cheque for 300 pounds from the Radiocommunications Agency, the UK licensing authority, who also gave him a conducted tour around the Agency's Radio Monitoring Centre at Baldock. The RSGB gave Leroy a Sony general coverage receiver, among a number of other prizes.

Leroy is Vice-Chairman of his local YMCA amateur radio club and active in his local radio emergency service. His main interest is packet radio and he helped set up a new bulletin board in his area.

The RSGB's Young Amateur of the Year runner-up was 15 year-old Charles Banner G7UBA/2E1CHY, from Birmingham. He won a 50 pounds cheque from the Radiocommunications Agency, and an Icom handheld transceiver, among other prizes.

The NZART runs a similar award scheme for young amateurs and the WIA Federal Council is considering proposals for introducing a similar scheme in Australia.

in Dec 1996. Many operators will be watching this bird's last months and days with great interest.

The planned attitude schedule for Oscar 13 during 1995/6 is:

Date [Mon]	Alon/Alat	Weeks
1995 Jul 31	225/0	13
1995 Oct 30	180/0	9
1996 Jan 01	220/0	13
1996 Apr 01	180/0	10
1996 Jun 10	220/0	tba

The sun aligns with the apogee/perigee line twice a year, and if we were to keep the attitude at 180/0, the solar panels would receive no sunlight then. That's why there are periods of Alon/Alat 220/0, ie 40 degree off-pointing. The session beginning June 10 1996 will also last for about three months. After that, September 1996, perigee height will be 170 km and re-entry effects will already be noticeable.

Full details of OSCAR-13's re-entry, between 5-12 December 1996, can be found in:

- Proceedings of the 12th annual AMSAT Space Symposium, Orlando, Florida, USA, 1994. 4 pages.
- OSCAR News (UK) 1994 Oct No. 109 p 16-20
- JAMSAT Newsletter (JA) No. 166, 1995 March 25. p1-4
- AMSAT-DL Journal (D), Jg. 22, No. 1, Mar/May 1995.
- AMSAT OZ Journal (OZ) No. 37, 1995 May
- The AMSAT Journal (USA) Vol 18 No.3, May/June 1995.

The updated article and program listing is available via the Internet by anonymous FTP: Site: ftp.amsat.org ; File: /amsat/articles/g3ruh/a114.zip (it makes interesting reading).

Mode Schedule

QST *** AO-13 TRANSPONDER SCHEDULE *** 30 October 1995 — 1 January 1996

*** PROVISIONAL ***

Mode-B : MA 0 to MA 70	
Mode-BS : MA 70 to MA 110	
Mode-S : MA 110 to MA 112	<- S beacon only
Mode-S : MA 112 to MA 135	<- S transponder; B trsp. is OFF
Mode-S : MA 135 to MA 140	<- S beacon only
Mode-BS : MA 140 to MA 180	Alon/Alat 180/0
Mode-B : MA 180 to MA 256	Move to attitude 220/0, Jan 01
Omnis : MA 230 to MA 25	

"AMSAT Never Tell Us Anything" Department

Please don't rely on gossip and rumour! Continuous up-to-date information about AO-13 operations is always available on the beacons, 145.812 MHz or 2400.664 MHz, in CW at 0 and 30 minutes past the hour, RTTY at 15 and 45 minutes past the hour and 400 bps PSK otherwise. These bulletins are also posted to Internet, ANS, packet, PacSats etc, and many international newsletters.

A 400 bps PSK decoder is available from G3RUH and several DSP products; display software (MS-DOS) P3TLM, WINSAT, P3C.EXE; (RiscOS) !TLM13, etc from AMSAT groups.

Internet users wanting the latest AO-13 information should check ftp://ftp.amsat.org/amsat/satinfo/ao13/ and http://www.amsat.org/amsat/. Telemetry is archived at ftp://ftp.amsat.org/amsat/satinfo/ao13/telemetry/.

The active command stations are listed below, and constructive feedback about operations is always welcome. Peter DB2OS @ DB0FAU.#NDS.DEU.EU James G3RUH @ GB7DDX.#22.GBR.EU Graham VK5AGR

They may also be reached via Internet (callsign@amsat.org) and KO-23. Please

remember to state clearly a return address. Notes prepared on behalf of, and in co-operation with the above by James Miller G3RUH.

Ham Radio to Mars

The Jet Propulsion Laboratory in Pasadena, California will be launching a replacement for the ill-fated "Mars Observer", called the "Mars Global Surveyor", in the latter part of 1996. Among the many experiments carried on the spacecraft, the Mars Global Observer will carry a 1.3 watt continuous carrier beacon transmitter on 437.100 MHz. Amateur radio operators will have the ability to receive this beacon using their OSCAR satellite ground stations while the spacecraft heads off to Mars. [Info via Michael R Owen, W9IP]

If you are concerned about how easy or difficult it will be to follow this beacon, may I suggest that you read James Miller's article "The Earth Moved" in AMSAT-UK "OSCAR News" for April 1994 in which he discusses the problems associated with placing a beacon on the Moon.

*359 Williamstown Rd, Yarraville VIC 3013
Packet: VK3JT@VK3BBS.#MEL.VIC.AUS.OC
CompuServe: 100352.3065

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Divisional Notes

Forward Bias — VK1 Notes

Peter Parker VK1PK

Technical Symposium a Success

The VK1 Technical Symposium, held on 23 September, was a success, although attendance was down on last year. Those present (some of whom came from as far away as VK5) heard presentations on data communications, QRP techniques, and the new TLSs. Thanks to Megan Jackson for providing the sumptuous food.

Amateurs Get Free Seats at Rally

Canberra amateurs are to receive free ringside seats at the annual Esanda Car Rally, to be held during 19, 20 and 21 November. The VK1 Division is once again supporting this event by providing radio communications, and seeks the involvement of local amateurs — a minimum of 60 are required.

While rally communication has been in the planning phase for some time now, it is not too late to volunteer. All you need is a mobile or handheld 2 m or 70 cm FM transceiver and a few spare hours over the weekend of the rally.

Remember when you wrote to your local member earlier in the year to protest against the increases in licence fees? You probably mentioned the role amateurs played in providing communications for emergencies and community events. Well, now is the time to translate words into action by doing your bit for rally communications. As there are just a few weeks left, please contact our Secretary, Len VK1NLJ, on (06) 296 2097 urgently to register your interest in this event.

Belconnen Tour Well Patronised

September's trip to the Belconnen Naval Radio Station was a great success, with 21 people in attendance. Those on the tour saw the AWA 40 kilowatt transmitter, a more modern 10 kilowatt transmitter, and witnessed arcs being drawn off the guy wires. When the 44 kHz low frequency transmitter was switched on, those present saw 300 amps of antenna current being drawn. Thanks to Keith VK1KG and Peter VK1KEP for organising the tour.

VK1WI now on Internet

Further to the news in last month's *Forward Bias* of the inauguration of the

VK1WI Packet News Service, the VK1 Division is pleased to announce that the weekly VK1WI Broadcast is now also available on the Internet. You will find it either on the aus.radio.amateur.misc newsgroup, or on the unofficial VK1 Divisional Home Page on <http://email.nla.gov.au/~cmakin/wiaact.html>. The new service further enhances the availability of VK1WI Amateur Radio News to amateurs and potential amateurs around the country, and is part of an integrated effort by this Division, encompassing print, broadcasts, packet radio, and now Internet to better publicise its member services and achievements.

Just a reminder that other Divisions are welcome to use VK1WI material if the source is acknowledged. Contributions to the VK1WI Broadcast can be sent by packet radio to VK1PK @ VK1KCM.

VK2 Notes

Richard Murnane VK2SKY

Council Changes

Ian Rosser VK2XB stood down from his position on Council recently, citing family commitments. We'd like to thank Ian, among many other things, for the Trojan work he has done to bring the NSW Technical Advisory Committee files up to date. Few people appreciate just how much work falls on the shoulders of our elected Councillors, a job made no easier by the necessity to travel to Sydney on a regular basis.

We'd like to welcome to Council the next highest-polling Council candidate, Geoffrey McGrorey-Clark VK2EO, who has taken on the job of continuing NTAC's service to members.

Tower Update

As mentioned before, the NSW Division of the WIA is taking action to ensure that the antenna siting guidelines proposed by Ku-Ring-Gai council do not adversely affect the interests of radio amateurs in the area and, equally importantly, that other councils do not attempt to introduce similar measures. To this end, the Division has filed for a hearing in the Land and Environment Court, and a date has been set for early next year. In the meantime, Divisional President Michael Corbin VK2YC (who became Mayor of Blacktown following the recent local government elections) is consulting with the Mayor of Ku-Ring-Gai on the matter. Politicians can be useful to have around sometimes!

Correction

When I announced that the NSW Division was now active on Internet, apparently a typographical error slipped into our address. The correct address is: wiansw@sydney.dialix.oz.au. Several clubs have been taking advantage of the facility to submit news items for the Divisional news broadcast.

Broadcast Tips

Just a few pointers for those of you who submit new items for the broadcast:

- Whatever means you choose to submit your news item (post, fax, packet, or Internet), please remember you must do it by close of business on the Friday preceding the broadcast (contrary to popular belief, we Divisional volunteers have better things to do on a Saturday night than make late changes to the broadcast text!).
- Write your news items using the exact words you'd like the announcer to use when speaking to the listeners. Imagine it being read on the ABC news. Avoid abbreviations and tables of data, and the use of "I" and "we". Your news item will be presented more clearly if the announcer doesn't have to interpret it on the fly.
- If sending your news item by fax, use a large typeface (12 point or greater) and a sans serif typeface such as Arial or Helvetica, like the text you're reading right now. Fax machines transmit these much more clearly than more ornate typefaces (remember, the easier it is for the announcer to read, the better s/he will read it.)
- Please double space the text, and leave wide margins, to allow room for any corrections or announcer's notes, and print on one side of the page only. Ideally, your news item should be limited to one page.
- Don't forget to provide contact details for people who want to find out more about your new item.

Thought for the Month

"Imagination is more important than knowledge" — Albert Einstein.

VK3 Notes

Murray Lewis VK3EZM

VK3BWI Broadcast Assistance

The regular broadcast of news through VK3BWI relies on the assistance of a WIA member who was not mentioned last month. Garry Furr VK3KKJ has consistently helped with the technical side

of the broadcast productions. Our thanks to Garry, who is one of the "quiet achievers".

Intruder Watch

Intrusions on the exclusive amateur bands have frequently been mentioned on the VK3BWI broadcast. However, within VK3 there have been few Intruder Watch observers. A list of persistent intruders and Intruder Watch Observation Log Sheets are available on request from the WIA Victoria office. Perhaps you could assist as an observer, and help to protect the exclusive amateur HF bands from intrusions by commercial, military, broadcast, and other non-amateur stations.

Federal Convention

Secretary, Barry Wilton VK3XV, represented WIA Victoria at the WIA Federal Convention held in Melbourne late in October. Several important issues were discussed, including projected cost increases in the production of *Amateur Radio* magazine. In addition, the results were presented of the WIA Victoria survey of members concerning their views on retention of Morse code as a mandatory requirement for amateur licensing. A well

documented case for extension of the 80 metre DX window was also given to the WIA Federal Liaison Team for presentation to the SMA.

Repeater Network

WIA Victoria claims that Victoria has the best repeater network in Australia, and largely bears the cost of licences, site fees and maintenance. Recently the SMA advised that, in future, repeater licences will be charged on an assigned frequency basis. After a thorough investigation of all our repeater licences for this state, the number of frequencies allocated to each licence has been rationalised, and unwanted frequencies have been deleted. At present, no repeater services will close, but maintenance costs will continue to be closely monitored. Barry Wilton VK3XV, who is Secretary/Manager, is currently negotiating with the SMA about a number of issues which have not been resolved.

VK6 Notes

John R Morgan VK6NT

August General Meeting

The advertised lecture concerning coaxial cables had to be postponed, but Gwynne Brockis VK6AJG, at very short

notice, devised a most informative presentation about an old enemy, lightning.

During his presentation, Gwynne encouraged members of the audience, some of whom have long service in the telecommunications and broadcasting industries, to comment on their experiences of lightning. Thanks to Les VK6EB, Don VK6HK, Neil VK6NE, Bob VK6PO, Will VK6UU, and numerous others, for their hair-raising tales and sound practical advice.

The VK6 Division meets on the third Tuesday of each month, at the Westrail Centre, East Perth, commencing at 8 pm. The bookshop and QSL bureau open at 7 pm. All interested persons (members and non-members, licensed or listener, and even the under-fifties!) are encouraged to attend. Free coffee and biscuits are available at "half time".

Unfortunately, work-commitments forced me to miss the September GM, at which the speaker was our Federal President, Neil Penfold VK6NE.

AGM of WAADCA

Sixteen members of the Western Australian Amateur Digital Communications Association Inc. (which

WIA News

13 cm band Getting Crowded

EUROPEAN standards organisations are nearing finalisation of a new standard for "wireless" computer networking, which involves linking computers via low power radio transceivers rather than copper wire cables.

The problem for the radio amateur community is the new standard proposes the transceivers operate between 2.4 and 2.5 GHz. The 13 cm amateur band spans 2.3 to 2.45 GHz. The only saving grace is, the wireless computer network transceivers will have to share the allocation with microwave ovens.

In Europe and in Australia, the 2.4-2.45 GHz band is assigned as an Industrial, Scientific and Medical (ISM) band. The microwave multipoint distribution service (MDS) for pay television

uses the 2.3-2.4 GHz band, which amateurs share as a secondary service.

The new standard, known as IEEE 802.11, takes advantage of a defence-developed technology which is largely immune from interference. The computer network transceiver monitors the frequency band for interfering signals and transmits on a clear channel. If interference subsequently appears, the transceiver switches through a series of new channels until it reaches one clear of interference. The receiver of the computer on the other end switches through a matching series of channels along with it until connection is re-made.

With many computers involved in a network, chaos would reign with all of them attempting to exchange data at the same time so a technique known as collision avoidance is used. At the high

frequencies used, high speed data exchange is possible and the new standard accommodates a data rate of two megabits per second. The wireless network transceivers use powers in the milliwatt range, giving a range of 100 metres within a building, according to reports. Only simple, omnidirectional antennas are used.

The Californian arm of Philips semiconductors, in Sunnyvale, have developed ICs specifically for the application and expect them to be used in add-on wireless networking transceivers or internal PC cards. Mass production is expected to push wireless transceiver prices to under \$200.

Australian standards in many areas of electronics and communications are generally based on or equivalent to comparable European standards, so we can expect this wireless local area network standard to migrate to Australia.

Robin L Harwood VK7RH

It is with regret that I inform you of the death of two key individuals who have made significant contributions to amateur radio within VK7. Early in September we lost Charles Harrison VK7CH who was the QSL Manager for VK7 until a few years ago. He filled this position for over 50 years, I'm told, which must be a record. "Snowy", as he was better known, was primarily on the key and disliked microphones. However, I remember I did manage to work him once on AM when he operated /MM about 20 years ago. I believe, as well, that his father was wireless operator on Mawson's Antarctic voyages, early this century. He was also a Life Member of this Division.

John Grace VK7ZJG also made a contribution to the weekly VK7WI Divisional broadcast by providing a relay on 144.1 MHz SSB for about 20 years. He was a regular and many amateurs and SWLs relied on John's SSB signal to tune up their gear on the Sunday broadcast. His cheery voice will be sadly missed on two metres. Divisional Council wishes to send their condolences to Kath, his widow, and Richard VK7ZRG, his son, at this time. A memorial service at Hobart's Wesley Church on Friday, 29 September was well attended and included many amateurs.

In last month's column, mention was made of the need for a seminar on problems with packet radio within VK7. On 16 September a very small group of Northern packet users organised an unofficial meeting to address problems with packet in that region. However, the attendance was extremely poor. The results of the day's deliberations are to be written as a paper for further discussion by Council and circulated to the packet community statewide. Whether a statewide packet seminar is ever held will be determined at the next Divisional Council meeting. It was pointed out at the small gathering that, in many respects, packet has been overtaken by the Internet, as it is much quicker to obtain information via this medium than through packet.

The October meeting of the Northern Branch was held at the Launceston Ambulance Centre, thanks to Ian Hart VK7KIH. Other activities during the month included participation in JOTA '95. The Northwestern branch hopes to install a new packet digipeater, south of Burnie, on 147.575 MHz. They are presently awaiting SMA approval. Visiting hams are continuing to pop in to the Southern Branch's Wednesday afternoon get-

Beacons on VHF/UHF

Don Graham VK6HK, on behalf of the West Australian VHF Group, advises that the VK6RPH beacon transmitters are once more operating continuously from Perth, sending approximately 10 W ERP on each of 50.066, 144.460, 432.460, and 1296.460 MHz. The beacons identify with "VK6RPH PERTH" every 10 seconds, using FSK on 1296, and "on-off" keying for the others. The omni-directional antennae (a "U" dipole on 6 m and 2 m, 4 x 3 elements on 70 cm, and an Alford slot on 23 cm) are at 23 m AGL (317 m AHD) on the STW Channel 9 television transmitter mast in Walliston, approximately 20 km East of Perth (OF88AA, 31 deg 59 min 57 sec South, 116 deg 04 min 15 sec East). The transmitters' AC supply is backed-up by the STW9 auto-start Diesel plant. Reception reports, please, to VK6HK, QTHR.

The West Australian VHF Group expresses its thanks to the management and staff of STW Channel 9 for their assistance in providing this prime location.

If You Have Material ...

All material for inclusion in this column must arrive on or before the first day of the month preceding publication. Packet mail may be sent to VK6NT@VK6ZSE.#PER.#WA.AUS.OC, or write to PO Box 169, Kalamunda WA 6076, or telephone (09) 291-8275 any time.



Jim Rumble VK6RU, the QSL manager for VK6, who recently received confirmation from the ARRL that he had reached the "Top of the Honour Roll" for phone DXCC.

is affiliated to the VK6 Division of the WIA) attended its AGM on Wednesday, 4 October 1995. The following volunteers were elected to serve on the committee: President, Phil Maley VK6AD; Treasurer, Charlie King VK6ZCK; Technical Officer, Peter Eaton VK6ZPE; Publicity Officer, Gwynne Brockis VK6AJG; Broadcast Officer, Terry Leitch VK6ZLT; and Equipment Officer, Rob Lamb VK6VP. The key post of Secretary was not filled. Bruce Robson VK6ABR and Frank Taylor VK6JK were thanked for their long service as Treasurer and Auditor respectively.

The meeting was most productive, in that it resolved the long-standing question of the Association's future. WAADCA does not have a large membership (64), and so is not "flush" with funds. The meeting therefore decided that it was time to adjust and re-state the Association's aims for the next few years: to encourage the use of all digital modes through the provision of education, and to return to the role of providing a forum for the promotion of co-ordination of digital activities.

Specifically, the meeting wished it to be known that, while it cannot bear the entire cost of installing and maintaining the numerous packet links which radiate into the country areas, it remains willing and able both to help co-ordinate these networks, and to provide an HF forwarding "hub" via its VK6WFH BBS, located at Wireless Hill in Perth.

In other words, WAADCA does not have the money, nor the active membership, to expand and maintain the packet networks in the country areas, so non-metropolitan stations had better assume responsibility for the provision and maintenance of links in their areas.

Finally, it should be noted that until the SMA releases the TLS for Repeaters and Beacons in December 1995 the Association's technical development program remains limited by the present out-of-date regulations. The same is true for WARG.

Remembrance Day Contest

It will, of course, be some time before the results of this year's RD Contest are published (*not so, John — see the Contest column in this issue. Ed*), but this year's "new rules" have caused a problem for VK6 stations on HF.

It would seem that contacts with VK6 stations were far less sought-after by the Eastern States entrants than in previous years, since there were no extra points for making the more difficult long-haul contacts across to Perth, Kalgoorlie, etc. This was particularly true on the noisy 80 m band. One member suggested that VK6 should be (for scoring purposes only, I hasten to say!) divided in two at the tropic.

together at the Domain Activity Centre. I am reliably informed that hams from as far away as the USA and Sweden have been popping in. Drop in between 12 noon and 5 pm local time for a cuppa and ragchew every Wednesday.

Incidentally, I received a query from the NSW Division as to how long have we been connected to the Internet. I replied and informed them that we have been on the Net since the end of March this year.

Wonder how long before other Divisions are also online?

Well, that is all for this month. As I will be away until early November, next month's column will be compiled by Andrew Dixon VK7GL, the Divisional President. However, the addresses remain unaltered. Take care, particularly over the Christmas/New Year period.

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contest is jointly sponsored by several societies, OVSV has remained the main driving force, therefore it is suggested that non-European logs be sent to: OE4BKU, HF Manager OVSV, Theresiengasse 11, A-1180 Vienna, Austria, postmarked by 31 December.

As of the *Amateur Radio* deadline, updated rules for this year's event are still awaited, so the above is based on last year's rules. However, any changes from last year's event are expected to be minimal.

ARRL 160 m DX CW Contest

1/3 December, 2200z Friday to 1600z Sunday

The object in this contest is to work as many WVE stations on 160 m CW as possible. Categories are: Single Operator (QRP to 5 W, Low Power to 150 W, and High Power above 150 W output), and Multioperator single Tx. Exchange RST; WVE stations will add their ARRL/CRRL Section. /MM and /AM stations should add ITU region 1, 2 or 3 as applicable. 1830-1850 kHz is recommended for intercontinental QSOs.

Score five points per QSO. The multiplier is the total number of ARRL/CRRL sections plus VE8/VY1 worked (max 77), and the final score equals QSO points X multiplier. Logs on MS-DOS disk are welcome. Send logs, postmarked no later than 30 days after the end of the contest, to: ARRL Contest Branch, 225 Main Street, Newington, Connecticut, CT 06111. Logs can also go to the ARRL BBS at 203-665-0090, or via the Internet at contest@arrl.org. Certificates will be awarded to the top scoring station in each category in each DXCC country. Note that the use of non-amateur radio means of communication during the contest (eg telephone) is not allowed for the purpose of soliciting QSOs.

ARRL 10 m Contest (CW & Phone)

9/10 December, 0000z Saturday to 2400z Sunday

This popular ARRL contest runs on the second full weekend of December each year. The object is to work as many stations worldwide as possible on 10 m phone, CW, or mixed. Maximum operating period is 36 hours, and listening time counts as operating time. Categories are as for the 160 m contest (see above). Send RS(T) plus serial number; WVE will send RS(T) plus state or province. CW entrants should stay below 28.3 MHz, avoiding beacon frequencies. Stations entering the mixed mode section may work stations once on CW and once on phone.

plunge into it now. Good contesting, and see you next month!

Many thanks to the following for assistance and information for this month's column: VK3KWA, VK6APK, VE2ZP, QST.

73s,
Peter VK3APN

IARU Region 1 160 m CW Contest

18/19 November, 1600z Saturday to 0800z Sunday

This contest is actually a collection of 160 m contests sponsored by several amateur societies in Region 1 (Europe), arranged to coincide on the one weekend. Although mainly intended for QSOs between European stations, contacts with non-Europeans are also allowed. Last year's contest attracted tremendous European activity, so if conditions are right and luck is on your side, it might just be possible to break through the QRM and work some Europeans from VK.

Exchange RST + serial + location code (VK). Score one point per QSO, and multiply by the number of different location codes worked. Although the

Contests

Peter Nesbit VK3APN — Federal Contest Coordinator*

Contest Calendar November 95 — January 96

Nov 1/7	HA-QRP Contest	(Oct 95)
Nov 4/5	ARRL International EME Competition	(QST Sep)
Nov 11	ALARA Contest	(Oct 95)
Nov 11/12	WAE RTTY DX Contest	(Jul 95)
Nov 11/12	OK-DX CW Contest	(Oct 95)
Nov 18/19	IARU Region 1 160 m CW Contest	
Nov 25/26	CQ World-Wide DX CW Contest	(Sep 95)
Dec 2/3	ARRL 160 m Contest	
Dec 9/10	ARRL 10 m Contest	
Dec 27 —		
Jan 28	Ross Hull VHF/UHF Contest	
Dec 31	Canada Winter Contest	
Jan 1	ARRL Straight Key "Night"	
Jan 13/14	Australian VHF/UHF Field Day	
Jan 13/14	HA DX CW Contest	
Jan 26/28	CQ WW 160 m DX Contest	

Congratulations to VK1 Division, the winners of this year's Remembrance Day (RD) contest! Activity was well up on last year, with some very good scores achieved. It was a close struggle between the three front-running Divisions, and after many years since their last RD win, a fitting result for VK1. Well done to VK1 Division, and thanks to everyone who entered.

Special thanks also to the RD Contest Manager, Alek Petkovic VK6APK, not only for organising this year's event, but for his heroic efforts in getting the results out in record time for November *Amateur Radio* (I hope you realise they'll expect this every year from now on, Alek)! His report, together with the results, appears below. Some interesting ideas and suggestions came out of this year's contest, and some fine tuning is already being considered for next year's event. The main thing, however, is that the RD is now well and truly back on track.

I hope you did well in the CQ-WW a few days ago, or if (like me) CW is your preference, good luck in the CW section later this month. However, there's a lot to cover this month, so let's cut the talk and

Score two points per phone QSO, four points per two-way CW QSO, and eight points for CW QSOs with US Novice or Technician stations signing /N or /T (28.1 — 28.3 MHz only). Multipliers are the 50 US states plus District of Columbia (DC), plus Canadian provinces (see below), plus DXCC countries except US and Canada, plus ITU Regions (/MM & /AM QSOs only). Multipliers are counted separately on each mode. Final score is total QSO points x total multiplier. Include a dupe sheet for 500+ QSOs. Logs should be sent as for the 160 m Contest (see above).

Canada Winter Contest

31 December, 0000z to 2359z Sunday
Amateurs worldwide are invited to join this yearly contest, sponsored by the RAC. Any station can work any other for contest credit, on either CW or phone. Stations can be worked once per mode per band, on 160-2 m. *There are no single mode categories.*

You can enter as single operator single band, all band, or all band QRP (5 W output); or multioperator. On CW try 25 kHz up on the half hour, and on phone 1850, 3775, 7075, 7225, 14175, 21250, 28500. Score 10 points for each QSO with a Canadian station including VE0, and 2 points for each non-Canadian QSO. QSOs with official Canadian RAC stations (RAC suffix) are worth 20 points. Note that CW and phone QSOs must be made in the appropriate sub-band to be valid.

Canadians will send RS(T) + province, all others (including VE0) will send RS(T) + serial. Multipliers are Canadian provinces and territories, and are counted once per band and mode (ie 13 on 160 m SSB, 13 on 160 m CW, 13 on 80 m SSB, etc). Provinces are listed below. Final score equals total points x total multiplier. Send logs to: RAC, 614 Norris Court — Unit 6, Kingston, Ontario, K7P 2R9, Canada by 31 January 1996.

Canadian Provinces and Territories

As Canadian provinces and territories are used as multipliers in many overseas contests, please note the following for future reference:

NS Nova Scotia (VE1, CY9, CY0)
PQ Principality of Quebec (VE2/VA2)
ON Ontario (VE3/VA3)
MB Manitoba (VE4)
SK Saskatchewan (VE5)
AB Alberta (VE6)
BC British Columbia (VE7/VA7)
NWT North West Territories (VE8)
NB New Brunswick (VE9)
YUK Yukon (VY1)
PEI Prince Edward Island (VY2)
NF Newfoundland (VO1)
LAB Labrador (VO2)

ROSS HULL MEMORIAL VHF-UHF CONTEST: 1995 — 1996

Presented by John Martin, VK3KWA

Christmas is coming soon, and so is the Ross Hull VHF/UHF Contest. This contest brings a large number of VHF sideband and CW stations "out of the woodwork" each year, and provides an opportunity to make plenty of DX contacts.

Under the new scoring system, any reasonably equipped station can make up a competitive log, without having to steal time from family commitments or other activities. But you can still be in it even if you are not a mad-keen contester. The main aim of the contest is to get more stations on the air over the summer period, and everyone is welcome.

The "Best 100 Contacts" scoring system worked well last year, and has been retained. There has been a minor change to the 6 m scoring, and a tightening of the rule relating to contest exchanges on DX calling frequencies, so please read these rules carefully.

The 1996 VHF/UHF Field Day will again take place in mid-January. This should provide an extra opportunity for DX contacts. Rules for the Field Day will be similar to previous years, and will be published in next month's Contests column.

RULES

The WIA maintains a perpetual trophy in honour of the late Ross Hull and his pioneering achievements in the VHF/UHF field, especially his discovery and investigation of VHF tropospheric propagation. The name of each year's contest winner is engraved on the trophy, and he/she will receive an attractive wall plaque and certificate. Other certificates may also be awarded to top scorers in the various divisions of the contest. The contest is not confined to WIA members.

Duration:

0000z Wednesday, 27 December 1994 to 2359z Saturday, 27 January 1995 (ie 1100 EST on Wednesday, 27 December to 1100 EST on Sunday, 28 January).

Sections:

(A) Single operator multiband; and (B) single operator single band. All entrants will be scored for both sections (A) and (B).

Help protect our frequencies — become an Intruder Watcher today.

General:

All amateur bands above 30 MHz may be used. One contact per station per band per UTC day. Crossband, repeater and satellite contacts are not permitted. Contest exchanges should not be made on recognised DX calling frequencies. All rulings of the contest manager are final.

Exchange:

RS or RST plus a three-digit serial number.

Scoring:

Scoring will be based on up to 100 contacts on each band, as nominated by the entrant. Each contact will be scored at one point per 100 km or part thereof (ie up to 99 km: one point, 100 — 199 km: two points, etc). On 6 metres only, the above system applies up to 999 km, but at 1000 km, scoring reverts to two points per 1000 km or part thereof. The following band multipliers apply:

6 m	2 m	70 cm	23 cm	13 cm	Higher
x1	x4	x7	x10	x13	x16

Logs:

To enable cross-checking, logs must show all contacts made during the full contest period. The contacts nominated for scoring purposes must be marked clearly in the log, or else listed in separate log extract sheets.

Separate logs for each band are not necessary, but common logs must show QSO points in a separate column for each band.

Logs must show the following for each contact:

- Date and UTC time;
- Station location (if operating portable);
- Operating frequency and mode;
- Callsign of station worked;
- Reports and serial numbers sent and received;
- Location or Maidenhead locator of station worked (if not QTHR);
- Estimated distance worked and points claimed.

The contest manager reserves the right to verify and correct distance estimates.

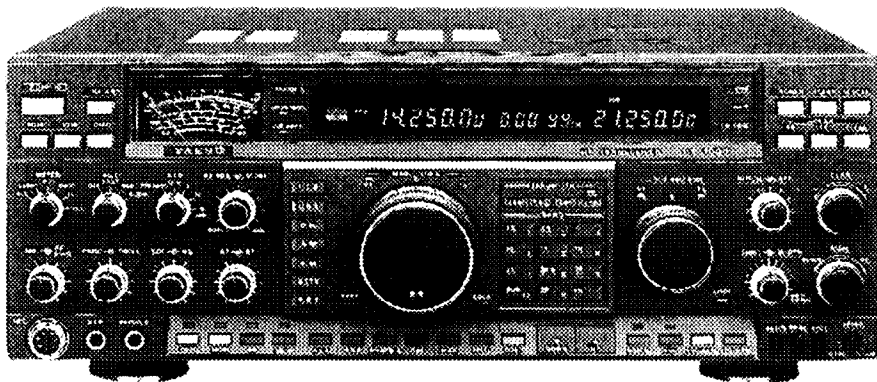
Cover Sheet:

Logs must be supplied with a cover sheet showing:

- Operator's callsign, name and address;
- Station location (if different from the postal address);
- A scoring table set out as the example below;
- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

DICK SMITH ELECTRONICS

EX-DEMO CLEARANCE! YAESU FT-1000



**HURRY,
VERY
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STOCKS!**

Now's your chance to get the 'Best of the Best' at a bargain price! Right now you can pick up an ex-demo FT-1000 deluxe HF all-mode transceiver and save \$1000. Here's what the experts have to say about this incredible transceiver...

On Operation

"The layout of the front panel of the FT-1000 is just right...I reckon the FT-1000 is (operationally) far less complex than either the Icom IC-781 or the Kenwood TS-950S." - ARA
"I found the FT-1000 easier to learn and use than any other radio in its class." - QST

On Documentation

"Clearly written and complete, and includes a complete set of schematics and many high quality photos." - QST
"The quality of printing and presentation of the book is the best I have ever seen..." - ARA

On the Receiver

"... this rig has a very strong receiver; it has the best overall performance (in terms of sensitivity and dynamic range) and the highest third order input intercept of any commercial radio ever tested in the ARRL lab." - QST*
"The direct digital synthesizer works very well and produces receiver performance that sets new standards." - AR
"I found the receiver in the FT-1000 to be astonishingly sensitive and immune to cross modulation..." - ARA

Transmitter -SSB

"The FT-1000 is easy to adjust and use...The processor adds quite a bit of punch to SSB signals; hams I worked on SSB with the FT-1000 gave me good audio quality reports" - QST

Transmitter - CW

"CW keying was a delight... power output was checked in the CW mode and found to be well in excess of 200 watts on all bands..." - AR
"CW operation with the internal keyer is a breeze..." - QST

Conclusion

"...the FT-1000 represents unbelievable value..." - AR
"It's an excellent set worthy of accolades and rave." - ARA
"... the FT-1000 needs little for me to consider it the ultimate contesting and DXing machine available today..." - QST*
* Review with optional filters fitted.

The FT-1000's combination of Direct Digital Synthesis, high output power, ultra-high performance receiver and easy to use controls put it far ahead of the competition. Hurry in today and check out our limited number of ex-demo models all with a full 2 year warranty. Wouldn't you rather be using the "Best of the Best"?
Cat D-3200

\$4995

(Ex-demo models only, microphone extra)

Interested in more information? Copies of our 12 page colour brochure are available upon request. Phone (1800)226610 or (02) 9373366.

SPECIAL OFFER

Purchase an FT-1000, and we'll provide an MD-1 Desk Microphone, SP-5 or SP-6 extension speaker, BPF-1 Band Pass Filter, TCXO-1 Temp Compensated Oscillator, and four 455kHz 3rd IF crystal filters for just \$500 (valued at over \$1300 if purchased separately) This offer is only valid from 20/10/95 when purchased with the FT-1000, and is subject to accessory availability. Some models may be shoe soled. However all come with a full 2 year warranty.

**Ex-demo models units are available at these stores:
Please phone to check availability.**

North Ryde (02) 878 3855 & Adelaide (08) 232 1200

Top Performing Transceivers From Yaesu!



FT-11R Micro Deluxe 2m Handheld

Designed to fit comfortably in your hand, it's just 57 x 102 x 25.5mm (W.H.D) including the FNB-31 NiCad pack, and weighs only 280 grams. The result of the latest in miniaturisation, microprocessor control and FET technology, the FT-11R provides a large back-lit LCD screen with full frequency readout, 150 memories (75 in alpha-numeric mode), full function keypad with easy SET mode, and up/down thumb control Volume and Squelch settings. A high efficiency FET RF amplifier provides 1.5W output standard from the compact 4.8V battery pack, and up to 5W output from 9.6V (using an optional battery pack or PA-10 mobile adaptor). A range of battery life extenders, including Auto Battery Saver, Tx Save, and Auto Power Off (with ultra-low 20uA consumption) are included. Australian version Auto Repeater Shift, DTMF based selective calling and paging, extended 110-180MHz receiver coverage (including the AM aircraft band), and a variety of scanning modes are also provided. Other advanced features include naming of memory channels, DTMF Auto-dial memories, and DTMF Message Paging with up to 6 alpha-numeric characters. A large range of accessory lines are also available for easier customisation of your transceiver. Comes with an FNB-31 600mA/H NiCad, belt-clip, approved AC charger, CA-9 charge adaptor and antenna.

Cat D-3640

2 YEAR WARRANTY

\$599

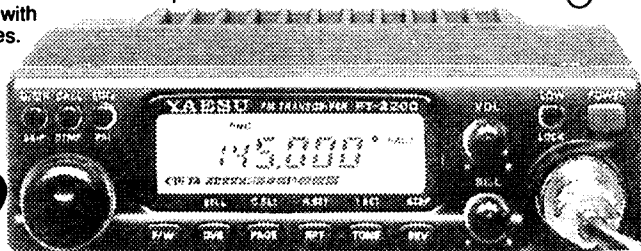
FT-2200 2m Mobile Transceiver

A compact, fully featured 2m FM transceiver with selectable power output of 6, 25 and 50 watts, it includes the latest convenience features for more enjoyable mobile or base station operation. Built around a solid diecast chassis, it provides 49 tunable memories, a large variety of scanning modes, an instant recall CALL channel, 7 user-selectable channel steps from 5kHz to 50kHz and is just 140 x 40 x 160mm (not including knobs). Backlighting of the large LCD screen, knobs and major buttons is even automatically controlled to suit ambient light conditions. Also provided is a 38 tone CTCSS encoder, DTMF based paging and selective calling with Auto-Page/Forwarding features, and 10 DTMF auto-dial memories. The LCD screen provides a highly legible bargraph Signal/P.O. meter plus indicators for the various paging and repeater modes. An optional internal DVS-3 digital recording/playback board can also be controlled from the front panel, giving even greater messaging flexibility. Supplied with an MH-26D8 hand microphone, mobile mounting bracket and DC power lead.

Cat D-3635

\$699

2 YEAR WARRANTY



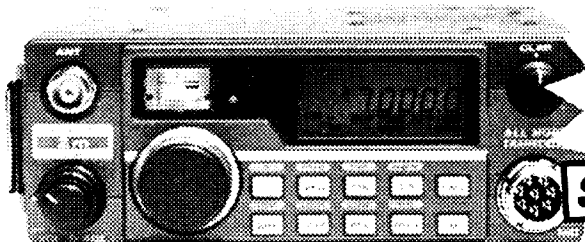
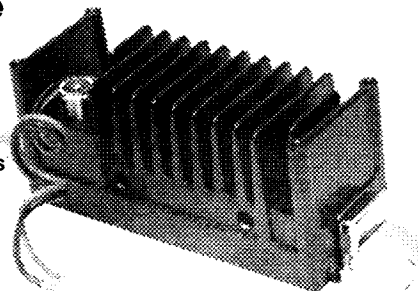
FT-290RII 2m All-Mode Transportable



Covers 144-148MHz and features FM, SSB (USB/LSB), and CW operation with 2.5W or 250mW switchable output power, twin VFOs and 10 memories that store mode and simplex or repeater frequencies. Selectable tuning rates are provided for SSB/CW and FM (SSB- 25Hz/100Hz/2.5kHz and 100kHz; FM- 5/10/20kHz and 1MHz). Mode specific features such as a noise blanker and clarifier control for SSB/CW, plus a full set of functions for FM repeater operation make this unit very simple to operate. It comes with a flexible rubber antenna, an FBA-8 battery holder, and a handheld microphone.

Cat D-2875

2 YEAR WARRANTY \$999



**Buy Both
For Just
\$1195**

SAVE \$100

FL-2025 2m Amp

Turn your FT-290II into a powerful mobile/base transceiver - this bolt-on RF amplifier will replace the FBA-8 battery holder on the FT-290RII, and boost the transceiver's output to 25 watts. Requires 13.8V DC.

Cat D-2863

\$299

A Great Range Of Accessories!

2m 1/2 Wave Base Station Antenna



An Australian-made base station antenna that's 1.69m long and has a single section fibreglass reinforced polyester (FRP) radome for excellent all-weather operation. It covers the 144 - 148MHz range (<1.5:1SWR) with a maximum power handling of 200W FM, providing approximately 3db gain. Fitted with an SO-239 socket
Cat D-4820

SAVE \$10 \$4995

High Performance 2m/70cm Base Station Antennas

Our range of top-name Brainer base station antennas offer outstanding quality and exceptional value. They are stacked colinear types providing high gain, wide bandwidth and a low radiation angle for extended range. The fibreglass reinforced polyester (FRP) outer tubing radome and gasket seals provide excellent all-weather operation, and they are supplied with compact ground-plane radials for a clean radiation pattern. Stainless-steel mounting hardware ensures a long trouble-free life. They also feature comprehensive instruction sheets to make installation and set-up easier. Both come with a 1 year warranty.

2m/70cm GST-1

Frequency: 144-148MHz, 430-450MHz
Gain: 6dB on 2m, 8dB on 70cm
Max. Power: 200W
Length 2.5m
Type: 2 x 5/8 wave (2m)
4 x 5/8 wave (70cm)
Connector: SO-239 socket

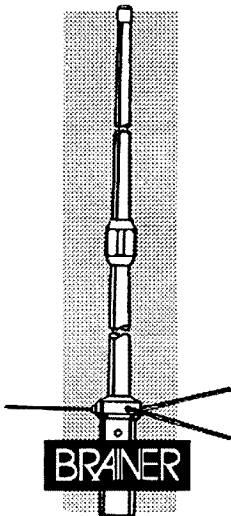
\$199

Cat. D-4830

2m/70cm GST-3

Frequency: 144-148MHz, 430-440MHz
Gain: 7.9dB on 2m, 11.7dB on 70cm
Max. Power: 200W
Length: 4.4m
Type: 3 x 5/8 wave (2m)
7 x 5/8 wave (70cm)
Connector: SO-239 socket

\$299 Cat. D-4835



6m 1/2 Wave Base Antenna

A rugged Australian-made vertical antenna designed to cover the 51 to 54MHz range, with minimum SWR around 53MHz. Built using high tensile T81 grade aluminium, it's just 2.9m long with a sealed base section and 100W minimum power rating. Complete with mounting hardware.
Cat D-4825

\$6995

Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV is a 5-band HF trap vertical which continues the Hustler tradition of quality and performance. It incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1 kw (PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, < 2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike some other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.

Cat D-4920



\$329

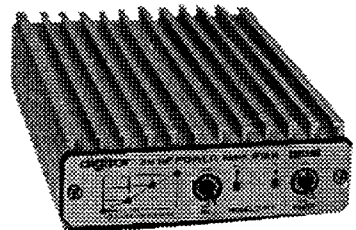
2m RF Power Amplifier

Boost your 2m hand-held's performance with this compact amplifier. Works with 0.3 to 5W input and provides up to 30W RF output, plus has an inbuilt GaAsFet receive pre-amp providing 12db gain. A large heatsink and metal casing allow for extended transmissions at full output, and a mobile mounting bracket is supplied for vehicle use. Requires 13.8V DC at 5A max. Size 100 x 36 x 175mm (W x H x D).
Cat D-2510

\$12995

SAVE \$10

digitor



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*MAJOR AMATEUR STOCKISTS STORES SHOWN IN RED

Deadline:

Post logs to: WIA Ross Hull Contest Manager, PO Box 2175, Caulfield Junction, VIC 3161, to be received by 19 February 1996 .

Penalties & Disqualification:

The normal rules apply. Entrants may be disqualified for violation of the contest rules (eg evidence that claimed contacts were not made), or if logs are incomplete or illegible. *Contacts made on DX calling frequencies will be disallowed unless the entrant can show that the circumstances at the time made it impractical to do otherwise.* Persistent use of DX calling frequencies for contest exchanges will lead to disqualification.

Sample Scoring Table:

Band	6 m	2 m	70 cm	etc
"100 best" score	xxxx	xxxx	xxxx	xxxx
Band Multiplier	x1	x4	x7	xX
Total	xxxx +	xxxx +	xxxx +	xxxx = xxxxx (GRAND TOTAL)

Awards:

The overall winner will be the top scorer in Section A. Awards will also be made to the top scorers on each of the following bands: 6 m, 2 m, 70 cm, 23 cm, 13 cm, microwave (all bands above 3 GHz).

Notes on Calculating Distances:

Absolute accuracy is not needed; all you need to know is whether the distance is above or below the nearest multiple of 100 km. An easy method is to use a compass to draw 100 km circles around your location on a map. Better estimates can be made from six digit Maidenhead locators, using simple computer programs such as those published in December

1990 and January 1991 *Amateur Radio*. An accurate and fully error-trapped program is available, which also calculates bearings and converts between latitude/longitude and Maidenhead locators, from John Martin VK3KWA (QTHR), upon receipt of a DOS disk (any format) in a mailing box, together with return postage.

1995 Remembrance Day Contest Results

Presented by Alek Petkovic, VK6APK

VK1 Winners for 1995!

Congratulations to VK1 Division for an exciting win in the 1995 RD Contest. A tremendous effort by them means that the trophy is now moving to the national capital, after a very long stay in Victoria. Well done to all those who participated and contributed to this great result!

The changes to the scoring system were very well received, and have certainly had the desired effect on the results. The winner is the Division which has put in the greatest effort to improve its result from the previous year, and the results table below certainly shows that VK1 was a very worthy winner this year.

As described in *Amateur Radio* July 1995, the winning Division is determined

“Еруку ы
ыщю ершті
руку ащк
ншгб ерфе ы
ашк ыгку.
Ншг ьфн тце
куфддн пщ
ашк щк
йгккл кумшущ
на ф срищці-
ифтв кшпб
куфддн пщ
иге еруку ы
руфзы ша
щерук ыгега
вщкл щ ддн
пщ ащк: ”

Radio and
Communications

Incorporating radio and CB Action

Hmmm... so amateur radio is looking increasingly hard to fathom these days, eh comrade? Why not go for the authoritative source? Australia's *Radio and Communications* magazine really knows what's what.

This month's feature-packed issue presents Australia's first in-depth review of the Icom IC-706, helps you build a quality two metre linear amp at home, looks at another largely ignored antenna (the very effective critically-coupled series), and once again invites your comments by way of Feedback. And, of course, there's loads more, like the country's biggest assortment of radio Classified adverts, we check out a new Sunspot which may point to Cycle 23, aviation HF DX, a new computer-control for your HF rig...

Reserve your next copy today so you won't be... well *Russian* around searching for answers any more!

by comparing the scores of the current year with those in the previous year. The "Improvement Factors" for HF and VHF for each Division are then averaged. The winner is the one with the highest improvement factor for that year. This method is very simple, and involves a minimum of mathematics. This year's results show that it is also a very fair and

just method, which gives due reward for effort.

Tables 1 and 2 below show significant improvements in participation and activity this year across the board, despite the almost total lack of propagation on 10 and 15 metres. The VHF activity in VK3 and VK6 was the only thing which contradicted the national trend.

VHF Phone		WWW	13
BDT*	45	AAJ	12
EY	20	DTR	11
CN	34	EMF	11
ANK	17	DYF	10
AIJ	13	PC	10
BWT	5	EAT	8
		EL	4
VK3		HF CW	
HF Phone		FC*	216
EW*	421	DVW	172
CCB	228	CIM	168
BWP	188	FCR	158
CX	184	DG	156
OM	152	APN	154
HK	148	XB	144
EJS	140	DID	130
DS	134	ANJ	116
LK	129	KS	76
DD	120	AMD	70
AHY	110	DNG	44
PHW	92	FG	36
JK	92		
ADW	86	HF Open	
CHN	86	QI*	425
ABP	85	ALZ	166
DVT	82	EAT	64
FAP	82	BKU	47
ATL	74	JI	41
KQB	67	DEV	38
PDX	64		
ENX	62	VHF Phone	
AYQ	52	ZNF*	816
SZ	52	AYF	450
VKW	51	MCL	441
CAM	50	TTX	352
MTA	50	JDV	295
EX	49	APW	284
GAR	49	BGS	280
DCP	48	JK	247
ER	48	EWMS	204
ABL	47	JLJ	180
AAM	46	EU	158
BAS	45	EFM	154
1WD/3	44	EO	154
JUD	42	OP	154
CAP	41	FBA	151
APQ	39	YNG	124
GMZ	39	KBD	119
ALD	38	EL	115
HG	36	JBL	115
KTO	36	UX	110
MSL	36	JUD	108
MDH	35	EA	101
BG	34	AQ	100
EZM	34	NE	98
EU	32	NJE	98
JJM	32	DBQ	96
LBA	32	ER	96
DY	31	XJU	96
CMC	30	EX	94
COD	30	ZUG	93
DBQ	29	TSR	87
JTW	29	TFE	83
VQ	29	DD	80
APW	28	CX	76
EBM	26	AWS	75
EWD	26	HAM	66
PTR	26	ABL	64
EST	25	XV	64
KAV	25	ENX	61
AOY	24	CAM	60
GAT	23	MTA	60
AUI	21	WJ	60
BSR	21	KK	56
JLJ	21	AUI	55
PQ	21	XB	54
ACR	20	AGH	50
KKJ	19	ZIP	50
PK	18	CAP	46
CRP	17	MGZ	43
AQ	16	CHN	41
JDV	16	DEV	40
SO	16	GMZ	40
NE	15	KS	40

Table 1: Divisional Scores

Placing	WIA Div'n	HF 1995	VHF 1995	Total 1995	HF 1994	VHF 1994	Total 1994	95/94 HF	95/94 VHF	95/94 Avg
1st	VK1	2239	583	2822	212	176	388	10.56	3.31	6.94
2nd	VK7	2238	153	2391	1724	14	1738	1.30	10.93	6.12
3rd	VK4	5471	2330	7801	1908	307*	1908	2.87	7.59	5.23
4th	VK5/8	4384	1881	6265	2884	1298	4182	1.52	1.45	1.49
5th	VK2	4619	134	4753	3803	82	3885	1.22	1.63	1.43
6th	VK3	6911	9238	16149	4031	16364	20395	1.71	0.56	1.14
7th	VK6	3409	4740	8149	3115	9323	12438	1.09	0.51	0.80

* Note: VK4's VHF Improvement Factor was calculated using the VHF score of 1991, which was the last time that VHF logs were submitted from that Division. Apologies to those VK4s who thought they had it in the bag, but it was never intended that a null score from the previous year should result in an infinite improvement factor for the current year, which would have been very unfair to the other Divisions, and not in keeping with the overall objectives of the contest. Better luck next time!

This method will be used in future contests should the same situation occur again, and it will also be spelt out more clearly in the rules of future contests.

Table 2: Log Statistics

WIA Div'n	No. Logs 1995	Points/Log 1995	No. logs 1994	Points/Log 1994
VK1	23	122.70	10	38.80
VK2	45	105.62	35	111.00
VK3	190	84.99	212	96.20
VK4	86	90.71	24	79.50
VK5/8	46	136.20	41	102.00
VK6	91	89.55	143	86.98
VK7	24	99.63	24	72.42
Nat'nal	505	95.59	489	91.89

Participation from Papua New Guinea and New Zealand was up this year as well. Four logs were received from P2 and nine from ZL, compared to one and two logs respectively last year. P2 and ZL participation in this event is highly appreciated, and their top scorers are eligible for certificates.

Listed below are the individual scores for each Division. The standard of logs was very high, and only minor alterations were needed to a handful of the 506 logs received. Typical alterations included corrections to CW scores (some people didn't realise that CW earned double points), and changes to the section entered (those who submitted separate entries for Phone and CW were put into the Open section). In the following results, an asterisk (*) denotes a certificate winner.

VK1					
HF Phone					
V11PJ*	570	V11VP	146	XT	108
V11MJ	418	VK1KLC	125	WF	89
VK1HK	192	VK1KLB	59	EJC	85
V11TX	153	VK1KED	13	ANK	77

HF CW		JC	74		
VK1AU*	130	CN	69		
HF Open		ASM	63		
V11JE*	184	BWT	62		
V11FF	155	IV	56		
VK1PK	94	IRP	53		
VHF Phone		EY	52		
V11VP*	86	ETK	48		
VK1ZQR	67	UC	48		
VK1PK	60	RX	45		
VK1HS	56	NPH	27		
VK1RG	56	DR	23		
VK7RG/1	56	ALV	22		
VK1ZBG	56	GV	19		
VK1LC	55	CF	17		
VK1KLB	50	AJO	16		
VK1KED	29	HF CW			
VK1FF	12	ZC*	260		
VK2		BHO	232		
HF Phone		AYD	226		
DCL*	327	BQQ	144		
PS	323	AIC	124		
VM	298	OI	72		
CJH	291	AZR	68		
AKJ	218	CWS	40		
AGF	166	HF Open			
XT	108	BO*	495		
WF	89	PH	74		
EJC	85	RJ	44		
ANK	77	EII	29		

WWW	40	YG	223	ZKK	61	CSW	95
XH	40	BBA	124	XE	30	APW	84
EST	39	GZ	115	KCX	29	APK	78
KIA	39	BGC	103	8HZ	16	KG	75
APO	38	AJH	80	KLD	10	UT	75
KTO	36	OD	80	MX	10	SMH	70
AAM	32	IV	63	VHF Open		XH	69
KAB	32	BBB	44	ARC*	497	LZ	66
BUX	30	VHF Phone		VK6		QC	66
JAZ	30	KSB*	261	HF Phone		RO	65
PQ	30	KMA	232	SZ*	418	BSL	63
JTW	29	CMP	217	DA	154	WT	62
DID	27	NEF	205	CSW	110	BK	57
JDO	27	LP	154	JP	102	JB	57
KKJ	26	NE	150	SAR	102	UV	53
EZM	25	QH	109	GL	88	FG	51
ADW	23	PJ	105	KG	80	NT	50
JJM	23	AAE	78	ANC	75	PO	49
UFC	23	BAY	71	HU	63	BMW	44
PC	20	OF	57	SAN	63	DLX	44
GAT	19	EWR	54	SMH	62	RU	26
ZJH	16	PT	53	UT	52	TS	26
SO	15	ZMM	50	RG	47	HK	24
AHY	14	NBC	37	BK	42	PX	10
BWP	14	ACL	35	APK	40	VK7	
COD	14	BB	32	PX	40	HF Phone	
BNW	13	ZAZ	29	APW	38	PC*	372
EWD	12	BGC	27	XH	36	CK	361
KAV	12	ZA	27	KH	32	KC	241
EMF	11	YIG	25	SM	31	OH	241
UJC	11	KAP	22	BMW	24	SHV	238
XCD	7	WAY	16	TS	24	NDO	207
VK4		EV	15	PO	22	JP	62
HF Phone		ADY	14	UA	22	HJ	40
BB*	402	XZ	14	GGA	21	RM	40
EJ	267	BSH	13	NKB	21	LS	37
BAY	223	UJ	12	BIK	17	EB	31
BTW	125	IV	9	PT	17	NGC	31
KEL	110	VHF Open		WU	17	FD	20
AFS	104	AR*	207	CV	14	KSM	20
AQD	104	VK5/8		HK	13	BM	10
NBC	90	HF Phone		OV	12	HF CW	
PJ	85	CA*	404	AD	10	RO*	96
GU	75	QX	300	HF CW		HF Open	
RM	73	AYD	284	HO*	300	OTC*	191
WII	72	EE	278	AFW	194	VHF Phone	
EWR	51	UE	152	AJ	110	RM*	51
PT	50	GRC	135	WT	40	JGD	25
BSH	49	XY	122	GA	22	OTC	22
DO	43	8HZ	121	NPN	6	LS	20
LP	41	OQ	111	HF Open		RT	19
ACW	40	WO	106	GW*	292	EB	12
SHE	34	ANB	102	CF	194	KSM	4
ACL	30	NYO	102	RU	158	P29	
WJG	29	BWH	100	DDX	72	HF Phone	
EV	27	FT	82	RZ	40	KFS*	38
BGT	25	8DK	79	JB	36	HF CW	
BCM	24	NF	69	VHF Phone		PL*	155
VI4VP	23	UW	65	KTN*	298	VHF Phone	
DV	22	BJJ	57	ZDJ	222	PL	3
PVH	20	JAG	50	GGP	211	KFS	2
XJ	20	TW	50	MIN	204	ZL	
KAP	18	ZQ	50	VP	196	HF Phone	
NE	18	RK	35	RG	186	3TX*	254
UJ	16	KJT	27	WIA	177	1BVK	202
ADY	15	AV	26	ZLZ	172	2GJ	202
WAY	14	BWG	24	UA	156	2FOX	15
OX	13	HF CW		HU	144	HF CW	
XZ	12	8HA*	190	JP	144	1ALZ*	146
KD	10	XE	186	KS	144	2ALJ	112
MU	10	BS	112	SAN	144	2AJB	62
ZMM	7	AGX	100	AD	143	HF Open	
HF CW		HF Open		ANC	143	1BGT*	335
XA*	348	BRC*	665	XPS	139	1GQ	152
LV	262	ARC	200	YFF	133	SWL	
XW	218	VHF Phone		NKB	113	HF Phone Receiving	
COZ	60	BRC*	430	SAR	113	Peter Kenyon 291	
CEU	52	GRC	214	NU	103		
AAE	2	THA	144	GGA	96		
HF Open		BW	126				
EMM*	562	XY	104				
LT	443	UBJ	74				
DB	291	SE	62				

It is always great to receive comments and opinions with the logs. Most were

very positive, and many good suggestions were put forward to be considered in the future. So, without further ado, here's what you had to say:

"My first ever RD contest. A little disappointed in the activity on CW"...VK2AYD; "We need logging programs that allow for two hour time checking"...VK3BGS; "Numbers seemed down on previous years, but maybe that was due to the piece of bent wire I was using for an antenna"...VK2IV; "21 and 28 MHz very poor my QTH.. operating standard on the way up"...VK2ZC; "Judging from HF activity, VK6 or VK4 deserve to win, but I think VK1 will under the new rules"...VK1PK; "Enjoyed the time I spent on the air. Look forward to seeing everyone again next year"...V11FF; "Extremely tiring, I am only 16 years old and found that it was very good fun"...VK3MCL; "I enjoy the participation and of course it also rekindles the memories for which the contest was originally devised"...VK3LBA; "Seemed to be more interest in this contest than last year. I am 92 years old.. I won the VK3 CW section in '91 and '94"...VK3FC; "My personal thanks to the contest managers for inclusion of the voluntary rule permitting use of CQ RD 50"...VK3AMD; "Slightly more activity on 2 m this year. Still the best contest in VK"...VK5KCX; "Close to my 26th RD and the rule changes are getting tiresome"...VK5AVQ; "Came on this year specifically as it was the 50th anniversary of VP Day etc"...VK5QX; "Thoroughly enjoyed what the contest is all about, old comradeship and remembrance"...VK5AGX; "The new rules are very welcome, well done!"..VK4EMM; "Very pleased with the activity on VHF/UHF in SE Queensland this year"...VK4NEF; "Thanks for another great RD. Always great to hear old voices and fists on the air"...VK4LT; "A memorable RD contest, especially for the WW2 veterans, more activity on HF as a result"...VK4BAY; "Enjoyed the start on Saturday but Sunday woeful. 15 m wide open but no one there"...VK4LV; "10 m didn't produce any contacts even though the VK5 and VK2 beacons could be heard here in Brisbane"...VK4EJ; "I would like to mention a friend of mine, Dean, VK4QH who is visually impaired and a paraplegic.. His last contact to me gave him 109 contacts and it would be nice if he was mentioned in *Amateur Radio* magazine for his efforts"...VK4KSB; "I got a great deal of pleasure from the contest this year.. I noted a number of family teams.. I agree with the new scoring system"...VK4AFS; "What a tough slog! My first time in WA and I couldn't get out as I am used to as VK3DDX"...VK6DDX; "Great fun but a battle, not a signal heard

on 10 or 15"...VK7NDO; "The whole family took part. Particularly in the last couple of hours where we had four callsigns operating on the one set and frequency. (Good spectrum use)"...VK7KC/NGC/HJ/SHV; "A most enjoyable contest. I consider the open category a big improvement"...ZL1BGT; "A most enjoyable contest, thanks to the contest organisation"...ZL1ALZ; "I very much enjoy the RD contest with its friendly asides"...ZL2ALJ; "Once again no signals heard here on 15 m or 10 m"...ZL3TX; "Good to see the rules in our *Break In* magazine this year"...ZL2AJB; "Pleased to see the return of the open section and the bonuses for 160 m and CW"...VK3ALZ; "80 m was very busy. I got drowned out

of the frequency I was using. 160 m had plenty of room but few participants"...V11JE; "My heartfelt gratitude is extended to those who organised this contest...My father served in the Wewak/Aitape area of the New Guinea Operation, so my log is dedicated to him and of course as he puts it, "All of the boys of all nationalities who were there" "P29PL.

Well, that's it for this year, so thanks to all who participated and congratulations to the certificate winners. See you all again in the next RD!

73s, de Alek.

*PO Box 2175, Caulfield Junction, VIC 3175
ar

communication modes, including 30 and 160 metres, 6 metres EME, slow scan TV, satellite, RTTY and all other digital modes. They were connected to Internet and a number of other nets which enabled almost instant automatic e-mail confirmation of QSOs and even next day QSL cards.

To enable the expedition to study the propagation, real signal reports were required instead of the customary "59" and "599" DX report. Repeat contacts were also encouraged when there was no pile-up.

The expedition will be documented in a book, video and audio tape and is heavily involved in the sale of souvenirs to assist with finances. You can even purchase a small rock from Easter Island for \$US10.0. However, be mindful of the Australian Quarantine regulations which forbid importation of such items.

If you did work XR0Z, you are one of the lucky 1600 who were able to contact the Salas-y-Gomez island group, whose activity was very much restricted because of bad weather conditions. In contrast the Easter Island group made well over 35000 QSOs. QSL manager is Mary Ann Crider, WA3HUP, 2485 Lewisberry Road, York Haven, PA 17370, USA.

Special Station — VK2WAH

This special event station, activated by the members of the Wahoonga Amateur Historical Radio Association, was on the air for 24 hours on 22 September celebrating the 77th anniversary of the first direct wireless message from Wales in the United Kingdom to Wahoonga a suburb of Sydney, Australia. Despite very poor conditions, more than 400 contacts were made with 38 countries on SSB, CW, FM, and packet modes on many bands. For QSLing, send your card with a SASE to the Manager, WAHRA, PO Box 600, Wahoonga NSW 2070.

Malyj Vysotskij — Ravansaarl Island

This unique DXCC country is located within the Territory of Russia, but under the control of Finland. The island is located in the Bay of Vyborg, north west of St Petersburg. A group of nine Finn-Russian amateurs were active from 21 to 25 September running four complete stations 24 hours a day with special concentration on RTTY, WARC and the low bands.

The last activity from this island (IOTA EU-117) was three and a half years ago with the former 4JI prefix. The newly allocated callsign used was R1MVI as well as a special call OH2BU/MVI. The team used full-sized verticals on 80 and 160 metres, the 160 metre antenna elevated

How's DX

*Stephen Pall VK2PS**

I was asked once, what does amateur radio mean to me personally? I found this simple question difficult to answer with a single sentence. Amateur radio means many things to many people.

To me, as a DXer, amateur radio gives me the opportunity to contact fellow amateurs in every corner of the world, very often under difficult and challenging conditions. Amateur radio has no frontier. One can travel through space with extraordinary speed. Amateur radio is an international movement which makes no distinction by the colour of the skin nor by race, ethnic background, language, gender, age, religion, political belief, financial status or physical attributes.

Amateur radio to me is an all embracing humanity. As a result of this hobby, or by another description, this lifestyle, amateur radio creates many long lasting friendships over the air with fellow amateurs. In most cases the participants in these friendships know each other only by the sound of their voices or by the rhythm of their keys, and they never have the opportunity to meet personally.

There are, however, times when there is a personal contact — a visit, an "eyeball QSO". I was fortunate, in between times of writing my monthly column, to have had a brief holiday with my XYL on the North Island of New Zealand visiting many of my "on the air" friends. In many cases I had the privilege to stay in their homes and/or be active from their shacks as VK2PS/ZL.

Our heartfelt thanks go to Brian ZL1CWN and his XYL Lisa, Terry ZL1COR and Chris, Gary ZL1KJ and Mary, Dave ZL1AMN and Aola ZL1ALE, Dusty ZL2VS and Barbara, and Dawn ZL2AGX and her OM Dennis ZL2BFI, whose friendship,

help, assistance and hospitality will never be forgotten.

And last, but not least, many thanks to the Communication Division Radio Operations of the Ministry of Commerce — Te Manatu Tauhokohoko — the authority which looks after the radio spectrum management for New Zealand. The speedy service by mail (ten days) in granting me permission to operate on HF bands in ZL, with a very pleasant "Welcome to New Zealand" friendly guide for visiting amateurs regarding the terms, conditions and restrictions applying to the amateur radio service in New Zealand, is an example of how any government authority should deal with its customer base, the public. Well done New Zealand.

Easter Island and Salas-y-Gomez

The recent activity from these islands was a great success. The expedition was a multi-purpose, multi-disciplinary project involving natural science, amateur radio, archaeology and state-of-art computer-based communications. A major goal was to implement new techniques for using available high technology to enhance communications from remote sites. A total of 32 people were part of the expedition which included 18 radio amateurs. Two separate teams were operating. Easter Island, with the callsign XR0Y, was active from 6 to 20 September. The Salas-y-Gomez team sailed directly from Chile to the island 225 nautical miles to the east of Easter Island and was active from 7 to 11 September with the callsign XR0Z.

Both stations were operating around the clock using all bands and all

with a helium balloon. QSL to OH2BU, Jari Jussila, Pilvijarvi, FIN-02400 Kirkonummi, Finland.

Sable Island — CY0TP

Sable Island was declared a DXCC country in 1975 and since then more than half-a-dozen operations have taken place from this 23 mile long crescent shaped sandbar located near the edge of the Gulf Stream 125 miles east of Nova Scotia. Four Canadian amateurs, Wayne VE1CBK, Ken VE1RU, Don VE1AOE and Gary VE1RGB were active from the island from 30 September to 10 October. The callsign used was CY0TP and the activity was on all bands and modes, including 6 metres and satellites with four stations running. Amplifiers and Yagi antennas were used on the usual DX frequencies. QSLs for HF contacts should be sent to Wayne King, VE1CBK, 63 Brook St, Lake Fletcher, Nova Scotia, B2T IA5, Canada.

Juan Fernandez — CE0Z

This Chilean outpost in the Eastern Pacific was activated by three American radio amateurs, Randy K0EU, Bob K4URE and Robert K0IYF from 13 to 20 September on all modes and all bands, concentrating on the low bands, WARC, RTTY and amateursatellites AO-10, AO-13

and RS-15. They were heard in VK and ZL and a few operators managed to contact them in the 80 metre DX window. QSLs to K0IYF, Robert Hamilton, 1042 Xenophone, Golden, CO-80401 USA.

DXpeditions and QSLing

In response to a number of enquiries about the QSLing practices of DXpeditions and individual DXers, here are the guidelines as passed by the ARRL DX Advisory Committee (DXAC) last year.

- (a) Any DX station or organised DXpedition appointing a QSL manager or acting as their own QSL manager should ensure that satisfactory arrangements are in place for receiving and responding to incoming Bureau and direct cards.
 - (b) When selecting a QSL manager, the reliability of the manager's postal system should be taken in consideration.
 - (c) Any DXpedition organiser or person appointing a QSL manager must accept responsibility for that manager's performance.
- The QSL manager should respond direct, and within a reasonable period of time, as long as sufficient funds (IRCs, stamps, money orders) to cover the cost of return postage (and return envelope, if one isn't enclosed) are enclosed with the request. Airmail should be used if sufficient funds are enclosed.
 - The QSL manager should respond to incoming SWL cards under the same conditions as QSL cards for two-way contacts.
 - DXpedition QSL managers should not insist on separate envelopes for different QSOs or different stations. They should establish internal procedures to handle such multiple requests.
 - Recognising that mistakes of time and/or date are frequently made, QSL managers are expected to make a reasonably diligent search for QSOs that can't be found in the log.
 - It's unacceptable and unethical to demand a specific number of IRCs or "green stamps" (dollar bills) if a smaller number would cover the costs mentioned in Point 2.
 - There should be no limit for applying for QSL cards. Old logbooks should be passed to responsible volunteers or DX Clubs when the manager no longer wishes to retain them.
 - All amateur stations engaged in DX operating and the exchange of QSL cards are expected to adhere to the above recommended guidelines. Radio amateurs are not required to belong to their national amateur radio

societies or clubs. Accordingly, stations without incoming and/or outgoing QSL bureau service should make their own arrangements for QSLing, but within the guidelines of point 6.

Violations of the above guidelines may subject the DXpedition or DX station to disqualification by the ARRL Awards Committee in accordance with Rule 12, operating Ethics of the ARRL DX Century Club Rules.

Future DX Activity

- HK100GM celebrates 100 years of radio. QSL to HK3DDD, PO Box 25827, Bogota, Colombia.
- PW2N, a special call, will be used by Vitor PY2NY during November in the CQWW DX CW Contest. QSL to home call via the bureau.
- From October to the end of January 1996, Hen G0NKZ will be active from the Antarctic base of Patriot Hills (Ellsworth Land) with a VP callsign. QSL to G0SZO.
- Pierre HB9AMO will be in Sri Lanka in November as 4S7/HB9AMO.
- Tony G4KLF will be active for two years from Oman as A45ZN and also from club station A47RS on CW, SSB, RTTY, AMTOR and packet. QSL to T Selmes, PO Box 981, Muscat, Sultanate of Oman.
- Daniel F5OKX will be active for six months, starting October, from Haiti HH2 on all bands. QSL to home call direct only.
- Marit LA4CJA and Terje LA3EX will be active from Jan Mayen as JX4CJA and JX3EX until April 1996. Marit will be the first YL active from Jan Mayen. QSL for JX3EX to T Berg, 8099 Jan Mayen, Norway.
- The planned activity of Tom AL7EL from Wake Island has been postponed.
- Jean Jacques (ex J28CW — TA/FB1LYF) will be active from Kerguelen (IOTA AF-048) from November for one year with the call FT5XL. He will be active on all bands on CW, SSB, RTTY and RS12 satellite. This will be the first RTTY activity in 10 years from Kerguelen. QSL via F5NZO to Didier Bruriaud, Le Bourg, F-71150 Vitry Sur Loire, France.
- Franz DF5GF is now active in Vietnam as 3W6GM.
- Rolf XV7SW now has his 80 and 160 metre antennas up and hopes to be more active from October. His QSL cards are now printed. QSL either direct to him, Rolf T Salme Box 9, Hanoi, Vietnam or to his QSL manager Jorgen Svensson SM3CXS, Berghemsvagen 11, S-86336 Sundsbruk, Sweden.

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3 ele 20 M	\$333
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- The 1995 Heard Island DXpedition will be active from approximately 12 November until about 1 December.
- Martin G6DPU and Julie G7UMM will be active from Apia, Western Samoa for the next 18 months as 5W1MH and 5W1NJS. QSL direct to them c/o Meredith and Associates, PO Box 1084, Apia, Western Samoa.

Interesting QSOs and QSL Information

- TN70T — Hazel — 14243 — SSB — 0620 — Aug(E). QSL to Hazel C Schofield AL7OT, HC 1 Box, 156T Soldotna, AK99669, USA.
- 9A17ST — 14201 — SSB — 1312 — Aug(E). QSL to Tomislav Dugec 9A2AA, Vetrinica 13, HR-58000, Split, Croatia.
- V73GT — George — 14002 — CW — 1118 — Aug(E). QSL to Paul I Rubinfeld WF5T, PO Box 4909, Santa Fe, NM-87502.
- M10OG — 7011 — CW — 0628 — Sept(E). QSL via the RSGB QSL Bureau.
- SI3GM — Lars — 14236 — SSB — 1104 — Sep(E). QSL only via the Swedish QSL bureau.
- 7S6SAQ — Lasse — 14023 — CW — 1204 — Sep(E). QSL to Varbergs Sendareamatörer SK6DK, Box 215, S-43200 Varberg, Sweden.
- XR0Y — 7025 — CW — 0641 — Sep(E). QSL to Mary Ann Crider WA3HUP, 2485 Lewisberry Rd, York Haven, PA 17370, USA.
- TI2CF/H7 — Carlos — 7050 — SSB — 0612 — Sep(E). QSL to Carlos M Fonseca Q TI2CF, Box 4300, San Jose 1000, Costa Rica.

- HT7YO — Minor — 14195 — SSB — 0322 — Sep(E). QSL to TI2YO, Minor Barrantes Fallas, Apto 17, San Jose 1003, Costa Rica.
- TG9NX — Franco — 14164 — SSB — 0545 — Sep(E). QSL to Francisco Capuano, 16 Ave 1720, Zona 10, Guatemala City, Guatemala
- 3W6GM — Franz — 14198 — SSB — 1042 — Sep(E). QSL to Franz Rebholz DF5GF, 3W6GM, Viet Duc Pedagogical University of Technology, 01 Vo Van Ngan St, Thu Duc, Ho Chi Minh City, Vietnam. Franz is looking for a suitable QSL Manager.
- TY8G — Roger — 14164 — SSB — 0605 — Sep(E). QSL to LA8G, PO Box 5626, N 7002, Trondheim, Norway.

From Here and There and Everywhere

- Special station WW2END was active from the battleship Missouri in the first days of September celebrating the signing of the armistice ending the hostilities between Japan and the United States. QSL to W7DK, but other sources quoted KG7XD as the QSL manager.
- If you worked Ben 5R8DS or Marian 5R8DY, send your card to PA3BXC, Ben and Marian Witvliet, Sleedoorn 65, Emmen, 7822an, The Netherlands.
- The Iranian authorities conducted amateur radio licence examinations on 20 September. These were the first examinations in 32 years. 91 applications are pending.
- It seems that all the recent contacts in August and early September with FR5HG/T/G/J were the work of a pirate, reports Herik FR5DX. Michael FR5HG

- was actually vacationing on Madagascar without radio equipment.
- Dusty ZL2VS, the well known New Zealand DXer, has achieved the DXers ultimate accolade. The manager of the DXCC desk, Bill Kennamer K5FUV, advised him in a special letter that he reached the top of the Honour Roll in the mixed section of DXCC. This is an achievement in which Dusty can take great pride. To get to the number one spot on the Honour Roll one has to work all the countries on the DXCC list and the current number is 326. Congratulations and best wishes Dusty from your many VK friends on this side of the "pond".
- The planned trip to P5 North Korea by Marti Laine VR2BH was postponed. The activity had been planned for 23 to 24 September 1995. North Korean officials said it had to be delayed. At the end of September a delegation from North Korea was at the First DX Convention in Beijing to see amateur radio in action. Marti's trip will be rescheduled some time early next year. Unconfirmed reports from North Korea say that the country recently suffered bad flooding affecting the majority of the population and there were unconfirmed reports of a cholera epidemic.
- Terry ZL1COR is one of the few ZL DXers who received an official invitation to attend the first international convention of the Iraqi Association for Radio Amateurs staged by the Ministry of Culture and information in conjunction with the 7th Babylon International Festival. The invitation was signed by Addnan M Aswad Y11D who is the president of IARA. The amateur convention was from 22 September to 1 October and a special event station Y195BIF was active during that time. Among the many invited guests was the well known Jordanian DXer, Zedan JY3ZH. Ron ZL1AMO was also invited as a DX guest, but unfortunately the invitation arrived too late for Terry and Ron and both had to decline with regret. Incidentally, Terry was active in Malaysia in 1959 as 9M2GE.
- Patrick F5SFD will be active for the next two years from Djibouti as J28PP. QSL to F5PWH.
- Did you know that 16 September was "World Amateur Radio Day"? It seems that a great number of National Radio Societies did not know about it. However, at the IARU Administrative Council meeting held in Singapore during September 1994, it was decided by Resolution 94-3 that World Amateur Radio Day will be celebrated annually



Terry ZL1COR, well known on the ANZA net.

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Dusty ZL2VS, top of the Honour Roll DXCC list.

on the third Saturday of September. It was further resolved that the Administrative Council is to annually determine the theme for World Amateur Radio Day for the following year. The international secretariat was requested to distribute a written and audio message by the President and a suitable press kit for use by member societies. Also, IARU regions were urged to provide regional guidelines and concept ideas for regional and local events.

- From December until February 1997, Jean Jacques F5SZK and Samuel F5IJT will be active as FT5WF and FT5WG respectively from Crozet islands.
- A new novice licence with SH prefixes will soon be issued in Sweden for operation on 80, 40, 15 and 10 metres.
- As at 15 September, V150PEACE had 5855 QSOs in the log and had worked 84 countries.
- Brian 9J2BO was active on United Nations Day, 24 October, with the special call 9J50UN. QSL to Brian Otter 9J2BO, Box 30222, Lusaka, Zambia.
- According to Jim VK9NS, the operation of Mani VU2JPS on Andaman island is legal. Jim spent some time with Mani and his wife Mala VU2TMC. Mani has requested a change in prefix so that his callsign indicates clearly his actual location. This requested prefix change should be finalised very soon. HIDXA intends to donate some equipment to Mani once the intricacies of the Indian Customs regarding the importation of radio equipment are understood and finalised.

- In a press release from the DXCC Desk, Bill Kennamer K5FUV announced that the unprocessed applications at the end of August were 363 involving 21,125 QSL cards.

During August the DXCC Desk processed 666 applications with 47,515 QSLs.

- There are two new active QSL Bureaus operating in Africa. 5X, Uganda Amateur Radio Society, Box 9094, Kampala, Uganda, Africa; and TZ, Club des Radioamateurs et Affiliés du Mali, Box 2826, Bamako Mali, Africa.

QSLs Received

VK9XY (5 m DJ5CQ); G4MFW/ZL8 (3 m KA1JC); 3D2CT (2 m G4WFZ); 3V8BB (3 m JF2EZA); TL8CN (2 m F5BFN); 3D2CU (5 m SM7PKK).

Thank You

Many thanks to my helpers who supply me with the information which makes this column possible. Special thanks to VK2CJH, VK2CSZ, VK2KAA, VK2KFU, VK2PF, VK2TJF, VK4OH, F5NZO, ZL1COR, ZL2VS, ARL DXCC Desk, and the publications *QRZ DX*, *QST*, *The DX Bulletin*, *The DX News Sheet*, and the *GoList QSL Managers List*.

73 and good DX.

**PO Box 93, Dural NSW 2158*

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Pounding Brass

*Stephen P Smith VK2SPS**

In the last issue we looked at the *CW Operators' QRP Club Inc*, the premier "QRP" club in this country. The *Fist Club of Britain* is another club highly respected world wide, with high standing in the IARU and CW community. This club was established to promote amateur CW activity world wide.

New operators to the ranks may not be aware of "Fists" and the many exciting activities held by the club throughout the year. I often chat to ex G operators, now resident in this country, about up and coming contests. When they ask me if I will be participating, I reply "Yes" sent twice in rapid succession. This always brings a big smile to my face.

The *Fist* club was started by Geo Longden G3ZQS who single-handedly prepares *Keynote* and distributes it to members world-wide. A mammoth task for one person. *Keynote* usually consists of two A4 size sheets containing members' views, coming contests and general CW information. Although the paper contains mostly European related information, it does make interesting reading. Further information can be obtained from: Geo Longden G3ZQS, 119

Cemetery Road, Darwen Lancs BB32LZ, England.

On 23 June this year a very special ceremony was held at the University of Oxford Museum to honour Sir Oliver Lodge and commemorate the first demonstration of a *Spark Gap Transmission*. This was the first ever recorded transmission and reception of a Morse signal by radio waves. Sir Oliver became the fifth president of the RSGB. During the transmission only standard equipment was used (I hope to include some photos of the event in a later issue).

If you are a collector of Morse keys, Bruce Prior AA3DK has a quantity of Joseph Junker precision Morse keys for sale. These keys are the MT type with metal covers. I have been informed the keys are ex WW2 stock and wrapped in the original packing paper. If you are interested, drop a line to: Bruce Prior AA3DK, 400 Detwiller Lane, Bellevue WA 9004, USA.

From America, "READEX", a survey company acting on behalf of the ARRL, produced a paper entitled the "W5YI Report as of 1 August 95". The report contained statistics, some of which I found

to be very interesting. It states that the actual on-air modes used by American amateurs include the following: FM 79%, packet 40%, SSB 79% and CW 54%. It is interesting to note that over half of American amateurs still use CW as a means of communication. As can be seen from these figures, CW is certainly not a minority group, and is still going strong.

The United States Coast Guard ceased all Morse transmissions as of 1 April 1995. Just recently a special ceremony was held at the USCA Master Station "Atlantic, NMN" at Chesapeake, Virginia.

TC3 Sergio Morales KP4FFW carried out the final broadcast message from NMN. So ends an era of Morse history which will be sadly missed by all. I recently received my "McElroy Chart of Codes and signals" which is a colour reproduction of this sought after poster from the 1940s' era. I am very pleased with its presentation. It now has a prominent place on the shack wall for all to see. Purchase details for the poster were mentioned in an earlier issue of *Pounding Brass*.

The next "Scrambles" to be held by the *CW Operators' QRP Club* will be scramble number 48 on 40 m on Thursday, 12 October 1995, and scramble number 49

on 80 m on Thursday, 2 November 1995. If you have nothing planned for those evenings, how about firing up the homebrew gear or, if you are a black box operator, turning the wick down and joining in for an exciting evening of contesting and plain good old-fashioned fun. What do you say?

Next month we will look at "NSW Morse Code Practice Nets". You may recall we have previously looked at Morse practice nets conducted by other states but didn't include NSW, the reason being that, at that time, the information was not available.

On the homebrew front, I've corresponded with Wes Tyler VK2WES in relation to the two magnificently built straight keys which featured in *Morsum Magnificat* issue No 27 page 12. The keys were made by Wes from drawings by Dr

Jim Lycett PhD, G0MSZ. Photographs of Wes's keys can be seen in *Morsum Magnificat* issue No 40 page 46, and issue No 41 page 42. I plan to do a series of articles on this key and, if all goes well, they should appear early in the 1996 issues of *Pounding Brass*.

Talking about keys, there has been considerable recent interest by Australian amateurs in purchasing, restoring and displaying telegraph keys. My own collection is now fairly close to two hundred. What I plan to do in future columns is to include a photograph of an "Australian Key" with as much information on it as possible for the interest of fellow collectors. Where I have limited information on a key, perhaps a collector who has that information, or has further information in relation to a key, could contact me; I would be extremely grateful. This way information is shared between collectors.

The number of letters received in relation to Keys and Jiggers is astounding, thus my reason for intending to include the above in future issues. To fellow Morsemen and collectors, 73 until next month.

*PO Box 361, Mona Vale NSW 2103

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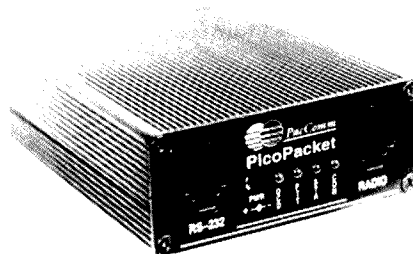
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It's the putting RIGHT that counts



Pressures on Amateur Radio at World Radio Conference

By the time this item is published, David Wardlaw VK3ADW, WIA delegate to the World Radio Conference, WRC-95, will be attending conference sessions in Geneva. The Conference runs from 23 October to 17 November.

For amateurs, the hot topic is the question of what's to happen with the regulations regarding the requirement for Morse code to operate below 30 MHz, set out in regulation 2735.

The New Zealand spectrum regulatory authority, the Ministry of Commerce, proposed earlier this year that this Conference consider suppressing this requirement.

The New Zealand Amateur Radio Transmitters Society (NZART) has said they oppose the action. NZART President, Jim Meacham ZL2BHF said in his "From The President" editorial in the September issue of *Break In*, the Society's monthly journal, that this was the view of the majority of members.

It is a contentious issue around the world. Last year, the International Amateur Radio Union (IARU) resolved that there be "no change" to the Morse code licensing requirement. However, a German group promoted the introduction of a so-called *einstufigen Lizenzklasse* — a no-code general licence with all-band access. The German amateur radio society, DARC, opposed it. Similarly, a New Zealand group known as Oracle, wants the Morse code requirement done away with.

One of the Volunteer Group of Experts advising WRC-95, VGE8, recommended "no change". However, recently, the United Kingdom regulatory authority said they support the New Zealand Ministry of Commerce's proposal

to remove the Morse requirement.

A resolution made by the IARU Region 3 Conference in Singapore in September 1994 recommended retaining the Morse code requirement. The WIA voted in favour of the resolution.

The Spectrum Management Agency (SMA) in Australia has said they are opposed to changing the Morse code requirement, the Spectrum Manager, Christine Goode, said at the North Queensland Amateur Radio Convention in September. WIA delegate, David Wardlaw, said that, should a "tide for change" emerge at the Conference, then he'll be in urgent contact with the Institute, seeking guidance on the situation as it develops!

On other matters, one issue the Australian delegation to WRC-95 is raising concerns the Amateur Satellite Service. At present, the Amateur Satellite Service is only mentioned in the international frequency band plan tables by way of footnote, designated FN664. Country Administrations often forget about amateur satellite allocations when making frequency plans. There is to be a move to get the Amateur Satellite Service written-into the international frequency tables to avoid this problem.

This might seem a small thing, but is important as one of the major items on the Conference agenda is the use of the spectrum by the mobile-satellite services.

Harmonisation of the 7 MHz amateur band allocation for the three world regions is also under consideration. In most countries in Region 2, covering North and South America, the 40 m amateur band extends 300 kHz from 7.0 MHz, and is a primary allocation. In Region 1 (Europe, Africa, Middle East), and in Region 3 (Asia, Australia, the Pacific), the 40 m primary amateur allocation is only 100 kHz wide, from 7.0 MHz.

In Australia and New Zealand, we share 7.1 to 7.2 MHz with shortwave broadcasters. It may be that, world-wide, amateurs get a primary allocation of 200 kHz — a win for Regions 1 and 3, but a loss for Region 2.

Among other matters of concern to amateurs on the WRC agenda is the possible allocation of mobile telecommunications services close to the 70 cm band, and air-safety windshear radars moving onto 449 MHz, just inside the top end of our 70 cm band.

This Conference will be considering simplification of the international radio regulations, so as to make them easier for a country's administration to apply. The ramifications of this are likely to be put on the agenda for future WRCs which now come at intervals of two years, the next being scheduled for 1997, to be followed by another in 1999.

In the week before the WRC, the International Telecommunications Union (ITU) was to hold a Radiocommunications Assembly. These assemblies consider recommendations of the international Radiocommunication Study Groups, in which more than 1500 specialists from around the world participate. David Wardlaw VK3ADW is the WIA's representative on Study Groups which met in Australia over the past few years.

The Radiocommunications Assembly also assigns technical and operational studies to the Study Groups in preparation for WRCs. With the Study Groups' work for WRC-95 completed, the Assembly was to assign new preparatory work for the 1997 and 1999 Conferences.

The cost of sending a WIA representative to these important international conferences is paid out of a fund accumulated from a \$2 levy on the annual subscription of each WIA Division member.

Over to You — Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Help for Flying Doctor

I am a retired radio engineer, and I have been asked to carry out an investigation, on a voluntary basis, of a potential problem affecting HF reception at the Royal Flying Doctor receiving station at Cairns.

I have previously done this sort of work during my working career, but I am looking for a reliable person, experienced in radio operation, who would be prepared to volunteer some time to assist in field measurements for this project.

Final plans have not yet been made, but it is envisaged that up to five days would be required in the Cairns area, and five days in the Sydney area.

The Cairns work and Sydney work need not be done by the same person, and would probably be best done by persons living in those two areas.

Dates for doing the work have not yet been fixed but will probably be late November for Cairns and some weeks, or a month or so later, for Sydney.

Further details can be obtained by telephoning the writer of this letter on (03) 9458 2774.

Thanking you in anticipation of your interest.

Ron Rye
25 Derna Street
West Heidelberg VIC 3081

160 m Interference

I wish to draw attention to serious interference being caused on the 160 m band.

A signal centred on 1800 kHz with a broad Bessel spectrum is operating on a cycle of 70 seconds on, and four minutes off, 24 hours a day.

On 1801 kHz the signal is S9 + 20 dB; at 1825 kHz it is S9 + 5 dB; and at 1840 kHz it is S7 at my QTH. Numerous other VK amateurs have reported it at S9 on 1825 kHz, including VK3AX, VK3DQW, VK2DPS, VK4YB and VK3ZL.

A complaint was filed with the SMA late August, but no response had been forthcoming at the time of writing on 9 September.

As we are the primary users of 1800 — 1825 kHz, I believe we are entitled to an explanation as to why a Bessel emission is being permitted in spectrum specifically designated narrow band.

As far as I am concerned, 1800 — 1825 kHz is wiped out when the device is transmitting, and anything below 1840 kHz is unusable for DX working.

From prior information and direction finding with my shielded loop, I have strong reason to believe I know the location and operator of the device concerned. But this is another story.

Ian F Berwick VK3ALZ
107 Loongana Avenue
Glenroy VIC 3046

ar

The new apparatus licence fees' structure, which came into force on 3 April 1995, arose out of a recent public inquiry by the Spectrum Management Agency (SMA) into the apparatus licence system. The inquiry concluded that the apparatus licence fee framework should be equitable, efficient and transparent, with licence fees reflecting the demand for and the amount and location of spectrum used as well as the level of SMA costs. Under the new licence fees' structure, some apparatus licence fees have increased while others have decreased, with overall licence revenue from licensed equipment remaining about the same in real terms. The fees paid by amateurs are still considerably less than the fees paid by other commercial users for similar sized and positioned segments of the Spectrum. The SMA will provide protection to any service that has primary status as stated in the Australian Spectrum Plan, this includes amateur repeaters and beacons."

So what happened to the answer to the question? I must have missed it. Nowhere in the answer to question 3 is there an answer to the fee increase due to the change in the way the fees are charged. There is an interesting answer that the SMA will provide protection to any service that has primary status as stated in the Australian Spectrum Plan, including Amateur repeaters and beacons. Where have I seen the no protection clause for repeaters? Has there been a change?

Regulations

The amount of paper work involved in amateur radio is, at times, enormous. I see endless pages of information from the WIA and the SMA and it is difficult to read and take it all in. Yet another one from the SMA came my way. It is labelled **Amateur Licences Issued Under Radcom**. Other information on the front page is **RALI:AM2, date of effect 27-7-1995, sequence number 53**. It has come from Business Directions Group, Canberra. Hopefully we have it identified. Inside is a mixture of regulations relating to the different grades of amateur radio licences and, of particular interest, repeaters.

Now, as you may be aware, we have all been waiting a long time for the long promised "new repeater regulations". It is fast approaching four and a half years since these enlightened regulations were first talked about. In my opinion it is a disgrace that we have had to wait so long, and are still waiting. However, there are, from time to time, regulations appearing in various SMA publications that relate to repeaters. Whether they are new, or simply statements of already existing regulations, does not matter. Because they are being stated as the regulation

Repeater Link

Will McGhie VK6UU*

Please note the change in my home BBS from VK6BBS to VK6BBR. Due to a change in ownership of the bulletin board, and the previous owner requiring the call sign, VK6BBR was chosen.

Questions and Answers?

Commencing on page 24 of last month's *Amateur Radio*, information on a number of questions asked by the WIA to the SMA made interesting reading. The questions originally came from Don Graham VK6HK. There were two questions in particular which caught my eye, Question (2) and Question (3). Have a read of them and then my comments.

"Question (2) Is the licence fee for repeaters and beacons charged per site or per licence?"

The minimum fee will apply per transmitter (frequency or pair of frequencies), but any associated links are covered by that one transmitter licence. This licensing system differs from that operating previously, inasmuch as the one licence fee does not cover multiple repeaters and beacons at any one site.

Question (3) If the charge is "per frequency", does the SMA realise the massive fee increases that result at typical grouped sites? Is this justifiable considering the "no protection" attitude of the SMA?"

and hence must be considered as current now, and in the future, they require close attention. Once these statements become regulations it is very difficult to change them. You may have to devote years of effort and still have nothing to show, except a lot of wasted time.

To the Point

Getting back to RALI AM2. Section 6.6 confirms that a repeater cannot be linked onto another band without a means to allow only those amateurs who are licensed on the band to which they are linked. This means that, in order to access the link, the user must make a conscious decision to provide the correct code, such as CTCSS. In the past, Novice licences could not be linked from two metres to 70 centimetres. However, now that Novices have access to the repeater segment of 70 centimetres, they can be linked onto this band. But, there are situations where restricted access still applies, such as Novices onto the 1240 to 1300 MHz band, or the 6 metre band. What disappoints me is the need for this restriction. I had hoped the "new regulations" would allow amateurs to be linked onto bands they are not licensed on. My reasons are that amateurs who are licensed for both bands, such as full calls, are discriminated against. If as a full call you have a radio that is not fitted with the encoder, such as CTCSS, you are prohibited from using the link. Your only choice is to remain barred from using the link, or fit the appropriate encoder. You, as a full call, are required to go to the trouble through no limitation in your licence. It would be fairer and easier all round to allow any amateur to be linked onto any other repeater band. The repeater owner would not have the extra cost and complexity in fitting restrictions on the link, and amateurs would not be discriminated against. Perhaps the extra complexity should be placed on the Novice. An encoder is required by the station, who is not allowed access to the link, to gain access to the repeater only. Open access to all others.

More Restrictions

While on the subject of regulations and licence changes, has anyone realised that linked 70 centimetre to 6 metre repeaters now require CTCSS restricted access? When Novices gained access to the repeater segment on 70 centimetres this made open access to any six metre repeater via a link illegal! Novices are not permitted access to six metres. Let me make a prediction on the repeater regulation scene. The repeater regulations might change but they will be little different. One set of silly problems

will be replaced with another set of silly problems.

Low Volt Modification

I received a packet message from Randall VK2EFA regarding a problem with the low volt cut-out switch when exposed to particular levels of RF. The problem is, when fitted as a low voltage protector at a remote repeater site, it would switch off when the repeater's transmitter keyed up. RF was getting into the circuit and upsetting it. The solution is to bypass pin two on the NE555. Randall used a 10 μ F 25 V tantalum from pin two of the 555 to ground, and a 10 k 1/4 watt resistor from pin two of the NE555 to the wiper of VR1. Thanks Randall for the information.

Timer

At long last, room to include the timing switch I mentioned in an earlier article. One of our repeater sites carries the *WIA News* twice every Sunday. Once at 9.30 am in the morning, and a repeat at 7.00 pm. The site is solar powered and every mA is precious. The receiver that links the *WIA News* into this repeater site, listens to another repeater and, when it detects a 77 Hz CTCSS tone, switches this signal onto the local repeater. This is all this receiver does. Only for a total of about an hour each week is this receiver required to be switched on; the rest of the time it just chews up power. The link receiver and control circuitry draws about 120 mA, but it is surprising how it adds up. This 120 mA equates to 2.8 ampere hours per day, or about 20 ampere hours per week! That is the same as placing a 20 amp load across the battery for one hour every week. Almost all this power could be saved by switching the link receiver off all week, and only turning it on for the two, half hour periods of the *WIA News*.

Power saving circuitry could have been used, but the idea of a timer had other possibilities as well. I have looked long and hard for the right timer. All cheap, easily available, commercial timers I had looked at would not do the job. Some would turn on once a week, but only with one time on, not two. The timer also had to be able to run from a 12 volt source with little current drain and have an accurate clock. Onto the scene came the Arlec PC787. I read the specifications and it looked like it might do the job. However, it did not say an appliance could be switched on and off two or more times per day. I took the gamble and bought one for \$50.

Like all instruction manuals, the task of programming the timer looked daunting. I gave up on the instructions and had a play, set the internal clock and found programming easy. There are eight on

and eight off settings, and the most important point was that there appeared to be no limitations. You can have eight on and eight off times all on the same day, or any combinations on any day or days. Just what I was looking for.

12 Volts?

The next step was, could it be converted to run off 12 volts? As the PC787 comes, it is a mains operated device. You plug it in to a mains socket and it switches mains through to the front 3 pin socket, controlled by the timing function. There is a backup battery that keeps the internal clock running and holds the programming information. A loss of power does not see the unit lose its memory.

Removing two screws from the back, and separating the front from the back, revealed two circuit boards. The first is immediately behind the programming buttons and does not need to be modified in any way. The other board is attached to the back cover and has all the power circuitry. Inspection showed that the mains was switched by a 24 volt relay and the 24 volts was obtained by a "capacitive transformer".

Ever wondered how these tiny light appliances are powered from the mains? If there is a mains transformer in there, it must be very small and light. The point is there is no transformer as we know it. The 240 volt mains is lowered by means of a capacitor, in this case a 0.33 μ F. The capacitor has capacitive reactance which acts like a non heat producing resistor, dropping voltage but not dissipating any power. The only heat generated in the capacitor is due to dielectric loss, which is very small. By selecting the right value for the load, 24 volts DC is produced out of the bridge rectifier and applied to a zener diode for simple regulation.

That's how the circuit was meant to run, but would it run from 12 volts? The 24 volt relay would not, of course, so it was replaced with a 12 volt one, and all the 240 volt wiring removed along with the three pin mains in-out plug. The three pin plug socket combination is a snap-in module and proved easy to remove. A big hole is left where the three pin 240 volt in-out plug and socket assembly was. This can be blanked off, or you can just replace the front panel of the three pin 240 volt socket. The driver transistor for the relay is T1 as shown in the diagram. The connection you require is from the relay coil to the centre lead of the transistor. This transistor switches to ground. The other side of the relay coil comes from the 12 volt source, but not directly. The front panel LED is wired in series with the 12 volts to the relay coil.

When tried out, it all worked. The timer behaves as it should, operating the relay. The contacts of this relay are then available for whatever purpose you require. Of course, the relay could be replaced with any form of solid state switching you require.

Diagram

Hopefully, the accompanying diagram (Fig 1) will help in the modification of the timer to 12 volt operation. Note the external 12 volt connection point. Anywhere on the printed circuit board that is easy to connect to can be used for the 12 volt power. The bridge rectifier is where the 12 volts must end up. The negative lead to the minus sign and the positive to the plus sign. Also note the switching transistor at the bottom left of the circuit board.

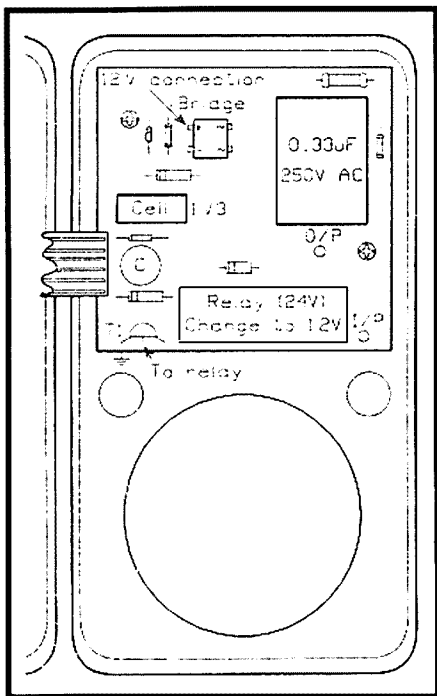


Figure 1 — Diagram showing changes to be made to the Arisc PC787 Digital Time Switch to enable it to operate from 12 volts. See the text for full details.

Accuracy

The timing accuracy on the unit I tested was good. It lost about four seconds a week. This would mean a loss of less than four minutes a year. In the application I required it for, a guard band could be set so the timer came on 15 minutes before the *WIA News*, and switch off 15 minutes after the news. When visiting the site the clock could be reset, anyway.

There is another brand of this clock on the market. It looks the same as the PC787 and probably works exactly the

same, but I cannot say for sure. I hope this handy clock fills a requirement on many a repeater site.

Exception

John Martin, Chairman of FTAC, took exception to my comments on trying to legalise 29 MHz linked gateways. My comment was that efforts to licence these systems had gone as far as FTAC where they had stopped. John's comment was that this could infer that FTAC was where the problem was in stopping the linked gateway idea. John gave several reasons

as to why linked gateways are unlikely to become a reality, including:

1. there is, at present, no segment available on the 28 to 29.7 MHz band for such systems. The WIA band plan would have to be changed to allow for this type of operation;
2. international considerations; and
3. the SMA are unlikely to agree.

When time permits I will begin tackling these problems.

*21 Waterloo Crescent, Lesmurdie 6076
VK6UU @ VK6BBA

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Standards

Interim Report on the TE/7/1 Committee on Standards for Radio Frequency Emissions

The last meeting of the Standards TE/7/1 Committee was held in Melbourne over Easter and was attended by Dr David Wardlaw VK3ADW and the New Zealand representative Andrew Corney ZL2BBJ. The WIA representative, Dr Vin McKenna VK3AOY, was unable to attend but, in consultation with VK3ADW and ZL2BBJ, compiled the following report.

Summary of Related Matters

1. The issue of effects of exposure to radio-frequency radiation (3 kHz to 300 GHz) is a highly emotive one.
2. The committee is fairly representative, including CSIRO, Defence Department, Unions, Austel and Civil Aviation, etc.
3. There are international bodies such as the World Health Organisation (WHO), the International Radiation Protection Association (IRPA), and the American National Standard Institute (ANSI) discussing similar topics, and possible Australian standards may need to conform to international norms.
4. The Australian standard AS 2772.1 — 1990, is still the basis for Australian discussion, but an amended joint version for Australia and New Zealand, based on IRPA, will be called DR95900.
5. A thermal effect level of four watts/kg specific absorption rate appears to be internationally accepted.
6. There is a distinction to be made between a scientifically measured safe level and a politically acceptable defined level.
7. Distinction is drawn between Near-Field Radiation (*distances less than one wavelength*), and Far-Field

Radiation (*where Power Flux Density (S) measurement is applicable*).

8. Possible sources of radiation damage to the public include radio and TV transmitters, microwave communication links, domestic microwave ovens, and medical diagnostics such as magnetic resonance techniques.
9. Some factors that must be considered in setting standards are: maximum exposure levels, partial or total-body exposure, length of time of exposure, peak field strengths, critical frequencies, etc.
10. In legislating standards, consideration may be given to cases where there is an element of choice for the individual, and hence personal responsibility (*such as whether one opts to hold a transmitter close to one's head*), as opposed to fixed site installations (*such as Radio Transmitters or Cellular-Phone Relay Towers*), where there is no choice for those who have to work or live in the vicinity (occupational vs non-occupational exposures).

Medical Evidence of Effects of Radiation

From a layman's point of view, the main concern seems to be the health risk due to the increasing use of mobile and portable phones (especially the siting of base stations and repeater towers). (*This has taken some of the media pressure away from the concern over fixed location higher power installations.*)

A comprehensive report from a CSIRO scientist, Dr S B Barnett, lists much of the research that has been and is being conducted, but it is difficult to find any conclusive evidence from studies undertaken so far.

There has been a move away from investigating gross scale effects on living tissue, to the effects on single cells (in vitro); leading to a new research field of bio-electromagnetics. While studies on animals allow investigation of possible harmful effects on a complete biological system, these studies are expensive and long-term and are subject to other variables. (Types of damage being investigated include carcinogenic effects, ocular effects, genetic effects, and nervous system responses.)

However, studies on single cells are easier to control and may provide understanding of the mechanisms responsible for the larger abnormalities.

There is a distinction to be made between the thermal effect (rise in body temperature) due to radiation (eg thermal damage to the brain at temperatures near 40° C) and the electromagnetic effects (eg microwave radiation affecting the transfer of calcium through cell membranes).

Implications for the WIA

At present there is no requirement for any action, publicity or appeals. The needs of the amateur confraternity in both New Zealand and Australia are being considered in a favourable and sympathetic light.

and to be successful requires considerable skill (as well as an element of luck). This QSL was sent to a German short wave listener who happened to hear the transmission on 27 MHz, which was part of a fox-hunting championship. The German translation is roughly "Student (Fox-hunting) Championships of the German Democratic Republic" — "Young radio operators" and "Young fox-hunters".

TM400

This French card celebrates one of the greatest victories of the Second World War, that of the Normandy Invasion, which had the code-name "Overlord". The invasion began at 2 am on 6 June 1944, which date has since become known as "D-Day". After a massive air bombardment and airborne paratroop landings behind German lines, divisions of the American, Canadian and British forces established bases on the French mainland. The flags of those countries are shown on the QSL card. The prefix TM has been used before to celebrate the invasion. One such card is TM6JUN with its appropriate suffix, but TM has also been used relatively recently for contest operations (TM2C, TM2O, TM2X, TM5B, TM5T, TM5V, TM0P and TM9WPX, official stations (TM9AF, TM5SIR), special events such as the Le Mans race (TM6ACO), ITU (TM3ITU), and sport (TM5RAE), as well as IOTA locations (Brehat Is, TM1BRE, Chausey Is TM5CHA).

VK6HJM

At first sight one might wonder at the issue of an H prefix suffix to a VK6 radio amateur until one realises that the QSL shown is a pre-war one (dated 4 July 1936) and is a Short Wave Listener's report. As has been pointed out in these columns before, short wave listener reports were a very welcome occurrence when DXing was in its infancy. Like so many SWL callsigns of that era, the suffix

QSLs from the WIA Collection

Ken Matchett VK3TL* Honorary Curator WIA QSL Collection

A5BG

This QSL is one of the most historical items in the WIA National QSL collection. It belonged to Harry Kauper, technical manager of radio station 5CL. It was Kauper who made known to the Rev John Flynn the work of Alfred Traeger, inventor of the pedal radio, and who recommended him as a radio technician who could assist Flynn in his work.

Traeger had in fact been experimenting with a 600 volt generator in the 5CL workshop and it was the modification of this generator that gave Traeger the idea that it could be used to generate power for the radios being used by outback stations. The rest is all history, a fascinating history that can be read in the recently published book *Traeger, The Pedal Radio Man* by Fred McKay.

This particular QSL from Kauper A5BG was to A B Leonard of Drouin, Victoria

and is dated 7 October, 1926, nearly three years before his meeting with "Flynn of the Inland".

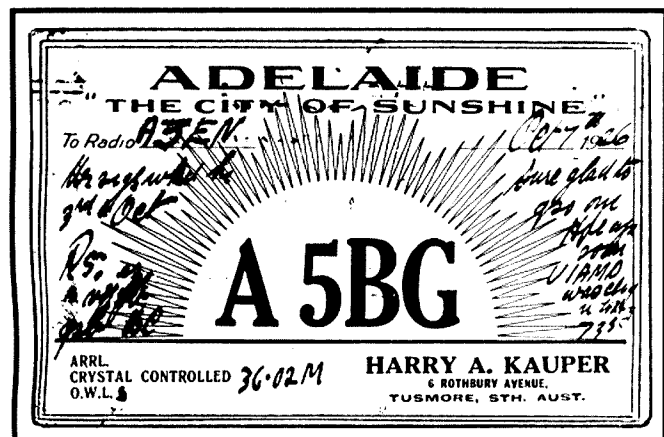
AN7IOT

For a considerable time the prefix LU was the only one allocated to Argentina. Prefixes LU1 through LU9 were used and were based upon geographical districts (the prefix LU0 was an official prefix and was used mainly for portable operators). The picture is quite different today with the issue of, amongst others, AN, AY, AZ, L, LQ, LT and LW prefixes.

The QSL shown (with its IOT suffix), celebrated an IOTA (Islands on the Air) convention in Torremolinas, Argentina. This award is rapidly becoming a very popular one and a real challenge to those DXers "who have worked 'em all!"

Y89MJP

"Fox hunting" nowadays plays an important role in most radio club activities,



GERMAN DEMOCRATIC REPUBLIC

QTH: Templin



Y 89 MJP

Schülermeisterschaften der DDR
"Junge Funker" und "Junge Fuchsjäger"

Traditionslager "Klim Woroschilow"

REF

Overford

6th June, 1944

RADIO CLUB GENISTA
FGKNN
B.P. 120
34002
MONTPELLIER
FRANCE

Les sanglots longs
Des violons
De l'automne
Blessent mon cœur
D'une langueur
Monotone.

Memorial Station

of the call frequently indicated the initials of the listener, in this case H J Morrissey.

D4BEC

The prefix D took the place of the old "intermediate" prefix EK on pre-war German QSL cards. The WIA National Collection is fortunate in having nearly 200 pre-war D3 and D4 prefix QSLs. After the war this prefix was used by British Forces of Occupation (D2), American Forces (D4) and French Forces (D5). A few German nationals operated under the D3 prefix. The card shown, D4BEC, is dated 17 October 1936 and shows the Graf Zeppelin LZ127, together with the inventor of the Zeppelin, Graf (Count) Zeppelin, the name "zeppelin" or "dirigible" being used to denote a rigid

balloon which could be steered. Unfortunately, the fact that most were filled with inflammable hydrogen gas led to many catastrophes, including that of the famous R101. The zeppelin shown was more fortunate in accomplishing a few hundred flights with numerous passengers.

Thanks

The WIA would like to thank the following for their kind donation of QSL cards to the Collection: Bob K4UFE, John KB8GYS, Lindsay KW0U, Randy N0LRJ, Joe VE3HMD, Mavis VK3KS, Alf VK3LC, "Snow" VK3MR, Ivor VK3XB, Hans VK4/HE9RFF, Bob ex-VK4BB (courtesy of Gordon VK4GNN), Percy VK4CPA, John VK5FOX, Ken VK6KN, Robin VK7RH (Div Sec), Jim VK9NS and Trefry W6CSZ.

Correction

In the QSLs from the WIA Collection column in the September 1995 edition of *Amateur Radio*, it was stated that the special station V15XPO was operated by Peter VK5KD. This should have read by Peter VK5KDX. I offer an apology for the error.

Author's Note

The Hon Curator of the Collection is trying to complete the collection of German DOK numbers so, even if you are not a confirmed DXer, you may be able to help by forwarding them to his address. Victorian readers might like to drop them into the VK3 Division WIA rooms at Ashburton, where they will be picked up.

*4 Sunrise Hill, Montrose VIC 3765
Tel (03) 728 5350

ar

AUSTRALIA

VK6HJM

H. J. MORRISSEY, 24-7th AVENUE, INGLEWOOD, PERTH, W.A.

Radio VK311L Ur Sias hnd hr 0759 GMT on 4-7-36

QSA 5 R 8 TONE

Revr -5 Tube Superhet with Single Tube SW Converter

PSE. QSL

Vy 73 fm H. J. Morrissey

GRAF ZEPPELIN
"E. T. 1038" "E. S. 1017"

D4BEC

NOWAWES BY POTSDAM

TO RADIO VK 4 BB

WKO 7-18 06 11 10 20 047
QSA 5 QUR 6 OSR 11-3
GFM QBN KCB 19-20
KILLER CO FF PA 11
Preceptor 1-1-3 April 1936
Frank 177 Perth, WA
ESP GUN... RADO Berlin W 11, ex-direct
VY 73, DBT K. KOLLHORNEN

**Repeaters — additions, deletions, alterations.
Have you advised the WIA of changes
needed to the Repeater List?**

Spotlight on SWLing

Robin L Harwood VK7RH*

There has been quite a lot happening of late on shortwave radio. The Voice of America axed all of its English language releases to Europe on 24 September. This naturally caused quite a deal of comment on the various Internet shortwave echoes. The VOA had been broadcasting to Europe in English for 53 years. As well, programming in Bulgarian and Lithuanian was also suspended from shortwave, although the latter will be continuing on relays over domestic networks in Bulgaria and the Baltic countries. This momentous decision was only made 36 hours before it came into effect and just after a Congressional committee slashed the United States Information Agency (USIA) fiscal budget.

The activity of Radio Free Europe/Radio Liberty has also been cut. Shortwave relays of the various language segments have also been reduced as relays over domestic MW and FM are reaching a wider audience than shortwave did previously. Radio Liberty, which primarily broadcasts to the former Soviet Union, further reduced their Russian programming, and domestic relays are now carrying the VOA's Russian service. It is interesting to note that the frequency and transmitter schedules of both the VOA and RFE/RL are now combined into one. I presume that the latter is now under the umbrella of the USIA.

Sadly, yet another shortwave institution came to a close on 19 September. After nearly sixty years of continuous broadcasting, the last program of the "Happy Station" was aired. This program commenced under Eddie Startz, who became a shortwave legend, before World War II. "The Happy Station" was aired on Sundays over station PCJ and except for the war, was broadcast every Sunday. When Radio Netherlands took over PCJ, Eddie's program was absorbed into their regular Sunday output. There were many people who thought that the program wouldn't continue when Eddie retired in 1961 but it did, under Tom Meijer. Throughout its life "The Happy Station" only had four comperes. In recent years, the program did not have that original spark, which unified its worldwide listener base and it appeared to have passed its use-by date. The "Happy Station" has been replaced by "Sincerely Yours" which is at the same time as its predecessor. Tune in at either 0750 or 0950 UTC on Sundays on the usual Radio Netherlands channel of 9720 kHz.

Have you recently come across a signal with a female voice continually repeating "Charlie India Oscar Two"? Or maybe it is "Mike India Whisky Two" or "Kilo Papa Alfa Two", two alternate identification announcements. This is reportedly the Israeli MOSSAD Intelligence organisation and the purpose of these coded numbers stations is shrouded in secrecy. The times are somewhat irregular but not so the frequencies. 10125 kHz is often observed by amateurs on our 30 metre band, usually around 0430 UTC. 17940 kHz is another channel heard, usually in parallel. The sender uses the H3E mode, that is upper sideband with carrier. The alternate callsigns sometimes pop up on the same frequencies but I have heard "MIW2" on 14354 kHz and on 11070 kHz at 0700 UTC. There are other so-called "numbers" operations, usually in Spanish, but these are not in the Middle East and are probably in the Americas. All of these operations are computer-generated voices, usually female.

Then there is one numbers station that is preceded by the playing of an Interval Signal. This signal is a tune known as the "Lincolnshire Poacher" played on an electronic keyboard and is heard at the beginning and end of each transmission. A female with an Oxbridge accent reads out the numbers in English. Some say the sender is based in Cyprus or in the UK and there are no prizes guessing who is behind this operation. A companion station has been heard on 15615 kHz at around 2300 UTC and the tune on this channel is the first few notes of a First World War ditty, "Cherry Ripe". The same very English female is heard reading out

numbers. The location is much closer to Australia and to the north west.

I have been receiving daily e-mail messages from the Worldwide Utility Net over the Internet. This echo is mainly for those devotees of utility stations, usually found in between the broadcasting allocations on shortwave. However, the server of WUN recently crashed and WUN is now looking for a new computer home. When this is finalised, I will include it here when it becomes available, as numerous SWL enthusiasts are increasingly interested in this area of the hobby.

The VOA weekly program, "Communications World" recently was revamped, following the departure of Gene Reich to a commercial telecommunications venture. The comperer now is Dr Kim Andrew Elliot, who is no stranger to shortwave. He has been involved in audience research for the VOA and is a keen SWL/DXer himself. "Communications World" formerly concentrated on telecommunications and electronic industrial developments but is now also bringing news on the media within the USA and beyond, and some shortwave news, which has been absent until now. The presentation has markedly improved, making it easier to absorb the information. "Communications World" is best heard here at either 1030 or 1230 UTC on Saturdays. Try 5985 kHz at 1030 or 9645, 9760 or 6110 kHz at 1230 UTC.

Well that is all for this month. Don't forget if you have any queries, you can contact me at the addresses given below. Have an enjoyable time monitoring the shortwave bands.

*52 Connaught Crescent, West Launceston TAS 7250
VK7RH@VK7BBS.LTN.TAS.AUS.OZ
Internet: robroy@tamarcom.com.au
Fidonet: Robin.Harwood 3:670/301@fidonet.org

ar

VHF/UHF — An Expanding World

Eric Jamieson VK5LP*

All times are UTC.

Beacons

Wal VK6KZ sent me a packet message and, to make sure, a letter, which said that the four Perth beacons (VK6RPH) are now operating continuously, with horizontally polarised antennas, from the 23 m level of the Channel 9 TV tower at Walliston, on top of the Darling Scarp east of Perth, locator square OF88. Frequencies are 50.066, 144.460, 432.460 and 1296.460 MHz.

The power of each beacon is a nominal

10 watts, and identified about every ten seconds in CW as "VK6RPH PERTH". Keying is FSK on 1296.460 and "on-off" on the other frequencies.

The re-build and installation was a team effort with much of the construction undertaken by Bob Blinco VK6KRC but others who deserve credit include Don Graham VK6HK, Bob Penno VK6PO, Alan Woods VK6ZWZ, Al Edgar VK6ZAY, Peter Sumner VK6ZLX, Ross Tolchard VK6KAT, Wally Howse VK6KZ and, for antenna installation, Trevor Solomon VK6MS. A number of others also helped.

Wal also said: *Neil VK6BHT and I are making steady progress on construction of the DB6NT Mark II transverter but there is still a long way to go. We will be on 24048 MHz. I now have 200 mW on 10 GHz and looking forward to the summer season. Al VK6ZAY has designed his own 10 GHz transverter.*

Wally Green VK6WG is working to have a 10 GHz station going before the season. He is checking out Japanese sources and hopes to get an assembled unit. Wally featured on the front page of his local newspaper last month with a photograph of him at the top of his 17 metre tower on his 84th birthday!

Cec Andrews VK6AO and I maintain our morning skeds on 144 and 432 with Wally VK6WG. Cec has bought a 4WD and is equipping it for mobile/portable operation. He plans to do a long tour across the top of Australia next year and, if he can get a FT290R or similar, will have HF and 50/144/432/1296 MHz on board. When he retires I can see some competition coming up for portable operation!

Bruce Douglas VK6BMD is extremely active on the various satellites and has pretty well automated his station — downloading software/data/satellite elements, etc. Bruce is editor of the VHF Group Bulletin. Al VK6ZAY, Arnold Shepperson VK6VV, Ron Kinsey VK6AKI and Alan VK6ZWZ are also very keen operators on the satellites and are using 2400 MHz for cross town links as well as for satellite.

Hauke Wunderlich VK6YBQ has moved to Paraburdoo in the Pilbara. He is a keen SSB operator and we have great hopes of openings on 144 MHz to him. He is looking for 50 MHz gear.

Well, that's a few notes on what I know is going on in VK6. Thanks Wal.

Field Day

The West Australian VHF Group is holding a Field Day on Sunday, 19 November, divided into two hourly intervals from 0230 to 0830 UTC. All bands above 50 MHz and licensed modes, may be used.

Each contact is worth one point, plus distance, band and portable operation multipliers. The rules were published in the September VHF Group Newsletter and are quite extensive though straightforward — too long to include here. If you are interested, contact The Contest Manager, West Australian VHF Group Inc, PO Box 189, Applecross, WA, 6163.

Tasmania

From *Graham VK7ZO: Welcome to the world of packet! Thought I'd drop you a short message to say that I have not only enjoyed reading your VHF news but also the quotes. I started out in ham radio many*

years ago as VK7ZBR in Launceston, in the days of crystal locked converters and Tx's and homebrew everything on 2 m. I nearly made it across Bass Strait with a 5763 in the final and about 2 watts! Anyway now more years ago than I care to remember, I thought it was time that your contribution was acknowledged. I am still on VHF, using the digital satellites and spend a fair bit of time sat-watching. I still use HF, but after years of CW I wanted to have a complete change so got into packet. Thanks Graham, for your contribution.

Touring G-Land with Six Metres

Peter VK4APG sent a report of his overseas activities during June/July; three weeks in England, a week each in Scotland and France.

Peter listened on six using a TS60 and 1/4 wave whip on the vehicle during touring parts of holiday, as no land mobile operations are permitted on six. When conditions warranted, for portable operation he used a two element delta quad.

He concentrated activities on two days during the weekend of 24/25 June, spending the afternoons under a five element Yagi at 6 m, whilst stationary in a farmer's field in IN79, at the southern end of The Lizard Peninsula in the UK. Countries worked were: 5B4, 5T6, 9A2, 9H3, CT/G3, CT3 Madeira, DL2, EH7, F6, G4, GU2, GW7, HB9, IK1, LA3, LZ1, OE6, OK2, OZ7, PA3, R3, S57, SM6, SP5, UT6, YL2, YT1, ZB2. Missed contacts with Finland, Sardinia, Slovakia and GJ4ICD Jersey.

Driving around Cornwall, Peter was frustrated to hear the Azores and Malta beacons for several hours every day for a week at 599, but no one to work! 5T6E in Mauritania was a good contact and heard many times. Lacking a DXCC list, Peter let go contacts to EH6, EH8, EH9 and CT. He was sure he missed others when he attended the "local" for dinner and sampled the pints of Guinness!

His unconventional callsign of G/VK4APG/P proved a mouthful for those less fluent in English. It was: *Difficult to get the "/" across to most non-G stations. I tried "stroke", "slash", "oblique", "dah, di, di, dah, dit" over and over again. Then when I said my grid square was IN79, that needed confirmation several times. They didn't believe that an Australian would be so eccentric as to sit in the middle of a field at the southern tip of the Lizard, in 30 degrees heat, playing radio in a grid they hadn't worked before!*

No trans-atlantic contacts were made, but he heard quite a few Ws, a couple of VEs and a KP4 on the 1/4 wave whip whilst driving to and from social activities.

Whenever the beam went up, the signals seemed to have weakened.

Peter concludes by saying: *A good time was had but working summer Es just doesn't come close to the thrill of working real DX via extended F2 from the home QTH. Thanks for writing, Peter.*

New VK4 23 cm Distance Record

Ross VK2DVZ advises that on 23 September at 2157, Adrian VK2FZ/4 at Maleny, about 80 km north of Brisbane, completed a two-way SSB contact on 1296.100 MHz with Ross VK2DVZ at Lansdowne, a distance of 554.4 km, which takes the record from Rod VK4KZR, who listened to the contact.

Adrian used a single loop Yagi with four to five watts at the antenna. Ross used a 2.4 m solid dish at 8 m and 75 watts at the feed horn, from a water-cooled 2C39 valve. Ross's path to the Brisbane/Maleny area is mountainous throughout, but with the aid of aircraft-enhanced propagation, 144, 432 and now 1296 MHz have made the distance.

Adrian recently moved from Sydney and awaits a VK4 callsign. He expects to extend the above distance as he can hear the 1296 beacon from Lyell VK2BE in Sydney.

Ross adds that on Saturday, Sunday and Wednesday each week, he and Lyell VK2BE have 1296 MHz contacts, after which each key their 1296 CW beacon and if heard, receive reports from Adrian via two metres SSB. The beacon has been heard in Maleny at S8, with good signals also to Brisbane.

From 1/8 to 23/9 on two metres SSB, Ross VK2DVZ worked the following: VK1 BG, 1VP, 1DO in Canberra; VK1BUC/2 Ulladulla; VK2 XKE, DXE, ZAB, YUS, FLR, Sydney; VK2BIT Robertson, VK2TWR Nimmitabel, VK2EMA Tottenham, VK2KF Salamanda Bay, VK2ZNS Taree, VK2IBT Cessnock, VK2TWR/2 Nelsons Bay, VK2ZRE Adaminaville, VK2BRG Coffs Harbour, VK2AAS/2 Mollymook, VK2BBF Springwood; VK2FZ/4 crossband to 2 m, VK4KZR, LP, ARN Brisbane; VK4EKA Toowoomba.

Thanks for the report Ross. I had no idea that such is the extent of VHF activity in VK2.

Spectacular Es Season

Last month I reported the spectacular Es results for June in the northern hemisphere. One would have thought that this was sufficient for one summer, but no, July was even better! *Emil Pocock W3EP* writing in *The World Above 50 MHz* in QST for October, provides vivid details of contacts between the US and Japan; and

to Europe in a separate article which provides incredible reading.

[If you can obtain a copy of *QST* for October 1995, read the special article by Emil W3EP, headed Spectacular 1995 Transatlantic Sporadic-E Season, commencing on page 33. I would like to include it in *Amateur Radio*, but think the five pages it occupies may be too long. However, I congratulate Emil for preparing the article, which should be required reading for avid six metre operators . . . VK5LP.]

Emil says: *July 1995 has been one of the most exciting months for VHF propagation in several years. In addition to the usual fare of summer E-skip and tropospheric openings, there were several other unusual propagation events. Six metre stations in the eastern half of the US and Canada worked into Africa and Europe on at least 16 days in July, providing openings of quite unprecedented duration and geographical extent. In addition, a new 3.3 GHz distance record*

was broken during widespread tropo ducting in the central part of the country. Either of these events could have been the lead story for this month (October), were it not for other exceptional openings.

During the first few days of July, stations in the Pacific Northwest experienced two great openings. For the first time ever, the transpacific tropospheric duct, which has provided thousands of VHF and UHF contacts between Hawaii and California, extended for the first time into Washington state. A new world tropo distance record was set on 144 MHz as a consequence. A day later, many of these same stations worked dozens of Japanese on 50 MHz during one of the best ever trans-Pacific sporadic-E events. Just one of these openings would have made a memorable summer — but two!

New Tropo Record to Hawaii

By June 28, the 144.170 MHz beacon on Mauna Loa, 13,680 feet (4170 metres) above sea level, tipped off the West Coast

that the Pacific duct had formed again. On June 29, Paul Lieb KH6HME, was on the mountain. Over the next three days, Paul filled nearly seven log pages with two metre contacts from XE2EED (DM12) in the south to the Seattle area (CN87) in the north. This was undoubtedly the most widespread Hawaii-to-West Coast opening ever recorded.

On June 30 at 0425, KH6HME worked W17Z (CN87) and N7KSI (CN86) near the coast of Washington, the first-ever 144 MHz contacts from that state to Hawaii, and then N7AVK (CN84) in Oregon around 0640. The next day, Paul hooked up with W17Z again around 0100. The breakthrough came at 0600, when KH6HME worked several Seattle-area stations, beginning with W7FI (CN87), followed quickly by WM7A, W7YOZ and NU7W

The new 144 MHz world tropo distance record seems to have fallen to Jim Costello, W7FI (CN87vr), at 4333 km, eclipsing the old record from Hawaii to Baja, California,

WIA News

Membership Campaign

As members will no doubt be already aware, the Wireless Institute of Australia (WIA) has launched a nationwide Membership Recruitment and Retention Campaign, offering an Icom IC-706 transceiver prize as an inducement to radio amateurs and shortwave listeners to join the WIA, and to members to renew their subscription.

The WIA urges all members and affiliated organisations to get behind the Campaign and publicise it at every available opportunity — at club and association meetings, on the air, eyeball QSOs, in club newsletters, etc.

The deal is this: Those who join or renew their membership before 31 May 1996 are eligible to go into a draw for the Icom IC-706 transceiver — worth almost \$2500 — at the end of the Campaign. Those members who had the foresight to join or renew their membership since 1 June 1995 are already in the running to win the magnificent Icom rig. Members on a three-year subscription, and life

members, are included automatically. All grades of membership are eligible.

This 1995-1996 Nationwide Membership Recruitment and Retention Campaign is a first for the Institute. The WIA Federal Council approved the idea in principle at the Annual Convention at the end of May, this year. Icom generously agreed to donate an IC-706 multi-band transceiver in late August, and the Campaign was launched at the end of September.

The IC-706 transceiver is one of the latest releases from Icom (Australia). It covers all nine HF amateur bands from 1.8 MHz through 28 MHz, plus 50-54 MHz and 144-148 MHz. Delivering 100 watts on all HF bands and 50 MHz, and 10 watts on 144 MHz, the IC-706 features continuous receiver coverage between 30 kHz and 200 MHz and all-modes operation: SSB, CW, RTTY, FM and even AM. The IC-706 can thus be used by all amateur licence grades.

The winner will be determined by a draw following the end of the

Campaign and notified by mail. The result will be published in the WIA's *Amateur Radio* magazine. Of course, should the winner not have a licence — yet — or does not have a licence which allows them to use the transceiver's full features, the WIA trusts that they will make responsible use of the equipment. And what an incentive to get that Unrestricted ("full call") licence!

When publicising the Campaign, stress the benefits of membership. Among the benefits enjoyed by WIA members is receipt of the Institute's monthly journal *Amateur Radio* — the only monthly magazine devoted entirely to amateur radio, plus low-cost QSL bureau services, and representation to authorities at state and national level.

Over a period, the WIA negotiated improved privileges and operating conditions for amateurs, introduced this year, and recently successfully lobbied the government to reduce a proposed massive increase in licence fees, which were subsequently cut from \$71 to \$51.

by 58 km. Congratulations! Jim runs 150 W to an 8-element Yagi. Incidentally, W7YOZ holds the American 144 MHz sporadic-E record with WA4CQG (EM72) at 3495 km, made in 1988.

Conditions on the higher bands were not good, despite efforts on both sides of the opening. KH6HME made 432 MHz contacts with K6QXY and W6SYA but no others were completed.

Six-Metre Sporadic E to Japan

The two metre opening to Hawaii was exciting enough, but the Pacific Northwest was treated to a second extraordinary opening just 24 hours after KH6HME faded into the noise. From 0500 to 0930 on July 2, six metre stations from British Columbia to Oregon had a fantastic sporadic-E opening to Japan — the best in nearly 20 years, according to Dave Bernhardt, N7DB (CN85). Dave and others caught wind of the opening when they heard 49.750 MHz television video, most likely from China. Japanese stations soon filled the six metre band and Dave made his first contact at 0505. W7FI had a difficult time at first attracting the Japanese, who were preoccupied with a contest, but he started running JAs by 0550.

For more than three hours, Japanese stations filled the band as high as 50.4 MHz and working through huge pileups, both on SSB and CW, was quite a chore. The number of OSOs made on both sides of the Pacific was impressive. VE7SKA (CN88) tallied 45 JA contacts in a little over two hours, W7XR (CN85) logged more than 80 QSOs, and N7DB had more than 90 contacts, mostly on SSB. W7FI reported more than 120 QSOs in at least 16 grids in southern and central Japan. Many of the Japanese stations were 59. Jim's longest contact to Kyushu Island (PM53) was about 8400 km, near the limit of four sporadic-E hops.

Like many sporadic-E openings, this one was geographically constrained on both ends. It did not appear to extend far inland along the Pacific Northwest coast. K6QXY (CM88) worked JA2DDN at 0644, but few northern California stations were able to make contacts. No HL, BY or UA0 calls were reported.

Conditions over the rest of the country were exciting. The tremendous six metre sporadic-E conditions to Europe and the Caribbean, reported in last month's column, continued into July. Six metres was open to Africa or Europe on 10 consecutive days (July 2-11), contributing to a total of 16 days for the month. Conditions on July 7 were undoubtedly the most widespread. The Northeast worked Europe and Africa for 14 hours that day, and states as far west as Minnesota, Illinois and Missouri had several hours of

transatlantic propagation in the early evening.

From several perspectives, the 1995 sporadic-E season was remarkable. North American six metre stations worked more than 35 African and European countries, while Europeans logged all of the states east of the Mississippi, plus the next tier from South Dakota to Texas, five Canadian provinces, and at least four additional countries, FP, ZF, KP4 and YV.

There was transatlantic propagation on at least 32 days during June and July, for a total of more than 160 hours! This is simply unprecedented in the annals of six metre activity. In comparison, six metres was open across the Atlantic on 17 days each in 1993 and 1994, but the openings were generally of shorter duration and less extensive coverage.

Transatlantic propagation was not the only E-skip during the month. There were double-hop conditions from coast to coast on so many days that these long paths almost became routine. Most of the eastern half of the country worked into the Caribbean nearly continuously on July 1 from 1245 to 2400. Among sought-after stations were FG5BG, YV4AB, HI8DAF, HP3/KG6UH, TG9AJR and NP2CG, although many others were on.

Widespread two metre sporadic-E openings occurred on July 1, 5, 9, 18, 19, 20, 21 and 22, which involved nearly all parts of the US, with the main activity occurring after 1700. N2PC/O (DM78) in Colorado made 15 QSOs in Florida, all over 2200 km. The longest was with K2RTH/4 (EL95) at about 2675 km.

The opening on July 5 was notable for some very short-distance contacts and strong signals at about 900 km. TV video was heard above 180 MHz but no contacts were made on 222 MHz.

Southern Hemisphere Repeat?

Will the above incredible conditions translate to the southern hemisphere this summer? I gave prominence to the excellent writings of Emil W3EP from QST, in last month's *Amateur Radio* and again this month, for the very reason that I

believe we in Australia and wherever my readership extends, should be informed of such important events, if for no other reason than it will make us more vigilant, especially on six and two metres, during the sporadic-E summer period.

The great summer Es we had through 1984/85/86, the cycle minimum, which led to repeated Australia-wide two metre Es openings to all states and New Zealand, was followed in 1989-91 with an outstanding Cycle 22, with its vast F2 coverage, leading to many operators, world-wide, achieving DXCC and WAC on 50 MHz.

Graham VK6RO has sent me a copy of the Solar and Geophysical Summary for May 1995, from IPS Radio and Space Services, <http://www.ips.gov.au> being their World Wide Web address. The lead-in reads: *Solar activity was at very low levels during May, The monthly-averaged sunspot number for May (14.7) being only marginally larger than last month's value (14.6), which was the lowest in the decline of this cycle. The low level over the last two months is similar to that expected near solar minimum which is the time at which the sunspot number begins to rise at the start of the new solar cycle. Unfortunately, (at least for those who like an "active" sun) other indicators suggest that we have still some way to go before solar minimum and the onset of the new cycle.*

The predicted lowest Smoothed Sunspot Number is shown graphically as probably occurring between March and June 1996 and by the end of 1997 could be around 70. So be patient! The same set of indices shows the 10 cm Flux falling to 66 on 26 and 27 May 1995, its lowest point.

A notation says that the 10 cm flux is the radio power of the sun at a frequency of 2800 MHz (wavelength 10.7 cm). This flux is a good indicator of solar activity and is widely used in place of sunspot numbers. The values are measured by the Penticton radio observatory, Canada. Unlike the sunspot number, the 10 cm flux never drops to zero even during solar minimum. With no sunspots visible on the solar disk, the 10 cm flux will still have a value of around 67, ie 0 sunspot = 67 10 cm flux, 20 = 78, 40 = 93, 60 = 110, 100 = 147, 150 = 195 and 200 = 243.

Now, you have some idea of the solar cycle situation, settle back for the next year or two and enjoy what sporadic-E has to offer. But PLEASE, keep me informed of important contacts, especially those at long distances or to other countries, plus two metres naturally. You have the use of a FAX number, packet or simply write. I don't necessarily look at packet every day, but will download your information at the earliest opportunity.

**Prevent pirates
— make sure
you sell your
transmitter to
a licensed
amateur.**

Closure

Europe has not received a specific mention this month, due to space limitations and so much other news, but should be back next month.

By the time you read this the summer Es season will have commenced. Make good use of it, and remember the Ross Hull Contest.

Closing with two thoughts for the month:

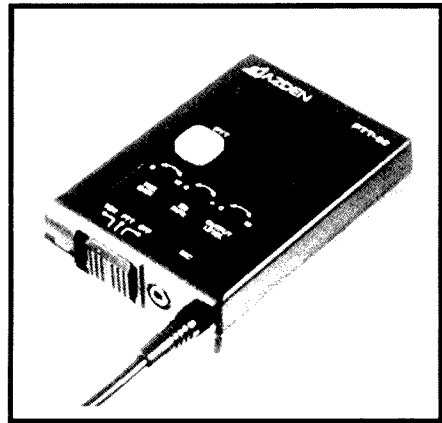
1. Everything has been thought of before, but the difficulty is to think of it again, and,
2. Heredity is what makes the mother and father of teenagers wonder a little about each other.

73 from The Voice by the Lake.

*PO Box 169, Meningie SA 5264
Fax: (085) 751 043

Packet: VK5LP@VK5WI.#ADL.#SA.AUS.OC ar

Azden Universal Voice Operated (VOX) Switch PTT-02



This new release allows any radio the advantage of remote, manual or VOX operation. Variable microphone gain, adjustable frequency equalisation and VOX gain are included.

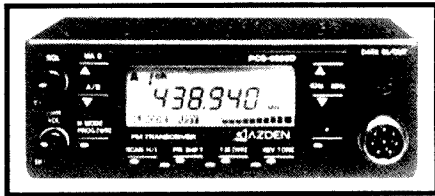
The PPT-02 supports both Dynamic and Electret microphones. The unit measures 61 mm W x 22 mm H x 85 mm L. It is powered by a single nine volt alkaline battery. A soft desk pad and belt are supplied for universal mounting.

What's New

Bob Tait VK3UI introduces new products of interest to radio amateurs.*

Sid Wolin of Azden Corporation in the USA has advised of a number of new items from Azden.

Azden 70 cm PCS-9600D Digital Packet Transceiver



The PCS-9600D incorporates all the special features required by high speed packet radios, including 35 watts output, 20 kHz IF bandwidth, 430 to 450 MHz coverage, solid state Tx/Rx switching and a full DTMF touch-tone microphone for voice operation when you need it.

Specifications:

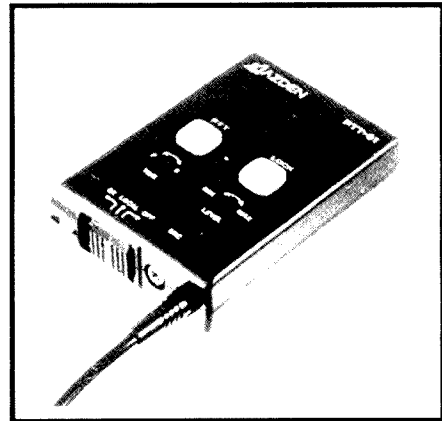
General

Frequency coverage	410.00 — 465.00 MHz Rx 430.00 — 449.995 MHz Tx
Display	LCD
Emission	F1 and F3
Memory Channels	20 + 1 temporary
Power requirements	13.5 volts +/- 15% Negative Ground
Power Consumption	Tx 9.0 A 35 watts high power 6.0 A 10 watts low power
Power Consumption	Rx 0.3 A
Operating Temperature	-10 to 30 degrees C
Antenna Impedance	50 ohms
Microphone	DTMF dynamic 500 ohms
Dimensions	50 mm H x 139 mm W x 182 mm L
Weight	1.3 kg
Receiving system	Double conversion superheterodyne
First IF	45 MHz
Second IF	455 kHz
Sensitivity	Better than 0.19 µV for 12 dB SINAD Better than 1.0 µV for 30 dB S/N Ratio
Squelch Sensitivity	Better than 0.12 µV at threshold
Selectivity	+/- 10 kHz at -6 dB +/- 25 kHz at -50 dB
Audio output	>2 watts at 8 ohms (10% distortion)
PL Tones	38 programmable tones (optional)

Transmitter

RF output	35 watts high, 10 watts low (adjustable)
Modulation System	Data: direct crystal modulation Voice: variable reactance
Frequency deviation	+/- 5 kHz max
Spurious Radiation	Better than -60 dB
Offset	Programmable
PL tones	38 programmable tones

Azden Universal PTT switch PTT-01



The PTT-01 allows any radio the advantage of remote PTT operation, variable microphone gain, adjustable frequency response and a transmission timer which is adjustable from 1 to 5 minutes.

An Off-Local-DX switch permits either a flat frequency response or a peaked response at 2 kHz. A lock button is incorporated to allow hands-off operation in conjunction with the transmission timer.

This unit is the same size as the PTT-02 and also uses a nine volt alkaline battery. A universal mounting kit is supplied which includes a removable belt clip, Velcro tape and a soft desk pad.

Azden Headset with boom microphone HS-03



Azden advise that this new headset has been specially designed for communications applications such as contests, emergency personnel, dispatchers, etc where the headset needs to be worn for extended periods. The padded ear pieces cover the ear so that outside noises are reduced but not eliminated completely. Low frequency noise, such as power supply hum and high frequency hiss and static, is also reduced.

Earphone frequency response is 200 to 5000 Hz with a 6 dB peak at 2400 Hz, and has an impedance of 20 ohms. The dynamic microphone frequency response is 300 to 4000 Hz, with a 6 dB peak at 2500 Hz, and an impedance of 500 ohms. Overall weight is 198 gm.

Azden Headset DM-10



This headset has identical specifications to the HS-03 listed above but does not include the boom microphone. The headset weighs 170 gm and is supplied with a moulded plug.

PacComm Products

Barbara Blake of Smart Radio Modems has advised us that "Strictly Ham" has taken over the dealership of PacComm products from Smart Radio Systems (SRS), a division of Blamac Computer

Services. Ross Keogh of Strictly Ham is dedicated to supporting the amateur radio community and currently stocks most PacComm products. Adrian Blake of SRS has decided to concentrate all of his company's efforts into marketing his commercial radio modem. As a result of this decision, modems for amateur radio have been cut from the range of products. Strictly Ham will take over this activity.

Outbacker Perth Plus Covers HF, 2 m & 6 m

This new release mobile antenna from Terlin Antennas in WA covers all amateur bands from 80 to 2 metres on the one antenna and is rated at 100 watts PEP. The Perth Plus is slightly shorter than the

standard Perth and comes with two tips for operation on 6 and 2 metres.

Terlin are already in production with demand from dealers in Europe and the USA. A range of mountings and adapters is available. A number of WA amateurs have been field testing this antenna with very favourable results, according to Terlin.

We are advised that Daycomm Communications Pty Ltd have stock available. The price is approx \$347.00. Contact Daycomm at their revised address, 44 Stafford St Huntingdale VIC 3166, or phone (03) 9543 6444 or Fax (03) 9543 7238.

*C/o PO Box 2175, Caulfield Junction VIC 3161

ar

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

J R (James)	CARR	VK2JV
D H (Douglas)	PITMAN	VK2YW
R M (Richard)	HUEY	VK2AHU
B (Bryan)	WALDRON	VK3BNO
R G	HARRIS	VK5RR
C (Charles)	HARRISSON	VK7CH
J F	GRACE	VK7ZJG

James R Carr VK2JV

Jim served as a wireless operator in the RAAF in Milne Bay during the Japanese invasion of 1942-1944, later becoming a wireless instructor with the Air Force.

After the war he was chief technician of radio station 2PK Parkes before he opened a radio repair business. He later moved to Sydney where he worked on many research projects in the field of astronomy and associated electronics. Several major discoveries were made with his assistance and these contributions were reflected in a number of articles in the leading scientific publications, which had an impact on the scientific world at the highest level.

He will be sorely missed by all who knew and respected him.

Mrs V Probeta

Douglas H Pitman VK2YW

A close friend of mine, Doug Pitman, died on 26 August. He was active on the amateur bands prior to WW2 and I recall he also operated on 1600 kHz as an Amateur Broadcasting Station on Sunday evenings in 1934/5.

I was still attending Wagga High School at the time and his enthusiasm and ingenuity influenced me to embark on a career in radio.

It was no idle boast of his in the 1940s that he could take an ordinary broadcast radio receiver and convert it to an amateur transmitter/receiver to contact another amateur station in the matter of a few hours.

Colin King VK4CK (earlier VK2MF)
ex State Manager DOC Qld.

Richard Meredyth Huey VK2AHU

Dick Huey passed away in Mittagong on 16 July 1995. He graduated Bachelor of Science in 1933 and Bachelor of Engineering with First Class Honours in 1935. Before WW2, Dick worked for AWA and as a Lecturer-in-Charge at Swinbourne Technical College.

During the war he served with the Army Signals Corps in New Guinea, where he was mostly involved with radar equipment. On demobilisation in 1945 his rank was Major.

After the war he returned to AWA before accepting an appointment with EMI as Chief Engineer. In 1950 Dick joined the NSW University of Technology (now the University of NSW) as Senior Lecturer in the School of Electrical Engineering. He retired from the University in 1977 as an Associate Professor.

Dick was a Fellow of the Institution of Engineers Australia and in 1967/8 he was the National President of the IREE Australia.

He had a life-long interest in amateur radio and was active in the amateur radio club near his home where he took a keen interest in technical and social activities. He often travelled with a portable transceiver. When he built his retirement home in Mittagong, he ensured the roof

was metal to provide a ground-plane for some of his antennas.

He is well remembered for his friendliness and respected for his many achievements. Deepest sympathy to his wife, Norma, and his family.

C M King VK4CK

William Herbert Erwin VK3WE

Bill became a silent key at the age of 80. He passed away in Geelong Hospital on 12 July 1995 after a short illness and will be greatly missed by his radio friends.

Bill was born in Stawell, Victoria in 1915 and was first licensed in 1959 when he passed his limited certificate. In 1964 he passed his AOCPC certificate, when Morse code tests were at 14 wpm.

Bill was a school teacher for many years and became principal of several schools before his retirement.

He was president of the Geelong Radio and Electronics Society in 1968 and 1969. It was during this time that the Society's new rooms were officially opened.

Bill was also involved in the John Moyle Memorial Contest each year. The GRES were set up in transmitting and receiving and he used to loan the Society his caravan to house the 80 metre equipment, which added style to the station.

His first radio shack was built at one end of his garage and measured 3 feet by 4 feet. He used to reckon it was the smallest shack in the world. All the equipment in this shack was home brew, including an AM transmitter and power supply, receiver and tuner. The shack and equipment are still intact and workable. His new shack in the house is neat and efficient.

Bill was made a life member of the Geelong Radio and Electronics Society in 1970 and was a very active instructor of the classes for candidates preparing to sit for their NAOCP exams.

Bill was actively involved in the local Herne Hill Uniting Church for many years, at working bees and evening fellowship activities. Bill is survived by his wife Fran, son Ralph, and daughter Lorane and grandchildren.

Bill Bond VK3BWS

C (Charles) Harrisson VK7CH

Charles, known to all as Snowy, was first licensed in 1927 as VK7CH. He was transferred to Shepparton, Victoria by the Bank of Australasia, his employer in 1934, and became VK3CN. During this period he had always been an active and proficient CW operator and enjoyed chasing DX on all the HF bands.

After the war Snowy was transferred back to Tasmania and was fortunate enough to get his original call VK7CH back again. He also renewed his other pastime, yachting. He and Bob O'May VK7OM (now deceased) visited many of the more remote rivers and islands to the rugged west and south of our island, always with their ham gear which got plenty of use. He was also Tasmanian QSL manager for many years, a position he had to retire from only recently due to ill health.

He is survived by his wife Vera and his family of Geoffrey and Margaret; he was also father-in-law of Betty and Colin and grandfather and great grandfather of their families. We extend our deepest sympathy to all his family.

Col Wright VK7LZ



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Other Bands Optional

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HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μV (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μV in 50 ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μV at the receiver's input and the S-meter scale is 6 dB per S-point.

μV in 50 ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4

0.78 S3 -2
 0.39 S2 -8
 0.20 S1 -14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 13, the same as last month. The predicted number for December is 12. ar

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	15.9	15	13.2	0	18	8	-4	-22
2	16.3	15	13.8	1	19	9	-2	-19
3	16.3	15	13.7	4	20	10	-1	-19
4	16.4	16	13.6	9	21	11	-1	-19
5	16.1	18	13.2	17	23	11	-2	-21
6	14.9	21	12.1	32	23	7	-8	-31
7	13.4	24	10.6	42	20	0	-19	...
8	11.8	26	9.4	43	14	-11	-35	...
9	10.3	29	8.2	43	4	-27	...	...
10	9.3	31	7.3	42	-5	...	...	...
11	8.5	31	6.7	39	-14	...	...	...
12	8.0	32	6.3	38	-20	...	...	...
13	7.6	33	6.0	36	-26	...	...	...
14	7.5	33	5.9	35	-28	...	...	...
15	7.6	33	5.9	36	-26	...	...	...
16	6.6	35	5.1	32	...	...	...	...
17	6.8	34	5.2	32	...	...	...	...
18	6.7	34	5.1	31	...	...	...	...
19	7.1	28	5.4	28	-32	...	...	...
20	8.7	20	6.5	22	-11	...	...	...
21	11.3	17	8.7	15	6	-15	-38	...
22	13.5	16	10.5	8	14	-1	-18	...
23	14.8	15	11.8	4	16	4	-9	-30
24	15.6	15	12.7	1	18	7	-5	-24

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	19.1	11	15.5	-26	16	13	7	-4
2	19.3	11	16.0	-27	16	13	7	-3
3	19.9	12	14.9	-26	17	15	9	-1
4	19.9	12	16.7	-21	18	15	9	-1
5	20.0	13	16.5	-12	21	17	10	0
6	19.6	15	15.7	4	25	19	11	-1
7	17.6	18	14.0	21	26	17	6	-8
8	15.8	21	12.5	34	26	13	0	-19
9	13.9	24	11.0	40	23	6	-10	-33
10	12.0	27	9.5	42	17	-4	-25	...
11	10.7	30	8.5	43	11	-14	-38	...
12	10.1	31	8.0	43	8	-19	...	...
13	9.6	31	7.6	42	5	-25	...	...
14	9.2	32	7.2	41	1	-31	...	...
15	9.0	32	7.1	40	0	-33	...	...
16	9.1	32	7.0	41	1	-30	...	...
17	8.0	34	6.1	38	-8	...	...	...
18	8.2	33	6.2	38	-8	...	...	...
19	8.1	30	6.2	33	-9	...	...	...
20	8.6	22	6.5	22	-4	-34	...	...
21	10.6	17	8.4	13	6	-14	-35	...
22	13.9	15	10.6	0	14	3	-10	-30
23	16.5	13	12.9	-14	16	9	0	-14
24	18.1	12	14.4	-22	16	12	4	-7

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	9.0	8	6.9	-1	0	-19	...	...
2	7.7	-4	5.9	-9	-6	-27	...	...
3	8.0	-8	6.2	-18	-4	-21	...	...
4	11.3	0	8.5	-35	2	-6	-18	-36
5	16.0	5	12.3	...	4	4	-1	-12
6	17.4	5	12.8	...	4	5	0	-9
7	17.6	6	13.1	...	4	5	1	-8
8	16.2	5	12.9	...	5	4	-2	-13
9	14.3	6	11.3	...	6	1	-7	-21
10	12.6	6	9.9	-26	5	-3	-15	-33
11	10.8	6	8.6	-13	3	-10	-25	...
12	9.6	8	7.6	-3	0	-18	-38	...
13	9.0	13	7.1	8	-1	-25	...	...
14	8.5	19	6.7	19	-4	-32	...	...
15	8.3	25	6.6	27	-5	-37	...	...
16	8.5	27	6.3	31	-4	-37	...	...
17	8.4	29	5.8	34	-5	-38	...	...
18	8.0	30	5.5	34	-9	...	...	...
19	7.5	31	5.3	33	-14	...	...	...
20	8.0	30	5.4	34	-10	...	...	...
21	7.9	30	5.5	34	-10	...	...	...
22	7.6	25	5.3	26	-13	...	...	...
23	7.3	16	5.2	15	-14	...	...	...
24	7.9	10	5.7	8	-8	-35	...	...

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.1	12	6.2	9	-5	-30	...	...
2	8.6	7	6.5	0	-2	-24	...	...
3	11.8	10	9.3	-11	7	-4	-18	-39
4	16.5	11	12.5	-28	12	8	1	-11
5	18.0	8	13.3	...	9	8	3	-7
6	18.6	8	13.8	...	8	8	4	-5
7	18.8	8	13.5	...	8	8	4	-4
8	18.1	8	12.9	...	8	8	3	-7
9	16.8	8	11.9	-37	9	7	0	-11
10	15.1	9	10.6	-25	10	4	-5	-19
11	13.2	10	9.2	-14	9	-1	-13	-32
12	11.4	11	7.9	-4	6	-8	...	...
13	9.9	13	6.8	8	2	-19	...	...
14	9.0	18	6.2	18	-2	-29	...	...
15	8.5	24	5.9	27	-5	-37	...	...
16	8.2	27	5.6	30	-9	...	...	...
17	8.1	29	5.6	33	-10	...	...	...
18	8.0	30	5.6	34	-10	...	...	...
19	7.9	30	5.6	33	-12	...	...	...
20	7.8	30	5.6	33	-13	...	...	...
21	8.4	30	5.8	35	-6	...	...	...
22	8.1	30	5.7	34	-9	...	...	...
23	7.8	24	5.6	25	-11	...	...	...
24	8.5	18	6.2	17	-5	-33	...	...

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	7.7	20	6.0	20	-8	...	...	...
2	8.1	12	6.2	9	-5	-32	...	...
3	11.5	12	9.1	-3	8	-6	-22	...
4	16.3	11	12.7	-20	13	8	-1	-14
5	17.8	9	13.9	-37	11	9	2	-8
6	18.6	8	15.2	...	10	9	4	-6
7	18.7	8	15.5	...	9	9	4	-6
8	18.4	8	15.1	...	9	8	3	-7
9	17.8	8	14.4	...	9	8	2	-9
10	16.3	8	13.0	-34	10	6	-2	-15
11	14.4	10	12.2	-20	10	2	-8	-25
12	12.6	12	10.0	-4	9	-3	-18	-39
13	10.9	15	8.6	8	6	-12	-32	...
14	9.6	20	7.6	21	1	-24	...	...
15	9.0	25	7.1	30	-2	-32	...	...
16	8.6	28	6.8	33	-5	-39	...	...
17	8.4	30	6.6	35	-7	...	...	...
18	8.5	31	6.7	37	-6	...	...	...
19	8.5	31	6.6	37	-6	...	...	...
20	8.0	31	6.2	35	-10	...	...	...
21	7.8	32	5.8	34	-15	...	...	...
22	8.2	31	6.2	36	-9	...	...	...
23	8.4	31	6.5	37	-6	...	...	...
24	7.8	27	5.9	30	-12	...	...	...

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	22.7	13	18.8	-35	18	19	15	8
2	23.5	13	18.0	...	18	19	16	10
3	23.7	13	18.9	...	17	19	17	10
4	23.8	13	19.7	-39	18	20	17	11
5	23.6	13	19.3	-34	19	20	17	11
6	22.6	14	18.4	-24	21	21	16	9
7	21.2	15	17.1	-10	23	20	15	5
8	19.6	17	16.5	13	28	21	12	0
9	18.0	20	14.4	35	31	19	8	-7
10	16.2	21	12.9	40	28	14	0	-19
11	14.9	22	11.9	44	25	8	-8	-31
12	14.0	23	11.1	46	23	3	-15	...
13	12.9	25	10.2	46	18	-4	-26	...
14	11.8	25	9.4	45	12	-14	-39	...
15	11.2	26	8.8	44	8	-20	...	...
16	10.8	26	8.5	43	5	-25	...	...
17	9.7	27	7.6	40	-4	...	...	...
18	8.2	28	6.3	35	-24	...	...	...
19	8.5	28	6.6	36	-19	...	...	...
20	8.9	28	6.9	38	-13	...	...	...
21	14.0	21	10.7	33	20	3	-14	-38
22	20.5	16	16.2	2	26	21	14	3
23	21.9	14	17.6	-15	23	21	16	7
24	22.3	13	18.1	-27	20	20	15	7

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	17.4	10	14.2	-37	12	9	2	-9
2	17.6	10	14.6	...	11	9	3	-8
3	18.2	10	15.4	...	11	10	4	-5
4	18.2	10	15.2	...	11	10	4	-5
5	18.2	11	15.0	-39	12	11	5	-5
6	17.9	11	14.7	-31	14	11	4	-6
7	17.3	13	14.0	-19	16	11	3	-10
8	15.8	15	12.7	0	18	8	-2	-19
9	14.0	21	11.1	34	20	3	-14	-38
10	12.4	22	9.8	38	14	-9	-31	

VK EAST — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	8.4	7	6.1	-21	-2	-17	-35	...	
2	9.1	-13	5.9	-26	-1	-15	-32	...	
3	9.1	-12	6.7	-38	0	-4	-10	-23	...
4	11.2	-7	7.9	...	0	0	-4	-13	-28
5	13.8	-2	10.4	...	-1	4	0	-5	-16
6	15.7	1	11.8	...	-1	2	2	-1	-9
7	16.7	3	12.6	...	...	3	1	4	-4
8	17.5	6	13.6	...	2	6	3	4	-4
9	17.6	8	13.6	...	6	8	4	4	-4
10	16.0	10	12.7	-38	10	8	1	4	-10
11	14.2	12	11.3	-19	12	5	1	-1	-20
12	13.0	15	10.3	-2	13	1	-11	-1	-30
13	12.2	18	9.7	11	13	1	-7	...	...
14	11.3	21	9.0	31	11	-14	-37	...	...
15	10.5	25	8.3	31	9	-14	-37	...	...
16	10.2	27	8.0	35	7	-18	...	...	...
17	9.9	28	7.8	38	6	-21	...	...	...
18	9.0	29	7.0	36	1	-32	...	...	...
19	7.8	30	6.0	33	-13	...	...	...	...
20	8.2	30	6.3	33	-9	...	...	...	...
21	8.6	31	6.6	36	-1	-33	...	...	...
22	9.1	21	6.9	21	2	-23	...	...	...
23	9.2	10	6.5	2	0	-21	...	...	...
24	8.7	0	6.2	-12	-2	-20	-39	...	...

VK SOUTH — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.2	2	6.5	-13	0	-16	-35	...	
2	8.7	-7	6.2	-24	-1	-15	-32	...	
3	9.7	-8	7.1	-38	0	-8	-21	...	
4	12.2	-3	8.3	...	0	-2	-10	-23	...
5	15.1	0	11.1	...	-1	2	-2	-11	...
6	17.1	2	12.6	...	-3	3	1	-5	...
7	18.0	4	13.3	...	-3	4	3	-2	...
8	18.5	5	13.9	...	-1	5	4	-2	...
9	16.9	5	13.5	...	1	5	2	-6	...
10	14.9	5	11.8	...	4	4	-2	-13	...
11	13.1	6	10.4	-35	6	0	-9	-24	...
12	11.3	8	8.9	-15	6	-6	-20	...	...
13	10.0	12	7.9	1	3	-15	-34	...	...
14	9.5	17	7.5	15	1	-22	...	...	...
15	9.0	24	7.1	27	1	-31	...	...	...
16	8.9	27	7.0	32	-3	-34	...	...	...
17	9.1	28	7.1	35	-1	-33	...	...	...
18	9.1	29	7.0	36	-1	-33	...	...	...
19	8.5	29	6.5	35	-3	...	...	...	...
20	7.9	29	6.1	33	-7	...	...	...	...
21	8.4	29	6.4	35	-7	...	...	...	...
22	10.2	28	7.3	37	9	-16	...	...	...
23	8.7	20	6.7	20	1	-29	...	...	...
24	9.5	12	6.7	3	-2	-18	-39	...	...

VK WEST — EUROPE									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.7	13	6.8	7	1	-19	...	...	...
2	9.1	3	6.5	-9	-2	-21	...	...	...
3	10.2	-1	7.3	-26	0	-12	-27	...	...
4	12.9	1	8.7	...	2	-2	-11	-26	...
5	16.1	3	11.8	...	1	3	-1	-10	...
6	18.2	4	13.4	...	0	4	2	-4	...
7	19.2	5	14.1	...	-1	5	4	-1	...
8	20.0	6	14.7	...	0	1	6	5	0
9	20.4	6	15.2	...	-1	0	7	6	0
10	18.8	6	15.1	...	3	7	4	-3	...
11	17.0	7	14.3	...	7	6	1	-8	...
12	15.3	10	12.1	-28	10	5	-3	-16	...
13	13.5	13	10.7	-5	12	1	-11	-30	...
14	12.2	17	9.7	11	11	-4	-20	...	...
15	11.5	21	9.1	25	11	-8	-28	...	...
16	10.8	24	8.5	31	8	-15	-38	...	...
17	10.2	26	8.1	35	5	-21	...	...	...
18	10.1	27	7.9	38	5	-22	...	...	...
19	9.9	27	7.7	38	4	-24	...	...	...
20	9.1	28	7.0	36	-3	-35	...	...	...
21	8.0	29	6.2	33	-13	...	...	...	...
22	8.5	28	6.5	34	-8	...	...	...	...
23	8.8	29	6.8	36	-4	-37	...	...	...
24	9.0	22	7.0	25	-1	-30	...	...	...

VK EAST — EUROPE (long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	10.0	4	6.7	-14	2	-9	-24	...	
2	9.5	6	6.5	-7	2	-12	-29	...	
3	9.0	9	6.2	-1	1	-18	-37	...	
4	8.7	14	6.1	10	0	-22	...	...	...
5	8.3	22	5.9	23	-2	-30	...	...	...
6	9.4	23	6.7	24	4	-19	...	...	...
7	11.6	24	8.5	30	15	-3	-20	...	...
8	11.9	23	9.2	23	17	-1	-12	-33	...
9	10.2	14	7.1	7	5	-12	-31	...	...
10	8.9	4	6.8	-8	3	-12	-28	...	...
11	9.4	-1	7.4	-21	1	-11	-25	...	...
12	8.9	-10	7.0	-31	0	-10	-23	...	...
13	8.8	-15	6.9	-37	0	-8	-20	-39	...
14	8.9	-20	6.9	...	-1	-8	-19	-36	...
15	8.8	-28	6.8	...	-6	-12	-23	...	...
16	8.3	...	6.4	...	-14	-21	-34	...	...
17	7.8	...	5.9	...	-21	-30	...	...	...
18	8.4	...	6.3	...	-13	-20	-33	...	...
19	10.2	-14	8.1	...	-1	-4	-12	-26	...
20	13.4	-3	10.2	...	1	0	-5	-16	...
21	14.3	0	9.7	...	0	1	-3	-13	...
22	12.6	0	8.5	...	2	0	-8	-21	...
23	11.5	1	7.7	-34	3	-3	-13	-29	...
24	10.6	2	7.1	-23	3	-6	-18	-38	...

VK SOUTH — EUROPE (long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.1	-1	6.2	-16	0	-15	-31	...	
2	8.6	3	6.0	-2	-2	-21	...	...	...
3	8.1	6	5.7	2	-5	-28	...	...	...
4	7.9	12	5.6	10	-7	-34	...	...	...
5	7.7	21	5.6	21	-11	-11	...	...	...
6	8.7	21	6.4	23	-3	-30	...	...	...
7	10.6	23	7.9	29	9	-12	-33	...	...
8	12.9	22	9.0	29	18	-2	-13	-35	...
9	11.1	18	7.7	16	9	-4	-26	...	...
10	8.6	10	6.7	4	0	-21	...	...	...
11	8.8	3	6.2	-8	0	-18	-36	...	...
12	8.5	-4	5.8	-17	-1	-17	-34	...	...
13	8.2	-12	5.8	-25	-1	-14	-29	...	...
14	8.2	-21	5.7	-38	-4	-15	-29	...	...
15	8.2	-39	5.7	...	-12	-23	-37	...	...
16	7.9	...	5.6	...	-22	-33	...	...	...
17	7.6	...	5.5	...	-30	...	...	...	...
18	8.3	...	6.7	...	-22	-31	...	...	...
19	9.8	-23	6.7	...	-5	-9	-18	-33	...
20	12.4	-7	9.2	...	-2	-2	-7	-18	...
21	13.2	-4	9.2	...	-2	-1	-6	-16	...
22	11.7	-6	8.1	...	0	-3	-10	-24	...
23	10.6	-5	7.3	...	0	-6	-16	-33	...
24	9.7	-4	6.7	-28	0	-10	-23	...	...

VK WEST — EUROPE (long path)									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	8.7	-11	6.0	-29	-3	-14	-29	...	
2	8.2	-10	5.7	-20	-4	-19	-36	...	
3	7.7	-7	5.5	-12	-6	-25	...	...	...
4	7.6	-3	5.5	-6	-8	-30	...	...	...
5	7.4	1	5.4	0	-10	-35	...	...	...
6	8.4	7	7.6	7	-5	-28	...	...	...
7	10.2	12	7.6	7	3	-15	-34	...	...
8	12.4	15	9.3	10	10	-3	-17	-38	...
9	14.1	15	10.6	8	14	-4	-8	-25	...
10	12.7	13	8.6	3	10	-2	-15	-34	...
11	10.0	6	7.4	-8	3	-10	-26	...	...
12	8.9	-4	6.5	-19	-1	-14	-30	...	...
13	8.8	-9	6.0	-27	-3	-14	-29	...	...
14	8.4	-17	5.6	-33	-3	-13	-26	...	...
15	8.1	-36	5.6	...	-12	-22	-36	...	...
16	8.2	...	5.5	...	-18	-27	...	...	...
17	8.1	...	5.6	...	-24	-32	...	...	...
18	7.8	...	5.4	...	-30	...	...	...	...
19	7.5	...	5.3	...	-34	...	...	...	...
20	8.1	...	5.8	...	-23	-32	...	...	...
21	9.7	-22	6.5	...	-6	-10	-19	-34	...
22	11.2	-11	7.9	...	-3	-5	-13	-25	...
23	10.2	-14	7.1	...	-3	-7	-16	-31	...
24	9.2	-14	6.4	-39	-2	-11	-22	...	...

VK EAST — MEDITERRANEAN									
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9	
1	9.0	-2	6.9	-20	0	-15	-32	...	
2	9.8	-6	7.4	-35	0	-9	-23	...	
3	13.8	1	10.4	...	2	1	-5	-17	...
4	18.8	6	14.4	...	0	6	4	-2	...
5	21.9	7	17.1	...	-1	7	7	4	...
6	21.9	6	17.9	...	-2	6	7	3	...
7	21.0	6	17.1	...	-1	6	6	2	...
8	19.4	6	15.6	...	1	6	5	-1	...
9	17.6	7	14.8	...	5	7	3	-5	...
10	15.8	8	12.6	...	8	6	0	-12	...
11	14.0	10	11.1	-23	10	3	-6	-22	...
12	12.7	13	10.1	-5	11	0	-13	-33	...
13	12.0	19	9.5	14	13	-3	-20	...	...
14	11.1	24	8.8	30	12	-9	-29	...	...
15	10.5	26	8.4	35	10	-14	-37	...	...
16	10.3	28	8.1	38	9				

HAMADS

TRADE ADS

● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albany; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth.

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FOR SALE ACT

● **LOGIC ANALYSERS HP1600A and HP1607A** with manuals and accessories including two 10277 probe interfaces, twelve 6 bit data probes, one clock probe, PDP-11 interface, \$1,150.00 the lot, ono. Philip VK1PC (06) 268 8157 or email pgc@cs.adfa.oz.au.

● **HY-GAIN TH3** Jnr triband Yagi incl BN86 balun, vgc, \$130; MFJ 12 position co-ax switch model MFJ-1700B as new \$100; **REALISTIC DX302 DFR** communication receiver, \$160. Tex VK1TX (06) 296 2508.

FOR SALE NSW

● **YAESU FRG9600 VHF/UHF** receiver with D130J discone antenna and coax. Still under warranty, \$800. Norm VK2FNJ (047) 87 8682.

● **SHACK CLEARANCE:** Converted CB, Drake Noise-blanker, Drake LP Filter, 27 MHz Pre-amp, High-power Dummy load, HF power/swr meter, RG8 coax approx 50 metres,

2 metre 5/8 Mobile whip, parts for Homebrew ATU, Homebrew variable DC PSU, Dipole Balun, sundry cables and parts. Best offer, will sell individually. Steve VK2AXM QTHR (02) 419 3841.

● **YAESU FT901 HF** transceiver with digital display memory, FM & 30 metres with YD148 desk microphone, manual and original packing for shipment, six spare 6146s, \$600. Barry VK2AAB (02) 487 1428.

FOR SALE VIC

● **EDDYSTONE 888A** receiver s/n AJ0248, fully d'hailed, new valves, external speaker, documentation, \$200; BC-348R receiver, solid state, speaker, handbook, circuits, \$100. Ken VK3JII QTHR (03) 9580 5347.

● **COMPACT h/brew iambic** keyer with inbuilt paddles, monitor, and power supply, \$75. Merv VK3AFO QTHR (060) 24 2537.

● **DECEASED ESTATE. COMPLETE Yaesu FT707** package, all equipment as new and unused, FT707 transceiver, FT707 tuner, FV707 memory unit, FP707 20 A power supply/speaker, mic and cables, \$950 (will not separate); **YAESU** world clock, \$50; **TRIO TR7200GH** 2 m FM transceiver, with mic, cables and mobile bracket, \$300; **DAIWA CL-66** antenna coupler (80-10 m), \$150; **YAESU VHF/UHF** combination FM transceiver FT720R (720RU/720RVH), unit is new and unused, front fascia has two snap on modules for 2 m or 70 cm, switching box, adaption plugs, mic and cable included, \$400 (will not separate); **KENWOOD** all mode HF/VHF quadbander (6 m, 10 m, 12 m, 15 m), has mic and power cables, \$550; **KENWOOD TS700SP** 2 m all mode transceiver base station, has external VFO (TS700S), \$450; **YAESU FRG7000** comms receiver, \$300; **EXTERNAL VFO Yaesu FV107M**, \$75; **EXTERNAL VFO Yaesu FV101DM**, \$95; **EXTERNAL VFO** for TS820, \$75; **YAESU YO-101** monitor scope, \$100; **HEATHKIT SB200** amplifier (2 x 572B) HF amp (as new) \$600; **EICO** transceiver 80-20 m without power supply \$75; **5 AMP** power supply (13.8 V reg), metered, \$65; **HEWLETT PACKARD** sig gen model 606A 50KC-65MC, \$150; **HEWLETT PACKARD** test oscillator model 625A (10 Hz-10 MHz), \$75; **AWA** sig gen type 2R7231 (0-30 MHz), \$60; **2 X COMMUNICATIONS** receivers AWA type C55184 (without crystals), \$80 each; **COMMS** receiver Marconi type CR100, \$60; **COMMS** receiver Dept of Defence No. 1108 MKII (1941) 6-9 MHz, \$60; **COMMS** receiver BC348 without power supply, \$75; **AR7** coil boxes/band modules A, B, C (x2) and E (5 in all), \$40 the lot; **EDDYSTONE** dial assembly (new in carton), \$40; **TENDERS/OFFERS** are invited for an assortment of collectable and perfectly usable studio microphones (head piece — element and casing only). All in pristine condition. Microphones include brand names such as

"Vita Vox, Astatic, Western Electric, Beyee, RCA, Standard, Tauchspuken, AKCD, B & O, Neat"; 14 microphones in all. All the above items and many other radio related pieces of equipment are available. All listed prices are negotiable. Send a sase for a full listing and catalogue of main pieces of equipment. Conditions apply for the receipt of equipment unless prior arrangements made. A large two day garage sale of miscellaneous pieces of equipment will be held on Saturday and Sunday November 11th and 12th, from 10 am each day at 35 Ropley Ave, Balwyn. Maurie VK3CWB QTHR (050) 25 6551 AH or Tim VK3IM QTHR (03) 9688 4574 BH.

● **TEN-TEC OMNI-6** transceiver with Ten-Tec power supply, microphone and manual, as new, \$3,500. Alf VK3LC QTHR (03) 9889 5344.

● **ICOM 737** all mode 100 W (adjustable) HF transceiver, as new condition, general coverage receive, AM, FM, SSB, CW, 100 memories, dual band stacking, auto split feature, IF and notch filters, scan function, automatically supports two antennas, microphone, speech processor, user and service manuals, original packing, \$1,995.00. Christopher VK3KCP (03) 9629 2653.

● **IBM Compat 386 DX-40** computer with 387 co-processor fitted, 40 meg HDD, 1.2 meg, 5.25 FDD, 2 MB RAM, VGA monitor, keyboard and mouse, 2 serial and 1 parallel ports, DOS 6.20, XTgold on board together with comms type programmes, \$550 ono. Harold VK3AFQ QTHR (03) 9596 2414.

● **FREQUENCY** counter Topward TFC-1207, 8 digit, 10 Hz — 1 GHz, leads and manual, \$201. Bruce VK3WL (03) 9480 0111 BH or (052) 82 2664 AH or 018 67 6199.

FOR SALE QLO

● **NALLY** tower, 14 m telescopic tilt/over, \$1,500 ono; **TRIBAND** Tet HB35C beam, \$495 ono; **EMOTATOR HD 1200FFX** plus 30 m control cable, \$725 ono; **ICOM 271A** 144 m all-mode base, \$750 ono. All good condition. Ted VK4DBL (074) 91 2034.

● **ANTENNA** Hy-gain TH7DX seven element 10/15/20 m, 31 x 24 feet, 75 lb, 1500 W PEP, wind-rated 100 mph, gain 8 dB to 9.6 dB, gc, \$550. Shack clearance each Sunday, 97 Jubilee Terrace, Bardonia. Peter VK4APD (07) 3397 3751 AH.

● **YAESU FT-726R VHF-UHF** satellite transceiver includes 6 m, 2 m, 70 cm and 2/70 diplexer modules, ideal base station for Novice and new satellite operators, excellent condition. Will VK4XP QTHR (079) 79 3101.

● **SWAN 350** tcvr with Vox fitted and operator manual, vgc, \$240 or swap for AR88 Rx, Heathkit HA14 linear or other Heathkit gear. "Doc" VK4CMY (076) 85 2167 AH or (076) 61 6209 BH.

● **KENWOOD TS680S** HF 6 m general coverage receive complete with mike, manuals,

original packaging, ec, \$1,100.00. David VK4DH QTHR (07) 274 2155 BH or (07) 378 9868 AH. Licensed amateurs only.

● BARE copper wire 3 mm diameter, old but never used, in new condition, 260 metres on spool \$85 plus freight. Ron VK4AJV (071) 62 3445.

● SPECTRUM analyser Hewlett Packard, comprising HP141T storage display unit, HP8552B IF section, HP8553B 110 MHz RF section, good working condition (also spare display unit and RF section needing service), \$2,500.00 the lot; OSCILLOSCOPE parameters model 5502, dual trace, 20 MHz with handbook (no probes), used for a small amount of home use only, works well, excellent condition, \$550; DUMMY Load Celwave 60 watt continuous, 50 ohm, DC to 1300 MHz, N type with BNC sampler port, vgc, \$40; MICROWAVE signal source Polarad 1207E, 3.7 to 8.4 GHz, clean unit with handbook, \$180; VECTOR impedance meter, Hewlett Packard HP 4815A, 500 kHz to 108 MHz, \$50. Gary VK4AR QTHR (07) 3353 1695.

FOR SALE SA

● KENWOOD TR-2400 2 m FM transceiver plus ST-1 base/stand power supply, Shure 404C hh mic to suit above, instruction manuals/sheets for all above, \$300 ono. Jim VK5JI QTHR (08) 295 8094.

● KENWOOD TS520S s/n 840585 with MC35S microphone and external vfo s/n 720412, all in ex cond, \$500, will consider separating. Bob VK5MM QTHR (08) 296 9214.

FOR SALE WA

● KENWOOD TS940S HF tcvr, good condition with all filters, voice module and manuals, in original box, s/n 5120459, \$2,375.00. Bill VK6WJH (097) 34 4374 licensed amateurs only.

FOR SALE TAS

● TOKYO hi-power 2 m linear amplifier, Gas FET receive preamp, 5-10-25 watts input, 160/180 watts output, brand new and boxed, never used, \$525 plus p&p. Alan VK7AM QTHR (002) 39 1654.

WANTED NSW

● FREQUENCY selector switch for IC22A. A Brooks VK2BKS QTHR (063) 82 3069.
● YAESU FT690R 6 m transceiver. Allan VK2ASI (067) 65 7947 AH or (067) 66 1033 BH.

WANTED VIC

- INFORMATION re WYA4456 multitester (Aust) No 1. Mk I with valve testing panel WYA2411, made by Paton Elect. Is this army version of VCT-2 tester? Any help welcomed. Ken VK3JII QTHR (03) 9580 5347.
- CIRCUIT diagrams for Vinten BTR8, B70 military microwave link and CEI 310 camera plus CCU and 3" view finder; YAESU FTV650 transverter unit. Nigel VK3XKU QTHR.
- TECHNICAL info, circuit diagram and/or calibration process for 1967 valve type Stoddart radio interference and field intensity meter type NM-22A. Bill VK3MI QTHR (03) 9569 8395.
- DESPERATELY seeking FT200 psu. Clem VK3CYD QTHR (051) 27 4248 AH.
- TWO YAESU TRANSVERTER CABLES with

11 pin male 11 pin female plugs only. M A Sharpies VK3AZB QTHR.

WANTED OLD

- PHOTOCOPY of service manual or circuit diagram for Marconi instrument AM/FM signal generator type TF 995A/5. Must be this model. Costs covered. Geoff VK4ZGF QTHR (071) 22 1368 AH.
- 1250 TO 1500 volt working oil filled capacitors 16 to 20 µF, swap 1000 pF vacuum variable capacitor. John VK4TL (070) 96 8328.
- 300 OHM TV ladder line open wire feeder for aerial experiments, any sundry lengths okay; also give good home to any unwanted Heathkit equipment, working or not. "Doc" VK4CMY (076) 85 2167 AH or (076) 61 6209 BH.

WANTED SA

● OWNERS manual and workshop manual for a Marconi TF2008 AM/FM 10 kHz-510 MHz signal generator. I would prefer to borrow so I can photocopy (unless someone has a spare). All expenses (phone calls, postage etc) will be reimbursed. Bruce Henderson VK5KJ (08) 255 3566 after 1900 CST.

WANTED WA

● FTDX401, FT560, etc transceiver for parts or restoration. I want to keep mine on the air. Dave VK6IV QTHR (09) 573 6435 anytime.

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Amateur Radio

December 1995

Volume 63 No 12



Journal of the Wireless Institute of Australia



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Cover

The official opening of the Hervey Bay Amateur Radio Club "Australia Remembers" special event station, VI50PEACE, was performed on 15 August 1995 by Lyn Truss (daughter of the late Archie Caswell VK4CB). With Lyn is her husband Warren Truss, Federal Member for Wide Bay. Although they were very busy on this special day with other celebrations up and down the coast, they found time to open the station and stayed for afternoon tea. See *Club Notes* for details of operation of VI50PEACE.

Photo by Gray Taylor VK4OH

Become involved in the future direction of *Amateur Radio*. Complete the *Amateur Radio Readership Survey* on page 56 and send it in. You could win one year's free membership of the WIA.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editor's Comment

Licence Fees

Back in June, in an editorial entitled "Freedom of Speech", I stated that amateurs in the United States did not pay fees for their licences because this was an infringement of the right to free speech. We have now received a very friendly letter from David Sumner K1ZZ, Executive Vice President of the ARRL, which tells us the full story. We were wrong!

Essentially, in November 1989, as a result of representation by the ARRL to Congress, a decision was made to exempt amateurs from licence fees since "amateurs do not use the spectrum for profit, and they render important services to the public during natural disasters". The detailed story of negotiations was published in *QST*, January 1990.

Perhaps the situation in Australia is not quite the same as in the US, although the parallels are impressive. Their RACES and our WICEN are very similar. ARRL and WIA have much in common. Our political systems are similar. Recently we have been able to negotiate a reduction in fees from \$71 to \$51. Should this be the limit? There are many VK amateurs who would like to see our fees reduced much further. If the USA has been persuaded to drop them to zero, why should Australia not do likewise?

Even if this could be shown to be impracticable, that portion of the fees currently described as "tax" (spectrum access and maintenance) seems unfair when applied to amateurs who, by definition and regulation, can derive no taxable income from their hobby. And if 400,000 CB operators can be exempt from licence fees as they now are, why should not 18,000 amateurs?

As regards use in emergencies, while CREST (the CB emergency service) is no doubt an estimable organisation, there are limits to what can be done on 27 or 477 MHz compared with the capabilities of the amateur bands.

I make the above remarks and ask the above questions purely in personal curiosity. I am not in any way reflecting, or reflecting upon, WIA policies. But it seems to me that some questions still require answers.

Christmas and New Year greetings to all.

Bill Rice VK3ABP
Editor
ar

WIA News

Intruder Watch, Your Help Needed

As an active amateur, do you have HF receiving equipment and ten or 20 minutes a week to spend in the shack? Do you care about protecting your hobby?

If you can answer yes to the above questions, then why not translate that commitment into action and look for intruders on our exclusive HF amateur bands?

Persistent intrusions of

broadcast, military, diplomatic, utility and other non-amateur services cause interference to legitimate amateur radio operations on the HF bands.

Observing and logging intruders on our bands has never been easier, with the help of the WIA Intruder Watch Service. Reports of intruders, co-ordinated on an international level through the International Amateur Radio Union (IARU), have been effective in removing intruders, especially in

recent years.

WIA Intruder Watch Co-ordinator, Gordon Loveday VK4KAL, needs reports on intrusions to enable action to be taken to have the intruders shift frequency out of our exclusive bands. On request, Gordon will forward details to anyone interested in helping Intruder Watch defend our bands against interference from unauthorised users. He can be contacted via his Call Book address.

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers	Call Sign	Weekly News Broadcasts	1996 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Rob Apathy Secretary Len Jones Treasurer Alex Colquitt	VK1KRA VK1NLJ VK1AC	3.570 MHz LSB, 146.900 MHz FM each Wednesday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet www.radio.amateur.misc newsgroups, and on the VK1 Home Page http://email.nia.gov.au/~cmakin/wiaact.html	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Michael Corbin Secretary Eric Fossey Treasurer Eric Van De Weyer (Office hours Mon-Fri 11.00-14.00 Mon 1900-2100)	VK2YC VK2EFY VK2KUR	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2m, 70 cm, 23 cm. The broadcast text is available on packet.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
e-mail address: wainsw@sydney.dialix.oz.au					
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 9885 9261 Fax (03) 9885 9298	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530)	VK3PC VK3XV VK3NC	VK3BWI broadcasts on the 2nd and 4th Sunday of the month, starts 10.30 am. Primary frequencies 3.615 LSB, 7.085 LSB, and FM(R)s 146.700 Mt Dandenong, 147.250 Mt Macedon, 147.225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH, VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Geoff Sanders Secretary John Stevens Treasurer John Presotto	VK4KEL VK4AFS VK4WX	1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 28.400 MHz SSB, 29.220 MHz FM, 52.525 MHz FM, 146.700 MHz FM, 147.000 MHz FM, 438.525 MHz (Brisbane only), regional VHF/UHF repeaters at 0900 hrs Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM, regional VHF/UHF repeaters at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Garry Herden Secretary Maurie Hooper Treasurer Charles McEachern	VK5ZK VK5EA VK5KDK	1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 351 8873	President Cliff Bastin Secretary Mark Bastin Treasurer Bruce Hedland-Thomas	VK6LZ VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busseton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday, relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 52 Connaught Crescent West Launceston TAS 7250 Phone (003) 31 9608	President Andrew Dixon Secretary Robin Harwood Treasurer Terry Ives	VK7GL VK7RH VK7ZTI	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).			Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times.

Note: All times are local. All frequencies MHz.

History

Australian Amateurs Remember

Herb Stevens VK3JO*, in this year of "Australia Remembers", researchs the recommencement of amateur activity after World War II.

"SATURDAY DECEMBER 22 1945. IT'S ON". This expression, prominent in the log of VK3OH, typifies the jubilation of amateurs at being able to resume on-air activity after many years of enforced silence during World War II.

Closed Down for "the Duration"

Typical of all Australian amateurs at the time, George Paterson VK2AHJ received a handwritten telegram, dated 1 September, on 2 September 1939 instructing him to cease amateur operation immediately, that "valves transformers tuning coils operating keys and microphones must be dismantled from equipment" and that he must advise "by first post to Senior Radio Inspector in your State that these instructions have been complied with".

A few days later George received a letter dated 5 September 1939 stating that "Further to telegram of 1 Sep 1939 will you please note that your aerial, if specially designed for

transmitting, must also be dismantled."

That was it! Amateur radio on-air activity was closed down for over six years!

However, not all amateur radio activity ceased. A letter from George VK2AHJ, accompanying his log, refers to a war-time emergency network set up in Sydney by the VK2 Division of the WIA. "About early 1941 the WIA in NSW set up a radio system in conjunction with the National Emergency Service. This was organised by Wal Ryan VK2TI, the then NSW president. I was involved in this at the Waverley Police Station and I think we made the equipment to a standard design and installed it at Police stations in concrete huts adjacent to similar huts which were equipped for telephone communication to a central office under Wynyard railway station. The idea was that, in the event of the telephone system being disabled, the radio system would take over. We had regular practices but, happily, no "real

thing". Unfortunately, it has all become a bit hazy after 50 odd years".

"It's Over!"

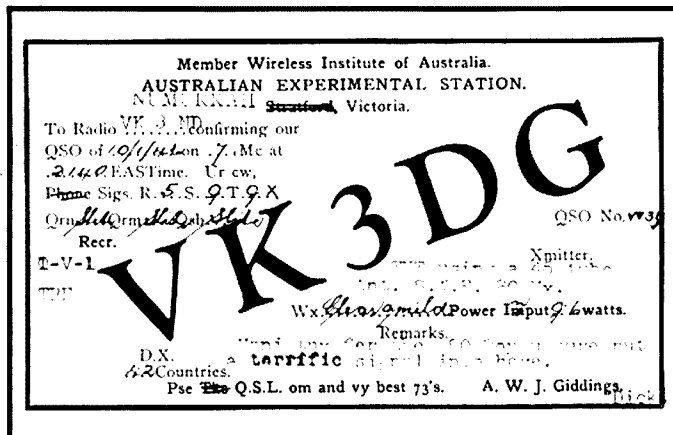
The war, which had dragged on for just on six years, finally ended with the cessation of hostilities in the Pacific war in August 1945.

According to the WIA Federal Historian, John Edmonds VK3AFU/VK3ATG, "The sudden end of the war took both the WIA and the average amateur by surprise, and then the very quick response by the PMG's Department was equally unexpected. Australian amateurs were among the first to have their licences renewed.

The strength of amateur radio during the war had been mostly in VK2 and VK3. The less populous states had begun reviving their Divisions by about mid-1945. The revival was remarkably quick but information coming out of the Divisions was necessarily limited for several months."

Resumption of Amateur Radio On-Air Operations

John Edmonds VK3AFU did quite a bit of research for me about this period in amateur history and wrote: "Logs and copies of logs in the archives are quite unemotional about the resumption but they are all from people who had been in the services. For example, Fred Bibby VK3OL, later Squadron Leader, RAAF, noted in 1939 simply "War — Closed down" and then "2215, 24/11/1946; A3, 14020, VK3GX, R/T Test." No fanfares at all. Amateurs who had not been in the services may have felt differently



Two QSL cards from the WIA Collection which the Honorary Curator, Ken Matchett VK3TL, says are the earliest in the Collection to confirm contacts after the resumption of amateur radio subsequent to the end of World War II.

Of the 2000 pre-war amateurs, 23% had been in the RAAF, 14% in the AMF, 6% in the RAN or MN, and 12% in various reserves. Many of these were still in the services when licences were reissued and reappeared on the amateur bands over the next year or so. Fred Bibby was typical.

Because the first licenses were limited to 28 MHz and above, some amateurs had to wait until 7, 14 and 3.5 MHz became available. There was, though, much more interest in 28 MHz than there would otherwise have been, even though 28 MHz propagation was very ordinary.

Correspondence in the WIA archives relates mostly to the rebuilding of the WIA after the wartime maintenance, particularly in VK5 and VK6, and then to the WIA suggestions for post-war regulations and frequencies. The need to keep up operating standards and to recruit new amateurs also concerned the Federal organisation."

In order that operations could recommence, it was necessary that the Government formulate new regulations under which amateurs could operate. These were finally published in the Government Gazette of 29 November, 1945, thus finally clearing the way for operating to commence.

It is interesting to read in the NSW Division Annual Report, published in the January 1946 issue of *Amateur Radio*, about the much sooner than expected formulation of regulations by the Government. "Much of the credit must be given to E H. Cox VK2GU for his splendid work and, at the November General Meeting of the Division, Life Membership was conferred on him as a token of appreciation." VK2GU, later VK1GU, was political correspondent for the *Herald* in Canberra.

Amateurs were advised that transmitting gear, which had been held in custody, could be collected, and an application form for re-issue of licences was included with this advice. In part, the regulations provided for the use of CW (14 wpm) and AM phone on 28-29, 50-54, 166-170 and 1345-1425 MHz, but NO MUSIC (in pre-war days, some amateurs played recorded music on

some of the HF bands, as well as on the normal AM broadcast band in periods when broadcasting stations were closed — there were no continuous 24 hour transmissions then).

First Contacts

Again I turn firstly to John VK3AFU's comments. "In any look at the first amateurs back on air it must be remembered that, as applications for licence renewal were received by the Department, they were held until renewal was authorised and then the licences were issued in alphabetical order of the first letter of the surname of the applicants. So Abbott almost certainly could operate before Ziegler, even if Ziegler had applied first.

The earliest resumptions of legal transmissions that the WIA archives have are as follows:

VK2 — 10 m was very active by mid-February 1946 but there are no details. The first 6 m activity may have been in VK2 where VK2LZ, VK2WJ and VK2LS were probably first on air.

VK3 — The first claimed VK — VK contact was between VK3EE and VK3BQ, date unknown, but probably late December 1945. There were 15 active VK3s on 10 m by mid-January 1946, 6 m was active (five or six stations), and there were two stations (VK3MV and VK3TZ) on 112 MHz. They may have been the first on 112 MHz.

VK4 — There is no detail but not surprisingly VK4 stations were most active in 10 m DX from mid-January.

VK5 — No detail at all but VK5 amateurs seem to have been later in getting their renewals.

VK6 — No detail at all.

VK7 — The first active VK7s were probably VK7GJ, VK7LJ and VK7CW. Six VK7s were active on 10 m in February 1946."

So, on what dates and by whom were the first post-war transmissions made?

Perusal of logs received in response to my appeal for information some months ago show that the earliest to resume transmitting were VK3DH, VK3VM, VK3BQ and VK3YP, and that most contacts were with local stations.

It is recorded in the Victorian Division Notes in the February 1946 issue of *Amateur Radio* that VK3ZT, 3EO, 3XD, 3LX, 3EE, 3SQ, 3UQ, 3BQ, 3VM, 3DH, 3XJ, 3SB, 3YP, 3CP and 3NW were active on 28 MHz. There are no similar lists in the notes from other states, although the NSW Division Notes of February 1946 state, "As predicted, quite a few stations in VK2 and VK3 were able to exchange greetings per medium of *Amateur Radio*. What a surprise the Yanks received to hear VK stations."

Here in VK3, a great friend of the late Ivor Morgan VK3DH, Chris Long (to whom I am indebted for a photostat copy of the relevant page of Ivor's log) has a disc recording made by Ivor of 28 MHz contacts with VK3BQ, 3VM and 3YP on 26 December 1945. Ivor's log shows contacts on 22 December 1945 with VK3VM. VK3NW opened up on 22 January 1946, contacting VK2NY. VK3CP "Got on air as soon as possible."

It appears that those who managed to get on air within one month of the Government Gazette notice were in a position to act quickly. Not so the writer. It was May 1946 when I opened up on 28 MHz.

Some logs show interesting DX contacts on 28 MHz, the lower frequencies not being available until 5 July 1946. VK3HL's log shows plenty of DX on 14 MHz.

The log of VK5KL is of interest as he was located at Darwin and made several contacts using 28 MHz AM. He worked four countries in two continents, with best DX being VU2LR. He also made one 6 metre contact with ZL1HY. In addition to contacts made, VK3VQ also details the valve line-up of his transmitter and receiver in his log.

Other logs of that period came from VK3UJ, VK3AP, VK3RZ, VK2ZC, while VK5ZU, VK2UB and VK2RP sent notes giving dates of their first post war QSOs in 1946.

From the WIA QSL collection, Ken Matchett VK3TL supplied photo copies of QSL cards of VK3VJ and VK3DG, both showing QSOs in 1946!

My sincere thanks to all who contributed to this history project.

*42 Edinburgh Road, South Blackburn VIC 3130

ar

■ Receivers

Low Noise VHF Pre-Amp

Ron Graham VK4BRG provides all the information needed to build a very useful receive pre-amplifier covering from 135 to 150 MHz.*

This VHF pre-amplifier has 50 ohm input/output impedance, is designed to provide around 18 dB gain and, with suitable modifications to the tuned circuits, covers the complete VHF band. The standard units tune the 2 m amateur band and the VHF weather satellite band, that is 135 to 150 MHz.

Two tuned circuits and input diode protection precede the BF-981 dual gate MOSFET. A broad band 9:1 impedance ratio RF transformer is used to match the BF-981 drain to the 50 ohm output line. This output line is suitably decoupled in order that the unit may be powered with approximately 12 volts via the output coax feedline for masthead pre-amp applications.

The above configuration provides a low noise figure combined with a high dynamic range. Extremely high stage gain tends to compromise the above, is normally not needed, and may lead to instability.

The small size of the printed circuit board (25 x 40 mm) means that it may be accommodated inside a radio with poor sensitivity and thus improve that radio's performance. Its principal application, however, is as a mast head pre-amplifier. In this situation it should greatly improve the overall receive system performance. This is of particular interest where long runs of feedline must be employed. Placing a pre-amp of this type at the mast head, close to the antenna, largely overcomes the receive system degradation caused by feedline losses. In some installations cheaper feedline (eg RG-58 in lieu of RG-213) may be used and suitable system performance maintained.

For mast head applications, the

printed circuit board will fit into a 50 x 30 x 38 mm die cast metal box and, with BNC co-ax connectors fitted at each end, a neat and rugged unit results. It is recommended that, for continual exposure to the weather, this pre-amp assembly be further enclosed or covered with a plastic box. A suitable size box may be obtained from kitchenware suppliers. Exposure to sunlight will eventually degrade the plastic and it should be checked after 12 to 18 months. Alternatively, the pre-amp may be incorporated in a suitable enclosure that is normally used for the feedline/antenna termination. Electrical conduit junction boxes are recommended for this application.

Construction

All components are fitted to the ground plane (top) of the PCB. Firstly, fit components which have one lead soldered to both the top and bottom of the PCB, that is C1, C2 (rounded end to earth), D1, D2, C4, R3, R1, C3, C5, C7 and C6. You will thus have the required access for soldering to the ground plane.

Wind RFC, three turns passed

through the toroid of 0.2 mm wire. Wind L2, six turns of 0.2 mm wire close wound in an anti clockwise direction on a four mm drill.

Wind L1 in two sections. Firstly, five turns as above. This section fits the two PCB holes either side of L1 as shown on the parts placement diagram. The one turn is actually about 7/8 of a turn and fits between the remaining two PCB holes.

Fit the RFC, L1 and L2 at this stage. The earthy ends of L1 and L2 are soldered to both sides of the PCB. The bottoms of the coils are spaced about one mm above the PCB, their axes parallel and a spacing of about two mm gives the desired amount of coupling.

Wind T1. Three pieces of 0.2 mm wire, 75 mm long, are twisted together at about three twists per 10 mm (not critical). Wind five turns through the toroid and space the winding over almost the complete circumference of the core. You will need an ohm meter to sort out the windings as per the schematic. Arrange the lead out positions so that they will fit the PCB. This takes a bit of thought! The joint that doesn't terminate on the PCB is simply tucked up the side of the winding out of harm's way.

Fit T1, C8 and TR1. The long lead of TR1 is the drain, so, with the device markings uppermost, the long lead faces the output end of the PCB. At this stage it would be wise to check your work.

Testing

For the DC test, apply approx 12 V DC to the output connector PCB pad via a milli-amp meter. Current should be about 10 mA. If not, investigate!

Specifications

Gain	18 dB approx
Tuning Range	135 — 150 MHz (standard)
Noise Figure	<1 dB
Input Impedance	50 ohms (unbalanced)
Output Impedance	50 ohms (unbalanced)
Operating Voltage	10 — 15 volts
Current Consumption	10 mA (at 12 volts)
Circuit Board Size	25 x 50 mm
Height	12 mm

Note: Supply voltage is fed via the RF output line for mast head pre-amp applications. By simply removing the RF choke the supply may be applied directly to the PC board.

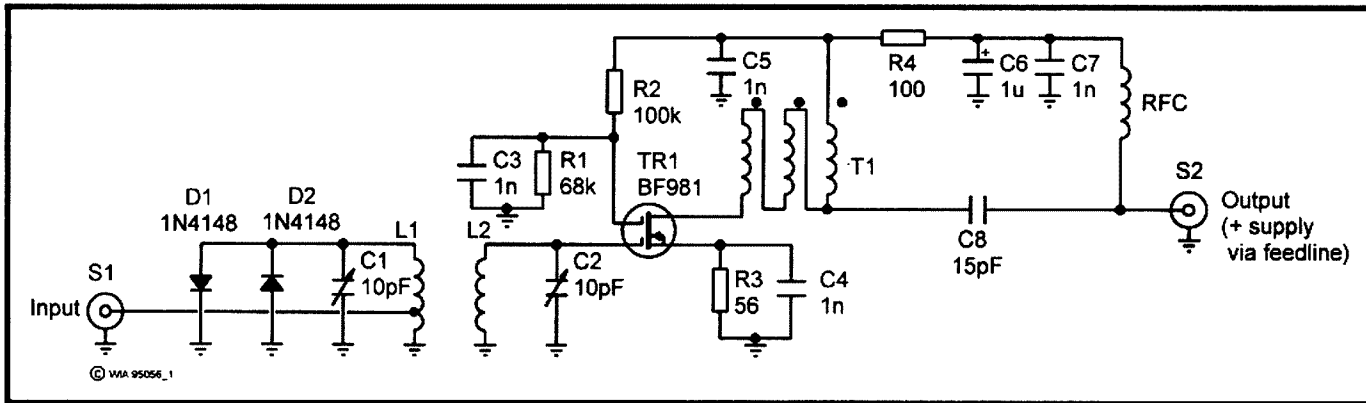


Fig 1 — Circuit of the VHF pre-amp.
RFC 3 turns 0.2 mm wire, FB43101 bead
L1 5 + 1 turns 0.4 mm wire, 4 mm diameter
L2 6 turns 0.4 mm wire, 4 mm diameter
T1 5 + 5 + 5 turns 0.2 mm wire, T25-12 core

For the RF test and alignment, temporarily attach suitable co-ax connectors to the input and output pads and ground, either via short pigtailed or small diameter co-ax. If you have a suitable signal generator it is a simple matter of feeding that into the preamp and having the output of the preamp feeding a suitable receiver. The other alternative is to use signals off air.

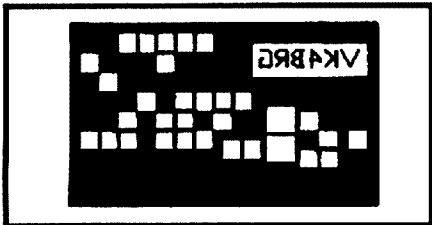


Fig 2 — Full size copy of the etching pattern for the ground plane side (top) of the circuit board.

Note that you may have to disconnect the preamp RFC and connect a separate 12 volt line to it if your test receiver doesn't feed the supply via the feedline. Using as weak a signal into the preamp as is possible to work with, adjust the trimmers for maximum preamp gain. It will be necessary to back off the input signal level as the trimmers are peaked. There is considerable interaction between the pairs of input and output trimmers so spend some time trying various combinations of adjustments to achieve the best result. The final small adjustments should be made to achieve the maximum quietening on an FM

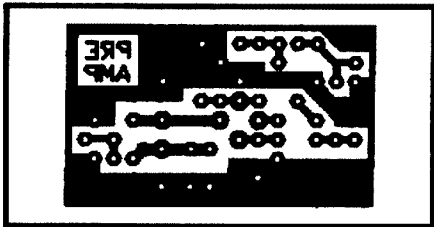


Fig 3 — Full size copy of the etching pattern for the component side of the circuit board.

receiver with a weak signal source. Note that, with the preamp sitting unshielded on the work bench, it may pick up signals directly. Make sure that whatever input signal source you are using is being received via the input socket. Prove this by disconnecting the input signal.

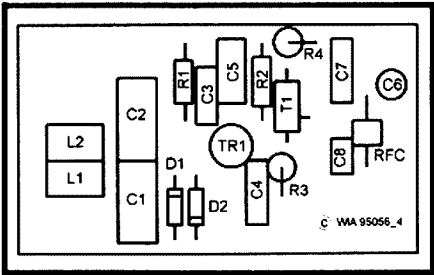


Fig 4 — Enlarged, not-to-scale component layout for the VHF pre-amp circuit board.

Final Notes

It is strongly recommended that the correct operation of the pre-amp be verified prior to mounting it in an enclosure, after which the trimmers may need a final adjustment. One realises that most modern

miniature designs for home construction call for:—

1. a specific PCB and that, even though a PCB pattern is supplied, a lot of potential constructors are not in a position to make the board; and
 2. specific components with lead pitches to suit the PCB.
- With the above in mind, and to assist potential constructors, I am trying to organise the supply, essentially at cost of PCB and parts

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Also in the pipeline are articles describing the details for mounting the pre-amp into a small die cast box,

and an active turnstile antenna for VHF weather satellite reception using the pre-amp.

Parts Schedule

Qty	Description	Lead Spacing	Notes
1	PCB Special double sided 40 x 25 mm		
1	BF-981 DG MOSFET		
2	1N4148 diodes		Use BAW62, BA482 if available Murata (white)
2	3 — 11 pF trimmer	5.0 mm	
1	56 ohm 1/4 watt 5% carbon resistor		
1	100 " " " "		
1	68 k " " "		
1	100 k " " "		
1	15 pF NPO ceramic capacitor	2.5 mm	Philips 680 series
4	1 n Hi K " "	5.0 mm	Philips 629 series
1	1 μ f 35 V tantalum "	.5 mm	
1	FB43101 ferrite bead		Amidon
1	T25-12 toroidal core		Amidon
	300 mm 0.2 mm diameter enamel wire		
	300 mm 0.4 mm " " "		

*PO Box 323, Sarina QLD 4737. ar

WIA News

Amateurs Asked to Join Search for Extraterrestrial Intelligence

Radio amateurs around the world have been invited by the SETI League to join in an upcoming radio-astronomy project to search for extraterrestrial intelligence.

Named "Project Argus", the SETI League hopes to involve 5000 amateurs around the world in scanning the sky for RF signals which may indicate the existence of intelligent life elsewhere in the universe.

Target date for the start of the project is Earth day, 21 April 1996, according to a report in *The ARRL Letter*. The project name Argus was chosen in 1971 at Stanford University in the US, for a proposed SETI receiver that was never funded. Argus was a figure from Greek mythology, with 100 eyes, which enable it to look in all directions at once.

SETI League adviser and assistant director of the Ohio State University Radio Observatory, Dr

Robert Dixon W8ERD, hopes to share technology with the SETI League, according to SETI League director, Paul Shuch N6TX.

Moves to Expand the 80 m DX Window

The WIA has made representations to the Spectrum Management Agency (SMA) for an expansion of the 80 m DX window, which is presently only 6 kHz wide, from 3794 to 3800 kHz.

This action followed a formal survey of commercial users of the spectrum between 3750 kHz and 3899 kHz, carried out on behalf of the Federal WIA by the Victorian Division. The survey results were formally presented to the WIA Federal Council at its October Extraordinary Convention, held in Melbourne over 28-29 October.

The Federal Council decided that the WIA SMA Liaison team would negotiate with the SMA seeking an expansion of the 80 m DX window. A questionnaire was sent to the 296 licensees between

3750 and 3899 kHz, listed on the SMA's database as at April 1995, which was supplied to the WIA following an agreement reached at the WIA-SMA Liaison meeting held on 18 May this year. Replies to the questionnaire were received from more than 55% of the licensees surveyed.

The survey asked them if they used their allocation, at what times of the day they used it, and if they had any objection to the Amateur Radio Service sharing the allocation.

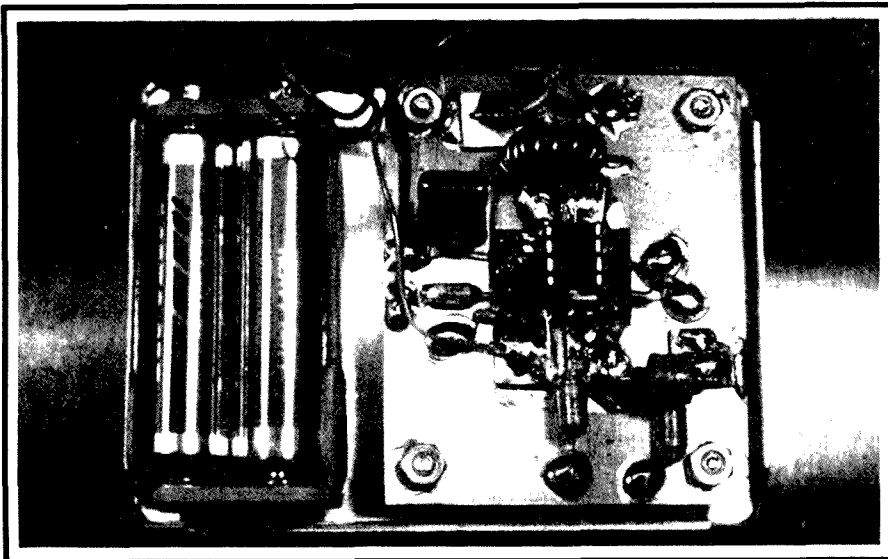
The response from the survey was generally positive to the proposition of sharing spectrum in this region on a non-interference basis.

The 80 m DX window is presently being monitored by the SMA, and the WIA urges users to take care as any inappropriate operating practices could harm the WIA case for an expansion. The SMA has already issued warning letters this year to a number of operators who apparently breached current operating rules.

Receivers

Simple LF Receiving Converter

Drew Diamond VK3XU describes another useful receiving unit for the shack.*



LF converter circuit board and batteries mounted in a small box.

In the happy event that amateurs gain an allocation in the 160 — 190 kHz band, it would be good to be able to listen to signals on this band. Indeed, some experimenters are already operating in this region. Here are details of a simple converter which provides adequate signal handling and coverage from (nominally) 10 kHz to about 500 kHz.

The Civil Aviation Authority operates numerous non-directional beacons (NDBs) as navigation aids for aircraft. On LF (or "long wave") they range in frequency from about 200 kHz to 420 kHz, and consist of a carrier amplitude modulated by a Morse identifier of usually two or three letters. For instance, Essendon near Melbourne is EN, Wonthaggi is WON.

These make excellent practice material for persons in the early stages of learning the code. Character speed is about 8 wpm, so the student soon learns to recognise

the collection of letters being sent repeatedly under actual "radio" conditions. Even the most reluctant student will find it a painless and effective introductory method if run in the background whilst doing other "more important" things.

Circuit

A simple low pass filter significantly attenuates antenna signals above about 500 kHz so that broadcast stations do not overload the mixer. An NE602AN balanced mixer IC has its local crystal oscillator running at (say) 3 MHz, making 3.000 MHz equal to zero reference (0 kHz). For example, a signal on 190 kHz will therefore be converted to 3.190 MHz, and a signal on 300 kHz will appear on 3.300 MHz, which may be tuned by an ordinary SW or HF receiver (without in-built antenna) which covers that range. Similarly, a 3.5 MHz conversion crystal would have 0 kHz at 3.500, a 4 MHz crystal at 4.000 MHz and so on.



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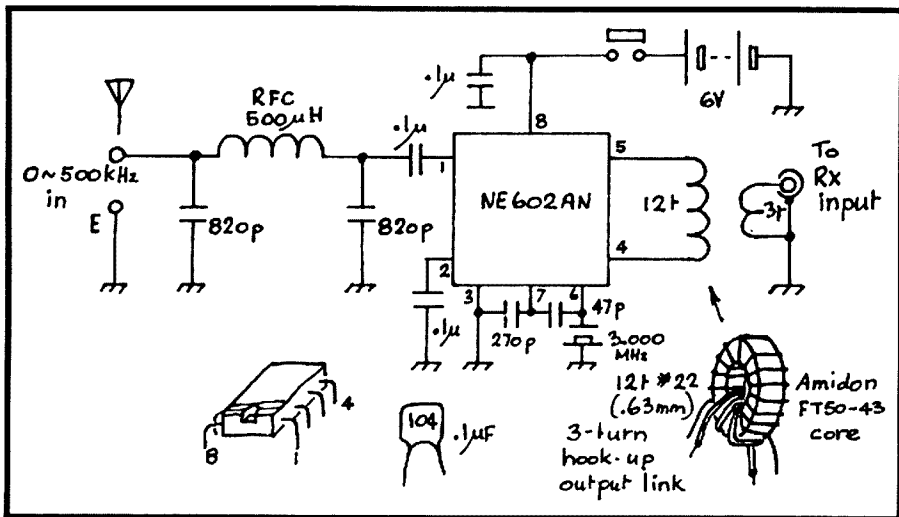


Figure 1 — Circuit diagram of the LF converter.

Input and output networks are untuned, and there are no adjustments to make. Current demand from a 6 V supply is only 2.5 mA, hence battery operation from a set of 4 pen-light cells is a good plan. Maximum specified supply for the '602 is 8 V.

Construction

The NE602AN chip is inserted into a wire-wrap socket, which in turn is soldered to a pad-board (see Ref 5) substrate attached to a piece of circuit board measuring 65 x 50 mm. 3 and 4 MHz crystals are available "off the shelf" as cheap computer units (although the 3 MHz is dearer). Either frequency, or perhaps a slightly higher round-numbered one which suits your receiver's range, such as 5 or 6 MHz, is suggested. However, 3 MHz is recommended, because there are not (in VK3 at present) a lot of powerful signals in the 3 to 3.5 MHz range which may "break through" into this IF.

Circuit board and battery may be accommodated in a small metal or plastic box, with suitable connectors as shown.

Operation

Use a coax lead to connect the output of the converter to the input of your receiver. Background noise should increase just a little when the converter is switched on. Tune the receiver to the crystal frequency (zero reference or 0 kHz), where a moderately strong carrier should be

noted. Connect a wire antenna to the converter input. At these frequencies a short antenna of a few tens of metres merely forms a non-resonant voltage probe. Even a wire of only a few metres will bring in many signals.

As mentioned above, mentally subtract your crystal frequency from the positive dial reading to obtain the actual receive frequency. Down near 10 kHz (if your home is like mine) you will hear a mish-mash of buzz from

all those horrible switch-mode power supplies and TV sets in the area. But above about 200 kHz, the smog should clear a little and allow the beacons and other signals to be tuned.

Beacon signals have been received here from many parts of Victoria, southern NSW and King Island (KII) on a 10 m length wire antenna. A separate earth connection (that is, independent from the mains earth supplied by the receiver connection) may or may not improve the signal to noise level, so give it a try.

References and Further Reading

1. *Tune in on the New Frontiers of VLF — Curry, 73 Amateur Radio, June '90.*
2. *A Bandwidth Limiting LF Up Converter for Around 200 kHz — Butler, Amateur Radio Dec '93.*
3. *The Bandwidth Limiting Converter Simplified — Butler, Amateur Radio Jan '94.*
4. *Modifications to the Bandwidth Limiting Converter to include VLF — Butler, Amateur Radio Mar '94.*
5. *"Paddyboard" Circuit Construction — Diamond, Amateur Radio Feb '95.*

*45 Gatters Road, Wonga Park VIC 3115

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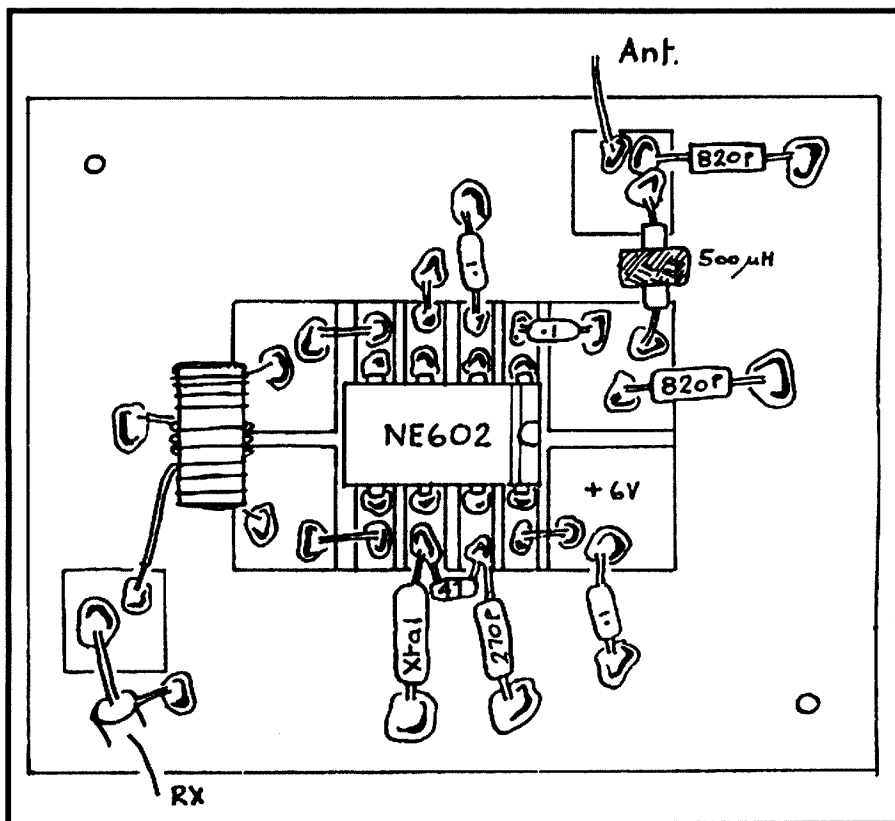


Figure 2 — Circuit board layout for the LF converter.

GHz; a down-converter to IF range; a VHF scanning receiver; DSP, spectrum analysis software and a PC.

Information regarding SETI and coordination is available from the SETI League via e-mail to info@setileague.org. Alternatively, a letter to the author of the QST article H Paul Shuch N6TX at PO Box 555 Little Ferry, NJ 07643 may be useful. However, if writing, please remember to include a return envelope and the means of return postage, either as green stamps or IRCs. The costs of postage are heavy, particularly for any volume of mail.

If you are interested in SETI then I would recommend obtaining a copy of August 1995 QST, which is available for purchase from Daycom Communications Pty Ltd and from some libraries. The article provides some leads to further reading for those interested in SETI.

Weatherproof J Pole Antenna

In the July 1995 issue of QST, Dennis Blanchard K1YPP describes a J pole antenna enclosed in a PVC pipe radome. The interesting thing is the use of a foam insert to hold the antenna, made from twin-lead, centrally inside the PVC pipe.

The antenna is constructed from windowed twin-lead which is then secured within the PVC pipe by a foam insert. The foam insert is a length of the split foam used as lagging for pipes. This foam is available locally in appropriate lengths. The pipe used as the radome is a PVC pipe of 1.5 inches diameter. This would translate to a 38 mm pipe, or thereabouts, locally. Short lengths of such pipe are available in hardware shops together with suitable fittings to close the ends.

The antenna construction is shown in Figure 2. Suitable dimensions for 300 ohm twin-lead of 0.85 velocity factor are given in Table 2. With a little experimentation the more robust 450 ohm line could be used. With all such experiments, cut the antenna a little long to start with and then prune it back. The antenna will be low in frequency and you will be able to work out how much to trim it to get it onto frequency. The coaxial socket is let out through a hole in the pipe

Table 2 — J Pole Section Lengths

Frequency MHz	D Total Length (in)	A (in)	B (in)	C (in)
50.0	160.4	3.2	48.2	112.2
51.0	157.2	3.1	47.2	110.0
52.0	154.2	3.1	46.3	107.9
53.0	151.3	3.0	45.5	105.9
54.0	148.5	3.0	44.6	103.9
146.0	54.9	1.1	16.5	38.4

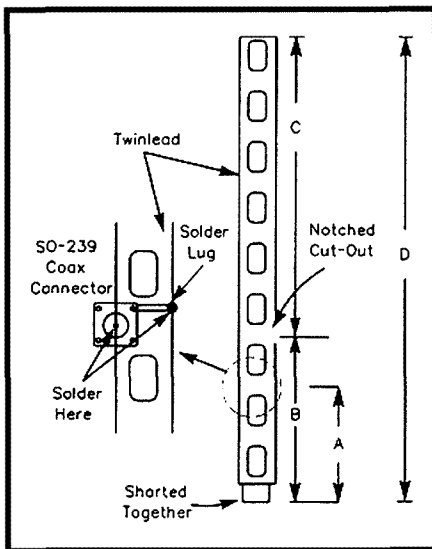


Figure 2 — J Pole Construction. See Table 2 for lengths.

and would need to be sealed to prevent ingress of moisture.

A worthwhile addition would be a choke in the feedline as recommended by VE2CV. This could be formed by coiling up the feedline to form a choke or by using some ferrite beads slipped over the coax near the feed point.

A means of trimming the frequency

of a 6 metre J pole was mentioned in the article. This was to wrap a 1 inch (25 mm) strip of aluminium foil around the lower section of the PVC pipe. This acts as a capacitor and can be positioned so as to change the resonant frequency of the antenna. It can be held in place with tape. This allows the antenna to be temporarily used in a different part of the band.

The Octopus

A simple tester can be built which uses a cathode ray oscilloscope as the display to test a variety of components. There have been several versions of this tester, including a variety of commercial designs of varying degrees of sophistication. The name is derived from the way the device looks. The basic idea is to use an oscilloscope to display simultaneously the voltage current curve of a component.

The circuit comes from 73 *Amateur Radio Today*, August 1995 issue, in which Craig Faith KB5RMZ described the device. A similar device was described in the November 1991 issue of *RadCom* by Mike Dawson G3TCL. The *RadCom* article described a somewhat more complex

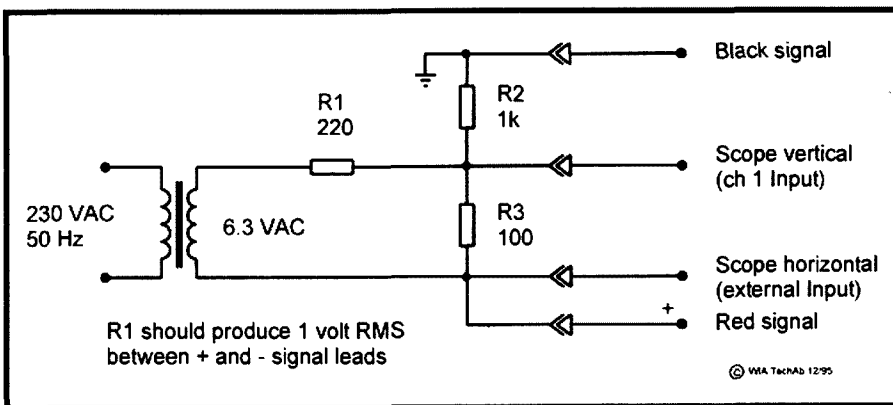


Figure 3 — The Octopus.

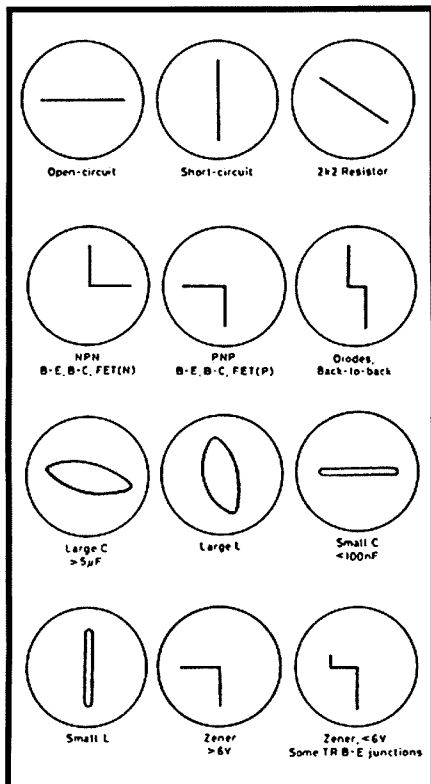


Figure 4 — Traces from different components.

device and provided a wider range of typical displays.

The circuit from 73 is shown in Figure 3 and consists of just three resistors and a transformer which provides a 6 volt AC source. The curves which come from *RadCom* are shown in Figure 4.

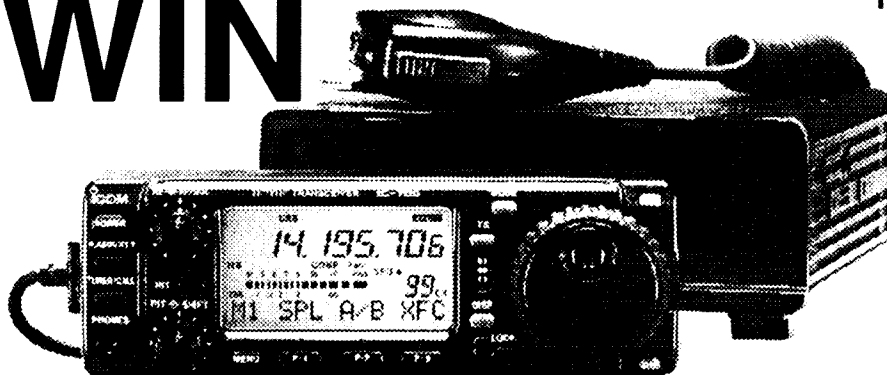
Use with components in circuit may lead to some complex traces as the components will not be isolated, but the results will be useable. To display zener diodes, a higher voltage source will be needed, but be careful as some other components may not welcome the increase. Also, be careful with sensitive and small components. The tester provides a test voltage of about 2 VAC, which is around 6 volts peak to peak. The current is around 3 mA peak. Most components can handle this, but be careful with small and delicate parts.

In use, adjust the horizontal deflection with the test leads open. Then short the test leads and adjust the vertical deflection. The tester is then ready for use. Test some known components first so that you have an idea of what the display looks like.

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Heard Island DXpedition in Jeopardy

A group of eight amateurs from six countries around the world, who spent the past 18 months organising a joint amateur radio and scientific expedition to Heard Island, were left stranded without a vessel just as the expeditioners arrived in Australia in late October.

Heard Island, one of Australia's Antarctic territories located in the Southern Ocean about 53 degrees S — 75 degrees E, between Perth in Western Australia and Enderby Land in Antarctica, is one of the "most wanted countries" among the world's HF band DXers.

The eight expeditioners, who had obtained all the necessary licences, permits and clearances from Australian authorities, including the Antarctic Division, planned to spend some weeks on Heard Island from mid November to early December. Like the September Easter Island/Salas y Gomez DXpedition, in which some of these expeditioners were also involved, Heard Island was planned as a multipurpose, multi-disciplinary project involving natural science, amateur radio and state-of-the-art computer-based communications. A major goal was to implement new techniques for using available high technology to enhance communications from remote sites, to document and monitor local marine life, and to conduct radio propagation experiments. They brought equipment to Australia to send data and information from Heard Island via satellite, to be distributed world-wide via the Internet, including daily QSLing. A book, a documentary film and many major newspaper and magazine articles were planned as a follow-up to the Heard Island expedition.

Three of the would-be expeditioners are from the USA, the others are from Belgium, Holland, Switzerland, Japan and Russia.

The loss of the vessel, which disappeared from the Port of Cairns in Queensland, has serious international ramifications for Australia. The expeditioners have not been able to recover more than \$AUS165,000 which was paid up-front to secure the vessel, and pay for shipping and other services.

Contributions and sponsorships for the Heard Island expedition have come from all over the world. The expedition was to sail for Heard Island from Fremantle on 1 November. Some 50 m³ of equipment had previously been shipped to Australia and was ready to be loaded aboard the charter vessel, the Tallarook, chartered from K&DM Transport Pty Ltd of Glenroy, Victoria, trading as Pioneer Cruises.

At the end of October, when the expedition advance team of Ralph Fedor K0IR, Bob Schmeider KK6EK, Peter Casier ON6TT and Arie PA3DUU arrived, the Tallarook was in a repair dock in Cairns. Two team members flew to Cairns and when they confronted the proprietor of K&DM Transport, Mr Kris Mitchell, and inspected the Tallarook, they apparently found the vessel did not comply with the requirements of the Australian Maritime Safety Authority, it was not of the size expected, its generator and desalinator were not working, the deck appeared to leak, the promised deck crane and landing craft were not installed and the vessel could not then move under its own power. The expeditioners claim they had been assured by K&DM Transport that the Tallarook's range was 5000 miles when it appears to be 900 miles.

Numerous faxes and telephone calls to and from Mr Mitchell, before the advance team arrived in Australia, had assured the expedition the vessel was seaworthy and adequate for the voyage, they said.

The expedition advanced funds to K&DM Transport to pay shipping charges from the USA for a 20 ft sea container of part of the

expedition's supplies. Apparently this has not been paid and the expeditioners now have to cover the charges to recover their equipment. In addition, supplies K&DM Transport had agreed to obtain for the expedition have apparently not been bought.

After the arrival in Cairns of the expedition advance team, Mr Mitchell made rudimentary repairs to the Tallarook and left the Port of Cairns, they said. The vessel was last reported off the East coast between Cairns and Brisbane. The Australian Federal Police fraud squad has been notified, but without result so far.

The Heard Island expeditioners are trying to reschedule their project and to find another vessel to re-start the expedition in January. This has meant enormous disruption to the personal and working lives of all the expeditioners. They have been unable to recover the \$AUS165,000+ paid to Mr Kris Mitchell, who has not been located. The expeditioners are seeking further sponsors for fuel and food.

While the drama of the Tallarook was unfolding, several more expeditioners arrived in Australia. All but Ralph Fedor K0IR have since left Australia, disappointed but determined to salvage something of the project. Ralph K0IR is travelling the Eastern states to see what can be done.

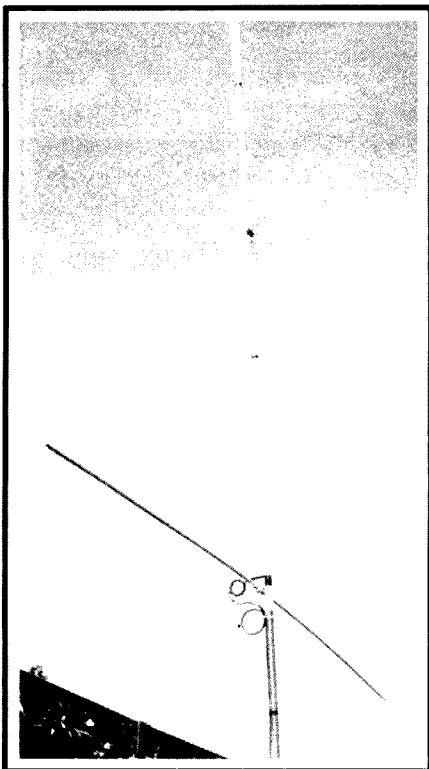
When it became apparent in late October that the Tallarook could not serve the expeditioners' needs the WIA Federal organisation, through President Neil Penfold VK6NE, become involved in an effort to assist the expeditioners. Contacts with the shipping community, obtained through the assistance of Federal Media Liaison Officer Roger Harrison VK2ZRH, are being followed-up in an effort to locate another vessel. The WIA has issued a press release to the print and electronic media, alerting them to the Heard Island expeditioners' plight.

■ Antennas

DX Vertical — Up or Down

Adrian Fell VK2DZF presents yet another interesting antenna article.*

Many amateur radio operators would never consider using a vertical antenna of any sort. But those of us who have used a vertical antenna know how well this type of antenna can work. Take, for example, a typical HF mobile whip mounted on the vehicle. This is far from ideal but it is amazing how well this antenna can work. The vertical is renowned for unwanted pick-up of noise, particularly the man made type or QRN. Also, because its radiation pattern is omnidirectional, interference from other transmissions, QRM, is also a risk.



An experimental 20 m ground plane using fishing line guy wires. The small coil is the loading coil with a link for the feeder.

Well, that may be all true, but, on the other hand, the vertical still has a lot to offer and should be considered for good DX performance, especially using CW, simplicity and low cost.

The word "vertical" will probably mean different types to each reader. Maybe a commercially made multi-band antenna, or the trusty old ground plane. But, whatever the type, I wonder how many hams use a quarter wavelength long vertical with the feedpoint sitting at ground level? Not many, I bet! Well, I do and I just love it.

There are a few problems when a quarter wavelength radiator is located close to the ground. One is that RF wants to travel in the earth where the other quarter wavelength of the antenna should be. This may work if the area under the radiator is conductive, such as very moist soil. But, with dry and poor conductive areas, poor performance will result.

This type of vertical, worked in conjunction with the ground, was called the Marconi after its creator. A way to reduce losses and improve efficiency is to lay out on, or just under, the soil some radial wires spanning out from the base of the vertical. These wires should preferably be 0.2 of a wavelength long with some at 0.4 wavelength, if space allows. There could also be some shorter in length, eg 0.1 wavelength, which is an advantage closer to the feedpoint. Opinions will vary as to how many radials should be used and some will say the whole exercise is a waste anyway but, as the author had already put a total of 80 down prior to turfing, these were put to good use.

Later, another 40 were cut for the 20 m band and added to the same radial system. These can be slotted

into the soil, after a spade slot is dug, with the wire pulled taut and pushed into the slot. If the soil is damp or wet it will be a lot easier and any convenient type of wire can be used. A mixture of old coil and solid copper mains wiring was used by the author. The purpose of the radials is to get the RF to travel into these wires, not the lossy ground.

It can be seen why the elevated ground plane antenna has become so popular because, as the height of the radiating element is moved up away from the ground, less and less radials are required as the influence of the ground decreases. Again, opinions will vary as to how many radials should be used with a elevated GP but, with the feedpoint at about one quarter wavelength off the deck, four radials is a popular choice with hams around the world. The author has progressed from two to three and then eight (see later section), the aim being to get a good RF ground that the current wants to travel in rather than the ground itself.

With a ground mounted vertical there are other ways to reduce losses. For example, the radiating element could be made longer, up to a maximum of five eighths of a wavelength. This puts a lot less demand on the ground radial system. One could even use a half wavelength long element, where no ground radials are required at all except, maybe, a small counterpoise connected to the coaxial cable braid.

All these lengths longer than a quarter wavelength will have a higher feedpoint impedance, and some reactive properties as well, which means some sort of electrical network at the feedpoint is required to match a 50 ohm feeder cable. These longer radiators have been avoided for that reason alone, plus experiments in the past have favoured the shorter quarter wavelength. A 3/4 wavelength is a length that does not require any network at the feedpoint but, as any length over 5/8 of a wavelength will have all or some radiation at a high wave angle, this will not favour any long distance DX stations. Their signals arrive at low angles.

The wave angle is supposed to go even lower, desirable for DX, when the vertical is at these lengths, not 3/4

wavelength, giving the antenna some signal gain over the shorter 1/4 wavelength. Whether this extra signal gain is ever realised in practice is another matter.

Constructing an antenna to extend to these lengths can be a problem for most, especially on the lower frequency bands. It has been my experience that a quarterwave long antenna seems to work as well as the longer alternatives, at least at this QTH.

One reason why the elevated ground plane antenna works so well is that, by moving the typical quarter wavelength radiating element away from the ground, the losses are reduced quite considerably. Therefore, a lot less radials are required to achieve the same results. The radials are usually made to a quarter wavelength, completing the other half of the antenna. However, there is a risk that RF will couple into the coaxial cable feed arrangement and thereby cause TVI. It may even cause the radiation angle to become higher than it would be otherwise because the feeder becomes part of the antenna and is radiating.

The number of radials required will depend on the height of the antenna above ground level. As mentioned previously, four is a number that is very popular with amateurs. But I have found that even eight did not do justice to a design for the 20 m band, with the feedpoint at a height of seven metres, compared with the ground mounted vertical. In any case, installing an RF choke at the feedpoint would be a good idea and this can be done by winding the coaxial cable through a suitably sized toroid for three or four turns if an elevated GP is used. A better alternative may be to try a current balun, which is all the rage these days.

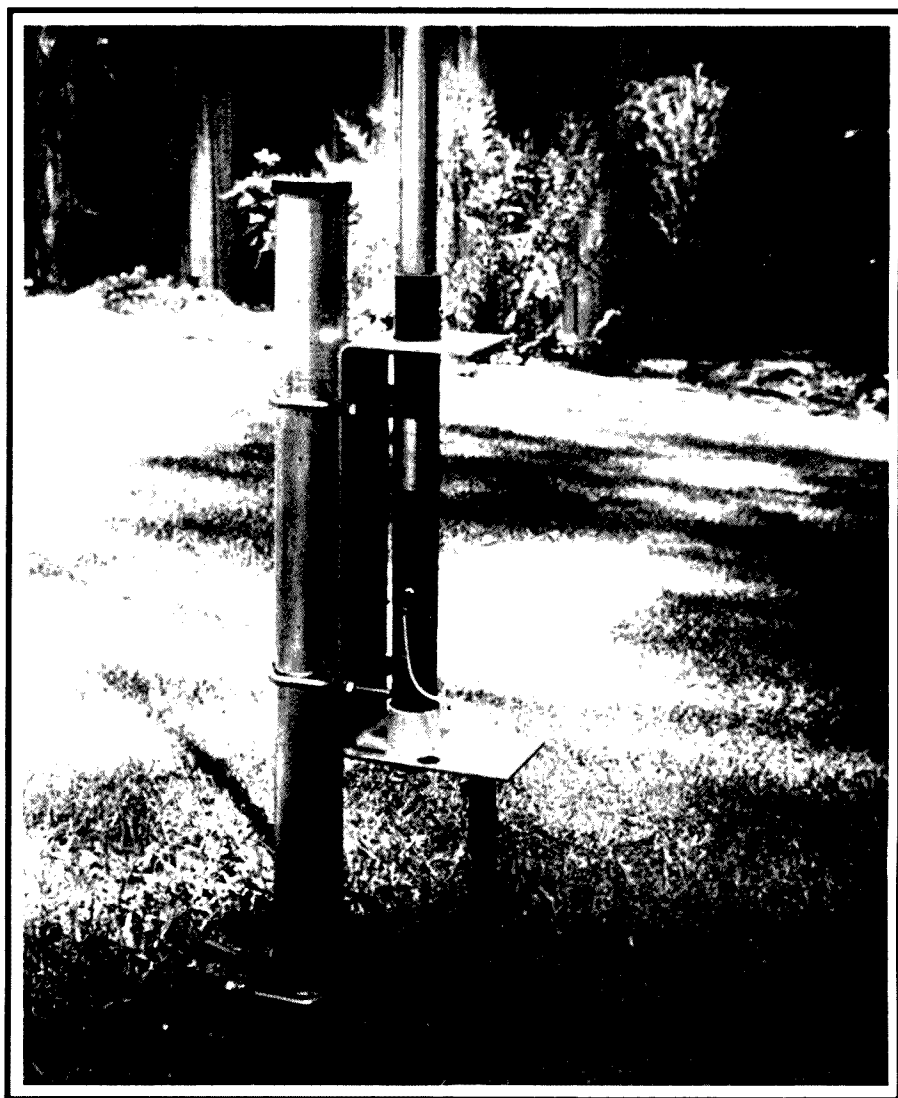
The RSGB publication, *HF Antennas for All Locations* by Les

Moxon G6XN, indicates that a much better approach is to use a single, non-resonant radial which is loaded by a coil to which the feeder is coupled. I did build such an antenna (see photo) and, from memory, it did work well with low noise pick up on receive. But this was many years ago now and this approach has not been pursued since.

For comparison tests against the ground vertical and the GP, I constructed an inverted vee antenna. This was then hauled nearly 20 m high in a gum tree. This V was run in parallel with an 80 m V using the same feeder cable. There was a one to one balun installed at the feedpoint.

On receive the inverted V was the quietest (a bit too quiet for my liking) and had the advantage with some signals from Japan and New Zealand. A lot of VK stations were best on the V, also, but this could vary depending on conditions and direction of signals. At no time did this V, at nearly 20 m high, out receive any of the verticals with DX stations. At times it was inferior to the ground mounted vertical for DX and it was on a par with the GP seven metres high for DX.

The GP seemed the noisiest of all the antennas on receive but it sometimes received some local (25 km distant) VK stations better than the ground vertical, probably due to



The base of the ground level vertical for 20 m with the 120 radials hidden by the grass. The aluminium ground section is driven over a water pipe ground rod. The U-clamp is connected to the radials. The RQ213 coax is run underground inside hose pipe which protects the cable from the mower, etc. A lightning arrester is fitted on the SQ239 coax socket.

**Support the WIA
in order to
protect amateur
radio frequencies**



The ground mounted 20 m vertical antenna.

a different higher wave angle or building or ground reflections. On comparison transmission tests done to Europe, New Zealand, and Japan, no stations could detect any difference between any of the antennas at their end. This could be due to fading, QSB of the signals, or it could be a confirmation of comments made by somebody else before, that all single element antennas perform the same. Whatever the reasons, the big difference was on receive and, at the end of the test, I had to make a decision. Overall, I much preferred the ground mounted vertical. It also looks much neater in suburbia with all those ugly radials out of sight.

With the antenna at ground level it is very easy to take out sections of tubing to resonate the vertical at either 10, 15, or 17 m. If this is envisioned, then some radials cut for these frequencies could also be laid under the ground. I purchased a Station Master 27 MHz vertical, second hand, for \$30. The coil was removed, the aluminium cleaned with fine steel wool and the length was adjusted for 20 m.

**PO Box 344, Baulkham Hills NSW 2153*

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references to "interference" should be corrected and the term DISTURBANCE proposed instead!

The giving of names, call signs, operating times and wavebands, power levels and equipment in use, must be avoided.

The visitor should be allowed to express fully and uninterrupted his dissatisfaction with you regardless of time required or his intensity of presentation.

Upon cessation of this display of disgruntlement you should immediately and forcefully put to him the suggestion that the disturbances to which he has alluded if, in the off chance, they did emanate from your station, are certainly of a confidential nature and that it is in fact he, not being in possession of an amateur radio licence, who is at fault in having unlawfully intercepted such transmissions. And further, that it is an offence under the Radio Communications act to do so.

Before the caller has a chance to regain his equilibrium, your position should immediately be reinforced with the further approach that entertainment equipment, such as that employed for his relaxation, is obviously not intended for reception of short wave transmissions and must therefore be either defective or inadequately designed in having done so. Especially as there is not the slightest problem with your sets or, for that matter, any other neighbours you have questioned as recently as that morning.

Having now absolutely destroyed your complainant's credibility, and established the likelihood of prosecution if further transgressions are reported to you, he should be dismissed with a casual but friendly note that, as a good neighbourly gesture, you will, in future, see your way clear to avoid operations on Sunday evenings from midnight to dawn.

At this juncture, I should point out, unless you are considerably larger than your pesky visitor, all proceedings should be conducted with you safely behind a locked security door.

**20 Allendale Crescent, Mulgrave VIC 3170*

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■ Humorous

How to ... Trouble Shoot a Complaining Neighbour

Steve Bushell VK3HK presents a different approach to interference complaints, but one which may have some limitations?*

If you are one of those people who transmit radio signals and perhaps experiment with antennas, then the likelihood of an encounter with an irate neighbour at some stage (generally at peak viewing time) is high on the order of possibilities.

Prior to this visitation it is best to be rehearsed in some tactic of self preservation (forewarned is

forearmed), as to be caught with one's guard down can lead to a long involvement with TV sets, stereos, organs, intercoms, garage door and gate controllers, etc other than your own.

To begin with, it should be kept clearly fixed in your mind that, under no circumstances, should you admit liability for anything; and that any

■ Antennas

The Ups and Downs of TH3JR Repairs

Gerry Wild VK6GW* explains how he fixed his tri-band beam antenna.

I wonder how many of my fellow amateurs are having high VSWR problems with their Hygain TH3JR beams and are unable to resolve them?

Following is an account of my own trials and tribulations but, before I start, here's a brief description of the construction of the TH3JR. Each of the three elements of the beam carries four parallel-tuned traps consisting of an inductor wound on a plastic core surrounded concentrically by an aluminium capacitive section. This tube is held away from the inductor by four plastic rings, and is secured by a screw at one end to the beam element (see Fig 1).

A fellow amateur had one of these beams which was exhibiting a VSWR in excess of 3:1 on all bands, so it was decided to attempt a repair. Each trap was disassembled and examined carefully with the cause of the trouble soon being found. Numerous insulator rings on the driven element were found to be cracked or burnt away, leaving a carbon track to short out the capacitive section. These rings were replaced, all connections cleaned and tightened, and the result

was an antenna in good working order.

However, a couple of weeks later, my own TH3JR developed a high VSWR which was causing my TS130 to switch to reduced power. The beam was duly lowered and the traps stripped down. As previously, some burnt and broken rings were replaced on the driven element. Tests were satisfactory and everything stayed fine for about a week or so until the problem re-occurred. This time, however, it was intermittent.

Being quite confident of my previous repair, I suspected the coaxial cable or its connector, both having been up for some time. Replacing them made absolutely no difference; in fact, the fault was now permanent. The only thing left was the balun which was duly taken apart and found to be in perfect condition.

By this time I was completely baffled, and so decided to completely disassemble the antenna. It was not until I opened the last trap on the driven element that the cause of the problem was revealed. Inside the capacitive section and lying across the inductor were the remains of a large caterpillar which had acted as a short circuit.

Drilled into each capacitive tube section are four 4 mm diameter holes for drainage which are supposed to face downwards. Quite obviously they had allowed the caterpillar to make its home there after my initial repair.

My advice to anyone with a similar VSWR problem is to:

1. carefully examine the plastic insulator rings, especially on the driven elements, for carbon tracking;
2. clean all inductors and connections and tighten screws carefully; and
3. seal all hardware with silicon rubber and put a light smear across the trap drain holes (you might just save yourself a lot of pain).

Technical Editor's Note

As an owner of a TH3JR for almost 20 years I have had similar problems over the years. In my case, I used to suffer high VSWR after heavy rain storms. It could take several days for things to dry out by which time the VSWR would return to normal. I found that the moulded plastic "boots" over the ends of each of the traps were disintegrating due to age and were allowing the water to enter from each end of the trap. As above, the effect was most dramatic on the driven element. My solution was to purchase suitable diameter heat shrink tubing (blue in my case), cut it into about 50 mm lengths and shrink it onto the end of each trap. The tubing has been in place for more than five years now with little or no sign of deterioration.

Another problem suffered after a particularly stiff breeze (more than 100 mph) hit the antenna, was severely swept back elements. This was in addition to a bad case of droop that the elements were starting to show anyway. The solution to both of these problems was to carefully straighten the bent sections (at the boom end of the element) and then insert approximately one metre lengths of aluminium tube inside the damaged section. The aluminium tube used is available from Alcan who make a range of tubes that fit neatly inside each other. Choose the one that just fits inside the element to be repaired. A single pop rivet in the element to hold the inner section in place completes the repair. Now it can accommodate a whole flock of magpies without looking too droopy and has been doing so for the past 12 years since the repair.

*1080 Great Eastern Highway, Glen Forrest WA 6071

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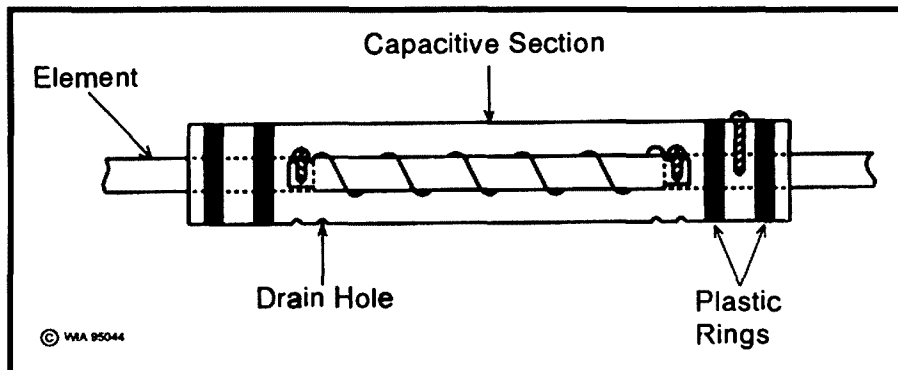


Figure 1 — Hygain TH3JR trap.

ALARA

Sally Grattidge VK4SHE; ALARA Publicity Officer.



ALARA wishes all members, YLs, OMs, harmonics and everyone else a very happy Christmas and New Year. And, just to spoil your fun, a reminder that subscriptions are due (Treasurer's address below).

New Members

Ann ZL1ANN joined 29 August, sponsored by Elizabeth VK3NEP. Mabel G18SXN joined 22 September, sponsored by Jean Shaw. Additions to the membership list, Christine VK6ZLZ and Elizabeth VK3NEP.

New members are always welcome, so if you would like to join ALARA; used to be a member but have let your membership lapse; changed your address and not let the treasurer know the new one; or would just like more information, drop a line to the ALARA Treasurer, Margaret Schwerin VK4AOE, PO Box 758, Dalby Qld 4405.

Overseas

Mabel G18SXN has recently taken on the position of BYLARA DX Co-ordinator for sponsors. She can be contacted through our local Sponsorship Secretary, Gwen Tilson VK3DYL, 3 Gould Court, Mount Waverley, VIC 3149, or on packet at VK3DYL@VK3KSD.

Aola ZL1ALE has just managed to work the last country she needed on SSB and has now caught up with OM Dave ZL1AMN. Well done Aola.

Dawn ZL2AGX reported birds skating on the bird bath in July. With the cold and gale force winds, she was glad to welcome Spring. She enjoyed a trip on a mail boat around the islands and coast of South Island.

Chris ZL1BOW also visited South Island, but returned to a house of disasters when the gas fire would not work, the water bed burst, and the washing machine gave up the ghost.

Judith ZL3AGE was also glad to see Spring come after a very wet winter. Maxie DJ4YL and her sister Marile visited Australia in September and October. Christine VK5CTY sponsors Maxie and they were able to meet for lunch.

Vicki VE7DKS is Editor of the Clarion again and welcomes any news from VK YLs. She also collects stamps so, if you write, put a good collection on the envelope for her. Barbara V85BJ, Brian V85EB, Judy and Robin attended the VK6 August luncheon in Perth, and showed everyone their photographs of Brunei.

ALARAMeet

Raija SM0HNV is planning to be in Perth next September. So far members from five overseas countries have indicated they will be attending.

At Home

ALARA now awards members with an attractive certificate in recognition of continuous membership each five years. It goes up to forty-five years. If you manage more than that you deserve a medal! Thanks to Awards Custodian Jessie VK3VAN, and Gordon VK3GB who produced the certificate.

ALARAMeets Past and Present Castlemaine 1993

With an attendance of eighty this was the biggest meet ever. In spite of cold wet weather on the Sunday and a problem with the official photographs (have you ever heard of anything being organised where there are no hiccups?), everyone had a wonderful time and the whole event actually made a small profit (as did the meet in 1990)! Margaret VK3DML can now hand over the books and go to Perth next year and really enjoy herself.

Perth 1996

Bev VK6DE is taking names and addresses of members planning to attend. Write to Bev Hebiton VK6DE, PO Box 299, Geraldton WA 6530. Tourist information packages will be sent out around

April/May to assist those planning their trips. Bev will publish a list of accommodation close to the venue in the January Newsletter, and recommends early booking. Monday, 30 September is a public holiday and an extra tour may be arranged for members who wish to spend another day in Perth. Let Bev know when you contact her.

News from the Members

Bev VK6DE and OM Brian have been four-wheel-driving around the West and report that the wild flowers are lovely this year. Bev and Brian have a granddaughter, Jennifer Dawn born 26 June.

Julie VK4JJB has been busy sewing, and talking to Robyn VK4RL on the two metre link between Bundaberg and Rockhampton.

Christine VK5CTY, family and friends have finally finished digging the hole for the septic tank on their bush block.

Gwen VK3DYL has been to Alaska and Canada. She checked into the YL222 net from the shack of John VE8EV in Inuvik, and met Ken VE8KM and John VE8JR at Cambridge Bay. She joined the YL222 net again this time from Ken's shack. In Calgary she caught up with ALARA member Joyce VE6JOY. In Vancouver she met Elizabeth VE7YL, after talking to her on air for almost fifteen years. From there she took the ferry to Victoria to meet Vicki VE7DKS and OM Jim, Muriel VE7LQH and OM Peter, plus Rose VE7KL and Hilda VE7FLN.



Mary VK3FMC met up with Maria VK5BMT in a rest area 73 km west of Wilcannia.

Marjorie VK2AMJ accompanied her retirement village choir when they sang for 700 people in the Sheraton on the Park in Sydney.

Maria VK5BMT and OM Keith covered 11,200 km on their last trip — definitely travel addicts.

*To PO Woodstock, QLD 4816

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AMSAT Australia

*Bill Magnusson VK3JT

National co-ordinator
Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI
AMSAT Australia net:
Control station VK5AGR
Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):
Primary 7.064 MHz (usually during summer).

Secondary 3.685 MHz (usually during winter).

Frequencies +/- QRM.
AMSAT Australia newsletter and software service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Daylight Saving

As indicated in the header box, the AMSAT-VK net time and frequency have been changed for the rest of the summer daylight time period. Until the end of March 1996 the net will commence at 0900 UTC on a frequency of 7.064 MHz. If you can't find the net on that frequency,

look on the backup frequency of 3.685 MHz. It may have temporarily moved due to poor conditions on 40 metres.

SatLink Rev 951023

Jesse Buckwalter NZ3F has released a new version of his SatLink program. SatLink is a DOS based ground station control program which is designed as an alternative to the ubiquitous PB/PG. It is available from a number of sources. I downloaded it from the AMSAT/NA Internet ftp server. The address is ftp.amsat.org. Don't forget the "ftp" in the address line. The directory structure is /amsat/software/PC/pacsat and the files are sl951023.zip, sls51023.zip and satlink.txt. The program has copious help and if you are familiar with PB/PG it should be easy to configure and get going. It will be of particular interest to those digital satellite operators who do not have the hardware (or perhaps the desire) to wrestle with Windows.

AO-13 Engineering Beacon

With the impending re-entry of AO-13 it is essential for the control stations to collect telemetry data in order to calculate and extrapolate re-entry predictions. To facilitate this, the engineering beacon on 145.985 MHz has been turned on. The beacon is more powerful than the general beacon which has been switched off to conserve power. The engineering beacon is PSK only, it does not transmit CW or RTTY. So, dust off the old PSK demodulator and tune in!

WIA News

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of October 1995.

L30918 MR J J COSTELLO
L30921 MR P ASH
L50333 MR A U KENNINGTON
L50334 MR M W JACKA
VK3FEN MR C P CARROLL
VK3HAS MR D HEATHCOTE
VK6BMO MR G J A
WORTHINGTON

The following new members have been advised by the office

manager of the Queensland Division.

P Dawson	VK4EFX
W Marshallsea	VK4NW
RJ Thorn	VK4FH
J Ewing	VK4KEG
H Kiesinger	L40370
K Mitchell	VK4DKM
HJ Crosthwaite	VK4ZRA
G Metcalfe	VK4ELA
M Bowdidge	VK4NFX
G Scott	VK4SR
M Zuercher	VK4TMZ
T Sabastiani	VK4LED
P Cole	VK4CEO
R Hinds	VK4AAH
D Rickard	VK4ZDR

MIR

I wonder if anyone has heard or worked the guys on MIR on the new 70 cm rig. Reports indicate that they have been heard over Europe and one or two people have made some kind of contact. The wide band radio and high speed modem are due to be delivered this month so keep an eye out for the voice repeater or the 9600 baud packet operations. A full frequency listing appeared in the October 1995 column.

Visible "Satellites"

Mountain-topping brings out the best in one. Sitting there a mile high in the alps under a magnificent black sky filled with stars. The camp fire has burned down to embers. One of the activities that this scene promotes is satellite watching. Just after dusk it is quite extraordinary to see the number of satellites that move across the sky. I recently downloaded some files from Internet giving keps for all the satellites which are currently visible to the naked eye.

Weather satellites like the NOAAs and METs are on quite large platforms and it is no surprise that they feature in the list. Of course there are no amateur satellites in the list. They are far too small. Some of the Russian amateur satellites were "hitch-hikers" on larger commercial/military satellites which rate a mention. On closer examination, an unexpected fact emerged. Most of the entries were for spent rocket casings, some of them associated with quite old launches. About 80 percent fell into this category. Most of what you see flying over is junk!

In many cases it's easy to tell the difference. Spent rockets will be tumbling out of control and will blink on and off whereas operational satellites will be stabilised and will be more steady in appearance. Not all visible satellites move across our sky. The geo-stationary satellites are there and visible for long periods after dark but they just look like stars. They can be brought out into the open by use of a simple 35 mm camera and tripod. Use a mild telephoto or normal lens, point the camera north and up at 45 degrees. Open the shutter for 5 minutes or so and...presto! The stars will have painted tracks on your film but the geo-stats will look like a row of bright stars.

Replacement For UNAMSAT Almost Completed

Following hard on the heels of the disastrous loss of UNAMSAT-1 earlier this year, David Liberman XE1TU reports that UNAMSAT-B is rapidly being made ready. He says that they are looking into three

possible launches but as yet none has been confirmed. Also, they are reviewing all the hardware and improving a few of the circuits where possible. Recently they received a visit from France Cordove, Chief Senior Scientist of NASA, and a delegation of eight prominent NASA scientists, including Dr Tom Clark W3IWI. Their purpose was the laying of the first stone and dedicating the building which will become the Space Technology Lab at the Autonomous University of Mexico (UNAM).

Another Perspective on Squint Angle

A local discussion recently centred on the radiation pattern of the antennas on board UO-22, KO-23 and KO-25. I made some observations on KO-23 since this satellite seemed to be at odds with the others. Indeed, I found, and other locals confirmed, that KO-23 seems to be strongest just after AOS and just before LOS. The major lobe appears to pass through the ground station when the satellite is between 5 and 10 degrees

above the horizon. It would seem to be squirting out its RF almost perpendicular to its vertical axis. A few minutes laying out the orbit geometry in TurboCad revealed this to be untrue. In fact, to meet this observed result the satellite antenna main lobe would be some 35 degrees from the vertical axis. This prompted me to determine just how we "see" the satellite as it passes over. At no time do we look at the satellite anywhere near edge-on. Even right out near the horizon we are still looking some 30 degrees from edge-on. The antennas we have come to expect on the UoSAT type satellites seem to have a more downward pointing main lobe. I wonder, does anyone have specific details of the antennas used on KO-23? The controllers acknowledge that it has this sort of radiation pattern and that it was a deliberate action on their part. I'd be interested in how they managed the 35 degree off centre main lobe.

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 Packet: VK3JT@VK3BBS.#MEL.VIC.AUS.OZ
 CompuServe: 100352,3065

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7. All valid contacts with ZL2000 will be sent a QSL card via the Bureau.
8. The award for each year will only be issued upon receipt of the application and registration fee.
9. The application and registration fee for the Award must be received before 30 June of the year that the contact is made.
10. A different pictorial award to be issued each year.
11. Any operator or SWL, gaining the status of having received four ZL2000 awards, including the year 2000, be issued with a complimentary award.
12. One amateur operator or SWL, having met the requirements of rule 11, will be chosen to receive a special award in the year 2000.

V175RAAF

I am looking forward to receiving information concerning the V175RAAF Award which is apparently being aired in March 1996. I would also appreciate input concerning local awards, for free publication in this magazine.

*PO Box 2175 Caulfield Junction 3161

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AWARDS

John Kelleher VK3DP — Federal Awards Manager*

Readers of this column will recall that I sent a fax to the ARRL, seeking answers to a query regarding the necessity of signal reports for DXCC purposes. I quote from a reply received from ARRL. "Here is the text of DXCC rule 4 which concerns confirmation information. Confirmation data for two-way communications (ie contacts) must include the call signs of both stations, the country, mode, and date, time, and frequency band. For DXCC purposes there is no direct notation for use of a signal report."

This information came from Bill Moore NC1L, DXCC Supervisor, ARRL.

ZL2000 Award

The amateur fraternity is fast heading into a new century with the year 2000 rapidly approaching. To acknowledge this event, the Gisborne Amateur Radio Club of New Zealand have instigated an ANNUAL award until the year 2000, using the callsign ZL2000.

This award, to be known as the Gisborne 2000 Award, acknowledges the fact that Gisborne, New Zealand, is unique in being the first city in the world to see the sun rise on a new day, and the New Year. Gisborne will be the centre of attention for much of the world during the New Year period of the year 2000.

As this is an International award, it is

therefore open to all amateur radio operators and SWLs. To achieve an Annual Award only one contact is required with the ZL2000 station during the month of January of that year. A special complimentary award will be issued to all stations that contact the ZL2000 station for four out of the possible years up to and including the year 2000.

One of these complimentary award recipients will receive a very special award in the year 2000, the details of which will be released at a later date. The cost of the annual award is \$AUS5.00 each year.

All correspondence and award applications to Gisborne 2000 Award, PO Box 1017, Gisborne 3801, New Zealand.

Rules for ZL2000 Award

1. This award is available to all licensed amateurs and SWLs
2. Only one contact is eligible per year with one of the Gisborne stations using the ZL2000 callsign.
3. All operators using the ZL2000 callsign will be full members of the Gisborne Amateur Radio Club.
4. Any valid frequency may be used by either Phone or CW.
5. The contact can only be made during the month of January of each year.
6. The award commences 0001 hours (NZ time) 1 January 1996 (1101 hrs

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12 ele 2M broad B/width	\$135
160M vert top loaded	\$327
6 M co/lin 6 dbd rad 4.NEW	\$157
6 ele 6 M N.B.S 50 mm Boom	\$310
Duo 10-15 M	\$295
3 ele 15 M	\$199
3 ele 20 M	\$333
20 m log-yag array 11.5 dbd	\$755
M B Vert NO TRAPS 10-80 M	\$275
Tri band beam HB 35 C 5 ele	\$690
40 M linear loaded 2 ele	\$516
13-30 M logperiodic 7 ele 7.62 Boom	
all stainless/steel fittings	\$730
70 cm beam 33 ele 19.9 Dbi	\$228
23 cm slot fed 36 ele brass cons	
s/solder-assembled. 18 dbd	\$170
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 PHONE 054 285 134**

Club Corner

Hervey Bay Amateur Radio Club Inc.



Reg Wheller VK4PL, one of the founders of the Hervey Bay Amateur Radio Club Inc, at the club station operator's desk activating VI50PEACE.

The special event station, VI50PEACE, has been a great success. Warren Truss MP was instrumental in obtaining not only financial assistance for the club from the "Australia Remembers" Committee, which greatly reduced our outlay in the printing and postage of the awards, but also obtaining permission for the use of the "Australia Remembers" logo.

When the Club first applied for VI50PEACE some 12 months ago, we received great help from Ron Jenkins, the SMA Area Manager in Rockhampton, in obtaining the nine letter callsign, and that started the world-wide publicity campaign to as many radio magazine editors as we could contact.

The VI50PEACE event has been a great club effort with an overall final total of 10,672 contacts into 136 different countries. This total included 1,350 CW contacts into 48 countries. Not a bad result at the bottom of the sun-spot cycle and sort of proves that if you are prepared to keep on calling CQ, CQ you will get through.

Greg Taylor VK4OH
Publicity Officer

Riverland Radio Club Inc

Emlyn VK5AEJ

The Riverland Radio Club wishes to

convey its grateful thanks to Emlyn VK5AEJ for his many years of dedication to the WIA and amateur radio.

Emlyn has spent many Saturday nights of the past 17 years or so broadcasting the Slow Morse practice sessions.

This has been very much appreciated by all amateurs, not only in VK5, but also those throughout Australia, especially those whom he has helped obtain their Novice or Full call CW, through his cooperation and loyalty to this great hobby.

Emlyn has now retired hoping someone else will take up the challenge. We wish Emlyn and his wife all the very best.

Doug Tamlyn VK5GA
Secretary

Radio Amateurs Old Timers Club (RAOTC)

Great News

Communication from the RAOTC committee to active Old Timer groups in VK6 by digital means has been established in a very satisfactory way through John Hill VK3WZ in Melbourne and Clem Patchett VK6CW in Perth.

Messages and news are already flowing.

Members will be saddened to learn that Joan, the wife of secretary Arthur Evans VK3VQ, passed away after a short illness on Wednesday, 1 November.

Allan Doble VK3AMD

ar

WIA News

Progress on Submission to Government on Amateur Licensing

At its meeting in Melbourne in October, the WIA Federal Council heard a report on progress of the submission to the Federal Government being compiled by Roger Harrison VK2ZRH.

The WIA was asked earlier this year by the Parliamentary Secretary to the Minister for Communications and the Arts, Paul Elliott, to provide the government with a submission on how the Amateur Radio Service might be better licensed, based on the value of amateur radio to the community. The government contacts said it was an open invitation, indicating that what was wanted was a detailed, well-argued

submission and not *just* a further plea for reduced fees, the arguments for which were already well known.

A framework for the submission was subsequently accepted by the Federal Council and publicised through WIA channels and the packet radio network. Assistance and views were sought from the Australian amateur radio community. While the submission will cover aspects of the amateur licence fees, it has a much broader scope. This is a major undertaking and cannot be addressed in a few pages of simplistic argument on one or two issues. Assistance with material for the submission has come from the Victorian and Queensland Divisions of the WIA, from the Federal Office, a number

of clubs, communications law specialists, the International Amateur Radio Union, the Scout Association, the Federal WICEN Co-ordinator and a number of state WICEN co-ordinators, along with many individual amateurs. All this input is greatly appreciated and has contributed usefully to development of the submission. It will not be the ideas of one person.

The time is drawing close when the submission will have to be completed. If you have something you'd like to contribute, particularly anything which might relate to how amateur radio benefits the community, or you want to know more about the working framework of the submission, contact Roger Harrison VK2ZRH, LMB 888, Woollahra NSW 2025.

Contests

Peter Nesbit VK3APN — Federal Contest Coordinator*

Contest Calendar Dec 95 — Feb 96

Dec 1/3	ARRL 160 m Contest	Nov 95
Dec 9/10	ARRL 10 m Contest	Nov 95
Dec 27 —		
Jan 28	Ross Hull VHF/UHF Contest	Nov 95
Dec 31	Canada Winter Contest	Nov 95
Jan 1	ARRL Straight Key "Night"	
Jan 6/7	ARRL RTTY Roundup	
Jan 13/14	Australian VHF/UHF Field Day	
Jan 13/14	Japan International DX CW (Low Band)	
Jan 21	HA DX CW Contest	
Jan 26/28	CQ WW 160 m DX Contest	
Jan 27/28	UBA Belgium SSB DX Contest	
Feb 10/11	PACC CW/SSB DX Contest	
Feb 10/11	Spanish RTTY Contest	
Feb 17/18	ARRL DX CW Contest	
Feb 23/25	CQ 160 Metre SSB Contest	
Feb 24/25	RSGB 7 MHz CW Contest	
Feb 24/25	UBA Belgium CW DX Contest	

This contest takes place on the first full weekend of January each year. The object is to contact as many local and overseas stations as possible on Baudot RTTY, ASCII, AMTOR, and packet (attended). More than one digital mode may be used, but QSOs and multipliers are counted once only regardless of mode. The bands allowed are 3.5-30 MHz, on frequencies recommended for digital operation (no 10, 18 or 24 MHz). Categories are: single operator multiband (1) max 150 W O/P, (2) more than 150 W O/P; multi-operator single transmitter multiband. A maximum of 24 hours operating time is permitted. At least two separate rest periods must be taken, with the on and off times clearly marked in the log. Listening time counts as operating time. "Ten minute" rule applies to multi-ops.

Exchange signal report and QSO number. W/VE stations will send signal report and state/province. Score one point per QSO. A station may be worked once per band for points credit. The multiplier is the total US states, Canadian provinces, and DXCC countries worked. The US and Canada do not count as countries. Multipliers are counted once overall, not once per band. The final score is the total points times the multiplier. Check sheets are required for logs with 200+ QSOs. Mail your log and summary sheet within 30 days (6 February) to "ARRL RTTY Roundup", 225 Main Street, Newington, CT, USA 06111. Alternatively, logs can be sent on DOS disk, or to the ARRL BBS (203-665-0090), or via Internet to contest@arrl.org.

HA DX CW Contest

21 Jan, 0000z to 2400z Sunday

This popular CW contest takes place on the Sunday of the third full weekend of January each year. Categories are single operator single or multiband, multioperator single or multi-transmitter, and SWL. Bands are 160-10 m. Exchange RST + serial number; HA/HG stations will add a two letter county code, unless they are HADXC members in which case they will give their club membership number. Codes for each call area are (1) GY VA ZA, (2) KO VE, (3) BA SO TO, (4) FE, (5) BP, (6) HE NO, (7) PE SZ, (8) BE BN CS, (9) BO, (0) HA SA.

Score six points per HA/HG QSO, and three points for each non-HA QSO outside your own continent. Multipliers are the total HA counties plus the number of HADXC members worked per band. Final score equals total points x multiplier. Separate logs for each band are requested. Send logs with summary sheet and declaration within six weeks to "Hungarian Radioamateur Society, Box 86, Budapest H-1581, Hungary".

Writing this in early November, it's hard to believe another year has almost gone by! I'm not sure where all the time goes, but the daily treadmill just seems to get faster and faster, and before you know it, it's December again. It's the odd little things which remind you of the years going by, such as remembering previous conversations with workmates about superannuation funds, RBLs, and all the other buzzwords which baffled people like me. Well, I have to admit that these days, retirement looks increasingly appealing with each passing year. I'm still many years away from it, but when the magic day arrives, it sure will be nice to be back in control of one's own time. Naturally, that means more on-air time, getting the station properly set up at last, making some *real* noises in contests (with more preparation than just the usual Saturday morning rush), and so on. I'm sure many readers share similar thoughts.

As far as contests go, the past year is best summed up as being one of review, change, and experimentation. Although we all like things to stay the same, the irony is that this leads to stagnation and the ultimate decline of whatever it is we hold precious. Like every other activity, contests exist in competition with other things, and we need to continually try and think of ways to improve them, if they are to retain their appeal. In this regard you have an excellent team of dedicated contest managers, who not only organise your contests and check the logs, but also put a lot of effort into reviewing and fine-tuning them wherever necessary. Your letters and comments are especially

valuable, because improvements in contests often result from the suggestions of entrants themselves.

I would like to thank all the contributors to this column over the past year, and especially the WIA contest managers including John Martin VK3KWA, Alek Petkovic VK6APK, Phil Raynor VK1PJ, and Ray Milliken VK2SRM. Not forgetting the independent contest managers as well! Have a very merry Christmas everyone, and see you all next year.

Thanks to this month's contributors VK3KWA, VK5OV, VK6APK, HA5JJ, VE2ZP, also QST and CQ.

73s,
Peter VK3APN

Addition to Results of 1995 RD Contest

Please add the following to the results published last month (* = certificate):

VK3:	VHF Open
VK3ACR*	955
VK3QI	274
VK3:	VHF CW
VK3DTR	2
VK3EAT	6

Congratulations to VK3ACR, who achieved the highest score outright in the contest. Well done Ray! The above scores were included in the Divisional totals published last month, so the statistics remain unchanged.

ARRL RTTY Roundup

6/7 Jan, 1800z Saturday to 2400z Sunday

CQ Worldwide 160 Metre DX Contest

CW: 26-28 Jan, 2200z Friday to 1600z Sunday;
Phone: 23-25 Feb, 2200z Friday to 1600z Sunday.

The CW and Phone sections of this contest are scheduled for the last full weekend of Jan and Feb each year. The object is to contact as many stations worldwide on 160 m as possible. *VK to VK contacts are permitted for contest credit.* Categories are single and multioperator. The use of packet, a spotting net, or logging assistant makes you multi-op. Suggested DX frequencies are 1830-1835; WVEs will usually operate outside this window. Look for Japan on 1907-1912.

Exchange RS(T) plus prefix or country abbreviation (VK). WVE will send RST plus state/province. Score two points for contacts with stations in own country, five points with stations in other countries in the same continent (continental boundary as for WAC), five points for contacts with /MM stations, and 10 points with stations in other WAC continents.

Multipliers are US states (max 48); Canadian provinces (max 13); and DXCC and WAE countries. Maritime mobile stations no longer count as multipliers. The final score equals the total QSO points times total multiplier (US states + VE provinces + DX countries). Indicate CW or SSB on the envelope, and mail the log and paper summary sheet to "160 Metre Contest Director, David Thompson K4JRB, 4166 Mill Stone Court, Norcross, GA 30092, USA". Mailing deadlines are 28 Feb for CW, and 31 March for SSB.

UBA SSB/CW HF Contest

SSB: 1300z Sat to 1300z Sun, 27-28 Jan
CW: 1300z Sat to 1300z Sun, 24-25 Feb
This contest runs on the last full weekend of Jan and Feb each year (SSB and CW respectively). Any station may work any other worldwide. Categories are: single operator (single and all band); multioperator single transmitter; QRP max 10 W O/P; SWL. Frequencies: CW 3500-3560, 7000-7035, 14000-14060, 21000-21060, and 28000-28060 MHz; SSB 3600-3650, 3700-3800, 7040-7100, 14125-14300, 21175-21350, and 28400-28700 MHz.

Exchange RS(T) plus serial number. Belgian stations will add their province code. Score 10 points for contacts with Belgian stations, three points with other European stations, and one point with others. The multiplier is the total of European provinces, Belgian prefixes, and European countries. Total score is QSO points times multiplier. Send log, summary sheet, declaration etc within 30 days to UBA HF Contest, Oude

Gendarmeriestraat 62, B-2220 Heist Op Den Berg, Belgium. Logs on disk in K1EA or ASCII format also welcome.

Results of 1995 Australasian Sprints

Presented by David, VK5OV

Entries for the tenth series of the Australasian Sprints totalled 12 in the CW section and 25, including two SWLs, in the Phone section. Unfortunately, there were no CW logs from Novice class operators again this year, even though at least one (VK3) appeared to be taking part. My thanks to all the contestants who took the trouble to send in their logs. Conditions were quite good with some excellent scores reported, but I must remind contestants that the sprints are only for contacts with VK, ZL, and P2 stations (ie Australasian) and that they run for one hour each (1100-1159z).

Most of the comments received concerned congestion on the band. Having as many as four contests occurring simultaneously is perhaps overdoing it somewhat, but it does result in a large number of potential contacts (even if 80% of them do not submit logs), and it should improve operating skills. But, the important thing is that contestants enjoy themselves.

The Adelaide Hills Amateur Radio Society and the VK5/VK8 section of the WIA congratulate the overall winners, Les Baber VK2RJ in the CW section and John McRae VK5PO in the phone section (three times in a row for John), as well as the winners in the individual call areas.

The results are below, with the certificate winners indicated by asterisks:

CW:	
VK2RJ**	32
VK2AWD	25
VK3APN*	20
VK4EMM*	24
VK5NU*	27
VK5AFO	19
VK5GN	12
VK5UE	8
VK6AFW*	8
VK7HX*	9
VK8AV*	7
ZL1GQ*	18
Phone:	
VK1JE*	29
VK2RJ*	63
VK2FUH	27
VK3JWZ*	19
VK4MOJ*	55
VK4EJ	25
VK5PO**	69
VK5KCX	68
VK5AFO	39
VK5ZH	38
VK5XY	38

VK5YX	35
VK5MAP	33
VK5UE	32
VK5RV	26
VK5PEB	19
VK5OB	10
VK6AFW*	7
VK7HX*	25
ZL1AGO*	43
ZL1BVK	35
ZL1GQ	28
ZL3GL*	13
SWL Ian McGovern*	61
SWL ZL-2329*	28

1996 VHF-UHF Field Day

Presented by John VK3KWA

The Field Day will again be run during the Ross Hull Contest, this time on 13/14 January 1996. A minor change to the scoring method has been introduced, to make grid squares more valuable for multiband entrants, and to encourage more activity on the higher bands. Those operators who take advantage of this rule change should be able to increase their scores significantly.

As usual, Field Day contacts can be counted for the Ross Hull Contest, and vice versa. Separate exchanges for the two are NOT required, but remember that the Field Day exchange must include your Maidenhead locator. The other thing to remember is that you can make repeat contacts for the Field Day, but not for the Ross Hull Contest.

Scoring is based on either a 24 or six hour operating period, which allows entrants to choose the operating period which suits them best, and makes it easier for those who can only operate on the Sunday.

Entrants who wish to do so can activate different squares on the two days of the Field Day, thereby helping others to collect new squares for the WIA Grid Square Award.

Duration:

VK6 only: 0200 UTC Saturday to 0600 UTC Sunday. All other call areas: 0000 UTC Saturday to 0400 UTC Sunday (in Eastern Summer Time this is 11 am Saturday to 3 pm Sunday).

Sections:

A: Portable station, single operator, any 24 consecutive hours. B: Portable station, single operator, any six consecutive hours. C: Portable station, multiple operator, any 24 consecutive hours. D: Home station, any 24 consecutive hours. Single operator stations may enter both Section A and Section B.

General Rules:

All modes and bands above 30 MHz may be used. Contest exchanges should

not be made on recognised DX calling frequencies. Repeater, satellite and crossband contacts are not allowed. Operation may be from any location. You may work stations within your own locator square.

Contest Exchange:

RS(T), plus a 3-digit serial number, plus your Maidenhead locator.

Repeat Contacts:

Stations may be worked again on each band after three hours.

Scoring:

Score one point for each QSO with a home station, and two points for each QSO with a portable station. For each band, multiply the total points by the band multiplier, to obtain the score for that band. The band multipliers are as follows: 6 m (1), 2 m (4), 70 cm (7), 23 cm (10), 13 cm (13), higher bands (16). Add the band scores together, and then multiply the result by the total number of grid squares worked from all bands. This is the overall score. Note: the same grid square can be claimed on more than one band. See the sample scoring table below.

Sample Scoring Table:

Band	Points	Multiplier	Total	Squares
6 m	xxxx x	1 =	xxxx	xxxx
2 m	xxxx x	4 =	xxxx	xxxx
70 cm	xxxx x	7 =	xxxx	xxxx
etc	xxxx x		xxxx	xxxx
				xxxx x xxxx = xxxxx (Overall Score)

*PO Box 2175, Caulfield Junction, VIC 3175
ar

Divisional Notes

Forward Bias — VK1 Notes

Peter Parker VK1PK

Special VK1 — Italy Moonbounce Contact Planned

A special EME contact between Canberra and Italy will be the culmination of a week of festivities being organised by the VK1 Division to commemorate the centenary of Marconi's first radio transmission. This unique contact, to take place on the 23 centimetre amateur band, will be established from the University of Canberra. In addition, contacts with other 1296 MHz EME stations will be sought.

Logs:

For each contact: UTC time, band, station worked, serial numbers and locator numbers exchanged, points claimed. The front sheet should contain name, address, callsign, section entered, the period of operation to be scored (either 24 or six consecutive hours, starting on the hour), and a scoring table as shown below. If you enter both the 24 and six hour sections, a separate scoring table should be supplied for each. Include a signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

Entries:

Post logs to "John Martin VK3KWA, VHF-UHF Field Day Contest Manager, PO Box 2175, Caulfield Junction, VIC 3161". Logs must be received by Monday, 12 February, 1996. Early logs would be appreciated.

Awards:

The overall winner will be the highest all-band scorer in Section A. Awards will also be made to the entrants with the highest band score on each band in Section A, and the highest scorers in Sections B, C and D.

ICOM

Count on us!



"VK3LZ calling!"

More sound information from your friends at Icom

AN ENJOYABLE TREK WEST

Enjoyed catching up with familiar faces at the recent Perth Hamfest '95.

Great also to have the opportunity to show all the new products to so many new enthusiasts.

IC-706 ACCESSORIES IN DEMAND

All of the key accessories have arrived!

Some have been so in demand that they have sold out on arrival.

2M MOBILE KEENLY PRICED

Considering a 2M Mobile?

The IC-2000H should be available currently at an attractive price..

We have had reports that this unit copes better with pagers than previous units.

SEE YOU AT ICOM DAY

I'm looking forward to seeing many VK3s at the Icom Day at Daycom on Saturday December 9th.

"...73"

Call me at Icom on
free call 1800 338 915
ph: (03) 9529 7582
fax: (03) 9529 8485

ACN 006 092 575

Ginini Back on Air

After a five months absence, the VK1RGI Mt Ginini two metre repeater, stolen over Easter, is now back on the air. After a vigorous fundraising effort, a group was established to assemble a replacement repeater for Ginini and, in the longer term, construct other VK1 repeaters. A temporary replacement for VK1RGI was installed at Mt Ginini at 2 pm Sunday, 15 October. It was previously on test from a site in Belconnen.

The Convenor of the Group, Neil VK1KNP, reports that the temporary repeater consists of two FM828s. Power output is 20 watts, and time out is 2.5 minutes. Users should wait for the pip before commencing their over, to allow the timer to reset.

The replacement repeater was built during the Repeater Group's Technical Workshops, held every Thursday evening. Other group activities have included modifying cavities and building a second two metre repeater.

Black Mountain Repeater Now VK1RBM

Still on repeater news, readers are advised that the callsign for the Black Mountain 8525 70 cm repeater will have been changed from VK1RGI to VK1RBM by the time they read this. This will better reflect the repeater's geographical location.

Telescope Trip Enjoyed by All

(An account by Richard VK1RJ)

Seventeen members and guests queued up outside the Griffin Centre on Monday, 23 October for the trip to the Mills Cross Radio Telescope. A little after 7.20 pm we all climbed aboard for the trip. We arrived shortly after 8.15 pm and were ushered inside for a detailed outline of the station by Duncan. There was plenty of time for questions as Duncan took us through each of the station's offices. Then he outlined the detail of the electronics in the station's radio receiving equipment. After this we all trooped outside for a walk to the antenna and further detailed explanations by torchlight. Unfortunately, the wind had now begun to spring up and it was cold outside. We all trooped back into the bus for the return trip to town, arriving around 11 pm. This was later than expected but all those who attended felt that the evening was well worth it. The Division thanks Graeme who organised our bus; Peter the bus driver for his patience and expertise in navigating rural roads at night with a bus!; and Duncan whose explanations of the workings of the telescope, combined with stories about snakes "everywhere" served to capture our undivided attention!

To all those who couldn't be there, don't miss any opportunity for a re-run of the visit. A most interesting evening.

New Education Officer Appointed

The VK1 Division now has a new Education Officer for 1996. He is Jeff VK1JE, who takes over from Graeme VK1GN. Graeme will continue to run the Morse code classes. All amateurs, I am sure, will welcome your appointment Jeff, and thank Graeme for his sterling work during his time in the position.

VK2 Notes

Richard Murnane VK2SKY

With the Christmas season approaching, the level of activity is declining, so there's not much to report this month. Much of the news that comes to pass is stale by the time it would otherwise appear in this column. For timely news updates, tune in to the Sunday news broadcast.

The Divisional Council held the first of its regional meetings at Orange during October, as reported on the broadcast by Divisional President Michael Corbin VK2YC.

Weekly Broadcast

In recent weeks, callbacks on the Dural 2 m repeater have been disrupted by jamming. What these people get from such behaviour is anyone's guess, but if you can provide any information about the identity or location of the jammer(s), please contact the Divisional Office. (It was recently reported that a CB operator in VK7, who jammed other stations by making duck noises, was fined several thousand dollars and had his equipment confiscated...it's nice to know that the SMA can be persuaded to take action against antisocial operators, even when one doesn't pay a licence fee!)

Please note that the last VK2WI broadcast for the year will be on 17 December; there will be no news bulletin on Christmas Eve and New Year's Eve (we volunteers deserve a break too!). Broadcasts will recommence on 7 January 1996.

On behalf of the NSW Divisional Council and its small army of volunteers, may I wish you all the best for Christmas and the New Year. Have a safe and happy holiday.

Thought for the month: The mind is like a parachute — it only works properly when it's open.

VK3 Notes

Barry Wilton VK3XV

Christmas Holidays

The WIA Victoria office will close on 19

December 1995, and reopen on 8 February, 1996. Membership applications received by post during this period will be processed.

Sunday Broadcast

The last broadcast from VK3BWI for 1995 will be on 10 December. Commencing from the first broadcast in the new year on 21 January 1996, VK3BWI will go to air on the FIRST and THIRD Sunday of the month.

Morse Survey

Our member survey regarding the retention of Morse Code was completed, and the result, whilst conclusive, is clearly indicative that member attitudes are changing with the progress of technology.

Result statistics are as follows:
Members surveyed — 1498
Responses received — 531
For the retention of Morse at AOC level — 357
Those opposed — 172
For retention of the code at Novice level — 331
Those against — 198

Of those members who responded, several answered only one of the two questions asked.

In accord with the wishes of the majority, Council policy will be to support the retention of Morse code at this point in time; however, a significant number of members believe that a knowledge of Morse should not be a mandatory requirement for an amateur licence.

As technology continues to advance, and the hobby of amateur radio changes, the weight of membership opinion may well reverse in the future, and policy will need to be reviewed.

Nominations for Council

Nominations for the 1995/96 Victorian Division Council close at noon on Thursday, 15 February 1996. Nominations will only be accepted on forms available from the Secretary. Nomination forms should be obtained prior to close of business on 19 December 1995, or after the office reopens in the new year.

Inwards QSL Bureau

Propagation is slowly improving on the HF bands and the number of QSL cards being received is increasing. Approximately 50% of all inwards cards sorted are never claimed. Many of these cards are for members who do not avail themselves of the free service. Cards for some prominent DXers are included and this does nothing towards international goodwill with other amateurs. WIA Victoria is also holding cards for some

Continued page 31

DICK SMITH ELECTRONICS



Top Performing Transceivers From Yaesu!

FT-11R Micro Deluxe 2m Handheld



Designed to fit comfortably in your hand, it's just 57 x 102 x 25.5mm (W.H.D) including the FNB-31 NiCad pack, and weighs only 280 grams. The result of the latest in miniaturisation, microprocessor control and FET technology, the FT-11R provides a large back-lit LCD screen with full frequency readout, 150 memories (75 in alpha-numeric mode), full function keypad with easy SET mode, and up/down thumb control Volume and Squelch settings. A high efficiency FET RF amplifier provides 1.5W output standard from the compact 4.8V battery pack, and up to 5W output from 9.6V (using an optional battery pack or PA-10 mobile adaptor). A range of battery life extenders, including Auto Battery Saver, Tx Save, and Auto Power Off (with ultra-low 20uA consumption) are included. Australian version Auto Repeater Shift, DTMF based selective calling and paging, extended 110-180MHz receiver coverage (including the AM aircraft band), and a variety of scanning modes are also provided. Other advanced features include naming of memory channels, DTMF Auto-dial memories, and DTMF Message Paging with up to 6 alpha-numeric characters. A large range of accessory lines are also available for easier customisation of your transceiver. Comes with an FNB-31 600mA/H NiCad, belt-clip, approved AC charger, CA-9 charge adaptor and antenna.



Cat D-3640

2 YEAR WARRANTY

LIMITED STOCK

\$599

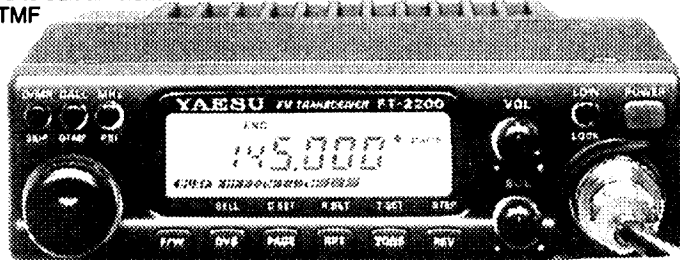
FT-2200 2m Mobile Transceiver

A compact, fully featured 2m FM transceiver with selectable power output of 5, 25 and 50 watts, it includes the latest convenience features for more enjoyable mobile or base station operation. Built around a solid diecast chassis, it provides 49 tunable memories, a large variety of scanning modes, an instant recall CALL channel, 7 user-selectable channel steps from 5kHz to 50kHz and is just 140 x 40 x 160mm (not including knobs). Backlighting of the large LCD screen, knobs and major buttons is even automatically controlled to suit ambient light conditions. Also provided is a 38 tone CTCSS encoder, DTMF based paging and selective calling with Auto-Page/Forwarding features, and 10 DTMF auto-dial memories. The LCD screen provides a highly legible bargraph Signal/P.O. meter plus indicators for the various paging and repeater modes. An optional internal DVS-3 digital recording/playback board can also be controlled from the front panel, giving even greater messaging flexibility. Supplied with an MH-26D8 hand microphone, mobile mounting bracket and DC power lead.

Cat D-3635

2 YEAR WARRANTY

\$699



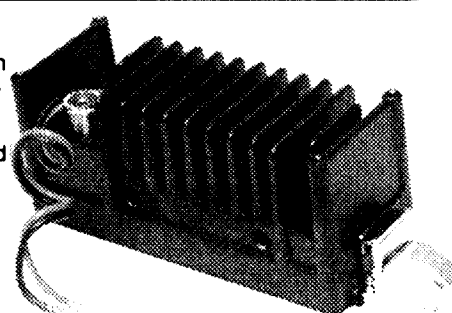
FT-290RII 2m All-Mode Transportable

Covers 144-148MHz and features FM, SSB (USB/LSB), and CW operation with 2.5W or 250mW switchable output power, twin VFOs and 10 memories that store mode and simplex or repeater frequencies. Selectable tuning rates are provided for SSB/CW and FM (SSB- 25Hz/100Hz/2.5kHz and 100kHz; FM- 5/10/20kHz and 1MHz). Mode specific features such as a noise blanker and clarifier control for SSB/CW, plus a full set of functions for FM repeater operation make this unit very simple to operate. It comes with a flexible rubber antenna, an FBA-8 battery holder, and a handheld microphone.

Cat D-2875

2 YEAR WARRANTY

\$999



FL-2025 2m Amp

Turn your FT-290II into a powerful mobile/base transceiver - this bolt-on FT amplifier will replace the FBA-8 battery holder on the FT-290RII, and boost the transceiver's output to 25 watts. Requires 13.8V DC.

Cat D-2863

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For Just
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SAVE \$100

A Great Range Of Accessories!

SAVE \$10

2-Way Coax Switch

A heavy-duty, 2-way coax switch that's suitable for Amateur, CB or commercial applications. It's well constructed with a die-cast case and can handle up to 2kW P.E.P. or 1kW CW at 30MHz with less than 0.2dB insertion loss.
Cat D-5200

\$29⁹⁵

Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1kW (PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, < 2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.
Cat D-4920

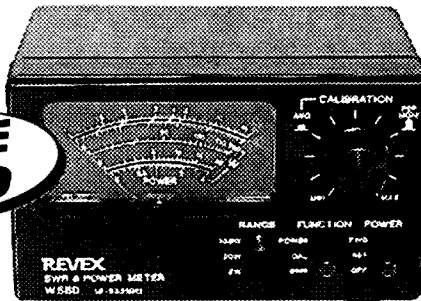
HUSTLER \$349

Revex W560N HF/VHF/UHF SWR/PWR Meter

Quality Revex wide-band SWR meter, offering 2 inbuilt sensors for 1.8MHz to 525MHz coverage! Provides measurement of 3 power levels (3W, 20W, 200W), and SWR. Uses an N-type socket for the VHF/UHF sensor to ensure minimal loss. Measures 120 x 80 x 85mm.
Cat D-1375

\$329

SAVE \$40



New Stocks Due Early December.

2m Telescopic 5/8 Wave Hand-Held

This 144MHz antenna stands just 22cm tall in its retracted 1/4 wave position, and can be extended to a full 132cm for excellent 5/8 wave operation. It's made from durable stainless steel, has a spring base to help protect it from rough handling, and a hand-held BNC connector for attaching to your transceiver.
Cat D-4333

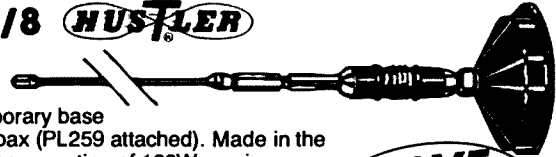
SAVE \$10

\$39⁹⁵

Hustler RX-2 2m 5/8 Wave Mobile

A quality 2m 5/8 wave magnetic mount antenna for mobile or temporary base station use. Supplied with 4.5m coax (PL259 attached). Made in the USA, it provides 3dB gain with a power rating of 100W maximum and uses a flexible stainless steel radiator to minimise wind loading.
Cat D-4805

HUSTLER



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A range of helical HF mobile antennas designed for Australian conditions. Simply install a base and attach the whip according to the band you require. Each whip is approximately 1.6m long, appropriately loaded, and features adjustable tuning. Maximum power handling is 200 watts. (Recommended base: Cat D-4313. 5/16" heavy duty.)

- 80m Cat D-4310
- 40m Cat D-4311
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- 15m Cat D-4314
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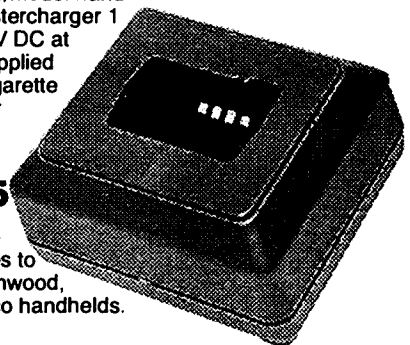
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Mastercharger 1 Fast Desktop Charger

Made in the USA, the Mastercharger 1 is a compact fast charger that operates from 13.5V DC and uses switch-mode technology plus a Philips battery charge monitor I.C. (with -ΔV full charge detection) to safely charge NiCad batteries between 6V and 13.2V. Suitable for the FT-23/73, FT-411/411e, FT-470, FT-26, FT-415/815 and FT-530, its charging cradle can easily be replaced, allowing for the insertion of a new cradle to suit other Yaesu transceivers (eg FT-11R) or different brands/model handhelds. The Mastercharger 1 requires 12-15V DC at 1.3A, and is supplied with a fused cigarette lighter cable for vehicle use.
Cat D-3850

\$149⁹⁵

Now available - charging cradles to suit various Kenwood, Icom, and Alinco handhelds.



2m 1/4 Wave Mobile Antenna

Stainless-steel whip for 2m, fitted with PL-259 plug. Suits SO-239 antenna base or SO-239 magnetic base.
Cat D-0100

\$495

2m 1/2 Wave Base Station Antenna



An Australian-made base station antenna that's 1.69m long and has a single section fibreglass reinforced polyester (FRP) radome for excellent all-weather operation. It covers the entire 144 - 148MHz range (<1.5:1 SWR). With a maximum power handling of 200W FM, it provides approximately 3dB gain. Fitted with an SO-239 socket.
Cat D-4820

SAVE \$10 \$4995

6m 1/2 Wave Base Antenna

A rugged Australian-made vertical antenna designed to cover the 51 to 54MHz range, with minimum SWR around 53MHz. Built using high tensile T81 grade aluminium, it's just 2.9m long with a sealed base section and 100W minimum power rating.
Complete with mounting hardware.
Cat D-4825

\$6995

2m/70cm Mobile Antenna

The ST-7500 is a high-quality Japanese dual-band antenna that uses a ground-independent design and a tiltable stainless steel whip structure to provide excellent mobile results. It's just 1m long, yet provides approximately 3dB gain on 2m and 5.5dB gain on 70cm with a maximum power rating of 150 watts. Requires an SO-239 antenna base or SO-239 magnetic base.
Cat D-4810

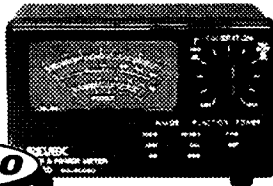
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A high quality SWR/Power meter suitable for amateur, UHF CB and commercial applications. High-quality Japanese construction assures you of maximum reliability. It has an all-metal case, large meter display, 140-525MHz coverage with less than 0.3dB insertion loss, and 4W, 20W & 200W power scales. Revex model W540.
Cat D-1370

\$179

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High Performance 2m/70cm Base Station Antennas

Our range of top-name Brainer base station antennas offer outstanding quality and exceptional value. They are stacked colinear types providing high gain, wide bandwidth and a low radiation angle for extended range. The fibreglass reinforced polyester (FRP) outer tubing random and gasket seals provide excellent all-weather operation, and they are supplied with compact ground-plane radials for a clean radiation pattern. Stainless-steel mounting hardware ensures a long trouble-free life. They also feature comprehensive instruction sheets to

make installation and set-up easier. Both come with a 1 year warranty.

2m/70cm GST-1

Frequency: 144-148MHz, 430-450MHz
Gain: 6dB on 2m, 8dB on 70cm
Max. Power: 200W
Length 2.5m
Type: 2 x 5/8 wave (2m)
4 x 5/8 wave (70cm)
Connector: SO-239 socket

\$199

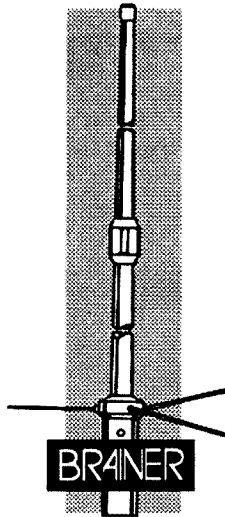
Cat. D-4830

2m/70cm GST-3

Frequency: 144-148MHz, 430-440MHz
Gain: 7.9dB on 2m, 11.7dB on 70cm
Max. Power: 200W
Length: 4.4m
Type: 3 x 5/8 wave (2m)
7 x 5/8 wave (70cm)
Connector: SO-239 socket

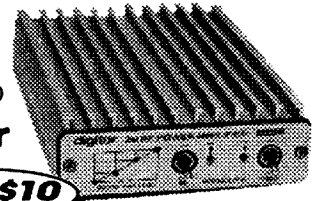
\$299

Cat. D-4835



2m RF Power Amplifier

Boost your 2m hand-held's performance with this compact amplifier. Works with 0.3 to 5W input and provides up to 30W RF output, plus has an in-built GaAsFet receive pre-amp providing 12dB gain. A large heatsink and metal casing allow for extended transmissions at full output, and a mobile mounting bracket is supplied for vehicle use. Requires 13.8V DC at 5A max. Size 100 x 36 x 175mm (W x H x D).
Cat D-2510



digitor

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• Newcastle 81 1896 • North Ryde 9937 3388 • North Sydney (Greenwood Plaza) 9984 9487 • Orange 818 400 • Parramatta 889 2188 • Railway Square 211 3777 • Penrith (047) 32 3400
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• Highpoint 9318 6300 • Melbourne City 399 Elizabeth St 9326 6088 & 246 Bourke St 9838 0388 • Richmond 9428 1614 • Ringwood 9879 5338 • Springvale 9547 0522 QLD • Alderley
356 3733 • Booval 282 6200 • Brisbane City 229 9377 • Buranda 391 6233 • Cairns 311 515 • Capalaba 245 2870 • Chermerside 359 6255 • Indooroopilly 878 4944 • Maroochydore
791 800 • Mermaid Beach 5578 5800 • Rockhampton 27 9644 • Southport 5532 9863 • Toowoomba 38 4300 • Townsville 72 5722 • Underwood 341 0844 SA • Adelaide City Puttany St
232 1200 & Myer Centre 231 7775 • Elizabeth 255 6099 • Enfield 280 6088 • St Marys 277 8977 • Westlakes 235 1244 WA • Balcatta 240 1911 • Cannington 451 8666 • Fremantle
335 9733 • Perth City 481 3261 • Midland 250 1460 • Northbridge 328 6944 TAS • Glenorchy 732 176 • Hobart 31 0800 • Launceston 344 555 NT • Darwin 81 1977
*MAJOR AMATEUR STOCKISTS STORES SHOWN IN RED.

China Opens Up to Amateur Radio

Amateur radio continues to develop in China, with the recent relaxation of restrictions by authorities over recent years, culminating in the first Beijing International DX Convention, held over the weekend of 14-15 October, 1995.

Hosted by the Chinese Radio Sports Association (CRSA), the DX Convention was attended by delegates from many countries, including Australia, Canada, the USA, North and South Korea, Japan, Taiwan, Austria, Finland, Great Britain, Hong Kong, and Denmark. About 80 local Chinese amateurs attended. The DX Convention was opened by the China Communications Minister, who welcomed everyone and thanked those who had helped the CRSA in its development.

"I think this convention will greatly promote the development and communication of international amateur radio society," the minister said. "Amateur radio in China used to develop slowly, but nowadays, when we come to realise the importance of amateur radio, we will make every effort to promote it in China."

The minister's welcome was followed by a recounting of the history of amateur radio in China, from the beginning through World War II, and from October 1949 (formation of the Peoples' Republic of China).

Delegates from each nation gave a short description of amateur radio in their country so that local amateurs attending could have a first-hand view of what happens in other countries. After the Saturday evening banquet, a talk and slide show on the Huang Yan Dao BS7H Dxpeditons was given.

Two special event amateur

stations were operational over the weekend of the Beijing DX Convention: BT1DX at the hotel where the Convention was held, and BT1X on the Great Wall at Badalang.

Significantly, the Chinese authorities issued each overseas visiting amateur with the first Visitor's Licences to operate 2 m in Beijing, using the call "B/<home call>". This was recognised as a monumental step for the administration of amateur radio in China, which is controlled by the Chinese Radio Sports Association. *(Thanks to Wally Watkins VK4DO for the above information).*

WIA Positions on EMC and Standards Combined

With the responsibility for industry compliance with electromagnetic compatibility (EMC) standards for electronics and communications equipment passed to Standards Australia by the Spectrum Management Agency (SMA), and the pending EMC compliance scheme commencing on 1 January 1996, the WIA Federal Council voted at its October meeting to combine the WIA Federal positions of EMC Co-ordinator and Standards Co-ordinator.

Hans Ruckert VK2AOU recently resigned his position as EMC Co-ordinator, which he had held for some years, and the position had remained unfilled since then.

At the quarterly WIA Federal convention held over the weekend of 28-29 October, the Federal Council appointed current Standards Co-ordinator, Roger Harrison VK2ZRH, to the combined co-ordinator position.

Standards Australia has responsibility for EMC compliance of equipment under a memorandum of understanding (MoU) signed between the SMA and the standards organisation

(see *WIA News*, October 1994, page 39). From 1 January next year, equipment meeting the requirements must bear a "ce" logo. Australian companies expecting to export equipment to Europe will be required to comply and show the logo, also.

New Directions for WIA Federal Council

Among the decisions made at the WIA Federal Council meeting held over the weekend of 28-29 October, was the formation of three Council "Working Groups", each to be convened by an appointed Federal Councillor, to address important issues and activities for the WIA.

The three groups and their convenors are: the Strategic Working Group, headed by WA Federal Councillor Bruce Hedland-Thomas VK6OO; the Growth and Retention Working Group, headed by Richard Jenkins VK1RJ; and the Marketing and Advertising Working Group, headed by Bob Allan VK5BJA.

Broad terms of reference and activity plans are being developed to be discussed at the next WIA Federal Council meeting, early in 1996.

The WIA Federal Council also resolved, at the October meeting, to hold only three meetings next year, tentatively scheduled for February, May and October. It has been the policy and practice of the WIA Federal Council over the past five years to hold four meetings throughout each calendar year, one Federal Convention (the AGM) late in the first half of the year (April or May), and three Extraordinary Conventions at roughly quarterly intervals, which have been held usually in February, July and October. The move has been made in line with other efforts to contain the costs of running the Federal organisation.

Continued from page 26
members registered at the office who have not made a collection for some time.

News and Information

The provision of news and information about matters of interest to members is an important function of WIA Victoria. Chris VK3KCP, Dave VK3KAB, Paul VK3ALE and Dennis VK3BGS have volunteered their services as broadcast producers, and Gary VK3KKJ is doing a good job in the studio. News bulletins are also being posted on the packet BBSs.

In order to sustain a worthwhile service, we need to find more producers, and clubs and members will need to contribute news on a regular basis. If you can spare a little time in the new year to become part of the news team, then please contact the WIA Victoria Office.

Seasons Greetings

Council wishes all members a Merry Christmas and a Happy New Year.

VK6 Notes

John R Morgan VK6NT

October General Meeting

Twenty-four members attended this meeting, which was a reasonable number

considering the wet and windy weather, and that all public transport was on strike for the day.

The meeting was an "open forum" on packet radio. Phil VK6AD led the discussion, which touched on the worldwide forwarding system, procedural disputes between sysops, inter-BBS co-ordination, the 1200 Bd "standard" speed for users, the possibility of a satgate for VK6, why beaconing is unnecessary and unhelpful, sysops' liabilities, censorship of bulletins, and the trend towards specialisation of BBSs. The truest remark of the evening came from Cliff VK6LZ, who said "packeteers don't care — until the system fails!"

There were insufficient members present (quorum not reached) for the business meeting to be held, although Neil VK6NE presented some detailed information concerning the multi-national DXpedition to Heard Island, scheduled for November.

The posts of Bookshop Officer and Program Organiser have become vacant. Bruce VK6ABR has run the bookshop for some years, but has had to put his work before his hobby, and Gwynne VK6AJG, who has arranged numerous interesting

lectures, is unavailable for a while. Any member wishing to know more about what is involved in performing these valuable services, please contact the President, Cliff Bastin VK6LZ, on Perth (09) 458-6218.

The VK6 Division meets on the third Tuesday of each month at the Westrail Centre, East Perth, commencing at 8 pm. The bookshop and QSL bureau open at 7 pm. All interested persons (members and non-members, licensed or listener) are encouraged to attend. Free coffee and biscuits are available at "half time".

News from WAADCA

Held on another wet and windy evening, the November GM of the Western Australian Amateur Digital Communications Association Inc (known as WAADCA, pronounced wad-kah) was a wonderfully informal affair! About 20 members attended, and spent a couple of hours in ever-changing small groups, deep in conversation about all things digital. A couple of portable packet stations were operating at the back of the room, and the coffee flowed freely.

WAADCA meets at 8 pm on the first Wednesday of each month, in the

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- Selections of power chips and TX tubes at friendly prices.
- VSWR/PWR metres by Diamond to 1300MHz; 10 models. All in stock. New 2m, 70m + 2/70cm for mobiles from \$132.
- WARNING WARNING WARNING. Manufacturers worldwide are ceasing production of "VALVES", "VACUUM TUBES", ETC. JAN/ECG/PHILIPS in the USA have run last production of 6146W a rugged version especially for Collins S-Line ETC. Shortly, users of transceivers will have to discard them due to no replacement tubes. "WE HAVE GOOD STOCKS" 6146W \$50.00: MP \$115.00. ACT NOW & DON'T MISS OUT!!! !!!

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Meeting Room of the Wireless Hill Telecommunications Museum, Ardross. Visitors are always welcome.

News from WARG

There is sad news from the West Australian Repeater Group. Most of the solar panels at the Tic Hill repeater site have been vandalised. In an effort to conserve the power being produced by the few undamaged panels, the 2 m voice repeater (VK6RTH, 146.800 MHz) has been switched to low power, and the 70 cm voice repeater (VK6RTH, 438.225 MHz) and 2 m digipeater (VK6RTH, 144.825 MHz) have been turned off. The fate of the site has yet to be decided.

WARG invites you to take part in its Perth VHF net, held every Sunday morning, commencing at 10.30 am. Listen for VK6RRG on the Lesmurdie repeater (VK6RLM, 146.750 MHz). Meetings are held at the Scout Hall on the corner of Gibbs Street and Welshpool Road, East Cannington, on the first Monday of every month, starting at 7.30 pm. The odd-numbered months are General Meetings, and the even-numbered months are Technical Meetings.

Hamfest '95

This event, which is organised each year by the Northern Corridor Radio Group (known as the NCRG, club callsign VK6ANC), occurred on Sunday, 5 November 1995, at the Cyril Jackson Community and Recreation Centre, Perth.

The gathering was held in air-conditioned comfort, for which the 542 paying entrants (at a very reasonable \$2 each) were most grateful. There were six sellers of pre-loved equipment, and eight commercial traders, including Antenna West, Dick Smith Electronics P/L, Terlin Aerials, and Tower Communications.

ICOM Australia P/L demonstrated its commitment to amateur radio with the presence of its managing director and two representatives of the parent company from Japan, together with Duncan Baxter VK3LZ, who was in great demand throughout the day.

The "homebrew" competition was won by Alan VK6ZAY for his designed-from-scratch 10 GHz narrow-band SSB transverter.

The first prize in the "monster" raffle (no, it wasn't a monster!) was a Kenwood TS-50 100 W HF mobile transceiver, which

was won by Graham VK6RO. The second prize, a fax machine from CopyFax P/L, went to Neil VK6BHT, and Wayne VK6EH won the third prize, which was a UPS donated by Upsonic (WA) P/L.

The venue was considered the best ever, as were the catering and fellowship. The NCRG are to be congratulated for their efforts.

If You Have Material...

All material for inclusion in this column must arrive on or before the first day of the month preceding publication. Packet mail may be sent to VK6NT@VK6ZSE.#PER.#WA.AUS.OC, or write to PO Box 169, Kalamunda WA 6076, or telephone (09) 291-8275 any time.

"QRM" — News from the Tasmanian Division

Robin L Harwood VK7RH

On 7 October, the VK7 Divisional Council met in Penguin with all Councillors present. An apology was received from Jim VK7FJ who was unable to attend.

Among items raised was the question of Public Liability Insurance for the Division and its ramifications. Several quotes were discussed and a decision was made to approach a Hobart broker. Authorisation was given to the President, VK7GL, to negotiate on behalf of the Division for a suitable policy, and our Honorary Solicitor to be consulted before it was accepted. The need for a Public Liability Policy is relevant in view of arrangements entered into by Branches with various government instrumentalities for site fees. In the negotiations, the possibility of whether additional repeater sites could be added to the policy was to be raised.

This led on to how the insurance could be funded and various options were canvassed. A decision was made that the Division would pay 50% and the remaining 50% would be split three ways with the three Branches. This subsequently was ratified by two of the three Branches at their October meeting, with one still to meet in November. Council also decided to increase subscriptions for the next year, in view of the costs likely to be incurred with Public Liability Insurance, site fees and other unforeseen increases in expenditure. The rates will be Full Member, \$72.00; Concessional and Pensioner, \$58.00; Non-Receipt of *Amateur Radio*, \$44.00.

Barry Hill VK7BE was appointed Divisional Awards Manager for VK7 at the Divisional Council Meeting with John VK7RT as Deputy Awards Manager. This position also includes special events

WIA News

WIA Family Membership

As this time of year is when the great majority of WIA Division members receive membership renewal notices, it would be timely to remind members that Family Membership is now available, following a policy decision of the WIA Federal Council earlier this year.

In general, a Family Membership grade allows households having three or more amateurs in the family to obtain membership of their Division at a considerable discount.

There is a number of options available under which households could apply for Family Membership, but a general discount of 25% would apply. The principle behind it is that there would be a "cap" on the total amount of membership subscription from the one household, the total amount being

decided by the individual Divisions.

As Divisions have differing membership subscription rates, the maximum payable will vary from Division to Division. There would be only one copy of *Amateur Radio* magazine sent to each Family Membership household.

For a three-amateur household applying for Family Membership, one option is for one Full grade membership, one X-grade membership and one Student membership. Or, it might be a combination of two G-grade (concessional) memberships and one Student, for example. In households with more than three amateurs (or, say, three amateurs and an interested SWL), only the international and national representation components of a membership subscription may be charged (\$2.90 at present) for each additional member. Check with your Division for details.

stations within the State. An action plan for the next six months is being prepared for presentation at this month's Council meeting in Launceston. Incidentally, Barry's address is now 1 Marlou Court, Riverside, TAS 7250, which is different from that in the current Call Book.

The date and venue for the Divisional Annual General Meeting has also been decided. It will be 23 March 1996 at 1400 hours EDT at the Domain Activity Centre. More on the AGM in next month's column. There are only two meetings for this month. The Southern Branch will meet on Wednesday, 6 December at 2000 hrs EDT at the Domain Activity Centre. The Divisional Council will meet in Launceston

on Saturday, 9 December at a venue to be announced over VK7WI. The Northwestern Branch will be holding a Christmas dinner at the Bass and Flinders Motel, Bass Highway, Ulverstone on Tuesday, 12 December at 1830 hrs EDT. Members of the Northern Branch may also be meeting for a Christmas function, which is being organised by Tony Cordwell VK7ZAS. Date and venue are undecided at deadline time.

On behalf of the Tasmanian Division, I would like to extend season's greetings to members of the Institute and look forward to your continued participation in 1996 in the activities of your Division.

ar

Perth. The news was not good. The expedition was supposed to leave the West Australian shores tomorrow, 1 November. Unfortunately, this will not be so. Due to an unresolved dispute with the Master of the 85 foot motorship "Tallarook" the start of the DXpedition is delayed, probably until the early part of January 1996.

This is the second calamity involving sea transport which has befallen this group of dedicated DXers and adventurers. The first was the incident in December 1993 when the Russians cancelled the arrangements to pick the DXpedition up from Peter I Island, one month before the proposed departure. Expensive phone calls, faxes and hurried air-travel to Russia averted a transport disaster (see AR February 1994) Now, two years later, a similar thing has happened. Everything is ready for departure at the Fremantle wharf but there is no sign of the boat.

Earlier in the week the news was much more positive. Two hours after arrival of the expedition's advance party, in the persons of Peter ON6TT and Ari PA3DUU, I was on the phone to Perth and had a very long telephone discussion with Peter, who reluctantly agreed to this exclusive interview. The expedition usually never gives interviews to any magazine but communicates by press releases with them.

"The 1995 Heard Island DXpedition remains on schedule", said Peter. "The 3Y0PI team members, Ralph KOIR, Bob

How's DX

Stephen Pall VK2PS*

The year has gone very quickly for many of us. As one gets older, the quicker the time flies, and many of the well-intentioned projects, tasks and plans to be completed this year, as we promised ourselves in January, have fallen by the wayside.

From the DXing world a few memories still remain. The first signs of a possible new DXCC country with the Gaza Strip being active as ZC6B; the VP8SGP activity on South Georgia Island; the stressful and dangerous adventure on Conway Beef with stations 3D2CU and 3D2CT; the re-activation of Bhutan as A51/JH1AJT; frequently visiting amateurs at the Tunisian Club station using the official 3V8BB callsign; the second operation from Scarborough Beef as BS7H and the controversy surrounding it; the Easter Island and Salaz y Gomez DXpedition with callsigns XR0Y and XR0Z and new technological innovations; Barry's adventures on Kermadec Island as ZL8/G4MFW; Martti and his friends with the first legal contacts from North Korea using the callsign P5/OH2AM; Pratas re-activated as BV9P; Libya reappearing as 5A1A; Myanmar opening its doors with the XZ1X, XZ1A and XY1HT stations; and the highlight of the year, the Heard Island activity postponed into the new year.

During all this, propagation was steadily declining but with the hope that the new cycle will commence late next year. All in all it was not a bad year for DXing.

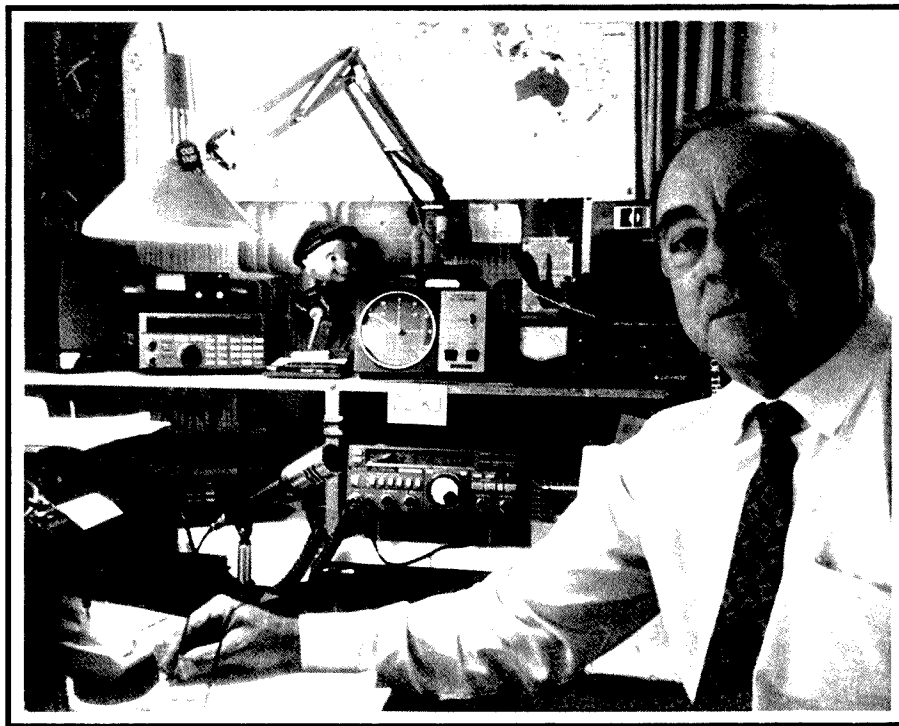
As there was friendship and goodwill all through the year, it comes as a shock, as reported to me by a VK5 amateur during the last few weeks in October, that when he contacted a French Polynesian station on Tahiti on CW for a signal report, back

came a very short and stiff reply of "No VKs because of your protests." What a pity the ugly side of politics has raised its head in the amateur world!

I wish all my readers the compliments of the Season and a happy and healthy New Year with abundant propagation.

Heard Island VKO

It was 2200 hours local summer time in Sydney on 31 October when I had a phone discussion with Peter, ON6TT who is the coordinator of the DXpedition in



The new generation of DXers — Gary ZL1KJ.

KK6EK, Ari PA3DUU, Harry RA3AUU who was with Romeo in Myanmar, Willy HB9AHL, Jun JH4RHF, Bob N6EK and myself ON6TT will be assembling here in Perth during the week before departure. The sea container holding most of the equipment has arrived." Peter continued, *"Five arctic tents which gave a very good service on Peter I Island will house our equipment. The main supporter of the group is Yaesu who supplied three of the latest version FT-1000MPs and three FT-900s. Cushcraft supplied a variety of triband and monoband antennas, a total of six. Alpha supplied five amplifiers. There is the Battle Creek Vertical antenna and two special antennas designed for us for 80 and 160 metres by ON4UN. In addition, each member of the expedition brought his own transceiver with him. Three 5 kV, and one 7 kV gas generators completes the list of the major items of the equipment"*.

The discussion turned now to the details of the activity. *"The innovations tested on the Easter Island Expedition (XR0Y) will be used by this expedition also,"* said Peter. *"A beacon (VK6DIR/MM) will be activated as the ship weighs anchor. The callsign of the expedition will be announced when we have landed on Heard Island. We will maintain a bulletin information page on the Internet and on packet BBS and we will operate a callsign "look-up service" via the digital systems and packet via satellite. We will use the usual DX frequencies which we used on Peter I Island, except that on 80 metre SSB we will use the Australian "window" of 3799 kHz."*

"We plan to operate on a 24 hours basis. There are seven operating positions for eight people. We hope that we can have a total of 80,000 QSOs during our three weeks stay on Heard. We also have an amphibian vehicle which will assist greatly with the off-loading of the equipment on the island. Service communication will be assisted with a pilot system of six amateur stations strategically placed in Europe, USA and Japan. For backup we will have a commercial Inmarsat fax-voice-data satellite telephone system," said Peter concluding the interview.

What now? The cohesiveness of the group, according to Peter, shines in difficult times. They are disappointed about the postponement, but they are already planning the changed schedule of the expedition. Due to work commitments, Ralph KOIR and Willy HB9AHL are unable to take part in January, but there are already three or four new applicants to take their places. The equipment, until required, will be stored in Perth. A last word from Peter, ON6TT: *"I would like to say thank you on behalf of the expeditioners and myself for*

the friendship, kindness and help which we received from the VK6 amateurs. I have been in many parts of the world, but nowhere was I made so welcome as I was here in Perth". We trust that the Heard Island DXedition will have better luck next time around.

Myanmar — XZ

Myanmar, more correctly the Socialist Republic of the Union of Myanmar, is a 676,552 square kilometre country in south-east Asia between India, The Peoples' Republic of China, Laos and Thailand. The country is better known in the western world as Burma with the capital city of Yangon (formerly Rangoon). The population is approximately 46 million people. Myanmar, a former British Colony, became an independent state in 1948, which resulted in a complicated political turmoil lasting for many years.

The communists, rebel Karen and Shan tribes, and former veteran groups of the war were all unsatisfied with the democratic process, finally ending up with a military government which made Burma officially a socialist republic in 1974. Myanmar became a closed society until last year, when signs of change began, slowly, to emerge.

Myanmar and amateur radio came into focus after the "controversial" activity of Romeo XY0RR in September 1991. Whilst the ARRL DXCC desk accepted the activity as genuine, lately some doubt has been emerging in various amateur circles about that operation. Last year saw some amateur activity. UK and Japanese amateurs demonstrated amateur television to the officials of the Myanmar Government. JA1UT and G3NOM visited Myanmar on 31 July this year to demonstrate RTTY to the authorities and made about 154 QSOs on 20 and 15 metres.

A breakthrough came on the 28-29 September this year when a group of three amateur radio operators, Kan JA1BK, Olli OH0XX and Martti OH2BH were permitted to operate from Myanmar. Tim KJ4VH said in a press release, *"The group of above amateurs were very successful in demonstrating amateur radio to the Myanmar Government representatives. The establishment of amateur radio is now well on the way and the first Myanmar citizens are expected to appear on amateur radio frequencies towards the end of 1996. The detailed proposal for establishing amateur radio service was well received by the representatives of the State Law and Order Restoration Council as well as by the Minister of Telecommunications."*

The visit of the operators was occupied with a lot of ceremonial activity, including

meetings with two Myanmar ministers, but despite this the amateur group was able to make some 1000 QSOs from the Government buildings in the centre of Yangon. The callsign used was XZ1X. They used a Yaesu FT-900 and Dentron GLA 1000 with an R5 antenna. At the end of the activity the FT-900 was presented on behalf of Yaesu Musen Co to the Government authorities as a training aid for future local amateur radio operators. XZ1X was active on 12, 15, 17 and 20 metres on SSB and 15 metres on CW. Most of the QSOs were with Japanese operators. QSLs go to Kan Mizoguchi, JA1BK.

Three weeks later, on 20 October, another small group of amateurs, Stig LA7JO and Ray G3NOM, as well as Joshi JA1UT who arrived a few days later with a Japanese group, started operating from the Ministry of Tourism in Yangon under the callsign XY1HT, promoting "Visit Myanmar in 1996" and also promoting amateur radio. They were active on all bands and modes and had an excellent signal into Australia. QSL direct to the Manager, PO Box 1300, Bangkok, 10112, Thailand. XY1HT made a brief appearance in the CQ WW DX Contest and hoped to be on the air until 30 October 1995.

Not to be outdone, the XZ1X group returned to Myanmar on 23 October with a combined CW/SSB activity operated by JA1BK, K5FUV, N7NG, OH2BH and OH0XX with two trainee local operators. Wayne N7NG said in his press release, "Several operations which appeared this week on the band, are fully authorised."

These operations coincided with the United Nations Day on 24 October. The activities included discussions with the Myanmar Government representatives and an exchange of greetings with the ITU Secretary General based in Geneva. The activity included two stations signing XZ1X and XZ1A. QSL to Kan Mizoguchi JA1BK, 5-3, Sakuraga Oka, 4 Chome, Tama-City, Tokyo 206, Japan.

The Beijing DX Convention

The first Beijing DX Convention, organised and sponsored by the Chinese Radio Sports Association, was a success. It was held from 13 to 16 October at a hotel which was about 30 km from Beijing Airport and 10 km from the city centre. The cost of attending the convention was \$US360 plus, of course, one's own travel cost. The registration of DXers from all around the world totalled more than 100, among them such well known callsigns as N7NG, K5FUV, OH0XX, OH2BH, JA1BK, S21A, VS6CT, KJ4VH, OH1TX, UA0MF, VE7BC, several groups from Chinese stations like BY1PK, BY1QH,

BY4AA, BY8AA and BY9GA, and their cousins across the water BV5AF and BV2VA, and many others. Registration was on Friday followed with a "get-to-know-you" dinner. The main business sessions were held in the mornings and afternoons of Saturday and Sunday. Lecturers included Bill Kenamer from the ARRL DXCC desk, N7NG, VE7BC, W4ETO, JA1DM, VS6CT, UA0MF and a group from P5 (North Korea). The banquet program also included the story of Scarborough Reef, presented by Chen BZ1HAM and Tim KJ4VH, and greetings from the various participating IARU societies. The Special Event Station BT1X was activated during the visit to the Great Wall and BT1DX was active during the conference.

Groote Eylandt — VK8

Stuart VK8NSB has announced that he will be visiting the island Groote Eylandt in the Gulf of Carpentaria (13° 58' S and 136° 38' E) from 22 December to 6 January. He intends to be active on the Novice frequencies of 3535, 21135 and 28125 kHz for CW, and 3618, 21260 and 28460 kHz for SSB contacts. He will be based in Angyanga and will be active from the QTH of Terry VK8KTC. Stuart is looking forward to working the big pile-ups

in his favourite mode, CW. QSL to Stuart Birkin, PO Box 205, Karama, Darwin, NT 8012, Australia.

Future DX Activity

- From 1 November until 31 December, all Omani stations may use their call signs with the added suffix /25 celebrating the 25th Jubilee of the Independence of the Sultanate.
- Carl WB4ZNH and his wife Martha WN4FVU are investigating the possibility of a Yemeni operation in the next 12 months.
- Mine JA2NQG will be active from Kathmandu, Nepal during 23 to 31 December as 9N1CT or as 9N1NQ.
- After Nepal, Mine will be active from Bangladesh as S21ZZ from 5 to 12 January.
- The newly independent Republic of Palau (formerly Western Carolines, KC6) has been allocated the prefix of TB. It is located in CQ Zone 27, ITU Zone 64.
- Leo K8PYD and Jon WB8YJF will be active from Chatham Islands, starting from the end of November, as ZL7PYD and ZL7CW.
- Gamito S92VG is the only CW operator until 1997 on the island state. He can be heard on 21 and 14 MHz during his

local night (if there are no power cuts!). QSL (direct only) to PO Box 173, Sao Tome City, Sao Tome Island, Africa.

- YT1AD will be active from Sao Tome as S92AD from 4 to 14 December. QSL to Hranislav Hrane Milosevic, K BR 183 Vitanovac, 36206, Serbia, Yugoslavia.
- A group of French amateurs will be active from Principe Island (near Sao Tome) from 21 November to 6 December. The call sign is S92P and QSL is via F6KEQ.
- Gerard F2JD will be in Madagascar for about six weeks from November. His Madagascar call is not yet known. QSL to F6AJA.
- Siegfried Hari DK9FN, who was active from Norfolk Island in November, has a licence to operate from Easter Island as CE0Y/DK9FN.
- A group of UK and USA amateurs took part in the recent CQ CW WW Contest from Benin with the call sign TY5A. Some of them stayed behind so it is possible that you might work TY5SXW, TY5RF, TY5VT, TY5MF and TY5AR early in December.
- VA1S will be active during December to mark the 93rd anniversary of Marconi's successful radio transmissions from Canada to the United Kingdom. QSL direct to VE1AL.

radio and Communications

INCORPORATING radio  and CB Actions

Halt! Who goes there? If you'd invested \$100 million in a jet fighter, you'd want it to have the very best communications equipment available, wouldn't you? This month, RADIO and COMMUNICATIONS tells you where to listen to hear *all* the military aircraft action.

But that's not all by a very long shot. There's a lot of amateur radio stuff too, including these...

- Icom IC-2350 two metre FM mobile review. Yet another FM rig... but it's even better!
- Critically-coupled antennas. We conclude our look at a fascinating HF antenna match.
- Win an IC-706! And no, you don't have to subscribe! Just answer a simple question...
- A computer for the shack. Cut through the hype. What do you *really* need?

As we keep saying, a good, well-balanced radio mag is *much* more than just reviews! This month we take the bull by the horns, by asking the question which must sooner or later be faced: can we really justify having Morse Code as a mandatory qualification for an HF licence in 1996? We really want to hear from you on this one, and we have a very large box full of prizes for the best reader responses.

Don't miss out — it's great reading, and you could win one of our great prizes too!

Check your local newsagent today!

(PS. We also have the biggest collection of radio-oriented Classified adverts in the country. There's lots of them because they work so well.)

- Mark ON4WW is active from Kigali as 9X/ON4WW until the end of the year. QSL via ON5NT.
- Mike K3UOC is back in Saudi Arabia as 7Z5OO on CW around 1200 to 1500 UTC. QSL, direct only, to W1AF.
- Ray 7P8SR will be active until the end of December. QSL to Box 333, Maseru 100, Lesotho, Africa.
- Nick G4OOE will be on the UK Sovereign Base Cyprus as ZC4EE for the next two years. QSL to Nick Langmead, PO Box 84, Dherynia, 5385, Cyprus.

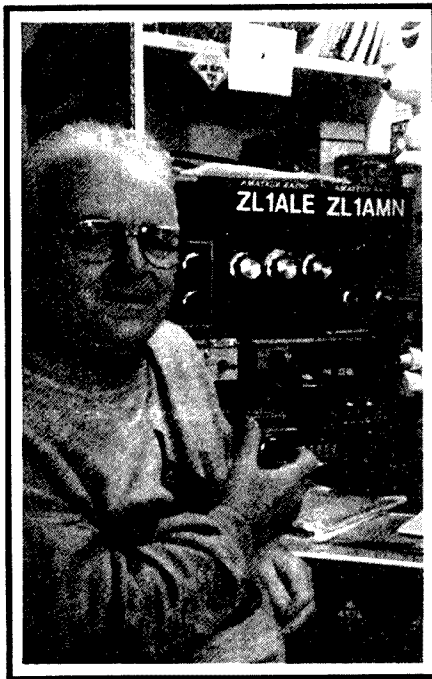
Interesting QSO and QSL Information

- VU2JPS — Mani — 14200 — CW — 1124 — Sep (E). QSL via VU2AU, Sudhakar Dinkar Paranjpe, 24 Dharampeth Ext, Nagpur, 440010, India.
- OD5NJ — Gaby — 14210 — SSB — 0524 — Oct (E). QSL to the Manager, POB 70647, Awkar, Beirut, Lebanon or via the "OD" QSL Bureau.
- Z22JE — Dudley — 14228 — SSB — 1202 — Oct (E). QSL to Dudley N Kaye Eddie, 9 Patrick John Road, Chisipite, Harare, Zimbabwe.
- XU6WV — 14180 — SSB — 1033 — Oct (E). QSL to Mike VS6WV, PO Box 2011, GPO, Hong Kong.
- YT9N — Laci — 14260 — SSB — 1230 — Oct (E). QSL to YU7FIJ, Radio Club Senta, PPS Tornjors Marsala Tita 6, Box 1, YU-24252, Tornjors, Yugoslavia.
- YE8TI — 21260 — SSB — 0132 — Oct (E). QSL to YB8UMX, PO Box 612, Bitung 85577, Indonesia.
- T92A — Hamo — 7008 — CW — 1944 — Oct (E). QSL to S57MX, Milosav Kukulj, Brodarjev trg 7, 61110, Ljubljana, Slovenia.
- 4K6GF — Joe — 14023 — CW — 0600 — Oct (E). QSL to the Manager, Box 116, Ktoprak, Istanbul, 81031, Turkey.
- 4K1A — Vic — 14010 — CW — 0721 — Sep (E). QSL via UA1MU Victor G Toppler, Basseynaja, 72-2-105, 192241, St Petersburg, Russia.
- T32ZB — Lothar — 3799 — SSB — 1229 — Oct (E). QSL to DJ4ZB via the QSL Bureau.
- 9K2YY — Donna (yl) — 14191 — SSB — 1350 — Sep (E). QSL to KC4ELO Derek W McClure, 674 Crerstlyn Dr, North Augusta, SC 29841 USA.
- BV95TAG — 21015 — CW — Oct (E). QSL via the QSL Bureau.

From Here There and Everywhere

- Brian VK4LV reports that he received by registered mail the YIOBIF card of the station which he worked one year ago.

- VI50PEACE, the station operated by the Hervey Bay Amateur Radio Club, to commemorate the fiftieth anniversary of the end of World War II and remembering the men, women and children who lost their lives in that conflict, has made 10,672 QSOs with 136 countries including 1,350 CW contacts with 48 countries. All the direct QSLing and posting of the awards is up-to-date. The station was on the air from 1 August to 31 October 1995. Congratulations to the organising committee and members of the Hervey Bay Amateur Radio Club. Well done!



Dave ZL1AMN, net controller of the Monday YL DX Net.

- Sam VK2BVS was heard mid-October chatting away on 14275 kHz as 600A to JY5IN describing to those who were listening how wonderful life is in the north eastern part of Somalia. Mike, 600MA was also active a few days later.
- Betty VR6YL was heard on 3780 kHz talking to her New Zealand friends.
- Daylight saving started on 1 October in ZL and VK7 and on 29 October in VK1, VK2, VK3 and VK5. VK4, VK6 and VK8 stayed on their usual standard times.
- During my New Zealand trip I met Gary ZL1KJ and his XYL Mary. Gary is a relative newcomer to the DX world but his enthusiasm makes up for this. The other photograph shows Dave ZL1AMN, a regular net controller on the ANZA net and master of ceremonies on the Monday YL DX net.

His XYL, Aola ZL1ALE, was in a very happy mood. Just the night before she had worked her last DXCC country and, for good measure, on 80 metres.

- A message was passed on to me by Bill VK4UA from Tom JT1BG. Tom says that direct correspondence sent to him should be marked "Mongolia via China". Tom says that, in the past, letters arrived via the old USSR, but usually empty. IRCs are not acceptable in Mongolia so send one "green stamp". Incidentally, Tom has two children, both radio amateurs with the callsigns JT1CC and JT1CT.
- T99MT and T91ENS are the callsigns of the Novo Sarajevo Radio Club which was active during the CQ WW DX contests. QSL to K2PF.
- According to the 425 DX News, Jim VK1FF reported that the VK1 Division of the Wireless Institute of Australia is planning the activation of a special station on 11 December 1995 to celebrate the Centennial of the first experiments by Guglielmo Marconi. During this activity the engineers and students of the University are planning an EME (Earth-Moon-Earth) QSO with an Italian station. A 10 m dish and high powered transceivers on 70 cm and 23 cm form part of the equipment to be used.
- Quite often, especially when listening on the net frequencies, one hears the word "figures" mentioned. In reply, these are given usually as a group of three numbers. The mysterious figures are referring to the state of propagation. The transmitters of the US National Bureau of Broadcasting Standards and Time Signals can be heard 24 hours a day, every day, on the frequencies of 2.5, 5, 10 and 15 MHz. There are two stations involved, both broadcasting in the AM mode. WWV, with a male voice, is transmitting from Ft Collins, Colorado, USA. WWWVH, with a female voice, is transmitting from Kekaha, Kauai, Hawaii. The geophysical report is transmitted exactly 45 minutes past each hour. The first group of numbers is the 10 cm "solar flux", the second number refers to the "A" index, and the third group of numbers refers to the "K" index which is changed every three hours. The time signals are given in UTC time which gives you the opportunity to keep your clocks or watches exactly on UTC time.
- If you worked FP8NR from St Pierre and Miquelon Island, he was Ratko YU1NR. QSL to home call.
- Ron ZL1AMO was on Rotuma Island for two weeks from late October as 3D2RWR.

- The callsign BT4ASF was used by the "1995 Shanghai Scientific Technological Festival" from 19 to 26 October. QSL to PO Box 085-205, Shanghai, CPR.
- The Ukrainian Amateur Radio Group, who successfully activated the 5A1A inaugural station from Libya, has had an uphill battle obtaining the promised written licence from the Libyan Authorities. It appears that administrative red tape is everywhere. DXCC is well aware of this. Their advice is to be patient.
- The ARRL DXCC desk has written to India to clear up the confusion with the Indian Communication Authorities about the necessary permissions which are "allegedly" required to operate from Andaman Islands.

QSLs Received

XX9X (11 m KU9C) — TT8NU (1 m F6FNU) — EU3FT (1 m W3HCW) — JW5NM (7 m LA5NM) — YS1ZV (2 m KB5IPQ) — 8R1K (11 m OH6DO).

Thank You

Many thanks to my faithful helpers for the information and news which keeps you up-to-date in the DXing world. Special thanks to VK2CJH, VK2KFU, VK2TJF, VK4AAR, VK4LV, VK4OH, VK4UA, VK6NE, VK6RO, VK8NSB, OH0XX, ON6TT, the ARRL DXCC Desk, *QRZ DX*, *The DX Bulletin*, *The DX News Sheet*, *The 425 DX News*, and *Golist QSL Managers List*.

*PO Box 93, Dural NSW 2158

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Novice Notes

Peter Parker VK1PK*

Introduction to Packet Radio

Put simply, packet radio is a means of exchanging computer data by radio. With the extension of Novice privileges and the proliferation of home computers, packet radio usage is increasing. This article tells you what packet radio can do for you and how you can start using this mode.

History

Packet transmission is not new; the basic technique dates back to 1964 (reference 2). American research led to the creation of the packet-based ARPANET in 1969, while radio transmission was first used by the Hawaiian ALOHANET the following year. Amateur packet experimentation began in Montreal, Canada in 1978. Later that year the first packet radio repeater (digipeater) was installed. Experimentation with packet radio continued in North America through the 1980s. In 1982 the AX.25 transmission standard (or protocol) was developed. AX.25 (which is still in use today) is a modification of the standard X.25 protocol. In the ensuing years, the system was refined and has since spread worldwide.

How Packet Works

It is not until you become involved with digital communications that you realise how complicated it is to establish and maintain communication over a radio link. What is implicit and taken for granted in voice modes must be made explicit to computers in a network. This is why computers have to formally "connect" to

each other to exchange data. Likewise, to end a contact, the operator must consciously disconnect his/her terminal from the other station. These functions are performed by special software or a device called a TNC. More on this later.

When a user types a message at a packet terminal, it is broken up into small units of text, to be sent one at a time. Each unit of text (or frame) may be up to 256 bytes long. Frames also include additional information, such as the originator of the message, the callsign of the station to whom the packet is addressed, and control data.

AX.25's error protection feature ensures that packet transmissions are received as sent. When there is interference, a packet link will continually re-send packets until the receiving station has received acknowledgment from the sender that the message has been received correctly. If the interference persists, and the message cannot be passed, the packet system will give up after a set number of retries. All this is done automatically; no human intervention is required.

What Packet Can Do

Packet radio is a great system for leaving people messages. The mode is also handy for disseminating written material to large numbers of people; readers can save messages to disk to read later. If you need information on a piece of equipment, or want to find out where to obtain some esoteric component, a message posted on your local bulletin board system (BBS) will often bring results. Because bulletin

boards are linked to each other via HF, VHF, UHF, or satellite links, you do not need HF to send messages interstate or overseas.

Information on a variety of amateur radio topics is available through BBS systems. Most WIA divisions post their weekly broadcasts on packet. You will also see amateur satellite Keplerian elements, DX information, contest rules and technical "digests", to name a few of the messages passed each day through the packet network. Figure 1 shows a typical BBS's listing of messages. Packet users can also converse via the keyboard, though such contacts are slow and impersonal compared to voice operation.

Packet Equipment

There are two main ways of transmitting packet; one hardware-based and the other software-based. If you opt for the hardware method, you need a device called a Terminal Node Controller (TNC) which fits between your radio and computer. TNCs contain circuitry that assembles computer data into individual packets for transmission. During reception, the reverse process occurs, with received packets being converted to text that is displayed on the screen. TNCs also contain a modem, which converts computer data (after it has been assembled into packets) into audio tones which are then transmitted. Once again, this is done in reverse for reception. Some TNCs suitable for VHF/UHF packet operation cost around \$250.

With the software approach, you can operate packet without a TNC by using a simple modem and special software that emulate a TNC's functions. If you already own a suitable computer, this method is the cheapest way of transmitting packet. With guidance from a more experienced amateur, it is not difficult to convert a 1200 baud telephone modem for packet operation. My own ex-telephone modem required a couple of circuit board tracks to be cut, a few extra connections and a simple transistor switch circuit to operate the radio's FTT. Assuming you have an IBM-compatible computer, all that remains is to obtain a copy of Baycom shareware, and connect the modem to the computer's serial port and the radio.

Most packet activity occurs on two metres, though there is some on UHF. Any synthesised hand-held or mobile FM transceiver should work on packet, provided there is access to the microphone, speaker and PTT connections. Alternatively, you may convert an ex-commercial crystal-locked transceiver for packet. A Philips FM 828 is a good choice. The main disadvantage of this approach is the high cost of crystals.

A vertically-polarised antenna similar to that used on FM will normally suffice. It should be mounted as high as possible. Two metre packet frequencies vary; some areas use frequencies around 145 MHz, while others operate near 147.6 MHz. Figure 2 shows a typical VHF/UHF packet station.

Operating Packet

Packet can be confusing to the newcomer, but several weeks operating should allow you to become quite proficient. Before you can get on the air, your callsign and other settings must be programmed into your TNC or emulation software. Either the instruction manual for your TNC or another packet user can assist.

Once you have found out the frequencies used in your area, it might be a good idea to try receiving local packet activity. As you hear the raucous packet tones through the speaker (and displayed on your modem's LEDs), you should be rewarded by lines of text appearing on the screen. A lot of these will be just callsigns, but you should be able to see people having packet conversations with others, or reading messages from bulletin boards.

Once packet reception has been mastered, try listening for the DOVE amateur satellite. If you leave your packet system on overnight, tuned to 145.825 MHz, in the morning you should see a brief message, followed by lines of telemetry code from the satellite. Because of its low orbit, DOVE's signals are very strong.

Initially, try to arrange keyboard conversations with nearby amateurs to prove that your packet station is working. Later, you could try connecting to BBSs and other packet users, some of which

leave their equipment operating 24 hours a day. Keep a list of stations to which you are able to connect; using these stations as digipeaters is handy if unable to access stations directly. As packet requires almost a noise-free signal, your station's range on packet will be somewhat less than what you'd expect from FM voice operation. This is especially so where many are simultaneously transmitting on the one frequency.

A Session on the BBS

After you have experimented with receiving packet, and perhaps had a few keyboard contacts, it's now time to log on to a BBS. You must decide on a home BBS, to which messages sent to you by other amateurs will be sent. It is probably wise to make the closest BBS your home BBS. As the BBS will not recognise your callsign the first time you connect, it will ask you to register. This is a simple process, and normally entails answering a few questions. If you can reliably use the BBS without need for digipeaters, so much the better, as operation will be faster.

While connected to a BBS, you may send or receive mail, as well as read general bulletins. As a new user, there will be no mail addressed to you (unless prior arrangements have been made), so you should start by reading bulletins. Refer to the list of commands below. For instance, if you would like to list the last 20 bulletins, type in "LL 20". Within a couple of minutes, you should see a list of these messages rolling down the screen (see Fig 1). Each message is numbered. To read the contest calendar, for example, you would type "r 30953".

Every packet user has a packet address to which mail for them is sent. An address

consists of your callsign, the callsign of your home BBS followed by various geographic identifiers. For instance, as VK1KCM is my home BBS, my address is VK1PK@VK1KCM.ACT.AUS.OC.

After some experimentation, you should be able to list bulletins sent to a single subject designator (eg WIA, DX, QRP etc); issue bulletin messages within your own state, nationally, or worldwide; read messages and save them to disk; send mail to other packet users; and post text stored on disk on to the packet network. This list is not exhaustive, but should give you an idea of packet radio's capabilities. Patience is a great virtue when operating packet; when many are sharing the one frequency, there is a risk of packet "collisions". These slow the rate of data transfer. The problem is particularly acute in a hilly city (such as Canberra) where many packet stations are shielded from each other. The necessity for people to use digipeaters in such a situation only adds to the delays.

Conclusion

This article has provided a basic overview of VHF/UHF amateur packet operation. While the information contained herein is insufficient on its own for a complete newcomer to assemble a packet station, with guidance from a more experienced amateur and/or the references below, it should provide a sound starting point for experimentation.

Packet Commands

The following list gives some commonly used packet commands.
b bye — used after your have finished using a BBS
c connect (use when you want to get on to a BBS)
km kill messages addressed to me (do this after you have read messages to you)
l list messages unlisted since previous time on BBS
lm list messages to my station
l n list message number *n*
l < vk* list bulletin messages from VK amateurs only
rm read messages to me
r n read message number *n*
sb send bulletin message (to everyone)
sp send personal message (to a specific person)

Glossary

1200 baud — The data transmission rate of most VHF amateur packet. Higher speeds (such as 4800 and 9600 baud) are increasing in popularity.
AX25 — the technical standard (protocol) to which amateur packet conforms.
BBS — Bulletin Board System — a computer system connected to a TNC and

Msg	TSLD	Oim	To	@ BBS	From	Date/Time	Title
39054	B\$L	17546	WIA	@VKNET	VK1PK	0822/2106	VK1WI AMATEUR RADIO NEWS 23/8
30953	B\$	4313	WIAQ	@VKNET	VK4BB	0822/2014	contest calendar
30952	B\$	9398	NEWS	@AMSAT	K5ARH	0822/2012	* SpaceNews 21-Aug-95 *
30949	B\$	7203	KEPS	@AMSAT	K5ARH	0822/1942	2Line Orbital Elements 230.AMS
30948	B\$	2761	ALL	@AMSAT	SP2UKA	0822/1851	Cd listow !! Hi Hi....
30947	B\$	2940	KEPS	@AMSAT	K5ARH	0822/1850	Orbital Elements 230.MISC
30946	B\$	1126	AMSAT	@AMSAT	YV5AMW	0822/1845	INFO REQUEST
30945	BFL	9429	LOGS	@ZA0IP	ZA0BBS	0822/1731	Logfile VK1ZAO 1995 week 33
30944	BFL	482	LOGS	@ZA0IP	ZA0BBS	0822/1731	Epurmess.Log
30934	B\$	1499	MIR2	@VKNET	VK1DSN	0822/1453	Mir-2 Docking Module
30933	B\$	3362	SPACE	@VK1	VK1DSN	0822/1451	Refurbished Wind Tunnel
30932	B	7088	KEPLER	@VKNET	VK1DSN	0822/1448	2-LINE ELS 22AUG WEATHER

Message Number	Message Size	Distribution	Description of message
Message Type	Subject		

Figure 1 — A typical listing of messages on a bulletin board system (BBS).

Beacon and Repeater Technical Licence Specifications

The Spectrum Management Agency (SMA) issued drafts to the WIA in October of the long-awaited Technical Licence Specifications (TLSs) for Amateur Beacons and Repeaters, asking for comments to be returned by the end of that month.

However, the period for comment was felt to be too short for adequate consideration by Divisional Technical Advisory Committees, so the WIA sought an extension of time. This was granted, with final comments from the WIA to be returned to the SMA by or before 24 November. The Divisional Technical Advisory Committees had until 17 November to return comments to WIA Federal Technical Advisory Committee Chairman, John Martin VK3KWA. This is the third round of draft TLSs for Amateur Beacons and Repeaters issued this year.

The existing regulations governing the establishment and use of beacons and repeaters are generally felt to be unnecessarily restrictive and in need of updating to reflect what can be achieved with modern technology, and to permit new applications and techniques to be developed by amateurs.

The WIA has already paid considerable attention to reform of the regulations applying to Beacons and Repeaters in representations to the SMA on earlier drafts of the TLSs, seeking the lifting of restrictions, for example, on the linking of repeaters. Action on these new drafts is the latest step in the reform process.

The new TLSs for Beacons and Repeaters are expected to come into effect by the New Year.

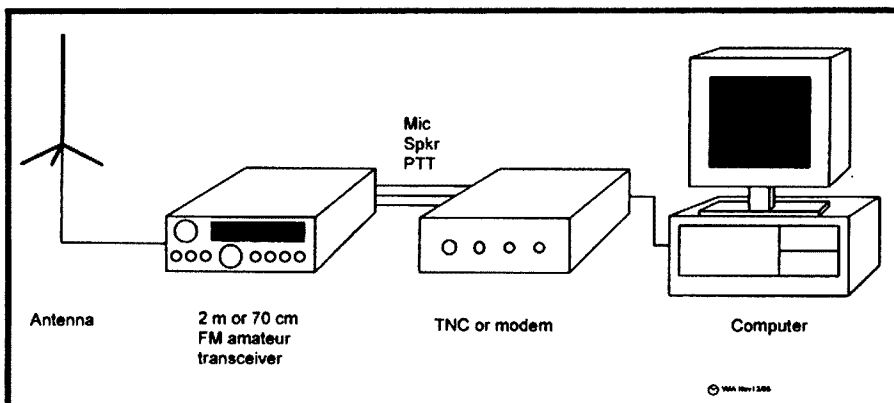


Figure 2 — A typical packet station.

transceiver where messages can be left for other users. Where BBSs are linked to other BBSs, messages can be sent worldwide.

Bit — The smallest unit of digital information (either 0 or 1).

Bulletin — A message addressed to everyone. You can see them listed on your local BBS. If you want to read a particular bulletin, type in the bulletin's message number, and it will be displayed on your screen.

Byte — A group of bits (normally eight).

Digipeater — A packet radio repeater. Unlike a conventional FM voice repeater, digipeaters receive, temporarily store and re-transmit incoming packets. Used if you are unable to connect to a BBS or other packet station direct. Any packet station left running will function as a digipeater.

Mailbox — Similar to a BBS except this is used privately by one person. You can send messages to people with mailboxes without going through a BBS.

Sysop — person who runs a bulletin

board system (short for **SYSTEM OPERATOR**).

TNC — Terminal Node Controller — the black box between your radio and the computer. Not required if you are using TNC emulation software (such as Baycom and Digicom).

TPK — A means of automatically receiving messages for you from a BBS without you needing to manually connect to it. Well beyond the scope of this article.

Wormhole — a link between two packet bulletin boards via a telephone line or through Internet.

References and Further Reading

1. Day, J — Packet Racket, *ARA/RAC* June — September 1995.
2. Horzepa, S — Your Gateway to Packet Radio, ARRL, 1989

*71 Garran Place, Garran ACT 2605
VK1PK @ VK1KCM.ACT.AUS.OC

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Stolen Equipment

The following equipment has been reported stolen. If you have any information that may lead to the recovery of the equipment, please get in touch with the advised contact as soon as practicable.

Make: Kenwood
Model: TH205A
Serial Number: 7113156
Type: Hand-held
Stolen from: Valla, NSW
Date: 11 October 1995
Owner: Jim Jennison
Call sign: VK2PU
Contact details: 065 695361

Make: ICOM
Model: ICW-21A
Serial Number: 1690
Type: Hand-held
Accessories: Black "Diamond" antenna
Stolen from: Ringwood, VIC
Date: 25 October 1995
Owner: Simon Tremlett
Call sign: VK3TUG
Contact details: 03 9874 1233 ar

Remember to leave a three second break between overs when using a repeater.

Education Notes

Brenda M Edmonds VK3KT* Federal Education Coordinator

In previous columns I have written about the possibilities of use of amateur radio in schools, and I have asked for information about schools which have radio clubs or are using amateur radio in association with parts of the curriculum.

The October issue of *Rad Comm*, the magazine of the RSGB, carried a report of the first World Conference on Amateur Radio in Education. This was held near London between 12 and 15 July this year. I quote from the article:

"...a new international organisation was founded — ICARE — the International Council for Amateur Radio in Education. In the foundation statement, the aims of ICARE were stated as "offering a forum to teachers and students world-wide for the exchange and support of educational projects and methods using Amateur Radio". The Conference was hosted by the UK organisation STELAR and sponsored by Trio-Kenwood UK Ltd and the Radio Society of Great Britain."

The conference attracted delegates from the USA, Canada and South Africa

as well as a number of European countries. Some countries which did not attend sent papers.

The report gives a very brief summary of schools using amateur radio for teleconferencing, for balloon projects, physics work and to enliven language, geography or science classes as well as simply allowing students to communicate with other students.

The first international project is to be the development of SSTV systems in schools. Plans were made for its co-ordination by the *Amateur Radio in Education* magazine, electronic links and international meetings. As well as promoting the use of amateur radio in schools, ICARE intends to provide a range of services to participants.

I have written asking for a fuller report than was published and further information but do not expect a response for a while. When I have it I will pass it on.

From what I hear, very many Australian schools are enthusiastic users of the Internet and similar facilities, but there is

little active school use of amateur radio. I have speculated on the reasons for this previously. Can we persuade some of those schools and students to use amateur radio instead of, or in conjunction with, other electronic paths? These are the young recruits we need to ensure the continuation of amateur radio in Australia into the next century. Our present recruitment rate is too low for us to be sure of our survival.

Once again, I would be very interested to compile a directory of schools which have an interest in or are actively using amateur radio. There is room for a lot of networking in this field.

*PO Box 445, Blackburn VIC 3130

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Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

J W (James)	YOUNG	VK2JY
M T	NICOLSON	VK5YN
K	MILLER	VK7SU

ar

WIA News

Survey on Morse Code Licence Qualification

Wireless Institute of Australia members are to be surveyed on the issue of Morse code remaining an amateur licence qualification in Australia, through a survey form included in this month's issue of *Amateur Radio*, except in copies circulated to members of the Victorian and Queensland Divisions who have already sought members' opinions and formulated Divisional policies on the issue.

The move follows a decision of the WIA Federal Council at its quarterly Convention held over the weekend of 28-29 October.

The survey is to gauge WIA Division members' feelings on the issue so that a policy position can be arrived at by each Division, and a Morse qualification policy subsequently formulated by the

WIA Federal Council. Those WIA Division members in the other Divisions who do not receive *Amateur Radio* magazine as part of the membership subscription will have survey forms mailed to them by their Division.

In surveying only WIA members' feelings on the issue, the WIA Federal Council considered that, as the Divisions are membership organisations which exist to serve the interests of the members who contribute the bulk of WIA funds, it would not serve members' interests to spend money on a "survey of the whole amateur population", even if it had sufficient resources to do so.

WIA members form a sizeable proportion of the active amateur radio community and the Federal Council felt that results from the proposed survey would provide a statistically relevant sample of the

views existing among Australian radio amateurs.

The issue of retaining Morse code as a qualification for amateur radio licences granting operating privileges below 30 MHz was on the agenda of the current World Radio Conference at Geneva (WRC-95), in session from 23 October to 17 November. The WIA's delegate to the Conference, David Wardlaw VK3ADW, was given guidelines by the WIA Federal Council to vote to maintain the status quo with regard to the International Telecommunications Union (ITU) regulations on Morse code qualification.

The International Amateur Radio Union (IARU) policy is to maintain the status quo.

The Spectrum Management Agency's policy, stated by Spectrum Manager Christine Goode in September, is to retain the current ITU regulations.

Over to You — Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Morse, or Another Skill?

I thought it about time to add my bit to the CW debate.

It annoys me to hear "CW is dead". It is a fact that, when other digital means are not available, CW is the most effective means of passing traffic, ie formal messages having details that need to be written down.

Even when conditions allow, passing such traffic by phone is slow and error prone due to voice and accent inflections, etc. Who can write down or type, in full and accurately, messages spoken at normal speech speed?

Nevertheless, being fairly realistic and a touch pessimistic, I acknowledge that sooner or later the anti-CW lobby will have their way and Morse proficiency will no longer be a full call licence requirement.

This means that only theory and regulations will be required. This is simply not a high enough skill level. In a world where greater and greater education standards are demanded (remember when the Intermediate Certificate "Year 10" would allow entry into further education institutions, the Police Force, Officer Cadet School, etc?), the skill level for an amateur operating licence is set to fall. I am deeply troubled by this situation.

I propose that an alternate subject be considered so that prospective licensees can choose between CW and it. I also propose that the traditional CW portion of each band be preserved.

If the opponents of CW are genuine in their belief and are not trying to obtain a full licence with less effort, they will not object to studying and passing an alternative subject.

This idea will also help those in our ranks who could be considered fully or partly Morse deaf, Morse to them being an insurmountable barrier which, perhaps unfairly, denies them the full call privileges.

Godfrey Williams VK5BGW
14 Jenolan Crescent
Hillbank Estate SA 5112

Morse Won't Disappear

I am disappointed to find a major blunder in the first paragraph of the *Pounding Brass* column in October 1995 *Amateur Radio*.

When CW, as a compulsory requirement for a licence, is dropped it will make NO difference to operators who choose to use CW as they will carry on using this mode. Those people who wish

to learn CW, will, and will probably have QSOs with VK2SPS and his contact. The two operators in the article will probably not be aware of the changes. As it stands now, about 80 odd percent of operators either never have had, or never use, CW anyway, and would be unknown to CW-only operators. If CW is being "back seated", it is by operator indifference to CW, not the famous "they".

Please do not perpetuate the scare tactics of "they want CW banned", it only frightens those who cannot read English and stops educated debate. It is impossible to have meaningful debate unless both sides have the same question.

Steve Truscott VK2SPT
158 Regal Way
Valentine NSW 2280

ATV Feedback

I would like to bring to your attention a segment on the Nine Network's "A Current Affair" screened on Thursday, 12 July 1995. This was a very positive story on the VK4 ATV scene in the Brisbane area.

Although the producers allowed some condescension to creep in, on the whole the story presented the facts from a "human interest" slant. It also covered the issue of band occupancy and the

possibility of losing the spectrum.

I have also written to the Network and congratulated them on the story.

Chris Newton (prospective amateur)
14 River Road
Tahmoor NSW 2573

Propagation Research

We are a UK club station based at Southampton Institute. We would like to get in touch with any VK/ZL stations that may be interested in assisting us with propagation studies on the 160/80 metre bands over the next six months or so. Even if they just put out a call at a particular time and frequency, that will be enough for us.

If they have Internet, Compuserve or packet radio access then this would be an advantage because we have these facilities that would make it easy and inexpensive to arrange scheds.

If you are able to assist, please let us know, and if you have an Internet or packet radio address, please let me know so that we can communicate by e-mail.

Neville Palmer G4GCI
GX3UVC Club Station
Systems Engineering Facility
Southampton Institute
East Park Terrace
Southampton SO14 0YN England
Tel: 44 1703 319280
Fax: 44 1703 334441 or 44 1703 222259
Packet: GX3UVC@GB7XJZ.#48.GBR.EU
Compuserve: 100116,370
Internet: Palmer__N@Southampton-
Institute.AC.UK
ar

What's New

Bob Tait VK3UI* introduces new products of interest to radio amateurs.



Kenwood TS-870S

Kenwood have announced the release of a new HF transceiver, the TS-870S, which boasts the very latest in digital technology. According to Kenwood this is the first of a new breed of transceiver in that it is equipped with not one, but two 24 bit digital signal processors at the IF stage. This offers such benefits as high efficiency digital filtering, noise and interference reduction, equalisers and DSP detection.

The TS-870S also has an in-built RS

232 adaptor to provide a high speed link to your PC. Simply plug in the serial cable, fire up the program and away you go. Also included is an in-built automatic ATU which can be selected on receive as well as transmit (unlike the TS-440). For the dedicated CW operator there is a fully featured "K1 Logikeyer CW Keyer". This is controlled directly from the paddle and should be of great interest to contest, DX and IOTA operators.

There are also some interesting features such as CW reverse, FSK reverse, Advanced Intercept Point, adjustable attenuator, and a fine tune control.

We do not have any information about the local availability of this new rig. We suggest you ring your local Kenwood dealer.

*C/o PO Box 2175, Caulfield Junction VIC 3161

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Pounding Brass

Stephen P Smith VK2SPS*

1995 is slowly drawing to an end and 1996 is just around the corner. Where has the time gone! To finish off the year I thought we would look at the NSW Morse Practice Net, VK2BWI.

The WIA NSW DIVISION supplied the callsign VK2BWI portable which authorises the panel operators to broadcast Morse practice sessions to listeners (broadcast means to transmit without proof of any known receiving station).

The WIA authorises a panel coordinator, currently Ross VK2BRC. The job of the coordinator is to find competent

Morse operators; instruct them in panel procedures and appoint them to particular nights; and oversee the service and ensure that the operators perform in the best interest of the users (members and non-members of the WIA).

The coordinator's job has become more difficult in these changing times, especially finding operators to man panel positions. Some methods used are advertising for volunteers over the VK2 WIA Sunday Broadcast; asking for volunteers over panel broadcasts; and asking amateur radio friends.

After discussions with various Morse groups, I have found what I believe to be the major reasons given for the lack of involvement: my Morse is not good enough; I do not have the time; and I'll think it over.

The purpose of the panel is to provide good quality Morse to those preparing for Amateur Telegraphy Examinations (Refer to the SMA RIB 70, Appendix F, page 67 and Appendix C, Telegraph Examinations pages 23 and 25). It should be understood the "panel" does not teach Morse although, on occasions, practice text does intrude into teaching Morse and technical subjects from time to time.

Speeds vary from about 4 wpm to 13 wpm, with faster speed after call backs on request. Depending upon which member of the panel is on that evening, a range of Morse devices is used to transmit the evening's practice session. One member uses the old pump key and has done so for some 15 years. Other operators use the paddle, or make up tape recordings and transmit these to air. So as you can see, there is no hard and fast rule. The good thing is you are going to get a variety of Morse and hopefully a pass in the next examination.

Being a panel member is demanding on time but, if one enjoys it, it's very rewarding. To put over a session, on the average, takes about two and a half hours. For example, to find suitable text and put it into form takes about sixty minutes; to put the session on air, about sixty minutes (8 pm — 9 pm); to read-back text and take call-backs, about thirty minutes; a total of two and a half hours.

A typical session is run something like this, but can vary depending upon panel operators.

8 pm, introduction on 3.550 MHz LSB — *This is VK2BWI the official station of the WIA NSW Division about to transmit the nightly Morse practice session on 3.550 MHz at 8 pm Sydney EST. Tonight's*

transmission comes from the station of Jim VK2NDI located at Pymble about 15 km north of Sydney. The first half of the evening speeds will be sent at 5, 6 and 8 wpm which will be read back, then going into 10, 11, 12 and 13 wpm which will be read back after hand-over to VK5AWI at 9 pm Sydney EST. Standby for CW. I will send a series of Vs for those who may have to retune for CW. Standby, go to CW

CT VVV VVV de VK2BWI

5 wpm — ct send text from AR.

6 wpm — ct send text from AR.

8 wpm — ct send two segments text from AR.

de VK2BWI/VK2NDI Pymble.

Go to SSB.

Read back text sent and make any comments

Invite listeners to go to 10 wpm, etc.

The above format is then applied to 10, 11, 12 and 13 wpm. At the conclusion of this the panel operator for the session wraps up the net as follows: *That concludes the Morse practice for this evening. After calling in VK5AWI, I will move down to 3.547 MHz, or thereabouts, for read-back and also any call-backs. To those who will not be staying, thank you for listening. Hello VK5AWI this is VK2BWI, operator Jim.*

Handover frequency

Stations move to the frequency specified, and the practice sessions for 10, 11, 12 and 13 wpm are read-back and any corrections made by the listeners.

Close VK2BWI

It's interesting to listen to VK2BWI as it has good coverage when conditions are good. I've heard call-backs from most Australian states and New Zealand. I would like to thank all members involved with the Net and encourage them to keep up the excellent work.

If any readers feel they can contribute something to the Net, please contact the coordinator.

To conclude this month, may I wish all our readers and their families a very Merry Christmas and a safe and happy New Year.

*PO Box 361, Mona Vale NSW 2103

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amateur.**

WIA News

First Home Station Licences for China Amateurs

Individuals can now obtain amateur licences for home station operation in China, where previously only club station operation was permitted.

Examinations have already been held and the first home station licences issued. There are four licence grades, distinguished by the callsign prefix. The top grade has the BA prefix, and licensees can use 500 watts on all bands permitted by the Chinese authorities. The next grade can use 100 watts on all bands and has the BD prefix, but no licences have been issued as yet. The third grade is allowed 10 watts, but operation is permitted on some bands only. The fourth grade requires no examination but can only operate on the one frequency and mode, 29.5 MHz FM, with home-made equipment. They use the BH prefix and the licence is for 12 months only, after which operators must upgrade.

Well-known Chinese amateur, Chen Ping, now sports the callsign BA1HAM. The BY prefix is still used by Chinese Radio Sports clubs, while the BZ prefix is used by individuals, but operation is only permitted from club stations. The Chinese have reserved the BT prefix for special event stations. (Thanks to Wally Watkins VK4DO for the above information).

QSP News

Author of "In Marconi's Footsteps" Wins Award

Peter Jensen VK2AQJ, whose book "In Marconi's Footsteps" was reviewed in the June 1995 issue of *Amateur Radio* magazine, has been awarded a 1995 Scientific American Young Readers' Book Award. Congratulations Peter!

■ Product Review

"Seek You" — Musical Items of Interest to Radio Amateurs

Available either as cassette or CD

Australian Agents, Terlin Aerials, 5 Yampi Way, Willetton WA 6155

Review by Bill Rice VK3ABP



I think this is the first time we have reviewed music in *Amateur Radio*, at least in the last 30 years or so! The performers in this light-hearted collection of amateur radio songs call themselves "The Ham Band", and quite appropriately are international in their origins. The two vocalists are Andrew Huddleston G3WZZ and Lissa Ladefoged. Jan OZ1ADL also is involved. The "Ham Band" includes two Danish guitarists and 15 performers from Nashville, Tennessee, where the music was recorded. Vocal recording was done at Aarhus, Denmark, and mixing in both places.

There are twelve songs in the collection, with titles like "Always on the Air", "I'm Not Climbing Up the Tower Any More", and "Seventy Threes". Only a specialist audience

of radio amateurs could be expected to appreciate them; they would be lost on non-radio people!

But they make pleasant listening, different from the harsh discordance of much modern pop music material. Furthermore, the vocals are clearly enunciated and perfectly intelligible, again quite unlike the aggressive, incoherent shouting which seems prevalent these days! Or am I showing my age?

To sum up, interesting and tuneful songs about many aspects of amateur radio. Obtainable from the agents, Terlin Aerials, at \$20 for tape cassette, or \$30 for the compact disk (CD).

They'll never make the Top 40, but that might be in their favour!

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International Amateur Radio Union Monitoring Service (IARUMS) — Intruder Watch

Gordon Loveday VK4KAL*

Reports are still sought on VRQ operations which are mainly found on 14.090 MHz and sometimes on 14.330 MHz.

VRQ is the callsign of the Vietnamese Foreign Affairs Headquarters, based in Hanoi. VRQ has many out-stations which are located at Vietnamese embassies. Traffic is mostly five letter groups with occasional long press releases in Vietnamese plain text. All traffic is duplex with schedules as often as every 30 minutes.

Radio Pakistan also features regularly in reports from our region. The transmitter used is very unstable, as reports show transmissions on a number of fairly close frequencies. To-date no reply has been received to letters asking Radio Pakistan about their presence in the amateur bands.

Maritime mobiles have been reported

on 40 m. It is thought they may be part of the activities centred around the protest effort at Mururoa. The short SSB conversations heard by many listeners on 14.000 MHz are ship to ship, and may be tuna boats operating in the South Pacific. These last two items could be included in your Christmas listening.

The Monitoring Service is in need of more observers, particularly those who use the HF bands on a regular basis. Our frequencies are under increasing pressure from commercial interests and it is VITAL we detect, identify and complain about ALL INTRUSIONS into our EXCLUSIVE BANDS.

For any information or assistance, please do not hesitate to contact me.

**Federal Intruder Watch Co-Ordinator, Freepost No 4
Rubyvale QLD 4702, telephone 079 854168, or
VK4KAL@VK4UN-1*

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Repeater Link

Will McGhie VK6UU*

They're Out

Finally, after five years, the draft "new" repeater regulations came out in mid October 1995. I'm disappointed at the result. There are changes that are positive, but still too many regulations. My opinion is that, due to the extremely long delay, the original concepts have been lost. However, improvements have occurred, and these are draft regulations designed for comment and possible modification. This is the next step in this very lengthy process.

This is the second time I have written down my reaction to the new draft repeater regulations. The first attempt followed the history of the efforts put in to bring about sensible repeater regulations that reflect the amateur service. Shortly after it was finished, and only a day away from posting, I received a phone call from John Martin, the FTAC Chairman. The phone call was lengthy and productive. We discussed the draft of the new repeater regulations at length, as we had done many times in the lead up to their release. John is of the opinion that the history of the lengthy delays is best

left alone. So, for the time being, pursuing the current draft and putting our energy into commenting on them, in the hope of further improvement, is the most productive course. Worthy of comment is the efforts put in by John Martin in relation to these repeater regulations. John has an excellent grasp of the situation and has spent many hours in negotiations with the SMA. At times this is an arduous task requiring much patience.

I must say that the complexity of this aspect of our hobby never ceases to amaze me. There is so much going on, most of which the average amateur only hears a tiny part of, and for all sorts of reasons is not, or cannot, be reported. I do not like this type of situation but that is the way the world runs and perhaps it is the only way it can. My point of view could just be too simplistic.

828 Sensitivity

After lining up many Philips FM828 receivers for the two metre band, I thought I had the procedure spot on. A signal generator adjusted for a weak signal and simply tuning the four front end RF capacitors, followed by the local crystal

oscillator frequency multiplier. All this done while listening to the amount of quieting in the receiver's loud speaker. As the signal quiets, the signal generator is reduced in level to once again produce a noisy signal. Eventually a limit is reached with all the front end tuned circuits peaked for the best quieting. All that remains is to net the receiver onto the correct frequency. This can be done several ways but I will not go into this in detail as I intend to produce a detailed article on complete FM receiver alignment at a later time.

The receiver sensitivity of the FM828 is fair. The specifications say better than $0.4 \mu\text{V}$ for 20 dB quieting or, in the newer language, 12 dB Sinad. These two figures are close to representing about the same thing. A 20 dB quieting figure is about a 12 dB Sinad. Today's radios can achieve the same 20 dB quieting figure with as little as $0.12 \mu\text{V}$. This equates to about 10 dB better sensitivity. So, with this thought in mind, I decided to change the front end RF transistor to one with a lower noise figure. The BFY90 as used in the FM828 has about a 5 dB noise figure. I replaced it with a BFR91 with a noise figure of about 2 dB. Now it is important to remember that a 3 dB improvement in front end noise figure does not result in a 3 dB improvement in sensitivity. The improvement is more like 8 dB. Don't quote me on that figure but the important point is the relationship between noise figure and the resultant receiver sensitivity is not linear. A small reduction in noise figure results in a considerable improvement in receiver sensitivity.

With two FM828s side by side I replaced the BFY90 with a BFR91. No other changes were made, such as optimising the feed points to the tuned circuits. I wanted to see if, with a minimum of modifications, the front end sensitivity could be easily improved. I then aligned the 828 with the BFR91, even doing it as the service manual suggests, by peaking the crystal oscillator injection level while measuring test point TP1. The result was about a 10 dB improvement between the BFR91 and the BFY90. Spectacular, to say the least. By the way, even though I have access to a good signal generator at work, I was using my home brew signal generator that is not as accurate. The point was the BFR91 produced a more sensitive receiver.

However, to make sure I was not being fooled, I decided to check the alignment of the BFY90 FM828, including the peaking of the local oscillator using the test point, and not just by ear. This done, I remeasured the sensitivity and it was the same as the modified 828 with the hotter BFR91!

After a lot of going over the results and alignment I came to the following conclusion. Tuning the local oscillator multiplier by ear can result in poor alignment. These tuned circuits are quite broad when tuning for best quieting by ear. However, when monitoring the tuning at the test point, a definite peak can be achieved. There appears to be an interaction between the last front end RF tuned circuit feeding the mixer and the oscillator multiplier circuits. After I peaked the multiplier circuits at TP1, I found the front end tuned circuits could be improved. The result was a more sensitive receiver. In my example, almost 10 dB.

You may find little improvement even if you only tuned the local oscillator multiplier circuits by ear, but it may be worth your while to do a retune. I would be interested to know what you find.

29 MHz

At the time of writing (mid October) there is still no licence for Australia's first licensed 29 MHz gateway. It has been, and continues to be, a slow arduous path but the licence cannot be too far away. I know the SMA have it and are processing it as, from the time it went to the SMA (some three months ago), I have had two phone calls to verify the location, which is correctly shown on the correct licence application form. If the three month period is anything to go on, the bill for the licence processing could be a big one.

Pager Noise

An interesting interference problem has occurred with our local repeaters on two metres in the Perth area. While listening to a conversation on all our local repeaters, gaps of several seconds were randomly missing from conversations. The repeater's mute would just close, as if the amateur transmission had cut out. My first thought was the flat cycling battery problem with a hand-held, but this was not the case. It was happening on all Perth repeaters and stronger input signals to the repeater were not dropping out but going noisy.

The reason was found, after a couple of weeks, to be a pager. This pager was producing large amounts of white noise right across two metres, when the pager went from being on to off. The pager would page and then, instead of switching off, it would go into several seconds of spurious white noise. The results as viewed on a spectrum analyser are quite spectacular, with the noise only being about 20 dB below the pager's carrier level. This noise was lifting the noise floor for several megahertz either side of the pager frequency. At this point in time the SMA have been contacted and the problem, hopefully, will be fixed soon.

**21 Waterloo Crescent, Lesmurdie 6076
VK6UU @ VK6BBB*

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Spotlight on SWLing

*Robin L. Harwood VK7RH**

Well, another year is rapidly coming to a speedy conclusion. Quite a lot has happened over the past twelve months. We have witnessed some of the major international broadcasters making further programming and transmitting reductions because of financial cutbacks.

For example, the VOA in Washington was forced to delete all of their English output to Europe on 23 September after 52 years of continuously broadcasting to that region. At the same time, the broadcasting of a few European languages were taken off shortwave although continuing over MW and FM relays, as part of co-operative broadcasting agreements. This decision has caused a predictable outcry from European listeners but the problem is out of the hands of the VOA management as the US Congress effectively has tied their hands. I also believe that further cutbacks are likely.

The "Voice of Russia", which was

formerly known as "Radio Moscow", has really cut back their programming over the past twelve months, to the extent that many listeners are now saying "where is it?" There is some difficulty finding Moscow these days, on the bands! It certainly is a far cry from the days when Moscow seemed to be on every second frequency! Anyhow, I recently received a program schedule from the "Voice of Russia" for their World Service in English for Oceania with the following times and frequencies: 0600 to 0800 UTC on 21790, 17570, 15470 and 12025 kHz; 0800 to 0900 UTC on 17860, 12025 and 12005 kHz; and 0900 to 1100 UTC on 17860, 12025, 12005 and 9450 kHz.

The BBC in London made extensive changes to their English World Service programming at the beginning of April by broadcasting to specific target areas, such as North America, Europe, and the Middle East, etc. This initially caused a lot of confusion as several frequencies,

which were heard well here, were carrying different programming to that specifically beamed to Australia. Now we have adjusted to that, these other frequencies have provided us with an alternative programming source to that being aired on the Australian stream. It is also pleasing to see they have re-introduced a 7 MHz outlet to the Pacific between six and eight hours UTC. It is on 7145 kHz, which is only 5 kHz down from where the "Beeb" used to traditionally broadcast to this region from Daventry.

Other changes were also noted over the past twelve months at Radio HCJB in Quito, Ecuador. They also reduced their frequencies to the South Pacific from three to one. They are now on 5900 kHz between 0700 and 1130 UTC. The SSB feeder frequencies were also reduced and now 21455 kHz is the sole channel in use.

The official VOA may have made some forced reductions in output due to financial and political considerations, but maverick commercial shortwave broadcaster WWCR has actually increased their output by adding a fourth transmitter to their facility at Nashville, Tennessee. As you are probably aware, the programming is diverse, to say the least, from WWCR. This broadcaster is now commencing to broadcast on the 90 metre tropical allocation of 3315 kHz, a move which has upset many tropical band DXers in the US and Europe. The majority of stations down there are only operating a few kilowatts at the most, while WWCR will be 100 kW plus!

Incidentally, I recently came across the Sri Lankan Broadcasting Corporation in Colombo broadcasting to Australia in English. Signals were quite good between 1030 and 1130 UTC on 11835 kHz. I preferred their programming style of the fifties, prior to the advent of TV. Certainly a change from the frenetic pace of today's programming.

Just a reminder that the annual yacht races are on again at the end of this month. The frequencies on which to monitor these races are 2182, 4125 and 4483 kHz, all on USB. Other channels worth checking are 2524 and 8715 kHz. I hope that you will be able to wade through the heavy QRN which dominates all low frequency channels at this time of the year.

Well, that is all for this month. In conclusion, may I extend my best wishes for a happy Christmas and a safe New Year in 1996.

Keep listening and 73.

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■ Book Review

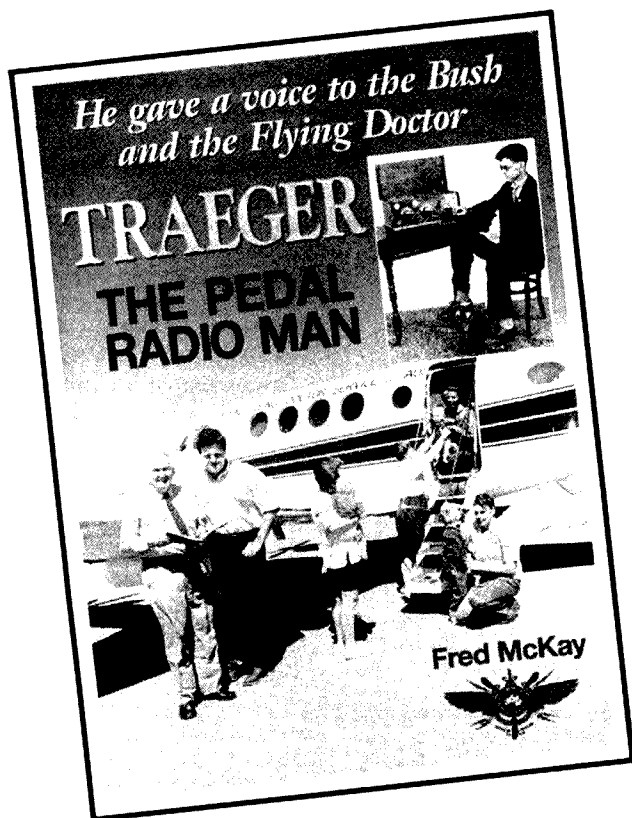
Traeger — The Pedal Radio Man

Publisher: Boolarong Press, PO Box 308, Moorooka. QLD 4105

ISBN 0. 86439. 192 7

Author: Fred McKay

Reviewed by: Graham Thornton VK3IY



The name "Traeger" was a household word in Outback Australia, but little known in the cities. At last, thanks to the Reverend Dr Fred McKay, the story of this remarkable Australian is now told.

Australia, with the development of its Royal Flying Doctor Service, clearly leads the world in this field of activity. A large slice of the credit for this achievement rests squarely with Alfred Hermann Traeger OBE VK5AX (1895 — 1980).

This reviewer, in the course of his employment, was privileged to make a detailed study of Traeger's equipment. It is very difficult to avoid

that overworked word "genius". Traeger transceivers were characterised by three outstanding features: effectiveness, reliability and, above all, simplicity of operation. Competing equipment seemed like cable trams in comparison! Ever since, Alf has been both my inspiration and role model; so, if the reader detects an element of bias in this review, perhaps that can be understood!

The book is a biography, not a technical book. However, 11 appendices do provide some detailed technical information (the influence of Mervyn Eunson VK4SO can be

recognised here — see his interesting article "The Unique Pedal Wireless" on page 7 of the September 1989 issue of *Amateur Radio* magazine). There are 108 pages in all, profusely illustrated with photos, maps and line drawings. It is written in a "fireside chat" style, and makes very easy reading.

Despite previous involvement with the Service, I learned much from its pages. The circumstances which led Traeger to the invention of the pedal radio, and the mechanical Morse keyboard, for which Traeger is most famous, are well covered. It is pleasing to note that his mastery of modern solid-state technology is also described (it is of interest to see a replica of the Traeger pedal generator on the latest twenty dollar note).

I have but one minor criticism of the book. In several places Traeger is tagged with the label "radio amateur". In a description of his life's work, this is quite inappropriate. No doubt Alf's extreme modesty has allowed this misdescription to be perpetuated. In reality, he was a highly skilled professional engineer — arguably one of Australia's finest. If allowed to award labels myself, I would have no hesitation in dubbing him as "The Michael Faraday of Australian Radio". Both individuals, in history, shared a common destiny: each was the right person at the right place at the right time!

It is entirely appropriate that this book should have been written by Fred McKay, himself the very worthy successor of "Flynn of the Inland". It is the life story of a man to whom Australia owes a great debt. It deserves a place of pride on any Australian bookshelf.

Copies, signed by the author, are available direct from the publisher for \$14.95 plus \$3.00 postage. Other copies may be obtained from Daycom Communications for the same cover price plus \$2.00 P&P, or from your Divisional Bookshop.

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**Help protect our
frequencies —
become an Intruder
Watcher today.**

Update

Repeater Link

On page 45 of the October 1995 issue of *Amateur Radio* magazine, sub paragraph 5. (iii), lines 11 and 12, the equation should read:

$$(148.1875 \times 2) - 148.4125 = 147.9625$$

It might be a good idea to correct your copy of the October 1995 issue of *Amateur Radio* now.

VK6 80 — An 80 m Direct Conversion Receiver — September 1995

Some inconsistencies have been discovered between the circuits, layouts and the parts list. They are:

- The circuit and parts list refer to the Germanium diode as an OA95 whilst the layout shows an OA91. Either one can be used depending on the contents of your junk box.
- The BFO layout drawing shows the bypass capacitor as 0.01 pF. It obviously should be 0.01 μ F. The 10-70 pF trimmer capacitor is unlabelled.
- The mixer layout drawing appears to be missing the 100 pF capacitor across the 10 μ H inductor. Figure 5 shows this capacitor directly across the VC1 on the front panel.

- The variable capacitors VC1 and VC2 are shown as having differing values in the circuit and yet other values in the parts list. A value of 10 — 160 pF would be suitable although lower values will work with lesser tuning range. As the two capacitors are independent, they do not really have to have the same values and, as above, whatever the junk box contains will probably work as long as the values are approximately in the range indicated.

It might be a good idea to correct/notate your copy of the September 1995 issue of *Amateur Radio* now.

Cover Caption, November 1995

No matter how carefully we proof and re-proof the copy for each issue of *Amateur Radio*, from time to time an error sneaks through.

Regrettably, such an error occurred in the Cover caption on page 1 of last month's *Amateur Radio*. The early woman in Australian amateur radio featured on the front cover is, of course, Joy VK7YL. At least we had it right on page 18.

Please correct page 1 of your copy of the October 1995 issue of *Amateur Radio* now.

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73, see you on the moon, sked any time, any place....Steve, VK3OT

Peter VK4APG QG62LP reports the first JAs on six metres this season. Over one hour of propagation to JA on 14 Oct, 0457 to 0605. JA5CMO, JA3JTG, JA6GKW plus JA6/b and JA2IGY/b. 49.750 TV up to 5x5.

Ron VK4BRG sent the following via the VHF6 VKNET: *The band was open to VK3 25 October. At 0726 worked VK3LK, 0736 VK3DUT. VK4DO reported some activity prior to this time.*

When you do something which is different, it's surprising who responds. I received a packet message from Harry Burton ZL2APC, a former president of the NZART, welcoming me to the gang. I met Harry in the 1960s when he visited VK5 and attended our VHF Group meeting. Obviously our memories have not deteriorated too much if we remember each other from long ago.

Graham VK6RO sent a fax to say TV carriers were heard as follows: 20/10: 0923 48.240 and 48.250 at S5; 21/10: 0430 multiple signals on 49.750 to S9, 0440 46.240 Wagga S2, 0807 48.239.6 S2. At the time there had been a Polar Cap event report by WWV, also a solar storm.

John VK4KK phoned on 14/10 to say that at 0530 JA3-4 were 5x9. The sun count was 90. He also referred to contacts with New Caledonia from Queensland on 144 MHz and said this was an area which deserved more exploitation.

From the Japanese magazine *CO ham radio*, courtesy Graham VK6RO, is an item from Nick UA0FL to JJ1APX, outlining his contacts from Sakhalin Island to Japan on 430 MHz. He uses a Kenwood TM441 and a six element yagi. He writes: *I have had 24 QSOs with JA8s on 430 MHz FM, with signals to 5x9 at times, but most of them are unlicensed truck drivers, not amateurs.*

It is disturbing to read that 430 MHz is used by truck drivers in Japan. I suppose the owners see the use of amateur equipment as a cheap alternative to having licensed commercial gear. If no one complains, it will continue and probably escalate.

Rod VK2TWR operates from Nimmitabel which is 35 km south of Cooma. He is at a height of about 1000 m with a clear take-off in all directions. The closest obstruction is Mount Kosciusko at 45 km. He is able regularly to work Mark VK2EMA at Tottenham in central NSW.

Rod advises that the VK1 beacons have been handed to the VK2 Division and will operate from Mount Eagle, 20 km south of Canberra, at a height of about 1400 m. Omni-directional antennas with a gain of 5 dB will be mounted at 15 m for 144, 22

VHF/UHF — An Expanding World

Eric Jamieson VK5LP*

All times are UTC.

Messages Received

Peter VK1PK, advises that the VK1 Division proposes commemorating 100 years of radio by attempting to contact Italy from Canberra using 1296 MHz EME. Professor Paul Edwards, from the University of Canberra, has lent his support to the project and will make available the University's 10 metre dish antenna, which has 40 dB gain on 1296 MHz. The event is still being planned.

Steve VK3OT says VE3ONT has confirmed that: *Our recent attempt at contacting each other via the moon on 50.100 MHz was not a complete contact, so another attempt will be set up in the future to try to break the existing record between VK3 and W6. At this stage we confirm receiving each other's signals, after sorting out a similarity in the callsigns VE3ONT and VK3OT. They were aware that my callsign was different from theirs but spent, in their own words, a pre-occupied*

amount of time sorting out the callsigns.

The fact that they decoded my callsign makes it a definite one way. On the reverse I had the advantage of knowing their callsign, so I needed to get from them a dedicated and discrete acknowledgement, as is the requirement to complete an EME QSO, which I was unable to do.

I think that VE3ONT and others have to realise that this is not easy to do. If it was that easy, daily contacts, such as on 144 and 432, would occur VE3ONT was running an 8877 into 25 dBi. I was running a 5762B into 12.5 dBi. Our combined power plus antenna gain was off this planet and yet still the two-way escaped us.

VE3ONT was a near miss, over a terrestrial distance that exceeds by 300 km anything attempted before. The amount of atmosphere we had to beam through, both with only 15 degrees of moon view, was almost the extreme, coupled with the requirement for VE3ONT to terminate at 9 degrees elevation.

m for 1296 and 30 m for 432 MHz. It seems that they will operate with VK2 callsigns, which in a way seems a pity as they lose their individuality, but if it means they will be on air, then that is to our advantage.

Alan VK5BW phoned to say he will operate portable from Mount Bryan during the VHF/UHF Field Day over the weekend of 13/14 January 1996. He will run 100 watts on 50, 144 and 432 MHz and 10 watts on 1296 MHz. He will attempt to work through to Sydney via meteor scatter and/or aircraft enhancement, also possibly to Melbourne via aircraft.

Alan said the Broken Hill Group were possible starters for the Field Day with portable operation on 50, 144 and 432 MHz. Randell VK2EFA will be involved.

50 MHz While In Europe

Quentin VK3DUQ passes on his encounters with 50 MHz during a three months tour of the UK and Europe commencing in May. With his son Simon, they were based in a London flat. Quentin took an FT690 (loaned by VK3YPY), and a dipole, which he found could not be operated outdoors. With the call G0/VK3DUQ, and using the antenna from the room, he found six metres "absolutely fascinating".

When the band is open the degree of activity is "phenomenal". Six metres is the lowest frequency available to the "no code" licensees, who operate with G7xxx calls. There is also much activity by Novices signing 2E1xx. The QRM is extreme at times and long queues form to work the rare DX, but all done in an orderly fashion. It may take several hours to catch a rare one, if the band stays open long enough. There is considerable activity throughout Europe, but not on the scale of that in the UK.

The band was open most days during May and June. Countries worked were: 9A, 9H, CT, DL, ES, EH, F, G, GM (the Orkneys), HV4, I, IA (Elba), IS, OE, OH, OK, OY, OZ, S5, SM, SP, YU, UT6 (Ukraine), the latter being his best DX. He missed some due to his weak signal and these included C31, EI, GI, LA, LZ, OM, SV, YO, VE1, W1, the latter two were very weak on 7 July and heard shortly before closing the station. Many beacons were heard with the most consistent ZB2VHF on 50.035 but no Gibraltar stations were heard.

The Gs use a packet DX-cluster on about 50.7 MHz to alert them to band conditions. Surprisingly, there is little local activity when DX is absent. Quentin made many interesting G contacts and visited several local stations.

The travellers entered Europe via the channel tunnel, which he found quite an experience, and spent time in Paris,

Frankfurt and Berlin. He was last there in 1959, and the changes since have been enormous. The scars of World War II, from the advancing Russian troops of 1945, are still visible on buildings in East Berlin.

Quentin said he "discovered" six metres in early 1946, as a sixteen year old schoolboy attempting to find 28 MHz and the already active post-war amateurs, but ended up becoming hooked on six metres, hearing the first Es interstate QSOs (VK3 to VK2 and VK4), in December 1946. He became VK3IM in 1948, his first QSO was on six metres with VK3QU on 26/6/48.

He was active on six metres until 1955/56 when amateurs were moved to 56-60 MHz, left for the UK in 1957, and heard W1, 2, 3 and 4 working the UK and Europe crossband from 50 to 28 MHz. Returning to Australia, he found Channel 0 TVI a real problem and allowed his licence to lapse, returning with the present call in 1983. He is still active on six metres from his home at Kew and weekend shack at Dromana on the Mornington Peninsula, which is a good VHF site. Now retired, we can expect to hear more of Quentin in the future.

The UK and Europe

The news from Ted Collins G4UPS, shows a dramatic decline in six metre activity with the disappearance of consistent summer Es conditions, other reports indicating a resurgence of interest in the bands 144 MHz and above, particularly 3 cm.

For the first fortnight of August, Ted operated portable from grid square IO92 in Worcestershire, keeping his daily contacts with G3CCH and SM7AED, using 25 watts to a two element HB9CV yagi.

Others in the log came from 9A6, CT, CT0WW/b, DL, EA3VHF/b, EH, EH8, ES0SIX/b, ES6SIX/b, F1, G4, I, IS0, OH, OK, OY, OZ, S5ZRS/b, S56, SK3SIX/b, SP, SR5SIX/b, YL, YU and ZB2VHF/b. Seventeen countries and eight beacons — quite a good way to fill in holiday time!

At home from 15/8 resulted in the following: CT, CT0WW/b, EH, EH7, ES, ES0SIX/b, GM, HB9, IK, OH, OH1SIX/b, OH9SIX/b, OK, OZ, OZ6VHF/b, OZ7IGY/b, S5ZRS/b, SK3SIX/b, SM, SP, SR5SIX/b, YT, ZB2 and ZB2VHF/b. Fourteen countries and eleven beacons.

September brought the following: 9A3, CT, CT0WW/b, DF, EA6, EH, ES, ES0SIX/b, I, OE, OZ6VHF/b, S5ZRS/b, SK3SIX/b, SM, SP, SR5SIX/b, YU and ZB2VHF/b, being eleven countries and seven beacons. By including UK beacons heard, the beacon score rises to fourteen, so you could have quite a lot of fun tuning beacons.

Other information from Ted is a report from ES1CW that there is to be an

extensive relaxation of six metre regulations in Estonia, which will allow classes of amateur other than Class A to access six metres.

Also: *The recent news flashes regarding the surprising solar activity has produced a prediction from Professor Hal Zirin of the California Institute of Technology, that the next solar cycle will peak between 1997 and 1999. Interesting thought!*

The United States

In keeping with the relative quietness of six metres in Europe, the same has occurred in the US. Emil Pocock W3EP, in *The World Above 50 MHz* for November, has little to report on six metres, but a series of high-pressure systems that brought sweltering weather to much of the country's mid-section during late July and August created ideal conditions for tropospheric ducting.

While the three-day opening of 28-31 July did not produce any new distance records, stations in Wyoming, Colorado and New Mexico, who rarely experience long-distance tropo, had an exciting time, with distances to just under 2000 km. Distances of more than 1000 km were recorded on 432 and 1296 MHz. Another good tropo opening occurred from 19-24 August with distances to more than 1300 km.

Emil included a photograph of Jimmy Treybig W6JKV, with his complete two-metre EME yagi and mast neatly packed in a small golf-club bag. The extra space holds elements for the 6-metre Yagi, which are mounted on the same boom. Elements for two complete Yagis, a long boom, and a mast can easily be taken on any airliner as carry-on luggage!

Jimmy HR6/W6JKV operated portable from HR6 from 8-19 June, and completed 383 contacts on 50 MHz to Canada, Mexico, and all US call districts. Honduras was a new country for most who worked him. Using his single long Yagi on 144 MHz he completed six EME QSOs on that band along with two others on scatter. So it looks as though the golf-bag luggage was worth carrying!

Emil also noted that France has not completely abandoned its VHF TV channels. The private CanalPlus subscription network operates about 70 VHF stations, nearly half of which run less than one kilowatt and all but five are on the French channel 5 (176 MHz video) or higher. French channels 6 through 10 are spaced 8 MHz apart through 216 MHz.

The Sporadic-E Season

Some people do not like the term "season", but the concentration of Es during the summer months really amounts to a season! By the time you

read this we will be well into the Es. If we can be treated the same way as the northern hemisphere during their past summer, then we will be in for a treat on 50 and 144 MHz.

In order to assess how our Es is treating us, I will need information. I urge readers to keep me informed of their activities, especially outstanding contacts which most operators enjoy at some time, particularly on two metres Es. Opportunities for long-haul contacts are provided by those operating portable and there are bound to be some camped on hill-tops between Christmas and New Year. Support their efforts by giving them contacts — they usually have at least four bands, but tell me about it!

You can contact me by fax or packet. Although the details are always provided at the end of these columns, people tend to forget to look at the fine print, so I will tell you here and ask you to write the details in your log book or some well known place. Fax number is 085 751 043 and packet is VK5LP@VK5WI.#ADL.#SA.AUS.OC or you can use Snail Mail (as the mail is now referred to in some quarters), to Box 169, Meningie SA 5264. At this moment I do not propose adding

e-mail, but I thank Dave VK2KFU who sends me e-mail forwarded by Geoff GJ4ICD.

I would prefer to have information, at the latest, by the first of the month, but if a bit later send it because it may be possible to slot it in. But please, please, keep me informed of what you are working and hearing, we can't let the northern hemisphere have all the glory! Those of you on the east coast, let me know what you work in New Caledonia; there is 144 and 432 MHz out there and, of course, the ZLs are always ready with bands at least to 1296 MHz.

Closure

This month I commence the 27th year of writing these notes. Thank you one and

all for your continuing support.

May you all have a blessed Christmas and a happy 1996.

Closing with two thoughts for the month:

1. Marriage is a deal in which a man gives away half his groceries in order to get the other half cooked; and
2. The sun, with all those planets revolving around it and dependent upon it, can still ripen a bunch of grapes as if it had nothing else in the universe to do.....Galileo.

73 from The Voice by the Lake.

**PO Box 169, Meningie SA 5264.*

Fax: (085) 751 043

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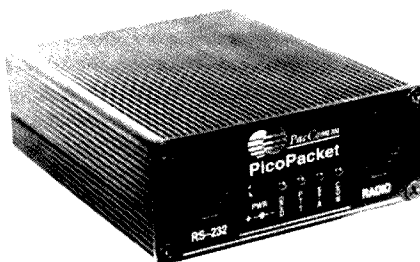
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WIA News

Region 3 Amateur Radio Direction Finding Games, 1996

Townsville in North Queensland is the venue for the Second International Amateur Radio Union Direction Finding Contest, to be held in July next year.

The WIA is the host amateur radio society for this international event, with teams from China, Taiwan, Japan, New Zealand and other countries in the Asia-Pacific region expected to attend.

ARDF — as it is known — unlike hidden transmitter hunts so familiar to many Australian amateurs, is more of a sport, combining orienteering and radio direction finding over a set outdoor course. It is one of the fastest-

growing amateur radio activities around the world, and in particular the Asia-Pacific region.

In China, ARDF is used to introduce young people to the technologies of electronics and communications, and to the attractions of amateur radio. Contest co-ordinator, Wally Watkins VK4DO, advises that the second IARU ARDF Contest will run from 15 to 20 July, 1996. Accommodation for national and international competitors has been booked at the James Cook University, in Townsville. Invitations have been sent out to all Region 3 amateur radio societies and other regions, and to known interested individuals.

Transmitters used for the ARDF contest operate on 80 m and 2 m. Equipment for next year's contest

is already under construction and the first unit has been completed.

Receiving equipment is simple to build and low in cost. Suitable designs have been proven by Ron Graham VK4BRG. Full details can be obtained from Ron (QTHR), including printed circuit boards and construction hints. No parts are really hard to get, advises Wally VK4DO.

Australian competitors are sought, to enter the ARDF Contest. There has been keen interest from Victoria and New South Wales for both the Senior and Old Timer sections, but competitors to enter the women's and junior classifications are wanted.

Further details can be obtained from the 2nd IARU ARDF Contest Secretariat, W A Watkins VK4DO, PO Box 432, Proserpine Qld 4800.

QSP News

Air Forces Amateur Radio Net (AFARN)

Special Event Callsign VI75RAAF

The Australian Air Force was founded by Act of Parliament on 31 March, 1921. It was formed from personnel who had distinguished themselves on the Western Front and in the Middle East as members of the Australian Flying Corps during World War 1. Three months after the formation of the AAF, Royal Assent was received for the title "Royal Australian Air Force" to be adopted. To commemorate the 75th anniversary of the establishment of the RAAF, the Air Forces Amateur Radio Net (AFARN) will be using the Special Event Callsign VI75RAAF from 1 February 1996 to 31 December 1996.

A special event QSL card will be mailed to amateurs who make contact with VI75RAAF, upon receipt of a stamped self

addressed envelope in Australia, or an SAE with one IRC or \$US1.00 for overseas amateurs. The A4 sized award may also be obtained for \$AUS5,00 for Australian amateurs, or four IRCs or \$US4.00 for overseas amateurs. The usual confirmation of contact is required and short wave listeners may also avail themselves of both QSL card and award.

Look for AFARN operators on all bands and modes on HF frequencies only ending in .75 MHz or thereabouts as spectrum space allows.

Awards Manager

All requests for QSL cards and awards should be addressed to: AFARN Awards Manager, Brian Lavender VK4LV, 7 Lawn Street, Bongaree, Bribie Island, QLD 4507. If you wish to become a member of the Air Forces Amateur Radio Net (AFARN) and become a VI75RAAF operator before the

balloon goes up on 1 February 1996, please contact the Secretary, Graham Clayton VK4BGC, 5 Lenz Street, Chermside West, Brisbane, QLD 4032. We actively welcome serving or past members of any of the National Air Forces of the World and short wave listeners, who are currently resident in VK, P29 or ZL. We are particularly interested in enlisting the services of Air Force Amateurs from Western Australia to form a Western Division of AFARN.

Weekly Nets

3.567 MHz, Tuesday 1000 UTC, Northern Division; 3.608 MHz, Tuesday 1030 UTC, Southern Division; 3.605 MHz, Friday 0600 UTC, Southern Division; and 7.085 MHz, Friday 0630 UTC, both Divisions (one hour earlier during daylight saving).

Roy Mahoney VK4BAY
President AFARN

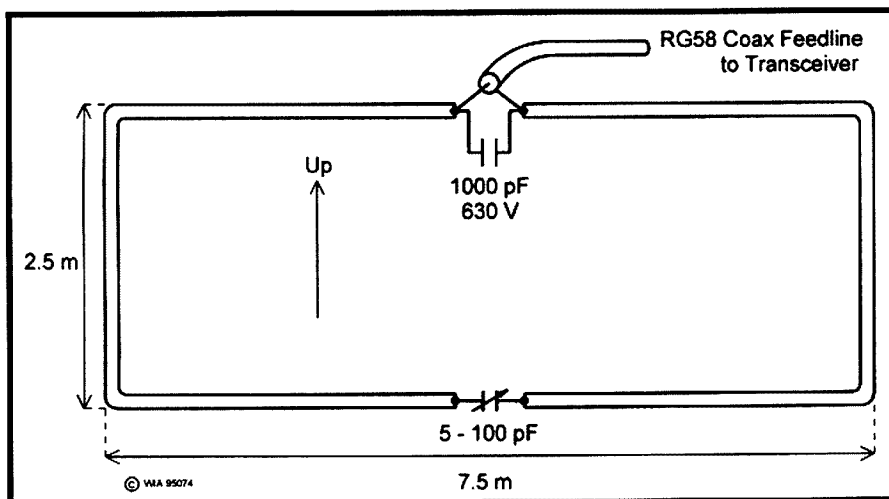
■ Antennas

A Compact 80 m Loop Antenna

Peter Parker VK1PK* describes a nifty little 80 m antenna for a confined space.

It is often difficult to erect a full-size antenna for 80 m when operating from a confined space. While very short

tuned feeder dipoles can be made to work on 80 m, their efficiency tends to be low (Moxon:222). The loop antenna



A Compact 80 m Loop Antenna.

WIA News

Some Clarification

The US claim for a 2 m distance record of 4333 km for a contact between Hawaii and Washington state last July, reported in *WIA News*, October *Amateur Radio*, page 18, has occasioned correspondence that there have been 2 m contacts over greater distances.

VK4IK wrote that, more than 13 years ago as VK8HW, he contacted JR6LHX for a confirmed distance of 4969.7 km. Since then, according to Federal Technical Advisory Committee Chairman, John Martin VK3KWA, that record has been broken on at least three recorded occasions, the most recent being a contact between VK4BFO and JI7DMB on 15 April

1991, for a confirmed distance of 6763 km, a world record.

These Australia-Japan contacts were all via Class II transequatorial propagation (TEP), an ionospheric mode. The ARRL report cited in October *WIA News* claimed the contact as an "over water" record, apparently involving tropospheric propagation, a distinction made in the US but not made in Australia.

An August *WIA News* item warning about the use of FM below 29 MHz did not make the clear point that this meant wideband FM (16K0F and 16K0G modes). Narrowband FM (6K00F and 6K00G modes) has, of course, been permitted on the HF bands for many years and is permitted in the latest Technical Licence Specifications. It is wideband FM that is not permitted below 29 MHz.

described here occupies little space, yet provides good results for distances of up to about 800 km.

There being no reference antenna available, comparative gain figures are unavailable. However, I would estimate that signals from this antenna would be about two S-points down on a dipole. The antenna described here is approximately 10 metres above the ground.

Reference 2 (p298) provided the basic idea for this antenna. The loop is made from coaxial cable; RG8 is preferred because of lower DC losses. This version uses lengths of the thinner RG62A/U. Excluding the feedline, which can be of any length, this antenna uses 20 metres of cable. The length of the element does not appear to be critical, as a previous successful version of this antenna was made from less than 19 metres of cable.

A 1,000 pF polystyrene capacitor is wired across the antenna's feedpoint. This facilitates impedance matching. The one in the prototype is rated at 630 volts, and was salvaged from a piece of valve equipment.

The antenna is tuned by adjusting the variable capacitor at the bottom of the antenna. This capacitor should have widely-spaced plates if you intend to run appreciable power. No arcing has been observed with 50 watts and a capacitor having a 1 mm plate spacing. If you have no suitable capacitor, you may care to experiment with lengths of 300 ohm TV ribbon to obtain a suitable capacitance; the original version of this antenna, described in reference 2 below, uses this technique. While this antenna is balanced, no balun has been found necessary.

You will notice that received signals sound weaker on this antenna than on a full-sized dipole. However, loops pick up less noise than do other antennas, so the signal-to-noise ratio of incoming signals may well be better with the small loop than on a dipole or vertical.

If you wish to work DX on this antenna, you will be disappointed. On the other hand, if you have only a small amount of space and wish to use 80 m, this antenna can provide worthwhile results.

References

1. Moxon, LA — *HF Antennas for All Locations*, RSGB, 1982.
2. Hawker, P — *Amateur Radio Techniques 7th Edition*, RSGB, 1980.

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HF PREDICTIONS

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The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μ V (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μ V in 50 ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μ V at the receiver's input and the S-meter scale is 6 dB per S-point.

μ V in 50 ohms	S-points	dB(μ V)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4

0.78	S3	-2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or beam quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 12. The value for January is expected to be the same.

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	17.5	19	14.1	-4	23	18	10	-2
2	17.8	19	14.6	-3	24	19	11	0
3	17.8	20	14.6	0	25	19	11	0
4	17.9	21	14.7	3	26	20	12	0
5	17.8	22	14.5	10	28	21	12	0
6	17.7	23	14.4	19	30	22	13	0
7	17.9	25	14.5	33	34	25	15	1
8	17.7	27	14.3	46	37	26	15	0
9	17.2	28	13.9	50	37	25	14	-2
10	16.6	29	13.3	52	37	24	11	-5
11	16.0	30	12.8	53	36	22	9	-9
12	15.3	30	12.1	53	34	19	5	-14
13	14.8	30	11.7	53	32	16	1	-18
14	13.9	30	10.8	52	29	11	-5	-28
15	12.8	31	9.9	51	25	5	-13	-39
16	11.9	32	9.1	50	21	-1	-22	...
17	11.9	33	9.0	50	22	0	-21	...
18	11.7	31	8.9	44	20	-1	-21	...
19	12.3	26	9.2	28	19	2	-15	...
20	13.8	22	10.2	16	21	9	-4	-24
21	15.5	21	11.7	9	23	14	4	-12
22	16.8	20	12.9	3	24	17	8	-5
23	17.2	20	13.4	-1	24	16	9	-3
24	17.5	19	13.9	-3	24	18	10	-2

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	21.3	16	16.9	-35	18	19	16	9
2	21.2	16	17.2	-36	18	19	16	9
3	21.8	16	16.0	-34	18	20	17	10
4	21.7	17	17.8	-30	20	21	17	11
5	21.8	17	17.9	-23	22	22	18	11
6	21.7	18	17.7	-12	25	24	19	12
7	21.6	20	17.6	4	29	26	21	13
8	21.8	22	17.7	21	34	29	23	15
9	21.8	24	17.7	35	38	31	24	15
10	21.0	25	16.9	44	40	32	24	14
11	20.3	26	16.2	48	40	31	23	12
12	19.5	27	15.5	50	40	30	22	10
13	18.6	28	14.7	51	39	29	19	7
14	17.9	28	14.0	51	38	27	17	3
15	16.6	29	12.9	51	36	24	13	-2
16	15.4	30	11.8	50	34	20	8	-9
17	14.3	31	10.9	49	31	17	3	-15
18	14.3	30	10.9	47	31	17	3	-15
19	14.2	27	10.8	31	27	14	2	-15
20	15.0	23	11.2	14	24	15	4	-10
21	16.9	20	13.3	-1	23	17	10	-2
22	19.1	18	14.4	-16	21	19	14	5
23	20.5	17	15.8	-25	20	20	16	8
24	21.0	16	16.4	-32	19	19	18	9

VK EAST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	14.7	12	10.7	-25	13	8	1	-11
2	13.4	8	10.3	-36	8	4	-3	-16
3	13.9	5	10.5	...	5	4	-2	-14
4	16.1	6	12.1	...	4	6	2	-6
5	18.9	8	13.3	...	3	8	7	1
6	18.7	8	13.1	...	2	8	6	1
7	18.8	8	13.2	...	2	8	7	1
8	18.8	8	13.1	...	3	8	7	1
9	18.9	10	13.2	...	5	10	8	2
10	18.7	11	13.1	...	9	12	9	2
11	18.6	13	13.0	...	13	14	10	3
12	17.9	15	13.2	-28	16	15	10	1
13	17.0	18	13.0	-10	20	16	10	0
14	16.5	20	12.7	6	24	17	9	-2
15	15.7	24	12.1	26	28	18	9	-5
16	14.9	27	11.6	36	29	17	6	-9
17	14.1	28	10.8	40	28	15	2	-14
18	13.6	30	10.4	43	28	14	0	-18
19	13.3	30	10.1	44	27	13	-1	-20
20	14.0	30	9.7	45	29	15	2	-15
21	13.5	26	9.2	30	24	12	0	-18
22	13.1	22	9.1	16	20	9	-3	-20
23	13.2	18	9.1	2	17	8	-3	-19
24	13.8	15	9.6	-11	15	8	0	-14

VK SOUTH — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	14.6	16	11.1	-10	16	10	1	-12
2	15.2	13	11.5	-23	14	10	2	-9
3	17.6	13	13.6	-39	12	12	7	-1
4	19.0	12	13.6	...	10	13	10	4
5	18.8	11	13.5	...	7	11	9	3
6	19.0	10	13.5	...	6	10	8	3
7	18.8	10	13.4	...	5	10	8	2
8	18.9	10	13.4	...	6	10	8	3
9	19.4	11	13.7	...	7	11	10	4
10	19.1	12	13.5	...	10	13	10	4
11	18.6	14	13.1	...	13	14	11	3
12	17.8	16	12.5	-26	17	15	11	2
13	17.1	18	11.9	-12	20	16	10	0
14	16.3	20	11.3	4	23	17	9	-2
15	15.9	24	11.0	23	27	19	9	-4
16	15.2	27	10.5	35	29	18	7	-7
17	14.6	28	10.1	40	29	17	5	-11
18	14.1	29	9.8	43	29	16	3	-14
19	13.9	30	9.8	45	29	15	2	-15
20	14.3	30	10.1	45	30	17	4	-13
21	14.4	28	10.0	37	28	16	4	-12
22	14.1	25	9.8	25	24	13	2	-14
23	14.2	22	10.0	14	22	12	2	-13
24	14.9	20	10.5	3	21	13	4	-9

VK WEST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	13.4	20	10.3	10	19	8	-4	-21
2	13.8	17	10.5	-4	16	8	-2	-18
3	16.0	14	12.6	-21	15	11	4	-7
4	19.1	13	14.6	-39	14	14	10	2
5	20.0	13	14.8	...	12	14	12	5
6	20.1	12	16.5	...	10	13	11	5
7	20.2	12	16.5	...	9	13	11	5
8	20.0	12	16.3	...	9	13	10	4
9	20.0	12	16.2	...	10	13	11	4
10	20.2	13	16.4	...	12	14	12	5
11	19.9	14	16.4	...	14	16	12	5
12	19.4	16	15.6	-25	19	18	13	5
13	18.7	18	15.0	-6	23	19	13	4
14	18.0	21	14.4	11	27	21	13	2
15	17.1	24	13.6	31	31	22	13	0
16	16.6	26	13.1	40	32	22	12	-2
17	15.8	28	12.8	44	32	20	9	-6
18	15.0	29	11.7	46	31	18	6	-11
19	14.2	30	10.9	47	30	15	2	-16
20	13.7	30	10.4	46	28	13	0	-20
21	13.4	30	10.2	46	28	12	-2	-22
22	14.1	30	10.6	47	30	15	2	-16
23	14.2	28	10.8	39	28	14	1	-16
24	13.6	25	10.3	25	23	11	-2	-20

VK EAST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	24.3	15	19.7	-32	21	23	20	14
2	25.0	14	19.3	-36	20	22	20	14
3	25.9	13	20.2	-38	20	22	20	15
4	26.8	13	20.4	-36	21	23	22	17
5	27.8	14	21.2	-31	23	25	23	19
6	27.8	17	22.2	-22	26	28	26	22
7	26.8	18	21.9	-8	29	29	27	21
8	25.5	19	21.3	12	34	31	27	21
9	24.5	21	19.8	34	39	34	28	20
10	23.5	22	18.9	42	41	34	27	18
11	22.7	23	18.1	47	41	34	26	16
12	22.2	20	16.9	50	40	31	23	12
13	20.1	21	15.3	52	38	28	17	4
14	17.8	22	13.5	51	34	21	8	-8
15	15.7	23	12.1	49	29	13	-2	-23
16	14.4	24	10.9	48	25	6	-12	-36
17	13.2	25	10.1	47	20	-1	-22	...
18	11.3	26	8.6	44	9	-19	...	...
19	8.7	28	6.7	37	-16	...	...	...
20	8.9	27	6.9	37	-13	...	...	...
21	13.4	20	10.2	29	17	-1	-19	...
22	20.5	16	15.9	9	28	22	15	3
23	22.8	17	18.2	-11	26	24	20	13
24	23.4	16	18.9	-24	23	23	20	13

VK EAST — EUROPE										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9		
1	9.1	-1	7.1	-17	0	-16	-34	...		
2	8.1	-8	6.4	-20	-2	-18	-37	...		
3	7.7	-14	6.1	-22	-2	-18	-36	...		
4	8.5	-12	6.5	-29	-1	-13	-29	...		
5	10.8	-4	8.6	...	1	-5	-16	-34		
6	14.1	2	11.2	...	3	1	-5	-17		
7	16.7	6	13.4	...	4	6	2	-7		
8	19.0	9	15.3	...	7	10	7	0		
9	20.4	12	16.6	...	13	15	11	4		
10	21.2	16	16.8	...	19	23	21	16	8	
11	20.8	19	16.9	...	30	25	18	8		
12	19.9	21	16.0	...	36	34	26	17	6	
13	18.0	23	14.5	...	41	33	22	12	-2	
14	15.3	25	12.2	...	43	28	14	0	-18	
15	12.4	27	9.9	...	42	19	0	-19		
16	9.9	29	8.0	...	38	6	-22	...		
17	8.5	29	6.7	...	35	-6	...	...
18	7.7	30	6.1	...	33	-14	...	...
19	7.7	30	6.0	...	32	-14	...	...
20	7.8	30	6.0	...	33	-14	...	...
21	7.9	25	6.0	...	27	-10	...	...
22	7.7	17	6.0	...	6	-7	-37	...		
23	8.9	10	6.9	...	3	-1	-23	...		
24	9.4	5	7.3	...	-8	0	-17	-36	...	

VK SOUTH — EUROPE										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9		
1	9.9	5	7.6	-13	2	-12	-29	...		
2	8.9	-3	7.0	-21	0	-15	-32	...		
3	8.4	-10	6.6	-26	-1	-15	-31	...		
4	9.4	-9	7.2	-37	0	-9	-23	...		
5	12.2	-2	9.7	...	1	-2	-10	-24		
6	15.9	3	12.7	...	1	3	0	-9		
7	18.6	6	15.0	...	0	6	4	-1		
8	20.7	8	16.8	...	1	8	8	3		
9	21.4	10	17.4	...	4	11	10	6		
10	21.2	13	17.1	...	9	14	13	8		
11	20.6	17	16.6	...	-31	18	19	16	9	
12	19.9	21	16.0	...	5	28	24	18	9	
13	19.2	22	15.3	...	31	32	24	16	4	
14	16.4	23	13.1	...	37	30	18	6	-9	
15	13.5	26	10.6	...	40	23	6	-9	-32	
16	10.8	28	8.8	...	40	12	-12	-35	...	
17	9.3	29	7.3	...	37	2	-27	...	...
18	8.6	30	6.7	...	35	-4	-38	...	...
19	8.5	30	6.6	...	35	-5	-39	...	...
20	8.5	30	6.5	...	35	-5	-39	...	...
21	8.6	28	6.6	...	33	-4	-36	...	...
22	7.8	19	6.0	...	20	-11	...	...	...
23	8.4	13	6.5	...	10	-4	-31	...	...
24	10.1	11	7.8	...	-2	4	-12	-31	...	

VK WEST — EUROPE										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9		
1	10.3	14	8.0	6	4	-14	-34	...		
2	9.3	5	7.3	-6	-1	-20	...	...
3	8.8	-2	6.9	-16	-3	-20	...	...
4	10.0	-2	7.5	-29	0	-12	-27	...		
5	13.1	2	10.5	...	3	-1	-10	-25		
6	17.1	6	13.7	...	4	5	1	-7		
7	20.0	7	16.1	...	3	8	6	0		
8	22.2	8	18.0	...	3	10	9	5		
9	23.4	9	19.1	...	4	11	11	7		
10	23.9	10	19.0	...	7	13	13	9		
11	23.4	12	19.1	...	13	16	14	9		
12	22.6	14	18.2	...	-17	22	21	17	10	
13	20.7	18	16.6	...	18	30	24	17	6	
14	17.6	21	14.0	...	33	30	19	9	-4	
15	14.6	23	11.5	...	37	24	10	-4	-24	
16	11.7	26	9.6	...	39	15	-6	-27	...	
17	10.1	28	7.9	...	38	6	-20	...	...
18	9.3	29	7.2	...	37	0	-30	...	...
19	9.2	29	7.0	...	36	-1	-32	...	...
20	9.1	29	7.0	...	36	-1	-33	...	...
21	9.2	29	6.9	...	36	-1	-32	...	...
22	9.3	29	7.3	...	37	1	-29	...	...
23	8.8	26	6.7	...	30	-3	-35	...	...
24	8.9	18	6.9	...	18	-2	-29	...	...

VK EAST — EUROPE (long path)										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9		
1	8.6	-9	6.4	-25	0	-12	-27	...		
2	9.2	-7	7.0	-20	1	-11	-26	...		
3	9.7	3	7.4	-15	2	-10	-25	...		
4	9.4	6	7.2	-7	2	-13	-29	...		
5	8.4	8	6.6	2	-1	-21	...	...
6	8.0	12	6.3	10	-3	-28	...	...
7	8.8	22	7.0	23	1	-23	...	...
8	11.3	25	9.0	32	14	-4	-23	...		
9	12.0	26	9.2	31	20	5	-9	-29		
10	12.5	18	9.4	5	15	5	-6	-23		
11	15.6	12	12.3	-29	12	10	4	-6		
12	17.4	10	13.8	...	7	10	7	1		
13	16.6	5	13.4	...	1	6	4	-2		
14	15.6	1	12.2	...	-2	3	1	-4		
15	14.7	-3	11.3	...	-4	1	0	-6		
16	14.2	-5	10.8	...	-5	0	-1	-7		
17	13.9	-6	10.4	...	-5	0	-2	-8		
18	12.8	-8	10.1	...	-3	-1	-6	-15		
19	10.2	-16	8.0	...	-1	-3	-11	-24		
20	8.8	-32	6.8	...	-7	-12	-23	...		
21	8.0	-39	6.2	...	-9	-18	-31	...		
22	8.0	-28	6.1	...	-4	-13	-27	...		
23	8.0	-19	6.1	...	-32	0	-11	-24		
24	8.2	-14	6.2	...	-28	0	-12	-26		

VK SOUTH — EUROPE (long path)										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9		
1	8.0	-11	6.1	-21	-2	-16	-32	...		
2	8.5	-5	6.5	-18	-1	-16	-33	...		
3	8.8	0	6.8	-12	-1	-17	-35	...		
4	8.5	3	6.6	-5	-2	-21	...	...
5	7.6	5	5.9	3	-8	-33	...	...
6	7.1	10	5.6	10	-13	...	...	...
7	7.7	21	6.1	21	-11	...	...	...
8	9.7	23	7.7	27	4	-20	...	...
9	11.0	25	8.5	33	13	-7	-26	...		
10	8.5	22	6.6	24	-2	-29	...	...
11	8.7	14	6.7	10	0	-23	...	...
12	13.1	12	10.3	-12	11	2	-8	-24		
13	15.4	10	10.9	...	9	9	4	-4		
14	14.7	3	10.2	...	3	5	1	-7		
15	14.0	-1	9.8	...	-1	2	-1	-9		
16	13.7	-4	9.6	...	-3	1	-2	-9		
17	13.7	-5	9.7	...	-3	0	-4	-12		
18	11.6	-10	9.2	...	-2	-3	-9	-20		
19	9.2	-34	7.3	...	-11	-16	-27	...		
20	7.8	...	6.1	...	-26	-36	...	...
21	7.1	...	5.5	...	-33	...	...	...
22	7.1	...	5.5	...	-27	...	...	...
23	7.2	...	5.6	...	-18	-34	...	...
24	7.5	-25	5.8	...	-32	-7	-21	-38		

VK WEST — EUROPE (long path)										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9		
1	7.7	-36	5.9	...	-12	-25	...	...
2	8.1	-16	6.3	...	-29	-3	-15	-29		
3	8.4	-12	6.5	...	-25	-3	-16	-31		
4	8.1	-10	6.3	...	-19	-4	-19	-37		
5	7.1	-10	5.6	...	-11	-8	-28	...		
6	6.8	-7	5.3	...	-5	-11	-36	...		
7	7.2	1	5.7	0	-11	-37	...	...
8	9.0	10	7.2	5	-2	-23	...	...
9	11.7	15	9.4	12	9	-7	-23	...		
10	10.7	20	8.3	22	8	-10	-28	...		
11	8.8	15	6.8	13	-1	-23	...	...
12	9.3	9	7.2	0	1	-16	-35	...		
13	13.4	7	10.5	-26	6	1	-8	-22		
14	16.0	5	10.8	...	4	5	2	-5		
15	15.2	0	10.5	...	-2	2	0	-7		
16	14.5	-4	9.9	...	-4	0	-3	-10		
17	13.8	-6	9.4	...	-5	-3	-7	-16		
18	11.0	-14	8.8	...	-4	-5	-12	-24		
19	8.7	...	6.9	...	-18	-24	-36	...		
20	7.4	...	5.8	...	-36	...	...	...
21	6.7	...	5.2	...	...	...	...	...
22	6.7	...	5.2	...	...	...	...	...
23	6.8	...	5.3	...	-37	...	...	...
24	7.2	...	5.6	...	-25	-39	...	...

VK EAST — MEDITERRANEAN										
UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9		
1	7.8	-7	5.9	-14	-4	-23	...	...
2	7.4	-16	5.7	-21	-4	-22	...	...
3	10.4	-5	8.0	...	0	-7	-19	-38		
4	16.4	5	12.6	...	3	5	0	-8		
5	22.4	8	17.2	...	2	9	9	5		
6	25.6	9	19.4	...	1	10	12	10		
7	25.6	10	19.9	...	1	11	13	11		
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HAMADS

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● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Aplha Tango Products, Perth; Haven Electronics, Nowra; and WIA Equipment Supplies, Adelaide.

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● **HAM LOG v.3.1** — Acclaimed internationally as the best IBM logging program. Review samples....AR: "Recommend it to anyone"; The Canadian Amateur: "Beyond this reviewer's ability to do it justice. I cannot find anything to improve on. A breakthrough of computer technology"; ARA: "Brilliant". Simple to use with full help, the professional HAM LOG is immensely popular (now in its 5th year), with many useful, superb features. Just \$59 (+ \$5 P & P), with a 90 page manual. Special 5 hour Internet offer. Demos, brochures available. Robin Gandevia VK2VN (02) 369 2008 BH fax (02) 369 3069. Internet address rhg@ozemail.com.au.

FOR SALE NSW

- **POWER** supplies ex Govt 13.8 V 4A, \$50 posted. David VK2BDT Goulburn (048) 21 5036.
- **TELEREADER** model CWR 685 and Keyboard CWK 685 with manual and new regulated power supply, \$275. Nick L20106 QTHR.
- **JAYBEAM 10Y/2M** ten elements with balun, \$80; CDE Ham II rotator system with 33 m eight core cable, \$400; DUMMY load 1 kW HN31, \$30. Ron VK2BKN (044) 73 9270.
- **YAESU FT1**, vgc, put me on Honor Roll, tech manual, \$1,000; **YAESU FC902 ATU**, \$200; **HEIL** speaker, \$50; **KENWOOD PS30**, \$100; **HAM oscilloscope LBO-310**, \$200; **ROVER** color 12 V TV 6", \$150. Arthur VK2DTH QTHR (076) 76 3153.
- **HAMSHACK** or soundproof studio, fibreglass modular design 2.4 m x 2.4 m x 2.4

m in size. On wheels, white in colour, 2 large windows (1 fixed, 1 opens), recessed electrical conduits for wiring, good condition, \$600 ono. Bruce VK2TBL (018) 86 2175 or (02) 632 1757.

● **NATIONAL HRO** dial and in-line gearbox, gc \$50; **TRANSFORMER 1.5 kVA**, primary 170-260 V tapped each 10 V, secondary 100 V 15 amps, in steel case with voltmeter, \$100. Buyer collects, very heavy! Keith VK2AXN QTHR (02) 489 0304.

● **YAESU 2 m linear amp FL2050, IHO20094** instr sheets, \$150; **YAESU 207R** handheld t/m, OK120265, instr man, battery charger, \$100; **REGULATED** power supplies, Ferguson Transwest, 13.8 V 2 amp, \$45 ea; **REALISTIC** dynamic desk mike, \$30; **ARLEC** batt charger 240 to 6-12V, \$20; **KINGRAY** low pass filter, \$20. Licd Amats only, H Chapman VK2BHC (02) 644 1929.

● **TOWER** ext 6 m — 10 m 200 x 200 x 200 base and house on half acre 66 x 132 ft, ideal for ham, large garage/wksp, 17 sq under one roof, 3 bed, b/v, facilities for additional antennas. VK2EJW Tinomee Village (065) 53 1365.

● **3 METRE** KU band mesh dish on inclined orbit polar mount fits 3" ID water pipe, \$1,190; **2 CHAPARRAL 20** degrees K, 4 GHz LBNs, \$195 ea. John VK2WW QTHR (02) 546 1927.

● **ALINCO 2 m handheld ALX2T**, s/n 31073328, with charger cradle, new battery fitted, vgc, \$220. Bruno VK2BPO QTHR (02) 713 1831.

● **COMPLETE** Yaesu FT-102 station for sale includes FT-102 transceiver, FC-102 1500 watt antenna tuner, SP-102 speaker, FV-102DM digital VFO, handbook and service manual, spare 6146 finals, includes WARC bands, the lot \$900. Horrie Young VK2AMZ (043) 41 9877.

● **YAESU FT290R** (not MKII) s/n 5G450057, 2 m all mode portable, complete with manual, vinyl case, YH-1, SB-2, YHA-15, MMB-11, YM-49 speaker mic, YM-47 std mic and Alinco ELH-230D 30 W linear amplifier (with Rx preamp), will not separate \$650; **VK POWERMASTER MKII 25 A** 13.8 V power supply, fully built, \$220; **FM-828/25 AMK2**, \$25; **ARRL Computer Networking** Conference papers, Volumes 1 through 11 (8 books), will not separate, \$80, additional copy of Volume 10, \$10; **ARRL Handbook 1986**, \$20; **ARRL Antenna Handbook**, \$8; **ARRL QRP Notebook**, \$5; **FOUR BATVG** books, \$20. Steve VK2QZ OTHR (02) 476 1845 after 7pm or (02) 9928 1188 (ext 150) BH.

● **KENWOOD TS-830S** s/n 1041993 with VFO240, two sets new finals and drivers, service manual, MC50 mic package, \$1,200; **BENCHER** paddle and Daiwa DK210 keyer package \$250. All VGC. Take delivery from QTH please. Kevin VK2JS QTHR (02) 44 3279.

● **ICOM transceiver IC720A**, s/n 13507, \$650; **ICOM power PS20**, s/n 05785, \$200; **HY-POWER** coupler HC200, s/n 829224, \$100; **MIC** desk ICSM5, \$50; **MIC** mobile ICHM7, \$50; **ANT** vert 5CE5SS, \$100; **ANT** mobile Yaesu

RS, \$50; **KEYER** electronic Daiwa DK210, \$50. Total cost \$1,250. John VK2AJX (048) 61 3964.

● **TOWER, HILLS** winch-up cyclonic, 13 m, galvanised, Rotator Kenpro KR1000, Antenna Tet-emtron TE46 6 band with coax, 2 yrs old \$1,300. Rod VK2BRW (0755) 24 3722 Tweed Heads.

● **DECEASED ESTATE VK2FJF. KENWOOD TS830S** \$575; **VFO230** \$100; **YAESU FTDX401** \$250. All EC with manuals and circuits. **EMTRON EAT300A ATU**, vernier knobs, \$200; **KENPRO** squeezekey KP100, \$100; **CLIPSAL** key, \$60; **PORTABLE HF** whip, RSGB design with feedline, \$120; **ASSORTED** short coax leads, \$10 the lot; **6.5 METRE** mast with 80/40 dipole, offers. David VK2AYO QTHR (068) 88 5265.

FOR SALE VIC

● **KENWOOD TS-930S** HF transceiver, in-built auto-ATU, switchable narrow filters, excellent condition, little used, original carton, handbook and workshop manual, \$1495 ono. VK3BR QTHR (03) 9584 9512.

● **ICOM** auto ant tuner IC-AT500 s/n 3671, \$400; **ICOM 27A 2 m** mobile, \$350; **PAKRATT 232** model PK-232 (not MBX), \$350; **MODEM Maestro 2400ZXR**, \$30. Maxwell VK3BAX QTHR Geelong (052) 29 7401.

● **ICOM ICW2A** dual band hand-held radio, with leather case, extra battery, charger, speaker/microphone, DC power lead, all in carry case, \$650. Kerry VK3KFC (054) 60 4726.

● **BARGAINS, ICOM 735 100 W H/F**, \$850; **MFJ 949D** tuner, \$220. Ken VK3WAL (051) 52 3984.

● **TOWER, 8 sections**, winch, new s/s cable, 4 mm carriage, rotator, guys, anchor plates, \$350; **204BA** Homebrew 4 el mono 20 m beam, no sag, 1.5 kW balun, indomatch coax, \$300; The lot, \$590. W.Timmermans VK3BTQ, 6/12-14 Barton Ave, Ferntree Gully Vic 3156.

● **KENWOOD TS130SE 100 W HF** transceiver, WARC bands, opt. fan, mic, manual, Shinwa LP filter, mint condition, \$550. Alan VK3AMT (03) 9789 9106.

● **13.6 VOLT 20 amp** continuous (25 A peak) regulated power supply. Well cased and metered with foldback current limiting. Circuit supplied, \$300. H Hepburn VK3AFQ QTHR (03) 9596 2414.

● **KENWOOD TM731A** dual band xcvr, 2 m/70 m, vgc, \$950; **KENWOOD TS811A** 70 cm base xcvr, vgc, \$1,050. Bill VK3WK QTHR (055) 65 9348 or (018) 52 8477.

● **YAESU FT1** HF transceiver with mike, vgc, recently realigned, \$1,100; **YAESU FRG-7** communications receiver, exc cond, \$200. Laurie VK3DPD QTHR (03) 9818 6009.

● **CODAN** type 7208 antenna tuner, suit end fed antenna 12 to 30 metres long, \$120. Fred VK3JM QTHR (03) 9801 4972.

● **ANTENNA HY-GAIN TH6-DXX** tri-band, only been erected 2 years and still in use, \$700 ono. Bob VK3CF (03) 336 3985.

- YAGI antenna, Chirnside CA-33 Tri-band beam, 10/15/20 m, with assembly and technical information, \$220. Lex VK3AIL (03) 9570 5994.
- TELEPRINTER Texas Instruments silent 700 model 74S with acoustic coupler modem option, C/W user and tech manual, uses thermal (fax) paper, vgc, suit packet, RTTY or cheap serif printer, \$80. Terry VK3ZXY QTHR (03) 9592 3514.
- TELEPRINTERS, one Siemens S100 inc big box of spares, cables, manual, etc. vgc, \$30; one Teletype model 15, \$20; COAX Connectors, Andrew type 44AW and type 44AN, half-inch heliax N type, \$7 each. Tony VK3ZMP (03) 9700 5447 or (0411) 14 4447.

FOR SALE QLD

- YAESU FV-901DM scanning VFO, ideal for split operation with Yaesu FT101ZD, as new instruction manual, original packing case, \$250. VK4QPA QTHR (0755) 73 1234.
- ICOM AH-3 remote tuner for devoted use with any recent ICOM radios, eg 725, 726, 728, 729, etc. Can be mounted externally, PC, \$420. Doug VK4OE (07) 3234 1169 BH or (07) 3391 5526 AH.
- FL-7000 SOLID state no-tune auto band-changing 1.8 — 30 MHz linear amp, built-in auto ATU facility for auto antenna selection (4 ants), dual fans, legal limit, plus dream to use, book, cables, original carton, vgc, \$3,000 ono. Alan VK4AAR (076) 85 2417.
- APR-18A 8 band HF radial kit, \$100; IF-232C Kenwood interface, \$100; KPC-3 Kantronics packet, \$200. Richard VK4DIC (07) 3264 1655.
- HIGH voltage electros 2500 MFD 400 VV 450 VP, \$10 each; PLASTIC capacitors 160 MFD 2250 volts working, \$100 each; ELECTRO 75000 MFD 75 VV 30 A ripple, \$20 each. John VK4KK QTHR (07) 3269 6647.
- YAESU FT7 serial No 090175 complete with mike, mobile bracket, handbook, vgc, one owner, \$350. Jack VK4BXC QTHR (076) 35 5486.

- YAESU FT-726R satellite transceiver complete with 6 m, 2 m and 70 cm modules. Full duplex with internal duplexer, ideal for satellite new comers. Excellent condition, \$1,950. Will VK4XP OTHR (079) 79 3101.
- TOWER 40FT approx, extendable, incl guywires and beams, dismantled ready to go, \$250 ono. Andy VK4KYM (015) 98 8358 located Gold Coast.
- SHACK Clearance, Sundays, 97 Jubilee Terrace, Bardon. Books, ARA EA magazines, CRO and tubes, PSUs, meters, chokes, HV transformers, TX/RX capacitors, microphones, components, generators, general items, no valves. Contact Peter Hadgraft (07) 3397 3757 AH.

FOR SALE TAS

- YAESU 411E 2 m FM hand-held, 5 W, speaker mike, 12 V power pack and charger, case, manual, original box and standard extras, \$390 ono. Martin VK7ZBG OTHR (002) 65 3106.
- KENWOOD TS690S 160-6 m inc auto-ATU, as new condition, box and manuals; EMOTATOR 1211 bottom mtg bracket suit 105TSX; 103TS Emotator rotator, new. Allen VK7AN (003) 27 1171.

WANTED NSW

- MULTIMATE Advantage II boot disk, also two plastic gear wheels for Eddystone 770R dial drive. John VK2BJU OTHR (02) 673 4305.
- CURTIS chip 8043 or 8044. K Harvey VK2BKH QTHR.
- DESK top microphone suit Yaesu FT101E. Bill VK2ATP QTHR (02) 9971 7151.

WANTED VIC

- SELSYNS, 50 Hz transmitter/receivers preferred but will consider 400Hz. Morris VK3DOC (03) 9824 8988.
- KENWOOD PS-53 or PS-50 PSU; COPY op manual Kenwood TS-670 quad bander. Damien VK3CDI (054) 27 3121.

- KENWOOD linear amp TL120, fair price for unit in good condition. Len VK3LEN (053) 56 2368.
- INFORMATION regarding source of Nicad 270 mAh cells to rebuild ICOM BP3 battery packs. Tony VK3CTM QTHR (054) 39 3230.
- MORSE KEYS wanted by Morse students in small radio club. Prefer PMG style, Clipsal or WT8 amp type. Reasonable price paid. Drew VK3XU QTHR (03) 253 6199 BH or (03) 722 1620 AH.

WANTED QLD

- KENWOOD TS660 all mode quad bander, good working order; ICOM 502 SSB t/ciever 6 m, must be working condition. Prices to Gordon VK4KAL QTHR or (079) 85 4168 nights after 8pm.

WANTED SA

- ICOM IC-251A or IC-271A 2 m transceiver. Must be in good working condition and appearance, with manual. Eric VK5LP QTHR (085) 751 531.
- INTERNAL preamps for ICOM IC471, IC271; SERVICE manual ICOM IC471. Frank VK8FT (089) 83 2954.

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- C64/128 OCL Library. Please note New QTH for catalog, send SAE plus 3 x 45 c stamps to OCL Librarian, 18 Coniston Ave, Berwick Vic 3806.

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Amateur Radio Readership Survey

The Publications Committee is responsible for producing *Amateur Radio* as a journal to meet your needs. What are your needs? Help us find out! Please complete this questionnaire and photocopy it (or, as a last resort, cut it out), then send to the **WIA Publications Committee, PO Box 2175, Caulfield Junction VIC 3161**. You can enclose it with your annual WIA subscription if it is now due, fax it to (03) 9523 8191, or simply post it.

All responses received before 14 January 1996, which are identified with the member's call sign or SWL number, will be entered into a competition for one year's free WIA membership.

Although statistical results of this survey may be published, individual responses are confidential. Thank you in anticipation of your assistance.

(Please ignore the underlining of certain characters, and the italic numbers in question 7 - they are to assist in collation of survey responses.)

1. Callsign or SWL number
 2. What is your age group? (circle one)
 Less than 20 21-30 31-40 41-50 51-60 61-70 70+
3. How many years have you been a licensed radio amateur? (circle one)
 Less than 1 1-5 6-10 11-20 21-40 Over 40
4. How much of the contents of *Amateur Radio* do you read each month? (circle one)
 1-10% 11-20% 21-50% 51-80% Over 80%
5. How do you rate *Amateur Radio* for presentation, clarity, and readability? (circle one)
Excellent Very good Good Satisfactory Poor Too technical About right Not technical enough

7. From the list below, select FIVE items which you would like to see featured MORE prominently in *Amateur Radio* and circle More. Then select FIVE items which you would like to see featured LESS prominently and circle Less.

01 ALARA Notes	More	Less	19 How's DX	More	Less
02 AMSAT Australia	More	Less	20 Intruder Watch	More	Less
03 Annual Reports	More	Less	21 Novice Notes	More	Less
04 Awards	More	Less	22 Operating articles	More	Less
05 Book Reviews	More	Less	23 Over-to-You letters	More	Less
06 Club News	More	Less	24 Packet World	More	Less
07 Commercial advertisements	More	Less	25 Pounding Brass	More	Less
08 Construction articles	More	Less	26 QSLs from the WIA Collection	More	Less
09 Contests	More	Less	27 QSP News	More	Less
10 Divisional Notes	More	Less	28 Random Radiators	More	Less
11 Editor's Comments	More	Less	29 Repeater Link	More	Less
12 Education Notes	More	Less	30 Spotlight on SWLing	More	Less
13 Equipment Reviews	More	Less	31 Technical Abstracts	More	Less
14 FTAC Notes	More	Less	32 Technical Correspondence	More	Less
15 General Interest articles	More	Less	33 Technical theory articles	More	Less
16 HAMADS	More	Less	34 VHF/UHF - An Expanding World	More	Less
17 HF Predictions	More	Less	35 What's New	More	Less
18 History articles	More	Less	36 WIA News	More	Less

8. On which subject(s) would you like to see a new regular column?

9. If you could make a single change to *Amateur Radio*, what would it be?

Please cut along this dotted line if you are unable to photocopy the survey form.

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