



# amateur radio

Vol. 34, No. 1  
JANUARY  
1966

25c

Registered at G.P.O., Melbourne, for  
transmission by post as a periodical

## COAXIAL CABLES

UR67 50 ohm  $\frac{3}{8}$  in. diam. coaxial cable, 1/6 yd. or 25/- per 25 yds. roll, 10/- postage.  
 UR43 50 ohm 3/16 in. diam. coaxial cable 15/- per 35 ft. roll.  
 UR71 72 ohm  $\frac{1}{4}$  in. diam. coaxial cable, 1/6 yd. or £1 per 27 yds. roll.  
 51 ohm RG 8U  $\frac{3}{8}$  in. diam., brand new, 1/9 yd. up to 500 yard lengths.

All above cables are in as new condition.

## BATTERY CHARGERS

DIAL COMPLETE WITH METER IN METAL HAMMERTONE CASE  
 6 volt 4 amp., 12 volt 4 amp., £7/17/6.  
 12 volt 6 amp., 6 volt 6 amp., £10/17/6.

## TRANSISTORISED AMPLIFIERS AND TUNERS

LAFAYETTE  
 PK-522 3 Transistor, single ended 50 mW. output £2/17/6  
 PK-543 4 Transistor, push pull, 100 mW. output £3/15/0  
 PK-544 5 Transistor, push pull, 250 mW. output £5/17/6  
 PK-801 4 Transistor, push pull, 1 watt output £5/17/6  
 PK-633 3 Transistor, 1 Diode, broadcast a.m. tuner £4/15/0

## MICROPHONES

CRYSTAL:  
 Piezo Lapel Type with Plug 12/6  
 CM20 Hand Type with Plug 27/6  
 X43 Stand Type with Plug 37/6  
 BM3 Pencil Type 100-8,000 c.s. with on-off switch, 6 ft. cable 50/-  
 BM3 Desk Stand to suit above 21/-  
 DYNAMIC:  
 Foster DF2 Hand Type 50K 30/6  
 Foster DF2 Hand Type 50 ohm 45/-  
 Foster DF3 Pencil Type 50K 90/-  
 Foster DF3 Pencil Type 50 ohm 87/6  
 Piezo X29 Desk Type with stand, low impedance 82/6

## SPEAKER BOXES

Plastic Speaker Box with 4 in. Speaker and Wire 55/-  
 Wooden Speaker Box with 6 in. x 4 in. Speaker and Wire 65/-

## GRID DIP OSCILLATORS

Lafayette TE-18 G.D.O. 8 Bands, Plug in Coils, 360 Kc-220 Mc., 240 volt £19/15/-  
 Leader LDM-810 G.D.O. 2-230 Mc., 6 Band, Plug-in Coils, 230 volt £22/5/-

## CHASSIS PUNCH SET

Hozan K-83 Sizes 16, 18, 21, 25 and 30 m.m., complete with Taper Reamer in wooden storage box 70/-

## TAPERED REAMERS

Hozan Tapered Reamer, 3 mm., 14 mm. 11/-

## SAKURA CIRCUIT TESTER

Model TR65  
 Sensitivity: d.c. 20,000 ohms/volt, a.c. 10,000 ohms/volt. Ranges, d.c. volts: 6, 30, 120, 600, 1,200; a.c. volts: 6, 30, 120, 600, 1,200. D.c. current, 60  $\mu$ A., 6 mA., 60 mA., 600 mA. Resistance: 10K, 100K, 1M, 10M ohms. Capacitance: 0.001-0.2  $\mu$ F., 0.0001-0.01  $\mu$ F. Inductance: 30-3,000H. Decibels: minus 20 to plus 17 db. 40 db. 0.775v. 600 ohms. Dimensions: 4 $\frac{1}{2}$  x 6 $\frac{1}{2}$  x 2 $\frac{3}{4}$  in. Weight 1.3 lbs.  
 Price £8/10/0

LOG BOOKS 6/6 each, postage 1/-  
 CALL BOOKS. 6/- each, postage 1/-

## SOLDERING IRONS

"SCOPE" 6-second Soldering Iron, recommended work, voltage: 4v., a.c./d.c. (100w.) 45/-  
 "SCOPE" de luxe model, as above, with stainless steel barrel, in plastic pouch 50/-  
 "MINISCOPE" Soldering Iron (uses standard transformer), in plastic pouch 45/-  
 TRANSFORMER suitable for Scope or Birko Soldering Irons, 230v. to 3.3v. 50/-  
 "BIRKO" 6-second Soldering Iron, 4 to 6v., a.c./d.c., in plastic pouch 39/6  
 Or with transformer £4/4/0

## SPEAKERS

WELL KNOWN MAKE BRAND NEW, BANKRUPT STOCK  
 2 in. 15 ohm 30/6 5 in. x 7 in. 15-3.5 17/6  
 3 in. 15-3.5 35/6 8 in. 15-3.5 52/6  
 4 in. 15-3.5 35/6 9 in. x 6 in. 15-3.5 55/6  
 5 in. 15-3.5 40/- 12 in. 15-3.5 82/6  
 6 in. 15-3.5 45/-

## TWIN CONE SPEAKERS

5 in. Twin Cone 4w. 15 ohm 45/-  
 8 in. Twin Cone 10w. 15 ohm 75/6  
 12 in. Twin Cone 10w. 15 ohm 100/-

## CORDOVER SOLID STATE MODULES

20 different types, i.e. amplifiers, electronic siren, burglar alarm, intercom, module, guitar, amplifier module, phonograph amplifier module, wireless microphone module, and many others. Dimensions: 1 $\frac{3}{4}$  x 1 $\frac{1}{2}$  x 1 inch.

Price approx. £4 per unit  
 Send stamped, addressed envelope for more details.

## MULTIMETERS

CENTRAL CT500 Multimeter, 20,000 o.p.v. d.c. £6/15/0  
 CENTRAL CT330 Multimeter, 20,000 o.p.v. d.c. £8  
 SANSEL SE550 Multimeters, 100,000 o.p.v. d.c. £12  
 Multimeter Probes 6/-  
 290H Movement 57/6  
 Meter Rectifiers 10/-

## SPECIALS

Sato Subminiature Bezels, 6-8 volt, No. 3280 complete with globe, Red or Black 4/-  
 RESIN CORE SOLDER, 16 gauge.  
 40/60, 1 lb. packet 18/-  
 60/40, 1 lb. packet 22/-  
 Mixed Bag of NEW Resistors, Condensers, Potentiometers, 30 Popular Types.  
 S1 or 10/- a bag.  
 Mixed Bag of 20 NEW Polyester and Styrofoam Capacitors, All Popular Types.  
 S1 or 10/- a bag.  
 Mixed Bag of 20 NEW Polyester, Paper, Mica, Ceramic and Plastic Condensers, All Popular Types.  
 S1 or 10/- a bag.  
 1 Henry choke for Mullard Tachometer 22/6  
 Crystal Ear piece for Transistor Radio 4/6  
 Crystal Lapel Microphone 12/6

## WALKIE TALKIES

9 Transistor 100 mW. output Citizens Band, 27,240 Mc. Fully transistorised Walkie Talkies. Individual speaker and microphone. Dimensions: 7 $\frac{1}{2}$  x 2 $\frac{3}{4}$  x 2 in. Complete with Batteries, earphone and leather carrying case.  
 £39/10/0  
 Inc. tax, plus freight.

## ROTARY SWITCHES

3 pole, 3 position, 10/-; 4 pole, 3 position, 10/-;  
 2 pole, 6 position, 10/-; 1 pole, 12 position, 10/-

## RECORDING TAPES

WELL-KNOWN MAKE BRAND NEW IN CARTONS  
 150 ft. on 3 in. reel (Acetate Base) 6/-  
 225 ft. on 3 in. reel (Acetate Base) 7/0  
 360 ft. on 3 in. reel (Tensilised Mylar) 12/-  
 500 ft. on 3 in. reel (Tensilised Mylar) 16/-  
 600 ft. on 3 $\frac{1}{2}$  in. reel (Tensilised Mylar) 17/6  
 900 ft. on 5 in. reel (Acetate Base) 19/6  
 900 ft. on 5 in. reel (Mylar Base) 22/6  
 1200 ft. on 5 in. reel (Mylar Base) 25/-  
 1800 ft. on 5 in. reel (Tensilised Mylar) 52/6  
 1200 ft. on 5 $\frac{1}{2}$  in. reel (Mylar Base) 35/-  
 1800 ft. on 5 $\frac{1}{2}$  in. reel (Tensilised Mylar) 52/6  
 1200 ft. on 7 in. reel (Acetate Base) 25/-  
 1200 ft. on 7 in. reel (Mylar Base) 30/-  
 1800 ft. on 7 in. reel (Acetate Base) 35/-  
 1500 ft. on 7 in. reel (Mylar Base) 39/-  
 2000 ft. on 7 in. reel (Mylar Base) 42/6  
 2400 ft. on 7 in. reel (Mylar Base) 52/6  
 3000 ft. on 7 in. reel (Tensilised Mylar) 55/-  
 3600 ft. on 7 in. reel (Tensilised Mylar) 92/6

## EMPTY TAPE REELS

3 in., 2/6; 3 $\frac{1}{2}$  in., 3/3; 4 in., 3/6; 5 in., 3/-  
 5 $\frac{1}{2}$  in., 5/-; 7 in., 5/-  
 OR in Plastic Storage Box 12/-  
 TAPE SPLICERS, Complete with Splicing Tape and instructions 5/-

## TRANSISTORS AND DIODES

OC44 16/- OA79 4/6  
 OC45 16/- OA80 3/6  
 OC70 12/6 OA90 3/6  
 OC71 7/6, 3 at £1 OA91 3/6  
 OC72 16/- OA210 1N1763 8/6  
 OC74 12/6 OA211 S10AR2 17/6  
 OC75 12/6 ZENER  
 OC170 16/- OAZ224 BZZ16 25/6  
 OC171 16/- OAZ222 BZZ14 25/6

## ADEL NIBBLING TOOL

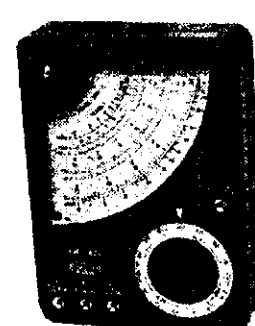
Designed to cut round or square holes in sheet metal, with instructions 75/-

## HI FIRE TRANSISTORISED IGNITION SYSTEM

6 OR 12 VOLT  
 POSITIVE EARTH £26  
 NEGATIVE EARTH £23

## MULTIMETER Model 200H

20,000 ohms per v. d.c. 10,000 ohms per v. a.c.



Specifications:  
 D.c. volts: 0-5, 25, 50, 250, 500, 2,500.  
 A.c. volts: 0-10, 50, 100, 500, 1,000.  
 D.c. current: 0-50  $\mu$ A.; 25, 250 mA.  
 Resistance: 0-60K ohms; 0-6 meg.  
 Capacity: 0.01-0.3  $\mu$ F. (at a.c. 5v.); 0.0001-0.01  $\mu$ F. (at a.c. 250v.).  
 Decibel: minus 20 db. plus 22 db.  
 Output range 0-10, 50, 100, 500, and 1,000.  
 Battery used: UM3 1.5v. 1 piece.  
 Dimensions: 3 $\frac{1}{2}$  x 4 $\frac{1}{2}$  x 1-1/8 in.

Complete with internal battery, testing leads and prods.

Price £5/12/6 inc. tax.  
 Packing and Postage 3/6

# HAM RADIO SUPPLIERS

5A MELVILLE STREET, HAWTHORN, VICTORIA Phone 86-6465

North Balwyn tram passes corner.

Money Orders and Postal Notes payable North Hawthorn P.O.

We sell and recommend Leader Test Equipment, Pioneer Stereo Equipment and Speakers, Hitachi Radio Valves and Transistor Radios, Kew Brand Meters, A. & R. Transformers and Transistor Power Supplies, Ducon Condensers, Welwyn Resistors, etc.

# "AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA. FOUNDED 1910.

JANUARY 1966

Vol. 34, No. 1

**Editor:**

K. M. COCKING ..... VK3ZFQ

**Assistant Editor:**

K. E. Pincott ..... VK3AFJ

**Publications Committee:**

G. W. Baty (Secretary) ..... VK3AOM  
 A. W. Chandler (Circulation) ..... VK3LC  
 S. T. Clark ..... VK3ASC  
 E. C. Manifold ..... VK3EM  
 W. E. J. Roper ..... VK3ARZ

**Draughtsmen:—**

Ken Gillespie ..... VK3GK  
 Clem Allen ..... VK3ZIV  
 Ian Smith ..... 36 Green St., Noble Park

**Advertising Enquiries:**

C/o. P.O. Box 36, East Melbourne, C.2, Vic.  
 or  
 Mrs. BELLAIRS, Phone 41-3535, 478 Victoria  
 Parade, East Melbourne, C.2, Victoria. Hours  
 10 a.m. to 3 p.m. only.

**Publishers:**

VICTORIAN DIVISION W.I.A.,  
 Reg. Office: 85a Franklin St., Melbourne, Vic.

**Printers:**

"RICHMOND CHRONICLE," Phone 42-2419,  
 Shakespeare St., Richmond, E.1. Vic.



All matters pertaining to "A.R." other than subscriptions, should be addressed to:

THE EDITOR,  
 "AMATEUR RADIO,"  
 P.O. BOX 36,  
 EAST MELBOURNE, C.2, VIC.

Acknowledgments will be sent following the Committee meeting on the second Monday of each month. All Sub-Editors should forward their articles to reach "A.R." before the 8th of each month. Any item received after the Committee meeting will be held over until the next month. Publication of any item is dependent upon space availability, but in general about two months may elapse before a technical article is published after consideration by the Publications Committee.



Members of the W.I.A. should refer all enquiries regarding delivery of "A.R." direct to their Divisional Secretary and not to "A.R." direct. Non members of the W.I.A. should write to the Victorian Division, C/o. P.O. Box 36, East Melbourne. Two months' notice is required before a change of mailing address can be effected. Readers should note that any change in the address of their transmitting station must, by P.M.G. regulation, be notified to the P.M.G. in the State of residence, in addition "A.R." should also be notified. A convenient form is provided in the "Call Book".



Direct subscription rate is 30/- a year, post paid, in advance. Issued monthly on the first of the month, January edition excepted.



AND BEST WISHES  
 FOR  
 CHRISTMAS  
 AND  
 THE NEW YEAR

## CONTENTS

A Band - Switched All - Triode Converter .....	3	Australian V.h.f. Century Club Award .....	11
Single Package Transmitter for 160 and 2 Metres .....	4	Australian D.X.C.C. Countries List .....	12
More About Morse .....	7	Correspondence .....	15
Hints and Kinks; Protective Cover for SO239 Connector .....	8	SWL .....	15
New Call Signs .....	8	Sideband .....	17
Publications Committee Reports ..	8	DX .....	18
A Self Powered C.w. Monitor ....	9	VHF .....	19
Australian DX Century Club Award .....	11	Youth Radio Scheme .....	19
		Federal and Divisional Monthly News Reports .....	20

SITUATIONS VACANT

## ULTRA-MINIATURISATION

We are seeking two young men with a keen interest in Solid-state Electronics to train in Hearing Aid Servicing

EXCELLENT CONDITIONS

GOOD FUTURE

Apply to the Manager: HEARING SERVICE,  
6th FLOOR, BOURKE ST.  
Phone 661-3934

MYER (MELBOURNE) LIMITED

## SIDEBAND ELECTRONICS ENGINEERING

P.O. BOX 23, SPRINGWOOD, N.S.W.

Phone 51-1394

The latest models GALAXY V. and SWAN SW-350 Mark III. all-band S.S.B. TRANSCEIVERS, £300, including heavy-duty 240v. a.c. supply/speaker unit in matching cabinet. 12 volt d.c. Mobile Power Supplies, £45 to £55.

All-band Webster Bandspanner Mobile Whips, incl. bumper or body mounting assembly, £24.

The following HY-GAIN ANTENNAE in stock or sailing:—

4-band 10-40 mx trapped vertical, 14AVQ, £22, 20 ft. tall, no guys.

5-band 10-80 mx trapped vertical, 18AVQ, £35, 33 ft. tall, must be guyed.

3-band 10-20 mx 3-element Yagi, TH3JR, £48.

3-band 10-20 mx 3-el. senior Yagi TH3 Mk. 2, £70.

Other types of Hy-Gain Beams on special order: 2-band 20-40 mx Yagi, DB24A, £120. 3-band 10-20 mx 6-element Yagi, TH6DX, £100.

Antenna Rotators, C-D Ham-M, senior model, £85. Alliance U-98, see recent "QST" ads., £27/10/0.

Five-position Co-axial Switches, with six Amphenol SO239 sockets, £4/10/0.

Autronic Automatic Keyers, fully transistorised, no relays, £35.

Crystals, 8 and 9 Mc., 15/-. Jackson Bros. Vernier Dials and Vernier Assemblies, perfect to add 1:6 vernier on any ¼" shaft, see applications in recent "QST" articles, with 2" knob and mounting ring, 22/-. Air trimmers with extension shafts, combination S.W.R. power output meters, SO239 and PL259 co-ax. connectors, mobile whip mounting brackets and units.

Perfect used Collins 12v. d.c. mobile supply and KWM-2 mounting bracket, £75. Collins noise blander, £25.



# A BAND-SWITCHED ALL-TRIODE CONVERTER

GREG. JOHNSTON,\* B.Sc.

HAVING always been somewhat of a "fiddler," and since my s.w.l. status does not allow me to fiddle effectively with other than receivers and receiver techniques, it is not surprising that we finally got to the stage of bread-boarding a receiver front end embodying circuitry which was once the acme of v.h.f. receiver technique in circuitry. It is stressed right from the start that my shack does not contain an abundance of test equipment in the form of noise generators and other such sophisticated pieces which makes the results obtained with the final article described very surprising (to me anyway!).

As the circuit will show, the r.f. stage finally settled on by trial and error is a 6ES8 non-neutralised series cascode<sup>1</sup> coupled into a second twin triode, this time a 12AT7, as a "Like New Mixer,"<sup>2</sup> while r.f. for conversion to the 3.5 Mc. i.f. is obtained from a 6C4 overtone crystal oscillator.

It is realised that the series cascode circuit has little advantage over a good pentode r.f. stage up to about 30 Mc. in terms of signal to noise ratio, however it is certainly less critical to adjust and is also less susceptible to cross modulation—a most important characteristic around my Amateur saturated QTH. In fact the 6ES8 offers a significant amount of extra usable gain when strong local signals would ride in on a pentode.

A neutralising coil between pins 1 and 8 may provide an instrument-detectable improvement in signal to noise ratio but is not used in my own case. A.v.c. can easily be applied to the first triode section if desired; it introduced no "bugs" here when applied. The circuit changes required are very minor and they may be useful in some situations. However, the author has found that without a.v.c. only the strongest of local s.s.b. stations will block the converter—the i.f. a.v.c. handles the situation adequately in other cases.

Moving on to the mixer stage, the 12AT7 forms the real heart of this particular converter—the authors of reference 2 make many claims on its behalf—in this case just for a change they were so well based that even this author was able to verify them in practice after some initial troubles with excessive oscillator voltage which did produce many spurious responses. It was also found that even higher oscillator voltages led to complete blocking. Two points well worth watching.

The really notable operative feature of this circuit though is summed up by this quote from the reference article: "Its noise figure is so low that mixer noise simply disappears even with three i.f. stages following. The result is almost complete silence between stations, leading one to believe at first

that the circuit is a dud. Then, though, a fading long-hop signal will come through, moving almost instantly out of the no-signal region into clear audibility . . ." As with the r.f. stage, this circuit is not prone to cross-modulation in all but the most severe of cases, while its cathode follower output is very overload-tolerant so that mixer distortion does not appear.

During the course of fiddling, many varieties of oscillator circuits have been tested, but basically due to lack of a good dial drive a crystal locked overtone circuit was finally employed.<sup>3</sup>

The high impedance converter output is taken off in the 3.5 Mc. range and fed to the tunable i.f. via a yard long co-ax. cable.

The coil data shown was drawn from reference 3 to standardise the coil former size—my own coils are wound on a variety of formers which were to hand. It will probably be found that the VK2JZ data for mixer coils will result in resonance slightly higher than the desired frequency due to the very low input capacity of the 12AT7. Treatment here is symptomatic—add a few extra turns and prune to the desired frequency.

Having gone this far, the results of a few empirical (i.e. no instrument) tests may be of interest. A most effective test of sensitivity was made by tuning the converter to 28 Mc., removing the antenna and replacing it with a 75 ohm resistor (i.e. equal to feed-line impedance), then rocking the slug of the r.f. stage through resonance with the result that the noise peaked as the slug resonated the r.f. coil. If you reckon your own receiver is sensitive on 10 mx, then try this test—it may be enlightening.

At this stage, having demonstrated to my own satisfaction at least, the very adequate sensitivity of the converter, an equally savage on-air test

of signal to noise ratio was arranged. The trial horse was a first class AR88 (not mine) which was tuned to a 40 mx signal—the converter was tuned to the same signal per a tunable oscillator it then sported. Even the owner of the AR88 freely admitted the superiority of the converter combination noise-wise—enough said.

A possible oscillator arrangement which, with adequate construction, care and compensation, would appeal to many would be to use a fixed i.f. of 3.5 Mc. and an oscillator range of 10.5-10.85 Mc. to tune 7.0-7.35 and 14.0-14.35 Mc., and 24.5-25.0 Mc. to tune 21.0-21.5 and 28.0-28.5 Mc. with appropriate r.f. and mixer coil switching. This idea was briefly employed initially but discarded for the reasons stated earlier.

In summary, it looks as though my urge to fiddle will be directed other than towards a new converter for some time hence. Meanwhile, I can sit back and read those S2 or S3 signals on 20 and 15 metres. Can you?

## COIL DATA

All coils are wound on 7/16 inch diameter slug-tuned formers, with the r.f. primary (L1) spaced 1/16 inch from the secondary (L2).

7 Mc.:	L1— 7 turns, 32 B. & S.
	L2—55 " " " "
	L3—65 " " " "
	L4—35 " " " "
14 Mc.:	L1— 4 turns, 32 B. & S.
	L2—24 " " " "
	L3—24 " " " "
	L4—38 " " " "
21 Mc.:	L1— 4 turns, 32 B. & S.
	L2—15 " " 22 " "
	L3—15 " " " "
	L4—18 " " 32 " "
28 Mc.:	L1— 4 turns, 32 B. & S.
	L2—10 " " 22 " "
	L3—10 " " " "
	L4—13 " " 32 " "

## CIRCUIT NOTES

AVC1—Only needed with a.v.c. connected, otherwise L2 goes direct to pin 2.

XTAL2—Crystal Frequencies:

	Fund.	Mult.
40 mx:	5250 kc.	x 2
20 mx:	5250 kc.	x 2
15 mx:	5833 kc.	x 3
10 mx:	8166 kc.	x 3

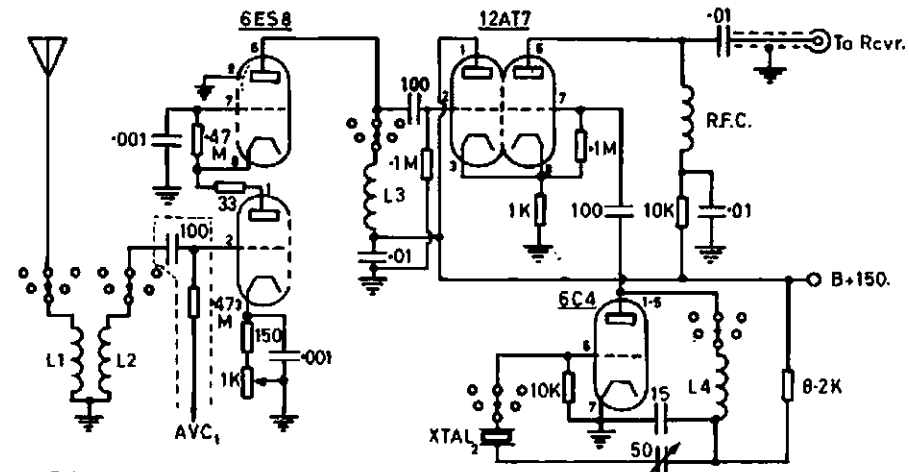


FIG. 1.

\* 3 Inglis Street, Newtown, Hobart, Tasmania.

<sup>1</sup> Parsons, Warwick W., "The S-9'er Mark II."

"Amateur Radio," November 1959, p. 7.

<sup>2</sup> Reprint from "73" Magazine, "Amateur Radio," June 1962, p. 4-5.

# Single Package Transmitter for 160 and 2 Metres\*

Developed by D. W. FURBY, G3EOH

THE design of the dual band transmitter to be described takes full advantage of the newly introduced power pentode type 7558. This valve, with an anode dissipation of 10 watts up to a maximum frequency of 175 Mc., may, from an Amateur point of view, be considered as an improved version of the popular 5763.

By an ingenious arrangement of the tuned circuits, no actual switching of the tuned circuits takes place when changing bands. As a result, not only is the efficiency of the various stages improved, especially at v.h.f., but in addition, construction is simplified.

The transmitter will run an input of 15 watts on 2 mx, but on 160 mx the input to the p.a. is restricted to 10 watts to meet the official power limitation in England.

Only the r.f. assembly is dealt with here since there are many published circuits of suitable modulators. An output of 8 watts will be adequate to modulate the carrier fully on 2 mx and have plenty of power in reserve for 160 mx.

## CIRCUIT

Prior to examining the circuit (Fig. 1) in detail, it may be as well to review the functions of the individual valves in relation to the final frequencies. When operating on 1.8 Mc., V1 is not used, V2 functions as a Clapp variable frequency oscillator, V3 as a buffer amplifier, and V4 as the p.a. When operating on 144 Mc., V1 becomes a Colpitts crystal oscillator, V2 a frequency tripler, V3 a frequency doubler; V4 is of course the p.a.

As already mentioned, V1 only comes into operation when the transmitter is set for 144 Mc. The valve, a 6BW7, is

used in a familiar Colpitts configuration in which the crystal oscillates on its fundamental frequency in the grid/cathode circuit with the screen grid forming the "anode" by-passed to r.f. The true anode of the valve is tuned to one of the harmonics of the crystal, in this case the third, which, with an 8 Mc. crystal, provides drive to the following stage at 24 Mc.

It will be noted that the cathode of V1 is returned to the centre of a capacity divider between grid and earth, the values of which depart from those usually associated with this circuit. In addition, the d.c. return of the cathode of the valve is via a resistor which replaces the r.f. choke normally fitted.

Experience with this type of oscillator used to drive v.h.f. transmitters is that it has a natural tendency to make the final frequency lower than that which would be expected from the simple arithmetic of multiplying the crystal frequency by the frequency multiplication factor. In practice this means that the parallel capacity across the crystal, whether intentional or stray, must be kept well within the normal 30 pF. limit.

The foregoing observations are pertinent to this design since the effective capacity across the crystal given by C1 and C2 in series amounts to 60 pF. This will be further increased by circuit stray capacities. The effect will be to cause the final frequency to be substantially lower than that expected from simple calculations. If specific final frequencies are required, crystals will have to be ordered to operate with a parallel capacity of 70 pF. Alternatively, C1 should be reduced to the usual value of 30 pF. and C2 to 100 pF. If the circuit then fails to oscillate with a resistive cathode load, R2 will have to be replaced with an r.f. choke.

The output from V1 is, for 144 Mc. operation, coupled via S1 to V2. The entire bandchanging operation is accomplished by S1, no other switching being required.

When V2 is operating as a tripler, drive is applied to its grid via S1. It should be noted that the grid leak, R3, is not returned to earth in the usual manner, but is connected to the cathode of V2, and that the resistor in the cathode of V2 (R4) is not a bias resistor, but is associated with the function of this valve when it operates as a Clapp v.f.o. on 1.8 Mc. This resistor, R4, does not have any degenerative effect when the valve operates as a multiplier since it is by-passed by C10 which forms part of the capacity divider of the v.f.o. circuit. Since R4 contributes no bias voltage to the valve, all the bias for the tripling operation is developed by the grid current through R3. If the drive fails, therefore, there could be a danger of the anode current of V2 running up to destruction levels. Since R4 in the cathode circuit is fairly large in value, the consequent voltage drop across this resistor under such conditions would automatically reduce the h.t. appearing across the valve and so limit the current. Nevertheless, V2 should not be operated without drive when switched to the 144 Mc. position.

The anode circuit of V2 when operating as a frequency multiplier is tuned to 72 Mc. The tuned circuit is unusual in that it is a pi-coupler, the shunt capacities of which are the output capacity of V2, and the input capacity of V3. Since the coil is resonated by these two capacities in series, the net capacity will be very small. This permits the use of a relatively large inductance, which, in itself, achieves broadband coverage so dispensing with the need for direct tuning. At this

\* Reprinted from R.S.G.B. "Bulletin," Sept. '65.

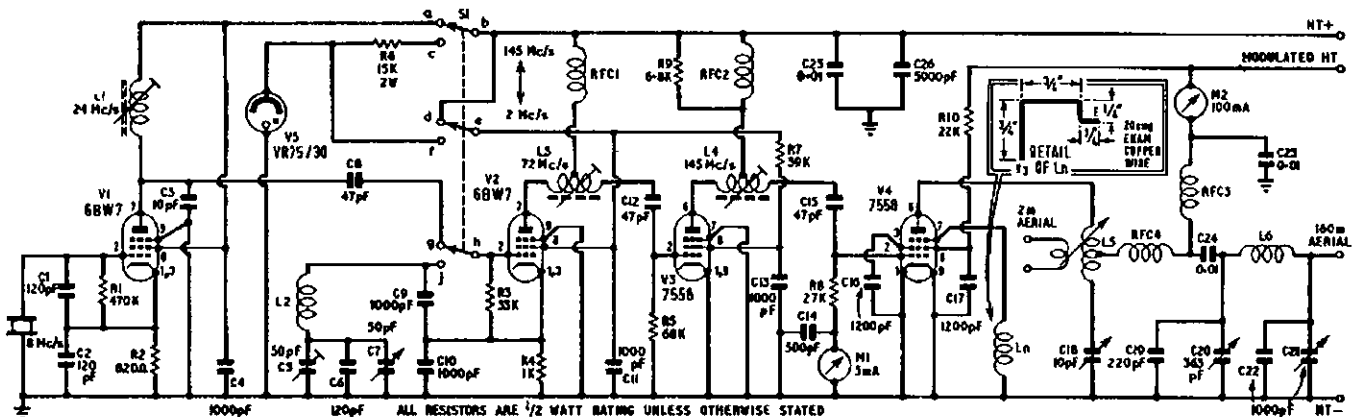


Fig. 1.—The circuit of the transmitter for operation on 160 and 2 metres.

- L1—16 turns, 26 s.w.g. enamel, wound on Aladdin former 5861, with dust iron core.
- L2—85 turns, 38 s.w.g. enamel, close wound on ½ in. former.
- L3—21 turns tapped 10 turns from anode end, 26 s.w.g. enamel, wound on Aladdin former 5861, with brass core.

- L4—6½ turns, tapped 3½ turns from anode end, 20 s.w.g. enamel, wound on Aladdin former 5861, with brass core.
- L5—5 turns, tapped 2½ turns from anode end, 20 s.w.g. enamel, ½ in. diam., ½ in. long, self supporting.

- L6—36 turns, 18 s.w.g. enamel, 1½ in. diam., 2 in. long.
- RFC1, RFC2—220 mH., Cambion type 2082-10.
- RFC3—2.5 mH.
- RFC4—40 turns, 30 s.w.g. e.s.s., wound on Aladdin former 5861, no core.

juncture it should be particularly noted that this coil L3 has a point of zero r.f. potential—nominally the physical centre of the coil—and use is made of this as will be seen.

When the transmitter is switched for Top Band operation, S1 converts V2 into a Clapp variable frequency oscillator by connecting the grid to the tuned circuit, L2, C5, C6, C7, and the capacity divider C9, C10. In addition, the voltage regulator V5 is switched into circuit, and the screen supply for V2 connected to this instead of directly to the h.t. line. This stabilises the operation of the v.f.o. and reduces the effect of variations in h.t. on the operation of the oscillator.

Mention has been made of the point of zero r.f. potential on L3. It is at this point that the h.t. is fed to V2 when it operates as a frequency multiplier, and the same point to which the load for the output of the v.f.o. is connected. The output load for the v.f.o. is RFC1. To the output frequencies of the v.f.o. L3 is just another piece of wire, and it has no effect upon the operation of the circuit. Thus the coupling capacitor C12 is effective for both frequencies.

V3 operates either as a frequency doubler, or as an untuned buffer.

For 144 Mc. operation, the output of V2 is coupled to V3 by a pi-network and C12, and V3 operates as a frequency doubler from 72 Mc. to 144 Mc. Like V2, V3 relies on grid current through its grid leak, R5, to give it the correct operating bias. The anode circuit of V3 consists of another pi-network similar to that in the anode of V2 except that it is tuned to 144 Mc.

When switched to Top Band operation, the screen grid of V3, which now operates as an untuned buffer amplifier, is connected to the stabilised supply instead of directly to the main h.t. Its output is thus reduced. Even with this procedure, the drive to the p.a. is still too high, and so a damping resistor is fitted across the r.f. choke anode load RFC2.

The p.a., V4, follows the practices established in the preceding stages. Grid current through the grid leak R8 provides the correct operating condition and a pi-network is used for the v.h.f. output, while the output circuit for Top Band is connected to the point of zero r.f. potential on this pi-network.

#### NOTES ON P.A.

There are one or two points which require special note in relation to the p.a.

First, since the valve is operated as a straight amplifier at v.h.f., it will require neutralising. In this circuit suppressor grid neutralisation is employed. This simply consists of an inductance connected in the suppressor earth return lead, and is shown in Fig. 1. While it would be possible to employ capacity neutralisation from the top of C18 back to the grid, the method shown is far easier to adjust and is more stable over a wider range of frequencies.

It must be particularly noted that two decoupling points are used on the screen grid of the p.a. valve. It is essential, if degeneration is to be avoided, that the screen grid has a low r.f. impedance to earth. To assist in

this, both of the pins of the valve to which the screen grid is connected are by-passed individually.

The v.h.f. tank circuit is a pi-network tuned in this case at its "far end" by a 10 pF. variable capacitor C18. To this coil is fitted a variable link from which the 144 Mc. output is taken.

To the centre of the v.h.f. pi-network is connected a v.h.f. choke, RFC4. Note that the point to which this choke is connected to the coil is not by-passed. This is correct and not an omission. It is bad practice to by-pass this point in any v.h.f. tank circuit, and in this case it would be disastrous, as it would "drain off" the Top Band output.

The Top Band output circuit is a familiar pi-network connected to the centre of the v.h.f. tank circuit via the blocking capacitor C24 and the v.h.f. choke RFC4.

Metering in the transmitter is limited to measuring the p.a. grid and anode currents, and this is quite adequate. Indeed, a single meter could be used suitably shunted and switched.

#### HEATER WIRING

The power rating and power requirements of this transmitter make it particularly suitable for mobile operation, in addition to fixed station usage. For this reason, heater wiring is not shown. When operated on 6.3v., the heaters of the valves should all be in parallel.

When operated from a 12v. nominal source, such as a car battery, V1 and

V2 should be wired in series, with pin 4 of V1 earthed, and pin 5 of V2 connected to the 12v. supply. Similarly, V3 and V4 should be wired in series with pin 5 of V4 earthed, and pin 4 of V3 to the supply. Pin 4 of V4 should be decoupled with a 5,000 pF. capacitor using very short leads. The two live leads from V2 and V4 are terminated on a 1,000 pF. feed-through capacitor, the far side of which provides an anchor point for the incoming heater supply.

#### CONSTRUCTION

The transmitter is laid out on a chassis measuring 12" x 8" x 2 1/4" deep. In view of the difficulty of obtaining satisfactory earth connections to aluminium, this material should be avoided. Tinned steel or cadmium plated steel is far more satisfactory, or even sheet brass if one does not mind the somewhat higher cost. In actual fact the size of the chassis specified is quite a bit larger than that needed for just the r.f. section, and sufficient room has been allowed to accommodate both a modulator and power supply.

Fig. 2(a) shows the drilling layout of the chassis, while Fig. 2(b) details the panel layout and the two screens needed in the construction shown in Fig. 2(c). It should be noted that these diagrams do not make provision for power supply or modulator components.

All components associated with the operation of the transmitter on 144 Mc. should have leads as short as possible. The position of components associated with operation on 1.8 Mc. is, on the other hand, relatively unimportant.

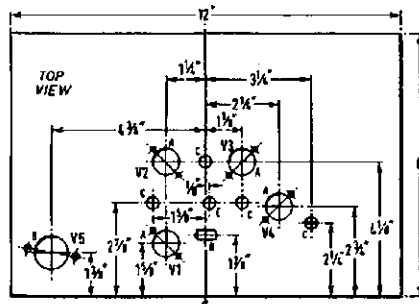


Fig. 2(a).—Top view of chassis plate.

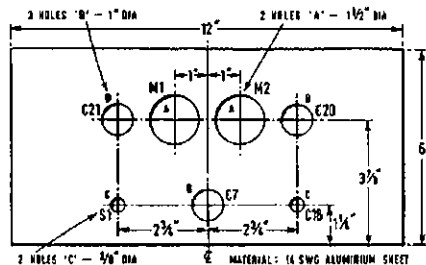


Fig. 2(b).—Front panel. The two holes M1 and M2 were cut for use with Shinohara meters, which are 1 1/2 in. diameter.

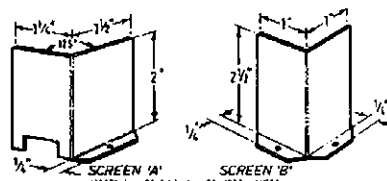


Fig. 2(c).—Screens A and B.

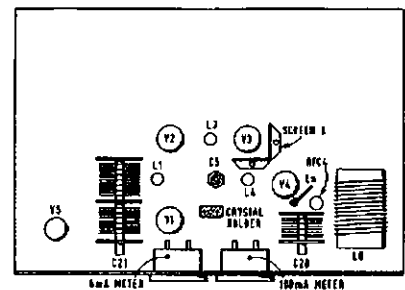


Fig. 3.—Layout of the principal components above the chassis.

In view of the comprehensive nature of the layout diagrams, Fig. 3, which shows the positions of the components mounted on the top of the chassis, and Fig. 4, the layout of the underside of the chassis, a wire by wire commentary should not be required. However, in relation to these two diagrams, it should be noted that not every single wire is shown, and when wires not illustrated are fitted, they should be routed according to the remarks made in the preceding paragraph.

#### TUNING PROCEDURE

Since self-bias is used throughout this transmitter, the unit must be tuned stage by stage. Apart from an absorption wavemeter to verify the frequency to which the respective stages are tuned, the most convenient method of ensuring correct tuning is by measuring the grid current to the succeeding stage. To assist in this, the earthy ends

(Continued on Page 8)

# JOYSTICK

## VARIABLE FREQUENCY ANTENNA 1.5-30 Mc.

The world's most versatile and compact h.f. band antenna for transmission and reception. More than 4,000 stations throughout the world are equipped with the Joystick and associated A.T.U. Testimonials pour in, takes a kilowatt and favours the DX. Overall length 7 feet 6 inches.

### ORDER NOW!

Joystick Antenna, standard make (aluminium elements) .....	£7/7/0
Joystick Antenna, de luxe make (all copper elements) .....	£9/9/0
Joymatch A.T.U. Type 2 for receive only on b.c. bands .....	£5/15/0
Joymatch A.T.U. Type 3 for receive and transmit (low power and mobile) .....	£3/15/0
Joymatch A.T.U. Type 5 for transmit only (rated 150 watts) .....	£2/10/0
Mobile Mounting Kit (converts existing Joystick for mobile mounting) .....	£3/13/0
RF40 Field Strength Meter (magnetic base, 1-250 Mc. coverage) .....	£6/19/6

Send for descriptive literature and testimonials, including the outstanding performance of the Joystick used by ZLAGA who W.A.C. in one day and QSO'ed G5WP and VE7BY on 3.5 Mc. W7OE says the Joystick equals half-wave dipoles and similar conventional antennae on 160, 80 and 40 and has proven superior to them in the 15 and 20 metre bands.

**PENNANT IMPORTS (ELECTRONICS) CO.**

P.O. BOX 177, ASHFIELD, N.S.W.

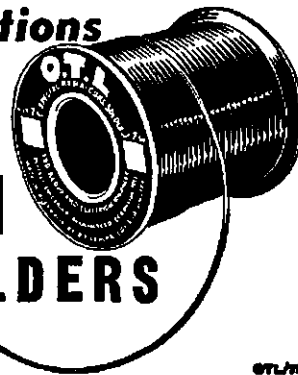
**For Reliable Connections**

# OTL

## RESIN CORE SOLDERS

**O. T. LEMPRIERE & CO. LIMITED**

Head Office: 27-41 Bowden Street, Alexandria, N.S.W.  
and at Melbourne • Brisbane • Adelaide • Perth.



OTL/28

## DURALUMIN, ALUMINIUM ALLOY TUBING

IDEAL FOR BEAM AERIALS AND T.V.

★ LIGHT      ★ STRONG      ★ NON-CORROSIVE

STOCKS NOW AVAILABLE FOR IMMEDIATE DELIVERY

ALL DIAMETERS— $\frac{1}{4}$ " TO 3"

Price List on Request

STOCKISTS OF SHEETS—ALL SIZES AND GAUGES

### GUNNERSSEN ALLEN METALS PTY. LTD.

SALMON STREET,  
PORT MELBOURNE, VIC.

Phone: 64-3351 (10 lines)  
Telegrams: "Metals," Melb.



HANSON ROAD,  
WINGFIELD, S.A.

Phone: 45-6021 (4 lines)  
Telegrams: "Metals," Adel.

# LOW DRIFT CRYSTALS

FOR

## AMATEUR BANDS

ACCURACY 0.01% OF  
STATED FREQUENCY

3.5 and 7 Mc.

Unmounted, £2/10/0

Mounted, £3/0/0

12.5 and 14 Mc.  
Fundamental Crystals,  
"Low Drift"

Mounted only, £5.

THESE PRICES DO NOT  
INCLUDE SALES TAX

Spot Frequency Crystals  
Prices on Application.

Regrinds ..... £1/10/0

## MAXWELL HOWDEN

15 CLAREMONT CRES.,  
CANTERBURY, E.7,  
VICTORIA

THE NEW "A.R."

# LOG BOOK

IS NOW AVAILABLE

Larger, spiral-bound pages  
with more writing space.

Price 7/6 each  
including Postage

Obtainable from your Divisional  
Secretary, or W.I.A., P.O. Box 36,  
East Melbourne, C.2, Victoria.

# MORE ABOUT MORSE

KENNETH L. GILLESPIE,\* VK3GK

**A**NYONE can learn Morse. It needs only practice and the will to learn. It is a language of sounds like any other, but as the total number of these is in the order of forty plus, it is infinitely easier than French, German or—ugh—Latin.

Morse has been the greatest stumbling block ever to the full licence and looks like going on that way because of the difficulty in getting sufficient practice.

Practice is essential and the ideal is short periods, often, preferably several times a day, but at the very least, daily.

Apart from the good work done by the W.I.A. slow Morse sessions and a couple of individual Amateurs who transmit practice material, there does not seem to be much help about. Again the times of slow Morse transmissions may not always be convenient for many. There is a good W.I.A. tape service available but, then, not everyone has a tape machine so the would-be Morsee is left with trying to find something suitable on his receiver when he has a few moments to spare and usually ends up thoroughly disheartened because the commercials seem too fast.

There is no need to start running up the wall as there is one service that provides ideal learner practice, but you need to know where to find it and how to identify it when you hear it.

It is known as the Maritime Long Distance (H/F) Radio Telegraph Service and consists of bands of frequencies (most of them harmonically related) with a ship calling frequency, two small segments of ship working channels and a larger segment of coast station working frequencies. It is this latter we are interested in.

The service works like this. The coast stations and ships all listen to the calling frequency and when a ship wants to call a coast station he first listens to the station on its working frequency (which is always in use) and if he can hear it, calls on the calling frequency, and on establishing contact shifts to his own working frequency. For ship to ship they contact on the calling wave and shift to their respective working frequencies.

It is the "always in use" business of the coast station frequency that we want. The station, depending on the season and time of day, occupies several bands simultaneously sending nothing but CQ's (or V's) and their call sign over and over and over again. This not only keeps their channel clear, but if a ship can hear it he knows that he stands a good chance of being heard also. Now here we have plenty of practice material, all the figures and letters of the alphabet repeated for as many times as we care to listen. The list of frequency bands will show where to start looking for calls. When a signal is heard the beginner should wait until he can hear either a series of V's or

CQ's and then identify one letter at a time of the call and on each succeeding repetition listen to the original letter(s) and identify a further one.

Incidentally, coast stations have three-letter calls while ship stations have four. Coast stations often suffix their calls with one or more numerals to indicate the bands in use at that moment. A call may be sent as follows: CQ CQ CQ DE VIX/3/4/5 VIX-3/4/5 VIX3/4/5 or alternatively, VVV VVV VVV DE ZLW6/8/12 ZLW6/8/12 ZLW6/8/12.

One of the best all round bands is the 8 Mc. and without trying hard I have heard quite a few countries. The list of some stations and their frequencies is included to give some idea of where to find one with respect to another. In addition as recognition becomes easier, traffic lists make good practice material. Coast stations, at hourly intervals (as a rule) and staggered times, send lists of ships for which they have traffic. Each call sign is sent twice so that, for our purpose, we can check that what we have identified is correct.

While any nationality has traffic for all ships, it will naturally have most for its own and of the remainder, more will belong to the major mercantile fleets of the world. For instance, VIS (Sydney Radio) will have a lot of G's and M's of Great Britain, J's of Japan, but most will be VJ, VK, VL, VM of our own with a sprinkling of HO and HP, I, K, L, P, S and W with only isolated calls for other ships. With call signs, traffic lists and perserverence (i.e. small sessions frequently—and don't let it get you down so that you throw in the towel), confidence and speed will come easily and before long the tyro has actually learned the code. He will be able to take weather reports, news sessions and the like as easily as hearing someone speaking.

Come on you Z calls, get cracking, and I will see you on the d.c. bands sometime.

## COAST STATION WORKING

### FREQUENCY SEGMENTS

4238 to 4368 Kc.	12714 to 13130 Kc.
6357 to 6525 Kc.	16952 to 17290 Kc.
8476 to 8745 Kc.	22400 to 22650 Kc.

### THE COMPLETE 8 Mc. BAND

8265-8354 Kc.—Passenger ship working.  
8354-8374 Kc.—Calling band with 8364 as the calling and distress frequency.  
8374-8476 Kc.—Cargo ship working.  
8476-8745 Kc.—Coast station working.

For interest, with the exception of the 22 Mc. band, all calling frequencies are harmonically related, viz. 4182, 6273, 8364, 12546, 16728 and 22245 Kc.

## SOME COAST STATION FREQUENCIES (Kc.)

8478—VIX and VHP Sydney; OST4 Ostende.  
8482—DAN Norddeich; JCU.  
8486—WOE Lantana; DZR Manilla.  
8490—NPN Guam; IBQ.  
8495—PZN Paramaribo, Surinam.  
8498—SAG4 Gotenborg; NSS Washington.  
8502—IQX Trieste; XSG Shanghai.  
8510—IDR4 Rome.  
8511.5—DAL Norddeich.  
8514—WLS New York.  
8522—VIS26; FFL4 St. Lys., France; JOR.  
8526—WAX Ojus.  
8538—PJK3.  
8542—FUS.  
8546—GKN Portishead.  
8554—ZLB Awarua; CKN4 Vancouver.  
8557—SPE4 Szczecin (Stettin).  
8558—KFS San Francisco.  
8562—PCH2 Schenvenigen.  
8566—VPS Cape D'Aguilar (Hong Kong).  
8570—WNU Slidell.  
8574—LGB Bergen; HJU Buenaventura.  
8582—KLB Seattle; XSW Kaohsiung, T'ai-wan.  
8586—WCC Chatham.  
8590—KOK Los Angeles.  
8594—GYR Malta.  
8602—HEZ.  
8606—KSE Torrance.  
8610—WSC Tuckerton; DZE Manilla.  
8614—CKN Vancouver; GYC4 Whitehall.  
8618—KPH Bolinas.  
8630—GYS Singapore.  
8634—SPH4 Gdynia.  
8642—KPH Bolinas.  
8646—LPD86 Buenos Aires; DZG Manilla.  
8650—ICB Genoa.  
8654—PCH4 Schenvenigen; JCS Chosi.  
8658—WSL New York.  
8660—DHS Rugen.  
8662—VIS Sydney; CFH Halifax.  
8666—KLC Galveston.  
8670—IAR Rome.  
8674—FFP3 Fort De France, Martinique.  
8678—LFB Bergen; ZLP4 Wellington Naval Radio.  
8682—EAD3 Aranjuez, Spain.  
8686—JCT Chosi.  
8690—VRP Suva.  
8694—JZS3 Hollandia; PJC Curacao, Neth. Antilles.  
8698—FJP8 Noumea.  
8702—ZLW Wellington; NBA Balboa.  
8706—JOS Nagasaki.  
8714—KTK San Francisco; XSX Keelung, Formosa.  
8718—VPW Singapore.  
8726—OFJ Helsinki.  
8730—CUB Madeira.  
8742—HLP2 Pusan, Korea.

\* Post Office Box 5, Clayton, Vic.

## SINGLE PACKAGE XMITTER FOR 160 AND 2 METRES

(Continued from Page 5)

of the grid resistors of V2 and V3 should be temporarily disconnected.

Switch the transmitter for 144 Mc. operation and insert V1 and V2 into their sockets. Fit a suitable 8 Mc. xtal to the xtal socket. Switch on heater supply and apply h.t. to V1 only. With a meter set to its 2 mA. range, connected from the earthy end of R3 to the cathode of V2, adjust the core of L1 for maximum current indication on the meter. This should be about 1.2 mA. occurring when the core of L1 just starts to enter the winding.

Disconnect the h.t., re-connect R3 to the cathode of V2, and restore the h.t. supply connections to V2. Insert V3 and temporarily break the connections taking h.t. to the anode circuit and screen grid of this valve.

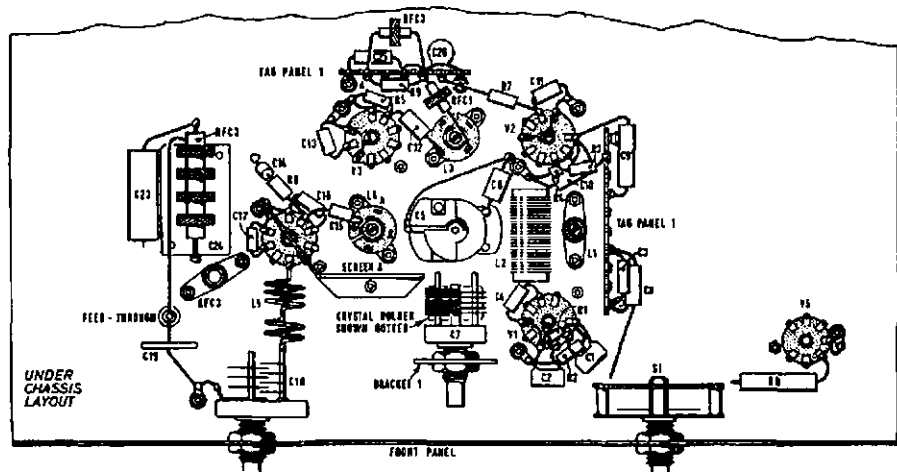


Fig. 4.—Positions of the sub-chassis components. Ample space is left for the inclusion of a simple modulator.

Connect the meter between the earthy end of R5 and chassis. Apply power to V1 and V2. Tune the brass slug of L3 for maximum grid current to V3. This should be of the order of 1 mA. Check that the frequency to which L3 is tuned is 72 Mc.

Remove the power, re-connect R5, and restore the h.t. supplies to V3. Insert V4 and disconnect the lead marked "modulated h.t." in Fig. 1 from the modulation transformer or the h.t. supply.

Apply power and tune L4 by means of the brass slug until maximum current is indicated on the grid current meter of V4. This should be about 0.2 mA. Check the frequency present in L4 by means of an absorption wavemeter.

Remove h.t. from the transmitter and restore the h.t. connection to the p.a. valve, V4.

Apply h.t. to the whole transmitter and rapidly tune C18 for maximum dip in the anode current to V4. Remove the h.t. Bring a wavemeter within reasonable distance of L5, apply power and quickly check that this circuit is tuned to 144 Mc.

With either an 80 ohm dummy load or a 144 Mc. aerial connected to the link winding of L5, adjust the position

of the link until the p.a. draws 60-65 mA. Check the dip in anode current by tuning C18 slightly as the link is swung into position. If C18 has to be varied considerably from its initial setting as the link is progressively coupled to the p.a. tank circuit, look for a mismatch in either the dummy load or the aerial. In this respect an s.w.r. bridge will be found a useful adjunct. Once the p.a. is loaded, re-adjust L4 for maximum grid drive to V4.

To set up the transmitter for 1.8 Mc. operation, the first adjustments relate to the v.f.o.

Switch off the power and set S1 for 1.8 Mc. operation. Apply power via the stabiliser to the v.f.o. only. Set C7 to minimum capacity. Adjust C5 until the oscillator frequency is precisely 2 Mc. Set C7 to maximum capacity. Check the lower frequency to which the v.f.o. has now tuned. This will be below 1.8 Mc. Reduce the in-

ductance of L2 by removing one turn at a time until the oscillator frequency is 1.8 Mc. Since removing turns from L2 will affect the highest frequency to which the v.f.o. will tune, after each adjustment to L2 check the highest frequency and adjust C5 so that this is 2 Mc. Repeat these adjustments in the order and manner given until the v.f.o. tunes 1.8-2 Mc.

Apply power to the driver stages, and the v.f.o. and check the grid current to the p.a. If the chokes specified have been fitted, then the 6.8K ohm resistor across RFC2 will produce a grid current of 2 mA. to the p.a. If other chokes have been substituted, the value for the resistor to be fitted at R9 will have to be found by trial and error.

No special comments are required on the Top Band pi-network output circuit which functions in the normal manner.

### CONCLUSION

As will be appreciated, this transmitter is of a very useful design in itself, but there would seem to be no reason why similar circuit configurations could not be successfully worked out for other powers and bands. The prime requirements are that the two frequencies involved should be fairly well divorced from each other.

## NEW CALL SIGNS

SEPTEMBER 1965

- VK2SS—T. Ivins, 63 Clarence St., Bankstown.  
 VK2VO—J. Summerhays, Russel St., Wollstonecraft.  
 VK2AAG—C. Churm, 23 Third Ave., Epping.  
 VK2AHG—M. J. Kelly, 61 Ewing St., Murwillumbah.  
 VK2ARJ—E. J. Robinson, 2/19 Cooper St., Paddington.  
 VK2AVS—I. K. Dunlop, 7 James St., Murwillumbah.  
 VK2AWK—W. R. Penberthy, 3 Lyla St., Beverly Hills.  
 VK2AYS/T—W. A. Wilson, 3/265 Victoria St., Taree.  
 VK2ZAX—L. A. Maschette, 22 Phillip Rd., Raymond Terrace.  
 VK2ZMM—R. C. Milton, 6 High St., Cabramatta.  
 VK2ZPO—C. L. Scally, 64 Grafton St., Woolahra.  
 VK2ZSA—P. A. Smith, 44 Raleigh Ave., Carlingbah.  
 VK3AGM—G. H. Loft, 38 Hopwood St., Echuca.  
 VK3ARO—M. W. G. Chalmers, 6 Gatehouse St., Parkville.  
 VK3ZPZ—L. A. Patterson, 33 Inkerman St., Maidstone.  
 VK3ZWR—P. W. Thorp, 128 Glen Iris Rd., Glen Iris.  
 VK4BD—A. B. Doran, 25 Telegraph Rd., Bald Hills.  
 VK4YS—Goondiwindl Scout Troop Radio Club, 33 McLean St., Goondiwindl.  
 VK5EL—A. G. Landers, 78 Grant Ave., Rose Park.  
 VK5EW—A. B. Foster, 10 Haldane St., Elizabeth Downs.  
 VK5QS—Radio Trade School, Meyer St., Torrensfield.  
 VK5XH—R. D. Hall, Snow's Rd., Stirling West.  
 VK5ZIR—R. W. Edwards, 4 Leonard St., Edwardstown.  
 VK6ZAJ—G. Drage, 249 Jersey St., Wembley.  
 VK6ZFA—M. J. Garth, Babbage Island Rd., Carnarvon.

## Publications Committee Reports That...

All inwards correspondence received after 3rd December, 1965, will be acknowledged in the February issue of "A.R." The fact that the January issue had an earlier copy date was overlooked by many readers.

The February issue of "A.R." will be mailed about mid February, hence you should not expect this particular issue at the beginning of the month. The various Notes will not appear in this issue due to the holiday period at our printers so readers should forward the next lot of notes by 5th February, 1966, for inclusion in the March issue of "A.R." The "Call Book" should be issued in February after a delay beyond our control.

Arrangements have been made to commence this issue with a new cover design which will mean that future issues of "A.R." will not feature a photo on the front cover. The saving in cost so achieved will permit the regular introduction of the Propagation Charts in the February issue of "A.R."

Have fun, take care and enjoy your holiday break. Accidents just don't happen, they occur through some oversight on your part, so don't become an accident statistic, remove yourself in time. Happy New Year to all from the Com. Pub., sorry, Pub. Com.

### HINTS AND KINKS

#### PROTECTIVE COVER FOR SO239 CONNECTOR

Many wine bottles are now sealed with a polythene stopper. These are a neat fit over the SO239 and will protect the projecting portion from damage.—VK3ASC.

Phone 34-6539, write or call

WILLIAM WILLIS & Co. Pty. Ltd.

428 Elizabeth St., Melbourne

for GELOSO  
Equipment and Components

# A SELF POWERED C.W. MONITOR\*

*or Look Maw! No Batteries!*

OTIS WRENCH, WOMQB

AS every c.w. operator that has ever worked me knows, I have a lousy fist, and it is even lousier if my code monitor is not working. I've always had one (code monitor, that is) albeit my tale of woe and frustration has its silver lining and happy ending.

I've always been a strong adherent to the principle of versatility. Not only does it save the cost of chassis pans, panels, cabinets and bumper feet, but there is a great deal of satisfaction in having a piece of equipment that will do umpteen dozen things. Not all at once, mind you, but it will do them, one at a time. It also keeps the XYL interested, because she has her eye on that chassis if I ever salvage it. She says she is going to use it for a cullender some day.

If my code monitor was anything, it was versatile. It was also a very satisfactory code monitor at certain times. But it had seven double pole double throw toggle switches on the front panel and one double pole double throw slide switch. (I had depleted my supply of toggle switches.) Also a speaker, a meter, a phone jack, a pitch control knob, a meter adjust knob, a dial for the code monitor input capacitor, a dial for the variable oscillator, a dial for the doubler, tripler stage, a five-position band switch and two crystal sockets, plus three tally lights. Oh yes, also two pots and two banana jacks on the back panel, but I've long since forgotten what they were for.

It was a joy to behold. It was a code monitor and an a.m. monitor. You only had to plug in a headset to monitor phone. It was field strength meter that worked fine. I transistorised that part of it several years ago when transistors first became available at bargain prices. It was also a 100 Kc. and 1,000 Kc. crystal calibrator, with and without tone modulation. (A double pole double throw switch selected that mode of operation.) It had two crystal sockets on the front panel for the most popular types (with me) of holders. That stage was a type of Pierce oscillator, untuned, and the meter could be switched from the field strength position to read a portion of the grid voltage, and hence give an indication of the activity of the crystal.

There was a variable oscillator in it, covering the low frequency range, which I thought I needed to align my BC453. However, I was never quite sure of the calibration of this low frequency oscillator, and never used it. (It's coming out on the next modification.) Also there was a tuned doubler, tripler, quadrupler (?) stage which could be fed by either the Test Xtal or Calibrate Xtal stage by throwing the

appropriate switches in the right direction, and which would give me marker points down to 6 metres, depending, of course, on which crystal I was using at the time. It could also be used as a single frequency audio oscillator and as a code practice oscillator.

Now, isn't that a humdinger? What more could you ask for on one little 8" x 10" panel? The only problem was that after it had set there for a while, I forgot which switch to throw which way to get the code monitor to work.

One evening while in the middle of my third QSO (and I still hadn't thrown the right switches to get the code monitor turned on) I had a happy thought. Why not build a separate code monitor? What evolved was placed in a 4" x 5" x 3" aluminium box.

I did and the circuit is shown in Fig. 1. Most of the parts were scrounged from a defunct transistorised radio. Capacitor CI is the tuning capacitor with both sections paralleled. There are no numbers on the transistor; they were rubbed off long ago, but it is a p.n.p. type. I can't decipher the code on the diode either so any type you have will probably do.

One disappointment in the works. I bought a red banana plug and jack and ripped up a cute little 18" whip antenna that sticks up out of the top. My 55 watt rig wasn't quite powerful enough. It just wasn't loud enough. I tied about 10 feet of wire to the whip, and now it is just right. I measured the voltage at the top of the 2  $\mu$ F. capacitor and found that it was approximately 5 volts, using the 10 ft. piece of wire for an antenna.

It would startle me at first. I would close the key to test the transmitter, and it would immediately start squalling like a junior op. that had been stepped on, and I knew I hadn't turned it on. But then you will get used to it after coming back to turn it off a few times, and you will glory in it, and say, "Look, Maw! It don't run up no light bill and you don't have to buy no batteries! It's free!"

And, incidentally, if you build one of these and it doesn't work, don't write me. I didn't have to trouble-shoot mine either time. Fortunately it worked both times I put it together. When I haywired it together and when I put it in the box.

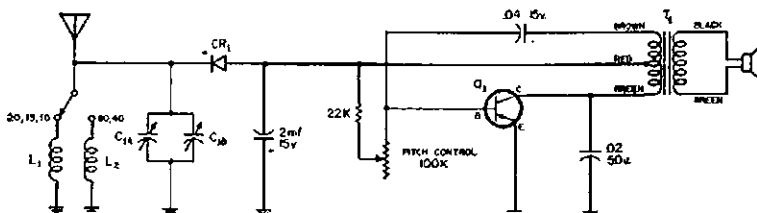


Fig. 1.—Circuit of a self powered c.w. monitor. Most of the components, speaker included, are salvaged from an old transistor radio.

CI—See text.

L1—8 turns, 24 gauge enamel on 1/2 inch diam. poly. rod.

L2—40 turns 24 gauge enamel on other end of L1 rod.

T1—Lafayette TR-99.

Q1—Any audio type p.n.p. See text.

If you use an n.p.n. type transistor simply reverse the diode polarity and it will work also.

I originally had intended to power it with batteries, and I haywired the oscillator section together first. Testing it with a depleted pen light cell I had taken out of my Tunnel Dipper, it gave out a weak chirp.

At that point I had another wild idea. Suppose I could power it from the air? I hastily wired up the front section, and clipping a test lead on the top of the capacitor for an antenna, I turned the transmitter on. It sat there and squalled like a harmonic with a wet diaper.

From that point on, it was a matter of taking it apart and putting it back together in the box, applying the decals, and setting it on the operating desk in front of me.

If you want to visit, I'll show you mine, and prove that it does work. I'll even take the back cover off so you can see there aren't any batteries in it! Good luck, OM es 73.

☆

## ERRATA

In the article "Some 6-Metre Antennae" (Dec. '65 "A.R.") the length of the 50 ohm matching stub should be 35 1/2 inches not 52 inches, as in Fig. 1.

Also Fig. 2, mentioned in the text (third paragraph) does not refer to the diagram marked Fig. 2. It should be Fig. 1 as a Gamma-match obviously has nothing to do with a Q-match. The Q-match details should be clear from Fig. 2.

\* Reprinted from "CQ," August 1965.



# WARBURTON FRANKI

## ● MULTIMETERS—200H

Fan shaped meter movement.

Ranges: DCV—5, 25, 50, 250, 2,500 at 20K o.p.v.  
ACV—10, 50, 100, 500, 1,000 at 10K o.p.v.  
DC mA.—50  $\mu$ A., 2.5 mA., 250 mA.  
OHMS—600, 600K.  
CAP.—10 pF. to 0.1  $\mu$ F.  
DB—Minus 20 to plus 22.

Supplied with leads and instruction leaflet.

**95/- (\$9.50)**

Plus S/T 12½%. Pack and Post 1/6.

## ● TRANSISTOR AMPLIFIER—SINCLAIR X-20 PULSE-WIDTH MODULATED AMPLIFIER AND PRE-AMP. OPEN MATRIX BOARD CONSTRUCTION

12 Transistors, size 8½ x 3¼ x 1 in. Weight 4 ozs.  
Input sensitivity—1 mV. into 5,000 ohms.  
Total harmonic distortion—Less than 0.1% at 10w.  
Frequency response at all power levels—20 c/s. to 20 Kc.  
plus 1 db.  
Damping Factor—greater than 100.  
Quiescent consumption—approx. 150 mA.  
Supply Voltage—28 to 37 volts (7.5 ohm speaker).  
28 to 45 volts (15 ohm speaker).  
**Output Power**—7.5 ohm Speaker, 20 watts r.m.s. music power.  
15 ohm Speaker, 15 watts r.m.s. music power.  
Supplied with comprehensive descriptive booklet showing  
circuit and recommended circuitry for volume  
and tone controls.

**£13'5'0 (\$26.50)**

Plus S/T 25%. Pack and Post 1/-.

## A.C. POWER SUPPLY TO SUIT—

(Will supply two Amplifiers for Stereo use)

**£6'6'0 (\$12.60)**

Plus S/T 12½%. Pack and Post 2/6.

## ● MULTIMETERS—SANWA 370-X

Ranges: DCV—3, 6, 12, 120, 300, 1,200, 3,000 at 4K o.p.v.  
ACV—6, 12, 120, 300, 1,200, 3,000 at 4K o.p.v.  
DC mA.—0.3, 3, 30, 300.  
DC Amps.—3, 12.  
AC Amps.—3, 12.  
OHMS—10K, 100K, 1 meg., 10 meg.  
DB—Minus 10 to plus 17.  
Minus 0 to plus 23.

Supplied with two pairs of test leads and comprehensive instruction booklet.

**£13 (\$26)**

Plus S/T 12½%. Pack and Post 2/6.

**Wooden Carrying Case** to suit. Well made with safety lock and removable lid.

**£3'19'0 (\$7.90)**

Plus S/T 12½%. Pack and Post 2/-.

## ● TELECOMPONENTS

Television spares. Available from stock. Write or call for lists.

## STOCKTAKING BARGAINS

### ● SILICON DIODES

18 amps. at 50 p.i.v. Available either K or A to Case.

**7'6 each (75c)**

Plus S/T 12½%. Pack and Post 6d. each.

ALSO 1 amp. at 1,000 p.i.v.

**13'6 each (\$1.35)**

Plus S/T 12½%. Pack and Post 6d. each.

### ● VARIABLE CONDENSERS

100 pF. maximum, 17 plates, ¼" shaft.

**6/- (60c)**

Plus S/T 25%. Post Free.

### ● KNIFE SWITCHES

Double pole with spark gap. 4" x 1½".

**5'7 (56c)**

Plus S/T 25%. Pack and Post 6d.

### ● CABINETS OF DRAWERS

Fitted with Carrying Handle and Drawer Lock for portable use.

SIZE OVERALL—12" x 9" x 4½".

CONTAINS—16 Drawers, 5½" x 2½" x 1½".

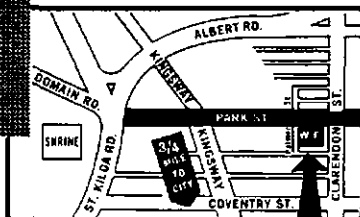
**45'4 (\$4.53)**

Plus S/T 12½%.



# WARBURTON FRANKI

220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines 69-0151



● TRADE ALSO SUPPLIED

● Please include postage and freight with all orders



# AUSTRALIAN DX CENTURY CLUB AWARD

## OBJECTS

- 1.1 This Award was created in order to stimulate interest in working DX in Australia and to give successful applicants some tangible recognition of their achievements.
- 1.2 This Award, to be known as the "DX Century Club" Award, will be issued to any Australian Amateur who satisfies the following conditions.
- 1.3 A certificate of the Award will be issued to the applicants who show proof of having contacted one hundred countries, and will be endorsed as necessary, for contacts made using only one type of emission.

## REQUIREMENTS

- 2.1 Verifications are required from one hundred different countries as shown in the Official Countries List.
- 2.2 The Official Countries List will be published annually in "Amateur Radio" and will be amended from time to time as required. Should a country be deleted from the Countries List at any time, members and intending members will be credited with such country if the date of contact was before such deletion.
- 2.3 The commencing date for the Award is 1st January 1948. All contacts made on or after this date may be included.

## OPERATION

- 3.1 Contacts must be made in the H.F. Band (Band 7) which extends from 3 to 30 Mc., but such contacts must only be made in the authorised Amateur Bands in Band 7.

- 3.2 All contacts must be two-way contacts on the same band. Cross band contacts will not be allowed.
- 3.3 Contacts may be made using any authorised type of emission for the band concerned.
- 3.4 Credit may only be claimed for contacts with stations using regularly-assigned Government call signs for the country concerned.
- 3.5 Contacts made with ship or aircraft stations will not be allowed, but land-mobile stations may be claimed provided their specific location at the time of contact is clearly shown on the verification.
- 3.6 All stations must be contacted from the same call area by the applicant, although if the call sign is subsequently changed, contacts will be allowed under the new call sign providing the applicant is still in the same call area.
- 3.7 All contacts must be made when operating in accordance with the Regulations laid down in the "Handbook for the Guidance of Operators of Amateur Wireless Stations" or its successor.

## VERIFICATIONS

- 4.1 It will be necessary for the applicant to produce verifications in the form of QSL cards or other written evidence showing that two-way contacts have taken place.
- 4.2 Each verification submitted must be exactly as received from the station contacted, and altered or forged verifications will be grounds for disqualification of the applicant.

- 4.3 Each verification submitted must show the date and time of contact, type of emission and frequency band used, the report and the location or address of the station at the time of contact.
- 4.4 A check list must accompany every application setting out the details for each claimed station in accordance with the details required in Rule 4.3.

## APPLICATIONS

- 5.1 Applications for membership shall be addressed to the Awards Officer, Box 2811W, G.P.O., Melbourne, Vic., accompanied by the verifications and the check list with sufficient postage enclosed for their return to the applicant, registration being included if desired.
- 5.2 A nominal charge of 2/6, which shall also be forwarded with the application, will be made for the issue of the certificate to successful applicants who are non-members of the Wireless Institute of Australia.
- 5.3 Successful applicants will be listed periodically in "Amateur Radio". Members of the D.X.C.C. wishing to have their verified country totals over and above the one hundred necessary for membership, listed will notify these totals to the Awards Officer.
- 5.4 In all cases of dispute, the decision of the Awards Officer and two members of the Federal Executive of the W.I.A. in the interpretation and application of these Rules shall be final and binding.
- 5.5 Notwithstanding anything to the contrary in these Rules, the Federal Council of the W.I.A. reserves the right to amend them when necessary.

# AUSTRALIAN V.H.F. CENTURY CLUB AWARD

## OBJECTS

- 1.1 This Award has been created in order to stimulate interest in the V.H.F. bands in Australia, and to give successful applicants some tangible recognition of their achievements.
- 1.2 This Award, to be known as the "V.H.F. Century Club" Award, will be issued to any Australian Amateur who satisfies the following conditions.
- 1.3 Certificates of the Award will be issued to the applicants who show proof of having made one hundred contacts on the V.H.F. bands, and will be endorsed as necessary, for contacts made using only one type of emission.

## REQUIREMENTS

- 2.1 Contacts must be made in the V.H.F. Band (Band 8) which extends from 30 to 300 Mc., but such contacts must only be made in the authorised Amateur Bands in Band 8.
- 2.2 In the case of the authorised bands between 30 and 100 Mc., verifications are required from one hundred different stations at least seventy of which must be Australian. The Amateur Bands 50 to 54 Mc. and 56 to 60 Mc. will be counted as one band for the purposes of the Award.
- 2.3 In the case of the authorised Amateur Band between 100 to 200 Mc. and any authorised band between 200 to 300 Mc., verifications from one hundred different stations for each band is required.
- 2.4 It is possible under these rules for one applicant to receive three certificates, one for each of the authorised Amateur Bands nominated in Rules 2.2 and 2.3.
- 2.5 The commencing date for the Award is 1st June, 1948. All contacts made on or after this date may be included.

## OPERATION

- 3.1 All contacts must be two-way contacts on the same band, and cross band contacts will not be allowed.
- 3.2 Contacts may be made using any authorised type of emission for the band concerned.
- 3.3 Fixed stations may contact portable/mobile stations and vice versa, but portable/mobile station applicants must make their contacts from within the same call area.
- 3.4 Applicants, when operating either portable/mobile or fixed, may contact the same station licensee, but may not include both contacts for the same type of endorsement.
- 3.5 Applicants may only count one contact for a station worked as a limited licensee with a Z call sign who is subsequently contacted as a full A.O.C.P. holder.
- 3.6 All stations must be contacted from the same call area by the applicant, although if the applicant's call sign is subsequently changed, contacts will be allowed under the new call sign providing the applicant is still in the same call area.
- 3.7 All contacts must be made when operating in accordance with the Regulations laid down in the "Handbook for the Guidance of Operators of Amateur Wireless Stations" or its successor.

## VERIFICATIONS

- 4.1 It will be necessary for the applicant to produce verifications in the form of QSL cards or other written evidence showing that two-way contacts have taken place.
- 4.2 Each verification submitted must be exactly as received from the station contacted, and altered or forged verifications will be grounds for disqualification of the applicant.
- 4.3 Each verification submitted must show the date and time of contact, type of emission and frequency band used, the report and the location or address of the station at the time of contact.

- 4.4 A check list must accompany every application setting out the following details:—
  - 4.4.1 Applicant's name and call sign, and whether a member of the W.I.A. or not.
  - 4.4.2 Band for which application is made, and whether special endorsement is involved.
  - 4.4.3 Where applicable, the date of change of call sign and previous call sign.
  - 4.4.4 Details of each contact as required by Rule 4.3.
  - 4.4.5 The applicant's location at the time of each contact if portable/mobile operation is involved.
  - 4.4.6 Any relevant details of any contact about which some doubt might exist.

## APPLICATIONS

- 5.1 Applications for membership shall be addressed to the Awards Officer, Box 2811W, G.P.O., Melbourne, Vic., accompanied by the verifications and the check list with sufficient postage enclosed for their return to the applicant, registration being included if desired.
- 5.2 A nominal charge of 2/6, which shall also be forwarded with the application, will be made for the issue of the certificate to successful applicants who are non-members of the Wireless Institute of Australia.
- 5.3 Successful applicants will be listed periodically in "Amateur Radio". Members of the V.H.F.C.C. wishing to have their verified totals, over and above the one hundred necessary for membership, listed will notify these totals to the Awards Officer.
- 5.4 In all cases of dispute, the decision of the Awards Officer and two members of the Federal Executive of the W.I.A. in the interpretation and application of these Rules shall be final and binding.
- 5.5 Notwithstanding anything to the contrary in these Rules, the Federal Council of the W.I.A. reserves the right to amend them when necessary.

# AUSTRALIAN D.X.C.C. COUNTRIES LIST

	Phone	C.W.		Phone	C.W.
AC3	Sikkim		FH8	Comoro Is.	
AC4	Tibet		FI8 (pr'r 20/7/55)	Fr. Indo China	
AC5	Bhutan		FK8	New Caledonia	
AP	East Pakistan		FL8	Fr. Somaliland	
AP	West Pakistan		FM7	Martinique	
BV (C3)	Formosa		FN (prior 1/11/54)	French India	
BY (C)	China		FO8	Clipperton I.	
C9 (prior 1/1/64)	Manchuria		FO8	Fr. Oceania	
CE	Chile		FP8	St. Pierre & Miq. Is.	
CE9, KC4, LU-Z, VK0, VP8, ZL5	etc., Antarctica		*FQ8	Fr. Equatorial Africa	
CE0A	Easter I.		TL8 (fr. 13/8/60)	Cen. Afric. R.	
CE0X	St. Felix I.		TN8 (from 15/8/60)	Congo Rep.	
CE0Z	J. Fernandez Arch.		TR8 (from 17/8/60)	Gabon Rep.	
CM, CO	Cuba		TT8 (from 11/8/60)	Chad Rep.	
CN2 (prior 1/7/60)	Tangier		FR7 (from 25/6/60)	Glorioso I.	
CN2, 8, 9	Morocco		FR7 (from 25/6/60)	Juan de Nova and Europa Is.	
CP	Bolivia		FR7	Reunion I.	
CR3	Portuguese Guinea		FR7	Tromelin Is.	
CR4	Cape Verde Is.		FS7	Saint Martin	
CR5	Principe, Sao Thome		FU8, YJ1, 8	New Hebrides	
CR6	Angola		FW8	Wallis & Futuna Is.	
CR7	Mozambique		FY7	Fr. Guiana & Inini	
CR8 (prior 1/1/62)	Goa		G	England	
CR8, 10	Port. Timor		GC	Guernsey and Deps.	
CR9	Macao		GC	Jersey I.	
CT1	Portugal		GD	Isle of Man	
CT2	Azores		GI	Northern Ireland	
CT3	Madeira Is.		GM	Scotland	
CX	Uruguay		GW	Wales	
DJ, DL, DM	Germany		HA	Hungary	
DU	Philippine Is.		HB	Switzerland	
EA	Spain		HC	Ecuador	
EA6	Balearic Is.		HC8E	Ebon Atoll	
EA8	Canary Is.		HC8G	Galapagos Is.	
EA9	Ifni		HB0 (HE)	Liechtenstein	
EA9	Rio de Oro		HH	Haiti	
EA9	Spanish Morocco		HI	Dominican Rep.	
EA0	Spanish Guinea		HK, 5J	Colombia	
EI	Rep. of Ireland		HK0	Arch. of San Andres and Providencia	
EL	Liberia		HK0	Bajo Nuevo	
EP, EQ	Iran		HK0	Malpelo Is.	
ET2 (prior 14/11/62)	Eritrea		HL, HM, 6N5	Korea	
ET2, 3, 9E	Ethiopia		HP	Panama	
F	France		HR	Honduras	
FB8	A'dam & St. Paul Is.		HS	Thailand	
FB8	Crozet Is.		HV	Vatican	
FB8	Kerguelen Is.		HZ (see 7Z)		
FC	Corsica		II, IT1	Italy	
*FF8	French West Africa		I1 (prior 1/4/57)	Trieste	
TU2 (fr. 7/8/60)	Ivory Coast R.		I5 (prior 1/7/60)	It. Somaliland	
TY2 (fr. 1/8/60)	Dahomey Rep.		IS1	Sardinia	
TZ2 (from 20/6/60)	Mali Rep.		JA, KA	Japan	
XT2 (from 5/8/60)	Voltaic Rep.		JT1	Mongolia	
5U7 (from 3/8/60)	Niger Rep.		JY	Jordan	
5T5 (from 20/6/60)	Mauritania		JZ0 (pr'r 1/5/63)	W. New Guinea	
6W8 (fr. 20/8/60)	Senegal Rep.		K, W	U.S.A.	
FG7	Guadeloupe				

\* Fr. West Africa and Fr. Equatorial Africa: Only contacts dated prior to when the particular area obtained separate listing (as shown) will count.

	Phone	C.W.		Phone	C.W.
KA0, KG6I	Bonin & Volcano Is.		ST2	Sudan	
KB6	Baker, Howland and Am. Phoenix I. (inc. Canton I.)		SU	Egypt	
KC4	Navassa I.		SV	Crete	
KC6	Eastern Caroline Is.		SV	Dodecanese	
KC6	Western Caroline Is.		SV	Greece	
KG4	Guantanamo Bay		TA	Turkey	
KG6	Guam		TF	Iceland	
KG6	Marcus I.		TG	Guatemala	
KG6 (Rota, Tinian, Saipan, etc.)	Mariana Is.		TI	Costa Rica	
KH6	Hawaiian Is.		TI9	Cocos I.	
KH6	Kure I.		TI9C	Cormoran Reef	
KJ6	Johnston I.		TJ (FE8)	Cameroon Rep.	
KL7	Alaska		TL, TN, TR, TT (see after FQ8)		
KM6	Midway Is.		TS (3V8)	Tunisia	
KP4	Puerto Rico		TU, TY, TZ (see after FF8)		
KP6	Palmyra Group, Jarvis I.		UA1-6, UN1	Eur. R.S.F.S.R.	
KR6	Ryukyu Is.		UA1	Franz Josef Land	
KS4B	Ser'na Bank & Roncad Cay		UA2	Kaliningrad Region	
KS4	Swan Is.		UA9, 0	Asiatic R.S.F.S.R.	
KS6	American Samoa		UB5	Ukraine	
KV4	Virgin Is.		UC2	White Russian S.S.R.	
KW6	Wake I.		UD6	Azerbaijan	
KX6	Marshall Is.		UF6	Georgia	
KZ5	Canal Zone		UG6	Armenia	
LA	Bouvet I.		UH8	Turkoman	
LA	Jan Mayen		UI8	Uzbek	
LA	Norway		UJ8	Tadzhik	
LA	Svalbard		UL7	Kazakh	
LU	Argentina		UM8	Kirghiz	
LX	Luxembourg		UN1 (prior 1/7/60)	Kar-Fin.Rep.	
LZ	Bulgaria		UO5	Moldavia	
MP4	Bahrein		UP2	Lithuania	
MP4	Qatar		UQ2	Latvia	
MP4	Trucial Oman		UR2	Estonia	
OA	Peru		VE, VO	Canada	
OD5	Lebanon		VK	Australia	
OE	Austria		VK2	Lord Howe Is.	
OH	Finland		VK4	Willis Is.	
OH0	Aland Is.		VK9	Christmas I.	
OK	Czechoslovakia		VK9	Cocos Is.	
ON4	Belgium		VK9	Nauru I.	
OX, KG1	Greenland		VK9	Norfolk I.	
OY	Faeroes		VK9	Papua Terr.	
OZ	Denmark		VK9	Terr. of New Guinea	
PA0, PI1	Netherlands		VK0	Heard I.	
PJ	Neth. West Indies		VK0	Macquarie I.	
PJ2M	Sint Maarten		VO (prior 1/4/49)	Newf./Lab.	
PK1, 2, 3 (prior 1/5/63)	Java		VP1	British Honduras	
PK4 (prior 1/5/63)	Sumatra		†VP2 (prior 1/6/58)	Leeward Is.	
PK5 (prior 1/5/63)	Borneo		VP2	Anguilla	
PK6 (prior 1/5/63)	Celebes and Molucca Is.		VP2	Antigua, Barbuda	
PX	Andorra		VP2	Br. Virgin Is.	
PY	Brazil		VP2	Montserrat	
PY0	Fernando de Noronha		VP2	St. Kitts, Nevis	
PY0	St. Peter & Paul Rocks		†VP2 (prior 1/6/58)	Windw'd Is.	
PY0	Trindade & Martin Vaz Is.		VP2	Dominica	
PZ1	Netherlands Guiana		VP2	Grenada & Deps.	
SL, SM	Sweden		VP2	St. Lucia	
SP	Poland		VP2	St. Vincent & Deps.	
			VP3	British Guiana	
			VP4	Trinidad & Tobago	

† One contact with each group formerly known as "Leeward Is." and "Windward Is." dated prior to 1/6/58 may be credited, in which case no further credit as a separate listing, as from 1/6/58, will be given those particular islands.

	Phone	C.W.		Phone	C.W.
VP5	.....	Cayman Is.	ZK1	.....	Cook Is.
VP5	.....	Turks & Caicos Is.	ZK1	.....	Manihiki Is.
VP6	.....	Barbados	ZK2	.....	Niue
VP7	.....	Bahama Is.	ZL	.....	Chatham Is.
VP8	.....	Falkland Is.	ZL	.....	New Zealand
VP8, LU-Z	.....	South Georgia	ZL1	.....	Kermadec Is.
VP8, LU-Z	.....	South Orkney Is.	ZL4	.....	Auckland and Campbell Is.
VP8, LU-Z	.....	South Sandwich Is.	ZM7	.....	Tokelau
VP8, LU-Z, CE9	.....	Sth. Shet. Is.	ZP	.....	Paraguay
VP9	.....	Bermuda Is.	ZS1, 2, 4, 5, 6	.....	Rep. of S. Africa
VQ6 (prior 1/7/60)	.....	Br. Somali'd	ZS2	.....	Prince Ed. and Marion I.
VQ8	.....	Agalega & St. Brandon	ZS3	.....	South-West Africa
VQ8	.....	Chagos Is.	ZS7 (see ZD5)		
VQ8	.....	Mauritius	ZS8	.....	Basutoland
VQ8	.....	Rodriguez I.	ZS9	.....	Bechuanaland
VQ9	.....	Aldabra Is.	1S	.....	Spratly Is.
VQ9	.....	Seychelles	3A	.....	Monaco
VR1 (includ. Canton Is.)	.....	British Phoenix Is.	3W8, XV5	.....	Vietnam
VR1 Gilbert & Ellice Is.,	.....	Ocean Is.	4S7 (VS7)	.....	Ceylon
VR2	.....	Fiji Is.	4U1	.....	I.T.U. Geneva
VR3	.....	Fanning & Christmas Is.	4W1	.....	Yemen
VR4	.....	Solomon Is.	4X4 (from 14/5/48)	.....	Israel
VR5	.....	Tonga Is.	5A	.....	Libya
VR6	.....	Pitcairn I.	5B4 (ZC4)	.....	Cyprus
VS4 (prior 16/9/63)	.....	Sarawak	5H1 (VQ1)	.....	Zanzibar
VS5	.....	Brunei	5H3 (VQ3)	.....	Tanganyika
VS6	.....	Hong Kong	5N2 (ZD2)	.....	Nigeria
VS9	.....	Aden & Socotra	5R8 (FB8 Madagascar)	.....	Malagasy
VS9	.....	Kamaran Is.	5T5, 5U7 (see after FF8)		
VS9	.....	Kuria Muria	5V	.....	Togolese Rep.
VS9	.....	Maldive Is.	5W1 (ZM6)	.....	Samoa
VS9	.....	Sultanate of Oman	5X5 (VQ5)	.....	Uganda
VU2	.....	India	5Z4 (VQ4)	.....	Kenya
VU	.....	Laccadive Is.	6N5 (see HL)		
VU	.....	Andaman & Nicobar Is.	6O1, 6O2 (fm. 1/7/60)	.....	Somalia R.
XE, XF	.....	Mexico	6W8 (see after FF8)		
XF4	.....	Revilla Gigedo	6Y (VP5)	.....	Jamaica
XT2 (see after FF8)			7G1 (from 1/10/58)	.....	Rp. of Guinea
XU	.....	Cambodia	7Q7 (ZD6, Nyasaland)	.....	Malawi
XW8	.....	Laos	7X2 (FA)	.....	Algeria
XZ2	.....	Burma	7Z (HZ)	.....	Saudi Arabia
YA	.....	Afghanistan	8F (from 1/5/63)	.....	Indonesia
YI	.....	Iraq	8Z4	.....	Saudi Arabia-Iraq N.Z.
YK	.....	Syria	8Z5 (9K3)	.....	Saudi Ar.-Kuwait N.Z.
YN, YN0	.....	Nicaragua	9A (MI)	.....	San Marino
YO	.....	Roumania	9G1 (from 5/3/57)	.....	Ghana
YS	.....	Salvador	9H1 (ZB1)	.....	Malta
YU	.....	Yugoslavia	9J (VQ2, N. Rhod.)	.....	Zambia
YV	.....	Venezuela	9K2	.....	Kuwait
YV0	.....	Aves I.	9L1 (ZD1)	.....	Sierra Leone
ZA	.....	Albania	9M2 (prior 16/9/63)	.....	Malaya
ZB1 (see 9H1)			9M2 (from 16/9/63)	.....	W. Malaysia
ZB2	.....	Gibraltar	†9M4 (VS1)	.....	Singapore
ZC5 (pr. 16/9/63) Br. Nth. Borneo	.....		9M6, 9M8 (from 16/9/63)	.....	East Malaysia
ZC6	.....	Palestine	9N1	.....	Nepal
ZD3	.....	The Gambia	9Q5 (pr. OQ5-0)	.....	R. of The Congo
ZD4 (pr. 5/3/57) Gold Coast, Togo.	.....		9S4 (prior 1/4/57)	.....	Saar
ZD5 (ZS7)	.....	Swaziland	9U5 (from 1/7/60 to 30/6/62)	.....	Ruanda-Urundi
ZD7	.....	St. Helena	9U5 (from 1/7/62)	.....	Burundi
ZD8	.....	Ascension Is.	9X5 (from 1/7/62)	.....	Rwanda Rep.
ZD9 T. da Cunha and Gough Is.	.....				
ZE	.....	Southern Rhodesia			

† From 16/9/63 to 8/8/65 counts as West Malaysia.

# Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

## PANSY'S NOTES

Editor "A.R." Dear Sir,

Each month I have noticed in "A.R." magazine that the VK5 Divisional notes are allotted quite a lot of news columns—this may be a good thing for the South Australian Division, but to others, like myself, it seems an awful waste of valuable information space. I feel that these notes could be reduced to a more reasonable length and the remaining space be rightly used to bring to the majority of readers items of interest either technical or non-technical.

—Arthur Johnson, VK4PX

[Couldn't agree more.—Ed.]

## "GOING S.S.B."

Editor "A.R." Dear Sir,

I am prompted to write to you on the topic which is foremost in very many Amateurs' minds and which also arouses much sundry correspondence these days—i.e. "Going S.S.B."

Much has been said over the air and much has been written, but from observation I feel that the situation here in Australia seems to have resolved in a division of the Amateurs into four distinct categories:—

(1) The "commercial s.s.b'ers" with their Swans, Galaxies, etc.—very nice too and good luck to them but, of course, their ranks are limited by the financial status of the individual.

(2) The "home-brew s.s.b'ers"—this section comprises mainly our more technically advanced brothers who, in many cases, have available through their employment the use of test equipment, etc., far removed from that which may be found in the average lowly Ham shack. They also, in many cases, have access to a ready supply of components at negligible cost.

(3) The old, old-timer who has got along well enough on a.m. for the past thirty years and is "damned if I'm going to mess around with that new-fangled Duck Talk at my time of life!" His point of view, whilst not progressive, can be well understood and sympathised with. I'm willing to bet that some of our present day "progressives" will be voicing similar sentiments thirty years hence!

(4) A very large proportion of the Amateur fraternity who are active on a.m., see the value of s.s.b. operation and would genuinely like to go s.s.b.—but—do not have available test equipment other than the old g.d.o. and multimeter, do not have access to "pandora's box" of components and are not endowed with any great surplus of Decibels. This group, I feel sure, includes the greater proportion of Australian Amateurs.

At this point you may be making any one of a number of remarks, depending on the category above into which you fall, but you are probably saying "So what!"

So this—I feel that our Amateur organisation, in its role of furthering the interests of Amateurs as a whole and appreciating the great job already done, could tap its resources to provide, through our own magazine, a relatively simplified, fully detailed and illustrated series of articles and circuits on, say, a complete single band s.s.b. transmitter followed possibly by a multiband transmitter and then a complete transceiver. These should be accompanied by a complete list of components giving details of individual items together with availability and names of suppliers.

It is quite well known that very many Amateurs have been awaiting such a project to appear in "Electronics" magazine, so far to no avail, and I do not see why our own W.I.A. members could not produce something after the style of the "Electronics" projects.

Voices may be raised in anguish at this point, but I feel that the situation is such that great assistance could be given to very many members if such a project were undertaken. I well realise that many of the usual Amateur type articles have appeared in the Mag., but very many of them assume that the reader has an equivalent knowledge and available facilities as the writer, whilst others specify components which the author "happened to have in his junk box" and which necessitate a long and arduous search through the sources of supply in Australia often to find that one is unable to duplicate the particular item.

I would like to commend Steve VK1VK, among others, for his recent efforts and offers to assist his fellow Amateurs along the way

to s.s.b. and appreciate his remarks regarding d.s.b. but I feel, with the majority, that if we are going to empty our piggybanks we might as well go all the way and eliminate that other sideband as well!

So, gentlemen, can someone come up with the works, along the lines of the "Electronics" projects (see 3-band d.s.b. transmitter in November issue) even though it may take up considerable space in the Magazine (you could always cut Pansy down to a mere two or three pages, thereby giving the poor old chap a bit of a rest!) and help us poor sheep to partake more fully of our hobby—of course we still have to find the money and build the things!

—J. S. Beckingham, VK4JI

[Pub. Comm. would welcome such an article.—Ed.]

## COST OF OVERSEAS EQUIPMENT

Editor "A.R." Dear Sir,

The letters published in the November 1965 issue require further comment because Mr. Gunther of Hobart apparently does not know about preferential Commonwealth import duty rates and therefore comes to an invalid conclusion, and Mr. Cunningham of Melbourne evades the KW200 transceiver issue and only proves that in the case of an Eddystone ECKO receiver he is satisfied with the profit he makes with his discount on the U.K. net prices plus duties.

Contrary to Mr. Whalley's (VK6KK) assumptions, there is no sales tax on Amateur equipment in the U.K. In Britain it is a "purchase" tax, i.e. on retail price not trade price. Secondly, K.W. Electronics only recently is catching up in production with the order back-

log, until recently only sold direct to the public and for export, and allows hardly any or very little discount for overseas importers. They have no agents in the U.K. either. So Mr. Cunningham's cost of the transceiver in question was very little below what everybody else had to pay for it. As a matter of fact a year ago the set was extremely hard to get. In that light the sales price as advertised in Australia left a substantial, but not uncommon profit margin, except for the sales tax charge on the retail price which is not quite what the importer pays in most cases.

Many Amateurs have little idea of the actual overhead expenses of the importers. The interest lost on outstanding capital, handling and insurance charges, the 27½ resp. 45 per cent. import duties on overseas net cost, plus sales tax on the total plus 20 per cent. theoretical profit margin calculation. They also overlook that certain items are heavier than 22 lbs. when packed and cannot be imported with only a few pounds of postage by parcel post, so become unduly expensive when imported privately by ocean freight. The cream is certainly off the Amateur supply business in Australia with the prevailing competition and considering the colossal import duties and sales tax overheads, the VK Amateurs are getting a very fair deal.

Mr. Whalley (VK6KK) in private correspondence, suggested that freedom from duties for Amateur equipment imported in Australia is long overdue. Nobody will disagree with that, but there is little hope for that—the Dept. of Customs and Excise even flatly refuses to consider by-law applications for Amateur equipment that is not even made in near equivalents by the local industry.

—A. Bles.

# SWL

Sub-Editor: D. GRANTLEY, WIA-L2022  
Alexander Ave., Hazelbrook, N.S.W.

1965 has drawn to a close, and as we look back for some it has been a year of achievement and amongst these members I feel I must mention two of our chaps. Firstly, to Peter Drew, you have done a fine job Peter, my personal congratulations to you as you approach the head of the DX ladder, and may 1966 see you up at the 300 mark also. Secondly, I feel that another event worth recalling, even though it occurred last month, was the issue of S.w.l. D.X.C.C. No. 1 to our number one listener, Eric L3042, a fitting reward for years of faithful service.

To those of our number who have graduated to the ranks of licensed Amateurs in 1965 we extend our best wishes and wish you good hunting in your new field of activity.

In closing these few introductory remarks, both Charles and I would like to thank all our friends who have been so loyal to us, and Charles says a very special "thank you" to all who wrote when his wife was in hospital. I am sure also, judging by comments I have received in the mail, that all our chaps are grateful for the continued co-operation which we are receiving from the Publications Committee and look forward to our continued good relations in 1966.

## MEET THE LISTENERS

A name which has appeared regularly in "A.R." for many years is L2033, Don Shepherd, of Casino. Of late, Don has restricted his operating to our three main contests, using a 7v. super with a 132 ft. end fed Zepp 24 ft. high, running E/W and connected to the rx through tuned feeders and an a.t.u. An impressive list of contest certificates include a 1st and 2nd in the ZL Memorial, three N.F. days, four VK-ZL, and one R.D., also the silver cup given by the VK2 S.w.l. Group for the R.D. The only award he has in the Elizabethan award, but don't be misled by this as Don is one of our best contest operators. Good luck OM.

## VICTORIA

Election of office-bearers took place at the October meeting and the following were installed: President, Harry Roach; Vice-Presidents, Brian Hannan and Robert Halligan; Secretary, Ian Woodman; Treasurer, Tony Armstrong; Publicity, Ross Lazarus, and QSL Officer, Colin Muir.

During November most members have been busy with examinations or re-erecting their

antennae which were blown down in recent storms. During the past year the Group had many interesting lectures and outings, the average attendance at the monthly meetings being 30. A sub-committee of seven members are producing a s.w.l. newsletter, the first should be available to all Institute members at the time of this issue. The first meeting for 1968 will be held on 28th January.

## BAND CONDITIONS

Examinations have severely hampered interstate reports this month and most letters come from the "older" brigade. From VK2, Mac Hilliard has been on 14 Mc. and comments that of late signals seem to be coming in from all directions at once. He has also heard sigs on 10 mx but at present is restricted to 28.5 to 28.7 Mc. Chas L2001 has also been inactive but was pleased to receive a card from LA5. I understand Mac had a confirmation from YA. At this QTH (L2022) activity has been at a minimum but good openings have been noted on 7 Mc. in the early morning. A newcomer to our page L2019, C. Middleton-Williams of Chester Hill submits a fine list including EL, HL9, HP1, KG6 (Marcus), KJ6, KR6, OD5 and many others.

In VK3 Eric Trebilcock's listings reflect the band conditions in that State, however I will list his countries heard during Nov. on 80 mx: UA, YU, UE5, DU, DL, LZ, SF, JA, OK, UC2, SM, YO, KL7, W, UP2, UA0, in many cases several calls from each country. This band can be really good for c.w. Inward QSLs to Eric: EL2AD, UA1KBE (3.5), UP6BF, UL7CG, UP2BF, VK9AG, XE1NL, YJ8WV, SW1AZ and KC4USX. Whilst on VK3, Bob Halligan has QSLs to hand from HL9TT, VK9PL, VK9OM, VK9XI, VK9CR, VK9AG and YV5BPJ. Bob is doing well and has a conscientious approach to his QSLing. Greg Earl reports good prevailing conditions which gave him JA, UH8, TI2, EP3, I, VQ8, XE and YN1.

If conditions in VK2 and VK3 are good, then they must be excellent in VK4 where Afton Westcott L2136/4 reports 10 mx improving each week, and 20 being the main DX band at present. Best of Afton's bunch were on 14 Mc. s.s.b.: LU4, 9M8, OZ6, PA0, YA1 and 5J4.

Only other reports this month come from L6028, L6029 and L6030 in W.A. and again it seems that 15 mx is pulling in the DX over in the West. JA, ZEI, ZL, G, KR6 were logged on that band, whilst YS, CX, Z86, VE, KX6, KC4, PY2, FK8, OK and many others were heard on 20. It was a great pleasure to exchange tapes with these lads early this month and make personal contact.

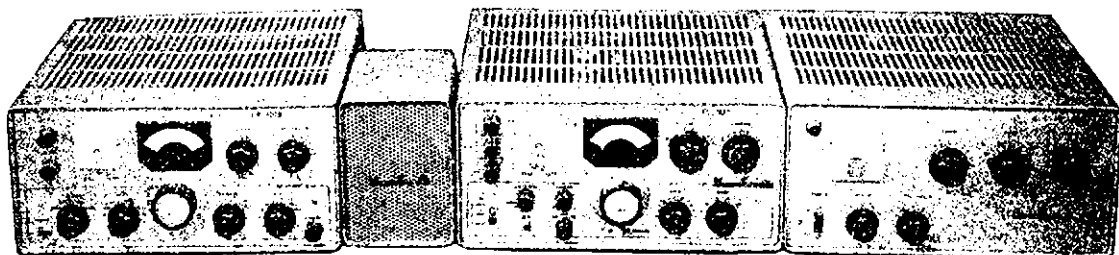
## COMMERCIAL DX

My remarks on this subject in a previous issue brought a prompt reply from Robt. Padula, VK3ZFU, who is the secretary of the Victorian Branch of the N.Z.D.X.R.A. Should

(Continued on Page 17)

# F-SERIES S.S.B. EQUIPMENT by Yaesu Musen

PROFESSIONAL QUALITY AT AMATEUR PRICES



COMPACT TABLE-TOP STATION—MECHANICAL FILTER SYSTEM  
 FIVE BANDS—80-10 METRES  
 TRANSCIVE OR NORMAL OPERATION

**FR-100B:** S.s.b.-a.m.-c.w. dual conversion receiver with two mechanical filters for best reception of s.s.b. and a.m. Xtal filter for c.w.; a.n.l., a.g.c., S meter, s.s.b. clarifier, monitor, etc.

**FL-200B:** S.s.b.-a.m.-c.w. transmitter, 240w. p.e.p. input, with two 6JS6 tubes in p.a. running within ratings for longer life! Solidly constructed and neatly wired, with high quality components, ceramic bandswitch, Kokusai M.F., Solid State Power Supply, etc.

New, fully descriptive illustrated brochure from the Australian Agents:—

## BAIL ELECTRONIC SERVICES

60 SHANNON STREET, BOX HILL NORTH, VIC.

Phone 89-2213

## FOSTER DYNAMIC MICROPHONES

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
 Effective output level ..... —55 db. [0 db. — (one) 1V. Microbar]  
 Frequency response ..... 50 to 15,000 c.p.s.

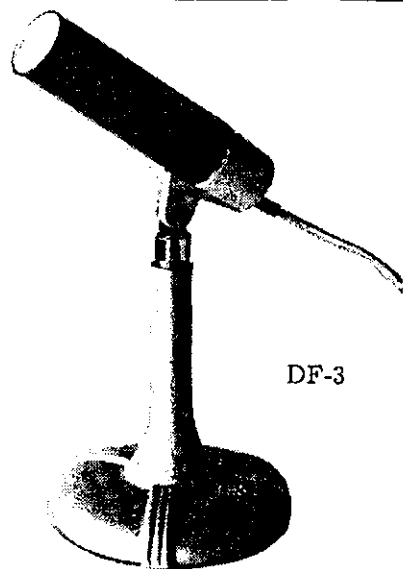
### OMNI-DIRECTIONAL DYNAMIC:

Plastic Diaphragm. Swivel fits 5/8" 26 t.p.i. Stands.  
 Size: 4½" long, 1¼" diameter. Colour: TWO-TONE GREY.  
 Cable: 12 ft. of P.V.C.

Retail Price 50K ohms: £4/16/0 + Sales Tax 10/0

Retail Price 50 ohms: £4/14/0 + Sales Tax 9/10

A QUALITY PRODUCT FOR TAPE RECORDERS & P.A. USERS



DF-3

Marketed by **ZEPHYR PRODUCTS PTY. LTD.**

58 HIGH STREET, GLEN IRIS, S.E.6, VICTORIA

Phones: 25-1300, 25-4556



Manufacturers of Radio and Electrical Equipment and Components

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.

# SIDEBAND

Sub-Editor: PHIL WILLIAMS, VK5NN

## S.S.B. TRANSCEIVERS

There have been numerous requests for information on the various types of transceivers now available to the Australian Amateur, so I am taking the liberty of making this the theme for the summer holiday editions of these notes.

In general, it may be said that the transceiver is a single package combined transmitter/receiver using as much apparatus as possible common to both functions. This usually boils down to a common i.f. strip including the crystal or mechanical filter, and common oscillator circuits, both crystal and variable, which are switched to the appropriate parts of the circuits.

My first introduction to transceiving was a unit using the oscillators from the HT32A transmitter, feeding via cathode followers to a mixer unit, thence to a converted "Super-Pro" tuned to 9 Mc. This "lash-up" was used by a U.S. serviceman overseas for phone-patch work during the mid-50s, the object then, being to send the transmission back to the States on the same frequency as was coming back. In this way, transmitter tuning was all that was needed.

About this time, Collins brought out the three-band KWM1 for 10, 15 and 20 mc and since those bands were very co-operative for DX at that point in time, these units were popular. Since the late 50s, however, the five-band KWM2 and 75S/32S transceive combination have taken the lime-light. Anybody with a disused KWM1 for sale is advised to wait for several more years, when its value is expected to rise with sunspot activity.

Another transceiver that appeared at this time was the "Cosmophone" which was definitely a fixed station transceiver because its size, shape and weight were about the same as a Marconi CR100 receiver. It appeared in a 90w, and a full kilowatt version, but the beauty of it was its two v.f.o.'s, one for transmit and the other for receive, with provision to change at will. Many of the more recent transceivers have "out-rigger" v.f.o.'s which enable this to be done. It is important to note that this Cosmophone was the forerunner of many of the advanced units available today, but has now become a discontinued line—mainly because of its appearance. When operating cross-band, viz. U.S. phone band to foreign phone band, one had to be on guard against inadvertently transmitting on the wrong v.f.o. The reaction to this was akin to driving wrong way down a "one-way" street. Apart from mentioning that this Cosmophone had a mechanical filter for sideband generation and reception and was a.c. powered, we will say no more than that both it and the KWM1 were expensive.

The next transceiver excursion by a big manufacturer was the Hallcrafters FPM-2000, a beautiful little unit, with lots of transistors and a pair of 6146s in the final, but it just could not be produced and sold under 2,000 dollars so that apart from being used for a few DX-peditions not much has been heard of it. I had the pleasure of operating one of these at W2AVA's establishment in New York City, and can vouch for its performance. It was offered at a bargain price—still more than a new KWM2, so it remained unsold.

Collins KWM2, brought out in 1959, has been in production for six years now, and is still basically the same apart from accessories which appear from time to time. When one considers their re-sale value, this unit is an economical one, but alas, and particularly in Australia, financing a Rolls and a KWM2 fall into the same category—just another illustration that "only the rich can afford to be economical."

After this, it seems that everybody wanted to get into the act and almost as many firms now make transceivers as make washing machines, and designs are about as competitive and full of "must" features.

Swan transceivers were next on the scene with the now famous SW120, using a 5 Mc. filter and a single 6DQ5 output. Some clever people discovered that these could be made into a three-band job with a few coils, switches and the pluck to dive into a new set with drills, cutters and soldering iron. Swan then brought out the 240 version, tri-banded, and Hallcrafters came along with a similar tri-

bander—the SR-150—in 1962, to be followed a year later with the SR-160 for five-band work.

R. L. Drake, of Ohio, then brought out his first transceiver in the same year (1963). His TR-3, a five-band unit (the previously made receivers) used 9 Mc. filters—yes, two of them, one for upper and another for lower sideband—and has been a successful unit for both home and mobile use.

At about this time World Radio Labs. brought out a tri-band Galaxy transceiver, which although quite a large unit, established them in the market. The newer and smaller Galaxy III, was produced in 1964, followed closely in the same year by the Galaxy V., both of which are still in production and widely used.

The National Co. brought out their NCX-3 in 1963, their first attempt to re-enter the serious, high-class equipment field since the post-war years. The more recent NCX-5 is a five-band version covering 80-10 mc. Both units have been popular, to say the least.

The Heath Co., makers of well known kits, has been successful with single band transceiver kits using crystal filters and printed circuits. Some time ago publicity was given to a larger five-band transceiver, but this has not materialised, although the separate transmitter/receiver units of the same construction are available and can be connected for transceiving. The smaller kits, the HW-12, HW-22 and HW-32 may be tri-banded by addition of more coils and components for an additional 50 dollars, and this has been stated to be the cheapest way of getting on the 20, 40 and 80 mc bands. The kits for conversion are by Dynalab, not Heath-kit, just by the way.

Swan has recently kept to the fore with the five-band Swan-350 which has an in-built transistor v.f.o. and the Swan-400 with alternative external v.f.o.'s. The small mobile v.f.o. covers popular s.s.b. band sections, and the large v.f.o. gives complete band coverage.

"Side-band Engineers" in California have marketed a transistorised four-band unit, the SB-33 for several years and a later version, the SB-34 is basically the same but with additional features, such as slower tuning

rate. The transmitter output is, of course, obtained from valves, two i.v. time-base types.

Two later additions to the parade are "Elco" selling their model 753 in either kit or wired form—and there are Australian agents, so I see in "A.R.," and "Transcom" with their SBT-3. The latter is, again, a transistorised unit and although I do not have details of the circuits, it appears to be comparable with the SB-34 except that external power supplies are required for the SBT-3.

(Continued next month)

★

## S W L

(Continued from Page 15)

any reader be at all interested in commercial DX, Robt. would like to hear from you at 404 Mont Albert Rd., Surrey Hills, E.10, Vic.

Re the programme "DX Party Line" from HCJB, advice is to hand from Bill Dalrymple, 20 Goulburn St., Sydney, their VK rep., to the effect that this programme is heard on first and third Wednesdays of the month at 7.30 p.m. our time on 8.05 or 9.745 Mc.

## DX NEWS

Very little this month, PX1UX says all QSLs via R.E.F. Don't send a "bare" report to ZB2AO or it will finish up in the w.p.b. 5U7AU, heard recently, asks for all QSLs to go to W8HMI, the op. of 5U7AU (601AU) has now returned to the States. Tnx "Monitor".

## DX LADDER

There are several alterations since our last publication, including the deletion of names which have been missing for three months.

	Countries		Zones		W
	Conf.	Hrd.	Conf.	States	
E. Trebilcock	290	295	40	50	
P. Drew	177	260	37	40	
D. Grantley	128	290	39	35	
W. Smith	108	190	32	7	
A. Westcott	106	159	34	11	
R. Kearney	100	161	33	8	
G. Earl	98	165	33	16	
M. Hillard	93	241	33	14	
C. Abernathy	86	105	33	14	
N. Harrison	83	183	32	38	
B. Prosser	80	180	17	8	
A. Raftery	49	175	24	11	
D. Shephard	31	98	—	—	
R. Halligan	21	136	11	1	

To qualify for a position on the ladder it is necessary to have ten confirmations.

Well chaps, that's it from here, 73 to you all and good listening in 1966—L2022.

## CRYSTAL DIVISION

Manufacturers of Quartz Crystals for Frequency Control and Crystal Filters for Highly Selective Circuits announce:—

### NEW LOWER PRICES FOR CLOSE TOLERANCE GOLD PLATED CRYSTALS FOR AMATEUR APPLICATIONS

Amateur Net (each includ. Tax)

- 1.8 Mc. to 14.999 Mc. ±0.005% in Stylé "D" holders, ½" pin spacing ..... £2 8 6
- 15 Mc. to 47.999 Mc. ±0.005% in Style "D" holders, ½" pin spacing ..... £2 10 6
- 48.0 Mc. to 61.0 Mc. ±0.005% in Style "D" holders, ½" pin spacing ..... £2 16 3
- 100 Kc. ±0.005% in HC13/U holders, ½" pin spacing\* ..... £4 10 0
- 1 Mc. ±0.005% in Style "D" holders, ½" pin spacing\* ..... £4 10 0  
\* Specially designed for Crystal Calibrator purposes.
- 455 Kc. nominal Crystals for Filter applications in Style "D" or "E" (B7G) holders ..... £4 10 0

Many other types and tolerances are available from our standard production. Please consult us on your Crystal requirements.

## PYE PTY. LTD. CRYSTAL DIVISION

1A KILPA ROAD, MOORABBIN, VIC. Phones 95-2011, 95-6741  
STATE OFFICES IN ADELAIDE, BRISBANE, HOBART, PERTH AND SYDNEY

# DX

Sub-Editor: ALAN SHAWSMITH, VK4SS  
35 Whynot St., West End, Brisbane, Qld.

Conditions continue to improve slowly, 21 Mc. particularly has been quite good and open from early morning until after dark. However, VK activity seems almost non-existent on this band up to now. So wind another coil chaps! Make the effort, it is worth it.

## NOTES AND NEWS

**Agales:** Harvey VQ8BFA managed a three-day stint early in Nov. Next burst from the Island will be mid December. QSL G8KS.  
**9M8KS/9M0:** Active from Sabah, 14050, 1200z.  
**Easter Is.:** Reported on 20 c.w. 0300z. Look around 14055. Call is CE0AC.  
**Dahomey Rep.:** TY3ATB opens up on 21400 s.s.b. about 1300z but will QRT under a pile up.  
**Mauritius:** Raul VQ8AI on 14070 at 2000z.  
**Spanish Morocco:** EA9AZ, 21360 with daily sked at 1600z with KP4CL.  
**Turkmen:** UH8DP is a YL. 14100 at 1500z.  
**Mauritania:** Alban 5T5AD, 21150, 1600z.  
**Monaco:** Jean 3A2BF, 14250, 1400z. QTH OK in book.

**Congo Rep.:** TN8AF, 21060, 1900z.  
**Ceylon:** 4S7IW, 14220, 1200z. Also several on AI mode 20 mx both at 0100 and 1200z approx.  
**Swaziland:** Archie ZD5R and Des ZD5M both QRV. QSL to VE4OX for the former. Modes s.s.b. 14110 and c.w., also 21 Mc.

**Rep. of Guinea:** Josef 7G1A, 21030, 1800z.  
**Malawi:** 7Q7PBD and 7Q7PS both QRV on 14 Mc., AI mode. Try 1200z. Also 7Q7BN said to be operating 21 Mc. s.s.b. 1730z. QSL the latter via W0AGY.

**Ini and Rio de Oro:** Mike EA3QT still says he is going to operate from these places during Dec. and Jan. No other info.

**Bonair:** Ginny FJ5BD is rumoured still active on 14 Mc. s.s.b.

**Antigua:** VP2AX 14290 1900z, also VP2AC 14240 1100z.

**Grand Turk Is.:** VP5AR reported as still active and is expected to continue for some time, 14 s.s.b. and probably AI mode. Try 0400z or 2030z i.p.

**ZD8ML** is listed as active on all bands and modes. Not heard yet at this QTH.

**Togo:** 5V2SCM 14 s.s.b. and c.w. Will operate for one year. QSL to F. Payet, P.O. Box 123, Lome, Togo.

**Jan Mayen:** LA5AJ/P 14040 I800z, also s.s.b. at times.

**F88WV:** Now on s.s.b. So reports from Eu say, 14 Mc. around 0700z might find him.

**CR5SP:** 21390, 2100z. Says he prefers to be called in Spanish. Erudite VKs please note.

**GC8MT:** On now at time of writing, but not known for how long. 14285, 1400/1500z.

**Portuguese Timor:** CR8AE and CR8AF both QRV, the former s.s.b. and the latter AI mode. Both 14 Mc. and CR8AE's QSL goes to Dilli, Timor.

**Tahiti:** FO8AQ 14 s.s.b. 0645z. C/o. Panaaula, Tahiti. Also FO8BI active on all bands, c.w.  
**Pago Pago:** KS6BH 14 s.s.b. 0500z. QSL to Box 8. Also one or two others operating.

**Platain:** Tom VR6TC regularly on 21065 2200z. Sked first with W5OLG to arrange Tom to call. Always a mass of Ws on the freq.

**Br. Guiana** soon to be independent and re-named Guyana. Not known if prefix will be changed.

**Singapore:** Since break with Malaysia, is regarded as new country.

**Govt. of Turks and Caicos** transferred now to Govt. of Bahamas. This may mean another possible deletion in D.X.C.C.

## ACTIVITIES

Chas VK4UC has found time between study and school-teaching to snare a few good ones. All 20 c.w.: 7Q7PS 1200, FR7ZL/M 1300, FL8RA 1430 (QSL W2LJX), CR8AF 0900, VQ8AI and AW 1400, T23AB (Box 2486, Dharhan), EP2RV 1100 (QSL GSRV), DU1RF (Box 4083, Manila), PE2EVO (QSL PA0EVO), IS9WNV, W9WNV/T19C, W9WNV/ZM7, etc.

Dud VK4MY soaking up retirement on the Gold Coast and working DX. 5Z4JD 2050, HL9KF 1310, OA4JR 0315, ZS5UR 0630, 4X4VL 1325, ITIAUT 0630, CX2AJ 1000, VS9OC 1130,

F88YY 1130, W9WNV/ZM7, VS9OC (Oman, 1100z), 9M2YY 1030z, KR8CV 0700, CX1RY 1000, VQ8AI 1345 and others.

Ken VK3TL logs the following choice ones on 14 Mc.: DU9FC, HV1CN, LA5CI/P (Jan Mayen), OD5EG, OY2B, OH0VF, PE2EVO, PX-1CB, VS9MP, 5J4RCA, 5W1AZ, 9M6DH and more. Best QSLs recd. VP1AB, HC8FN, FJ3CD, HF1BR, DU9FC, YS1AG, VP5AR (Grand Turk Is.) and 9L1SL.

All times given are G.M.T.

## QSL MANAGERS

VR4CU—ZL2LB  
VR5AC—ZL3DX  
VS9ALD/4W1—W9JFF  
XZ2TZ—W4EC1  
YA1AW—K5YYP  
AF5B/YA—G8HG  
YS1O—W0U2C  
ZD5M—W2CTN  
ZD5R—VE4OX  
3V8CA—W8UTQ  
6N5X—W6SY

9Q5GE—W8WB  
VK9JO—VK6RU  
VK9DR—VK6RU  
VK0FZ—W5WW  
VPIWS—VP3AA  
VP6PX—W2CTN  
VP6LJ—W2CTN  
VP7CS—W2CTN  
VQ51B—W2CTN  
VQ9HD—G3PEK  
VQ4RF—W4MCM

## SUMMARY

DX-wise the winds of change are blowing across Amateur Radio too. We are now in the era of island activity. A glance at the notes and news will show this. Expeditions are being planned to islands large and small. To mid ocean fragmentary rocks and awash sand banks. DXing now has an exotic face. A new look if you like. Trail blazers were Danny Weil VP2VB and Sir Gus W4BPD, who is still humping gear from one outlandish place to another. Many others are helping to bring the islands of the world to our notice. Our own Bill Hempel, VK3AHO, did his share in Oceania. Feverish contemporaries are Don W9WNV and Chuck K7LMU, both flat out operating from various islands, remote and rare. Their proposed activity from Heard Is. in the near future will be a stout effort if it can be accomplished. Making a landing will be no piece of cake on this wind-torn spot down below the roaring forties.

All this may not be the ultimate for which Amateur Radio exists, but it is providing interest and activity.

A very special thanks to those who have helped provide the "meat" for the column these past months: LIDXA, Fla. DX'er, Mick

G3HDA (R.S.G.B.), John OH2YV, and locally VK2QL, VK3TL, VK4MY, VK4UC, S.w.I. C. Thorpe LA018, and others.

Good hunting in 1966. 73, AI VK4SS.

## W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

### PHONE

Call No. rles	Cer. No. rles	Call No. rles	Cer. No. rles		
VK5MS	24	320	VK2JZ	61	244
VK5AB	45	312	VK2ADE	65	231
VK6RU	2	310	VK4HR	12	223
VK6MK	43	307	VK2AAK	58	214
VK3AHO	51	307	VK6KW	4	211
VK4FJ	21	283	VK3WL	14	211

New Members:  
VK3ACD 67 145

Amendment:					
VK2APK	64	182	VK3TG	48	142
VK2AGH	55	118			

### C.W.

Call No. rles	Cer. No. rles	Call No. rles	Cer. No. rles		
VK3KB	10	353	VK2AGH	71	282
VK2QL	5	308	VK2EO	2	276
VK3CX	26	306	VK6RU	18	263
VK4FJ	29	300	VK3AHQ	76	260
VK2ADE	81	298	VK3ARX	66	253
VK3NC	19	286	VK3XB	75	247

### OPEN

Call No. rles	Cer. No. rles	Call No. rles	Cer. No. rles		
VK2ADE	28	322	VK2ACK	6	300
VK6RU	8	316	VK3NC	77	287
VK2AGH	83	314	VK3JA	43	271
VK3AHO	76	310	VK4HR	7	264
VK6MK	74	309	VK2VN	18	251
VK4FJ	32	308	VK2APK	82	243

Amendment:  
VK3ACD 94 151

# BRIGHT STAR CRYSTALS

FOR ACCURACY, STABILITY, ACTIVITY AND OUTPUT



Our Crystals cover all types and frequencies in common use and include overtone, plated and vacuum mounted. Holders include the following: DC11, FT243, HC-6U, CRA, B7G, Octal, HC-18U:

THE FOLLOWING FISHING-BOAT FREQUENCIES ARE AVAILABLE IN FT243 HOLDERS:—  
6280, 4095, 4535, 2760, 2524 Kc.

5.500 Kc. T.V. Sweep Generator Crystals, £3/12/6.  
100 Kc. and 1000 Kc. Frequency Standard, £8/10/0 plus 12½% Sales Tax.

Immediate delivery on all above types.

AUDIO AND ULTRASONIC CRYSTALS—Prices on application.  
455 Kc. Filter Crystals, vacuum mounted, £6/10/0 each plus 12½% Sales Tax.  
ALSO AMATEUR TYPE CRYSTALS—3.5 AND 7 Mc. BAND.

Commercial—0.02% £3/12/6, 0.01% £3/15/6, plus 12½% Sales Tax.  
Amateur—from £3 each, plus 12½% Sales Tax.  
Regrinds—Amateur £1/10/0, Commercial £1/17/6.

CRYSTALS FOR TAXI AND BUSH FIRE SETS ALSO AVAILABLE.

We would be happy to advise and quote you.

New Zealand Representatives: Messrs. Carrel & Carell, Box 2102, Auckland.  
Contractors to Federal and State Government Departments.

## BRIGHT STAR RADIO

46 Eastgate Street, Oakleigh, S.E.12, Vic.

Phone: 57-6387

With the co-operation of our overseas associates our crystal manufacturing methods are the latest.





# VHF

Sub-Editor: LEN POYNTER, VK3ZGP  
14 Esther Court, Fawkner, N.15, Vic.

Writing this so early in the season seems to be a good time to stick my neck out and make a few predictions. By the time it is in print we will be able to observe the results and comment in detail.

With 52 megs open so early with good openings from early November, it would appear that we might enjoy an excellent season. Early openings across to VK6 and ZL from VK5 makes it look like the 63-64 season when these areas were worked in later November. This produced quite an outstanding season when the W.A.S. on 6 totals went up in great strides. The usual traffic between VK4 to VK5 1, 2, 3, 5, 7 are in earnest and nothing further need be said. Unless Channel 0 reduces test pattern hours many in VK4 and VK3 will find it hard to work ZLs and perhaps VK6, acquiring front-end overloads, etc.

With the early morning openings predominating from VK3, it could mean a reversal of form from last season when the openings (or the best openings) were in the late afternoon and early evening which put the majority of Melbourne stations off the air.

Whilst on the t.v. subject, some Melbourne Amateurs are experimenting with the use of f.m. to overcome these problems and from early reports appear to be having a good deal of success. The use of f.m. has never been very popular in the past because of the receiver problem. However, this should no longer be the case. Use of surplus commercial two-way equipment has reparked interest and use of modified t.v. sound channels could be an inexpensive answer to the receiver problem. The result is a low noise receiver capable of quite excellent results on f.m. signals which should go a long way to overcome the receiver problems.

The loss of the VK5 beacon will impose somewhat a strain on our VK5 DXers, as they will have to rely on their intuition to forecast conditions. The VK6 beacon was running from 6ZAA's QTH and if all goes well will be back at the old QTH for a tryout.

A request to users of the 53.032 Mc. frequency. If you must work stations off the frequency, try to listen often and keep the oars short to allow others to use the channel. Better still, if you work off the frequency QSY to another spot and don't tie up the hottest spot on the band. Many use fixed receivers and one station working to another off the net makes it extremely difficult for others. Some recent efforts completely gummed up the frequency for long periods and they never once listened on the frequency as many were calling but none were heard.

There will be no notes in the February issue, so hope you all have a good season. Bags of DX. Best of good wishes for '66 and please—send in those logs for the Ross Hull Contest. Spend an extra evening off the air doing your log. 73, 3ZGP.

## NEW SOUTH WALES

An opening to ZL occurred during the week-end of 27th and 28th Nov. During Saturday afternoon, VK2ZVL was working ZL-3RX on 6 mx. VK2ZVL went to 2 mx s.s.b. and they worked cross-band. On Sunday at 1650 (E.S.T.) VK2ZEK heard and worked ZL-3JE on 2 mx. Signals peaked to 5 and 8 both ways. Several other stations heard the ZL signals but no other reports of working have been received.

Don't forget the New Year VK2 Field Day, 5 p.m. Saturday until 9 a.m. Monday. Activity appears likely from all mainland States and New Zealand. About 30 field locations and about the same number of home stations will be taking part.

During November 6 mx started to open and several all State openings have occurred.

There has been steady activity in VK2 according to all reports. W.I.C.E.N. activity is spreading and several country stations are now using 146 Mc. f.m.

The V.h.f. Group, which transmits a broadcast at 7.30 p.m. on Sunday under the Group call sign VK2BWI, has seen a change in the style of material presented. V.h.f. equipment is being installed at Wireless Institute Centre and will be used in the near future. Some broadcasts have already been done using portable equipment. Besides installing transmission

gear, a room is being set up with test equipment to help the v.h.f. operator.

The January meeting will be held on 6th and is set down as an open night. The Group will be setting up a station again in the National Field Day in February. Regular and well attended fox hunts on both 6 and 2 mx were held last year.

All the best for the New Year. 73, Tim 2ZTM.

## SOUTH AUSTRALIA

At last organised pandemonium reigns supreme within the confines of 52.0 and 52.2 megs. Although not unusual for this time of the year, it would appear that in the ensuing months intense sporadic E DX will be available to those who avail themselves and switch on their gear, which from observations appears to be most difficult for some operators. Nevertheless, activity in VK5 will uphold the tradition. Until the 28th Nov, stations in VK1, VK2, VK3 (backscatter), VK4, VK6 and VK7 have been available on innumerable occasions. No activity from VK8 and VK9 has been reported as yet.

An excellent opening was experienced on 27th Nov. to ZL1, 2 and 3. Signals up to 5 and 8 plus were available in VK5 for up to two hours.

It has been interesting to note the increased number of stations utilising the practical advantages of single sideband. It is not unusual to copy a s.s.b. signal 15 to 20 minutes prior to and after the completion of a customary a.m. opening. However, to fully make advantage of this apparent increased time of band openings more sideband signals are required to expedite the full advantages of this mode. No doubt in DX seasons to come the advantages of s.s.b. will be enjoyed by the majority of v.h.f. operators. As advertised on the modulated ink bottle, "Get with the Strength, Bank S.S.B."

Anticipating the imminent launch of Oscar IV, many VK5 Amateurs are organising themselves into groups and pooling their resources to make an honest attempt into obtaining the most from the project, providing of course that the package is placed in orbit undamaged and the translator functions more successfully than that of Oscar III.

On behalf of all the v.h.f. enthusiasts in VK5, I wish to extend the season's greetings to fellow v.h.f.ers in VK and may the Sporadic E gladden down upon us. 73, Colin 5ZHF.

## WESTERN AUSTRALIA

November in VK6 brought with it a substantial increase in v.h.f. activity, as the DX season got under way. On Nov. 14, Andy 6ZCN bagged the first DX for the season, with Max 6ZFM in Bridgetown close behind. Since then reports of DX heard and worked have been coming thick and fast, including one of ZL television. This augurs well for the months to come.

VK6VF is now running beacons on six, two and 432, so all interested VK5 types can cease complaining about our beacons and start work on your 432 beacon instead. The next move in the better beacons campaign in VK8 is to get the aerials off 6AW's back fence and into the air; the more technical types amongst us feel that an increase in coverage may result from so doing.

The November meeting of the V.h.f. Group was well attended and in contrast to the usual, was quite a subdued affair with very little business that the table-thumpers could get their teeth into. Even the subject of the Christmas meeting generated very little emotion. A lecture by Trevor 6ZDZ on Radio Astronomy in Australia aroused much interest amongst those present.

The fox hunt was held in Bunbury as part of a Hamfest on the week-end of 20th and 21st and after extensive motoring round Bunbury, Graham 6ZDB won the event. Supper was held in Danny Robertson's backyard, and next morning Andy 6ZCN and Graham 6ZDB organised and ran an f.m. caper in the form of a car trial with radio. Aub 6BXJ from Wickepin beat the field and John 6ZAG missed a turn somewhere and kept on going east for about ten miles too far. But the scenery proved so nice when he got there that he decided to stay and take photographs.

Max 6ZFM distinguished himself later on by splitting his bathers while surfing, and all in all the week-end was a roaring success. Our thanks to the Bunbury types who arranged it all.

Activity on 6 mx a.m. is on the increase, with the DX, and several people have been talking sideband, some actually building it, too, but the bulk of traffic is still on the f.m. net on 52.656. Base stations and mobiles continue to proliferate and activity is even noticed on Chan. A (52.525). There is a fairly extensive a.m. net in operation also, mainly amongst the staff of the t.v. stations, but details of frequency and activity are not to hand.

On 2 mx, activity is still confined mainly to crossband and contacts prearranged elsewhere, but Andy 6ZCN has his 40 element "You Beaut Special" almost finished, and don't forget that when six is open, Rollo 6BO is often up on two looking east (VK5 please note).

There is a DX-pedition planned to Esperance by 6ZAY and 6ZCN on 6 and 2 mx over the Christmas to New Year period, and others are dispersing round and about, Tony 6ZDT to Meekatharra and Graham 6ZDO to Forrest.

Nothing much has happened on 432 for some time, but it is hoped that the coming of the beacon will change all that and cause some building for that band.

While I remember, Glen 6ZFH will shortly be on from Dalwallinu and Peter 6ZRK is off to Onslow in the New Year, so some northern activity may be stirred up this year.

The V.h.f. Group of VK6 extends the compliments of the season to v.h.f. operators everywhere. To all of you east of the rabbit-proof fence, we say 73 and please point the beam west sometimes. Barry 6ZCF.

★

## YOUTH RADIO SCHEME

Some Youth Radio Clubs are fortunate enough to have their own Amateur stations and members are able to gain experience in Amateur Radio communications under the supervision of licensed operators. To cater for club members who show special interest and aptitude for voice communication, the Radio Telephony Operators' Certificates are available in three grades.

To eliminate the possibility of turning club members into mere "on-the-air chatters," the gaining of the Radio Telephony awards is conditional on progress in the technical aspects of Y.R.S. training. The Grade 3 R/T award is available only to members who already hold the Elementary Radio Certificate and, similarly, the higher R/T awards assume further progress in the basic series courses. It is expected, too, that candidates for these awards will have received systematic instruction in the handling of station equipment and in the operating aspects specified in "Practical Tests, para. III," before being allowed to participate in "on-the-air" activities.

It must be kept in mind that candidates for these awards are, in effect, "public relations" representatives of the Youth Radio Scheme. Consequently, club leaders must ensure that only a good "image" of Y.R.S. is permitted. Candidates should be given prior instruction in suitable subject matter for QSOs and should be encouraged to ensure that other Amateurs are made aware of the Y.R.S. activities involved in the gaining of these awards. It is hoped that, as a result of this supervised operating experience, Y.R.S. members who finally attain Amateur operator status will introduce a new era of snappy, efficient operating, free of some of the unwarranted mannerisms and idiosyncrasies which beset the Amateur bands at present.

The Log Books, which Candidates must submit, must be more than a bald record of the thirty contacts with other stations. These Log Books must be attractively presented and should contain a considerable amount of Amateur Radio "lore", such as Amateur prefixes, reporting systems, pictures of Amateur stations (from such notable journals as "Amateur Radio", "QST", "CQ", etc.), QSL cards, and similar relevant material. In short, they should be "dressed up" to exhibition standard. Club leaders should insist that "only the best will do."

There must be many Amateurs who have sons and daughters with slight glimmerings of interest in Amateur Radio. The Y.R.S. Certificate Scheme provides a means whereby such interests may be fostered and the purpose of these insertions in "A.R." by the courtesy of the Editorial Committee is to ensure that ALL VK Amateurs are aware of what Y.R.S. has to offer.

—R. Black, VK2YA.

★

## SOCIETY NEWS

The official publication of the Korean Amateur Radio League, "K.A.R.L. News," has just been received and although it has not yet been translated, appears to contain quite a deal of information, both technical and of local interest. The s.w.l. news section contains quite a good reproduction of the QSL card of WIA-L2287. The reproduction of photographs, despite the rather poor quality of the paper, is very good and illustrates what can be done by a relatively new Society with little finance. Good luck to "K.A.R.L. News."



# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL QSL BUREAU

S.R.A.L. Finland, new address as from 1st January, 1966 (including QSL cards): S.R.A.L., P.O. Box 10306, Helsinki 10, Finland.

Cards for PA, PI, PJ and PZ stations can be sent via the FA QSL Bureau, VRZA, Post Box 190, Groningen, Holland.

Copies of Regulations (in English) governing Amateur Radio in Finland may be had on application to this Bureau.

The Diploma "Mocambique" will be awarded to every Radio Amateur contacting the CR7 stations as follows:—

(1) First, second and third class Diplomas will be awarded to the Amateurs having, respectively, nine, seven and six Mozambican districts with a minimum of ten QSOs with different stations.

(2) Only QSOs made after 7th October, 1965, will be considered.

(3) QSOs to be made on any authorised band (phone, c.w. or mixed), the minimum acceptable reports being RST 338 and RS 33.

(4) This Diploma will be awarded separately for c.w., phone or mixed. Each CR7 station can be worked several times, provided it is in different bands or type of transmission.

(5) Mozambican districts and respective abbreviations are: Cabo Delgado CD, Gaza GZ, Inhambane IB, Manica M, Sofala MS, Mocambique MQ, Niassa NS, Tete TT, Zambezia ZB. All CR7s will transmit the name of the district following the name of the township where they have the QTH, or just the district's name. In telegraphy, they will only use the abbreviation.

(6) This Diploma will be awarded to S.w.L. as well, on the same conditions provided they control a minimum of 25 CR7 QSOs.

(7) Applications must be sent to L.R.E.M., C.P. No. 812, Lourenco Marques, Mocambique, together with ten I.R.C.'s and a list showing the name and address of applicant, his call letters and the contacted CR7, band, date GMT and the received and given reports, as well as the type of transmission.

There is no need to send the QSLs along. MP4BEK is now living in Melbourne. Name and current QTH not stated, but may be had from BERS195.

—Ray Jones, VK3RJ, Manager.

## NEW SOUTH WALES

Well, another year is with us, and to start activity in the VK2 Division there will be two Conventions over the Australia Day week-end. The Division will be holding their annual event. On Friday night, the meeting at W.I.C. will feature a display of every mode and type of equipment being used in this Division. On Sunday the field events will be held at the transmitting station VK2WI—Dural.

On the same week-end a Convention will be held in Area 2. It is now being held at Tamworth not Armidale, because of accommodation problems. On Saturday afternoon there will be a tour of NEN Ch. 9 studios, a dinner at night and a field day on Sunday. Further details may be had from the Zone 2 Officer, Max VK2BMK at Scone.

In February there will be the field day at Gosford and possibly one in the Hunter Branch.

At the Nov. meeting those who attended heard an excellent lecture by 2AOU on building an s.s.b. tx. A motion was put to the meeting that the fees of the VK2 Division be increased. It was adopted and as from 1st March 1966 the fees will be \$5 for full members and \$4.50 for associates.

The Canberra Radio Society met on Nov. 17 and elected office-bearers for 65/66: Pres., Ken 1KM; Vice-Pres., Les 1PI; Sec., John 1QL; Treas., Bert Forsyth. Don't forget the Canberra Convention at Easter 1966.

## SILENT KEY

It is with deep regret that we record the passing of:

VK5IT—Ivor Thomas.

## W.I.C.E.N.

The following are the v.h.f. frequencies to be used in VK2 for W.I.C.E.N. Prime mobile frequency, 146.00 Mc. f.m. On 6 metres the f.m. channels are (a) 53.950 and (b) 53.920, and a.m. (1) 53.786, (2) 53.826 and (3) 53.866. These are chosen in relation to local t.v. channels. All W.I.C.E.N. and frequency inquiries should be directed to the W.I.C.E.N. Secretary, Peter Campbell, 2AXJ, 3 Earle Ave., Ashfield.

A reminder that supplies of both printings of the VK2 produced publication known as the "Amateur Guide" are available from this Division. It is worth a total of 16/- for both (or 6/- to the second sub edition). Address all enquiries to "Handbook," Wireless Institute Centre, Crow's Nest.

All the best for the New Year and 73 from the VK2 Division.—Tim Z2TM.

## VK2 DIVISIONAL FAMILY PICNIC

In spite of the very unfavourable weather and opposition from a DX Contest, the Divisional Family Picnic at Parramatta Park on Sunday, 28th Nov., was a great success. Just on 60 people of all ages attended and took part in a programme of events not usually seen at gatherings of the Ham fraternity.

A long list of events kept everyone occupied and practically every person, in all age groups, showed the picnic spirit by entering the events willingly and appeared to thoroughly enjoy themselves.

The event that raised the most laughs was the wheel-barrow "mobile". This was a pairs event, consisting of a pusher and a passenger, the latter wearing headphones and carrying a dummy sniffer. Rounding the half-way mark, they changed over, and so back to the finishing line. Originally this event was considered suitable for the younger men only, but everyone was loudly encouraged by the spectators to "have a go". As capsize was frequent, the sight of some portly gentleman flat on his back with his feet in the air kept the onlookers in good humour. Incidentally, the wheel of the "vehicle" at one stage was the shape of an egg, through a combination of our Federal Councillor's weight and a bump in the ground.

A billy-cart derby for the older boys was run on similar lines. A toddlers' race was held so they could take part in the programme, but all children under the age of seven received a gift.

Many other events were held during the day. Before dispersing, there was some discussion about another get-together and it was decided that we meet again at the same spot for a barbecue lunch on Sunday, March 6 next.

## HUNTER BRANCH

Even before Christmas the long bearded operator from OX land had visited some of the Branch members and brought them gifts of wonder and delight. Stuart 2AYF was one who hung up his stocking early and found in it one morning a Codar AT5 tx. This is a wonderful little device and only a handful but it goes on 80 as well as 160 mx and has all the usual features. It looks just the job for the car, so we may expect some more 160 mobile activity soon. Otto 25I was also one of the fortunate ones and his gift happened to be a kit for a Communication 10. The only trouble was that the front-end had some strange resistors in it and appeared to be non-functional until some translation from the original Italian was made when all became clear.

Even the Hon. Member for Gore Hill and William Street, David 2BSC, was not forgotten and his very large stocking was filled to capacity with an announcer's desk ex the old firm, complete with a programme line to the House of Representatives, where, by the way, they will be asking the questions when the loss is discovered. So at least he'll know when he's for the big jump. I, foolish lad that I am, dreamed that some kind person presented me with a big bag of 807s, but, alas when I awoke, it happened that I had my head in the pillow case.

Fred Z2FO and Henry Z2GK, who recently received their call signs, are working to get on the air on 2, mx and Henry already has some f.m. gear, "almost there" as he told me. Fred has erected the feeder for the aerial, anyway, so he's made a start. If you hear some strange clicking noises on the slow morse

frequency in the weeks following this report you may be sure that it is your receiver which is playing tricks and not the excellent tx being operated by the YL of the Lakeside, Susan 2BSB. It is said that she now only awaits Kevin 2ANY to send a crystal when the strange noises will disappear only to be heard again, but this time on the right freq. For the information of all interstate listeners who are wont to comment about such things, this is the very same tx which one night was three cycles high.

Some of our members are noted for their low quality and low height aerials and it would be most remiss of me to leave them unmentioned here. Les 2RJ was threatened by the local council for erecting trip wires within the municipal boundary, while Paddy 2AXU is in trouble with the labour and industry men for not displaying the notification "licensed dealer in old wares" correctly over the shack. He claimed that it was because he hadn't learned to spell at school. What a difference one letter can make!

Those two overseas gentlemen, Ron 2ASJ and Gentleman Jack from Stockton, have both had bouts of illness recently but from last reports they are improving and have promised to get well again for the new year. As a reward, Mac 2ZMO has promised a new 2 mx tx for good results. The reason he's not offered it before is because he spends the time at night with one eye on the meteorites. It paid off recently though when he was able to really get amongst them and work all and sundry on 6 mx.

By this time Peter 2AIY, one of the Cessnock crew, is on his way to G-land where he intends making investigations into all manner of interesting activities, not the least of which will be the wonders of Amateur operating abroad. His workbench companion, Sherwood 2AJF, is contemplating following him when he has mastered some of the foreign languages used in those distant climes. He is progressing with German though. So far he has learned "I am single" and "What is your telephone number?" So he should have no trouble with the rest of the conversation. Even Chris 2PZ is brushing up on the foreign tongues and knows everything on the front of that exotic receiver which adorns the shack. He has one problem though. Can someone help with the disposal of several dozen large honey jars?

The Australia Day week-end looks as if it will be a very interesting time for local operators who have the choice of two field days—at Tamworth and Dural—in which to partake. Whichever way you travel, you are assured of a good time as plenty of activity is planned. There is even talk of a "mystery voices" competition at the Northern rally—it is to be hoped that this includes the few fractions of a second before the tx is modulated. Then those who come on with a "clunk" will easily be recognised.

Don't make the mistake of attending the January meeting of the Branch as there will not be one, but Frank 2AFO has arranged that another of the Mullard staff members will be lecturing at the next meeting which will be on February 4. Full details of this and all Hunter Branch meetings will be given in the weekly news broadcasts from 2AWX. If you are short of new year resolutions, how about including the I.T.U. Fund. It deserves your support. Well, that's enough for one year. See you when the dollars are about. 73, 2AKX.

## VK2 DIVISION, W.I.A.

### Australia Day Week-End:

Sydney—Divisional Convention:  
Meeting Friday, VK2WI Sunday.  
Tamworth—Area 2 Convention:  
Dinner Saturday, Field Day Sunday.

### February:

Gosford and Hunter Branch. Refer to Divisional Bulletin for details.

### March:

Barbecue first Sunday in March, at Parramatta Park.

## CENTRAL COAST

The last meeting of the Central Coast Section was on 19th Nov. The evening was taken up with a lot of general discussion and some important decisions were made. It was unanimously decided that the Central Coast Section should become a Branch, which was the result of much thought and investigation over the last few months. Members appreciate the value of W.I.A. leadership and are proud to contribute to the future of the organisation.

Lindsay 2ON has now returned from overseas and was elected Vice-President to fill a vacancy caused by a resignation. We are happy to know that his full time-table will now allow him to take up the interests of the radio club again.

Our best wishes and 73 to Frank 2AFJ, who has been laid up with a couple of broken ribs. We certainly hope he is all better by the time this gets printed. Les 2AKL and his family have been in an accident and have not yet completely recovered. It's much safer to stay in the shack these days.

The date for the Field Day at Gosford has been set for Sunday, Feb. 27, with the location the Race Course as in previous years. At the moment a definite plan for the day has not been arranged, but there will be the usual scramble, hunts, lunch, sight-seeing trips, etc.

We always have a group of interstate visitors and very often from overseas as well. I hope this message reaches a few readers who may be planning a trip in this direction and will make a mental note of the date—Sunday, 27th February, 1966.

I trust everyone has enjoyed a happy holiday season with plenty of DX. My best wishes for a happy new year on behalf of the Central Coast members. 73, Mona 2AXS.

## VICTORIA

### EASTERN ZONE

It has been many moons since the Eastern Zone notes graced the pages of "A.R.", so from now on we hope to make amends. I doubt that our volume of notes will reach those presented by FanSy, but we'll do our best. After this introduction, we'll get on with the business of letting you know what has been going on in the Eastern Zone.

The 19th Eastern Zone Convention was held at Traralgon in the Masonic Hall on Saturday, 20th Nov. Upon registration, each attending Amateur received a handout from the A.W.V. Co. consisting of valve, transistor and other helpful data handbooks. These are valued at over £2, so even for these the Convention was worth while. A working display of s.s.b. equipment by Fred Ball attracted much interest amongst the attending Amateurs. Fred 3YS even let me have a go at tuning up the tx and I was agreeably surprised at the ease of tune up—no high tune up currents, which always seem to be bad for the nerves and for the final p.a. tubes—plus other pleasing features.

Thirty-nine Amateurs and S.w.I.'s, including their wives and families, attended the dinner on Saturday evening. After the meal we men were left to get down to the business of the annual general meeting of the Zone. The highlight of the meeting was the presentation of the Kinnear Trophy to the Zone by John 3OR. During the meeting considerable discussion took place on W.I.C.E.N., led by the organisers of W.I.C.E.N. It is hoped that the Zone will be taking part as a multi-operator station in the National Field Day. The main problem now is where and by what devious means a 240v. alternator can be acquired. During next May it is expected that an activities day will be held within the Zone. The Zone hook-up is being revived and is on or about 3650 kc. and will be conducted by Merv. 3LL

### W.I.A.—VICTORIAN DIV.

#### CRYSTAL BUREAU

Please note that as from the 1st December, 1965, the Crystal Bureau will cease to exist. For reasons beyond our control, it has been found that it would be uneconomical to carry on with further business. All unfilled orders in hand will be attended to as the stocks become available, but all future orders for new Crystals should go direct to the suppliers.

on a Friday night at 2000 hours. Dig out those crystals chaps and let's hear those S meter pinning signals.

As is usual at such meetings, much reluctance was shown by members to accept nomination for the vacant offices, but with a little arm twisting the following were duly elected to office: Pres., Reg 3AWV; Vice-Pres., Graham 3TH; Sec./Treas., Stan 3ZAB; Zone Organiser, Graham 3QZ; Notes Correspondent, 3UG, and Emergency Liaison Officer, Graham 3QZ.

On Sunday all attending the Convention were taken on a trip to Bulga Park and then to Channel 4 and 10 tx'ing stations on Mt. Tassie. From Mt. Tassie contacts were made on both 2 mx f.m. net and 5 mx a.m. net. Mobile operation on 6 and 2 was the order of the day whilst on tour.

Lunch on for all was provided at the Callignee Hall. During the afternoon much ear-bashing took place, with members showing how their mobile rigs did or did not operate. All mobiles seemed to give quite creditable performance. David Tanner, now in VK4, flew down from Mt. Isa and certainly came the furthest to the Convention. George 3ZCG must take the award for the Amateur with the most overloaded vehicle as far as radio gear was concerned. Just one query George. Does the Mini run on petrol or batteries?

The St. Anne's Youth Radio Club in Sale has now gone into recess for the rest of this year. Due to the trouble with the matriculation-English exam., the proposed final operating day had to be cancelled. Next year it is hoped that you will look out for the call sign of the club—3ACO. St. Anne's have a 25w. tx on the 80 and 40 mx bands. The club has been tx'ing on alternate Saturday mornings between 1000 and 1100 hours.

The 6 mx a.m. net is going quite well in the general area around Sale. Results are fairly consistent and the way transceivers are being obtained everyone on the net in this area will have at least one base station and one mobile. No VK4s have been worked as yet this season on the net, but on 20th Nov. 4ZAV was heard at good strength.

Well that is the lot for this month. If anyone in the Zone has news I would certainly be pleased to receive it for the notes. Thank you for your notes Stan. 73, Rodney 3UG.

### WESTERN ZONE

Merv. 3AFO transferred from Horsham to Wodonga. The Zone wishes Merv. good luck, health and happiness in his new QTH.

Nell 3AQD's quad is still in the constructional stage and looks very impressive.

The Western Zone is the locale of the 1966 State Convention to be held in Ararat on the week-end of April 23 and 24 (Sat. and Sun.). An interesting and educational week-end is assured with 3AQD and 3GN handling local arrangements, in conjunction with the committee of the Western Zone. This will be a highlight of the activities of this Zone in the coming year.

Welcome back to Chas. 3IB, of Dimboola. Chas. recently returned from the islands and has some very nice Collins s.s.b. equipment. He is heard in the zone hook-ups.

Neville 3AAQ, of Ararat, recently entered double harness, so has another interest at the moment besides Ham Radio, but hopes are held of his return to the fold in the not too distant future.

George 3GN is now the possessor of an FL100B s.s.b. rig and is making with the "duck talk". Getting good results too, but the a.m. rig is still in operation and used frequently. Hopes to put up a quad like 3AQD.

— . . . —

## QUEENSLAND

Activity in the Sunshine State has been running very high over the past several weeks. The major event was the 8th Jamboree-on-the-Air. Vince 4VJ and a team of other fellows, together with loads of h.f. and v.h.f. gear, antennae, etc., and some hundreds of Scouts, were located down at Mt. Cotton where a good time was had by all. Several VK4s took their gear to Scout shacks—excuse me, dens is the right word there. And lots of other fellows had groups of Scouts come to their QTH for contacts. Activity ran very high on all bands and some excellent contacts were made. Scout Headquarters' station, VK4QH, was never off the air except when the duty operator dropped off to sleep.

The VK-ZL DX Contest really stirred up activity and many VK4s really went for the contacts. During the contest there were openings on both 15 and 10 mx. The c.w. section was really a surprise, conditions being exceptionally good on 20 mx and the band was open the full 24 hours.

Al 4LT has a new SX117A rx and it perks f.o. and really helped him a lot in the contest. Doc 4MO had a spot of transceiver trouble,

but quite OK now and has a beam to go up shortly—so more QRM, hi. Don 4GP has his quad up to 60 ft. boom height and is arranging the guy wires to resonate on 40 and 80 and to act as inverted vee dipoles. Norm 4TY, Arthur 4PX and Harry 4HR always seem to be snooping around on 20 and really pounce on the rare DX. Reg 4VX having good success with ground plane antenna on 20, with feed point 25 feet from ground, and gets a small share of the DX.

Eddie 4OW on a mobiling holiday to the southern States and operates 20 and 40 mx s.s.b. mobile. Tom 4TT getting out well on his dipole; has a new beam on the way and will put it up about 50 ft., so will be in the DX race too. Peter 4FJ just completed a 20-mx interlaced 20-10 mx beam which works out f.b. and is now putting a 15 mx 3-el. beam just below. Peter still operating a.m., but he will get DX in spite of this. Evan 4EF is running around with a nice triband commercial transceiver in his "bomb" together with a nice three-band adjustable whip. Evan can change bands whilst in motion by quickly reversing the car so the whip comes forward and can be caught from the rear window and screwed up or down to the right band.

Jack 4SF, up Ipswich way, getting a bit of good DX now and again. Ron 4RG building up a transceiver from commercial copy. Chilla 4SD certainly has his quad working out Chinchilla way. All the DX I call goes back to him, hi! Wednesday night is 10 mx "Rude Remarks Club" night and up to a dozen fellows can be heard on about 28.6 megs. every Wednesday night from 8.30 p.m. on hurling insults at each other. John 4RZ, down Southport way, comes in on the 10 mx net most nights, but is too young to throw compliments at the other fellows. Alf 4OL mobiling in the country for few weeks and looking for contacts on 7.069 Mc.

The Ipswich and District Radio Club are progressing well with their club house. The ground has been made available to them. Working bees have cleared the site and the plans for the building are now before the local council. My spies tell me that they were presented with a nice lot of windows from a building being demolished, so the plans for the club house had to be drawn up around the windows. Amateur members of the club have their weekly net on about 14.15 megs. every Thursday night around 8 p.m. and 4RG, 4SF and 4HW are amongst the most consistent in the net. 73, Reg 4VX.

### TOWNSVILLE AND DISTRICT

This being the New Year, let's hope that it will be much better than the one that has gone. Not only in DX ways, but first and foremost that the W.I.A. grows bigger and better than ever. That New Year's resolutions be made that we all stick our shoulder to the wheel and try and make the decisions of the executive come true, insofar as that the I.T.U. upholds the standing of the Amateur.

Wonder if by chance that the Radio Club in Townsville could once again come to life. What a good thing that would be as we are getting older and perhaps wiser, we could all get together again and let bygones be bygones. No doubt with new Amateurs in the district, the club could really get going. New blood would infuse it and here's hoping that ere long I will be able to report that it is again going good and strong like when it was first started.

Nothing much to report in the way of news of the locals, but I can still hear them. The other day John 4DD called on 28 megs on phone, no takers so he tried c.w. Yes, I can still read that mode. Merv. 4DX hopes to outshine us all and crack the D.V.C.C. within the first 12 months. Quite a task, seeing how the conditions are.

Believe that Eddie 4WH will make a come back this time with commercial gear. Like myself, feels that age has caught up with him in building. Ted 4EJ heard making arrangements with that chap 2ACD for a visit early in the New Year. Who will see who last man on the chair? Vina will surely have to put her foot down. Short skip has prevailed and Hal 4DO from Rocky called in on the round table, while Yeeppoon was also heard at odd times. Jim 4ZO in Collinsville making appeal by letter to work him on 40 or 20, but to date ship has not been favourable. So chaps, once again all the best for the New Year. 73, Bob 4RW.

## SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division for November was held in the club rooms to an attendance of about 70 members and took the form of the annual Xmas Party and Ladies' Night. It may appear to the uninitiated that it is a little early to hold such a gathering in November, but from our exper-

NOW AVAILABLE—

1965 EDITION

# ★ A.R.R.L.—Radio Amateur's Handbook

*The Standard Manual of Amateur Radio Communication*

Price 58/6 and 2/6 Postage

# ★ The Radio Transistor Handbook

by Stoner & Earnshaw

Price 64/9 and Postage 1/9

THIS UP-TO-DATE HANDBOOK COVERS A WIDE RANGE OF COMMUNICATION  
FOR BOTH AMATEUR RADIO & COMMERCIAL APPLICATIONS

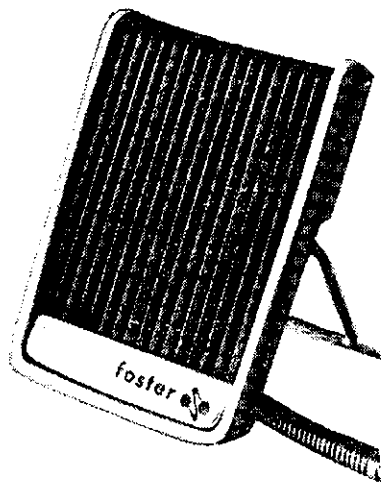
## McGILL'S AUTHORISED NEWSAGENCY

Established 1860

183-185 ELIZABETH STREET, MELBOURNE, C.1, VIC.

"The G.P.O. is opposite"

Phones: 60-1475-6-7



DF-2

## FOSTER DYNAMIC MICROPHONES

FOR HAND-DESK USE

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
Effective output level ..... —55 db. [0 db. = (one) IV. Microbar]  
Frequency response ..... 200 to 10,000 c.p.s.

### OMNI-DIRECTIONAL DYNAMIC:

SIZE: 3" x 2-1/8" x 1".  
Cable: 12 ft. of P.V.C.  
Switch: on-off.  
Desk Stand. Clip folds for hand use.  
Colour: WHITE.  
Plastic Diaphragm.

Retail Price  
50K ohms  
**£2/14/0**  
+ Sales Tax 4/9

A QUALITY PRODUCT OF EXCELLENT DESIGN



Marketed by

## ZEPHYR PRODUCTS PTY. LTD.

58 HIGH STREET, GLEN IRIS, S.E.6, VICTORIA

Phones: 25-1300, 25-4556

Manufacturers of Radio and Electrical Equipment and Components

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.

lence it has been found that we get a better roll-up at this time of the year, due no doubt to the fact that the usual gay and festive season has not quite begun and members are therefore not so likely to be caught up in the social whirl. This meeting might be used to be solely for the menfolk, but it was felt by some that possibly the ladies might like to take part and for the past four years or so it has become known as the Ladies' Night.

However, for some reason or other, the XYLs and YLs have not responded to any extent, and the same handful of "Good and faithfuls" have been the only ones to turn up, more's the pity! Many and varied are the reasons advanced as to why the ladies have not taken to it, but it is felt by many that the main reason is that the XYLs and YLs are never told until it is either too late to attend, or worse still, until it is over. Anyway, it is a pity because the night's entertainment is well worth coming along for and a bigger attendance of the female of the sex would be an added incentive for the committee who go to such trouble in organising the night. (Maybe if the girls were told that PanSy would be in attendance, there would be a record crowd.—Ed.)

Two excellent films were screened to those present, one on the space tracking station near Canberra (I kept my eyes open for a possible sight of Ken IKM somewhere in the background, but nothing doing!), the other on the general set-up of Woomeera, both by courtesy of W.R.E., and at the conclusion of which, supper was served and the rest of the night was spent in general "nattering".

A good time was had by all and I think a determined effort should be made next year to increase the number of XYLs and YLs attending.

Incidentally, thinking along the same lines, what do the organisers of the annual V.h.f. Picnic do to attract such a good roll-up of the XYLs and YLs each year? At first glance, this excellent annual event seems to attract more of the opposite sex than v.h.f. members, and each year, at the end of the Picnic, arrangements are made among the fair sex to be sure and meet in 12 months time. It might not be a bad idea if Council got together with the v.h.f. organisers and found out the secret of their success with this side of the entertainments. Held at "Walnut Paddock" in the Memorial Park, with oodles and oodles of ice cream and cool drinks for the harmonics, plus slides and swings, competitions with very worthwhile prizes, shady trees, water laid on, a place to park the chariot, and ample fire-places for barbecues, the details of this annual event could be written up for pages and pages. However, as it is a v.h.f. set-up, I cannot risk being charged with intermingling by the v.h.f. scribe—so, nuff sed.

Gilbert 5GX is home from the hospital after his chassis repair and reports that he is feeling OK again, although he is still taking it quietly. When I rang him to enquire as to his health this week, he was in the midst of watching the cricket on Channel 2. What it is to be a millionaire!

I felt that when the Magazine Committee printed that photo of that old buffer from VK5 on the January issue of "A.R." that it had touched rock bottom, but now I have my doubts. Did you cop the photo on page 14 of the November issue, under "Sideband Sketches"? Gazing at this intelligent, youthful and innocent face, backed up solidly by "The Thing," well to the fore on his operating position, could one imagine for one second that he has been badgering me for nigh on seven years to "Get with the strength," and missing no opportunities to belittle me. A good photo Dud, so much so that it has joined Comps 5EF and one or two others which grace what is known in my QTH as "The single sideband room"—and on the back of the door, too!

T.v. was well to the fore on 7 Mc. the other afternoon with Mac 5-Mickey-Mouse, Murray 5-Huckleberry-Hound, and Marry 5-Yogi-Bear hooked up in a three-way. Jack 5JS and Basil 3ABJ tried to get into the act but did not remain in long, probably because nobody could think of a suitable phonetic call sign suitable for such an exclusive gathering.

Jack 4JF was a visitor to VK5 this month, but unfortunately for me he did not ring me until the last day before he left for VK3, and so once again I missed him. He was seeking the whereabouts of George 5RX and Arch 5XK, but as he was leaving the next day I don't suppose he met up with them. His seeking these two out leads me to believe that he is a c.w. addict. The last time Jack was in VK5, if my memory serves me right, was in 1958, and I only had a telephone contact with him then. Third time lucky perhaps?

## OBITUARY

### IVOR THOMAS, VK5IT

The VK5 Division announces with deep regret the passing in mid November of Ivor Thomas, VK5IT, at the age of 67 years.

Well known as a member of the W.I.A. (South Australia) pre-war, and as its first post-war President and Chairman, he did much to assist in the re-forming of the Division and to guide it through the difficult early years which followed World War II.

Known to all old-timers in VK5 as the "Father of the new constitution and the subsequent incorporation of the Division," he was tireless in his energy, and by his example inspired the members of his then Council to give of their best.

His main activity was on 10 metres at the conclusion of the war and his well known "skeds" on that band with the KH6s culminated in his making a trip to that area to meet many of his contacts in person.

The latter years of his life saw him ease out of Amateur Radio activity, although his interest in the VK5 Division never waned, and although his unexpected shyness never allowed him to make many close friends, those to whom he gave his friendship will always remember him for his keen interest in Amateur Radio, his efficiency and extreme generosity, and his understanding approach to the many administrative problems associated with the re-forming of the VK5 Division.

To his two daughters, Ann and Laurel, the Division extends its sincere sympathy.

A newcomer to VK5 is Tom 5GY (previously 6GY) and is now working at the B.B.S., which for the uninitiated means the Best Broadcasting Station in the State, if not VK. I have only met him a couple of times for a short period, and he seems a stout fellow and a worthy asset to the Premier State!

The Youth Movement column had a call for correspondents from the various States last month, together with an insulting reference to me. In view of the fact that I don't read this column, I cannot make a suitable reply, but Ken IKM had better be careful one of these days I might take an itty-bitty peekaboo and then look out!

Talking of the Youth Movement, and why should I talk of such a subject—it only helps to inflate the ego of a certain gentleman in VK1—anyway, in our own quiet way in VK5 we are doing our little bit to push the cause and if it were not for the fact that I don't wish to steal the thunder from the sub-committee, Bruce 5OR, Wally 5ZEH and John 5UL, I could tell quite a lot of the doings of these hard workers for the cause. One of these days I will let my hair down on the subject, but would he believe me?

With respect to the proposed Bill to provide for the licensing of electrical workers and contractors, soon to be introduced into the VK5 Parliament, as instructed by Council a delegation consisting of Keith 5KH, Comps 5EF and Warwick 5FS waited on the Minister of Works, Mr. Hutchens, one morning this month. In introducing the members of the delegation, Keith emphasised that it was definitely non-political and that the sole reason for its presence was to clear up a doubt as to how the proposed Bill would affect the position of the hobbyist and the prospective radio amateur, some of whom were at present associate members. The Minister having already stated the position of the licensed Radio Amateur, with respect to the Bill, in a reply to a letter from Council. The delegation then discussed the Bill from the viewpoint of the VK5 members, giving him some examples to support the remarks, and finally presented the Minister with a typed copy of suggested amendments to the Bill, as approved by Council.

Mr. Hutchens stated in reply that he first would like to congratulate the delegation on the clear and concise manner in which the matter had been presented to him and that he had received numerous approaches from University Professors and other technical people regarding the Bill, and he said that if the Bill became law, it would probably take several years to fully implement and by that time the outlook of the Government towards controls could have changed. He assured those present that the interests of the learner and experimenter would in no way be jeopardised, as he and the members of his advisory council fully realised that this was an electronic age and every help and encouragement should be

given to the up-and-coming youth of the country and, at Mr. Parson's request, he gave his permission to be quoted in the Divisional column in the local newspaper.

The delegation feels that although nothing concrete was achieved, at least one or two doubts were raised in the Minister's mind, and in view of its cordial reception and the splendid manner in which Keith presented the case for the Division, the cause and status of the full and associate members of the Division has not been lessened in the eyes of the Minister.

Speaking for myself, I went into the whole situation and acted as a member of the delegation in a decidedly lukewarm manner, principally because I felt that we could possibly end up by "Playing Politics," something which our Division has never attempted in all the years that it has existed. However, I soon had a change of mind as I listened to the able and restrained manner in which Keith 5KH presented the case for the Division, and I say without hesitation that the appointment of Keith as ex-officio council member for the purpose of handling this matter was one of which council can congratulate itself upon. Comps 5EF will be the first to admit with me that he and I simply "Went along for the ride" and full credit for any results that might arise from our meeting with the Minister must go to Keith.

Speaking now as the scribe for the magazine I cannot but help point out that adversity sure does make for strange bedfellows—can you imagine Comps 5EF and myself as fellow members of a delegation? Why we have been fighting a running battle for years on the subject of "The Thing," and it was quite remarkable that we both could keep quiet on the subject long enough to join forces for the Division. However, don't let it fool you, the battle is still on and after we shook hands—somewhat furtively on my part—at the lift door preparatory to wending our ways, I told him that Mr. Hutchens would never know how close he had sat to a prospective Xmas Dinner, always assuming of course that his taste ran to duck! His reply would have done nothing towards improving the image of Amateur Radio in the mind of the said Mr. Hutchens!

Heard Doug 8KK on 14 Mc. the other late afternoon and with a tip-top signal at that. He is in the throes of completely re-building his v.h.f. gear and does not expect to be a contestant in the Ross Hull Contest this year. Nice to hear you OM, and using "The Thing," too!

Also heard Les 5LC and Charlie 5ON on 14 Mc.—yes, you guessed it—on "The Thing" also, and the list of DX they were reading out to each other as worked for the week sounded more like a DX column for the magazine. Strangely enough, Les worked most of his in the early mornings and Charlie worked most of his late at night. What it is to have such enthusiasm!

Talking of "The Thing," and only I realise just how much I am doing that lately, much to Comps 5EF delight, I never realised for even a second just how seriously the VK4s would take me in my reference to "The Thing." I picked up the local paper the other morning and there staring me in the face was the headline—"Brisbane searches for 'The Thing.'" Reading further, I was amazed to note that 5,000 ghost hunters swamped the city's Victoria Park to search for "The Thing," and many St. John Ambulance men tended the people who were hurt in the crush. Well, how about that? My one-time reference to their never being able to grow a straight banana is now small time—just fancy, 5,000 people looking for "The Thing." Did you ever!

Well, here we are again at the commencement of a new year and as always I take the opportunity on behalf of the Council and members of VK5, to wish all Radio Amateurs and its well-wishers, a Happy New Year and may it bring you everything that you desire. Also at this time, old fogies such as me, always have their arms twisted to give to OMs and XYLs a little advice, all for free. If you are wondering just what are the qualifications required before one can give such advice, then I can only quote an authority, whose name I have conveniently forgotten, who once said, "To give advice to the young, one must possess three qualifications—grey hair, to give an air of wisdom and experience; a corpulent stomach, to give an air of success and well-being; and, last but by no means least, haemorrhoids, to give an air of having suffered in this vale of tears, and therefore being able to understand all."

Possessing two of these qualifications, and a good chance of one day soon possessing the third, I now pass on my advice for 1966—Since you must drink and apparently cannot refrain from doing so, why not do your drinking at home, possibly in your shack?

Give your XYL £2/12/- and tell her to ring the local hostelry and have four cartons of

the amber liquid delivered to your home. There are 240 drinks in four cartons. Buy all your drinks from your XYL at 1/- a glass.

At the end of seven days (when the cartons are gone) your wife will have £12. She can then buy four more cartons and bank the £4/8/0 balance. If you live 20 years and continue to buy all your drinks from your XYL, then pass out with your boots on, your widow will have approximately £4,576 plus interest. Enough to bring up your children, pay off the mortgage on the house, marry a decent man and forget that she ever knew a "no-hoper" like you. See you in 1966—not you Pincotti 73, de 5PS—Pansy to you.

## WESTERN AUSTRALIA

News is rather scarce this month due to several causes. The main one being very poor conditions, particularly 40 and 80 mx, however the higher bands are exceptional at present particularly 10 and 15 mx.

Absent from the bands for quite some time is John 6GU. On the grape vine we hear that your work has taken you to the beautiful north of the State, "temporary period of course." Clem 6CW has sported a rather classy rx, it has the appearance of a Collins but I don't think it's one of those. Herb 6XO returned safely from VK5 trip and by all accounts Herb and family had a most enjoyable time and fine business trip both ways. Don't hear much activity lately from the lower region of VK6—that is Albany. It is most unusual not hearing 6KJ's solid signal.

The country stations of this area, 6PH, 6XW, 6XY along with John 6ZBY have made contact—Narrogin to Perth—on 6 mx, also worked mobile Bunbury. We do note Pat 6PH takes a leading roll in the bush fire emergency link. Congrats., Pat, Ian 6XX must be all bottled up. We will have to organise a fox hunt or something, to start off at QTH of Ian 6XX "Well that should at least stir his enthusiasm." We do hope that the holidays will bring a few mobile units into action on the lower bands and create a little more activity in VK6. If John 6ZBY gets his c.w. complete, he would certainly be an active d.c. band man. Could then call him elusive mobile. He sure covers a vast area in his travels.

On behalf of the VK6 Council, I wish all readers of this column all the best for a very Happy Christmas and Prosperous New Year 1966. 73, Bob 6KN.

## TASMANIA

We welcome three new call signs during the month of November, namely 7RG, Lee Gunther, ex W6THN; 7LY, Mrs. Anne Jenner, ex VK7ZYL, and a call sign to Joe Geisden, which eludes me at time of writing. Congratulations to all three.

Campbelltown was once again the site for one of the major events in the calendar of Amateur Radio in VK7, namely the Hamfest which took place on the week-end of 27th and 28th November. We were blessed with excellent weather, particularly on the Sunday,

## COMPUTER CIRCUIT BOARDS

containing transistors, resistors, condensers, diodes, etc., 2/- per transistor. We also stock 1600v./0.75a. diodes (two for 30/-) and 2N1100 transistors (100v./15a., 47/6 ea.).

### AUSTRALIAN ELECTRONICS

(formerly "Electronics Associates")

76 View Street, Hobart, Tasmania

Repairs to Receivers, Transmitters; constructing and testing; xtal conv., any frequency; Q5-ers, R9-ers, and transistorised equipment.

### ECCLESTON ELECTRONICS

146a Cotham Rd., Kew, Vic. Ph. 80-3777

Stockists of Radio and Electronic Components for the Amateur Constructor and Hobbyist

First Ring, Write or Call on

WILLIAM WILLIS & Co. Pty. Ltd.  
428 Elizabeth St., Melb'ne. Ph. 34-6539

and a great crowd attended that day as a result.

Success at this function was due to many, but I single out the following for outstanding service: Dave 7ZAI organised the supply of tx's for the various bands for the exercise on the Sunday; Geoff 7ZAS did more than his share, both in bringing gear to Campbelltown, helping in its erection, and afterwards in its dismantling, and in the general necessary but not so obvious jobs needing to be performed in between; Max 7MX was a very genial leader for the children's activities during the Sunday.

Mobile operation during, before and after the Hamfest was most pronounced. We believe that about 40 mobile stations were heard. The 6 mx mobiles predominated, but 80 and 2 mx mobiles were also there in reasonable numbers.

On behalf of the Division, I convey the best wishes of all of us to Dave VK7ZAY and Mrs. Berry upon the celebration of their marriage on 20th November, and we wish them every happiness for the wonderful years to come.

I wish to bring before all members the fact that three members of Council have indicated that they will not be seeking re-election at the next Council elections in March 1966. If you feel you have a place to play in the administration of our Division, then it looks as though the opportunity to serve your fellow Amateurs is at hand.

Finally, I apologise for the notes being written by me, but Geoff 7ZAS has been far too busy in business and Divisional affairs to pen these notes for this issue. Best 73 and good hunting during the holiday season, Ian 7ZZ.

## HAMADS

Minimum 5/-, for thirty words.

Extra words, 2d. each.

Advertisements under this heading will be accepted only from Amateurs and S.w.'s. The Publishers reserve the right to reject any advertising which, in their opinion, is of a commercial nature. Copy must be received at P.O. Box 86, East Melbourne, C2, Vic., by 8th of the month and remittance should accompany the advertisement.

**COLLINS** s.s.b. gear as new. 75S1, 32S1, 240v. power supply. Go first class at no extra cost. Box 199C, Clarence St. P.O., Sydney, N.S.W.

**COMM.** Receiver, Hallicrafter "Super Sky rider" SX28, full coverage 500 Kc. to 30 Mc., complete with auto transformer, loud speaker and an extra S-9'er, £70 the lot (an excellent performer). Spider for Quad Antenna, made from 1½" gal. pipe, 30/-. Quantity of Relays, Coils, Condensers, Transformers and Valves including 6DQ6, 807, assorted miniature, octal and metal; and for Type 3 Mk. II.—6L6, 7Q7, 7R7. All cheap. A. W. Chandler, 1536 High St., Glen Iris, Vic. 50-2556.

**FOR SALE:** Everything must go! Recording equipment, radios xmtrs., instruments, parts, etc. List from B. Eastwood, P.O. Box 93, Traralgon, Vic.

**FOR SALE:** Set of four Command Transmitters, 80-40-20-15 metres, modified for 12v. operation, buffer-doublers, fine performers, £7 ea. or £25 the four. Unmodified 5.3-7, £6. Command Receivers, 3-6, 6-9, £6 ea; Q5'er, £9. AR7 c/w. power supply and speaker, £35; AR8 ditto, £20. SX24 £25. 128 Transceiver £5. Lafayette G.d.o., as new, £16. University Multi-meter, 100 amp. type, £8. VK2AQT, 86 Campbell Hill Rd., Chester Hill, N.S.W. Phone 644-4543, 6-8 p.m.

**FOR SALE:** Unused Geloso V.f.o., 4/104, 80-10 mx, £10. Unused DL3DX Ground Plane, 20-10 mx, £10. Karl Krueger, DJ3CA, 78 Macedon Rd., Lower Templestowe, Vic. Phone 850-3548.

**K.W. Viceroy, 3.5-30 Mc., with p.s.,** good order. New 3-el. Mosley Tri-band Beam. £48. Phone 84-7497 (Vic.) 3MM, 2 Parker St., Reservoir.

**SALE:** 3 Channel F.M. converted SCR522 complete, full metering, control box and original a.c. power supply Type V., £20. VK3IZ, Phone 41-0511.

**SELL:** Complete kit DCS500 Rx, as described in A.R.R.L. H/B 1962. All imported U.S.A. parts. Chassis cut out and ready to wire, complete, £65. 100w. Modulator, zero bias 807s, etc., not wired, Woden UM3 M/Trans., £30. Var. regulated supply, 600v.-700v. 250 mA., 11 tubes, £28/10/0. Xtal Freq. Marker, 240v., 90-180 mx, ex R.A.A.F., needs attention, £8. Power Supply in S/C cabinet, 600v. 200 mA., 6.3v. a.c. 4a., £8. Open for offers on all above. Rich Hill, VK3RC, Phone 842-2630, 11 Highfield Rd., East Doncaster, Vic.

**SELL:** "Nanaola" 10 transistor, 5-band de luxe portable Receiver, contains telescopic aerial, tune meter, fine tuning, input for grammo and headphone output. Covers 140 Kc. to 28 Mc. Very good condition—£35 or reasonable offer. B. R. Wilson, VK3IG, P.O. Box 596, Shepparton, Vic.

**SELL:** 2 only 4CX250B tubes and sockets (SK600A), £15 ea. Complete 2 mx Transmitter, 25w., very clean 2 mx a.m. signal, separate power supplies for main h.t. and low h.t.v., 250-410v. regulated, rack mounted with panels sprayed blue, fully shielded, no t.v.i., xtal mike, £38. 2 mx 10 over 10 element Yagis and 5 element Yagi 6 mx Beam, all aluminium, epoxy resin sealed throughout, 2 mx s.w.r. 1.1.04 at 145 Mc., the set, £30. Two DK60 Dow Key xover relays, b/new, £8/10/0 ea. Two DK60G Dow Key xover relays, b/new, £10 ea. U.h.f. PL259 connectors. Offers taken on all of above. We are not going out of business, just clearing the shack before moving QTH. Rich Hill, VK3RC, Phone 842-2630, 11 Highfield Rd., East Doncaster, Vic. All inquiries answered.

**SURPLUS** gear. S27 receiver, 27-143 Mc., with handbook, ex-VK9XK. BC624, BC625, misc. v.h.f. gear. AR7 dials complete, transformer 240/110v. 500v.a. Handbooks for the AR7, ATR2B, SCR522, RA1B-II-1J, RU18-19, BC224F, BC348J-N-Q, RC39B-43B, TA2J, TA3B, GO9, BC375D, ATB, BC-191F. Best offers. VK3AXK, 28-4968.

**WANTED:** Circuit Diagram and/or Instruction Manual for Weston 774 Type 4 Analyzer either on loan for copying, to buy, or to trade. Will be most grateful for help. D. R. Ayre, VK3KP, Tel. 50-7387 (pvt.) or 67-9601 (bus.).

**WANTED:** Gill Motor or similar for Beam Rotator. Also BC348 in poor shape, must be good mechanically. VK3IZ, Phone 41-0511.

**WANTED:** Ham band(s) (80 mx preferable) Receiver, b.f.o., a.n.l., a.v.c./m.v.c. (if possible), suit novice s.w.l. with view to becoming Ham. Prices and particulars, P. J. Tyers (WIA-L3280), Tyers Rd., Bena, Vic.



# A LARGE RANGE OF TRANSMITTERS, RECEIVERS, TEST GEAR, AND DISPOSALS RADIO PARTS AVAILABLE

## ★ SCR522 V.H.F. TRANSCEIVERS

Frequency range: 100-156 Mc., xtal locked. Completed with valves, less xtals. Brand new new condition. £13 plus freight.

## ★ METERS, P25 TYPE

0-500 uA., 52/6; 0.100 uA., £3/9/6; 0-1 mA., 45/-; 0-10 mA., 45/-; 0-50 mA., 45/-. Full range of Meters and Multi-Testers available.

## ★ CO-AXIAL CABLE

UR70 72 ohms, 3/16 inch diam., in 27-yard rolls, £1 plus 7/6 pack and post. In as new condition.

## ★ COLLINS MODULATION TRANSFORMERS

20 watts, 6,000 ohms p.p. primary, 6,000 ohms secondary. 35/- plus freight.

## ★ FIVE-INCH C.R.O.

Nagard Model 103, d.c. 10 Mc., 100 mV/CM sensitivity, fully calibrated time base, complete with power supply, £65.

## ★ PHILIPS TA155 C.R.O.

2 inch c.r.o. tube, £17 plus freight.

## ★ 80-40 METRE TRANSCEIVER

San Electronics QTR7. Tx: 6BQ5 p.a., 6BQ5 modulator, xtal locked. Rx: Tunes 3.5 to 11 Mc., 1 watt audio output, 230v. a.c., £45.

## ★ SAL39 AMPLIFIER KLYSTRONS

**Pulse Service:** 120w. input, 30kw. output, duty cycle 1%, freq. range 960-1230 Mc. **C.w. Service:** 50w. input approx., 300w. output approx. Ideal tube for 1296 Mc. band. £10 plus freight.

## ★ MINIATURE CAPACITORS

New shipment. 600 v.w. Values: 0.001, 0.02, 0.005, 0.0005, 0.0002, 0.0001 uF. £1 for 80 plus freight.

## ★ RESISTORS

¼ watt, I.R.C., Welwyn, Eire, Ducon, Philips, £1 per 100.

## ★ CRYSTALS

Personal shoppers only, 10/- each.

## ★ RELAYS

P.M.G. 3000 type, 500 ohms and 500 ohms d.p.d.t., 7/6 each or 3 for £1.

## ★ SIGNAL GENERATORS

Type LSG10, 120 Kc. to 260 Mc., £13. Type LSG11, 120 Kc. to 390 Mc., provision for xtal, £15, both plus freight.

## ★ SPECIALS

813 Beam Tetrodes, 50/- each.

7-pin skirted Valve Sockets, P.T.F.E., insulation, silver plated, only 2/- each, c/w. shield.

## ★ POWER SUPPLIES

300v. at 150 mA., 6.3v. at 3 amp., fully enclosed, on 19-inch panel, £3, complete with meter £4.

## ★ C.R.O. TUBES

CV407, 10/- each; CV392, 10/- each.

## ★ TRANSISTORS

Brand new. OC72, OC44, 2N132, OC66, OC45, 8/- each. AT1138 Power Transistor, 30w., Class B, 30/-. Also Diodes: OA70, OA81, OA95, 3/6 each.

### WANTED TO BUY

Communication Receivers, Test Equipment, etc. Call, write or phone. Equipment inspected and picked up at your convenience any night or week-end.

### ANY QUERIES

Beginners are welcome, ask Jim and Laurie Gardiner any questions. They are Amateur Radio operators and will be only too pleased to assist.

ALL ITEMS FREIGHT EXTRA

# UNITED TRADE SALES PTY. LTD.

280 LONSDALE ST., MELBOURNE, VIC. (Opp. Myers)

Phone 32-3815

# the mark of Quality



The early potter was a craftsman of the highest skills, moulding and shaping vases, pots, bowls and other utensils.

As each article was completed the craftsman left his mark on it, by this mark his work was identified and his customers could buy with confidence. His mark came to represent quality and integrity.

In the same way, AWV proudly use their mark to brand their products, a brand which has built up over the years a reputation for excellence and reliability.



AMALGAMATED WIRELESS VALVE CO. PTY. LTD., SYDNEY • MELBOURNE • BRISBANE • ADELAIDE • PERTH • HOBART





# amateur radio

Vol. 34, No. 2  
FEBRUARY  
1966

25c

Registered at G.P.O., Melbourne, for  
transmission by post as a periodical

## MICROPHONES

<b>CRYSTAL:</b>	
Piezo Lapel Type with Plug	12/6
CM20 Hand Type with Plug	27/6
X43 Stand Type with Plug	37/6
BM3 Penell Type 100-3,000 c.s. with on-off switch, 6 ft. cable	50/-
BM3 Desk Stand to suit above	21/-
<b>DYNAMIC:</b>	
Foster DF2 Hand Type 50K	50/6
Foster DF2 Hand Type 50 ohm	45/-
Foster DF3 Penell Type 50K	90/-
Foster DF3 Penell Type 50 ohm	87/6
Piezo X29 Desk Type with stand, low impedance	82/6

## GRID DIP OSCILLATORS

Lafayette PE-12 G.D.O. 3 Bands, Plug in Coils, 360 Kc.-220 Mc., 230 volt	£19/13/-
Leader LDM-310 G.D.O. 2-250 Mc., 6 Band, Plug-in Coils, 230 volt	£22/5/-

## CHASSIS PUNCH SET

Hozan K-33 Sizes 16, 18, 21, 25 and 30 mm., complete with Taper Reamer in wooden storage box 70/-

## TAPERED REAMERS

Hozan Tapered Reamer, 3 mm., 14 mm. 11/-

## SAKURA CIRCUIT TESTER

**Model TR65**  
Sensitivity: d.c. 20,000 ohms/volt, a.c. 10,000 ohms/volt. Ranges: d.c. volts: 6, 30, 120, 600, 1,200; a.c. volts: 6, 30, 120, 600, 1,200. D.c. current, 60  $\mu$ A., 6 mA., 60 mA., 600 mA. Resistance: 10K, 100K, 1M, 10M ohms. Capacitance 0.001-0.2  $\mu$ F., 0.0001-0.01  $\mu$ F. Inductance: 30-3,000H. Decibels: minus 20 to plus 17 db. 0 db. 0.775v., 600 ohms. Dimensions: 4 1/2 x 6 1/2 x 2 1/2 in. Weight 1.3 lbs.

Price £8/10/0

## COAXIAL CABLES

UR67 59 ohm 3/4 in. diam. coaxial cable, 1/6 yd. or 25/- per 25 yds. roll, 10/- postage.  
UR43 50 ohm 3/16 in. diam. coaxial cable 15/- per 35 ft. roll.  
UR71 72 ohm 1/4 in. diam. coaxial cable, 1/6 yd. or £1 per 27 yds. roll.  
51 ohm RG 8U 3/4 in. diam. brand new, 1/9 yd. up to 500 yard lengths.  
All above cables are in as new condition.

## BATTERY CHARGERS

DUAL COMPLETE WITH METER IN METAL HAMMERTONE CASE  
6 volt 4 amp., 12 volt 4 amp., £7/15/6.  
12 volt 6 amp., 6 volt 6 amp., £10/17/6.

## TRANSISTORISED AMPLIFIERS AND TUNERS

**LAFAYETTE**  
PK-322 3 Transistor, single ended 50 mW. output £2/17/6  
PK-543 4 Transistor, push pull, 100 mW. output £3/15/0  
PK-544 5 Transistor, push pull, 250 mW. output £5/17/6  
PK-601 4 Transistor, push pull, 1 watt output £5/17/6  
PK-632 3 Transistor, 1 Diode, broadcast a.m. tuner £6/15/0

## SPEAKER BOXES

Plastic Speaker Box with 4 in. Speaker and Wire 55/-  
Wooden Speaker Box with 6 in. x 4 in. Speaker and Wire 65/-

LOG BOOKS 6/6 each, postage 1/-  
CALL BOOKS. 6/- each, postage 1/-.

## MULTIMETER Model 200H

20,000 ohms per v. d.c. 10,000 ohms per v. a.c.



**Specifications:**  
D.c. volts: 0-5, 25, 50, 250, 500, 2,500.  
A.c. volts: 0-10, 50, 100, 500, 1,000.  
D.c. current: 0-50  $\mu$ A.; 25, 250 mA.  
Resistance: 0-60K ohms; 0-6 meg.  
Capacity: 0.01-0.3  $\mu$ F. (at a.c. 5v.); 0.0001-0.01  $\mu$ F. (at a.c. 250v.).  
Decibel: minus 20 db. plus 22 db.  
Output range 0-10, 50, 100, 500, and 1,000.  
Battery used: UM13 1.5v. 1 piece.  
Dimensions: 3 1/4 x 4 1/2 x 1-1/8 in.

Complete with internal battery, testing leads and prods.

Price £5/12/6 inc. tax.  
Packing and Postage 3/6

## TRANSISTORS AND DIODES

OC44	16/-	OA79	1/6
OC45	16/-	OA80	3/6
OC70	12/6	OA90	3/6
OC71	7/6, 3 at £1	OA91	8/6
OC72	16/-	OA210 1N1763	8/6
OC74	12/6	OA211 S10AR2	17/6
OC75	12/6	ZENER	
OC170	16/-	OAZ224 BZ216	27/6
OC171	16/-	OAZ222 BZ214	27/6

## ADEL NIBBLING TOOL

Designed to cut round or square holes in sheet metal, with instructions 75/-

## HI FIRE TRANSISTORISED IGNITION SYSTEM

6 OR 12 VOLT

POSITIVE EARTH £26  
NEGATIVE EARTH £25

## RECORDING TAPES

WELL-KNOWN MAKES BRAND NEW IN CARTONS		
150 ft. on 3 in. reel (Acetate Base)	4/-	
225 ft. on 3 in. reel (Acetate Base)	7/6	
300 ft. on 3 in. reel (Tensilised Mylar)	12/-	
500 ft. on 3 in. reel (Tensilised Mylar)	16/-	
600 ft. on 3 1/2 in. reel (Tensilised Mylar)	17/6	
900 ft. on 3 in. reel (Acetate Base)	19/6	
900 ft. on 5 in. reel (Mylar Base)	22/6	
1200 ft. on 5 in. reel (Mylar Base)	35/6	
1800 ft. on 5 in. reel (Tensilised Mylar)	37/6	
1200 ft. on 5 1/2 in. reel (Mylar Base)	35/-	
1800 ft. on 5 1/2 in. reel (Tensilised Mylar)	37/6	
1200 ft. on 7 in. reel (Acetate Base)	25/-	
1200 ft. on 7 in. reel (Mylar Base)	30/-	
1800 ft. on 7 in. reel (Acetate Base)	35/-	
1800 ft. on 7 in. reel (Mylar Base)	39/-	
2000 ft. on 7 in. reel (Mylar Base)	42/6	
2400 ft. on 7 in. reel (Mylar Base)	52/6	
3000 ft. on 7 in. reel (Tensilised Mylar)	55/-	
3600 ft. on 7 in. reel (Tensilised Mylar)	62/6	

## EMPTY TAPE REELS

3 in., 2/6; 3 1/2 in., 3/6; 4 in., 3/6; 5 in., 3/-;  
5 1/2 in., 5/-; 7 in., 5/-.  
OR in Plastic Storage Box 8/- 7 in. 12/-  
TAPE SPLICERS. Complete with Splicing Tape and instructions 5/-

## SPECIALS

Sato Subminiature Bezels, 6-8 volt, No. 3230 complete with globe, Red or Black 4/-  
RESIN CORE SOLDER, 16 gauge. 18/-  
49 60, 1 lb. packet  
60 40 1 lb. packet 22/-  
Mixed Bag of NEW Resistors, Condensers, Potentiometers, 30 Popular Types, SI or 10/- a bag.  
Mixed Bag of 20 NEW Polyester and Styrofoal Capacitors, All Popular Types, SI or 10/- a bag.  
Mixed Bag of 20 NEW Polyester, Paper, Mica, Ceramic and Plastic Condensers, All Popular Types, SI or 10/- a bag.  
1 Henry choke for Mullard Tachometer 27/6  
Crystal Ear piece for Transistor Radio 6/6  
Crystal Lapel Microphone 12/6

## WALKIE TALKIES

9 Transistor 100 mW. output Citizens Band, 27.240 Mc. Fully transistorised Walkie Talkies. Individual speaker and microphone. Dimensions: 7 1/2 x 2 1/2 x 2 in. Complete with batteries, earphone and leather carrying case. £39/10/0  
Inc. tax, plus freight.

## MULTIMETERS

CENTRAL CT500 Multimeter, 20,000 o.p.v. d.c.	£6/15/0
CENTRAL CT330 Multimeter, 20,000 o.p.v. d.c.	£8
SANSEI SE550 Multimeters, 100,000 o.p.v. d.c.	£12
Multimeter Probes	6/-
2801 Movement	57/6
Meter Rectifiers	10/-

## SOLDERING IRONS

"SCOPE" 6-second Soldering Iron, recommended work voltage: 4v., a.c. d.c. (100w.) 45/-  
"SCOPE" de luxe model, as above, with stainless steel barrel, in plastic pouch 50/-  
"MINISCOPE" Soldering Iron uses standard transformer, in plastic pouch 45/-  
TRANSFORMER suitable for Scope or Birko Soldering Irons, 250v. to 3.3v. 50/-  
"BIRKO" 6-second Soldering Iron, 4 to 6v., a.c. d.c., in plastic pouch 39/6  
Or with transformer £14/0

## SPEAKERS

WELL KNOWN MAKE, BRAND NEW, BANKRUPT STOCK			
2 in. 15 ohm 30/-	5 in. x 7 in. 15-3.5	47/6	
3 in. 15-3.5 32/6	6 in. 15-3.5	52/6	
4 in. 15-3.5 37/6	9 in. x 6 in. 15-3.5	55/-	
5 in. 15-3.5 40/-	12 in. 15-3.5	62/6	
6 in. 15-3.5 45/-			

## TWIN CONE SPEAKERS

5 in. Twin Cone 4w. 15 ohm	45/-
8 in. Twin Cone 15w. 15 ohm	77/6
12 in. Twin Cone 10w. 15 ohm	100/-

## CORDOVER SOLID STATE MODULES

20 different types, p.a. amplifiers, electronic siren, burglar alarm, intercom, module, guitar, amplifier module, phonograph amplifier module, wireless microphone module, and many others. Dimensions: 1 1/2 x 1 1/2 x 1 inch.

Price approx. £4 per unit  
Send stamped, addressed envelope for more details.

## ROTARY SWITCHES

3 pole, 3 position, 10/-; 4 pole, 3 position, 10/-;  
2 pole, 6 position, 10/-; 1 pole, 12 position, 10/-.

# HAM RADIO SUPPLIERS

5A MELVILLE STREET, HAWTHORN, VICTORIA Phone 86-6465

North Balwyn tram passes corner.

Money Orders and Postal Notes payable North Hawthorn P.O.

We sell and recommend Leader Test Equipment, Pioneer Stereo Equipment and Speakers, Hitachi Radio Valves and Transistor Radios, Kew Brand Meters, A. & R. Transformers and Transistor Power Supplies, Ducon Condensers, Welwyn Resistors, etc

# "AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA FOUNDED 1910

FEBRUARY 1966

Vol. 34, No. 2

## Editor:

K. M. COCKING ..... VK3ZFQ

## Assistant Editor:

K. E. Pincott ..... VK3AFJ

## Publications Committee:

G. W. Baty (Secretary) ..... VK3AOM  
A. W. Chandler (Circulation) ..... VK3LC  
S. T. Clark ..... VK3ASC  
E. C. Manifold ..... VK3EM  
W. E. J. Roper ..... VK3ARZ

## Draftsmen:—

Ken Gillespie ..... VK3GK  
Clem Allen ..... VK3ZIV  
Ian Smith ..... 36 Green St., Noble Park

## Advertising Enquiries:

C/o. P.O. Box 36, East Melbourne, C.2, Vic.

or  
Mrs BELLAIRS, Phone 41-3535, 478 Victoria  
Parade, East Melbourne, C.2, Victoria. Hours  
10 a.m. to 3 p.m. only.

## Publishers:

VICTORIAN DIVISION W.I.A.,  
Reg. Office: 65a Franklin St., Melbourne, Vic.

## Printers:

"RICHMOND CHRONICLE," Phone 42-2419,  
Shakespeare St., Richmond, E.1, Vic.

★

All matters pertaining to "A.R." other  
than subscriptions, should be addressed to:

THE EDITOR,  
"AMATEUR RADIO,"  
P.O. BOX 36,  
EAST MELBOURNE, C.2, VIC.

Acknowledgments will be sent following  
the Committee meeting on the second Mon-  
day of each month. All Sub-Editors should  
forward their articles to reach "A.R."  
before the 8th of each month. Any item  
received after the Committee meeting will  
be held over until the next month. Pub-  
lication of any item is dependent upon space  
availability, but in general about two  
months may elapse before a technical  
article is published after consideration by  
the Publications Committee.

★

Members of the W.I.A. should refer all  
enquiries regarding delivery of "A.R." direct  
to their Divisional Secretary and not to  
"A.R." direct. Non members of the W.I.A.  
should write to the Victorian Division, C/o.  
P.O. Box 36, East Melbourne. Two months'  
notice is required before a change of mail-  
ing address can be effected. Readers should  
note that any change in the address of  
their transmitting station must, by P.M.G.  
regulation, be notified to the P.M.G. in the  
State of residence. In addition "A.R."  
should also be notified. A convenient form  
is provided in the "Call Book".

★

Direct subscription rate is 30/- a year, post  
paid, in advance. Issued monthly on the  
first of the month. January edition excepted.

## FEDERAL COMMENT

★

### 43K . . . AND A SUGGESTION

This business of I.T.U. and associated matters may seem, to many Amateurs, a topic thrashed to death by this Institute. Whilst there have been many appeals made in the past for considered views on this all important question of Amateur frequencies, it is true to say that we have been rather narrow in our view of the situation, and little attempt has been made to find out what other Societies in our Region think, and in particular what are their most pressing problems when it comes to the question of frequencies, and operating conditions.

Region III. is made up of Amateurs from Burma, Ceylon, Hong Kong, India, Japan, and of course, Australia, with a total licensed Amateur population of some 43,000; not large as Amateur populations go in other parts of the globe, and when one considers that 38,000 are to be found in Japan, our own total is rather insignificant by comparison.

It is rather refreshing to find, therefore, that the Amateur Radio Society of India with 360 members have had sufficient inspiration to make a suggestion which can do nothing but good if we can follow it through.

Writing in the official Newsletter of the A.R.S.I., the Western Zone have proposed that "to safeguard Amateur frequencies we must establish an organisation of member societies of the I.A.R.U. in Region III. (similar to that which has operated so successfully since 1950 in Region I. (Europe and Africa). If this is done a regular exchange of views at executive level will become possible through the medium of Regional Conferences and Regional Committees."

We would like to be able to meet personally representatives from other member societies in this Region, and through discussion, find some common ground which, it is hoped, would reflect the aim which, basically, all Amateurs share. A united front in Region III., with one or more delegates from member countries demanding our rights at the next conference, must surely stand a chance of success. Perhaps all this is wishful thinking; but by no means is the situation overstated.

We realise that to do this money is required and apart from Australia and Japan what other country has the Amateur population upon which it can depend for financial support? To send a delegate to an I.T.U. conference is one thing, and an expensive one at that, so that any interim regional conference appears, in the foreseeable future, to be rather difficult to achieve.

Nevertheless this Executive will do all in its power to continue the liaison with other societies, and believe that close contact by correspondence is the first step in getting organised. Apart from the problem of international frequency usage, there will be many side benefits from a closer exchange of views.

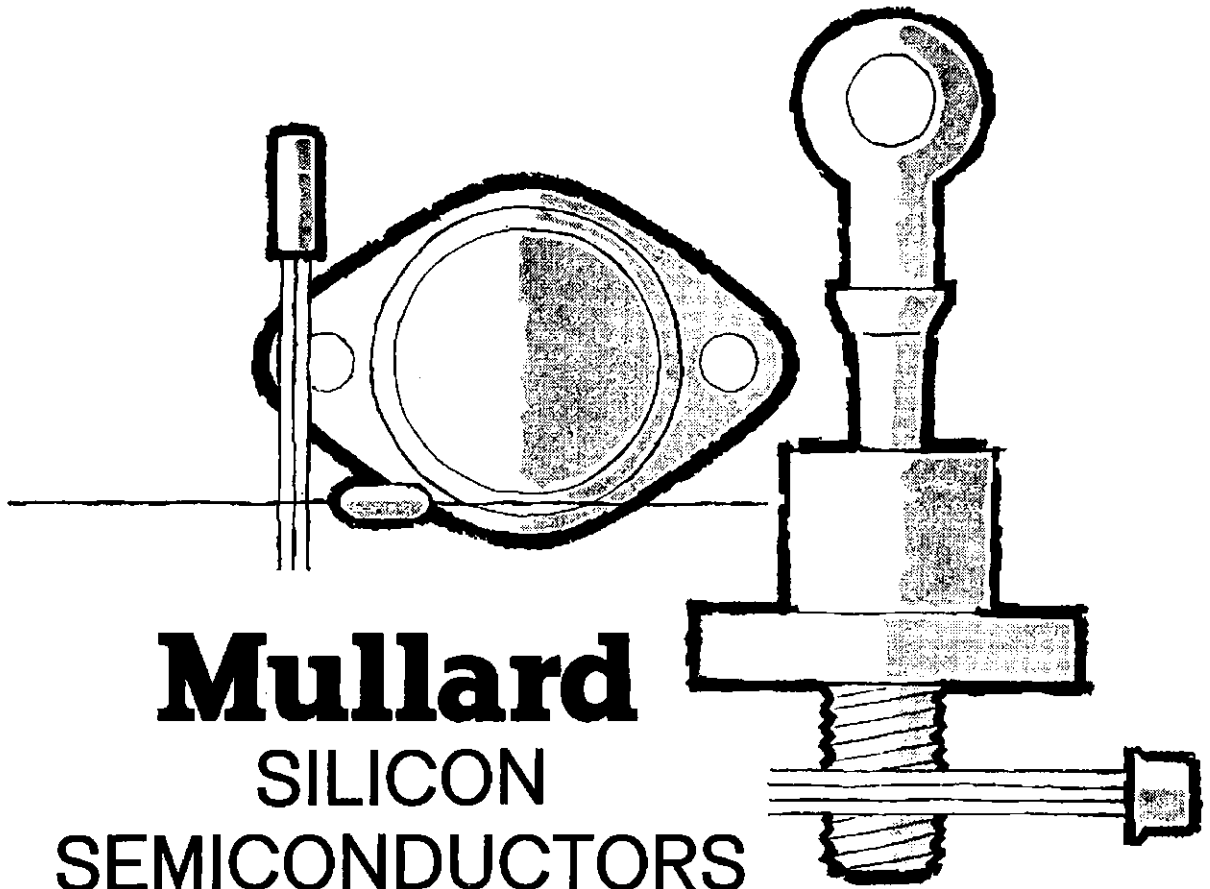
For example, how many Amateurs in this country know the licensing and regulatory provisions in other countries? So what? How will that affect me, and in any case what good will it do me? Perhaps a direct answer cannot be given right now, but it would be foolish to pretend that one cannot learn a new wrinkle from someone else, and when it comes to operating privileges, take a look at what JA Amateurs have to work with.

In any event, this Executive will be pursuing the suggestion of the A.R.S.I. most avidly, with the hope that in the end, we, in Region III. will be better equipped to face the problems in the years ahead.

PETER D. WILLIAMS, VK3IZ, FEDERAL SECRETARY, W.I.A.

## CONTENTS

Matters Mobile .....	3	Correspondence .....	13
Overlay Transistors .....	8	Sideband .....	15
The Fatal Current .....	9	Gateway of India Award .....	15
Monimatch Mark 3 and 4 .....	11	DX .....	17
New Call Signs .....	12	Experimental F.M. Station for Victoria .....	17
Errata—Pye Reporter .....	12	Federal and Divisional Monthly News Reports .....	19
An Appreciation .....	13		
Trade Review: Great Circle Map	13		



# Mullard

## SILICON SEMICONDUCTORS

USED THROUGHOUT THE WORLD

### SILICON ZENER DIODES

230mW to 75W dissipation  
4.3V to 75V nominal zener voltage

### SILICON TRANSISTORS

100mW to 130W dissipation  
0.45Mc/s to 350Mc/s frequency

### SILICON RECTIFIER DIODES

75V to 800V maximum crest working reverse voltage  
0.2A to 150A maximum mean forward current

### THYRISTORS

100V to 700V maximum crest working reverse voltage  
4.7A to 70A maximum mean forward current

### BRIDGE-CONNECTED RECTIFIER DIODE STACKS

125V to 760V maximum DC output voltage  
20A to 150A maximum mean output current

### BRIDGE-CONNECTED THYRISTOR STACKS

7.5A to 117A maximum mean output current  
250V to 1050V maximum DC output voltage

### HIGH VOLTAGE MODULES

2kV to 18kV maximum crest working reverse voltage  
0.5A to 3.75A maximum mean output current

### SILICON JUNCTION DIODES

25V to 400V maximum peak inverse voltage  
Up to 100Mc/s switching frequency

**Mullard**

MULLARD-AUSTRALIA PTY. LTD.

35-43 CLARENCE STREET, SYDNEY, N.S.W., 29 2006. 123 VICTORIA PARADE, COLLINGWOOD, N.S. VIC., 41 6644.



Associated with  
MULLARD LIMITED, LONDON

M165A

# MATTERS MOBILE\*

## A Review of Circuits and Information of Particular Interest to Mobile Operators

PAUL HARRIS, G3GFN

WHILE the contents of this series will mainly be of interest to mobile operators, such is the nature of our hobby that no one section can be completely divorced from the others. Thus it is quite probable that those who have no active interest in mobile operation may find items of circuitry and ideas worthy of inclusion in fixed station equipment.

The object is to publish circuits and technical information, together with wrinkles, dodges and hints which either improve the performance of equipment under mobile conditions, or aid operating efficiency. In addition, any matters pertinent to mobileers' interests will also be covered. Thus the scope will be wide.

Our hobby permits almost unlimited individuality in the construction of equipment. From this it seems reasonable to suppose that there must be hundreds, possibly thousands, of useful ideas, novel circuit arrangements and unusual "bitsa"—bits from this and bits from that—permutations which, while of potential interest to many, have never been published. This is probably especially true of the mobile brigade where nearly every installation is tailor-made for the vehicle concerned.

The purpose of this preamble is to suggest that if you have any tested circuits which are unusual and of value to your fellow mobile operators, and you are prepared to pass on the benefit of your ideas and experience, then why not send them to your magazine for inclusion?

All that is needed is a reasonable description and, where applicable, an easily understood circuit diagram or sketch. Particularly welcome will be photographs of equipment and installations.

### A HALTER MICROPHONE

The recent hiatus over the Ministry of Transport's proposed order to make it an offence to talk into a radio transmitter whilst in control of a moving vehicle, must, if we are to be honest with ourselves, at least have caused us to carefully re-appraise our operating methods.

While talking when driving can hardly be more hazardous than listening to a normal car radio, there is no doubt but that some mobile microphones do leave a lot to be desired. There can be no argument against the statement that if one hand is engaged in holding a microphone, and perhaps pressing a p.t.t. switch at the same time, then under certain conditions, one's ability to steer is affected. Anyone who has tried to negotiate a sharp turn, or a roundabout, while using such a microphone will not dispute this statement.

A microphone arrangement which goes a long way to solving this difficulty is that used in most radio taxis. In this, the microphone head is mounted either on a swinging arm or a length of swan neck tubing. Even this is not perfect for although it leaves both hands free for control of the car, the driver has to maintain his head in a fixed position, and this restricts his field of vision. It has been argued that this is less serious than having one hand engaged, but this is debatable.

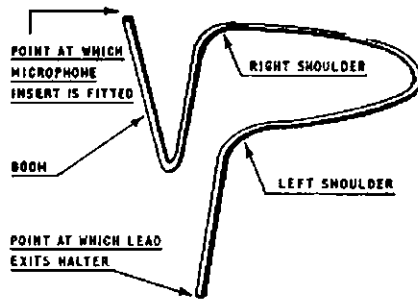


Fig. 1.—General view of the combined halter and microphone mounting boom.

Some three years ago, the writer was shown an ingenious idea by G3KLM which has all the advantages of a fixed boom microphone, but solves the problem of having to maintain one's head in a fixed position.

The device is shown in Fig. 1. From this it will be seen that it takes the form of a halter which is worn around the neck, and which incorporates a microphone mounting boom, the boom being positioned so that the microphone head is adjacent to the mouth of the wearer. No matter how much the wearer moves or turns, so the boom mounted microphone follows and maintains its proximity to the mouth. In addition to this advantage, since the microphone lead is run through the centre of the boom, this is kept out of harms way.

The gadget is fabricated in one piece from a length of  $\frac{3}{8}$ " diameter copper tubing—obtainable from all plumbers' suppliers. The U section of the halter goes around the neck of the wearer with the straight section running down the left hand side of the chest. On the right hand side, there is another, but shorter, downward running section which bends upwards again. At the point where this commences to rise, that is at the bend, it is angled so that its top is central to the U. This will then position the microphone head—which is fitted to this rising piece—adjacent to the wearer's mouth.

Any of the usual inserts may be fitted to the boom, and the lead routed through the tubing in the manner described. Once correctly shaped to the satisfaction of the individual, the

gadget may be chromium plated, but just as good is to carefully wrap it with plastic insulation tape.

Compared to arrangements based on headphone bands, or frames of glasses, this halter leaves one virtually unencumbered. Incidentally, the writer has found that this assembly is very pleasant to use when operating a fixed station.

The only real disadvantage with this idea is that p.t.t. is not possible, but compared to its advantages, this is a small price to pay. However, it would be feasible to include a transmit-receive switch in the assembly by mounting this in a small box fitted to the end of the halter from which the lead exits.

### A SIMPLE NOISE LIMITER

Apart from i.f. noise silencers, one of the most effective noise limiters is the T.N.S.—Twin Noise Squelch—circuit featured in the "CQ Mobile Handbook". Unfortunately, requiring two valves to achieve its performance, it does not enjoy the popularity which it deserves under mobile conditions where the expenditure of every extra milliamp. has to be very carefully considered.

The writer recently tested the circuit of a series limiter used in the Eico 760 Citizens Band Transceiver. Whilst the T.N.S. still has the edge, this circuit far excels any others so far tried. Of particular interest is the manner in which it handles ignition noises. They virtually disappear. Needing only one valve, one half of which is used as the detector anyway, this limiter is ideal for inclusion in mobile receivers.

The circuit is shown in Fig. 2, and as will be seen, one gets a lot for a little. The circuit not only functions as a detector and a limiter, but also provides fast attack a.g.c., itself most desirable under mobile conditions. No particular comment should be needed

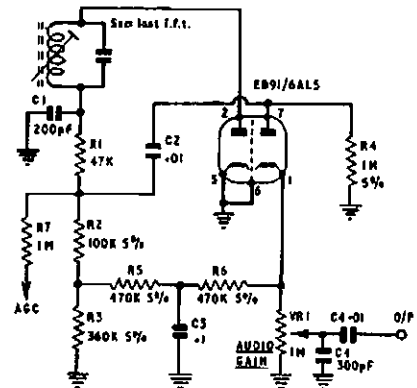


Fig. 2.—Automatic noise limiter with good performance on ignition pulses. The circuit also functions as a diode detector and provides a.g.c.

\* Reprinted from R.S.G.B. "Bulletin," Aug. '65.

ARRIVING EARLY MARCH

THE 1966 EDITION

# ★ A.R.R.L.—Radio Amateur's Handbook

*The Standard Manual of Amateur Radio Communication*

Price \$6.10 posted, or 58/6 and postage 2/6

BOOK YOUR ORDER NOW!

NOW AVAILABLE—

# ★ The Radio Transistor Handbook

by Stoner & Earnshaw.

Price \$6.65 posted, or 64/9 and postage 1/9

THIS UP-TO-DATE HANDBOOK COVERS A WIDE RANGE OF COMMUNICATION  
FOR BOTH AMATEUR RADIO & COMMERCIAL APPLICATIONS

## McGILL'S AUTHORISED NEWSAGENCY

Established 1860

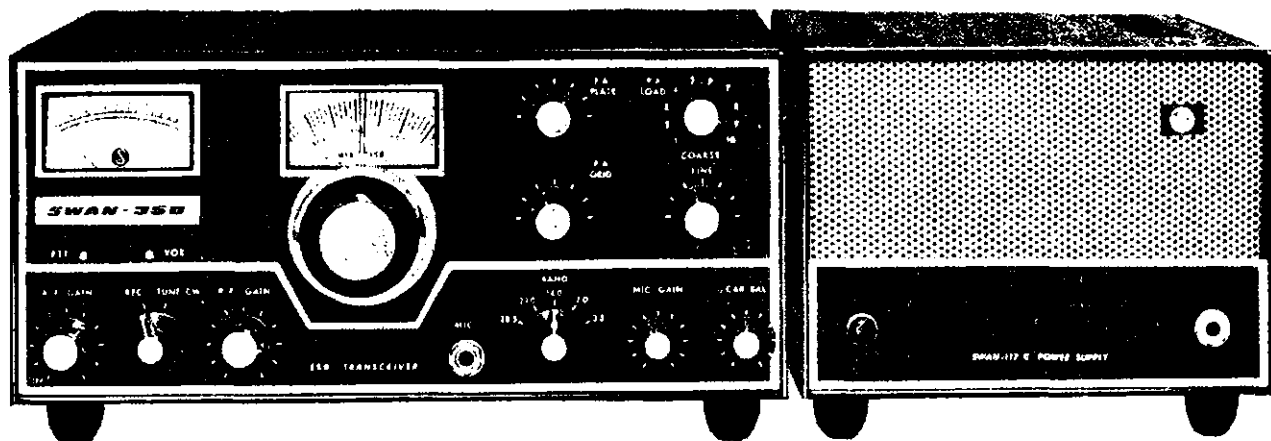
183-185 ELIZABETH STREET, MELBOURNE, C.I., VIC.

"The G.P.O. is opposite"

Phones: 60-1475--6-7



## SWAN ELECTRONIC EQUIPMENT



As the SWAN DISTRIBUTORS and WARRANTY STATION for AUSTRALIA, W.F.S. ELECTRONICS SUPPLIES CO. carry out all warranty claim work on SWAN equipment.

For your benefit, for our own and Swan Electronics Corporation records, and so that SWAN Service Topics and SWAN Service Bulletins can be forwarded, please advise: Name and address of owner, and model of your SWAN equipment. Upon receipt of this information you will be placed on the SWAN mailing list.

### W.F.S. ELECTRONICS SUPPLIES CO.

227 VICTORIA ROAD, RYDALMERE, N.S.W.

Phones 638-1715, 638-1355

on the circuit, except to observe that close tolerance resistors must be fitted in the positions shown.

Constructionally, there are some points to watch. First, the valve-holder must be of low-loss insulation to prevent noise pulses leaking across it and so by-passing the limiter. Secondly, the valve should be fitted with a screening can, and thirdly, R1 and C4 should take the shortest possible route between the i.f. transformer and the anode of V1a.

Since the circuit is self adjusting, there is no need to incorporate a limiter on-off switch. As such switches invariably lead to leakage between input and output of a limiter, so degrading performance, if they can be omitted, then so much the better. If you should experience audio distortion to any degree with this limiter, it will be because the other fellow is riding his modulation far too hard. At 100% modulation, clipping just starts.

### AERIAL MOUNTING

For those who like mobile aerial installations neat and reasonably unobtrusive, the Ekco car radio aerial type CA225/4 will be of particular interest.

The base of this unit, which may be wing or scuttle mounted, is moulded in low-loss polystyrene, the underside of which is fitted with a stout rubber gaiter, making it water-proof. The 200 ohm co-axial cable fitted to the unit when it is supplied may be easily removed, and 75/80 ohm, 50 ohm or 35 ohm cable substituted.

The special feature of this aerial is that the mounting base may be retained on the car by the use of an additional half-nut, so allowing the top section to be removed at will. For those who have "getting-in-the-garage" trouble, this is a boon. In addition, if you operate on more than one band, say 180 mx and 4 mx for example, then different aerials may be mounted on the same fitting by merely screwing them on to the protruding threaded stud. In the case of the two bands cited, on 180 mx a base loading coil would be fitted first, and the extending sections of the aerial to the top of the loading coil. When on 4 mx all that is needed is to fit the extending sections in the normal manner, and then draw them out to the optimum length.

One other advantage is that when away on holiday, or if you have to street park overnight, then the aerial can be removed easily.

### WIRING HEATERS FOR 12V. AND 6V. OPERATION

Many items used for mobile are restricted in use simply because the heater circuits are wired for operation on 12v. only, and it is not always convenient, or possible, to provide this voltage in the home station.

For many years the writer has been wiring the heater circuits of his mobile equipment so that it can be operated on either 12v. or 6v. One advantage of this arrangement is that when testing newly constructed gear, this can be done by bringing into service an existing power supply in the fixed station. The mobile equipment can therefore be operated from the fixed station

should the need ever arise, and furthermore, such a facility can avoid duplication of equipment.

This facility is provided by arranging the heater wiring of the valves in a balanced series/parallel arrangement according to Fig. 3.

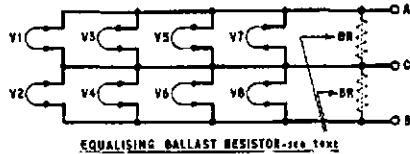


Fig. 3.—Universal heater wiring allowing the optional use of 6 volt or 12 volt supply.

First, the individual heater currents are noted, and then the valves are arranged in a manner similar to that of Fig. 3 so that the total current of the valves connected between points A and C is equal to the total current of the valves connected between points C and B.

Now unless you are particularly lucky, the current in the arm AC will not equal that in the arm CB. To balance the currents, a ballast resistor will have to be fitted to the side which is short of current to make up the deficiency.

With 12 volts applied between AB, and with the currents balanced, there will be 6 volts between AC and 6 volts between CB. From this it will be seen that the ballast resistor will have to dissipate the current difference at 6 volts. From Ohm's Law, the value of the ballast resistor may be determined. The working wattage will be  $W = I^2R$ , where I is the difference current. To ensure reasonably cool working, the resistor fitted should have a wattage rating of at least three times that derived from the foregoing calculation. One word of warning! Do be sure that the ballast resistor is fitted to the side of the circuit which is short of current.

In use, terminal B is connected to chassis. When operating on 12 volts, C is left open, and the supply connected to A. For operation on 6 volts, A is connected to chassis—along with B—and the supply taken to C.

If one of the valve heaters becomes open circuit, then the current of this valve will be shared by the remaining valves in its arm of the circuit. Rarely, if ever, will this cause any damage. Under such circumstances, since the equipment will not operate correctly, one is left in no doubt as to the fact that there is a fault.

When valves with a centre tap are used, such as a 12AX7 for example, one live pin is wired to A, the other to B, and the centre tap to C.

### NOTABLE DOUBLES

Two valves in one envelope are always of interest to the mobileer for they save current, heat, and cost. One particularly useful little valve is the ECF82 which combines a triode and pentode in one envelope. The triode when used as an audio voltage amplifier will give a stage gain of about 60, and performs very well as either a crystal or variable frequency oscillator. As for the pentode, having a slope of 5.2 mA./v. it makes a good i.f. amplifier, or r.f. amplifier on the lower

frequencies. In transmitter service, the pentode shows high efficiency as a doubler or trebler, but in this class of operation, care must be taken to ensure that the screen grid dissipation is not exceeded.

An example of the circuitry which can be woven around this valve is shown in Fig. 4. This is a crystal oscillator and multiplier sequence for a 4 mx transmitter, and will give 1.5 mA. of drive through a 22K ohm resistor in the grid of a 5763 p.a. running 9 watts input. Thus two valves, an ECF82 and a 5763, will make up into a very compact, low power, 4 mx transmitter.

The American number for the ECF82 is 6U8. It has been noted that a 6U8A has recently been introduced, and from information available, this appears to be an improved version of the 6U8.

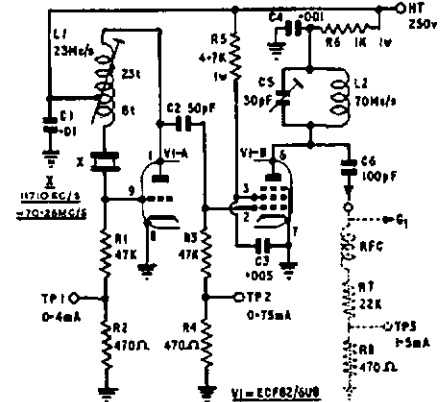


Fig. 4.—Single valve 70 Mc. driver. L1, 31 turns 28 s.w.g. enamel, close wound on 1/4 in. former with iron slug. Tap at eight turns. L2, seven turns 18 s.w.g., air wound 1/4 in. inside diameter. Turns spaced wire diameter. TP1, TP2 and TP3 indicate currents to be expected between test points and earth. Components shown dotted are grid circuit of following stage.

### THIEF-PROOFING EQUIPMENT

As some of us know to our cost, merely locking a car is not sufficient to deter a determined thief.

Since having been through the bitter experience of having equipment stolen, the writer has incorporated the following arrangement in his car. While it does not stop a potential thief getting at the equipment, nor from taking it out, once it is moved, even fractionally, from its correct position, the car horn sounds, and nothing can stop it. The resulting din is more than enough to deter a thief who, above all, does not want attention drawn to himself.

The circuit arrangement is shown in Fig. 5. Its operation relies on the fact that the equipment is securely mounted, and that the back of the equipment presses on a microswitch firmly fitted either directly to the bodywork of the

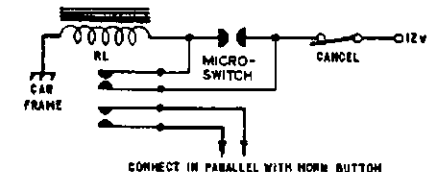


Fig. 5.—Burglar alarm circuit. The "cancel" switch is normally ON. To stop the alarm, this switch is opened.

# JOYSTICK

## VARIABLE FREQUENCY ANTENNA 1.5-30 Mc.

The world's most versatile and compact h.f. band antenna for transmission and reception. More than 4,000 stations throughout the world are equipped with the Joystick and associated A.T.U. Testimonials pour in, takes a kilowatt and favours the DX. Overall length 7 feet 6 inches.

### ORDER NOW!

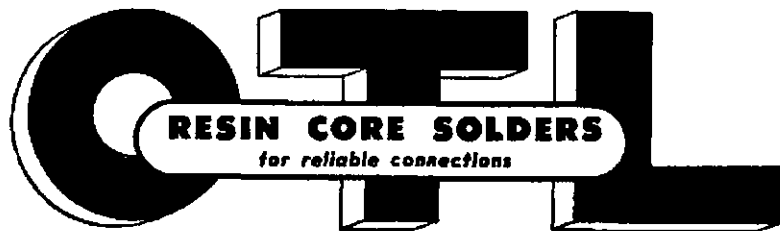
Joystick Antenna, standard make (aluminium elements) .....	£7/7/0
Joystick Antenna, de luxe make (all copper elements) .....	£9/9/0
Joymatch A.T.U. Type 2 for receive only on b.c. bands .....	£5/15/0
Joymatch A.T.U. Type 3 for receive and transmit (low power and mobile) .....	£3/15/0
Joymatch A.T.U. Type 5 for transmit only (rated 150 watts) .....	£2/10/0
Mobile Mounting Kit (converts existing Joystick for mobile mounting) .....	£3/13/0
RF40 Field Strength Meter (magnetic base, 1-250 Mc. coverage) .....	£6/19/6

Send for descriptive literature and testimonials, including the outstanding performance of the Joystick used by ZL4GA who W.A.C. in one day and QSO'ed G5WP and VETBYX on 3.5 Mc. W7OE says the Joystick equals half-wave dipoles and similar conventional antennae on 160, 80 and 40 and has proven superior to them in the 15 and 20 metre bands.

**PENNANT IMPORTS (ELECTRONICS) CO.**

P.O. BOX 26, BEECROFT, N.S.W.

## CHOOSE THE BEST.—IT COSTS NO MORE



G. T. LEMPIERE & CO. LIMITED. Head Office: 27-41 Bourdon Street, Alexandria, N.S.W.  
and at Melbourne • Brisbane • Adelaide • Perth

## DURALUMIN, ALUMINIUM ALLOY TUBING

IDEAL FOR BEAM AERIALS AND T.V.

★ LIGHT      ★ STRONG      ★ NON-CORROSIVE

STOCKS NOW AVAILABLE FOR IMMEDIATE DELIVERY

ALL DIAMETERS— $\frac{1}{4}$ " TO 3"

Price List on Request

STOCKISTS OF SHEETS—ALL SIZES AND GAUGES

## GUNNERSEN ALLEN METALS PTY. LTD.

SALMON STREET,  
PORT MELBOURNE, VIC.

Phone: 64-3351 (10 lines)  
Telegrams: "Metals," Melb.



HANSON ROAD,  
WINGFIELD, S.A.

Phone: 45-6021 (4 lines)  
Telegrams: "Metals," Adel.

# LOW DRIFT CRYSTALS

FOR  
**AMATEUR  
BANDS**

ACCURACY 0.01% OF  
STATED FREQUENCY

**3.5 and 7 Mc.**

Unmounted, £2/10/0

Mounted, £3/0/0

**12.5 and 14 Mc.  
Fundamental Crystals,  
"Low Drift"**

Mounted only, £5.

THESE PRICES DO NOT  
INCLUDE SALES TAX

Spot Frequency Crystals  
Prices on Application.

Regrinds ..... £1/10/0

## MAXWELL HOWDEN

15 CLAREMONT CRES.,  
CANTERBURY, E.7,  
VICTORIA

THE NEW "A.R."

# LOG BOOK

IS NOW AVAILABLE

Larger, spiral-bound pages  
with more writing space.

Price 7/6 each  
including Postage

Obtainable from your Divisional  
Secretary, or W.I.A., P.O. Box 36,  
East Melbourne, C.2, Victoria.



car, or to an arm anchored to the bodywork. If the equipment is moved, then the microswitch operates and sets off the alarm. At this stage it should perhaps be mentioned that the microswitch is of the "press-to-open" variety.

The operation is not quite as simple as has been described for the circuit as is so arranged that even if the equipment is restored to its correct position, the horn does not cease to operate. It just goes on and on and on and on . . . This interlock is quite vital. For ease of circuit tracing, the primary wiring has been illustrated in heavy lines, while the interlock is shown in lighter lines.

The heart of the arrangement is the double pole relay fitted with contacts which close when the relay is energised. The primary circuit starts from the negative terminal of the battery and runs through the alarm-cancelling switch, and then through the microswitch to the relay energising coil to the frame of the car. As it stands at the moment, and with the equipment in position, the microswitch is pressed and in the off position. If the equipment is withdrawn, the pressure on the microswitch is released, the circuit completed, and the relay closes. One set of contacts on the relay wired in parallel with the horn button completes the horn circuit. At this stage, if the equipment is returned to its correct position, or the leads to the microswitch cut, then the horn would cease. To avoid this, an interlock is provided. This is achieved by arranging the second pair of contacts on the relay to be in parallel with the microswitch; thus once the relay is closed by the action of the microswitch, one set of the relay contacts maintain it locked "on".

To stop the alarm you either have to know where the cancelling switch is located, or dive under the bonnet to disconnect the battery—and no thief will hang around that long.

The value of this alarm switch depends on how the cancelling switch is concealed. Disguising is often better than hiding, and in the writer's car it is in full view of anyone who enters.

### SHOESTRING MODULATION

The writer is always intrigued by descriptions of modulators which, for d.c. inputs of 15 watts or less, employ push-pull modulating valves. On Top Band, or for any transmitter with a d.c. input of less than 15 watts, there is no need to go to such lengths to modulate the carrier in a satisfactory manner.

Taking Top Band as a practical example, a single 6BW6 will, if allowed to do so, run an input in excess of the legal limit. The interesting thing about the 6BW6 valve is that its impedance as a p.a. for 10 watts input (40 mA. at 250 volts) is near to its optimum load impedance as a single ended output stage for the same value of h.t. supply. The figures are: p.a. impedance, 6.2K ohms; optimum load impedance, 5.5K ohms at  $V_a$  and  $V_s$  of 250 volts. Since the 6BW6 as an audio output valve will deliver 5.5 watts, this is quite enough power to fully modulate a p.a. input of 10 watts. Indeed, under speech waveform conditions, and a reasonably accurate match, the audio output is likely to be quite a bit higher.

Using these facts, gleaned from the valve manufacturer's data, considerable simplification becomes possible. The principal advantage is derived from the fact that the modulation transformer needs only have a 1:1 ratio, and where this ratio is required, with the arrangement to be shown, a full blown modulation transformer is quite unnecessary.

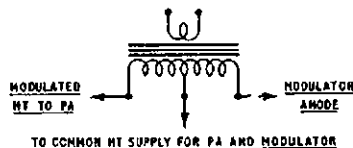


Fig. 6.—Method of using centre-tapped audio output transformer as a modulation transformer.

The circuit is shown in Fig. 6. In this a standard centre tapped audio output transformer is used in such a manner that, as far as the p.a. is concerned, it "looks" like a modulation transformer. The transformer has to fulfil two requirements: the impedance on either side of the centre tap should be equal to, or near to, the desired impedance—in this case between 5.5K ohms and 6.5K ohms; each half of the winding must be able to carry the current expected to flow through it. Many such transformers are freely available, and moreover, at a cost far below that of a "normal" modulation transformer.

If the equipment in which this idea is incorporated is a transceiver, then the modulating valve can be arranged to do double duty and serve as the output stage of the receiver. Under these conditions the speech coil winding on the transformer can be coupled to a loudspeaker in the normal manner. Naturally, arrangements have to be made to mute the loudspeaker during transmission, and in addition, the transmitter switching should be arranged so that the cathode of the p.a. is disconnected to avoid the p.a. valve acting as a diode connected to the far end of the output transformer while receiving.

While the 6BW6 has been specifically cited, this method is not restricted to this valve alone, neither is it essential that the p.a. and modulating valves are of the same type. Many combinations are possible as a study of valve data will show.

This system has been used by the writer in various low power transmitters and transmitter/receivers. There have never been any reports of under-modulation or poor quality. Quite aside from its advantages circuitwise, it materially assists in getting the proverbial gallon into the pint pot.

### FIELD STRENGTH INDICATOR

One problem faced by all mobile operators, irrespective of the band on which they operate, is to monitor the level of r.f. radiated by the transmitting aerial. It is neither practical, nor accurate, to use a field strength meter inside the car to determine what is going on outside.

One way round this is to use an external aerial coupled to a F/S meter inside the car, but unless one is prepared to have aerials sprouting out all over the place, hardly ideal.

A neat way of overcoming the need to fit a special aerial is to use a wing mirror as the pick-up for the internal F/S meter. All that is needed is to insulate the wing mirror from the bodywork of the car, and then run a lead from the binding nut into the car.

On the l.f. bands this can be a plain lead, but on 4 mx, co-axial cable should be employed. If both l.f. and v.h.f. operation are undertaken, a co-axial lead should be fitted, but without earthing the outer braiding at either the mirror or the saloon ends. When used on the l.f. bands, the F/S meter should be arranged so that the inner and outer of the co-axial cable are connected together, thus turning it into a plain lead. On v.h.f., the F/S meter should be arranged to treat the lead as normal co-axial cable.

A method of bushing a wing mirror for this purpose is shown in Fig. 7.

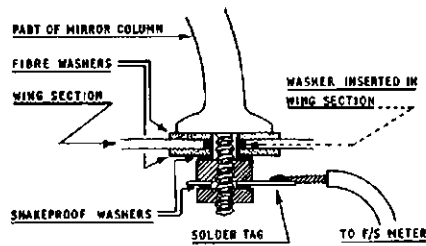


Fig. 7.—Insulating a wing mirror to allow it to be used as the aerial for a field strength meter.

### MICROPHONE HEAD AMPLIFIER

Most of the diminutive inserts of Japanese origin—such as would be suitable for the halter-boom for example—have impedances ranging from 25 ohms to 250 ohms, and so require the use of a matching transformer. By the use of a single transistor in a suitable pre-amplifier, such a transformer may be dispensed with, and in mobile working this has certain advantages.

The pre-amplifier shown in Fig. 8 was designed specifically for microphones with this range of impedances, but of greater interest, employs a couple of "ideas" so that, although it is positioned at the microphone head, only a single screened lead is needed to (a) bring the output from the pre-amplifier to the main amplifier, and (b) take the supply up to the pre-amplifier.

The first circuit oddity to note is that the forward bias is taken from the collector. This forward bias is thoroughly decoupled by R3 and C2 so that

(Continued on Page 8)

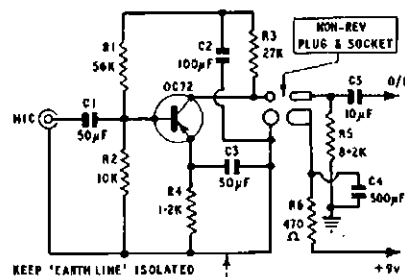


Fig. 8.—Microphone pre-amplifier for inserts with an impedance of between 25 ohms and 250 ohms. This unit may be constructed in a small metal cigar case and used as a co-axial in-line amplifier.

## MATTERS MOBILE

(Continued from Page 7)

none of the output at the collector is fed back into the base of the transistor. By using this arrangement, one lead is dispensed with, namely that usually needed to take the supply to the forward bias circuit.

The second oddity relates to the input circuit on the main equipment. Either a co-axial socket can be used, in which case it must be fully insulated from the chassis, or a two-pin non-reversible socket with matching plug as shown on the diagram. The inner lead of the screened cable goes to the main amplifier via the capacitor C5. The resistor R5 is the load for the transistor collector circuit, which, it should be noted, runs from the live tag on the socket to chassis negative (earth). The screen of the cable is not earthed in the usual manner, but only earthed for signal currents by C4. The screened outer of the cable is continued, via the resistor R6 to a source of 9 volts positive. In point of fact, any voltage between 6 volts and 9 volts can be used, and this circuit has been arranged so that the source of this voltage is the cathode of one of the valves in the main equipment across whose cathode bias resistor this voltage exists. From this it will be appreciated that there is no need to arrange a separate supply for this pre-amplifier.

One point which will be apparent is that the screening of the linking cable is positive with respect to the chassis and other metalwork of the equipment

by the supply voltage to the pre-amplifier. Thus the linking cable must be provided with a sheath over its braiding. If this braiding does become shorted to chassis or the metalwork, then it will short-circuit the supply to the transistor. Since the source voltage for the transistor comes from the cathode of a valve, under these conditions the valve would be running without bias. To protect against such an eventuality, R6 is included in series with the supply source so effectively preventing damage to the valve concerned.

☆

## OVERLAY TRANSISTORS

A new emitter electrode structure called the "Overlay" was first used commercially in the power transistor 2N3375. This transistor, introduced in 1964, has 156 emitters tied together in parallel by diffused and metallised regions. This approach provides a considerable increase in the emitter edge-to-area ratio and a proportionate reduction of the input time constant. This has permitted a practical transistor with a 3 watt output at 400 Mc. or 7.5 watts at 100 Mc. for 1 watt drive.

The production of this type of transistor is exacting and very tricky, which accounts for its present high cost. In lots of 1,000, the price is around \$14.

Another type, the 2N3866, used for u.h.f. driver applications, has 16 emitters each 0.15 mils. wide by 2 mils.

long. Due to a reduction in input capacitance, the frequency response has been improved and the unit has a minimum gain of 10 db. at 400 Mc. for 1 watt of output power. It sells in lots of 1,000 for about \$3.

There are a number of the well known companies now producing these devices, and types range from 50 watts at 50 Mc. at 28 volts, through 10 watts at 400 Mc. at 28 volts, to 1 watt at 800 Mc. at 28 volts. A number of the types operate on voltages around 12 to 14 volts and prices are in the vicinity of \$28.

Although the overlay transistor appears to be the answer to v.h.f. and u.h.f. semiconductor devices for some time to come it may still be out of the price range for the average Amateur unless quantity requirements and production techniques improve to make them cheaper.

☆

## ARMY AMATEURS

A recent issue of "Army," the Army newspaper, carried an article on official Army Amateur Stations, i.e. those authorised by the Army using Army equipment operating in various parts of Australia and in overseas theatres. A total of ten were nominated, being VKs 3UW, 3UF, 3AHP, 3AAS, 2AIF, 2ZYC, 4CS, 2FV, 1RM and 6QJ. In addition to these ten official stations, there are, of course, many Army operators using their own equipment scattered throughout the Commonwealth.

It is always pleasing to note when a Government Service sees fit to promote the art and make available equipment for the pursuance of a hobby which knows no bounds.

## American "Dage" Standard V.H.F. CO-AX CONNECTORS

(As used widely in "QST" and "CQ" circuits and on disposals equipment)

PL259 Co-ax Plugs (PTFE) .....	9/9
SO239 Co-ax Sockets (PTFE) .....	9/9
UG-176-U Adaptors, adapts PL259 Plugs to range of Co-ax Cable diameters ..	3/3
C32-14 Co-ax Couplings, couple two PL259 Plugs (PTFE) .....	17/6
C32-17 "T" Co-ax Joiner (PTFE) .....	23/3
(Useful for sampling r.f. in transmission line for c.r.o. measurement.)	
C32-16 Right Angle Co-ax Connector (PTFE), male to female .....	18/9
(Prices include Sales Tax)	

## "JABEL" TR-14 REAMERS

Ideal for clean finish on small panel holes and cleaning out for neat fit.

Price: 10/6 each.

## F455-FA-21 FILTERS

COLLINS Type F455A Mechanical Filters, 455 Kc. Wiring instructions with each unit.  
Price (inc. S.T.): £17/10/0

## AIWA M-18 CRYSTAL MIKES

For use into ½ meg. load or higher, ideal speech range 50 c/s. to 7 kc., output -52 db.

Price: 79/6

## TRANSMISSION LINE EQUIPMENT

Formula III, Low-Loss 300 ohm open wire Transmission Line. 100 ft. lengths, coiled and boxed. Price £2/11/9 (inc. S.T.)

14 gauge hard-drawn Copper Wire for Amateur Antenna Systems. Any length cut. Price 7d. per yard (inc. S.T.)

Porcelain Egg-type Insulators. Price: 10/- doz. (inc. S.T.)

## PENETROX "A"

Famous American aluminium and copper corrosion inhibitor. Avoid bad electrical connections and corroded joints on beam antennae, t.v. antennae, etc. Use—

PENETROX "A"

Price: 10/- per tube

(Post Paid)

## QUALITY SCREW DRIVER SET

ORIENT No. 3350 Screw Driver Set with wall-holding rack. Set includes one each 3, 4, 5, 6, 8 in. plus 4 in. Phillips head.

Price: 18/- set

## HAVING T.V.I. TROUBLE?

A "Cabena" Low Pass Filter will fix it! Cut-off frequency, 30 Mc.; attenuation at 80 Mc., better than 30 db.; insertion loss, negligible; impedance, 50-72 ohms.

Price: £5/15/0 (inc. S.T.)

## KIKUSUI MODEL 539 3" C.R.O.

240 a.c. operation, Printed Circuit Board wiring, 5 c.p.s. to 1 Mc., time base oscillator sweep 10 c.p.s. to 100K c.p.s. in steps with continuous in-between variation. Ideal s.s.b. measurement with coupled r.f. sampling signal. Weight, 11 lbs.

Price: £55 plus 12½% S.T.  
(Full instruction book supplied)

## GELOSO KIT FOR D.S.B. TRANSMITTER

The following components comprise the GELOSO Kit for construction of D.S.B. Transmitter. For circuit details refer Nov. '65 issue of "Electronics Australia".

4/105 Crystal controlled Beat Frequency Oscillator .....	£12/10/0
N.1657 Calibrated Dial, Pointer and Escutcheon .....	£2/16/0
N.4/113 Pi-Coupler .....	£2/3/0
N.771 Condenser .....	£1/19/6
N.774 Condenser .....	£1/19/6
N.17634 All Wave R.F. Choke .....	8/6

All plus 12½% Sales Tax.  
Valves not supplied with VFO.  
Valves for VFO: 6U8, 6AH6, 6CL6.

# WILLIAM WILLIS & CO. PTY. LTD.

428 ELIZABETH STREET. MELBOURNE, C.1

Phone 34-6539

# The Fatal Current

C. O. BRAINARD, WAOJBU

**S**TRANGE as it may seem, most fatal electric shocks happen to people who should know better. Here are some electro-medical facts that should make you think twice before taking the last chance.

## **IT'S THE CURRENT THAT KILLS**

Offhand, it would seem that a shock of 10,000 volts would be more deadly than 100 volts. But this is not so. Individuals have been electrocuted by appliances using ordinary house currents of 110 volts and by electrical apparatus in industry using as little as 42 volts direct current. The real measure of a shock's intensity lies in the amount of current forced through the body, and not the voltage. Any electrical device used on house wiring can, under certain conditions, transmit a fatal current.

While any amount of current over 10 Ma. is capable of producing painful to severe shock, currents between 100 and 200 Ma. are absolutely lethal. There is no known medical procedure that will revive the victim.

Currents above 200 Ma., while producing severe burns and unconsciousness, do not usually cause death if the victim is given immediate attention. Resuscitation, consisting of artificial respiration, will usually revive the victim.

From a practical viewpoint, after a person is knocked out by an electric shock, it is impossible to tell how much current has passed through the vital organs of his body. Artificial respiration must be applied immediately if breathing has stopped.

## **THE PHYSIOLOGICAL EFFECTS OF ELECTRIC SHOCK**

Voltage is not a consideration in the physiological effects of various current densities. Although it takes a voltage to make the current flow, the amount of shock-current will vary, depending on the body resistance between the points of contact.

Shock is relatively more severe as the current rises. At values as low as 30 Ma., breathing becomes laboured, finally ceasing completely even at values below 75 Ma.

As the current approaches 100 Ma., ventricular fibrillation of the heart occurs (an unco-ordinated twitching of the walls of the heart's ventricles). There's no worldly help for the victim.

Above 200 Ma., muscular contractions are so severe that the heart is forcibly clamped during the shock. This clamping protects the heart from going into ventricular fibrillation, and the victim's chances for survival are good.

## **DANGER—LOW VOLTAGE**

It is common knowledge that the victims of high-voltage shock usually respond to artificial respiration more readily than the victims of low-voltage shock. The reason may be the merciful clamping of the heart, due to the high current densities associated with high voltages. However, lest these details be misinterpreted, the only reasonable conclusion that can be drawn is that 75 volts are just as lethal as 750 volts.

The actual resistance of the body varies, depending upon the points of contact and the skin condition (moist or dry). Between the ears, for example, the internal resistance (less than skin resistance) is only 100 ohms, while from hand to foot it is closer to 500 ohms. The skin resistance may vary from 1000 ohms for wet skin to more than 500,000 ohms for dry skin.

## **GENERAL SAFETY PRECAUTIONS FOR YOU**

When working around electrical equipment, move slowly. Make sure your feet are firmly placed for good balance. Don't lunge after falling tools. Kill all power and ground all high voltage points before touching wiring. Make sure that power cannot be acci-

dentally restored. Do not work on ungrounded equipment.

Don't examine live equipment when physically or mentally fatigued. Keep one hand in your pocket while investigating live electrical equipment. Above all, do not touch electrical equipment while standing on metal floors, damp concrete, or other well-grounded surfaces. Do not handle electrical equipment while wearing damp clothing (particularly wet shoes) or while skin surfaces are damp.

Remember, the more you know about electrical equipment, the more heedless you're apt to become. Don't take unnecessary risk.

## **WHAT TO DO FOR VICTIMS**

Cut voltage and/or remove victim from contact as quickly as possible, but without endangering your own safety. Use a length of dry wood, rope, blanket, etc., to pry or pull the victim loose. Don't waste valuable time looking for the power switch. The resistance of the victim's contact decreases with time. The fatal 100 to 200 Ma. level may be reached if action is delayed.

If the victim is unconscious and has stopped breathing, start artificial respiration at once. Do not stop resuscitation until medical authority pronounces the victim beyond help. It may take as long as eight hours to revive the patient. There may be no pulse, and a condition similar to rigor mortis may be present; however, these are manifestations of shock and are not an indication that the victim has died.



9th Brunswick Scout Troop, Donald Street, Brunswick (Vic.) during the Jamboree-on-the-Air on 16th and 17th October. Left to right: Alan Weshwood, Jan Sardi, Jeffrey Patterson, Brian Patterson, Michael McDonald, David Fellow. Front: Dawn Westwood (L.C.M.) and George Robertson (VK3WJ).



# WARBURTON FRANKI

## ● POLYPACS

Bags of Assorted Components.

**\$1 each (10/-) S.T. inc.**

- No. 1—30 Resistors,  $\frac{1}{2}$  and 1 watt—also Presets.
- No. 2—20 Capacitors—Paper, Mica, Plastic, Ceramic.
- No. 3—20 Silver Mica Capacitors.
- No. 4—20 Styrofoam Plastic Capacitors.
- No. 5—50 Assorted Grommets (2 for \$1).

Postage—1 pac 4c (5d.); 3 pacs post free.

## ● PROTECT YOUR PREMISES WITH THE SCOTT ELECTRONIC EYE

● A.C. Mains Operated. ● Kit consists of Light Source and Eye Unit. ● Complete with power supply, amplifier, buzzer, hardware and connecting wires.

Use across doorways or other openings up to 25 ft. wide.

**\$33.33 (£16/13/4)**

Plus S.T. 12½%, plus postage for weight of 4 lb.

## ● SILICON DIODES

18 amps. at 50 p.i.v. Available **75c (7/6)**  
with either K or A to case plus S.T. 12½%

1 amp. at 1,000 p.i.v. **\$1.35 (13/6)** plus S.T. 12½%  
Pack and Post 5c (6d.).

## ● RESISTOR SUBSTITUTION BOXES

Twenty-four values from 15 ohms to 10 megohms. Selected by two rotary switches. Complete with leads and clips.

**\$3.65 (36/6)** plus 12½% S.T.

## ● CAPACITOR SUBSTITUTION BOXES

Nine values from 100 pF. to 0.22 uF. Selected by rotary switch. Complete with leads and clips.

**\$2.47 (24/8)** plus 12½% S.T.

## ● TRANSISTOR AMPLIFIER — SINCLAIR X-20 PULSE-WIDTH MODULAT. AMPLIFIER & PRE-AMP. OPEN MATRIX BOARD CONSTRUCTION

12 Transistors, size 8½ x 3½ x 1 in. Weight 4 oz.

Input sensitivity—1 mV. into 5,000 ohms.  
Total harmonic distortion—Less than 0.1% at 10w.  
Frequency response at all power levels—20 c/s. to 20 Kc. plus 1 db.  
Damping Factor—greater than 100.  
Quiescent consumption—approx. 150 mA.  
Supply Voltage—28 to 37 volts (7.5 ohm speaker).  
28 to 45 volts (15 ohm speaker).  
Output Power—7.5 ohm Speaker, 20 watts r.m.s. music power.  
15 ohm Speaker, 15 watts r.m.s. music power.  
Supplied with comprehensive descriptive booklet showing circuit and recommended circuitry for volume and tone controls.

**\$26.50 (£13/5/0)**

Plus S.T. 25%. Pack and Post 10c (1/-).

## A.C. POWER SUPPLY TO SUIT—

(Will supply two Amplifiers for **\$12.60 (£6/6/0)**  
Stereo use.) Plus S.T. 12½%.

Pack and Post 25c (2/6).

## ● MULTIMETERS—200H

Fan-shaped meter movement.

Ranges: DCV—5, 25, 50, 250, 2,500 at 20K o.p.v.  
ACV—10, 50, 100, 500, 1,000 at 10K o.p.v.  
DC mA.—50 uA., 2.5 mA., 250 mA.  
OHMS—500, 600K.  
CAF—10 pF. to 0.1 uF.  
DB—Minus 20 to plus 22.  
Supplied with leads and instruction leaflet.

**\$9.50 (95/-)**

Plus S.T. 12½%. Pack and Post 15c (1/6).

## ● MULTIMETERS—SANWA 370X

Ranges: DCV—3, 6, 12, 120, 300, 1,200, 3,000 at 4K o.p.v.  
ACV—6, 12, 120, 300, 1,200, 3,000 at 4K o.p.v.  
DC mA.—0.3, 3, 30, 300.  
DC Amps.—3, 12.  
AC Amps.—3, 12.  
OHMS—10K, 100K, 1 meg., 10 meg.  
DB—Minus 10 to plus 17.  
Minus 0 to plus 23.

Supplied with two pairs of test leads and comprehensive instruction booklet.

**\$26 (£13)**

Plus S.T. 12½%. Pack and Post 25c (2/6).

Wooden Carrying Case to suit. Well made with safety lock and removable lid.

**\$7.90 (£3/19/0)**

Plus S.T. 12½%. Pack and Post 20c (2/-).

## ● MICROPHONE MIXERS

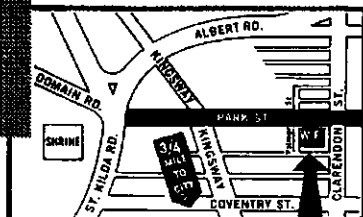
Mixes the outputs of up to 4 high impedance microphones. Separate volume controls for each mike. Attractive metal cabinet, 6 in. x 2½ in. x 2¼ in.

**\$7.20 (72/-)** Plus S.T. 12½%.



# WARBURTON FRANKI

220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines **69-0151**



● TRADE ALSO SUPPLIED

● Please include postage and freight with all orders

# MONIMATCH MARK 3 AND 4\*

Much Improved Version of  
a Popular Loading Indicator

DENNIS HAMPTON, ZL3II

THOSE who are fortunate in having a subscription to "QST" will realize that I have based this article on a recent one of theirs. However, having recently constructed both models for use at work, with excellent results, I have jotted down my findings and construction details for readers.

It is most desirable that the final amplifier of every transmitter should be terminated in a purely resistive load. If any appreciable reactance is present in this load, transmitter efficiency will suffer. A direct indication of the load's reactance and resistance content is given by the standing wave ratio on the line feeding the load, i.e. the co-ax, ribbon or open wire line immediately following the transmitter.

As the majority of Amateur transmitters in current use have co-axial output, the Monimatch reflectometer has come into wide use as a matching indicator. Nearly all Monimatches, commercial and home-made, built to date, are of Mark II. variety and have two inherent disadvantages. Firstly, the meter used needs to have high sensitivity in the order of 100 microamps. to be of any practical use, and, secondly, the pick-up unit or reflectometer itself is difficult to construct and fiddly to adjust.

Both the Mark III. and Mark IV. use a 1 mA. meter, and their pick-up units can be assembled in a few minutes, with no adjustment necessary if reasonable care has been taken.

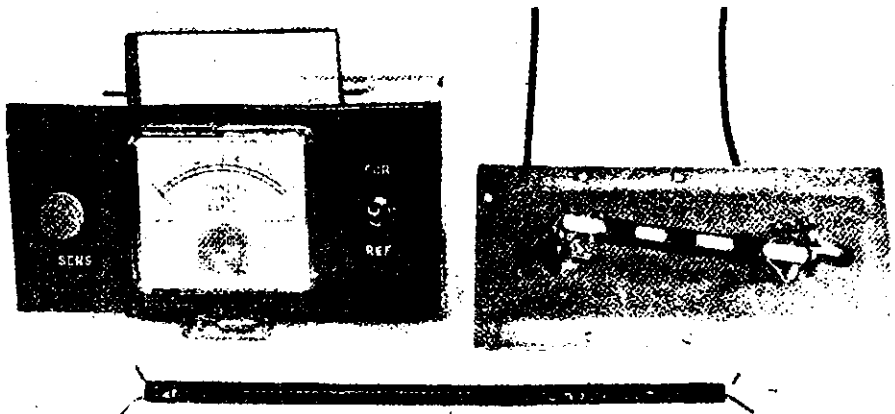
In addition, the sensitivity of both units is better than older models—the simpler but less sensitive Mark III. required at 40 Mc. an output power of 0.3 watts to obtain full scale meter deflection on the forward power reading. If a 100 micro-amp. meter had been used, 3 mW. would have sufficed to obtain a maximum reading. The Mark IV. required only 4 watts output at 3.5 Mc., whereas at 14 Mc. it would handle 80 watts—a larger pot would enable greater power to be handled. Thus the Mark IV. has several times the sensitivity of the older Mark II. r.f. power meters (calibrated dummy loads were used here for the above tests.)

It is essential that the diodes be matched and are available in matched pairs. Alternatively, a suitable pair could be had by placing several diodes of the same type, one by one, in a simple r.f. absorption circuit. Two diodes, giving the same meter reading at several scale points, would be matched. Both circuits and their operation are identical to the Mark II.

## CONSTRUCTION

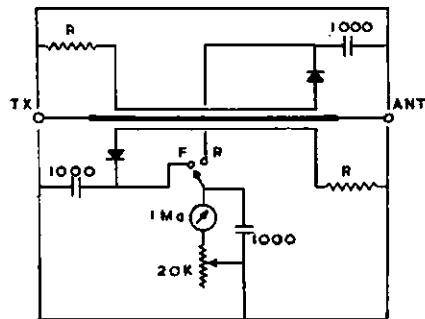
Apart from the cabinet (approx. 5" x 3" x 3", 16 gauge aluminium—depends on component sizes), the whole job can be completed in under two hours.

\* Reprinted from "Break In," Sept. 1965.



The pick-up units are made by stripping the sheath and braid from RG8/U co-ax and binding, with p.v.c. tape, the pick-up wires on either side of the bared co-ax. It is important that these wires are snug against the side of the co-ax. The Mark IV. unit is taped for its whole length, whereas the Mark III. is taped at each end and in the middle.

The co-ax unit is then connected between the input and output sockets or three lug terminal strips. Keep the terminating resistor and diode leads as short as possible and endeavour to keep the completed unit symmetrical—attention to this and the snug pick-up wires will ensure a balance of voltages of the forward and reflected power readings.



The Mark IV. pick-up unit can be bent into an "S" for mounting in its box with little effect on performance.

### Mark III.:-

Co-ax 4½", 14 gauge wire 3½".

Terminating resistors:

For 50 ohm line, 470 ohms.

For 75 ohm line, 430 ohms.

### Mark IV.:-

Co-ax 11½", 14 gauge wire 10½".

Terminating resistors:

For 50 ohm line, 270 ohms.

For 75 ohm line, 220 ohms.

If desired, the meter, pot and switch can be built into a separate box and coupled to the reflectometer box by a plug, lead and socket. This could be desirable if there were several tx/ant. set-ups in the station. Another variation would be the use of the reflectometer box with pot and switch only, used with an external multimeter—what could be cheaper?

## CALIBRATION AND TESTING

The meter is calibrated by the following formula:

$$SWR = \frac{F + R}{F - R}$$

where F is the scale reading of forward power.

R the reflected power.

Example: If the forward reading is 1 mA. and the reflected 0.5 mA.,  $SWR = (10 + 5) \div (10 - 5)$  or 3:1. If reflected power is 0, SWR is 1:1, if it is 1 mA. (i.e., same as forward) SWR is infinity to 1. The meter can be re-calibrated by carefully scraping off the old markings with a sharp knife, and marking appropriate SWR points in Indian ink.

To check that the device is balanced, connect it into the transmitter line, switch to forward, and adjust the reading for a point near full deflection. Note this reading. Reverse the input and output connections, switch to reflected, and note the reading. If both readings are the same, or close (say ±0.2 mA.), the reflectometer is balanced. If not, one of the pick-up wires will have to be moved away a little from the side of the co-ax, till balance is achieved.

Both units built here required no adjustment. To identify the switch positions, terminate the line in a dummy load—the reflected power will always be lower than the forward power.

When using the indicator resonate the transmitter final, and adjust the forward power reading for full scale deflection. Switch to reflected and read off the SWR. In use, the aerial or tuning unit should be adjusted for maximum forward and minimum reflected power—generally these will tend to coincide. If the transmitter power is adequate, it is advisable to leave full loading till antenna adjustments are completed. Put out just enough power to operate the SWR indicator.

## PARTS REQUIRED

- 1 matched pair of OA81, 1N34 or similar diodes.
- 1 20K ½w. pot.
- 3 1,000 pF. disc ceramic capacitors.
- 2 terminating resistors—should be high stability, non-inductive and at least 5% tolerance.
- 1 S.p.d.t. switch.
- 1 0-1 mA. meter.
- 2 Co-axial sockets or 3-lug tagstrips.

# NEW CALL SIGNS

OCTOBER, 1965

VK2QM—R. Stacey, 4 Hanover Avenue, Epping.  
 VK2BPZ—W. H. R. Treloar, 23/8 Fullerton Street, Woollahra.  
 VK2BSJ—D. S. Jeanes, "Villa Maria," Ayr Street, Rockdale.  
 VK2ZDX—D. R. Coutts, Hastings Road, Castle Hill.  
 VK2ZFO—F. R. Overvliet, 2 Bridge Street, Fassfern.  
 VK2ZOB—K. E. O'Brien, Station: Haig Street, West Cowra; Postal: 338 Illawarra Road, Marrickville.  
 VK3EZ—T. Mitchell, 91 Roslyn Street, Burwood.  
 VK3NV—S. B. Backhouse, 35 Moore Street, South Caulfield.  
 VK3VA—G. P. Winters, 23 Robyn Drive, Nunawading.  
 VK3AAV—N. W. Deague, 26 Somers Avenue, Malvern.  
 VK3AB—J. A. Moran, R.R.I.S., No. 1, Aircraft Depot, R.A.A.F., Laverton.  
 VK3ACO—St. Anne's Science Club, St. Anne's Church of England Girls' Grammar School, 8 Raymond Street, Sale.  
 VK3ACQ—Scotch College Radio Club, Scotch College, Glenferrie Road, Hawthorn.  
 VK3AEL—A. W. Holt, 39 Loongana Ave., Glenroy.  
 VK3AGU—Harrison Chapman, The Vicarage, Flinders, Victoria.  
 VK3AMR—J. A. Howie, Salisbury Ave., Warburton.  
 VK3AOK—A. D. Swinton, 760 Waverley Road, Glen Waverley.  
 VK3APT—P. T. C. Morrison, C/o Forests Commission, Mt. Taylor.  
 VK3AQT—F. Williams, 30 Powlett Street, East Melbourne.  
 VK3ASH—M. L. W. Park, 74 Rosemont Avenue, Caulfield.  
 VK3ASP—D. H. Murray, 9 Ruyton Street, Burwood.  
 VK3AWQ—Warrnambool Technical College Radio Club, Grafton Road, Warrnambool.  
 VK3ZQC—B. J. Lakey, 118 Panton Street, Golden Square, Bendigo.  
 VK3ZRZ—A. C. Ryan, 4 Adamson Street, Braybrook.  
 VK3ZSF—K. F. Dixon, 3 Empire Street, East Preston.  
 VK3ZSG—I. R. Goding, 15 Yarrabee Court, Mt. Waverley.  
 VK3ZSL—A. L. M. MacLean, 157 Charman Road, Mentone.  
 VK3ZTM—R. L. Waite, 48 Seymour Road, Elsternwick.  
 VK3ZVK—N. Hull, 73 Bayswater Road, Croydon.  
 VK3ZYL—Gertrude Williams, 30 Powlett Street, East Melbourne.  
 VK4YH—I. H. Young, 100 Glenholm Street, Mitchelton.  
 VK4ZDW—J. Dalglish, 25 Crawford Street, Redcliffe.  
 VK4ZFC—F. W. Chapman, 17 Shaftesbury Street, Ekibin.  
 VK4ZHH—E. B. Hall, 10 Kenilworth Street, Sherwood.  
 VK4ZQT—Teachers' College Radio Club, Victoria Park Road, Kelvin Grove.  
 VK5FD—A. M. Dunn, 208 Woodford Road, Elizabeth North.  
 VK5XO—J. B. Lewis, Caroline Road, Square Mile.  
 VK5ZIM—S. J. Mahony, 19 Kentish Road, Elizabeth Downs.  
 VK5ZKJ—B. F. Brockhouse, 156 First Avenue, Royston Park.  
 VK5ZMR—M. W. Reiger, 50 Cromer Parade, Millswood.  
 VK5ZRD—D. R. Gordon, 24 Seventh Avenue, Cheltenham.  
 VK5ZRZ—G. R. Johns, 25 Wallace Street, Balaklava.  
 VK6JM—W. J. Mordue, 6 Shearer Street, Myrae.  
 VK6NN—D. Ross, 46 Norma Road, Alfred Cove.  
 VK6OM—D. A. Hancock, Flat 7, 198 Labouchere Road, South Perth.  
 VK6ZAK—W. P. Kent, 16 Rowley Street, Bridgetown.  
 VK6ZAN—E. G. Smith, School Quarters, Walkaway.  
 VK6ZDC—P. J. Beacher, 61 Egan Street, Kalgoorlie.  
 VK6ZFO—J. O. Sullivan, 4 Anthony Street, Palmyra.  
 VK6ZFJ—L. Janes, R.A.A.F. Base, Pearce.  
 VK7MB—A. C. McBurnie, 29 Benjafield Terrace, Mount Stuart.  
 VK7ZMD—D. R. Marsland, 16 Nimrim Street, Montagu Bay.  
 VK9RJ—R. J. Wirth, Station: 4 Eleventh St., Lae; Postal: C/o Box 251, P.O., Lae.

VK9ZRA—R. H. Ashley, Christmas Island, Indian Ocean.  
 VK8AV—J. B. Masters, 44 Eden Street, Stuart Park, Darwin.  
 VK8ZMR—M. D'a. Richardson, 18 Mary Street, Stuart Park, Darwin.

NOVEMBER, 1965

VK1YG—G. Yanow, 23 Carrington Street, Deakin.  
 VK1AEP—A. E. Peppercorn, 44 James Street, Curtin.  
 VK1ZCG—G. J. Cashion, 63 Higginbotham Street, Watson.  
 VK2NB—W. J. Guthrie, Lot 1, Dalton Road, St. Ives.  
 VK2UK—E. Klein, Postal: P.O. Box 168, Liverpool; Station: 14 Yarangobilly Street, Mt. Pritchard.  
 VK2ALK—W. J. Lark, 9 Cosimo Street, Old Toongabbie.  
 VK2ANZ—C. S. Smith, 40 Wyuna Road, Pymble.  
 VK2APF—Merrylands Amateur Radio Club, 81 Hanbury Street, Merrylands West.  
 VK2BCT—Camp Technology Amateur Radio Club, Station: Mt. Victoria; Postal: 16 St. Aidan's Avenue, Dundas.  
 VK2BJP—J. Fernu, 11 Milton Avenue, Mosman.  
 VK2ZEQ—J. E. Clark, 20 Darling Street, Chatswood.  
 VK2ZFT—E. G. Gibbons, 135 (Lot 4) Bulli Road, Wentworthville.  
 VK2ZGK—W. F. F. H. Schroeder, Marshall Street, Dora Creek.  
 VK2ZKK—K. J. Callaghan, Flat 2, 39 Colah Street, Griffith.  
 VK2ZKR—K. R. Brackenbury, 18 Perkins Street, West Ryde.  
 VK2ZYX—R. B. Broad, 3/7 Bogota Road, Cremorne.  
 VK3ABZ—J. Bedford, O.T.C. Wireless Station, Fiskville, via Ballan, Victoria.  
 VK3ZQX—D. I. Sillett, 9 Larbert Street, Noble Park.  
 VK4FR—F. J. Miller, 43 Gordon Street, Stones Corner.  
 VK4ZMP—M. P. Moody, 77 Bayview Terrace, Clayfield.  
 VK6DK—R. Kilworth, 2 Johnston Street, Carnarvon.  
 VK6FJ—M. J. Fisher, 23 Searle Road, Applecross.  
 VK6JT—J. P. Talbot, C/o Tracking Station, Carnarvon.  
 VK6PA—J. W. Talbot, C/o Tracking Station, Carnarvon.  
 VK7RG—R. L. Gunther, 78 View Street, Sandy Bay.  
 VK0AH—A. E. Humphreys, Wilkes.  
 VK0KM—K. C. Martin, Mawson.  
 VK0MI—C. R. Lebbon, Macquarie Island.

# ERRATA—PYE REPORTER

Errors in Circuit Diagram, "A.R.," Nov., '65, page 4 and sheet distributed by Victorian Division.

John Haseldine, VK5JC

1. Cathode bypass (25 uF. 25v. electrolytic) of V8 (6AV6) omitted.

2. 0.1 uF. and 47 ohm (in parallel) below and between V8 and mic. transformer: as drawn, this shorts out the negative supply by earthing same. The capacitor value should be 0.01 uF. The negative line from the power supply should connect to the junction of the 47k, 47 ohm and 0.01 uF. The 47 ohm and 0.01 uF. return to earth. Note: The negative supply is the voltage drop across this 47 ohm and the 39 ohm in the power supply—said resistors being in parallel.

3. The suppressor grid of V9 (audio output and modulator) is internally connected to the cathode. It is shown wrongly as an external connection.

4. A wire wound resistor (1.5k 5w.) has been omitted between the "break" contact of the "B" changeover group (Rel. 1) and the 47k anode load of V8.

5. P.A. anode metering. A 2 uF. capacitor is incorrectly shown across the 10 ohm resistor which is in series with a 3k resistor. Starting at the "B" contacts on the relay, the order that the components should be shown on the circuit are as follows: the 10 ohm resistor in series with the 3k resistor to the winding on T7, the 2 uF. capacitor is in parallel with the 3k. The meter leads are: H.T. to pin 7 on SK1 and the junction of the 10 ohm and 3k resistors to pin 5 on SK1.

## CRYSTAL DIVISION

Manufacturers of Quartz Crystals for Frequency Control and Crystal Filters for Highly Selective Circuits announce:—

### NEW LOWER PRICES FOR CLOSE TOLERANCE GOLD PLATED CRYSTALS FOR AMATEUR APPLICATIONS

	Amateur Net (each includ. Tax)
● 1.8 Mc. to 14.999 Mc. ±0.005% in Style "D" holders, ½" pin spacing	£2 8 6
● 15 Mc. to 47.999 Mc. ±0.005% in Style "D" holders, ½" pin spacing	£2 10 6
● 48.0 Mc. to 61.0 Mc. ±0.005% in Style "D" holders, ½" pin spacing	£2 16 3
● 100 Kc. ±0.005% in HC13/U holders, ½" pin spacing*	£4 10 0
● 1 Mc. ±0.005% in Style "D" holders, ½" pin spacing*	£4 10 0
* Specially designed for Crystal Calibrator purposes.	
● 455 Kc. nominal Crystals for Filter applications in Style "D" or "E" (B7G) holders	£4 10 0

Many other types and tolerances are available from our standard production. Please consult us on your Crystal requirements.

## PYE PTY. LTD. CRYSTAL DIVISION

1A KILPA ROAD, MOORABBIN, VIC. Phones 95-2011, 95-6741  
 STATE OFFICES IN ADELAIDE, BRISBANE, HOBART, PERTH AND SYDNEY

# AN APPRECIATION

## AUSTRALIAN BOY SCOUTS ASSOCIATION

2nd December, 1965.

Australian President of the Wireless Institute of Australia,  
Mr. G. M. Hull,  
22 Dryden Street,  
Canterbury, E.7.

Dear Mr. Hull,

I am writing on behalf of the Australian Boy Scouts Association to convey our thanks to the Wireless Institute of Australia for the splendid help and co-operation which its members gave to the Boy Scouts Association in all parts of Australia during the function known as the 8th Jamboree-on-the-Air.

We have received reports from all parts of Australia which indicated the great success of the function and the enthusiasm that it was received by the many Scouts and Girl Guides who took part.

At the present time we are not in a position to report exactly how many took part in the Jamboree-on-the-Air but we do know that it was a record and that even greater enthusiasm than that shown previously attended this year's function.

The Jamboree is only made possible because of the great interest and assistance of your members and we would be pleased if by some means you could convey to them this expression of our thanks on behalf of the whole association.

We look forward to continued co-operation in the years that are to come and would like you to know that in the Scout Movement there is a growing enthusiasm for this event.

With best wishes to your Institute and the good work that it is doing.

Yours sincerely,

E. M. Derrick, National Secretary.

## JOHN MOYLE MEMORIAL NATIONAL FIELD DAY CONTEST, 1966

12th February to 13th February

### A. R. R. L.

Associate Memberships (and renewals) are available by forwarding £2/14/- (plus 6d. interstate cheques) to:

Business Manager, W.I.A.,  
49 Cookson Street,  
Camberwell, E.6,  
Victoria.

This includes the regular arrival of

"QST"

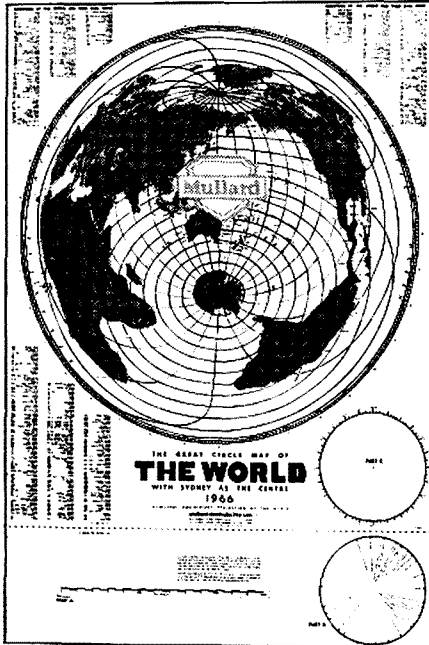
# Trade Review

## GREAT CIRCLE MAP

We are pleased to have had the opportunity of examining a great circle map published by our friends, Mullard-Australia Pty. Ltd.

The map, based on Sydney is 22 in. in diameter, printed on heavy paper 26 in. x 36 in.

The countries are marked with their prefixes, and major cities are pinpointed.



There is a cut-out scale, in English miles, which, by locating at a marked pivot point, can be used to measure mileage to any part of the world.

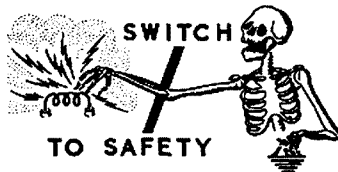
Over 300 countries are listed, with prefixes, on three corners of the chart. The fourth corner is used for a world time calculator, using a cut-out disc.

By spending very little time mounting this map on hardboard you will have a most attractive and useful adjunct to the shack.

It is a must for the DX man, who will easily adapt it to his beam direction indicator.

At 10/- (\$1) plus 2/- (20c) for packing and postage, nobody should be without it.

Orders, enclosing remittance, should be addressed to Mullard-Australia Pty. Ltd., 35-43 Clarence Street, Sydney, N.S.W.



# Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

## DUTY ON AMATEUR EQUIPMENT

Editor "A.R.," Dear Sir,

I agree resoundingly with Mr. Bles in his conclusions reached in this column (January issue), but would point out that I am well and truly familiar with preferential Commonwealth import duty rates, and so is the Customs Office in Hobart, from whom I obtained the information published here. I merely did the various calculations including the prescribed rate of sales tax as applicable. It is a silly point, and far more important is the problem of the crushing customs duties which are imposed on Amateur equipment brought to Australia. The issue is certainly not solely that of protecting Australian industry; perhaps it is simply a matter of a lucrative and reliable source of income for the government? In that event, we should not hold our breaths until reasonable duties are imposed on non-competitive equipment.

—R. L. Gunther.

## T.V. CLUB

9 Rothwell Tce., North Glenelg,  
South Australia.

Editor "A.R.," Dear Sir,

At the time of writing this letter there are 28 members of the British Amateur Television Club in Australia and New Zealand, six in ZL, eight in VK2, two in VK3, five in VK4, four in VK6, two in VK7, and one at present in VK5 though several applications for membership in S.A. will be forthcoming in the near future.

As the editor of "Amateur Radio" is a complimentary member, I thought of approaching you to find out if there was sufficient interest among our far-flung T.V. Hams in Australasia to form a sub-group affiliated with the club, so as to facilitate interchange of technical ideas and also to buy major components from the parent organisation.

For those who may be interested in joining, the club, although British by name, is international with about one-third of its nearly 1000 members living outside the United Kingdom in a large number of countries including America. It publishes a quarterly magazine, "CQ-TV," which is free to members. Direct membership costs \$1.25 or 12/6 Australian (10/-sterling), though subscriptions through a locally organised branch would be probably slightly more in order to defray the postage costs involved.

This suggestion is partly my own idea, and partly that of an officer of the club, and it would be in our interest if we felt such a scheme likely to succeed that it be forwarded to London as soon as possible for approval by the committee.

I have sent a copy of this letter to the Club Secretary.

For anyone interested in joining, I hold some membership application forms.

—C. R. W. (Dick) Ashton.



## CONTEST CALENDAR

12th/13th February. — John Moyle Memorial National Field Day Contest (Rules Dec. "A.R.").

19th/20th February. — R.S.G.B. 1.8 Mcs. Contest.

19th/20th March. — B.E.R.U., 1966 (Rules "R.S.G.B. Bulletin," Sept., 1965).

Phone 34-6539, write or call

WILLIAM WILLIS & Co. Pty. Ltd.

428 Elizabeth St., Melbourne

for GELOSO

Equipment and Components



## GALAXY or SWAN, what set to buy if you want to go all-band s.s.b. with commercial equipment?

The answer is not difficult. If you only plan to contact your friends on your own frequency and little else, let the more attractive appearance of the SWAN's decide. But . . . if you want more versatility, work dx off your own frequency or follow a drifting station with an external v.f.o., check sideband suppression for your friends or the other sideband of an a.m. station, the GALAXY offers more at a saving. Including sideband selection as standard equipment, adding an internally plugged-in crystal calibrator and VOX unit, and an external v.f.o., will cost \$160.0, less with a Galaxy V than in the case of a Swan 350 Mark III. What is more, you should be able to construct a satisfactory single-range external v.f.o. yourself, a near impossibility with a Swan 350 as it must perk on 9, 12, 15 and 23 Mcs. Also, you do not need a v.f.o. adaptor for a Galaxy and sideband selectors and calibrators are not kits of components to be wired in.

Anyway, both makes are excellent transceivers, the cheapest all-band s.s.b. sets on the market and they still cost \$600, including a heavy-duty 240 v. a.c. supply/speaker combination in matching cabinet. The a.c. supplies use a separate transformer for the 800 v. supply where loads vary up to 200 watts on peaks, the only way to maintain maximum regulation for proper linear operation.

For mobile operation an AZTEC or GALAXY 12 v. d.c. supply, fully imported, will cost \$90 or \$110, the all-band WEBSTER mobile antenna, including bumper or body mounting assembly is \$48. Just one mobile antenna, tuneable to any frequency between 3.6 and 30 Mcs.

To work dx you need a little more than a G5RV as antenna and HY-GAIN offers many possibilities: 10/15/20/40 meters vertical 14AVQ, \$44, 10/15/20/40/80 meters vertical 18AVQ, \$70 (must be guyed—32 ft. tall). Yagi beams, 10.15.20 meters junior TH3JR, \$96, 10.15.20 meters TH3Mk.2 "Thunderbird", \$140. Other models on special order. Two 14AVQ verticals make an excellent 4-band dipole as a basis for a super Yagi beam!

ROTATORS for Yagi beams. For junior models, the ALLIANCE U-98 is adequate, \$55, for average size beams use a C-D TR-44, \$100, the C-D HAM-M will carry maximum loads, costing \$170.

For the man who wants to cr needs to roll his own, there are still plug-in crystal filters, vernier dials and vernier assemblies, 50 mmfd. air condensers, gangable with extension shafts, co-ax. connectors and switches, 7000-7100, 8000-8100 and 8995-9000 Kcs., FT 243 crystals, \$1.50.

AUTRONIC transistorised automatic keyers, with built-in monitor and power supply, no relays, \$70.

Used COLLINS KWM-2, in excellent condition, with Collins PM-2 110/220 v. a.c. supply/speaker unit and stable home-made external v.f.o., \$1000.

	SWAN	GALAXY
5-band Transceiver with 240 v. a.c. supply/speaker	\$600 SW 350 M-III	\$600 model V
USB-LSB Sideband Selection	25 kit	included
Crystal Calibrator	25 kit	10
Full-range external v.f.o.	160 model 420	90
V.f.o. adaptor	40 model 22	not needed
VOX	45	35
	\$895	\$735

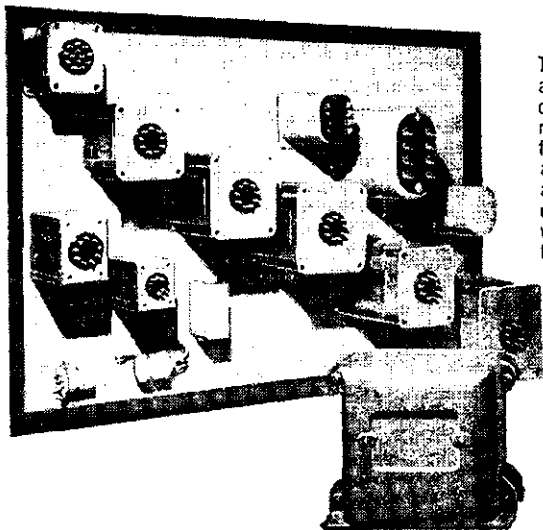
## SIDEBAND ELECTRONICS ENGINEERING

P.O. BOX 23, SPRINGWOOD, N.S.W.

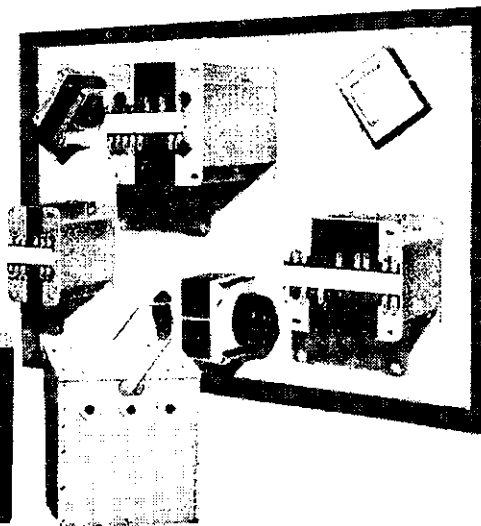
Telephone: Springwood 51-1394

Importer of GALAXY, DRAKE, AZTEC, GONSET, HY-GAIN, SWAN Distributor

## TRIMAX for a complete transformer range!



Trimax have available most types of transformers, ranging in weight from a fraction of an ounce to half a ton. You bring us the problem—we will supply the transformer.



**LM ERICSSON PTY. LTD.**

**"TRIMAX" DIVISION**

FACTORY: CNR. WILLIAMS RD. & CHARLES ST., NORTH COBURG, VICTORIA. PHONE: 35-1203 . . . TELEGRAPHIC ADDRESS: "TRIMAX" MELB.



LM 51



# SIDEBAND

Sub-Editor: PHIL WILLIAMS, VK5NN

## S.S.B. TRANSCIVERS (Continued)

Apart from American transceivers the most notable is the British KW-2000 which has features to satisfy the British user. It has 90w. beam rating with a single 614c output stage, being sufficient to drive a linear amplifier to the full 600w. peak input permitted by English regulations. Most U.S. transceivers need at least twice this to drive larger linear amplifiers to their U.S. legal limit, which accounts for the higher general input level of 200w. or more for most of the previously mentioned units.

Inclusion of the 160 mx band was essential for British operating conditions, with a 40w. peak input power restriction for s.s.b. transmission. While on the subject of the 160 mx band, I must ask why more VK sideband operators do not use this band. I have heard of only two others, VK2AVA and VK3EM besides myself who have used the band with our full 150 watts. Anybody with the usual 9 Mc. sideband generator and 5.0 to 5.5 Mc. v.f.o. can get on 160 mx merely by doubling the v.f.o. to 10.8 Mc. and subtracting 8 Mc.—the mixer will do all the doubling you need, without your help and the only thing left for the operator is to put the class A and AB1 (and linear) tuned circuits on 1.8 Mc. An 80 mx or G5RV antenna will load up beautifully against ground (use the back yard water pipes) and you are there. Contacts with U.S.A. may be somewhat more difficult now that W6VSS is no longer active, but ZLs are quite easy to contact.

But to get back to the KW-2000 series made by Roley Shears, G8KW. Those who have been are full of praise for the unit. The price comes out a little high when purchased in Australia, but if you can get one brought back by a friend or relative—complete with "d.c." power pack, even the "gift" duty does not make the cost unreasonable. This KW-2000, with its linear, is recently being advertised as the "G-line". Its sideband is obtained from a mechanical filter and it has all of the modern features such as a.l.c.

The Australian production of an s.s.b. transceiver in N.S.W. has not materialised, as far as I am aware, and I say this because I do not know. I have heard several of these units on the air, but it would seem that small scale local production cannot match the U.S. high volume production. The publicity I have seen and the signals heard from this Wagner unit seemed to indicate that the unit was first class and the two v.f.o.'s included as standard was an excellent idea for the Australian Amateur. The s.s.b. transceiver under construction at VK5NN will include this idea for which I thank Messrs. Wagners.

Hallcrafters have recently brought another tri-band transceiver, the SR-500, on to the market. It will take a peak input power of 500 watts with 12 db. of a.l.c., making this the highest-powered self contained unit available.

Units most commonly available to the Australian Amateur for purchase in this country are those made by Collins, Hallcrafters, Swan and Galaxy. Heathkit and Eico kit sets are available with quite a saving in monetary outlay.

It is unfortunate that the Heathkit, Sideband Engineers and Transcom units will not tune the Australian frequency assignments in the 80, 40 and 20 mx bands. So some frequency shifting and dial re-calibration will be necessary before use in this country.

There is no doubt that the transceiver is becoming the most popular piece of equipment for operating mobile when on long journeys or even just travelling to work, and also for those who like to operate in comfort and warmth from the living room instead of a cold and noisy shack.

The transistorised units mostly finish up with three or four valves in the r.f. output section, e.g. last mixer, class A stage, and output class AB1 stage. Those I have operated are excellent performers in the receiving mode, with negligible battery drain.

Before leaving the commercial scene, I must mention one more manufacturer of "separates" which may be made to transceive, viz. Davco. This is a new firm which advertises its DR-30 fully transistorised receiver and companion DT-20 transmitter which is yet to be seen and

is still coming. The interesting thing about these units is their weight and size, the receiver weighing 9 lbs. and is 7 x 6 x 9 inches, and the transmitter 7 x 9 x 11 inches.

The home construction of s.s.b. transceivers is not an impossible task and the writer has a transistorised version with a 9 Mc. crystal filter under construction. The availability of cheap n.p.n. silicon transistors with adequate high frequency characteristics makes this a completely practical proposition. Transistorised v.f.o.'s even in valve type equipment has enabled single mixing to the final frequency from say 5 or 9 Mc. s.s.b. generators. The temperature drift problem with valves is not present to the same extent.

The manufacture of good six-crystal h.f. filters complete with carrier crystals will assist the home constructor, as this is one of the most difficult items to be "found". I am prodding an Australian crystal manufacturer to get his prototype filter fixed up ready for production. The six-crystal job is better for reception than the four-crystal filters which are commonly used for transmission. The side-job "pop-ups" can be troublesome for receiving. I'm sure we all wish this filter manufacturer the best of Amateur luck with this project.

More detailed data may be obtained from equipment reviews in "QST," "CQ," "73," and R.S.G.B. magazines. Perusal of these and the advertisements will help with the selection of your gear.

Because of the small quantities of imported gear sold in Australia, no importer is going to grow fat on the profits made from Amateur s.s.b. sales. The field is competitive and everybody sees the overseas prices in the magazines.

For those whose age or health preclude them from construction of complicated gear, the purchase of an s.s.b. transceiver will provide a new "lease-of-life" and endless enjoyment of contacts which are just so easy using s.s.b.

In future issues it is hoped to be able to discuss the companion linear amplifiers which are available, as well as s.s.b. transceivers and transverters for the v.h.f. bands.

73 for now, Phil VK5NN.

★

## GATEWAY OF INDIA AWARD

The Gateway of India Award is sponsored by the Amateur Radio Society of India, Western Zone, in memory of the late Rev. R. Conesa, S.J. (VU2SX), the founder and first secretary of the Western Zone. This attractive certificate is available to all licensed Amateurs of the world and may be claimed by working the following:

- Applicants in Asia to work ten Amateurs in the Western Zone.
- Applicants in the rest of the world to work five Amateurs in the Western Zone.

All contacts must have been made on or after November 9, 1957, the day on which the Western Zone was found. There are no band or mode restrictions and there are no endorsements.

The Western Zone comprises the States of Maharashtra, Gujarat and Kerala, and the Laccadive Islands. Contacts with Amateurs who have moved out of, or were temporarily in, the Western Zone are also valid for this award, provided their QTHs are clearly indicated on the QSL cards.

QSLs are NOT required. Send certified list signed by another Amateur or by a club official, together with six I.R.C.'s (for DX Amateurs) to the Awards Manager, Dady S. Major, VU2MD, Petit Mansion, 85 Sleater Rd., Bombay 7, India.

## AMATEUR FREQUENCIES:

USE THEM OR LOSE THEM!

# BRIGHT STAR CRYSTALS

## FOR ACCURACY, STABILITY, ACTIVITY AND OUTPUT

Our Crystals cover all types and frequencies in common use and include overtone, plated and vacuum mounted. Holders include the following: DC11, FT243, HC-6U, CRA, B7G, Octal, HC-18U:

**THE FOLLOWING FISHING-BOAT FREQUENCIES ARE AVAILABLE IN FT243 HOLDERS:—**

6280, 4095, 4535, 2760, 2524 Kc.

5.500 Kc. T.V. Sweep Generator Crystals, £3/12/6.

100 Kc. and 1000 Kc. Frequency Standard, £8/10/0 plus 12½% Sales Tax.

Immediate delivery on all above types.

**AUDIO AND ULTRASONIC CRYSTALS—Prices on application.**

455 Kc. Filter Crystals, vacuum mounted, £6/10/0 each plus 12½% Sales Tax.

**ALSO AMATEUR TYPE CRYSTALS—3.5 AND 7 Mc. BAND.**

Commercial—0.02% £3/12/6, 0.01% £3/15/6, plus 12½% Sales Tax.

Amateur—from £3 each, plus 12½% Sales Tax.

Regrinds—Amateur £1/10/0, Commercial £1/17/6.

**CRYSTALS FOR TAXI AND BUSH FIRE SETS ALSO AVAILABLE.**

We would be happy to advise and quote you.

New Zealand Representatives: Messrs. Carrel & Carell, Box 2102, Auckland.  
Contractors to Federal and State Government Departments.

## BRIGHT STAR RADIO

46 Eastgate Street, Oakleigh, S.E.12, Vic.

Phone: 57-6387

With the co-operation of our overseas associates our crystal manufacturing methods are the latest.



## SWAN NEWS!

# SWAN SW350 Mk. 1, Mk. 2, ??????

As the SWAN DISTRIBUTOR for Australia we are finding this crop of Mk.'s quite confusing, especially as the latest Mk. III as listed by a retailer is quite unknown even to the Swan Electronics Corporation themselves.

To clarify this matter the history of development is as follows:—

The original SW350 encountered slight drift troubles in SOME UNITS only, also some click trouble was evident on c.w. No dial set trimmer was fitted and only partial coverage of the 10 metre band was available.

The SWAN Corp. in their continued programme of improvement have fitted ceramic formers and improved temperature control in the v.f.o., this modification overcame the drift. They then fitted a new dial and added full coverage on 10 metres, they also fitted a dial set trimmer on the front panel as standard and anti-click circuitry.

To differentiate between this model and the earlier model this company added the Mk. II to the model number.

Since these changes a different crystal filter of module form has been fitted. As no difference in operation is evidenced no further Mk. number has been used for this model which is still known in Australia as the SW350 Mk. II.

As can be seen from the above the SWAN Corporation are continually developing their equipment to give the Amateur the finest equipment available regardless of cost.

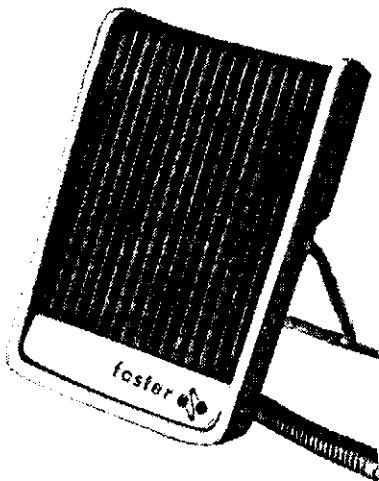
You just can't go wrong with the SWAN SW350 or SW400 Transceivers and accessories.

**W.F.S. ELECTRONICS SUPPLIES CO.**

227 Victoria Rd., Rydalmere, N.S.W. 638-1715

**ATLANTIC RADIO**

36 Oxford St., Woollahra, N.S.W. 31-7811



DF-2

## FOSTER DYNAMIC MICROPHONES FOR HAND-DESK USE

### SPECIFICATIONS:

Output Impedance	50 ohms or 50K ohms
Effective output level	—55 db. [0 db. — (one) 1V. Microbar]
Frequency response	200 to 10,000 c.p.s.

### OMNI-DIRECTIONAL DYNAMIC:

SIZE: 3" x 2-1/8" x 1".  
Cable: 12 ft. of P.V.C.  
Switch: on-off.  
Desk Stand. Clip folds for hand use.  
Colour: WHITE.  
Plastic Diaphragm.

Retail Price  
50K ohms  
**£2/14/0**  
+ Sales Tax 4/9

A QUALITY PRODUCT OF EXCELLENT DESIGN



Marketed by

**ZEPHYR PRODUCTS PTY. LTD.**

58 HIGH STREET, GLEN IRIS, S.E.6, VICTORIA

Phones: 25-1300, 25-4556

**Manufacturers of Radio and Electrical Equipment and Components**

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L; Jacoby, Mitchell & Co. P/L; T. H. Martin P/L.

# DX

Sub-Editor: ALAN SHAWSMITH, VKASS  
35 Whynot St., West End, Brisbane, Qld.

Firstly, a word or two on that perennial question. The state of the bands?

21 and 28 Mc. after showing signs of promise, have like the gentler sex, turned coquettish and withdrawn their attentions. The bands are at present down on last month's form.

20 mx is now far and away the "top of the five." Good DX and opening during the night hours. South Africa and Europe after 1100Z.

For 7 Mc. the ionosphere is not being very indulgent. The S.R. to Europe from 1800Z is a chancy business indeed. QRM from Asian commercials on this dog-watch is colossal. A check on the first 20 Kcs. of 40 mx at 1900Z on 9/12/65 showed very approx. 18 stations other than Amateur. This makes the band at this time of early morning almost useless for DX.

## NOTES AND NEWS

**Easter Island:** CEAC appears around 0400Z on odd days. 14 c.w.

**Ruanda:** Gene, 9X5PS worked 14,080 Kcs. 2000Z. Says QSL direct to P.O. Box 636, Kigali, Ruanda.

**Mauritius:** Raoul VK8AI on regularly and easy to QSO. Try 14 c.w. after 1300Z.

**Gough Is.:** ZD9BE said to be working 20 c.w. Try around 1700Z.

**Nauru:** Lloyd W6KG using the prefix KG6SZ/VK9 should be very active from here by the time this reaches you. QSL YASME Foundation.

**Laceadive Is.:** VU2NR and VU2AK are making plans to activate this rare spot. More information if the project comes to realisation.

**Svalbard:** LA4FG is said to be on 14,040 Kcs. at 1600Z.

**Malagasy Rep.:** 5R8AM on 14,065 at 1830Z—also one or two others active.

**Ethiopia:** 9F3USA on quite often around 14,060 after 1100Z. QSL WTTD.

**Kuwait:** 9K2AN, 14,050 at 1330Z.

**North Borneo:** 9M6CL a regular on 14 Mcs. after 1000Z. Says QSL via bureau.

**Ellice Is.:** VR1S active from Fanafuti. 0700Z, 14,040 might find him.

**Syria:** YK1AA reported QRV 1300Z, 14,220 s.s.b. SAE and IRC to Call Book QTH.

**Dahomey Republic:** Jack, TY3ATB is said to be active on 21,400 s.s.b. at 1300Z.

**Spanish Morocco:** EA9AZ seems to be authentic. Try 21,360 daily at 1630Z.

**Tahiti:** Bob, F08BI will be QRT sometime late March or early April. Bob will work all bands actively till then. Mode A1 and QSL to F2HM.

**Port Timor:** CR8AF and CR8AE both QRV almost nightly. 14,080 Kcs. at 1200Z or later. QSL to Dilli, Port Timor.

**Honjara:** VR4CR is said to be still active. A.m./c.w. mostly 14 Mcs. QSL to Weather Officer.

**Ceylon:** Ian 4S7W and Denver 4S7DA are both very active. The former 14,220 s.s.b. at 1200Z and the latter on 7 and 14 Mcs. c.w. from 1300Z.

**Swaziland:** ZD5R, 14,118 at 1300Z. QSL VE4OX. Also reported here in VK on 21 Mcs. Djibouti: FL8MC on nightly and FL8R4 spasmodically. Both A1 mode around 14,070 after 1300Z.

**Cozumel Is.:** Lou, W6EYB will be on again from this spot off the Mexican coast probably February. Call will be XE5. Freq. 21,410 and higher. Good for WPX only.

**Kerguelin:** New ops. are now at FB8XX. Names Eric and Peter, s.s.b. men but use c.w. also. Already they have been heard on several frequencies on 20. QSL to 5R8BC.

**Sudan:** ST2BSS on 14,280, 1645Z. QSL to J. Collins, USAID, American Embassy, Khartoum. Next stop is Mail Rep.

**Crozet:** Also has a new op., Jean Pierre, 1630Z at 14,120. Call is FB8WW.

**Falklands:** VP8HZ, 14,220 at 0300Z.

**S. Shetlands:** LU1ZC, 14,280 and 14,050 at 2000Z. QSL to RCA.

**Don Miller, W9WNV,** plans expeditions to two virtually unknown (he won't tell yet) spots in Oceania as well as FW8 Wallis and Manihiki. He is now flat out from ZK2 but will have departed to fields anew by the time this reaches you. Keep listening on 7, 14 or 21 for the pile-up. His signals are usually strong and there never was a better operator.

## ACTIVITIES

Ken VK3TL, who quietly picks up the choice ones each month, worked the following on 20 mx: A Quad 80 ft. high is going to put out a "Big Sig" for Ken in the near future. He worked on 20 mx: CQ2KG, CR8AE, CX9AAU, FL8AA, FL8MC, HC8JG, K7LMTV/HC8E, IT1SAI, KG6IC, KH8SD/EBON, M1B, MP4BDP, VP1PV, VPIJKR, VP2KD (St. Kitts), VP5RB (Grand Turk), VP9FK, VQ8BFA (Agsalega), VS9OC, XW8ZA (Aeromob), YV7AV, YV9AA, ZC4MO, ZD8HL, W9WNV/ZM7, 4U1SU, 5VZ8CM (40 m.), 5H3JR, 5Z47, 7Z3AB, 9N1MM, 9G1FR. QSL's received were ZP5KT, 4X4DK, 5A1TW, W5HRW/VP9, YO9CN, ZB2AB, HM5CO, PY2PA, ZP5LS, OD5EG, VP7NY, YV7AY, 7X2GH and more.

Dud VK4MY, who runs 120 w. into a G.P., picked up some nice ones this month on 14 c.w. viz. PY2BJH 0800, VQ8AI 1345, KR8CV 0700, UQ2HQ 0930, CX1RY 1010, 9M2YV 1030, VS9OC 1222, KX6ZS/E 0730, FL8MC 1325, 9K2AN 1335, HS1CW 1426, 5X5IU 1426, 9F3USA 1500Z, FUA8G 2145, YV9AA 0550, CR8AF 1400, YU3TCN 0700.

Chas., VK4UC, before leaving for a Gold Coast vacation logged the following: UF6BD 1300, HB9ADP 1320, IT1AQ 1330, EP2BQ 1240, XW8BD 1400, 9M6CL 1330, 9K2AN 1350. QSL to Box 736, Kuwait. KX6ZS/E 0800, BV1USF 0930, MP4BFK 1300, LZ1KGL 1300, U18LB 0300, LA1H 0930. QSL to Box 263, Harstead. OZ7X 1100, UC2KUA 1400. QSL's received: PY2CO, T12PZ, G13OLJ, 6Y5MJ, KB8CY, KZ5RD, VS9MP, 7Z3AB, CX2AJ, 6O6BW and more.

All the above times are G.M.T.

Graham, VK2AGH, reports now 315 confirmed which is really a stout effort for a comparative newcomer to the game.

Trev, VK2NS, reports having chalked up 150 plus on 40 mx. Another big effort considering the layers of QRM on this band.

More activities reports please.

## QSL MANAGERS

VR4RO—G2RO  
YJ8XK—VK2AEY  
YJ1MA—W1HGT  
YN0KCV—K4KCV  
YS1BD—W0NWX  
ZD9SCA—W6YLI  
EP2AO—W4UXE  
EP2LD—W4IDEY  
F0AB—ON5DO  
F0BAH—5T7AH  
FF8CK—8W8CK  
MP4TBO—VE1AKZ  
PX1CB—F3CE  
FH8CE—W4ECI  
KW6DH—W6UWL

M1QJ—ON4QYM  
SU1GM—G3BYM  
SV1AB—W4HUE  
SV0WJ—K4BNI  
TA3GVU—W6FB  
VP1WS—K8ONV  
VP2AB—W8VDJ  
VP2DQ—W2LSX  
VQ8AY—G2RO  
KB3CY—W2CTN  
LASC/P—LATNG  
9MSDH—R8BVD  
OH0VF—R8BVD  
VS9AFR—RSGE  
VS9MP—W2CTN

## SUMMARY

In past years commencing February at this QTH, the LP on 20 mx to Europe which takes in South America and North Africa on the way, usually improves considerably and remains so until late May. Those who find it convenient to operate from 0400 to 0800Z should pick up some good ones.

Have you ever paused to consider the size and impact of Amateur Radio in the world today? The Big Fraternity, which was a few short years ago but an infant in swaddling clothes, is somewhere now in the "growing pains" stage with half a million or so of us. Within this huge framework there exists countless clubs and societies or groups in which DX activity plays a big part. Surely, with the right motives this incessant exchange of contacts and ideas must amount to something more than inconsequential in the promotion of good will and understanding. We have the potential for this right there on the desk in front of us, but sadly we do so little about it.

My thanks again to all those who regularly provide needed information. Also DX Editors LIDXA, Fla DX'er and now with Jim, G3UGT whose bulletin "Airwaves" is now received on an exchange basis. 73, Al VK4SS.

## VK0 CALLS — 1966

(Information supplied by VK3IJ of A.N.A.R.E.)  
Macquarie Island: VK0MI, Colin Lebbon (c.w., a.m., s.s.b.).

Mawson Base: VK0KM, Keith Martin (s.s.b.).

Wilkes Base: VK0AH, Alan Humphries (s.s.b.).

In all three cases QSL via VK3 Bureau—Eric Trebilcock (L3042).

## John Moyle Memorial NATIONAL FIELD DAY CONTEST, 1966

12th and 13th February.

## Experimental F.M. Station for Victoria

The Postmaster-General's Department has granted a licence to conduct test transmissions in the u.h.f. band using frequency modulation. Technical details are as follows:

Call sign: VM3Y.  
Frequency: 554 Mc. plus or minus 0.002%.  
Bandwidth: 200 Kc.  
M.E.R.P.: 500 watts.  
Deviation: Plus or minus 75 Kc. (proposed).  
Pre-emphasis: 50 micro-seconds.  
Polarisation: Horizontal, cross polarisation envisaged.  
Modulation: F.m. monaural and f.m. stereo-  
phonic.  
Stereo system: F.C.C. (America) pilot tone system.  
Transmitter location: The Olinda area of the Dandenong Ranges.

The purpose of the experiment is to investigate the following:—

- What are the problems associated with the use of the u.h.f. band for f.m. stereo broadcasting services?
- Is the use of elliptical polarisation to fill dead spots in coverage necessary? Will it make reception practical in portable and mobile receivers?
- What are the problems associated with stereo and S.C.A. systems when used with u.h.f. transmissions?
- What receiver design would be most suitable for u.h.f. stereo transmissions?
- To what extent is the public interested in f.m. radio services?

The experiments will not include the transmission of advertising matter, or simulate commercial broadcasting in any form.

It is anticipated that pre-recorded music and speech will form part of the test conditions. It is hoped to commence transmissions shortly.

For people living in the Sydney area, we would advise that a similar experimental station is being set up in Sydney. For further information please contact Mr. Ray Allison, P.O. Box 3998, G.P.O., Sydney, N.S.W.

As the allocated frequency is in the u.h.f. band, it should be noted that standard f.m. tuners (88-108 Mc.) will not be suitable for reception. A newsleter is available to those who are interested. Information or comments relating to the f.m. scene would be welcomed for possible inclusion in newsleter. Requests should be addressed to F.M., P.O. Box 30, Toorak, Vic.

## W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

### PHONE

Call No. rles	Cer. C't-ries	Call No. rles	Cer. C't-ries		
VK5MS	24	320	VK2JZ	61	246
VK3AHO	51	314	VK2ADE	65	231
VK5AB	45	312	VK4HR	12	223
VK6RU	2	310	VK2AAK	58	214
VK6MK	43	307	VK6KW	4	211
VK4FJ	21	283	VK3WL	14	211

### New Members:

VK3RV 68 101

### Amendment:

VK3TG 48 143

### C.W.

Call No. rles	Cer. C't-ries	Call No. rles	Cer. C't-ries		
VK3KB	10	325	VK2AGH	71	283
VK2QL	5	308	VK2EO	2	279
VK3CX	26	308	VK6RU	18	263
VK4FJ	29	300	VK3AHQ	79	260
VK2ADE	81	298	VK3ARX	66	259
VK3NC	19	286	VK3XB	75	247

### Amendment:

VK3RJ 42 236

### OPEN

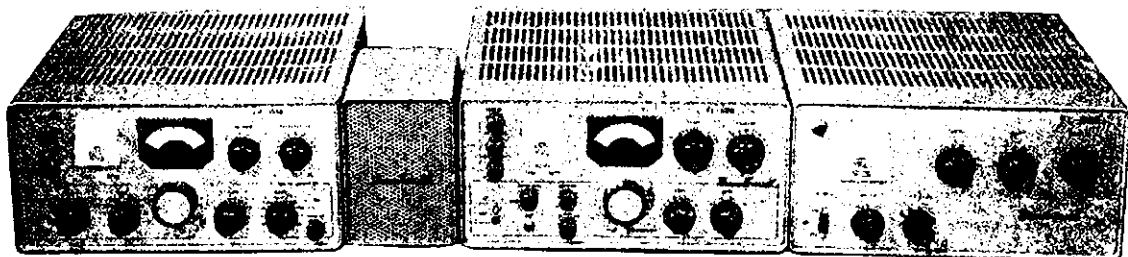
Call No. rles	Cer. C't-ries	Call No. rles	Cer. C't-ries		
VK2ADE	28	322	VK2ACK	6	300
VK6RU	8	316	VK3NC	77	287
VK3AHO	76	315	VK3JA	43	271
VK2AGH	83	315	VK4HR	7	264
VK6MK	74	309	VK2VN	18	264
VK4FJ	32	308	VK2APK	82	243

### New Members:

VK5LZ 97 115 VK9RO 88 113

# F-SERIES S.S.B. EQUIPMENT by Yaesu Musen

PROFESSIONAL QUALITY AT AMATEUR PRICES



**COMPACT TABLE-TOP STATION—MECHANICAL FILTER SYSTEM  
FIVE BANDS — 80-10 METRES  
TRANSCIVE OR NORMAL OPERATION**

**FR-100B:** S.s.b.-a.m.-c.w. dual conversion receiver with two mechanical filters for best reception of s.s.b. and a.m. Xtal filter for c.w.; a.n.l., a.g.c., S meter, s.s.b. clarifier, monitor, etc.

**FL-200B:** S.s.b.-a.m.-c.w. transmitter, 240w. p.e.p. input, with two 6JS6 tubes in p.a. running within ratings for longer life! Solidly constructed and neatly wired, with high quality components, ceramic bandswitch, Kokusai M.F., Solid State Power Supply, etc.

New, fully descriptive illustrated brochure from the Australian Agents:—

## BAIL ELECTRONIC SERVICES

60 SHANNON STREET, BOX HILL NORTH, VIC.

Phone 89-2213

## FOSTER DYNAMIC MICROPHONES

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
Effective output level ..... -55 db. [0 db. = (one) 1V. Microbar]  
Frequency response ..... 50 to 15,000 c.p.s.

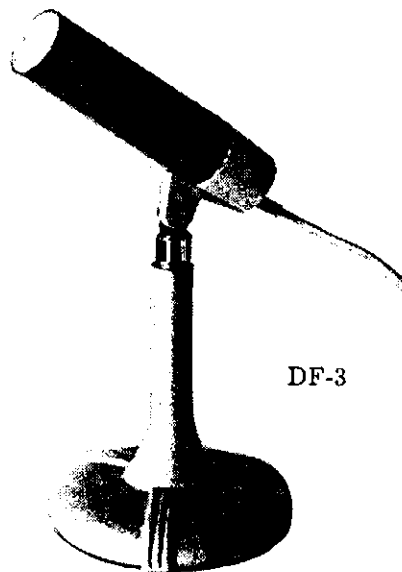
### OMNI-DIRECTIONAL DYNAMIC:

Plastic Diaphragm. Swivel fits 5/8" 26 t.p.i. Stands.  
Size: 4½" long, 1¼" diameter. Colour: TWO-TONE GREY.  
Cable: 12 ft. of P.V.C.

Retail Price 50K ohms: £4/16/0 + Sales Tax 10/0

Retail Price 50 ohms: £4/14/0 + Sales Tax 9/10

A QUALITY PRODUCT FOR TAPE RECORDERS & P.A. USERS



DF-3

Marketed by **ZEPHYR PRODUCTS PTY. LTD.**

58 HIGH STREET, GLEN IRIS, S.E.6, VICTORIA

Phones: 25-1300, 25-4556



**Manufacturers of Radio and Electrical Equipment and Components**

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.



# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL QSL BUREAU

Details of two awards issued by the L.P.R.A., Panama, may be had from this Bureau.

VK Hams were pleased to receive a visit from G3SWH, Phil Whitchurch, radio officer from the Himalaya. Phil, a member of F.O.C., hails from Bristol.

Results of the 1965 P.A.C.C. Contest, sponsored by the Netherlands Section of the I.A.R.U. (Veron), disclose no VK stations listed. The 1966 Contest will be staged 12 Z April 23 to 12 Z April 24, 1966. Full details from this Bureau.

From the December issue of the K.A.R.L. News (Korea):—"HL5X and 6N5X are not Ham stations. Sometimes HL5X and 6N5X are operated on Ham bands and work with some foreign Ham stations. HL5X and 6N5X were licensed as experimental radio stations. In Korea, experimental radio stations are licensed on single spot frequencies on each Ham band and are forbidden to contact with any Ham stations. K.A.R.L. has sent back all QSLs for HL5X and 6N5X as they did illegal operations."

—Ray Jones, VK3RJ, Manager.

## NEW SOUTH WALES

### CENTRAL COAST BRANCH

The last meeting for 1965 of the Central Coast Branch of the W.I.A. was held on December 17. Lindsay, VK2ON, gave a very interesting talk with excellent slides on his recent trip overseas. He had about nine weeks to see something of Canada, the U.S. and also Great Britain. It is a matter of interest that the fare from New York to Great Britain and return was only £15 as part of his overall ticket, so naturally he took advantage of this and saw relatives and friends in Scotland and England. He met several Hams along the way and had red carpet treatment from them all, even a "come and take pot luck" dinner invitation which turned out to be roast chicken, corn on the cob, fresh apple pie, etc. He literally whetted our appetites for a trip.

The Club held its annual Christmas Party early in December which consisted of a delicious buffet dinner, 807s, etc. Several members joined in a fancy hat contest. The hat was to be based on radio and some very good examples turned up from a realistic c.r.o. to a disc ceramic capacitor. Garry Tibbett, VK2UX, won the men's prize with a hat of flashing lights, and Joy Trehwella, Mrs. 2RF, won the ladies' prize with a mast complete with aerial. There was a blindfold hidden tx hunt for lucky number prizes. Lindsay won the men's prize of a set of chassis punches and Joy Trehwella the ladies' prize of a wall can opener.

Alec, VK2AAK, was appointed Oscar IV, N.S.W. State Co-ordinator, by the University of Melbourne, which is the Federal Co-ordinator for Oscar IV. To date he has spent many hours collecting and dispensing information. There are quite a few N.S.W. Hams interested in this Project and he is finding the 148 Mcs. net very convenient in this regard.

Peter Kerr, of Gosford, recently passed his L.A.O.C.P. and is awaiting his call-sign. Peter was a member of John Deering's class, which was held recently at the School of Arts, Gosford.

Our Field Day on February 27, 1966, at the Gosford Racecourse is fast approaching and we are hoping for quite a number of interstate visitors. Here is a brief sketch of events projected for the day. 9.30 a.m.: Registration and

morning tea; 9.30-10.30 a.m.: All-band scramble; 10.45 a.m.: 2 metre pedestrian hunt; 11.30-11.45 a.m.: XYL 2 metre scramble; 12-1.30: Lunch; 1.45-4 p.m.: Choice of boat trip on Brisbane Water or scenic bus trip to Norah Head Lighthouse; 4 p.m.: Afternoon tea; 4.45 p.m.: Prize-giving and farewell. There will be a rx sensitivity test on 40 m. at sometime during the day. The admission price includes everything. —VK2AXS.

## VK2 EASTER CONVENTION

The Canberra Radio Society will once again hold an Amateur Radio Convention during the forthcoming 1966 Easter long week-end. This will follow broadly the pattern that has become popular in recent years with the addition of some extra attractions.

It is hoped to include some or all of the following on the programme:—

Visits to:  
A Deep Space Tracking station.  
The Australian National University High Voltage Lab. to see the Van De Graff Generator.  
The R.A.N. Radio Transmitting Station at Belconnen, most powerful in the southern hemisphere.

The new Mills Cross radio telescope at Hoskinstown with its two miles of aerials.

Plus: Film shows, lectures, competitions, junk sale, fox hunts, hidden tx hunts, etc. In fact, something for every enthusiast.

The whole family is more than welcome and if they aren't interested in the radio activities, Canberra has a great deal to offer them as a major tourist attraction. As before registration will be 10/- which it is hoped will allow the club to "break even." The club has booked a limited amount of accommodation for those needing it.

Enquiries to John Weatherley, VK1QL, Secretary, P.O. Box 59, Kingston, A.C.T.

## VICTORIA

### WESTERN ZONE

Well, at this time of the year the harvest leaves very little time for us in this zone to devote to our hobby. However, activity has been reasonably constant with good conditions prevailing on the 80 m. Western Zone hook-ups.

Herb 3NN has had some good v.h.f. DXing, namely working VK2ZWW portable 2 m. on Mt. Kosciusko. Also he and Garry 3ZOS have managed to get a signal to and from Oscar IV, on 3/1/66. Other signals were heard on 432 via Oscar IV.

We now have Lyle VK3ASA back on the air with 60 watts a.m. on all the h.f. bands. Lyle has also been running A.O.C.P. classes weekly and in the near future new voices should arise in the zone.

Yours truly has been reasonably active on 6 m. working many VK's and a few ZL's, although 6 m. has been poor over the Christmas-New Year break. Unfortunately 2 m. ops. are down because of poor location of QTH, much better to get portable when the XYL grants a leave pass.

By the time these notes are printed Bob VK3ARM, holidaying in Geelong, should have been heard by many, also Tony 3ZAI on the Lofty Ranges with 2 m. portable gear.

Well, that about winds it up, hear you all about soon (new receiver on the way) and hope to see you at the State Convention in Ararat. 73's, Bill, VK3ZAX.

## QUEENSLAND

Having taken the 40 metre dipole down for the 8th Jamboree-on-the-Air, and not yet found time in daylight to get it up again, has left only the 20 metre ground plane for me to listen on, so do not have much news this month other than the doings on 20 metres. This band has been extremely active during November and the top DX boys in VK4 have certainly been contacting some new and rare countries. Africans being specially present, and someone told me they were at their best at 3 a.m.

Amongst those in Brisbane consistently heard chasing the DX are Tibby VK4HR, Norm VK4TY, Al VK4LT, Arthur VK4PX, Tom VK4TT, Sam VK4CZ, Jim VK4JA and Reg. VK4VX. From the country we hear the DX coming back to Hal VK4DO, Chilla VK4SD, Jack VK4SF and Ted VK4EJ. Short skip late in the month produced some very strong signals from the country boys into Brisbane, also from VK8AV and VK8KK.

For nearly three years the VK4 boys in Brisbane have been running a weekly net on 28.6 Mc. at 8.30 p.m. on Wednesdays. They always take a break for new stations, and last week it was pleasing to hear VK3QX and VK3IX come through. Signal strength was up and down but as the night proceeded signals seemed to improve. So interstate boys are asked to look on 28.6 Mcs. on Wednesdays and if signals break through, give us a shout, some of the boys also read c.w. Hope to hear you on 10 metres soon.

Activity amongst Amateurs in Townsville has flared up and several of the boys there are very active again on all bands. Moves are afoot to revive the Townsville Amateur Radio Club.

The Ipswich and District Amateur Radio Club are certainly an active body. This month sees them having their Annual Picnic, their Annual Christmas Dinner, and a send-off to the Club's Class Manager, Bob VK4LI, who has been transferred to Darwin. During 1965 the Club acquired grounds and has now submitted plans for a club house, which have been approved, so operation in 1966 will be to get the club house up and install all the radio gear. The club members run a net on 20 metres every Thursday night at 8 p.m. on 14.150 Mcs. and invite breakers to come in and chew the rag.

Congratulations to South Australia on their fine win in the 1965 R.D. Contest, certainly a very nice effort and a very well-deserved win.

Councillors of the Queensland Division of the Wireless Institute have asked me to convey to you their best wishes and a very DX-ful New Year, and to remind you that Council meets on the first Thursday of the month in the Social Services Clubrooms in the Valley in Brisbane, to which all Amateurs, especially interstate visitors are cordially invited. 73, Reg. VK4VX.

### CENTRAL QUEENSLAND BRANCH

Activity is especially high with members of the C.Q. Branch with the breakthrough on the v.h.f. bands. 4ZLD, 4NG, 4ZAZ, 4ZDK, 4ZCK and 4FK all gave the band a good workout. On 20th November, Lyle 4ZLD worked one VK2, ten VK3s, six VK6s and three VK7s, and heard VK5 whilst in his car; sigs. 5 and 8 to 9. He heard several rag-chewing and not tuning the band to look for DX whilst the band was open. So fellows twiddle the dial now and then on 6.

W.I.C.E.N. exercises are on Tuesday nights, frequency 53.032 Mc., and VK4IR, our official club station, will be on consistently in the new year.

4FN getting ready for 6 with new tx, v.f.o. control and a 4-element beam. 4ZBG, our worthy Secretary, enjoyed his holidays and getting ready with 6 metre gear. 4DO had a few days in Brisbane, but only able to see Alan 4SS. Sorry he could not look up all his pals down there, but has been working them on 20 on short skip and plenty of DX, world wide.

The Branch meets every third Friday in the month in the Rockhampton Technical College and is always pleased to see visitors. Greetings to all for 1966. Hal VK4DO.

## SILENT KEY

It is with deep regret that we record the passing of:

VK4PH—P. W. Hay.

### Deadline for Logs of the

### ROSS A. HULL MEMORIAL TROPHY CONTEST

14th February, 1966.

Don't forget to put yours in.

# TASMANIA

## NORTH-WESTERN ZONE

The Annual Hamfest took place at Campbelltown on Sunday, 28th November. We were indeed fortunate with the weather, as the previous two days had been most unpleasant but that Sunday morning dawned fine and clear and developed into a perfect hot summer's day.

I tagged along with Ray 7ZRS and we managed to scrounge a No. 22 set, so the 100-mile trip from Devonport passed quickly, with a bit of mobile QSO'ing with George 7XL and his family who had left earlier and were ahead of us and travelling on a different route.

On arrival at the camp site we introduced ourselves at the H.Q. tent and were then issued with identification tags with our names and call signs printed on them—everyone then knew who was who, and it saved a lot of embarrassment later when some old buddy whose name you couldn't place suddenly accosted you unexpectedly!

The pre-lunch session was devoted to the 80 m. tx hunt. Everyone taking part was given a sealed envelope and told to drive towards Campbelltown and congregate at the road junction. We all did just that, and on opening the envelopes and piecing together the clues someone finally came across the vital "missing link" so to speak: it was a list of items which everyone had to collect or have in his possession—these included a soldering iron, W.I.A. badge, numerous coins such as penny, sixpence, shilling; also a mobile log sheet and such things as a bottle top, beer can, pine cone, a feather and a cigarette packet of a certain brand.

Ray and I were fortunate enough to come across the beer can, bottle top and pine cone; later we found a dead bird along the roadside, and although it had been in a state of rigor mortis for about 12 months (judging by the smell), the feathers were most valuable—we even did a swap for a coin in exchange for one of our reserve stock of feathers, but not having a soldering iron or W.I.A. badge with us we made our way back to the camp site thinking we might have a fair chance as we had collected all the other items. However, our hopes were dashed as Lee 7KC had already "clocked in" 100% and so took out top honours.

What show have you got against a bloke who carries his soldering iron in his hip pocket—faithfully wears his W.I.A. badge and religiously keeps a mobile log—even before he had entered the contest!!!

### FOR SALE

Communications Transceiver, National NCX-5, 80-10 m., L.S.B.-U.S.B., full 500 Kc. coverage each band, plus extra 10 m. crystals, 200 w. pep input, £425, O.N.O.

NCX-A Power Supply also available if required.

Communications Receiver, National NC190-X, general coverage 540 Kc. to 30 Mc. Amateur and International Broadcast bands, a.m.-s.s.b.-c.w., £190, O.N.O. Mr. Clark, 48-6431 (business); 45-3002 (private), Vic.

### Stockists of Radio and Electronic Components for the Amateur Constructor and Hobbyist

First Ring, Write or Call on

**WILLIAM WILLIS** & Co. Pty. Ltd.  
428 Elizabeth St., Melb'ne. Ph. 34-6539

### COMPUTER CIRCUIT BOARDS

containing transistors, resistors, condensers, diodes, etc., 2/- per transistor. We also stock 1600v./0.75a. diodes (two for 30/-) and 2N1100 transistors (100v./15a., 47/6 ea.).

**AUSTRALIAN ELECTRONICS**  
(formerly "Electronics Associates")

76 View Street, Hobart, Tasmania

Repairs to Receivers, Transmitters; constructing and testing; xtal conv., any frequency; Q5-ers, R9-ers, and transistorised equipment.

### ECCLESTON ELECTRONICS

146a Cotham Rd., Kew, Vic. Ph. 80-3777

Anyway, we in the N.W. had the consolation of winning the wooden spoon with George 7XL arriving last home!!

Lunchtime saw small groups either grilling steaks or munching sandwiches. Amongst the N.W. Zone contingent I noticed Snow 7CH, Ken 7KH, Sid 7SF, Bruce Kelly, Bob Wilson and Winston Nichols from Burnie; also Brian Ayres, Ian Ellings, Robin —?, George 7XL and family, Max 7MX, Ray and myself from Devonport. Quite a good roll-up.

Now at this stage my clever piece of detective work came into play—I noticed (unseen) Ken 7KH chase around in the long grass and pounce on a couple of grasshoppers, like a five-year-old boy would do—place his victims in a tin, look furtively to the right and left, then proceed with rod and reel towards the creek; minutes later Ken returned with a couple of nice-sized trout—how about that!!

Further—I noticed (again unseen) Ray 7ZRS and Bob Wilson don haversacks and armed with pickaxes proceed towards the hills—most suspicious!! On following them I found both hard at work fossicking around amongst the rocks muttering "agate," "petrified wood," etc., etc. . . . Anybody yet got any clues as to what they were up to?

The afternoon saw a rolling-pin throwing contest for XYLS, won again by Den 7DK's XYL. I noticed Max 7MX throwing sweets into the air and entertaining the kids like a real Santa Claus.

The contest for guessing the resonant frequency of the h.f. tuned circuit intrigued quite a few. George 7XL was the first to have a go—after many minutes of deliberation he finally gave a figure of 6 Mcs. and everyone knowing how "cluey" George is, plotted their "guesses" around that figure. Ted 7EJ was nearest with 5 Mcs. so George was pretty close himself. The V.H.F. Section was won by Winston Nichols, so the N.W. Zone notched up a victory at last.

A general meeting held in the open for all and sundry to air their grievances produced some lively debating; such items as a.m. versus s.s.b., pep power input, wet or dry for next year's Hamfest (no further comment), were all discussed but the excitement really reached a pitch with a lively dog fight which developed, and which was eventually brought under control. So all is well that ends well. So chaps, for those who couldn't make it this year at Campbelltown that sums it up.

A Happy New Year to all. 73, David 7MS.

## HAMADS

Minimum 5/-, for thirty words.  
Extra words, 2d. each.

Advertisements under this heading will be accepted only from Amateurs and S.w.'s. The Publishers reserve the right to reject any advertising which, in their opinion, is of a commercial nature. Copy must be received at P.O. Box 36, East Melbourne, C.2, Vic., by 8th of the month and remittance should accompany the advertisement.

**COLLINS KWM2** all band s.s.b. Transceiver, as new condition, complete with Collins PM2 solid state a.c. power supply and Collins mike, £500. S. G. McLean, VK5ME, 76-1491.

**FOR SALE:** Gelo 222TR, 6-band, a.m./c.w. Transmitter, perfect, "as new" condition, complete with circuit, manual, etc. Cost £120, sell for £65. VK4JI, P.O. Box 30, Goondiwindi (phone 684).

**FOR SALE:** T.C.A. Transceiver, 12v., d.c., converted to 146 Mcs. f.m. net, complete with crystals (Channel B), car cradle and antenna, unit in working order, receiver needs alignment, £20. Command Receiver, 6-9 Mc., working, £5. Also have 240v. a.c. Power Supply and 12v. d.c. Supply for the above Command Rx. Nuvisor Converter for 2 metres in full working order, £10. Home-brew G.D.O. with power supply, £5. Philips Mantel Radio, 5 valve, new, £10. All inquiries answered. Reply P.O. Box 206, Liverpool, N.S.W.

**FOR SALE:** Wagner Model 1A Mobile, 5-band, 60 watt, s.s.b. Transceiver. Phone Horsham 2-2288, write or call C/O R. H. Leskie, T.V. Service, off Darlot St., Horsham, Vic.

**FOR SALE:** 13 tube, double conversion Communications Receiver, 160 to 10 metres, crystal filter, product detector, audio a.g.c., etc., £40. Table-top Transmitter, 160, 80 and 40 metres, module construction, complete with crystals, v.f.o., microphone and power supplies, £25. Ferguson Tape Recorder, as new, complete with several tapes and microphone, £25. Lot 59, Orchard Street, Glen Waverley, Vic., or 232-9492.

**FOR SALE:** 33 ft. Oregon Mast, selected timber, requires no guying, painted white, £5. Joystick Antenna with a.t.u., new, £5. Kyoritsu s.w.r. Meter, 52 or 75 ohms, £5. BM3 crystal Mike, with stand and p.t.t. switch, modified, £2/10/-. L. Hoobin, VK3VH, 24 Marshall Av., N. Clayton (near Monash Uni.), Vic.

**GALAXY V**, as new, complete with home-built power supply, £250. R. Longworth, 6 Savoy Av., Killara, Sydney, N.S.W.

**OSCILLOSCOPE** for sale: R.T.V. & H., 3-inch C.R.O., £12. Hard time-base; excellent horizontal and vertical amplifiers. Needs new tube, VCRI39A, otherwise A1 order. A. D. Proudfoot, 5 Andrew St., Horsham, Vic., VK3ADA.

**SELL:** Comm. Rx HQ170A, v.h.f., all bands, 2 M. thru 160 M., all modes, inbuilt 2 and 6 M. convts., new. S. Widgey, 181 Victoria St., Ballarat.

**SELL:** Gelo G222 Transmitter, altered for relay control, £65. Gelo G209 Receiver, £95. Both units in good condition. H. T. Swanton, VK3AUS, 16 Karma Avenue, East Malvern, Vic. Phone 211-3716.

**SELL:** Radio and Hobbies, 1943-1961, Electronics World, 1959-1964, Popular Electronics and Electronics Illustrated, 1959-64, average price 4/-, prefer sell yearly lots or swap or buy parts for Deltahet Radio and Hobbies, October, 1964. C. MacKinnon, 173 Stewart St., Bathurst, N.S.W.

**SELL:** 100 and 500 Kc. Xtals, few left, cheap, \$5.80. Also some power supplies units. A1, VK4SS, or ph. 46526 before 4 p.m. (Please add postage.)

**TRANSMITTER** for sale: AT14A, pair 813's modulated by 811A's using Woden UM3 mod. trans., provision for extracting 120w. audio, modulation h.t. of 750, 1,000, 1,500v. for powering v.h.f., etc., rig. £55 or offer. T.v.i. proofed Transmitter, 150w., Gelo v.f.o. driving QB3/300, £25 or offer. W. J. Bell, VK3WK, Wangoom. Tel. Grasmere 225.

**WANTED:** Beam Direction Indicator, endless pot, aircraft tank, float unit. S. Widgey, 181 Victoria St., Ballarat.

# A LARGE RANGE OF TRANSMITTERS, RECEIVERS, TEST GEAR, AND DISPOSALS RADIO PARTS AVAILABLE

## ★ SCR522 V.H.F. TRANSCEIVERS

Frequency range: 100-156 Mc., xtal locked. Completed with valves, less xtals. Brand new new condition. £13 plus freight.

## ★ METERS, P25 TYPE

0-500 uA., 52/6; 0.100 uA., £3/9/6; 0-1 mA., 45/-; 0-10 mA., 45/-; 0-50 mA., 45/-. Full range of Meters and Multi-Testers available.

## ★ CO-AXIAL CABLE

UR70 72 ohms, 3/16 inch diam., in 27-yard rolls, £1 plus 7/6 pack and post. In as new condition.

## ★ COLLINS MODULATION TRANSFORMERS

20 watts, 6,000 ohms p.p. primary, 6,000 ohms secondary. 35/- plus freight.

## ★ FIVE-INCH C.R.O.

Nagard Model 103, d.c. 10 Mc., 100 mV/CM sensitivity, fully calibrated time base, complete with power supply, £65.

## ★ PHILIPS TA155 C.R.O.

2 inch c.r.o. tube, £17 plus freight.

## ★ 80-40 METRE TRANSCEIVER

San Electronics QTR7. Tx: 6BQ5 p.a., 6BQ5 modulator, xtal locked. Rx: Tunes 3.5 to 11 Mc., 1 watt audio output, 230v. a.c., £45.

## ★ SAL39 AMPLIFIER KLYSTRONS

**Pulse Service:** 120w. input, 30kw. output, duty cycle 1%. freq. range 960-1230 Mc. **C.w. Service:** 50w. input approx., 300w. output approx. Ideal tube for 1296 Mc. band. £10 plus freight.

## ★ MINIATURE CAPACITORS

New shipment. 600 v.w. Values: 0.001, 0.02, 0.005, 0.0005, 0.0002, 0.0001 uF. £1 for 80 plus freight.

## ★ RESISTORS

$\frac{1}{4}$  watt, I.R.C., Welwyn, Eire, Ducon, Philips, £1 per 100.

## ★ CRYSTALS

Personal shoppers only, 10/- each.

## ★ RELAYS

P.M.G. 3000 type, 500 ohms and 500 ohms d.p.d.t., 7/6 each or 3 for £1.

## ★ SIGNAL GENERATORS

Type LSG10, 120 Kc. to 260 Mc., £13. Type LSG11, 120 Kc. to 390 Mc., provision for xtal, £15, both plus freight.

## ★ SPECIALS

813 Beam Tetrodes, 50/- each.

7-pin skirted Valve Sockets, P.T.F.E., insulation, silver plated, only 2/- each, c/w. shield.

## ★ POWER SUPPLIES

300v. at 150 mA., 6.3v. at 3 amp., fully enclosed, on 19-inch panel, £3, complete with meter £4.

## ★ C.R.O. TUBES

CV407, 10/- each; CV392, 10/- each.

## ★ TRANSISTORS

Brand new. OC72, OC44, 2N132, OC66, OC45, 8/- each. AT1138 Power Transistor, 30w., Class B, 30/-. Also Diodes: OA70, OA81, OA95, 3/6 each.

### WANTED TO BUY

Communication Receivers. Test Equipment. etc. Call, write or phone. Equipment inspected and picked up at your convenience any night or week-end.

### ANY QUERIES

Beginners are welcome, ask Jim and Laurie Gardiner any questions. They are Amateur Radio operators and will be only too pleased to assist.

ALL ITEMS FREIGHT EXTRA

## UNITED TRADE SALES PTY. LTD.

280 LONSDALE ST., MELBOURNE, VIC. (Opp. Myers)

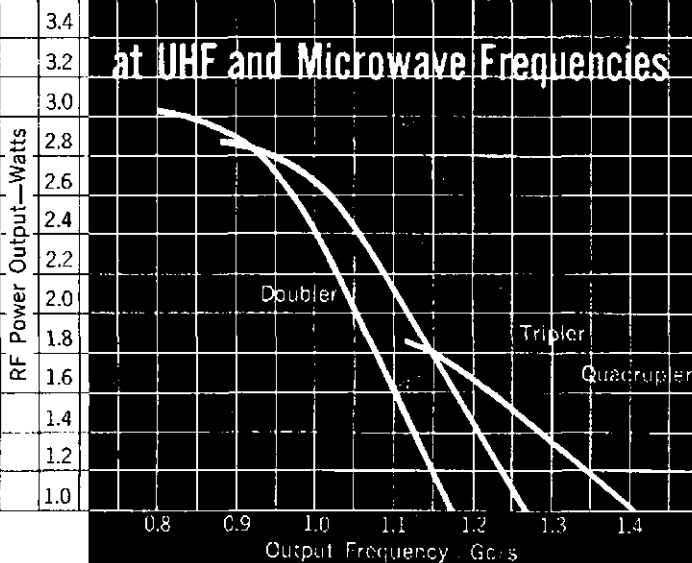
Phone 32-3815

2.5 Watts Output with 4dB Gain at 1000 Mc/s as a Tripler

RCA-2N4012 "overlay" Transistor

FREQUENCY MULTIPLICATION  
WITH POWER GAIN

at UHF and Microwave Frequencies



Input Power = 1 Watt  
V<sub>c</sub> = 28 Volts  
Case Temp. (T<sub>c</sub>) = 25° C.

Now for the first time, you can achieve frequency multiplication with power gain at microwave frequencies with a single solid-state device, the new 2N4012 silicon transistor. With this new "overlay" unit, you can greatly simplify circuit design as well as reduce costs. At 1 Gc/s, one single 2N4012 can replace both the transistor power amplifier and varactor diode stages previously required.

Offering frequency multiplication with power gain in the 1 Gc/s region, the 2N4012 as a doubler, tripler, and even as a quadrupler, extends transistor performance into the microwave region with watts of power! When used in a common-emitter configuration, this transistor provides stable operation—power output varies smoothly with changes in power input.

Find out how the 2N4012 can help you cut costs by eliminating the varactor and reduce the size of hardware in space, military, and commercial applications. For technical data, price, and delivery, contact Amalgamated Wireless Valve Co. Pty. Ltd., 348 Victoria Road, Rydalmere, N.S.W., or any interstate office.

	2N4012 DOUBLER	2N4012 TRIPLER
Output Power	3 (typ) Watts	2.5 (min) Watts
Output Frequency	800 Mc/s	1002 Mc/s
Input Frequency	400 Mc/s	334 Mc/s
Conversion Gain	4.8 (typ) dB	4 (min) dB
<b>MAXIMUM RATINGS</b>	V <sub>CB0</sub> 65 Volts V <sub>CE0</sub> 40 Volts V <sub>CEV</sub> 65 Volts V <sub>EB0</sub> 4 Volts I <sub>c</sub> 1.5 Amperes	



AMALGAMATED WIRELESS VALVE CO. PTY. LTD.  
SYDNEY • MELBOURNE • BRISBANE • ADELAIDE • PERTH • HOBART





# amateur radio

Vol. 34, No. 3  
MARCH  
1966

25c

Registered at G.P.O., Melbourne, for  
transmission by post as a periodical

# DISPOSAL BARGAINS

AT OUR BULK DISPOSAL STORE  
8 PARK STREET, GLENFERRIE, VIC.  
(OFF GLENFERRIE ROAD)

Phone 81-1935

(Mon. to Fri., 10 a.m. to 5 p.m.; Sat., 10 a.m. to 12.30 p.m.)

- ★ COMMUNICATION EQUIPMENT
- ★ VALVES
- ★ RESISTORS
- ★ CONDENSERS
- ★ POWER, MODULATION, DRIVER, FILAMENT & OUTPUT XFORMERS
- ★ CHOKES
- ★ SPEAKERS
- ★ METERS
- ★ CRYSTALS
- ★ RELAYS
- ★ UNISELECTORS
- ★ KEY SWITCHES
- ★ ROTARY SWITCHES
- ★ COILS
- ★ MULTI-PIN PLUGS & SOCKETS
- ★ MULTI-CORE CABLES
- ★ CO-AXIAL CABLES
- ★ CO-AXIAL PLUGS & SOCKETS
- ★ H.V. PROBES
- ★ AMPLIFIERS
- ★ CHASSIS
- ★ VIBRATORS
- ★ POWER SUPPLIES—HIGH & LOW VOLTAGE
- ★ TRANSISTOR POWER SUPPLIES
- ★ POWER CABLES
- ★ MICROPHONE CABLES
- ★ 15 VOLT/300 WATT PETROL CHARGING PLANTS
- ★ ELECTRONIC EQUIPMENT RACKS
- ★ ELECTRIC MOTORS—230V.  $\frac{1}{4}$  H.P.
- ★ P.M.G. 88D & 89D JUNCTION BOXES
- ★ No. 122 AERIAL PACKS
- ★ ALUMINIUM TUBING— $\frac{1}{4}$ "
- ★ VALVE SOCKETS—ALL TYPES
- ★ C.R.O. TUBES
- ★ REFLEX SPEAKER HORNS
- ★ 15 WATT DRIVER UNITS
- ★ 12 VOLT 15 WATT TRANSISTORISED AMPLIFIERS
- ★ TEST EQUIPMENT
- ★ ASSORTED ELECTRONIC CHASSIS

STOCKS MUST BE CLEARED. NO REASONABLE OFFER REFUSED



## RADIO SUPPLIERS

Phone 81-1935

Established 1947

# "AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA. FOUNDED 1910.

MARCH 1966

Vol. 34, No. 3

## Editor:

K. M. COCKING ..... VK3ZFQ

## Assistant Editor:

K. E. Pincott ..... VK3AFJ

## Publications Committee:

G. W. Baty (Secretary) ..... VK3AOM  
A. W. Chandler (Circulation) ..... VK3L/C  
S. T. Clark ..... VK3ASC  
E. C. Manifold ..... VKSEM  
W. E. J. Roper ..... VK3ARZ

## Draughtsmen:—

Ken Gillespie ..... VK3GK  
Clem Allen ..... VK3ZIV  
Ian Smith ..... 38 Green St., Noble Park

## Advertising Enquiries:

C/o. P.O. Box 38, East Melbourne, C.3, Vic.  
OF  
Mrs. BELLAIRS, Phone 41-3535. 478 Victoria  
Parade, East Melbourne, C.3, Victoria. Hours  
10 a.m. to 3 p.m. only.

## Publishers:

VICTORIAN DIVISION W.I.A.,  
Reg. Office: 85a Franklin St., Melbourne, Vic.

## Printers:

"RICHMOND CHRONICLE," Phone 42-2419.  
Shakespeare St., Richmond, E.1, Vic.

★

All matters pertaining to "A.R." other than subscriptions, should be addressed to:

THE EDITOR,  
"AMATEUR RADIO,"  
P.O. BOX 38,  
EAST MELBOURNE, C.3, VIC.

Acknowledgments will be sent following the Committee meeting on the second Monday of each month. All Sub-Editors should forward their articles to reach "A.R." before the 8th of each month. Any item received after the Committee meeting will be held over until the next month. Publication of any item is dependent upon space availability, but in general about two months may elapse before a technical article is published after consideration by the Publications Committee.

★

Members of the W.I.A. should refer all enquiries regarding delivery of "A.R." direct to their Divisional Secretary and not to "A.R." direct. Non members of the W.I.A. should write to the Victorian Division, C/o. P.O. Box 38, East Melbourne. Two months' notice is required before a change of mailing address can be effected. Readers should note that any change in the address of their transmitting station must, by P.M.G. regulation, be notified to the P.M.G. in the State of residence, in addition "A.R." should also be notified. A convenient form is provided in the "Call Book".

★

Direct subscription rate is 30/- a year, post paid, in advance. Issued monthly on the first of the month, January edition excepted.

## FEDERAL COMMENT

★

The dinosaur was a very large beast and in its day a very fearsome one.

It no longer exists because—among other things—it reacted too slowly to an antagonistic environment. The nerve messages that made its central system aware of danger, the act of decision made as a result of these messages and the return impulses sent to initiate action all took too long. So good-bye to the dinosaur. Or was it?

Might not today's Wireless Institute be likened to that prehistoric monster? Does not its present administrative organisation look remarkably like the sluggish nervous system of our late and unlamented beast?

Even a very cursory glance at the present mechanics of the Institute must show that it does.

If you as an Institute member are concerned with such things—as you should be—then you will know that some three or four years ago a proposal for Federation was put before the Federal Council. It has been discussed at each annual Federal Council since then and will undoubtedly be so again in Brisbane this Easter. The prime objective of this proposal was to simplify and streamline procedures and decision making within the Institute so that it could function as a dynamic entity.

The proposal was a bold one. The number of difficulties to be overcome in making it a reality were many. To a large degree these difficulties have been resolved. Right here and now we need from you—yes, you, not the other bloke—how you would like this Institute of ours to be—alive and active and aggressive as it could be if we were united or like the dinosaur—extinct.

HAROLD L. HEPBURN, FEDERAL VICE-PRESIDENT, W.I.A.

## CONTENTS

SX28 Receiver Modifications .....	2	Publications Committee Reports ..	13
A Pre-Amp. for 2 Metre F.M. ....	5	YL News .....	13
Audio Clipper/Limiter for C.w./		Contest News .....	13
Phone Reception .....	9	SWL .....	14
Telepersonality—George Jacobs ..	6	Correspondence .....	15
Amateur Radio .....	7	DX .....	15
VHF .....	11	Federal and Divisional Monthly	
YRC .....	13	News Reports .....	17

# SX28 RECEIVER MODIFICATIONS

A. C. HAWKER,\* VK3IB (Ex VK1AC, VKOAB, VR1B, VR3H)

HEREWITH are details of the circuit modifications which have been carried out on the SX28 receiver in use here. This assumes you already have the original circuit schematic as found in the instruction book for the SX28 or SX28A.

The audio choke CH2 and associated capacitor C43 which comprise the bass audio filter have been removed as I personally found the filter to be of little real value and seldom used it. Its switch, SW10, has been replaced with a d.p.d.t. toggle which serves to transfer the audio input from the diode (a.m.) detector to the product detector and at the same time provide h.t. to the b.f.o. and product detector in the s.s.b. position. Make sure all the audio leads to this switch are in shielded lead.

The original a.v.c./b.f.o. function switch will need to be removed and replaced with one having four-pole, three-way capacity. A.v.c. "on" becomes "a.v.c. 1" (fast), a.v.c. "off" remains the same and "b.f.o. on" is now "a.v.c. 2" (slow). The attack time of the a.v.c. circuit is a little slow at 40 milliseconds but quite acceptable as the recommended attack time for s.s.b. A.v.c. action should be between 10 and 200 milliseconds. With values shown, the decay rate is 1 second in the slow position and 68 milliseconds in fast operation. These figures might be improved by experiment with other values and circuits but I find them very satisfactory indeed. The fast a.v.c. position is to be preferred for a.m. signals whilst the slow position gives more satisfactory control of s.s.b. and c.w. copy.

With the circuit as shown the "S" meter functions also on c.w. or s.s.b. provided the a.v.c. switch is not turned to the off position. I find there is absolutely no leakage from the b.f.o. into the a.v.c. circuit with the product detector provided reasonable care is taken with the shielding and layout of components. The screened lead to the b.f.o. pitch capacitor has been replaced with a length of co-axial cable and two plates have been removed from the variable condenser in order to provide finer adjustment. A larger knob on the b.f.o. pitch control is also of some advantage. The drive spindle of the bandspread control has been carefully ground down to approximately half the original diameter, resulting in an improved tuning rate. On the 20 metre bandspread dial this results in a rate of about 50 Kcs. per revolution of the tuning knob as about 100 Kcs. before.

R6 and R71 in the 6SA7 oscillator circuit plate supply have been removed or shorted out and this point returned to 150 volts regulated. I found that substitution of R31 with a VR150/30 regulator tube worked out just right with the existing 4K resistor R32.

You may need to experiment a little with the coupling capacitor to the product detector from the plate of the last

i.f. amplifier V6. I discovered that 1 pF. was about right in my case. The usually recommended value of 10 pF. was found to be too large and resulted in overload of the product detector with considerable distortion and difficulty in resolving s.s.b. signals.

The amplified a.v.c. to the mixer and both r.f. stages has not been disturbed and still functions in the original manner. The modified i.f. a.v.c. circuit to V5 (6L7) as shown in the diagram provides all the benefits of "hang" a.v.c. quite adequately and efficiently holds down between-signal noise on c.w. and s.s.b.

The modification of the audio end of the receiver was forced upon me by a burnt-out loud-speaker transformer and having no suitable push-pull replacement available at the time. However, I feel the change is well worthwhile despite possible reluctance at first to interfere with hi-fi possibilities of the existing 8 watt push-pull 6V6 output stage. One major advantage is the immediate reduction in h.t. drain by about 40 milliamps and less heat generated internally by the extra 6V6 and the rectifier. Furthermore, the power transformer runs cooler and removal of one 6V6 frees a socket for the VR tube which can then sit conveniently next to the rectifier. I found it was possible to feed the remaining 6V6 plate supply from the output of the filter choke without the latter heating too badly—this may prove an essential move in any case since the hum might prove objectionable with the single-ended output stage fed direct from the input capacitor. I find the audio quality still very good on b.c. reception and 4 watts is still plenty of output if you want it. A small loud-speaker transformer easily replaces the old push-pull one and the 3.2 ohm output winding is connected to one pair of the original output terminals. This move has the advantage of being able to feed a loud-speaker voice coil directly without the necessity of an additional matching transformer as was required before to match either the 5K or 600 ohms output.

The 6SC7 (V12) phase splitter is replaced with a 6SJ7 and the socket rewired accordingly. Another possibility here is to retain a twin triode stage using one half as the audio amplifier and the other for a crystal calibrator but it would most likely be necessary to change to a tube having separate cathodes such as the 6SL7. I had already added a 100 Kcs. crystal calibrator previously employing a 6AU6 tube mounted atop the main tuning capacitor compartment so did not adopt this method which would have probably been a better arrangement. Mine is the standard calibrator circuit found in most copies of the A.R.R.L. handbook. I have fitted a small on/off switch for the calibrator mounting snugly between the "S" meter and the main tuning dial. Mounted symmetrically between the two tuning dial escut-

cheons on the opposite side I have placed a matching control which sets the muting level which is about to receive mention below.

Excellent stability is retained during transmission periods by opening the grounded end of the r.f. gain control (R2), thus allowing the local oscillator and b.f.o. to run continuously. Use of the original standby switch which interrupts the h.t. supply centre tap is hopeless as the drift is intolerable for s.s.b. vox operation. The addition of another variable resistor as a muting level control (about 5K) in series with the r.f. gain control will allow setting of monitoring level for comfortable monitoring of your own signals during transmission (especially useful on c.w.). This resistor is arranged to be shorted out, usually by a control relay in the transmitter, during reception to restore the receiver sensitivity to normal.

For s.s.b. operation I find the "Broad Xtal" position the most satisfactory with the "xtal phasing" set to place the rejection notch on the unwanted sideband. Alternatively the phasing control can be used in a similar fashion to the "notch" filters used in more modern receivers to reject an annoying heterodyne—or reduce it at least. If your crystal filter appears to be rather poor in selectivity (apart from bad alignment) you will find that taking the crystal holder apart and washing the crystal in carbon tetrachloride or just plain warm soapy water often works wonders.

Upper sideband reception I find about correct with the b.f.o. offset about 30 degrees clockwise and the same anti-clockwise for l.s.b. Once set, do all your tuning with the bandspread or main dial but slight manipulation of the b.f.o. control, especially with a large knob fitted, can be very helpful as a slight touch up to s.s.b. signals. With the modifications as described you should find that you can operate with full r.f. gain all the time provided the a.v.c. is operational. This is a blessing as you no longer have to dive for the r.f. gain control when a strong station comes on after copying a weak one and you no longer miss the weak signals after reading a powerful one—especially valuable on round tables. Receiver overloading will still occur with the r.f. gain fully up with a.v.c. off and manipulation of the r.f. control will be necessary when operating in this condition.

I now use my receiver almost continually with the a.v.c. on for copy of c.w. and s.s.b. signals and little alteration of the a.f. gain is required from signals of S9+ magnitude down to S1-2. Seldom do I have to alter the a.f. gain from a setting of 3 or 4 for comfortable loud-speaker operation unless the band is very poor indeed.

Another trump card of the SX28 receiver is its dual noise limiter circuits. Most receivers, even recent models, have only a simple a.n.l. in the diode detector, these are frequently quite effec-

\* P.O. Box 35, Dimboola, Vic.

tive for a.m. operation but do not function when the b.f.o. is brought into operation for c.w. or s.s.b. copy and are of course by-passed if the receiver has a separate product detector. In the SX28, however, the i.f. noise silencing circuit can still be brought into operation in all modes so you have a feature here that is only to be found in the most expensive of late model receivers.

I have made up an adaptor socket to take a 6AM6 as replacement for the first r.f. tube. A 6AC7 would probably be equally as effective as direct replacement for the 6AB7 but it would probably be advisable to shift the a.v.c. to the suppressor grid to prevent blocking, alternatively remove the a.v.c. altogether from this stage. A further increase in receiver sensitivity can be obtained by using a 6AB7 in place of V2 and V6. When I originally pro-

—but was carried out in easy stages with the whole modifications being spread over a couple of years. I can assure you, however, that the effort is well worth it and that the old SX28 compares very favourably now with many modern receivers and even better than some!

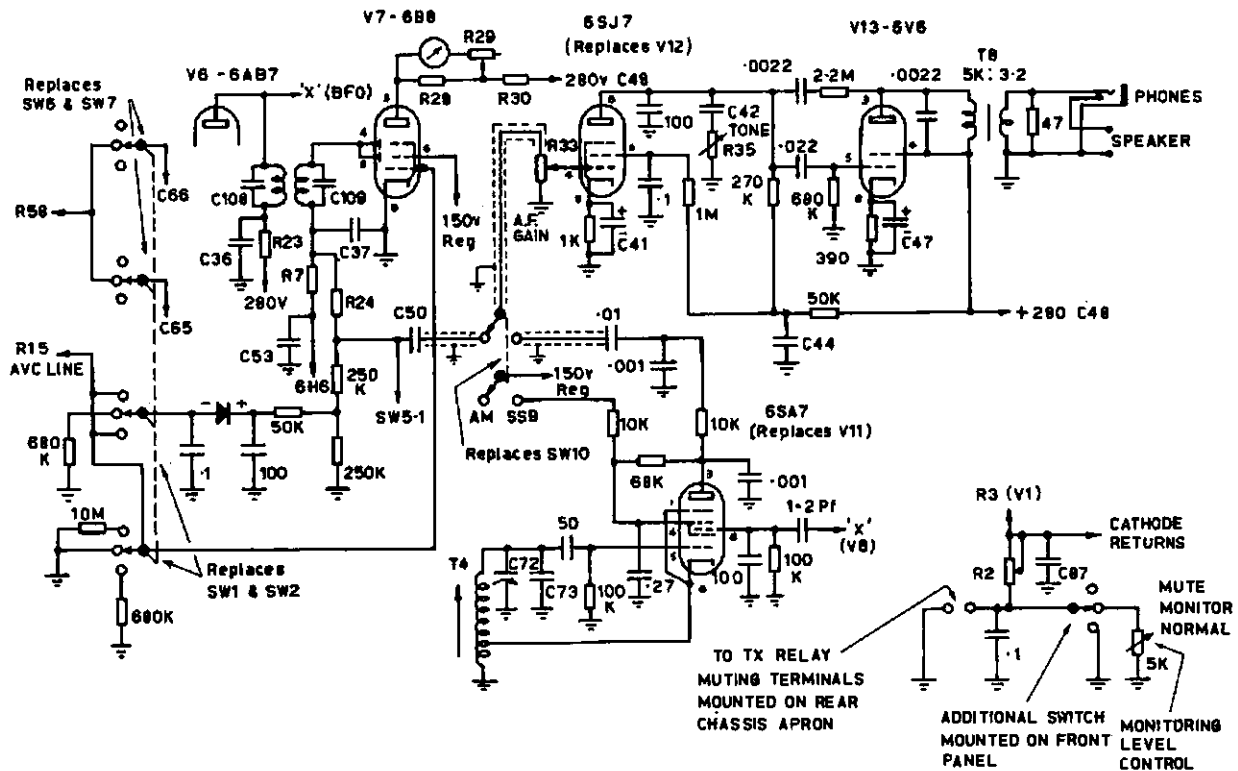
Don't forget that the gating diode in the a.v.c. circuit must be one with a high back resistance, an OA210 is a sure fire bet even though it is really a power diode, but is cheap and fills the bill. Germanium diodes are unsatisfactory in this application as their reverse resistance is not high enough.

Since writing these notes I have been fortunate in procuring a copy of a comprehensive article on the same subject published in "Radio ZS," the magazine of the S.A.R.L., for March 1964. It is significant to note that their modifications are almost identical

spread knob with a large instrument knob such as the Aegis MV1/F 3 inch diameter, preferably less flange, and the fitting of a small cranking handle to speed up full scanning of the bands.

The SX28 is a heavyweight of about 75-80 lb., and I found that a pair of solid, chrome handles, one fitted each side of the panel, made the task of removing and replacing in the cabinet much easier. The handles also match the general appearance quite handsomely.

Some oscillator pulling in either of the "a.v.c. on" positions was evident, but only when monitoring the local transmitter. This effect should be cured by removal of the a.v.c. from the 6AS7 mixer tube V3 and returning the grid tuned circuits to earth. (Lift R11 from junction of C21 and earth C21.) This modification was also recommended in the "Radio ZS" article.



cured my SX28 there were 6AC7's in place of V2 and V6 but I feel these tubes, although certainly increasing the gain, probably depreciated the signal to noise ratio.

I have also replaced the mains power transformer with one to operate directly from 240v. a.c. thus dispensing with the bulky extra nuisance of a step-down transformer—but this was actually forced on me when the original burnt out due to moisture accumulation after a lengthy absence in the Ellice Islands. I certainly do not regret the change and was lucky enough to find a replacement transformer with the same mounting dimensions.

All the above probably sounds like a lot of work—and it is, make no mistake

to those I have developed and SX28 owners would find this very interesting reading. I quote the conclusion from this article, which states:—

"The SX28, as an a.m. and c.w. receiver, is capable of good, practical performance by modern standards. Attempts to modify sensitivity, selectivity or noise figure do not appear to be warranted and the changes necessary to include modern s.s.b. facilities need not be expensive or complex. Brought up to date in the manner recommended, it will form a worthy companion piece, performance-wise, to the modern s.s.b. transmitter."

An improvement in tuning handling can be obtained by replacing the band-

One of the advantages in placing the crystal calibrator atop the main tuning capacitor compartment is that the crystal socket becomes readily accessible by just lifting the hinged cabinet lid. Thus the calibrator crystal can be easily removed and any crystal substituted for checking. I found this facility extremely handy when grinding my own crystals and having previously set the receiver calibration with the calibrator it was used as the frequency meter. (Within limits of course.)

I hope my version of the modifications has been of some assistance and that your efforts are as gratifying as my own.

**DO  
YOU  
READ**  
**Mullard**  
**Outlook?**

Back copies are available on request.  
Write for the latest list!

NEW PRODUCT INFORMATION  
NEW CIRCUIT DEVELOPMENTS  
ITEMS OF INTEREST TO  
THE HOME CONSTRUCTOR  
TECHNICAL AND COMMERCIAL  
ADVICE TO  
THE SERVICE TECHNICIAN  
AND THE RETAILER

These features and more  
are contained in each volume,  
so keep up-to-date  
with the latest developments  
and forward your subscription,  
together with  
the coupon below.

USE BLOCK LETTERS

**SUBSCRIPTION FORM**

M176

To: **MULLARD-AUSTRALIA PTY. LTD.**  
35 Clarence St., Sydney, N.S.W., Australia

Enclosed is my remittance of 18/0d. (\$1.80) as  
subscription for the 1966 issues of Outlook (six  
copies per annum).

NAME.....

ADDRESS.....

STATE.....

Cheques, postal notes and money orders to be  
made payable to Mullard-Australia Pty. Ltd.



**Mullard-Australia Pty. Ltd.**

35-43 CLARENCE STREET, SYDNEY, N.S.W. 25 2009

123 VICTORIA PARADE, COLLINGWOOD, N.S. VIC. 41 6444

Associated with MULLARD LIMITED, LONDON

M176

# A PRE-AMP. FOR 2 METRE F.M.\*

BYRON H. KRETZMAN, W2JTP

There have been many 2 metre pre-amplifiers described in "CQ" in the past, all for the usual across-the-band Ham type of operation. This pre-amp. was designed especially for the "new" type of v.h.f. operation, f.m., where high quality fixed tuned (crystal controlled) ex-taxicab and police receivers are used. Secondly, this pre-amp. may readily be adapted to serve as a two-set coupler, such as when it is desired to monitor two frequencies simultaneously, using a common antenna (146.94 phone and 146.70 r.t.t.y., for example).

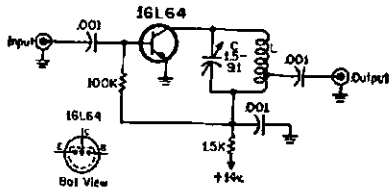
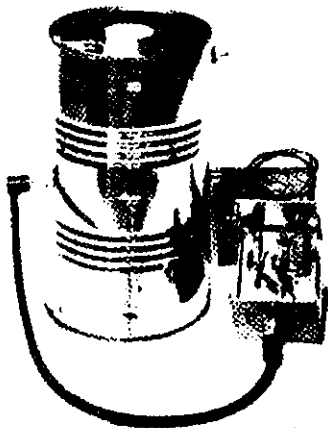


Fig. 1.—Schematic diagram of preamp. for 2 metre f.m. Resistors are  $\frac{1}{2}$ w., and capacitors are 600v. disc ceramics. Coil L is wound with 14 gauge wire and has  $5\frac{1}{2}$  turns,  $\frac{5}{16}$  inch inside diameter, spaced the diameter of the wire. The output tap is  $1\frac{1}{2}$  turns up from the cold end.

Our pre-amp. makes use of one of the family of new n.p.n. silicon planar passivated transistors designed for small signal amplification at v.h.f. These are packaged in the new case-less epoxy encapsulated form and are manufactured almost completely by automation. The result is that here we have available, across the counter, a high gain v.h.f. transistor for less than \$1. While several different types are available from different manufacturers, we used the GE type 16L64. This transistor has a gain-bandwidth product of 350 Mc.



Pre-amp. for 2 metre f.m., shown with external high-Q co-axial cavity re-entrant filter, necessary in high density areas.

and a maximum frequency of oscillation of 650 Mc., both at 10 volts and 10 mA.

## THE CIRCUIT

Fig. 1 shows the schematic diagram of our transistor pre-amp. As you can see, a minimum number of components are used; two resistors, three capacitors, and the LC output circuit. The circuit configuration is that of the grounded-emitter type. The base input circuit is at a sufficiently low impedance so that it may be directly fed from a 52 ohm co-axial cable.

Now, before too many eyebrows are lifted at the absence of a tuned input circuit, let us say that we fully realise that in some areas of high density com-

mercial two-way radio operation, inter-modulation (mixing) could occur. If you have this problem, the solution is simple; add an external co-axial cavity re-entrant filter.<sup>†</sup> Just in case you don't have the referenced issue of "CQ" Fig. 2 shows its constructional details. (We made a slight modification to give a better match to the transistor: Instead of using an output link we tapped up 3 inches on the inner pipe.) All you need to build it in 15 minutes, besides the tuning capacitors and phone jacks, is a large size tomato juice can and a short piece of Reynolds do-it-yourself aluminum tubing, item 10. The tubing can be fastened to the bottom of the can by either an item 50 flange or by a sawed-in-half tubing slicer, item 90. If you like, or if the QRM is exceptionally strong, you can solder the cover back on the can. (We didn't find it necessary, besides visitors can look inside the can if you don't.)

## CONSTRUCTION

Our 2 metre pre-amp. is built into a  $2\frac{1}{2}$ " x  $2\frac{1}{4}$ " x  $1\frac{1}{8}$ " Premier box, number PMC-1000. Actually, the pre-amp. itself is built on a  $2\frac{1}{2}$ " x  $1\frac{1}{8}$ " scrap piece of copper sided printed circuit board, about  $\frac{1}{16}$  inch thick. Fig. 3 shows exactly where the holes should be drilled. The board is stood-off from the bottom of the box by a pair of  $\frac{3}{8}$ " high tapped metal pillars.

The co-axial cable input and output connectors are Switchcraft No. 3501FP phono connectors. (Down with the eyebrows—such phono connectors are stock equipment on chassis of Motorola, G.E., and other commercial mobile f.m. gear.) These are mounted so that their ground lugs may be soldered directly to the copper surface of the board. The transistor is mounted upside down, supported on its own leads, with the

(Continued on Page 6)

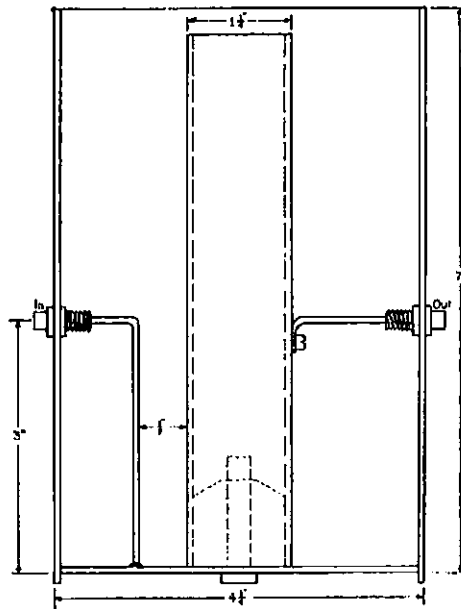
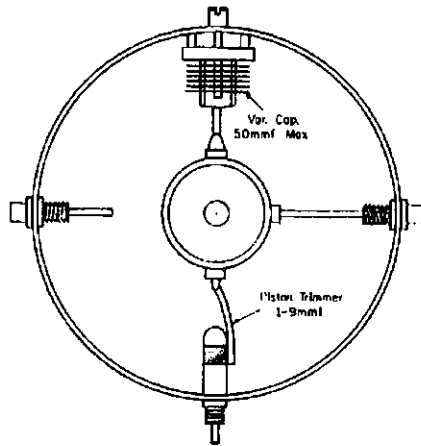


Fig. 2.—Co-axial cavity re-entrant filter mechanical details. The "in" terminal connects to the receiver fitting on the antenna relay, while the "out" terminal connects to the "in" fitting on the pre-amp. RG-58/U is recommended, each cable cut to  $\frac{1}{4}$ -wavelength, about 13 inches. (The same length cable should be used to connect the "out" fitting on the pre-amp. to the "ant" fitting on the receiver.)

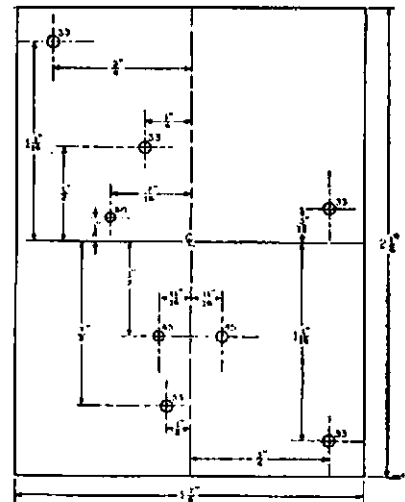


Fig. 3.—Drilling details on the circuit board chassis. The board is  $\frac{1}{16}$  inch thick and preferably with copper on both sides. If just one side is copper, drill as shown from the copper side. The numbers by the side of each hole indicate the drill gauge.

\* Reprinted from "CQ," Sept. 1965.

† Kretzman, B., "A New VHF Operation: FM," "CQ," August 1963, p. 74.

‡ Schlesinger, "Cavity TVI Filter," "CQ," July 1954, p. 14.



# GEORGE JACOBS

AT recent major I.T.U. radio conferences, a top spokesman in the United States delegation on international broadcasting questions has been a friendly soft-spoken giant with a permanent fund of goodwill and as fierce a sense of dedication as any man in radio.

George Jacob's devotion to radio started in his earliest years. Born in New York forty years ago, he was only three when his father, an industrial engineer, called for the seemingly precocious youngster at school one day to show him a radio transmitter: he can still see the blue light, he says, as if it had all happened yesterday. Two years later, his father built a superheterodyne set. One evening they got Canada on it. "We caught Canada, son, do you hear?" cried the excited parent clapping the ear-phones over his son's ears. "That's Toronto there!" After that there was no looking back.

Growing up, George Jacobs worked for a spell as a broadcasting technician in New York and a radar navigator during World War II. He obtained a Bachelor's Degree in Electrical Engineering from New York's Pratt Institute and joined the engineering staff in the Broadcasting Service of the United States Information Agency. In 1953, at the early age of twenty-nine, he was promoted Chief of the Service's Central Frequency Division, which is the position he still holds today.

But his professional and international responsibilities by no means exhaust the time and interest he lavishes on his subject. Recently he was asked to list his main non-professional interests. "Radio, radio, radio," he said.

Specifically, this means the time and energy to obtain a Master of Science Degree in Electrical Engineering from the University of Maryland in 1960. It means senior membership in the Institute of Electrical and Electronics Engineers. Above all, it means Amateur Radio and writing about radio.

In the last thirteen years, George Jacobs has published more than two hundred and fifty technical articles in various journals and periodicals (including six in the "Telecommunication Journal"), which is an average of two articles a month. No cause has been more nobly served by the indefatigable author than that of Amateur Radio. Himself among the most active of that valiant esoteric brotherhood who glory in the name of "Hams," it was largely due to his persuasive prose in his space communications column in "CQ Magazine" that the necessary support was obtained for the launching of the Amateurs' own series of satellites—the famous Oscars.

At I.T.U. conferences he has been steadily making his mark. The United States delegation's spokesman at the 1959 Radio Conference for the high frequency broadcasting service, he played an important part in the drafting of Article 10 of the Radio Regulations. At the C.C.I.R. Xth Plenary Assembly in 1963, he was chairman of a sub-group on Space Broadcasting. He personally feels strongly about the work of the Union—"in the long run the most efficient means of communication will come about through international co-ordination through the I.T.U."



His success at conferences comes about through qualities not only of head but of heart. He is eminently and effortlessly well liked. Plodding purposefully on his rounds of delegates with a faint self-deprecatory grin on his face, he generates goodwill at his mere approach. His gentle manner and generous bulk seem to be intimidating that the world is after all a very agreeable place—which, if it were full of people like George Jacobs, it would be. He likes to say pleasant things and hear other people saying them. He would not know how to be pompous if he tried.

George Jacobs is married with two daughters (one of whom has apparently developed a marked preference for telephony as a form of telecommunications). These, however, are not the only occupants of his home just outside Washington. There is also his Amateur set, with the call-sign W3ASK. Radio Amateurs often use their own imaginations when it comes to identifying the letters of their call-signs. In his case, there could be no better identification for the last three than A for Action, S for Sincerity, K for Kindness.

—C.M.

## PRE-AMP. FOR 2 MX F.M.

(Continued from Page 5)

emitter wire soldered directly to the board. Don't forget to use a pair of pliers as a heat sink when you solder in the transistor.

The tuned output circuit uses a readily available miniature air trimmer, the E. F. Johnson No. 189-4. This low loss capacitor is soldered to the copper faced body by means of the two tabs provided, but raised above the board by about one-eighth inch by washers. A 4-40 bakelite stud terminal is mounted at the cold or rotor end to serve as a coil terminal. The hot end of the coil, which is wound with 14 gauge wire, connects directly to the stator terminal of the capacitor, as does the collector lead of the transistor. Another bakelite stud terminal is mounted so as to provide a tie point for the base lead of the transistor, the 100K resistor, and the 0.001 disc capacitor which connects to the input co-ax. connector.

### THE TWO-SET COUPLER

This pre-amp. may easily be modified to permit the feeding of two receivers. The only additional parts required are another No. 3501FP phono connector and two 22 ohm  $\frac{1}{2}$ w. resistors. Simply mount the second connector next to the original output connector and feed the centre of each connector through its own resistor from the coupling capacitor. Fig. 4 shows the schematic diagram of the modified output circuit. The purpose of the resistors is to isolate the tuned input circuits of each receiver from each other, so that there is no interaction in tuning.

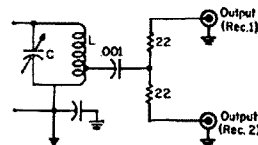


Fig. 4.—Circuit modifications for use of the pre-amp. as a two-set coupler.

### PERFORMANCE

This extremely simple-to-build 2 mx pre-amp. is not the least bit unstable. We even tried a coil and capacitor tuned input circuit, temporarily mounted inside the box, and it showed no evidence or inclination to take off. The applied voltage was 14.5 positive, and the current drawn was 4.9 mA. Using a Measurements Model 80 signal generator, fed to the pre-amp. through a 50 ohm pad, we found that the actual gain, at 147 Mc., was in the order of 10 db. Several such pre-amps. were constructed, and this gain figure was found to be fairly uniform. (Using the 20 db. quieting method.)

The outboard co-axial cavity filter, when used, adds about 0.6 db. of loss, relatively insignificant. The use of this high-Q filter does, however, increase the "front end" selectivity of a receiving system significantly. With the high quality f.m. receivers of the Motorola 80D, use of this filter makes possible the operation of in-band repeaters, or in-band duplex operation. (The latter is very unpopular in high density areas!)



# AMATEUR RADIO

GEORGE JACOBS, W3ASK

WITH twenty years of professional experience in telecommunications, mainly with the broadcast service, one might question why I am writing a Centenary Year article on the subject of "Amateur" Radio.

The word "Amateur" is often associated with the words as "beginner," "non-professional," or "unskilful." In the case of Amateur Radio, such interpretations are unfortunate, since they are far from the truth. The very nature of Amateur Radio is such that right from the beginning it has not only kept pace with the development of other radio services, but it has often been well in the vanguard. Actually "Amateur," in the radio sense, simply denotes lack of pecuniary interest, but not a lack of technical competence. The great contributions of Amateur Radio to technology and humanity are well established.

Amateur Radio has been a part of me for almost as long as I can remember. I have been licensed since 1941 and presently hold the call sign W3ASK. I credit Amateur Radio for first introducing me to the wonders of radio communication and for kindling my enthusiasm to pursue this field professionally. Through the years Amateur Radio has brought me friendships throughout the world, friendships that vault political, social and economic barriers, and are as fraternal, warm and sincere as any I have made in my lifetime. Amateur Radio is not only a radio service, but it is also a spirit, indeed, almost a way of life. I am indeed grateful for this opportunity to write briefly about it.

The Radio Regulations, Geneva, 1959, define the Amateur Service as follows:—

"A service of self-training, inter-communication and technical investigations carried on by Amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest."

How did Amateur Radio begin? In the latter years of the 19th century there already existed a keen interest in a new marvel—electricity. Amateur experimenters, mainly in Europe and North America, were making small electro-magnets, motors, dry cells, static machines, erecting neighbourhood telegraph lines and building numerous other experimental electrical devices.

It was not until the end of 1901, however, that an event took place that fired the imagination of these experimenters still further—Marconi's bridging of the Atlantic with radio signals. The press of the world was filled with jubilation, disbelief and triumph at this accomplishment. "Wireless" was on everyone's tongue. Large numbers of amateur electrical experimenters

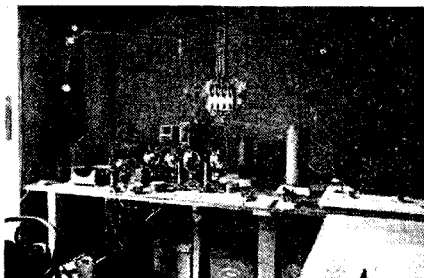
Last year the International Telecommunication Union celebrated its 100th birthday. To mark the occasion, the Editor of the "Telecommunication Journal," the official publication of the I.T.U., invited leading telecommunication officials throughout the world to write a series of articles on "Telecommunications, Yesterday, Today and Tomorrow." George Jacobs, W3ASK, was invited to write about the Amateur Radio Service. The following is a reprint of the original article as it appeared in the July 1965 issue of the journal.

turned away from their electro-magnets, motors and dry cells and began to explore the realm of radio communications. Amateur Radio was born!

During the first decade of this century, Amateur experimentation with radio was a difficult task, since technical and constructional material were scarce. A typical Amateur station of those days consisted of an induction coil, a condenser and a spark gap for transmitting and a simple coherer-decoherer or galena crystal, and a



George Jacobs, W3ASK, CQ's Radio Propagation and Space Communications Editor, shown at his own station in Silver Spring, Maryland. George's main interest is in handling emergency overseas traffic, and you can find him doing this just about every morning, or week-end afternoons on 15 or 20 metres.



Shack of the early days.

single head telephone for receiving. It was not unusual for early Radio Amateurs to communicate with each other using such equipment, over distances of 80 to 160 kilometres.

International regulations were non-existent at the time, since there was no radio law. Everyone had an equal right to the air, and during the first decade of this century the number of Amateur Radio stations on the air greatly exceeded the number of coastal and ship stations—a fact that should qualify Amateur Radio as the "dean" of the radio services.

## PIONEER SPIRIT

From the very beginning, the Radio Amateur has been a pioneer. He "tinkers" and "toys," he "tries this" and then "tries that," always with the purpose of extending the range of communication or increasing operator efficiency.

Space limitations will not permit a detailed review of all the contributions made by the Amateur Radio service to the field of radio communications. Radio Amateurs were, however, the first to demonstrate the enormous usefulness of short waves, and they also pioneered the use of v.h.f. and u.h.f. regions of the radio spectrum. They were among the first to devise practical transmitting and receiving equipment using vacuum tubes, and they have contributed much to radio propagation research. Amateur Radio was the first service to completely outlaw spark transmissions and among the first to utilise c.w. Amateurs have also led the field in devising techniques to reduce interference so that greater use can be made of the radio spectrum. Suffice to say that since its birth, Amateur Radio has been a clearing house for ideas, and a "proving ground" for almost every major technical and operational development in the field of radio communications.

## EMERGENCY WORK

From the early days Amateur Radio has earned an outstanding reputation for providing communications during emergencies, when other means of communication fail or are overloaded. The annals of Amateur Radio contain an impressive record of countless emergencies, natural catastrophes, epidemics, etc., in which Radio Amateurs, with skill and devotion, and frequently at personal sacrifice, have served their communities and brought speedy relief to victims of suffering and need. Many thousands of lives, an untold amount of human misery and millions of dollars in property have been saved by their efforts. Radio Amateurs consider such assistance not a duty, but an opportunity to serve humanity.

## TRAINING GROUND

Amateur Radio, with the world as its classroom, is a great training school for the entire field of electronics. What

\* Reprinted from "CQ," February 1966.

# JOYSTICK

## VARIABLE FREQUENCY ANTENNA 1.5-30 Mc.

The world's most versatile and compact h.f. band antenna for transmission and reception. More than 4,000 stations throughout the world are equipped with the Joystick and associated A.T.U. Testimonials pour in, takes a kilowatt and favours the DX. Overall length 7 feet 6 inches.

### ORDER NOW!

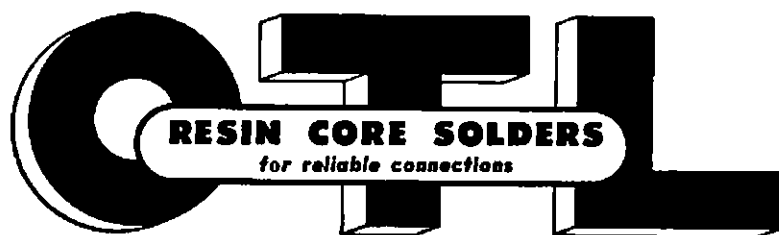
Joystick Antenna, standard make (aluminium elements) .....	£7/7/0
Joystick Antenna, de luxe make (all copper elements) .....	£9/9/0
Joymatch A.T.U. Type 2 for receive only on b.c. bands .....	£5/15/0
Joymatch A.T.U. Type 3 for receive and transmit (low power and mobile) .....	£3/15/0
Joymatch A.T.U. Type 5 for transmit only (rated 150 watts) .....	£2/10/0
Mobile Mounting Kit (converts existing Joystick for mobile mounting) .....	£3/13/0
RF40 Field Strength Meter (magnetic base, 1-250 Mc. coverage) .....	£6/19/6

Send for descriptive literature and testimonials, including the outstanding performance of the Joystick used by ZL4GA who W.A.C. in one day and QSO'ed G5WP and VE7BY on 3.5 Mc. W7OE says the Joystick equals half-wave dipoles and similar conventional antennae on 160, 80 and 40 and has proven superior to them in the 15 and 20 metre bands.

**PENNANT IMPORTS (ELECTRONICS) CO.**

P.O. BOX 26, BEECROFT, N.S.W.

## CHOOSE THE BEST.—IT COSTS NO MORE



**G. T. LEMPIERE & CO. LIMITED.** Head Office: 27-41 Bowden Street, Alexandria, N.S.W.  
and at Melbourne • Brisbane • Adelaide • Perth

## DURALUMIN, ALUMINIUM ALLOY TUBING

IDEAL FOR BEAM AERIALS AND T.V.

★ LIGHT      ★ STRONG      ★ NON-CORROSIVE

STOCKS NOW AVAILABLE FOR IMMEDIATE DELIVERY

ALL DIAMETERS— $\frac{1}{4}$ " TO 3"

Price List on Request

STOCKISTS OF SHEETS—ALL SIZES AND GAUGES

## GUNNERSEN ALLEN METALS PTY. LTD.

SALMON STREET,  
PORT MELBOURNE, VIC.

Phone: 64-3351 (10 lines)  
Telegrams: "Metals," Melb.



HANSON ROAD,  
WINGFIELD, S.A.

Phone: 45-6021 (4 lines)  
Telegrams: "Metals," Adel.

# LOW DRIFT CRYSTALS

FOR  
**AMATEUR  
BANDS**

ACCURACY 0.01% OF  
STATED FREQUENCY

**3.5 and 7 Mc.**

Unmounted, £2/10/0

Mounted, £3/0/0

**12.5 and 14 Mc.  
Fundamental Crystals,  
"Low Drift"**

Mounted only, £5.

THESE PRICES DO NOT  
INCLUDE SALES TAX

Spot Frequency Crystals  
Prices on Application.

Regrinds ..... £1/10/0

## MAXWELL HOWDEN

15 CLAREMONT CRES.,  
CANTERBURY, E.7,  
VICTORIA

THE NEW "A.R."

# LOG BOOK

IS NOW AVAILABLE

Larger, spiral-bound pages  
with more writing space.

Price 7'6 each  
including Postage

Obtainable from your Divisional  
Secretary, or W.I.A., P.O. Box 36,  
East Melbourne, C.2, Victoria.

better way is there to learn about radio communications, than by participating in it? Through Amateur Radio one can train oneself and acquire skill and practical experience in a complex field. From the ranks of Amateur Radio over the years has come an army of trained technicians, operators and instructors.

Amateur Radio also provides a spack that can set the inquisitive mind afire. Many of the world's leading telecommunication officials and communication engineers can trace their first interest in these fields to participation in Amateur Radio. Many of the young Radio Amateurs of today will be the professional engineers and scientists of tomorrow.

### SPACE EXPLORATION

Space exploration opened a new era for Amateur Radio, as indeed it did for all communication services. Amateur Radio entered the space age on December 12, 1961, with the successful launching of the Oscar I satellite (Orbiting Satellite Carrying Amateur Radio). Built entirely by Radio Amateurs, and containing a beacon transmitter operating in the 2 metre Amateur band, observers in thirty countries tracked the satellite as it orbited for a three-week period. This was followed by the successful launching of a second Oscar beacon satellite in June, 1962. Now, almost at this moment, Radio Amateurs are standing by throughout the world awaiting the imminent launch of Oscar III. This will be an active communication satellite capable of receiving and relaying signals in a portion of the 2-metre band.

\*Since this article was written Oscar III, was successfully launched and more than 200 two-way contacts were made through the satellite during the period March 9-24, 1965. Oscar IV, another active communications satellite, was launched on December 21, 1965, and is now in operation, although somewhat erratically.

### FREQUENCY CONGESTION

The Amateur service, perhaps more so than any other radio service, is feeling the pinch caused by the congestion in the short-wave bands. There are more stations operating per kilocycle in the Amateur bands than in those allocated to other services. To make efficient operation possible under such conditions, over the years the Amateur service has adhered to a technical development programme stressing the use of narrow band emission techniques, reductions in received bandwidth, use of directional antennae and transferring operations to the v.h.f. and u.h.f. bands wherever this is technically possible. Many of the techniques developed by the Amateur service to reduce congestion have set the example for other services.

Amateur Radio is dynamic and its future looks even more exciting than its past. From its beginning at the turn of the century, Amateur Radio has grown to where there are now approximately 400,000 duly authorised persons participating in this service. Radio Amateurs are now located in nearly every country of the world, with the greatest concentration in North America and Europe. It is estimated that the number will rise to above 650,000 mark by the end of this decade.

In the years ahead, Amateur Radio looks toward increased technical assistance to "new and developing countries." Its long history shows that Radio Amateurs comprise a reservoir of trained operating and technical personnel. By encouraging and assisting in the development of Amateur Radio in these countries it is hoped to provide a source of trained communication experts who would be able to operate the various radio services of the countries concerned.

### THE SPIRIT OF AMATEUR RADIO

Not all the 400,000 Radio Amateurs in the world today are interested solely

in technical matters. Indeed, a large number participate in Amateur Radio simply for the sheer enjoyment and pleasure of speaking to each other by voice, c.w., teletype, or whatever type of emission might be used. Amateurs, as a rule, chat freely with each other about their equipment, their families, their work and their leisure interests. Radio waves do not recognise frontiers or political, economic or social barriers. Personal radio contacts between Radio Amateurs of different origins, nationalities and cultures, foster—more than one may realise—a spirit of union and friendship, of peace and understanding. This aura of commonness which unites Radio Amateurs throughout the world is a bright symbol of hope for the future. This is the real spirit of Amateur Radio and one that sets it apart from all other radio services.

Amateur Radio doesn't measure its success by volume of traffic, gross revenue, or audience—but simply by how well it has served humanity.

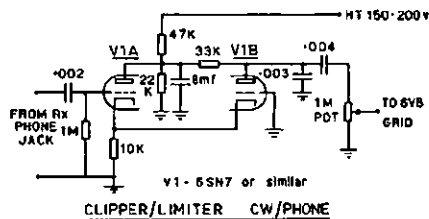


## Audio Clipper/Limiter for C.w./Phone Reception

The glass arm is common throughout Hamdom. Anyone it seems can develop functional disorders peculiar to his occupation.

Well, mine's a hyper-sensitive ear. After 30 years of trying to work S4 DX through the S9 rough something must give.

The following clipper/limiter is an off-used, conventional but effective circuit that will reduce the pain and strain to a minimum. QRN, Tx make and break, or other shock noises, QSB, etc., all will be considerably reduced. Selectivity will appear to improve and the S4 signals become S6. The effect is like putting the "shockers" back on the old car, smooth, boy, smooth.



CLIPPER/LIMITER CW/PHONE

The audio level is set at comfortable ear strength and no signal or noise can rise above it. Input to the limiter is simply from the fone jack of the receiver. The limiter output is fed into a conventional 6V6 type a.f. amp.

For better results there's an optimum setting of both limiter and Rx a.f. gain. Firstly, with the limiter gain well retarded, set the Rx a.f. gain at more level than the limiter can handle. This is indicated by a very "woofy" sound on all signals and noise. Now slowly retard the Rx a.f. gain, keeping the limiter at comfortable ear strength by slowly increasing the latter's gain control, until the woofiness has all but disappeared—and that's it. The cacophany is now silk in the ears. Condenser and resistance values are broad in tolerance. —VK4SS.

# EDDYSTONE

## DIECAST INSTRUMENT BOXES

### FIRST CHOICE FOR—

- Instrument and meter cases.
- Filter networks.
- Switching.
- Audio and radio frequency distribution.
- General screening, and many other laboratory uses.



Cat. No. 650

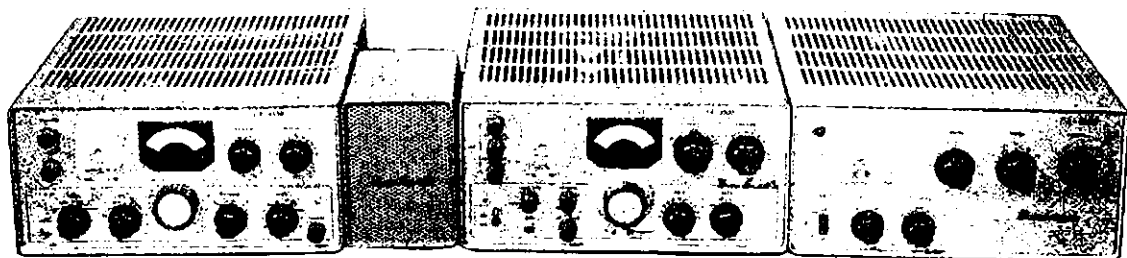
Four Sizes available: (inside dimension)	Price (inc. S.T.)
Cat. No. 650—4½" x 3½" x 2"	\$2.67
Cat. No. 845—7½" x 4½" x 2"	\$4.50
Cat. No. 903—7½" x 4½" x 3"	\$4.86
Cat. No. 896—4½" x 2½" x 1"	\$1.94

## WILLIAM WILLIS & CO. PTY. LTD.

428 ELIZABETH STREET, MELBOURNE, C.1, VIC. 34-6539

# F-SERIES S.S.B. EQUIPMENT by Yaesu Musen

PROFESSIONAL QUALITY AT AMATEUR PRICES



**COMPACT TABLE-TOP STATION—MECHANICAL FILTER SYSTEM  
FIVE BANDS — 80-10 METRES. TRANSCIVE OR NORMAL OPERATION**

**FR-100B:** S.s.b.-a.m.-c.w. dual conversion receiver with two mechanical filters for best reception of s.s.b. and a.m. Xtal filter for c.w.; a.n.l., a.g.c., S meter, s.s.b. clarifier, monitor, etc.

**FL-200B:** S.s.b.-a.m.-c.w. transmitter, 240w. p.e.p. input, with two 6JS6 tubes in p.a. running within ratings for longer life! Solidly constructed and neatly wired, with high quality components, ceramic bandswitch, Kokusai M.F., Solid State Power Supply, etc.

**GO MODERN — GO "F" LINE!**

New, fully descriptive illustrated brochure from the Australian Agents:—

## BAIL ELECTRONIC SERVICES

60 SHANNON STREET, BOX HILL NORTH, VIC.

Phone 89-2213

## FOSTER DYNAMIC MICROPHONES

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
 Effective output level ..... —55 db. [0 db. = (one) 1V. Microbar]  
 Frequency response ..... 50 to 15,000 c.p.s.

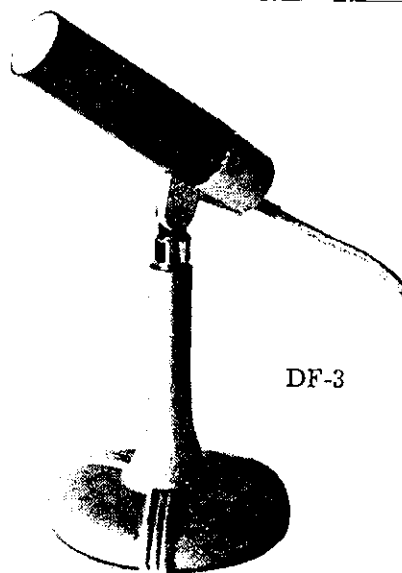
### OMNI-DIRECTIONAL DYNAMIC:

Plastic Diaphragm. Swivel fits 5/8" 26 t.p.i. Stands.  
 Size: 4½" long, 1¼" diameter. Colour: TWO-TONE GREY.  
 Cable: 12 ft. of P.V.C.

Retail Price 50K ohms: **£4/16/0** + Sales Tax 10/0

Retail Price 50 ohms: **£4/14/0** + Sales Tax 9/10

A QUALITY PRODUCT FOR TAPE RECORDERS & P.A. USERS



DF-3

Marketed by **ZEPHYR PRODUCTS PTY. LTD.**

58 HIGH STREET, GLEN IRIS, S.E.6, VICTORIA

Phones: 25-1300, 25-4556



**Manufacturers of Radio and Electrical Equipment and Components**

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L; Jacoby, Mitchell & Co. P/L; T. H. Martin P/L.

# VHF

Sub-Editor: LEN POYNTER, VK3ZGP  
14 Esther Court, Fawkner, N.15, Vic.

We all know where the flies go in winter, but where, oh where, did the DX go this season? Probably will remain the best-kept secret of all time. No doubt the experts will have an answer. Just when everyone was getting set the band went dead on 6 and many carefully laid plans went for naught. However, two more than rewarded the efforts of all those who were on deck when the VK2-ZL stranglehold was at last broken.

With openings across the Tasman on Nov. 7, Dec. 8, 9, plus VK3, VK5 13th, VK3, 5 and 7 15th, 23rd and Jan. 2, left many VK2's with three out of four call areas worked in ZL and I guess some ZL's need only VK4, 6, 8 for VK WAS on 2. On 13th, 5ZJH heard the VK5 beacon, so it could well have been possible to make ZL-VK6 and take the world record. Anyway here's hoping for bigger and better things next time.

It would appear to have done something for 2 that the JA's have done for 6. With the advent of the Channel 0's many who have never been on 2 are migrating there and thus popularising this somewhat forgotten band. Advances in gear and techniques are catching on and goals are being reached when we thought they were not possible.

Oscar IV, unfortunately did not reach expectations and has been a disappointment to many. However, good signals have been copied in many areas and rare signals heard. Perhaps once again better luck next time.

The holiday period saw quite a few interstate visitors to Melbourne. Met VK4ZRH and worked a number of VK5 Amateurs mobile in Melbourne. VK7ZAQ was also a visitor who called.

Unfortunately we have had no reports from VK6 to show how conditions were over this season. However, we can only conclude that the results were similar to the Eastern States. Hope to see them back with us again next month. Thanks to Bob 4ZRG for his notes from Townsville and hope to hear from you again Bob. Please keep the news coming in to reach me by the 2nd of each month. 73's, VK3ZGP.

## NEW SOUTH WALES

The New Year Field Day week-end was fairly successful. While not the best for DX, over 30 logs were returned. It is expected that a similar event is to be planned for the Queen's Birthday week-end in June.

The loss of 432 Mcs. for one month affected some of the field stations in the contest. Some long-distance attempts had been planned. VK2ZHH is currently working with t.v. on 435 Mcs. In early February he had a raster signal on air with about 5 watts.

Group elections occur next month. The main mobile events are the 6 and 2 metre fox hunts. There is an upsurge of 2 and 6 metre a.m. mobiles during lunch hours and after work.

From late November to early January there were between 80 and 100 2-way 2-metre contacts between VK and ZL. It appears that David VK2ZVW was the only station to work all four ZL districts. de 2ZTM.

## QUEENSLAND

6 Mx: During the Xmas period many of the northern VK4's were putting good signals into Brisbane. From Mt. Isa 4AK and 4ZCE were working everyone. David 4AK uses s.s.b. with carrier. As many stations do not have a b.f.o., the request to insert some carrier was common.

Bob 4ZRG from Townsville made Brisbane many times with his 6146.

Short skip (300 miles) enabled a contact to be made with Lance 4ZAZ in Rockhampton. This meant of course that 2 metres was open to Townsville. Are there any 2-metre operators in Townsville? Closer to home was John 4PU. John worked Brisbane from his mobile—signals were very good—such is 6 metres.

Around January 21, 22, 23 New Zealand television was overload strength in the afternoons. However, no Amateur stations, VK or ZL, were heard (even locally).

On 2 metres the story hasn't changed very much. The same regular group operates with Mick 4ZAA not as frequently on the air as he used to be. Frank 4ZAS has re-appeared on 2.

Bill 4ZBD has built a 8CW4 2 metre conv. with excellent results. I have a new converter, too, two GE7077's; 41A; 6U8; 6CW4. It does a fairly good job. John 4PU and Colin 4ZMC have been working into Brisbane while John 4ZJB has been working northern VK2 with his large number of 10 element yagis.

It is now expected that 432 Mcs. contacts will soon be made here in Brisbane. Most gear is already half completed—keep your eye on this band. Agreed frequencies are 432-436.

73's from the VK4 v.h.f. group. VK4ZPL.

## TOWNSVILLE

Local activity has improved with Graham VK4ZGR arriving from Rockhampton to take up a new position. At present he is operating mobile but hopes to have a 50 w. rig within a few weeks. Bill VK4ZBE was in Townsville for a few days and I was able to catch up on news from Rockhampton. VK4RO in Ayr and VK4ZRG have made contact on 6 metres via a path of some 40 miles. Does not sound impressive, but we do have a 4000-ft. mountain right between us. Signals run 5-7, so we now have another local QTH to work into. VK4ZMI and VK4ZRG are at present working on 432 Mcs. gear for operation during the winter, when 6 metre DX is poor. VK4ZRG hopes to have a 4CX250B in service soon on 6 metres running 150 w. VK4ZRG.

## SOUTH AUSTRALIA

Despite the duller DX season for many years the v.h.f. fraternity within the confines of VK5 are still very active perhaps in contemplation of a belated season.

The most encouraging news available at the present time is that VK5VF, the VK5 6 and 2 metre beacons, will again be operating in the near future. However, by the time these notes are being perused by those who bother to read the v.h.f. notes, the beacons should again be operational.

During the period December 26 to January 26 rare, short and extremely sporadic band openings have been recorded to VK2, 4, 8 and 7, with Doug 8KK at times providing the strongest signal heard all season. Comparing these openings to previous years has yielded the thought that the '65-66 DX season has by far been the worst experienced in VK5 for many years.

The greatest boost and publicity towards 144 Mcs. has been the recent VK2-ZL contacts. On December 9 at 0843 G.M.T. Hughie 5BC worked Graham ZL3AAD, with signals R5 S8 both ways. Since working ZL3AAD Hughie has again been active and has increased his tally of ZL's on 2 metres to a reported figure of 11 contacts. Mick 5ZDR received a bonus Christmas present by working VK7AH on 25/12/65 on 2 metres with signals R5 S5 both ways. Mick now has VK2, 3, 4, 5 and 7 toward his WAS 2 metres. During the same period that 5BC was working ZL3AAD and the VK2's were also working into ZL. Colin 5ZJH copied Les 2ZBJ calling "CQ DX ZL 2 metres." Although Les had his beam side on to VK5 signals were R5 S5 and excellent copy.

Later a beat signal was copied from 2ZEV by Colin and had the use of c.w. been available a contact may have been possible.

On 13/12/65 Colin 5ZKR at Mt. Gambier, following on the heels of 5BC, worked John ZL3AAU on 2 metres. Signals were R5 S5 both ways. Although the distance is comparatively shorter the achievement is still most meritorious. The need for operators to back up beacons became evident on 12th December, when Colin 5ZJH copied the VK6 2 metre beacon at R5 S3.

Although many frantic CQ's were made, the lack of signals except the beacon from VK6 was to say in the least, upsetting. However, with the VK5 beacon being "stoked" up again, the same frustrating situation could prevail upon a VK6 operator. Here's hoping it does not.

Excellent signals from Herb 3NN (180 miles), Tony 5ZAI, Colin 5ZKR and Chris 5ZFA (300 miles) have been appreciated by many Adelaide stations during the last month. An occasional contact into Ballarat, etc., has also been reported. With the succulent taste of 2 metre DX still in their mouths many VK5 are planning larger beams, power, etc., to provide for brighter things to come. With increasing band population on 2 metres throughout Australia this band could become the most interesting and rewarding for those who are genuinely interested in experimenting, which is what Amateur Radio was primarily intended for anyhow. 73's, Colin 5ZJH.

## TASMANIA

Six metres looked set for a bumper season with frequent openings from early December until 23rd generally around 9000 hrs. and again at 1700 hrs. E.A.S.T. Most common were VK2, VK5 and to a lesser extent, VK4. Three openings to Melbourne brightened our days and an occasional ZL, VK6 or VK3 dropped in. Channel 0 beacons at Wagga and Brisbane proved useful. A sudden closure left the only worthwhile openings on 31st December and 2nd, 16th and 22nd January. An interesting 385 ml. 6 mx QSO took place on 8th January between 7RL, Mt. Barrow and 3ZER. This would seem to be extended groundwave.

Peter 7PF's exploits using Oscar IV, will probably be recorded elsewhere; W6's amongst his calls heard and the "makings" of a ZL QSO.

An important first was a 2 mx contact between 7ZAH Ulverstone and 5ZDR in Adelaide. This was arranged as a Christmas present for Mick on December 25.

One of the best temperature inversions during early January extended from the 6th to 11th, providing northern stations with 2 mx VK3 and VK5 contacts. On 8th (?) ZDK heard 2ZBW. Col 7LZ had 432 Mcs. contacts with 3ZER and 7RL attained one way contact.

Winston 7ZAP spent much time re-writing his 2 mx record book. His first was on 13th December around 1750 when he worked ZL3UM, ZL3AR, ZL3TAT and ZL3AAU. Winston has a carefully selected QTH at Mt. Nelson, a higher suburb of Hobart. His exploits continued on 8th January, when he contacted 7ZAH/M at Table Cape near Wynyard (150 miles) and following this 3ZDM. Next morning 3ZDM was 5/9 in this part of Hobart. On 8th January 3ZNC was worked and on the 9th and 10th 3ALZ was heard and called for 2 hours while in contact with Launceston stations, but no contact resulted. 7ZAP continues to participate in skeds with 3ZDM at 0700 and 2130 daily.

Winston's activities confirms that the extra 100 miles from VK3 requires a suitable inversion layer between Hobart and Launceston. Channel 9 Launceston provides a good indicator as it is generally good copy in Hobart but during these times was subject to quite deep fade. Interference from CTV9 is noticeable, and on 22nd January TCN9 and ATN7 were identified by Winston. The only Amateur signal heard was 3ZDM at 0815.

Stations were operating on Mt. Barrow and Mt. Wellington during the VK2 Field Day but nothing heard. 7ZAO.

## W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

### PHONE

Call No.	C't-ries	Call No.	C't-ries
VK3AHO	51	VK2JZ	61
VK5MS	24	VK2ADE	65
VK6RU	2	VK3TL	62
VK5AB	45	VK4HR	12
VK6MK	43	VK2AAK	58
VK4FJ	21	VK6KW	24

### C.W.

Call No.	C't-ries	Call No.	C't-ries
VK3KB	10	VK2AGH	71
VK3CX	28	VK3AHQ	79
VK2QL	5	VK3EO	2
VK4FJ	29	VK3RU	18
VK2ADE	81	VK3ARK	68
VK3NC	19	VK3XB	75

Amendment:  
VK3TL 78 225

### OPEN

Call No.	C't-ries	Call No.	C't-ries
VK2ADE	28	VK3NC	77
VK6RU	8	VK3VN	18
VK2AGH	83	VK3IA	43
VK6MK	74	VK4HR	7
VK4FJ	32	VK3TL	85
VK2ACX	6	VK2APK	82

New Members:  
VK9TL 99 101 VK6EZ 100 104

ARRIVING EARLY MARCH

THE 1966 EDITION

# ★ A.R.R.L.—Radio Amateur's Handbook

*The Standard Manual of Amateur Radio Communication*

Price \$6.10 posted, or 58/6 and postage 2/6

BOOK YOUR ORDER NOW!

NOW AVAILABLE—

# ★ The Radio Transistor Handbook

by Stoner & Earnshaw.

Price \$6.65 posted, or 64/9 and postage 1/9

THIS UP-TO-DATE HANDBOOK COVERS A WIDE RANGE OF COMMUNICATION  
FOR BOTH AMATEUR RADIO & COMMERCIAL APPLICATIONS

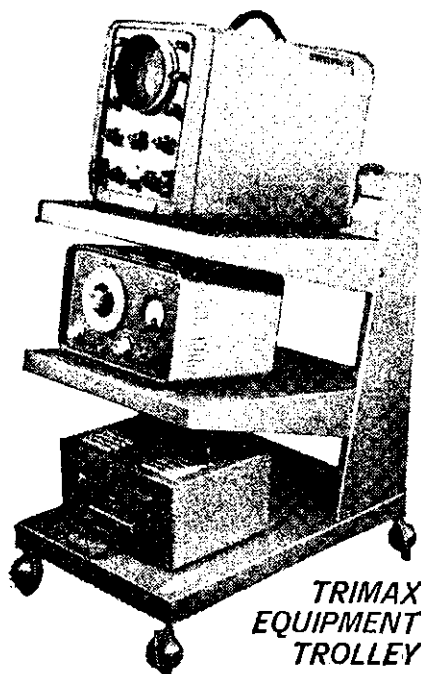
## McGILL'S AUTHORISED NEWSAGENCY

Established 1860

183-185 ELIZABETH STREET, MELBOURNE, C.1, VIC.

"The G.P.O. is opposite"

Phones: 60-1475--6-7



**'SMOOTHEST  
MOVEMENT  
brings Australia-wide  
acceptance!**

Success shown by Australia-wide sales of the Trimax Laboratory Equipment Trolley is due to functional design, use of high quality rubber tyred swivelling castors, and finest workmanship.

Fitted (as illustrated), the unit is ideal for moving heavy electronic test equipment. By inverting the shelves, the unit becomes an ideal mobile production trolley with deep, easily accessible trays.

Made in standard order, the Trolley is finished in grey hammertone metal. Available with or without three mains outlet sockets which allows mains-operated equipment to be supplied by one extension lead.

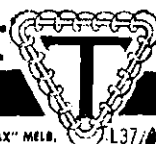
Trolley supplied in easy-to-assemble knock-down form for economic transport.



**LM ERICSSON PTY. LTD.**

**"TRIMAX" DIVISION**

FACTORY: CNR. WILLIAMS RD. & CHARLES ST., NORTH COBURG, VICTORIA, 'PHONE: 33-1203 . . . TELEGRAPHIC ADDRESS: "TRIMAX" MELB.



L37/A



# Publications Committee Reports That...

Inwards correspondence from VK's: 6JW, 4SS, 3BP, 3UC and W. E. Olsen, Hong Kong Amateur Radio Transmitting Society, plus a technical article from D. Priestly.

The Committee finally have arranged for regular issue of prediction charts in "A.R.," and advises that these will take the form of bar charts showing the times during which the Amateur bands should be usable for the following paths: Barbados, Bombay, Cairo, Johannesburg, London, Montreal, Nairobi, Rio de Janeiro, San Francisco, Tokyo, West Africa and Wilkes. All charts will be based upon Canberra as it was considered that such a position suited the majority of Amateurs, rather than taking Melbourne as the centre. A more detailed explanation will be given in next month's "A.R." when these charts will be published.

Many readers are commenting upon the fact that technical articles are not being featured in "A.R." It must be remembered that we rely upon voluntary contributions as we cannot afford paid technical staff, nor currently can we see our way clear to pay contributors, but steps are being taken to offer greater financial inducement to readers to forward articles. All "A.R." staff are voluntary unpaid workers, as are members of all W.I.A. committees, and it is a tribute to the Amateurs that so much is actually accomplished by these active members. Your Committee would like to carry out many plans for the magazine but they can only spend such money as is available to them from the Victorian Division funds, until such time as this loaned money is repaid by advertisers and other Divisions. Just like you, we must live within our income, even though it doubled when expressed in dollars.

The Call Book is nearing completion and should be issued early in March, so please do not ask for copies from your Division or bookseller until we announce the exact release date. Arrangements are being made for an enlarged future issue which will be published at a definite date and issued as promised. All Amateurs are thanked for having been patient and awaiting the release of the '65/66 edition, the delay being caused by conditions outside of the control of the W.I.A.

## CONTEST NEWS

### REMEMBRANCE DAY CONTEST V.H.F. PARTICIPATION

As this present Contest Committee is desirous of far greater activity from the operators of V.H.F./U.H.F. Stations, we are asking for ideas and suitable material from which to formulate items to be presented at the next Federal Convention.

Your assistance would perhaps help to form a Remembrance Day Contest in which more v.h.f./u.h.f. operators could take part and help their state win the Contest.

All correspondence will be read by the committee and your contribution towards greater v.h.f. participation will be appreciated.

[Write to Federal Contest Manager, Neil Penfold, VK6ZDK, 55 Moulden Ave., Mt. Yokine, W.A.—Editor.]

— . . . —

### R.D. CORRECTIONS AND ADDITIONS

**Award Winners:**  
Receiving: L3100/P ..... 934

**N.S.W. C.W. Section:**  
Delete VK2GT ..... 208

**S.A. Open Section:**  
Delete VK5WW ..... 421  
Add VK5WV ..... 421

**Receiving Section:**  
Western Australia W.I.A. L6021 .. 925  
L6038 .. 858  
L6034 .. 126

— . . . —

### CONTEST CALENDAR

5th/6th March: N.Z.A.R.T. National Field Day. (3.5 and 7 Mcs. only.)

12th/13th March: A.R.R.L. DX Competition. Phone Section (2nd week-end).

19th/20th March: B.E.R.U.

26th/27th March: A.R.R.L. DX Competition. C.W. Section (2nd week-end).

16th/17th April: "CQ" W.W. DX S.S.B. Contest.

For the Y.R.S. the beginning of each school year has great importance because the great majority of clubs are in schools. Loss of the interested teacher is sometimes a setback but year after year the clubs have steadily increased and from all signs 1966 will follow the same pattern—this shows the basic soundness of our efforts. I have only one complaint—the usual one of a correspondent who would like to hear all the news from everywhere. Perhaps if PS twisted an arm in VK5 and my other three readers told a few sob stories, life would be easier. At the moment, however, I'm well away with loads of news from VK2, 3, 6 and 7.

The VK7 Y.R.S. Supervisor, Mike VK7MC, has been sighted round Sydney (all you interesting people should remember your national capital is worth a visit) but my news of VK7 came from the antenna. At that time there were two active Y.R.C.'s, one at Taroon High (Hobart), where three interested teachers have 50 members, and the other at Latrobe High with 100 members, assistance being given here by Reg. VK7ZAO. VK7 Council supports the Y.R.S. and it is expected other clubs will open this year in Huon Valley and the N.W. Coast.

VK3 goes from strength to strength. Three clubs at Macleod, Geelong East Tech., and Essendon Grammar, each have had 11 members pass Elementary. Peter Cole at Camberwell Grammar is the first non-clubber to pass Elementary. Teachers' Training Colleges are being wooed with the right kind of information and help—a remarkably important field this. A generous donation from Fairchild (Aust.) Pty. Ltd., of Silicon N.P.N. Transistors, will greatly assist clubs in 1966. Dr. Warwicke has transferred from St. Anne's C.E.G.S. (Sale) but Rod 3UG will lead the club, so Dr. Warwicke's work will carry on. Chris Hall, club instructor at Warrnambool Tech., reports that the club has call sign 3AWG—equipment includes Heathkit Cheyenne Tx and Heathkit HR20 Rx. Chris would like skeds—would other Y.R.C.'s please oblige? Bill Allen's Gowrie Park Primary School Club had a good write-up in the A.P.O. (Post Office) magazine, circulation 20,000.

VK6 are not next door but Laurie VK6EA is supervisor (teacher at Wesley College). Rev. Brother Morgan VK6RT has a club at C.B.C., Leederville, with call sign VK6LV. The suns are following the example of St. Anne's—Sister Joan of Sacred Heart College, Highgate, is studying for A.O.C.P., so there should be a station at Highgate this year.

VK2 is alive as usual. That excellent idea—Camp Technology—had another successful 9-day session in the holiday house at Mt. Victoria, where modern instruments and components cater for an immense rage of projects and experiments in Electronics and Photography, while outdoor activities such as games, walks and swimming round off the holiday. This year, 10 boys successfully completed Elementary. At Westlakes, six boys gained Elementary, and the club (as well as Y.R.S.) had useful publicity in "Interradio," the annual journal of the International Radio Club of Geneva. Ian O'Toole, a keen Westlakes member, is sowing seeds at Narara Public School—a rival for Gowrie Park? Bruce Lewis of Kingsgrove North High and Greg. Dunne of Kingsgrove High have been successful in entrance exams, and interviews for Technicians-in-Training at D.C.A. A radio instructor is needed for Bankstown Police Boys' Club for one night a week. Kiama High have nine Elementary passes, Birrong Boys three, Waverley C.B.C. 12 (with five honours). Overseas Telecommunication Commission Prizes for Elementary passes over 95% went to Ross Steele (Lynnham High), David Truskett (Kiama), and Steven Ford (Kingsgrove North). First Y.R.S. Navy apprentice is Warren Donald, formerly secretary of Punchbowl Boys' High—his Interview Board were pleased and impressed by the Y.R.S. certificates which Warren presented as evidence of his established interest and proficiency in Radio and Electronics. Mr. John Westmore, of Roselands Book Centre, has generously donated \$10 value of Electronics books. First Scouts in VK2 to pass Elementary are Peter Scotland, Paul Westcott and Greg. Pitman, of Strathfield. Cheers. Ken 1KM.



VK5 State Co-ordinator for Y.R.S. presenting electric soldering iron to Gary McDonald, Port Pirie Club, for most improved first year student 1965. Bruce Johnston received prize for being youngest in S.A. to achieve Elementary Certificate.

## YL NEWS

Hebe VK2AOK was seen recently in a five-minute X sement on Channel 2 Week-end Magazine. She had several friends in the shack with her who have sons and husbands in the Antarctic while Hebe conducted a QSO with the men at Mawson. There were the usual shots of the antenna, the shack, etc., combined with views of the Antarctic with voices in the background when the ladies were not on the screen. It was very well done and I understand took nearly four hours at Hebe's QTH for the photography.

We would like to congratulate Mavis VK3KS for having become the sixth YL in the world to gain the WPX on c.w. Mona, VK2AXS.

## Wireless Institute of Australia Victorian Division

### A.O.C.P. CLASS

commences

MONDAY, 2nd MAY, 1966

Theory is held on Monday evenings, and Morse and Regulations on Thursday evenings from 8 to 10 p.m.

Persons desirous of being enrolled should communicate with—Secretary W.I.A., Victorian Division, P.O. Box 36, East Melbourne (Phone: 41-3535, 10 a.m. to 3 p.m.), or the Class Manager on either of the above evenings.



# SWL

Sub-Editor: D. GRANTLEY, WIA-L2022  
Alexander Ave., Hazelbrook, N.S.W.

We would like to extend to you all our best wishes for this year and trust that it will provide much good listening for all. So far band conditions have been exceptionally good, and many of our chaps have reported new countries heard whilst the usual rash of holiday DX-peditions have made life a little more bearable for those of us who are running out of countries heard. We look forward to a good year and one which could see one of the "top three" on the ladder become the first official W.I.A. S.W.L. to reach the 300 heard mark.

Occasionally we have a new member join the ranks, and this month I would like to introduce to you one of the keenest S.W.L.'s I have ever contacted. Chaps meet Ernie Luff L5080, of Elizabeth Vale and late of G land. Ernie, though a newcomer to the W.I.A. is an experienced listener whose association with listening goes back to 1925 in his home country when radio was in its infancy. As I look back to the quiet pre-war Sunday mornings when VK3PA gave us so much pleasure it seems that an age has gone by, but it still is a thrill to remember the old 2v. set and the B.C.B. listening that was my main interest. To Ernie, however, the day of his greatest thrill was much earlier, in 1927 in fact, when on a similar Rx, he logged 2FC Sydney on b.c.b. in London, and has card to prove it. Now his interest is in the Amateur bands, and at the age of 71 he is an active member of the Elizabeth R.C. and climbing up the ladder. If your self-designed card is anything to go by Ernie, it should get a bite or two. From all our members we would like to say welcome, and may the DX come your way thick and fast.

DX News. From "Monitor" I pass on the following brief items of interest. GC8HT recently in operation, QTH Guernsey, HZ1AT/824 and 8Z5 cards now ready, QSL to G8KS. KG1 prefix now cancelled and replaced by OX4 and OX5 for Nth. and Sth. Greenland. VPSAR on Turks, QSL to WA8GUA. VP8HO heard recently, QTH Sth. Georgia. CR3GF loggings last October from Portuguese Guinea, QSL to Box 535, Lima, Peru. FB9W again active from Crozet whist. FB9XK from Kerguelan. Marion Island station ZS2MI reported on 21 Mc. s.s.b. QSL to ZSICZ. Check back over your log for WA7DYP/KH6, was on Kure Is., QSL to KH6EDY. CR8AE requests all QSL's to be sent direct with IRC's to Jaime de Gula Parella, Civil, Dill, Pt. Timor. LA5CI heard from Jan Mayen, QSL to LA1NG. Need a card from OY? Then try their QSL manager OY2J, Box 184, Torshavn, Faroe Island, and look for the club station OY6FRA.

Commercial DX. Two interesting publications reached this QTH recently firstly the well-produced Newark News B.C. bulletin which is a must for those of our number who are interested in all branches of DX. If you are not familiar with the club, drop me a line to Box 222, Penrith, N.S.W., and will tell you all about it. Secondly, I have here a copy of a pamphlet and programme guide from Radio New York Worldwide, 4 West 58th St., New York 18, N.Y., U.S.A. This is a regular release and can be obtained from the station.

Around the Shacks. Peter Drew L6021 still pulling them in on all bands. Many cards have come to Pete including OX3JV Nth. Greenland, VS9SJE Socotra, ZL3VB Chatham Is., and K2US at the World's Fair. Amongst the DX heard was LZ2KBA on 80, OHSNW on 15, ZL's on 10, and most of the world on 20. Alan Raftery L5065 is enjoying a feast of DX, and has just received cards from ZD5R, VK0GS, CR6BH, as well as the more common ones.

From Chas. L2001 a report on the excellent conditions prevailing on 6 metres which has given openings to all ZL districts, plus VK5, 4 and 7. Chas. has on hand a card addressed to RA 3160 C/o VK2, any claimants? L2018 Chris. Middleton-Williams, QTH 3 Veronica St., Chester Hill, is the new secretary of the VK2 group and has a difficult task in front of him.

L2283 Bob Mackintosh lives on the fringe of the Blue Mountains but is troubled by QRM. His gear is an AMR 300 fed by an inverted V for 40, and a 2 EL beam for 10 metres. Bob Mutton of VK7 uses the well-tried 3BZ with 14 and 7 Mc. dipoles running north to south. Bob sends in a comprehensive list of countries heard in recent weeks including CR6,

CR9, FU8, MP4B, MP4T, UBS, UG6, VR5, XW8 and many others. He reports the W's on 3.5 Mc. at 1100z. Inward QSL's were MP4BCC, OX3JV and VK9FE. Warwick L3211 found time to log such calls as VS90, YK, UA, VQ8, CN8, FR7, ZC4, VP7, to name a few, most of which were snared between midnight and 4 a.m.

L5080, Ernie, has heard F, DU, H18, OK1, XW8, UA6, FB8, CP6, 8M6 and MP4T to name a few. Finally the last in the mailbag was from Doug Head of South Yarra, with whom I have been in touch by tape. Doug is a member of the I.S.W.L., and between us we have made a tape on conditions here for other members of that group. A tape has also been exchanged with Bryan Prosser and the VK6 boys who are still getting their share of DX. On the home front L2022 has a wonderful time on the bands over the Christmas period, when the bands really opened to all parts of the globe. Looking back over the log I see many entries on 15 metres, whilst on the odd occasion 10 broke through. I didn't think there were any more countries to be found, but a run of good luck brought me up to the 294 mark within three days. Included in these were 4U1TU, LAH and ZS3E. I would like to thank the many listeners who sent Christmas greetings, many as yet unanswered. I do thank you all and trust that this year will be an excellent one for you.

Meet the Overseas S.W.L. It was a great honour to receive a long letter from one of the best-known listeners in the world, Le Roy Waite, of New York, U.S.A. Roy has been around for a long time, in fact at 65 he has been retired for six years after being a post-man on a walking beat for 40½ years. A newcomer to the game in 1928, Roy opened his account by logging G5SW Chelmsford and PCJJ Holland on S.W.B.C. with the proverbial 2 tube regenerative Rx. For many years these bands interested him, however, in recent years the Ham bands have been his sole interest. With 298 countries confirmed and 305 heard on the A.R.R.L. list, Roy has earned his place up with the leaders. In 1951 he became editor of the Amateur section of the Newark News R.C. Bulletin, and in 1957 in addition to this task that of S.W.L. QSL bureau manager became his voluntary contribution to the listeners. Roy offered to handle cards from foreign Hams to W listeners when he discovered that they were being returned to the sender. Roy adds, "In addition to A.R.R.L. I handle cards from several foreign bureaux as well as from individual Hams. Not only does the A.R.R.L. send me all cards received for W. S.W.L.'s, but those for foreign listeners as well. The latter I send to the I.S.W.L. Bureau with the exception of VK, which are now being sent to the VK Bureau."

DX Ladder. The position has altered once again, and it is now Warwick Smith who throws out a challenge to Peter Drew as he draws to within 9 for the third position. An interesting situation now exists in the top three places as one point separates Eric and I in the countries heard. This will be the last publication of the ladder for three months, but keep your scores coming in just the same.

## S.W.L. DX LADDER

	Countries		Zones	W States
	Conf.	Hrd.		
E. Trebilcock	290	295	40	50
P. Drew	188	262	38	40
D. Grantley	128	294	39	35
W. Smith	119	195	34	7
A. Westcott	106	159	34	11
G. Earl	101	167	33	18
R. Kearney	100	161	33	8
M. Hilliard	83	241	33	14
C. Abernethy	66	105	33	14
B. Prosser	60	180	17	8
A. Raftery	58	175	24	11
E. Luff	48	83	22	6
R. Mutton	36	88	23	10
R. Mackintosh	32	88	20	5
D. Shepherd	31	95	—	—
R. Halligan	21	136	11	1

That's it for this month chaps. Could I have your notes by the 25th of the month for future issues. 73, de Don L2022.

## SUBSCRIPTIONS DUE

All members of the W.I.A. are reminded that annual subscriptions are now due and should be paid promptly to their Divisional Secretary. Non financial members will not receive a copy of "A.R.," and back copies may not be available upon request. To preserve continuity of your files of "A.R.," please pay your annual subscription now.

## CRYSTAL DIVISION

Manufacturers of Quartz Crystals for Frequency Control and Crystal Filters for Highly Selective Circuits announce:—

### NEW LOWER PRICES FOR CLOSE TOLERANCE GOLD PLATED CRYSTALS FOR AMATEUR APPLICATIONS

	Amateur Net (each incl. Tax)
● 1.8 Mc. to 14.999 Mc. ±0.005% in Style "D" holders, ½" pin spacing	£2 8 6
● 15 Mc. to 47.999 Mc. ±0.005% in Style "D" holders, ½" pin spacing	£2 10 6
● 48.0 Mc. to 61.0 Mc. ±0.005% in Style "D" holders, ½" pin spacing	£2 16 3
● 100 Kc. ±0.005% in HC13/U holders, ½" pin spacing*	£4 10 0
● 1 Mc. ±0.005% in Style "D" holders, ½" pin spacing*	£4 10 0
* Specially designed for Crystal Calibrator purposes.	
● 455 Kc. nominal Crystals for Filter applications in Style "D" or "E" (B7G) holders	£4 10 0

Many other types and tolerances are available from our standard production. Please consult us on your Crystal requirements.

## PYE PTY. LTD. CRYSTAL DIVISION

CLARINDA RD., CLAYTON, VIC. (P.O. Box 105). Phone 544-0361  
STATE OFFICES IN ADELAIDE, BRISBANE, HOBART, PERTH AND SYDNEY



# DX

Sub-Editor: ALAN SHAWSMITH, VK4SS  
35 Whynot St., West End, Brisbane, Qld.

While 21 Mcs. has fallen away, both 7 and 14 Mcs. have remained steadily open to DX this past month. 80 mx from 0900z is usually quite good to U.S.A. during the months of February and March, if the QRN level permits. There is also a short breakthrough, at this QTH, to Europe on the S/P at 1845-1900z.

## NOTES AND NEWS

**Kamaron Island:** VS9KRV will be activated by VS9AFR Ron, VS9ARV Ray and possibly VS9ADF. Operation is expected during the first two weeks in March, using Ron's equipment on s.s.b. and c.w. Primary freqs. are 14,009 and 14,160. (LIDXA)

**South Sandwich:** LUIZY, Domingo, on 14,070 at 0300z. Gives QTH as Pringles 837, Formosa, Argentina, and says he is on Antarctica, but station is listed for South Sandwich. (LIDXA) There seems to be some doubt on this one—Al.

**Grand Turk:** VPSRB Bob occasionally active on 20 metre s.s.b. Heard at 400z on 14,230 recently. QSL to WARK, Box 322, Boca Raton, Florida. (LIDXA)

**Seychelles:** VQ9TC Ted, new station on the island, running an NCX-3 to a doublet, but working on a quad. QSL to VQ9TC, Box 191, Mahe, Seychelles. (LIDXA)

**Fiji:** Fred VR2CC on s.s.b., 14,120 Kcs. at 0530z. QTH, Beachcomber Hotel, Fiji (S.W.L.C. Thorpe)

**American Samoa:** KS6BO s.s.b., 14,200 at 2020z. (S.W.L.C. Thorpe)

**Leichenstein:** HB0YS Henry is active on 20 mcs s.s.b. QSL to HB9YS. (LIDXA)

**San Andres:** HK0AI Victor on 21,346 at 2000z and on 14,235 at 2100z. QSL via W9WHM. (LIDXA)

**South-West Africa:** ZS3B Jerry on 14,280 at 1900z, and ZS3HT Herb on 15 mx 2030z on up. QSL to ZS3HT via W2BNQR. (LIDXA)

**Mauritius:** VQ8AX says QSL address in current callbook is O.K., with addition of C/o Admiralty Offices. VQ8AI has been heard on 14,052 at 1800z. (LIDXA)

**Cape Verde Is.:** CR4AE worked on 14,060-063 at 2000z. (LIDXA)

**Basutoland:** ZS8K Doug on 14,218 at 2030z. QSL to Box 363, Masery, Basutoland. ZS8G and ZS8L are also reported on s.s.b. (LIDXA)

**Timor:** CR8AF Luis still active. Usually from 1100 to 1300z around 14,080 Kcs.

**Singapore:** As from 1/2/66 the prefix for this State will be 9VI superseding 9M4.

**West Samoa:** 5W1AZ after being quiet for a while is now active on 14 s.s.b./c.w. Afternoons, our time is best. QSL C/o Airport, West Samoa.

**China:** BY3AAB reported active from the People's Republic, 14,050 at 0800z. (G3UGT)

**Ross Is. (Antarctica):** ZL5AA ex-ZL1ABZ Ian Johnston is expected to be on very soon. (G3UGT)

**Anguilla:** W0QUU Jack and one or two other operators scheduled to be QRV March 11-15 on s.s.b./c.w. During the A.R.R.L. contest. QSL W0NFG.

**Re-Union Is.:** FR7ZD Guy heard on 14,232 at 1800z.

**Bonaire:** PJ5BD and PJ5BC Virginia and Kirk Bush (K0GZO and K0GZN) operating from the Flamingo Beach Club there, 14,270 at 1900z. QSL's to home QTH. (LIDXA)

**Macquarie Is.:** VK0TO Trevor worked on 7004 c.w. at 1130z recently.

**Pitcairn Is.:** Tom VR6TC still has Monday skeds with his mgr. W0LGG, on 21,065 at 2000-2100z and will listen for you when finished. Tom has a.m. also.

**Afghanistan:** YA1AW Hutch will be on s.s.b. for next 10 months. QSL via K5GOT.

**New Hebrides:** F8UAG on 14,090, 0800-1030z.

**Republic of Congo:** TN8AF on 14,035 at 1900z.

**Campbell Is.:** ZL3UY on 14,048 at 0300z.

**Canary Is.:** EA8CR John on 14,245 working 253 around 2100z. Also worked EA8CY and EA8EC on 14,020 Kcs. at 1500z.

**Bulgaria:** LZ1BZ Mitko on 14,224 at 1230-1430z. QSL to Callbook QTH.

**YI and 3V8.** It is rumoured that Gus Browning WABPD has or can get licences for these places and is planning them for our autumn. (LIDXA)

**Albania:** G3AAE reports that activity from Albania will be permissible in 1966.

**Bouvet Is.:** ZS1CZ reports that a scientific expedition to here is planned for some time in 1968. Possible Amateur activity.

**Senegal:** 6W8CW John on 14,241 at 1800z. QSL via W2VCZ.

**Tahiti:** F08AG 14,250, F08BJ 14,100. Both active from 0500z. (Chas. L4018.)

**DX-peditions:** Unofficial report says that Dave G3HS is making preparations to circle the globe. Licences have already been granted for VR1H and 6Y5HS operation. (Fla DX'er.)

**St. Helena:** ZD7IP reported on 7007 xtal on QRP to V beam on U.K. 1800-2000z. QSL R.S.G.B. (LIDXA)

**Armenia:** UG6KAA on 14,218 around 1330z. Also worked 7010 Kcs. 1800z.

**Jan Mayan:** LA8FG/P. Mostly on 14,255 about 1500z.

**Aden:** VS9ARV and others are on 14 c.w./s.s.b. nightly 1400z and later.

**Swan Is.:** Said to be active almost daily. W0YKDK/4S4 14,075 and 14,255. QSL WA4PXP. Try 0600z. Also K54AB 7007 0500z. QSL WA9LCY.

**Turkey:** TA2BK 14 c.w. 0800z. Legitimate station.

**Vietnam:** K1YPE/XV5 Bill Porter. Acceptable to A.R.R.L. QSL Amer. Embassy, Saigon. (LIDXA)

**Surinam:** PZ1BW Bert, 14,234 2100z. QSL VE3EUU.

**Swaziland:** ZD5D, 14,200 2130z. WB6CWD is manager. (LIDXA)

**Nauru:** Lloyd and Iris W6KG and late KX6SZ Majuro Is. are expected to show up from VK9 Nauru. 14,050 Kcs. any time.

**Tchad Rep.:** TT5AW, 14,115 1400z. Said to be ex-TL6SW.

**Angola:** CR6EC Ernesto 14,250 2000z. Callbook QTH O.K. (LIDXA)

**Bonolo:** JT1EM and one or two more on 14 c.w. any time after 0600z.

**Tristan de Cunha:** ZD9BE Alan, 14,030 1800z.

## ACTIVITIES

Ken VK3TL reports that he made DXCC during his stint on Norfolk Is. as VK9TL. This month as usual he has really been among the big ones. Worked 14 c.w./s.s.b. 57TH, IS1VAZ, 9N1MM, PJ5BC, VQ9TC (Seychelles), 9Q5YL, VR5AB, XT0H, 9X5FS, 9F3USA, CN8FS, 9J2JC, VE8CO (Zone 2), 9L1HX, 6W8AG, ZK2AF, HK0KL, PJ2CE, SL7CA, HRIJAP, HIBXMT, 5VZ8CM, IS1RUA, 606BW, FB8WW, YA1AW, YK1AA, HSIKAP, VP2VE, VE0MY, CO8MN, VP7NS, VP6KL, TG8FA, FW8ZZ. QSL's received IS1VAZ, JY74, OD5CN, ZP5BC, W9WNV/8F3, 5H3JR, PE2EVO, VQ8BFA, OY3B, VP4DS (Trinidad), VQ9TC, PJ2MI (Saint Martin), FL8MC, ZD8HL, VP2SJ, 7Z3AB, HK0AI, 5N2RJO, TF8EA, EL7A, 5W1AZ, VPIJKR, VPIVP, VP2KD, PJ2CR, etc.

Dud, VK4MY reports 14 Mcs. best around 1300z. He worked OD5LX, VR5AB, TI2PZ, 9M6KS, YV1AD, 5R8AL, OETRMI, VQ8BJ, PY1MCC, ZK2AF, EA3KI, ZS6IE, KZ5AY, 7Z3WS, EP2EZ, F8UAA and lots more.

Chas. VK4UC on 14 c.w. mostly around 1300z picking out the best. This month he creeded HK4EB, OE2CML, 4X4MN, 9M6KS, 5R8AL, 9V2VB, VR5AB, EA7KE, OK1VF, 7Q7JO, HB9UP, HS1CW, I1ZRV, UB5IF, VS8ME (Maldives), G1ARY, SL2AD, VS9AFT, VS9ATH, VM8AF, FW8ZZ, ZS6QY. QSL's received VU3TO, 9K2AN, KM6BI, Y06CF, VQ8AI, VQ8AW, LA1H, OH0VF, MP4BFB, FL8MC, OD5LX, OAD3/3.

Barry, VK5BS, who runs QRP, send in this 14 Mcs. work list: VS9MP (QSL via W2CTN), 9M4JW (QSL via K4ISV), 9F3USA (QSL via W7TDK), 5Z4IR, IS1FIC, MP4TBU, YJ1DL, VS9OC, ZK2AF, UM8KAK, etc.

## QTH's (All by VK3TL)

- PJ5BC via K0GZN or VK3VJ.
- VQ9TC Box 191, Mahe, Seychelles.
- 9Q5YL Box 1573, Elizabethville, Congo.
- 57TH, XT0H via Hammarlund.
- 9F3USA via W7TDK.
- VE8CO (Zone 2), Hammarlund.
- 9L1HX via VE4OX.
- HK0KL via HK4KL.
- HK0AI via W9WHM.
- HRIJAP via Box 393, Tegucugalpa.
- HIBXMT U.S. Embassy, Santa Domingo.
- HIBSD Box 1026, Santo Domingo.
- 608BW via W4HKJ.
- VP2VE via W2MDQ.
- 9V2VY/P via W2CTN.
- YA1AW via K5GOT.
- VE0MY Box 850, Halifax, Nova Scotia.
- CO8MN Box 102, Bayamo, Cuba.
- VP7NS via W2CTN.
- TG8FA via Box 42, R.E.U.

## SUMMARY

Recently received a world classification of stations and their QSL Managers. It would take up yards of a town crier's paper so long is the list. This is another new fashion in Ham radio and while it certainly speeds up confirmations, I suspect for some there's a status symbol attached. You know—see my manager! Human nature being what it is, there are already signs that those of the common prefix will have to BUY their QSL from

the more rare call sign. Some managers request both S.A.E. and I.R.C.'s for a QSL. This is the same as asking I.R.C.'s for an award. The merits or otherwise of this I leave you to consider.

My thanks to all last month's contributors.

## A.R.R.L. DXCC

The following note appears in the January, 1966, issue of "QST." Since it affects all DXCC participants and since the submission requirements as indicated in this DXCC note will be applied to all submissions being made for DXCC credits you will want to read and follow them. Submissions made not in accordance with these requirements will be returned without credit.

## DXCC Notes (January, 1966, "QST.")

"In order to streamline administration of DXCC and provide better handling of applications for certificates and endorsements, the following changes are being made:

(1) After this issue the Honour Roll listing will be carried in the June and December issues of "QST." A listing of endorsements and certificates earned below the Honour Roll level will continue in each issue, and the overall listing will continue in the December issue as at present. All listings will be alphabetical by call sign, under the appropriate country total, as illustrated in this month's Honour Roll listing.

(2) Effective March 1, 1966, applications for endorsement stickers will be made in lots of 20 for those whose totals are below 300, and lots of 10 for those with totals over 300. For example, if you have 120 confirmations now credited, you should not make further application until you have 20 more cards, to reach the total of 140. If you have 125 confirmations now credited, you should not make further application until you have 15 or more cards to reach the total of 140. In both cases, your next application would be when you have enough cards to bring you a total of 160. Should you now have a total of 303 credited, an application with seven cards would be accepted, as it would bring you up to a total of 310. QST listings will be shown at the appropriate 20 (or 10) card endorsement levels.

(3) Further card submissions from those on the Honour Roll will be accepted only during the months of March and September, for the June and December Honour Roll listing. If you have enough new cards to bring your corrected total up to that of the last place station on the previous Honour Roll listing, you may submit them during March and September without being held to the 10 country limitation specified in para (2) above.

(4) Up until December 31, 1966, separately endorsed DXCC certificates will continue to be issued for phone. Each DXCC application after that date may include cards indicating work by any legal mode, but a separate DXCC certificate endorsed for phone will not be issued.

Effective January 1, 1967, all endorsements for any DXCC certificate will be issued regardless of mode of operation. That is, if you have a phone DXCC certificate, your application for further sticker endorsements to your countries total include both c.w. and phone contacts—no distinction will be made by A.R.R.L.

(There has been a report that commencing January, 1967, no credits would be given by A.R.R.L. for cross mode working, i.e. phone to c.w. and vice versa. However, A.R.R.L. said this was not planned.—Frank VK2QL.)

# Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

## "VERBOSITY . . ."

Editor "A.R." Dear Sir,  
I join with 4PX (January correspondence) relative the verbosity and waste of valuable paper by 5PS in his divisional notes.

I respect most deeply his voluntary contributions (one full page for January) for his Division, however, I again join 4PX in suggesting that such space should be devoted to the "Art" of Amateur Radio.

I note your comments, "Couldn't agree more," but sir, what does the Publications Committee propose to do? I feel it unnecessary to ask my Division to take action, surely those in charge of "A.R." are men not mice.

J. C. Watson, VK6JW.

[Rats!—Ed.]



# WARBURTON FRANKI

## ● POLYPACS

Bags of Assorted Components.

**\$1 each (10/-) S.T. inc.**

- No. 1—30 Resistors,  $\frac{1}{2}$  and 1 watt—also Presets.
- No. 2—20 Capacitors—Paper, Mica, Plastic, Ceramic.
- No. 3—20 Silver Mica Capacitors.
- No. 4—20 Styrofoam Plastic Capacitors.
- No. 5—50 Assorted Grommets (2 for \$1).

Postage—1 pac 4c (5d.); 3 pacs post free.

## ● PROTECT YOUR PREMISES WITH THE SCOTT ELECTRONIC EYE

● A.C. Mains Operated. ● Kit consists of Light Source and Eye Unit. ● Complete with power supply, amplifier, buzzer, hardware and connecting wires.

Use across doorways or other openings up to 25 ft. wide.

**\$33.33 (£16/13/4)**

Plus S.T. 12½%, plus postage for weight of 4 lb.

## ● SILICON DIODES

18 amps. at 50 p.i.v. Available **75c (7/6)**  
with either K or A to case plus S.T. 12½%

1 amp. at 1,000 p.i.v. **\$1.35 (13/6)** plus S.T. 12½%  
Pack and Post 5c (6d.).

## ● RESISTOR SUBSTITUTION BOXES

Twenty-four values from 15 ohms to 10 megohms. Selected by two rotary switches. Complete with leads and clips.

**\$3.65 (36/6)** plus 12½% S.T.

## ● CAPACITOR SUBSTITUTION BOXES

Nine values from 100 pF. to 0.22 uF. Selected by rotary switch. Complete with leads and clips.

**\$2.47 (24/8)** plus 12½% S.T.

## ● TRANSISTOR AMPLIFIER — SINCLAIR X-20 PULSE-WIDTH MODULAT. AMPLIFIER & PRE-AMP. OPEN MATRIX BOARD CONSTRUCTION

12 Transistors, size  $8\frac{1}{2} \times 3\frac{1}{2} \times 1$  in. Weight 4 oz.  
 Input sensitivity—1 mV. into 5,000 ohms.  
 Total harmonic distortion—Less than 0.1% at 10w.  
 Frequency response at all power levels—20 c/s. to 20 Kc. plus 1 db.  
 Damping Factor—greater than 100.  
 Quiescent consumption—approx. 150 mA.  
 Supply Voltage—28 to 37 volts (7.5 ohm speaker).  
 28 to 45 volts (15 ohm speaker).  
 Output Power—7.5 ohm Speaker, 20 watts r.m.s. music power.  
 15 ohm Speaker, 15 watts r.m.s. music power.  
 Supplied with comprehensive descriptive booklet showing circuit and recommended circuitry for volume and tone controls.

**\$26.50 (£13/5/0)**

Plus S.T. 25%. Pack and Post 10c (1/-).

## A.C. POWER SUPPLY TO SUIT—

(Will supply two Amplifiers for **\$12.60 (£6/6/0)**

Stereo use.) Plus S.T. 12½%.

Pack and Post 25c (2/6).

## ● MULTIMETERS—200H

Fan-shaped meter movement.

Ranges: DCV—5, 25, 50, 250, 2,500 at 20K o.p.v.  
 ACV—10, 50, 100, 500, 1,000 at 10K o.p.v.  
 DC mA.—50 uA., 2.5 mA., 250 mA.  
 OHMS—600, 600K.  
 CAP.—10 pF. to 0.1 uF.  
 DB—Minus 20 to plus 22.

Supplied with leads and instruction leaflet.

**\$9.50 (95/-)**

Plus S.T. 12½%. Pack and Post 15c (1/6).

## ● MULTIMETERS—SANWA 370X

Ranges: DCV—3, 6, 12, 120, 300, 1,200, 3,000 at 4K o.p.v.  
 ACV—6, 12, 120, 300, 1,200, 3,000 at 4K o.p.v.  
 DC mA.—0.3, 3, 30, 300.  
 DC Amps.—3, 12.  
 AC Amps.—3, 12.  
 OHMS—10K, 100K, 1 meg., 10 meg.  
 DB—Minus 10 to plus 17.  
 Minus 0 to plus 23.

Supplied with two pairs of test leads and comprehensive instruction booklet.

**\$26 (£13)**

Plus S.T. 12½%. Pack and Post 25c (2/6).

Wooden Carrying Case to suit. Well made with safety lock and removable lid.

**\$7.90 (£3/19/0)**

Plus S.T. 12½%. Pack and Post 20c (2/-).

## ● MICROPHONE MIXERS

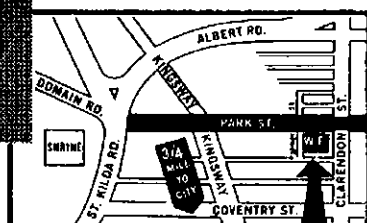
Mixes the outputs of up to 4 high impedance microphones. Separate volume controls for each mike. Attractive metal cabinet, 6 in. x 2½ in. x 2½ in.

**\$7.20 (72/-)** Plus S.T. 12½%.



# WARBURTON FRANKI

220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines **69-0151**



● TRADE ALSO SUPPLIED

● Please include postage and freight with all orders



# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL

Last month the editorial expressed the hope that there would be more effort made at getting closer liaison between countries in Region III.—Australia, New Zealand, India, Malaysia, to mention a few, so that mutual problems affecting our use of the frequency spectrum can be aired, and if necessary or practicable, solutions found.

Following closely on this thought, is an expression of support from the I.A.R.U. President, Herbert Hoover, Jr., W6ZH, as can be seen from his letter recently received by the Executive. We feel that the tenor of his remarks sets the seal on present thinking with reference to I.T.U. matters, and you will see as you read it that concern is rather high in other parts of the world, for the future heading of Amateur frequencies. Read it carefully, consider the implications—not only for our own part of the world—but for the Amateurs world over. Perhaps you have some ideas and recommendations on this subject; perhaps your Division may ask you for support for a Regional conference. Let us have your comments now.

After speaking of recent visits to other I.A.R.U. Societies, and the benefit to be obtained therefrom, President Hoover goes on to say:

"I believe that there is one principal problem which we face, transcending all others in importance. This is because—if we fail to meet it adequately—there will be a very serious disruption of International Amateur Radio as we know it. That problem is, of course, future I.T.U. conferences dealing with Amateur frequency allocations.

"No one can be certain just when such a conference will be held. The I.T.U. itself is undergoing some re-organisational changes as a result of its Plenipotentiary Conference just completed in Montreux. No date for the next allocations conference was set. It is almost a certainty, however, that one will be held—probably within a few years.

"You are aware that these conferences establish the limits of various frequency-band assignments for Amateurs as well as for other radio services, and that normally an individual national administration can authorise Amateur activity only within the basic provisions of such allocations. In other words, if the next allocations conference fails to continue present assignments for Amateurs in the international allocation table, the national administrations will be obliged to reduce Amateur frequency bands to conform.

"My discussions, and those of my associates, with I.A.R.U. society officers, indicate to us a growing Amateur recognition of the vital problem of protecting our Amateur assignments. This is indeed most encouraging. I believe, however, that even greater attention and effort must be forthcoming from each of our societies if our aim is to be accomplished.

"There is a point of major importance at this moment, one which we must work toward now, without waiting for conference developments. That concerns the matter of close liaison between each society and its telecommunications officials. While procedures are not the same in all countries, usually the proposals of each administration, at a conference are the results of long-term evaluation and planning. In some countries this takes the form of intensive preparatory meetings, two or three years in advance. By the time the conference opens, therefore, the administration has already established its position and, in many cases, it will even have published the proposals it expects to offer. In other words, the position of many governments toward Amateur Radio will have become firmly committed before the conference begins with only a little bargaining margin available.

"A delegation of I.A.R.U. observers at the conference itself is essential if our overall plans, and the effectiveness of such delegations has been evident from previous conferences. However, we cannot expect such a group to do the whole job, nor is it feasible for them to accomplish the impossible feat of reversing anti-Amateur proposals by administrators who are not well disposed toward the Amateur Service.

"Ideally, if every society were active and successful in convincing its authorities to support our present Amateur allocations, the task would be much simplified. Accordingly, I urge you to give serious thought to this

problem, and then take action by establishing suitable liaison with your governments, or expanding that contact where it already exists, working toward full support of the Amateur Radio Service.

"An intensive programme is particularly important in view of the many new and developing countries who are members of I.T.U. There are now 129 governments which take part in its proceedings, and it should be remembered that each one has an equal vote. As of today there are just 64 I.A.R.U. societies, which means that we are represented in only one-half of the countries who cast a vote in the I.T.U.

"The solution to these problems will require close co-operation between Amateur societies on a world-wide basis, and success will tax our ingenuity and resourcefulness to the utmost.

"Several of our I.A.R.U. Societies have effectively organised their efforts by appointing permanent liaison committees or 'working groups,' consisting of members who have close contact with their governmental authorities, or special experience in these fields. I recommend this procedure for the consideration of each of you.

"I particularly wish to commend the I.A.R.U. Region I. Organisation for the energetic and constructive manner in which it is helping to meet these problems. But they cannot do the job alone. There must be a parallel effort by the new Region II. Organisation, and hopefully, by one yet to be formed in Region III.

"While the activities of the Regional Organisations are indispensable—especially in the field of co-ordination—I wish to emphasise that the responsibility for success falls primarily upon the shoulders of each of our I.A.R.U. Societies.

"In my opinion the survival of Amateur Radio, as we know it today, will depend upon our individual efforts in the immediate future. There is no time to spare!

"I would welcome any word from you on the subjects I have referred to herein—or any other I.A.R.U. matters—and would particularly appreciate any suggestions or recommendations you may have. If you feel there are any areas in which I or the Headquarters society could be more specifically of assistance to you, please let me know."

## VK5 GETS UNATTENDED BEACON PRIVILEGES

Following representations made to the Postmaster-General's Department on behalf of the South Australian Institute Station VK5VF, we are pleased to be able to write that this beacon operating in the 6 and 2 metre band will be able to operate unattended subject to the adherence to certain procedures. It is important to note that the prime requirement is "the prompt termination of transmissions at the request of an officer of the Radio Branch."

We regard this decision as a big step forward in the growth of Amateur Radio in this country, and no doubt the many v.h.f. operators will gain important information from the continuous operation of these beacons.

Details of frequencies and other pertinent information will be published as they come to hand.

## FEDERAL EXECUTIVE MEETING, 1st NOVEMBER, 1965

After dealing with the usual amount of inwards correspondence, the meeting was acquainted with the latest drafting proposals of the new Handbook. There were several matters still to be resolved and these would form the basis for another meeting between the W.I.A. and P.M.G. representatives. The remainder of the meeting dealt with F.C.C. Contest matters, the present state of the "QST" fund, and the appointment of a Federal Oscar Co-ordinator, David Bellair, VK3ZFB. There was also a report of the t.v.i. problems at Port Pirie.

## SILENT KEY

It is with deep regret that we record the passing of:

VK3LX—L. G. H. Harding.

## FEDERAL EXECUTIVE MEETING, 6th DECEMBER, 1965

The meeting having dealt with correspondence, the Secretary reported that Mr. Owen was still trying to resolve with the N.S.W. Division the question of proportional representation in relation to the new Constitution. A report was made on the progress of the new Handbook and another meeting with the P.M.G. would take place early in the new year. Reports were given on the recent Jamboree-on-the-Air and ways of improving it from a W.I.A. point of view.

Discussion took place under general business on the Gowrie Park Y.R.C. and it was agreed that the W.I.A. had no jurisdiction of this, and would write to the P.M.G. informing them that the W.I.A. did not support this idea. Other matters dealt with included correspondence in Electronics Australia, handling of R.S.G.B. publications and clarification of P.M.G.'s letter re future representation on frequency committees.

## I.A.R.U. CALENDAR, DECEMBER, 1965

The I.A.R.U. celebrated its 40th Anniversary during the year and a brief history of the I.A.R.U. since its inception in 1925 was given. As at 1929 when the I.A.R.U. became firmly established, there were 14 members, of which the W.I.A. was one.

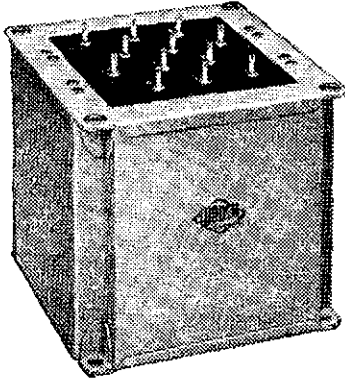
Three new Societies were admitted during the year, namely, the Bahamas, Nigeria and Zambia Societies. The Region I. Division of the I.A.R.U., now 15 years old, planned its 1966 meeting for Opatija, Yugoslavia, during May. The first meeting of the newly-formed Region III. Division held its first meeting at Lima, Peru, in March, 1965. Moves are also afoot for closer co-operation in Region III, but the question of distance and finance makes this area the most difficult to deal with. Further countries exchanged mutual reciprocal operating agreements with the U.S.A., and it is interesting to note that the work of the I.A.R.U. now entails the part time employment of seven of the A.R.R.L. headquarters staff.

From September 14 to November 12, 1965, the I.T.U. held a Plenipotentiary Conference in Geneva with some 120 nations participating. The Conference dealt with various administrative matters of the I.T.U. including the Council which has now been increased from 25 to 29 members, six from the Americas, six from Western Europe, three from Eastern Europe and Northern Asia, seven from Africa and seven from Asia and Australasia (including Australia). The Conference rejected proposals to abolish the I.F.R.E., the International Frequency Registration Board, but decreased its size from 11 to five members, one from each of the above five Regions. D. Sarwate of India now replaces Gerald Cross W3GC, Secretary-General. Under the 1959 and previous I.T.U. Conventions, there was provision for three conferences other than the Plenipotentiary—the Administrative, Extraordinary Administrative and Special conferences. Under the new Constitution, effective 1st January, 1967, there will be two types only—World and Regional. The activities of each such conference will flow from the agenda, originally drafted by the Administrative Council and then approved by vote of the member nations geographically concerned. Thus whether or not a specific conference takes up the subject of allocations will be henceforth determined by the agreed agenda, rather than by title. The I.A.R.U. will have the same observer role under the new Constitution as under the old.

In September, 1965, the I.A.R.C. held a convention and a separate report has been received from the International Amateur Radio Club on the activities during this period. One of the highlights was the on-the-spot issue of HB9X call signs to visiting Amateurs to the Convention.

I.A.R.U. headquarters has pointed out that the development of the so-called "new and developing countries" in relation to Amateur Radio will depend on a vigorous campaign from existing I.A.R.U. Societies to promote and assist Amateur Radio in these countries. An awareness of the international and national usefulness of Amateur Radio will instill a sympathetic attitude into these countries, for it is from these countries, now clamouring for more and more frequencies, that the major Amateur opposition could spring. The A.R.R.L. has therefore taken Liberia

# For Accurate Matching & Maximum Efficiency Woden Multi-Match Modulation Transformers



MADE IN ENGLAND!

**Features—**

- Potted type compound filled (vacuum impregnated).
- Universal application.
- Primary impedance range: 2,000 ohms to 18,000 ohms.
- Secondary impedance range: 200 ohms to 21,000 ohms.
- Highest efficiency—lowest weight per watt.
- Easy to solder heavily silver plated tags.
- Above or below chassis wiring.
- Capacity: 10 to 250 watts as under:

List No.	Audio Watts	RF Imp. Watts	Max. Sec. Current	Overall Size			Weight lb. oz.	Price incl. sales tax
				L.	W.	H.		
UM0	10	20	60 mA.	2 7/8"	x 2 3/4"	x 4"		\$13.50
UM1	30	60	120 mA.	3 3/4"	x 3 1/2"	x 3 3/4"	5 8	\$19.38
UM2	60	120	200 mA.	5 1/2"	x 4 1/2"	x 5 1/2"	11 8	\$25.65
UM3	120	240	250 mA.	5 1/2"	x 5 1/2"	x 5 1/2"	14 8	\$29.07
UM4	250	500	400 mA.	10 1/2"	x 6 3/4"	x 8 3/4"	41 0	on application

## WILLIAM WILLIS & CO. PTY. LTD.

428 ELIZABETH STREET, MELBOURNE, C.1, VIC. 34-6539

# BRIGHT STAR CRYSTALS

FOR ACCURACY, STABILITY, ACTIVITY AND OUTPUT



Our Crystals cover all types and frequencies in common use and include overtone, plated and vacuum mounted. Holders include the following: DC11, FT243, HC-6U, CRA, B7G, Octal, HC-18U:

THE FOLLOWING FISHING-BOAT FREQUENCIES ARE AVAILABLE IN FT243 HOLDERS:—  
6280, 4095, 4535, 2760, 2524 Kc.

5.500 Kc. T.V. Sweep Generator Crystals, £3/12/6  
100 Kc. and 1000 Kc. Frequency Standard, £8/10/0 plus 12 1/2% Sales Tax.

Immediate delivery on all above types.



**AUDIO AND ULTRASONIC CRYSTALS—Prices on application.**

455 Kc. Filter Crystals, vacuum mounted, £6/10/0 each plus 12 1/2% Sales Tax.

**ALSO AMATEUR TYPE CRYSTALS—3.5 AND 7 Mc. BAND.**

Commercial—0.02% £3/12/6, 0.01% £3/15/6, plus 12 1/2% Sales Tax.

Amateur—from £3 each, plus 12 1/2% Sales Tax.

Regrinds—Amateur £1/10/0, Commercial £1/17/6.

CRYSTALS FOR TAXI AND BUSH FIRE SETS ALSO AVAILABLE.

We would be happy to advise and quote you.

New Zealand Representatives: Messrs. Carrel & Carrell, Box 2102, Auckland.  
Contractors to Federal and State Government Departments.

## BRIGHT STAR RADIO

46 Eastgate Street, Oakleigh, S.E.12, Vic.

Phone: 57-6387

With the co-operation of our overseas associates our crystal manufacturing methods are the latest.

"under its wing" and the R.S.G.B. is doing the same in Nigeria, with material as well as educational assistance. The I.Q. has asked for member comment on a proposal of this sort and the W.I.A. will be giving serious consideration to such a project.

The Calendar also reports on the success of Project Oscar III. Oscar IV. was launched on December 21, but is in a highly elliptical orbit.

Two new members are proposed in this Calendar for membership of the I.A.R.U.—namely, the Club de Radio Experimentadores de Nicaragua (C.R.E.N.) and the Central Radio Club of Czechoslovak Socialist Republic (C.R.C.). The W.I.A. resolved to vote for both admissions with the proviso in regard to the latter society that they make available for general publication a list of all their Amateur stations.

A list of stations logged by the I.F.R.B. on unauthorised frequencies is shown below. Any Australian Amateurs hearing these or other stations in the exclusive Amateur bands should notify their Divisions on the proper forms which are available from Divisional Secretaries:—

3560 Kc.	Pyongyang	BC
7000 "	Malaysia	BC
7035 "	U.S.S.R.	BC
7035 "	Peking	BC
7050 "	Calro	BC
7060 "	Peking	BC
7085 "	Peking	BC
7075 "	Calro	BC
7080 "	Peking	BC
7085 "	U.S.S.R.	BC
7090 "	Tirane	BC
7085 "	Peking	BC
7099 "	Djakarta	BC

In addition, the Intruder Watch, operated by the A.R.R.L., has also consistently heard a large number of unauthorised stations operating in all Amateur bands but the list is too long to reprint here. There are 41 stations listed. If you hear any such stations please take action as mentioned above.

### LICENSEES IN AUSTRALIA

Members will be interested to learn that as of December, 1965, the number of licensed Amateurs in Australia passed the 5000 mark, quite a milestone which indicates Amateur Radio's growth in the Commonwealth alone. So in a little over 50 years, numbers have increased from a meagre 400 to the present figure. It is perhaps of greater interest to know that numbers have doubled since re-licensing after the 1939-45 war, when licensees were around 2500. It is a pity that our membership figures have only just about kept pace with this growth. Every endeavour should be made to increase our membership at a greater rate than the licence growth.

### I.T.U. FUND

As at the 1st February, 1966, contributions to the Fund, as a percentage of the target set at the Sydney Convention are as follows:—

VK2	22%	VK5	56%
VK3	50%	VK6	103%
VK4	50%	VK7	100%

These figures do not necessarily indicate all monies collected in Divisions but only those received by the Federal Treasurer. Please keep the donations flowing in as we are still 53% short of our designated target.

### AMATEUR BAND SUB-DIVISIONS

The following are the voluntary sub-divisions of the Amateur bands in Australia agreed by Federal Council, and we ask all Amateurs to please observe these channels:—

C.w. only	C.w. and Phone
3500 — 3535 Kc.	3535 — 3700 Kc.
7000 — 7030 Kc.	7030 — 7150 Kc.
14000 — 14100 Kc.	14100 — 14350 Kc.
21000 — 21150 Kc.	21150 — 21450 Kc.
28000 — 28200 Kc.	28200 — 28700 Kc.

### MEMBERSHIP RETURNS

All Divisional Secretaries or Treasurers are reminded that membership returns on Form A are required monthly by Executive. It is essential that Executive obtains figures from ALL Divisions, especially at this time of the year as per capita contributions are based thereon. Your co-operation would be appreciated.

### FEDERAL QSL BUREAU

Changes in the A.R.R.L. QSL Bureaux, effective immediately are:—

W/K/WA1—Providence Radio Association, WLOP, Box 2903, Providence, Rhode Island, 02908.

VO2—Goose Bay Amateur Radio Club, P.O. Box 232, Goose Bay, Labrador, Canada.

HSICW confirmations may be obtained from W1BVP, 191 Algonquum St., Brockton, Mass. Quote G.M.T. please.

The first International Boy Scouts QSO Party took place February 5 to February 7. The Club station of the sponsoring body: Copley Amateur Radio Club, Copley, Pa., U.S.A., is K3WQW. Awards are issued as under—Foreign stations contact Club Station and one member. All contacts with Copley Radio Club members count also towards Pennsylvania's Keystone Award which requires 100 QSO's with Pennsylvania stations. Send log data and \$1 for award (if earned) to K3WQW, Post Office, Copley, Pa., 18037, by March 1, 1968. All QSO's will be acknowledged with a special QSL card.

QSL's for contacts with TMSAA, stated to be located at Kalimantan, Borneo, Indonesia, have come to hand via the Swiss Bureau. The period of operation was around February, 1965, and the station at that time was generally regarded to be a pirate, due to the poor note and method of operation. QSL's should go to H9GAY direct or through USKA.

Cards for VK0 stations have, ever since 1948, introduced many disposal and other problems to the Federal QSL Bureau and much ineffective and frustrating correspondence has resulted from the failure of many VK0 stations to honour QSL obligations after their return to the mainland. Antarctic licensees (or those associated with them) should advise this bureau of their call sign, home QTH, QSL manager (if any) and instructions for disposal of incoming cards. Where no advice is received it is intended to send all cards to the Antarctic Division and not enter into any correspondence. Any subsequent information received will, however, be published in this column from time to time.

—Ray Jones, VK3RJ, Manager.

## NEW SOUTH WALES

### DIVISIONAL CONVENTION

#### Australia Day Week-End

The week-end activities opened with the general meeting on Friday night. There was an attendance of over 100 to hear a series of interesting lectures. David VK2ZVW described the v.h.f. group project—The Mobiliser, a 2-metre transmitter/receiver combination. Leo VK2AC described an electronic keyer. Stan VK2EL with s.s.b. equipment. Bill VK2ZDO with Amateur Television, and Barry VK2ZAH with f.m. units.

Several presentations were made during the meeting. The best lecture to the general meeting for the past year was awarded to Mr. Allan Morris from D.C.A. and his subject was Magnetic Amplifiers. The Adams Trophy for the best VK2 article in "A.R." went to Roy Lester VK2ZRL for a 6 and 2 metre converter. The John Moyle Award to the top A.O.C.P. pass in VK2 for the year went to Ron Glover. The Shield known as the Jim and Ruth Corbin, for the teams placing in the R.D. Contest, was presented to the Division. The Federal Council, Pierce Healy, VK2APQ, was re-elected unopposed.

On Saturday night a dinner was held in the hall at the Wireless Institute Centre. Between 60 and 70 attended, a good number of XYL's attended. The dinner was organised by Bill VK2YB, M.C. was Sid VK2SG. Morrie VK2VN moved the toast to Amateur Radio and the Institute and the reply was from Ivan VK2AIM. Pierce VK2APQ moved the toast to the visitors and the reply was from Frank Noel K6EDQ. (Frank and his XYL are on a world tour and have been in Australia for several weeks.) The P.M.G. was represented by Mr. R. Holt. There were several country visitors present. After the dinner two debates were conducted. The first was Home-Brew versus Commercial, and the second, Amateur Radio versus Gardening.

The field day was held on Sunday at the Divisional transmitter site at Dural. Over 100 Amateurs were present and together with XYL's and harmonics the attendance exceeded 200. A collection of stalls, displays and field events made up the programme for the day.

This is the month for the Annual Meeting and the election of a new Council. The meeting is on the 4th Friday at W.I.C. 73, 2ZTM.

### NORTH-WEST ZONE CONVENTION AND FIELD DAY

The first of the above events was held at Tamworth on the 28th and 30th January and proved to be a great success. It was only made possible with the co-operation and organisation of the Tamworth Amateurs.

The week-end started on Saturday with conducted tours of the studios of NEN, Channel 9, and Broadcast station 2TM. This was followed by an inspection of the D.C.A. installation in the control tower at Tamworth Airport. These were followed at night by a buffet dinner at which 36 Amateurs and

friends were present. The guest speaker was Lionel Todd, VK2LS, who was the first licensed Amateur in Tamworth in about 1925. Lionel spoke of his Amateur experiences in the early days of radio.

The whole week-end received excellent local radio, press and t.v. coverage. After the dinner a 2-metre fox hunt was held, but it was not located due to some technical problems and a good location at the fox's end. The signal was not heard at the start and the hounds assumed that he was not on.

The Sunday was very well attended, there being about 50 Amateurs, XYL's, harmonics and visitors, from all parts of the North-West as well as Sydney and Newcastle areas.

Light refreshments were available to the visitors on arrival and before departure as well as ice creams and soft drinks for the harmonics and 807s for the operators.

Acknowledgment and thanks for the donation of prizes go to Pye Crystals, Mullard, Lawrence and Hansen, VK2 Divisional Council, Philips and E.M.I. Also to VK2RJ and VK2BAE. There was also technical literature from A.W.V., Ducon and Delco. The prizes were presented by Frank VK2ACQ, the Divisional representative.

I wish to thank all who attended and also a special vote of thanks to Bill VK2ZCV, Tas VK2GV, Brian VK2AUN, Noel VK2ASQ and Les VK2RJ, for without their help the week-end would not have been possible. Hoping to see all who attended and more at the next and greater North-West Zone Convention 73, Max, VK2BMK, Zone Officer.

### ZONE 2

Zone 2 of the VK2 Division is a Civil Defence grouping roughly west of the Great Dividing Range, from about Muswellbrook in the south to the VK4 border in the north and west towards Walgett. Max VK2BMK is the Zone Officer. A hook-up is held on 80 metres on Tuesday nights. It is planned to set up a v.h.f. net on 6 metres in the near future. The chosen frequency will be 53.468 Mcs. While this means yet another "net frequency" many of the receivers in use will be tunable. (Having watched the growth of "nets" in the past few months the common factor appears to be "crystal availability".)—2ZTM.

### HUNTER BRANCH

If there is still anyone who knows nothing about transistors after attending the February meeting of the branch then I give up. Still, I did see some members scratching heads and muttering following the film concerning semi-conductors. It couldn't possibly have been the maths—that was easy enough! Anyway, for those who are not in on the secret, a film about semi-conductors was screened at the last meeting and about 35 members, visitors and associates were present to enjoy the proceedings. Mr. Mullard kindly lent the photographic material but everything seemed to go wrong from the beginning. No projector, no take-up spool, no knowledge of calculus and no musical items from the President. It was all very upsetting. However, after a shaky start things went well and we all learned something.

Prior to the main part of the proceedings, three boys from the Westlakes Radio Club were awarded their Junior Radio Certificates of the Youth Radio Scheme. Those prospective Amateurs of the future are Neil Kilgour. One of our junior associates, Ian Miller and David Fraser. Congratulations also to Michael Kane, who could not be present to have his certificate presented.

It is a great pleasure to take back all the nasty remarks I have made over the years concerning Ian 2AJF (who is known to his friends as Sherwood) since he has at last redeemed himself by passing the Broadcast ticket. This is a fine piece of work Ian and a good example for others of our young members to follow. But, here's the rub, as the classics would have it, when are you going to get on the air? Another branch member also deserves praise at his achievement—one VK2BOB or Belmont Bob to his creditors. Bob has faced the examiners more times than most of us but he finally struck the jackpot and now radiates a fine signal both on the old gentleman's band and on 40 as well. And still another bouquet must be awarded, this time to Henry 2ZGK who although he was nearly out of the band, did eventually get on 2 metres. So what with Col 2YJ finally burying the skeleton and getting on 80 and Les 2ERJ joining the duck farmers, things have really been looking up during the holiday season. It wouldn't surprise me to hear that Susan 2BSB had finished her 20-metre transmitter or that 2AWX put out a decent signal on 160 metres—I'm used to surprises now. Although when told that Harry 2AFA had a c.w. contact some weeks ago I must admit to a mild degree of concern.

It is rumoured that Jack 2KQ has been visiting Lightning Ridge recently looking for

quartz to make some new crystals for his s.s.b. rig but there is no confirmation of this. Reporting on Fred—2ZFO—our "Man in Fassi-ferr" (he took over from Sherwood)—he now has progressed still further towards being on the air by having a table on which to put the gear.

John 2ZBD and Ian O'Toole are both polishing their rifles and boots and brushing hats, fur felt, for a sojourn in the forces for national service. Whether they become signallers or not, remains to be seen. But, whatever happens, if communications go out then they'll have to fall back on our Singleton agents—007 Ooster-veen (translated 2BJO) and 007½ "Bones" Bedford—who are the brains behind the communications in that outpost of civilisation. You'll recall that Paddy 2AXU, once a signaller himself, shifted camp to Wangi to escape the powerful signal from Jim 2AHT. Well, now he has been out-manoeuvred by Vic 2AKP who has come to live just across the water. Now he really will have to put up an aerial.

Under the watchful eye of the chief architect, Max McLachlan, foreign officer, the boys at the Westlakes Club are working hard on the new shack and equipment to go in it. It is just remotely possible that 2AWX will have a good signal soon on three bands. So listen in on Monday evenings at 7 p.m. on 3595 where there's bound to be a signal and hear the latest programme of events. For instance, there's going to be a field day soon but details are not available just now and of course there's the meeting for March. You really must come along to this one as all the professional arm-twisters and election ricketeers will be there to see democracy given a fair go—and then tossed out. Seriously though, it is a most important meeting and all should be present. We may even get some of those who criticise the Institute on the air—but never voice an opinion at meetings because they don't attend. Electing someone like this to office would really get results I'm sure. The whole affair will be in Room 6 of the Clegg Building, commencing at 8 p.m. on Friday, 4th March. And please gentlemen, a little decorum! See you.

73, 2AKX.

### CANBERRA RADIO SOCIETY

#### Easter Convention

Canberra offers all the facilities for a Convention-with-a-difference. You can have Amateur Radio events, top-interest scientific visits, and tourism for all the family, in any proportion you like.

For Amateur Radio there will be all the usual Tx Hunts and Scrambles, Disposals and White Elephant Sale bargains (bring something to sell), together with a new event of our own—a Receiver Sensitivity Contest.

For scientific interest, special visits (with commentary by people working on the project) are arranged to Tidbinbilla Space Track Station, Mills Cross Radio Telescope, Nuclear Physics Dept. of the Australian National University, Mt. Stromlo Observatory, and Belconnen (Navy) Tx (most powerful in the Southern Hemisphere).

Tourism for all the family is available without need of a car all the time. Canberra offers more than enough for a week-end, even without a trip to the nearby Snowy Mountains. XYL's are welcome at all functions.

Accommodation. There is a full range in type and price. We are holding a number of beds covering the whole range from Camping Reserve cabins at about \$1.50 per bed per night to the very best hotels and motels at \$10.50 for B and B. We strongly advise you to write to use and book early. Last-minute bookings can be arranged but there would be little choice or range.

Write to Canberra Radio Society, P.O. Box 59, Kingston, Canberra, A.C.T.

## VK3 State Convention

ARARAT, 23rd and 24th APRIL

(25th is a holiday, so you can plan a long week-end.)

Excellent 4-course dinner Saturday night. Liquor licence arranged.

First-class programme arranged for Sunday, location, Mount Mistake Picnic Ground.

Bookings close 2nd April (Deposit \$2) with Neil Granville VK3AQD, 1 Speed Street, Ararat.

## TRANSISTORS AND DIODES

AC125	9/8	95c	OC189	19/8	\$1.95
AC126	9/8	95c	OC170/AF115N	10/-	\$1
AC127	10/6	\$1.05	OC171/AF114N	10/-	\$1
AC128	10/-	\$1	2N217	9/6	95c
AF114N/OC171	10/-	\$1	2N217S	9/6	95c
AF115N/OC170	10/-	\$1	2N270	13/8	\$1.35
AF116N	9/6	95c	2N370	19/-	\$1.90
AF117N	9/6	95c	2N372	19/-	\$1.90
AF118	22/-	\$2.20	BY100/OA214	16/-	\$1.60
BC107	11/-	\$1.10	OA79	4/-	40c
BC108	10/-	\$1	OA80	3/-	30c
BC109	14/-	\$1.40	OA81	3/-	30c
OC26	28/-	\$2.60	OA90	3/3	32c
OC35/AT1138A	35/-	\$3.50	OA91	3/3	32c
OC44N	11/-	\$1.10	OA95	3/3	32c
OC45N	11/-	\$1.10	OA200	7/6	75c
OC70	12/-	\$1.20	OA210, 1N1763, 1N3194	8/8	85c
OC71/2N215	7/6 or 3 for £1		HR25	8/8	85c
	75c or 3 for £2		OA211, S10A2	16/-	\$1.60
OC72	13/6	\$1.35	IN3491	50 p.l.v.	18 a.
OC74N	9/6	95c		9/6	95c
OC75	13/8	\$1.35			

## ZENER DIODES

OAZ200	15/6	\$1.55	OAZ222/BZZ14	27/8	\$2.75
OAZ212	12/8	\$1.25	OAZ224/BZZ16	27/8	\$2.75
OAZ213	12/8	\$1.25			
OAZ225	27/8	\$2.75			

## POWER TRANSFORMERS

1992	150-0-150v.	30 mA.	6.3v.	1.75a.	37/6	\$3.75
1993	225v. 0-225v.	50 mA.	6.3v.	2a.	45/-	\$4.50
2062	Voltage Doubler	290	265v.			
	d.c. 80 mA.	8.3v. c.t.	2.25a.		67/6	\$6.75
2064	Voltage Doubler	340	315v.			
	d.c. 125 mA.	6.3v. c.t.	2.25a.		67/6	\$6.75
2067	Voltage Doubler	310	285	260v.		
	d.c. 100 mA.	8.3v. c.t.	4a.		83/6	\$8.35
290-0-290v.	60 mA.	6.3v.	2a., 5v.	2a.	37/6	\$2.75
385-0-385v.	100 mA.	6.3v.	3a., 5v.	2a.	35/-	\$3.50
385-0-385v.	125 mA.	6.3v.	3a., 6.3v.	2a., 5v.	2a.	45/-
						\$4.50

## AUDIO TRANSFORMERS

2624	7000 ohm s.e., 500 ohm s.e.				46/-	\$4.60
	prim.; 2, 3, 7, 8, 15 ohm sec.					
4013	15 watt 6900 ohm c.t. 20%					
	prim.; 3.7, 8, 15 ohm sec.	164/8				\$16.48
4020	10 watts prim. 9000 ohm c.t.					
	20% Ultra Linear (Mullard					
	10-10), sec. 3.7 or 15 ohm					

## TRANSISTOR TRANSFORMERS

TD1	Driver 3000 ohm, 2000 ohm c.t.	19/6	\$1.95
TD2	Driver, 420 ohm c.t., 105 ohm c.t.	19/6	\$1.95
TO1	Output, 373 ohm c.t., 3.5 ohm		
	500 mw.	16/-	\$1.60
TO2	Output, 97 ohm c.t., 3.5 ohm		
	1 watt	18/6	\$1.85
TO4	Output, 300 ohm c.t., 3.5 ohm		
	5 watts	37/6	\$3.75

## FILAMENT TRANSFORMERS

T4/4	230v., 6.3v. 2 a.	32/6	\$3.25
2150	240v., 6.3v. 2.5 a., or		
	two by 6.3v. 1.25a.	35/-	\$3.50
2155	240v., 6.3v. 7.5v., 8.5v., 9.5v.,		
	12.5v., 15v. 1 amp.	46/-	\$4.60
12/64	240v., 6v. 4a., 12v. 4a.	80/-	\$5.00
12/68	240v., 6v. 6a., 12v. 6a.	67/6	\$5.75

## ALIGNMENT TOOLS

Jabel No. 4 Alignment Tool Kits. All popular sizes. Four tools in plastic pouch. 12/-, \$1.20.

## TRANSISTOR SIGNAL INJECTOR

Pencil Type 2 Transistor, complete with instructions and battery. 55/-, \$5.50.

## LAFAYETTE TE-22 AUDIO GENERATOR

Specifications: Sine wave range: 20 c.p.s. to 200K c.p.s. in 4 bands; square wave range: 60 c.p.s. to 30K c.p.s.; freq. response: plus or minus 1.5 db., 60 c.p.s. to 150K c.p.s.; output voltage: load impedance 1M ohm 7v. (max.), load impedance 10K ohm 5v. (max.). £22/2/6, \$44.25.

## SPEAKERS

Well known Make, Brand New, Bankrupt Stock

Size	Voice Coil	Price
2 inch	15 ohm	30/- \$3.00
3 inch	15 or 3.5 ohm	32/6 \$3.25
4 inch	15 or 3.5 ohm	37/6 \$3.75
5 inch	15 or 3.5 ohm	40/- \$4.00
6 inch	15 or 3.5 ohm	45/- \$4.50
5 x 7 inch	15 or 3.5 ohm	47/6 \$4.75
8 inch	15 or 3.5 ohm	52/6 \$5.25
9 x 6 inch	15 or 3.5 ohm	55/- \$5.50
12 inch	15 or 3.5 ohm	62/6 \$6.25

## WIDE RANGE LOUDSPEAKERS

5 inch Twin Cone Tweeter, 15w. r.m.s. (4000 c.p.s. to 16 kc.)	45/-	\$4.50
6 inch Twin Cone (60-16,000 c.p.s.)	50/-	\$5.00
5w., available in 8 or 16 ohms		
8 inch Twin Cone (50-16,000 c.p.s.), 10w., available in 8 or 16 ohms	75/-	\$7.50
12 inch Twin Cone (45 c.p.s.-10 kc.), 10w., available in 3.5 or 15 ohms	100/-	\$10.00
12 inch Twin Cone (30-30,000 c.p.s.), 20w., available in 8 or 16 ohms	195/-	\$19.50

## SPEAKER BOXES

Plastic Speaker Box, with 4 inch speaker and wire	55/-	\$5.50
Wooden Speaker Box with 6 x 4 inch speaker and wire	65/-	\$6.50

## CHASSIS PUNCH SET

Hozan K-83, sizes 16, 18, 21, 25 and 30 mm. Complete with taper reamer in wooden storage box 70/- \$7.00

## BATTERY CHARGERS

Dual, o/v. Meter in Metal Hammertone Case		
6 volt 4 amp., 12 volt 4 amp.	157/6	\$15.75
6 volt 6 amp., 12 volt 6 amp.	217/6	\$21.75

## MICROPHONES

Crystal:—		
Piezo Lapel Type with plug	12/6	\$1.25
CM20 Hand Type with plug	27/6	\$2.75
X43 Stand Type with plug	37/6	\$3.75
BM3 Pencil Type, 100-8000 c/s. with on/off switch, 6 ft. cable	50/-	\$5.00
BM3 Desk Stand to suit above	21/-	\$2.10
Dynamic:—		
Foster DF2 Hand Type, 50K	50/6	\$5.05
Foster DF2 Hand Type, 50 ohm	45/-	\$4.50
Foster DF3 Pencil Type, 50K	90/-	\$9.00
Foster DF3 Pencil Type, 50 ohm	87/6	\$8.75
Piezo X29 Desk Type with stand, low impedance	82/6	\$8.25

## BEZELS AND NEON INDICATORS

Sato 3280 6-8v. sub-miniature, red, green, blue	4/6	45c
NEZ Neon indicator, 65v., flying leads	3/-	30c
230v. Red Neon Bezel	6/8	65c

## PARTS FOR RTV & H TACHO

Meter (MR3P), 0-1 mA.	50/-	\$5.00
7080 or 5000 r.p.m. scale	extra	15/- \$1.50
Henry Choke, ready wound	22/8	\$2.25
I.K. Trimmer Pot	4/-	40c
Circuit Board	6/-	60c

## VARIABLE CONDENSERS

Eddystone (Ceramic) ¼ inch Shaft		
580 Condenser, 13.5 pF.	22/6	\$2.25
582 Condenser, 63 pF.	25/-	\$2.50
584 Butterfly Cond., 32 x 32 pF.	25/-	\$2.50
585 Condenser, 91 pF.	27/6	\$2.75
586 Condenser, 140 pF.	31/6	\$3.15
617 Transmitting Cond., 270 pF.	52/6	\$5.25

## Rolar (Ceramic)

C804 ¼ inch shaft, 10 pF.	22/6	\$2.25
C804 ¼ inch shaft, 20 pF.	22/6	\$2.25
C804 ¼ inch shaft, 25 pF.	22/6	\$2.25
C804 ¼ inch shaft, 50 pF.	22/6	\$2.25
C804 ¼ inch shaft, 100 pF.	22/6	\$2.25

## Boblan Broadcast Gangs

RMG1 Single gang, 10-50 pF.	18/6	\$1.85
RMG1 Single gang, 10-415 pF.	18/6	\$1.85
RMG2 Two gang, 10-415 pF.	25/-	\$2.50
RMG3 Three gang, 10-415 pF.	33/6	\$3.35

## ROTARY SWITCHES (JABEL)

3-pole, 3-position	10/-	\$1.00
4-pole, 3-position	10/-	\$1.00
2-pole, 6-position	10/-	\$1.00
1-pole, 12-position	10/-	\$1.00

## TRANSISTOR RADIO PARTS

To suit Zodiac, Grays, Tele-tone, Chevron, Lincoln, Retravision, Home Star and Vista

Speaker, 8 ohms, 2 ¼ inch diam., power capacity 200 mw.	22/6	\$2.25
Gang with knob, capacity: 6-142 pF. (aerial), 6-60 pF. (oscillator)	20/-	\$2.00
Aerial Coil on Rod	7/8	75c
Output Transformer, 480 to 8 ohms Interstage Transformer, 8000 ohms to 3000 ohms	12/6	\$1.25
Oscillator Coil, 360 microhenry	6/8	85c
Pot., switched with knob, 5K ohms	8/6	85c
6 Transistors and 1 Diode (comprising: 2-2N408/OC74N, 3-2N410/OC45, 1-2N408/OC71, 1-OA90)	82/6	\$8.25
Three i.f. Transformers, 455 kc.	30/-	\$3.00
Complete set resistors and condensers (32)	42/6	\$4.25
Printed Circuit Board	10/-	\$1.00
Cabinet, complete with earphone Jack, earphone and carrying cases	25/-	\$2.50

## CO-AXIAL CONNECTORS

American Type:—		
PL259 Co-axial Plug	9/6	95c
4087-1 Co-axial Plug (PL259, PTFE)	14/6	\$1.45
SO239 Co-ax. Socket (suit PL259)	9/-	90c
4602-1 Co-ax. Socket (PTFE)	14/8	\$1.47
C32-14 Co-ax. double ended female cable joiner (PTFE)	17/6	\$1.75
UG175U Adaptor for PL259, to suit ¼ inch cable	2/9	29c
C32-17 Co-ax. "T" Piece, suit PL259	23/3	\$2.32
BNC Series:—		
UG88CU Co-axial Plug (PTFE)	15/9	\$1.58
UG290JU Co-axial Socket (PTFE)	12/6	\$1.25
Belling Lee Type:—		
Co-axial Plug (suit ¼ inch cable)	4/-	40c
Co-axial Socket	3/6	35c
Co-axial Socket (flush mount)	3/6	35c
Co-axial Cable Joiner (female)	4/-	40c

## THIS MONTH'S SPECIAL

### CRYSTALS

FT43 Holders—As New		
Ex SCR534/BC811 Walkie Talkies		
4080 Kc. 4735 Kc. 4950 Kc. 5360 Kc. 5780 Kc.		
4387 Kc. 4815 Kc. 5205 Kc. 5585 Kc. 5925 Kc.		
4495 Kc. 4840 Kc. 5295 Kc. 5397 Kc. 5820 Kc.		
4676 Kc. 4852 Kc. 5327 Kc. 5660 Kc. 6235 Kc.		
4695 Kc.		
7/6 each or 3 for £1. 75c. or 3 for £2.		
DC11 Holders		
5880 Kc. 6420 Kc. 5860 Kc.		
12/6 each or \$1.25.		



# RADIO SUPPLIERS

5A MELVILLE ST., HAWTHORN, VIC. Phone 86-6465

North Balwyn tram passes corner.

Money Orders and Postal Notes payable North Hawthorn P.O.

We sell and recommend Leader Test Equipment, Pioneer Stereo Equipment and Speakers, Hitachi Radio Valves and Transistor Radios, Kew Brand Meters, A. & R. Transformers and Transistor Power Supplies, Ducon Condensers, Welwyn Resistors, etc.



## VICTORIA EASTERN ZONE

The holiday period has come and gone with many Amateurs having gone mobile or portable on h.f. and v.h.f.; and about the end of December and beginning of January record breaking 2-metre openings were observed to New Zealand. Reg 3AWV and 3ZPL are known to have heard ZL's but I'm not sure if they were lucky enough to work any.

Six metres is THE band in Sale and all active Amateurs of which there are five have worked DX on the net frequency of 53,032 Mcs. Most have two transceivers some three. Monitoring of the net is done over a considerable period of the day so what about giving us a call on the net frequency. Ralph VK4ZCH/3, who is operating portable at East Sale, is the latest addition to the 6 metre net. Talking of additions, Ralph's XYL has recently presented him with another harmonic, so congratulations to Ralph and Dori.

David 3DY will be a fully fledged duck talker by the time this comes out in print, as he will have taken delivery of a Galaxy 5. There was a bit of doubt whether a Swan or a Galaxy would grace the shack. Margaret liked the Swan and David the Galaxy, but pure logic won—or was it the toss of a coin? Better watch out for the Muscovies at the shack door now David. Reg 3AWV is also a s.b. fan and is working steadily on his gear. Whether this is for 80 metres or Reg's favourite band 2 metres I don't know.

VK3SJ at Yarram is in the same line of business as Tom 3APT at Mt. Taylor, namely that of forestry. Tom is heard quite regularly on the Friday night zone hook-up at 2000 hrs. on 80 metres.

During the holiday period VK3ZOE Jim was heard on 8 and 2 metres from Mt. Taylor and VK2ABU Alec, mobile marine on the Gippsland Lakes, on s.b., lucky blighter, my bank manager would look sideways at me if I even thought of sideband let alone cruising around in a boat. 73 for this month, VK3UG.

## QUEENSLAND

The January general meeting of the Queensland Division was held on Friday, 28th January. At the conclusion of general business, Mr. G. A. Kirkegard, of the Radio Branch, P.M.G.'s Department, presented a lecture entitled "Special Aspects of Intermodulation Interference." A well attended meeting was shown a number of ways in which unwanted signals may mix with other signal sources to produce resultant signals of d.c.i. and t.v.i. nature.

The January Council meeting was held on Wednesday, 29th January. The meeting was particularly important as the number of agenda items indicated. The following is a resume of the proceedings of the meeting.

Seventeen members attended the meeting which is something of a record. An apology was received from Pat 4KB. After usual formalities and inward and outward correspondence a discussion on VK4 A.O.C.P. classes began. Andy Thompson came from Pomona to speak on notes suitable for use by an A.O.C.P. class. A letter was read from Stan 4SA which was put in the form of a Federal Convention agenda item. Jack 4JQ, who is a class manager, spoke on the advantages and disadvantages of various types of class notes. The result of the discussion was the formation of a sub-committee to prepare a syllabus, to select suitable textbooks if available and to generally determine policy. The sub-committee will consist of Jack 4JQ, Reg 4UX and Stan 4SA. Council thanked Mr. Thompson for his attendance and offer of notes. An application has been made to the P.M.G. Department for the issue of a call sign

VK4ZWI to this division. Very soon the magazine 73 should be included in the library. Pat 4VS expects some demand for copies of this magazine. Lawrie 4ZGL reported on Federal matters which took some time as many items were discussed. Some possible Federal Convention agenda items were also discussed. On the subject of Youth Radio Clubs, Jack 4JE spoke on the need for a committee of three to administer the scheme. Charlie 4UC would look after general clerical work, Jack 4JE would handle examinations associated with the scheme. A third person to co-ordinate activities is needed. It seems that on the new Council to be elected in April there will be a Y.R.S. co-ordinator.

The following items were dealt with under General Business: Lawrie 4ZGL submitted his resignation as Federal Councillor and nominated Dave Portley 4DP as the new Councillor. It was decided to defer the Annual General Meeting of the Division until 22nd April. It was felt that if this were not done, a new Council would be faced with the unenviable task of carrying out arrangements formulated by present members. It was considered that such a procedure would have been most unfair to new office-bearers.

The C.G. and G.K. Cup is to go to the highest scorer in the R.D. Contest. Last year's top scorer was Leigh 4RH. The Cup will be suitably inscribed and forwarded to him.

The 1966 State Convention will be held this month (March) on 25th, 26th and 27th. Bob 4ZRC will again organise the Convention this year. If conventions of other years gone by are any guide, then this year's will be something to be remembered. It is hoped that this year there will be menu improvements as well as facilities for entertainment/amusement of the XYL's. There is a possibility of films being shown at night. Good prizes will be offered for the competitions that will be conducted. It is hoped that this year a large variety of gear will be at the Convention to give members an idea of what the other fellow is building. Some disposals items will probably be on hand as well. A Special General Meeting will be held to enable country members to record their views more readily than they ordinarily could. State conventions are always a lot of fun and this year will be no exception.

A discussion was held on the inclusion of receipts in "Q.T.C." The January issue of "Q.T.C." contained a supplement which asked for your views on this publication. Answers received to date have been encouraging. Many new features have been included and your reaction to these is sought. You are reminded that the insertion of advertisements in "Q.T.C." is free to W.I.A. members.

There is a possibility of some new QSL cards being obtained. However, the QSL officer, Jack 4JF will have further details if negotiations are successful. As stated previously the January Council meeting discussed a large volume of business and I notice that the final sentence in preliminary minutes of the meeting reads: "Closed with relief at 11.04 p.m.!" As a sidelight during a short lull in proceedings at the meeting a card from TF land (Iceland) was produced by one of our ardent 20-metre s.b. members. You could see the envy on the faces of others present.

There are some items of general interest to hand. The following VK4's have been selected to serve on the Amateur Advisory Committee: 4ZAV, 4PX, 4LA, 4FJ, 4XK, 4YP. A.O.C.P. classes this year will be held each Wednesday night in the Small Hall of the Brisbane Institute of Social Services, Berwick Street, Valley, Brisbane. Classes will tentatively (at this stage) commence the first week in March. Fees will be \$6 for W.I.A. members. Subscription for non-members is of course \$6 plus W.I.A. membership fee. Intending students should enrol with the Hon. Secretary at Box 638J, G.P.O., Brisbane.

Reg 4VX who usually edits the news for 4WI has taken a month's leave of absence.

Oscar IV, has had a difficult time here in VK4. There was very little interest shown. However, a few stations have now constructed 432 Mc. gear and it is hoped that as Oscar will be up for a fair while, some contacts may be made.

Finally, the 1966 Federal Convention will be held in Brisbane this Easter. With the co-operation of members particularly those residing in the Brisbane area, there is no reason why the Convention should not be a success. In Queensland, more than in southern states, Easter is looked upon as the last holiday before the onset of winter. Quite a number of events are scheduled for this period and the attractions are varied. Some will spend the few days quietly along the seashore, while others—notably the v.h.f. enthusiasts—will no doubt head for the bush and the rigours of camp life that the annual Scout Eastern venture brings. It is hoped, however, that all will contribute in some way to the Convention.

## TOWNSVILLE AND DISTRICT

Pleasing to note at long last that the constant reference to reforming the local radio club has at last borne fruit. An initial meeting being held in the Auditorium of the local broadcasting station, 4TO. About a dozen came along and it was noted that most of the faces were quite new, chaps who had only held their call signs a few years. It is being decided to follow along the lines of the old club and affiliate with the W.I.A. Meetings to be held the first Thursday of each month. Also that the old timers be canvassed with a view to their rejoining. With the infusion of new blood it is to be hoped that the club will regain and surpass the old membership. Next notes will show the office-bearers.

Charlie 4BQ and Evie the better half (who always offers a cuppa) has a new call sign of 4EQ returned from holidaying in the far north to welcome quite a few visitors. Had the pleasure of entertaining Rusty 4JM and his wife Jocelyn 4JJ from around Bundaberg, while Bill 4ZWB from Charters Towers called in, plus a few whose call signs escape me. Ted 4EJ has returned from the big smoke. This time failed to bring back our bridge from VK2 land. Heard that Arnold 8AG contemplating another visit to the city of 3 S's, Rockhampton, in the near future and will call for a cuppa. Also has ideas of shifting back to the mainland. Eric 4EL heard on 28 Mcs. giving slow Morse practice to the boys who hope to break the sound barrier. Rumoured that Eddie 4WH will act as secretary to the club until someone else takes over. 73, Bob.

## SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division—sometimes known as the R.D. Division—was held to a somewhat below average attendance of members and visitors in the clubrooms. The usual Chairman Ross 5KE was absent without leave—bring me anyway—and the meeting was called to order by the acting chairman, Geoff 5TY almost on time. The business side of the meeting mainly consisted of the reading of the agenda items submitted for the Federal Convention, one or two of which created a little interest and discussion, but on the whole they were passed through in almost record time. It was decided that the three section leaders in the R.D. Contest should have the privilege of holding the trophy in their QTH's for one month, and as Harry 5MY, the c.w. section leader, was the only one present of the three, he was formally presented with the trophy, mid jeers and cheers, his plaintive cry of "What shall I tell the wife" being lost in the general noise. This pretty well completed the business part of the meeting, as for a couple of minor and local subjects, and a smoke-oh was called for, with George 5RX taking the opportunity of distributing the QSL cards. The meeting resumed for the lecture, which was announced as "V.h.f. for the Beginner," and was to have been a three-way effort by Bob 5ZDX, Peter 5ZKA and Colin 5ZHJ under the headings of Receivers, Transmitters and Aerials.

Unfortunately time squeezed out Colin from his effort, but he will be given his opportunity to complete lecture on aerials at a later date. Both Bob and Peter did an excellent job with their subject despite the opposition from the clock, and as a good deal of their talk was illustrated on the blackboard, nothing further can be written, except to say that the vote of thanks proposed by that doyen of the v.h.f.s, Fanny 5ES, was received and acknowledged with acclamation by all present. It was announced at the meeting that following a well presented case, permission had been granted by the authorities for VK5 to have a 24-hour unattended v.h.f. beacon on 53.0 and 144.8 Mc., and as soon as the necessary paper work had been attended to they would be in operation. Geoff. 5TY, our genial Federal Councillor, ably assisted by Bob 5ZDX, prepared the case for the beacon, F.E. handled the matter with the authorities, and from all this VK5 now has what is believed to be the first 24-hour unattended v.h.f. beacon. Rah-Ras-Rah-VK5-VK5—all right, I will shut up, put that gun away!

### VK3 S.W. ZONE CONVENTION

12th, 13th, 14th March, at  
Warrnambool

Booking Fees:  
Accommodation, \$3.  
Saturday dinner and Sunday  
lunch, \$2.

Contact Harry Duggan, VK3XI,  
or Bill Wines, VK3AWW, C/o  
Y.M.C.A. Radio Club, Henna St.,  
Warrnambool.

### 1966 VK4 ANNUAL STATE CONVENTION

Held at "Alexandra Park," Alex-  
andra Headlands, on 25th, 26th,  
27th March.

Further details of programme to  
be published in "QTC."



# SWAN TOPICS

Most people do not realise the full range of Swan equipment available. It comprises of 16 different units which can be combined in a number of different ways to suit your pocket and your requirements. They are as follows:—

SW350 Mk. II. . . . .	Basic Transceiver, 400w. p.e.p., 150w. a.m., c.w. . . . .	£265 0 0
SW240 . . . . .	A.c. Power Supply, matching Cabinet, Speaker, complete with all Cables and Plugs . . . . .	59 0 0
WFS500 . . . . .	12 volt d.c. Power Supply 500 watts, self protecting . . . . .	65 18 0
SW420 . . . . .	20-band Transistorised VFO, in matching Cabinet . . . . .	94 0 0
SW406 . . . . .	5-band Miniature Transistorised VFO . . . . .	55 13 0
SW400 . . . . .	De Luxe Transceiver, with a built-in Speaker, etc., 400w. p.e.p., 150w. a.m. . . . .	292 1 0
SW300C . . . . .	Commercial fixed frequency Transceiver . . . . .	Price on application
VX1 . . . . .	5 Transistor plug-in V.O.X. Unit . . . . .	26 10 0
SWAN Mk. I. Linear . . . . .	2 kw. p.e.p. in-built Power Supply, solid state, same size as SW350 . . . . .	Price on application
SW22 . . . . .	Split-channel plug-in Adaptor . . . . .	25 11 10
SWANTENNA . . . . .	5-band completely automatic 12 volt Mobile Whip . . . . .	95 0 0
	Opposite Side-band Kit for SW350 . . . . .	17 10 0
	100 Kc. Crystal Cal. Kit for SW350 . . . . .	17 14 11
	Composite 240v. a.c. 12 volt d.c. Power Supply	
	WFS 500 d.c./a.c. 12 volt d.c. to 240 volt a.c. 50 cycle, 500 watts Transistorised Inverter	
	Miniwhip—Helical Mobile Whips for 80, 40 and 20 metres . . . . .	27 0 0

Swan are continually adding to this range. Watch these topics for new items.

**W.F.S. ELECTRONICS SUPPLIES CO.**

227 Victoria Rd., Rydalmere, N.S.W. 638-1715

**ATLANTIC RADIO**

36 Oxford St., Woollahra, N.S.W. 31-7811

## FOSTER DYNAMIC MICROPHONES

### FOR HAND-DESK USE

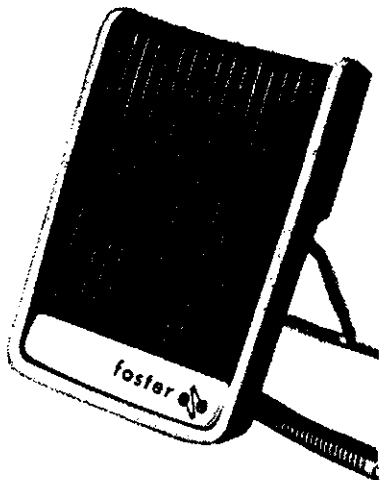
#### SPECIFICATIONS:

Output Impedance . . . . . 50 ohms or 50K ohms  
 Effective output level . . . . . -55 db. [0 db. = (one) IV. Microbar]  
 Frequency response . . . . . 200 to 10,000 c.p.s.

#### OMNI-DIRECTIONAL DYNAMIC:

SIZE: 3" x 2-1/8" x 1".  
 Cable: 12 ft. of P.V.C.  
 Switch: on-off.  
 Desk Stand. Clip folds for hand use.  
 Colour: WHITE.  
 Plastic Diaphragm.

Retail Price  
**50K ohms**  
**£2/14/0**  
 + Sales Tax 4/9



DF-2

A QUALITY PRODUCT OF EXCELLENT DESIGN

Marketed by **ZEPHYR PRODUCTS PTY. LTD.**

58 HIGH STREET, GLEN IRIS, S.E.6, VICTORIA      Phones: 25-1300, 25-4556



**Manufacturers of Radio and Electrical Equipment and Components**

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L; Jacoby, Mitchell & Co. P/L; T. H. Martin P/L.



Joe 5JT was heard on 14 Mc., his usual happy hunting ground, using a new ground plane and hoping for more than average success. He succeeded in getting "across the water" all right—to 5BS who lives across the other side of the Patawalonga boat haven, and also to Tom 5TL. Heard Joe say that he will be 80 next year, which would surely put him in line for the title of the oldest active VK5, if not the oldest VK—any takers?

Gilbert 5GX now completely recovered from his sojourn in hospital, but naturally must be still a little careful.

Flattery to the left—Flattery to the right—in fact, flattery all round. Did you cop the correspondence page in the January issue of the magazine? Three letters to the Editor and two of them containing attempts to shoot me down in flames—and to make it better—the Editor agreeing with them. Little do they realise that they are attempting to take the bread from the mouths of my three XYL's and my 27½ children, to say nothing of a couple of noughts off the fabulous salary granted to me by the magazine committee. Strangely enough, I agree with them entirely, in fact, I would not only cut the notes down, I would cut them out altogether. After some 20 years or so of murdering the King's English on behalf of the VK5 Division in the magazine, I could not agree with them more, however, so far nobody has shown any inclination to usurp me, in fact, I gave the notes away for a while about seven years ago, but was prevailed upon to take them on again on a temporary basis until a regular writer was found. So far everybody is so busy running in the opposite direction that I am still on a temporary basis! Thanks for the compliment chaps, but please remember my sensitive and shy nature, I bruise so easily!

Had a visit over the festive season from Bruce (8MC, ex-5MC), together with his XYL Pam and the two harmonics. They were down on leave from VK8 land for a short period, and were to have left that day for home. However, the floods threw a spanner into the works, and although Bruce was to fly back over the week-end, the XYL and harmonics did not know when they would be moving back. He brought "The Thing" down with him and had a couple of contacts on a temporary aerial, and as he had it in the car with him he offered to show it to me, but my chilly reception to this offer seemed to dampen his enthusiasm. How presumptuous can they get?

Since the day I decided to label s.s.b. as "The Thing" it has bobbed up in the most unlikely places, and after getting over the shock of it appearing in VK4 without any warning it rears its ugly head in none other than VK3—and I quote—"Mr. Arthur Barnes, of Richmond, Victoria, opened a bottle of tomato sauce today to finish a spaghetti dish he was making for his dinner. He was rather pleased with his culinary efforts and looking forward to enjoying it. Then something happened, he had just started pouring some sauce when out of the bottle popped "The Thing." "It was about six inches long and I could see it stretching from the bottom right up to the neck," he said. "It seems to be some machinery part and I think there are more steel pieces in the bottle. I was making Sunday dinner for the friends I stay with, and one of them is sick. Of course, we could not eat the food after that"—conclude. Well, did you ever? And in VK3 at that!

Talking about "The Thing"—and why I should be talking about such a subject beats me—I spent all of January thinking about various schemes as to how I could get down to Hamilton, heavily disguised, plant a bomb under the meeting place of the Sidebanders' Convention, and then hotfoot it for home. I finally gave it away in disgust, and got my own back by sending a tape recording as requested by Dud 2DQ to be played at the final meeting.

I await with interest as to the reactions of those who hear it, always allowing for the fact that it won't be played back just for spite, but going on the reactions of a letter I received from Ern 3AEM to whom I was instructed to send the tape, I fear the worst. By the way, this Ern is hardly a novice in Amateur Radio, he was A3FJ back in the dim, dark past. Anyway, his XYL Vera is a bit my way, she heard the tape in a trial run, and asked for a replay. Attagirl Vera, you will do me.

Heard Cec. 5BZ calling his namesake G5BZ on the 14 Mc. band the other afternoon. The c.w. has not gone back, OM, quite a nifty fist, although I gathered from the number of times I heard you calling, that there was no reply from G land.

Those of you who remember George 5EC when he was at Ceduna will be interested in the following—and I quote—"The former radio engineer of the Flying Medical Services radio base of the Bush Church Aid at Ceduna will begin a new job as a priest late in January. He is the Rev. G. B. A. Cameron who resigned from the Ceduna post to enter the ministry. Mr. Cameron leaves an appointment as assistant curate at the Church of the Epiphany, Crafers, to become priest-in-charge of the Anglican Mission of O'Halloran Hill." Congratulations George, it seems a long time since the almost daily skeds on 40 mx with Gordon 5XU. Again, congratulations and best 73.

Both John 5KX and Rex 5DO made a welcome re-appearance at the Christmas Social after their recent overseas jaunt. I did not see them myself, being absent on other business—and despite remarks to the contrary—not monkey business either—but had I met them I would have been more than pleased to tell them both just what they could do with their travelling bags. Fancy, both of them sneaking off overseas without even as much as checking with me as to whose bag I was prepared to carry. Such ingratitude.

Johnny 5KO heard on 14 Mc. at times—apparently he has decided to retire now—and again from his beloved 160 and 80 mx—and secure the unexpected title of "all-bander." Quite a potent signal, too, OM.

Quite a number of unofficial delegations finding their way to the ears of both sides of the local Parliament with respect to the controversial Licensing of Electricians Bill, and being received with courtesy and attention on all sides. It is possible that the powers-that-be might have a change of thought on the matter, considering all the representation from the various bodies concerned with the effects of the bill, and who knows, we might see a revised version of the bill yet. Here's hoping. Incidentally, since my recent debut into Parliamentary circles as a member of the VK5 delegation on the above matter, I have been addressed on occasions as the "Dishonourable Member for Rose Park." You all know what you can do!

Bob 5OD reported as back from his recent trip to the U.S.A., complete with an HW32, and itching to get on with the Y.R.S. scheme, especially that he now has such an excellent committee to help him.

Incidentally, the Adcola iron, a gift from VK3 to VK5, has been sent to the Port Pirie Youth Club, as they are considered to be the most up-and-coming youth set-up at the moment, for presentation to their most promising young member. A gift from VK3 to VK5—I must look into this—what have I heard about, "beware of gifts from etc., etc., etc."!!

Ron 5KS is almost settled in at Morphettville, and once the aerial is up he should be in business once again. However, despite his oft-repeated boast that he is always using the XYL's household gear for his experiments, it would seem that until all is tidy and snug within the said household, there will be no aerial.

According to reports at the meeting, W.I.C.E.N. is growing apace with more than 40 members, and plenty of enthusiasm to go with it. Geoff. 5TY of course as the new coordinator, is cracking the whip in all directions, but I have been told on the best of authority that his bark is worse than his bite.

Who was the VK5 chappie who was heard calling "CQ 40 mx" on 14 Mc., and when tipped off by an anonymous voice as to his mistake, immediately became considerably confused and came back and called "CQ 80 mx," finally retiring in absolute confusion. There will be no prize for the answer!

Brian 5BI was a welcome visitor at the meeting night, although he seemed a little coy when I asked him how the boat was coming along. Little did he know that a little dicker bird had told me that on his first trip out on the briny, he tossed out the anchor, only to discover that it was not tied to the boat. To cap it all the next time he went out he was intrigued to see a bright object on the bottom of the sea, and when he wanted to know the time later, one look on his wrist soon told him what the bright object was.

It would seem that I will have to find a new place to deposit my empty bottles and collect the cash. My favourite banker Keith 5KH has been converted to "The Thing," which fact brings to an end our business dealings, He had such a kind face, too, but just fancy asking an owner of "The Thing" for an overdraft. I might stoop sometimes, but not that low!

My favourite Scotsman Dave 5DS was also at the meeting, and when I asked him when his New Year celebrations ended, he said, "When the bottle is empty." Now what did he mean by that? How could a bottle control the end of the New Year. These Scotsmen are always joking.

Gilbert 5TK reported to be on a tour of the United States for the purpose of familiarising himself with instrumentation for further use at the new Torrens Island power house. Another one who sneaked off without giving me the opportunity to refuse to carry his bags.

Comps 5EF and John 5KX both noticed at the meeting, and both seemed a little bewildered with all the new and youthful faces in the front rows. So much so, that one of them said to me, "Is this the W.I.A. meeting we used to have?" Feeling my grey hairs somewhat sorrowfully, I was forced to tell them that it was.

Our youthful treasurer Harry 5MY, soon off on a tour of the Pacific areas, and hoping to meet up with Malcolm VR2BJ at Suva, Malcolm is an ex-VK5, having been 5SU, then 5MU, and was best man at Harry's wedding. By a very strange coincidence, the boat only stops at Suva for one day, and this will be Harry's wedding anniversary. I hope he remembers to tell his XYL!

Heard Charlie 2ADE and Colin 5RO in QSO the other day, and in answer to Colin's query why he was on a.m. and not s.s.b., Charlie said when he called CQ on s.s.b. he always had more calls than he could handle, so was using a.m. for peace and quietness. Colin said he once felt like changing his mode and decided to use c.w., but could not find a key in the shack.

However, this did not stop him, he just whistled into the mike and managed to get a contact too. By the third over, his little wooden whistle wouldn't whistle any more, and it took him about three weeks to recover from the ordeal. I gave away listening at this point because I was not sure just who was pulling whose leg, but I felt like breaking in and telling them both of the day that I changed from a.m. to s.s.b., only to find that I had laid an egg!—get it—laid an egg—quack-quack—get it?—never mind—perhaps it is not funny.

73 de 5PS PanSy to you.

## WESTERN AUSTRALIA

New Year's Greetings to all readers, although we are entering into the third month of 1966, the season is still quite new, so I consider greeting are still in order.

Note Christmas meeting was as usual a get-together of members and visitors. A most enjoyable evening was held by all.

Conditions on 40 mx so far have been quite on the improve. Country listeners have the benefit of 40 mx especially Sunday W.I.A. news, not forgetting the fact of relay also on 80, 2, 6 and 160 mx. This in all is quite well received in the city and also country areas, from the southern coast to Port Hedland and Derby, some 1200 to 1800 miles north of Perth, even Arthur 6MJ and XYL Jackie are able to receive in Broome. Arthur extends best wishes to all. Has a rig on 20 mx and on the look out for locals.

Many readers will be interested to hear that VK6WS Skipper will be coming on the air again. I'm no sure what bands, but feel very sure that many will be looking forward to having contact and giving much enjoyment to a grand old gentleman.

Mac 6MM portable Narragin operating 6 mx, also 80 mx. 6KJ Bernard has to hand a new black box (122), opps, sorry, Bernie, I meant 350 Swan. Note Jack 6BW has got things working well from his new QTH "Yunderup," situated close to the Murray River. Jack has spent some of his leisure moments baiting the hook, that would be for sure.

Tom 6MK, previously heard portable Albany, always a very nice drop of s.s.b. from that little rig, Tom.

Well chaps this about winds up the works for now. 73, Bob 6KN.

## NEW APPOINTMENT

Mr. Edward F. Coate (VK3AIP), Director and Sales Manager of Collins Radio Company (A/asia) Pty. Ltd., has resigned to join Bendix International Operations of the Bendix Corporation, 605 Third Avenue, New York, N.Y., U.S.A.

Mr. Coate has been appointed Assistant Manager, Avionics Equipment Europe, and will be based in Amsterdam.

He will be directly responsible for relations with the Airlines of Europe, European airframe manufacturers and Foreign Government Agencies utilising Bendix Avionics Equipment.

Phone 34-6539, write or call

**WILLIAM WILLIS & Co. Pty. Ltd.**

428 Elizabeth St., Melbourne

for **GELOSO**

Equipment and Components

## TASMANIA

Well, the holiday season is well and truly over, and most people have recovered from the over-indulgence of various things, and although this is the third month of 1966, it is the first month of our (Institute's) financial year, and so is a busy month in all Divisions with annual meetings and dinners, etc., and it behoves us all to pull our weight and help out where at all possible, which leads me to the point I'm trying to make—the least every licensed member of the institute can do if he is at all interested in his hobby, is to record a vote in the election of his Divisional Council. This year we lose three of our most important and hard-working members, Charlie 7KS, our poor overworked Secretary is resigning due to change of job and more work as a consequence; Tiny 7JD also finds he has too much else on his plate, and so regretfully steps down as Treasurer; and likewise Ted 7EB, our Bulletin Editor and general agitator and factotum has a transfer to another brin in his place of employment, and finds he has to go back to night school for the next couple of years. So you see we are really in a spot. However, there is one bright spot, Anne 7LY at the February general meeting spontaneously volunteered for the job of Bulletin editor, and I'm sure I speak for you all when I say "Thanks Ted for a job well done," and "Thanks Anne for showing all the male members present at the last meeting that although you are only small in stature you're big enough to tackle a man-sized job." I feel sure every member will be behind you, and assist you wherever possible.

Winston 7ZAP got among the DX during this year's Ross Hull Contest, and worked into ZL on 2 metres with really F.B. sigs. both ways. Good work Winston.

Our Annual General Meeting and Dinner is to be held in Hobart this year, on Saturday, March 26. I hope we will see as many members as can possibly make the trip from other zones here for both the meeting and the dinner—what about making up a party—three members, their 7XL's or 7YL's, fit nicely in the averaged-sized car—park the harmonics with the neighbours or mother-in-law, and come to Hobart for the week-end, 26th-27th March. Remember also please, gentlemen, sub. are now due. 73's Geoff. 7ZAS.

### A. R. R. L.

Associate Memberships (and renewals) are available by forwarding £2/14/- (plus 6d. interstate cheques) to:

Business Manager, W.I.A.,  
49 Cookson Street,  
Camberwell, E.6,  
Victoria.

This includes the regular arrival of

### "QST"

## COMPUTER CIRCUIT BOARDS

containing transistors, resistors, condensers, diodes, etc., 2/- per transistor. We also stock 1600v./0.75a. diodes (two for 30/-) and 2N1100 transistors (100v./15a., 47/8 ea.).

### AUSTRALIAN ELECTRONICS

(formerly "Electronics Associates")

76 View Street, Hobart, Tasmania

Repairs to Receivers, Transmitters; constructing and testing; xtal conv., any frequency; Q5-ers, R9-ers, and transistorised equipment.

### ECCLESTON ELECTRONICS

146a Cotnam Rd., Kew, Vic. Ph. 80-3777

## Stockists of Radio and Electronic Components for the Amateur Constructor and Hobbyist

First Ring, Write or Call on

WILLIAM WILLIS & Co. Pty. Ltd.

428 Elizabeth St., Melb'ne. Ph. 34-6539

## NORTH-WEST ZONE

The first meeting of this Zone for the new year took place at our usual headquarters, Lakin's Hall, Diverstone, on Tuesday, 1st February.

Although I was not present my spies informed me that the meeting was a social one with approx. 24 in attendance.

The chief attraction of the evening was a lecture given by Mr. Bonde, of the Meteorological Division of the Weather Bureau. His subject being, "Radio Aids on Weather Forecasting." Members were given a first-hand insight into that particular field and some interesting photos were shown.

After the lecture, George 7XL got up and addressed the gathering on his recent visit to the Hamilton S.s.b. Convention in VK3 land. My spy told me that George was very impressed with all the latest gear on display, particularly the kilowatt linear amplifiers suitable for mobile operation—so the rumour goes—some of the s.s.b. gang switch on their "2000 watts pep" liners when conditions get a bit rough or when some of the a.m. gang get too close in frequency to their net!!!

Just goes to show what lengths some people go to, just for their own selfish satisfaction—I've always thought that 300 watts pep is more than enough power for anyone. Anyway Sam 7SM is more than pleased with his Galaxy V, and since he took delivery late last year, I've been told that Sam has worked over 100 countries on a.s.b.

The mobile outfits will soon be arriving and then I guess a few "halo" antennas will make their appearance on the highways. I suppose these bods will be known as "saintly drivers."

The meeting concluded with another auction—but I don't know who bought what and why.

Another member of this zone is leaving us—Bruce Kelly. The best of luck in your new job Bruce and keep the N.W. Zone informed of your activities over the air occasionally.

Seems to be all this month but hope to see you at the next meeting. 73's, VK7MS.

## HAMADS

Minimum 5/-, for thirty words.

Extra words, 2d. each.

Advertisements under this heading will be accepted only from Amateurs and S.w.'s. The Publishers reserve the right to reject any advertising which, in their opinion, is of a commercial nature. Copy must be received at P.O. Box 36, East Melbourne, C.2, Vic., by 8th of the month and remittance should accompany the advertisement.

**C**OMMUNICATION Receiver, Halli-crafter SX28, previously advertised. Highest reasonable offer accepted. This receiver is an excellent performer and full coverage 500 Kcs. to 30 Mcs., with bandspread, on 80, 40, 20 10 metres. It is complete with auto-transformer, loud speaker, instruction book and has an extra S9ER. Ring Alf Chandler, VK3LC, 50-2556, or write 1536 High St., Glen Iris, Vic.

**F**OR SALE: Sideband Generator, output 5 to 5.5 Mcs.; includes transistorised separate v.f.o., crystals and 2.1 K.c. mechanical filter, \$50 (£25), or offer. 240v. a.c. or 12 volt d.c. h.d. Power Supply, complete in rack mounting case (less vibrator); output is 300 v. 100 mA. and 12 v. a.c. or d.c., \$10 (£5). 45 ft. transportable "A" frame mast, very light, easily erected or dismantled, ideal for portable work since it is in 12 ft. sections, able work since it is in 12 ft. sections, \$20 (£10). Ring Hepburn, 96-2414, evenings, or write to 4 Elizabeth St., East Brighton, Vic.

**F**OR SALE: 2-metre Transmitter, xtal controlled, 2E26 p.a., 15 watt output, fully v.t.i. proofed. 6-metre Transmitter, xtal controlled, provision

for external v.f.o., QQE06/40 p.a., T.v.i. proofed. 300 volt 250 mA. Power Supply and 10 watt Modulator. All above mounted on single rack, complete and ready to go, £35 the lot, or will sell separately. Also 144 Mcs. Geloso v.f.o., unused, with tubes, £8. Many other small items, inc. 6 and 2 metre Converters, Valves, etc. Owner leaving district. VK2ZIH, I. Hopkins, 46 Mulda Street, Dapto, N.S.W.

**H**ALLICRAFTER SX101, Mk. 2. Ham-band Rx. Ser. No. 175324. Switched SBs. Xtal Cal., 0.5 Kc., c.w. sel. Ex. order, £120. S.A.E. info., 25 Millen St., Hughes, A.C.T.

**H**T37 Transmitter, a.m./c.w./s.s.b., as new. Must sell to best offer. Your chance of a good buy. 126 McCarrs Creek Rd., Church Point, Sydney.

**R**ECEIVER, Heath GR91, 110v., 4 band, b'cast to 30 Mc., £17/10/-, Sig. Gen., Advance model B4B, 30 Kc. to 30 Mc., £21. V.T.V.M., £15. Len Hearnies, 166 Sycamore St., Caulfield, Vic. Ph. 53-3380.

**S**ELL: Mosley TA33 Jr. Beam (s.w.r. 1.2 to 1 phone, 1.5 to 1 c.w. all bands), 65 ft. 52 ohm co-axial and fittings, new (not war surplus), £35. Tower, 43 ft., galv., self supporting, 3 ft. base, made to order, £35. C.D.R. Rotor AR22—220, little use, £15. Duo-doublet antenna, 40 and 80 mx, VK2JR special balun (s.w.r. 1.3 to 1), 45 ft. 75 ohm co-axial (new) and fittings, £7. Crystal mike, p.t.t. with 3 cont. plug. £3. G.D.O. Q-Match, new, and Antennascope, complete, £17/10/-, VK3VH, 34 Marshall Ave., North Clayton (nr. Monash University), Victoria.

**S**ELL: TA33JR Triband Beam, complete with automatic rotor and control unit, £57/10/-, Also "Linear Systems" mobile P/S., 800v., 450 mA., 275v. and bias, £60. Suit any transceiver. VK3XO, 44-1823 evenings only.

**T**YPE S a.c. Power Supply, unmodified and in excellent condition, 550, 300, 250, 12 v. d.c., 12 v. a.c., \$19. Six metre Converter with power supply, on chassis, \$10. Receiver R1155B with speaker and power supply, \$55. 40 watt Mico miniature Soldering Iron with low voltage trans., \$6. D.c./d.c. Converter to suit s.s.b. transceiver, 750 v., 250 v., input 12 v. d.c., with two in-built control relays. The two supplies in copper box 10 in. x 10 in. x 1 1/2 in., \$45. W. D. I. Smith, VK2TS, R.M.B. 100A, Mangrove Mtn., N.S.W.

**W**ANTED: Modulation Transformer, at least 30 watts audio, greater preferred. Size, particulars to B. L. Jones, VK7TA, 2 Richmond Pde., Sandy Bay, Tas.

**W**ANTED: Search Receiver (APR-4) or similar. Converter boxes TN 16/17/18/19 also required for same. VK2AAK, Kulnura, N.S.W.

**W**ANTED: 2-metre Transceiver, a.m. or sideband rig, or compact 2-metre Transmitter with or without Rx converter. Write first to VK3AXE, 383 Warrigal Road, Burwood, Melbourne.

# A LARGE RANGE OF TRANSMITTERS, RECEIVERS, TEST GEAR, AND DISPOSALS RADIO PARTS AVAILABLE

## ★ SIGNAL GENERATORS

Type LSG10, 120 Kc. to 260 Mc., \$26. Type LSG11, 120 Kc. to 390 Mc., provision for xtal, \$30, both plus freight.

TE22 Audio Generator, freq. range: sine 20 c/s.-200 k/c., square 20 c/s.-25 k/c., in four ranges. Output, 7v. p-peak. Output impedance, 1,000 ohms, \$42.

## ★ C.W. TRANSMITTER

80-10 metres. Gelo 4/102 v.f.o., 2E26 buffer, 813 final, pi-coupler output. Separate meters for grid and plate current. Excellent table-top rig. Less power supply, \$50.

## ★ POWER SUPPLIES

300v. at 150 mA., 6.3v. at 3 amp., fully enclosed, on 19-inch panel, \$6, complete with meter \$8.

## ★ METERS, P25 TYPE

0-500 uA., \$5.25; 0-100 uA., \$6.95; 0-1 mA. \$4.50; 0-10 mA., \$4.50; 0-50 mA., \$4.50. Full range of Meters and Multi-Testers available.

## ★ CO-AXIAL CABLE

UR70 72 ohms, 3/16 inch diam., in 27-yard rolls, \$2 plus 75c pack and post. In as new condition.

## ★ 80-40 METRE TRANSCEIVER

San Electronics QTR7. Tx: 6BQ5 p.a., 6BQ5 modulator, xtal locked. Rx: Tunes 3.5 to 11 Mc., 1 watt audio output, 230v. a.c., \$90.

## ★ SAL39 AMPLIFIER KLYSTRONS

**Pulse Service:** 120w. input, 30kw. output, duty cycle 1%, freq. range 960-1230 Mc. **C.w. Service:** 50w. input approx., 300w. output approx. Ideal tube for 1296 Mc. band. \$20 plus freight.

## ★ GOLD PLATED CRYSTALS

One only G.E.C. 1,000 c/s. vacuum mounted, gold plated Crystal. Octal base.

One only Marconi 2,000 c/s. vacuum mounted, gold plated Crystal. B7G base.

Prices for above on application.

## ★ MINIATURE CAPACITORS

New shipment. 600 v.v. Values: 0.001, 0.02, 0.005, 0.0005, 0.0002, 0.0001 uF. \$2 for 80 plus freight.

## ★ RESISTORS

$\frac{1}{4}$  watt, I.R.C., Welwyn, Eire, Ducon, Philips, \$2 per 100.

## ★ CRYSTALS

Personal shoppers only, \$1 each.

## ★ AR7 COMMUNICATIONS RECEIVER

Complete with five coil boxes. 120 Kc. to 25 Mc. 10 tubes. All resistors and capacitors replaced, immaculate condition. \$90.

## ★ SPECIALS

813 Beam Tetrodes, \$5 each.

7-pin skirted Valve Sockets, P.T.F.E., insulation, silver plated, only 20c each, c/w. shield.

## ★ C.R.O. TUBES

CV407, \$1 each; CV392, \$1 each.

## ★ TRANSISTORS

Brand new. OC72, OC44, 2N132, OC66, OC45, 80c each. AT1138 Power Transistor, 30w., Class B, \$3. Also Diodes: OA71, OA81, OA95, 35c each.

### WANTED TO BUY

Communication Receivers, Test Equipment, etc. Call, write or phone. Equipment inspected and picked up at your convenience any night or week-end.

### ANY QUERIES

Beginners are welcome, ask Jim and Laurie Gardiner any questions. They are Amateur Radio operators and will be only too pleased to assist.

ALL ITEMS FREIGHT EXTRA

# UNITED TRADE SALES PTY. LTD.

280 LONSDALE ST., MELBOURNE, VIC. (Opp. Myers)

Phone 32-3815

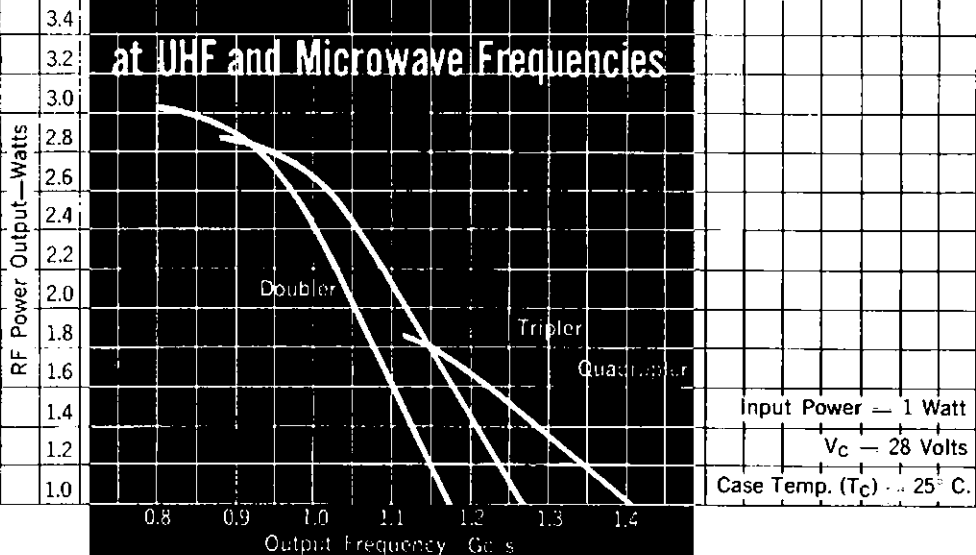
2.5 Watts Output with 4dB Gain at 1000 Mc/s as a Tripler

TD-60

RCA-2N4012 "overlay" Transistor

FREQUENCY MULTIPLICATION  
WITH POWER GAIN

at UHF and Microwave Frequencies



Now for the first time, you can achieve frequency multiplication with power gain at microwave frequencies with a single solid-state device, the new 2N4012 silicon transistor. With this new "overlay" unit, you can greatly simplify circuit design as well as reduce costs. At 1 Gc/s, one single 2N4012 can replace both the transistor power amplifier and varactor diode stages previously required.

Offering frequency multiplication with power gain in the 1 Gc/s region, the 2N4012 as a doubler, tripler, and even as a quadrupler, extends transistor performance into the microwave region with watts of power! When used in a common-emitter configuration, this transistor provides stable operation—power output varies smoothly with changes in power input.

Find out how the 2N4012 can help you cut costs by eliminating the varactor and reduce the size of hardware in space, military, and commercial applications. For technical data, price, and delivery, contact Amalgamated Wireless Valve Co. Pty. Ltd., 348 Victoria Road, Rydalmere, N.S.W., or any interstate office.

	2N4012 DOUBLER	2N4012 TRIPLER	
Output Power	3 (typ)	2.5 (min)	Watts
Output Frequency	800	1002	Mc/s
Input Frequency	400	334	Mc/s
Conversion Gain	4.8 (typ)	4 (min)	dB
<b>MAXIMUM RATINGS</b>	V <sub>CB0</sub> 65 Volts V <sub>CE0</sub> 40 Volts V <sub>CEV</sub> 65 Volts V <sub>EB0</sub> 4 Volts I <sub>C</sub> 1.5 Amperes		



AMALGAMATED WIRELESS VALVE CO. PTY. LTD.  
SYDNEY • MELBOURNE • BRISBANE • ADELAIDE • PERTH • HOBART



# amateur radio

Vol. 34, No. 4  
APRIL  
1966

25c

Registered at G.P.O., Melbourne, for  
transmission by post as a periodical

## TRANSISTORS AND DIODES

AC125	9/6	95c	OC169	19/6	\$1.95	
AC126	9/6	95c	OC170/AF115N	10/-	61	
AC127	10/6	\$1.05				
AC128	10/-	\$1	OC171/AF115N	10/-	91	
AF114N/OC171	10/-	\$1	2N217	9/6	95c	
AF115N/OC170	10/-	\$1	2N217S	8/4	95c	
AF116N	9/6	95c	2N270	13/6	\$1.35	
AF117N	9/6	95c	2N370	19/-	\$1.90	
AF118	22/-	\$2.20	2N372	18/-	\$1.90	
BC107	11/-	\$1.10	BY100/OA214	16/-	\$1.63	
BC108	10/-	\$1	OA79	4/-	40c	
BC109	14/-	\$1.40	OA8J	3/-	30c	
OC26	26/-	\$2.60	OA81	3/-	30c	
OC35/AT1138A	35/-	\$3.50	OA90	3/3	32c	
OC44N	11/-	\$1.10	OA91	3/3	32c	
OC45N	11/-	\$1.10	OA95	3/3	32c	
OC70	12/-	\$1.20	OA200	7/6	75c	
OC71/2N215	7/6 or 3 for £1		OA210	1N1753, 1N3194		
	75c or 3 for \$2		HR25	8/6	85c	
OC72	13/6	\$1.35	OA211	S10AR2	16/-	\$1.63
OC74N	9/6	95c	IN3491	50 p.v. 18 a.	9/6	95c
OC75	13/6	\$1.35				

## ZENER DIODES

OAZ200	15/8	\$1.55	OAZ222/BZ214		
OAZ212	12/6	\$1.25		27/6	\$2.75
OAZ213	12/6	\$1.25	OAZ224/BZ216		
OAZ225	27/6	\$2.75		27/6	\$2.75

## POWER TRANSFORMERS

1892	150-0-150v.	30 mA., 6.3v.	1.75a.	37/6	\$3.75
1893	225v.-0-225v.	59 mA., 6.3v.	2a.	45/-	\$4.50
2082	Voltage Doubler,	290, 265v.			
	d.c. 80 mA., 6.3v.	c.t. 2.25a.		67/8	\$6.75
2064	Voltage Doubler,	340, 315v.			
	d.c. 125 mA., 6.3v.	c.t. 2.25a.		87/6	\$8.75
2067	Voltage Doubler,	310, 285, 260v.			
	d.c. 100 mA., 6.3v.	c.t. 4a.		83/8	\$8.35
290-0-290v.	60 mA., 6.3v.	2a., 5v. 2a.		27/6	\$2.75
385-0-385v.	100 mA., 6.3v.	3a., 5v. 2a.		33/-	\$3.50
385-0-385v.	125 mA., 6.3v.	3a., 6.3v.		45/-	\$4.50

## AUDIO TRANSFORMERS

2624	7000 ohm s.e., 500 ohm s.e.				
	prim.; 2, 3, 7, 8, 15 ohm sec.			46/-	\$4.60
4013	15 watt 6600 ohm c.t. 20%				
	prim.; 3, 7, 8, 15 ohm sec.			164/8	\$16.46
4020	10 watts prim. 9000 ohm c.t.				
	20% Ultra Linear (Mullard				
	10-10), sec. 3.7 or 15 ohm				

## TRANSISTOR TRANSFORMERS

TD1	Driver 3000 ohm, 2000 ohm c.t.			18/6	\$1.95
TD2	Driver, 420 ohm c.t., 105 ohm c.t.			19/6	\$1.95
TO1	Output, 375 ohm c.t., 3.5 ohm				
	500 mw.			16/-	\$1.60
TO2	Output, 97 ohm c.t., 3.5 ohm				
	1 watt			18/6	\$1.85
TO4	Output, 300 ohm c.t., 3.5 ohm				
	5 watts			37/6	\$3.75

## FILAMENT TRANSFORMERS

T4/4	230v., 6.3v. 2 a.			32/6	\$3.25
2150	240v., 6.3v. 2.5 a., or				
	two by 6.3v. 1.25a.			35/-	\$3.50
2155	240v., 6.3v. 7.5v., 8.5v.,				
	12.5v., 15v. 1 amp.			46/-	\$4.60
12/64	240v., 6v. 4a., 12v. 4a.			50/-	\$5.00
12/66	240v., 8v. 6a., 12v. 6a.			57/6	\$5.75

## ALIGNMENT TOOLS

Jabel No. 4 Alignment Tool Kits. All popular sizes. Four tools in plastic pouch. 12/-, \$1.20.

## TRANSISTOR SIGNAL INJECTOR

Pencil Type 2 Transistor, complete with instructions and battery. 55/-, \$5.50.

## LAFAYETTE TE-22 AUDIO GENERATOR

Specifications: Sine wave range: 20 c.p.s. to 200K c.p.s. in 4 bands; square wave range: 6j c.p.s. to 30K c.p.s.; freq. response: plus or minus 1.5 db., 6j c.p.s. to 150K c.p.s.; output voltage: load impedance 1M ohm 7v. (max.), load impedance 10K ohm 5v. (max.). £22/2/6, \$44.25.

## SPEAKERS

Well known Make, Brand New, Bankrupt Stock

Size	Voice Coil	Price
2 inch	15 ohm	30/- \$3.00
3 inch	15 or 3.5 ohm	32/6 \$3.25
4 inch	15 or 3.5 ohm	37/6 \$3.75
5 inch	15 or 3.5 ohm	40/- \$4.00
6 inch	15 or 3.5 ohm	45/- \$4.50
5 x 7 inch	15 or 3.5 ohm	47/6 \$4.75
8 inch	15 or 3.5 ohm	52/6 \$5.25
9 x 6 inch	15 or 3.5 ohm	55/- \$5.50
12 inch	15 or 3.5 ohm	82/6 \$8.25

## WIDE RANGE LOUDSPEAKERS

5 inch Twin Cone Tweeter, 15w.		
r.m.s. (4200 c.p.s. to 16 kc.)	45/-	\$4.50
6 inch Twin Cone (60-16,000 c.p.s.)		
5w., available in 8 or 16 ohms	53/-	\$5.00
8 inch Twin Cone (55-16,000 c.p.s.),		
10w., available in 8 or 16 ohms	75/-	\$7.50
12 inch Twin Cone (45 c.p.s.-10 kc.),		
10w., available in 3.5 or 15 ohms	100/-	\$10.00
12 inch Twin Cone (30-30,000 c.p.s.),		
21w., available in 8 or 16 ohms	195/-	\$19.50

## SPEAKER BOXES

Plastic Speaker Box, with 4 inch speaker and wire	55/-	\$5.50
Wooden Speaker Box with 6 x 4 inch speaker and wire	65/-	\$6.50

## CHASSIS PUNCH SET

Hozan K-83, sizes 16, 18, 21, 25 and 30 mm. Complete with taper reamer in wooden storage box 70/- \$7.00

## BATTERY CHARGERS

Dual, c/w. Meter in Metal Hammertone Case		
6 volt 4 amp., 12 volt 4 amp.	197/6	\$19.75
6 volt 6 amp., 12 volt 6 amp.	217/6	\$21.75

## MICROPHONES

Crystal:—		
Piezo Lapel Type with plug	12/6	\$1.25
CM20 Hand Type with plug	27/6	\$2.75
X43 Stand Type with plug	37/6	\$3.75
EM3 Pencil Type, 100-8000 c/s. with on/off switch, 6 ft. cable	57/-	\$5.00
EM3 Desk Stand to suit above	21/-	\$2.10
Dynamic:—		
Poster DF2 Hand Type, 50K	50/6	\$5.05
Poster DF2 Hand Type, 50 ohm	45/-	\$4.50
Poster DF3 Pencil Type, 53K	93/-	\$9.00
Poster DF3 Pencil Type, 50 ohm	37/6	\$3.75
Piezo X29 Desk Type with stand, low impedance	82/6	\$8.25

## BEZELS AND NEON INDICATORS

Sato 3280 6-8v. sub-miniature, red, green, blue	4/6	45c
NEZ Neon Indicator, 65v., flying leads	3/-	30c
237v. Red Neon Bezel	6/6	65c

## PARTS FOR RTV & H TACHO

Meter (MR3P), 0-1 mA.	50/-	\$5.00
7.5 or 5.00 r.p.m. scale extra	15/-	\$1.50
He rv Choke, ready wound	22/6	\$2.25
1.5K Trimmer Pot	4/-	40c
Circuit Board	6/-	60c

## VARIABLE CONDENSERS

Eddystone (Ceramic) 1/4 inch Shaft		
530 Condenser, 13.5 pF.	22/6	\$2.25
532 Condenser, 63 pF.	25/-	\$2.50
5.4 Butterfly Cond., 32 x 32 pF.	23/-	\$2.50
5.5 Condenser, 91 pF.	27/6	\$2.75
583 Condenser, 143 pF.	38/6	\$3.85
617 Transmitting Cond., 270 pF.	52/8	\$5.25
Rolar (Ceramic)		
C804 1/4 inch shaft, 10 pF.	22/6	\$2.25
C84 1/4 inch shaft, 25 pF.	22/6	\$2.25
C304 1/4 inch shaft, 25 pF.	22/6	\$2.25
C874 1/4 inch shaft, 50 pF.	22/6	\$2.25
C84 1/4 inch shaft, 100 pF.	22/6	\$2.25
Rohlan Broadcast Gangs		
RMG1 Single gang, 10-50 pF.	18/6	\$1.85
RMG1 Single gang, 10-415 pF.	18/6	\$1.85
RMG2 Two gang, 10-415 pF.	25/-	\$2.50
RMG3 Three gang, 10-415 pF.	33/6	\$3.35

## ROTARY SWITCHES (JABEL)

3-pole, 3-position	10/-	\$1.00
4-pole, 3-position	10/-	\$1.00
2-p 12, 6-position	10/-	\$1.00
1-pole, 12-position	10/-	\$1.00

## TRANSISTOR RADIO PARTS

To suit Zodiac, Grays, Tele-tone, Lincoln, Actravision, Home Star and Vista		
Speaker, 8 ohms, 2 1/2 inch diam., power capacity 200 mw.	22/6	\$2.25
Gang with knob, capacity: 6-142 pF. (serial), 6-60 pF. (oscillator)	20/-	\$2.00
Aerial Coil on Rod	7/6	75c
Culput Transformer, 430 to 8 ohms	15/-	\$1.50
Incirstage Transformer, 8000 ohms to 3300 ohms	12/6	\$1.25
Oscillator Coil, 360 microhenry	8/6	85c
Pot., switched with knob, 5K ohms	8/6	85c
6 Transistors and 1 Diode comprising: 2-2N408/OC74N, 3-2N410/OC45, 1-2N408/OC71, 1-OA9J	82/8	\$8.25
Three i.f. Transformers, 455 kc.	30/-	\$3.00
Complete set resistors and condensers (32)	42/8	\$4.25
Printed Circuit Board	10/-	\$1.00
Cabinet, complete with earphone jack, earphone and carrying cases	25/-	\$2.50

## CO-AXIAL CONNECTORS

American Type:—		
PL259 Co-axial Plug	9/6	95c
4.87-1 Co-axial Plug (PL259, PTFE)	14/8	\$1.45
SC239 Co-ax. Socket (suit PL259)	9/-	90c
43-2-1 Co-ax. Socket (PTFE)	14/8	\$1.47
C2-14 Co-ax. double ended female cable joiner (PTFE)	17/6	\$1.75
UG175U Adaptor for PL259, to suit 1/4 inch cable	2/9	23c
C32-17 Co-ax. "T" Piece, suit PL259	23/3	\$2.32
BNC Series:—		
UG38CU Co-axial Plug (PTFE)	15/9	\$1.58
UG390/U Co-axial Socket (PTFE)	12/6	\$1.25
B-ling Lee Type:—		
Co-axial Plug (suit 1/4 inch cable)	4/-	40c
Co-axial Socket	3/6	35c
Co-axial Socket (flush mount)	3/6	35c
Co-axial Cable Joiner (female)	4/-	40c

## THIS MONTH'S SPECIAL CRYSTALS

FT243 Holders—As New		
Ex SCR536/BC611 Walkie Talkies		
4780 Kc. 4735 Kc. 4951 Kc. 5360 Kc. 5780 Kc.		
4397 Kc. 4315 Kc. 5265 Kc. 5395 Kc. 5732.5 Kc.		
4475 Kc. 4340 Kc. 5295 Kc. 5397 Kc. 5820 Kc.		
4673 Kc. 4352 Kc. 5327 Kc. 5860 Kc. 6235 Kc.		
4635 Kc. 6375 Kc.		
7.8 each or 3 for £1. 75c. or 3 for \$2.		
DC11 Holders		
5930 Kc. 6420 Kc. 5930 Kc.		
12/6 each or \$1.25.		

# HAM

# RADIO SUPPLIERS

5A MELVILLE ST., HAWTHORN, VIC. Phone 86-6465

North Balwyn tram passes corner.

Money Orders and Postal Notes payable North Hawthorn P.O.

We sell and recommend Leader Test Equipment, Pioneer Stereo Equipment and Speakers, Hitachi Radio Valves and Transistor Radios, Kew Brand Meters, A. & R. Transformers and Transistor Power Supplies, Ducon Condensers, Welwyn Resistors, etc.

# "AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA. FOUNDED 1910

APRIL 1966  
Vol. 34, No. 4

**Editor:**  
K. M. COCKING ..... VK3ZFQ

**Assistant Editor:**  
K. E. Pincott ..... VK3AFJ

**Publications Committee:**  
G. W. Baty (Secretary) ..... VK3AOM  
A. W. Chandler (Circulation) ..... VK3LC  
S. T. Clark ..... VK3ASC  
E. C. Manifold ..... VK3EM  
W. E. J. Roper ..... VK3ARZ

**Draftsmen:—**  
Ken Gillespie ..... VK3GK  
Clem Allen ..... VK3ZIV  
Ian Smith ..... 36 Green St., Noble Park

**Advertising Enquiries:**  
C/o. P.O. Box 38, East Melbourne, C.2, Vic.  
or  
Mrs. BELLAIRS, Phone 41-3535, 478 Victoria  
Parade, East Melbourne, C.2, Victoria. Hours  
10 a.m. to 3 p.m. only.

**Publishers:**  
VICTORIAN DIVISION W.I.A.,  
Reg. Office: 65a Franklin St., Melbourne, Vic.

**Printers:**  
"RICHMOND CHRONICLE," Phone 42-2410.  
Shakespeare St., Richmond, E.1. Vic.

★

All matters pertaining to "A.R." other than subscriptions, should be addressed to:  
**THE EDITOR,**  
"AMATEUR RADIO,"  
P.O. BOX 38,  
EAST MELBOURNE, C.2, VIC.

Acknowledgments will be sent following the Committee meeting on the second Monday of each month. All Sub-Editors should forward their articles to reach "A.R." before the 8th of each month. Any item received after the Committee meeting will be held over until the next month. Publication of any item is dependent upon space availability, but in general about two months may elapse before a technical article is published after consideration by the Publications Committee.

★

Members of the W.I.A. should refer all enquiries regarding delivery of "A.R." direct to their Divisional Secretary and not to "A.R." direct. Non members of the W.I.A. should write to the Victorian Division, C/o. P.O. Box 38, East Melbourne. Two months' notice is required before a change of mailing address can be effected. Readers should note that any change in the address of their transmitting station must, by P.M.G. regulation, be notified to the P.M.G. in the State of residence, in addition "A.R." should also be notified. A convenient form is provided in the "Call Book".

★

Direct subscription rate is 30/- a year, post paid, in advance. Issued monthly on the first of the month, January edition excepted.

## FEDERAL COMMENT

★

### CONVENTION AGENDA

As Easter once more approaches, we realise that another Federal Convention is about to take place—this year in Queensland—and as far as records show, the first time ever in that State. For some time prior to the Convention, Divisions have been literally scratching their heads wondering what they shall raise in the way of Agenda items.

It has been evident for many years that a number of items in the category of "hardy annuals" will again appear and that yet others will have been hastily thought of at the last minute and included in an effort to save "Divisional face." Whilst the latter situation should be avoided to save valuable time at Conventions, these items nonetheless receive the same attention and consideration as well-thought-out motions dealing with the more important and urgent matters of policy.

The Oxford Dictionary defines a Convention as a formal assembly for deliberation or legislation on important matters and further as an assembly of delegates or representatives at conference. While the stress is on the discussion of "important matters," there are other benefits to be derived from a Convention which are not revealed in definitions. These are the meeting of the delegates in person and being able to discuss both formally and informally mutual problems. It is also being able to inform the other delegates of the background to certain motions which may appear both specious and unimportant on paper. Despite these additional benefits from Conventions, a number of relatively unimportant matters still appear year after year which could be just as easily conveyed in writing during the year.

The foundations of our Institute are now quite old and we should now be grown-up enough to base future Conventions on policy and important administrative matters which are not easily sorted out by correspondence. Matters dealing with the Constitution, attracting new members, new types of licence, regulatory matters of Amateur operation are all subjects on which more time could be spent with profit at the Conference table without the Chairman having to hurry discussion along to more mundane and trivial matters.

The matter rests entirely in the hands of the Divisions as to what matters they commit to Convention agenda or submit by correspondence. The attitude should not be—we will look foolish if we don't submit about ten items; it should be—can we get an answer to this problem by postal motion or is it contentious enough for discussion at a Convention. The guiding thought for the future should be—one good motion on the agenda is worth ten trivial motions.

—W. T. S. MITCHELL, FEDERAL COMMUNICATIONS MANAGER.

## CONTENTS

Modifying the Palec Valve and Circuit Tester	2	Lightning	15
An A.M.-C.W. Exciter for 144 Mc.	5	U.H.F./V.H.F. State Records — March, 1966	18
Some Low-Pass Filter Designs for Amateurs	9	S.W.L.	19
Sideband:		U.S.S.R. DX Contest	19
Linear Amplifiers	11	New Call Signs	21
Class "A" Amplifiers	11	DX	21
VK-ZL—Oceania DX Contest 1965 Results	13	Federal and Divisional Monthly News Reports	22



# MODIFYING THE PALEC VALVE AND CIRCUIT TESTER

G. WALL\*

IF you have a "Palec" VCT or VCT-V you most likely have lamented the fact that it has not been able to keep pace with the output of modern valve types.

It is probable that you have also contemplated or obtained adaptors or adaptor panels, only to find that they, too, have been outmoded by later types of valves.

This trend can keep on going, and probably will "ad infinitum" or "ad-nauseum," depending on your point of view.

The first problem in modifying the unit was "how many switches?" This presented a problem, because how many valve connections are the future valves going to have? Our "crystal ball" video circuits broke down, but as advertisements for 10-pin types have been seen, it was decided that this should be a start.

A 12-pin socket and plug were obtained and installed on the front panel to connect the adaptor panels into the tester, this then prompted the installation of 12 switches, and although a

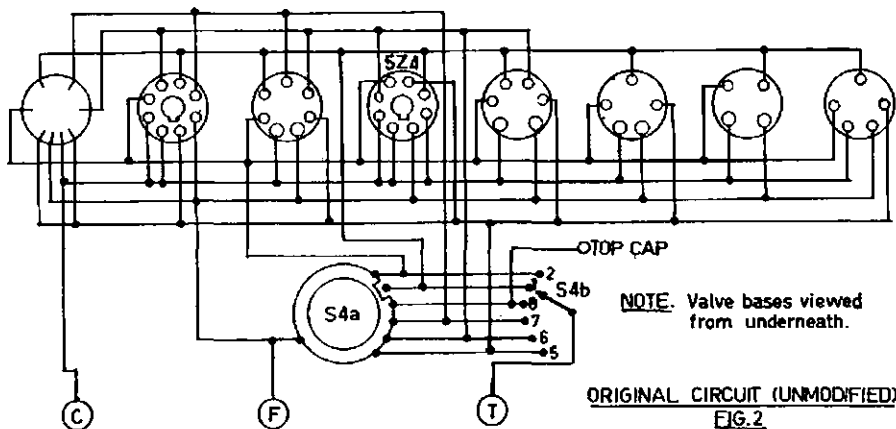
centre of the meter, approximately 3 3/8 inches from the top of the panel. Cut a suitable piece of metal to fit the space from this position to the top of the panel.

Mount the switches on this sub-panel, either side of the meter opening, and after cutting the original panel to accommodate the switches, fix the sub-panel in place.

With the switches mounted in position, thread a wire (18-16 s.w.g. tinned copper) through the switch lugs as shown in Fig. 3 and reconnect to the original tester circuits removed from the valve sockets and element short switch, as designated (F) Filament, (C) Common, and (T) Test.

Bridge lugs 1 and 7 (Fig. 3) on each switch, as viewed from the top of panel and connect this bridge wire to the appropriate valve pin and 12-pin socket pins, left on the top panel, for extension to the external adaptor panels.

The circuit of Fig. 4 shows the actual switch connections, for two of the four positions of each switch, from which it will be seen how each valve element can be selected, to be (A) left connected to common filament; (B) left in an open position; (C) selected for filament voltage, or (D) selected for test, for either "emission" or "element short," depending on the position of the function switch selector at the bottom l.h.s. of the unit.



ORIGINAL CIRCUIT (UNMODIFIED)  
FIG. 2

The main trouble with the valve tester (Palec) is that where valves have electrodes connected to more than one base pin the tester will show an "element short" and in most cases cannot be tested.

While this instrument is not the ultimate in valve testing, there is no doubt that it is still a useful piece of equipment. It has retained its usefulness and its value even second or third hand from the original purchaser.

As new, these units were approximately £21-£22, and 20 to 25 years later still cost about £10 to £15 secondhand, depending on condition, furthermore the demand exceeds the supply.

With this in mind, prompted by a modern type with switching to isolate each valve element, enquiries were made to find some of these switches to bring the "Palec" up to date, to cope with as many valve types, past, present and future.

Finally, it was found that "Astronic Imports" (Melb.) had a few, but obligingly obtained a complete set of "Tech" TC-2, 2-pole 4-position, slide-type switches for the job, also a few more for stock, and mentioned that more could be obtained freely if required.

Your adaptor panels will still be required, because when the switches are installed in the front panel, there is no room for more than a couple of valve sockets, but valves with electrodes connected to more than one pin can be tested with the modified unit.

tight squeeze on the "Palec" front panel, six switches can be put either side of the meter at the top of the panel.

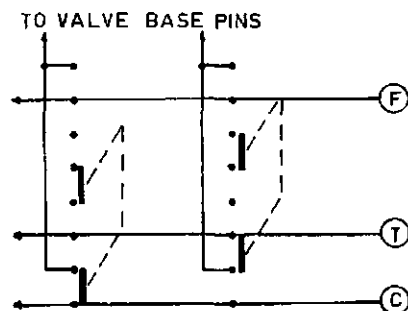
How each individual modifies his unit may vary a little, but as space is limited it is suggested that the following be given some thought.

Remove all valve sockets as a start, together with the "Selector Switch" (S-4a-4b) as this will no longer be required. (See Fig. 2.)

Move the "Ohms Adj." pot. into the "Element Selector Switch" position, and install the neon test lamp into the "Ohms Adj." hole.

The top cap connection can be moved to any convenient position or beside the neon globe and will clear the top of the panel for the switches.

In most "Palec" testers there is a plated or painted strip just above the



SCHEMATIC SWITCHING CIRCUIT  
FIG. 4

To enable you to follow the switching, and for trouble shooting, the complete circuit has been included (Fig. 1) (we think for the first time) together with component valves.

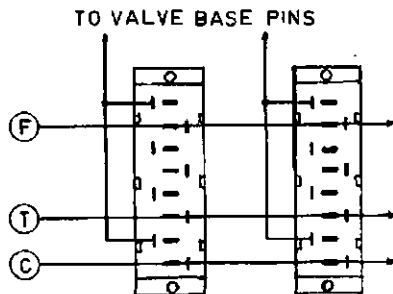
After having completed the wiring modification and re-checking, tests may be made.

While most owners of these units will be conversant with the testing drill of the original wiring, a few suggestions in operation for the sake of completeness are added.

To test valves: Set all switches in the common position.

Set selector switch to "Line switch," adjust "Line Adj." to full scale meter deflection.

Ascertain to which pins the valve filaments are connected, set filament



REAR VIEW OF  
ELEMENT SELECTOR SWITCH  
FIG. 5

\* 34 Railway Crescent, Moorabbin, Vic.

ELEMENT SELECTOR SWITCH CONNECTIONS  
TO CORRESPONDING PIN OF ALL VALVE SOCKETS

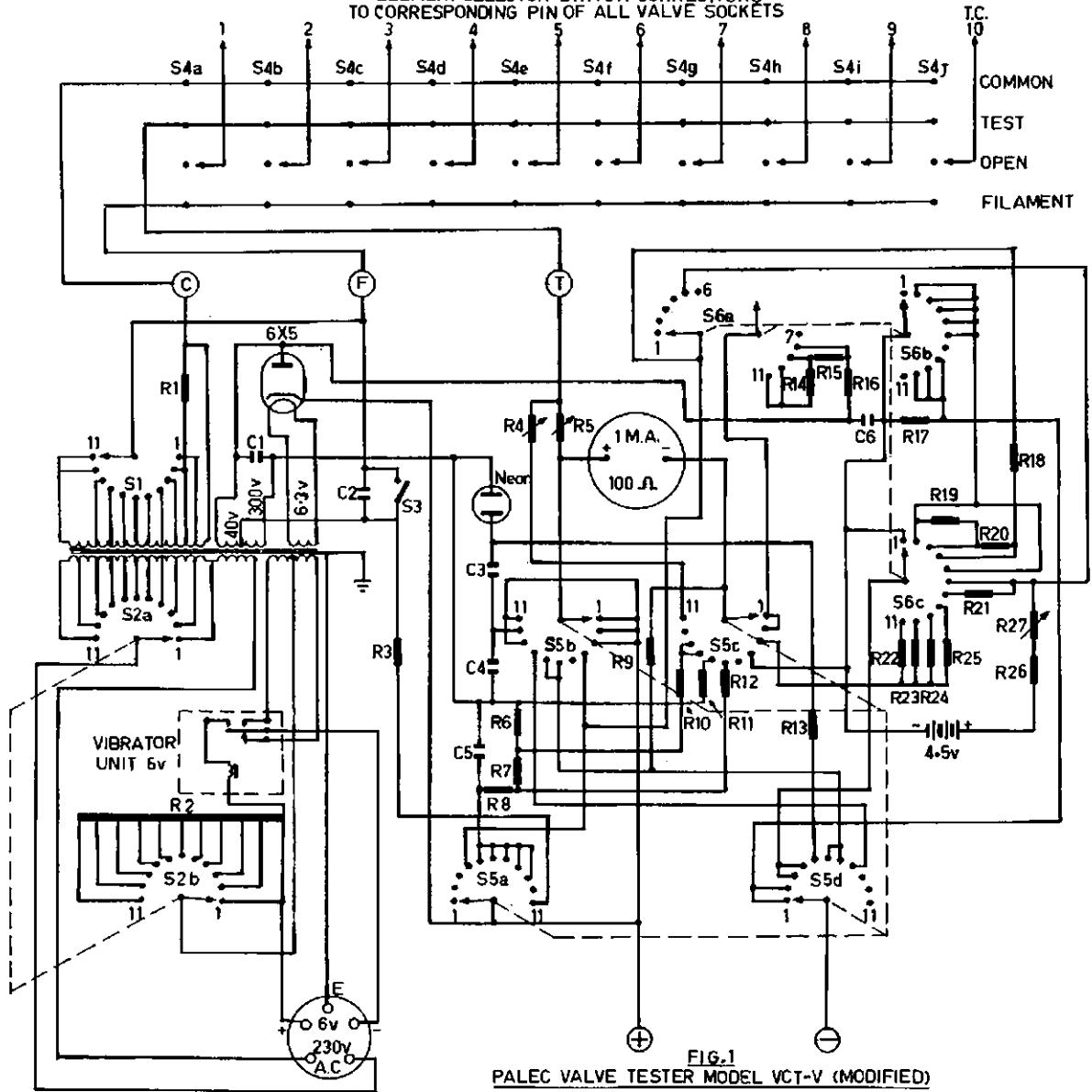


FIG. 1  
PALEC VALVE TESTER MODEL VCT-V (MODIFIED)

CONDENSERS

- C1—0.01  $\mu$ F. 2000v.
- C2—0.01  $\mu$ F. 350v.
- C3—0.01  $\mu$ F. 350v.
- C4—0.005  $\mu$ F. 350v.
- C5—0.5  $\mu$ F. 350v.
- C6—2.0  $\mu$ F. 350v.

RESISTORS

- R1—1.0 ohms
- R2—0.62 ohms total
- R3—2K
- R4—250 ohms w.w.
- R5—30 ohms range
- R6—5K
- R7—25K
- R8—4K
- R9—20 ohms
- R10—225K
- R11—50K
- R12—2K
- R13—25K
- R14—210K
- R15—123K
- R16—8.6K
- R17—283K
- R18—0.444 ohms
- R19—10 ohms
- R20—0.667 ohms
- R21—3.8K
- R22—1 meg.
- R23—250K

- R24—100K
- R25—9.9K
- R26—300 ohms
- R27—1K var.

SWITCHES

- S1—Filament Volts.
- |    |           |
|----|-----------|
| 1  | 1.4 volts |
| 2  | 2.0 "     |
| 3  | 2.5 "     |
| 4  | 3.3 "     |
| 5  | 4.0 "     |
| 6  | 5.0 "     |
| 7  | 6.3 "     |
| 8  | 7.5 "     |
| 9  | 12.5 "    |
| 10 | 25.0 "    |
| 11 | 25.0 "    |
- S2—Line Adjust.
- |    |           |
|----|-----------|
| 1  | 195 volts |
| 2  | 200 "     |
| 3  | 205 "     |
| 4  | 220 "     |
| 5  | 225 "     |
| 6  | 230 "     |
| 7  | 235 "     |
| 8  | 240 "     |
| 9  | 245 "     |
| 10 | 250 "     |
| 11 | 255 "     |
- S3—Press for Merit

S4—Selector.

Section S4b connects one valve element to meter or neon whilst S4a connects the remainder to filament volts a.c.  
Note: S4a and b is replaced in modified circuit with switches S4a b c d e f g h i j.

S5—a b c d.

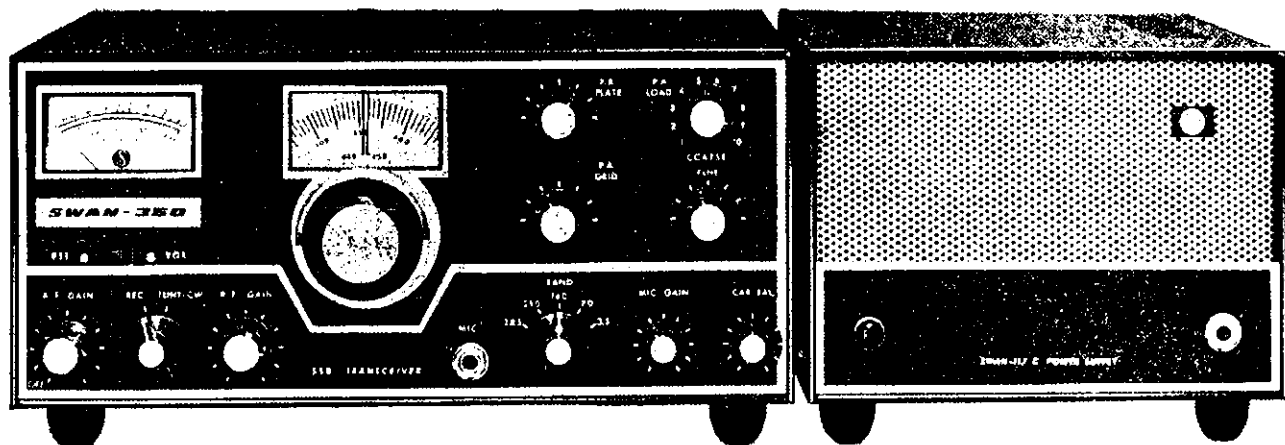
- 1 output volts
- 2 a.c. volts
- 3 d.c. volts
- 4 mA.—ohms
- 5 Paper condensers
- 6 Electrolytic—25v.
- 7 Electrolytic—500v.
- 8 Megohms
- 9 Line Check
- 10 Element Shorts
- 11 Merit Test

S6—a b c.

- (Section a 2—5 x 1 successive).  
(Section b, c 2—11 x 1).
- 1 1 mA.
  - 2 10 mA.
  - 3 100 mA.
  - 4 250 mA.
  - 5 Low ohms
  - 6 Ohms x 1
  - 7 Ohms x 10
  - 8 10 volts
  - 9 100 volts
  - 10 250 volts
  - 11 1000 volts



# "SWAN" NEWS



Congratulations to the organisers of the Gosford Field Day, a really wonderful day greatly enjoyed by everybody including the writer. This show is one of the best, if not the best we have attended, especially good wishes to the XYL's for their wonderful catering.

Of course "SWAN" was there, in cars, and on our stand were several SW350 transceivers and associated equipment. Some sets were partially dismantled so that the very excellent workmanship and high quality components of this equipment could be admired. Good DX was worked all day from 9.30 in the morning until 4.30 in the afternoon, the most distant stations worked being: Spain EA3, Alaska and Laos, and of course many W and Pacific Island stations. Most people were astounded at the results obtained on our lowly Dipole antenna, approximately 8 ft. to 10 ft. high, but this is common practice with the Swan SW350 and SW400 transceivers: as anyone who sees us at radio shows will admit.

We have just been advised that the U.S. Navy has placed orders for Swan equipment as back up for Collins, so with the tremendous popularity of the SW350 Swan are indeed very busy. Do you know that one person in 10 at Swan is engaged in quality control? This accounts for the extremely high quality of this equipment.

**New Products:** All band mobile whips, both automatic and manual adjustment type, composite power supplies, both 240v. a.c. and 12v. d.c. New SW410 5 band full coverage V.F.O. Keep your eyes peeled on this page for announcement on V.H.F. Transceivers. 73's.

SWAN EQUIPMENT DISTRIBUTORS.

W.F.S. ELECTRONICS SUPPLIES CO.

227 Victoria Road, Rydalmere. Phone 638-1715.

## FOSTER DYNAMIC MICROPHONES

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
Effective output level ..... -55 db. [0 db. = (one) 1V. Microbar]  
Frequency response ..... 50 to 15,000 c.p.s.

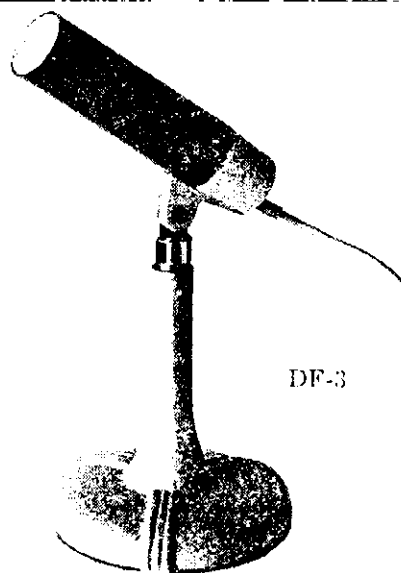
### OMNI-DIRECTIONAL DYNAMIC:

Plastic Diaphragm. Swivel fits 5/8" 26 t.p.i. Stands.  
Size: 4 1/2" long, 1 1/4" diameter. Colour: TWO-TONE GREY.  
Cable: 12 ft. of P.V.C.

Retail Price 50K ohms: £4/16/0 + Sales Tax 10/0

Retail Price 50 ohms: £4/14/0 + Sales Tax 9/10

A QUALITY PRODUCT FOR TAPE RECORDERS & P.A. USERS



DF-3

Marketed by **ZEPHYR PRODUCTS PTY. LTD.**

58 HIGH STREET, GLEN IRIS, S.E.6, VICTORIA

Phones: 25-1300, 25-4556



Manufacturers of Radio and Electrical Equipment and Components

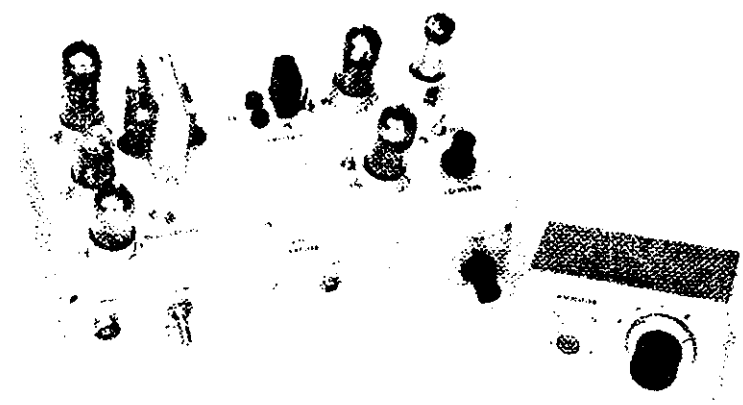
Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L; Jacoby, Mitchell & Co. P/L; T. H. Martin P/L.

# AN A.M.-C.W. EXCITER FOR 144 Mc.\*

A CLEAN SIGNAL FOR THE AB1 LINEAR

DOUG DeMAW, WICER

The exciter described in this article will provide a chirp-free, shaped c.w. note and will produce a well-modulated a.m. signal. Used either as a low-power transmitter, or as a driver for an a.m. linear amplifier, this unit can satisfy a host of needs in the v.h.f. station. R.f. isolation protects the speech and modulator stages from the feedback ills that are common to many v.h.f. phone rigs.



A top-chassis view of the low-power exciter. Shown at the right—a 5-watt step attenuator for reducing the output of the exciter when used with a linear amplifier.

A GREAT deal of information has been published with regard to proper operation of linear amplifiers, but some Radio Amateurs are not aware of the importance of the signal quality required from the exciter unit. Unfortunately, the defects present in the output signal of the exciter are magnified by the linear amplifier. Because of this, a number of somewhat horrendous signals are heard on the various Amateur Radio bands. For a.m. linear operation, the r.f. output from the exciter must be free from hum, spurious energy and improper modulation characteristics. The c.w. signal, which is used to excite the linear amplifier, must be similarly clean, and without key clicks and thumps.

This article describes a low-power a.m./c.w. exciter, tailored to use with Class AB1 linear amplifiers, and capable of producing a clean excitation source for this mode of operation. A description of an attenuator box is included in the text. It will permit swamping out of excessive driving power to the amplifier used, and is suitable for a.m. or c.w. operation. It will work well with the equipment described in this article, but can also be used with other exciter/linear-amplifier combinations.

## THE CIRCUIT

Two 6CX8 tubes are employed in the r.f. section of the exciter (Fig. 2). Sufficient power output is developed to fully excite a 4CX250 tube, operating in the AB1 mode. A regulated screen voltage is supplied to the oscillator stage (V1A) to prevent chirp, caused by the changes in power-supply voltage, during c.w. operation. This same feature contributes to better stability of the a.m. signal. The crystal v.f.o. switch, S1, converts V1A from an oscillator to an amplifier when the switch is placed in the v.f.o. position. An external v.f.o. can then be attached at J1, supplying an 8 or 24-Mc. signal to the exciter. With S1 in the crystal position (open), standard 8-Mc. crystals can be used for frequency con-

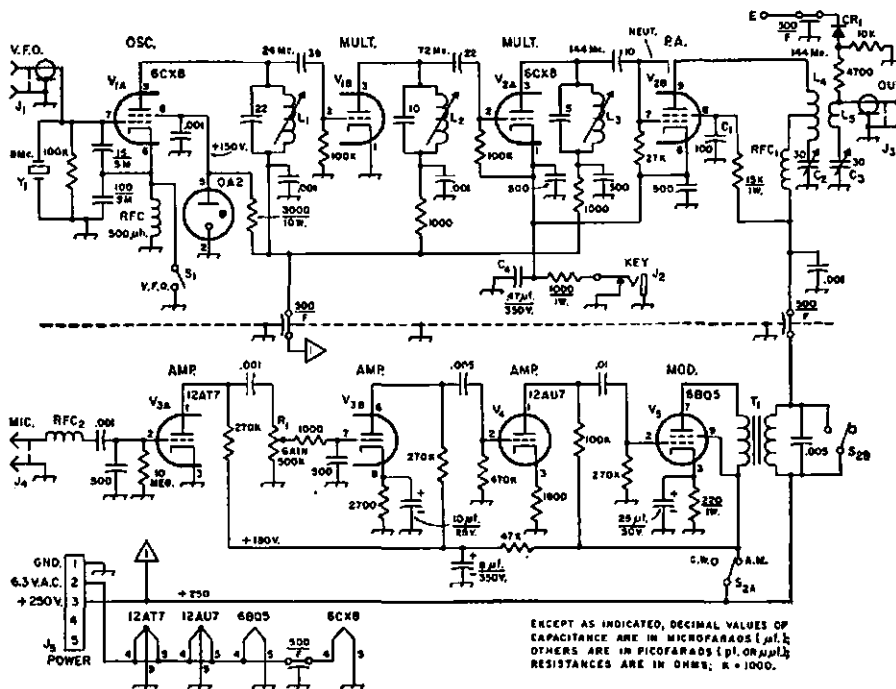


Fig. 2—Schematic diagram of the 2-meter assembly. Resistors are 1/2-watt composition type unless otherwise noted. Capacitors are disc ceramic except those bearing polarity markings, which are electrolytic. F indicates feedthrough type. SM is silver mica.

- C1—100-pf. disc ceramic with pigtailed cut to 1/4-inch length.
- C2, C3—30 pf., variable (Hammarlund MAC-30).
- C4—47-uF. mylar or moulded paper capacitor.
- CR1—1N34A.
- E—One terminal of feedthrough capacitor.
- J1—BNC chassis receptacle (UG-290/U).
- J2—Closed-circuit key jack.
- J3—Co-axial chassis connector (SO-238).
- J4—Microphone connector.
- J5—5-pin male chassis connector (Amphenol 86-CP5).
- L1—11 turns No. 24 enam. close wound on 3/8-inch diam. iron-slug form.
- L2—5 turns No. 24 enam. close-wound on 1/4-inch diam. iron-slug form.

- L3—2 turns No. 20 bus wire, spaced to occupy 1/4-inch area on 1/4-inch diam. iron-slug form.
- L4—6 turns No. 20 bus, 1/2-inch diam. x 1 inch long, centre tapped.
- L5—2 turns No. 22 insulated hook-up wire, 3/8-inch diam. inserted into centre of L4.
- R1—0.5 megohm control, audio taper.
- RFC1, RFC2—1.8-μh. r.f. choke (Ohmite Z-144).
- S1—S.p.s.t. slide switch.
- S2—D.p.d.t. toggle switch.
- T1—5-watt modulation transformer (Stancor A-3812 using one half of centre-tapped winding as primary).
- Y1—8-Mc. fundamental crystal.

\* Reprinted from "QST," Sept. 1965.

trol. The tuned circuits, L1, L2 and L3, have sufficiently broad response to permit output frequency excursions of 1 Mc. without need for retuning the stages. A gimmick capacitor is used to neutralise the p.a. stage (V20) and is necessary if stable operation is to be secured. The screen-grid capacitor, C1, is series-resonant at 144 Mc. and aids in stabilisation of the output stage. For c.w. operation, the cathodes of V2A and V2B are connected in parallel and keyed at J2. A shaping network, consisting of a 0.47  $\mu$ F. capacitor and a 1000-ohm resistor, is connected between the keyed cathodes and the key jack. This network eliminates make-and-break clicks, resulting in a well-shaped keying characteristic. An r.f.-sampling test point (E) is available for tuneup of the exciter.

Special attention was given to the audio section of the exciter in an effort to reduce distortion to a minimum, while making certain that 100 per cent. modulation was possible. The modulator is capable of producing far more audio than is necessary, which permits the 6BQ5 tube to operate below the point where distortion becomes a significant consideration. R.f. filtering is used at J4, and at the grid of V3B, to prevent the squealing and howling common to many v.h.f. transmitters. Additional r.f. isolation is offered by the shield partition which divides the two halves of the chassis. The inter-circuit wiring, which passes through this shield, is routed through FT (feed-through) capacitors to aid further in decoupling. Three stages of speech amplification are used, to avoid having marginal speech gain—a shortcoming of many v.h.f. transmitters. The values chosen for the coupling capacitors, grid resistors and plate resistors in the modulator will provide optimum response in the 400 to 3000-cycle range. This system helps to eliminate the hum component in the signal, while passing the most effective portion of

the voice range. Switch S2 disables the modulator during c.w. operation and shorts out the secondary winding of T1.

The power supply requirements for the exciter are 250 volts at 150 Ma. and 6.3 volts at 3 amperes. A measured r.f. power output of 2.1 watts was secured using a Thru-line watt-meter terminated by a 50-ohm non-inductive dummy load.

#### CONSTRUCTION

The 2-meter exciter is built on a 9½ x 5 x 2-inch aluminium chassis. The circuit wiring in the r.f. section of the chassis should be carried out in the manner shown in Fig. 3. All leads carrying r.f. should be kept short and

direct as possible, to maintain the possibility of stray inductance. Similar treatment should be given to the leads on the various bypass capacitors and resistors used in the r.f. circuitry.

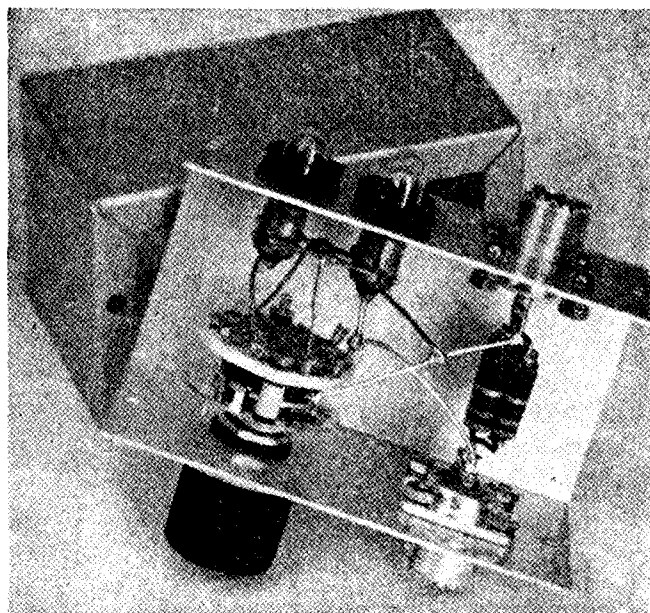
Two crystal sockets are mounted on the chassis to facilitate using both the popular FT-243 units and the less-common pin size of another war-surplus type crystal. Since the latter was added as a convenience for the author, it is not necessary for the constructor to include the extra socket.

The v.f.o. input jack, J1, and the crystal/v.f.o. switch are located on the rear apron of the chassis near V1. Ceramic tube sockets are used at V1 and V2, reducing r.f. losses in that part of the circuit. The key jack and its related shaping network are near the front edge of the chassis. The plate-tank inductor and capacitors C2 and C3 are to the left of this area (Fig. 3). The r.f. output jack, J3, is located on the rear of the chassis and is connected to L5 through a short length of 50-ohm subminax co-axial cable.

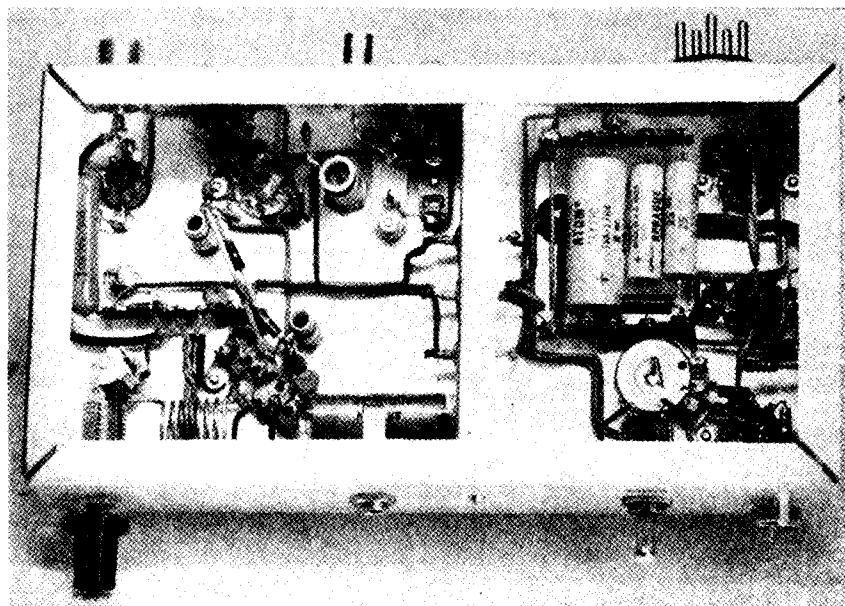
Turning next to the audio portion of the assembly, the microphone conductor and phone/c.w. switch are on the front wall of the chassis. The modulation level control is mounted on the top surface of the chassis and is adjacent to V3 and S2. The power-supply connector, J5, is located on the rear wall of the chassis, near the 6BQ5 modulator tube. Test point E is between C3 and OA2 voltage-regulator tube. An aluminium plate, with four rubber feet attached, is used to enclose the bottom of the chassis after the final testing is completed.

#### TUNE-UP AND OPERATION

Prior to applying the B-plus and filament voltages to the completed exciter, place the tubes in their sockets and adjust coils L1, L2 and L3 to resonance with a grid-dip meter. The correct frequency for each of these inductors is shown in Fig. 2. Next, attach a dummy load at J3 and apply



★  
Fig. 4 — Close-up view of the r.f. attenuator assembly. The pilot lamps are mounted in 1/8-inch rubber grommets.



★  
Fig. 3—Under-chassis view of the exciter, showing the r.f. circuitry in the left-hand compartment. The modulator is contained in the boxed-in area on the right.

power to the unit, using either crystal or v.f.o. control. The power swamper described later in this article will serve as a dummy load during tuneup and testing. A v.t.v.m., adjusted to read 0-15 volts d.c., can be attached between test point E and ground. Observing the reading on the v.t.v.m. meter, adjust L1 through L5 for maximum indication, which should be in the region of 5 volts after all stages are peaked. The spacing between L4 and L5 can be adjusted until optimum power output is secured.

The next step will be to neutralise the p.a. stage. Temporarily disconnect the plate and screen voltage from V2B and attach a sensitive r.f. sampling device at J3. The detector can be a 2-meter field-strength meter connected to the exciter by a short length of coaxial cable, with a 50 or 100-micro-ampere meter for an indicating device. Instruments of this type are described in the A.R.R.L. Handbook, under Measurements. Then the neutralising stub (black wire to the immediate right of L4 in Fig. 3) is moved back and forth near L4, with the exciter operating in the c.w. position, until a minimum reading is noted on the neutralising indicator's meter. The spacing shown between the stub and L4, in Fig. 3, is typical.

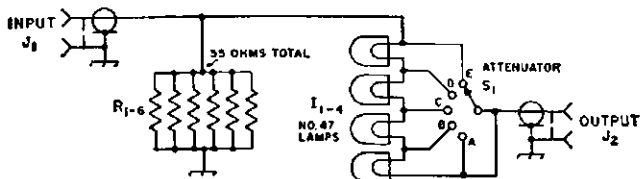


Fig 5—Schematic diagram of the r.f. attenuator.

I1, I4, inc.—No. 47 pilot lamps.  
J1, J2—Co-axial chassis connectors (SO-239).

R1-R6, inc.—330-ohm, 1-watt carbon resistors.  
S1—Single pole, 5-position ceramic wafer switch, non-shorting.

In checking the modulator portion of the circuit, a No. 47 pilot lamp can be substituted for the dummy load at J3. Tune the transmitter for maximum bulb brilliancy by adjusting C2 and C3. With a crystal or ceramic microphone connected to J4, and with the switch S2 in the voice position, adjust R1 while speaking into the microphone. When the bulb shows an increase in brilliancy (about 25 per cent.), a suitable setting for R1 will have been reached. Further adjustment of the audio level can be carried out with the help of other stations after the transmitter is placed in actual on-the-air operation. If an oscilloscope is available, a more satisfactory setting for R1 can be established and will permit thorough evaluation of the exciter's waveform. This method is recommended if 100 per cent. modulation is desired.

#### THE SWAMPING DEVICE

Operating conditions for the transmitter are as follows: Oscillator plate current, 18 Ma.; tripler plate current, 10 Ma.; doubler plate current, 8 Ma.; final grid current, 1.5 Ma.; amplifier plate and screen current (combined value) 34 Ma.; modulator plate current, 50 Ma.

In some instances it will be desirable to include provision for attenuating the output signal from the exciter before applying it to a linear amplifier. It is better to "swamp out" a portion

of the excess r.f. drive than to detune the last stage of the exciter, or grid circuit of the linear, in an effort to reduce the level of signal input to the amplifier. The modulator portion of the exciter should at all times have a proper load to look into, which can only be maintained by permitting the p.a. stage to draw normal plate current. Do not reduce the coupling between L4 and L5 in an attempt to lower the output from the exciter unless the level of modulation is similarly altered.

If too much drive is available for your linear amplifier, the unit shown in Fig. 5 can be used. The swamper is housed in a 2½ x 2½ x 4-in. Minibox and has a step-attenuator switch which places as many as four No. 47 bulbs in series with the exciter's output. A 55-ohm dummy load, consisting of six 330-ohm 1-watt resistors, is permanently bridged across the input terminals of the swamper. This provides the exciter with a constant load and further attenuates the output signal. Depending upon the efficiency of the grid circuit in your linear amplifier, this accessory may or may not be required. The circuit for the swamper is given in Fig 4. A more sophisticated version of this device, suitable for s.s.b. operation as well, can be

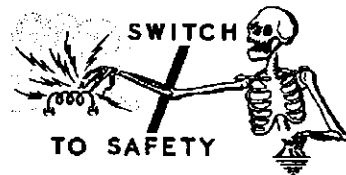
found in the 1965 edition of the A.R.R.L. Single Sideband Manual, page 228.

#### SOME FINAL THOUGHTS

The a.m./c.w. exciter can also be used as a low-power 2-meter transmitter for local operation, portable work, or during field-day activities. As an exciter, it will lend itself nicely to application with the 4CX250 2-meter linear amplifier described on page 11, February 1964, "QST." Other tubes, such as the 4X150A, operated Class AB1 can be driven to full rated input by this little exciter. By making appropriate modifications to the heater wiring, this unit will serve as a mobile transmitter. If you're interested in generating a clean a.m./c.w. signal for amplification by a linear amplifier—try this one. The usual circuit "bugs" have been eliminated.

#### AMATEUR FREQUENCIES:

USE THEM OR LOSE THEM!



Phone 34-6539, write or call

WILLIAM WILLIS & Co. Pty. Ltd.

428 Elizabeth St., Melbourne

for GELOSO  
Equipment and Components

## CRYSTAL PYE DIVISION

Manufacturers of Quartz Crystals for Frequency Control and  
Crystal Filters for Highly Selective Circuits announce:—

### NEW LOWER PRICES FOR CLOSE TOLERANCE GOLD PLATED CRYSTALS FOR AMATEUR APPLICATIONS

	Amateur Net (each includ. Tax)
● 1.8 Mc. to 14.999 Mc. ±0.005% in Style "D" holders, ½" pin spacing	£2 8 6
● 15 Mc. to 47.999 Mc. ±0.005% in Style "D" holders, ½" pin spacing	£2 10 6
● 48.0 Mc. to 61.0 Mc. ±0.005% in Style "D" holders, ½" pin spacing	£2 16 3
● 100 Kc. ±0.005% in HC13/U holders, ½" pin spacing*	£4 10 0
● 1 Mc. ±0.005% in Style "D" holders, ½" pin spacing*	£4 10 0
* Specially designed for Crystal Calibrator purposes.	
● 455 Kc. nominal Crystals for Filter applications in Style "D" or "E" (B7G) holders	£4 10 0

Many other types and tolerances are available from our standard production.  
Please consult us on your Crystal requirements.

## PYE PTY. LTD. CRYSTAL DIVISION

CLARINDA RD., CLAYTON, VIC. (P.O. Box 105). Phone 544-0361  
STATE OFFICES IN ADELAIDE. BRISBANE. HOBART. PERTH AND SYDNEY

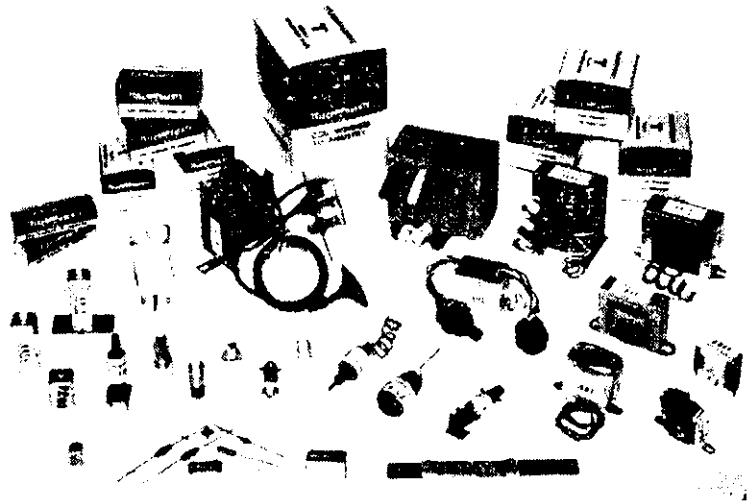


# WARBURTON FRANKI

## TELECOMPONENTS

W.F. are distributors of this renowned range of Television and Radio Transformers. Complete range available from stock

WRITE OR CALL FOR CATALOGUE & PRICE LIST



## SIGNAL GENERATORS Famous Leader LSG-11 \$30 (£15) incl. Tax and Freight

**THE LEADER LSG-11** is a general purpose signal generator having features which make it most useful in testing, checking and experimenting with radio and audio frequency circuits. Calibration accuracy is  $\pm 1\%$  below 30 Mc. and  $\pm 3\%$  to 390 Mc. This feature permits easy alignment and checking of tuned circuits, i.f. amplifiers, etc.

Wide frequency range: 120 Kc. to 390 Mc., stable Colpitts oscillator with buffer stage. Two audio modulation frequencies. Provision for quartz crystal. Clear scales for frequency calibration. Compact and rugged construction. Attractive heavy steel cabinet.

### Specifications:

Freq. range: 120 Kc. 130 Mc. on fundamentals. Calibrated harmonics: 120-390 Mc. R.F. output: 0-100,000  $\mu$ V., adjustable (120 Kc.-38 Mc.). Modulation freq.: 400 and 1,000 c.p.s., a.f. output adjustable. Crystal oscillator: 1 Mc. to 15 Mc. Tube complement: one 12BH7, one 6AR5. Accessory: one 75 ohm cable. Power supply: a.c. 50/60 c.p.s.; 100v., 115v or 230 v. as specified; 13VA. approx. Size: 27.5 x 19 x 11.5 c.m. (10 $\frac{1}{2}$  x 7 $\frac{1}{2}$  x 4 $\frac{1}{2}$  in.). Weight: 2.75 kg. (6.1 lb.).

## MULTIMETERS—SANWA 370-X

Ranges:

D.C.V.—3, 6, 12, 120, 300, 1200, 3000 @ 4K. O.P.V.  
A.C.V.—6, 12, 120, 300, 1200, 3000 @ 4K. O.P.V.  
D.C. mA.—3, 3, 30, 300.  
D.C. Amps—3, 12. A.C. Amps—3, 12.  
Ohms—10K, 100K, 1 meg, 10 meg.  
D.B.—Minus 10 to plus 17. Minus 0 to plus 23.

Supplied with 2 pairs of test leads and comprehensive instruction booklet.

**\$26 (£13)**

Plus S.T. 12 $\frac{1}{2}$ %. Pack & post 2/6.

Wooden Carrying Case to suit. Well made with safety lock and removable lid.

**\$7.90 (£3/19/0)**

Plus S.T. 12 $\frac{1}{2}$ %. Pack & post 2/-.

## MULTIMETERS — 200H Fan-shaped meter movement.

Ranges: D.C.V.—5, 15, 50, 250, 2500 @ 20 K O.P.V. A.C.V.—10, 50, 100, 500, 1000 @ 10K. O.P.V. D.C. mA.—50  $\mu$ A., 2.5 mA., 250 mA. Ohms—600, 600K. Cap.—10pF. to .1 M.F.D. D.B.—minus 20 to plus 22. Supplied with leads and instruction leaflet.

**\$9.50 (95/-)** Plus S.T. 12 $\frac{1}{2}$ %. Pack and Post 1/6.

## Protect Your Premises with the SCOTT ELECTRONIC EYE

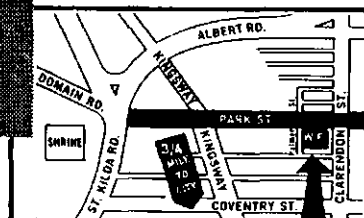
- A.C. Mains Operated. Kit consists of Light Source and Eye Unit.
- Complete with power supply, amplifier, buzzer, hardware and connecting wires.

Use across doorways or other openings up to 25 ft. wide. **\$33.33 (£16/13/4)** Plus S.T. 12 $\frac{1}{2}$ %, plus postage for weight of 4 lb.



# WARBURTON FRANKI

220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines **69-0151**



• TRADE ALSO SUPPLIED

• Please include postage or freight with all orders



# SOME LOW-PASS FILTER DESIGNS FOR AMATEURS

J. McL. VALE,\* VK5ZP

## INTRODUCTION

In the last ten years or so the tremendous capacities of the modern digital computer have caused radical changes in the techniques of filter design and analysis.

The old image-parameter method of design, which Amateurs will have seen in the A.R.R.L. Handbook, is now quite out of date. No matter how closely the element values of an image-parameter designed filter agree with the design, the filter response, and in particular the attenuation outside the passband, will be significantly poorer than that hoped for in the design. In other words, filter design by the image-parameter method is imprecise and approximate.

Modern filter theory has discarded all the approximations of the image parameter method. It is now quite justifiable to attribute deviations between the response computed and that measured in practice to element value tolerances. Further, filters designed from modern filter theory will be more economical in the number of elements (capacitors, inductors) used.

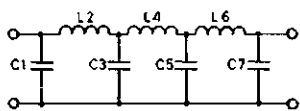
This article will give details of three low-pass filters. The author does not, at the moment, have the time for a more complete article, but if sufficient interest is shown he contemplates writing one in a few months time.

## THE FILTERS

The basic circuit is shown in Fig. 1. The three filters described will have the following characteristics:—

- (1) Maximum v.s.w.r. in passband = 1.10.
- (2) Cut-off frequencies:  
Filter 1 35 Mc.  
Filter 2 56 Mc.  
Filter 3 150 Mc.
- (3) Input and output impedances—50 ohms.

FIG. 1. SEVEN ELEMENT LOW PASS FILTER.

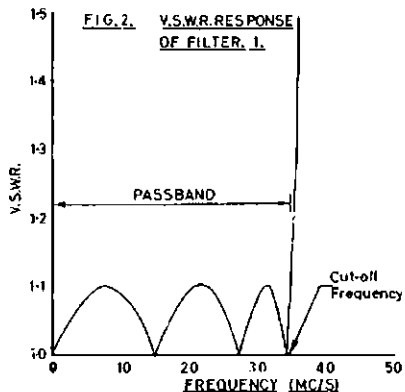


Computation of the element values requires specification of the parameters listed above. Conversely, changing either or both the cut-off frequency and the input-output impedance will require re-calculation of the element values. However, it will be shown later in the article that such calculations may be done easily with a slide rule or pencil and paper.

The reader will see what is meant by the first characteristic — maximum v.s.w.r. in passband—by examination of Fig. 2, which shows the v.s.w.r. of Filter 1. Note that the v.s.w.r. of

filter is the v.s.w.r. measured at the input terminals of the filter when the output is terminated by 50 ohms (or whatever the specified output impedance is).

The cut-off frequency is defined to be that frequency at which the filter v.s.w.r. rises above the value specified as the maximum in the passband—see Fig. 2 again.



The attenuation of the three filters is shown in Fig. 3. Possibly the cut-off frequencies could be lowered somewhat, but it was thought that some allowance should be made for constructional errors. However, if you think you can get away with it, cut-off frequencies of 30, 54 and 148 Mc. would be ideal. As they stand though, the filters should be quite suitable, especially the h.f. filter (Filter 1) and the six metre filter (Filter 2).

The response of the two metre filter (Filter 3) is not very satisfying, although it is optimum for a seven-element filter. Adding two or four

more elements would improve its response, but the element values would then be quite different and the author just does not have the time to calculate them at present.

The attenuation graphs are a little misleading in one respect—the attenuation does not fall to zero in the passband; in fact the attenuation in the passband (neglecting coil losses) is so small that it cannot be shown on the graph.

## ELEMENT VALUES

Element	Filter 1	Filter 2	Filter 3	Units
C1	72.5	45.3	16.9	pF.
C2	159	99.4	37.1	pF.
C3	159	99.4	37.1	pF.
C4	72.5	45.3	16.9	pF.
L1	317	198	73.9	nH.
L2	371	232	86.6	nH.
L3	317	198	73.9	nH.

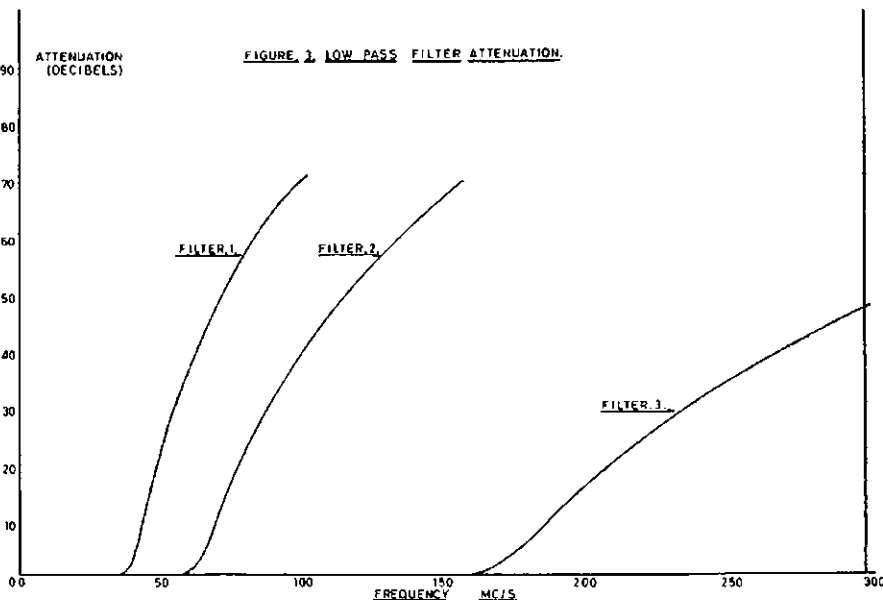
1 pF. = 10<sup>-12</sup> Farad  
1 nH. = 10<sup>-9</sup> Henry

Tolerances: Plus or minus 1% tolerance on element values will not degrade response markedly. Capacitors then should be no problem.

The inductors are best made by bringing them to resonance with the filter capacitors. That is,

- For Filter 1—  
C1 and L1 resonate at 33.2 Mc.  
C2 and L2 " " 20.8 Mc.  
C4 and L3 " " 33.2 Mc.
- For Filter 2—  
C1 and L1 resonate at 53.1 Mc.  
C2 and L2 " " 33.2 Mc.  
C4 and L3 " " 53.1 Mc.
- For Filter 3—  
C1 and L1 resonate at 144.2 Mc.  
C2 and L2 " " 89.3 Mc.  
C4 and L3 " " 144.2 Mc.

(Continued on Page 12)



\* 29 Calton Road, Gawler East, South Aus.

# SWAN SW350 MARK III.

My competitor seems to be quite upset by the effect of something he started himself when he introduced the Swan 350 Mark II. in July, 1965. This was when Swan Co. of California added full 10 M. coverage, VFO trimmer and VFO ceramic coils to their transceivers, but Swan Co. never made a distinction between their earliest and latest models SW350—they are all plain SW350 to them.

However, these first modifications to the SW350 did not fully cure the drift in the VFO and Swan Company admitted that in a Service Bulletin dated 1st October, 1965. Incidentally, you will not get a copy of that Bulletin, regardless of whether your set is registered in California, where it should be registered, or in Sydney. Swan Company stated that the VFO drift was their major problem with the SW350, regardless of the ceramic VFO coil forms, and then decided, in October, 1965, to cut a hole in the transceiver bottom cover, mounted the VFO transistor on a separate panel against the bottom plate as heat sink and, at the same time, incorporated for the first time in their 4 years' history, a crystal filter unit made elsewhere. This new filter has a narrower and different filter passband response, a feature that others apparently overlooked entirely. I considered these modifications just as important as the reasons for the Mark II classification and christened this latest Swan SW350 the Mark III. However, I did not start this ball rolling and it is too bad that one's own medicine now tasted bitter.

Anyway, this "retailer," who imported over 150 transceivers in 2 years' operation, will continue to be on the alert for significant new developments in Swans and other overseas brands, and will announce the Mark IV, whenever justified. This is in compliance with my self-assigned task to bring the Australian Amateurs the best available at the lowest cost. Without my activities the public would most likely still be paying at the 1963/64 rate of £270 for a U.S. \$275 single-band transceiver and £285 for a U.S. \$320 tri-band transceiver instead of much more value now in a U.S. \$395 five-band transceiver for even less money. Import duties and sales tax burden the cost of imported equipment already more than many purses can afford and the local tariff-protected manufacturers apparently cannot compete. I personally brought the first Swan SW350 transceiver, ever imported in Australia, to two Sydney firms with a blank order to make me 50 similar sets, but they never made me a quote.

As added features from now on my Swan SW350 Mark III. will include USB/LSB sideband selection and a 100 Kcs. crystal calibrator at no extra cost. Also the Galaxy V. will have the crystal calibrator as standard equipment, making both five-band S.S.B. transceivers real bargains at A.\$600, which also includes a heavy duty 240v. a.c. supply/speaker unit in matching cabinet.

Yes, sideband selection and crystal calibrators as standard equipment at no extra cost!

This "retailer," exclusive importer of Galaxy, Drake, Aztec, Hy-gain and Autronic, appointed distributor by the world-wide export agent for Swan Co., with more new and interesting lines to be introduced in future (German origin) continues to offer fully imported gear at the lowest prices, with full after-sales service and warranty. Unsolicited comments by:

- (a) "I have built several electronic keyers and have closely examined your Autronic, but cannot fault it, a marvellous unit."
- (b) "With my large full size 40 metre rotary beam I pick up strong local signals outside the Amateur bands that produce spurious responses in other transceivers, but not in the Galaxy III. when properly aligned."

## CURRENT EQUIPMENT IN STOCK

Swan SW350 Mark III. or Galaxy V.: USB/LSB sideband-selection, 100 Kcs. crystal calibrator and 240v. a.c. supply speaker unit included, A.\$600.

AZTEC 12v. d.c. supplies, A.\$90 and A.\$110.

Webster Bandspanner, all-band centre-loaded whip with bumper or body mounting assembly, A.\$48.

Hy-gain fully imported antennae:

10/15/20/40 meters vertical, 14AVQ, A.\$44. 10/15/20/40/80 meters vertical, type 18AVQ, A.\$70. 10/15/20 M. 3-element junior beam, TH3JR, A.\$96. same as senior model "Thunderbrld" TK3 Mk. 2, A.\$140. 6-element 10/15/20 M. beam, type TH6DX, A.\$200. Hy-gain mobile mounts in various types.

Antenna-rotators: Alliance U-98, A.\$55; CDR TR-44, A.\$90; CDR Ham-M, A.\$180. All for 230 v. a.c. with indicator/control units.

## USED EQUIPMENT, RECONDITIONED A-1

Heath HW-22, 40 M. single band Transceiver, has VOX control, A.\$170.

Collins KWM-2 with Collins PM-2 a.c. supply/speaker, Collins 12 v. heavy duty d.c. supply and Collins mobile-mount. A real bargain, A.\$1000.

Hallicrafters HT-37 all band S.S.B. Transmitter, A.\$275.

Hallicrafters SX 111 Amateur bands A.M./C.W./S.S.B. Receiver, A.\$175.

—Arie Bles.

## SIDEBAND ELECTRONICS ENGINEERING

P.O. BOX 23, SPRINGWOOD, N.S.W.

Telephone: Springwood 51-1394

Importer of GALAXY, DRAKE, AZTEC, GONSET, HY-GAIN, SWAN Distributor

# SIDEBAND

Sub-Editor: PHIL WILLIAMS, VK5NN

## S.S.B. CONVENTION

The second Sidebanders' Convention was held at Hamilton, Victoria, during the long week-end at the end of January, when about 60 users of the s.s.b. mode of transmission gathered. These meetings will be held probably every two years, as those present consider this gives them the opportunity to get along every time. The first was held in May, 1964. The main organiser for the recent function was Ern VK3AEM, assisted by Dan 3ADD, Tim 3TW and last but not least, Ian, an enthusiastic listener.

The main feature of this Convention was its informality to give people a chance to get to know better those whom they have contacted over the air. The Buffet Dinner on Saturday evening and the following Sunday morning lectures were enjoyed by all. Delegates with mobiles were "talked" into Hamilton via the station lent by Fred 3YS.

Lectures were delivered by Geoff VK3AC on "Mobile Antennae," Arie VK2AVA on "Recent Trends in Sideband Equipment" and Phil VK5NN on "The Compleat Sidebander," after which delegates departed for home, although a few remained at the motel for an extra night to enjoy additional Hamilton hospitality and travel home on the Monday holiday.

Those who missed going to Hamilton '66 should make a note to book in early for Hamilton '68, which is sure to be bigger and better.

## LINEAR AMPLIFIERS

Following many requests, the next few months of sideband notes will be devoted to the subject of amplification of the final frequency single-sideband signal, from the low level output of the last mixer in the transmitter, to the full power of some hundreds of watts "peak envelope power" (p.e.p.). I shall not state here what the actual power level permitted by the P.M.G.'s Department is, as this is not yet defined and is the subject of current negotiations with the Department. What ever this level will be, the principles will be the

same, the power, current and voltage levels will be within 2 or 3 db. or less than half an "S" point.

We will be mainly concerned with optimum operation of the various stages, from say the class A pentode or tetrode with an input signal of less than 2 volts across a high impedance tuned circuit, to the class B linear power amplifier. The ease and convenience of tuning, band changing, broad banding, maintenance of stability, reduction of intermodulation distortion, proper loading and reduction of radiation of unwanted signals are all very important, and it is hoped to provide some useful tips for the home designer and constructor.

in a box on its own for this reason alone.

Fig. 1 shows a typical block diagram of the recommended arrangement. It is only fair to mention that the class AB1 stage in the exciter may be lifted to the "hundreds of watts" level by adding more tubes of the t.v. line time-base type, e.g. 6DQ5, in parallel and increasing the plate voltage to the 1000v. region, however, this is not recommended as problems such as current sharing, neutralisation, high grid circuit capacitance, and, most important, the heating of v.f.o. components in the vicinity, to say nothing of the increased intermodulation distortion, may become apparent.

It is far better to drop back the level of output required from the exciter to reduce distortion and heating, and use this to drive a conservatively designed (and operated) linear amplifier, rather than to attempt to push the exciter too hard.

As a general rule it is necessary to operate the final linear amplifier with high plate voltage and lower the current requirements for the same power output. As an example it is quite safe

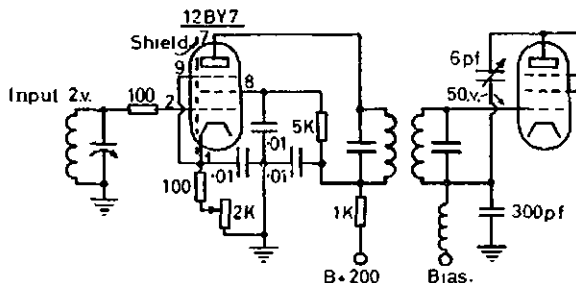


Fig. 2. Typical class "A" driver stage - Gain = 25. (approx)

It is usual to employ a 3-stage amplifier at the final frequency to provide the gain mentioned above with all of the desirable features. The first two stages are included within the s.s.b. exciter, the first being class A, and the second a class AB1 amplifier. The final linear stage may be completely separate, and it is desirable to keep it separate, complete with its own power supply and mains r.f. filtering, as the high voltages and currents in the plate circuit can cause havoc with low-powered audio stages, oscillators and mixers in an exciter. It has been known for power increases from the 50 to 100 watt level to the 500 watt level in the shack to cause all manner of troubles. It is a very good idea to keep the final linear

to operate 807's as linear amplifiers with 1000 to 1200 volts on their plates, i.e. twice the steady plate voltage applied to a plate modulated stage.

Valves known to have good linearity, and most transmitting valves come in this class, may be operated conservatively in neutralised, conventional amplifier circuits using tuned plate and grid circuits with appropriate supply voltages. Passive grid circuits, i.e. a low value grid resistor of 50 to 200 ohms, may be used if sufficient drive is available, and neutralisation omitted—this applies to tetrode or pentode stages. Where linearity is not a feature of the tubes to be used, such as the t.v. line-time-base tubes, then neutralisation

(Continued on Page 12)

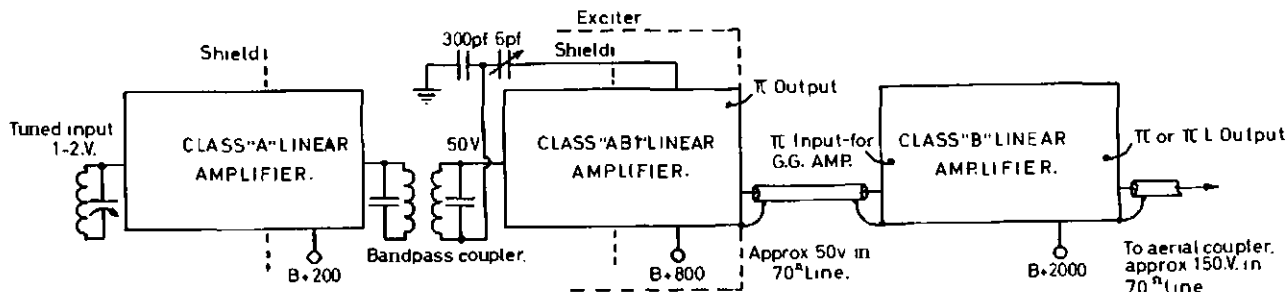


Fig. 1. Typical final frequency amplifier for S.S.B. transmitter.

## SIDE BAND

(Continued from Page 11)

tion and negative feedback are desirable if they are to be operated at high level.

The application of negative feedback to r.f. linear amplifiers is not for Amateur designers, except—and there is only one exception—in the case of the grounded grid amplifier, but there are some tricks and precautions to be observed, and these will be outlined later.

### THE CLASS "A" AMPLIFIER

There is not a great deal of choice of suitable valves for this stage, but some tricks of the trade—not always realised by the trade—are worth consideration. Suitable tubes are the 6AG7, 12BY7, 6CL6, 6CH6 and 6870, but the various audio output tubes, e.g. 6V6, 6M5, 6L6, 6AQ5, are less suitable due to their high plate to grid capacitance, which makes stable operation difficult. Twin triodes have been used as cascode amplifiers, and I have used an E180CC computer triode with a Gm of 6300 quite successfully.

Coming back to the first series of video-type tubes, examination of operating conditions shows that most manufacturers invariably put too many volts on the plate and screen and then have a heat problem. Since 50 volts of peak output is required to drive the next stage, then 150 to 200 volts on the plate and screen is more than adequate. The plate current may be run at 30 to 40 milliamps for less than 8 watts of plate dissipation, which allows the stage to

operate into a lower plate load, with better linearity, and much higher sensitivity. The advantages are obvious, and the result enables us to use a supply of about 180 volts for the whole of the low level section of the exciter, including the screen of the class AB1 output stage. The reduction in heating in the exciter is important and results in less v.f.o. drift.

Fig. 2 shows a typical 12BY7 driver stage, a tube type currently used as a video stage in Australian t.v. receivers and readily available at a reasonable price. This is a high slope tube and needs to be given all of the shielding and grid-stopper treatment for stable operation. With this it is a good performer.

[To be continued.]

## LOW PASS FILTER DESIGNS

(Continued from Page 9)

### FILTERS FOR OTHER FREQUENCIES

If one has the element values for a filter of cut-off frequency  $f_1$  and one wants to design a filter cutting off at  $f_2$ , simply multiply all element values by the ratio  $(f_1 \div f_2)$ .

### FILTERS FOR OTHER INPUT/OUTPUT IMPEDANCES

The filter values listed above are for input and output impedances of 50 ohms. Conversion to other values—say 75 ohms—is a matter of multiplying all inductances by  $(75/50)$  and all capacitances by  $(50/75)$ .

## USEFUL REFERENCES

- (1) "Network Analysis and Synthesis," L. Weinberg, McGraw-Hill, 1962, p. 601-670.
- (2) "Reference Data for Radio Engineers," International Telephone and Telegraph Corporation, 4th edition, 1963, p. 187-228.

## W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

### PHONE

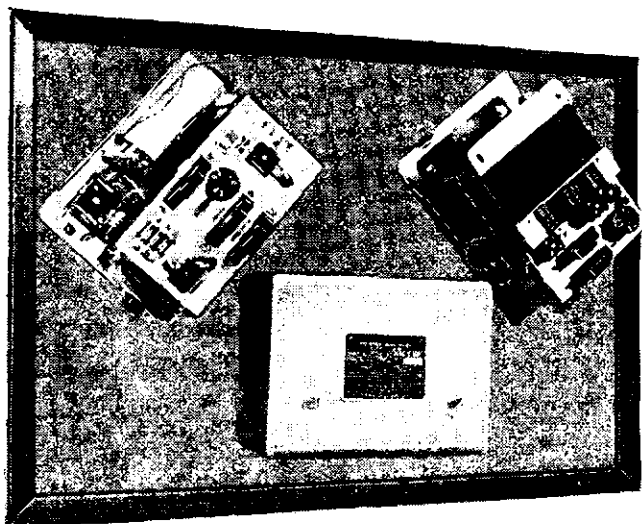
Call No.	C't-ries	Call No.	C't-ries
VK5MS	24	VK2JZ	61
VK3AHQ	51	VK4HR	12
VK6RU	2	VK2ADE	65
VK5AB	45	VK3TL	62
VK6MK	43	VK2AAK	58
VK4FJ	21	VK6KW	4
New Members:			
VK2CM	69	VK3SM	70

### C.W.

Call No.	C't-ries	Call No.	C't-ries
VK3KB	10	VK2AGH	71
VK3CX	26	VK3AHQ	79
VK2QL	5	VK2EO	2
VK4FJ	28	VK6RU	18
VK2ADE	81	VK3ARX	66
VK3NC	19	VK3XB	75
Amendments:			
VK4HR	8	VK5RX	23
VK3TL	78		235

### OPEN

Call No.	C't-ries	Call No.	C't-ries
VK2ADE	28	VK3NC	77
VK6RU	8	VK4HR	7
VK2AGH	83	VK2VN	18
VK6MK	74	VK3JA	43
VK4FJ	32	VK3TL	85
VK2ACX	6	VK2AFK	82
Amendment:			
VK9TL	99		107



## POWER RECTIFIER UNITS

(Regulated & Unregulated)

Trimax have developed, and manufacture a wide range of Power Rectifier Units both regulated and unregulated for use with telephone equipment. Output voltage 48V. with capacities from 400mA to 10A. Also static frequency changer units which produce 25c/s from 50c/s input.

Illustrated. Top left—Unregulated Power Supply—output 48V. 750mA. Right—Frequency Changer output 75V., 20VA., 25c/s.



# LM ERICSSON LTD.

## "TRIMAX" DIVISION

FACTORY: 50R, WILLIAMS RD. & CHARLES ST, NORTH COBURG, VICTORIA. PHONE: 35-1203... TELEGRAPHIC ADDRESS: "TRIMAX" MELB.



LM 52

# VK-ZL-OCEANIA DX CONTEST 1965 RESULTS

The Federal Contest Committee of the W.I.A. takes pleasure in presenting the results of the 1965 VK-ZL Oceania Contest.

The winners of awards have been listed in the results using heavy type.

## AUSTRALIA

C.W.—	80	40	20	15	Total
Call					
<b>VK1VK</b>	—	—	2610	—	2610
2EO	220	3810	11150	—	15180
2APK	55	2260	4545	2440	9300
2VN	—	—	5235	1215	6450
2QL	650	1260	1865	1535	5310
2GW	—	4375	—	—	4375
2QK	—	1845	2225	—	4070
2PV	—	—	3400	—	3400
2IC	—	—	3130	—	3130
2RA	—	275	970	375	1620
(VK2ASI 55 pts. (10 mx).)					

<b>VK3AXK</b>	165	2785	4845	585	8380
3MR	—	—	8140	—	8140
3DQ	—	1555	3275	1910	6740
3NC	—	—	5525	—	5525
3YD	—	—	4710	—	4710
3XB	740	1265	1295	345	3645
3APN	—	2920	—	—	2920
3RJ	—	—	—	2745	2745
3ABA	—	—	—	1815	1815
3ABR	—	—	1215	—	1215
3ARV	—	—	695	—	695
3QV	—	665	—	—	665
3YU	—	—	435	—	435
3KS	—	—	110	—	110

<b>VK4LT</b>	—	690	5305	3755	9750
4VX	—	—	6740	1290	8030
4SD	—	—	5060	—	5060
4UC	—	—	1735	—	1735
4WO	—	—	1290	—	1290
4XJ	—	—	1285	—	1285
4PJ	—	—	—	—	Check

<b>VK5FH</b>	—	—	4645	—	4645
5MY	—	1775	1780	—	3555
5KO	1235	—	—	—	1235
5BS	—	680	320	—	1000
<b>VK6SM</b>	—	—	4505	3450	7955
<b>VK7SM</b>	—	490	2910	1570	4970
7DK	—	1325	1580	—	2905
7GV	—	—	925	—	925
7RY	—	—	380	—	380
<b>VK8DI</b>	—	290	2040	—	2330

<b>(W7PGX op.)</b>					
8DI	—	—	—	1360	1360
<b>VK9GC</b>	—	—	3500	1200	4700
9CJ	—	—	620	—	620

PHONE—	80	40	20	15	Total
Call					
<b>VK1VK</b>	—	—	2330	—	2330
<b>VK2APK</b>	—	970	5640	1450	8060
2KM	—	—	3035	—	3035
2AGE	—	—	2335	330	2665
2ASI	—	—	—	2405	2405
2WD	—	—	2275	—	2275
2AUS	—	—	2190	—	2190
2VN	—	—	1075	—	1075
2ACD	—	—	950	—	950
2APQ	—	—	55	—	55
2ACZ	—	—	—	—	Check
2MR	—	—	—	—	Check
2CM	—	—	—	—	Check
<b>VK3ATN</b>	1125	3000	8585	2375	15250
VK3ATN	165 pts. (10 mx).				
3AKS	—	—	3590	—	3590
3LW	—	—	1585	—	1585

3XB	—	575	1150	—	1725
3SM	—	—	1240	—	1240
3ABA	—	—	—	800	800
3VZ	—	—	740	—	740
3KS	—	—	650	—	650
3QV	—	520	—	—	520
3TL	—	—	—	—	Check

<b>VK4LT</b>	—	55	5680	1595	8190
VK4LT	860 pts. (10 mx).				
4SF	—	—	2950	—	2950
4DO	—	—	2660	—	2660
4VX	—	—	1480	705	2185
<b>VK5LC</b>	—	—	2015	—	2015
5ZZ/T	—	—	—	1365	1365
5WO	—	—	1125	110	1290
(VK5WO 55 pts. (10 mx).)					
5FT	—	955	135	—	1090
<b>VK6SM</b>	—	—	2760	700	3460
6XX	—	—	2150	—	2150
6DR	—	—	440	245	685
<b>VK7DK</b>	—	370	3835	—	4205
<b>VK8DI</b>	—	—	165	1175	1340
<b>VK9XI</b>	—	—	3865	1235	5100
<b>VK0GW</b>	—	—	2915	—	2915

## VK LISTENERS' SECTION

<b>WIA-L2022</b>	10190
<b>BERS-195 (VK3)</b>	7085
L3185	3040
L3100	6035
L3118	2990
L3233	4870
L3285	1235
L4144	4280
L4166	3305
L5065	4074
L6021	11040
L6029	815

## NEW ZEALAND

C.W.—	80	40	20	15	Total
Call					
<b>ZL1AJU</b>	55	1825	8585	6440	16905
1ARY	—	—	5780	—	5780
1DV	—	—	5755	—	5755
1AWT	—	1680	—	—	1680
1HW	—	—	4960	2690	7650
1OY	—	2025	630	—	2655
<b>ZL2BAU</b>	—	5675	—	—	5675
<b>ZL3IS</b>	—	—	2745	2285	5030
<b>ZL4BO</b>	1315	4880	2620	1980	10795

PHONE—	80	40	20	15	Total
Call					
<b>ZL1KG</b>	55	1435	8220	3075	12785
<b>ZL3GS</b>	190	325	5975	—	6490
<b>ZL4BO</b>	55	155	1588	—	1795

## ZL LISTENERS' SECTION

ZL149	9075
ZL190	7950
ZL1105	2590
Tony E. Magow	2205

## OVERSEAS

C.W.—	80	40	20	15	Total
Call					
<b>Asia</b>					
EP2BQ	776 pts.				
JA1ACA	360	JA8BXA	556		
JA1QIP	12	JA6DGV	168		
JA2AIR	810	JA6CLO	12		
JA2BNN	2	JA7BMK	528		
JA2FBA	252	JA7FS	1202		
JA3CWW	4144	JATYAS	48		
JA3DAY	168	JA0AC	1296		
JA5BJC	1296	JA6BFO	306		
JA6PY	132	VS8BJ	969		
		9M2LO	494		

## Europe

DJ5BV	1224 pts.	OK3OM	306
DM2AND	1380	OK3CDP	108
DM2ATD	698	ON5AZ	147
DM3KED	8	OZ1LO	242
DL7AA	2180	OZ4PM	260
G2DC	374	OZ2RH	731
G3SSO	1096	PA0LO	24
G3WP	Check	PA0VB	80
G3RI	1781 pts.	PA0DC	42
G6XN	684	PA0WAC	Check
I1EVK	30	SM2CDL	Check
LA2Q	24	SM2CDW	Check
LATH	138	SM2AGD	810 pts.
LASH	70	SM3BUS	18
OE1RZ	1248	SM3TW	650
OH1WK	350	SM4CLU	32
OH1XK	675	SM5AMF	400
OH2BH	Check	SM5DKH	40
OH2BCD	12 pts.	SM5CBC	Check
OH2BQ	957	SM5API	488 pts.
OH3AH	588	SM5BYG	416
OH3UO	468	SM5BNX	162
OH5UQ	340	SM5CCE	1896
OH6UX	1900	SM5BKG	306
OH5VD	36	SM7QY	484
OH8VR	64	SM7ANB	542
OH8UX	32	SP3AIJ	100
OH7NW	90	SP6AAK	24
OK1SM	Check	SP6AAT	16
OK1ALZ	Check	SP6ANT	24
OK1US	2 pts.	SP6SO	8
OK1NK	18	SP7HX	156
OK1GC	898	SP8ARY	45
OK1AT	140	SP8BDH	120
OK1AFO	140	TF3AB	48
OK2KGP	Check	YU1BCD	188
OK2QX	160 pts.		
OK3UL	378		

## U.S.S.R.

UA1KBE	48 pts.	UB5IU	95 pts.
UA1KIA	800	UB5KAI	266
UA1NA	1	UB5KBU	12
UA1SP	72	UB5KYC	12
UA1RV	42	UB5KCI	252
UA2KAW	132	UB5RS	52
UA3ND	24	UC2AW	33
UA3UJ	1881	UC2WJ	188
UA3KAO	528	UC5ZE	2
UA3KO	910	UD6BD	12
UA4ZA	10	UD6KAB	44
UA4KCC	312	UD8AR	64
UA6KAF	804	UB8DP	24
UA6KAE	4	UI8CK	24
UA6NJ	4	UI8KAA	596
UA6PC	42	UL7CH	190
UA9WS	58	UL7GR	40
UA9HL	Check	UI7KA	192
UA9WL	Check	UL7KKB	30
UA9MX	100 pts.	UL7KBB	48
UA9KCF	120	UL7KKB	48
UA9KTE	132	UM8FM	351
UA9KHA	5	UN1CH	70
UA9AG	92	UP2NK	112
UA9GF	140	UQ2GA	385
UA9KCA	1891	UV5BP	238
UA9KFG	2691	UV8UF	42

## Oceania

FK8AH	572 pts.	VR2DK	8225 pts.
KH6LJ	9845		

## Africa

7X2WW	8 pts.
-------	--------

## North and South America

OA4FW	12 pts.	W6LDD	6417 pts.
PY2CQ	1110	WA6EPQ	13302
VE2B	130	K7AL	2014
VE8AU	144	W7BUE	416
VO1AW	18	W8VSK	8212
W1EVT	8240	W8DGP	1710
W4RLS	52	K9IYK	Check
W4SKI/5	385	WA6EMS	628 pts.
W5WZQ	1492	W6CVZ	230

## PHONE—

C.W.—	80	40	20	15	Total
Call					
<b>Asia</b>					
EP2BQ	1045 pts.	JA6FY	324		
JA2CWX	588	JA6NP	7225		

## MODIFYING PALEC VALVE AND CIRCUIT TESTER

(Continued from Page 2)

voltage to suit, then move slide switches to select valve pins, and insert valve in socket.

"Element Shorts": Set function switch (bottom l.h.s.) to "Element Shorts" and move each slide switch in turn to the "Test" position and return to "Common" position, with the exception of the two selected filament switches. Any continuous glow of the neon globe will indicate which element of the valve has an element short, or is internally connected.

When a valve is found with a short, don't test, but tip it out in the w.p.b.

Emission Test: Set function switch to "Merit Test" position. Set "Range Control" to "Palec" test chart number for the valve under test. Depress "Press for Merit" button and read the meter for valve condition, after having ascertained and selected the slide switch for the grid or diode connection under test.

After having completed valve testing, return all slide switches to the common position, as you may leave the filament selector switch on 12v. and come back to test a 1.4v. valve with rather disastrous result to the valve.

Make it a habit to set all selector switches to the correct positions before inserting the valve in the socket.

## VK-ZL CONTEST RESULTS

(Continued from Page 13)

### Europe

DJ0QT .....	8312 pts.	OH3TY .....	80 pts.
DJ7LD .....	204 "	OH0NC .....	Check
DM2ATD .....	64 "	OK1ADP .....	750 pts.
DL1SV .....	80 "	OK1AHV .....	72 "
DL7AA .....	2128 "	OZ3SK .....	576 "
DL7KV .....	90 "	OZ4BH .....	64 "
G3UML .....	1080 "	OZ5KG .....	1520 "
G6XN .....	1952 "	PA0DEC .....	128 "
LA4LG .....	48 "	PA0HBO .....	344 "
LA7VE .....	168 "	SM2BHJ .....	656 "
OD8BZ .....	1101 "	SM3BIZ .....	632 "
OE1RZ .....	2040 "	SM3AGD .....	1608 "
OH1FN .....	8 "	SM4CMG .....	552 "
OH2SE .....	1386 "	SM7MS .....	Check
OH2XA .....	496 "	SP7HX .....	15 pts.

### U.S.S.R.

UA3KBD .....	287 pts.	UJ8KAA .....	810 pts.
UH8BO .....	2 "		

### North and South America

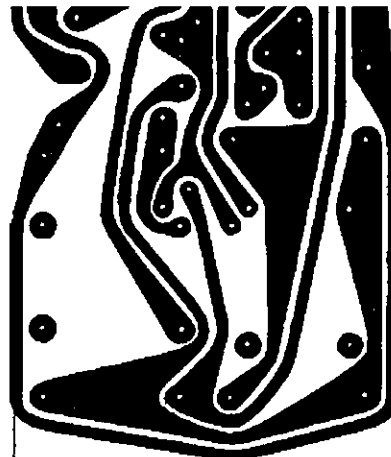
HP1JC .....	1089 pts.	K6ERV .....	5700 pts.
OA4KY .....	3328 "	W1PYM/6 .....	598 "
PY2SO .....	8 "	W7BTH .....	Check
WA5ALB .....	36 "		

### Oceania

KB6IJ .....	5551 pts.
-------------	-----------

### OVERSEAS LISTENERS' SECTION

DE1364 .....	243 pts.	JA1-5160 .....	946 pts.
DE15431 .....	48 "	JA3-2325 .....	80 "
DE15440 .....	200 "	JA7-1535 .....	272 "
DEA8767 .....	78 "	JA8-1478 .....	370 "
DEA26135 .....	378 "	JA0-1820 .....	682 "
DEA27048 .....	658 "	Atsushi .....	1280 "
DL-286 .....	1404 "	Oosumi .....	938 "
GW7796 .....	328 "	SM2-3706 .....	938 "
HE9FMO .....	000 "	UA9-2847/UA3 .....	232 "
II-11587 .....	24 "	WPE4IH1 .....	96 "
JA1-1176 .....	648 "	YU3-RS-523 .....	398 "
JA1-4865 .....	96 "		



## NOW... PRINTED CIRCUITS TO YOUR OWN DESIGN!

Do you design your own circuits? All the advantages of printed circuits can be yours at modest cost. For many years Precision Windings have supplied printed circuits to Australian industry... and now streamlining of production techniques permits the economical manufacture of small quantities... even single circuit boards. You design and supply the artwork... we do the rest. Precision workmanship is guaranteed and delivery made within 7 days. FREE!! As many enthusiasts will not be familiar with the preparation of "artwork", send a stamped, addressed envelope to us and we will forward a set of notes written to simplify preparation of "artwork". Instructions are clear and concise.

### POST THIS COUPON NOW!

Please manufacture for me the printed circuits specified herewith in accordance with the artwork supplied.

Number required..... Scale of artwork.....

Size..... Area..... D/N.....  
 Phenolic paper circuits (at 5c per sq. in.) \$  
 Epoxy paper circuits (at 0c per sq. in.) \$  
 Epoxy glass circuits (at 10c per sq. in.) \$  
 Holes drilled (at 5 for 1c (2c ea.)) \$  
 Cost of photonegative (fixed cost) \$3.00  
 Sales Tax (12½% or 25%) \$  
 Packing and registered postage \$0.50

Total \$

Please find cheque/money order/postal notes for total of \$.....c..... (All cheques and money orders should be made payable to Precision Windings.)

NAME..... (BLOCK LETTERS)

ADDRESS.....

STATE..... OCCUPATION.....



52 CAMBRD RD., CLAYTON, VIC. TEL. 546 7820

## BRIGHT STAR CRYSTALS

### FOR ACCURACY, STABILITY, ACTIVITY AND OUTPUT

Our Crystals cover all types and frequencies in common use and include overtone, plated and vacuum mounted. Holders include the following: DC11, FT243, HC-6U, CRA, B7G, Octal, HC-18U:

THE FOLLOWING FISHING-BOAT FREQUENCIES ARE AVAILABLE IN FT243 HOLDERS:—

6280, 4095, 4535, 2760, 2524 Kc.

5.500 Kc. T.V. Sweep Generator Crystals, £3/12/6  
 100 Kc. and 1000 Kc. Frequency Standard,  
 £8/10/0 plus 12½% Sales Tax.

Immediate delivery on all above types.

AUDIO AND ULTRASONIC CRYSTALS—Prices on application.

455 Kc. Filter Crystals, vacuum mounted, £6/10/0 each plus 12½% Sales Tax.

ALSO AMATEUR TYPE CRYSTALS—3.5 AND 7 Mc. BAND.

Commercial—0.02% £3/12/6, 0.01% £3/15/6, plus 12½% Sales Tax.

Amateur—from £3 each, plus 12½% Sales Tax.

Regrinds—Amateur £1/10/0, Commercial £1/17/6.

CRYSTALS FOR TAXI AND BUSH FIRE SETS ALSO AVAILABLE.

We would be happy to advise and quote you.

New Zealand Representatives: Messrs. Carrel & Carell, Box 2102, Auckland.

Contractors to Federal and State Government Departments.

## BRIGHT STAR RADIO

46 Eastgate Street, Oakleigh, S.E.12, Vic.

Phone: 57-6387

With the co-operation of our overseas associates our crystal manufacturing methods are the latest.

# LIGHTNING

THE maxim, beauty lies in the eyes of the beholder, is particularly apt when applied to lightning. Views range from beautiful, but awesome, to terrifying, dangerous and destructive.

It is the dangerous and destructive properties of lightning that concern the electrical engineer. The high voltages in a lightning stroke create problems that he must overcome if interruptions to supply are to be avoided.

Every day there are approximately forty-four thousand electrical storms throughout the world. It is estimated that the actual number of lightning strokes total about one hundred per second.

There is little chance of being killed by lightning unless one is foolhardy. During a thunderstorm it is hazardous to play golf, swim in open water, stand under an isolated tree, fly a kite, or generally remain in the open. Prudent people shelter during storms. The safest shelter is a metal enclosure such as a car or metal-framed building.

Despite almost two hundred years of scientific enquiry, the exact processes which give rise to a lightning flash are unknown. Many organisations are either conducting research or seeking the answers to the problems associated with lightning strokes to electrical apparatus.

The brevity of the average lightning flash, about 1/100,000th second, hampers studies in the field. Most research must be conducted in the laboratory by examining the behaviour of artificially created storms.

Benjamin Franklin was the first to identify lightning as an electrical discharge. During a thunderstorm in 1752, he was able to produce sparks from a key attached to the end of a kite string. Since then various theories, none of which meet with universal acceptance, have been advanced to account for the origin and generation of lightning.



Fig. 1

+ + + + +  
EARTH

## THUNDERCLOUDS—ELECTRICAL BUILD-UP AND STRUCTURE

A thunderstorm appears to be a form of electrostatic generator producing both positive and negative charges. The charged particles then become separated into groups of positive and negative charges in different parts of the cloud.

C. T. R. Wilson was the first man to deduce the charge distribution within a thundercloud. He did this by a study

● The effects of lightning on electric reticulation systems are of great importance to all electric supply authorities. The Sydney County Council maintains a standing committee which keeps the lightning performance of its system under constant review. This committee also ensures that the Council incorporates the latest and most suitable lightning practices.

of the manner in which the electric field changes produced at the ground by lightning flashes varied with the distance from the storm. He concluded that, in a thundercloud, the upper part is positively charged and the lower part is negatively charged. This deduction has been confirmed by later work.

As the storm progresses it develops an increasing electric potential between its separate parts, neighbouring clouds or the earth. This potential is developed by the gradual accumulation of charge believed to be built up by the action of falling rain, snow, ice pellets, or some other unknown natural process.

Potential differences may reach values as high as 100,000,000 volts. The transient currents produced are in the range of from 3,000 to 200,000 amperes.

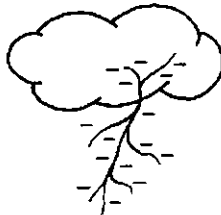


Fig. 2

+ + + + +  
EARTH

## LIGHTNING—THE ELECTRICAL DISCHARGE

It is believed that lightning strokes may be started with potentials of the order of 5,000,000 (or more) volts between cloud and earth.

Photographs of lightning strokes have been taken by a special moving camera based on a design by Sir Charles Boys. Use of this camera has disclosed that the lightning flash consists of a number of successive strokes which follow the same track. These strokes occur at intervals of 1/100th of a second, and the average number of strokes is three.

However, as many as 47 have been recorded in a single flash.

A lightning stroke is initiated by a streamer or pilot leader developing downwards to the earth from the negatively charged base of the cloud (Fig. 1). The current in the leader is not high, probably less than 100 amperes.

As the leader approaches the earth the gradient at the earth's surface becomes great enough to cause a short streamer to rise from the earth (Fig. 2).

Eventually contact is made and the high current flow associated with lightning occurs (Fig. 3).

This high current flow has a short duration peak and is followed by a low current long duration tail (Fig. 4). The low current long duration portion of a stroke is not disruptive, but will cause fires in flammable material. For that reason, low current lightning is known as "hot" lightning.

It is the so-called "cold" lightning, with its high current peak, that is so damaging to electrical apparatus and reticulation systems. Its destructive effects are seen in any high resistance medium. A lightning discharge flowing in a good conductor earth will not injure that conductor.

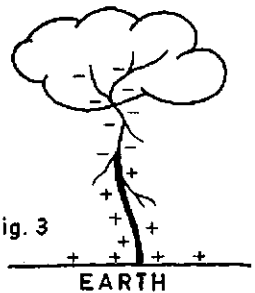


Fig. 3

Most lightning discharges occur within the cloud itself. The higher the cloud the easier it is for the discharge to pass between the upper (positive) and the lower (negative) sections of the cloud than it would be for a cloud to ground stroke.

Internal flashes do not usually appear as lightning strokes, but rather as general illumination in the cloud. This is due to the refraction of the light on the myriads of water droplets within the cloud.

There is no known method of either preventing or resisting the power of lightning strokes. For the time being, mankind has to put up with them. All the electrical engineer can do is to co-exist with lightning and to divert it from installations where it can do damage.

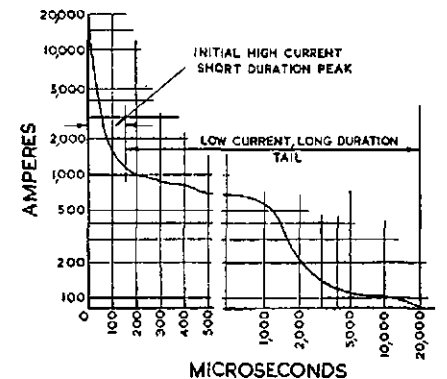
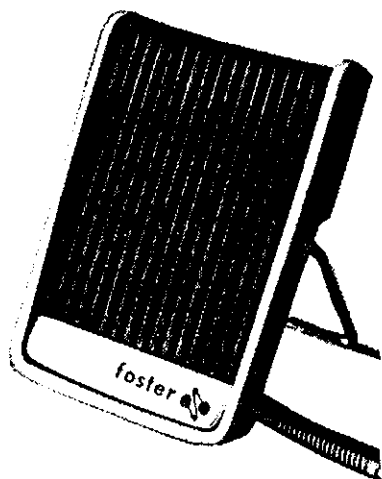


Fig. 4. Record of current in a direct stroke to the Cathedral of Learning, University of Pittsburgh, June 10, 1939.



# FOSTER DYNAMIC MICROPHONES

## FOR HAND-DESK USE



DF-2

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
 Effective output level ..... -55 db. [0 db. = (one) IV. Microbar]  
 Frequency response ..... 200 to 10,000 c.p.s.

### OMNI-DIRECTIONAL DYNAMIC:

SIZE: 3" x 2-1/8" x 1".  
 Cable: 12 ft. of P.V.C.  
 Switch: on-off.  
 Desk Stand. Clip folds for hand use.  
 Colour: WHITE.  
 Plastic Diaphragm.

Retail Price  
 50K ohms  
**£2/14/0**  
 + Sales Tax 4/9

A QUALITY PRODUCT OF EXCELLENT DESIGN

Marketed by **ZEPHYR PRODUCTS PTY. LTD.**

58 HIGH STREET, GLEN IRIS, S.E.6, VICTORIA      Phones: 25-1300, 25-4556



**Manufacturers of Radio and Electrical Equipment and Components**

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.

NOW AVAILABLE—

THE 1966 EDITION

# ★ A.R.R.L.—Radio Amateur's Handbook

*The Standard Manual of Amateur Radio Communication*

Price \$6.10 posted, or 58/6 and postage 2/6

BOOK YOUR ORDER NOW!

NOW AVAILABLE—

# ★ The Radio Transistor Handbook

by Stoner & Earnshaw.

Price \$6.65 posted, or 64/9 and postage 1/9

THIS UP-TO-DATE HANDBOOK COVERS A WIDE RANGE OF COMMUNICATION  
 FOR BOTH AMATEUR RADIO & COMMERCIAL APPLICATIONS

## McGILL'S AUTHORISED NEWSAGENCY

Established 1860

183-185 ELIZABETH STREET, MELBOURNE, C.1, VIC.

"The G.P.O. is opposite"

Phones: 60-1475--6-7

## LIGHTNING PROTECTION

Protection from lightning is achieved by either one of two methods or by a combination of both.

Shielding is the provision of a conductor which intercepts the lightning stroke and conducts the electrical discharge harmlessly (it is hoped) to earth.

The other method is by the use of lightning arresters. By providing a bypass around insulation, these allow current in a reticulation system to leave without causing either damage or an interruption to supply.

## SHIELDING—USE OF LIGHTNING CONDUCTORS

Lightning conductors, which take many forms, shield a building, tree, mast or other object by attracting flashes which would otherwise strike either the object on which the conductor is placed or its immediate surroundings. Having attracted the stroke, the electrical discharge is passed to the earth.

When the path of a pilot leader approaches the earth remote from a conductor its course will not be influenced by that conductor. An upward streamer starts from the earth itself and the stroke is completed (Fig. 5).

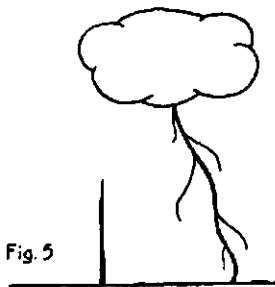


Fig. 5

Should the pilot leader be close to the conductor the potential gradient experienced at the end of the conductor produces a short upward streamer from the conductor. This upward streamer meets the pilot leader and the contact is made. The subsequent lightning discharge flows to earth via the conductor (Figs. 6 and 7).

Any lightning stroke headed towards the earth within a certain distance of a conductor will be attracted to that conductor. The area of attraction surrounding a conductor is known as the shielded area.

Good shielding is provided when out of every 1,000 lightning strokes only one strikes the shielded object, the other 999 being attracted by the conductor. This is known as an exposure of 0.1 per cent. The shielded area depends upon the configuration of the conductor. In the special case of a rod or mast the shielded area is that covered by a cone whose apex is the top of the conductor with its surface forming an angle of 30 degrees to the vertical (Fig. 8).

The only way to ensure complete protection from all strokes is by practically surrounding an object with a conducting shield.

Multiple rods increase the shielded area between them to a greater extent than the sum of their protected areas.

This increase, although appreciable, may not be generally recognised.

A popular fancy is that lightning current has a tendency to jump from any sharp bend in the conductor. This type of flash-over occurs only when a nearby object offers an easier path to earth than does the conductor itself.



Fig. 6

The prime requisite with all shielding devices is that they be well earthed. Failure to ensure first-class earthing can mean damaging side flashes as the discharge seeks an easier path to earth.

Possibly the earliest use of lightning rods or conductors to provide effective shielding was in the 19th century. Lightning conductors were fitted to the masts of the wooden ships used by the Royal Navy.

High voltage transmission lines are usually shielded by means of one or more wires suspended above the line conductors. These wires are earthed through each tower. When erecting transmission lines, engineers make a thorough check of the earthing of each tower. If found to be inadequate, long wires known as counterpoises are bonded to the tower and buried in the ground to form a radial pattern around it.

Shielding will not prevent the line conductors from being subjected to transient voltages during a lightning stroke. However, it will usually keep the transient voltage below the flash over voltage of the insulators.

## LIGHTNING ARRESTERS

Protection of equipment is usually carried out by means of surge diverters, more commonly known as lightning arresters. These devices provide an easy path to earth for the lightning current, yet prevent the normal supply current from following. Once the lightning current has been passed to earth the arrester must rapidly re-establish itself as an insulator to prevent power current following.

The name "lightning arrester" is not really correct. The device is actually a lightning diverter and a power current arrester.



Fig. 7

(Spark gaps are sometimes used instead of arresters. They are less expensive and if the gap spacing is correctly chosen they will prevent damage to costly apparatus, but do not avoid interruptions to supply.)

Lightning arresters are generally of two basic types: expulsion arresters and valve arresters.

The expulsion arrester consists of a tube with an electrode at each end. The tube is made of a material that, under the heat of an arc, will create a gas (the tube may even be filled with gas-producing material).

In operation, the lightning current causes the electrode gap to break down. An arc is formed and this is maintained by the power supply voltage. The heating liberates gas at a rapid rate and the arc is blown out of the tube by the gas, lengthening it and interrupting the power follow-on current.

As the explosive nature of the discharge is related to the fault current there is a maximum current which an expulsion arrester can handle. Such arresters are usually employed on systems with moderate fault duty.

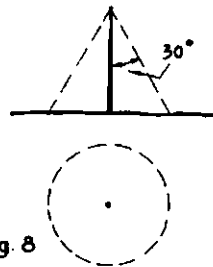


Fig. 8

The rapid arc extinction of the expulsion arrester can give rise to transient overvoltages which are damaging to certain types of equipment.

The so-called valve arrester avoids this trouble and is consequently more often used.

It consists of a number of arc gaps in series with blocks of resistance material having an inverse resistance characteristic, i.e. the resistance decreases as the voltage increases.

At high lightning voltages the blocks have negligible resistance to the passage of current. At the lower power frequency voltage their resistance has increased and the current is reduced to the point where it can be interrupted by the gap.

The process described is a more gradual way of preventing follow-on power current than that employed by expulsion arresters. Both types of arresters divert the lightning current to earth yet avoid power interruptions.

★

## CONTEST CALENDAR

16th/17th April: C.Q. W.W. DX S.S.B. Contest.

7th/8th May: U.S.S.R. DX Contest (c.w. only on 3.5 through 28 Mcs.).

4th/5th June: CHC/FHC/HTH QSO Party.

9th/10th July: R.S.G.B. 1.8 Mcs. "Summer" Contest.

24th/25th Sept.: R.S.G.B. 21/28 Mcs. Phone Contest.

V.H.F./U.H.F. STATE RECORDS—MARCH, 1966

<b>NEW SOUTH WALES:</b>					
50 Mcs.	VK2ADE	to	VE7AQQ	8/4/59	7320 miles
144 "	VK2ZMR	to	ZL2AAH	8/1/65	1410 "
432 "	VK1VP/1	to	VK2ZPT	14/6/65	178 "
576 "	No claim				
1296 "	VK2ZAC	to	VK2ZCF/2	4/3/65	46.8 "
<b>VICTORIA:</b>					
50 Mcs.	VK3ALZ	to	XE1FU	1/3/59	8418 miles
144 "	VK3ZAA	to	ZL3HP	9/12/65	1681 "
432 "	VK3ZDM	to	VK7LZ	8/1/66	812 "
576 "	VK3AKE	to	VK3ANW	11/12/49	80.7 "
1296 "	VK3OB/3	to	VK3AUX/3	23/1/66	3.0 "
2500 "	VK3XA	to	VK3ANW	18/2/50	9.0 "
3500 "	VK3ZGT/3ZGK/3	to	VK3ZDQ/3	14/12/63	63.5 "
<b>QUEENSLAND:</b>					
50 Mcs.	VK4ZAZ	to	K6ERG	16/3/58	5305 miles
144 "	VK4ZAX	to	VK7ZAO	27/12/61	1107 "
No other claims					
<b>SOUTH AUSTRALIA:</b>					
50 Mcs.	VK5KL	to	W7ACS/KH6	26/8/47	5361 miles
144 "	VK5ZHJ	to	VK6ZCN	8/1/65	1330 "
432 "	VK5AW	to	VK3AEE	13/11/64	226.5 "
576 "	VK6ZTM/6ZDQ/5	to	VK5ZIS/5ZJH/5	4/1/62	105.5 "
1216 "	VK5LA/5	to	VK5ZCR/5	4/1/62	1.0 "
<b>WESTERN AUSTRALIA:</b>					
50 Mcs.	VK6BE	to	JA8BP	30/10/58	5490 miles
144 "	VK6ZCN	to	VK5ZHJ	8/1/65	1330 "
432 "	VK6ZDS	to	VK6LK/6	30/5/64	33 "
576 "	VK6ZDS	to	VK6LK/6	15/12/63	101.2 "
<b>TASMANIA:</b>					
50 Mcs.	VK7LZ	to	JA9IL	3/12/59	5426 miles
144 "	VK7ZAO	to	VK4ZAX	27/12/61	1107 "
432 "	VK7LZ	to	VK3ZDM	8/1/66	312 "

No other claims.  
N.B.—Australian Records in bold type.

# LOW DRIFT CRYSTALS

FOR  
**AMATEUR  
BANDS**

ACCURACY 0.01% OF  
STATED FREQUENCY

**3.5 and 7 Mc.**  
Unmounted, £2/10/0  
Mounted, £3/0/0

**12.5 and 14 Mc.**  
Fundamental Crystals,  
"Low Drift"  
Mounted only, £5.

THESE PRICES DO NOT  
INCLUDE SALES TAX

Spot Frequency Crystals  
Prices on Application.

Regrinds ..... £1/10/0

## MAXWELL HOWDEN

15 CLAREMONT CRES.,  
CANTERBURY, E.7,  
VICTORIA

## THE NEW "A.R." LOG BOOK

IS NOW AVAILABLE

Larger, spiral-bound pages  
with more writing space.

Price 7'6 each  
including Postage

Obtainable from your Divisional  
Secretary, or W.I.A., P.O. Box 36,  
East Melbourne, C.2, Victoria.

For Reliable Connections

# OTL



## RESIN CORE SOLDERS

O. T. LEMPRIERE & CO. LIMITED

Head Office: 27-41 Bowden Street, Alexandria, N.S.W.  
and at Melbourne • Brisbane • Adelaide • Perth.

OTL/79

## DURALUMIN, ALUMINIUM ALLOY TUBING

IDEAL FOR BEAM AERIALS AND T.V.

★ LIGHT      ★ STRONG      ★ NON-CORROSIVE

STOCKS NOW AVAILABLE FOR IMMEDIATE DELIVERY

ALL DIAMETERS— $\frac{1}{4}$ " TO 3"

Price List on Request

STOCKISTS OF SHEETS—ALL SIZES AND GAUGES

## GUNNERSEN ALLEN METALS PTY. LTD.

SALMON STREET,  
PORT MELBOURNE, VIC.

Phone: 64-3351 (10 lines)  
Telegrams: "Metals," Melb.



HANSON ROAD,  
WINGFIELD, S.A.

Phone: 45-6021 (4 lines)  
Telegrams: "Metals," Adel.

# SWL

Sub-Editor: D. GRANTLEY, W1A-L2022  
Alexander Ave., Hazelbrook, N.S.W.

From time to time the question of low percentage of returns to listeners' reports is discussed amongst members, and many but varied are the reasons given. One person who is qualified to speak on this problem is Frank Hine VK2QL, himself a former s.w.l. and an Amateur of 27 years' standing, much of this time being spent in conducting the VK2 QSL Bureau. Recently Chas. Abernathy approached Frank on this matter and here is his answer. I quote: "The lot of the s.w.l. is not, and from my experience never has been, a very happy one from the QSL point of view, and my experience is as s.w.l. when I won the s.w.l. section of the Melbourne centenary contest in 1934, as an Amateur of 27 years' standing, and running a busy VK2 QSL Bureau. A lot, but by no means all of the cause, can be laid at the door of the s.w.l. himself. There is very little chance of anybody including some Amateurs, of obtaining a QSL from some of the Amateur fraternity, because they don't believe in QSL's. Whilst Amateurs are promised a card during a QSO they never arrive. I can never understand why Amateurs go on a DX-pedition and never send a QSL. This is rare, but does occur generally in Europe. I know that all QSL's for Amateurs who do not believe in them are considered to be rubbish and amongst them, if he is very active, will be some from s.w.l.'s. I have heard Amateurs say they do not QSL, yet cards arrive at the Bureau for them. Even the S.A.S.E. does not bring results. My mind goes back many years when one Amateur was quite open that he used the stamps for his own purpose.

"Referring to my earlier statement that s.w.l.'s are to a large extent to blame, I give these reasons. Firstly, the cards often list the call sign for a station that it cannot possibly be for. Be absolutely sure that you have the call sign correct. I received a report from Europe for 05 G.M.T. on 80 metres. Of course a pirate could be at work. Secondly, a report is often sent from a QSL on the wall of an Amateur's shack. The time lag between date of report and date of receipt is too long, and sufficient time has elapsed for the Amateur's QSL to be received by the DX station. S.w.l.'s don't normally take six months or more to originate a report. Thirdly, the report 'heard you calling CQ' often comes to light. This could be so, but could also be an easy way to score a card from some unsuspecting Amateur by picking calls out of the call book. Many s.w.l. cards come to the Bureau from non-active Amateurs. Fourthly, the QSL reports the transmitting station working a station in the s.w.l.'s home town. This report means nothing and should be avoided. An Amateur is more interested in knowing if he is working VK to G, to get a report from ZS. This really is of value." To interrupt Frank's material here, I would like to add a few lines received this week from Chas. VK4UC, who says: "a couple of YU s.w.l.'s sent me their cards in the same envelope direct by air mail nine months after I had confirmed the same QSO for YU s.w.l. living in the same town."

Finally, Frank goes on to add that replies from the DX stations are sent to the various QSL Bureaus of the world, and if the s.w.l. is not a member of the Amateur Radio society of that country and does not have any arrangements to collect cards, then delivery is impossible. Some of the calls used by VK s.w.l.'s make it impossible to trace the owner of the QSL. So there you have it chaps, just a few reasons why listeners don't always get the replies they feel they should. Thanks, Frank, for your comments thus far, and your further comments on QSL's will be included when I get further information from the P.M.G. on certain overseas postal charges.

## PERSONAL

Mac L2074 just back from VK7 has managed a few points in the Ross Hull on 6 metres, but is suffering from t.v.i. in reverse. Bryan Prosser of VK6 sends in a very interesting report via the tape recorder. Listening on 20 metres he logged KZ5, YS1, SM6, OD5, CR6, MP4 and ZP5 whilst 15 metres shows loggings from Europe. Geoff Taylor, also of VK6, heard OZ7, PZ1, PA0, VR2, EL2 and many others of 20, whilst of 15 ZC4, JA, DL, VU2 and G made their appearance. Tony Wege L5073 just back from a VK2 holiday reports loggings on 20 a.m. of W, ZS5, HB9, VU2, 5Z4JW, 9V1GZ, CT15Q, with cards received from VK9XI, W's and VK0GS. Bob Halligan L3229 has been concentrating on the v.h.f.

bands and did very well in the Ross Hull on 2 metres. During the past year Bob sent out 505 cards for a 12% return on h.f. and 68% on v.h.f. Cards to hand KC8AQ, TF3EA, CT1PK, VE2RB, XE2IW, PY2SO, FR7ZD, PA0FX and OZ5BW. Don L2022, concentrating mainly on 20 c.w. heard JT1KAA, 0Y2J, CR9AI, ON4DY, XW8AX, F08AA, FB8Y, LAIH, 4UIIT, FUBAG, HSIJO to name but a few. At this QTH, high in the Blue Mountains of N.S.W., 7 Mcs. has been loaded with DX from all over the globe from about 3 p.m. local time, whilst there are still regular openings to Europe of 15 metres at the same time. Peter Drew L6021 has been very quiet and the only stations of note to report are 9L1HX, HRIHC, HZ3TYQ/8Z4, VQ9HB, 7Q7PBD, CT15Q, TU2ED, 9V1ME, all on 20 metres s.s.b. Ernie Luft L5080 heard nearly everything there was to hear. MP4TBC, W, MP4GO, DU, KG6, ON4, D, VSA, VS5, SM, LU, CR4, UA, KZ5, OD5, GB3RS being just a few. Ernie is now Secretary to the Elizabeth A.R.C. in VK5. I would like to publish the list of cards Ernie has received since 1964, but it is far too long, however, a glance through it is sufficient to prove that if the listener goes the right way about it he will get all the cards he needs. Warwick Smith, of VK3, has just returned from VK2, where I had the pleasure of meeting him for a week-end during February. A keen and thorough listener, he is now hard on the heels of the top three members of the DX ladder. From Eric L3042 we have a list of statistics for 1965, a careful perusal of which will prove that a higher percentage of QSL's will be received where greater care is taken in preparing reports. Eric sent out 1316 for a QSL return of 607 being from 108 countries in 35 zones. During the year he heard 149 countries in 38 zones plus 33 ships and 13 moilies. Total log entries in 40 years' listening are very rewarding for Eric, who reports such 298,169. Listening this year so far has been calls as UA9, UC2, UJ8, UA3, LZ2, W, OK, DL, JA, YU, UL7, PA0, OE, OZ, G and JA/MM on 80 metres c.w. On 40 metres DU7SV, CR9AH, VS9MP, UD6AV, UH8CI, G3PUW, F and YO were some of the more interesting loggings, whilst on 20 metres EP2EZ, ZK2AF, HP1IE, VU2KX, HSI5W, VS6FO, FR7ZD, 9MAMY, 9M6KS, OD5EE and many others provided our No. 1 S.w.l. with an excellent beginning for the year. At the risk of repeating myself, I often wonder why more attention is not paid to the 80 metre band by the s.w.l.'s who can copy c.w. There is often a host of DX on it in the early morning much of it readable. L5090 Ernie Luft for his second over. Ernie has just received QSL's from VSSMH, H18JGM, 9M6AF, KPARK, OK1GT, LU6MR to bring his score up to 57 confirmations. Also the E.A.R.C. have issued the Elizabethan award to him. Keep it up Ern.

## BAND SUMMARY

From the preceding notes it is evident that all bands are active in some shape or form. Ten seems to open very briefly on very irregular times, whilst 15 provides good DX in all States from mid-morning to later afternoon. 20 metres as usual provides the bulk of the s.s.b. DX and is open to all States for almost 24 hours a day. On the 7 Mc. band the conditions are almost hopeless due to commercials, but for the c.w. men both this and 3.5 Mc. provide plenty of good countries.

## DX NEWS

Here are some more QSL managers to make the cards flow a little faster. For HV1CN operation in 23/27/28 Nov., 1965 (K9BPO), FL8MC (W7WLL), TY3ATB (VE2ANK), VQ8BFA (G8KS), ZD7RH (G2IO), ZD9BE requests all QSL's via the ZS Bureau. VP1JKR (VE3ACD), VP5AR on Turks (WA8GUA). The following are in the hands of Jack, W2CTN. 9HIR, 9M6BM, VS9MP, VR2EK, VP6P, OH0AM/O, KV4CI, KC6FM and FK3AT. MP4TBE is the call sign of the Amateur Radio Club BFPO 04, Sharjah, Trucial, Oman. FK8AC (Box 104), FK8BG (Box 97) and FK8BH (Box 637) are all Noumea, New Caledonia, and could be very helpful in securing a card from that country. JT1KAA still pounds into this QTH on 20 metres with a T8 signal in the mid-evening. Dr. Henry Stockwell, Box 72, Mona, Jamaica, whose call is 6Y5BB will be pleased to hear from listeners. VK9JO is on Cocos and puts in a fine signal down to VK2. ZL4CH is Campbell Is., whilst VK9's DI and GN are T.N.G. ZS3E was heard here recently, his QTH being Box 262, Luderitz, South Africa. VS9AE, Box 1184, Steamer Pt., Aden. "Monitor."

## GROUP NOTES

I regret to say once again chaps that no official notes have arrived here from any division, so please don't blame me for their deletion. Any members or groups desirous of reporting in by tape, you are welcome provided you use twin track only, at either of the three standard speeds. Delay on reply to those tapes should be about a week from date of receipt.

Machines in use here are Fye UG7, and A.W.A. Robuk. At present I am in regular contact by this mode with Doug Head, Alan Raftery and Bryan Prosser of VK, and I.S.W.L. member Bernard Hughes. This is a most interesting phase of the hobby, and one which could well be used and encouraged by members who are anxious to see the s.w.l. movement flourish. To save possible damage to tapes which could be left in the sun for long periods of the day, I would advise any users to send them to the box number quoted earlier.

## QTH'S WANTED

Many queries come to hand here for the QSL addresses of overseas stations. Many I am able to answer by letter from information on hand, however, I am often required to seek outside assistance from other s.w.l.'s who have a keen DX interest. At the suggestion of Chas. VK4UC, who has offered to assist, we will try and make this a regular feature. So chaps if you have any queries or answers, drop a line to me at the following address: D. Grantley Box 222, Penrith, N.S.W. All regular mail, however, to the normal address please.

Bob Mutton L7031 wants QTH or manager for HS11M, VS9AE, also VK9TL heard after Ken 3TL returned to VK3.

Bob Halligan L3229 wants KG6IG, VS9OC and ZB2AL.

Don L2022 looking for EL8AF, OH5VD, YJ1DL and LX1TP.

## DX LADDER

Next appearance in "A.R." will be in the May issue and I would appreciate any notes by April 25. Only changes of note take Warwick Smith to 120 confirmed, and my own overall score to 295 heard. That's all for this month chaps. 73 de Don L2022.



## U.S.S.R. DX CONTEST

Aim: Each Amateur to contact as many other Amateurs as follows:

Date: 2100 G.M.T., May 7, to 2100 G.M.T., May 6, 1966.

Logs: A minimum of 12 hours' operation is necessary for a log to be valid. All contest contacts must be shown.

Stations other than those in U.S.S.R. send a serial number 589001, 589002, etc. U.S.S.R. stations send a number consisting of RST plus his oblast.

Logs must be addressed to R.S.F., Box 08, Moscow, U.S.S.R., and postmarked not later than 1st June, 1966.

Activity:

- (1) C.w. only on 3, 5, 7, 14, 21 and 28 Mcs.
- (2) One contact per band.
- (3) Contacts between stations of the same city are not permitted.
- (4) Participants to call "CQH."

Scoring: 1 point per contact.

The total score is determined by taking the sum of all contacts on one band and multiplying this by the number of countries worked on that band. The all band score is determined by adding the scores of individual bands.

## Wireless Institute of Australia

Victorian Division

## A.O.C.P. CLASS

commences

MONDAY, 2nd MAY, 1966

Theory is held on Monday evenings, and Morse and Regulations on Thursday evenings from 8 to 10 p.m.

Persons desirous of being enrolled should communicate with—  
Secretary W.I.A., Victorian Division, P.O. Box 36, East Melbourne (Phone: 41-3535, 10 a.m. to 3 p.m.), or the Class Manager on either of the above evenings.

# DISPOSAL BARGAINS

AT OUR BULK DISPOSAL STORE

8 PARK STREET, GLENFERRIE, VIC.

(OFF GLENFERRIE ROAD)

Phone 81-1935

(Mon. to Fri., 10 a.m. to 5 p.m.; Sat., 10 a.m. to 12.30 p.m.)

- ★ COMMUNICATION EQUIPMENT
- ★ VALVES
- ★ RESISTORS
- ★ CONDENSERS
- ★ POWER, MODULATION, DRIVER, FILAMENT & OUTPUT XFORMERS
- ★ CHOKES
- ★ SPEAKERS
- ★ METERS
- ★ CRYSTALS
- ★ RELAYS
- ★ UNISELECTORS
- ★ KEY SWITCHES
- ★ ROTARY SWITCHES
- ★ COILS
- ★ MULTI-PIN PLUGS & SOCKETS
- ★ MULTI-CORE CABLES
- ★ CO-AXIAL CABLES
- ★ CO-AXIAL PLUGS & SOCKETS
- ★ H.V. PROBES
- ★ AMPLIFIERS
- ★ CHASSIS
- ★ VIBRATORS
- ★ POWER SUPPLIES—HIGH & LOW VOLTAGE
- ★ TRANSISTOR POWER SUPPLIES
- ★ POWER CABLES
- ★ MICROPHONE CABLES
- ★ 15 VOLT/300 WATT PETROL CHARGING PLANTS
- ★ ELECTRONIC EQUIPMENT RACKS
- ★ ELECTRIC MOTORS—230V.  $\frac{1}{4}$  H.P.
- ★ P.M.G. 88D & 89D JUNCTION BOXES
- ★ No. 122 AERIAL PACKS
- ★ ALUMINIUM TUBING— $\frac{1}{4}$ "
- ★ VALVE SOCKETS—ALL TYPES
- ★ C.R.O. TUBES
- ★ REFLEX SPEAKER HORNS
- ★ 15 WATT DRIVER UNITS
- ★ 12 VOLT 15 WATT TRANSISTORISED AMPLIFIERS
- ★ TEST EQUIPMENT
- ★ ASSORTED ELECTRONIC CHASSIS

STOCKS MUST BE CLEARED. NO REASONABLE OFFER REFUSED



## RADIO SUPPLIERS

Phone 81-1935

Established 1947

# DX

Sub-Editor: ALAN SHAWSMITH, VK4SS  
35 Whynot St., West End, Brisbane, Qld.

Reports this month indicate that "Ole Man Ionos" may be showing a trace of "liver." Generally, DX worked seems a bit thin, but this short phase is already one the way out, so keep an ear at the receiver, lots of good prefixes are due to show up.

## NOTES AND NEWS

Jan Mayen: LA5CI/P around 2100z on 14.235. QSL LAING.

Syria, Rasheed: YK1AA on every day s.s.b. 1400-1500z, 14.215-14.225 Kcs.

Albania, ZA Land: Reports of activity from ZA1AAA are to hand, but probably phoney—also rumours that a ZA operation will occur shortly. No more information.

Bajo Newvo: HK0AI expected to be on from here soon—possibly April.

Rio De Oro: EA9IC is to be activated from April 2-10 with EA2CA on s.s.b. and EA4CR on c.w.

Laccadive Islands: This spot should be heard from shortly, with VU2NR and others operating. No other information available.

Jnan De Nova, etc.: This one by Jose CR7GF set for April 1.

Franz Joseph Land: Victor UA1KD very active daily from 14.121 Kcs. s.s.b., usually working 14.205-220. No operation Mondays and Fridays. 0630 and 2130z. QSL's via Ernst Krenkel, Chaplign St., 1-A Moscow, U.S.S.R.

Gabon Repable: TR8AD Max on 20 mx s.s.b. around 2000z. 14.231 Kcs. QSL to Box 1023, Libreville, Gabon Republic.

Vietnam: Bill Porter operating as X1YPE/ XV5 heard on 14.250, 310, s.s.b., as well as 20 and 15 mx c.w. QSL via W4UWC.

Angola: CR6EC Ernest on daily from 2000z, 14.220-250 Kcs. QSL via K4ISV.

Ivory Coast: TU2BD (ex-XT2HV), Gilbert is active. QSL B.P. 2261, Abidjan, Ivory Coast.

Also Pierre TU2BA on 14.203 at 2200z.

Monaco: Jean 3A2XX, on 14.043 at 1430z. QSL to F2IC.

Les: Bill XW8AX, 14.242 at 0030z. QSL via W6KTE. Also XW8BD on 7 and 14 Mcs.

Somali Rep.: Smitty (ex-TU2AU) 601AU, on 14.110 at 2000z. QSL via VE4OX. He is due back in FL8 land soon.

Sierra Leone: 9L1TL on 21.047 at 1730z, and 9L1BC on 14 Mcs. c.w. at 2000z. QSL for BC via W2CTN.

Republic of Congo: TN8BK at 2050z on 21.284 a.m. fone.

Cenla Y MelMa: EA9AY reported on 14.037, at 1830z. Call Book QTH is O.K.

Swaziland: ZD5D Dave on 14.197, working 10 up to 1900z. QSL via W6CWD.

Curam Island: ZS1RV said to be operating from this island. Possibility of this qualifying as a separate D.X.C.C. country, as it is supposedly under separate jurisdiction.

Antarctics: ZL5AA (Jan, formerly ZL4JF) now on this New Zealand Antarctic Station. Worked at 0700z on 14.240. QSL to ZL2GX.

Senegal Repable: Among active stations are 6W8DG Ahmed, on 14.006 at 1230z. L.P. 6W8AG and 6W8BW on 7 Mcs. c.w.

QSL Information. WIBPM advises W2WMMG that he presently handles the QSL chores for the following: TT8AW, TR85W, ZS2GF, ZS6OS, ZS8E and 6Y5AM. Cliff 7Z3AA, who is state-side for a vacation, says that anyone needing a card may send to W8GCN before April 24 when he leaves for 7Z land again. 9M4LP cards now via W2CTN. W6FMM/DUI QTH is B. H. Brantner, New Tribes Mission, Box 2570, Manila, Republic of Philippines. (LIDXA.)

Marlon Island: Harold ZS1CZ, QSL manager for ZS2MI says he has not received any logs since September last. So those waiting for cards will have to be patient. Activity is expected to cease from here in about 3 months.

Iraq: HZ1AT/8Z4 cards are not being accepted for D.X.C.C. credit. Unauthorised operation.

(Much of the above supplied by the courtesy of LIDXA.)

Saint Martin: FS7RJ worked 14.110, 0700z. (VK4UC.)

Mongolia: JT1KAA, JT1AD in Zone 23. 14.050 Kcs. 1000z, also 7 c.w. (VK4UC.)

Formosa: BV1US, Howard reports a big backlog of QSL's to be sent out. So please be patient. (VK4UC.)

East Caroline Is.: KC8BW, 14.110, s.s.b. on Panope. QSL W7DK. (Chas. L4018.)

Singapore: In answer to enquiries 9VI is the new prefix for this country. Operative from 1/2/86.

China: BY3AAB has been active on c.w., 14.050 Kcs. at 0830z, also on c.w. 14.050 Kcs. at 0840z. Both worked on G2DC.

St. Vincent Island: VP2SJ Harold has been active on c.w. from here, 14,050 Kcs., 1330z. QSL as per call book.

Korea: HL9KF has stated he is returning to the States April 30. QSL W0GLZ.

Adelaide Island: VP8IP is active from here, c.w. 14.020 or 14.044 Kcs.

South Georgia: VP8HO Jack Biggs is now back here for a two-year stay.

South Orkneys: LU1ZA is active on a.m. 14.279 Kcs. around 2000z.

South Shetlands: LUIZC Daniel on c.w. 14.048 Kcs. Paul on a.m. 14.350 Kcs.

(The above by courtesy of Jim G3UGT "Air Waves.")

Rockail Is.: Latest on this is that activity is expected by next June or possibly earlier if it can be arranged. More information if it comes to hand.

Wallis Is.: FW8RC reported active from VK and overseas source. 14.123 s.s.b. QSL FK8AU.

Aden: VS9AHE, 21.375 around 1700z. QTH O.K. in call book.

Iran: EP2RV will be active late March and into April. QSL G5RV.

Sarinam: PZ1BW still QRV 14.230 at 2000z. QSL via VE3EUU.

Desroehes: G8KS will be QSL manager for this stint. Harvey VQ9HB will shortly leave for this rare spot. After April 15.

## Stop Press from LIDXA.

Ethiopia: ET3AC Blake on 14.245 at 2100z. QSL via K8UZA.

Swan Is.: New call is KS4SA. WA4PYP is handling the QSL's.

Albania: Latest call is ZA2BA. 14.065, 1800z, who says QSL via Bureau (?) Sounds phoney.

Ivory Coast: TU2E Pierre, 14.115 at 0000z.

Laos: XW8AZ, 14.115. QSL W6KTE. On for several months. XW8BD also active 7 and 14 c.w./s.s.b.

Aldabra: Jose CR7GF now has his licence for this one, and should be there beginning April. Glorioso and Comoro will probably be next, then Juan de Nova.

Central African Repable: TL8SW Sid on 14.247, working 5 up and/or down.

## Stop Press from Jim G3UGT "Air Waves."

Pern: OA4PQ is active s.s.b. on 3700 Kcs. around 0710.

Bonin Is.: KG6IG is active on s.s.b. on 14.260 Kcs. around 0800z. QSL WKTYT.

Malpole Is.: HK3RQ and others are planning to be active from here in June.

Maldives: Stan VS9MP still on 80, 40, 20 c.w./s.s.b., also Club Station VS9MB on 14 s.s.b. Stan leaves for home, U.K., in June. Best freq. and times to QSO are 3.505, 1830z, 7007, 1930z, 14.005 or elsewhere after 1200z.

## ACTIVITIES

Ken VK3TL lists these right up to the minute QSO's: CN8MR, DU0DM, FW8ZZ, FW8RC, K1SDS/aero, KS4CA (Swan Is.), VP2ME, UA1KD (Franz Joseph Land), VP7NA (Scott's Base), 7Z3AB, 9V1GZ.

### Best QSL's received:

VP9CP, 9L1HX, T1AJP, H18RS, H18XMT, KX6S2, EB9NW, T10RC, LX1DE, H18XAL, XW8BM, 1509NV, W9WNV/ZM7, BYACK, YJ8WW, FR7ZD, ET3FW, 5R8AJ, OY3B, FG7XL, HV1CN.

Dud VK4MY says conditions on the Gold Coast not good, so getting a tan in the garden but did manage these on 14 c.w.: ODSLX, VQ8BL, OETRM, VS9AJH, KR6OJ, UP2KNP, IT1AQ, T12AM, VS6TQ, UD8BD, FW8ZZ, 9V1NM, VR1Z, VU2UV, etc.

Pete VK4PJ basking in the luxury of a Galaxy logged these: XW8BM, DL4EQ, UA0SK, Y4IAG, SM5CHN, G2ANN, UBSWJ, OZ6EE, G2BOZ, AU1FL, DC3HU, VP2AA, VE3DFM, VE2NK, VE3GO, VE2AU, VE2AJU, DU0DM, 9G1DU, VP5AB, YV5BO.

Chas. VK4UC reports working the following on 14 c.w.: KC3AD, XW8BM, 5Z4DW, JA6A, VR1Z, F81W, DM2AND, SL5BO, UA6BL, 9MB6M, LU2DAW, F7DO, 9V1NM. QSL's to hand from F3ZU, UC2KUA, OZ2RH, UA2KAP, LA5HE, PE2EVO, VQ9J, 9M6DH, H5IC, G31JX, G31YT. Most of the above QSO's were worked between 0700z and 1400z.

### QTH's

XW8BD—Box 402, Vientiane, Laos.  
VP2ME—Via Hammarlund.  
ZL5AA—"ZL2GX".  
VP7NA—P.O. Box 5321, Nassau.  
XV5AA—WAUWC.  
KS4CA—WA9OVC.  
DU0DM—Box 4083, Manila.  
FK8AU—Raoul Thomas, P.O. Box 637, Noumea.  
FW8RC—Via FK8AU.

## SUMMARY

Ham YL Pen Friends: Rolf Suleng, of P.O. Box 162, Bergen, Norway, who is a Class Radio Instructor, teaching code to operators in the Merchant Navy, writes and says that 40 per cent. of his class pupils are YL's and quite a few expect to visit VK later this year or early next. Some may eventually become Hams, and many are anxious for s.w.l. and Ham friends.

Here's a chance for the young bloods here in Australia, to promote VK, A.R. and probably themselves as well. Write in the first instance to Rolf Suleng at above address, giving a few details of yourself and Radio interests, etc.

My gratitude to the column's contributors: LIDXA, Fla. DX'er, VK3KB, VK4UC, VK4MY, VK4PJ, VK3TL, LA18 and Jim, G3UGT of "Air Waves."

## NEW CALL SIGNS

DECEMBER, 1965

VK1MT—V. P. Koening, 16 Norman Street, Deakin.  
VK1ZSW—A. S. Waignt, Station: Flat 3, Northside Heights, cnr. Know and Irvine Streets, Watson; Postal: P.O. Box 318, M'puka.  
VK2EV—W. B. McIntosh, "Warwick," Warwick Road, Cowra.  
VK2WL—L. R. Hodge, Flat 18, 50/60 Curtis Road, Balmain.  
VK2ADR—J. D. Hunt, 29a Cabramatta Hostel, Cabramatta.  
VK2ARY—C. H. V. C. Randall, 9 Dibbs Street, Coff's Harbour.  
VK2BAO—B. A. Hancock, 56 Adderley Street, North Auburn.  
VK2BBB—The Steadfast Radio Club—Station: Cnr. Leonard and Stanley Streets, Bankstown; Postal: P.O. Box 231, Bankstown.  
VK2BKO—M. G. McIntosh, 10 Nielson Street, Lismore.  
VK2BRE—R. F. K. Evans, 5 Catherine Street, Gwynneville, via Wollongong.  
VK2ZAV—G. J. Anderson, 30 Hume Road, Cronulla.  
VK2ZCM—J. Linden, 76 Arthur Street, Enfield.  
VK2ZIA/T—J. W. Avery, 50 Rose Street, Ashfield.  
VK2ZJX—J. S. Hodgkinson, C/o 2GZ Radio Station, 31 Sale Street, Orange.  
VK2ZG—R. J. Richards, 21 Fitzsimmons Avenue, Lane Cove.  
VK2ZLE—M. E. Latham, 33 Margaret Street, Fennell's Bay.  
VK2ZMF—J. P. Foran, 4a Gerrish Street, Gladstoneville.  
VK2ZRA—R. J. Anderson, 37 McLachlan Avenue, Long Jetty.  
VK2ZZR—R. J. Waller, R.M.B. 141, Gerringong.  
VK3AFV—G. V. Lancaster, 61 Aylmer Street, North Balwyn.  
VK3ZQG—P. J. Jacquemin, 48 Sargood Street, Altona.  
VK3ZTA—L. Zschech, "Parkside," Hamilton.  
VK3ZTB—T. R. Bird, 9 Hosken Street, North Balwyn.  
VK3ZTC—A. N. Richardson, 38 Aberdeen Road, South Blackburn.  
VK3ZTE—G. L. Symons, 117 Fawcner Street, Essendon.  
VK4EQ—E. F. Bahr, 187 Bowen Road, Townsville.  
VK4TH—F. W. Chapman, 17 Shaftesbury Street, Ekibin.  
VK4TJ—W. J. Melville, 51 Beut Street, Toowoong.  
VK4ZNT—N. Stutterd, 20 Stevens Street, Yeronga.  
VK4ZPD—D. J. Parker, Station: 54 Galatea Street, Charleville; Postal: St. Leo's College, St. Lucia.  
VK5GI—G. K. Jenkins, 2 Crozier Terrace, Oaklands Park.  
VK5HE—H. V. Eastwood, 11 Brentnall Avenue, Blair Athol.  
VK5LT—J. D. Churcher, 41 Wood Street, Kurralta Park.  
VK5OE—D. E. Sidler, 23 White Street, Henley Beach.  
VK5XP—A. M. Parks, 5 Haldane Street, Elizabeth Downs.  
VK5ZMW—B. M. Wallis, 19 Blueberry Road, Parafield Gardens.  
VK6ZAH—J. D. Holt, 109 Forrest Street, Cottesloe.  
VK6ZBQ—E. J. Barbara, 33 Upton Street, East Victoria Park.  
VK6ZCL—G. Mears, 60 Frederick Road, Hamilton Hill.  
VK6ZEK—J. P. Hughes, 182 Coode Street, Como.  
VK6ZFT—F. Dawes-Smith, 19 Field Street, Mt. Lawley.  
VK6ZAT—B. W. J. Jacobs, 8 Shelley Street, Shelley Cove, Riverton.  
VK7ZFL—F. L. Powell, 12 Tranmere Road, Howrah.  
VK8ZDA—T. Hart, C/o Theiss Bros., Grootte Eylandt.



# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL QSL BUREAU

The National Radio Amateurs' Association (affiliated with the I.A.R.U.) notify the following awards for 1965:

The Golden Medal and the I.I.C. Diploma to: (1) Savez Radioamatera Jugoslavije (S.R.J.), Beograd, Yugoslavia, for the humanitarian work carried out during the earthquake at Skopje and the flood of Zagreb. The candidature had been proposed by P.Z.K., the Polish Radio-amateurs' Society. The Prize was taken by Mr. Janez Znidarsic, YUIAA, President of S.R.J.

(2) Project Oscar, Inc., Los Altos, California, U.S.A., for the design and construction of artificial satellites, of Oscar series. The candidature had been proposed by A.R.R.L., U.S.A. The Prize was taken by Mr. William I. Orr, W6SAI, President of "Project Oscar."

(3) The winners of 1964 "Columbus Contest": EA7LQ, Jaen, Spain; IIZ, Livorno, Italy; IIKE, Savona, Italy.

The Annual S.P.D.X. Contest is scheduled for 1500z April 2 to 2400z April 3. Further details from this Bureau.

A full list of awards made available by the Rumanian Central Commission of Radio Sport is available from this Bureau.

Any Amateur who contacted CR7AIM between March 2 and March 13 is eligible for an award from the City of Mozambique. Details from this Bureau.

The annual UA DX Contest is to be staged on May 7 and 8. Full details may be had from this Bureau.

Bert Zander VK3PG has let his hair down and left on an extensive overseas tour. He will be absent all 1966 and his itinerary includes extensive coverage of the U.K. and Europe and practically all the states of the U.S.A. and the southern portion of Canada.

QSL handlings through the Federal Bureau for the year ended February, 1966, totalled 57,393 cards. This is the highest handling since 1949! Comparative figures are: 1964/5, 53,249; 1963/4, 49,986; 1962/3, 47,578; 1961/2, 44,538.

Stations interested in obtaining the difficult H22 Award should take part in the H22 DX Contest, 1500z Saturday, 30th April, to 1700z Sunday, May 1st. The rules provide for:

1. All bands through 10 metres.
2. Usual serial number exchange R.S.T. plus 001, etc.
3. Each HB contact scores 3 pts. Stations may be contacted once per band.
4. Swiss stations will add their canton to their serial number.
5. Multiplier is sum of cantons—a possible 22—worked on each band.
6. Logs to USKA, 6233 BURON LU, Switzerland, by end of May, 1966.
7. Awards to highest scorer in each country.

—Ray Jones, VK3RJ, Manager.

## NEW SOUTH WALES

### COMBINED VK4-VK2 "HAMFEST"

Despite squally weather conditions the VK4-VK2 combined "Hamfest" held at Kingscliff, was voted an absolute success. Including YL's, XYL's and harmonics, a total of 115 people were present.

Hams present were VK4's: ZDW, LX, MW, HZ, WS, SA, CM, QW, RZ, ZWL, HW, ZBN, ZBV, VE, BA, WW, AB, OL, WK; and VK2's: RK, ACO, AUK, from Zone 2), AFS, AVS, PF, ZY, BGG, BB, AGE.

A feature of the day was the cutting of the cake specially made for the occasion by Mrs. Marie Dalglish. The cake was iced and decorated with two true-to-life replicas of Ham rigs, one representing VK2, the other VK4. The rigs were complete with antennae. Words of welcome were delivered by Stan 4SA, Eddie 2BE, Fred 2PF, Gordon 2AGE and Alf 4OL. Several mobile rigs were present,

### SILENT KEY

It is with deep regret that we record the passing of:

VK2ACQ—F. A. Pearson.  
VK4TK—R. P. C. Stack.

both h.f. and v.h.f. and operated during the day.

Most noticeable during the day was the getting together of the old-timers. Some had not had an eyeball QSO for many years, while others, although old friends on the air, met for the first time on this occasion. Other noticeable features were the lack of technical jargon during the day; the gathering together of YL's and XYL's and the playing of the harmonics on the sand. Truly a very sociable gathering.

Immediately after lunch an informal meeting, chaired by 2PF (complete with gown and wig according to a local newspaper), was held. It was voted unanimously that the day was a complete success. The meeting then elected a committee to organise a similar event for next year. The committee comprises VK4GG, 4SA, 4WS, 2BB, 2RK, 2AGE.

Films were taken during the day and featured in news on RTN8 Lismore and BTQ7 Brisbane.

A telegram wishing all well for the day was received from the VK2 Divisional President, Ivan 2AIM, and read to the gathering. Ivan had suggested such a get-together while on a visit up north some months ago.

The success of the day certainly shows that social gatherings of this nature can be of great benefit to Ham Radio. VK4s outnumbered VK2s by two to one. It is hoped that this situation will be remedied next time. Thanks must go to George VK4GG for instigating the idea and to Eddie VK2BB for the local organising, also to Marie for the wonderful cakes.—Gordon Dowse, Zone 1 Officer, VK2.

### SYDNEY YL NEWS

Muriel VK2AIA has just gone into hospital and has had an operation which will keep her there for some time. She is in Marrickville Hospital but will be home by the time this is in print. I'm sure she would be very happy to hear from her many friends.

### CENTRAL COAST BRANCH

The Central Coast Branch Field Day was held at Gosford on February 27 and was a tremendous success. There were 110 licensed Amateurs there and a total of 300 families and friends. The weather was perfect with plenty of sunshine and a light breeze. The tourist trips were booked out and everyone reported back for afternoon tea in high spirits.

The homebrew equipment was extremely well represented in the Construction Competition and the standard was very high. The winning article was a Swan type transceiver which was beautifully made. The 40 metre sensitivity test for receivers was very interesting and the spectators got as much out of it as the participants. Conditions were fairly good but the Rx had to be very good to hear the last few calls. The Lucky Dip was especially good this year with everyone getting a lot of value for their 10 cents. The harmonics' pedestrian hunt was fun for all and we hope this will be a regular feature of the Field Day.

The fox hunts, mobile all-band scramble, adult pedestrian hunt, quizzes, raffles, etc., were all well patronised and in every case someone carried off the prize. The person who guessed the number of condensers in the bottle was especially lucky as there were several dollars' worth of bits and pieces there.

Of course the day cannot be fully reported without mentioning the magnificent effort of the ten ladies who put on a delicious hot lunch which was nicely served and then enjoyed in the very pleasant atmosphere of the new dining area. The morning and afternoon teas were very welcome also as appetites always seem to be sharper on a day like this. The ladies worked very hard for long hours but I'm sure they enjoyed their work as there was a good deal of yak and laughter emanating from the kitchen department. I am speaking for everyone when I say that their mighty effort was greatly appreciated.

We also would like to thank the many firms who so kindly donated prizes which helped considerably with our expenses and most certainly increased the fun of participation. Following is a list: Mullard-Australia, Ducon, Collins Radio, A.W.V., Phillips, International Resistance. O. T. Lempriere, W.I.A. Divisional Headquarters and the Gosford R.S.L. Club. There were also several private donations from club members. We were very pleased to have Ivan VK2AIM, N.S.W. Divisional President, present with his family and to have him pre-

sent the prizes to the contest winners: All-band Scramble, VK2AH; First 2 m. fox hunt, VK2AWZ; 2 m harmonic pedestrian hunt, Garry VK2ANY; XYL 2 m. scramble, XYL of VK2ZCF; Second 2 m. fox hunt, VK2BMK; 40 m. Rx Sensitivity, VK2FU; Best home-built gear, VK2ANU; Guessing Comp., VK2ACT; Raffle, VK2BJO; Adult Pedestrian Hunt, VK2AAH and Lance in a tie.

The Field Day is a joint effort for the Club in which nearly all members help in some way. Ernie VK2EH, our President, has asked me to convey his thanks to everyone who helped make the day so successful. A lot of time and thought go into this sort of thing which is not always apparent on the surface when things run along smoothly. The combined effort of many hands was very much appreciated. We were very happy to see so many visitors from far and wide and look forward to seeing you all again next year. Many thanks for coming. 73s, Mona, VK2AXS.

## VICTORIA

### STATE CONVENTION

ARARAT, APRIL 23 and 24, 1966

The Western Zone President, David 3ADS, has promised a very enjoyable and interesting week-end with the following anticipated programme.

Radio Amateurs are expected from far and wide, some coming by plane and some by road, in which radio contact will be available for both plane and mobile at our V.R.I. Hall in Ararat.

Saturday afternoon will be for those visitors to arrive and check in at the V.R.I. Hall (behind the Shire Offices), where David and his committee will be available to advise on accommodation if booked previously, and for any other matters, but you must be back by 1800 hrs. for dinner. The conference will follow immediately after the dinner in the V.R.I. Hall, and to those ladies and visitors not wish-

## OBITUARY

### FRANK A. PEARSON, VK2ACQ

There was a general feeling of sadness and personal loss when the news became known that Frank Pearson, VK2ACQ, had passed away suddenly at his home at Umlina Beach, N.S.W., on Thursday afternoon, March 2. Only a few days before he had been assisting in his usual cheery fashion at the Central Coast Branch's Field Day.

Undoubtedly it would be quite true to say that no other person has had such a close personal contact with the members of the N.S.W. Division, for since his retirement Farnk has, with Mrs. Pearson, travelled the length and breadth of the State, meeting members, discussing their problems and advancing the cause of Amateur Radio and the W.I.A. wherever he went.

In addition to this, his work as Morse Practice Supervisor was known not only all over Australia but in New Zealand and the Pacific Islands, and the hundreds of letters of appreciation from satisfied customers bear witness to the value of his tape service and the nightly Morse practice which he supervised.

For some months past Frank had been a member of the VK2 Divisional Council, and as with his other activities he was ever mindful of anything of benefit to the members of W.I.A. The success of Council's drive for Zone Officer appointments may be directly attributed to Frank's liaison work in the country areas.

The VK2 Division, and indeed every Division of the Institute, has lost a good friend—one that will be very difficult to replace—but his work will serve as a monument for a long time to come.

The funeral at the Northern Suburbs Crematorium on March 5 was well attended by members of the W.I.A. Divisional Council was represented by the President and both Vice-Presidents, and the sympathy of all members was tendered to Mrs. Pearson and members of the family.



ing to stay and be bored may adjourn to the local cinema where they will be looked after by George VK3GN. At approx. 11 p.m. we will all meet back at the V.R.I. Hall for supper.

Sunday arrangements will be for a Car Trial, Fox Hunts and Hidden Tx's, etc. A barbecue lunch will be held at Mt. Langi Ghiran picnic ground. An interesting and varied programme for the XYLs and children. All of this is due to finish about mid-afternoon. Neil VK3AQD.

## QUEENSLAND

### TOWNSVILLE AND DISTRICT

Very sorry to report the passing of another old-timer Bob VK4TK, who joined the ranks of Silent Keys on 12th February. Bob was active for many years in Innisfall where he operated since obtaining his licence in 1932. Bob will be missed by many as he was well known on the "Kookaburra Net" on 7 Mcs. each morning.

At long last again able to report that the Radio Club of Townsville is again functioning. At a meeting held at the local "B" Class station, it was noted that there were 18 present. A few old-timers plus some new operators, and a few future ones. It was decided to again affiliate with the W.I.A. in Brisbane, and a letter was to be sent with the usual subscription. Quite a long discussion ensued re proposed classes and it was held over meantime till the secretary obtained some information from the VK2 Division re courses being made available.

Help was asked by some of the newcomers in making some radio projects. Needless to say this was readily forthcoming from the old-timers, who also promised to donate bits and pieces where required. Another item under discussion was the joining of the Adult Education so as to avail the Club in obtaining films, etc., for viewing by the members. Allan 4PS gave quite a descriptive lecture on the activities of the local "Moon Watch Society" and the methods used in locating the satellites. Townsville group being one of the few throughout the world in this regard. He also illustrated with the aid of diagrams on the board and slides. It was really appreciated by all present. Lectures and films promise to be a feature at each meeting in the near future.

Eric 4EL is in hospital and it is to be hoped he is home again ere these notes appear. Merv. 4DV journeyed to the Airport to see Arnold 9AG as he passed through on the way back north. Ted 4EJ and Bert 4LB both in the process of acquiring more headachies as they are building "Transceivers" so as to be mobile as they move about on leave.

Quite pleasing to see two boys from Ayr at the local radio club meeting. No doubt will be trying to have an exchange of visits in the future, same as a few years ago. 73, Bob 4RW.

## SOUTH AUSTRALIA

The monthly General Meeting and the Annual General Meeting of the VK5 Division were held in the clubrooms on February 22 to an unusually small attendance of members, and now that the meetings are over I can't say that I blame those that stopped away. There was a time when these two meetings could guarantee a full house in anticipation of the entertainment to be provided, both from the Council and Members, and as I have said before in these notes, at the end of the evening the only regret was that this type of meeting only came once a year. This year, however, the meetings turned out to be the most wishy-washy of all times, no arguments, no lost tempers, and consequently no entertainment, in fact both the meetings were finished at the almost impossible time of 9.35 p.m., leaving the caretaker still asleep, and his Alsatian in the middle of looking for that elusive itch. Oh well, I suppose we will have to accept it, this is the modern way, but I still say the old days were never like this, and it is no credit to any Division when not one point of dispute can be found in two meetings. In fact, some of the less polite old-timers could be excused for thinking that when there are no arguments or points of dispute coming out, then apathy is surely coming in. Nuff sed!

Joe 5JO bobbed up at the meeting. It appears that he and his XYL called in to see Arch 5XK and both left the XYL's to fend for themselves and galloped off to the meeting hotfoot. Gallantry—thy name is Amateur Radio!

Talking of Arch 5XK, and who would, reminds me that rumour has it that he bobbed up at the December meeting, armed with Christmas goodies, and was overcome to find out that the Christmas Do was held in November. He sat in the corner all night, munching his goodies, and glaring at all and sundry.

Dave 5DS, my favourite Scotsman, noticed at the meeting, and one of my espionage agents tells me that he was having a go on the Admiral's s.s.b. rig, and the contact at the other end told him how well his voice sounded. Dave was so impressed he intends to finish his s.s.b. rig as quickly as possible. The tricks these users of "The Thing" get up to for converts.

I have been wondering just what sort of weather I am going to get for my annual holidays next month, but my fears were set at rest by the news I received at the meeting to the effect that John 5ZJC has left Ceduna, and is now stationed at West Beach. He has promised to give me just the sort of weather that I deserve, which at first thought was very good of him, but on second thoughts I am a little dubious. Just what sort of weather do I deserve?—Don't answer that!

The VK5 Division, especially the Y.R.S. section, wishes to thank Mr. Royston of the Adcola Manufacturing Company in Victoria for the donation of the soldering iron which was sent up to the Port Pirie Youth Radio Club and presented to the most promising member of the club. The details of the presentation to the lucky recipient will no doubt be received by the VK5 Division in due course, and it will be a pleasure to refer to it in these notes at some future date.

Talking of clubs, I notice that the Elizabeth Amateur Radio Club now has a special QSL card publicising the City of Elizabeth, which was presented to the club by the Elizabeth Council. The front of the card bears the City Crest, and the words "Greetings from Elizabeth, South Australia," with suitable space for details of the contact, and at the back is a brief description of the city. Don 5TM handled the negotiations in his usual efficient manner, and is also holding cards for distribution, which may be obtained by members from any member of the committee, and all for free, too.

Did you notice the amount of space that the VK4 Division had in the Divisional notes of the February issue of the magazine? even though the Publications Committee had said that no notes would be required. Somebody ought to write a letter of protest to the Editor!

Talking of the VK4 Division, and I hesitate to do so for fear of reprisals, the VK5 Division recently wrote to all Federal Councillors for a copy of their Electrical Licensing Act. The necessary information was received, plus a query as to whether we were: 1, "Thinking of migrating to the better part of the country?" 2, "Building a do-it-yourself electric chair for PanSy" 3, "Trying to sabotage the coming Federal Convention" Flattery, flattery, that's all I seem to get from VK4—Such is fame!

W.I.C.E.N. these days in VK5 is quite a rejuvenated set-up. Geoff 5TY, the newly appointed co-ordinator, has managed to infuse into the members all of his drive and enthusiasm, so much so, that at the moment of writing the official strength is given as at least 45 interested and very keen members, which has enabled a new roster to be printed. Following an exercise for the newcomers on Friday, a full call-out occurred on the following Tuesday when a serious bush-fire threatened the foothills and adjacent areas, which continued for at least 48 hours, and the W.I.C.E.N. members acquitted themselves in no mean style. The base area on the Tuesday was manned by Curly 5CL, Clive 5PE, Treva 5ZIS, Trevor 5ZTM, Mac 5MM and Leith 5LG, with the mobiles in the fire area being Tim 5ZGV and Geoff 5TY. On the Wednesday, the set-up was still in force, with the mobiles in the fire area being Brian 5CA, Graham 5ZGW, Trevor 5ZTM, Jeff 5LT and again, Geoff 5TY.

This call-out would probably rank as the biggest yet in VK5, and from all reports definitely put W.I.C.E.N. on the E.F.S. map. Naturally Geoff 5TY was more than pleased with the results, and particularly pleased with the fact that so many non-members of W.I.C.E.N. called up and offered their assistance if required, backing out immediately and waiting for instructions. All in all, a splendid effort, giving W.I.C.E.N. a much-needed shot in the arm, and at the same time rewarding the new co-ordinator for all the hard work he has put into the job since his appointment following the resignation of John 5IC from the job. W.I.C.E.N. was nearly called out the next night, when in conversation with him I innocently pointed out that in view of the fact that there were several t.v. cameras at the scene of the fires, I knew he would be sure to be in the vicinity. Boy, did he go red in the face, as I told you, W.I.C.E.N. was nearly called out to extinguish the flames!

Brian 5CA, quite apart from his activities at the fires for W.I.C.E.N., also had his first taste of bush-fires being near to his new QTH, and when I say near, I definitely mean near, the flames licking the back fence, or

thereabouts. Rumour has it that he and his XYL Marlene organised a teacup brigade at the start of the blaze, but soon changed to a larger utensil as the flames grew closer. It must have impressed him, because he rang me at midnight to give me the gruesome details!

One of the contributing factors to the early finish of the afore-mentioned monthly meetings was the fact that no ballot was necessary for Council this year, only the required number of nominations being received, and I say again with no hesitation, this is not a good sign. I know that I am an old fuddy-duddy, but competition for Council is a healthy sign, and if there be no competition, then it means only two things, either the members are more than satisfied with Council, or the members are not very interested one way or the other. There are only two new members for the 1966-67 Council, Al 5EK by virtue of being the new secretary, and if all is to be believed, settling in very nicely, thank you—and Ron 5KS. Neither needs any introduction to members, their past activities in the Division speaks for itself, and Council at the moment looks as strong as ever it was, with every member having proved a worker in the past. Good luck to them.

Heard Carl 5SS on 7 Mc. in QSO with—you will never guess—Frank 5MZ the other early evening, and he was a bit acidy about having to make out a contest log for a VK contest in G.M.T. He admitted that G.M.T. was necessary for DX and the like contests, but for the life of him could not see the necessity for G.M.T. in a VK contest. Strangely enough, this subject came up for discussion at a recent VK5 Divisional meeting and the result was an agenda item for the coming Convention in VK4. Carl will no doubt be interested to know that his sentiments were echoed by all present at the meeting.

Back at the end of 1965 I had almost finished an article for the magazine on a band-switched all-triode converter, but left it until the new year to polish it up. The article has now found its way into the waste paper basket because in the January issue of the "Mag." was an excellent article on the same subject by Greg, Johnston, who described himself as an SWL from VK7. His set-up is almost identical to mine, and I am more than pleased with it, as is he, and I can thoroughly recommend it for your perusal. The only sour note in the whole article by Greg, was his statement at the opening, "that his s.w.l. status does not allow him to fiddle effectively with other than receivers and receiver techniques." Why Greg? Going on the article, and your obvious qualifications, a call sign would be a pushover—and VK7 would be the gainer. Why not OM?

Phil 5NN called in to my QTH the other evening to lend me some R.G.S.B. magazines, and to borrow some 73 magazines. Whilst there with his usual cunning, he introduced the subject of s.s.b. (the "Thing" to you) and during the ensuing conversation he had the audacity to suggest that my evident bias and aptitude for saying nasty things about s.s.b. was only a gimmick to use in the VK5 notes. How insulting can one get? A gimmick, me!

Met a friend of mine this week who is also working in the same establishment as Les 5NJ, who informed me with evident relish that Les wished to be remembered to me, and also to tell me that he had gone s.s.b. My friend did not have the slightest idea of the significance of the message that he was passing on, but judging by the sneer on his face he had been well rehearsed. Les, how could you?

Had a long talk to Marshal Hider at the meeting, who incidentally dates his association with the VK5 Division back as far as 1924, or even earlier. An ex-Councillor, ex-secretary, and a definite hard worker for the Division, he never bothered, during his long service to VK5, to get a ticket, mainly because of being too busy and other distractions, but has at last decided to give it a go and will sit for the next examination. Nice work, OM, but it would have been a lot easier 40 years or so ago! See you on the air one day?

Heard Les 5LC in contact with a VK4 the other day. How is that Les? Three references in three months in these notes, after your reported lapse of five years—anyway, during the QSO you bobbed a VK2. I missed his call sign, but he turned out to be none other than an ex-VK5 in Frank Hill, who by the way, worked alongside me at the B.E.S. (Best Broadcasting Station in VK) just after the last war, and then migrated to VK2, married and settled down. Greetings Frank.

Our usually genial and smiling Publications Officer, Uncle Tom 5TL, was noticed at the V.I.P. table before the meeting surrounded by his pile of publications, but looking decidedly sour and dejected. When asked the reason he went into highly technical explanation

concerning miniaturisation of receivers and transmitters, finally coming out with the statement that he had been experimenting with a small transceiver for W.I.C.E.N., which could be hurriedly rushed to the seat of the emergency and set up in a jiffy. His troubles apparently had been many and varied, although his last prototype had been small enough to be carried by a large camel or possibly a three-quarter size elephant, although he felt that he would be able to get it even a little smaller with a squeeze. He was cut to the quick with my suggestion that his appearance at the scene of any emergency, accompanied either by a camel or an elephant, would be enough to end any emergency, but when I said, as I was leaving the meeting, "Good-night Elephant Boy," he gave me an excellent imitation of the caretaker's Alsatian, so much so, that I waited not upon my orders to depart!

Our revered and respected President, Ross KF, can sit back on his laurels now that the first year of his reign has ended, especially as he now holds the record of having been chairman of the shortest annual general meeting in the history of the Division. I wonder just what his secret technique is?

A wily bird is our Arthur 5HY, at the meeting before the last he came and sat near Albert 5ZL and myself, and proceeded as usual to give me my usual earbashing on the merits and demerits of "The Thing." Although my ear was trailing on the ground when he finished, I was able to resist his attack, and patted myself on the back as to my solidarity. How simple can I be? He came up to me at the meeting this month and nonchalantly remarked, "I see that Albert 5LZ has become a member of the s.s.b. fraternity." "He was so interested in our conversation at the last meeting that he bought a commercial job and is tickled with the results." That settles it, I am going to sit in a corner all by myself at future meetings, nobody is going to use me as a stooge for "The Thing." I must be getting old, I will be falling to the thimble and pea act before long!

Well, this has been such a dismal month, one way and another, that I am going to stop now—why is everybody cheering?—even though

## Stockists of Radio and Electronic Components for the Amateur Constructor and Hobbyist

First Ring, Write or Call on

**WILLIAM WILLIS & Co. Pty. Ltd.**

428 Elizabeth St., Melb'ne. Ph. 34-6539

## COMPUTER CIRCUIT BOARDS

containing transistors, resistors, condensers, diodes, etc., 20c per transistor.

We also stock 1600v./0.75a. diodes (two for \$3).

## AUSTRALIAN ELECTRONICS

(formerly "Electronics Associates")

76 View Street, Hobart, Tasmania

Repairs to Receivers, Transmitters; constructing and testing; xtal conv., any frequency; Q5-ers, R9-ers, and transistorised equipment.

## ECCLESTON ELECTRONICS

146a Cotham Rd., Kew, Vic. Ph. 80-3777

## A. R. R. L.

Associate Memberships (and renewals) are available by forwarding £2/14/- (plus 6d. interstate cheques) to:

Business Manager, W.I.A.,  
49 Cookson Street,  
Camberwell, E.6,  
Victoria.

This includes the regular arrival of

"QST"

the notes may be a little shorter than usual, ahem, but don't despair, this is only a temporary feeling of frustration, and I will be back next month, bigger and better than ever, the Publications Committee and the Editor being willing. What's that?—Why worry to come back?—Throw that VK4 out!!

73 de 5PS—PanSy to you.

## TASMANIA

By now our Annual General Meeting and Dinner is over, and your new Council has been elected. On their behalf I thank you for the confidence you have shown, and as in the past I know the business of the Institute is in good hands.

We must of course say farewell to our three Councillors who did not seek re-election this year, they are Tiny 7JD, Ted 7EB and Charlie VKS—all key men in the Council for the last couple of years at least. Thanks to each of you from all of us for a job well done. Let's hope we'll see you back one day.

Keith 7RX has gone sideband, with a homebrew rig. He brought along some photos to show around at the March meeting and it appears to be a f.b. rig, built in true 7Rx construction. Tom 7AL is in the process of building up a s.s.b. rig also, and so I expect it won't be long before we hear "Uncle Tom" on the bands again (not before time either).

Ian 7ZZ is in the process of acquiring himself a 40 ft. tower, which he tells me he's going to top with a 3-band quad—as if he doesn't work enough DX now—he'll never go to bed at all when the bands open.

Our loss is someone else's gain, and this is very true in the case of Doug 7DZ who is leaving this fair Isle for that most important city of Canberra. Good luck Doug, hope to hear you on the bands in the not too distant future. We'll always be interested to hear from you.

With official approval for slow Morse transmissions to hand we have three sessions each week on 52.2 Mcs. in the southern part of the island. The time is 8 p.m. on Sunday Tuesday and Thursday evenings. Don't forget chaps, if you take advantage of this service, let the operators know, we had trouble once before, the operators spent hours at his rig, and to my knowledge he never ever knew, not even knows now, whether anybody took advantage of the service—most disheartening I think you will agree.

Easter is upon us again, which of course means Convention time, all conventions are important, but this year's should be more important than most, as the matter of federation should be, we hope, finalised. Then it's up to the Attorney-General. We wish the conference this year, as in other years, every success. Incidentally, we may lose our Federal Councillor, Ted 7EJ, in the latter part of the year. He tells me there's a chance he may go to Darwin. He has been to a time or two in the past where he can go, but no one ever thought he'd take us seriously—for VK7's sake we all hope you can delay it for another year if not longer, Ted, but as someone once said, "When you gotta go ya gotta go," and that's about what I'll do now.

Hope everyone who attended the annual meeting and dinner enjoyed themselves, and we'll see a few more still at next year's function. 73, Geoff 7ZAS.

## HAMADS

Minimum 5/-, for thirty words.  
Extra words, 2d. each.

Advertisements under this heading will be accepted only from Amateurs and S.w.'s. The Publishers reserve the right to reject any advertising which, in their opinion, is of a commercial nature. Copy must be received at P.O. Box 86, East Melbourne, C.2, Vic., by 8th of the month and remittance should accompany the advertisement.

**EDDYSTONE 640 Receiver**, 1.8 to 31.0 Mcs., with crystal filter, b.f.o., external S-meter and speaker, \$75.  
**PANDA all-band self-contained a.m. Transmitter**, \$75. VK2EX, 30 Boomerang Rd., Springwood, N.S.W.

**FOR SALE:** Heathkit DX60E and HG10 v.f.o. 80 mx. through 2 mx. Mohican GCIA. All as new. 150 Mc. a.m. 10 watt v.h.f. 5-channel radio

telephone. Separate transistor, P.S.U. New 25 Kc. a.m. Radio telephone. Ph. 306-9683, 4 Oak St., Pascoe Vale, Vic.

**FOR SALE:** Power Supply—500v., 250 ma., 300v. 150mA. and two 6.3v. filament lines, \$25. 2 metre Tx. Runs 85/90 watts to 6/40, \$25. Power Supply—650v. 200 mA., 300v. 150 mA. and two 6.3v. filament lines, \$25. 80 watt Modulator. Class B zero bias 807's, UM3 mod. transf., preamp and p.t.t., dynamic mike, \$35. Control Panel, performing all Tx/Rx functions for p.t.t. operation, \$10. The above items are all part of a complete H.P. 2 metre station and function together as such. Will sell items separately or will take \$100 for the lot. Hepburn, 4 Elizabeth St., East Brighton, Vic. Tel. 96-2414 evenings and weekends.

**FOR SALE:** R1155B Receiver in excellent condition, complete with power supply and speaker, \$49. VK2TS, R.M.B. 100a Mangrove Mountain, N.S.W.

**FOR SALE:** 3 in. CRO type MD/32 separate P/S and handbook, \$25. Brand new and unused Collaro mono tape deck, \$40. 6 meter Converter with all valves (ES8, 2 off BL8) and xtal for 4 Mcs. i.f., \$10. Power Supply—1000v. 300 mA. (trans. tapped at 850/750/550) and 400 v. 200 mA., all on one chassis, \$25. AMR101 Comm. Receiver. Made by A.W.A. and modelled on National H.R.O. Coil boxes 900 Kcs. to 30 Mcs. Separate power supply operates on either 240v. a.c. or 12v. d.c., \$70. 2 metre Tx. Runs 15 watts to 3/12. Complete with modulator, power supply and microphone on two 3½-inch sections of standard rack panel, \$30. Vox unit—complete with all tubes and 10K relay on 3½-inch panel, \$15. Prices open to negotiation with H. L. Hepburn, VK3AFO, 4 Elizabeth St., E. Brighton, Vic. Tel. 96-2414 evenings and weekends.

**HANDBOOKS** available for ATR2A, ATR2B, ATR4A, AT13B/AT13C, AT14A, AR17, AMT150. Best offer. VK3AXK, 28-4968.

**SELL:** Gelo G222TR Transmitter, as new, £60 (\$120). Has had very little use. M. Saunders, VK3AMV, 106 Victoria St., Warragul. Phone 21218.

**SELL:** Hallicrafter S38B Communications Receiver, 5 tube, 4 band, converted power supply for 240v. operation. Excellent condition and performance, \$40. J. D. Fargie, 26 Veronica St., Lower Ferntree Gully, Vic.

**SELL:** 5 ft. cabinet-type rack with 144 Mc. xtal contr. x-mtr. QQE06/40, 80 w. inp.; v.f.o. contr. 52 Mc. x-mtr. QQE06/40, 80 w. inp.; Modulator 2 x 807 in AB1; Plate and screen mod.; Sidetone osc.; DG7-5 C.R. tube; Power supply 600v. 400 mA., 300v. 150 mA., 24v.; Meters: 0-10 mA. grid current, 0-250 mA. plate current, 0-1000v. plate voltage; everything is relay controlled, \$195 or near offer. C. Hagoort, VK5CW, Lot 25, Larkdale Av., Paradise, S.A.

**WANTED** for Youth Radio Club; BC221 Frequency Meter or similar, with calibration book. Price and details to VK2AXC, 78 Aberdare Road, Cessnock, N.S.W.

# A LARGE RANGE OF TRANSMITTERS, RECEIVERS, TEST GEAR, AND DISPOSALS RADIO PARTS AVAILABLE

## ★ SIGNAL GENERATORS

Type LSG10, 120 Kc. to 260 Mc., \$26. Type LSG11, 120 Kc. to 390 Mc., provision for xtal, \$30, both plus freight.

TE22 Audio Generator, freq. range: sine 20 c/s.-200 k/c., square 20 c/s.-25 k/c., in four ranges. Output, 7v. p-peak. Output impedance, 1,000 ohms, \$42.

## ★ C.W. TRANSMITTER

80-10 metres. Gelsco 4/102 v.f.c., 2E26 buffer, 813 final, pi-coupler output. Separate meters for grid and plate current. Excellent table-top rig. Less power supply, \$50.

## ★ POWER SUPPLIES

300v. at 150 mA., 6.3v. at 3 amp., fully enclosed, on 19-inch panel, \$8, complete with meter \$8.

## ★ METERS, P25 TYPE

0-500 uA., \$5.25; 0-100 uA., \$6.95; 0-1 mA. \$1.50; 0-10 mA., \$4.50; 0-50 mA., \$4.50. Full range of Meters and Multi-Testers available.

## ★ CO-AXIAL CABLE

UR70 72 ohms, 3/16 inch diam., in 27-yard rolls, \$2 plus 75c pack and post. In as new condition.

## ★ 80-40 METRE TRANSCEIVER

San Electronics QTR7. Tx: 6BQ5 p.a., 6BQ5 modulator, xtal locked. Rx: Tunes 3.5 to 11 Mc., 1 watt audio output, 230v. a.c., \$90.

## ★ SAL39 AMPLIFIER KLYSTRONS

**Pulse Service:** 120w. input, 30kw. output, duty cycle 1%, freq. range 960-1230 Mc. **C.w. Service:** 50w. input approx., 300w. output approx. Ideal tube for 1296 Mc. band. \$20 plus freight.

### WANTED TO BUY

Communication Receivers, Test Equipment, etc. Call, write or phone. Equipment inspected and picked up at your convenience any night or week-end.

## ★ GOLD PLATED CRYSTALS

One only G.E.C. 1,000 c/s. vacuum mounted, gold plated Crystal. Octal base.

One only Marconi 2,000 c/s. vacuum mounted, gold plated Crystal. B7G base.

Prices for above on application.

## ★ MINIATURE CAPACITORS

New shipment. 600 v.v. Values: 0.001, 0.02, 0.005, 0.0005, 0.0002, 0.0001 uF. \$2 for 80 plus freight.

## ★ RESISTORS

$\frac{1}{2}$  watt, I.R.C., Welwyn, Eire, Ducon, Philips, \$2 per 100.

## ★ CRYSTALS

Personal shoppers only, \$1 each.

## ★ AR7 COMMUNICATIONS RECEIVER

Complete with five coil boxes. 120 Kc. to 25 Mc. 10 tubes. All resistors and capacitors replaced, immaculate condition. \$90.

## ★ SPECIALS

813 Eam Tetrodes, \$5 each.

7-pin skirted Valve Sockets, P.T.F.E. insulation, silver plated, only 20c each, c/w. shield.

## ★ C.R.O. TUBES

CV407, \$1 each; CV392, \$1 each.

## ★ TRANSISTORS

Brand new. OC72, OC44, 2N132, OC66, OC45, 80c each. AT1138 Power Transistor, 30w., Class B, \$3. Also Diodes: OA71, OA81, OA95, 35c each.

### ANY QUERIES

Beginners are welcome, ask Jim and Laurie Gardiner any questions. They are Amateur Radio operators and will be only too pleased to assist.

ALL ITEMS FREIGHT EXTRA

# UNITED TRADE SALES PTY. LTD.

280 LONSDALE ST., MELBOURNE, VIC. (Opp. Myers)

Phone 32-3815

$$v = c \left[ 1 - \left( \frac{1}{(eV_u / 300m_e c^2) + 1} \right)^2 \right]^{1/2}$$

?

Most people go happily through life without ever needing to solve an equation from the time they leave school. But in the vastly complicated world of electronics, such equations are indispensable for reducing complex problems to simple terms. An example is the equation illustrated above. This equation provides the velocity which an electron will attain in its travel through a picture tube electron gun. It is interesting to note that, with a nominal anode voltage of 16,000 volts, the velocity of the electron will be approximately 170,000,000 miles per hour which is one quarter of the speed of light.

This is only one example of the complexity, and of the high demands placed on skill in the electronics industry today. This skill is passed on to you in the manufacture of our valves, transistors and picture tubes and is your guarantee for quality and reliability.

**AMALGAMATED WIRELESS VALVE CO. PTY. LTD.**  
 SYDNEY • MELBOURNE • BRISBANE • ADELAIDE • PERTH • HOBART



# amateur radio

Vol. 34, No. 5  
MAY  
1966

Registered at G.P.O., Melbourne, for  
transmission by post as a periodical

25c

## TRANSISTORS AND DIODES

AC125	9/8	95c	OC169	19/6	\$1.95
AC126	9/6	95c	OC170/AF115N	10/-	61
AC127	10/6	\$1.05	OC171/AF114N	10/-	\$1
AC128	10/-	\$1	2N217	9/6	95c
AF114N/OC171	10/-	\$1	2N217S	9/6	95c
AF115N/OC170	10/-	\$1	2N270	13/6	\$1.35
AF116N	9/6	95c	2N370	19/-	\$1.90
AF117N	9/6	95c	2N372	19/-	\$1.90
AF118	22/-	\$2.20	BY100/OA214	16/-	\$1.60
BC107	11/-	\$1.10	OA79	4/-	40c
BC108	10/-	\$1	OA80	3/-	30c
BC109	14/-	\$1.40	OA81	3/-	30c
OC26	26/-	\$2.60	OA80	3/3	32c
OC35/AT1138A	35/-	\$3.50	OA91	3/3	32c
OC44N	11/-	\$1.10	OA95	3/3	32c
OC45N	11/-	\$1.10	OA200	7/6	75c
OC70	11/-	\$1.10	OA210, 1N1763, 1N3194	8/6	85c
OC71/2N215	7/6 or 3 for £1		HR25	16/-	\$1.60
	75c or 3 for \$2		OA211, S10A37	18/-	\$1.80
OC72	13/6	\$1.35	1N3491	50 p.i.v.	18 a. 95c
OC74N	9/8	95c			
OC75	13/6	\$1.35			

## ZENER DIODES

OAZ200	15/6	\$1.55	OAZ222/BZZ14	27/6	\$2.75
OAZ212	12/6	\$1.25	OAZ224/BZZ16	27/6	\$2.75
OAZ213	12/6	\$1.25			
OAZ225	27/6	\$2.75			

## POWER TRANSFORMERS

1992	150-0-150v. 30 mA.	6.3v. 1.75a.	37/6	\$3.75
1993	225v.-0-225v. 50 mA.	6.3v. 2a.	45/-	\$4.50
2062	Voltage Doubler, 290, 265v. d.c. 80 mA.	6.3v. c.t. 2.25a.	67/6	\$6.75
2064	Voltage Doubler, 340, 315v. d.c. 125 mA.	6.3v. c.t. 2.25a.	87/6	\$8.75
2067	Voltage Doubler, 310, 285, 260v. d.c. 100 mA.	6.3v. c.t. 4a.	83/6	\$8.35
290-0-290v. 60 mA.	6.3v. 2a., 5v. 2a.		27/6	\$2.75
385-0-385v. 100 mA.	6.3v. 3a., 5v. 2a.		35/-	\$3.50
385-0-385v. 125 mA.	6.3v. 3a., 6.3v. 2a., 5v. 2a.		45/-	\$4.50

## AUDIO TRANSFORMERS

2624	7000 ohm s.e., 500 ohm s.e. prim.; 2, 3, 7, 8, 15 ohm sec.	46/-	\$4.60
4013	15 watt 6600 ohm c.t. 20% prim.; 3, 7, 8, 15 ohm sec.	164/8	\$16.46
4020	10 watts prim. 9000 ohm c.t. 20% Ultra Linear (Mullard 10-10), sec. 3.7 or 15 ohm		

## TRANSISTOR TRANSFORMERS

TD1	Driver 3600 ohm, 2000 ohm c.t.	19/6	\$1.95
TD2	Driver, 420 oh. c.t., 105 oh. c.t.	19/6	\$1.95
TO1	Output, 375 ohm c.t., 3.5 ohm 500 mw.	16/-	\$1.60
TO2	Output, 97 ohm c.t., 3.5 ohm 1 watt	18/6	\$1.85
TO4	Output, 300 ohm c.t., 3.5 ohm 5 watts	37/6	\$3.75

## FILAMENT TRANSFORMERS

T4/4	230v., 6.3v. 2 a.	32/6	\$3.25
2150	240v., 6.3v. 2.5 a., or two by 6.3v. 1.25a.	35/-	\$3.50
2155	240v., 6.3v. 7.5v. 8.5v., 9.5v., 12.5v. 15v. 1 amp.	46/-	\$4.60
12/64	240v., 6v. 4a., 12v. 4a.	50/-	\$5.00
12/66	240v., 6v. 6a., 12v. 6a.	57/6	\$5.75

## ALIGNMENT TOOLS

Jabel No. 4 Alignment Tool Kits. All popular sizes. Four tools in plastic pouch. 12/-, \$1.20.

## TRANSISTOR SIGNAL INJECTOR

Pencil Type 2 Transistor, complete with instructions and battery. 55/-, \$5.50.

## LAFAYETTE TE-22 AUDIO GENERATOR

Specifications: Sine wave range: 20 c.p.s. to 200K c.p.s. in 4 bands; square wave range: 60 c.p.s. to 30K c.p.s.; freq. response: plus or minus 1.5 db., 60 c.p.s. to 150K c.p.s.; output voltage: load impedance 1M ohm 7v. (max.), load impedance 10K ohm 5v. (max.). £22/2/6, \$44.25.

## SPEAKERS

Well known Make, Brand New, Bankrupt Stock

Size	Voice Coil	Price
2 inch	15 ohm	30/- \$3.00
3 inch	15 or 3.5 ohm	32/6 \$3.25
4 inch	15 or 3.5 ohm	37/6 \$3.75
5 inch	15 or 3.5 ohm	40/- \$4.00
6 inch	15 or 3.5 ohm	45/- \$4.50
8 inch	15 or 3.5 ohm	47/6 \$4.75
8 inch	15 or 3.5 ohm	52/6 \$5.25
9 x 6 inch	15 or 3.5 ohm	55/- \$5.50
12 inch	15 or 3.5 ohm	82/6 \$8.25

## WIDE RANGE LOUDSPEAKERS

5 inch Twin Cone Tweeter, 15w. r.m.s. 14000 c.p.s. to 16 kc.)	45/-	\$4.50
6 inch Twin Cone (60-16,000 c.p.s.) 5w., available in 8 or 16 ohms	50/-	\$5.00
8 inch Twin Cone (50-16,000 c.p.s.), 10w., available in 8 or 16 ohms	75/-	\$7.50
12 inch Twin Cone (45 c.p.s.-10 kc.), 10w., available in 3.5 or 15 ohms	100/-	\$10.00
12 inch Twin Cone (30-30,000 c.p.s.), 20w., available in 8 or 16 ohms	195/-	\$19.50

## SPEAKER BOXES

Plastic Speaker Box, with 4 inch speaker and wire	55/-	\$5.50
Wooden Speaker Box with 6 x 4 inch speaker and wire	65/-	\$6.50

## CHASSIS PUNCH SET

Hozan K-83, sizes 16, 18, 21, 25 and 30 mm. Complete with taper reamer in wooden storage box 70/- \$7.00

## BATTERY CHARGERS

Dual, c/w. Meter in Metal Hammertone Case		
6 volt 4 amp., 12 volt 4 amp.	157/6	\$15.75
6 volt 6 amp., 12 volt 6 amp.	217/6	\$21.75

## MICROPHONES

Crystal:—		
Piezo Lapel Type with plug	12/6	\$1.25
CM20 Hand Type with plug	27/6	\$2.75
X43 Stand Type with plug	37/6	\$3.75
BM3 Pencil Type, 100-8000 c/s. with on/off switch, 6 ft. cable	50/-	\$5.00
BM3 Desk Stand to suit above	21/-	\$2.10
Dynamic:—		
Foster DF2 Hand Type, 50K	50/6	\$5.05
Foster DF2 Hand Type, 50 ohm	45/-	\$4.50
Foster DF3 Pencil Type, 50K	90/-	\$9.00
Foster DF3 Pencil Type, 50 ohm	87/6	\$8.75
Piezo X29 Desk Type with stand, low impedance	82/6	\$8.25

## BEZELS AND NEON INDICATORS

Sato 3280 6-8v. sub-miniature, red, green, blue	4/6	45c
NEZ Neon Indicator, 65v., flying leads	3/-	30c
230v. Red Neon Bezel	6/6	65c

## PARTS FOR RTV & H TACHO

Meter (MR3P), 0-1 mA.	50/-	\$5.00
7080 or 5000 r.p.m. scale extra	15/-	\$1.50
Henry Choke, ready wound	22/6	\$2.25
L.K. Trimmer Pot	4/-	40c
Circuit Board	6/-	60c

## VARIABLE CONDENSERS

Eddystone (Ceramic) 1/2 inch Shaft		
580 Condenser, 13.5 pF.	22/6	\$2.25
582 Condenser, 63 pF.	25/-	\$2.50
584 Butterfly Cond., 32 x 32 pF.	25/-	\$2.50
535 Condenser, 91 pF.	27/6	\$2.75
586 Condenser, 140 pF.	38/6	\$3.85
817 Transmitting Cond., 270 pF.	52/6	\$5.25
Rolar (Ceramic)		
C804 1/4 inch shaft, 10 pF.	22/6	\$2.25
C804 1/4 inch shaft, 20 pF.	22/6	\$2.25
C804 1/4 inch shaft, 25 pF.	22/6	\$2.25
C804 1/4 inch shaft, 50 pF.	22/6	\$2.25
C804 1/4 inch shaft, 100 pF.	22/6	\$2.25

## Roblan Broadcast Gangs

RMG1 Single gang, 10-50 pF.	18/6	\$1.85
RMG1 Single gang, 10-415 pF.	18/6	\$1.85
RMG2 Two gang, 10-415 pF.	25/-	\$2.50
RMG3 Three gang, 10-415 pF.	33/6	\$3.35

## ROTARY SWITCHES (JABEL)

3-pole, 3-position	10/-	\$1.00
4-pole, 3-position	10/-	\$1.00
2-pole, 6-position	10/-	\$1.00
1-pole, 12-position	10/-	\$1.00

## TRANSISTOR RADIO PARTS

To suit Zodiac, Grays, Tele-tone, Chevron, Lincoln, Retravision, Home Star and Vista (16 Transistor Radios)		
Speaker, 8 ohms, 2 1/2 inch diam., power capacity 200 mw.	22/6	\$2.25
Gang with knob, capacity: 6-142 pF. (aerial), 6-60 pF. (oscillator)	20/-	\$2.00
Aerial Coil on Rod	7/6	75c
Output Transformer, 480 to 8 ohms	15/-	\$1.50
Interstage Transformer, 8000 ohms to 3000 ohms	12/6	\$1.25
Oscillator Coil, 360 microhenry	8/6	85c
Pot., switched with knob, 5K ohms	8/6	85c
6 Transistors and 1 Diode (comprising: 2-2N408/OC74N, 3-2N410/OC45, 1-2N406/OC71, 1-OA90)	82/6	\$8.25
Three I.F. Transformers, 455 kc.	30/-	\$3.00
Complete set resistors and condensers (32)	42/6	\$4.25
Printed Circuit Board	10/-	\$1.00
Cabinet, complete with earphone jack, earphone and carrying cases	25/-	\$2.50

## CO-AXIAL CONNECTORS

American Type:—		
PL259 Co-axial Plug	9/6	95c
4087-1 Co-axial Plug (PL259, PTFE)	14/6	\$1.45
SO239 Co-ax. Socket (suit PL259)	9/-	90c
4802-1 Co-ax. Socket (PTFE)	14/8	\$1.47
C32-14 Co-ax. double ended female cable joiner (PTFE)	17/6	\$1.75
UG175U Adaptor for PL259, to suit 1/4 inch cable	2/9	28c
C32-17 Co-ax. "T" Piece, suit PL259	23/3	\$2.32
BNC Series:—		
UG88CU Co-axial Plug (PTFE)	15/9	\$1.58
UG290U Co-axial Socket (PTFE)	12/6	\$1.25
Belling Lee Type:—		
Co-axial Plug (suit 1/4 inch cable)	4/-	40c
Co-axial Socket	3/6	35c
Co-axial Socket (flush mount)	3/6	35c
Co-axial Cable Joiner (female)	4/-	40c

## THIS MONTH'S SPECIAL CRYSTALS

FT243 Holders—As New		
Ex SCB536/BC611 Walkie Talkies		
4080 Kc. 4735 Kc. 4950 Kc. 5380 Kc. 5780 Kc.		
4397 Kc. 4815 Kc. 5205 Kc. 5385 Kc. 5852.5 Kc.		
4495 Kc. 4840 Kc. 5295 Kc. 5397 Kc. 5920 Kc.		
4678 Kc. 4852 Kc. 5327 Kc. 5660 Kc. 6235 Kc. 6875 Kc.		
7/6 each or 3 for £1. 75c. or 3 for \$2.		
DC11 Holders		
5980 Kc. 6420 Kc. 5980 Kc.		
12/6 each or \$1.25.		



# RADIO SUPPLIERS

5A MELVILLE ST., HAWTHORN, VIC. Phone 86-6465

North Balwyn tram passes corner.

Money Orders and Postal Notes payable North Hawthorn P.O.

We sell and recommend Leader Test Equipment, Pioneer Stereo Equipment and Speakers, Hitachi Radio Valves and Transistor Radios, Kew Brand Meters, A. & R. Transformers and Transistor Power Supplies, Ducon Condensers, Welwyn Resistors, etc.

# "AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA. FOUNDED 1910.

MAY 1966  
Vol. 34, No. 5

**Editor:**  
K. M. COCKING ..... VK3ZPQ

**Assistant Editor:**  
K. E. Fincott ..... VK3AFJ

**Publications Committee:**  
G. W. Bate (Secretary) ..... VK3AOM  
A. W. Chandler (Circulation) ..... VK3LCC  
E. C. Manfold ..... VK3EM  
W. E. J. Roper ..... VK3ARZ

**Draughtsmen:—**  
Ken Gillespie ..... VK3GK  
Clem Allen ..... VK3ZIV  
Ian Smith ..... 36 Green St., Noble Park

**Advertising Enquiries:**  
C/o. P.O. Box 36, East Melbourne, C.2, Vic.  
or  
Mrs. BELLAIRS, Phone 41-3535. 478 Victoria  
Parade, East Melbourne, C.2, Victoria. Hours  
10 a.m. to 3 p.m. only.

**Publishers:**  
VICTORIAN DIVISION W.I.A.,  
Reg. Office: 65a Franklin St., Melbourne, Vic.

**Printers:**  
"RICHMOND CHRONICLE," Phone 42-2419.  
Shakespeare St., Richmond, E.1, Vic.

★

All matters pertaining to "A.R." other than subscriptions, should be addressed to:  
THE EDITOR,  
"AMATEUR RADIO,"  
P.O. BOX 36,  
EAST MELBOURNE, C.2, VIC.

Acknowledgments will be sent following the Committee meeting on the second Monday of each month. All Sub-Editors should forward their articles to reach "A.R." before the 8th of each month. Any item received after the Committee meeting will be held over until the next month. Publication of any item is dependent upon space availability, but in general about two months may elapse before a technical article is published after consideration by the Publications Committee.

★

Members of the W.I.A. should refer all enquiries regarding delivery of "A.R." direct to their Divisional Secretary and not to "A.R." direct. Non members of the W.I.A. should write to the Victorian Division, C/o. P.O. Box 36, East Melbourne. Two months' notice is required before a change of mailing address can be effected. Readers should note that any change in the address of their transmitting station must, by P.M.G. regulation, be notified to the P.M.G. in the State of residence, in addition "A.R." should also be notified. A convenient form is provided in the "Call Book".

★

Direct subscription rate is 30/- a year, post paid, in advance. Issued monthly on the first of the month, January edition excepted.

## FEDERAL COMMENT

★

### THE I.T.U. FUND—SOME PLAIN SPEAKING

It is now seven years since we sent a representative to an International Telecommunications Conference, and it is now three years since an appeal was launched to raise finance so that we could be adequately represented at the next Conference. Today this I.T.U. fund is not half way to its target amount.

In order to explain to you the implications in these three facts, let me make the following comments (made in very plain language so that you will not have to spend time "trying to read between the lines").

(1) Why do we need to attend such I.T.U. Conferences? Several persons who have very experienced backgrounds in this have said that "they wonder how long the Amateur Service can hold out against the ever increasing pressure for frequency space by the expanding commercial services." In other words, **your Amateur Bands could be taken from you or drastically reduced unless a united and high level defence against this action is made on your behalf at these Conferences.** This applies to h.f. and v.h.f., and even u.h.f., bands alike. Make no mistake about this, it will affect all Amateurs and S.w.'s.

(2) Such representation is costly. At least \$7,000 was sought in 1963 for this purpose and it may well be that this estimate is too low on today's travelling costs.

(3) The F.E. balance sheet just presented at the Easter Convention shows a total of \$3,373 subscribed to date—not half way. Perhaps some Amateurs have not realised how serious this matter is and there are numerous new Amateurs who have heard little about it. What about it fellers? Remember any contribution is welcome and you do not have to be a member of the W.I.A. to contribute.

If you still need to be convinced that you should contribute, I would be pleased to send you reprints of several excellent and realistic articles written by very enlightened Amateurs, who keep their ears close to the ground, on the possible future of our hobby. They think it is very serious.

Don't you consider your hobby to be worth fighting for? Of course you do; so please make a tangible gesture in this regard so that it can be done on your behalf. Please send your contribution to your State Divisional Secretary—NOW!

K. CONNELLY, VK3ARD, Federal Treasurer, W.I.A.

## CONTENTS

Amateur Television Activities in South Australia .....	3	Ross Hull Memorial Contest 1965-66 Results .....	18
Accessory Package for Transceivers .....	5	Prediction Charts for May 1966 ..	19
6/60 Special .....	6	V.h.f. Net Frequencies .....	14
An Experimental 100 Mc. Crystal Oscillator .....	10	Transistor Interchangeability List ..	17
An Indoor Pylon Slot Aerial for 145 Mc. ....	11	New Call Signs .....	17
Sideband:		The YL Operator Club .....	10
Linear Amplifiers (continued) ..	13	Extracts from Proceedings of I.R.E.E., Aust. ....	10
Hints and Kinks: Feeder Spacers ..	17	DX .....	21
Project Australis .....	14	YRC .....	21
W.I.A. Federal Convention—		SWL .....	22
Easter 1966 .....	15	VHF .....	23
Contest Calendar .....	11	Publications Committee Reports ..	23
		Federal and Divisional Monthly News Reports .....	24

# SIDEBAND TOPICS

## SWAN

SW350 Mark III. basic Transceiver with u.s.b./l.s.b. sideband selection and 100 Kcs. crystal calibrator added, inclusive heavy duty 240v. a.c. supply/speaker unit in matching cabinet	\$600	£300
SW400 De Luxe Transceiver	550	275
SW410 matching all-band VFO	160	80
SW406 5-band VFO of 200 Kcs. each	100	50
VX-1 transistorised plug-in VOX operation unit	50	25
SW22 split-channel VFO adaptor	40	20

## GALAXY

Galaxy V. Transceiver, u.s.b./l.s.b. selection standard feature, with plug-in crystal calibrator and heavy duty 240v. a.c. supply/speaker unit	\$600	£300
Galaxy External VFO, all-band coverage	100	50
Galaxy Vest Pocket size plug-in transistorised VOX unit	40	20

## HY-GAIN ANTENNAE

Model 14AVQ vertical 4-band 10/15/20/40 Mx Ground Plane	\$44	£22
Model 18AVQ vertical 5-band 10/15/20/40/80 Mx Ground Plane	70	35
Model TH3JR 3-element junior tri-band Yagi beam 10/15/20 Mx	96	48
Model TH6DX 6-element senior Yagi beam 10/15/20 Mx	200	100

## ANTENNA ROTATORS

Model CDR TR-44 for average size beams	\$90	£45
Model CDR Ham-M for up to the largest beams in use	180	90
Alliance model U-98 for junior type beams	55	27½
(All rotators for 220/230v. with control unit)		
WEBSTER centre-loaded all-band mobile whip, adjustable to any frequency between 3.6 and 30 Mcs., the real DX-getter, with bumper- or body-mount assembly	\$48	£24
AZTEC 12v. d.c. power supplies, 300w. model	90	45
500w. model	110	55

## RE-CONDITIONED USED EQUIPMENT

COLLINS KWM-2 Transceiver, with Collins PM-2 a.c. supply, Collins heavy duty 12v. d.c. supply and Collins mobile mounting unit	\$1000	£500
HEATH HW-22 single band 40 Mx Transceiver, has VOX control	170	85
HALLICRAFTERS HT-37 all-band phasing Transmitter	275	137½
HALLICRAFTERS IIT-32 all-band filter Transmitter	320	160
HALLICRAFTERS SX-111 Amateur band a.m./c.w./s.s.b. Receiver	175	87½
SWAN SW350 Mark II. Transceiver, spotless, near new	420	210

All equipment sold with full warranty and after-sales service

## SIDEBAND ELECTRONICS ENGINEERING

P.O. BOX 23, SPRINGWOOD, N.S.W.

Telephone: Springwood 51-1394

Importer-Distributor for SWAN, GALAXY, DRAKE, HY-GAIN, GONSET, AZTEC



# AMATEUR TELEVISION ACTIVITIES IN SOUTH AUSTRALIA

ANDREW PIERSON,\* VK5ZBP/T

THE art of Amateur t.v. transmission and reception is not new to South Australia. Transmissions by Mait Lane, VK5AO/T, and George Usher, VK5ZEY/T, were conducted for several years before the loss of the 288 Mc. band necessitated the change to 432 Mc. The purpose of this article is twofold:

- (a) To inform Amateurs and interested parties of the progress made by a.t.v.
- (b) To initiate interstate correspondence from persons working on similar projects.

Unlike conventional Amateur Radio, where the station constructor is also the operator, Amateur T.v. requires a large "behind the scenes" crew. With these requirements providing a large draw on the manpower of the group, it is not surprising that we utilise only two channels of the u.h.f. t.v. band for transmission. These stations are VK-5ZEY/T and VK5AO/T.

VK5ZEY/T is owned and operated by George Usher, who has an impressive array of equipment, which is housed in a separate building to his studio. His equipment consists of a 3" image orthicon studio camera with a multiple lens turret, and a camera mounted electronic viewfinder, all of which is mounted on a dolly-based tripod. This equipment is backed up by a 1" vidicon telecine' chain. The vidicon camera is fed by a remotely operated mirror diplexer providing the following picture inputs: 35 mm. movie, 16 mm. movie, 35 mm. slide, and epidiastroscope facilities for the A.t.v. clock and opaques.

All video is passed through the master control room, in which is situated the video mixing console, which also provides inputs for extra camera chains and outside broadcast facilities. The mixer has provision for trick effects, such as wiping, inlay, overlay, etc. The actual mixing operation is achieved with push button and a transverse quadrant fader. The sound mixing, when correctly programmed, is switched automatically with the video.

Master control is separated from the telecine' room by a sound-proof wall in which is set a plateglass window. The studio proper is in another building, for which intercommunication and cueing facilities are provided. George has three interlaced sync. pulse generators; one operational, and the other two on standby.

The transmitter at VK5ZEY/T is a vestigial sideband type, employing low level signal shaping through a standard 30 Mc. t.v. i.f. strip. The signal is then frequency changed to the 432 Mc. band, and passed to a QQE03/20 linear amplifier running 20 watts input. Standard CCIR 5.5 Mc. intercarrier sound is injected into the low level system. The antenna is a 16 element collinear array up 100 feet.

VK5AO/T is Maitland Lane's station. Mait uses a 1" vidicon chain, a flying spot scanner, and transistorised electronic pattern and interlaced sync. generators. The video transmitter at VK5AO/T uses a QQE03/20 and high level grid modulation. The audio is fed to a separate transmitter, which is maintained 5.5 Mc. above the video carrier by means of a servo system. Audio r.f. output is from a QQE02/6 running 5 watts. Antennae, which are mounted 40 feet high, are a 16 element collinear array and a 5 element Yagi, for video and sound respectively.

just adequate, since a good t.v. signal suitable for re-transmission requires the equivalent of at least a 40 db. over 9 a.m. audio signal on a good narrow-band communications receiver.

The transistorised vidicon chain which is used in conjunction with the O.B. van was built by Alan Nation. The camera is equipped with a zoom lens, and an in-built viewfinder, utilising an electrostatic cathode ray tube. Alan also has trick mixing facilities which, being portable, can be used in the O.B. van. All his equipment may be operated from a 12 volt car battery.



George Usher (left) on I.O. camera and Alan Nation on vidicon camera during an outside broadcast.

Our outside broadcast van was built by John Ingham, VK5ZDZ/T. Inside, five viewing monitors are mounted above the control desk which houses the video and sound mixers. Three monitors are used on camera channels; one for incoming O.B.'s and the final monitor for an "on-air" picture.

Racks mounted in the van house the interlaced sync. pulse generator, 6 metre communication equipment, and the O.B. link transmitter. Facilities are provided for equipment maintenance in the field. The 16 element collinear array, on a 30 foot collapsible mast, is mounted on the side of the van, whereas, at the studio receiving end, a similar array 100 feet high is used. For normal a.m. sound communication, these antenna heights may seem to be excessive, but for t.v. they are only

## STANDARDS

All equipment built by the South Australian Amateur Television Group complies with C.C.I.R. standards, thus ensuring uniformity of performance and simple interconnection.

Our standards are:

- Sync., line drive, frame drive, blanking —4v. across 75 ohms.
- Video —1.4v. across 75 ohms.

Transmission:

- Video—negative modulation, a.m.
- Audio—5.5 Mc. intercarrier system f.m. Audio carrier above the video carrier.

Video connectors:

- Belling-Lee connectors.

Sync. and drive connectors:

- 8-pin Jones connectors.

\* Public Relations Officer, South Australian Amateur T.v. Group, 619 Seaview Rd., Grange.

#### Audio connectors:

Low level—balanced, Cannon connectors.

High level—balanced, double jacks; unbalanced, standard jacks and Belling-Lee connectors.

Horizontal antenna polarisation is used, with 16 element arrays being the most popular. Standard t.v. receivers fitted with a converter, are used for reception. Two types of converter have been tried, nuvistor and transistor. There is not much to choose between the two as far as performance is concerned, but the transistor type is much cheaper than its nuvistor counterpart.

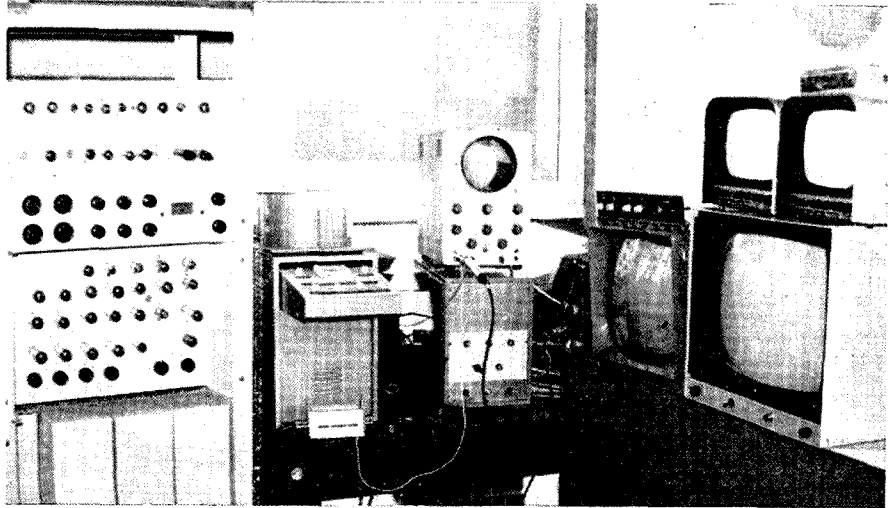
Several demonstration telecasts have been undertaken, the major telecast occurring annually during the Adelaide Royal Show in September. The programme continues for the eight days' duration of the show, and is believed to be the biggest Amateur television broadcast in Australia. There have been two broadcasts to date; one in 1964 and one in 1965, with yet another planned for this year. The receiver is placed in the Apprentices' building, on the Weapons Research Establishment stand. Our receiving antenna is a 16 element collinear array mounted atop the Centennial Hall, which is the main Show building. With such an arrangement, the path is well and truly line of sight, and with one watt transmitter power over half a mile, the received pictures are clear and strong. Because we have r.f. to spare, conventional 300 ohm feedline is used on the long run to the Apprentices' building, where a transistor converter feeds a standard t.v. receiver.

It is indeed fortunate that VK5ZEY-T's studios, from which our Show programme originates, are situated only a half mile from the Showgrounds. Very satisfactory pictures result, with a consistently high video bandwidth. Our programmes ranged from a discussion on frill-necked lizards, through audience participation shows (via 6 metres) and instant news spots, to outside broadcasts of a football match and scale electric car racing.

As the I.O. camera was required at the studios, two vidicon chains were used for the outside broadcasts. At the studio, the incoming signal is previewed on a separate receiver, so that the necessary adjustments can be made to the signal and antenna alignment. The signal is then fed to a monitor, which is driven from the station's sync. pulse generator. The incoming picture is slaved in, line by line until the frame pulses coincide. The master sync. generator is then locked to the incoming O.B. sync., and the studio is, in effect, then running from the sync. generator of the O.B. van, even though the O.B. programme is not on air. The studio picture can, at any time, be replaced by the O.B. picture with the push of a button on the video mixer panel.

During the shows, the production staff operated at their peak, keeping the programme, both quality and continuity wise, to a very high standard. The success of the show was primarily due to our programme co-comperes Norm Robb and John Twining, and also to the host of performers who, by providing a satisfying, balanced programme, enabled us to demonstrate the full capabilities of the system.

The future looks bright for Amateur Television. Telecasts of the Sunday morning W.I.A. Notes are envisaged, and even now programme details are being arranged for our 1966 Royal Show programme, which promises to be better than ever. We would like to hear of Amateur Television activities in your State. Would you write an article?



Portion of camera control equipment during a public demonstration telecast. The video switcher is situated in the O.B. van. Equipment is, from left to right: I.O. control rack, vidicon 1 control unit, vidicon 2 control unit, monitoring c.r.o.'s, picture preview monitors. In all, 17 monitors were used.

## BRIGHT STAR CRYSTALS

FOR ACCURACY, STABILITY, ACTIVITY AND OUTPUT



Our Crystals cover all types and frequencies in common use and include overtone, plated and vacuum mounted. Holders include the following: DC11, FT243, HC-6U, CRA, B7G, Octal, HC-18U:

THE FOLLOWING FISHING-BOAT FREQUENCIES ARE AVAILABLE IN FT243 HOLDERS:—

6280, 4095, 4535, 2760, 2524 Kc.

5.500 Kc. T.V. Sweep Generator Crystals, £3/12/6.

100 Kc. and 1000 Kc. Frequency Standard, £8/10/0 plus 12½% Sales Tax.

Immediate delivery on all above types.

AUDIO AND ULTRASONIC CRYSTALS—Prices on application.

455 Kc. Filter Crystals, vacuum mounted, £6/10/0 each plus 12½% Sales Tax.

ALSO AMATEUR TYPE CRYSTALS—3.5 AND 7 Mc. BAND.

Commercial—0.02% £3/12/6, 0.01% £3/15/6, plus 12½% Sales Tax.

Amateur—from £3 each, plus 12½% Sales Tax.

Regrinds—Amateur £1/10/0, Commercial £1/17/6.

CRYSTALS FOR TAXI AND BUSH FIRE SETS ALSO AVAILABLE.

We would be happy to advise and quote you.

New Zealand Representatives: Messrs. Carrel & Carell, Box 2102, Auckland.  
Contractors to Federal and State Government Departments.

## BRIGHT STAR RADIO

46 Eastgate Street, Oakleigh, S.E.12, Vic.

Phone: 57-6387

With the co-operation of our overseas associates our crystal manufacturing methods are the latest.

Phone 34-6539, write or call

**WILLIAM WILLIS & Co. Pty. Ltd.**

428 Elizabeth St., Melbourne

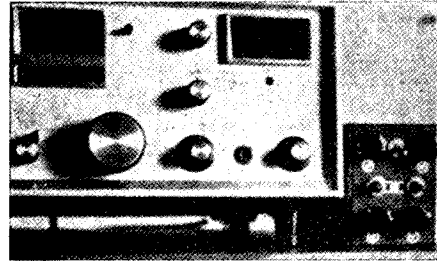
for **GELOSO**

Equipment and Components

# Accessory Package for Transceivers\*

## Multifunction Adaptor for Improved C.W. Performance

JOHN J. SCHULTZ, W2EY'DJOBV



The multipurpose adaptor is shown here next to the NCX-3.

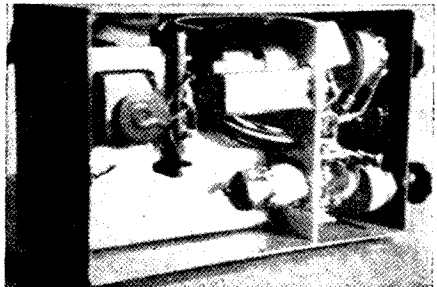
### CRYSTAL CALIBRATOR

The 100-Kc. calibration oscillator is adapted from the "ARRL Handbook." L2 is broadly resonant in the 14-Mc. range. I used this circuit, instead of the conventional one-stage arrangement, because, after trying most of the one-stage circuits, I have never been satisfied with the output above 14 Mc. It has always been difficult to find the 100-Kc. markers on 10 metres, unless the antenna is disconnected. The NCX-3 does not cover bands higher than 14 Mc., of course, but, since I wanted to make the adaptor suitable for use with other equipment covering the higher-frequency bands, I decided to incorporate a calibration oscillator that could be easily heard. R4 is used to reduce the output on 80 and 40 if necessary.

### SIDE-TONE OSCILLATOR

The c.w. side-tone oscillator is conventional. It produces a tone of about 800 cycles with the values shown. The tone can be varied by changing the value of the capacitor across the output transformer primary; probably some experimenting with the value of this capacitor will be necessary anyway, depending on the transformer used. R3 serves mainly as a volume control, although it does vary the tone slightly. The blocking-bias connections in a grid-block-keyed transceiver can be made at the key terminals directly, or internally in the transceiver. The loud-speaker connections may also be made directly to the station loud speaker, or a small 2- or 3-inch loud speaker might be included in the out-board unit. Note that only one section of the 12AU7 dual triode is used and also only one side of the heater (to

(Continued on Page 10)



T1 is in the upper left-hand corner, above the i.f. can which houses the audio filter. Across the top of the partition are the 100-Kc. crystal, the 6AN8A, and the 12AU7A (hidden in this view). The tube below the crystal is the 6AL5.

**M**OST transceivers on the market today are designed primarily for mobile operation. In an effort to keep the size to a minimum, some of the features found desirable in home-station use are often sacrificed—particularly those special qualities needed for present-day c.w. work. After a few hours of operation, the corners that have been cut become evident, and one begins to think of a number of accessories that could be added to enhance the performance in fixed station operation.

In connection with my NCX-3, I felt it desirable to limit revisions to those possible with only the simplest of alterations in the original wiring. Nevertheless, it turned out that several attractive features could be provided within this restriction:

- (1) Audio-type noise limiter.
- (2) Audio filter for c.w. selectivity.
- (3) Side-tone oscillator for c.w. monitoring.
- (4) 100-Kc. crystal calibrator.

All of these functions are provided by an adaptor unit which plugs into the accessory socket, after a few very simple changes in original wiring have been made. None of these changes in any way affects the original operation of the transceiver. Since most of the modifications are applied to the audio section, they can be adapted quite easily to transceivers other than the NCX-3.

### NOISE LIMITER

Fig. 1 shows the schematic of the adaptor unit. The 6AL5 serves as a

\* Reprinted from "QST," January, 1968.

conventional full-wave shunt limiter, with the clipping level set by potentiometer R1. The effectiveness of such a limiter on s.s.b., as compared to a Bishop-type i.f. noise limiter, is debatable but, in this case, the main purpose of the limiter is to remove the strong clicks caused by switching lights and appliances, which are usually bothersome in home-station operation. This is accomplished easily enough by audio limiting. Also, no work has to be done on an i.f. circuit as would be required for the Bishop limiter. The audio line between the product detector and the first audio stage in the transceiver is the only connection that has to be brought out.

### AUDIO FILTER

The shunt limiter is followed by an audio filter for c.w. The filter shown in the schematic is a simple, single, parallel-tuned circuit using a high-Q inductor, such as the UTC type MQA, and tuned to about 800 cycles. However, any other desired audio filter, such as the OCO multisection filter<sup>1</sup> (minus the input transformer and transistor amplifiers), may be used, depending on how elaborate you want to make the unit. In any case, c.w. will be much more of a pleasure to copy than with the 2- to 3-Kc. s.s.b. bandwidth of the transceiver. R2 is used for coarse adjustment of the selectivity of the filter. It is not absolutely necessary, but is useful in relieving the ring of a sharp filter when conditions do not warrant maximum selectivity.

<sup>1</sup> Gensler, "The OCO Audio Filter," "QST," January, 1962.

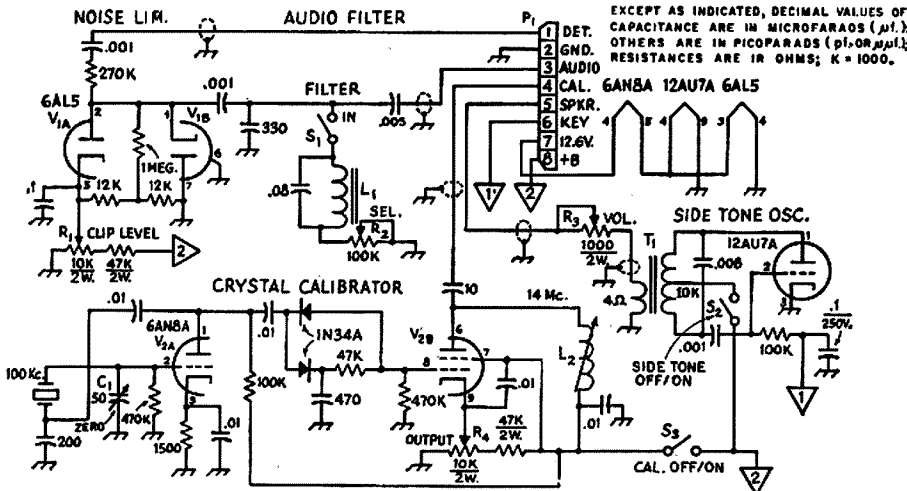


Fig. 1.—Circuit of the NCX-3 adaptor. Fixed capacitors of decimal value are paper, mylar, or disc ceramic; others are mica. Fixed resistors are ½ watt.

- C1—Air trimmer.  
 L1—0.5-henry high-Q inductor (UTC MQA-10).  
 L2—5-10-ph. slug-tuned coil (Miller 4406, or similar).  
 P1—Octal plug.

- R1, R2, R3, R4—Linear control.  
 S1, S2, S3—S.p.s.t. toggle switch.  
 T1—Output trans., 10,000 ohms, plate-to-plate, to 4 ohms.

# 6/60 SPECIAL\*

## An All-Mode Transmitter for 6

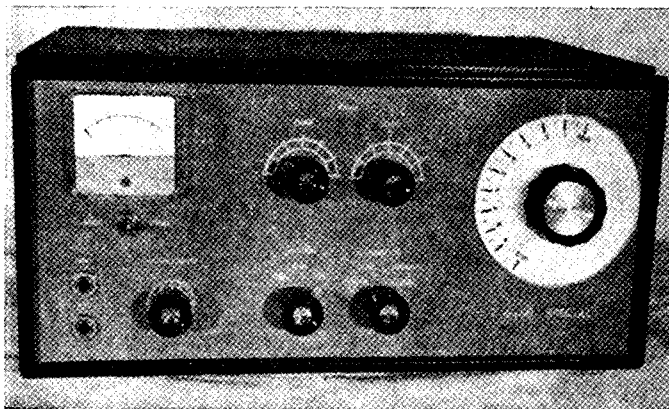
JOHN S. RAYDO, KOLMZ

THE transmitter described in this article was built to satisfy the need for a flexible rig of moderate power for the 6-metre band. It features a built-in high-stability v.f.o., broadband exciter, high-level plate modulation, mixed keying for c.w., and with the addition of a 20-metre s.s.b. signal, is a s.s.b. transmitting converter. All parts, with few exceptions, are standard and may be purchased from most large distributors.

RFC5 is provided to short out the d.c. voltage that would appear on the output circuit if C13 should break down. The choke in the plate lead, Z1, is for parasitic suppression. Note that each of the three cathode leads is bypassed separately at the socket and that the screen is bypassed directly to the cathode, rather than to ground.

The modulator section, used only for a.m., has a 12AX7 driving a pair of 6BQ6GTB tubes operating Class AB2.

R2 permits setting the 6146 to Class AB2 for s.s.b. operation. On a.m. and c.w. the fixed bias is high enough to limit plate current to a safe value and when grid current flows, the voltage drop across the resistance from the arm of R2 to ground will shift the final amplifier into Class C operation. The ground side of controls R2 and R3 is transferred by the function switch, S2C, and the control relay. If the line is not grounded in the "operate" position, with the push-to-talk mike switch open, the full 120-volt bias cuts off tubes V2A, V3, V4, V6 and V7. If a relatively low resistance, R1, is connected in the line, these tubes are almost cut off, and a low-level spot signal results. Relatively few contacts are needed on the function switch with this method of control and the relay switches less than 7 mA. at 140 volts. R1 may be replaced by a panel-mounted 25K control if variable spotting injection is desired.



★  
Fig. 1.—Front view of the 6-60 Special, showing layout of the panel.  
★

### CONSTRUCTION

The unit is built on a 14 x 10 x 3-inch chassis with a 15 x 6½ x 0.0900-inch panel, and fits into a handmade cabinet.<sup>1</sup> Other types of cabinets (such as the standard rack styles) may be used. All sockets, terminal strips and other parts are securely mounted with shake-proof washers under the mounting nuts. A neat-looking unit can be obtained by dressing the leads and components in parallel lines or at right angles. D.c. and a.c. leads can be trucked out of the way along the edges of the chassis, while r.f. leads should be as direct as possible. The wiring can be harnessed to add to the eye appeal of the unit. Avoid the use of stranded wire when assembling the circuit. Where this wire must be used, be careful to avoid wild

### CIRCUIT DETAILS

The built-in v.f.o. is used for a.m. and c.w. operation. The oscillator uses the familiar Colpitts circuit, operating between 14 and 15 Mc., with the plate circuit tuned to 14.5 Mc. The tube socket and tuning capacitor are ceramic-insulated. Long leads and unnecessary stray capacitance are avoided. The oscillator coil is solidly mounted to prevent vibration.

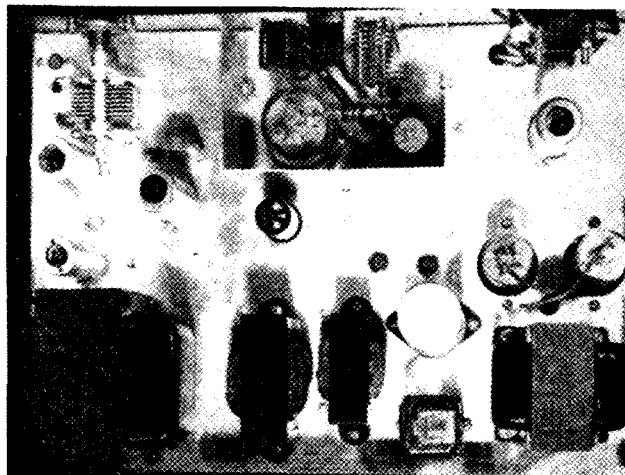
The output from the v.f.o. is injected into the grid of the mixer along with 36-Mc. energy from an overtone oscillator, V2B. On a.m. and c.w. the mixer selects the sum of these two signals in a high-L/C plate circuit tuned to 50.5 Mc. This heterodyne method of obtaining 50-Mc. signal results in higher 6-metre stability with a v.f.o. If the transmitter is used as an s.s.b. converter, the v.f.o. is disabled and in its place, 20-metre s.s.b. of low level is injected into the mixer cathode.

The 50-Mc. energy is amplified by the 12BY7 buffer, V3. The output circuit of this stage is a broad-band coupler. This coupler provides near-optimum coupling efficiency, yet has sufficient bandwidth to permit operation across the first megacycle or so, without retuning the exciter.

The 6146 amplifier stage has a shunted pi-network plate circuit. For best stability the stage is neutralised. Choke

The power supply uses a choke-input filter and silicon rectifiers in a bridge circuit. A high voltage of about 575 volts and a low voltage of about 275 volts are produced under load. A small filament transformer, reverse connected and hooked to the filament line, provides fixed bias. Practically all control of the transmitter, except for an external antenna relay, is performed by the bias network.

★  
Fig. 3.—Top view of the chassis, showing placement of tubes and other components.  
★



<sup>1</sup> Peck, "Home-Brew Custom Designing," "QST," April, 1961.

strands that stray over to an adjacent terminal and result in a short circuit. The location of most of the major components can be seen by referring to the photographs.<sup>2</sup> The plate circuit of the 6146 is shielded by a 3½ deep x 4½ wide x 3½ high U-shaped bracket. This shield is attached to the chassis with three spade bolts. Below the chassis, the grid circuit of the 6146, and the 12BY7 plate circuit, are enclosed by a similar 3½ x 5 x 2½-inch bracket. This shield is notched where it passes over the 12BY7 socket.

<sup>2</sup>The author will supply full-scale templates of the chassis and panel at a cost of \$2.

The type of socket used for the final-amplifier tube is important. Do not use the common moulded socket with an elevated grounding ring having 4 lugs spaced around its circumference. Grounding should be done to lugs placed under the nuts used for mounting the socket. It is imperative that the bypass capacitor connections be made with virtually no leads at all, in the buffer and final-amplifier stages. The 6BQ6 modulator tubes are sub-mounted in the chassis with one-inch spacers. The newer 6BQ6GTB tubes must be used if the height of the transmitter is to remain at 6½ inches. The vernier

drive for the v.f.o. capacitor is a Jackson 4511/DAF with a 6:1 ratio,<sup>3</sup> mounted behind the front panel so that the v.f.o. dial clears the panel by about 1/16-inch. The dial is a 4-inch disc of ¼-inch translucent plastic, calibrated with a Datak lettering set.<sup>4</sup> Several light coats of clear plastic spray will prevent the markings from rubbing off. Illumination may be added by cutting a small fan-shaped window in the panel behind the dial. A small bulb assembly will

<sup>3</sup>Arrow Electronics, Inc., 900 Broad Hollow Road, Farmingdale, N.Y.

<sup>4</sup>The Datak Corp., Dept. 6111-2, 83 71st St., Guttenberg, N.J.

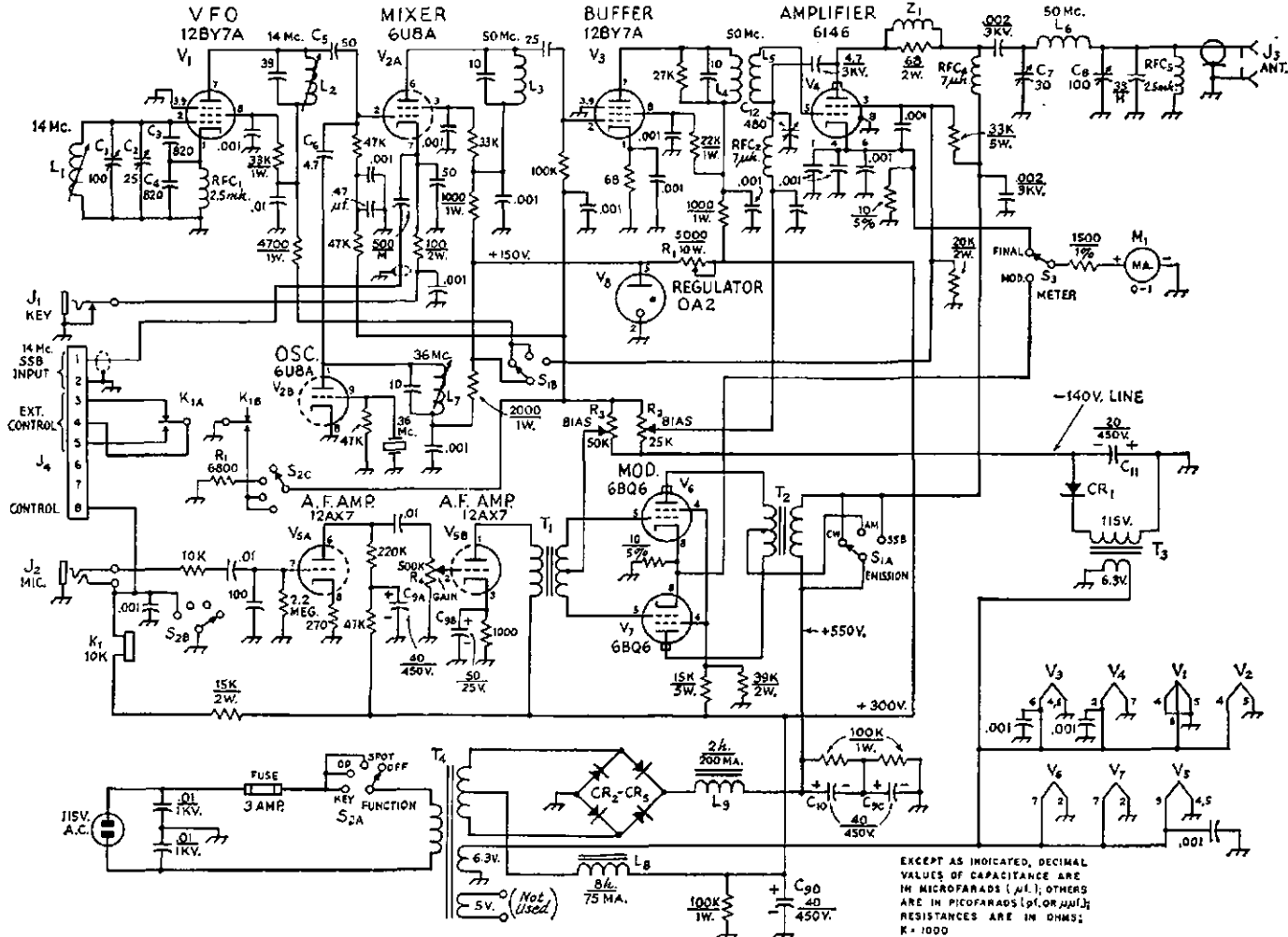


Fig. 2.—Schematic diagram of the 6/60 Special. M is Mica. Polarized capacitors are electrolytic type. Resistors are ½-watt composition unless otherwise noted.

- C1—100-pf. variable (Bud 1855).
- C2—25-pf. trimmer (Hammarlund APC-25).
- C3, C1—820-pf. silver mica.
- C5—50-pf. silver mica of NFO disc.
- C8—4.7-pf. silver mica of NFO disc.
- C7—30-pf. variable (Hammarlund HF-30-X).
- C8—100-pf. variable (Hammarlund HF-100).
- C9—40-40-40 µF. at 450 volts, 50 µF. at 25 volts, can-type electrolytic (Cornell-Dubilier Electronics DO683.2).
- C10—40 µF. at 450 volts, tubular electrolytic (Cornell-Dubilier Electronics BR 40-450).
- C11—20 µF. at 450 volts, tubular electrolytic (Cornell-Dubilier BR 20-450).
- C12—80-480-pf. mica trimmer.
- CR1—400 p.i.v., 500-mA. silicon diode.
- CR2-CR5, inc.—800 p.i.v., 500-mA. silicon diodes.
- J1—½-inch 2-conductor shorting jack (Switchcraft 12A).
- J2—¼-inch 3-conductor jack (Switchcraft 12B).
- J3—Co-axial chassis fitting (SO-239).
- J4—Octal socket.

- K1—D.p.d.t. plate relay, 10,000-ohm coil (Potter and Brumfield KCPI1).
- L1—4 turns No. 16, ¾ inch long, on ¼-inch diam. iron-slug form (North Hills 1300C).
- L2—15 turns No. 20, close-wound on ¾-inch diam. iron-slug form (Miller 21A000RB1).
- L3—9 turns No. 16, air-wound, ½-inch diam., 1 inch long.
- L4—9 turns No. 16, air-wound, ½ inch diam., ¾-inch long.
- L5—7½ turns No. 16, air-wound, ½-inch diam., ¾ inch long.
- L6—5 turns No. 12, air-wound, ¾-inch diam., ¾ inch long.
- L7—6 turns No. 22, ½ inch long, on ¾-inch diam. iron-slug form (Miller 21A000RB1).
- L8—8-hy. 75-mA. filter choke (Stancor C1355).
- L9—2-hy. 200-mA. filter choke (McGee Radio 2H-200 or C200-45).
- M1—0-1-d.c. milliammeter, calibrated 0-150 mA. (Lafayette 99G2514).
- R1—5000 ohm, 10-watt resistor (adjustable).

- R2—25,000 ohm, 2-watt potentiometer, screw-driver adjustable (Ohmite CLU2531).
- R3—50,000 ohm potentiometer screwdriver adjustable (Ohmite CLU5031).
- R4—0.5 megohm control, audio taper (IRC-Q13-133).
- FC1, RFC5—2.5-mh. r.f. choke (National R50).
- RF2, RFC4—7-µh r.f. choke (Ohmite Z-50).
- S1—3-pole 3-position single section phenolic rotary switch (Centralab PA-1007).
- S2—3-pole 4-position 2 section ceramic rotary switch (Centralab PA-1012).
- S3—S.p.d.t. toggle switch.
- T1—1:3 interstage transformer (Stancor A-53-C).
- T2—25-watt modulation transformer (Stancor A-3845). Use 8000-ohm tap on secondary.
- T3—Flt. trans. 6.3-volt 1.2 amp. (Stancor P-8134).
- T4—Power transformer: 560 v. ct., 250 mA.; 6.3 v., 8 amp.; 5 v., 3 amp. (not used). (McGee Radio 961701-1).
- Z1—3 turns No. 16, ½ inch long, wound on 68-ohm 2-watt resistor.



# WARBURTON FRANKI

## NEWMARKET PACKAGED CIRCUIT AMPLIFIERS

### SPECIFICATION DETAILS:

Performance Data	PC1	PC2	PC3	PC4	PC5	PC7	PC9
<b>Power</b>							
Output mW. ...	150	400	400	400	3W	800	Pre-Amp.
<b>Input Impedance</b>							
ohms ...	1.5K	1K	2.5K	220K	1.5K	1.5K	1M
<b>Output Impedance—ohms</b> ...	40	15	15	15	3	8	600
<b>Supply Voltage—volts</b> ...	9	9	9	9	12	9	9
<b>Typical distortion %</b> ...	2	3	3	3	3	3	1
<b>Frequency response</b> ...	300-15K	200-12K	200-12K	200-12K	50-12K	50-12K	20-20K
<b>Overall Dimensions</b> ...	2x1	2½x1½	2½x1½	2½x1½	5½x1½	3x1½	2x1
All ¼ in. high							

**PRICE** \$5 \$6.27 \$6.27 \$6.27 \$12.47 \$7.53 \$4.50  
Plus Sales Tax 12½% and postage.

### SUGGESTED APPLICATIONS

- PC1**—Audio Amplifier. Intercom. Lab. Instr.
- PC2**—Modulator Drive Stage. Church Hearing Aid Amplifier. Tape Replay Amplifier. Mine Communication Amp. Telemetry Audio Amp.
- PC3**—D.C. Relay Driver. Sound-level Meter Amp. Low power Battery Stereo. Heating and Ventilating Control Amp.
- PC4**—G.P. Amp. and Drivers Office Dictating Machines. Listening Booth Amps.
- PC5**—Portable Audio Amps. Car Radio Audio Amps. Servo Amplifier. Tape Relay Amp. Automation Drive Amp. Burglar Alarm Amp.
- PC7**—Tape Language Lab. Telephone Dictating Machine Amps. Control Amp. for Textile Machinery.

Write or Call for Data Leaflet.

## Special IRISH BRAND MYLAR RECORDING TAPE

American Professional Quality

3"	225'	70c	each plus Sales Tax 12½%
5"	900'	\$2.25	" " " " "
5½"	1150'	\$3.00	" " " " "
7"	1800'	\$3.75	" " " " "
7"	2400'	\$5.55	" " " " "

Please add postage.

## TELEVISION REPLACEMENT COMPONENTS

Telecomponents and Radar Brands Stocked.  
Write or Call for Data and Price Lists.

## TANTALUM CAPACITORS

Available from Stock.

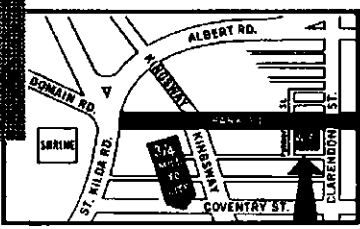
SOLID, SMALL-BEAD TYPE, RESIN DIPPED

50 μF.	3 v.w.	Size: 8.1 mm. x 5.6 mm.	46c each
40	"	"	"
30	"	7.6	X 4.9
20	6	8.1	X 5.6
15	10	"	X " " "
10	15	"	X " " "
7	20	"	X " " "
5	25	"	X " " "
4	35	"	X " " "
3	35	7.6	X 4.9
2	"	"	X " " "
1.5	"	6.6	X 4.1 42c
1.0	"	"	X " " "
.7	"	6.1	X 3.6
.5	"	"	X " " "
.4	"	"	X " " "
.3	"	"	X " " "
.2	3	"	X " " "
.15	"	"	X " " "
.1	"	"	X " " "

Above Prices are plus Sales Tax 25% and Postage.

# WARBURTON FRANKI

220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines 69-0151



TRADE ALSO SUPPLIED

Please include postage or freight with all orders



softly illuminate the dial near the pointer. A 0-1-mA. clear plastic meter, calibrated 0-150 mA., is used to measure the cathode current for both the final amplifier and modulator. Originally an S meter, this unit was chosen because it could be illuminated. The original scale was removed by rubbing with a household cleaner and re-calibrated with a Datak meter-marking kit. Other 0-1 mA. meters may be used in place of the one specified.

Special care should be taken in all phases of construction, especially with external details such as the front panel. This particular unit received a coat of primer and three coats of blue ham-mertone paint. After the decals were applied, a final coat of clear plastic was added. The use of black knobs, and a cabinet of contrasting black accentuates the panel. The meter is complemented by the v.f.o. dial, yet no monotonously perfect symmetry is evident. It seems strange that so much home-brew equipment is so well engineered and yet so little time is spent trying to make it look like a commercial rig. The payoff is in greater satisfaction and the excellent possibility of selling the rig later on, at a profit.

#### ADJUSTMENT PROCEDURE

Initial check out and alignment are conducted as follows: Remove the 6146 and 6BQ6 tubes from their sockets. All other tubes should be left in place. Turn the emission switch to c.w. and the function switch to "key." All tubes should light, and power-supply voltages should be close to 300, 700, and —150 volts under light load. Adjust the v.f.o. coil, L1, and trimmer C2 to cover 14 to 15 Mc., while listening on a receiver to the fundamental or a harmonic. Peak the plate coil, L2, at 14.5 Mc. Adjust L7, the overtone oscillator coil, until the crystal oscillates cleanly at 36 Mc. Adjust L3 in the mixer plate circuit by squeezing or spreading the turns until it peaks at 50.5 Mc.

Turn the transmitter to the "off" position. Plug the 6146 and 6BQ6 tubes into their sockets. Temporarily connect a shorting wire across L5, in the bandpass coupler. Tune L4 to 50.5 Mc. in a similar manner to L3. The two coils should be separated by about  $\frac{1}{2}$  inch. Remove the shorting wire after adjustment is complete.

The next step is to neutralise the 6146 amplifier. Open the heater circuit to the 6146 stage during this process. Turn the emission switch to c.w. and the function to "key." Peak the output pi network for maximum output, using a sensitive wavemeter coupled to L6: Neutralise the 6146 by adjusting C12 for minimum feed-through. Be sure to resonate the plate circuit after each adjustment of C12, and take suitable precautions with the high voltage present in the plate circuit.

After neutralisation is complete, plug an open-circuited key into the c.w. jack, and switch the emission mode to s.s.b. Adjust the final-amplifier bias control, R2, for 15 mA. final plate current. Turn the emission switch to a.m. and the function switch to "operate," and adjust the modulator bias control, R3, for 25-mA. modulator current. Switch the meter back to read final

plate current. Connect a dummy load to the unit. Remove the key and close the mike push-to-talk switch. Dip and load the final to 110 mA. Switch the meter to read modulator plate current and adjust the mike gain until the meter kicks up to about 80 mA. on voice peaks. A check with a scope will indicate more precisely the point of 100 per cent. modulation. When the push-to-talk switch is released, both the final and modulator plate currents should fall to zero. Resting plate current for the

signal is of excessive strength, increase the value of R1, and conversely, if insufficient signal is present, reduce R1.

The transmitter has been in operation for several months now and has given me no trouble. It seems to "get out" well and numerous stations have commented on its excellent operation in all modes. The advantages of high-level modulated a.m., s.s.b., break-in c.w. and a high-stability v.f.o., make this a useful rig. Build one and I'm sure you'll agree!

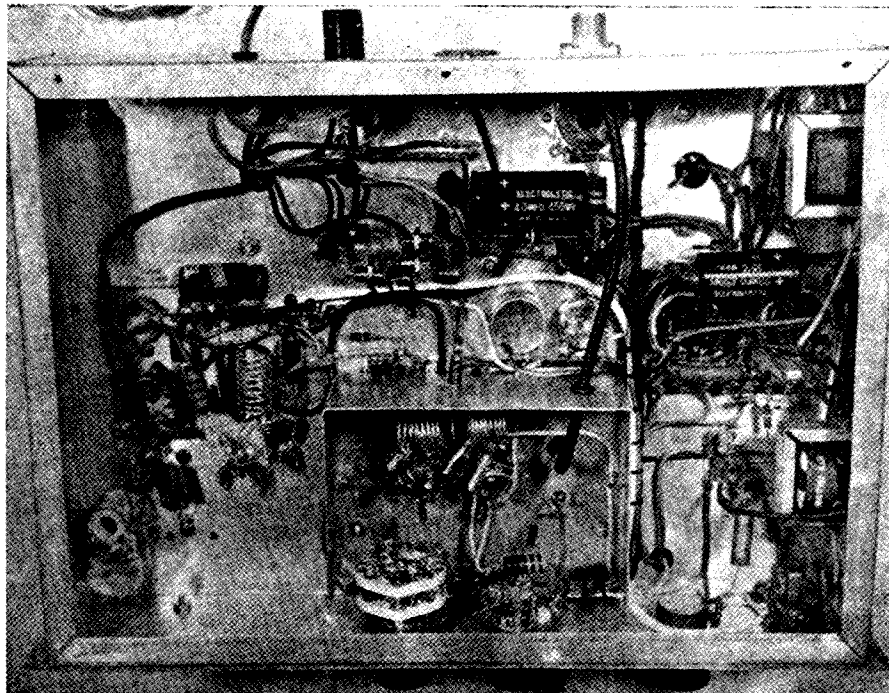


Fig. 4.—Under-chassis view of the unit, showing placement of shield compartment and various components.

final, when in the c.w. mode and key open, should be close to 15 mA. "Key" function is the tune position for all modes and is the c.w. position. "Operate" function is the push-to-talk position for a.m., the external control position for s.s.b. and the c.w. standby position.

To check s.s.b. converter operation, switch the emission to s.s.b. and the function to "key." The final amplifier should draw 15 mA. of plate current and the a.m. modulator should draw no current. Inject about 5 watts of 20-metre s.s.b. signal into Pins 1 and 2 of J4. The final amplifier should kick up to about 70 mA. on voice peaks, for an input of about 65 watts p.e.p. If you have a surplus of drive, add an attenuation pad between the s.s.b. exciter and the transmitter.<sup>5</sup> The s.s.b. exciter will control the transmitter if Pin 8 of J4 is grounded on "transmit," through an extra contact on the s.s.b. exciter relay. An antenna relay may be controlled through Pins 3, 4, and 5. To check the spotting level, switch the function to "spot." A moderate signal should be heard in the 6-metre receiver. If the

<sup>5</sup> Hubbell, "A Step-Type R.F. Attenuator," "QST," December, 1959.

AMATEUR FREQUENCIES:  
USE THEM OR LOSE THEM!

**Wireless Institute of Australia**  
**Victorian Division**  
**A.O.C.P. CLASS**  
 commences  
**MONDAY, 2nd MAY, 1966**

Theory is held on Monday evenings, and Morse and Regulations on Thursday evenings from 8 to 10 p.m.

Persons desirous of being enrolled should communicate with—  
 Secretary W.I.A., Victorian Division, P.O. Box 36, East Melbourne (Phone: 41-3535, 10 a.m. to 3 p.m.), or the Class Manager on either of the above evenings.





# An Indoor Pylon Slot Aerial for 145 Mc.\*

WING COMMANDER A. P. MORGAN, D.F.C., R.A.F. (Ret.), G8DV

RECENTLY a requirement arose for an aerial to test some newly-constructed 2 mx equipment in a temporary location. The aerial had to be indoors, omnidirectional (to avoid the complications of rotation), cheap and simple to construct. The design adopted proved unexpectedly successful and it is thought that it may be of interest to others.

The writer is convinced that success with indoor aerials depends upon using flatly tuned designs with moderately wide band characteristics, e.g. folded dipoles, cages or cones. Past experience has been that such sharply tuned aerials as Yagis, W8JK's or inductively loaded designs are disastrously affected by the proximity of water pipes and rafters.

The design adopted is based on some notes on the "pylon slot" which appeared in "Mobile Column" for February, 1963. It consists of a 10 in. diameter metal cylinder, 60 in. in length with a 1 in. slot in the side, short-circuited at each end. This resonates just above the 2 mx band and is brought to precise resonance by loading with a small capacity connected across the centre of the slot. By making the cylinder slightly longer, the natural resonance could be brought down to the 2 mx band and the loading capacitor dispensed with. The present arrangement, however, provides a convenient means of adjustment to compensate for possible slight variations due to materials or construction.

The aerial is fed by 72 ohm semi-air spaced co-axial cable through a 4:1 balun (see "RSGB Handbook," page 396). The feed point is about 14 in. from the lower end of the slot and the feeder, with balun tied to it, is run

through the centre of the cylinder. The balun section is 35 in. long (27½ in. if solid dielectric cable is used, although 26 in. may be more suitable with some solid dielectric types).

## CONSTRUCTION

The cylinder is made from perforated zinc sheet. Locally available supplies come in 36 in. wide rolls of which two 35 in. lengths are required. These are spot soldered together, side to side, with an 8 in. overlap. The edges of the resulting large sheet are reinforced by folding to a width of 2 in. and spot soldering. The final size of the sheet is 60 in. by 31 in. This is then bent to cylindrical shape, leaving a 1 in. slot in the periphery which is bridged, top and bottom, with 1 in. wide strips of sheet copper (or tinplate) soldered into place. Each end of the cylinder is braced with a length of ¼ in. diameter aluminium tube, flattened at the ends, bent at right angles for ¼ in. at each end and bolted to the cylinder walls across the diameter. A small 5 pF. ceramic trimmer is soldered across the exact centre of the slot. The finished product is not robust, but this is not important as it is for indoor use.

## TUNING

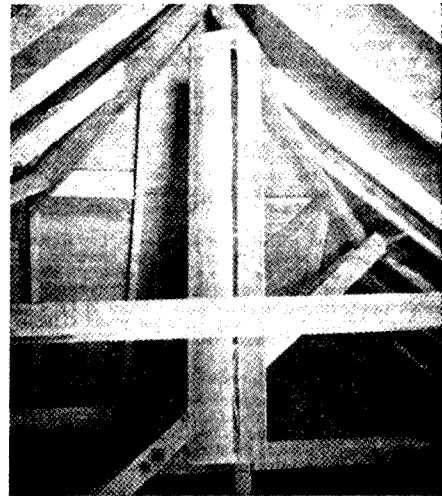
The aerial is most conveniently tuned with the aid of a standing wave indicator (e.g. "R.S.G.B. Handbook," page 482). The aerial is temporarily suspended in the operating room, or stood on a chair or table. (The ends of the cylinder are at zero r.f. potential so that no high grade insulation is necessary.) The balun is attached to the slot in temporary fashion at the approximate position given above. Power at a level suitable to the s.w.r. bridge is fed to the aerial and the trimming capacitor adjusted for minimum s.w.r. The tapping point is then slightly adjusted and the capacitor retuned for minimum s.w.r. The process is repeated until minimum s.w.r. has been achieved. An s.w.r. of 1-2:1 is adequate. The balun may then be permanently connected and the aerial transferred to the attic; the change of environment should have little effect on s.w.r.

## PERFORMANCE

In the limited time available to try out this aerial, its performance exceeded expectations. It radiates with horizontal polarisation and the pattern appears to be substantially omnidirectional with some gain due to vertical directivity. Although no direct comparisons have been possible, the performance appeared to be better than that of a four-element indoor Yagi formerly in use although in all fairness it must be admitted that the Yagi was much affected by nearby objects. From an average location in the loft of a typical suburban London house contacts were made with F (Brittany), ON, PA, GC, GW, during an opening and a num-

ber of more local stations in various directions using n.b.f.m. or c.w.

The cost of the perforated zinc was about 22/6; construction and alignment occupied a single wet Saturday afternoon and evening. While its performance cannot compare with that of a good outdoor beam, this aerial may be of interest to those v.h.f. aspirants suffering under a "no outside aerials" restriction or to "handrauclic" beam owners who like to enjoy net working without manual labour.



The pylon aerial mounted in the attic at G8DV.



## CONTEST CALENDAR

- 7th/8th May: U.S.S.R. DX Contest (c.w. only on 3.5 through 28 Mcs.).
- 15th May: N.Z.A.R.T. Sangster Shield (3.5 Mcs. only).
- 4th/5th June: CHC/FHC/HTH QSO Party.
- 9th/10th July: R.S.G.B. 1.8 Mcs. "Summer" Contest.
- August: Remembrance Day Contest.
- 24th/25th September: R.S.G.B. 21/28 Mcs. Phone Contest.
- 1st/2nd October: VK/ZL/Oceania DX Contest (Phone section).
- 8th/9th October: VK/ZL/Oceania DX Contest (c.w. section).

## SUBSCRIPTIONS DUE

All members of the W.I.A. are reminded that annual subscriptions are now due and should be paid promptly to their Divisional Secretary. Non financial members will not receive a copy of "A.R." and back copies may not be available upon request. To preserve continuity of your files of "A.R.," please pay your annual subscription now.

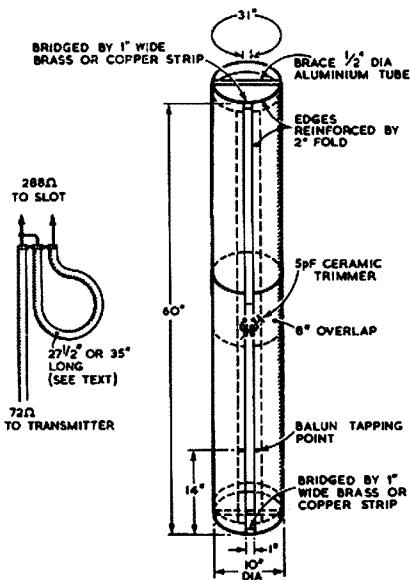
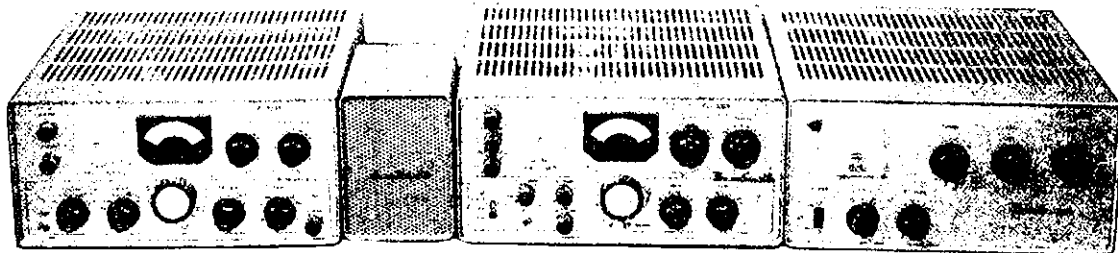


Fig. 1.—Construction of the aerial and the balun.

\* Reprinted from "R.S.G.B. Bulletin," December, 1965.

# F-SERIES S.S.B. EQUIPMENT

PROFESSIONAL QUALITY AT AMATEUR PRICES



COMPACT TABLE-TOP STATION—MECHANICAL FILTER SYSTEM  
FIVE BANDS — 80-10 METRES. TRANSCEIVE OR NORMAL OPERATION

**FR-100B: RECEIVER, S.S.B.-A.M.-C.W.**, dual conversion, with crystal locked front end, two mechanical filters for best reception of s.s.b. and a.m., high reduction precision gear driven dial reads to 1 Kc. Crystal filter for c.w. A.n.l., "S" meter, a.g.c., s.s.b. clarifier, built-in monitor. Additional crystals for 100 Kc. calibrator, full 10 mx coverage, WWV and three s.w. ranges. A professional quality receiver for the Amateur or discriminating S.w.l. £209½ (\$419) inc. S.T.

**FL-200B: TRANSMITTER, S.S.B.-A.M.-C.W.**, 240w. p.e.p. input with two 6JS6 (similar 6DQ5) tubes in p.a. working within ratings for longer life. Solidly constructed and neatly wired, with high quality components, ceramic bandswitch, Kokusai M.F., built-in solid state power supply, antenna relay, etc. All plugs, inst. manual and p.b. microphone supplied. Nothing else to buy. Cabinets beautifully lacquered in dark driftwood wrinkle. Satin finish panel.

**C.W. Men:** This is a first class rig for you too—break-in operation, T9X note, clean chirpless keying, v.f.o. runs continuously. £245 (\$490) inc. S.T.

This equipment has every facility, enabling operation on the three modes without necessity for compromise. Fully imported. Used by Australia's leading Phone DX'er.

**NEW!** To be available soon: FT-100 Transceiver, FL-50 Basic S.s.b. Exciter, V.f.o., L.P. Filters, etc., all made by Yaesu Musen Co., of Japan.

Brochure available from  
the Australian Agents:

## BAIL ELECTRONIC SERVICES

60 SHANNON STREET, BOX HILL NORTH, VIC.

Phone 89-2213

NOW AVAILABLE—

THE 1966 EDITION

## ★ A.R.R.L.—Radio Amateur's Handbook

*The Standard Manual of Amateur Radio Communication*

Price \$6.10 posted, or 58/6 and postage 2/6

NOW AVAILABLE—

## ★ The Radio Transistor Handbook

by Stoner & Earnshaw.

Price \$6.65 posted, or 64/9 and postage 1/9

THIS UP-TO-DATE HANDBOOK COVERS A WIDE RANGE OF COMMUNICATION  
FOR BOTH AMATEUR RADIO & COMMERCIAL APPLICATIONS

## McGILL'S AUTHORISED NEWSAGENCY

Established 1860

183-185 ELIZABETH STREET, MELBOURNE, C.1, VIC.

"The G.P.O. is opposite"

Phones: 60-1475-6-7

# SIDEBAND

Sub-Editor: PHIL WILLIAMS, VK5NN

## LINEAR AMPLIFIERS—continued.

Our April Sideband notes have dealt with the class "A" stage of the transmitter, which usually follows the last mixer which puts the signal on the final frequency. Now, the next stage to be described is the Class AB1 amplifier which lifts the signal from a "high-impedance" voltage signal at the grid, to give an r.f. power output of 50 to 100 watts, with minimum distortion.

During the past few months I have had many questions from Amateurs who have been active on a.m. and c.w. for many years and are thoroughly conversant with the operation and adjustment of Class C amplifiers of the 807 and 813 variety. It is to this group that the notes are addressed this month, as there is a need to re-orientate the thinking on amplifiers, to change over to linear operation. Such topics as plate supplies, screen supplies, bias supplies, muting, neutralisation, drive, loading, and tuning need to have their differences between the Class C and Class AB1 conditions emphasised.

If you have been brought up on s.s.b. you may drop off to sleep or turn to another page. Starting from the beginning, the first decision to be made is to choose the type of output tube required in your exciter. A good choice for British, Australian and New Zealand licensing conditions is the pair of 807's in parallel, single 6146, 6DQ6, 6DQ5, 829B (two sections in parallel), or tubes of similar rating. The important parameters to be considered, and here the valve data sheets and tables in the back of the A.R.R.L. Handbook should be consulted, are the input, output and plate-grid capacitances, and the relative voltages and bias voltages for the elements. All of the examples mentioned above will give outputs of 40-50 watts without strain, under class AB1 conditions, i.e. with no grid current. They will operate at plate voltages of about 600-800 volts. The 807s require 300 volts on the screens and about -30 volts of fixed bias, the 829 being similar but voltages are usually reduced to about two-thirds of the above, viz. 500, 200 and -22 volts of bias to avoid over-heating the envelope and gassing problems to which these valves are prone. Most television tetrodes of the 6DQ6 type require only 150 volts on the screen, but about 50 volts of grid drive. The popular 6146 may be run at 205 volts on the screen and -45 to 50 volts of bias. Most American exciters use about double the exciter power above but this is because they have to drive the 2 kw. p.e.p. linear amplifiers which they are permitted to use.

When a linear for British licensing conditions is used, viz. one giving 400 w. p.e.p. output (corresponding to approx. 600 w. peak input power) then less

drive is required. By way of comparison the present a.m. plate modulated final operating at 66% efficiency, gives 400 w. p.e.p. output, i.e. on modulation peaks, so this is the reason for the British ratings.

Since peak emission from the tube's cathode is the important characteristic for determining the loading and peak output from a class AB1 amplifier, the plate current/voltage curves have been drawn in Fig. 1 for the limiting conditions only, to avoid cluttering up the graph. The 6146 (1) and 807 (2) have been drawn, as these are popular, and the difference in peak emission is quite

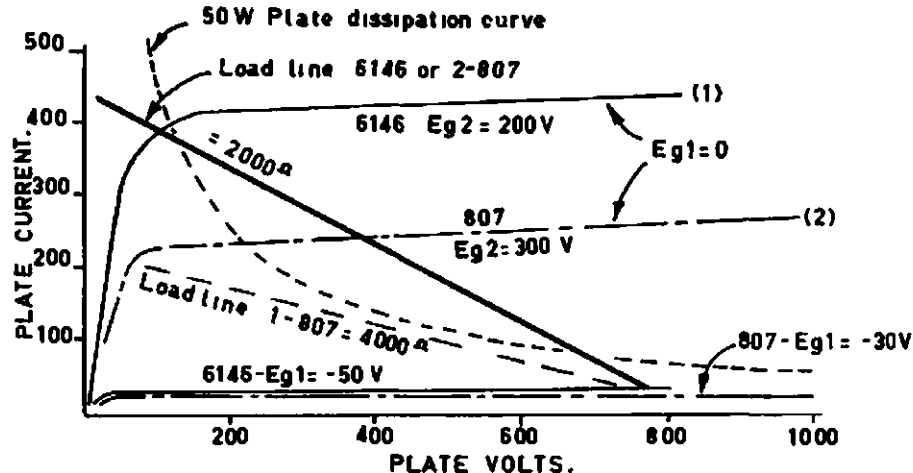


Fig. 1.—Plate current curves for Class AB1 operation.

obvious. Operating conditions for screen and grid voltages are shown on the curves. You will notice that the peak emission of 2 x 807s is just a little more than a single 6146, and the load line necessary for both of these can be considered to be about the same for the purpose of the exercise.

The 2000 ohm load line shown in the curve has to be doubled when calculating the output tuned circuit constants, as the tuned circuit only loads the plate of the tube for about half of the time. Designs for pi-network plate circuits are given in all recent copies of the A.R.R.L. handbook for the usual loaded Q of 12. It is necessary to simply consult the curves to obtain the plate tuning capacitance, inductance, and loading capacitance for 50 ohm or 75 ohm output, whichever you use. The valves are given in tabular form in the Radio Handbook, 15th edition, page 267—Table 1—"Components for Pi Coupled Final Amplifiers."

The point to be noted on the higher frequency bands, is that the minimum C possible with the plate capacitance and the tuning condenser right out of mesh is usually greater than that required. It is usual to design for up to

double the circuit Q, i.e. about 20 for the 10 metre band and about 15 for the 15 metre band. More circulating current in the inductance of these higher Qs requires that they be wound of heavy copper wire, preferably silver plated, for minimum losses, and that the coil switch should be first grade as far as contacts are concerned. The 10 and 15 m. coil sections are, therefore, usually heavier and perpendicular to the other coil sections so that they will not be closely coupled to the other shorted coil sections. Checking some commercial pi-network coils (not of local origin) on a Q meter produced surprising results with unloaded Qs of 70 or 80 on some bands, instead of 200 to 300 as would be expected, and the remedy was quite simple, viz. separating the sections of the coil, which is progressively shorted, by about a quarter of an inch, instead of tapping a continuous winding of 16 turns per inch.

Use of an r.f. choke to supply the plate with d.c. appears to be standard practice now, so the plate tuning condenser does not need to have more

than .030 inches plate spacing. An old-style broadcast gang will do for 80, 40, and 20 metres, but its minimum capacitance and bakelite insulation (usually) are limiting factors for the higher bands, so it is a good idea to look for something with insulating end plates or, if metal, having most of the metal removed and spaced well away from the fixed plates. Ceramic or micanite insulation is preferable, and a good system of rotor grounding must be provided. There are many suitable capacitors about — ex-World War II gear, but it pays to pick them up when you see them and "salt" one away for the project. If you have some you are not using of about 200 pF. max., 12 pF. min., then some other sideband constructor may be glad to get it. If you want to see the sort of thing recommended here, have a look in somebody's Swan or Galaxy transceiver, and the requirement will be clearer.

The A.W.A. tuning condensers ex the AT5 are more generously spaced than you require for the exciter output tuning condenser, so this type is better reserved for perhaps a linear using higher voltage, or the aerial coupling unit in

(Continued on Page 17)

# LOW DRIFT CRYSTALS

FOR  
**AMATEUR  
BANDS**

ACCURACY 0.01% OF  
STATED FREQUENCY

**3.5 and 7 Mc.**  
Unmounted, £2/10/0  
Mounted, £3/0/0

**12.5 and 14 Mc.**  
Fundamental Crystals,  
"Low Drift"  
Mounted only, £5.

THESE PRICES DO NOT  
INCLUDE SALES TAX

Spot Frequency Crystals  
Prices on Application.

Regrinds ..... £1/10/0

**MAXWELL HOWDEN**  
15 CLAREMONT CRES.,  
CANTERBURY, E.7,  
VICTORIA

## THE NEW "A.R." LOG BOOK

IS NOW AVAILABLE

Larger, spiral-bound pages  
with more writing space.

Price 7/6 each  
including Postage

Obtainable from your Divisional  
Secretary, or W.I.A., P.O. Box 36,  
East Melbourne, C.2, Victoria.

## PROJECT AUSTRALIS

One of the major decisions to come out of the Federal Convention at Easter is to sponsor an Australian satellite carrying Amateur Radio.

The developmental work and construction of this equipment has been undertaken by the Melbourne University Radio Club and the Melbourne University Astronomical Society.

Preliminary tests have been made by means of balloon launchings and results so far have been highly satisfactory.

If the necessary finance is forthcoming in the next few weeks it will be possible to have the satellite launched towards the end of 1966.

Although all Divisions have signified their willingness to make a financial contribution, the cost of this project is such that assistance from individuals interested in this project would be more than welcome.

Full details of the satellite will be available well before the launching, but briefly it will carry a beacon transmitter in the 28 megacycle band, an eight-channel telemetry system operating on the 2-metre band, and a command receiver also operating in the 2-metre band, which will enable Amateurs around the world to test the command system which may be used in a translator satellite to be launched after the results of the first satellite have been analysed.

This project has great prestige value to Australian Amateurs, and every effort should be made to bring this project to successful fruition. If it is successful, and sufficient financial support obtained, the opportunity exists to arrange for the launching of a translator satellite in 1967.

All donations should be sent to the Federal Executive, P.O. Box 2611W, G.P.O., Melbourne.

## V.H.F. NET FREQUENCIES

Many stations operating on net frequencies do not appear to know the requirements and procedures for net operating, if they do they appear to ignore them. The main "offences" that have been noticed are:—

- (1) Hogging the channel.
- (2) Ignoring "break-in" stations and/or telling the break-in stations to stand by or asking the break-in station to use another channel.
- (3) Giving micro-second breaks between overs.
- (4) Having rag-chews with overs up to 5-minute duration.
- (5) Not listening on the frequency prior to calling or testing.
- (6) Testing on a frequency whilst other stations are using the channel.
- (7) Using a mode of transmission or a net frequency such that the users of the net cannot copy but suffer severe interference.

Correct procedures are:—

- (1) Listen on the frequency before testing or calling.
- (2) Keep overs short, not more than a couple of minutes each.
- (3) Give at least 3 seconds break between overs to allow break-in stations to identify their presence.
- (4) Acknowledge a break-in station and pass the net over to the break-in at the end of your over.
- (5) Accurately net your transmitter and receiver to the channel that you are using.
- (6) If you call CQ DX on a net frequency and make contact with a DX station tell the other station that you will QSY to X frequency and keep the net free for other operators.
- (7) On f.m. no dot overdeviate. The Institute standard is plus or minus 15 Kcs.

In VK there are large number of nets in operation. Those in greatest use are: 52.526, 6 metre f.m.; 53.032, 6 metre a.m.; 145.854, 2 metre f.m., channel A; 146.000, 2 metre f.m., channel B; 146.146, 2 metre f.m., channel C.

For maximum efficiency the equipment you use should be accurately netted for receiving purposes the transmitter of VK3WI on 6 metre a.m. and 2 metre f.m. are sufficiently accurate.

For transmitter alignment it is recommended that you either net to the P.M.C. frequency measuring stations—in VK3, South Morang and St. Kilda Road (mobiles only). Some stations in Melbourne are equipped to give frequency checks on 6 a.m. and 2 f.m. These stations will be announced in VK3WI broadcasts at regular intervals.

Remember, 6 a.m. 53.032, 6 f.m. 52.525 and 2 f.m. 145.854 are primarily mobile to mobile frequencies and these stations should be given preference.

I hope this information will help some of the "offenders" to improve their equipment and operating procedures.

—Cyril Maude, VK3ZCK.

## DURALUMIN, ALUMINIUM ALLOY TUBING

IDEAL FOR BEAM AERIALS AND T.V.

★ LIGHT      ★ STRONG      ★ NON-CORROSIVE

STOCKS NOW AVAILABLE FOR IMMEDIATE DELIVERY

ALL DIAMETERS— $\frac{1}{4}$ " TO 3"

Price List on Request

STOCKISTS OF SHEETS—ALL SIZES AND GAUGES

## GUNNERSEN ALLEN METALS PTY. LTD.

SALMON STREET,  
PORT MELBOURNE, VIC.

Phone: 64-3351 (10 lines)  
Telegrams: "Metals," Melb.



HANSON ROAD,  
WINGFIELD, S.A.

Phone: 45-6021 (4 lines)  
Telegrams: "Metals," Adel.

# W.I.A. FEDERAL CONVENTION—EASTER 1966

Some three weeks ago, over the Easter Holiday week-end, the Institute held its 30th Annual Convention in Brisbane.

In many ways it was the most successful Convention of recent times and should provide a criterion for those to be held in the future.

The majority of delegates arrived late on the Thursday evening and, after battling with the holiday exodus to the Sunshine State, were most grateful for the excellent accommodation provided.

There were over fifty agenda items (as well as items of general business) to be considered, so proceedings started early on Good Friday morning in the Board-room of the Brisbane Department of Electricity Supply.

outside the United States of America and when in orbit will serve to indicate that Australian Amateurs are as competent and progressive as any in the world.

If successful, "Australis" will be followed in early to mid-1967 by a more complex and powerful satellite.

By comparison with the exciting prospect of launching an Australian Satellite the remaining items on the agenda appeared somewhat mundane, but were nevertheless just as important to the Institute and its members.

Among the policies adopted by the Convention were two concerning Novice licensing, two concerning frequency allocations and one proposal dealing with frequency nomenclature.

their general meetings to get more information from their Federal Councillor.

A report such as this (written in some haste to catch the publication deadline) would not be complete without a sincere "thank you" to the Host State. Since the last Federal Convention was held in Brisbane in 1936 it is additionally pleasurable to record that all the arrangements for this year's meeting were of the highest order and delegates were unanimous in their praise of the superlative job done by David Portley and his team.

The next Federal Convention will be held in Hobart at Easter 1967 and it is to be hoped that it will be as successful as the one just concluded.



The W.I.A. Federal Convention. Left to right: David Portley, VK4DP (VK4 Federal Councillor); Pat Kelly, VK4KB (VK4 Observer); Geoff Taylor, VK5TY (VK5 Federal Councillor); Roy Chamberlain, VK6RY (VK6 Federal Councillor); Ted Cruise, VK7EJ (VK7 Federal Councillor).

After a welcome by Federal President Max Hull, VK3ZS, and a reply by the Queensland delegate, David Portley, VK4DP, the minutes of the 1965 Melbourne Convention were adopted.

Undoubtedly the most complex of all the agenda items—that dealing with the proposal for Federation—was the first to be tackled and in the event went through the Friday afternoon and evening and was not completed until mid-Saturday morning. The tape transcript alone occupied four reels and will provide some headaches for those responsible for the production of the minutes.

The solid work sessions continued until midday on Easter Monday when the first of the delegates had to return to his home state. Some relief to the pressure of work was provided on Easter Sunday when an afternoon motor trip to the fabulous Gold Coast was arranged by the host Division.

Federation apart, by far the most significant thing to come out of the Convention was a decision by Federal Council to support—both financially and administratively—the launching of an Australian Amateur Satellite.

Whilst technical details of "Project Australis," as it will be known, are given elsewhere in these pages, this report on Convention proceedings seeks to emphasise that the action taken by Federal Council will be of great importance to the Institute.

"Australis" will be the first Amateur satellite designed, built and financed

Administrative matters reviewed included a uniform course of study for Amateur examinations, whilst a draft copy of a booklet designed for those newly interested in radio was presented for comment by Divisions. The format of the Institute Log Book and a proposed layout for the Call Book were also discussed.

On the international scene the subject of I.A.R.U. Region III. was deliberated at length since it was felt that Australia should take the lead in attempting to bring Region III. societies together.

Under regulatory matters delegates were advised of the present situation regarding the re-compilation of the "Handbook" and other similar matters discussed included the possible use of the 28/30 Mcs. band by L.A.O.C.P. holders, emergency networks and Advisory Committees.

The section of the agenda devoted to contests produced the usual spate of motions. Most of them dealt with suggestions for improvement of contests, especially with regard to time-keeping and scoring methods. These suggestions should find their way into contest rules in due course.

Until each State has ratified the actions of its Federal Councillor at the Brisbane Convention it will not be possible in these pages to report more fully on the detail of the various proposals. In the meantime interested members will have the opportunity at

## W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

### PHONE

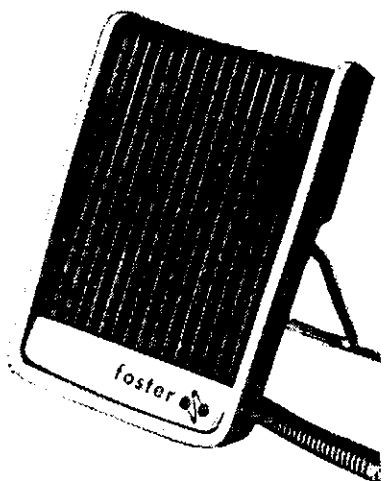
Call No.	Cer. No.	C't-ries	Call No.	Cer. No.	C't-ries
VK5MS	24	330	VK2JZ	61	280
VK8AO	51	322	VK4HR	12	248
VK8RU	2	313	VK2ADE	65	238
VK5AB	45	312	VK3TL	62	230
VK6MK	43	310	VK2AAK	58	214
VK4FJ	21	283	VK6KW	4	211
New Members:					
VK7SM	72	100	VK3HL	71	207
Amendment:					
VK2AGH	55	119			

### C.W.

Call No.	Cer. No.	C't-ries	Call No.	Cer. No.	C't-ries
VK3KB	10	340	VK2AGH	71	286
VK3CX	26	313	VK3AHQ	79	281
VK2QL	5	308	VK2EQ	2	279
VK2ADE	81	308	VK6RU	18	265
VK4FJ	29	300	VK3ARX	66	265
VK3NC	19	288	VK3XB	75	257
New Members:					
VK3HL	83	121	VK3KS	74	201
Amendment:					
VK7SM	72	194			

### OPEN

Call No.	Cer. No.	C't-ries	Call No.	Cer. No.	C't-ries
VK2ADE	28	329	VK3NC	77	287
VK6RU	8	320	VK4HR	7	281
VK2AGH	83	319	VK2VN	18	276
VK6MK	74	309	VK3JA	43	271
VK4FJ	32	308	VK3TL	85	263
VK2ACX	8	300	VK2APK	82	243
Amendments:					
VK3HL	75	242	VK7SM	84	201



DF-2

# FOSTER DYNAMIC MICROPHONES

## FOR HAND-DESK USE

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
 Effective output level ..... -55 db. [0 db. = (one) IV. Microbar]  
 Frequency response ..... 200 to 10,000 c.p.s.

### OMNI-DIRECTIONAL DYNAMIC:

SIZE: 3" x 2-1/8" x 1".  
 Cable: 12 ft. of P.V.C.  
 Switch: on-off.  
 Desk Stand. Clip folds for hand use.  
 Colour: WHITE.  
 Plastic Diaphragm.

Retail Price  
 50K ohms  
**£2/14/0**  
 + Sales Tax 4/9

A QUALITY PRODUCT OF EXCELLENT DESIGN

Marketed by **ZEPHYR PRODUCTS PTY. LTD.**

58 HIGH STREET, GLEN IRIS, S.E.6, VICTORIA      Phones: 25-1300, 25-4556



Manufacturers of Radio and Electrical Equipment and Components

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.

NEW RELEASE! . . .



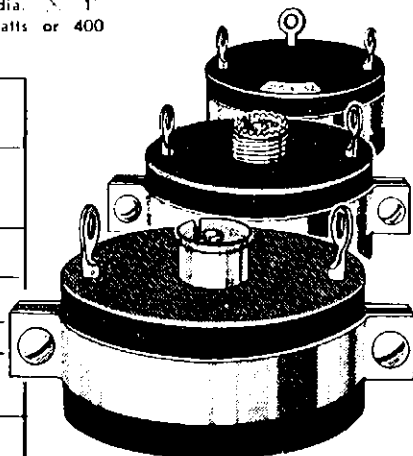
# ANTENNA MATCHING and BALANCING TRANSFORMERS

*For use with Transmitting and Receiving Antenna Installations!*

## TOROID. BALUNS. — A Special Series Product.

Toroidal ferrite cores, fully encapsulated with epoxy resin and silica under vacuum. Suitable for use in cold to sub-tropical areas. All except 355C and 356C are provided with antenna insulator support brackets. Balun dimensions approx. 2" dia. x 1" high. Socket and lugs. Weight approx. 3 1/2 to 4 oz. Power rating — 200 Watts or 400 Watts P.E.P.

350A	Impedance ratio 1:1. 75 ohms unbalanced to 75 ohms balanced. 3 to 30 Mc/s. For use at centre of a dipole antenna with coaxial cable feed line or at base end with 75 ohm twin line. Coaxial connector is Belling & Lee L604/S and lug terminals.
351A	Impedance ratio 1:4. 75 ohms unbalanced to 300 ohms balanced. 3 to 30 Mc/s. For use at centre of a folded dipole antenna with coaxial feed line or at base end with 300 ohm twin line connector and terminals as 350A.
352A/BC	Details as 350A except freq. range 500 Kc/s to 5 Mc/s. or to 30 Mc/s. for receiving purposes only with increased attenuation.
353B	This is a type 350 with a coaxial socket SO 239 (Amphenol screw type).
354B	Type 351 with SO 239 coaxial socket.
355C	Impedance ratio 2:1. 52 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc/s. For use at the base of a mobile whip antenna, coupled to fixed or adjustable transmitter output impedance. Lug terminals.
356C	Impedance ratio 3:1. 78 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc/s. Lug terminals. Use as 355C.



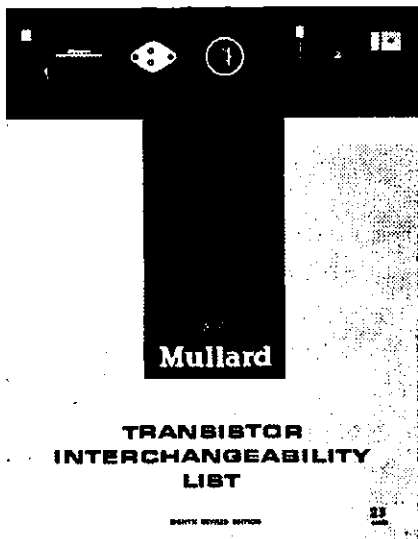
For further details see your nearest A & R Stockist!  
**A & R TRANSFORMERS PTY. LTD., 46 Lexton Road, Box Hill, Vic.**

Phone 89-0238

# Transistor Interchangeability List

The 8th revised edition tabulates in excess of 2,350 transistor types in the first part of the publication while the latter features the "Broadcast Receiver Transistor Replacement Guide" (approximately 1,000 transistor listings). This section is compiled to provide service organisations with a ready reference of transistors in the Mullard range which are suitable replacements for Japanese and other imported transistors.

This 8th edition of the "Transistor Interchangeability List" is available from all Mullard Offices throughout the Commonwealth, priced at 25c, post free.

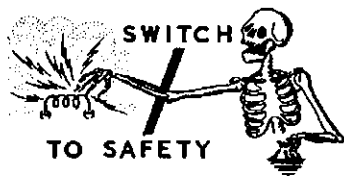


## HINTS AND KINKS FEEDER SPACERS

Ever wanted a cheap and effective insulating spacer for open wire feeders or folded dipole antennae? Remove the braid and insulation from scrap lengths of UR57 or similar co-axial cable. Remove the inner conductor (this will need to be done in short lengths of no more than a foot, or it will be difficult to remove). Cut to the desired length, leaving about  $\frac{1}{8}$  inch at each end, then drill holes at the required spacing of a size to make a firm fit over the wire. With a little ingenuity a jig can be made up for mass production.

The spacers are very effective up to a length of 2½ inches or so. They will work at greater spacing, but lack rigidity.

—A. H. F. Nickols, VK4AL.



## SIDEBAND

(Continued from Page 13)

which very high r.f. voltages can occur at moderate power levels. Don't throw these big fellows away, as they are becoming collectors' items and can cost lots of dollars for new ones.

Now here is a note on the selection of the plate feed r.f. choke. I have seen transmitters operating quite satisfactorily with the small 4-pi, 2.5 millihenry chokes, but in other transmitters, even the expensive heavier duty low resistance jobs costing many dollars have lasted 10 or 15 seconds on some bands. I recommend the long solenoid type, wound on  $\frac{3}{8}$ " or  $\frac{1}{2}$ " dia. bakelite, or better still, ceramic tubing.

The loading capacitor may be a series of fixed mica capacitors, switched by the bandswitch, or a good large 3-gang tuning condenser with ceramic insulation.

Plate blocking condensers of the 2000 volt working variety, and about .002 microfarads are available in either the mica or hi-k ceramic type, my preference being for the mica one, having seen the others fail. Use the highest voltage rating you can buy.

Brass or copper strip connections in the r.f. circuits will pay off in reducing the inductance of the connections—which should not have it.

Plate parasitic suppressors are usually 5 to 10 turns of 18 g. wire wound on 1 watt, 47 ohm "Erie" resistors. These "Erie" composition-type resistors with white ceramic cases about  $\frac{3}{8}$ " long and just under  $\frac{1}{4}$ " dia. appear to outlast and out-perform the bakelite moulded ones in this service.

The last item for shopping is a 2 to 10 pF. neutralising condenser—ceramic insulation, adequate spacing between plates—suitable for mounting away from earthed metal and adjustment without danger to the operator, with an insulating extension or non-metallic tool.

Next month's notes will deal with the setting to work of the output stage of the exciter. Following that I hope to slip in a few notes on crystal filters before proceeding with notes on the larger linear amplifiers.

73, Phil VK5NN.

## NEW CALL SIGNS

JANUARY AND FEBRUARY, 1966

- VK1GP—G. P. Butler, Flat 12, Block "B," Currong Flats, Braddon.
- VK1TO—R. K. Westbrook, 9 Haines Street, Curtin.
- VK2EM—E. J. Mulholland, Married Quarter 43, Middle Head Military Area, Mosman.
- VK2OC—T. J. Casey, 54 Memorial Avenue, St. Ives.
- VK2QS—M. S. Stephenson, 4/12 Watson Street, Neutral Bay.
- VK2TO—T. Olog, 1/28 Somerset Street, Mosman.
- VK2AEZ—E. A. Marstella, 34 Gallipoli Street, Lidcombe.
- VK2AOB—V. F. Burman, 25 Woronora Parade, Oatley.
- VK2AXG—Klama High School Radio Club, High School, Klama.
- VK2AYO—R. B. Broad, 3/7 Bogota Road, Cremorne.
- VK2AZQ—A. Havyett, 9/12 Hazelbank Road, Wollstonecraft.
- VK2BBE—J. L. Byrmand, Postal: C/o A.N.Z. Bank, corner Hunter and Pitt Streets, Sydney; Station: Portable throughout N.S.W., Qld. and Vic.

- VK2BBO—E. L. Andrews, Postal: P.O. Box 45, Goulburn; Station: 56 Annetts Parade, Mossy Point.
- VK2BGF—G. Hunziker, 26 Chatham Avenue, Taree.
- VK2BGH—G. L. Heyes, 12 Victory Street, Clovelly.
- VK2BLF—L. B. Fisher, Flat 83, 143 Kurrama Road, Neutral Bay.
- VK2BOB—R. A. Blyth, 28 Park Street, Belmont North.
- VK2BZJ—J. C. Rogers, 89 Barney Street, Armidale.
- VK2ZDU—K. J. Duncanson, 21 Brighton Parade, Brighton-le-Sands.
- VK2ZEE—J. C. Wolfson, Postal: 60 Cairo St., Cammeray; Station: North Sydney Technical College.
- VK2ZFR—D. K. King, 14 Cambridge Avenue, Raymond Terrace.
- VK2ZHT—H. E. Jones, 48 Karril Avenue, Beecroft.
- VK3TU—T. J. McConnell, 5 Flinders Street, Mitcham.
- VK3XA—D. V. Hope, 18 Walmarie Drive, Mt. Waverley.
- VK3AEN—J. P. T. Mantle, 1 Bannerman Street, Bendigo.
- VK3AEX—D. A. Morgan, 12 Lynwood Avenue, East Ringwood.
- VK3AFF—C. N. Swain, 29 Constance Crescent, Hawthorn.
- VK3AGP—A. P. Harding, 18 Ellison Street, Ringwood.
- VK3AGQ—R. F. Gething, 388 Waterdale Road, West Heidelberg.
- VK3AJM—J. C. Meyland, 5 Gayer Avenue, Wangaratta.
- VK3ALN—S. W. Taylor, 65A Nelson Street, Nhill.
- VK3ANZ—A. I. Yule, 74 Cumberland Road, Pascoe Vale.
- VK3ASQ—R. E. Glew, 9 Dudley Avenue, Moorabbin.
- VK3AXE—R. J. Callender, 383 Warrigal Road, Burwood.
- VK3ZAC—R. L. Bennell, 28 Budge Street, Noble Park.
- VK3ZIB—I. C. Baxter, 502 Rylie Street, Geelong.
- VK3ZQD—R. J. O'Brien, 52 Summit Road, Frankston.
- VK3ZQF—B. M. Thomas, Hoddle Street, Yarra Junction.
- VK3ZSB—E. R. Gray, 95 Atherton Road, Oakleigh.
- VK3ZSM—M. S. Odell, 42 Kooyong Road, Caulfield.
- VK3ZSN—G. R. Howard, Upper Glen Park Road, Eitham North.
- VK3ZTO—J. T. Bayley, 9 Dominic Street, East Camberwell.
- VK4VU—J. H. Dexter, 10 Allden Street, Southport.
- VK4YJ—G. W. Jane, 18 Rose Street, North Ward Townsville.
- VK4YX—W. W. Watson, 66 Brae Street, Rockhampton.
- VK4ZGJ—G. J. Richardson, 17 Dagmar Street, Rockhampton.
- VK4ZJO—J. Harvey, 38 Cambridge Street, Camp Hill.
- VK5HP—J. H. Lehmann, "Glenburnie," Mount Gambier.
- VK5NM—N. A. Marnie, 11 Sussex Street, Hamilton Park.
- VK5ST—K. A. Potter, 26 Gowrie Avenue, Gungahlin.
- VK5ZCD—D. L. Cordes, 37 Sullivan Road, Elizabeth Park.
- VK5ZFD—C. M. Deane, 9 Shearing Avenue, Oaklands Park.
- VK5ZHC—T. C. Corbin, 12 Fuller Street, Walkerville.
- VK5ZSW—R. H. Whellum, 46 Tyne Avenue, Kilburn.
- VK5ZTF—T. L. Folds, 10 Trott Grove, Oaklands Park.
- VK6IR—J. D. Van Lear, Postal: Box E270, G.P.O., Perth; Station: 52 Ednah Street, Como.
- VK6ZBC—G. J. O. Coles, Postal: Box 75, P.O., Donnybrook; Station: South West Highway, Donnybrook.
- VK7ZGJ—J. E. Gelston, 144 King Street, Westbury.
- VK7ZLH—R. L. Hibbert, 647 Huon Road, Fern-tree.
- VK7ZSL—F. M. McClennan, 103 King Street, Scottsdale.
- VK7ZRT—R. D. Summers, 365 St. Leonard Road, St. Leonards.

## AMATEUR FREQUENCIES:

ONLY THE STRONG GO ON—  
SO SHOULD A LOT MORE  
AMATEURS!

# ROSS HULL MEMORIAL CONTEST 1965-66 RESULTS

The Federal Contest Committee takes pleasure in presenting the Results of the 1965/66 Ross Hull Memorial Contest.

This year's total number of entries, plus the low scores, is the lowest for a long time in Contest history. From the logs received it appears that band openings were very few, and not those anticipated. It was obvious that Channel "0" also restricted operating.

Of considerable interest was the openings to New Zealand, of the 2 metre band. These took place mainly during the period of 0700 hrs. to 1000 hrs. G.M.T., between ZL and VK2 and VK3.

From remarks and comments (from VK1VP, VK2ZFB, VK3ZDM, VK4ZLO, VK5ZF, VK5ZDX, VK5ZKV, VK5ZHF, and ZL3AAU) it appears that all is not well with the Rules of the last Contest.

We would like to point out that they are what they are, because of changes recommended by members, and agenda items from conventions. However, while participants submit comments with their logs, every endeavour will be made to make use of them to form better rules.

Some comments on suggestions and criticisms are:—

(1) G.M.T. is Institute policy, and will be used in all further Contests unless it is revoked at Convention level.

(2) Calendar day must necessarily mean G.M.T. Calendar day. The next contest will start at 0001 hrs. G.M.T. to avoid confusion, and a calendar day from that time will be mentioned in the Rules.

(3) The 9-day period was generally accepted, although this received adverse criticism, I quote "being rather stupid, as it depends on band openings, and they were mighty poor in VK this year."

(4) The scoring system, with particular emphasis on the conditions of propagation of 432 and 144 Mcs. was noted, and also the high points mileage table needs reviewing.

It is anticipated that the Contest for 1966/67 will have advance publicity giving some rule changes. These should mainly be in connection with the period of the Contest, and the scoring table. It is proposed to increase the points for the 432 Mc. band and higher, to encourage more use of them.

This Contest is a Memorial to Ross Hull who saw future uses "of the world above 50 Mc." His work enabled others to find this world, and it is with this in mind that the Contest Committee would like to see a greater number of operators using the v.h.f./u.h.f. bands and entering the Contests.

—Neil Penfold, for F.C.C.

## TROPHY WINNER

	9-day period	48-hour period
VK3ZDM—R. J. Beames	936	291

## AWARD WINNERS

### Section A—Transmitting Open

VK5ZF—I. L. O'Donnell	41	18
-----------------------	----	----

### Section B—Transmitting Phone

VK1VP—E. Penikis	193	193
VK2ZFB—A. F. Birch	252	95
VK3ZDM—R. J. Beames	936	291
VK4ZLP—P. J. Lindsay	99	57
VK5ZKR—C. H. Hutcheson	413	—
VK6ZAL—I. G. Stimson	55	30
VK7ZAH—K. J. Hendricks	478	248
VK8ZMR—M. D'Arcy	—	—
Richardson	10	10
ZL3AAD—G. E. Alderson	337	227

### Section C—Receiving

L3229—R. J. Halligan	275
----------------------	-----

## TWO-DAY HIGHEST SCORING LOG

VK7RL—R. V. Bulman	443	334
--------------------	-----	-----

## Other Entrants' Scores

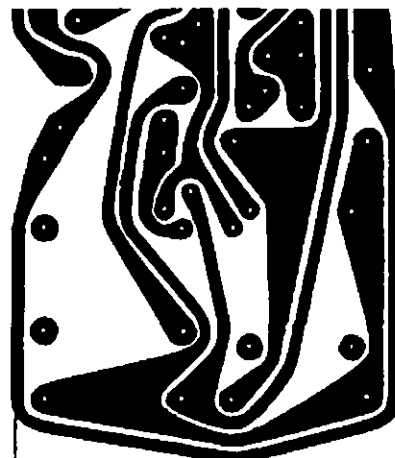
### Section A—Nil

### Section B

VK4ZRG—Townsville	66	32
VK4ZLO—Dorrington	45	27
VK5ZKV/5—S. Hummocks	193	142
VK5ZDX—Oaklands Park	95	57
VK5ZHJ—Gawler Rail	85	27
VK5ZEJ—Forreton	81	32
VK5TN—Kings Park	20	10
VK6MM—Nedlands	19	18
VK6ZAG—Tuart Hill	12	7
VK7ZAP—Hobart	202	114
VK7KS—Sandy Bay	8	8
ZL3AAU—Christchurch	221	127
ZL3RK—Christchurch	137	110

### Section C

L2074—Kingsgrove	70
L8028—Rivervale	53
L5065—Croydon	45



## NOW... PRINTED CIRCUITS TO YOUR OWN DESIGN!

Do you design your own circuits? All the advantages of printed circuits can be yours at modest cost. For many years Precision Windings have supplied printed circuits to Australian industry... and now streamlining of production techniques permits the economical manufacture of small quantities... even single circuit boards. You design and supply the artwork... we do the rest. Precision workmanship is guaranteed and delivery made within 7 days.

FREE!! As many enthusiasts will not be familiar with the preparation of "artwork", send a stamped, addressed envelope to us and we will forward a set of notes written to simplify preparation of "artwork". Instructions are clear and concise.

### —POST THIS COUPON NOW!

Please manufacture for me the printed circuits specified herewith in accordance with the artwork supplied.

Number required..... Scale of artwork.....

Size..... Area..... D/N.....

Phenolic paper circuits @ 5c per sq. in. \$

Epoxy paper circuits @ 8c per sq. in. \$

Epoxy glass circuits @ 10c per sq. in. \$

Holes drilled @ 5 for 1c (.2c ea.) \$

Cost of photonegative (fixed cost) \$3.00

Sales Tax (12½% or 25%) \$

Packing and registered postage \$0.50

Total \$

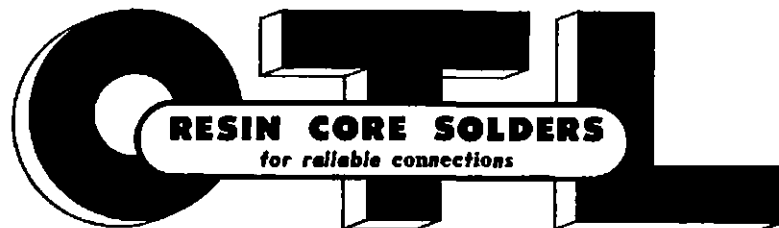
Please find cheque/money order/postal notes for total of \$.....c..... (All cheques and money orders should be made payable to Precision Windings.)

NAME..... (BLOCK LETTERS)

ADDRESS.....

STATE..... OCCUPATION.....

## CHOOSE THE BEST.—IT COSTS NO MORE



G. T. LEAPHERE & CO. LIMITED. Head Office: 27-41 Bowden Street, Alexandria, N.S.W.  
and at Melbourne • Brisbane • Adelaide • Perth

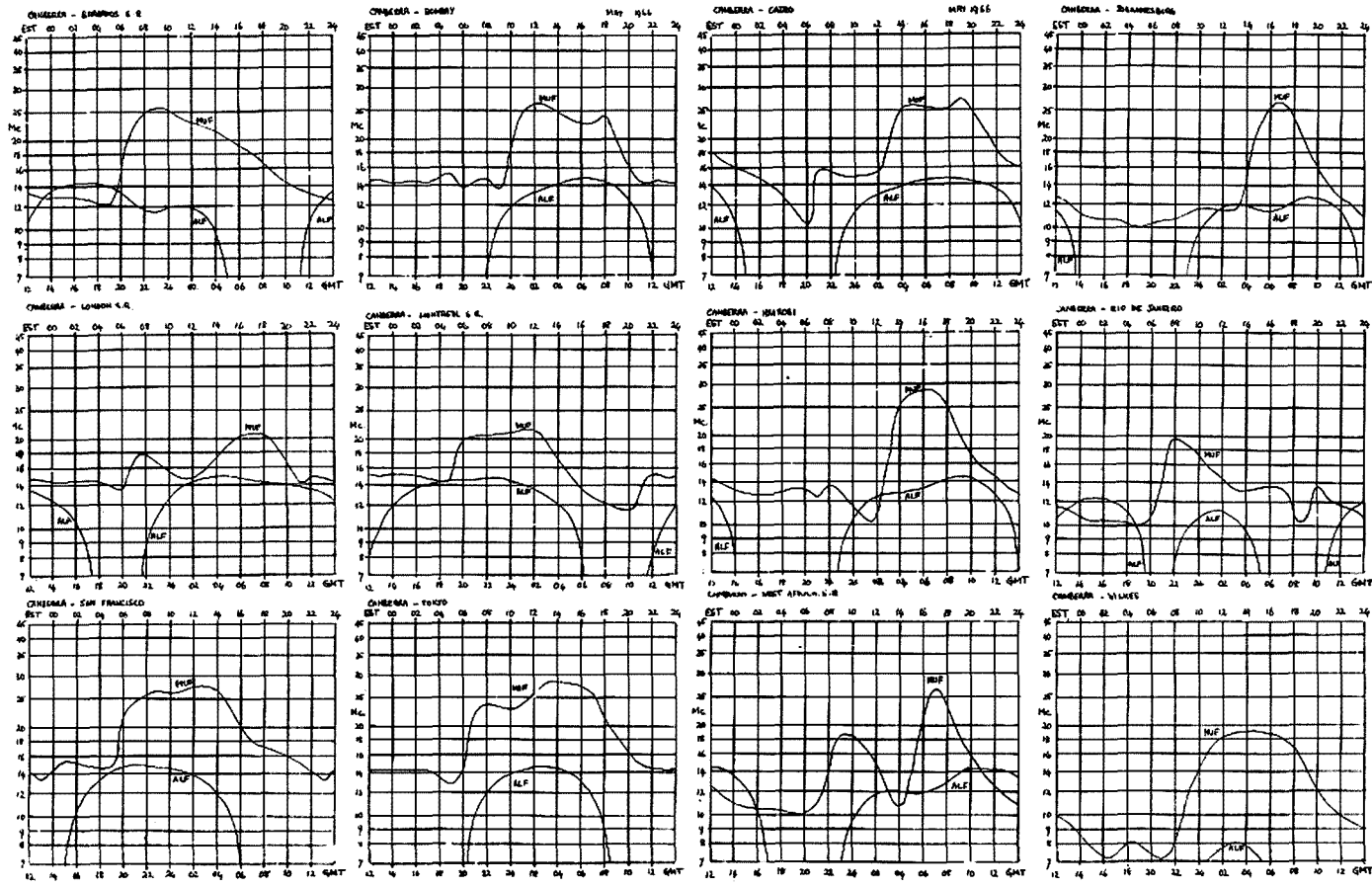


52 CAMBRO RD., CLAYTON, VIC. TEL. 546 7820





Amateurs and their equipment at VK3 South Western Zone Convention at Warrnambool. Block courtesy "The Standard."



# DISPOSAL BARGAINS

AT OUR BULK DISPOSAL STORE  
8 PARK STREET, GLENFERRIE, VIC.

(OFF GLENFERRIE ROAD)

Phone 81-1935

(Mon. to Fri., 10 a.m. to 5 p.m.; Sat., 10 a.m. to 12.30 p.m.)

## NEW VALVES

1A3	50c	SU4GB	\$1.45	6CM5	\$2.25	7C7	50c	830B	\$1.50
1A5	50c	5V4G	\$1.75	6CW4	\$3.00	7E6	50c	832A	\$6.00
1A7GT	\$2.60	5Y3	\$1.38	6F8	50c	7L7	75c	866	\$2.50
1C7	50c	5Y4	75c	6G6	75c	7N7	75c	954	50c
1D4	75c	5Z3	\$1.75	6G8G	\$2.60	7W7	50c	955	50c
1D8	75c	6A3	75c	6H6 Metal	50c	12A6	50c	958	50c
1F5	\$1.00	6A6	75c	6J5GT	\$1.00	12AH7	50c	958A	50c
1H5	75c	6AB7	\$1.00	6J6	\$1.00	12AT7	75c	1616	\$1.50
1K5	50c	6AC7	75c	6K6	\$1.00	12AU7	\$1.50	1625	50c
1K7	50c	6AG5	50c	6K7	50c	12AU7A	\$1.50	1626	50c
1L4	50c	6AG7	\$1.25	6K8GT	\$1.25	12AV6	75c	1629	50c
1L5	\$1.00	6AJ5	75c	6K8 Metal	\$2.00	12BE6	75c	5636	75c
1LN5	50c	6AK5	\$1.50	6L7	50c	12C8	50c	5763	\$2.80
1M4	50c	6AL5	\$1.40	6N7	50c	12F5	50c	5819 Vidicon	\$10
1M5	50c	6AM5	\$1.50	6P7	75c	12SA7GT	\$1.00	8021	\$1.00
1P5	50c	6AM6	\$1.00	6S5	75c	12SC7	50c	9004	50c
1Q5	50c	6AN7A	\$1.65	6SA7	75c	12SG7	75c	EAS0	40c
1R5	\$1.90	6AR7GT	\$2.10	6SC7	75c	12SK7	50c	ECC35	\$2.00
1S2	\$1.75	6AS7GT	\$2.00	6SF5	75c	12SN7	75c	ECH33	\$2.00
1S5	\$1.60	6AU6	\$1.45	6SF7	75c	12SQ7	50c	ECH35	75c
1T4	\$1.00	6AU8A	\$2.40	6SH7	50c	12SR7	50c	EF86	\$1.85
1U4	\$1.60	6AV6	\$1.40	6SJ7	\$1.25	16A5	\$1.70	EY91	50c
1U5	\$1.60	6B6	75c	6SK7GT	\$2.00	16A8	\$2.10	KT68	\$3.00
2A5	75c	6BA6	\$1.55	6SL7GT	\$1.25	25L6	\$1.00	QVE03/12	\$4.75
2A7	75c	6BE6	\$1.55	6SN7GT	\$1.00	25Z6	\$1.00	QVE04/7	\$2.50
2D21	\$1.20	6BL8	\$1.80	6SQ7GT	\$2.60	35L6GT	\$1.00	RL18	75c
2E26	\$2.50	6BM8	\$1.85	6SS7	75c	19	50c	UL41	\$1.00
2X2	50c	6BQ5	\$1.70	6U5	\$1.85	30	50c	VR102	50c
3A4	\$2.20	6BR5	\$1.45	6U7	75c	47	50c	VR135	50c
3A5	\$1.00	6BK6	\$1.45	6U8	\$1.70	57	30c	VR136	50c
3Q5	\$1.00	6BY7	\$1.45	6V4	\$1.14	58	50c	VR137	50c
3S4	\$1.00	6BZ6	\$1.80	6V6GT	\$1.75	80	\$1.70	VR150	\$1.25
3V4	\$1.50	6C6	50c	6X4	\$1.00	717A	75c	VT78 (6D8)	50c
5AR4	\$2.60	6C8	\$1.00	6X5	\$1.45	807	\$3.75	VT127	50c
5AS4	\$1.45	6CG7	\$1.55	7A8	40c	808	\$1.00	VT501	75c
5R4GY	\$3.75	6CH6	\$2.35	7C5	50c	809	\$2.00	VU39A	50c
5T4	\$1.75								

## PLUGS AND SOCKETS

Octal Plug	3/6 each
Octal Socket	1/6 "
5-pin Speaker Plugs	2/6 "
4-pin Speaker Plugs and Sockets	1/9 "
6-pin Jones Plugs and Socket	7/6 "
Pye Plugs	2/- each
Pye double bulk Chassis Sockets	2/6 "

## MODULATION AND DRIVER TRANSFORMERS

Modulation Transformer, 15 watts, pair of 6AQ5 to 2E26 valve.  
Also Driver Transformer, single ended primary to push-pull grids of 6AQ5. £2 the lot, or mod. Trans. 30/-, and Driver Trans. 10/-.

## POTENTIOMETERS

Wire wound, 1 inch diameter.  
Sizes available:—  
5 ohms, 10 ohms, 25 ohms, 50 ohms, 100 ohms, 250 ohms, 500 ohms, 1000 ohms, 2000 ohms, 10K ohms, 50K ohms. 4/- each.

## SPECIAL BARGAINS

P.M.G. Strip Boards, containing 24 Jacks ..... 30/- each  
P.M.G. Strip Boards, containing 48 Jacks ..... 50/- each  
Head Phone Cords, new ..... 4/6 pair  
3-pin Plug and two yds. Cord ..... 4/6  
Mixed bags of Resistors (50) ..... 12/6  
P/M Fuse Holders ..... 4/6 each  
72 ohm Co-ax Cable, 35 ft. lengths, 3/16 inch diameter ..... 10/-  
72 ohm Co-ax Cable, 27 yd. lengths, 3/16 inch diameter ..... 20/-  
Vibrators, 122 Type ..... 20/- each  
122 Aerial Packs ..... 60/- each  
12-core Cable with Plug, 22 yards long ..... 50/-  
Wrecked 733D Receivers, less valves ..... 40/-  
Dural Tubing, 12 ft. lengths, 1/4 inch diameter ..... 3 for £1  
Radiogram Chassis, new, completely wired, less valves and speaker, 30/-  
P.M.G. Key Switches ..... 7/6 each

## VALVE SOCKETS

832A Sockets	20/- each
4/25A	20/- "
Acorn	3/6 "
Loctal	2/- "
EF50	2/6 "
VCR97	10/- "
805	12/6 "
EA50	2/6 "
5-pin	2/6 "
6-pin	2/6 "
7-pin	2/6 "
7-pin P.T.F.E. Sockets	5/- "
Loctal P.T.F.E. Sockets	5/- "
Special completely shielded 7-pin P.T.F.E. socket and shield	10/- pair

## TOGGLE SWITCHES

S.P.S.T.	5/- each
D.P.D.T.	10/- "

## CONDENSERS

Metal Pack, E/1 P/tail

1	μF.	350 volt	
0.25	"	350	
0.1	"	100	Price
0.1	"	500	all
0.05	"	350	1/- each
0.01	"	1000	or in packs
0.005	"	1000	of 10 for 8/6
0.002	"	1000	
0.001	"	1000	

## CHOKES

7-5 H. 125 mA.	30/- each
8 H. 300 mA.	50/- "
14H. 60 mA.	12/6 "

## CHANNEL LOCK PLIERS

Type 337W	20/- each
Type 356 End Cutters	20/- "

# HAM

# RADIO SUPPLIERS

Phone 81-1935

Established 1947

# DX

Sub-Editor: ALAN SHAWSMITH, VKASS  
35 Whynot St., West End, Brisbane, Qld.

It is surprising to hear, during Contest week-ends, signals coming through on all bands, when on normal days these frequencies appear lifeless. This can only mean that it is lack of activity rather than poor conditions that make the bands seem quiet.

However, conditions have improved considerably over what they were last season and promise to be even better, so if you are QRT, try a comeback as many new prefixes are there for the taking.

## NOTES AND NEWS

Sndan: Jim ST2BSS (ex-5N2JCW) showed on 14,239 at 2100z listening 5 up and down.

Jordan: JY2WF reported active by Smitty 601AU, who also says that he is going to sign /JY for a month around September.

Bonin Island: KG8IG John, 14,245 at 0100z. QSL to W3KTY.

Saa Thame: CR5SP Al, 14,100, 14,198 listening up. QSL W2CHK, Box 7388.

Swan Island: KH6CB/CS4 Jim, on 14,207 at 02z and 14,04z c.w. at 21-2200z. QSL via Box 1148, Miami, Fla. 33148. Jim says that KS4CA is active on all bands and that his QSLs are handled by WA9OVE.

Grand Cayman: ZF1AA on 14,207 at 2000z. QSL via VE8TF.

FB8WW QSLs.—K2MGE handles only s.s.b. cards. C.w. requests go to 5R8BC.

Desreches: This DXpedition by Harvey VQ9HB will wait until a clear weather forecast for at least 7 running days is obtained. G8KS (not R8GB) will handle the cards when it does come off. SASE or SAE and IRCs—G.M.T. and contributions appreciated. Frequencies to watch are 14,085 c.w. and 14,100-110 s.s.b.

Liechtenstein: Oscar HB0AFM plans a 3-day stay from May 7. (VK3ARX)

Aland Island: OH0AA worked on 21,372 at 1700 by W2GKZ.

Cyprus: ZC4RM on 21,369 a.m. phone at 1500z. QSL to G3EMY. ZC4GB on 21,065 about same time. QSLs to Box 216, Farmagusta, Cyprus. (The above by courtesy of L1DXA.)

Svalbard: LA4FO, 14,038 and 14,244 around 1200z.

Jan Mayen: LA3P/P 14,025 and LA8FG/P 3542 and 14,275 s.s.b. from 1300z and other times.

Albania: Latest call reported heard from here is ZA2BA, 14,065, 1800z. Phoney or authentic? Beehuanaland: Z59G said to be active Saturdays, 21,220, 1200z. This country will soon be known as Batawna.

(The above by courtesy of Fla DX'er.)

Kuwait: 9K2AD on 7 Mcs. nightly from 1800z. Near low end, also on 20 around 0900z. Try listening 14,080.

French Somaliland: FL8RA, FL8MC and one or two others still pound in after 1300z. Mostly 20 c.w. but some s.s.b. operation around 14,120 and occasionally one is heard on 7 Mcs. around 1900z.

Thailand: HS1CW has opened up from here. Was worked on 14,040 at 000z but said to be using other bands and modes. QSL to W1BVF.

Kamaron Island: This operation by VS9KRV is now QRT but more activity is promised later. QSL RSGB is O.K.

Lebanon: OD5EJ, OD5EK both on QRV on 7007 approx. now and easy to work. Also OD5LX shows up at odd times. QSLs for OD5EJ are via SM5AIC.

Tristan da Cunha: ZD9BE on low end on 20 m. Worked at 1700z.

Somali Rep.: 608BW is a fairly regular operator on 7009 approx. Workable around 1900z and QSL to WAHKJ.

Yaame: DXpeditioners Iris and Lloyd are at present in their home state W6 land. They hope to set out for Europe where operations from GC and GD are on the list.

Den, W9WNV: Preparing now to operate from Minerva Reef. Season now too late to make it to Heard Is. This one will have to wait till next year.

Johnston Island: KJ8CF, 14 s.s.b. 0500z. Club station and fairly active. (Tks. Chas LA018).

Prince Patrick Is.: VE8MC operating c.w./s.b. 14 Mcs. around 0700z. (Tks. VK4UC.)

Ivory Coast: TU2BD Gilbert is active 14,203 Kcs. around 2200z. (G3UGT)

Veron reports that ARRL accepted DJ2KS/PY0 for credit for DXCC.

## ACTIVITIES

Dud VK4MY still logging them as conditions permit. This past week or two he QSO'd on 14 c.w. UTSYP, VU2UV, LZ1AG, V86FQ, F2GL, Y03QD, LUS01, KP4BFF, HB9AGO, YU1MV, KX6XZ, CK2AJ, EP3AM and more. All 0600 and later.

Chas VK4UC about to work his 100th country for DXCC 20 mx reports bands only fair. He lists these on 20 c.w.: KP4BFF, JA0IE, UC2AW, FB8ZZ, HA6VK, HM1DK, UJ8AB, CR9AH, GW3AQV, 9M8RS, 9V5MV, LA1K, VE8MC, BV1USA, XW8BM, KA9MF, 5R8AL, SZ4JX, KR8CV, U18LB, UD6BD, KX6SZ, ON4XG, G4I9Y, SP6ALL, KC4AAD, XE1KKV, UO5DN, JT1AD, HK4FP, OZ1LO, etc. Mostly worked around 0600 and 1300z.

Ken VK3TL also reports the bands as being below par. However, the following good ones were landed: 14 Mc., both modes, CP6FR, FS7RT, 10F6M, IS1GF, IS1TDW, 11CX7/IS1, OA6BE/8, U08RO, VP5RE, VP9CP, VS9KRV (Kamaron), ZB2AK, ZB2AM, ZB2AJ, ZC4CL. QSLs received were 9Q5YL, KG4AA, ON8AZ/LX, CE8EZ, DU0DM, TG8RA, JT2AA, MP4DBF, YN4CN, DU4FP, VS8AS, V9FK.

Peter VK4PJ very active on s.s.b. and working some good ones. KJ8CF, P2YSL, UAIKE, VK0AH, VA9ARU, UW9YA, 5N2AAE, OZ3FF, DJ2ZG, HL9US, OA4SG, UP2KNE, XW8BM, VP7DI, 9Q5TB, EA7ID, YV5BFS, OAUU, OKIAGC and more. Mostly worked around 2100 and between 0900 and 1300z.

## SUMMARY

While in no way trying to cut the wood from under the present DXCC Totem Pole setup, would not this competition of DX become more equitable for all, if the affair was divided into say, 5-year segments? With everyone on scratch much more incentive will be provided for the beginners in DX-ing. The O.T.'s will have the chance to prove what they did previously was no fluke. The present DXCC status system comes in for a lot of criticism, and rightly so, inasmuch as beginners have to battle through poor conditions while those on the ladder had the advantage of better sunspot activity. Think about this objectively, chaps.

My thanks to the contributors mentioned above for their valuable help.

73, DX, Al VK4SS.

## WORLD RADIO PROPAGATION STUDY ASSOCIATION

On January 27, 1968, at 0100 G.M.T., the 38-foot Ketch *Marinero* sailed from Wallis Island en route to Western and American Samoa. Aboard were five individuals, including Chuck Swain K7LMU, and Ted Thorpe ZL2AWJ, who had just completed a successful operation as FW8ZZ on Wallis Island, the 15th such operation during the World Radio Propagation Study Association's 1965-1968 S.E. Asia-Pacific DX-pedition. The DXpedition has been received with enthusiasm by the DX fellows in the U.S.A. and throughout every country of the world in which DX'ers were to be found. During the preceding six months, over 75,000 QSOs had been logged on c.w. and s.s.b. Chuck Swain and Ted Thorpe, who had done a great part to make all this possible, were returning from the Wallis Island trip; Ted was to return to New Zealand and Chuck was to assign John Don Miller in American Samoa and the DX-pedition was to continue for another two months, during which time operations were planned from Manihiki (ZK1), Heard Island (VK0), two small islands in the South Pacific which were to be counted as new countries by ARRL and possibly others.

On 29th and 30th January a full-blown hurricane struck the Wallis Island-Samoa area, the eye of the storm passing directly over Wallis Island with winds in excess of 100 miles per hour and waves 50 feet to 75 feet in height. The *Marinero*, with Chuck and Ted aboard, never reached port. It was caught by the hurricane just a few miles from Apia, Western Samoa. In the vast air and sea search that followed, in which the U.S. Coast Guard, U.S. Air Force and the Royal New Zealand Air Force participated, not a trace of the ketch or its debris was found. During the storm, a 100-ton Korean fishing boat of wood and steel was completely destroyed with only two survivors out of 22 aboard. The *Marinero* is now assumed to have sunk and the five on board, including Chuck and Ted, dead.

It is hoped that every DX'er will give some consideration to just how much these two have contributed to DX to make it a more enjoyable hobby for all DX'ers. For those of us who knew Chuck and Ted personally, there were no two finer individuals on earth who were so devoted and risked so much, so that many throughout the world could enjoy many happy hours of DX-ing.

Despite this heart-breaking experience, we have decided to continue the DX-pedition, at least to attempt to complete our original plans in the South Pacific, plus Heard Island. Although the DX-pedition is now hopelessly in the hole financially, we will do all

that we can to complete our plans. We hope that in the years to come, all DX'ers will, like Chuck and Ted, think about what they can do to make DX-ing a better hobby, particularly in the area of international goodwill and understanding and spend less time counting their countries.

[I now have the QTH of Chuck's mother, should anyone wish to send a card of sympathy. Her QTH is Mrs. Swain, c/o Milligan College, Johnston City, Tennessee.—VK4SS.1



If any of my four readers missed this section last month, they can rest assured there is plenty going on in Y.R.S.—your correspondent was laid low by illness in the few days when the notes are written. This prelude introduces my special offer-of-the-month. The wealth of news from VK2 and to a lesser extent from VK3, coupled with the scarcity of news from VK4 and 5, sometimes makes these notes indicate a greater concentration of activity in VK2 than is actually the case. I feel sure there is much activity in VK4 and 5 (and more than I hear of in VK6 and 7). Therefore I ask some Y.R.S. enthusiasts in each of the Divisions, especially VK4 and 5, to take a regular monthly turn in writing these notes—I am sure VK2 and 3 will guarantee to supply all the usual information. The high salary goes with it, of course!

Y.R.S. has wider aims than just W.I.A. apprenticeship, but it was highly likely from the beginning that W.I.A. would benefit, and now the evidence of this is coming through. In VK2 alone, the number of Y.R.S., ex-Y.R.S., and Y.R.S. leaders who gained at least A.O.L.C.P. stands at 30, nearly all of them W.I.A. full members. A few of these may have joined anyway, but most are a pure gain to our strength. There is a smaller but significant number in VK3 (and no doubt in other Divisions).

I have heard of some curious characters who hear of a few donations to the kids in Y.B.S. and ask why the adult members don't get them. I suggest that any grown man in a paid job is at liberty to walk into a store and ask for a donation! These characters forget also that much of the property of Y.R.S. consists of cast-off things rescued from the rubbish heap (sometimes literally) and made serviceable by uncounted hours of labour by the boys (and their leaders). I think most club leaders do as I do—they lend gear and have it returned when no longer needed, so nobody personally makes a profit. Fortunately our present executives mostly see the sense of Y.R.S., so let us hope no senile exponents of the sour grapes view displace them.

VK3 have nine clubs already in action and reporting—others should let the Y.R.S. supervisor know they are active. These clubs are at Australian Postal Institute, Gowrie Park, Bundoora (Christian Brothers), Geelong Grammar, Scotch College, Essendon Grammar, Caulfield Grammar, Australian Air League Squadron, Korumburra High.

Congratulations to non-club Peter Cole for passing full A.O.C.P., and to a Korumburra boy (any secretary there to write and tell me?) for gaining A.O.L.C.P. Radio orphans at City of Oakleigh Youth Club, Horton Rd., have a lecture room and practical room but no leader—anyone with a little evening time?

VK2 has 23 clubs already registered—well ahead of last year. Things are bright with 27 members at Sydney Teachers' College, and Ero Kinella, SAAX has lectured to a large group of Teaching Brothers on the virtues of Y.R.S. Latest count shows 279 Elementary Certificates issued to date. O.T.C. are happy to support Y.R.S.—20 per cent. of their intake this year are Y.R.S. trained. Postal groups are doing well with good Elem. passes from the group under Mona 2AXS (one was Jill Trewhalla following in dad's footsteps, the other Ron Cullen), and, even better, an A.O.L.C.P. to Ernie Chalker from John Thyrd's group—first N.C.P. to gain Amateur status. He is now an O.T.C. trainee. Others in tertiary education continue to do well—Roger Adams at University of N.S.W., Susan Brown, 2B5B, at Newcastle University, Colin MacIntosh, Max Holmes and Joe Mack at Sydney University.

To all—please register your club and send us more news of your activities.

73, Ken 1KM.

# SWL

Sub-Editor: D. GRANTLEY, W1A-L2022  
Alexander Ave., Hazelbrook, N.S.W.

In a recent editorial, "QST" the official organ of the ARRL, it was suggested by an unnamed Amateur "today the s.w.l. probably doesn't have a b.f.o. on his receiver, or if he does, doesn't know how to use it for sideband reception." The article refers to the possibility of s.w.l.'s not becoming interested in obtaining a ticket because they cannot understand what goes on in the Ham band as they could in the days of a.m.—"QST," February, 1966, P. 9.

To the Amateur concerned I would like to say this on behalf of our many young and capable listeners, please check your facts before including listeners as a whole and please don't include the VK listeners in your generalising. At the present time the VK DX ladder contains the names of 20 listeners, four only are c.w. men, and of those four only Eric Trebilcock doesn't use s.s.b. a lot. He has done quite well on c.w. Including the remaining three c.w. men, 14 of the 20 listed have heard over 100 countries, some almost 300. Now with c.w. available to 16 of the 20, and very few countries to be heard on a.m., it is evident that these scores are being piled up on s.s.b., thus proving their ability to understand and use the b.f.o.'s on the outdated receivers they are forced to use.

Finally, it must be pointed out that most of these chaps are in their early 'teens, as was the case when former s.w.l. Ian Thomas became the first VK s.w.l. to reach the century heard on s.s.b. several years back. All of which goes to prove that our VK listeners cannot be branded in the manner which this W Ham has slated all of us.

**QSL'ING.** Carrying on for the remainder of Frank Hine's remarks of this important subject we quote: "If the s.w.l. uses the bureau he has a problem in the information he can enter on the card. A QSL card will be treated as second class mail by the P.M.G.'s Department provided the written comment does not exceed EIGHT words, otherwise it becomes first class mail, and the cost of operating the bureau would rocket. Postal officials have at times opened a packet of cards and classified the lot as first class mail because of the amount of comment on one or two cards, and naturally the addressee bureau refuses to pay the extra exorbitant charges, and the cards are returned to the bureau of origin. Some bureaux can use first class mail only. Thus the s.w.l., to provide a useful report must either (a) have a pre-printed card to provide for a minimum of writing, or (b) send all reports direct to the station concerned, thus making the hobby expensive. Many world QSL bureaux have no alternative but to destroy uncollected cards after a period of time, these do not follow the VK2 practice of returning unclaimed cards," Frank 2QL.

To add to Frank's remarks I often send a quantity of cards direct to the foreign bureau concerned, and have a very high percentage of returns from this method. For example, if I have say five cards for the F Bureau I can send these first class air mail for 25 c the lot, the five cards usually weighing the required ½ oz. Thus each card costs less than by surface mail, and gets there normally within the week. Be sure of your correct air mail rates, and to this end I suggest you call at your nearest P.O. and ask for the blue pamphlet "Decimal Currency Postal Charges to Overseas Countries." This official publication lists all Commonwealth and foreign air and surface charges, and is a must for the busy QSLer. Thanks to Frank 2QL for his assistance.

**DIVISIONAL NOTES—VK2.** The annual general meeting of the VK2 s.w.l. group was held on March 18, and after the old committee retired the chair was taken by Pierce VK2APQ, who defined the finer points of the constitution. Quite a large number attended this meeting, and the following officers were elected: President, Gordon Crute; Vice-President, Ross Erwin; Secretary and Treasurer, Chris Middleton-Williams; Liaison Officer, Ross Erwin; Publicity and QSL Officer, Chas. Abernethy. The secretary's address is 3 Veronica Street, Chester Hill. The April meeting will include a tour of O.T.C. Bringly, Chas. L2001.

**VK3 NEWS.** During March the Vic. s.w.l. group reached the mark where 300 listeners' numbers have been issued, an increase of 150 in the last 12 months. Sad news for the group was that their AR7 which was loaned to VK3BX while the Collins underwarp repair will not be returned to the group.

The Morse training sessions are progressing well, and some members are proficient already. The 1966 S.W.L. Convention was held in conjunction with the State Convention at Ararat on April 23 and 24, and we trust that all who attended enjoyed the event. S.w.l. President Harry Roach went to ZL land for several weeks' holiday at the end of February. During his absence our underworked vice-president went into action to keep the group functioning. The group was unable to put L3100 into the field for the John Moyle event as Council had deprived the group of the use of the AR7. The long awaited s.w.l. newsletter should be published during April now that all the problems have been straightened out.

**AROUND THE SHACKS:** Syd Underwood now in hospital undergoing surgery; all the best Syd. From Chas. L2001 we learn that his 6 mx beam is down for overhaul after eight years use. Chas. has noted spasmodic openings on 10 mx. Bob Halligan L3229 earns our congratulations on obtaining his Z call—he is now VK3ZVV. Bob now sports a new rx of his own construction. New confirmations for him include CE6BH, TG9EP, GW-3NWW, OA4KY, ITITAI, OD5CN and SM5LN. The 40 mx band has yielded HC, 9M2, KL7, HB, FK8, SM, GI, EA, VK9 and KP4 to help boost Bob's score.

Whilst in VK3, we look to Eric L3042 who now has reached the massive total log entry of 300,000 in his 39 years at the hobby. Continuing his upward climb towards the 300 mark, this stalwart listener has now logged 296 countries for 292 confirmations. QSLs to hand for Eric include CR8AH, FG7XX, GSSO, HA5KFR, JA0BBB, OA4FM, OK1KKJ, SM-5DZM, XZ2TZ, K7LMO/HS, IS9WNV. Band reports from L3042 reveal only VKs 3 and 5 on 1.8 Mc., with VE1ZZ, SM3YF/MM and plenty of Ws on 3.5 Mc. On 7 Mc. VS9KRV, YU5FAD, LZ1KKZ, DL6XT, PA0AAJ, YO2AAF, etc., were coming through. 14 Mc. was another profitable band on which Eric heard most of the normal DX.

Over to Warwick L3211 who is still having rx trouble, despite which he heard two new countries, FS7 and VP2 (Antigua). Inward cards for him were 9M8KZ, PA0HBO, VE6BR, 9M6LX, ET3USA, UB5UN and EA4GZ. This now gives Warwick a score of 205/126.

Mac Hilliard L2074 and I are exchanging tapes once again. Mac recently took his rx up to Gosford where, free from QRM, he was able to catch a W break-through on 28 Mc. Encouraged by this he is in the process of constructing a rotary dipole for the band in the hope of luring a few in over the Easter period. Alan Raftery of VK5 has been amongst the inward QSLs with ZDSR, KA2BW, VK9TL, VK0GS, PA0HBO, EA4GZ and G8JM, taking him to 62 confirmed. Alan, who is one of our tape correspondents, is sitting for the next A.O.C.P. exam.

Like most of our chaps, Bob Mutton, L7031, has been inactive, but has cards in from VS6, CR9, ON4 and VK9. He is one of our younger members who has just hit the 100 heard mark. Western Australia still produces the really good DX if my latest letter from Peter Drew, L6021, is anything to go by. 20 mx produced IS1TDW, 7Q7PS, OA4MX, T16AL, UV3TC, UJ8AE, AC4YQ (suspect?), VS9KRV, ZL5AA, 6Y5OF and 9J2DT, whilst on 15 mx 9J2 and 7Q7 were heard. Peter also heard one of the VK6 boys working 9J2 on 20 mx, but he couldn't hear the DX.

Back to VK5 and Ernie Luff, L5080, whose 63 confirmations take him well on the way to D.X.C.C. His loggings on 20 mx for the month include KC6, ZC4, OEB, HB9, YN, HK, CE6, KK6, LA8, DJ5, TI2, HM, KW6, YV5 and OD6. Inward QSLs were OK1GT, SV1AE, 4X4BL and ZC4CI. In a later letter, Ernie tells me that he can offer a G award to any listener who can provide QSLs as proof of hearing 12 G stations on 20 mx phone, the 12 to include GI, GM and GW, the rest can be from any G or GB station. If any listener is interested, drop Ernie a line at 5 Shaftesbury Rd., Elizabeth Vale, S.A., but please enclose a stamped envelope.

On the home front I have been inactive other than for the first week of March. During that time however conditions were good on all bands up to 15 mx which was loaded with JA stations plus a few Pacific calls. Unfortunately a death in the family was the cause of a hurried trip to Melbourne and I have only just arrived back. Thanks to the chaps who have written telling of their activity, also to Bill Jehn L4001 and Vin VK3PJ for their letters.

**AWARDS:** A reminder chaps about the Elizabethan award which is available to listeners as well as Amateurs. Conditions are you need 8 QSLs from members of the E.A.R.C., these should be sent to the Elizabeth Amateur Radio Club, Box 8, Elizabeth, S.A. A card from club station 5LZ counts as two contacts. Watch for the club round-up on 80 mx at about 1000z on Monday when the cooler wx starts. Some member stations are VK5s ZE, WV, NO, DT, TM, MQ, DE, PE, ZCH, ZHU, ZLG, FY, ZP and QL.

Re the D.X.C.C. award offered to listeners late last year. So far only two have been issued—to Eric and myself. What about it chaps, it took a lot of effort to have it available.

**QUERIES:** John Davidson, L4164, Lister St., Sunnybank, Brisbane, asks for circuit or any info on the S.T.C. type A679 rx. Mac Hilliard wants the QTH of FB9YY. Bill Jehn, Box 61, Ipswich, wants the QTH of OX3JV for a QSL. That winds it up for this month chaps, 73 and good DX, and get those rx's ready for the R.D. contest. Don L2022.

## CRYSTAL DIVISION

Manufacturers of Quartz Crystals for Frequency Control and Crystal Filters for Highly Selective Circuits announce:—

### NEW LOWER PRICES FOR CLOSE TOLERANCE GOLD PLATED CRYSTALS FOR AMATEUR APPLICATIONS

	Amateur Net (each includ. Tax)
● 1.8 Mc. to 14.999 Mc. ±0.005% in Style "D" holders, ½" pin spacing	£2 8 6
● 15 Mc. to 47.999 Mc. ±0.005% in Style "D" holders, ½" pin spacing	£2 10 6
● 48.0 Mc. to 61.0 Mc. ±0.005% in Style "D" holders, ½" pin spacing	£2 16 3
● 100 Kc. ±0.005% in HC13/U holders, ½" pin spacing*	£4 10 0
● 1 Mc. ±0.005% in Style "D" holders, ½" pin spacing*	£4 10 0
* Specially designed for Crystal Calibrator purposes.	
● 455 Kc. nominal Crystals for Filter applications in Style "D" or "E" (B7G) holders	£4 10 0

Many other types and tolerances are available from our standard production. Please consult us on your Crystal requirements.

## PYE PTY. LTD. CRYSTAL DIVISION

CLARINDA RD., CLAYTON, VIC. (P.O. Box 105). Phone 544-0361  
STATE OFFICES IN ADELAIDE, BRISBANE, HOBART, PERTH AND SYDNEY



Sub-Editor: LEN POYNTER, VK3ZGP  
14 Esther Court, Fawkner, N.15, Vic.

(5) Summarising these and other recommendations:—

- (a) To Melbourne and Brisbane stations, to minimise Channel 0 t.v.i. try some or all of the following:
  - (i) Use vertically polarised beams;
  - (ii) Operate above 53 Mc. on one frequency only;
  - (iii) Use low power;
  - (iv) Fit traps to all complainants' t.v. sets, carefully tuned to your freq.;
  - (v) Use narrow-band f.m.
- (b) To all other 6 mx stations, look for the Channel 0 refugees up near the top of the band. —VK3 V.h.f. Group.

#### NEW SOUTH WALES

52 Mc. has been dead, over Xmas it was very poor, but fair openings at times, good opening to ZL land on one Sunday morning—2ZKW and Z2MO worked quite a few ZLs. Bob 4ZRG was heard on during the mornings before going to work and gave Z2MO 5/9 but Sydney only 5/5 or less. Bob heard during February.

The Hunter Branch boys—2ZKW, Z2WM, Z2UB, Z2MO, Z2CT—have 10 a.m. skeds on 52 Mc. band each Saturday and Sunday mornings; some mornings 2AVF, 2ZJG and Z2DN come in on the net.

144 Mc.: This band is very lively some nights and on week-ends, other times hard to get a contact. Most active stations are: Z2SG, 2ZKW, Z2UB, Z2WM, Z2CT, Z2MO, 2XT, Z2FR, 2CN, 2YJ; others heard when time permits include 2AYL, 2AYF, Z2BD, Z2AP and 2ZJA. Z2DN and Z2CU have not been heard for a long while, but have come back on the band. Some stations can work Sydney on most nights; these are 2YJ, Z2CT, Z2DN and Z2CU, some because of running high power, or very good QTHs. Ian O'Toole is doing National Service and has passed for a Z call. Z2BD also about to enter camp.

Dave ZFR is new station in Raymond Terrace, making good use of a 522. Other new stations are Z2FO (not heard as yet), Z2GK has been heard. Our Hunter Branch ZAWX station is relayed on Monday nights at 7 p.m. by Gordon on 144 Mc.—144.443 to be exact.

Some stations are talking s.s.b. for this band. Key is building mobile gear 6 and 2 mx tr's and converters into 80 mc Command, 7 Mc. transistorised converter, and also hopes to squeeze in the b.c. and 160 mx as well.

Tom 3ZTL out at Port Stephens is on 144 and also 52 Mc., have not worked him here owing to bad location between us. Tom is able to work some Newcastle boys and also Sydney at times.

Our 6 mx net also has been heard out at Orange so I am told. This is on the 10 a.m. net on Saturday and Sunday; most stations are around 52.5. Three or four of the boys are waiting on exam. results of the big guess, so may have more on the band. 73, Z2MO.

At the April meeting of the VK2 V.h.f. Group a very interesting lecture on the applications of transistors in the v.h.f. spectrum was given by Bruce Ridley (Z2BR), of D.C.A. Laboratories. After the lecture the annual general meeting for the year was held. The election was closely contested on the twelve call signs being proposed and as only six are needed for the committee, there was a wide choice for the members to elect for the ensuing 12 months.

Tim Z2TM, although having officially left the committee, has been retained to act as adviser and official fox hunt starter. It is to be hoped that this committee can do as well as the outgoing members. 73, Stephen Z2SK.

#### VICTORIA

Gippsland: Activity on v.h.f. in Gippsland is on the increase. F.m. 2 mx: There is now channel A home and mobile stations on the air from Bainsdale, Sale, Traralgon, Morwell, Yallourn and Moe (along the Princes Highway), also Anderson, near San Remo. 6 mx a.m.: Nil since Z2CG heard 2AXB in Sydney and 3ZPL was heard by s.w.l. in Brisbane on 10/2/66. 2 mx a.m.: Active nearly every night. Other than Reg 3AWV at Yallourn regularly working VK7s (he seems to have a very good path), the best break-through out of Gippsland took place during Feb. when George Z2CG at Morwell (from his new QTH) worked Z2TN Hamilton 144.15 3NN Yanac 144.41, Z2EF Bendigo 144.393, and heard weakly Z2AH. Sunday morning 2/2/66 George worked 5ZDR Adelaide 144.065 5 x 8-9 both ways, and 5GP at Nairne in Mt. Lofty Ranges (20 miles east of Adelaide) 144.200 5 x 9 with QRM both ways.

Z2CG works regularly into Melbourne using 15w. on 144.003 Mc. and Sunday mornings (out of t.v.i. hours) uses the 150w. tx on 144.015 or v.f.o. 3ZDP at Sale looking for Melbourne OSO using s.s.b. on 144.08. Others active include 3Z0Z Moe 144.263, 3AHE/3 Newborough 146.485, 3AWV Yallourn, 3QZ Traralgon, 3ZPL Moe, and Z2AB at Traralgon.

VK3 V.h.f. Group: The notes are very short this month mainly because of the lack of activity on 6 and 2 mx. There have been a couple of DX openings on two mx to VK5 and VK7. The only other activity of consequence being the V.h.f. Group's annual meeting and election of office-bearers for the forthcoming 12 months. Also at the annual meeting Jack 3ZJF read out some of the agenda items of v.h.f. interest that were to be discussed at the Federal Convention at Brisbane over Easter.

The office-bearers of the Group are: President, Cyril 3ABE; Vice-President, Jack 3ZJF; Secretary, Peter 3ZPA; Treasurer, Trevor 3ZTJ; Publicity Officer, Cyril 3ZCK; Equipment Maintenance, Ken 3ZNJ; QSL Manager, Bill 3ABP; Council Rep., Jack 3ZJF.

#### SOUTH AUSTRALIA

Activity in VK5 at the moment enjoys perhaps the greatest increase for any post Xmas period experienced for many seasons. This increase in activity is due mainly to the arrival on the bands of newly licensed operators, who in the process of making the most out of their initial enthusiasm are developing their equipment to the usual VK5 "big sound" signal. Fortunately their enthusiasm has not been restricted to 6 mx as a few have also made their debut on 2 mx. The more the merrier.

The increase in 6 mx activity, to a certain degree, is attributable to the W.I.C.E.N. net on 53.1 Mc. Under the auspices of Geoff 5TY, W.I.C.E.N. in VK5 is at last moulding itself into an effective and proven communications group. Already their efforts to date have received commendations in letters from the S.A. Commissioner of Police and the Director of F.R.S. in S.A., for their assistance in providing essential and reliable communications during a recent bush fire in the Adelaide Hills.

The majority of 2 mx operation has been provided by extended ground-wave propagation into the Port Pirie area and the western regions of VK3. Frequent signals from VK3 heard and worked by a number of VK5s in March were 3ZCG, 3ZTN, 3ZDM, 3AOS and 3NN.

News from Mt. Gambier on 2 mx is that Trevor 5ZTN has completed his new modulator (2 x 881As) and is capable of modulating his final p.a. 100 per cent. John 5HP, ex-5ZHL, is active on 432 Mc. and was reported to have worked 3ZDM using a 5w. tripler. Just at the moment the South East Group are busily preparing for the onslaught of v.h.f. types to their Group Convention on the week-end, June 11, 12 and 13. This occasion has always been well attended and should be well patronised again this year.

432 Mc. activity is practically non-existent apart from the t.v. on the high end and John 5ZJH still patiently listening to Oscar IV. in the hope of making a two-way contact. 73, Colin 5ZHJ.

## Publications Committee Reports That . . .

Due to the postal strike much mail was delayed and to assist all correspondents inwards mail was kept open until the 15th April and any items received after that date will be acknowledged in next month's "A.R."

Correspondence was received from VKs Z2TM, 3RC and David Priestley along with technical articles from 5ZBP/T, 3ZRY and H. C. Major.

It is with regret that we announce that S. Clark, VK3ASC, has resigned from the Committee due to personal work taking up his "spare" time. We will miss his outspoken and clear comments at our meetings, and thank him for his many years of service and trust that he does well in his new activity.

Readers will be pleased to see the Prediction Charts appearing in this issue and we request comments whether they prefer these charts to be presented as in this issue or whether they would prefer a simple bar chart showing only the Amateur bands that are predicted to be usable, neglecting other frequencies. The same circuits would be available and are all based upon Canberra as this is likely to suit the majority of users.

It is with great interest that we await full details of the Australian Amateur Satellite Radio that will be launched in the U.S.A. At this juncture we only have a very brief story and will publish full particulars as soon as plans are fully developed.

General activity during the past few months has been average for the time of year. During Feb., 3ATN at Birchip has been active on 2 mx Moonbounce Project with Stamford University. Ray has recorded signals from the U.S. but to date no signals from Ray have been heard.

On Sunday, April 3, around 0830, 6 mx was open between Southern Australia and Queensland for some two hours with good signals in both directions; later in the day from 1300-1600 JAs were worked from Townsville—thanks to a telegram from 4ZRG. Signals were reported to be good in both directions. No reports from any other locations have been received to date.

Included below is a letter circulated to all Divisions re 6 mx t.v.i. I trust that it will be noted by all those looking for Melbourne and possibly Brisbane stations during t.v. hours.

At this stage I wish to inform all correspondents that due to pressure of other business I am forced to relinquish the compilation of these notes. In recent months, sudden demands have prevented me from adequately editing the notes and at times even submitting what I have received. For these I offer my apologies.

From the next issue, Cyril Maude, VK3ZCK, will take over and I trust that you give him all the help you can, particularly with forwarding your reports to arrive no later than the 2nd of each month. This is quite important. If everyone will prepare their notes in the suggested form, no re-writing will be necessary, just plain editing, etc.

My thanks to all those who have regularly forwarded their notes in plenty of time, particularly 5ZJH and 4ZPL whose notes have arrived each month. Welcome to Mac VK2ZMO new writer of the VK2 notes. There has been no notes from VK6 for some months. Hope they will fill the gap very soon.

To all readers I wish you 73, best of DX, and trust that these difficulties will not prevent me appearing on 6 and 2 mx again.—Z2GP.

#### SIX-METRE T.V.I.

(1) Operation by stations on the 6 mx band in Melbourne and Brisbane is severely restricted by t.v.i. in receivers tuned to Channel 0. In some cases at ranges of the order of miles from the Amateur station concerned. The worst interference is suffered by near neighbours of the licensee, and these are the most likely to make their displeasure obvious!

(2) Mostly, even at a few hundred feet, t.v.i. can be virtually removed by using ribbon traps on the affected t.v. receiver (2 feet of ribbon plus 30 pF. trimmer, taped to feeder). These traps are very sharp and restrict the Amateur to operation within 100 kc. or so of the neighbours' trap frequencies. Full effectiveness of the traps cannot be achieved unless the Amateur frequency is well separated from Channel 0, preferably above 53 Mc. It is suggested as a standard practice that each Melbourne and Brisbane station should select his own trap frequency, above 53 Mc., if possible; fit and tune traps to this frequency on at least the near neighbours' sets; and use this frequency in preference to all others in the band.

(3) During DX openings it is observed that most stations in non-Channel 0 areas use frequencies near the 52 Mc. band-edge and to ensure contact, it is virtually essential to call them on or near their own frequencies. In this case it is suggested that the initial call only be made on the lower frequency; that as soon as communication is established the Channel 0 Amateur should state his trap frequency and move to it; and that this be carried out by a standard procedure such as "I will QSY to trap frequency 53.22," for example, repeated twice.

(4) It is most important that this operating procedure should be recognised and acted upon by other than Channel 0 area Amateurs. It is therefore requested that all Divisions publicise among their 6 mx operators the possibility of encountering this procedure, so that they will be prepared for it and capable of tuning to the new frequency; perhaps persuaded to operate more themselves on the higher 6 mx frequencies.





# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL QSL BUREAU

Scores of cards were returned in early April by the J.A.R.L. No reason was stated and no endorsement appears on any of the returned QSL's.

The QSL manager for VK0MI, Colin Lebbon, currently very active from Macquarie Island, is Greg Johnston, 3 Inglis Street, Newtown, Hobart, Tas. Colin, who some time back held a GMS call, left a few hundred blanks with Greg. At the present rate of QSO they will not last very long.

The R.S.G.B. QSL Bureau advises that the Bureau will be closed from May 3 to May 23 inclusive and requests no cards to arrive during that period.

Frank Pfeiffer, K6JIC, writes as of March 10: "For the next two years I will be the QSL manager for K6KII/KG6 on Guam Island. In addition to the Guam Is. activity I will also be the QSL manager for any of his DX-peditionary adventures.

K6KII is Cliff G. Moore, U.S.N., presently attached to the U.S. Naval Security Group on Guam. DX-er and contest man for some ten years now and presently 319/318 for DXCC. Cliff will be active 80 through 10, and is hoping for some 160 operation.

The normal DX QSL procedure is desired, and that being date and time in G.M.T., and S.A.S.E. or S.A.E. and I.R.C.'s for direct replies.

Info is required as to the Australian QTH of Joe VR4JB. It is stated by VR4CB that Joe has now returned to Australia.

—Ray E. Jones, VK3RJ, Manager.

## NEW SOUTH WALES

There was a large attendance at the VK2 Division's annual general meeting at Wireless Institute Centre, Crows Nest, on 25th March; visitors were welcomed by the Chairman (Ivan 2AIM), among these being David 3QV, a member of Federal Executive. The annual report, which had previously been circulated, was taken as read and adopted after complimentary reference to its comprehensiveness.

This year there was more than usual interest in the election of Council with a ballot for the first time. Eight nominations were received for the seven positions, and the voting recorded in the following being elected: Peter 2AKJ, Kevin 2ANY, Mrs. Hebe Grouse 2AOK, Bill 2YB, Maurice 2VV, Tom 2OD, and Charlie 2ALB.

The Chairman announced that the Auditor's report and balance sheet could not be presented at that meeting as there had been a last-minute hold-up in some of the figures required. These would be available at the April meeting, to which the annual meeting was then adjourned.

The March general meeting followed, the main feature being a programme of films arranged by the Education Officer, Harold 2AAH, assisted by Phil 2ZFI. In addition to two short films dealing with mobile work and the radio club classes at Murwillumbah, a most interesting film in colour dealt with the production and uses of electricity.

The vote of thanks to Harold and Phil was handled by David 3QV, and later in the meeting Harold, as Education Officer, was given a vote of thanks and appreciation for his work in arranging lectures of such high standard over the past five years.

Short reports were given by Sid Molen (QSL Officer), Vic Cole (W.I.C.E.N. Supervisor), Harold Burtoft (Education Officer), and David Rankin (Federal news).

The Chairman referred to the death since last meeting of Frank Pearson, 2ACQ, who was well known as the Morse practice supervisor, and one minute's silence was observed by the meeting.

Frank's work is being carried on by Ern 2EH, who is looking after the Morse tape service, and Doug 2AUC is now in charge of the nightly Morse practice sessions. The latter will be assisted by Jim 2AKE when necessary.

At the conclusion of the March meeting the newly-elected Council met for a few minutes and elected Tom 2OD to the position of Divisional President, and after his first Sunday morning broadcast to members he received congratulations from all parts of the State on his elevation to the chair.

The new Council's first business meeting took place on 1st April, with a fairly late sitting. At the invitation of the President, Ivan 2AIM, the retiring President, attended the meeting and assisted with the handing over of various matters that had been dealt with during the closing stages in the life of the previous Council.

The election of office-bearers for the ensuing twelve months resulted as follows:

President and Chairman of Council, T. M. O'Donnell, 2OD.  
Senior Vice-President, W. J. Lewis, 2YB.  
Junior Vice-President, C. J. Wilkins, 2ALB.  
Secretary-Treasurer, Mrs. B. Gerdes, Assoc. Circulation Manager and Registrar, W. Johnston, Assoc.  
Minute Secretary, R. M. Marsden, 2VV.  
Education Officer, H. F. Burtoft, 2AAH.  
Supervisor, Y.R.S., R. C. Black, 2YA.  
A.O.C.P. Supervisor, C. E. Bardwell, 2IR.  
Bulletin Editors: A. G. Sabin, 2AGS; W. Johnston, Assoc.  
Hon. Solicitor, W. Clark, Assoc.  
QSL Officers: S. E. Molen, 2SG; C. E. Whiting, 2ACD.  
Morse Tape Service, E. P. Hodgkins, 2EH.  
Morse Practice Supervisor, D. G. Courtney, 2AUC.  
Disposals Committee: L. W. Squires, 2SD; W. Kuhl, Assoc.; S. Kuhl, 2ZSK; T. I. Mills, 2ZTM.  
W.I.C.E.N. Supervisor, V. L. Cole, 2VL.  
O.C. Dural, D. H. Duff, 2EO.  
Grounds Officer (Dural), L. H. Cartwright, 2ZJC.  
Librarian, K. de Haan, 2UE.  
Zone Correspondent, I. M. Agar, 2AIM.  
Other appointments will be made later.

In his initial welcome to the incoming Councillors, the President especially mentioned the presence of Mrs. Hebe Grouse, 2AOK, and said that, so far as he knew, this was the first time in the history of the W.I.A. that a member of the fair sex had been a member of a Divisional Council, and he hoped that Hebe would remain on the VK2 Council for a long time.

The VK2 S.w.l. Group's annual meeting was held during the month of March. The Federal Councillor, Pierce 2APQ, was invited to take the chair and the following office-bearers were elected: Pres., Gordon Crutch; Vice-Pres., Ross Irwin; Liaison Officer, Ross Irwin; Sec.-Treas., Chris Middleton-Williams; Publicity and QSL Officer, Chas. Abernathy. When these notes were being written, the S.w.l. Group was endeavouring to whip up interest in what should be a very interesting tour of inspection to the O.T.C. Receiving Station at Bringley on 23rd April.

The V.H.F. and T.v. Group held its annual meeting on 1st April, when there was an excellent attendance. Stephen 2ZSK was elected as Group Chairman and other appointments resulted as follows: Vice-Pres., 2ZEX; Sec., 2ZIW; Committee: 2ZIM, 2ZPC, 2ZDD. I. McKenzie was appointed W.I.C.E.N. Officer and P. Carter and C. Jones comprise the Contest Committee.

We regret that we have to report a tragedy that has occurred in the family of one of our well known members and a one-time member of Council, Roy 2KO. On the evening of 25th March their 17-year-old son, Peter, was struck by a car while walking along the road near his home, and died of his injuries. We join with their many friends in extending sincere sympathy to the bereaved family.

Muriel 2AIA, one of our better known DX chasers, has made a good recovery following a recent operation. At the moment she is a patient at a Sydney convalescent home, but it should not be long before she is on the air again.

Raoul Thomas, FK8AU, who has frequented the 14 Mc. band for many years, arrived with his wife, Georgette, at Kingsford Smith Airport on 2nd April, en route for France on four months' long service leave. During their stop-over of about an hour and a half at the airport, they were met by Bill 2AGF and his wife and daughter, and Ivan 2AIM and his wife. Their jet aircraft took off at 4 p.m. and was expected in Singapore that night. Truly the world is shrinking! 73, 2AIM.

## CENTRAL COAST BRANCH

The last meeting of the Central Coast Branch of the W.I.A. was held on March 18 and had a larger attendance than usual, which was very

gratifying as this was the annual meeting and there were a few jobs to be filled. There were several new faces from as far away as Vales Point and Mangrove Mountain and we hope this trend continues.

The new officers are as follows: Pres., Lindsay 2ON; Vice-Pres., Ern 2EH; Sec., Frank 2AFJ; Treas., Phil 2TX; Publicity Officer, Mona 2AKS; Public Relations, Gordon Proctor. The retiring Pres., Ern Hodgkins, gave a report on the activities for the year which included several interesting visits to places like O.T.C. at Bringley, A.W.V., etc., some social events, and of course the Field Day which was the highlight of the year. We are still hearing nice things said about the Field Day.

One minute of silence was observed for Frank Pearson, 2ACQ, who died suddenly on March 3 at his home at Woy Woy, 73, Mona 2AXS.

## VK2 DIVISION

### NEW AND SURPLUS EQUIPMENT

The VK2 Division of the W.I.A. operates a store for the benefit of members. We would again like to bring to the notice of members of other Divisions that its facilities are also available to you. A comprehensive catalogue may be obtained by writing to: Disposal Section, Wireless Institute Centre, 14 Atchison St., Crows Nest, N.S.W. Mail order inquiries are welcomed or your personal visit when we are open on meeting nights and on the 2nd and 4th Saturday afternoons of each month.

Some of the items available include:—

### CRYSTALS

A range of 82 frequencies between 3540 and 6450 Kcs. in FT243 holders, \$1 each or 5 for \$4.

### CAPACITORS

Mixed bags of small and medium values in mica, disc ceramic and silver mica. Approx. 100 to the bag, \$1.75.

### TELETYPE EQUIPMENT

A range of surplus R.T.T.Y. equipment was recently obtained. It included keyboard page printers, keyboard reperforsators, tape transmitters, etc. If you are looking for R.T.T.Y. items, try us, we may have it.

### NEW EQUIPMENT

Building something? We have quite a range of new parts for that project, including meters, transistors, 2-metre beams, tools, test equipment, capacitors, transformers, coil formers, plugs, sockets, knobs, dials and many others. All these are listed in an illustrated catalogue available free by writing to Disposal Section, Wireless Institute Centre, 14 Atchison St., Crows Nest, N.S.W.

## YL NEWS FROM SYDNEY

We are happy to report that Muriel 2A1A is well on the way to recovery after a recent operation. She will have a short stay in a convalescent home before returning to her own QTH where she is her own chief cook and bottle washer. We have missed her on the air and look forward to hearing the familiar voice again very soon.

Hebe 2AOK has a regular contact with the South-East Asia net each evening which she finds very interesting. Just quietly, I think she is working up a pretty good score on new countries. 73, Mona 2AXS.

## VICTORIA

### EASTERN ZONE

Tours of the Orient seem to be popular at the moment with some of the Amateur population in the zone. Alex 3ZII has been to Malaysia as radio technician on a recent R.A.A.F. trip. An enjoyable time was had but Alex wasn't particularly impressed with the cleanliness of the cities. Graham 3QZ and his wife have just returned from a tour of Japan and Hong Kong. We trust the trip was most enjoyable. I wonder what is new in the shacks of 3ZII and 3QZ?

There are a couple of new Amateurs in the zone, John 3Z0J in Maffra and Philip 3ZTF at East Sale R.A.A.F. base. Philip feels that he may get a posting to VK4 so we may not have Philip with us for long. He is in the throes of getting some 6 and 2 metre a.m. gear functioning — semi-transistorised, too. When it is a goer what about an article for "A.R." most of us aren't particularly familiar with transistor gear. John, I believe, hopes to get the full call before too long.

David 3DY is active on 3.732 Mcs. on the Civil Defence network at Maffra. The transceivers used are converted valve-type car radios. The transmitter sections I believe use a 12AT7 and 6CL6 in the "Golden Gate" circuit. The 10-metre band David reports as being open at times. John 3AED has been active on 80, 40, 15 and 20, with considerable amount of DX being worked on the latter band using the ever more popular s.s.b. Cliff 3AJA is occasionally on 40 c.w. and Peter 3ZPD has evidently deserted 6 a.m. for 2 s.s.b. We have at least two active s.w.l.'s in the zone, namely, Albert Cash of Morwell and Bob Stewart of Newborough. Albert uses a t.v. tuner for 6 and 2 metres, which I presume feeds into his home-brew receiver. Bob monitors 2 f.m. and a.m. as well as 40 and 80 with an assortment of aerials in use.

The zone took part in the National Field Day in February under the call sign of 3QZ as a multi-operator station from Mt. Worth near Warragul, running up a points score of 208 in six hours. George 3ZCG must be our keenest field day competitor, taking part in most, and all from different mountain tops. The Mini Minor must know all the high spots in Gippsland by now. George has also shifted his permanent QTH in Morwell with better v.h.f. results; and fewer t.v.i. troubles I trust.

Stan 3ZAB was up in Sale for the Trade Fair. Stan was chief demonstrator/cook on the S.E.C. stand, demonstrating their new 2½-k.w. u.h.f. transmitter . . . er, sorry, microwave stove. The stove uses a continuous wave magnetron on a frequency of 2.450 Mcs. I wonder if we'll hear Stan on 2.450 Mcs. using high power. Hm, perhaps it could be adapted for Ham-band use. Could be that we will be using old microwave stove parts for the rig instead of old t.v. set parts in a year or so.

Cliff 3AIT has his new 80-watt 6-metre transmitter functioning, using a 6U8 driving a 6148, all that is necessary now is a large yagi. The s.s.b. bug has also bitten him and he is delving into circuit designs, and no doubt using his shelves of spares, particularly that 4CX1000A. Rodney 3UG has his 160-30 metre 125 watt rig completed, and from reports to date is functioning satisfactorily. Certainly should put out a better signal than the 8 watt unit it replaces.

Now on to something of a different nature, but equally important to us and quite serious.

As Amateurs are we becoming too complacent about our bands and what will happen at the next I.T.U. conference. As a whole I say we are, we will need to fight hard if we are to retain our bands. There have been some very interesting, if disturbing, editorials in "A.R." I would suggest you re-read them, there is a lot in them. It is so serious that even in America they are wondering how much of the bands will be lost. Read through the "73" editorial of February, 1966. The least we can do is show our support to our Federal and State Institute officers both by subscribing to the I.T.U. fund and by spending time to help in Institute affairs.

Well, that's it for this month, with thanks to George for notes supplied. 73, VK3UG.

## SOUTH-WEST ZONE

As most of you are aware the zone convention was held in Warrambool over the eight-hour week-end and there was quite a reasonable attendance. We were sorry that there was not a representative from Ballarat at the Annual Meeting, for we like each city or town to be represented.

Those present at the meeting were as follows: 3WK 3IC, 3ZTN, 3AFJ, 3FX, 3XE, 3XJ, 3AKI, 3ANQ, 3APR, 3AWQ (Chris Hall), 3AAW (Bill Wines), E. G. Hutchins, R. Anderson, G. McSwain, D. McSwain, R. Sheppard, P. Hose, Barry Gore, all from the Y.M.C.A. Radio Club.

The meeting was chaired by 3AFJ Ken Pincoff for the election and installation of new office-bearers, this was carried out most ably and we thank Ken for a good job.

Office-bearers elected are as follows: President, Eric 3ANQ; Vice-Presidents, Senior VK3WK, Junior VK3XE, Secretary-Treasurer and Publicity Officer, W. Wines from VK3AAW; Auditor, Peter 3FX; Station Officer, Harry 3AKI; Committee: Chris Hall representing 3AWQ, Gordon 3AGV, Bob 3IC, David 3ZTN, Bill 3XE, R. Heighway 3ABK; W.I.C.E.N. Co-ordinator, John Woodburn 3AGD.

After the meeting a barbecue tea was held which everyone enjoyed immensely. Our thanks to Mr. Bill Hammond who volunteered to cook the meat. Bill knows nothing whatever about radio but certainly knows how to barbecue a chop, many thanks Bill. Thanks also to the ladies who did a splendid job with cuppas and supper later on in the evening.

After tea Chris Hall of 3AWQ Technical College Radio Club showed some very interesting films of the Snowy River Scheme along with one of a rodeo in Colac and the other of the Australian Surf Championships held in Warrambool some years back. At the conclusion of the films, 3LC Alf and 3WK Bill supplied some surplus gear to be auctioned, once again 3FX Peter acted as auctioneer.

Sunday morning at 9.30 a.m. the judging of the best mobile equipment was held. The Commercial V.H.F. Gear Section was won by 3FX and Home-made Gear Section by 3ZTN. The next event was the 144 blindfold transmitter hunt, this was won by Terry Glidden. The all-band scramble was won by 3LC Alf for the high frequency band, and David 3ZTN won the v.h.f. scramble. A very nice picnic lunch was organised and prepared by the ladies and enjoyed by all. Our thanks to the ladies.

After lunch the 80 metre transmitter hunt was held, and only in the last few minutes of the allotted time 3ZJF Jack Taylor from East Brighton won the event. The transmitter was hidden by 3XE under a steeplechase jump at the racecourse.

The 144 transmitter hunt was won by 3ZJF with the aid of his sniffer. After this hunt afternoon tea was served, followed by presentation of prizes to successful Amateurs.

In conclusion we would like to thank the Principal of the Technical College, Mr. Conry, for permitting us to use the canteen and Assembly Hall for the barbecue and meeting. Once again many thanks to our chef, Bill Hammond and to the ladies and to all who gave assistance to make the convention a success.

Finally, we were very pleased to see on Sunday visitors from VK5 including 5CJ and 5MS. 3ZER was also among the many present. 73, Bill Wines, Hon. Sec., VK3AAW.

### WESTERN ZONE

By the time these notes appear in print the State Convention at Ararat will have passed, and let us hope all of those who were fortunate to attend enjoyed themselves, meeting old and new friends.

There does not seem to be much activity in the zone, although a few still are working v.h.f. and 20 mx DX. It looks like the zone hook-ups will be eventually on s.s.b. as no fewer than four are on that mode of transmission at present.

Very pleased to hear Alan 3HL the other night and to know he is fine after his recent illness. Our worthy Secretary, Bill 3AKW, has returned from his visit to ZL land full of vim and vigour, and is now ready for another year of toil. 3NX purchased a commercial v.f.o. some months ago but so far no QRM on the bands—so what about it Gordon? 3AEJ has a 60w. a.m. rig but so far I have not heard it Gavin. Bill 3ZAX was unfortunate to get a piece of steel in the eye recently; let's hope it was not serious and all is well by this time. Your secretary is trying to get together the parts for a linear amplifier but more about that at a later date.

Have not seen sight nor sound of Trev 3ATR, but see in the local paper where he received several hundred dollars as prize money in the recent Moomba Air Race. Congrats to you OM. Also saw in one of the papers a photo of Vic Maddern getting instructions on a glider. 73, Bert.

## QUEENSLAND

The Queensland Division of the Wireless Institute of Australia was privileged to be Host State for the 30th Federal Convention of the Institute over the Easter week-end, April 8 to 11, 1966. The last Federal Convention held in Queensland was in 1936—just 30 years ago.

The Convention got under way at 11.30 a.m. on Good Friday morning immediately the VK6 delegate arrived in VK4. All delegates worked very hard taking little time to eat or play until Saturday evening when they were taken on a launch trip to Bishop Island at the mouth of the Brisbane River, for a barbecue supper which was thoroughly enjoyed by all.

Back to work on Sunday morning bright and early and as agenda was well advanced at 1 p.m., the Convention broke for a trip to our famous Gold Coast with a picnic lunch at Mount Tambourine on the way. The Convention finished early on Monday afternoon and a terrific agenda was completed, and if I might say so, very efficiently. All delegates attended all sessions and gave of their best efforts.

The Wireless Institute of Australia are fortunate indeed to have such an efficient team of Councillors who work so hard for the Wireless Institute in general and the Radio Amateur in particular.

This would be the most successful Convention ever and from it will come some very advantageous and far reaching things and I commend you to carefully read all reports. Congratulations, gentlemen, on a job well done. Reg 4VX.

### TOWNSVILLE AND DISTRICT

Very little activity in the north at present, so much so that I find it hard to do the notes each month and it would be a pity to see them discontinued. So what about it chaps, why not drop a line and let us know just what is happening in your part of the country. No use moaning if a certain State seems to get more space than the others. It is all in your own hands.

Ted 4EJ hopes to complete the new Transceiver within the next few months. Very fast running out of room to place the few remaining parts that have to be soldered into space. Charlie 4BQ and Ewen 4BQ were around the other week-end to help put up a vertical vee dipole. Now it performs better than the one at Charlie's place, according to Bud 2AQJ in Canberra.

A visitor from across the Tasman Sea is John ZL2BEE on a holiday looking over the field for employment, sporting a temporary call sign of 2BEE. Hard to convince that ours is the best place in the Commonwealth.

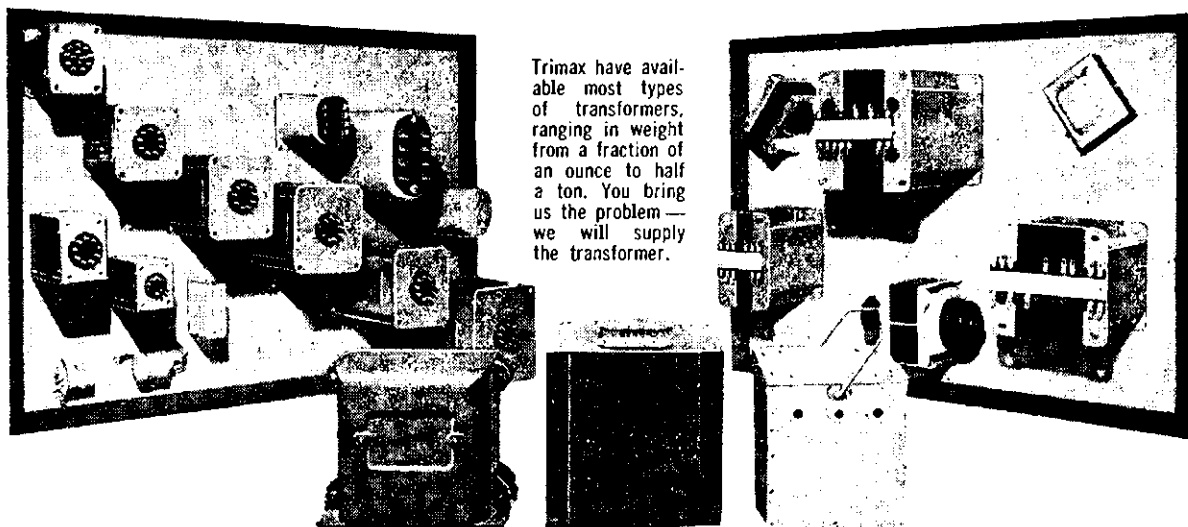
As the meeting of the local club is on after the notes are sent, I am unable to give the country boys any news of what is happening. Only that there could be a few starters if the club decides to go ahead with the A.O.C.P. classes, which I do hope eventuates. 73, 4RW.

## SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division, sometimes known as the Division that put the Vee in verbosity, was held in the clubrooms on the fourth Tuesday in March, to a standing room only gathering of members and visitors. The excellent attendance was not altogether unexpected, as the night took the form of a jumble sale—buy and sell to you—and can always be counted upon to get the members together and prize their shekels away from them. The Chairman, Ross 5KF, opened the meeting for business, but aside from a letter from the South-East Radio Group, and a few remarks from the Federal Councillor, Geoff 5TY, on the coming convention and the agenda items, the business side of the meeting was soon disposed of. Distribution of QSL cards followed, and the meeting settled down for the main business of the night, the jumble sale. Nothing new can be written about this type of night, except perhaps to say that the shekel extracting was shared, as usual, by Brian 5CA and Phil 5NN, and considering the rather poor standard of equipment up for disposal practically all night, they both made a superhuman effort to talk over the several unofficial meetings being conducted in various parts of the hall, and eventually disposed of the mountain of gear on display to the satisfaction of all concerned—almost anyway—and the meeting closed at 11 p.m., beating the arrival of the caretaker and his Alsatian by two growls and a jump. Personally, I did not wait for the end, I sighted the Alsatian before he sighted me, and was in top gear before he even started his engine, much to his disgust. Anyway, a good time was had by all, and after all, what more can one ask.

Now I know your curiosity has been aroused concerning the letter read out from the S.E.

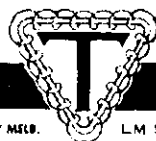
# TRIMAX for a complete transformer range!



Trimax have available most types of transformers, ranging in weight from a fraction of an ounce to half a ton. You bring us the problem — we will supply the transformer.



**LM ERICSSON PTY. LTD.**  
**"TRIMAX" DIVISION**



FACTORY: CNR. WILLIAMS RD. & CHARLES ST., NORTH COBURG, VICTORIA. PHONE: 35-1203 ... TELEGRAPHIC ADDRESS: "TRIMAX" MELB.

LM 51

## FOSTER DYNAMIC MICROPHONES

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
 Effective output level ..... -55 db. [0 db. — (one) 1V. Microbar]  
 Frequency response ..... 50 to 15,000 c.p.s.

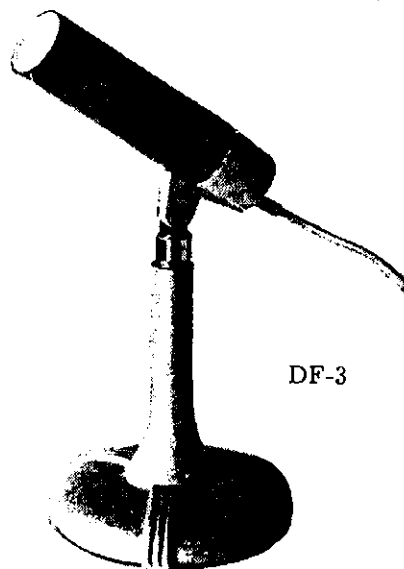
### OMNI-DIRECTIONAL DYNAMIC:

Plastic Diaphragm. Swivel fits 5/8" 26 t.p.i. Stands.  
 Size: 4½" long, 1¼" diameter. Colour: TWO-TONE GREY.  
 Cable: 12 ft. of P.V.C.

Retail Price 50K ohms: £4'16'0 + Sales Tax 10'0

Retail Price 50 ohms: £4'14'0 + Sales Tax 9'10

A QUALITY PRODUCT FOR TAPE RECORDERS & P.A. USERS



DF-3

Marketed by

**ZEPHYR PRODUCTS PTY. LTD.**

58 HIGH STREET, GLEN IRIS, S.E.6, VICTORIA

Phones: 25-1300, 25-4556



**Manufacturers of Radio and Electrical Equipment and Components**

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L; Jacoby, Mitchell & Co. P/L; T. H. Martin P/L.



Radio Group, so I won't keep you in suspenders any longer, so here goes. The group is holding its annual V.H.F. Convention over the long week-end of June 11, 12, 13 and 14 of this year and is naturally anxious that this event be as successful as its two previous conventions, and they cordially invite all members interested to register. Registration forms, which also provide for the booking of accommodation, are available from the Group, or from the VK5 secretary, Al 5EK. Go to it now, don't hesitate, don't delay, first come, first served, etcetera, etcetera, etcetera, and a couple of diphthongs!

I commented earlier on the unofficial meetings taking place in various parts of the hall during the buy-and-sell, and it goes without saying that this tends to distract both the audience and the shekel gatherers from the business in hand, and is something that is hard to stop. However, I do feel that this tendency to yackety-yack on the part of the members should bring home to Council the fact that at least once a year we should hold a get-together night for the members, declare the meeting open, and let them go to it. Just think of it, the members would provide their own entertainment. Council could have a night off once the yackety-yack started, and a good time would be had by all. It's worth thinking over—or is it?

Geoff 5TY, after a lot of arm twisting as the W.I.C.E.N. co-ordinator, announced with pride and joy that the Division had received a letter from Police Commissioner McKinnna, and one from Mr. Kerr, Director of E.F.S., both complimenting W.I.C.E.N. on its efforts during the recent bushfires in the foothills. A feather in our cap, if I might say so, and a definite sign of the times, at last W.I.C.E.N. has arrived in VK5.

When Doc 5MD passed away I assumed as a temporary measure, the duties of Custodian of the Instruments, a job which entailed very little work, in fact, I think I had about six enquiries for the instruments in about two years. Council, with its usual consideration for my welfare, and a possible thought of saving me from a nervous breakdown, this month suggested that Jim 5FO might relieve me of the strain. I willingly assented, especially as he had been acting as the unofficial custodian for some time, so in future, if you want any of the instruments, get in touch with him, and he will be more than happy to oblige. He is a good scout, and always happy to help out with advice.

One of my espionage agents, 006 and three-quarters, he just misses the Bond image by a quarter, reports that Murray 5ZQ has been bothered at odd times in the W.I.A. broadcasts with a gremlin in the antenna system. However, he tells me that a dash of antenna construction work by Murray has now banished the said gremlin for good, much to Murray's satisfaction.

Joe 5JT, also complaining of troubles with his new antenna. He was originally using a certain length of co-axial with the ends coiled up, and was more than satisfied with the results. Then the "brains trust" moved in and advised the cutting of some co-axial off, and disaster struck. Joe, I am surprised at you, you have been in the game long enough to know when to let well alone!

Having been hibernating on 14 Mc. lately, polishing up my glass arm, I found myself right out of touch with the local gentry on 7 Mc., with the natural result that I was sadly lacking in news for this month. Remedying this position very rapidly, the first stations that I heard were the old reliable "terrible twins," Jack 5LN and Athol 5LQ, busily engaged on their usual schedule before the evening meal. Jack was bemoaning the rapid passing of time, and Athol was heard to remark that if he felt really fit he might pay a visit to the QTH of Jack on the coming Sunday morning. A couple of old codgers if ever there were!

Heard Hughie 5BC on the same band at terrific strength one early evening, so much so that I doubted whether his signal was coming from his home QTH. The next time I heard him, about a week later, he was signing a VK3 portable, and still with a good signal. The VK3 he was working was having a bit of trouble with copying his name, but finally made it O.K., and said that names like George, etc., gave him no trouble to copy, but Hugh was a little out of the usual run of names. No wonder I used to call him Otto when we worked on the Adelaide-Remark telegraph circuit, much to his disgust.

Listening in to Joe 5JO I was surprised to hear him say that he had been confined to his bed for a little while, but was now on the way up. It appears that he left for a trip around the VK3 country areas early in March but had to turn back owing to the heat, and had suffered a recurrence of his old trouble and was still a little whizzy in the head at times. Take it easy Joe, try the short distances.

Max 5OS in talking to Joe said that he had not been on very much of late, and also had a few words in praise of the magazine and the gang who put so much voluntary time in getting it into circulation. Unusual, if I might say so, and worthy of note.

Jack 5JS off for a week at Whyalla, I will bet there is a bike race on up there at the same time. Was brazenly heard to say that he had just returned from a three weeks' trip to VK7. What it is to be a plutocrat!

Max 5GF heard mobile in VK3—Geelong to be definite—and the signal was extra good around early evening time. He was just arriving at Geelong for the evening meal and then would continue on to Melbourne at a later date.

Talking of VK3, and I know I should not do so, I detect a trace of the Pincoot 3AFJ influence in the recently reported visit of Premier Sir Henry Bolte to VK5 in an endeavour to take over a slice of the continental shelf territory off the VK5 coast! Ken has never forgotten his sojourn in VK5 some years ago, and appreciating our possessions as he does, I am not surprised that he would like to engineer such a take-over. No chance, brother.

My old Palswy-walswy Dud 2DQ from Broken Hill was given the run-around the other night on 80 mx by the other members of the s.s.b. net, who arranged to all shift 2 Kc. after his transmission and then to complain that he had shifted that amount in frequency. If rumour is correct, poor old Dud was ready to return to a.m., and to write a stiff letter on cardboard to a certain gentleman in VK2, but fortunately woke up to the stunt before he put too much in writing and posted it off. You could have fooled me OM, what's 2 Kc. to an old stick-in-the-mud like me?

Whacko—did you notice VK6 trying to get on the band wagon in "Letters to the Editor" in the March issue of the magazine. Flattery, flattery, I can't seem to dodge it these days. Was tickled pink at the suggestion that he would not like to get his Division to take some action, although the "Mice" should not need such stern action to stir them up. You Heaut! I have called them some names in my time, but never have I been so game as to call them that. Remind me to send them some cheese some time. Very funny!

Uncle Tom 5TL has at last got his QRP rig sizzling. At a power of approximately .7 of a watt he tried it out on Geoff 5TY, and whilst it did not exactly bend the S meter needle hard over, it was workable c.w. and quite readable. My query of Tom as to whether he still needed the camel or small elephant to carry the set-up was disdainfully dismissed with the reply that even the caretaker's Alsatian could carry it. That settles it, I hope the hound dawg knows the difference between the seat of the fire and the seat of the members' trousers, which I doubt, going on his actions to date!

The above paragraph takes my mind back to 1939 when the W.I.A. had a field day of portable-mobile equipment following the disastrous bush fires around the Clarendon, Kangarilla and Meadows areas. All sorts of gear was produced and operated by what is now known as the "older generation," and following a demonstration of "what could be done with how little" by Pete 5FM, a three-cornered hook-up was arranged by Launce 5LD—Pop to you—Uncle Tom 5TL and Pete 5FM, from Happy Valley, Golden Grove and Littlehampton, at a later date. Interstate contacts came thick and fast with only about 1 watt input, and Tom even used his outfit on the old steamer "Yandra" on his way back to Ceduna. However, this is history, not news, so nuff sed, or else VK4 and VK6 will be after me again!

Just goes to show how good Brian 5CA is as an auctioneer. At the end of his night's work he found he had sold himself a transmitter and modulator, which means that he will only have to sell himself a couple of power supplies and he will be in business other than W.I.C.E.N. It takes a good man to convince himself!

Had a talk to Brother John 5VG at the meeting and discovered that he is at Christian Brothers' College and occasionally on 14 Mc. when time permits. Better known on the air as "Griff," he hails from VK6, where he sat for his ticket but did not take out a call sign, although when the rowing season finishes in VK5 and his proteges put away their oars, he expects to have more time for air work.

Ron 5KS very affable and matey with me at the meeting. I discovered the reason a bit later in the night when he sneeringly let it be known that he had been on the air from his new QTH with a.m. for a while, but would be back to s.s.b. in a couple of days. How low can they get? There was I, under the impression that I had a convert, and all it was that he was "having a lend of me." I hope his XYL refuses to lend him her baking dish, or whatever it is he boasts that he uses in his experiments!

Alan 5ST came up to me at the meeting and offered me a 1930 penny for "The Thing" that he said I am always talking about in the notes. I almost fell over in my eagerness to sell, but woke up at the last moment that it was only an English penny, and worth face value. I don't know whose face, his or mine, but surely my clean cut and finely chiselled features are worth more than a penny. What's that? Was the chisel blunt? How dare you, Sir!

Noticed Darcy 5DJ sitting quiet and demure at the meeting. He tells me that he is not on the air yet, the chores associated with a new QTH don't permit even a thought along those lines, but he is optimistic.

Dave 5BF ambled in half-way through the proceedings at the meeting. He is tied up with school on meeting nights and therefore is quite a stranger, but he definitely has not lost his interest, still doing a little on 14 Mc., and is even tinkering with the thought of having a go at "The Thing." Ah—h, nothing makes me sick!

Albert 5ZL, now a confirmed user of "The Thing," tells me that my name was being banded about on the "Sewing Circle" on 80 mx the other night. Be careful fellows, there is still law for libel, and even an outcast like myself can invoke it. Tread carefully.

Vern 5VB—the Admiral to you—was looking a little down in the mouth, and sitting primly in the front row when I sighted him. The reason?—Oh, nothing much! He had been making a couple of modifications to his gold-plated crystal holders, necessitating the use of a drill, and forgot to remove the crystals. Need I say any more, no I don't think so either!

Ron 5ZDC decidedly bent my ear on his new invention—perpetual motion—and I am still not sure who was pulling whose leg. However, he sounded very sincere and theoretical to me, so much so that I almost asked him to let me in on a few shares. No doubt time will tell the true story, and I might yet be biting my finger-nails at the opportunity lost.

A certain ex-contact of mine in W land mentioned in a letter to me that during the big power failure in that part of the world recently, the radio station at which he works tried to start the emergency power engine, but nothing doing. The man on engine maintenance eventually had the doubtful distinction a little later, of carrying a spare 12 volt battery up 24 flights of stairs. What a punishment!

Well—I am off on my holidays—and guess who is doing the notes next month? That's right old S.S.B. himself, none other than Comps 5EF. You all have my sympathy, will he bend your ears on "The Thing"?

73 de 6PS—PanSy to you.

## WESTERN AUSTRALIA

"Everything comes to those who wait." In other words, readers may find that they are reading notes sometimes eight weeks old. This happens when I put notes in the mail a couple of days after "A.R." has gone to press. This should explain to those mailed inquiries received.

I know that every reader will be pleased to know that George 6CH after a long stay in hospital is now home again, and we hope it's not too long before you are 100 per cent fit and well again, George.

Several of the boys were made welcome on board H.M.A.S. "Perth" (missile carrier) during its stay at Fremantle. I believe that a special password was necessary to enable access to the red carpet treatment. Hi. Mention the name of W5WVX Ed Harwell, that popular and well-known radio op. of the U.S.S. "Gridley," and boy, you were received most honourably.

Note Lance 6LR on the breeze again. Very solid signal radiated from the piece of wire hanging out of the window, Lance.

Lately conditions on 80 and 40 have been very good, lots of activity too, mainly from a.m. stations.

Whilst in Perth area reading mail on 6 mx noted a couple of real old-timers, Wally 6AG, Skipper 6WS, going great guns and on discussion of very interesting topics.

Each morning fairly regularly on 80 at the top end of the band we hear a group called "The Razor Gang," consisting of Early Shavers 6KJ, 6AB, 6FG, 6XO, 6FD and Tom 6MK. All using the shaver and removing any whiskers while we talk 80 to say:

Clem 6CW having moved QTH did not waste any time in getting back on the air. Also from Aub 6XY, now s.s.b. home-brew, we hear most exclusive quality production of voice, certainly equal to most commercial rigs. Real fine business, Aub. Congrats.

Must make a correction re my last issue in giving Jack 6BU a double U instead of a single U. How's the fishing Jack, "lucky man."

Not much from 6CL Ian lately. Must be too busy at the new QTH taming the big eagles and mudwamps. You had better find time to get the rig going mate. We sure miss your humour, old buddy.

A new call sign at 6AF, sorry, did not get the handle. Welcome back to VK6 land. Don 9BR working Jim 8RU on 80 mx, solid signals both ways. Lionel 6LM with 9 watts working 6BE. Bob been very active on 15 lately also.

Well, that's it, chaps. 73, Bob 8KN.

## TASMANIA

Let me start this month by welcoming the new members to your Council, these worthy gentlemen being Ted 7EJ, who has been our Federal Councillor for some years now; John 7ZJG, who works at our local commercial t.v. station; and Crosby 7CR, who is employed in the P.M.G. Dept. (don't ask me what branch), but wherever they work, they will, along with the rest of the Council, be working for you and the Division and the Institute as a whole for at least the next year, and with any luck at all, what a year it will be! The new Federal Constitution, being the biggest thing of course, and the year culminating in next Easter when all being well Tasmania will be Host Division to the rest of Australia for the Federal Convention of 1967, so not only your Council, but every single one of us will have a big job to do.

Our annual general meeting was attended by over 40 members this year. It was disappointing, however, that more members from the other Zones could not be present. They certainly missed a first class dinner and evening after the meeting, where over 60 OMs, XYLS, and YLs thoroughly enjoyed themselves. Quite a few seldom-seen faces showed themselves at the home of our President, Tom 7AL, on the Sunday morning after the dinner, when we held a monster disposal sale, and when we closed shop at 12 noon most of the monster was gone, and the club room fund was \$200 plus better off. This fund is now getting to the stage where we can start thinking about our club rooms. When we first started our fund,

**Repairs to Receivers, Transmitters; constructing and testing; xtal conv., any frequency; Q5-ers, R9-ers, and transistorised equipment.**

### ECCLESTON ELECTRONICS

146a Cotham Rd., Kew, Vic. Ph. 80-3777

**Stockists of Radio and Electronic Components for the Amateur Constructor and Hobbyist**

First Ring, Write or Call on

**WILLIAM WILLIS & Co. Pty. Ltd.**

428 Elizabeth St., Melb'ne. Ph. 34-6539

### COMPUTER CIRCUIT BOARDS

Containing switching transistors, resistors, condensers, diodes, etc. 20c per transistor.

Also in stock: 1600v./0.75a. diodes, \$1.50;

OA200-type silicon diodes, 100 for \$5.

Everything tax paid and post free. \$2 min.

### AUSTRALIAN ELECTRONICS

76 View Street, Hobart, Tasmania

## A. R. R. L.

Associate Memberships (and renewals) are available by forwarding £2/14/- (plus 6d. interstate cheques) to:

Business Manager, W.I.A.,  
49 Cookson Street,  
Camberwell, E.6,  
Victoria.

This includes the regular arrival of

"QST"

so slowly it grew, but now it grows faster, and so this is another thing which we will be striving for this coming year—our club rooms.

Incidentally, I suppose I'd better mention your full Council for this year: Tom 7AL as President again, Terry 7CT is Treasurer and Vice-President, Crosby 7CR is Secretary, Ian 7ZZ Vice-President, with Ted 7EJ, John 7ZJG and myself making up the seventh.

Tom 7AL has had his "thing" (to use 5PS' term for it) on the air, and if it's possible, has a f.b. s.s.b. sig. He says it will be even better when he re-builds the power supply, and gets it going on full power.

This year's Athol Johnson Memorial Contest was won by the one and only Ian 7ZZ, with a mere 70 points. It was a very poor contest this year, but then quite a lot of would-be contestants were busy with other things. I know, still we must congratulate Ian, not only for winning, but also for being the only one to submit a log, so what chance have the rest of us got anyway. Enough for now, it's bed time for me. One last thing, if you have not paid your sub., then it is high time you had! 73, Geoff 7ZAS.

### NORTHERN ZONE

The annual general meeting held on 11th March presented us with new office-bearers: Peter 7FP as President, Peter 7ZPD as Secretary-Treasurer, Frank 7ZFR as Zone Correspondent, and Col 7LZ as QSL Manager. I am sure all our good wishes go to these members and many thanks to the retiring members.

A t.v. project has been started. I believe 7ZBW has the job of the tx, 7ZPD the power supply, and 7LZX the sync. pulse generator. So to it and the best of luck.

Bevan 7ZBW is at present touring the East Coast of the big island, mobile 6 and 2 mx of course—VK2, VK3 and VK4 all included. No doubt there will be some good photographs of gear, some of it well stacked to the right proportions, as well as the more entrancing scenery that he will no doubt see, and with plenty of good news to grace our humble ears with.

Den 7DK went in April to VK2, VK3 and VK5 with that little muscovy of his. He tied up with old friends and worked a few more countries mobile into the bargain. Joe 7ZGJ has gone and accepted a position in VK2 at Wollongong. Don't worry Joe, there's plenty of us left to look after Loraine, and I am sure that I speak for all when I say the best in everything in your new adventure. Frank 7ZFR has gone and had himself half spliced; there's another on apron strings. Congratulations to you both.

The Hobbies Exhibition was held on 2nd April and a few locals turned out to operate the spare equipment. Thanks are given to 7BR, 7FP, 7JO, 7ZLD, 7ZRF and 7ZPD for providing such an interesting display under the circumstances.

The north versus north-west picnic was enjoyed by all who attended. I am sure that the 8 mx net has never seen such activity in the north and it lasted all day. Mike 7ZMW provided a base. The usual game of cricket ensued, and the Northern Zone won the honours of the day, even with a score of side out for 18 runs. The coveted trophy was presented to 7FP, our President, with due ceremony. Thanks to the organisers, the North-Western Zone.

See you at the next meeting at 2000 hours at the Adult Education Centre, 51 York St., and remember subs. are now due. 73, Frank 7ZFR.

## HAMADS

Minimum 5/-, for thirty words.

Extra words, 2d. each.

Advertisements under this heading will be accepted only from Amateurs and S.w.'s. The Publishers reserve the right to reject any advertising which, in their opinion is of a commercial nature. Copy must be received at P.O. Box 86, East Melbourne, C.2, Vic., by 8th of the month and remittance should accompany the advertisement.

**COLLINS 32S-1, s.s.b., tx, in mint condition. Has a.l.c., vox and works DX when the going is tough, £300. Box 36, Queen Victoria Bldgs., N.S.W.**

**FOR QUICK SALE: KW2000 s.s.b. Transceiver with a.c. p.s.u. and Shure 201 ceramic mike, as new, £300 (\$600), O.N.O. VK5XP, 5 Haldane St., Elizabeth Downs, S.A.**

**FOR SALE: American National NC400 Communications Receiver, 540 Kc. to 30 Mc., in 7 bands, separate band-spread scales on Amateur bands, 2 r.f., dual conversion, 3 i.f. stages, a.m., c.w., selectable s.s.b. reception, variable selectivity filters. VK3US, R. Clarkson, 26 Stewart St., Brunswick, Vic. 38-8929, mornings or week-ends.**

**FOR SALE: Hammarlund HQ-150, xtal filter, 100 Kc. calibrator, Q-multiplier, matching speaker, instruction book, one owner, \$225. Heathkit DX-100, instruction book, assembled by owner, \$195. Hy-Gain 3 elm 10 mtr. beam, Gamma match, instruction book, \$20. Two R. L. Drake T.V. high-pass filters, \$8 each. Regency transistor converter, model ATC-1, 80 through 10 mtr., \$75. Reply W. Rogers, 44 Brunxner Crescent, Goonellabah, N.S.W.**

**FOR SALE: Heathkit RA-1 Ham-Band Receiver, 1.7 to 30 Mcs., u.s.b., l.s.b., c.w., crystal filter, inbuilt crystal calibrator, matching speaker, factory assembled, spare set valves, manual and avometer, all mint, £75. Pope, 17 Goode St., Dubbo, N.S.W. Phone 5657.**

**FOR SALE: Selsyns, 3 in. Magslip Mk. 4, 50v., 50 cycles, £3 pair. A.W.A. crystal filter, full double lattice (8 crystals), frequency 100 Kc. approx., complete in case, £10. VK2ZAZ, J. W. Carr, 5 McKay Street, Nowra, N.S.W.**

**FOR SALE: Swan Tri-Bander, 80-40-20 mx, 240w. p.e.p., complete with a.c. power supply and mike, like-new condition, £140. VK3NZ, 32 William St., Box Hill, E.11, Vic.**

**SELL: Gelo TX-222 in excellent condition, £59. Am going sideband. Write first to VK3AXE, 383 Warrigal Rd., Burwood, Vic.**

**SELL: 5" U.S. Navy-type Panoramic Adaptor, 30 Mcs., i.f., \$90 (£45). 8" Jap. midget T.V., 1100v., a.c., d.c., or 240v. a.c., spare valves, circuit, \$160 (£80). Both new. Will exchange both for Tri-Band Swan or similar. VK3RS, 46 Mayston St., E. Hawthorn, Vic. 82-1047.**

**SELL: 122 Transceiver, complete with 12 volt power supply and Janny microphone in mint condition, \$45. Will forward freight collect. J. Lauten, VK1JL, 28 Atherton St., Downer, A.C.T.**

**WANTED: AR7 Communications Receiver, good mechanical condition, complete with all coil boxes, but power supply or speaker not essential. VK2AHI, R. Martin, Box 143, P.O., Casino, N.S.W.**

**WANTED: English Radar Equipment, pre-miniature valve, complete or part-stripped units. Particulars to J. Somerville, VK3ZCS, 24 Peachey St., Casterton, Vic.**

**WANTED: Galaxie III. Sell your 3-band rig for cash and invest in 5-band rig. Write first to Advertiser, 29 Pitt St., Ringwood, Melbourne.**

# A LARGE RANGE OF TRANSMITTERS, RECEIVERS, TEST GEAR, AND DISPOSALS RADIO PARTS AVAILABLE

## ★ SIGNAL GENERATORS

Type LSG10, 120 Kc. to 260 Mc., \$26. Type LSG11, 120 Kc. to 390 Mc., provision for xtal, \$30, both plus freight.

TE22 Audio Generator, freq. range: sine 20 c/s.-200 k/c., square 20 c/s.-25 k/c., in four ranges. Output, 7v. p-peak. Output impedance, 1,000 ohms, \$42.

## ★ C.W. TRANSMITTER

80-10 metres. Geloso 4/102 v.f.o., 2E26 buffer, 813 final, pi-coupler output. Separate meters for grid and plate current. Excellent table-top rig. Less power supply, \$50.

## ★ POWER SUPPLIES

300v. at 150 mA., 6.3v. at 3 amp., fully enclosed, on 19-inch panel, \$6, complete with meter \$8.

## ★ METERS, P25 TYPE

0-500 uA., \$5.25; 0-100 uA., \$6.95; 0-1 mA. \$4.50; 0-10 mA., \$4.50; 0-50 mA., \$4.50. Full range of Meters and Multi-Testers available.

## ★ CO-AXIAL CABLE

UR70 72 ohms, 3/16 inch diam., in 27-yard rolls, \$2 plus 75c pack and post. In as new condition.

## ★ 80-40 METRE TRANSCEIVER

San Electronics QTR7. Tx: 6BQ5 p.a., 6BQ5 modulator, xtal locked. Rx: Tunes 3.5 to 11 Mc., 1 watt audio output, 230v. a.c., \$90.

## ★ SAL39 AMPLIFIER KLYSTRONS

**Pulse Service:** 120w. input, 30kw. output, duty cycle 1%, freq. range 960-1230 Mc. **C.w. Service:** 50w. input approx., 300w. output approx. Ideal tube for 1296 Mc. band. \$20 plus freight.

### WANTED TO BUY

Communication Receivers, Test Equipment, etc. Call, write or phone. Equipment inspected and picked up at your convenience any night or week-end.

## ★ GOLD PLATED CRYSTALS

One only G.E.C. 1,000 c/s. vacuum mounted, gold plated Crystal. Octal base.

One only Marconi 2,000 c/s. vacuum mounted, gold plated Crystal. B7G base.

Prices for above on application.

## ★ MINIATURE CAPACITORS

New shipment. 600 v.w. Values: 0.001, 0.02, 0.005, 0.0005, 0.0002, 0.0001 uF. \$2 for 80 plus freight.

## ★ RESISTORS

$\frac{1}{4}$  watt, I.R.C., Welwyn, Eire, Ducon, Philips, \$2 per 100.

## ★ CRYSTALS

Personal shoppers only, \$1 each.

## ★ AR7 COMMUNICATIONS RECEIVER

Complete with five coil boxes. 120 Kc. to 25 Mc. 10 tubes. All resistors and capacitors replaced, immaculate condition. \$90.

## ★ SPECIALS

813 Beam Tetrodes, \$5 each.

7-pin skirted Valve Sockets, P.T.F.E., insulation, silver plated, only 20c each, c/w. shield.

## ★ C.R.O. TUBES

CV407, \$1 each; CV392, \$1 each.

## ★ TRANSISTORS

Brand new. OC72, OC44, 2N132, OC66, OC45, 80c each. ATI138 Power Transistor, 30w., Class B, \$3. Also Diodes: OA71, OA81, OA95, 35c each.

### ANY QUERIES

Beginners are welcome, ask Jim and Laurie Gardiner any questions. They are Amateur Radio operators and will be only too pleased to assist.

ALL ITEMS FREIGHT EXTRA

# UNITED TRADE SALES PTY. LTD.

280 LONSDALE ST., MELBOURNE, VIC. (Opp. Myers)

Phone 32-3815

**Department of External Affairs**  
**ANTARCTIC DIVISION**  
**RADIO TECHNICIANS**  
**AND OPERATORS WANTED**

**Conditions of Employment.** Two to four months preparatory work in Melbourne followed by approximately twelve months at the Station. Tentative sailing dates: — Macquarie Island — early December, Mawson and Wilkes — late December. Whilst absent from Australia, kitting and maintenance are provided free by the Commonwealth, and there is an allowance of 37½% of salary up to a maximum of \$1400 (£700) per annum, in addition to which a district allowance of \$650 (£325) for married men and \$400 (£200) for single men is paid. Recreation leave accrues at rate of five weeks per annum. Subject to the provision of the Income Tax Assessment Act, Zone Allowance deduction of \$540 (£270) may be allowable. Salaries commence within the appropriate range according to qualifications and experience. Employment will be in a temporary capacity under the Public Service Act 1922-1964.

**SUPERVISING TECHNICIAN:**

Mawson (1) Wilkes (1)

Salary including allowances\* per annum: Married man: \$5600 (£2800)  
 Single man: \$5350 (£2675)

**Duties:** Instal and maintain HP transmitters up to 5 KW output, HP communication receivers, portable field equipment, ground aeradio communications and navigation equipment, radio teletype systems and fixed antenna systems and telephone lines and instruments.

**Qualifications:** Qualified Senior Radio Technician. Wide experience in the maintenance or installation and testing of radio communications transmitters and receivers and radio navigation equipment.

**TECHNICIAN (RADIO):**

Mawson (1) Wilkes (1)

Salary including allowances\* Married man: \$3764-4192 (£1882-2096)  
 per annum: Single man: \$3514-3942 (£1757-1971)

**Duties:** Instal and maintain radio and communications equipment under supervision.

**Qualifications:** Radio tradesman with experience in the maintenance and installation of HP radio communications transmitters, receivers and associated equipment.

**RADIO SUPERVISOR:**

Macquarie Island (1)

Salary including allowances\* Married man: \$4426-4662 (£2213-2331)  
 per annum: Single man: \$4176-4412 (£2088-2206)

**Duties:** Instal and maintain radio transmitting and receiving equipment, and act as Senior Radio Telegraphist.

**Qualifications:** Applicants should state any appropriate licence or technical diploma held by them. A thorough knowledge of theoretical and practical electronics plus a First Class Commercial Operators Certificate of Proficiency or equivalent service experience.

**RADIO OFFICER:**

Mawson (4) Wilkes (4) Macquarie Island (2)

Salary including allowances\* Married man: \$3920-4388 (£1960-2194)  
 per annum: Single man: \$3670-4138 (£1835-2069)

**Duties:** Radio Telegraphist.

**Qualifications:** Commercial Operators Certificate of Proficiency or equivalent service experience, together with experience in operation and maintenance of ground installations.

**SENIOR OBSERVER (RADIO):**

Mawson (1) Wilkes (1) Macquarie Island (1)

Salary including allowances\* Married man: \$4662-4896 (£2331-2448)  
 per annum: Single man: \$4412-4646 (£2206-2323)

**Duties:** Take meteorological observations and operate and maintain meteorological electronic equipment. The successful applicant for Mawson will be required to instal three centimetre wind finding radar equipment.

**Qualifications:** Applicants must have educational qualifications to Intermediate Certificate standard and be trained as Radio Technicians. Experience in microwave radar, related experience in pulse techniques and auto follow systems an advantage.

**Training:** Successful applicants will be trained at a course in Melbourne commencing on 18th July, 1966.

★ ★ ★ ★

*Please note that all salaries quoted include allowances. These allowances are payable only whilst serving in Antarctica. Salary whilst on duty in Australia may be calculated by deducting allowances, e.g. a married man receiving \$3794 (£1897) whilst absent from Australia would receive salary of \$2286 (£1143) whilst in Australia, i.e. \$3794 (£1897) less \$858 (£429) (37½% of salary) less \$650 (£325) (district allowance). A single man would receive \$250 (£125) less than the married man because of variation in district allowance payable.*

*Applicants must be in robust health. Ice or snow experience not required but history of outdoor activities is desirable.*

*Applications, which must be accompanied by a recent photograph and the names of at least three referees, should be lodged with the undermentioned addressee:-*

**The Director,  
 Antarctic Division,  
 Department of External Affairs,  
 568 St. Kilda Road,  
 Melbourne, S.C.3, Victoria.**

Please send me an application form for position of..... with the 1967 Australian National Antarctic Research Expeditions.

NAME.....

ADDRESS..... STATE.....

**PLEASE COMPLETE IN BLOCK LETTERS  
 DO NOT ENCLOSE PHOTOGRAPH OR REFERENCES  
 WITH THIS COUPON**



# amateur radio

Vol. 34, No. 6  
JUNE  
1966

25c

Registered at G.P.O., Melbourne, for  
transmission by post as a periodical

**NEW WELWYN INSULATED METAL OXIDE**

**POWER RESISTORS**

Wire Wound.

Available in following sizes: 10 ohms, 20, 30, 40, 50, 60, 68, 75, 82, 91, 100, 120, 150, 220, 270, 330, 370, 390, 470, 500, 560, 680, 720, 750, 820, 850, 1000, 1200, 1500, 1800, 2200, 2400, 2700, 3.3K, 3.9K, 4.3K, 4.5K, 4.7K, 5.6K, 6.8K, 8.2K, 10K, 12K, 15K, 18K, 22K, 24K, 25K, 27K, 33K, 35K, 39K, 47K, 56K, 68K ohms. Prices: 4 watts, 3/6; 8 watts, 4/6; 10 watts, 5/6.

**TOLERANCE:** Normal manufacturing tolerance plus or minus 5%. Can be selected to closer tolerances.

**Shelf Stability:** Less than 2% over 12 hours.  
**Full Load Stability:** For 2000 hours at 70 deg. C. less than 5%.

**Long-term Stability:** Less than 0.1% per 1000 hours.

**Temperature co-efficient:** Less than plus or minus 500 ppm/dg. C. from 0-125 deg. C.  
**Dielectric Strength:** 600 volts R.M.S.

**Encapsulation:** Fireproof Silicone Cement.  
**Axial Leads:** Minimum length 1 1/4 in.—21 s.w.g. dia.

**TRANSISTORS AND DIODES**

AC125	9/6	95c	OC169	19/6	\$1.95
AC126	9/6	95c	OC170/AF115N	13/6	\$1
AC127	10/6	\$1.05	OC171/AF114N	19/6	\$1
AC128	10/6	\$1	2N217	9/6	95c
AF114N/OC171	10/6	\$1	2N217S	9/6	95c
AF115N/OC170	10/6	\$1	2N270	13/6	\$1.35
AF116N	9/6	95c	2N370	19/6	\$1.90
AF117N	9/6	95c	2N372	19/6	\$1.90
AF118	22/6	\$2.20	BY100/OA214	16/6	\$1.60
BC107	11/6	\$1.10	OA79	4/6	40c
BC108	10/6	\$1	OA80	3/6	30c
BC109	14/6	\$1.40	OA81	3/6	30c
OC25	26/6	\$2.60	OA90	3/6	32c
OC35/AT1138A	35/6	\$3.50	OA91	3/6	32c
OC44N	11/6	\$1.10	OA95	3/6	32c
OC45N	11/6	\$1.10	OA200	7/6	75c
OC70	12/6	\$1.20	OA210, 1N1733, 1N3194	HR25	8/6
OC71/2N215	7/6 or 3 for £1	75c or 3 for £2	OA211, S10A2	16/6	\$1.63
OC72	13/6	\$1.35	1N3491	50 p.i.v.	18 a. 9/6
OC74N	9/6	95c			
OC75	13/6	\$1.35			

**SCOPE SOLDERING IRONS**

Scope Stand, \$5.50. De luxe, \$5.95. Birko, \$4.50. Miniscope, \$4.50. Vibroscope, \$4.50.

**SCOPE SPARES**

Copper Tips, Standard	\$0.11	Return Spring	\$0.12
Each		Flex Lead	\$1.00
Copper Tips, Instrument	\$0.11	Bakelite Lock Nut	\$0.18
Barrel, Standard	\$1.02	Brass Nut	\$0.25
Barrel, Stainless Steel	\$1.25	Handle, complete	\$1.97
Element, Carbon	\$0.03	Switch Ring	\$0.25
Head Retaining Nut	\$0.63	Rubber Grip	\$0.03
Beads, Ceramic	\$0.03	Grommet Spring	\$0.18
Push Rod Assembly	\$1.68	Grommet Nut	\$0.18
		Terminal Box Cover for transformer	\$0.40

**MINISCOPE SPARES**

Copper Tips	\$0.09	Insulating Bush	\$0.10
Barrel, Stainless	\$1.33	Switch Return Spring	\$0.10
Element	\$0.09	Contact Lug	\$0.10
Push Rod Assembly	\$0.80	Switch Lever	\$0.67
Handle, slotted half, c.w., brass nut and cable clip	\$1.57	Flex Lead	\$0.54
		Handle, unslotted half	\$0.71

**CONDENSERS**

M.F.D.	Volts	Price	M.F.D.	Volts	Price
2	22	35c	50	153	75c
4	3	30c	51	350	\$1.35
5	6	30c	51 pl. 53 350 Can		\$1.60
5	12	30c	53	450	\$1.35
5	18	35c	64	6	35c
8	10	30c	64	18	35c
8	15	30c	100	3	35c
8	350	48c	100	6	35c
8	525	58c	100	12	35c
10	3	30c	100	25	50c
10	6	30c	100	50	72c
10	15	35c	100	100	75c
10	25	35c	100	200 Can	\$1.03
16	10	35c	100	300	\$1.53
16	300	50c	100	350 Can	\$1.61
16	525	75c	125	3	35c
20	200	62c	150	150	75c
24	350	65c	200	25	65c
24	500	97c	200	50	90c
25	3	32c	250	3	57c
25	6	30c	250	6	55c
25	12	35c	250	16	55c
25	18	35c	250	25	75c
25	25	35c	250	50	95c
25	59	45c	530	12D	50c
25	300	62c	500	25	88c
25	600	92c	500	50	\$1.25
30	6	35c	1000	6	92c
30	12	35c	1000	12	\$1.05
32	350	70c	1000	25	\$1.49
50	6	32c	1000	15	\$1.49
50	12	35c	2000	18	\$1.70
50	25	47c			

**ZENER DIODES**

OAZ200	15/6	\$1.55	OAZ222/BZZ14	27/6	\$2.75
OAZ212	12/6	\$1.25	OAZ224/BZZ16	27/6	\$2.75
OAZ213	12/6	\$1.25			
OAZ225	27/6	\$2.75			

**POWER TRANSFORMERS**

1992	150-0-150v.	30 mA.	6.3v.	1.75a.	37/6	\$3.75
1993	225v.-0-225v.	59 mA.	6.3v.	2a.	45/6	\$4.50
2062	Voltage Doubler,	290,	265v.			
	d.c. 80 mA.	6.3v. c.t.	2.25a.		67/6	\$6.75
2064	Voltage Doubler,	340,	315v.			
	d.c. 125 mA.	6.3v. c.t.	2.25a.		87/6	\$8.75
2067	Voltage Doubler,	310,	285,	260v.		
	d.c. 100 mA.	6.3v. c.t.	4a.		83/6	\$8.35
290-0-290v.	60 mA.	6.3v.	2a., 5v.	2a.	27/8	\$2.75
385-0-385v.	100 mA.	6.3v.	3a., 5v.	2a.	35/6	\$3.50
385-0-385v.	125 mA.	6.3v.	3a., 6.3v.	2a., 5v.	2a.	45/6
						\$4.50

**AUDIO TRANSFORMERS**

2624	7000 ohm s.e.,	500 ohm s.e.				
	prim.; 2, 3.7, 8, 15 ohm sec.	46/8			\$4.60	
4013	15 watt 6600 ohm c.t.	20%				
	prim.; 3.7, 8, 15 ohm sec.	164/8			\$16.46	
4020	10 watts prim.	9000 ohm c.t.				
	20% Ultra Linear (Mullard					
	10-101, sec. 3.7 or 15 ohm					

**TRANSISTOR TRANSFORMERS**

TD1	Driver 3000 ohm,	2000 ohm c.t.	19/6	\$1.95
TD2	Driver, 420 o. c.t.,	105 o. c.t.	19/6	\$1.95
TO1	Output, 375 ohm c.t.,	3.5 ohm	16/6	\$1.60
	500 mw.			
TO2	Output, 97 ohm c.t.,	3.5 ohm	18/6	\$1.85
	1 watt			
TO4	Output, 300 ohm c.t.,	3.5 ohm	37/6	\$3.75
	5 watts			

**FILAMENT TRANSFORMERS**

T4/4	230v., 6.3v.	2 a.	32/6	\$3.25
2150	240v., 6.3v.	2.5 a., or two by 6.3v. 1.25a.	35/6	\$3.50
2155	240v., 6.3v.	7.5v., 8.3v., 9.5v., 12.5v., 15v.	46/6	\$4.60
12/64	240v., 6v.	4a., 12v.	53/6	\$5.00
12/66	240v., 6v.	6a., 12v.	57/6	\$5.75

**ALIGNMENT TOOLS**

Jabel No. 4 Alignment Tool Kits. All popular sizes. Four tools in plastic pouch. 12/6, \$1.20.

**TRANSISTOR SIGNAL INJECTOR**

Pencil Type 2 Transistor, complete with instructions and battery. 55/6, \$5.50.

**BEZALS AND NEON INDICATORS**

Sato 3280	6-8v. sub-miniature, red, green, blue	4/6	45c
NEZ Neon Indicator	65v., flying leads	3/6	30c
230v. Red Neon Bezel		6/6	65c

**PARTS FOR RTV & H TACHO**

Meter (MR3P), 0-1 mA.	50/6	\$5.00
7980 or 5300 r.p.m. scale	extra	15/6
Henry Choke, ready wound		22/6
I.K. Trimmer Pot		4/6
Circuit Board		6/6



**RADIO SUPPLIERS**

5A MELVILLE ST., HAWTHORN, VIC. Phone 86-6465

North Balwyn tram passes corner.

Money Orders and Postal Notes payable North Hawthorn P.O.

We sell and recommend Leader Test Equipment, Pioneer Stereo Equipment and Speakers, Hitachi Radio Valves and Transistor Radios, Kew Brand Meters, A. & R. Transformers and Transistor Power Supplies, Ducon Condensers, Welwyn Resistors, etc

# "AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA. FOUNDED 1910

JUNE 1966  
Vol. 34, No. 6

**Editor:**  
K. M. COCKING ..... VK3ZFQ

**Assistant Editor:**  
K. E. Pincott ..... VK3AFJ

**Publications Committee:**  
G. W. Baty (Secretary) ..... VK3AOM  
A. W. Chandler (Circulation) ..... VK3LCL  
E. C. Manifold ..... VK3EM  
W. E. J. Roper ..... VK3ARZ

**Draughtsmen:—**  
Ken Gillespie ..... VK3GK  
Clem Allen ..... VK3ZIV  
Ian Smith ..... 35 Green St., Noble Park

**Advertising Enquiries:**  
C/o. P.O. Box 36, East Melbourne, C.2, Vic.  
or  
Mrs. BELLAIRS, Phone 41-3535, 478 Victoria  
Parade, East Melbourne, C.2, Victoria. Hours  
10 a.m. to 3 p.m. only.

**Publishers:**  
VICTORIAN DIVISION W.I.A.,  
Reg. Office: 65a Franklin St., Melbourne, Vic.

**Printers:**  
"RICHMOND CHRONICLE," Phone 42-2419,  
Shakespeare St., Richmond, E.1, Vic.

★

All matters pertaining to "A.R." other than subscriptions, should be addressed to:  
**THE EDITOR,**  
"AMATEUR RADIO,"  
P.O. BOX 36,  
EAST MELBOURNE, C.2, VIC.

Acknowledgments will be sent following the Committee meeting on the second Monday of each month. All Sub-Editors should forward their articles to reach "A.R." before the 5th of each month. Any item received after the Committee meeting will be held over until the next month. Publication of any item is dependent upon space availability, but in general about two months may elapse before a technical article is published after consideration by the Publications Committee.

★

Members of the W.I.A. should refer all enquiries regarding delivery of "A.R." direct to their Divisional Secretary and not to "A.R." direct. Non members of the W.I.A. should write to the Victorian Division, C/o. P.O. Box 36, East Melbourne. Two months' notice is required before a change of mailing address can be effected. Readers should note that any change in the address of their transmitting station must, by P.M.G. regulation, be notified to the P.M.G. in the State of residence, in addition "A.R." should also be notified. A convenient form is provided in the "Call Book".

★

Direct subscription rate is \$3.00 a year, post paid, in advance. Issued monthly on the first of the month, January edition excepted.

## FEDERAL COMMENT

★

### A FABLE FOR AMATEURS—WITH A MORAL

Last century there were two very small kingdoms, Manx and Utopia, both of which bordered the much larger kingdom of Gargantua. King Otto of Manx and King Paramount of Utopia were firm friends as were their fathers before them. Peaceful relations had existed between the two countries for centuries and as far back as man could remember, a mutual defence treaty had existed between Manx and Utopia. This bond had been a strong deterrent to the ambitious policies of the King of Gargantua, who cherished dreams of taking over the two smaller countries, thus adding to his domain.

Otto and Paramount both enjoyed the same hobby—the breeding and raising of white cats with pink eyes. Their subjects had also become enthusiastic about this hobby and new and better methods of improving the breed were constantly exchanged between the two countries.

But it came to pass that a bright young man in Manx developed a new strain of white cat—one with green eyes. The Manx king soon disposed of his pink-eyed cats and devoted his efforts to the improvement of the green-eyed breed, as did his subjects. Soon this difference in ideas led to a bitter feud between the two kings—and the two kingdoms. As the rivalry increased, friendships crumbled. There was name calling and border incidents became numerous. Soon the armies of both countries were massed along the frontier, ready to attack—the mutual defence treaty was forgotten.

Today Manx and Utopia are no more. The Ambitious King of Gargantua had no difficulty in defeating the divided armies of the two tiny kingdoms and annexing their lands. Cats are now forbidden in these areas.

There is a moral in the foregoing story for us—the Radio Amateurs of Australia. Let us not become divided amongst ourselves over relatively petty differences. Amateur Radio means different things to different people. Respect the other fellow's major interest and don't resort to name calling if his ideas don't coincide with yours. Most of all remember that the Amateur in this country is represented by the Wireless Institute of Australia and even if you have a legitimate complaint against the W.I.A., you will achieve nothing by dropping your membership and loudly proclaiming your intense dislike of the Institute to all and sundry. Yes, you may hurt the Institute a little, but it will still outlast you—more important you hurt the Amateur fraternity as a whole by dividing members one against the other. The probable result is summed up in our fable. Be positive in your approach. If you have a grouch take office in the Institute and attempt to rectify what you consider to be wrong. You are then doing all Amateurs, including yourself, a service.

—D. H. Rankin, Federal Activities Officer, W.I.A.

## CONTENTS

Two-Unit Pye Base Station Conversion .....	3	Standard Stations received in Far East .....	15
Noise Limiter for Mobile Use .....	5	W.I.A. Federal President's Annual Report .....	17
Some Thoughts on Hang A.g.c. Systems .....	7	Reciprocal Licence issued by U.S.A. ....	21
1966 John Moyle National Field Day Results .....	9	Higginbotham Award .....	21
"Fifty and Over" .....	11	Contest Calendar .....	21
VS9MP, Maldive Is. ....	11	YRC .....	21
Remembrance Day Contest, 1966, Rules .....	12	DX .....	22
Central Queensland Branch Display .....	15	Prediction Charts .....	22
Boeing Demonstrates Meteor-Burst Communication .....	15	VHF .....	23
		Publication Committee Reports ..	23
		SWL .....	24
		Federal and Divisional Monthly News Reports .....	25

# JOYSTICK

In one gloriously successful year, thousands of JOYSTICKS have been sold to stations throughout the world. PARTRIDGE ELECTRONICS have been inundated with testimonials from JOYSTICK users. Orders for this revolutionary (pats. pend.) variable frequency antenna system have so multiplied that new premises have been leased in order to cope with demand. ALL JOYSTICK orders are now despatched immediately.

Every JOYSTICK System is supplied complete with feeder and an antenna matching unit—selected by you to suit your personal set-up. It is ready to go on the air and gives an unprecedented 'lift' to signal strengths especially for 'cliff' and 'cave' dwellers—EVEN FROM UNDERGROUND!

Naturally the advantages of using the 'JOYSTICK' 'up-in-the-clear' are even greater!

## New Joystick Range

There is now a whole new range of Joystick Systems—made to match your QTH, your rig and your pocket! The SYSTEMS cover TX/RX, SWL, indoor and outdoors, mobile. Made only in the finest materials the SYSTEMS are reliable and permanent!

### TOTAL COST of JOYSTICK V.F.A. SYSTEMS

	NSW	Australian Postage		
		VIC/QU.	WA/NT/ TAS.	
<b>Transmit and Receive</b>				
De Luxe JOYSTICK SYSTEM	\$31.40 + \$0.75	\$1.00	\$1.25	
Standard " "	\$27.20 + \$0.45	\$0.54	\$0.74	
DX-Magnet " "	\$25.10 + \$0.45	\$0.54	\$0.74	
<b>Receiving Only</b>				
De Luxe JOYSTICK SYSTEM	\$26.40 + \$0.62	\$0.82	\$1.12	
Standard " "	\$22.20 + \$0.42	\$0.52	\$0.72	
DX-Magnet " "	\$20.10 + \$0.42	\$0.52	\$0.72	
Complete Mobile System	\$33.70 + \$0.72	\$0.92	\$1.32	

RF indicators/phone monitor.

RF45 (untuned) \$11.75 + 15 c postage all states, complete with crystal earpiece.

# VARIABLE FREQUENCY ANTENNA SYSTEM

How can a 7' 6" long device out-perform a conventional antenna many times its size?

HERE IS YOUR ANSWER

## ZL4GA WORKS G5WP ON 80 METRES

INDOORS—ZL4GA's JOYSTICK got him 569 on 3.5 Mcs. from G5WP on 21st February, 1965, at 0850 G.M.T. Alan had worked VE7BIY on 3.5 Mcs. at 559 and also logged 59 countries on 14 Mcs. by that date, including LU1HBS and 9M4LP.

Testimonials continue to pour in!

W7OE, U.S. Govt. Electronics Engineer (Retd.) writes: "It equals half wave dipoles and similar conventional antennas on 160, 80 and 40 and has proven superior to them in the 15 and 20 metre bands. I would most certainly recommend it to anyone looking for an effective 'all-band' antenna system and particularly to those who have limited antenna space."

**READ ALL ABOUT IT!** This ticket will bring you the new brochures by return of post!

NAME ..... (Call Sign) .....

ADDRESS .....

Address your order to:—

**Pennant Imports (Electronics) Co.**

P.O. Box 26, Beecroft, N.S.W.

## TREMENDOUS SAVINGS

### YEAR-END CLEARANCE SALE—EVERYTHING MUST GO!

#### HALLICRAFTERS

SX111—S.S.B. Receiver. Double conversion, selectable sideband, variable selectivity, 100 Kc. xtal calibrator. Amateur band only. Price £150.				
SR150—S.S.B./C.W. Transceiver. 5 band, filter type gen., 150 watts	£250	0	0	plus 12½% tax
S107—S.S.B. Receiver, 550 Kc. to 54 Mcs.	£65	0	0	plus 25% tax
HT45—S.S.B. Linear Amplifier	£157	0	0	plus 12½% tax
CB3A—5 watt 27 Mcs. Transceiver	£65	0	0	plus 12½% tax
CB8—1 watt 27 Mcs. Transceiver	£47	0	0	plus 12½% tax
80 Mcs. 50 watt mobile or base Transceiver. Latest 6 channel extra narrow band	£195	0	0	plus 12½% tax

#### GALAXY

Galaxy 3 Triband Transceiver	£202	0	0	plus 12½% tax
Galaxy 5 All band Transceiver	£250	0	0	plus 12½% tax
Galaxy 250 volt a.c. Power Supply	£47	16	10	plus 12½% tax

#### SWAN

Swan SW140, single band Transceiver, secondhand, £98.  
Swan SW140 Converted to triband Transceiver, fitted with new front panel. Requires some work, £98

#### HEATH

Heathkit HW22—40 m. Transceiver, secondhand, with triband modification kit, £95.

**W.F.S. ELECTRONICS SUPPLY CO.**

**ATLANTIC RADIO**

227 Victoria Road, Rydalmere, N.S.W. 638-1715

36 Oxford St., Woollahra, N.S.W. 31-7811



# TWO-UNIT PYE BASE STATION CONVERSION

ROGER L. HARRISON,\* VK3ZRY

THESE units are the old a.m. base stations which have recently appeared on disposals in small numbers. The conversion presented here is for six metres a.m. net frequency (53.032 Mc.).

## TRANSMITTER CONVERSION

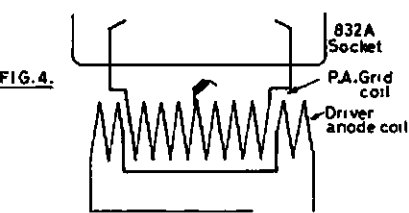
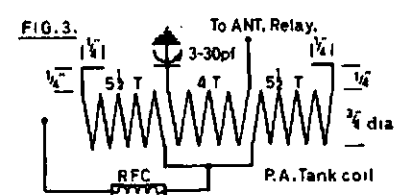
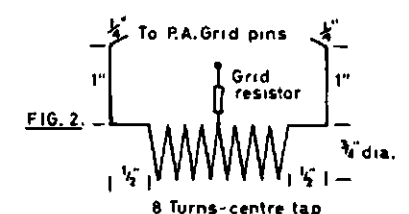
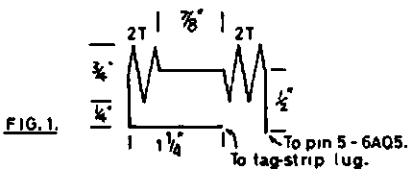
The transmitter runs an 832A in the final or a QQE04/20. Both tubes are identical. The driver is generally a 6AQ5, and a 6AM5 or 6AU6 is used in the oscillator. The transmitter conversion is easy and quite straightforward. The coils are easily located under the chassis; no trouble should be experienced in locating them. Remove all the original coils and replace, one at a time (to remember the connections) with the following coils:

**Oscillator Anode Coll.** Rewind 14 turns of 26 B. & S. enamelled wire. This should resonate to 26.5 Mcs.

**Driver Anode Coll.** Wind 4 turns,  $\frac{3}{8}$  in. inside diameter of 18 s.w.g. enamelled wire. Refer to Fig. 1.

**P.A. Grid Coll.** Wind 8 turns, 18 s.w.g. enamelled wire,  $\frac{3}{4}$  in. diameter centre tapped. Refer to Fig. 2.

**P.A. Tank Coll.** Wind 11 turns,  $\frac{3}{8}$  in. inside diameter of 18 gauge B. & S. enamelled wire. Refer to Fig. 3.



**Output Link.** Wind 4 turns,  $\frac{3}{8}$  in. inside diameter of 18 gauge B. & S. enamelled wire. A 3-30 p.F. Philips trimmer is in series with the earthy end. Refer to Fig. 3.

Note that the p.a. grid coil is mounted inside the driver plate coil to achieve tight inductive coupling. (See Fig. 4.)

There is no conversion needed on the audio section except that the microphone you desire to use may not suit the unit. If so, then I leave it up to the constructor to make his own arrangements, as ideas and methods on this subject will vary widely. The tune-up procedure I will leave till later, as this should be attempted after receiver conversion.

## RECEIVER CONVERSION

This will almost be the same as per the article in "A.R.," November, 1965. I used a different crystal than that specified in the article, and noticed a few differences. The conversion presented here is that to suit an 11,186.4 Kcs. crystal.

**Coils:** The coil data is as follows (see Fig. 5):—

- L1=11 turns, tap 2 1/2 turns from earth, 20 B. & S. enamelled.
- L2=7 turns, 20 B. & S. enamelled.
- L3=6 1/2 turns, 20 B. & S. enamelled.
- L4=5 turns, 20 B. & S. enamelled.
- L5=11 turns, 26 B. & S. enamelled.

**Mute Circuit:** Next to the mute relay you will find two capacitors mounted side by side as shown in Fig. 6. Remove the one towards the back of the chassis—this improves the sensitivity of the mute. Also remove the 4.7K ohm resistor and change the 10 ohm to 39 ohm resistor.

**Alignment:** This will be the same as in "A.R.," November, 1965, except that for an 11,186 Kcs. crystal the 1st i.f. will be 14.0864 Mcs. The 1st i.f. transformer (T1) will tune to this easily.

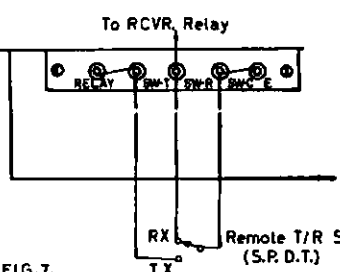
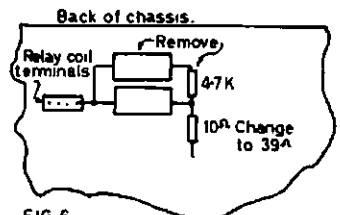
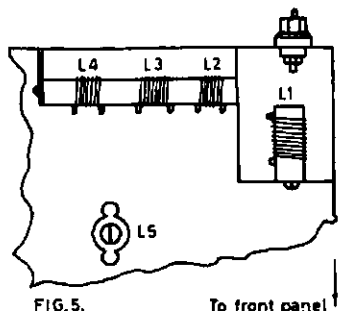
To align the receiver you will find it necessary to connect the terminal on the back of the chassis marked "Relay" to the "E" (earth) terminal. Also connect the 3 ohm terminal to the LS terminal. You will also find it necessary to turn the mute control fully anticlockwise. The two pots mounted on the chassis are r.f. gain and a.f. gain; these should be turned fully clockwise.

### Mute Adjustment:

1. Turn on receiver.
2. Turn mute control fully anticlockwise.
3. Allow receiver to warm up until the mute relay opens and noise is heard.
4. With antenna connected to unit and noise coming through, turn mute control clockwise slowly until the mute relay is heard to just drop out. This is the most sensitive position of the control. The meter on the front panel will probably read. Don't worry, as this is only a visual indication of when a signal is present when the monitor switch is turned down.

5. DO NOT advance the control any further as this reduces the sensitivity of the mute. If this occurs, return the pot to fully anti-clockwise and repeat the procedure.

It was noted that after about another 20 minutes or so the mute would open of its own accord. Re-setting the mute control will restore order.



## TRANSMITTER ADJUSTMENT

Before commencing the transmitter tune up the terminals on the back left-hand end (below power trannie) should be connected as follows:

1. SW-C to E.
2. Relay to SW-T.

On the right-hand back terminal board:

1. E to INPUT.
2. One side of mic. to INPUT.

Before commencing tune-up a proper antenna should be connected to the Tx. An in-line r.f. indicating device such as an s.w.r. meter should be used to monitor r.f. output.

For tune-up, toggle switch at back of chassis should be up;

For operation and modulation checks it should be down.

The tune-up procedure is as follows:

1. Turn meter switch to G1.
2. Turn on Tx and peak oscillator anode coil for maximum reading.

(Continued on Page 5)

\* 1 Mary St., North Balwyn, E.9. Vic.

### GELOSO V.F.O.

Model 4/104 V.f.o. Unit. Tunes 80, 40, 20, 15, 11 and 10 metres. Uses 6CL6 and 5763 valves. Price (valves extra), \$24.60.  
 Model 4/102 V.f.o. Unit. Tunes 80, 40, 20, 15 and 10 metres. Uses 6J5G, 6AU6 and 6L6 valves. Price (valves extra), \$24.60.  
 Prices include Sales Tax.  
 Notes on Circuit Application of Geloso V.f.o. Units available upon request.  
 All Geloso V.f.o. Units are supplied complete with calibrated dial, pointer and perspex escutcheon.

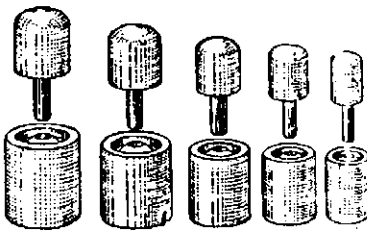
### WILLIS AIR-WOUND INDUCTANCES

No.	Diam.	Turns	B. & W.		Price
			In.	Length Equiv.	
1-08	1/2 in.	8	3 in.	No. 3002	\$0.55
1-16	1/2 in.	16	3 in.	No. 3003	\$0.55
2-08	3/8 in.	8	3 in.	No. 3006	\$0.66
2-16	3/8 in.	16	3 in.	No. 3007	\$0.66
3-08	3/4 in.	8	3 in.	No. 3010	\$0.76
3-16	3/4 in.	16	3 in.	No. 3011	\$0.76
4-08	1 in.	8	3 in.	No. 3014	\$0.86
4-16	1 in.	16	3 in.	No. 3015	\$0.86
5-08	1 1/4 in.	8	4 in.	No. 3018	\$1.05
5-16	1 1/4 in.	16	4 in.	No. 3019	\$1.05
8-10	2 in.	10	4 in.	No. 3907	\$1.38

### SPECIAL ANTENNA ALL-BAND TUNER INDUCTANCE

(equiv. B. & W. No. 3907-7 in.)  
 7 in. length, 2 in. diam., 10 t.p.i., \$2.45.  
 References: A.R.R.L. Handbook, 1961; "QST", March, 1959; "Amateur Radio", Dec., 1959.

### "WILLIS" CHASSIS PUNCHES



MADE OF FINEST GRADE TOOL STEEL

3/8 in. punch	\$2.20	1-1/16 in. punch	\$3.60
1/2 in. ..	\$2.20	1 1/4 in. ..	\$3.80
5/16 in. ..	\$2.20	1-3/16 in. ..	\$4.00
7/16 in. ..	\$2.20	1 1/2 in. ..	\$4.80
3/4 in. ..	\$2.40	1 3/4 in. ..	\$5.20
11/16 in. ..	\$2.60	1 7/8 in. ..	\$5.60
3/4 in. ..	\$2.80	1 5/8 in. ..	\$6.00
7/8 in. ..	\$3.00	1 3/4 in. ..	\$7.20
1 in. ..	\$3.00	2 in. ..	\$8.00

SPECIAL SIZES MADE TO ORDER.

### "Q-MAX" CHASSIS CUTTERS

SCREW TYPE  
 BRITISH MADE  
 SAVES TIME - GIVES PROFESSIONAL APPEARANCE

SIZES		SIZES		
3/8 in.	\$2.00	1-5/16 in.	\$4.05	
7/16 in.	\$2.00	1 1/8 in.	\$4.05	
1/2 in.	\$2.06	1 1/4 in.	\$4.05	
5/8 in.	\$2.00	1 1/2 in.	\$4.41	
3/4 in.	\$2.50	1 3/4 in.	\$4.41	
7/8 in.	\$3.05	2 in.	\$4.60	
1 in.	\$3.67	2-2/32 in.	\$7.22	
1-1/16 in.	\$3.67	2 1/2 in.	\$8.57	
1 1/8 in.	\$3.67	1 in. square	\$5.53	
1-3/16 in.	\$3.67	1/16 in. square	\$5.30	
1 1/4 in.	\$3.67	2-1/32 in. x 15/16		
		Rectangular	\$7.60	

The "Q-Max" range of Screw Type Chassis Cutters serve a most useful purpose where holes are to be punched on chassis where components are already mounted. The SQUARE and RECTANGULAR punches save the hard work involved in transformer, plugs and sockets, I.F.'s, etc., cut-outs.

### F455 - FA - 21 FILTERS

COLLINS Type F455A Mechanical Filters, 455 Kc. Wiring instructions with each unit. Price (inc. S.T.): \$85.

### PI-COUPLERS

**WILLIS MEDIUM POWER TYPE**  
 For use up to 600 watts p.e.p. Match plate loads of 2,000 to 3,500 ohms (Z) and higher into co-axial cable. Operating Q increases on higher frequencies to increase harmonic suppression enabling practical values of tuning capacity to be used on 10 and 15 metres and allowing for wiring inductance (L). Incorporates extra switch section for shunting additional capacity (C) if required, or switching other circuits. Switch rated for 10 amps. at 2,000 volts with contact resistance (R) of 0.8 mill-ohms. Price: \$7.95 (inc. S.T.)

**WILLIS PI-COUPLER CHOKE**  
 To suit above Pi-Coupler. No resonances within Amateur bands if spaced diameter or more from metal panels. Stands 6 inches high on 1 inch diam. ceramic former. Base mounting bracket included. Price: \$2.50 (inc. S.T.)

**GELOSO PI-COUPLERS**  
 Type 4/111 for use with parallel tubes type 6146, 807s, etc.  
 Type 4/112 for use with single ended tubes type 6146, 807, etc.  
 Both Types, Price: \$3.95 (inc. S.T.)

**EDDYSTONE 250 pF. CONDENSERS**  
 Type 817 condenser, suitable for use with input of all above Pi-Couplers. Rated 1,200 volts r.m.s., ceramic insulation, fit space 2 inches square by 2 3/4 inches deep. (Output condenser normal small two or three gang b.c. condenser.) Price: \$4.50 (inc. S.T.)

**DUCON 20 KV. CERAMIC COUPLING CONDENSERS, 500, 1,000 pF.**  
 Price: \$1.20 (inc. S.T.)

Please allow for Freight when Ordering

### PENETROX "A"

Famous American aluminium and copper corrosion inhibitor. Avoid bad electrical connections and corroded joints on beam antennae, T.V. antennae, etc. Use—  
**PENETROX "A"**  
 Price: \$1 per tube (Post paid)

### WODEN MULTI-MATCH MOD. TRANSFORMERS

UM0 10-watt Audio	\$13.50
UM1 30-watt Audio	\$19.07
UM2 60-watt Audio	\$27.68
UM3 125-watt Audio	\$29.79

Prices include 12 1/2% Sales Tax. FREIGHT EXTRA.

### HAVING T.V.I. TROUBLE?

A "Cabena" Low Pass Filter will fix it! Cut-off frequency, 30 Mc., attenuation at 60 Mc. better than 30 db., insertion loss, negligible; impedance, 50-72 ohms. Price: \$11.50 (inc. S.T.)

### GELOSO KIT FOR D.S.B. TRANSMITTER

The following components comprise the GELOSO Kit for construction of D.S.B. Transmitter. For circuit details refer Nov. '65 issue of "electronics Australia."  
 4/105 Crystal controlled Beat Frequency Oscillator ..... \$28.12  
 N.1657 Calibrated Dial, Pointer Escutcheon ..... \$6.23  
 N.4/113 Pi-Coupler ..... \$4.84  
 N.771 Condenser ..... \$1.41  
 N.774 Condenser ..... \$1.44  
 N.12634 All Wave R.F. Choke ..... 90c  
 Prices include Sales Tax. Valves not supplied with V.F.O. Valves for V.F.O.: 6U8, 6AH6, 6CL6.

### CO-AXIAL FITTINGS AND CABLE

PL259 Coaxial Plugs, suit 3/8 in. cable \$0.08  
 S6239 Co-axial Sockets ..... \$0.90  
 UG175/U and UG176/U cable Adaptors for use with PL259 ..... \$0.31  
 C32-16 Right-angle co-axial connector Jack to Plug, suit PL259 ..... \$1.88  
 C32-17 T. Connector—Plug and two Jack Ends—suit PL259 ..... \$2.33  
 C32-14 Coupling for two PL259 Plugs ..... \$1.72  
 Belling & Lee L734P Co-ax. cable plug socket ..... \$0.32  
 " " L604S co-ax. chassis socket ..... \$0.28  
 " " L603/B co-ax. chassis socket ground insulated ..... \$0.25  
 " " L734/S recessed co-ax. chassis socket ..... \$0.25  
 " " L734/J co-ax. cable socket ..... \$0.13  
 " " L1421 Bulk-head cable socket ..... \$0.50  
 " " L616 Coupling—couple two L734/P plugs ..... \$0.86  
 PT31M (UR67) co-axial cable, per yd. \$0.55  
 RG58AU 59 ohm co-axial cable, per yd. \$0.35  
 PT01M (UR57) 72 ohm co-axial cable, per yd. \$0.55  
 PT11M 70 ohm co-axial cable, per yd. \$0.85  
 FCRMULA 11 open wire 300 ohm transmission line, 100 ft. coils ..... \$3.06  
 14 gauge hard-drawn Copper Wire for Amateur Antenna Systems. Any length cut. Price: 8c per yard (inc. S.T.).  
 Porcelain Egg-type Insulators. Price: \$1 doz. (inc. S.T.).

### AMERICAN DOW-KEY

### ANTENNA RELAYS

Coil Ratings: 6, 12, 24 volts d.c. at 2 watts. 6, 12, 24 volts a.c. at 6va., 50-60 cycles. Special coil voltages available on request. R.f. Ratings: 1kw. power rating to 500 Mc.; 20 watts power rating to 500 Mc. in types DK60-G and DK60-G2C in de-energised condition. The DK60-G and DK60-G2C have a special isolation connector in the de-energised position to reduce cross-talk to a minimum. V.S.W.R.: Less than 1.15:1 from 0 to 500 Mc. (50 ohm load). Isolation: Greater than 60 db. at 10 Mc. in DK60 and DK60-2C; greater than 100 db. from 0 to 500 Mc. in DK60-G and DK60-G2C when in energised position. Operating Time: Less than 30 milliseconds from application of coil voltage; less than 15 milliseconds between contacts. Connections: Standard SO239 type v.h.f./U.h.f. Co-ax. Connectors. Available with Type N, BNC, TNC and C Connectors to order. \$4.16 extra. Price: Type DK60 standard single-pole change-over ..... Price \$13.28  
 Type DK60-G standard single-pole change-over with special isolation contact in de-energised position to reduce cross-talk ..... Price \$16.80  
 Type DK60-2C, same as DK60, but includes external set of double-pole change-over contacts ..... Price \$17.69  
 Type DK60-G2C, same as DK60-G but with external double-pole change-over contacts ..... Price \$19.17  
 PRICES INCLUDE SALES TAX. Not always available ex stock. Delivery 3-4 months between shipments. Orders on hand first delivery.

### DOW KEY MANUAL CO-AXIAL SWITCHES

R.F. Ratings: 1kw. to 500 Mcs. Fine Silver Finish. Fitted with UHF type SO239 co-axial sockets.  
 DK78-2 Single Pole two throw ..... \$15.60  
 DK78-3 Single Pole three throw ..... \$15.60  
 DK78-6 Single Pole Six throw ..... \$15.60  
 Prices include Sales Tax.

### "JABEL" TR14 REAMERS

Ideal for clean finish on small panel holes and cleaning out for neat fit. Price: \$1.05 each.

# WILLIAM WILLIS & CO. PTY. LTD.

428 ELIZABETH STREET. MELBOURNE, C.I, VIC.

Phone 34-6539

- Turn meter switch to G2 and peak 6AQ5 anode (trimmer on top of chassis) for maximum reading.
- Turn meter switch to p.a. and tune for a dip. Adjust the coupling and tuning of the output link for maximum r.f. out. Retune p.a. tuning for a dip. Now check modulation by turning meter switch to mod. and make sure that it kicks to about 100% or a bit more on peaks. If not, keep adjusting link coupling and tuning as well as p.a. tuning until a good compromise between r.f. output and modulation is reached.
- Adjust the modulator gain (pot. near 6SN7) to suit the microphone you use.

# NOISE LIMITER FOR MOBILE USE

DAVID PRIESTLEY\*

In normal communications receivers the noise is generated within the set itself by the valves, poor type resistors and condensers, etc. The only effective way this noise can be overcome is to use high quality parts and low-noise valves, or more in keeping with our modern times, transistors.

However, this noise limiter which I am reviewing is more for the types of noise encountered by the Amateur or s.w.l. with mobile receiving equipment. A classical example of this is the interference radiated by the ignition system of a car. The pulses from the ignition system are of high intensity but short duration, the time between pulses being greater than the actual duration of the pulses themselves. Even so, we all know the nuisance such pulses cause to us while trying to copy weak signals not only from the engine of our own car but the other vehicles using our overcrowded roads.

Electric motors cause considerable noise to be fed into radio receivers, as do the high tension wires which span our roads every few miles or so.

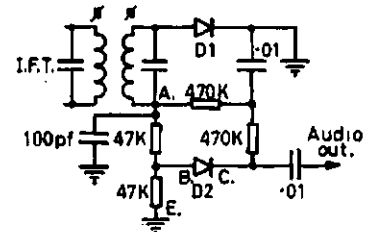
When an r.f. carrier is received by the set, the detector diode D1 conducts on alternate half-cycles making A negative with respect to E. AE is a conventional diode load consisting of two 47K ohm resistors in series. The potential difference between A and E is proportional to the strength of the carrier.

The 100 pF. capacitor in parallel with the diode load offers a low impedance to radio frequencies. Therefore if the

strength of the carrier varies at audio rate, the voltage appearing across AE will also vary at an audio rate.

Point A in the circuit is the usual take-off point of our audio output so in effect we have put the noise limiter in series with our detector stage and the audio output stage.

There is a negative voltage appearing between point D and earth but it cannot vary at an audio rate because of the high value of the resistance between A and D and the presence of the 0.01  $\mu$ F. capacitor. Therefore the voltage between D and earth is simply equal to the voltage between A and E.



While all voltages in the circuit remain equal, our diode D2 will conduct audio signals to the audio amplifier because the anode is positive in respect to the cathode. Should, however, a sudden audio pulse appear across BE which is greater in amplitude than the average voltage across AE, the anode of the diode will become negative with respect to the cathode and the pulse will not be transferred to the audio amplifier. In point of fact, any signal appearing at point B that is not varying at audio rate will be rejected.

One disadvantage of this noise limiter is that when mobile and someone comes on the air to call on c.w., because of the facts already outlined, D2 will not conduct immediately and therefore somewhat clipped c.w. is the result. For this reason, and this reason only is switching necessary.

In my own mobile receiver I have used this noise limiter with first-class results and haven't even bothered to switch it in and out.

All resistors can be  $\frac{1}{2}$  watt type and the capacitors of low voltage variety. This has the added advantage of giving a small piece of foreign equipment to be added to your already overcrowded mobile receiver. In fact, with careful layout this can be made on a piece of matrix board one inch square with plenty of room to spare.

The diode I used was an OA202 for this reason. This type of diode requires a small voltage to "fire" it, and when no signals are coming through, the diode will not conduct, but the instant any signal comes on the air, the diode passes it. This in effect gives a mild form of muting.

The gentleman to whom the credit belongs for passing this to me is Les Jenkins VK2ZBJ.

AMATEUR FREQUENCIES:  
USE THEM OR LOSE THEM!

## INTERCONNECTING UNITS

When both the transmitter and receiver are working to your satisfaction mount them in the cabinet and connect the terminal marked RELAY on the back of the receiver (previously connected to earth) to the SW-R terminal on the left-hand board on the back of the transmitter chassis. Connect, via coaxial cable, the socket marked RE to the aerial socket on the receiver. Check that the receiver relay drops out when you press the transmit key.

## REMOTE CONTROL OF UNIT

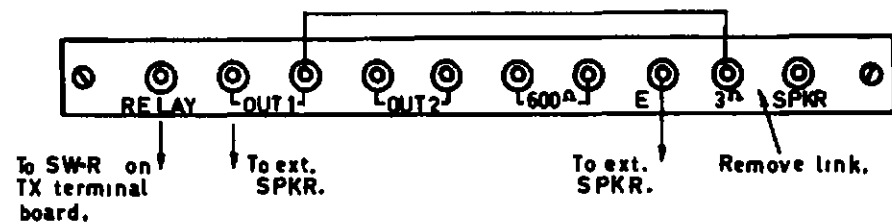
**Transmitter:** Connect SW-T, SW-R and SW-C as in Fig. 7.

**Receiver:** Remove connection between 3 ohm and LS terminals. Then connect as shown in Fig. 8.

Well, that's about the lot; hope your unit works like the one I converted. Any queries should be addressed to me, including an s.a.s.e.

\* 3 Rickard Road, Warrimoo, N.S.W.

### (A.) For 3 $\Omega$ Remote speaker.



### (B.) For 600 $\Omega$ Remote speaker.

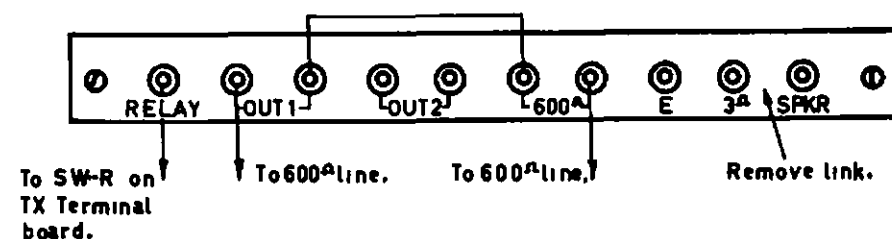
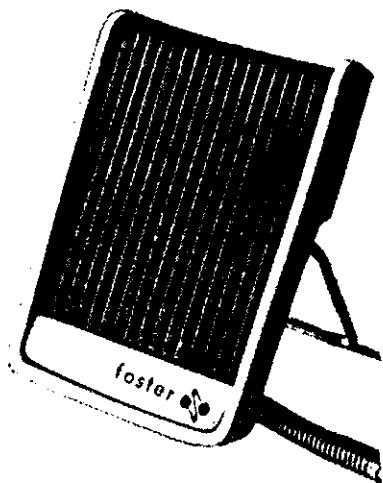


FIG. 8.



DF-2

# FOSTER DYNAMIC MICROPHONES

## FOR HAND-DESK USE

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
 Effective output level ..... -55 db. [0 db. = (onc) 1V. Microbar]  
 Frequency response ..... 200 to 10,000 c.p.s.

### OMNI-DIRECTIONAL DYNAMIC:

SIZE: 3" x 2-1/8" x 1".  
 Cable: 12 ft. of P.V.C.  
 Switch: on-off.  
 Desk Stand. Clip folds for hand use  
 Colour: WHITE.  
 Plastic Diaphragm.

Retail Price  
 50K ohms  
**£2/14/0**  
 + Sales Tax 4/9

A QUALITY PRODUCT OF EXCELLENT DESIGN

Marketed by **ZEPHYR PRODUCTS PTY. LTD.**

70 BATESFORD STREET, CHADSTONE, S.E.10, VIC.



Manufacturers of Radio and Electrical Equipment and Components

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.



## STOCK TRANSFORMERS for Popular Projects!

PUBLICATION	PROJECT	A & R TRANSFORMER TYPE
ELEC. AUST. MAY 1965	1966 R-C Bridge	PT2150
ELEC. AUST. MAY 1966	THREE Band Short Wave Converter	PT5890
ELEC. AUST. APRIL 1966		Z3200 (2 req'd)
OUTLOOK JULY-AUG. 1965	Twinn 5 Watt Class A Transistor Stereo Amp.	Z3212
OUTLOOK JAN.-FEB. 1966		PT5755
ELEC. AUST. APRIL 1966	Protected DC Supply	PT2150
ELEC. AUST. APRIL 1966	3 Band Double Change Receiver	PT2052
		Z3040
		OT E7/15
ELEC. AUST. MARCH 1966	Playmaster 113 Stereo Power Amp.	PT5721
		PT1019 (2 req'd)
ELEC. AUST. FEB. 1966	A Four Channel Audio Mixer	PT2150 (for AC Supply)
ELEC. AUST. FEB. 1966	Playmaster 112 Transistor Control Unit	PT2150 (for AC Supply)
ELEC. AUST. FEB. 1966	The 1966 Vacuum Tube Voltmeter	PT5890
ELEC. AUST. JUNE 1965	A Two Band Short Wave Converter	PT5890
ELEC. AUST. DEC. 1965	A Simple Public Address Amp.	PT1993
		OT E7/15
ELEC. AUST. OCT.-NOV. 1965	Playmaster Program Source	PT1993
ELEC. AUST. SEPT. 1964	A Powered Monitor for Radio Systems	PT5890
ELEC. AUST. AUG. 1964	A Practical Photographic Timer	PT5890

Available from all Leading Stockists!

A & R TRANSFORMERS PTY. LTD. 42-46 Lexton Rd., Box Hill, Vic. (Box Hill P.O. Box 170) Phone 89 0238

# SOME THOUGHTS ON HANG A.G.C. SYSTEMS\*

CHET OPAL, K3CUW

THE many variations of Goodman's hang a.g.c. circuit<sup>1</sup> which have appeared in "QST" over the last eight years attest to the popularity of this type of automatic gain control for s.s.b. and c.w. reception. Unfortunately, the circuits used tend to be somewhat complicated and many Hams may be reluctant to use them, particularly since no suggestions are given as to how to adapt the systems to one's particular needs. My purpose here is to present a set of modifications applicable to any of the "hang" systems and, for the most part, to the simpler fast-attack slow-decay circuits now popular in commercial gear. The modifications include a circuit to prevent the a.g.c. from hanging up on isolated noise pops, and the addition of a cathode follower so that the a.g.c. line may be used for other purposes such as receiver muting or manual gain control. Methods of adapting gain-controlled amplifiers for good performance under fast attack a.g.c. conditions are also discussed.

in V1A. Part of the result is rectified in V2B, filtered, and dumped on to C1 through V2C. C1 will thus charge up immediately to the peak of the audio voltage appearing on the plate of V1A and will stay at that voltage until discharged through V1B. The resulting negative voltage is applied to the grids of the i.f. tubes to reduce the gain of the receiver. There should be no d.c. return to ground on the a.g.c. line itself or the a.g.c. voltage will not "hang" properly. The audio is stepped up in T1, rectified in V2A, and the resultant negative voltage is applied to C2 (ignoring CR1 for the moment) to cut off V1B. Because of the voltage gain in T1, the voltage across C2 is considerably more negative than that across C1, and V1B will not conduct again until C2 discharges through R2. As a result, the a.g.c. voltage will hang at a voltage proportional to the peak amplitude of the signal being received for a length of time determined by the step up in T1 and the time constant R2C2 (usually chosen to be about a second).

The voltage divider in the cathodes of V2A and V2B puts a back bias on these diodes and sets a threshold below which the a.g.c. will not operate. The actual values in this divider will depend on the particular receiver and the noise conditions on the band in use. It would be advisable to make the threshold adjustable temporarily, as shown in Fig. 2. After the a.g.c. has been in use for a while, a good compromise value could be determined and a fixed resistor substituted if desired.

## IMMUNITY TO NOISE POPS

From the above description it is evident that a sudden noise peak will cause the a.g.c. to hang. Since man-made noise caused by electrical appliances or a v.f.o. swishing across the band can have a much higher peak amplitude than the signal being received, this will cause a one-second hole in the message before the a.g.c. returns to its normal operating point. The addition of a diode, resistor, and capacitor in the grid of V1B to correct this condition is shown in Fig. 1. The signal peak is fed directly through to C2, but as this capacitor is smaller by a factor of a hundred than the one normally used, the a.g.c. will only hang for about 10 milliseconds. The audio is fed to C3, but this capacitor must charge through a 1-megohm resistor and hence will not reach full voltage until several s.s.b. peaks, or at least 100 milliseconds on c.w., have gone by. When C3 is finally charged, CR1 conducts, placing C3 in parallel with C2, and the a.g.c. switches over to the full 1-second hang mode. Occasional pops will be filtered out; but a static burst, which would have blotted out a large part of the message anyway, will still cause the a.g.c. to hang for the full second. The values shown worked equally well with a 200-c.p.s. c.w. bandwidth or a 3-Kc. s.s.b. bandwidth, al-

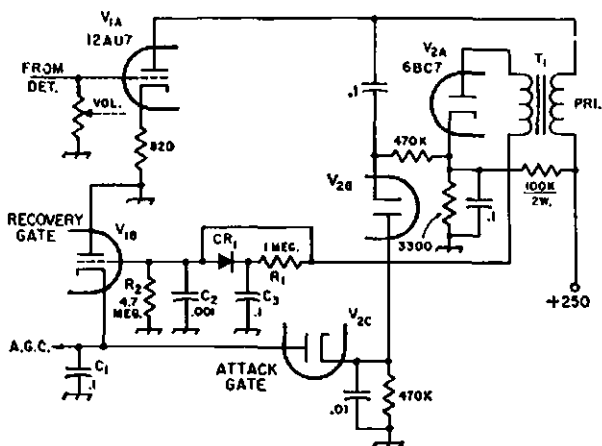


Fig. 1.—Audio "hang" a.g.c. modified for immunity to noise "pops." The circuit is the same as the original except for C2, CR1 and R1. All capacitances are in  $\mu$ F.

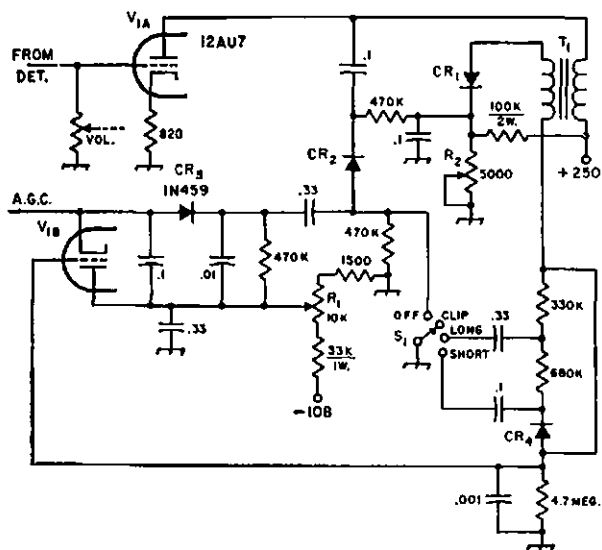
CR1—200-p.i.v. silicon diode.  
T1—1:3 audio transformer.

A slightly modified version of the hang a.g.c. system described by Luick<sup>2</sup> is shown in Fig. 2 and is typical of all circuits used. This particular version is audio driven, but circuits which obtain driving voltage from the i.f. amplifiers are quite similar. The important thing is that all selectivity precede the point at which the a.g.c. driving voltage is taken off. The systems work best when used with a receiver with good skirt selectivity and which recovers quickly when overloaded (that is, with a good receiver).

The circuit shown here works basically as follows: Audio is picked off the receiver volume control<sup>3</sup> and amplified

Fig. 2.—Further evolution of the a.g.c. circuit with "Sensitivity" (R1) and "Threshold" (R2) controls added. The function switch, S1, select 10-ms., 3-second and 1-second "hang" times.

CR1, CR2, CR4—Bargain silicon diodes.  
CR3—High back resistance silicon diode. (1N459 or equiv.)



\* Reprinted from "QST," December, 1965.

<sup>1</sup> Goodman, "Better A.G.C. for S.S.B. and Code Reception," "QST," January, 1957.

<sup>2</sup> Luick, "Improved A.G.C. for Sideband and C.W.," "QST," October, 1957.

<sup>3</sup> If the audio becomes distorted when this connection is made, there is a clipping taking place in V1A and the audio take-off point should be moved closer to the detector. Two or three volts audio on a strong signal is more than adequate at the grid of this tube.

though if sideband only operation is contemplated, a resistance smaller than 1 megohm could be used. If the short time-constant mode is used alone, the circuit will behave like a clipper to keep ear-splitting signals in line while returning the receiver to full gain, when possible, to make sure that no weak signals are missed. The clipping introduces no harmonics on c.w. and very little distortion on sideband, consequently it is more comfortable to listen to than conventional audio clipping.

### I.F. AMPLIFIER CONSIDERATIONS

The a.g.c. voltage comes on in a millisecond or less and will cause an irritating "thunk" when it comes into play unless the gain of the i.f. amplifiers can be changed at least as quickly. Unfortunately, the usual i.f. wiring is inadequate in this respect. The grids are decoupled from the a.g.c. line with large resistors and bypass capacitors;

cathodes may be grounded and the screens run off a stiff d.c. supply. Operating bias may then be obtained through the a.g.c. line (see below). This modification should also improve the cross-modulation performance of the amplifiers, although in present-day receivers most of the damage has been done long before the first i.f. tube.

### ADDITIONAL MODIFICATIONS

I am presently using the circuit shown in Fig. 2 to generate the a.g.c. voltage. A switch to turn the a.g.c. off and to select various time constants has been incorporated, along with "sensitivity" and "threshold" controls. The negative 108-volt supply is an inconvenience, but if the cathodes are to be grounded, some source of negative voltage will be required. As will be seen later, the supply is used elsewhere. The sensitivity control adds a fixed bias to the a.g.c. voltage and is best used if the threshold control is incorporated

volt supply. Now that the line can have some resistance to ground, the a.g.c. bus may be used for all sorts of auxiliary gain controls. Diodes CR5-8 select the most negative voltage appearing at their cathodes and apply it to the a.g.c. line. Good muting for c.w. break-in with grid-block or differential keying is obtained by keying a 2N398A in step with the v.f.o. The base current divider on this transistor should be adjusted so that the transistor conducts when the v.f.o. is cut off and opens just as the v.f.o. comes on (this does not necessarily occur when the v.f.o. grid voltages goes to zero). If the station receiver has an output stage with the cathode resistor bypassed by an electrolytic capacitor, its cathode is a good source for the 6 volts or so required to cut off the transistor.

It is often desirable to operate the r.f. amplifier at full gain for all but the strongest signals. The circuit shown in Fig. 3 to apply delayed a.g.c. to the r.f. amplifier is nothing new, but it cannot be used without the cathode follower isolation stage. The 10-volt Zener diode worked with my receiver; if no more than two i.f. amplifiers are controlled, the value should be reduced to about 6.8 volts.

The S meter in the circuit as shown will indicate full scale with -24 volts on the a.g.c. line. It is possible to limit the maximum current by increasing the V3A cathode resistance, and to adjust the meter sensitivity by varying the resistor in series with the meter. If this is too much of a chore, the original "calibrated" S-meter circuit may be left intact and a new tube installed for V3.

### FINAL CONSIDERATIONS

I would recommend that the a.g.c. circuit be built on a small chassis mounted inside the receiver cabinet. Shielded wire should be used from the receiver volume control to the grid of V1A; aside from that nothing is critical.

I have used one variant or another of this circuit with break-in c.w. over the last four years and am quite satisfied with the results, although the endless series of modifications has left the audio portion of my receiver a shambles! I hope that enough information has been presented above so that with a little experimentation one can come up with a hang a.g.c. system to suit his specific needs.

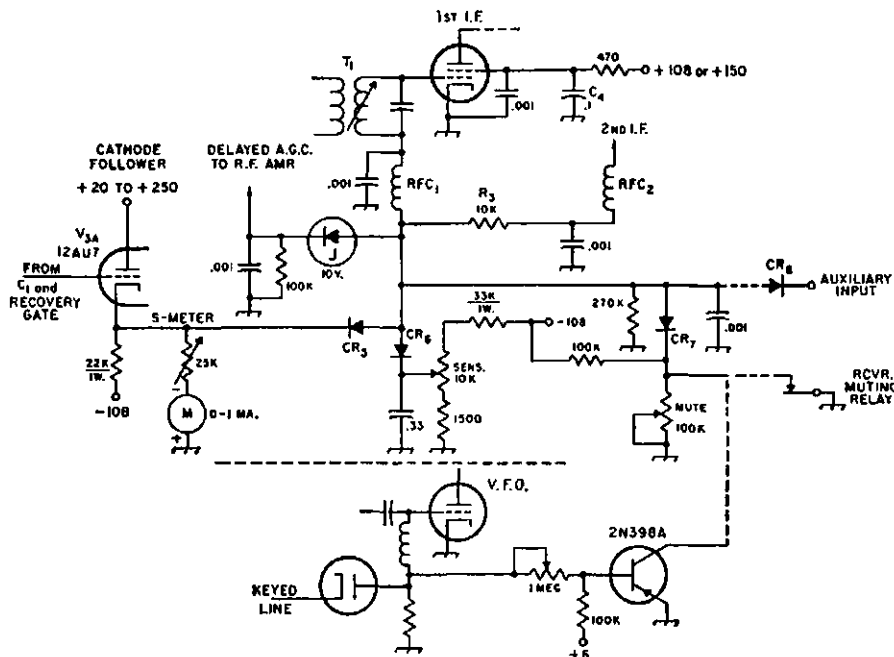


Fig. 3.—A cathode follower may be used to drive the a.g.c. line. This permits the use of additional circuitry for muting or break-in silencing. For example, the receiver can be muted by a negative voltage applied at "auxiliary input," by a "receiving muting relay," or by a negative voltage from the transmitter keying circuit applied via the 2N398A transistor. Delayed a.g.c. to the receiver r.f. amplifier is obtained by using a Zener diode. The time constants in the a.g.c. circuits have been reduced by substituting r.f. chokes for resistors (RFC1, RFC2, RFC3).

C4—Audio bypass. May be omitted if screen voltage is stabilised.

CR5-CR8—Bargain silicon diodes.  
R3—Grid filter resistor; omit if possible.

the result is a delay of as much as 1 millisecond between the time the a.g.c. is applied and the time it reaches the grids of the amplifiers. The response may be speeded up by replacing the grid resistors with small r.f. chokes and by removing any other resistors in the line. If instability resists, shielded wire, bypassed at strategic points, can be used for the a.g.c. bus. The cathodes and screens of the gain-controlled tubes are not normally bypassed for audio, causing poor performance while the gain is being changed. If popping persists on attack even after grid resistors are removed, the grids and screens should be bypassed with 0.1- $\mu$ F. or larger capacitors, or better still, the

permanently into the receiver. Otherwise, the a.g.c. line may be clamped at some minimum negative value as shown in Fig. 2.

### LOWERING THE IMPEDANCE OF THE A.G.C. BUS

A simple cathode follower will isolate the hang capacitor C1 from the a.g.c. bus as shown in Fig. 3. The old S-meter amplifier tube may be used for V3A since the meter can now go directly to the a.g.c. line. The plate of this tube must go to a stiff 20 to 250-

\*The negative supply need not be 108 volts, but it should be high enough that a full range of gain control can be obtained.

### SUBSCRIPTIONS DUE

All members of the W.I.A. are reminded that annual subscriptions are now due and should be paid promptly to their Divisional Secretary. Non financial members will not receive a copy of "A.R.," and back copies may not be available upon request. To preserve continuity of your files of "A.R.," please pay your annual subscription now.

# 1966 JOHN MOYLE NATIONAL FIELD DAY RESULTS

It was with anticipation that the Contest Committee altered the rules of this Contest in an endeavour to encourage more operators in to the field. The results show that approximately the same numbers participated as in previous years.

As most comments received, praised the rules, 1967 rules will only be modified slightly, by the possible addition of "cross mode operating is permitted."

The table of results has been produced from information gleaned from the logs, and is as accurate as possible. A well laid out front sheet, as required by the rules of all Contests is a great help to the Committee.

With the upsurge in s.s.b. activity, it was decided that if the power restriction was lifted, more stations would participate using s.s.b. transceiver type of equipment. Unfortunately this did not eventuate, as no increase in activity in this sphere was noted. Their non-participation was a sad reflection on their interest in s.s.b., and the money they spent buying portable transceivers.

Reported below are some of the comments attached to logs:—

VK2AAH/P and gang: "The rules are right on the ball now for multiple and single operators."

VK2SS/P expresses satisfaction at the inclusion of a six-hour duration, and the rules and scoring are much what he desires.

VK2YB/P comments that the six-hour period suits single operators who do not want to camp out for the Contest, and that cross-mode operating should be allowed.

VK2JM/P makes many comments on the six-hour period, asks that cross-mode be allowed, and finishes off by saying that the Contest is a worthwhile one.

VK3AWI/P writes that they had nocturnal visitors to their site. Apparently some cows, or bulls, wandered up to their generator and commenced licking it. Perhaps they had been watching t.v. and had seen the ad: "Light up a . . . ."

VK3HE/P states that he has always been a single operator in the Contest, and regards the six-hour period section an excellent move.

VK3RN/P writes on behalf of VK-3APC club members, who operated in various capacities and groups, saying that the power strike was the cause of a few minutes panic as the alternators to be used in the field were put in grave doubt as to their availability. He finished by writing that, as usual, they learnt a few more lessons, not the least being to check the petrol for water!

VK5WC/P writes how he enjoyed the Contest as much as any F.D. Contest, but was disappointed at the lack of fixed stations. He doesn't see why cross-mode is not permitted. Access to his site was over a severe, bumpy, rock-strewn track, eight miles of the Wirrapa-Pimba Road.

VK5ZF/P states: "New Contest rules are excellent, but registers a strong protest against the use of G.M.T."

An incomplete list (because of lack of information on front sheets of logs) of equipment in use for the Contest is as follows: Type 3, 522, home made, Swan 240, FL100B, ATR2C, No. 19, KWM2, Galaxy 5, Drake, NCX5, No. 122, Command, HRO, BC348, AMR300, Geloso, Eddystone, and Swan. Aerials in use were mostly ground planes on v.h.f., with Vee and long wires favoured for the h.f. bands.

Whereas the six-hour duration section was intended as a continuous per-

iod of operation, no penalty was imposed for other forms of time periods. Next year's rules will be clearer on this point, no doubt allowing any number of periods of operating totalling six hours.

As this is a Contest for field operation, this Committee will try various inducements to bring out stations in to the field. If you would like to suggest a means of accomplishing this, the Contest Committee would be pleased to hear from you.

—F.C.C.

## TRANSMITTING RESULTS

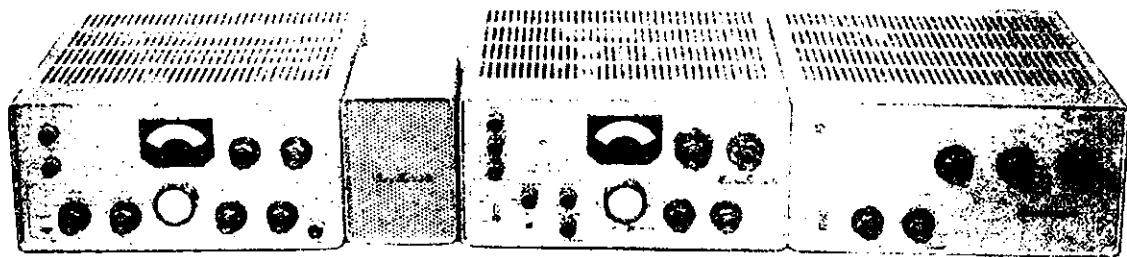
Call Sign	Section	Div. 6 or 24 Hr.	No. of Ops.	Equip. in Use	Power Input	Con-tacts	Pts.	Certificate For
VK2SS/P	A	6	1	H.B.	9	23	173	Low Pwr. Op./Pt.
4OF/P	A	6	1	Disp.	10	6	39	
5SS/P	A	6	1	Disp.	11	17	155	Low Pwr. Op./Pt.
6ZAG/P	A	6	1	Disp.	10	5	10	
7JF/P	A	6	1	H.B.	20	32	301	1st 6 Hr. Phone
2YB/P	B	6	1	Disp.	11	26	159	Low Pwr. Op./Pt.
2JM/P	B	6	1	Disp.	11	22	171	1st 6 Hr. C.W.
3HE/P	C	6	1	Disp.	5	26	152	1st 6 Hr. Open
4UC/P	C	6	1	Disp.	16	24	151	Low Pwr. Op./Pt.
3YS/P	D	6	3	Comm.	3/120/240	96	539	1st 6 Hr. Mul. Op.
3QZ/P	D	6	4	H.B.	6/10/15	38	206	Low Pwr. Op./Pt.
3RJ	E	6	1	Comm.	25	19	240	1st 6 Hr. Fix. Stn.
5FJ	E	6	1	H.B.	100	9	125	
5WC/P	A	24	1	Comm.	25	49	413	1st 24 Hr. Phone
6MM/P	A	24	1	Comm.	7	12	76	Low Pwr. Op./Pt.
7JO/P	A	24	1	H.B.	6	15	118	Low Pwr. Op./Pt.
2AG/P	B	24	1	Disp.	7	57	403	1st 24 Hr. C.W.
5ZF/P	B	24	1	Disp.	15	33	265	Low Pwr. Op./Pt.
5ZF/P	C	24	1	Disp.	15	52	352	1st 24 Hr. Open
1ACA/P	D	24	6	H.B.	100	152	1206	
2AAH/P	D	24	8	Comm. H.B.		730	3969	1st 24 Hr. Mul. Op
2GN/P	D	24	10	Comm. H.B.		196	1218	
2ATZ/P	D	24	3	Disp.	20	61	479	Low Pwr. Op./Pt.
3RN/P	D	24	14	H.B.		414	2649	
3AWI/P	D	24	10	Comm. H.B.		396	2170	
3AHZ/P	D	24	5	Comm. H.B.		267	1516	
3AAW/P	D	24	5	Disp.	12	42	286	
4CS/P	D	24	4	Disp.		112	805	
9XI/P	D	24		Comm.		96	583	
2AEC	E	24	1	H.B.		16	225	
2ZO	E	24	1	H.B.		5	65	
3XB	E	24	1	Comm.		71	905	Merit for working No. of Field Stns.
3ANG	E	24	1	H.B.	20/56	34	390	
3EF	E	24	1	Comm.		28	340	
5NM	E	24	1	H.B.	30	9	125	
6KH	E	24	1			5	75	
7SM	E	24	1	Comm.		65	950	1st 24 Hr. Fix. St.

## RECEIVING RESULTS

L2033	200	1st in Call Area	J. Ross (VK5)	880	"	"	"
L3229	995	"	L5015	465	"	"	"
L3042	755	"	L5065	310	"	"	"
K. Cunningham (VK4)	315	"	L6028	42	"	"	"
		"	L7031	905	"	"	"

# F-SERIES S.S.B. EQUIPMENT

PROFESSIONAL QUALITY AT AMATEUR PRICES



COMPACT TABLE-TOP STATION—MECHANICAL FILTER SYSTEM  
FIVE BANDS — 80-10 METRES. TRANSCIVE OR NORMAL OPERATION

**FR-100B: RECEIVER, S.S.B.-A.M.-C.W.**, dual conversion, with crystal locked front end, two mechanical filters for best reception of s.s.b. and a.m., high reduction precision gear driven dial reads to 1 Kc. Crystal filter for c.w. A.n.l., "S" meter, a.g.c., s.s.b. clarifier, built-in monitor. Additional crystals for 100 Kc. calibrator, full 10 mx coverage, WWV and three s.w. ranges. A professional quality receiver for the Amateur or discriminating S.w.l. £209½ (\$419) inc. S.T.

**FL-200B: TRANSMITTER, S.S.B.-A.M.-C.W.**, 240w. p.e.p. input with two 6JS6 (similar 6DQ5) tubes in p.a. working within ratings for longer life. Solidly constructed and neatly wired, with high quality components, ceramic bandswitch, Kokusai M.F., built-in solid state power supply, antenna relay, etc. All plugs, inst. manual and p.b. microphone supplied. Nothing else to buy. Cabinets beautifully lacquered in dark driftwood wrinkle. Satin finish panel.

**C.W. Men:** This is a first class rig for you too—break-in operation, T9X note, clean chirpless keying, v.f.o. runs continuously. £245 (\$490) inc. S.T.

Enables operation on the three modes without necessity for compromise. Fully imported. Used by Australia's leading Phone DX'er.

**NEW!** To be available soon: FT-100 Transceiver, FL-50 Basic S.s.b. Exciter, V.f.o., L.P. Filters, etc., all made by Yaesu Musen Co., of Japan.

Brochure available from  
the Australian Agents:

**BAIL ELECTRONIC SERVICES**

60 SHANNON ST., BOX HILL NORTH, VIC. 89-2213

N.S.W. Enquirers contact:

**MOSMAN TELEVISION SERVICES**

11 Ruby Street, Mosman. Phone 96-5342

NOW AVAILABLE—

THE 1966 EDITION

## ★ A.R.R.L.—Radio Amateur's Handbook

*The Standard Manual of Amateur Radio Communication*

Price \$6.10 posted, or 58/6 and postage 2/6

NOW AVAILABLE—

## ★ The Radio Transistor Handbook

by Stoner & Earnshaw.

Price \$6.65 posted, or 64/9 and postage 1/9

THIS UP-TO-DATE HANDBOOK COVERS A WIDE RANGE OF COMMUNICATION  
FOR BOTH AMATEUR RADIO & COMMERCIAL APPLICATIONS

### McGILL'S AUTHORISED NEWSAGENCY

Established 1860

183-185 ELIZABETH STREET, MELBOURNE, C.1, VIC.

"The G.P.O. is opposite"

Phones: 60-1475--6-7



# "Fifty and Over"

By ROY HARTKOPF

"Hello VK3ZFC. Hello VK3ZFC. Hello VK3ZFC. This is VK3ZOM calling you. This is VK3ZOM calling you. Come in please. Over.

"Hello VK3ZFC. Hello VK3ZFC. This is VK3ZOM returning. Good evening, Bert. Very good signal here. Readability 5, strength 7. By the way you didn't give me a report. VK3ZFC, VK3ZFC. This is VK3ZOM listening for you. Over.

"Hello VK3ZFC. Hello VK3ZFC. This is VK3ZOM returning. The report's the same as last time, you say? And the time before. And the time before that? I suppose it would be, when you come to think of it. After all, we're only a mile away from each other, and I don't suppose the ionospheric conditions would vary much. Of course, I'm only new to radio and wouldn't really know. By the way, Bert, I notice you only say 'ZOM' and 'ZFC.' The instruction book tells us to use our full call signs with the 'VK3' in case someone in another State or overseas is listening. I think we should do what the book tells us, shouldn't we? VK3ZFC, VK3ZFC. This is VK3ZOM listening for you. Over.

"Hello VK3ZFC. Hello VK3ZFC. This is VK3ZOM returning. How far would I expect to get with a 6AK5 as a final on 6 metres? Well one never really knows, does one? There might be something in the ionosphere; or maybe the signal could bounce off a satellite or something. Though I must admit I don't seem to get out as well as I did when I was on higher power last year with the 6J6. When I had that I used to be able to talk to Dave, and he was more than six miles away. But at least I don't get very many t.v.i. complaints nowadays. After all, one must run one's station in the best traditions of radio communication, mustn't one? VK3ZFC, VK3ZFC. This is VK3ZOM listening for you. Come in please. Over.

"Hello VK3ZFC. Hello VK3ZFC. This is VK3ZOM returning. I must say, Bert, that I think your remarks were rather unkind. I know we're entitled to run 150 watts. I know that the t.v. set front ends are twenty megacycles wide and that the six metre band's only a quarter of a megacycle away from Channel zero sound, and that's why I have a 6AK5 for a final. But I'm sure the authorities have the interests of the Amateur at heart and they're doing everything they can to encourage Amateur Radio. After all, we're allowed to talk to each other as often as we like. Oh, that reminds me. Would you tell Jim that . . . oh, I nearly forgot. We're not allowed to pass on messages, are we. Never mind, I'll phone you as soon as we finish and tell you then. VK3ZFC, VK3ZFC. This is VK3ZOM listening for you. Come in please. Over.

"Hello VK3ZFC. Hello VK3ZFC. This is VK3ZOM returning. Really, Bert. You know the instruction book says we shouldn't use that kind of language over the air. And besides I'm sure they mean well and they're doing the best they can. Anyway, suppose we

change the subject. How is your Morse practice coming along? VK3ZFC, VK3ZFC. This is VK3ZOM listening for you. Come in please. Over.

"Hello VK3ZFC. Hello VK3ZFC. This is VK3ZOM returning. Yes Bert, I understand how you feel. We're not allowed to use Morse on the air until we've passed the Morse test of 14 words per minute and then of course we'd never use it anyway. It would be nice to be able to use some band below 50 megacycles, but the book says we mustn't do that until we pass the Morse test. I suppose one could pass it if one gave up radio completely for a year or two, but I had to give up radio for five years to get my diploma in communication and if I give it away for another couple of years I'll forget all I ever knew about it. VK3ZFC, VK3ZFC. This is VK3ZOM listening for you. Come in please. Over.

"Hello VK3ZFC. Hello VK3ZFC. This is VK3ZOM returning. Oh, no, Bert. It isn't like that at all. The diploma course hasn't actually got anything to do with radio. We did lots and lots of things like maths. and chemistry and applied mechanics and physics and even English. There was something about receiving. All bits and pieces. I didn't understand it much but I managed to get through the exam. Of course, it doesn't really matter, because as long as you've got a diploma you don't actually need to know anything. What's that? John wants me on the phone? I'm sorry, Bert, I'll have to go. John's on the phone. VK3ZFC, VK3ZFC. This is VK3ZOM saying thank you for a very interesting contact. 73 and hope to hear you again soon. This is VK3ZOM signing off and clear and VK3ZOM is closing down."

"Hello John. Bowling? Yes, sure. No, I wasn't doing anything. Just the usual talk with Bert. Funny chap. Seems to have a chip on his shoulder. Maybe it's because he takes radio seriously. Yes. I'll be round in five minutes. See you. Bye."

## VS9MP, MALDIVE IS.



Stan Butlin commenced activity in October 1965. He runs 80w. on 60, 40 and 20 mx. Uses c.w. and s.s.b. Is on dally, mainly on 20 after 1200z. Easy to pick by those calling him. Excellent op. and QSL is certain, via W2CTN. Stan's home call is G3MRP. He is a member of F.O.C., T.O.P.S. and R.A.F.A.R.S. Equipment used is commercial product, the rx being SR600. Antennae, dipoles. DXCC almost 200. Main object of activity is to give all he can a QSO with Maldive Is. He will be returning to U.K. later this year. QTH is P1921850, Sgt. S. J. Butlin, Sgts. Mess., R.A.F., Gan. Maldive Is., B.F.P.O. 180, C/o. G.F.O., London; or via W2CTN or R.S.G.B.

(Only other activity from this rare spot is the club station VS9MB.)

## W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

### PHONE

Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
VK3MS	24	330	VK2JZ	61	261
VK3AHO	51	323	VK4HR	12	248
VK6RU	2	313	VK2ADE	65	236
VK5AB	45	312	VK3TL	82	237
VK6MK	43	310	VK2AAK	58	219
VK4FJ	21	292	VK6KW	4	211
Amendments:					
VK2APK	64	201	VK4KS	9	164

### C.W.

Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
VK3KB	10	340	VK3NC	19	286
VK3CX	26	313	VK3AHQ	79	281
VK2QL	5	308	VK2EC	2	279
VK4FJ	29	308	VK3ARX	66	270
VK2ADE	81	308	VK6RU	18	265
VK2AGH	71	290	VK3XB	75	257

### New Member:

VK4UC 84 104

### Amendments:

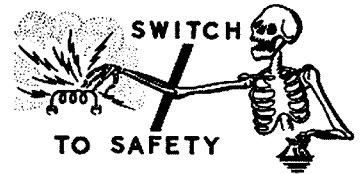
VK3YL	39	254	VK2APK	76	242
VK3TL	78	233			

### OPEN

Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
VK2ADE	28	329	VK2VN	18	290
VK2AGH	83	323	VK3NC	77	287
VK6RU	8	320	VK4HR	7	281
VK4FJ	32	315	VK3JA	43	271
VK6MK	74	308	VK3TL	85	257
VK2ACX	6	300	VK2APK	82	254

### Amendment:

VK4KS 24 198



## TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R.," in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

Manuscripts should preferably be typewritten but if handwritten please double space the writing. Drawings will be done by "A.R." staff.

Photographs will be returned if the sender's name and address is shown on the back of each photograph submitted.

Please address all articles to the

EDITOR "A.R."  
P.O. BOX 36,  
EAST MELBOURNE, C.2,  
VICTORIA.

# REMEMBRANCE DAY CONTEST, 1966

A perpetual trophy is awarded annually for competition between Divisions. It is inscribed with the names of those who made the supreme sacrifice, and so perpetuates their memory throughout Amateur Radio in Australia.

The name of the winning Division each year is also inscribed on the trophy and in addition, the winning Division will receive a suitably inscribed Certificate.

## Objects

Amateurs in each Call Area, including Australian Mandated Territories and Australian Antarctica will endeavour to contact Amateurs in other Call Areas. In addition, Amateurs will endeavour to contact any other Amateurs on the authorised bands above 52 Mcs. (i.e., intrastate contacts will be permitted in the v.h.f./u.h.f. bands.)

## Contest Date

0800 hrs. G.M.T., Saturday, 13th August, 1966, to 0759 hrs. G.M.T., Sunday, 14th August, 1966.

All Amateur Stations are requested to observe 15 minutes' silence before the commencement of the contest on the Saturday afternoon. An appropriate broadcast will be relayed from all Divisional Stations during this period.

## RULES

1. There shall be five sections to the Contest:—

- Transmitting Phone.
- Transmitting C.w.
- Transmitting Open.
- Receiving Open.
- Transmitting Open--v.h.f./u.h.f. only.

2. All Australian Amateurs may enter the Contest whether their stations are fixed, portable or mobile. Members and non-members will be eligible for awards.

3. All authorised Amateur bands may be used and cross-mode operation is permitted. Cross-band operation is not permitted.

4. Amateurs may operate on both Phone and C.w. during the Contest, i.e., phone to phone or C.w. to C.w. or Phone to C.w. However only one entry may be submitted for sections (a) to (d) in 1. A separate entry may

be submitted for section (e) in 1. An open log will be one in which points are claimed for both phone and C.w. transmissions. Refer to Rule 11 concerning Log entries.

5. For Scoring, only one contact per station per band is allowed. However, a second scoring contact can be made on the same band using the alternate mode. Arranged schedules for contacts on the other bands are prohibited.

6. Multi-operator stations are not permitted. Although log keepers are permitted only the licensed operator is allowed to make contact under his own call sign. Should two or more wish

followed by call of the station they are operating, then the word "log" followed by their own call sign, e.g., "CQ Remembrance Day from VK4BBB log VK4BAA."

C.w.: Substitute operators will call "CQ RD de" followed by the group call sign comprising the call of the station they are operating, an oblique stroke and their own call, e.g., "CQ RD de VK4BBB/VK4BAA."

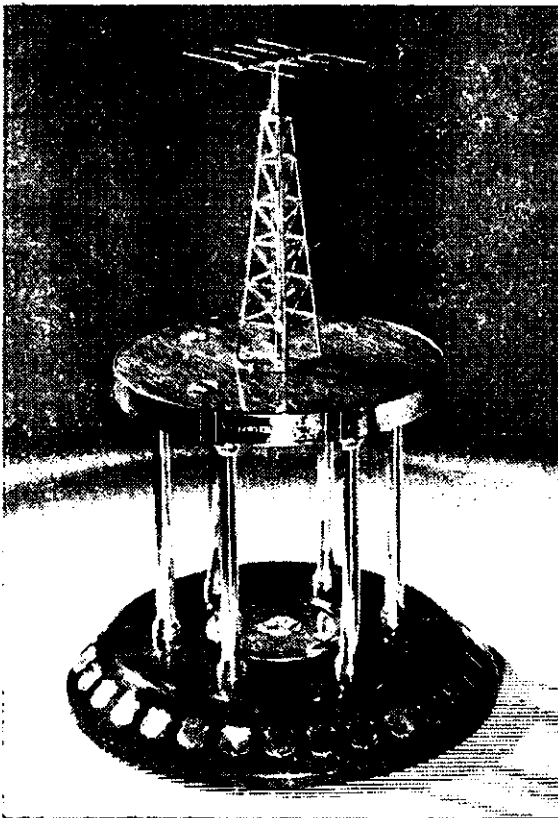
Contestants receiving signals from a substitute operator will qualify for points by recording the call sign of the substitute operator only.

7. Entrants must operate within the terms of their licences.

8. Cyphers—Before points may be claimed for a contact, serial numbers must be exchanged and acknowledged. The serial number of five or six figures will be made up of the RS (telephony) or RST (C.w.) reports plus three figures, that will increase in value by one for each successive contact. If any contestant reaches 999 he will start again with 001.

9. Entries must be set out as shown in the example, using ONLY ONE SIDE of the paper and wherever possible standard W.I.A. Log Sheets should be used. Entries must be clearly marked "Remembrance Day Contest 1966" and must be postmarked not later than 5th September, 1966. Address them to "Federal Contest Manager, W.I.A., G.P.O. Box N1002, Perth, W. Aust.," Late entries will be disqualified.

10. Scoring will be based on the table shown. A bonus of 25 points may be claimed for the first contact with other call areas on each of the bands 52 Mcs. and above.



Remembrance Day Contest Trophy

to operate any particular station, each will be considered a contestant and must submit a separate log under his own call sign. Such contestants shall be referred to as "substitute operators" for the purposes of these Rules and their operating procedure must be as follows:—

Phone: Substitute operators will call "CQ RD" or "CQ Remembrance Day"

## SCORING TABLE

		To								
		VK0	VK1-2	VK3	VK4	VK5-8	VK6	VK7	VK9	
From	VK0	-	6	6	6	6	6	6	6	6
	VK1-2	6	-	1	2	3	5	4	6	
	VK3	6	1	-	3	2	5	4	6	
	VK4	6	1	2	-	3	6	5	4	
	VK5-8	6	2	1	3	-	5	4	6	
	VK6	6	1	2	4	3	-	5	6	
	VK7	6	2	1	4	3	5	-	6	
	VK9	6	1	2	3	4	5	6	-	

Note.—Read table from left to right for points for the various call areas.

In addition, all intrastate contacts on bands 52 Mcs. and above are worth 1 point each.

Portable Operation: Log scores of operators working outside their own Call Area will be credited to that Call Area in which operation takes place.

## EXAMPLE OF TRANSMITTING LOG

Date/Time G.M.T.	Band	Emission and Power	Call Sign Worked	RST No. Sent	RST No. Rcvd.	V.h.f. Bonus	Points Claim.
AUG '66							
13 0810	7 Mc.	A3 (a)	VK5PS	58002	—		2
13 0812	"	"	VK6RU	59007	—		5
13 1035	82 "	A3 "	VK4ZAZ	56010	—	25	28
13 1040	"	"	VK3ALZ	59025	—		1

Note.—Standard W.I.A. Log Sheets may be used to follow above form.

## EXAMPLE OF RECEIVING LOG (VICTORIAN S.W.L.)

Date/Time G.M.T.	Band	Emission	Call Sign Heard	RST No. Sent	RST No. Rcvd.	Station Called	V.h.f. Bonus	Points Claim.
AUG '66								
13 0810	7 Mc.	A3 (a)	VK5PS	58002	—	VK6RU		2
13 0812	"	"	VK6RU	59007	—	VK7EJ		5
13 1035	82 "	A3 "	VK4ZAZ	56010	—	VK5ZDR	25	28
13 1040	"	"	VK3ALZ	59025	—	VK3QV		1

Note.—Standard W.I.A. Log Sheets may be used to follow the above form.

e.g. VK5ZP/2. His score counts towards N.S.W. total points score.

11. All logs shall be set as in the example shown and in addition will carry a front sheet showing the following information:—

Name ..... Section .....  
 Address ..... Call Sign .....  
 ..... Claimed Score .....  
 ..... No. of Contacts .....

Declaration: I hereby certify that I have operated in accordance with the Rules and spirit of the Contest.

Signed .....  
 Date .....

All contacts made during the Contest must be shown in the log submitted (see Rule 4). If an invalid contact is made it must be shown but no score claimed.

Entrants in the Open Sections must show C.w. and Phone contacts in numerical sequence.

12. The Federal Contest Manager has the right to disqualify any entrant who, during the Contest, has not observed the regulations or who has consistently departed from the accepted code of operating ethics. The Federal Contest Manager also has the right to disallow any illegible, incomplete or incorrectly set-out logs.

13. The ruling of the Federal Contest Manager of the W.I.A. is final and no disputes will be discussed.

#### Awards

Certificates will be awarded to the top scoring stations in sections (a) to (c) of Rule 1 above in each call area. VK1 and VK8 will count as separate areas for awards. There will be no outright winner for Australia. Further Certificates may be awarded at the discretion of the Federal Contest manager.

The Division to which the Trophy will be awarded shall be determined in the following way.

To the average of the top six logs shall be added a bonus arrived at by adding to this average the ratio of logs entered to the number of State Licensees (excluding Limited Licensees) multiplied by the total points from all entries in sections (a), (b) and (c) of Rule 1.

Average of the top six logs +

Logs Entered	Total of Points
State Licensees	from all Entrants
exclud. Z Calls	Sec. (a) (b) (c)

VK1 scores will not be included with VK2 nor VK8 with VK5.

Acceptable logs for all sections shall show at least five valid contacts.

The trophy shall be forwarded to the winning Division in its container and will be held by that Division for the specified period.

#### RECEIVING SECTION (Section D)

1. This section is open to all Short Wave Listeners in Australia, but no active transmitting station may enter.

2. Contest times and loggings of stations on each band are as for transmitting.

3. All logs shall be set out as shown in the example. The scoring

table to be used is the same as that used for transmitting entrants and points must be claimed on the basis of the State in which the receiving station is located. A sample is given to clarify the position.

It is not sufficient to log a station calling CQ—the number he passes in a contact must be logged.

It is not permissible to log a station in the same call area as the receiving station on the m.f. and h.f. bands 1.8-30 Mcs., but on bands 52 Mcs. and above such stations may be logged, once only per band, for one point. See example given. VK1/VK2 and VK5/VK8 are considered to be the same area for scoring purposes.

4. A station heard may be logged once on phone and once on C.w. for each band.

5. Club receiving stations may enter for the Receiving Section of the Contest, but will not be eligible for the single operator award. However, if sufficient entries are received a special award may be given to the top receiving station in Australia. All operators must sign the Declaration.

#### Awards

Certificates will be awarded to the highest scorers in each call area. Further Certificates may be awarded at the discretion of the Federal Contest Manager.

#### TRANSMITTING OPEN — VHF/UHF ONLY SECTION (SECTION E)

##### Additional Notes

1. This section was introduced in answer to the request by many Amateurs that provision be made for participation by Limited Licensees and other VHF/UHF operators. It is in the nature of an experiment and because of this, logs entered for section (e) at this juncture, will not be considered in the determination for the Trophy winner. In the light of future experience, response to this section by those it is intended to interest, and comments from all interested parties, other additions and changes may be made.

2. All intrastate contacts in the bands above 52 Mcs. will count for one point. Interstate contacts will be valued as in the table for MF/HF contacts including the bonus 25 points for the first contact with each new call area.

3. Entrants may submit logs for one Transmitting Section other than (e) and interstate VHF/UHF contacts may be included in both logs.

4. Logs must be set out in the standard manner prescribed.

#### Awards

Certificates will be awarded to the highest scorer in each call area.

**Note I.**—The Federal Contest Manager emphasises the need for strict observance of Rule 9 in the Transmitting Section and Rule 3 in the Receiving Section.

**Note II.**—Note that the use of G.M.T. is required in accordance with Institute Policy to encourage the use of G.M.T. by Australian Amateurs.

# LOW DRIFT CRYSTALS

FOR

## AMATEUR BANDS

ACCURACY 0.01% OF  
STATED FREQUENCY

3.5 and 7 Mc.

Unmounted, £2/10/0  
Mounted, £3/0/0

12.5 and 14 Mc.  
Fundamental Crystals,  
"Low Drift"  
Mounted only, £5.

THESE PRICES DO NOT  
INCLUDE SALES TAX

Spot Frequency Crystals  
Prices on Application.

Regrinds ..... £1/10/0

## MAXWELL HOWDEN

15 CLAREMONT CRES.,  
CANTERBURY, E.7,  
VICTORIA

THE NEW "A.R."

# LOG BOOK

IS NOW AVAILABLE

Larger, spiral-bound pages  
with more writing space.

Price 7/6 each  
including Postage

Obtainable from your Divisional  
Secretary, or W.I.A., P.O. Box 36,  
East Melbourne, C.2, Victoria.

# Sideband Electronics Engineering

P.O. BOX 23. SPRINGWOOD, N.S.W.

Telephone Springwood 51-1394

To power a modern S.S.B. Transceiver properly, a well-regulated power supply is essential for maximum linear operation and minimum distortion. It is incorrect to obtain the 275 volt and largely varying 800 volt drain from one transformer secondary winding! It either takes an oversize transformer with separate secondaries for low and high voltages or a separate transformer for the 800 volt supply, as used in my own a.c. power supply design. Their weight is almost twice that of imported supplies or locally made copies of them!

For the best deal in S.S.B. gear and accessories, SWAN, GALAXY, HY-GAIN Antennas, etc., check earlier advertisements in "Amateur Radio" and contact me for advice and quotes.—  
Arie Bles.

# BRIGHT STAR CRYSTALS

FOR ACCURACY, STABILITY, ACTIVITY AND OUTPUT



Our Crystals cover all types and frequencies in common use and include overtone, plated and vacuum mounted. Holders include the following: DC11, FT243, HC-6U, CRA, B7G, Octal, HC-18U:

THE FOLLOWING FISHING-BOAT FREQUENCIES ARE AVAILABLE IN FT243 HOLDERS:—

6280, 4095, 4535, 2760, 2524 Kc.

5.500 Kc. T.V. Sweep Generator Crystals, £3/12/6.  
100 Kc. and 1000 Kc. Frequency Standard,  
£8/10/0 plus 12½% Sales Tax.

Immediate delivery on all above types.



AUDIO AND ULTRASONIC CRYSTALS—Prices on application.

455 Kc. Filter Crystals, vacuum mounted, £6/10/0 each plus 12½% Sales Tax.

ALSO AMATEUR TYPE CRYSTALS—3.5 AND 7 Mc. BAND.

Commercial—0.02% £3/12/6, 0.01% £3/15/6, plus 12½% Sales Tax.

Amateur—from £3 each, plus 12½% Sales Tax.

Regrinds—Amateur £1/10/0, Commercial £1/17/6.

CRYSTALS FOR TAXI AND BUSH FIRE SETS ALSO AVAILABLE.

We would be happy to advise and quote you.

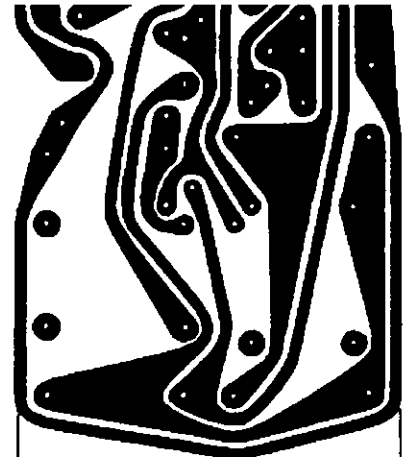
New Zealand Representatives: Messrs. Carrel & Carell, Box 2102, Auckland.

Contractors to Federal and State Government Departments.

## BRIGHT STAR RADIO

LOT 6, EILEEN ROAD, CLAYTON, VIC. Phone 546-5076

With the co-operation of our overseas associates our crystal manufacturing methods are the latest.



## NOW... PRINTED CIRCUITS TO YOUR OWN DESIGN!

Do you design your own circuits? All the advantages of printed circuits can be yours at modest cost. For many years Precision Windings have supplied printed circuits to Australian industry . . . and now streamlining of production techniques permits the economical manufacture of small quantities . . . even single circuit boards. You design and supply the artwork . . . we do the rest. Precision workmanship is guaranteed and delivery made within 7 days.

FREE!! As many enthusiasts will not be familiar with the preparation of "artwork", send a stamped, addressed envelope to us and we will forward a set of notes written to simplify preparation of "artwork". Instructions are clear and concise.

### —POST THIS COUPON NOW!

Please manufacture for me the printed circuits specified herewith in accordance with the artwork supplied.

Number required . . . . . Scale of artwork . . . . .

Size . . . . . Area . . . . . D/N . . . . .  
Phenolic paper circuits @ 5c per sq. in. \$  
Epoxy paper circuits @ 8c per sq. in. \$  
Epoxy glass circuits @ 10c per sq. in. \$  
Holes drilled @ 5 for 1c (.2c ea.) \$  
Cost of photonegative (fixed cost) \$3.00  
Sales Tax (12½% or 25%) \$  
Packing and registered postage \$0.50

Total \$

Please find cheque/money order/postal notes for total of \$ . . . . . (All cheques and money orders should be made payable to Precision Windings.)

NAME . . . . . (BLOCK LETTERS)

ADDRESS . . . . .

STATE . . . . . OCCUPATION . . . . .



52 CAMBRO RD., CLAYTON, VIC. TEL. 546 7820



**CENTRAL  
QUEENSLAND  
BRANCH  
DISPLAY**

The display, set up by the Central Queensland Branch, in a Rockhampton shop window consisted of items of radio equipment ranging from a replica of the first radio valve ever produced to the latest communications equipment. Trophies, Certificates and awards won by local members were also displayed.

Block by courtesy of Rockhampton "Morning Bulletin."



**BOEING DEMONSTRATES  
METEOR-BURST  
COMMUNICATION**

**Oceanographic Data Relayed with Help  
of Meteor Trails**

A transmission system which hitches a ride from falling stars has been successfully demonstrated by The Boeing Co., Seattle, Wash., from the location of an underwater mountain in the Pacific Ocean. Known as meteor-burst communication, the system transmits data by bouncing radio signals off trails left by meteors entering the earth's atmosphere. It was designed by the Boeing anti-submarine warfare systems organisation as a communications link for an oceanographic research programme conducted by the University of Washington.

In tests from Cobb Seamount, located 315 miles west of Grays Harbour, Wash., and 440 miles from Seattle, meteor-burst signals were received at Inglewood Research Site, near Issaquah, Wash., a total line-of-sight distance of 450 miles. System range is approximately 1,000 miles, according to Paul Pflueger, Boeing Aero-Space Division A.S.W. Systems Manager.

Millions of meteorites enter the earth's atmosphere daily, burning up quickly through air friction. As this occurs, an ionised trail is left which dissipates rapidly and eventually is absorbed in the ionosphere. The meteor's

trail above the ionosphere is the basis for the communications system developed by Boeing. Use of meteor trails to transmit data offers the advantages of greater stability and control of the radio signal, according to Pflueger. Unlike the ionosphere, which is used for conventional radio transmission, meteor trails are affected little by sun spots or other interference which can cause signal fadeout and static. A signal bounced off of a meteor trail continues along a more direct path than a signal reflected from the ionosphere. Most meteor trails exist only for fractions of a second over an extremely small area and this trail does not offer a multiplicity of reflected pathways as does the iono-

sphere. Another major advantage is that the equipment operates at low power and on v.h.f., thus avoiding the crowded h.f. bands.

The Boeing-designed system has a land-based, master control station. In operation, the station sends a probe signal skyward, seeking a meteor trail at the proper angle to reflect the signal downward to the ocean-based "slave" station. The reflected probe activates ocean surface and sub-surface measurement instruments which then transmit stored-up data using the same meteor trail as the probe signal. Boeing engineers have found that a frequency of 50 Mcs. provides the best equipment performance.

From "Frequency," July/Aug. 1965.

**STANDARD STATIONS RECEIVED IN FAR EAST.**

Frequency	Call	Emission
9,990.0	RTA	1-sec. and 0.1 sec. pulses.
10,000.0	RES/RMW Moscow	Carrier, 1-sec. time ticks; alternates carrier only.
10,004.0	RID	Carrier, 1-sec. and 0.1-sec. pulses; alternates no carrier, 1-sec. pulses with longer pulse on minute.
14,992.0	(RES/RWM)	1-sec. and 0.1-sec. pulses.
15,000.0	RES/RMW	Carrier, 1-sec. time ticks; alternates carrier only.
15,010.0	(RES/RWM)	1-sec. pulses.
20,000.0	BPV	Carrier and 1-sec. ticks.
20,008.0	Tientsin, China RID	Carrier, 1-sec. and 0.1-sec. pulses; alternates no carrier, 1-sec. pulses with longer pulse on minute.
21,800.0	(RID)	1-sec. and 0.1 sec. pulses.

From "Frequency," July/August, 1965.



# WARBURTON FRANKI

## NEWMARKET PACKAGED CIRCUIT AMPLIFIERS

### SPECIFICATION DETAILS:

Performance Data	PC1	PC2	PC3	PC4	PC5	PC7	PC9
Power							
Output mW. ...	150	400	400	400	3W	800	Pre-Amp.
Input Impedance ohms ...	1.5K	1K	2.5K	220K	1.5K	1.5K	1M
Output Impedance—ohms ...	40	15	15	15	3	8	600
Supply Voltage—volts ...	9	9	9	9	12	9	9
Typical distortion % ...	2	3	3	3	3	3	1
Frequency response ...	300-15K	200-12K	200-12K	200-12K	50-12K	50-12K	20-20K
Overall Dimensions ...	2x1	2½x1½	2½x1½	2½x1½	5½x1¾	3x1¾	2x1
All ¼ in. high							

**PRICE \$5 \$6.27 \$6.27 \$6.27 \$12.47 \$7.53 \$4.50**  
Plus Sales Tax 12½% and postage.

### SUGGESTED APPLICATIONS:

**PC1**—Audio Amplifier. Intercom. Amplifier. Lab. Instr. Amplifier.

**PC2**—Modulator Drive Stage. Church Hearing Aid Amplifier. Tape Replay Amplifier. Mine Communication Amp. Telemetry Audio Amp.

**PC3**—D.C. Relay Driver. Sound-level Meter Amp. Low power Battery Stereo. Heating and Ventilating Control Amp.

**PC4**—G.P. Amp. and Driver's Office Dictating Machines. Listening Booth Amps.

**PC5**—Portable Audio Amps. Car Radio Audio Amps. Servo Amplifier. Tape Relay Amp. Automation Drive Amp. Burglar Alarm Amp.

**PC7**—Tape Language Lab. Telephone Dictating Machine Amps. Control Amp. for Textile Machinery.

• Write or Call for Data Leaflet.

## TRANSCEIVERS TWO1

### 3 Transistor Model

- RANGE—up to ½ mile depending on terrain
- ANTENNA 10 Section Telescopic.
- POWER SUPPLY—one 216 battery.
- SIZE—5½" x 2½" x 1½".
- WEIGHT—½ lb.

**PRICE PER PAIR \$17.35** Plus 12½%. Pack & post 20 c.

Ideal for Sportsmen, Construction Workers, etc.

## SILICON DIODES

### IN3491—18 AMPS @ 50 P.I.V.

Available with either K or A to case, 75 c plus sales tax 12½%.

Heat Sink Adaptors to Suit, 25 c plus sales tax 12½%.

S10AR2— 1 amp. @ 1000 P.I.V. .... **\$1.20** plus S.T. 12½%

S15AR2— 1 amp. @ 1500 P.I.V. .... **\$2.00** " " "

1N3193 —750 mA. @ 200 P.I.V. .... **40c** " " "

1N3194 —750 mA. @ 400 P.I.V. .... **55c** " " "

1N3195 —750 mA. @ 600 P.I.V. .... **75c** " " "

## Special!

## IRISH BRAND MYLAR RECORDING TAPE

### American Professional Quality

3"	225'	70c	each plus sales tax 12½%
5"	900'	\$2.25	" " " " "
5¾"	1150'	\$3.00	" " " " "
7"	1800'	\$3.75	" " " " "
7"	2400'	\$5.55	" " " " "

Please add postage.

## TELEVISION REPLACEMENT COMPONENTS

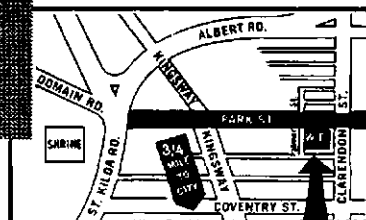
Telecomponents and Radar Brands Stocked.

Write or Call for Data and Price Lists.



# WARBURTON FRANKI

**220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines 69-0151**



• **TRADE ALSO SUPPLIED**

• Please include postage or freight with all orders

# W.I.A. Federal President's Annual Report

Gentlemen! It gives me considerable pleasure to present this report to the Federal Council on the occasion of the 30th Federal Convention of the Wireless Institute of Australia.

In this report, covering the period from April, 1965, to March, 1966, I am confident I shall convey to you a comprehensive survey of your Executive's activities and to generally summarise the national and international scene pointing out, as I proceed, some of the major obstacles the Amateur Service is likely to meet in the years ahead.

1965 Convention. Some of you will recall from last year's Convention that Mr. Harold Hepburn took office as Vice-President and Mr. Kevin Connolly as Treasurer, joining forces with Peter Williams (Secretary), Alfred Seedsman (Business Manager), Bill Mitchell (Communications Manager), David Rankin (Federal Activities and Contest Liaison Officer), and myself as Chairman and President.

I would first like to pay a tribute to the exemplary team spirit which prevailed from the commencement of the year's work. Following justifiable criticism on the protraction of time in producing the official minutes from the previous two conventions, the team went to work with concerted energy and with the assistance of clear tape recordings of the proceedings were able to forward copies of the minutes within weeks of the conclusion of the Convention. This same co-operation and drive has been evident throughout the year resulting in "getting things done" within the limitations imposed on people who give of their spare time in an honorary capacity. In return the Divisions did not delay in ratifying the minutes and matters arising from the minutes have been attended to.

One of the largest projects undertaken by the Executive of the Federal Council of the W.I.A. in many years has been the almost completed re-write of the Handbook for Operators of Radio Stations in the Amateur Service.

The Federal Council is aware that such an undertaking was not on the Executive's work schedule for this year. The task was in effect self imposed because the Executive was most unhappy with proposals received from the Central Office of the Postmaster-General's Department by which certain amendments, additions and deletions were to be made to the Handbook for Operators of Radio Stations in the Amateur Service. The Executive's representations lodged at the highest necessary level resulted in the full co-operation of the Department to re-write the Handbook.

It is not my intention to bore you with the mechanics by which this was accomplished, but suffice it to say that we co-opted the services of Michael Owen VK3ZEO, who with assistance in the main from Harold Hepburn, Peter Williams and Kevin Connolly, expended scores of hours in a concentrated effort on the work involved.

I was able to attend a number of the meetings myself and cannot speak too highly of the intelligent and intellectual manner in which the vast problem of this re-write was undertaken. The project was systemised from the commencement and when drafts were finally exchanged between the Department and the W.I.A. at an all-day conference an almost complete unanimity of thinking was evident leaving a mere handful of problems at which both parties agreed to have another look. As at the time of writing this report a further meeting has been completed resulting in the resolution of all but one or two of the remaining problems, one of which is s.s.b. power measurement and I am confident this will be resolved to our satisfaction in the near future.

It is true to say that we have not achieved every advantage we would have liked in this re-write. There has been the necessity to give a little as well as take but the nett result will be a Handbook devoid of many of the ambiguities and unrealistic restrictions which have "bugged" the Amateur Service for many years.

The most notable outcome of this project in my mind is the common-sense and liberal thinking which has prevailed. It has required a great deal of tact and diplomacy to bring about some of the changes with mutual agreement and I believe it sets an example to our own internal organisation. If by mutual trust and understanding of each other's problems a project such as this can be so satisfactorily completed between a Government Department and this Institute then I feel strongly that this same mutual trust and understanding should prevail in our own deliberations on the major matter of Federation. If each of two or more parties stick rigidly to some point of view and are not prepared to give and take with trust and understanding then I believe that the final solution to a problem can never prevail.

In concluding this section of my report I would like to record my personal thanks to Michael Owen in particular, and to the other members who so ably assisted in the re-write of this Handbook. Not only have we achieved more flexible operating rules for the Australian Amateur, but we have achieved a personal liaison with our own Administration which has never been bettered.

As I have mentioned Federation of the Institute I would like to also record at this stage my personal thanks to Michael Owen and John Batrick who, under co-option by the Executive, gave up a week-end of their time during the year to fly to Sydney. The trip was made to personally explain certain details of the proposed Federal Constitution which were in conflict with the N.S.W. Division. I believe some degree of success was achieved and I am hopeful that the remaining problems will be resolved during the course of this Convention.

As far back as I can remember there have been instances of direct action by Divisions and/or individual Amateurs to obtain approval from the Department to engage in some activity which currently is not covered by the general regulations under which the Amateur Service operates, or to bring about some change in existing conditions due to exigencies of one kind or another. Such direct action has generally resulted in a refusal and by the time the matter has reached Executive level a deal of damage in relationships has resulted and your Executive has at times been placed in an embarrassing position.

During the year several matters were attended to by the Executive at Central Office level which could have saved a deal of wasted effort and frustration had they been represented to the Executive in the first place. I mention in passing the permission to operate unattended v.h.f. beacon stations, a specific permission to a VK5 Amateur to use 1 kw. power for the purposes of moonbounce experiments and permission for Amateurs within the precincts and boundaries of Woomera to use other than the Woomera Radio Club station.

Whilst I agree that Federal Councillors can hardly be held responsible for direct action by an individual Amateur, I do lay the blame on the Federal Councillor if he permits his Division to make representations directly on matters of this nature.

I would therefore again stress most strongly that this type of problem be directed to your Executive. That is one of the major reasons for its existence, to speak for the Amateur Service at the proper level. Too often the local Administrations are unaware of agreements reached at Central Office level and, in any case, consider they have no power to make a decision in the applicants' favour so they say . . . No.

The Youth Radio Scheme has continued to progress to the point where it may be considered too large to handle under the existing conditions. It appears to me to lack necessary Federal co-ordination.

However, the scheme is doing an immense amount of good with young people and many students have passed and received the various certificates throughout the year. I had the privilege of presenting trophies to two of the first blind candidates to pass the elementary examination at the Victorian Institute for the Blind School at Burwood and to successful candidates at the Gowrie Park State School.

I believe the Y.R.S. to be one of the most powerful influences in which the Institute should participate fully. It is not only doing humanitarian service in interesting young people in a hobby but it is also serving a most useful purpose in a section of the normal educational system.

October, 1965, saw yet another more-popular-than-ever Scout "Jamboree-on-the-Air," this year dedicated to the United Nations International Co-operation Year to celebrate which the Postmaster-General's Department issued a 2/3d. commemorative stamp.

Many more stations participated in this event than ever before, indicating not only the interest scouts are taking in Amateur Radio but also the interest Amateurs are taking in fostering scout activity in our field of communications. This has rapidly become a "sure fire" annual event and I record here the thanks of the Institute as a whole to all those Amateurs who opened their shack doors during the week-end of October 16 and 17, welcoming groups of scouts and encouraging their interest.

I am pleased to report a great improvement in the conduct of contests over the past year under the control of the Federal Contests Manager, Neil Penfold. The VK6 Division are to be complimented for providing an active Federal Contest Committee on behalf of the

Federal Council and I record my personal thanks to the members of the committee for a job well done, and also to David Rankin from the Executive who acted as liaison between the Committee and the Executive which resulted in particularly smooth operation of an Institute activity which can only be classified as a difficult and time consuming one.

You will find a downward trend in contest participation. Operation in contests is a valuable training ground for Amateurs who might at some time be called upon to serve in the communications branches of the Australian Defence Forces. This facet of training is one of the claims most radio societies uphold as a strong reason for maintaining an Amateur Service together with other activities such as civil defence.

If we are losing participants I believe we should take a look at the situation to find out why. Are we tired of contests? Are there too many contests? Are our contest rules too complicated? Is our publicity not good enough? Or is it that we just can't be bothered?

Whatever the reason I believe corrective measures should be taken to increase activity for not only is it a training ground for operational purposes but it provides band occupancy, a matter which concerns all countries in which Amateur Radio flourishes because it assist materially in the preservation of our frequency allocations.

As there were no major disasters during the past year the Wireless Institute Civil Emergency Network organisation did not have a spectacular year. The VK3 network was used to a limited degree during the fire period early this year. The network did, however, operate a simulated emergency in conjunction with the Red Cross and otherwise conducted practice operations.

Emergency network organisation is one of the most valuable opportunities the Amateur Service has of demonstrating its worth in the public service, and I therefore cannot stress enough the importance of maintaining these networks ready for immediate action when called upon for assistance, whenever and wherever an emergency may eventuate.

The Federal QSL Bureau Officer, Ray Jones, and the Federal Awards Officer, Alf Kissick, have contributed of their time in their usual efficient manner. Reports from these two officers will be read later in the proceedings.

The Federal Historical Records Officer has also provided a short report and it is encouraging to know that some 150 foolscap pages have now been compiled. However, I believe there must be a lot of old material which could be made available to the Executive to assist in filling in the spaces, and I would ask Federal Councillors to keep the historical records in mind when moving among the members of their Division. Any valuable documents will be returned to the sender if so desired.

You will recall from the December, 1964, Executive Minutes that an offer from the A.R.R.L. headquarters had been extended to all member societies of the I.A.R.U. to handle individual subscriptions to the Magazine "QST" previously handled through commercial agencies.

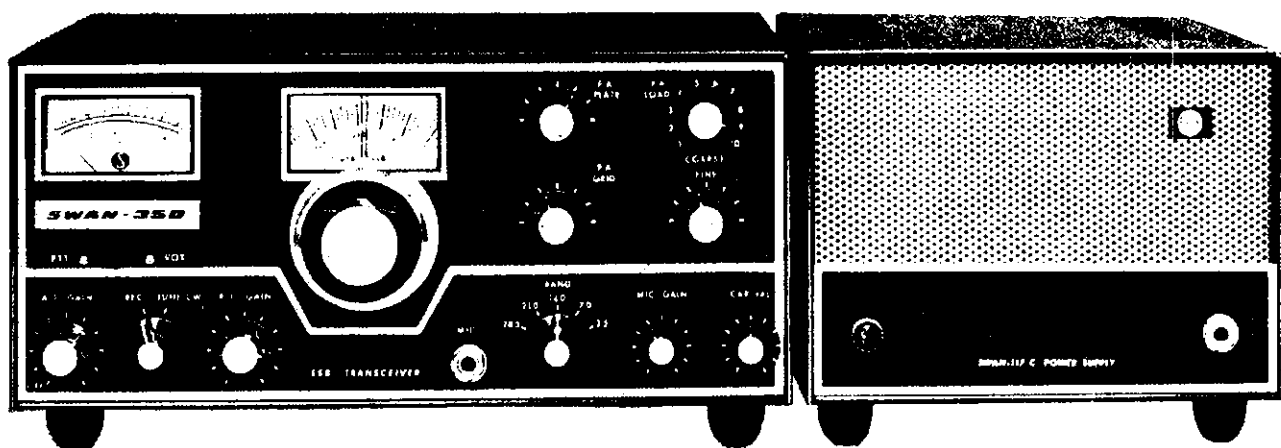
After obtaining clarification of certain aspects of the proposal the position clearly indicated that either the W.I.A. undertook the work involved or it nominated an agency. After careful consideration the Executive was unanimous in its decision to take up the offer and Mr. Alf Seedsman agreed to accept responsibility of the undertaking. From the Treasurer's report and balance sheet you will note a small profit accrued by way of commission on each subscription. This was made available by the A.R.R.L. to offset operating costs in addition to a reduced cost of the publication to the subscriber.

At the time of writing this report some 400 subscriptions have been handled and this figure is increasing each month. I would like to record my thanks to Mr. Seedsman for the time and effort he has given to the project, and suggest to the Federal Council that the Divisional Councils encourage members to place their subscriptions with the W.I.A. to obtain the benefit of the lower subscription rate available to them.

The most vital matter in any club, society or institution is its membership. This is the lifeblood of the organisation without which it cannot function. Although not spectacular, I am pleased to report that according to the figures available there has been a modest increase in membership in all Divisions with the exception of VK4 which showed a drop of 34 members over the period February, 1965, to February, 1966. The following are the membership figures (which include all grades of membership) and are compared with the total



# STILL AUSTRALIA'S MOST POPULAR S.S.B. EQUIPMENT



Swan SW350 Latest Model Transceiver only .....	£ 250 0 0	\$500.00
Swan SW350 Latest Model Transceiver. Fitted with opposite sideband and 100 Kc. cal. (Aust.) .....	£ 264 0 0	\$528.00
Swan SW350 Latest Model Transceiver. Fitted with opposite sideband and 100 Kc. cal. (Aust.), plus de luxe 240 a.c. power supply with speaker and all cables and plugs in matching cabinet .....	£ 300 0 0	\$600.00
Swan SW400 Latest Model De Luxe Transceiver only .....	£ 275 0 0	\$550.00
Swan SW406 Transistorised VFO, 5 band .....	£ 50 0 0	\$100.00
Swan SW420 Transistorised VFO, 20 band full coverage .....	£ 84 0 0	\$168.00
Swan SW410 Transistorised VFO, 5 band full coverage .....	£ 80 0 0	\$160.00
Swan VX1 5 Transistor VOX Unit .....	£ 25 0 0	\$50.00
Swan SW22 VFO Adaptor Unit (split channel) .....	£ 20 0 0	\$40.00
Swan SW260C de luxe 240v. a.c. Power Supply w/- speaker, in matching cabinet .....	£ 40 0 0	\$80.00
240v. a.c. Basic Power Supply, without cabinet .....	£ 35 0 0	\$70.00
Swan SS2 Opposite Sideband Kit (genuine) .....	£ 17 0 0	\$34.00
Swan 100 Kc Xtal Calibrator (genuine) .....	£ 17 0 0	\$34.00
Swan WFS500 12v. d.c. 500 watt Power Supply .....	£ 65 18 0	\$131.80
Opposite Sideband Kit (Aust.) .....	£ 3 15 0	\$7.50
100 Kc. Xtal Calibrator Kit (Aust.) .....	£ 11 16 0	\$23.60
P.T.T. Ceramic Microphones w/- plug .....	£ 5 18 0	\$11.80

## OTHER ACCESSORIES AVAILABLE

Mobile whips, co-axial switches, plugs, sockets, spare parts, valves, plus full range of genuine SWAN spare parts. Easy terms available in N.S.W. and Victoria.

SWAN FACTORY DISTRIBUTOR:

**W.F.S. ELECTRONICS SUPPLY CO.**

227 Victoria Road, Rydalmere, N.S.W. 638-1715

**ATLANTIC RADIO**

36 Oxford St., Woollahra, N.S.W. 31-7811

licensee listings taken from the 1966 issue of the Australian Radio Amateur Call Book. The comparison is listed for the period 1964 to 1966.

	1964		1965		1966	
	M	L	M	L	M	L
N.S.W. ....	1172	1485	1228	1564	1277	1679
Victoria .....	728	1421	858	1487	955	1535
Queensland .....	423	501	511	540	477	640
S. Australia .....	547	585	514	623	541	680
W. Australia .....	216	324	246	339	277	367
Tasmania .....	184	154	208	170	213	181
Total .....	3270	4602	3565	4869	3740	5082

The licensee (L) tabulation above couples VK1 with VK2, VK0 with VK3, VK9 with VK4 and VK8 with VK5.

Of the total of 5082 licenses now issued in the Commonwealth it is interesting to record the comparison between full and limited licence holders:—

	Full	Limited	Total
New South Wales .....	1331	348	1679
Victoria .....	1106	429	1535
Queensland .....	495	144	640
South Australia .....	488	192	680
Western Australia .....	260	107	367
Tasmania .....	127	54	181
Total .....	3808	1274	5082

From the above figures it will be noted that the limited licensees comprise near enough to 25% of the total licences issued. I believe this state of affairs is something which should be the direct concern of the Federal Council of this Institute. If the decline of applicants taking the Morse code test for the "full ticket" proceeds at its present rate I can only see grave danger ahead for the future retention of the bands between 3.5 and 30 Mcs.

The draft of a publication the Executive is proposing to have printed for general circulation is the subject of an agenda item later on in the Convention proceedings. This pamphlet is designed to interest people in taking up the hobby of Amateur Radio and may have little effect on the ratio of limited to full licensees. I believe, therefore, that the Divisional Councils should vigorously campaign to encourage the holders of Z calls to take the Morse code test.

From the previous figures there is a noticeably lower percentage of members enrolled in the two larger divisions compared with the licensees for those states. I am aware that the larger divisions have more difficulty in enrolling licensees than do the smaller divisions but I can only reiterate what previous presidents have said: "that a sound progressive programme of recruitment is a constant necessity if our ultimate aim to represent every Amateur in Australia is to be achieved."

I would like to record here my personal thanks to Major Bill Mitchell VK3UM, for the statistical membership records he has maintained for many years and from which the aforementioned figures were extracted.

The financial position of the Executive is considered to be quite satisfactory although a lower surplus is evident in the Income and Expenditure Account for the year ending February, 1966, compared with the previous year.

This lower surplus has been caused by an increase in general and incidental operating costs. Such increases are inevitable if the Executive is to carry out its duties efficiently within the capacity of its officers' available spare time. Over the last twelve months, for example, it has been necessary to pay for outside typing services for the submissions to the P.M.G. in relation to the re-write of the Handbook; the Federal Contest Committee and Youth Radio Scheme have cost more in order to operate more efficiently; costs of co-ordinating these two functions under the Federal Activities Officer has brought about a quite substantial increase; and overall a sharp increase in postages has been inevitable.

Operating costs are financed from per capita funds and in general this has been the source for payment of the increases with part subsidy from Executive's publication trading activities.

Because of accrued profits from other sources than per capita it is not proposed at this stage to request any further increase in per capita payments from Divisions. Nevertheless, the Federal Council must realise that if it is going to direct its Executive to undertake increased productive activity, and this has been evident as the Institute has grown, then it must provide the finance.

The future of the Amateur Service all over the world is far from being as secure as individuals might think and I shall mention this further towards the conclusion of this report. At this stage it is pertinent to remark that the Institute will require far greater funds in the future than it currently holds if it is to successfully represent the Amateur Service in the Australian section of Region III.

For this reason I believe that the funds the Executive has accrued by its trading activities should not be spent on increased costs of administration of an "office nature" but used for major future projects such as Region III conference of I.A.R.U. Societies, attendances at possible Regional Conferences of the I.T.U. and other activities of this nature.

The statistics kept by the Executive show that the licensee figure has doubled itself over the period from 1943 to 1965. For the past 12 years it has increased at a steady rate of approximately 200 per year. On this basis we can reasonably forecast a total of 7000 licensees by 1975. A novice licence could cause a steeper gradient on the graph as did the introduction of the limited licence in 1954. Whatever happens, the Executive, however it be constituted, will require much larger funds than are available today.

I record my thanks to Kevin Connolly for a job well done as Treasurer, particularly as he is not an accountant. The books are in excellent order and steps have been taken for certain changes designed to simplify our previous system at audit time which is the busiest time of the year for the Treasurer.

At this Convention each Federal Councillor will receive copies of "The Geneva Story." This has been protracted project but has taken toll of unaccountable hours in its compilation from a huge pile of Geneva documents sent back by the late John Moyle in 1959.

There has been no immediate use for the documentation but it will now serve as a useful guide to future W.I.A. representatives attending conferences dealing with regulations and frequency assignments, and as a valuable reference in the Institute libraries. Where Divisions do not own their own premises I would ask the Federal Councillors to retain these in their possession, making sure they are passed on to incoming officers to be held as Federal property. Major Bill Mitchell is to be complimented on completing an extremely arduous project without assistance.

Following on the 1965 Convention a sub-committee was formed, comprising Michael Owen, Bill Mitchell and myself to investigate fully the workings of the American F.C.C. organisation in relation to the system used in Australia by the Postmaster-General's Department.

Copies of relevant documents were obtained from the U.S.A. and one meeting was held to formulate a working basis. I have to report that this activity had to be "shelved" for the time being because the re-write of the Handbook, of necessity, took precedence. This programme will be taken up again later on.

Activity by Amateurs on all bands appeared to have shown an upward trend other than in contest participation. This is probably due to gradual improvement in the sunspot cycle conditions which are reported to be climbing out of the "trough." As history-making events take place in the v.h.f. spectrum I shall confine myself to reporting a few of the records achieved over the past year.

There have been an increasing number of 144 Mc. contacts across the Tasman Sea, Sydney stations in particular finding ZL contacts to be now somewhat routine. However, the first recorded contacts have been made between VK3 (Melbourne) and ZL2 and between VK5 areas during December, 1965. Final details are not yet available.

The v.h.f. distance record on 432 Mcs. was broken during the year, contact being recorded and confirmed between VK3ZDM near Ballarat and VK1LZ in Launceston, a distance of 312 miles.

The first 1296 Mc. working was recorded during January between VK3OB/3 and VK3AUX/3 over an approximate distance of 3 kms.

This year witnessed the completion of two certificates for Short-wave Listeners and I refer to the SWL DXCC Award and the Heard All VK Call Areas (HAVKCA) Award. After hearing so many complaints aired by s.w.l.'s at the delay in producing these awards it is somewhat disheartening to find that to date only two applications have been made for the DXCC and none for the HAVKCA. Perhaps Federal Councillors could instruct Councils to give this matter some publicity in local bulletins. I record my thanks to Eric Trebilcock for looking after this aspect of Institute activities.

No report would be complete from this Executive without particularly mentioning the work carried out by the Federal Secretary, Peter Williams has done an admirable job this year and I am sure that Federal Council will agree with me when I say that it would be some years since it has been so promptly and advisedly appraised of what was going on within the Executive administration.

The Institute is growing too large to operate much longer at Federal level with time donated by Executive Members from available leisure hours, in particular the secretary. If the Federal Council expects its Executive in this day and age to undertake the urgent

projects of the future, and I have referred to some of these previously, then I believe it must accept with some concern the responsibility of finding the wherewithal to have its Executive function in accordance with current requirements.

The Publications Committee continued its usual efficient team work in publishing "Amateur Radio," which changed to a more modern format during the year. It was interesting to note that the magazine received credit in an R.S.G.B. publication which reprinted a couple of original VK circuit developments with technical description.

I would like to record my appreciation of the immense amount of work carried out in the continued high quality of the Institute's magazine. The scribes and subscribers of articles are also to be commended for their honorary work.

The Postmaster-General's Department has expressed its concern at the high failure rate of applicants sitting for Departmental examinations. This failure rate includes applicants for Amateur certificates.

This appears to me to somewhat downgrade the Institute training courses, if indeed it is Institute-trained applicants who are failing, and I suggest the Divisions look into the matter on return to their home states.

You will find in the near future that the Department intends to hold examinations twice yearly by which means they consider applicants will have additional time in which to study and the failure rate should therefore decrease.

After several requests, the Executive has now been supplied with a copy of the "Proposed Australian Table of Frequency Allocations"—10 Kcs. to 40 Kcs.—prepared by Sir Leonard Huxley's Radio Frequency Allocation (Space Service) Committee.

During the year arrangements were completed between the Postmaster-General's Department and the Department of External Affairs for reciprocal licensing conditions for Australian and U.S.A. Amateurs. Similar conditions exist between Australia and the United Kingdom.

We are indebted to the Hon. Alan Fairhall, M.H.R., now Minister for Defence, for expediting the Australian-American agreement.

In reply to the Executive's request for Divisional Councils' nominations for the position of W.I.A. I.T.U. Representative three people have now offered their services and each will be given consideration. At the time of writing this report no decision has been made. The Executive anticipates the completion of its decision early after Easter.

In concluding this report I would like to mention briefly some aspects of the international scene.

As far back as 1959 I mentioned in reports published in "Amateur Radio" and in tape recordings played over Divisional stations some details of the commercial pressures for frequency space which would beset the Amateur Service world wide. I noted at that time from reading overseas journals I was the only member of an Amateur society (and I was speaking on behalf of the W.I.A.) who appeared to express concern about this particular matter.

Today I find it to be the focal point contained within a powerful circular sent out to Amateur Societies by the President of the I.A.R.U., Herbert Hoover, Jr., W6ZH.

He says, "If the next frequency allocations conference fails to continue present assignments for Amateurs in the international allocation table, the national administrations will be obliged to reduce Amateur frequency bands to conform." Unquote.

There are now 129 governments which take part in the proceedings of frequency allocation conferences and each one has an equal vote. Currently there are only 64 I.A.R.U. societies which means that the I.A.R.U. represents only one-half of the countries who cast a vote in the I.T.U.

Mr. Hoover goes on to say therefore that the solution of the problems facing the Amateur Service . . . "Will require close co-operation between Amateur Societies on a world-wide basis, and success will tax our ingenuity and resourcefulness to the utmost."

It is obvious to those who care to keep in contact with I.T.U. matters that the international scene is rapidly changing. The I.T.U. is undergoing reorganisational changes as a result of its Plenipotentiary Conference held in Montreaux during September, 1965. The date of the next Radio Conference is unknown although the next Plenipotentiary Conference is due to be held in Geneva in 1971. It is highly probable that there will never be another conference as there was in Geneva in 1959 dealing with the entire frequency spectrum; more likely there will be smaller Regional Conferences dealing specifically with problems related to sections of the frequency spectrum. The Radio Allocations (Space Services) Conference in 1963 was an example of this.

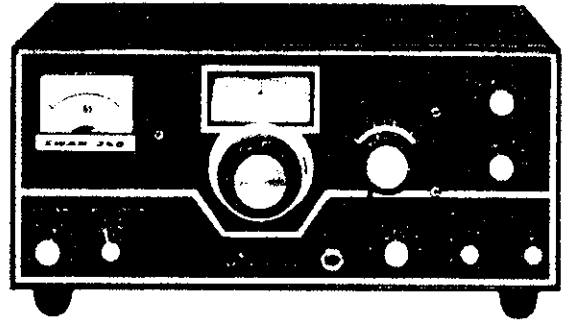
(Continued on Page 21)

INTRODUCING THE ...

# SWAN-250

## 6 METRE S.S.B. TRANSCEIVER

SWAN SPEAKS YOUR LANGUAGE NOW ON VHF TOO!



**SPECIFICATIONS:**

- ★ 240 watts p.e.p. input, 180 watts c.w. input, 75 watts a.m. input.
- ★ Two 6146B tubes in Power Amplifier.
- ★ Complete band coverage, 50-54 Mc.
- ★ Velvet smooth vernier tuning covers 500 Kc., calibrated in 5 Kc. increments.
- ★ Transmits and receives on Upper Sideband.
- ★ 2.8 Kc. bandwidth with crystal filter at 10.7 Mc.
- ★ Single conversion design for minimum image and spurious.
- ★ 40 db. unwanted-sideband suppression, 50 db. carrier suppression.
- ★ Receiver noise figure better than 3 db. 6HA5 triode R.F. amp., 6HA5 triode mixer.

- ★ Audio response essentially flat from 300 to 3100 cycles.
- ★ Pi output coupling for matching wide range of load impedances.
- ★ Meter indicates relative output for optimum tuning and loading.
- ★ Provisions for adding 500 Kc. calibrator, or plug-in Vox unit.
- ★ Dimensions: 5½ in. high, 13 in. wide, 11 in. deep. Weight: 17 lb.

**ACCESSORIES:**

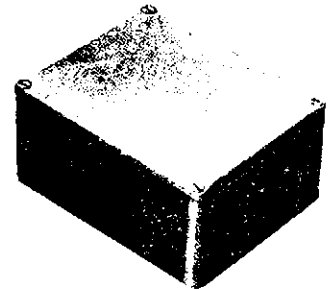
- 117-XC matching a.c. supply with speaker. 14-117.
- 12 v.d.c. supply. 500 Kc. crystal calib. kit. Plug-in VOX, model VX-1.

**W.F.S. ELECTRONICS SUPPLY CO.**  
227 Victoria Road, Rydalmere, N.S.W. 638-1715

**ATLANTIC RADIO**  
36 Oxford St., Woollahra, N.S.W. 31-7811

# EDDYSTONE

## DIE CAST INSTRUMENT BOXES



These substantially made boxes are invaluable for many purposes and numerous applications will be found for them in the construction of electronic, radio and electrical apparatus. A high degree of electrical results from the thickness of the walls (average thickness is 3-32") aided by the close-fitting flanged lid supplied with each box. Again, mechanical protection of components mounted in the box is very good and, as one example, the box lends itself well to the construction of transistorised instruments. In some cases, it is convenient to mount components on the inside of the lid, the box proper then giving complete protection. In others, parts can be readily mounted in the box itself, the lid preventing the ingress of dust and other foreign bodies.

Available from Radio and Electrical Wholesalers.

Eddystone Catalogue now available.

896	4½" x 2¾" x 1"	\$1.72
650	4½" x 3½" x 2"	\$2.48
845	7½" x 4½" x 2"	\$4.00
903	7½" x 4½" x 3"	\$4.32

Australian Agents:

**R.H. Cunningham**  
PTY. LTD.

8 Bromham Place, Richmond, Vic. 42-1614  
64 Alfred Street, Milsons Point, N.S.W. 828-9066

Agents:

Queensland: L. E. Baughen & Co., W.A.: H. J. McQuillan Pty. Ltd.  
95 Central Avenue, Sherwood. 79-2207. 1017 Wellington Street, Perth. 21-8911.



All the indications are that VK2 and VK3 are on their way to new records in numbers of clubs. VK3 finished 1965 with 30 clubs while VK2 had 45, so 1966 should be an interesting competition. This year Ken Matchett has had to retire for personal reasons from the position of VK3 Supervisor. He guided the scheme for its first three years in VK3 and can look back with pleasure on the growth from five to 30 clubs. For the present, all Y.R.S. correspondence should be addressed to that other tireless worker, Dave Buck, 263 Gooch Street, Thornbury, Vic. With latest batches from Macleod, Geelong East, Essendon Grammar, Australian Air League Squadron, and a non-club (Peter Cole), of N. Balwyn, the total Elementaries is now at 137 in VK3. The same Peter Cole has made the big step forward and passed full A.O.C.P. Unfortunately, I have no personal details, but congratulations are certainly due. Here's a new thought for VK3—what about some Y.R.S. Operators' awards? There are a number of contacts made (under supervision) by members of clubs and the Radio Telephony Operator's Certificate or the Radio Telegraphy Operator's Certificate would make a nice addition to certificates already gained and would systematise the use of club stations. What about an effort on this?

VK2 could also make a stronger effort on these Operator's Certificates. There are plenty of Transmitting Clubs and it is certainly part of the Y.R.S. to train possible operators (provided they have practised to reach a minimum standard beforehand) in the correct procedures, especially in consideration for others. Some firms and individuals continue to join the ranks of donors—a healthy sign that a good work is being recognised. Commonwealth Electronics, General Accessories, O.T.C. (regularly), Fairchild, Milton 2LI, and Pye are recent additions. Donations, small or large, will be really a subsidy for schools or other groups. Club leaders will retain valuable items for Y.R.S. purposes by keeping some type of register of Y.R.S. property. The director of O.T.C. presented a book prize to Greg, Dunne at Kingsgrove High for being the first to gain Senior Certificate. John Thyrd, formerly of Kingsgrove North High, hopes to have Clemon Park Boys' Brigade on the air in the near future (the second Boys' Brigade transmitting station). Bro. D. L. Kinsella (Waverley College) has agreed to take over the job of Publications Officer for VK2 Y.R.S., and all correspondence in regard to forms and publications should be sent to him and not to hard-pressed Supervisor Rex. Another full A.O.C.P. goes to a Y.R.S. type—Bruce North, of Klamia High. Congratulations are due for another fine achievement and a parcel of parts from Rex's "garage" (when was the car last inside, Rex?) goes to Bruce.

A most interesting club is the new one at Mittagong Training School for Boys, conducted by the Resident Psychologist, Mr. S. Hasleton, with the idea that an absorbing hobby could help these boys adjust. Could other clubs help with parts, duplicated sheets of instructions, kits, etc.? Mr. Jack Standard, of Epping Boys' High has a Tx on issue from Y.R.S. and the school should be on the air soon. A special

appeal is addressed to club leaders or secretaries to send news to (a) me! (Selfish!); (b) Newsletter Editor Jim Webster at Birrong High and/or Rex 2YA—it would be good training for the boys. The VK2 Division officials still support Y.R.S. in many ways such as the presentation of prizes to Greg, Dunne and Ernie Chalker (first P.G. member to get L.A.O.C.P.). Y.R.S. strongly supports the Division with 30 new members from its ranks in four years.

We are proud of a group here at Canberra Radio Society. Six sat for Elementary and all six obtained Honours with over 90%. One has pressed on hard and we are watching for an A.O.C.P. result. New clubs are developing at Canberra High (re-formed) and Deakin High, while Lyneham, Narrabundah and Canberra Radio Society continue. 73, Ken 1KM.

### CONTEST CALENDAR 1966

- 4th/5th JUNE—CHC/FHC/HTH QSO Party.
- 2nd/4th JULY—Venezuelan Independence Contest (Phone only).
- 9th/10th JULY—R.S.G.B. 1.8 Mcs. "Summer" Contest.
- 13th/14th AUGUST—Remembrance Day Contest.
- 10th/11th SEPTEMBER—WAE Contest (Phone Section).
- 1st/2nd OCTOBER—VK-ZL-Oceania DX contest (Phone Section).
- 8th/9th OCTOBER—VK-ZL-Oceania DX Contest (C.W. Section).
- 15th/16th OCTOBER—R.S.G.B. 21/28 Mcs. Telephony Contest. (Note the date for this contest has been changed from that originally advertised.)

FCC Form 640-A  
February 1965

UNITED STATES OF AMERICA  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D. C. 20554

PERMIT FOR ALIEN AMATEUR RADIO LICENSEE TO OPERATE IN THE UNITED STATES,  
Its Possessions and the Commonwealth of Puerto Rico

JAMES RUSSELL GODING  
51 BAY VIEW DRIVE  
SHREWSBURY, MASS. 01546

Effective date of this Permit: JANUARY 12, 1966

This Permit Expires: SEPTEMBER 2, 1966

The above-named alien is hereby authorized to operate the following described amateur radio station in the United States, its possessions, and the Commonwealth of Puerto Rico:

License or Serial Number	Licensing Country	Call Sign	Expiration date
13429	AUSTRALIA	V K 3 Z G G	SEP 2, 1966

Operation under this permit must be in accordance with (1) Current international radio regulations; (2) the terms and conditions of the bilateral agreement for reciprocal amateur radio operation between the alien's Government and the Government of the United States; (3) Subparts A through E and G of Part 97 (Amateur Radio Service) of the Rules of the Federal Communications Commission; (4) the terms and conditions of the license issued to the alien by his government; and (5) the special conditions (if any) set forth below.

This permit may be summarily modified, suspended or cancelled by the Commission without advance notice.  
SPECIAL CONDITIONS: OPERATION LIMITED TO PRIVILEGES OF UNITED STATES TECHNICIAN CLASS (SECTION 97.7(D)) AND FURTHER LIMITED TO MAXIMUM TRANSMITTER INPUT POWER OF 150 WATTS AND TELEPHONY ONLY.

FEDERAL COMMUNICATIONS COMMISSION

*Bon F. Wapler*  
Secretary

Above is a reproduction of the Amateur Radio Licence issued to Jim Goding VK3ZGG by the American Authorities.

### HIGGINBOTHAM AWARD

The Publications Committee had great difficulty in reaching a decision as to who should be the recipient of the Higginbotham Award for 1965, and for this reason the announcement was delayed to give the committee extra time to consider the matter.

As the committee could not separate two contributors, it was agreed to share the Award between Mr. J. R. Cox VK6NJ for his work "The History of Communications" and Mr. P. M. Williams VK5NN for his contribution on single sideband equipment.

The awards have been sent to both gentlemen.

### W.I.A. PRESIDENT'S REPORT

(Continued from Page 19)

Herbert Hoover, Jr., speaking on the principal problem of I.T.U. conferences dealing with Amateur frequency allocations pin-points the most important aspect when he says . . . "If we fail to meet the problem of protecting our allocations, there will be a very serious disruption of international Amateur Radio as we know it today."

As Federal President of this Institute I am more than happy to know that the I.A.R.U. is rising in defence of the Amateur Service in this way, and it behoves this Institute to back the I.A.R.U. effort with everything it has. I believe we must do this in three main ways.

- To form a permanent liaison committee or working group to maintain close contact with our Postmaster-General's Department. The Committee to be composed of members with special experience in this field.
- To convene within the next two years a conference of Region III Amateur Societies.
- To finance our representative to attend Region I and Region II I.A.R.U. conferences.

President Hoover concludes . . . "In my opinion the survival of Amateur Radio, as we know it today, will depend upon our individual effort in the immediate future. There is no time to spare!" Executive has already received a long report from the N.Z.A.R.T. on the issue of holding a Region III conference. An invitation, which unfortunately we had to turn down at this stage, was received from Mr. John Clarricoats, President of the Region I Bureau of the I.A.R.U., inviting the W.I.A. to attend their conference to be held during May, 1965, at Opatiji in Yugoslavia.

I leave this matter with the Federal Council for its deep consideration if the W.I.A. is to play its rightful part in Region III.

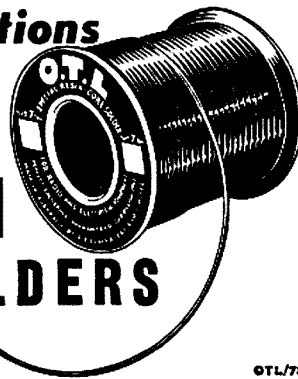
In closing I record my grateful thanks to members of Executive, the Federal Council and Divisional Councils for the time they have devoted to conducting the affairs of the Wireless Institute of Australia for and on behalf of the Amateurs of Australia.

—G. M. Hull, Federal President, W.I.A.

For Reliable Connections

**OTL**  
**RESIN CORE SOLDERS**

O. T. LEMPRIERE & CO. LIMITED  
Head Office: 27-41 Bowden Street, Alexandria, N.S.W.  
and at Melbourne • Brisbane • Adelaide • Perth.



OTL/79

# DX

Sub-Editor: ALAN SHAWSMITH, VK4SS  
35 Whynot St., West End, Brisbane, Qld.

Conditions at present appear to be a little slack or maybe it is lack of activity generally. During the winter months things quieten down, too, on the local scene. However, openings are being reported on 28 Mcs.

## NOTES AND NEWS

Trucal Oman: MP4TBO Roger QRV 14,198 around 2200z. Call 5-10 up.  
Qatar: VS9AFR, VS9QBI, VS9HRV, VS9PRV all will be active from here soon.  
Ceylon: 4ST1W Ian on daily from 0130z. Listen 14,125.  
Roekall Is.: One day activity only is expected to take place from this spot in early June. No other information available.  
Aland Is.: OH0NF 14,241 at 1830z or later.  
French Somaliland: FL8RA still going strong. 14,045 2100z. QSL W2LJX.  
Algeria: 7X2MD 14,250 1800z. QSL VE3EUU. Also on is 7X2AH 14,217 and A1 mode. QSL WA5STL.  
Seychelles: VQ9EF 14,243 1900z and Ted, VQ9TC 14,230 2200z.  
Sierra Leone: Peter 9L1HX operates around 14,225 2200z. QSL VE4OX.  
East Carolines: KC6BW works 14,255 around 1330z.  
The above by courtesy of LIDXA.  
Gibraltar: ZB2AF is a R.A.F. Club station and active daily using a.m. 14,210 1730z onwards.  
Somali Rep.: 601AU Smitty is active again. He hopes to operate soon as JY1AU and YI2AU. More information if it comes to hand.  
Falkland Is.: VP8HD and VP8HJ both working 14 c.w. QSLs VP8HD-G3PEK, VP8HJ-W2CTN.  
Za-Land: DL7FT will not make this trip as planned earlier.

Sao Thome: CR5SP now has s.s.b. rig and can be found on 14,100 Kcs. 2100z.  
The above by courtesy of AIRWAYS G3UGT.  
Sudan: ST2BS on 14,234 2100z. QSL U.S. Embassy, Khartoum.  
Gough Is.: S.s.b. equipment is being shipped to ZD9BE. He can also be heard on c.w. 20 mx.  
Afghanistan: YA1AW is heard occasionally around 14,200. Try listening at 1200z.  
North Borneo: 9M6AP and one or two others are QRV both s.s.b. and c.w. 20. 9M6AP's QSL goes to G3TKE.  
Desroches: Proposed trip by VQ9HB is now reported off.  
Tnalsis: F7EU will attempt to put a signal out from here early June. Says he does not as yet have a permit. Mode s.s.b. mainly 20.

## ACTIVITIES

Ken VK3TL reports working these choice ones on 20 mx: CP5AD, F9UC/FC, GC8HT, GD3ENK, GW4NZ, HB0ABS (Lichenstern), H3RAP, IT1AI, OH0NI, OX3JV, SV1BL, T18RS, VP2AC, ZF1GC, 1M4A (Minerva Reef), 5W1AX, 7X2MD, 9M6NQ. QSLs received: FS7RT, FL8RA, FL8AA, PJ5BC, 9F3USA, VP5RB, CE6EW, VE8CO Zone 2, XT0H, 4W2AA, VO2ME, YK1AA, YA1AW, VR5AB, EI3S, 5T7H and lots more.  
Dud VK4MY reports conditions as picking up and worked some nice ones on 14 c.w. LA8PF, DM4UBO, OH4OZ, UL7RR, OZ5DX, GI4RY, VE7ANP, LA1H, UW3BX, 6Y5XG, G3ESF, VS8FO, VS9MP (Maldiva Is.), VE1RB, LA8SJ, CR9AH, etc.  
Chas. VK4UC, who is now chasing WPX logged the following also on 20 c.w.: 6Y5BB (who says 8Y5MJ has already returned to Veland), HR5LB, PJ3CI, IT1AI, OZ4N, OZ5DX, LA1KI, 9V1MT, ZC4CI. QSLs from VR5AB, GM3JDR, KS6BR, KW8EK, 6Y5MJ.  
Peter VK4PJ reports the 10 and 15 mx bands as open and lists the following QSOs: 21 Mcs., VE7PV, 9Q5YL, G6KN, SM5BLA, G3JML, SM5CQF, SM5LZ, HL9KW, HK3AW and many, many JAs and Ws. On 28 Mcs., HP1SC, KH6CSJ, and several Ws both east and west coast. On 14 Mcs., FB8UU, UQ2PD, HB9XJ, UA1CK, G3NJB, UR2AR, KL7EDY, BV1USA, BV1USF, G3IVJ, CN8AP, SM2ABX, VE8BW, OE1MEN, 9Y4VP and more. Mostly between 1030z and 1200z and s.s.b. mode.

## QTHs

ZF1GC—C/o Bodden Town, Grand Cayman; GD3ENK—via R.S.G.B.; F9UC—DL9PF; 5W1AX—KS6BT; VP2AC—WA4AYX; HB0ABS—HB9ABS; VP9CP—Box 275, Hamilton; VP2KD—VE3ACD; VP9PF—Box 509, Hamilton; VP1PV—VE3BRG; MP4BDP—via R.S.G.B.; VP5RB—W4RC; VP2SJ—VE4OX; KA5RC—via W2CTN; 5H3JR—W2SNM.  
My thanks to the month's contributors: LIDXA, G3UGT, Fla DX'er, VK3TL, VK4PJ, VK4UC, VK4MY and Chas. Thorpe. Once again let me make a plea for more OCEANIA news items. Always needed.  
Good hunting, chaps. 73, Al VK4SS.

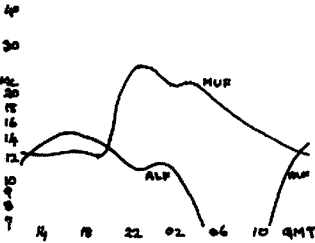
## PRECIS OF THE RULES FOR THE 1966 VENEZUELAN INDEPENDENCE CONTEST

Contest Period: 0000 G.M.T., 2nd July, to 2400 G.M.T. 3rd July.  
Contest Operation: Call "CQ Venezuelan Contest" on 3.5 through 28 Mcs. on a.m. or s.s.b. Single Operator—All bands and single operator—Single Band entries will be acceptable.  
VK stations are permitted to work YV and other American countries.  
Exchange a 5 digit number consisting of RS report plus a 3 digit contact number starting with 001.  
Scoring: 1 point per contact with "other American countries," 2 points for contact with YV stations except on 7 Mcs. 1 point per contact with YV stations on 7 Mcs.  
A multiplier of 1 for each country (A.R.R.L. list) and for each Call Area in YV (1 to 9) and U.S.A. (10 to 0).  
The total score for each band is the number of contact points multiplied by the number of multipliers. The total all bands score will be the sum of the contest points in all bands by the sum of the multipliers of all bands.  
All contestants must compute their own score on a separate summary sheet.  
Logs: A separate log must be kept for each band. W.I.A. log format is satisfactory.  
Logs postmarked not later than Sept. 15, 1966 to Radio Club Venezolano, Concurso Independencia de Venezuela, P.O. Box 2285, Caracas, Venezuela.

## PREDICTION CHARTS

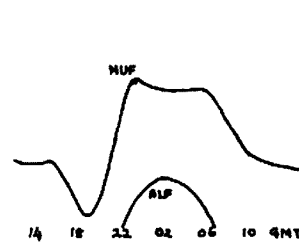
JUNE 1966

BRAZOS EST 02 06 10 14 18 22



LAUDON S.R.

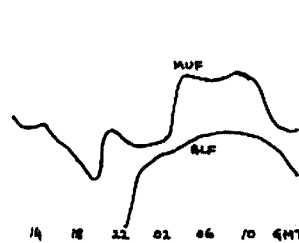
BOMBAY 00-01 06 10 14 18 22



MONTREAL S.R.

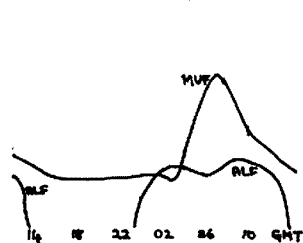
CANBERRA TO

CAIRO 02 06 10 14 18 22



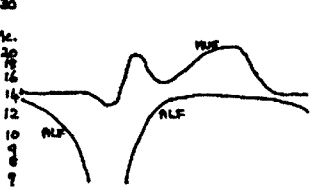
NAIROBI

JOHANNESBURG 08 06 10 14 18 22



RIO DE JANEIRO

30 Mc. 20 16 12 10 8 7



SAN FRANCISCO.



TOKYO



WEST AFRICA S.R.



WILKES.

(Prediction Charts by courtesy of Ionospheric Prediction Service)

# VHF

Sub-Editor: CYRIL MAUDE, VK3ZCK  
2 Clarendon St., Avondale Heights, W.2, Vic.

First of all, many thanks to Len 3ZGP for the excellent job he has done over the past 12 months or so in editing this section so that it is in a readable form. Well, I hope that I am able to continue Len's work and keep up the standard.

The news over the past month has been varied with reports that VK4s are working 2m on 6, and JAs hearing VK3s on 6.2 No 2 metre activity in VK6, but plenty of 6 mx activity. Well everybody is allowed to choose his hands so I will leave the general reporting to the various correspondents.

There is only one thing left, will all correspondents please try to get their notes to me by the 1st of the month prior to publication. 73. Cyril 3ZCK.

## NEW SOUTH WALES

V.h.f.-wise, things have been reasonably quiet during the last month. There appears to be little activity on the 52 Mc. band at the moment, but 2 metres is fairly active, both on the a.m. end of the band and on the 146 f.m. net. Quite a few new call signs are appearing on the band and even 432 Mc. seems to be attracting some attention.

The new committee has been settling in fairly well, and with two of them personally attending the last morse exam (ZIW and ZEX) it is to be hoped, therefore, that our committee will shortly have two full calls.

The newsletter has had to be suspended unfortunately, due to the falling subscriptions making it uneconomic to continue production. It is regretted that we have had to do this, but as the publication was gratis, costs were beginning to get out of hand.

As the St. Mary's Radio Club is holding a convention over the Queen's Birthday weekend, we will probably be co-ordinating with this group, in lieu of holding a separate "mountain top" week-end. There will possibly be a message handling contest held over this week-end during the evenings. Further details will be released through the usual channels. The May meeting will be a lecture by Les Jenkins VK2ZBJ on the practical applications of Fairchild transistors. Well, that about sums up the current activities of the group.

I would, however, on behalf of the group, congratulate the Melbourne University group on their "Australis" satellite project. We wish them the best of luck with it. Till next month. 73, Stephen 2ZSK.

## HUNTER BRANCH (VK3)

82 Mc.: This band has been dull over the last month. The locals have kept the net going each Saturday and Sunday and holidays at 10 a.m. One break-through was heard by 2ZUB on April 17 at 9.45 a.m. or thereabouts, a couple of VK3 stations were heard off the back of his beam about strength 5/5. Noise made it hard to identify call signs, although it is possible it could have been a VK3 mobile north of Newcastle.

Dave 2ZFR has a 6 mx converter going and a tx with 6146 final just about finished. Colin 2BCC also has a converter going, and building a tx. Others with converters for this band include Ian 2ZIO. Allan 2ZAX, ex-6ZDM, has tx and converter for this band and hopes to be active in the near future.

144 Mc.: This band is fairly active on most nights. Monday nights after the "Admiral" (Gordon) 2ZSG relays the Hunter Branch broadcast on the 144 Mc. band from 80 mx, the following stations are usually heard: VKs 2ZKW, 2YT, 2ZSG, 2ZFR, 2CN, 2ZFX and 2ZWM. Others can be heard most Monday nights and are fairly active on other nights. Mack 2ZMO is back on the band after having been confined to the cot for some weeks with an infection.

Latest additions to the V.h.f. Hunter Branch "Weird Mob" are Ian 2ZIO, who is making good use of a 522, and Frank 2ZFX, who is running a 3/12 and making a loud noise. On a Monday night a few weeks ago, Gordon 2ZSG had LZ2TAX visiting him in the shack, and after the Hunter Branch broadcast he spoke to many of the locals, giving them information on v.h.f. activity in New Zealand. As he was due to leave Newcastle in a few days to return to N.Z. he was only able to meet a few of the locals.

Mac 2ZMO has nearly finished a new 144 Mc. tx for Ron 2ASJ of Stockton (suburb of Newcastle) and has had some fine QSOs, but he still has a few bugs to iron out. Tony 2ZCT has gone to Sydney for some months for a "refresher course" for his employer. As Tony is our local transistor expert, we hope he gets a few new ideas from the Sydney boys. Sydney stations are heard and worked on 144 Mc. at times mostly by stations in good locations and running high power.—Mac 2ZMO.

## VICTORIA

VK3 activity has not been of a very high level, although we have had a short opening to VK4 one Sunday last month. The only other 6 mx DX heard has been Interstate Channel 0 and a short opening to VK7. Two metres has had a little DX with openings to Mt. Gambier, Northern Tasmania and VK3 country districts.

The V.h.f. Field Day season has finished and the final scores received are: Oct. winner, George 3ZCG, 2338 pts.; Nov., Cyril 3AEE and Graham 3ZAA, equal 2502 pts.; Dec., George 3ZCG, 2030 pts.; Jan., Jack 3ZJF, 1762 pts.; Feb., no scores received; March, Peter 3ZPA, 1150 pts.; Overall Winners, George 3ZCG, 6885 pts.; Graham 3ZAA, 3218 pts.; Cyril 3AEE, 2502 pts.; Jack 3ZJF, 1762 pts.; Les 3ZPE, 1422 pts.; Peter 3ZPA, 1150 pts. Also scores were received from 3ZJX, 3AVP and 2ZEO.

Other news this month includes that of "Australis", the amateur satellite being developed by 3ATM in conjunction with the Melbourne University Astronautical Society, and the Wireless Institute of Australia. A test package containing a duplicate tx was launched by balloon on 1st May and it successfully passed its tests. The 28 Mc. beacon tx will be tested soon, followed by other units over the next few months.

The 2 mx fox hunts and scrambles are the only set events in VK3 that attract any numbers. Well that is all for this month.—3ZCK.

N.W. Zone: 3ZGU has a neat 2 mx mobile rig almost completed and is waiting on crystals and time to fit it into the car. Noel 3ZGZ is in the midst of painting and hanging curtains, etc., in a new radio room. Unfortunately he was unable to get on the air for this DX season. Noel will be operating on 6 and 2 mx and with a little bit of luck 1 mx well before the next DX season. More than likely low power tx's will be constructed first, with the idea of using them on net frequencies when the higher power tx's are completed.—3ZGZ.

## TOWNSVILLE DISTRICT (VK4)

The main news this month is the long awaited appearance of the JAs. Weak JA1 and JA7 signals were heard during February and March, but no stations worked. However, April was excellent with almost daily openings into North Queensland around 1330-1630 hours E.A.S.T. Other openings occurred at 1700, 2000 and 2300 hrs. E.A.S.T. On April 11 an opening took place at 0200 hrs. Signal strengths were high with little or no QSB. Scatter stations were heard at good strength approximately half an hour before most openings. A number of commercial f.m. stations could be heard between 51-52 Mc.

The only active 6 mx stations in Townsville, Graham 4ZGJ and Bob 4ZRG, were on hand at almost every daily opening. A number of fine QSOs resulted, with most of the JA stations speaking fair English. Lance 4ZAZ, in Rockhampton, was heard here on two occasions obtaining his share of the DX.

Southern 6 mx openings are still around with Channel 0 stations being heard around 1100 hours. VK2 and VK3 stations worked in early April, but little activity on the band.

From Ayr (40 miles south of Townsville) the news to hand is that Ross 4RO has returned from an enjoyable seven weeks round Australia holiday, while Dale 4ZDG is mixing electronics with pistol shooting and making a fine job of both.—Bob 4ZRG.

## WESTERN AUSTRALIA

With apologies for the absence of last month's notes, here is a short summary of the DX season in the West.

The 1965-66 season was, for the southern part of the State at least, very poor. Although early openings in November showed promise, and a good season was expected, openings were disappointing, being short and patchy, even over the usual Christmas-New Year week.

DX-peditions to Esperance and Albany proved largely fruitless, in sharp contrast to previous years. The surprise of the season was performance of Tony 6ZDT at Meekatharra, 400 miles N.N.E. of Perth. Despite limited hours of operation, Tony worked into VK2, 3, 4, 5 and possibly VK7—I cannot verify this at the time of writing. The call mainly heard at Meekatharra was VK2, which is normally not very common in this State. Tony reports openings as lengthy and often very good. He also heard JA on 50 Mc., but could not raise any.

Another remarkable feature of Tony's DX season was the appearance of short skips to Perth and 6ZDS in Albany.

On the 2 mx front, no actual contacts were made. However, Tony at Meekatharra reported reception of Channel 7 Sydney for a period of several hours at considerable strength, and high band t.v. openings (up to and including Ch. 10) were reported at various times from Kalgoorlie (6ZDC) and Mt. Barker (6ZCD) and a contact in the mobile radio field reports openings East on the high band mobile frequencies (160 Mc. approx.). These manifestations, and the difficulty some country stations—notably 6ZCN Bunbury—are experiencing with t.v. and power line noise, is causing an upsurge of 2 mx interest in VK6—long an exclusive 6 mx State.

Activity in Perth is still confined in the main to the f.m. channel on 52.656. Stations such as 6DI and 6DP have even been heard, and Wayne 6ZDD has gained a long sought after call sign. Hooray, and all that!

The 6, 2 and 432 beacons are still running almost continuously. The long awaited lifting of the 2 mx aerial to the dizzy height of 20 feet has improved reports from more distant stations, often quite considerably. Tom 6TR and Brian 6VV at Quinading are both keen on 2 mx and have been on 6 using a 50 ft. tower and a most impressive antenna system, putting some excellent signals into Perth.

Again, apologies for the absence of previous notes and for the vagueness of these, but as I am at present far to the north of Perth, and with a cyclone up here and a mail strike in Perth, you will be lucky to get them at all. See you on 2 one of these years.—6ZCF.

## Publications Committee Reports That...

All mail received up to the first mail of the 9th May was considered at the May meeting.

Correspondence was received from VKs 6EP, 2AND, 2QL, 2ZTM, VK6 Division, C. E. Brown, Thomas Roberts, Harry Major, and technical articles from VKs 6VK and 2ZRY.

VK2QL was the only one to respond to last month's request for comments on the Prediction Charts. His suggestions were received to late for inclusion in June issue, but will be acted upon for the July issue.

In each issue of "Amateur Radio" there is a notice on page one stating that all correspondence should be addressed to—

The Editor,  
"Amateur Radio,"  
P.O. Box 36,  
East Melbourne, C.2, Vic.

Inconvenience and delay are often caused by matter being addressed to the private address of the Secretary to the Publications Committee. Correct addressing will save time and trouble all round.

The Committee also discussed possible publication dates for the 1966-67 issue of the Call Book. From reports to hand it would appear that all Divisions under-estimated their requirements of the last issue, and as we print only enough to fulfil firm orders, no extra copies are available. As soon as publication date is decided all Divisions will be advised and we stress the importance of them advising us of their requirements, before we go to print.

Some contributors of notes are not submitting their material in the correct format. All contributors are requested to check previous issues of "A.R." and follow the instructions that have been published.

## COPY DATE

As from next month copy date for all material for publication will be the 5th of the month except for January when the copy date will be 1st December. Remember, copy for August issue is 5th July.

Phone 34-6539, write or call  
**WILLIAM WILLIS & Co. Pty. Ltd.**  
428 Elizabeth St., Melbourne  
for **GELOSO**  
Equipment and Components

# SWL

Sub-Editor: D. GRANTLEY, WIA-L2022  
Alexander Ave., Hazelbrook, N.S.W.

I was very disappointed to read the results of the 1965 VK/ZL contest in the April issue, for once again only 12 of our many listeners are listed as having taken part. As we all expected, the top three places were filled by the c.w. men, who as I said once before have this contest at their mercy, and whilst the contest is "Receiving Open" for the s.w.l.'s, this condition will persist. Peter Drew as usual topped the overall score with 11,040 points, which was a fine effort and is probably a record for this event. (Any former figures available, Eric?) Now that winter is coming on, we look to our next VK contest, the R.D. Now is the time to start the big overhaul of your gear, check those faulty tubes, poor antenna connections, alignment, put some carbon-tetrachloride on the noisy controls, and in general, bring the gear up to a standard which will enable you as an individual operator to make this fine contest a success.

DX News. KS6B has been heard regularly on 40 metres s.s.b. from 0730z most nights at good strength. BV1USA and OX3JV have been logged by Alan Rafferty around 0630z, nightly around 14.3 s.s.b. at good strength. The latter's QSL manager is SM7ACB. All QSLs for 4WISS heard recently should go via the R.S.G.B. YA1AW should be active at present, with QSLs to K5GOT. Should you hear 3A2DA it is most likely to be a pirate, and the call holder would like to hear full details of any reception of this call. His address is Geoff Haynes, Sans Nom, Fir Tree Road, Leatherhead, Surrey, G.B. VK2NN was recently reported in an English publication as having logged on 10 metres at Farnham in the U.K., on a 10 tube super with a 30-ft. wire around the picture rail, whilst in the same magazine VK5VA is reported on 40 metres by a s.w.l. using a 20 metre vertical.

Overseas S.W.L.s This month we greet a well-known listener from Great Britain, Bernard Hughes, whose name is readily recalled as QSL ladder and tape section manager for the I.S.W.L. in London. Details of his gear are as follows: rx in an Edystone 840c, with a Codar PR30 preselector fed by a 20 metre dipole and a 68 ft. long wire. One of the features of Bernard's listening has been his award hunting, and to date he has the Ockenden Venture Award, Newark News Awards for 25 and 50 countries, United Nations Class 2 for 55 countries, U.N. Class 3 for 40 countries, several country awards from the I.S.W.L. plus their 20 zone award, P.E. Monitor Certificate and Radio New York World Wide S.W.L. Club Gold Certificate. Other awards have been applied for. Countries heard are 125 with 77 confirmed in 29 zones. He has to date heard 289 prefixes with 145 confirmed.

On the tape side of the hobby, Bernard uses the following machines: Truvox R92, Philips EL352, Elizabethan TT3, A.I.W.A. TP703, and Garrard SF25 special transcription deck. At the moment he has 27 tape contacts in nine countries including one /MM.

Around the Shacks. Firstly over to VK6 and Bryan Prossor who as usual reports in by tape, and a very fine job of recording too, Bryan. He has been listening fairly often, and reports good conditions on 15 metres where he located many G, W and JA stations. On the old standby 20 metres VS6FO, K8ZHA/MM, Z56RB and LA7RF were a few of his loggings. Inward QSLs for Bryan included G13JM, DL7BQ, W6IBU/KG8, YK1AA, OA4QW, EP3AM, 9M2SS, LA6YE and HB8MU. If we don't hear from Bryan for a few months some of you VK5 boys had better set out across the Nullabor to look for him, as he plans to set out for Adelaide in June. And whilst on the subject of that fair city, a letter to hand from Alan Rafferty indicates that he is still intent on the next A.O.C.P. examination, but was able to hear quite a number of American s.s.b. and a.m. stations on 7 Mcs., whilst on 20 he heard all continents on s.s.b., plus EA3JE, several W's and a VE on a.m. From our senior VK2, Chas. Abernethy, I had a long and very interesting letter.

Chas. wishes to remind anybody interested in card swapping, that he has names and addresses of many s.w.l.'s throughout the world who wish to swap, and a s.a.e. to his address, 30 Urunga Road, Miranda, N.S.W., will bring you further information. Band conditions here in Sydney are still extremely good, and here at L2022, I have continued to find much of interest on all bands except top and 10 metres. Whilst nothing new has been located, conditions have made the search a pleasure. Let's

hope it continues. It is with much pleasure that we welcome back to the fold our VK7 supporter Greg Johnston who has just returned from a short spell at Macquarie Island. Greg is now QSL manager for Col VK0MI, a task which will keep him fully occupied. Up here is VK2 Mac Hilliard who reports good signals from W land on 10 metres. This is the best report I have had to date on ten, and is quite significant, as his QTH over in Kingsgrove would not be the best for DX. Mac has now moved up a little higher in the DX ladder with 245 heard. I could write a full column on the activities of Ernie Luff, who seems to be intent on catching the leaders. Prefixes heard at his QTH in Elizabeth Vale, S.A., include FK8, CT1, VE, YV1, EA4, LA3, 4X4, KG8, UA2, TI2, HK2, ZS6, EP3, DL, OK1 and DU7. New confirmations were YNICML and KR6MB.

I have no s.w.l. reports from VK4 this month, however, Chas VK4UC reports excellent conditions on all bands, particularly on the DX front in the late afternoon. Chas. has been most helpful in supplying QTHs and information for this page, and I am sure we all appreciate such assistance from one of our top DX men. He uses a Geloos v.o.o./buffer/8DQ5 into an inverted vee, and gets out exceptionally well with his 30 watts Rx in an AR7. Ray Kearney L2287 logged the following prefixes on his completely rewired AR7: LA, EL6, OE2, UX3, CN8, CT1, EA8, KP4, VP5, YN8, HI, OH8, U18, UJ8, MP4, XW8, YS, FO8 and ZL5AA. Ray, as well as overhauling the AR7, has erected a long wire antenna, 130 ft. long and 35 ft. high. Warwick Smith L3211 has been working on his Rx of late, thus has not done a lot of listening. However, he did manage FB8YY, HB0ABS, CT1, VP2, HRI, TG9, 6Y5, YN1 and many others. A new card received was WB8FP/KJ6. Bob Halligan L3229 received cards from W8IBU/KG6, VS8EQ, EP2BQ, OK1ADP, UA4KED, VK0MI and 9M2DK, with a new country heard, EL20. Bob has been concentrating on 8 metres and has a new GP up 30 feet.

Down to VK7 and Bob Mutton who lost his dipoles, however, he reports plenty of W's on 7 Mcs. at 0700z. Inward cards include HB9GM, SV1AE, SM5BNX and VS9OC/. A late letter from Ernie Luff encloses details of the G award for s.w.l.'s. The G award is made to any s.w.l. who can produce QSL cards as proof of contact with 12 G stations, resident in the United Kingdom, all on 20 metres phone (a.m. or s.s.b.), but not c.w. The 12 contacts must include GI, GM and GW, and three of the contacts must have been working a member station of the Elizabeth Radio Club. All applications to Ernie, Club Secretary, 5 Shaftesbury Road, Elizabeth Vale. Ernie has just received cards from VS6FS, CCT1LK, F8GV, CP6FR and OX3JV. Finally to Peter Drew over in VK6. On 10 metres he logged only 9V1LP, KR6BF and VK6DR and a few JAs. 18 metres still loaded with JAs plus TG7FS, 4S1DA, DU7Y, MP4TBQ, SM6CQ, ZS3HT, ZE1CB, ZE2JA, 9N1MM, ZEZJU, ZS2OM, 9V1NP and W8KXZ, most on s.s.b. On the other

bands the conditions in W.A. have been similar to those of the eastern ones. Peter has given me a long list of calls heard on the other bands, but lack of space does not permit me to print them. Congratulations to Peter on your fine top score in the last VK/ZL. I will be in Melbourne for most of June, so hope to meet many of the VK3 group then. Tapes to hand this month include Bryan Prossor of VK6, Bernard Hughes of England with a rundown on conditions in that country, and a very interesting spool from VK3 I.S.W.L. member Doug Head of South Yarra.

Queries and Answers. Bob Mutton, in answer to your query re the operation of VK9TL, Ken has written to say that the only legal operation of that call was from 3/1/85 to 3/1/85, and he is the only holder of the call. Therefore we can assume that there is a pirate about. Wanted by L4184, John Davidson of Lister Street, Sunnybank, Brisbane, the circuit of an STC A679H. The circuit or handbook of the Grundig type 4090VE is required, and any information on this should be sent to Chas. Abernethy. Bryan Prossor of VK6 is in trouble with his Murphy B40, and wonders if any of our chaps can give him a list of substitute tubes for it. The elusive RA 3180 whom Chas. has been trying to run to earth, has turned out to be L2054. How about letting us in on the mystery old man? Bob Halligan, QTH of VS9OC is Royal Air Force, Masirah Amateur Radio Club, B.F.P.O. 69, Masirah Is. Or via R.S.G.B. bureau.

## DX LADDER

A close perusal of this list will note some interesting changes in the lower positions, and a few deletions.

	Countries		Zones	W States
	Cont.	Hrd.		
E. Trebilcock	292	296	40	50
P. Drew	188	285	38	40
D. Grantley	133	295	39	35
W. Smith	128	207	34	7
A. Westcott	106	159	34	11
R. Kearney	104	170	37	8
G. Earl	101	167	33	18
M. Hilliard	96	245	33	14
E. Luff	70	121	27	6
C. Abernethy	66	105	33	14
A. Rafferty	62	186	26	11
R. Halligan	61	154	27	3
B. Prossor	00	180	17	8
R. Mutton	50	100	27	10
B. Mackintosh	41	102	20	5

## VK3 NEWS

The mail today brought the first copy of the new publication from the group, "Zero-Beat." A lot of time and care has gone into this effort, and it deserved the support of all s.w.l.'s. For further information write: M. Krochmal, 3/20 Hillside Avenue, Caulfield, Victoria.

That winds it up for this month chaps, thanks for your interest, and look forward to hearing from you all again in a few weeks.  
73, de Don L2022.

## DURALUMIN, ALUMINIUM ALLOY TUBING

IDEAL FOR BEAM AERIALS AND T.V.

★ LIGHT ★ STRONG ★ NON-CORROSIVE

STOCKS NOW AVAILABLE FOR IMMEDIATE DELIVERY

ALL DIAMETERS— $\frac{1}{4}$ " TO 3"

Price List on Request

STOCKISTS OF SHEETS—ALL SIZES AND GAUGES

## GUNNERSSEN ALLEN METALS PTY. LTD.

SALMON STREET,  
PORT MELBOURNE, VIC.

Phone: 64-3351 (10 lines)  
Telegrams: "Metals," Melb.



HANSON ROAD,  
WINGFIELD, S.A.

Phone: 45-6021 (4 lines)  
Telegrams: "Metals," Adel.





# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL QSL BUREAU

The following change in the A.R.R.L. QSL Bureau set-up is effective immediately:—  
W2—North Jersey DX Association,  
P.O. Box 505,  
Ridgewood, NJ. 07451.

PY7ACQ—Plinio, was scheduled to be active c.w. and s.s.b. 7, 14 and 21 Mcs. from April 6 to April 12. QSLs should go to Brazilian DX Club, Box 842, RECIFE, Brazil. Envelope and 3 I.R.C. requested.

Results of the 1965 OZ-CCA Contest do not list any VK or ZL stations. The 1966 contest (15th) was staged April 30 and May 1 but information was received too late for publication in April "A.R."

Good to hear from Ted VK9TB, ex-VK2QM, Ted is active on 7 Mc. c.w. and anxious to give any new stations their first VKB.

The Independence of Colombia DX Contest is scheduled from zero G.M.T., Saturday, July 16, to 2359Z, Sunday, July 17. Full details and log forms can be had from this Bureau.

Bruno Bossert HB9QQ, who spent 1964 in Australia and desires to return on a permanent basis, took unto himself a wife, the event taking place near Lucerne on May 18. Congratulations Bruno and hope we will meet you both.

—Ray E. Jones, VK3RJ, Manager.

## NEW SOUTH WALES

Friday evening, 22nd April, saw the resumption of the annual general meeting of the VK2 Division of the Wireless Institute, Crows Nest. The retiring President (Ivan Agar VK2AIM) took the chair and there was an attendance of about 50, including two visitors, Morrie Parsons (ZLIMC) a member of the N.Z.A.R.T. Council and associate member of the W.I.A., and Fred Carruthers (VK2PF), of Lismore, immediate past president of the Far Northern Radio Club.

The Auditor (Mr. Isherwood) presented the report and balance sheet. This showed that a surplus of £834 had been made on the year's operations, a substantial part of this amount being made by the Disposals Department. The overdraft at the bank was higher than it should have been, but it is expected that the recent increase in subscriptions will overcome this.

After the auditor had cleared up a number of points raised by members of the audience, he was accorded a vote of thanks for his assistance to Council and the Division.

A further vote of thanks was moved to all who had helped in any way with the work of the Division during the year.

Before closing the annual meeting, the chairman referred to the friendship that had been accorded him by members throughout the State during his term of office, and particularly mentioned the debt that we all owe to that small handful of workers who could be depended on to carry out their duties efficiently, year after year. He then offered his support and best wishes for a successful term of office to the incoming President, Tom O'Donnell VK2OD, who took the chair and opened the monthly general meeting.

The lecture for the evening was entitled "Control Circuits and Relays," and was delivered by Bob Barringer VK2ZIB. Bob proved himself to be a very able and interesting lecturer, and his talk, illustrated by many slides, was followed closely by the audience. Of particular interest was a model rotary beam antenna, which Bob used to demonstrate some of his relays in a simple circuit. This enabled the beam to be rotated either way by merely turning a switch. We are sure the publication

## SILENT KEY

It is with deep regret that we record the passing of:

- VK2ANC—Frank Cook.
- VK4EL—Eric Lake.
- Ex-VK4RT—J. (Roy) Thorley.
- VK6AB—Alan Buckie.

of details of this gadget would be a popular move.

The usual vote of thanks to the lecturer was dealt with by Hans Ruckert VK2AOU.

The main business before the meeting was the presentation of a report by the Federal Councillor, Pierce Healy VK2APQ, on the 30th Federal Convention of the W.I.A., held in Brisbane over Easter week-end. Keith Howard, official VK2 observer, was also present at the meeting.

A considerable part of the report dealt with discussion on the proposed new Federal Constitution, with emphasis on the most contentious section dealing with the voting powers of Divisions.

This matter is one that is bound to create much interest and a great deal of discussion, both within the Constitution Committee and among members, before a decision is finally reached.

Apart from the Constitution, the Convention dealt with matters of policy, administration, I.T.U., P.M.G. and regulations and Contest Items, and so many interesting details came out of the discussion that we could not possibly cover them in these notes. The report is being published in full in the VK2 Bulletin and we recommend that all members read it thoroughly.

Fred VK2PF complimented Pierce on the comprehensive nature of the report and a vote of thanks was carried in the usual manner.

Divisional Council has suffered its first casualty with the resignation of Morrie Marsden VK2V, because of other commitments. Morrie had undertaken the duties of Minute Secretary and was a keen Councillor, and his resignation was received with much regret.

Membership of the VK2 Division continues on the up and up, 17 applicants being accepted into membership of the W.I.A. at the April meeting.

Our notes for the May "A.R." (if they managed to get through in spite of the mail strike) reported that W.I.A. history had been made with what is thought to be the first lady member of a Divisional Council, when Hebe Grouse VK2AOK won her right to sit at the Council table in the recent ballot. During April Hebe gave her first Sunday morning broadcast to members over VK2WI and I'm sure all who heard it will agree that she gave us a very well presented and newsy broadcast. Congratulations, Hebe!

A recent addition to the Club population is the Nepean District Radio Club, with former Divisional President, Max VK2MP, in the chair. Showing commendable activity, the members intend holding a Field Day on 12th June at the Penrith Civil Defence H.Q., which is located in the St. Mary's industrial area. Anyone living in this area with an interest in radio would be welcomed as members.

The W.I.C.E.N. members are still meeting regularly. At the present time they are conducting a series of "clinics" at W.I.C. on certain Saturday afternoons, when those with mobile outfits may bring them along and have them tuned up and put on frequency with the aid of equipment that has been loaned for the purpose.

The V.H.F. and T.V. Group have continued with their usual meeting and fox-hunts during the month. Of interest to those interested in V.H.F. DX, is the news that Alan VK2ABA was recently told by a JA that VK3 was being heard in Japan on 6 metres.

Two well-known conventions were held as usual over Easter week-end, one at Canberra and the other at Urunga. Both functions were very successful, there being 63 registrations and members of families totalling about 100 at Canberra, and 27 registrations plus XYLS and harmonics at Urunga. Divisional Council was represented at Canberra by the President, Tom O'Donnell VK2OD, but Council's representative for Urunga, Charlie Wilkins VK2ALE, was held up in Brisbane by family illness and unfortunately was not able to attend.

Ken Mattel VK1KM has informed us that he will be forwarding notes of the Canberra "do" direct to "A.R." so we will not duplicate them here. We are indebted to Bill Allworth VK2QE—Grafton Bill to his friends—for the following information:

The Urunga Convention was held over the Easter week-end. There were 27 registrations, plus XYLS. The weather was perfect and all who attended enjoyed a very pleasant and entertaining week-end.

The Saturday evening social was held at the Urunga School of Arts, when supper was provided by the local Progress Association. The social on the Sunday night was staged at the Bellingen Bowling Club. Entertainment was provided by Mr. Noel Hansen VK2AHH on his Hammond organ, and Mr. Jack Greer, who sang several excellent numbers. Prizes for the winners of the competitions were presented on the Sunday night. The Convention finished with goodbyes on the Monday morning.

A telegram was received from Crieff and Jean Retallick VK2XO from Mt. Cook, New Zealand, sending their best wishes for the Convention.

Results:  
7 Mc. Hunt: 1st, Brian Stark (Bellingen) VK2ZCQ; 2nd, Allan Lundy (Inverell) VK2ASI; 3rd, Jim Cummings (Sydney) VK2PM.  
144 Mc. Hunt (Saturday): 1st, Allan Lundy (Inverell) VK2ASI; 2nd, Bill Sinclair (Tamworth) VK2ZVB; 3rd, Jim Cummings (Sydney) VK2PM.

144 Mc. Hunt (Sunday): 1st, Bill Sinclair (VK2ZVB). Bill was the only one to locate the hidden transmitter, which was hidden in a forest. None of the other starters found the way into the location, which was a challenge, as several roads led in the general direction but only one led to the transmitter.

Urunga Scramble: 1st, Dave Davies (Newcastle) VK2BZ; 2nd, Reg Stockman (Inverell) VK2ATS; 3rd, Harry Crisp (Urunga) VK2LX.  
73, Ivan VK2AIM

## HUNTER BRANCH

Some members will have noticed the absence of notes for the Branch during the past two months. The causes of such omission were due to factors in connection with postal delays. Nevertheless, activity in the Branch has remained at a steady level and meetings have been held as usual. The April meeting was to have been addressed by a guest lecturer from Sydney, but, at the last moment he was unable to attend and a screening of two interesting films supplied by the Water Board was arranged. These films, "Heart of a City" and "Pipeline to the Clouds," gave some graphic illustrations of how dependent our communities are upon the public water supply and underlined the need for care in the use of this precious commodity.

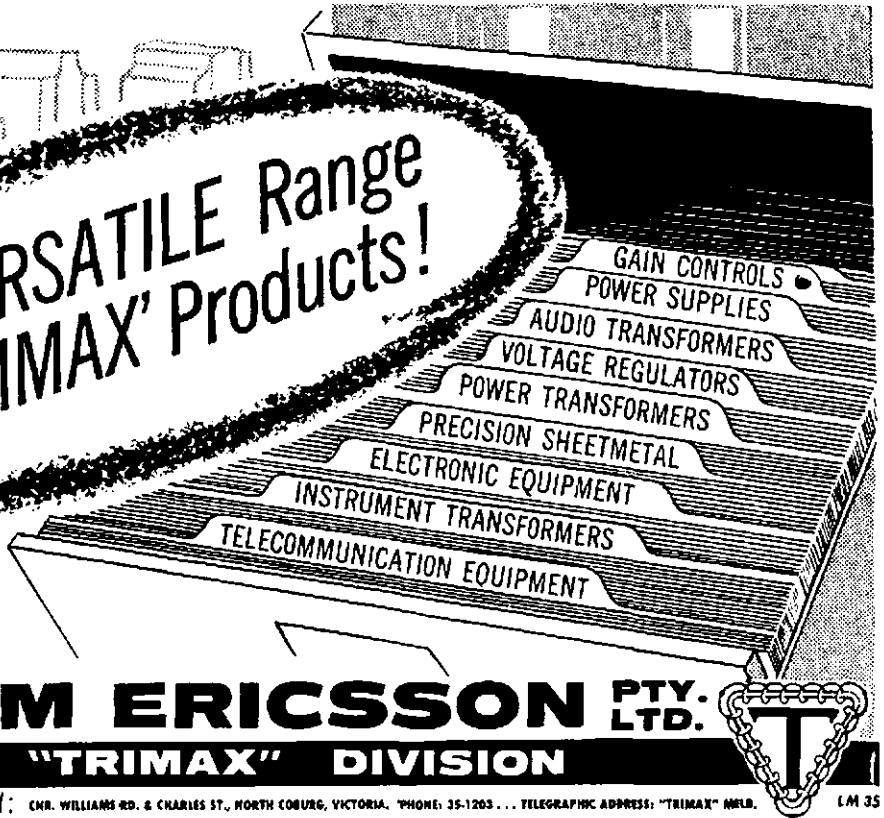
It is usual now to call a committee meeting on the Tuesday after the monthly meeting in order to arrange the programme for the following meeting nights. All interested are asked to attend to assist with this important aspect of Branch activity. The gathering takes place at Bill Hall's residence in Bell Street, Cook's Hill, and the rather informal proceedings commence at 8 p.m. This applies to the Tuesday following the first Friday of the month. As a result of decisions taken, a worthwhile programme of lectures, demonstrations and social evenings has been arranged for the remainder of the year.

It is not too early to begin planning for the next Hunter Branch Field Day which will be held during the October long week-end. Because of developments in several fields, there will be some new equipment in us at this event this year. The 146 Mc. f.m. carphones are now fitted in some of the cars and it is hoped that quite a number will have them by October. In addition, there is talk of network operation on the 160 metre band using converted Pyc taxiphones. It appears that the conversion to 160 is reasonably simple and since these are available quite cheaply from a local source, no difficulty should be experienced in putting them on the air. The West-lakes Radio Club has good facilities for both transmission and reception on this band and any members seeking a test signal should get in touch with 2ATZ or 2AWX to arrange a time suitable. The suggested net frequency is 1815 Kc., but members with other ideas of a frequency suitable should make them known to one of the committee members.

It appears that the duck-talkers are on the increase in the mobile field with Bill 2XT and Jim 2AHT being joined now by Col 2YJ. To prove that everything works just so, the rig has been fitted in the new Premier and a "shakedown" cruise arranged to the South Coast. From signals received, it appears to be working well. Whether or not it was arranged I am unable to say, but Bill 2ZL also has been absent for the past few weeks and rumour has it that he also is journeying on the South Coast. Could this be an omen? Yes, you've

the **VERSATILE** Range  
of **'TRIMAX'** Products!

Our wide experience gained over 25 years has enabled us to Design and Manufacture a versatile Range of TRIMAX Transformers and Electronic Equipment with the emphasis on Design and Quality!



**LM ERICSSON PTY. LTD.**  
**"TRIMAX" DIVISION**

FACTORY: CNR. WILLIAMS RD. & CHARLES ST., NORTH COBURG, VICTORIA. PHONE: 35-1203... TELEGRAPHIC ADDRESS: "TRIMAX" MELB.

LM 35

## FOSTER DYNAMIC MICROPHONES

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
Effective output level ..... -55 db. [0 db. - (one) 1V. Microbar]  
Frequency response ..... 50 to 15,000 c.p.s.

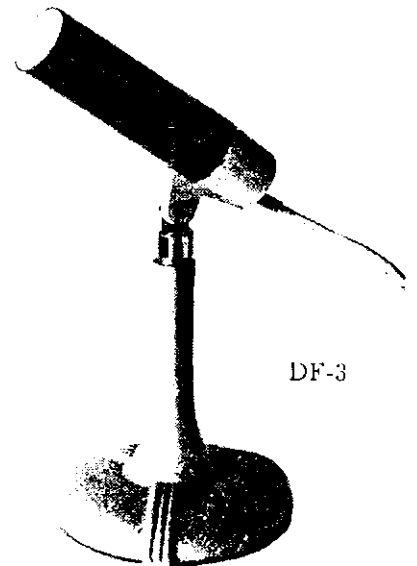
### OMNI-DIRECTIONAL DYNAMIC:

Plastic Diaphragm. Swivel fits 5/8" 26 t.p.i. Stands.  
Size: 4½" long, 1¼" diameter. Colour: TWO-TONE GREY.  
Cable: 12 ft. of P.V.C.

Retail Price 50K ohms: **£4/16/0** + Sales Tax 10/0

Retail Price 50 ohms: **£4/14/0** + Sales Tax 9/10

A QUALITY PRODUCT FOR TAPE RECORDERS & P.A. USERS



DF-3

Marketed by

**ZEPHYR PRODUCTS PTY. LTD.**

70 BATESFORD STREET, CHADSTONE, S.E.10, VIC.



Manufacturers of Radio and Electrical Equipment and Components

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.

guessed it. But 2ZL on sideband—it's frightening to contemplate. One result of the absence of the senior citizen is however that I can now tune around 40 and listen to all the signals without having the speaker cone bounce cut across the table at regular intervals.

It is very pleasing to report that two new call signs now grace the v.h.f. bands. They are those of Frank 2ZFX and Ian 2ZIO. Frank is more or less a permanent resident of Newcastle and is likely to be on the air quite frequently, but Ian, being a public slave, like myself, has had a whisper of a transfer to the wild north west. How v.h.f. would go in the Pilliga scrub is not known to this writer. One thing is sure, however, there'd be little electrical interference. The wild Irish Rose still has not managed to raise the aerial above grass height, but his signal in Sydney is reported twice as strong as those with technically perfect radiating systems. This is due no doubt to the high quality of the string used in its construction.

Nothing whatever has been heard of the Cessnock contingent and it appears that the cold weather has driven them all underground. Arthur 2ZMU has one of the flash new car-phones and hopes soon to be on the 146 f.m. net. Bill 2ZWM also has taken delivery of one of these exotic items and is well on the way to converting it for Amateur band use. I am told that one of our members has for sale three Class C Wavemeters. It appears that he now has no further use for them. The same gentleman would like to swap them for a clock which rings every five minutes. He says it's due to a change of emphasis—whatever that is. Colin 2BCC, exiled in Sydney, is still sending out some good phone signals. He's going to try the left foot next for some super c.w.

The calendar for the next few weeks indicates that there will be meetings on the 3rd June and 1st July at 8 p.m. in Room 6 of the Clegg Building at Newcastle Tech. Don't forget also that the Westlakes Radio Club will be holding their Annual Field Day at the Club on Sunday, 12th June. The usual full programme of events has been arranged commencing at 10 a.m. and a canteen is available serving hot food and drinks. See you at the Westlakes-Hunter Branch Field Day. 73, 2AKX.

#### CENTRAL COAST BRANCH

The last meeting of the Central Coast Branch of the W.I.A. was held at the School of Arts, Gosford, on April 15, 1966. The lecture for the evening was by Alec VK2AAK, whose subject was: "U.H.F. and 432 Mcs. in Particular." It was a most instructive and interesting talk especially as he accompanied it with sketches, a tape recording of a transmission by Dick

VK2ZCF on 432 Mcs., and various pieces of gear and test equipment from his own shack. This included a veracter diode tripler, field strength meter, 13 el. yagi, 432 Parkes converter, band edge marker and wave meter. One of the outstanding points of the talk was the simplicity of building for 432 Mcs., keeping in mind that the skin effect is vital and, therefore, large surface areas in strips, etc., are essential. His coverage of the propagation was very interesting also. He reckons the construction for 432 has a certain relationship to plumbing. The members were disappointed when he had to rush the last part of the talk because of a shortage of time. However, as a result of this evening we may have a few more converts to the u.h.f. in the Gosford district. 73, Mona 2AXS.

#### BLUE MOUNTAINS BRANCH

The March meeting of the Branch was held at the usual venue in Lawson where at the annual meeting a new crew of officers was elected for the ensuing year 1966-67 and resulted as follows: President, Derek 2NR; Vice-President, Ron 2ADA; Secretary, Bill 2HZ; Treasurer, Alan Smith; Construction Committee: Bob 2ASZ, Trevor 2TM, and Don 2ARI, with S.W.I. Dan; Publicity Officer, Ron 2ADA. Retiring President, Don 2ART, outlined some of the events and progress of the Branch that had taken place during the past year. After the business end of the meeting closed, the evening rolled into the usual rag chews and supper.

Arie 2AVA and Alex 2EX had a week's mobile up north and were heard many times and by all accounts had an enjoyable week.

Noted some increased activity in the club in the last few months—let us hope it keeps up. Club Treasurer Alan has had a busy time, as he sat for the April exam, and just a few days before the exam, his wife presented him with a new harmonic, both well, so very fine business and congratulations to you and yours. Let us hope the same will be in order for your exam. Several weeks before the April exam, Dan and Alan enjoyed tea and biscuits at 2TM's Trevor QTH, whilst both were being tutored for the said exams.

Bill 2HZ has been busy on the air working new call areas with his new 14AVQ vertical—fine business Bill, glad to hear it is working out so well, whilst Trevor 2TM has been having trouble with wind and his vertical 18AVQ which is now converted to a 14AVQ and seems to be getting out very well.

Sid 2AVK has been down the coast at Wollongong for a few days. Overheard Sid putting a few people in the rightful place with his mobile. Atta boy, Sid! See you all—3rd Friday at Lawson. 73, Ron 2ADA.

#### CANBERRA RADIO SOCIETY

The Canberra Radio Society held its third annual Radio Amateurs' Convention during the Easter holiday week-end (April 15, 16, 17, 18, 1966). This is becoming an annual must in the eastern states and this year's attendance was well up to expectations. A full week-end of contests, technically interesting visits and social functions took place.

Highlights of the week-end were the visit to the Deep Space Instrumentation Facility No. 42 at Tidbinbilla with its 85-ft. dish antenna with a gain of 53 db., its r.f. amplifier noise figure of one-tenth of a db. at 2000 Mcs. and receiver loop selectivity down to five cycles bandwidth. The visit to the National Universities' Nuclear Physics Dept. also proved of great interest as also did the trip to Belconnen R.A.N. Transmitter, whose quarter megawatt transmitter causes some strange r.f. problems. New this year was the additional visit to the Mills Cross Radio Telescope which is nearing completion at Hoskingstown, not far from Canberra.

Contests included 7 Mc. and 144 Mc. fox-hunts and hidden Tx hunts. A receiver sensitivity contest was also held during the Easter Saturday picnic lunch in the pleasant surroundings of the Cotter Dam Reserve.

On the Saturday evening the convention dinner was well attended and following the formalities the visitors were entertained by a short talk and slide show by Steve VK1VK, ex-VK0VK, and Ken VK0KH on their activities in Antarctica.

There was a film show on the Friday evening and also on the Sunday night following the junk sale and prize-giving. The club is indebted to Mullar Ltd., A. W. V. Anodeon Semiconductors, Belling Lee, Aegis, Ducon, R. H. Cunningham Ltd. and the VK2 Division of the W.I.A. for providing equipment and components for prizes.

An interesting feature in favour of the Canberra Convention is the wide variety of sight-seeing attractions with something for every-

one in the family. The Canberra Radio Society encourages the family outing aspect of their annual event and discourages the idea of a group of Hams in a huddled bunch and another group of bored families trailing along behind.

The Canberra Radio Society is due to lose its club premises in the near future and has already disposed of its club station. It is hoped that this will not interfere with the plans for the 1967 Easter week-end. In fact, there are whispers that there will be even some new attractions with possibly competitions for the ladies, with prizes!

#### OBITUARY

##### FRANK LESLIE COOK (VK2ANC)

It is with much regret that we record the passing of Frank Leslie Cook VK2ANC, whose death occurred on Easter Monday after a long illness.

Frank was licensed in 1934 and operated first under the call sign of VK2EF. Following the theft of his gear shortly before World War II he allowed his call sign to lapse, but after the war came back into the ranks again as VK2ANC.

He was active mainly on 7 and 14 Mcs. for some time, but in recent years operated almost exclusively on 144 Mcs.

Being one of the old school of Amateurs, Frank was a keen builder of his own equipment. At one time he worked in the radio industry, but for many years prior to his final illness he was employed by the C.S.I.R.O. as a mechanical draughtsman.

Apart from his interest in radio, Frank was very active in Parents' and Citizens' and Progress Associations in the Carlingford district, and the large and representative attendance at his funeral was an indication of the esteem in which he was held by many. The Institute was represented by Peter Campbell VK2AXJ (Divisional Council) and Ivan Agar VK2AIM, and the sympathy of all members was given to Mrs. Cook by sons David and Bruce.

##### ERIC LAKE, VK4EL

Eric Lake, VK4EL, of Belgian Gardens, Townsville, Qld., was born at Shrewsbury, England, 60 years ago. Came to Australia as a young man and took out his licence in 1932. He was employed with the P.M.G. in Townsville for the past years.

A prominent DXer of his day with DXCC 14, 21 and 28 Mc. and holder of many Awards, he took an unflagging interest in tutoring many young aspirants for their tickets.

Eric, as all those who worked him, knew, was a competent code operator with an immaculate fist and was a member of the R.S.G.B. and F.O.C.

He leaves a wife and two daughters.

##### JOHN (ROY) THORLEY, Ex-VK4RT

John (Roy) Thorley, ex-VK4RT, of Emma St., Mt. Gravatt, was aged 54 and was tragically killed in an automobile accident. He was a Past President of the W.I.A., Queensland Division, and also Secretary, who for some years devoted much time and energy to the promotion of W.I.A. affairs in Queensland. A notable DXer, he had more than average ability both electronically and technically. John received his ticket in 1935 and was well known amongst the phone men.

##### ALAN C. BUCKIE (VK6AB)

It is with deep regret that we record the passing of Alan Buckie VK6AB.

Although Alan's health had not been the best for some time, news of his sudden passing came as a shock to his many friends and associates in this state.

An old-timer in radio, Alan took out his call of VK6AB in 1936, and remained active until World War II put an end to Amateur Radio for some years. Alan joined the R.A.A.F. where he held the rank of sergeant until his discharge. He then worked for some time installing projection equipment in theatres but had little spare time to enable him to engage in Amateur Radio activities.

However, in recent years Alan became active again on 80 metres where he had many friends, in particular the members of the 8 a.m. "Shaving Patrol."

The sincere sympathy of the members and the W.A. Divisional Council of the W.I.A. is tendered to Mrs. Buckie, her son, two daughters, and son-in-law Graham VK6ZEE.

## VK2 DIVISION

### R.F. CHOKE. Type 8316

Made for the W.I.A. by Tele-components. Suits your pi-coupler final. Rated to handle up to an 813 or pair of 807s or their equivalent, 2.5-3 mH. 300/500 mA. R.F., \$2.25 each.

### TRANSMITTERS FROM SONAR BUOYS

Contains six battery tubes, one 3A4, three 1L4s, two CV820s, a dozen capacitors, 18 resistors, four coil formers, four miniature variable capacitors (screwdriver tuning with locking nut), min. 1 meg. pot., valve sockets with shields. All on a circular base 4 inches in diameter. Excellent condition. Price \$1.25 plus 25 cents postage. Ideal for stripping, Youth Radio projects.

These are some of the items carried in the store run by the VK2 Division. Both new and surplus lines are in stock. A catalogue is available by writing to Disposal Section, Wireless Institute Centre, 14 Atcheson St., Crows Nest, N.S.W.

## VICTORIA

The Annual General Meeting was held at the rooms on Wednesday, 4th, with about 45 members present. The President's report and financial statements were read. There was no Treasurer's report as such as the acting treasurer was not available.

The division finished the year in a satisfactory position, showing a surplus on the year.

Questions were asked on a number of subjects ranging from the late arrival of notice paper due to the postal strike to the lack of sufficient workers in divisional affairs.

Queries on the Federal Convention were answered by Peter VK3IZ and Harold VK3AFQ. As a result of the discussion on the shortage of workers the outcome was that after the meeting two volunteers approached the secretary and made their services available.

It was agreed that a drive for more members will be made this year, as only about half the licensees in this state are in the Institute.

Although publicity on Council's activities is fully covered in weekly broadcasts, it was the opinion of the meeting that more could be done in this regard, as many do not listen to broadcasts. It was agreed that in future copies of council meetings will be placed on the notice board. Any member wishing further information on any item in the minutes can contact a member of Council.

The following will serve on Council for the coming year: Ken Pincott VK3AFJ, Tom Cuthbertson VK3ZIQ, John Battick VK3OR, John Spicer VK3ZEL, Michael Owen VK3EO, Jack Taylor VK3ZJF, Ken Seddon VK3ACS, John Beckett VK3ZCB, Bill Roper VK3ARZ, John Wilson VK3ZQJ.

At the completion of the Annual General Meeting a short break was taken before starting the May General Meeting. After the routine matters were dealt with, the discussion came back to membership, due no doubt to the number of applications for membership received during the last month. It was the consensus of opinion that lack of knowledge on what the Institute is doing for the Amateur keeps many licensees out of our division and that some positive steps will have to be taken to remedy this state of affairs, one suggestion being the regular inclusion of notes in "A.R." This of course depends on finding somebody with the time to undertake this task on a regular basis.

The I.T.U. Fund was the subject of a long debate, as this Division has not yet reached half its quota. This is partly the fault of Council in failing to follow up the promises of donations made two years ago. This will be looked into in the very near future and a letter will be sent with the annual report and balance sheet to all members. Non-members will also be contacted just as soon as a list can be compiled. Additional publicity will also be given on broadcasts.

The June meeting will be a White Elephant Night, so come along with your surplus bits and pieces. "Flogger" Hepburn will be in attendance and those who have seen him in action know how adept he is at getting the last cent out of the buyers.

At the July meeting Cyril Maude VK3ZCK will speak on Anodised Aluminium Labels for Home-brew Equipment. Cyril will bring samples of these labels for display.

### VICTORIAN STATE CONVENTION

The VK3 State Convention was held on the week-end of the 23rd and 24th April at Ararat, with approximately 30 members in attendance, plus some wives and families.

Fifty-five sat down to dinner on the Saturday night. After the dinner the ladies were despatched to the local picture theatre, where they were the guests of the management for the evening, leaving the members free to get on with the business of the Convention.

Reports were given on Divisional activities for the year, the Federal Convention at Easter and W.I.C.E.N. activities. Everybody appeared well satisfied as very few questions were asked and very little discussion held on the various reports.

This should not be taken as an indication that the convention was not a success, as much useful information came from informal discussions between Council members and those present.

On Sunday everybody moved to a local picnic ground for a barbecue lunch and a few competitive events, and a lot more "rag-chewing."

The afternoon finished with the presentation of prizes and afternoon tea.

Our thanks go to the members of the Western Zone for making the arrangements for the Convention, with a special thanks to Brenda VK3KT and the other ladies in the zone who worked like trojans to ensure that everyone was well fed.

We also extend our thanks to Mullard (Aust.) Pty. Ltd., Fairchild (Aust.) Pty. Ltd., Ham Radio Supplies, Wm. Willis & Co. Pty. Ltd. and McGill's Authorised Newsagency for the prizes they so generously donated.

### WESTERN ZONE

We were all pleased to welcome visitors to our zone for the State Convention which was held in Ararat recently. Commercial s.s.b. gear was displayed during Saturday afternoon by 3YS and 3ATE. Harry 3ZX installed his home-brewed s.s.b. gear as a base station for the incoming mobiles.

The Hon. Murray Byrne, who opened the Convention, and the Mayor of Ararat, spoke of the good work done by Radio Amateurs by the way of better understanding between countries.

On the Sunday I think most of the time was put in replenishing the inner man, and by the way the steaks, chops and sausages were put away, credit must go to the two chefs, George 3GN and John 3AFU. Brenda 3KT also did a sterling job with the other eatable items. One thing went astray, the ice cream, which was overcarried to Stawell, so will have to blame the Railways for that.

Prizes were won by Harry 3ZX, home-brew gear, Garry 3ZOS, guessing frequency; Michael 3ZEO, v.h.f. scramble; Merv, 3LL, travelling furthest distance to Convention; Alf's (3LCL) XYL won the ladies' quiz, with Shirley (David's 3DY XYL), missing out on the toss of a coin.

Thanks must go out to George 3GN and Neil 3AQD for all the work they put in for running of Convention. Neil did all the accommodation booking without a hitch.

Doings in the zone recently include: Herb 3NN and Garry 3ZOS have been busy modifying earphones on 2 mx. i.m. and carrying out tests with 3ARV and 3ARM. Tony 5ZAI had a holiday from radio and dug himself a swimming pool and landscaped the garden with surplus dirt. He is now building a deltalnet rx—one of these energetic types. Heard Barry 5YB with a good signal on 40 mx mobile. George 3ZEA and Gavan 3AEJ, of Rainbow, heard on 2 mx. Gavan getting better results with new converter.

Rodney 3UG visits zone occasionally. Last trip took back 3ARM's h.f. gear which will be re-built into a super duper rig. Bob decided this would be cheaper than getting some gear on display at the Convention. Bill 3ZAX back home in town of Nhill. Heard on 2 mx mobile occasionally. Rig is very neat, rack mounted under the dash. Builds towers in his spare time. Roy Goodwin and XYL relaxing now that the fire danger is over. Roy is going to the Civil Defence School in June. Lyle 3ASA still imparting radio theory and c.w. to budding Hams. C.u.l. chaps on hook-ups with more news for the notes and broadcasts. 73, Bob 3ARM and Bill 3AKW.

— . . . —

## QUEENSLAND

The May meeting of the Queensland Division of the Wireless Institute of Australia's Councillors was held on Thursday, 5th May, in Brisbane. The following officers were elected for the various positions:—

Chairman: Lawrie 4ZGL.  
Vice-Presidents: Al 4LT and Reg 4VX.  
Secretary: Noel Wells.  
Asst. Secretary: Bob 4ZRC.  
Treasurer: Don 4DZ.  
Minute Secretary: Lionel 4NS.  
Disposals Officer: Carlo 4ZCV.  
Inward QSLs: Jack 4JF.  
Outward QSLs: Ron 4AQ.  
"QTC" Editor: Lawrie 4ZGL.  
Divisional Sub-Editor: Reg 4VX.  
V.h.f. Rep.: Tom 4ZAL.  
Librarian: Paul 4VS.  
VK4WI Station Manager: Alf 4OL.  
Assistant Station Managers: Al 4LT and Vince 4VJ.  
VK4ZWI Station Manager: Lawrie 4ZGL.  
Class Manager: Jack Morris.  
Asst. Class Manager: Syd Carter.  
Technical Officer: George 4XY.  
W.I.C.E.N. Co-ordinator: Peter 4PJ.  
S.w.l. Co-ordinator: Bill Jehn (Ipswich Amateur Radio Club).  
Business Manager: Ken 4OF.  
Y.R.S. State Co-ordinator: Frank 4TH.  
Y.R.S. Liaison Officer: Chas 4UC.  
Publicity Officer: Peter 4PJ.  
Federal Councillor: David 4DP.  
Federal Councillor/Observer: Reg 4VX.

The first job of the new Council was to examine all matters and decisions arising from the Federal Convention held in Brisbane over the Easter week-end. David 4DP, our Federal Councillor, gave a very comprehensive report on the deliberations, and after quite a lengthy discussion, all decisions were ratified. 73, Reg 4VX.

### WIDE BAY REGION

I suppose that it is inevitable, that with a large number of Hams living in this area that some sort of convention would be held sometime. And such was the case. Over the May Day week-end, the Hams of the Wide Bay area got together at Ceradatus Creek, near Eidsvold. This is a very quiet little town, and its name is not of aboriginal origin, but is named after a town in Sweden, which obviously is also very quiet.

Over fifty people attended the Convention, including a large number of Hams. Roy 4ZWR, President of the Bundaberg Club, headed the Bundy contingent, and Doug 4PG was the captain of the Callide and Dawson Valley crews. The Bundy group got off to an early start and to save time, went via Mt. Perry, a very hilly route. But Rusty 4JM, over-estimated the power of his model T and it stopped on a hill. Of course it was hauling a very large box on wheels, alright Rusty, trailer. Roy 4ZWR, who is the proud owner of a brown Corona, towed the model T and trailer safely over the hill. What was that? Wrong name? Sorry Roy the smoke tricked me, meant Crown Toyota. Arriving at the Convention site, aeriels were erected, tents put up, gear got going, and a very neat little two-stroke battery charging plant stoked up. It sounded like an infuriated blowfly, but it kept going. The XYLS and YLS looked after the eats and the kids as usual had a good time.

Very early on Sunday morning, 4PG and his raiders arrived, and with the aid of some very large and noisy "Bungers," soon had everyone out of bed. In fact, so efficient was their awakening of the Bundy crew, that when I arrived around morning tea time, Joclyn 4JJ (XYL of Rusty 4JM) was underneath a large gum tree, looking up and saying, "You can come down now Rusey, all those noisy Biloela Hams have gone away."

The gear used included mobiles on 7 Mc. and 6 metres and fixed stations also on these bands. Herb 4KM arrived on Sunday morning, complete with Alma and kids, and Australia's best car. Good cars eh Herb? Mine goes well also. Herb has the last thing in electric fences around his property, and believe me, it's efficient. Has a very "science fiction" sound about it. Something like you would expect to see in Dr. Who. Of one thing I'm sure, I wouldn't open a gate on Herb's property. It's the most lethal looking machine I've ever seen.

Monday morning saw the arrival of Alf 4OL and XYL (as I left Sunday afternoon, I missed seeing them). It is very possible that this experimental outing may become an annual event. The site chosen is very good, plenty of shade and lots of room and tall trees for aeriels. Also, it is well and aptly named. Ceradatus is the name of the Lungfish. They have no gills and have to stop swimming and come to the surface in order to breathe. Far be it for me to even suggest that Hams can talk and breathe at the same.

A new Regional broadcast station has been opened at Eidsvold, and an inspection of it was made by Doug 4PG and some of the convention. They spoke highly of the courtesy of the technician who showed them around. They must have omitted mentioning my name, otherwise they may have been thrown out, seeing that I have deserted steam radio for t.v. I believe that there is a rumour afloat that I have given away Ham Radio for gardening. Well blokes, it's true. I haven't even got a receiver. But after this convention, the bug is sort of biting again. 73, Uncle Xray.

### TOWNSVILLE AND DISTRICT

It is with regret that I have to pass on the sad news that Eric 4EL has joined the ranks of the "Silent Keys." A few of the old timers were present at the funeral. Eric will be remembered by them as one who was at all times willing to lend a helping hand. To his wife and children we offer our deepest sympathy.

At the last meeting of the T.A.R.C., the President and Vice-President failed to turn up so the meeting was adjourned and instead a night of films took its place. It was pleasing to note that the interest of the Lower Burdekin boys is still being maintained in the local meeting as they have to journey over 100 miles round trip.

Visitors this month were Bill 2ABR, who stayed some time to see all the changes that had taken place since he was here way back around the late 1920s. He has fallen for our good mate Methinks that in the very near future he will decide to come back for good. Paul, the VK4 Disposals Officer, blew in for a quick eyeball QSO after touring the far north. Still dreams of the giant clams that he saw in the underwater observatory at Green Island.

Bert 4LB and Merv 4DV very sore after the fortnight slogging through the northern jungles on their yearly stint in the Citizen Forces. 73, Bob 4RW.

## SOUTH AUSTRALIA

It's on again, gimmick master PanSy, also known as VK5PS, is away on holidays, not that he isn't mostly holidaying somehow or another, but at this time of the year is actually away from home and work and goes places, one such being the hills resort where financial geniū gather each Easter. As usual he set up in the nurses' quarters, and finding a convenient tree, attached a dipole to which he fed the trusty type 3, and guess what? He applied a mode of modulation to it that was a complete surprise to all that tried to tune it. First of all it was thought that he had at last "joined the strength," but no, it was not that, then the next guess was that it was f.m., no again, was it pulse? None of us could work it out, finally it was assumed to be something entirely new, so everyone went off to work the easier 2XW, 9Q4 and so on and returned to 5PS later in the day after he replaced the faulty mike with one that made his melodious voice sound nearly normal.

All contacts on that memorable day are asked to QSL in order to receive one of the gold-plated cards issued on his DXpeditions, it is understood 3 I.R.C. coupons are needed!! Any s.s.b. stations in the QSOs need not include coupons for he is very anxious to accumulate a good file of QSLs of s.s.b. contacts, some having been denied him in the past.

Sideband must be spoken of at this point for on the last count the increase in strength of the mode is showing the growth to be even greater than earlier, and in VK5 too. The latest figures are 785 for all VK, with VK5 at 95, it is interesting to note the "old-timers" that are going over to it, and the c.w. types that are finding it more relaxing and more effective.

Without wishing to take up any VK4 space, oh, we are friends are we not, because "he" is away, one must mention Deliahet receivers, otherwise one would not be with it. It is fatal to be in some QSOs these days and not mention such receivers, for they are becoming such a part of the scene these days that it is a must to at least have a knowledge of them. As far as can be seen at the moment those outside the peasant class are Phill 5NN, Dud 2DQ, Eugene 8AV, Al 5EK, John 5LT, Garry 5ZK, 5ZGW and 5ZKA, all of whom have the receivers running or well on the way to that end. So keen is the interest, and so anxious are others to share the interest, that a special programme is being arranged for a VK5 monthly meeting when the proud possessors of such home-brew equipment will be coming forward to show and explain them to us. Yes, even you Dud, so watch for a telex soon.

The pre-Peyton Place net, that always includes Nobby 5WK, Lee 5BH and Ron 5KS

have recently had to re-arrange their r.f. gain controls with Ron having moved to the city from Riverton. And by the way the Admiral 5VB gained from Ron's move by acquiring the Riverton s.s.b. rig, so that Ron can proceed to drive himself up the wall again by building an extender to end all extenders, this time using a mechanical filter. A glutton for punishment is our Ron.

Tubby 5NO is packing up to leave VK5, and will probably be heard very soon with a European prefix for a while. He has disposed of most of his gear. Will be replacing it with "the strength"! His drive will be missed from the Elizabeth Club in which he has been active since coming to this state. We all wish him well in his new sphere and hope also to hear him soon with his roving call (ON5 maybe). Just who will volunteer to take his place in VK5 in contest participation, for his contribution in that field has been a valuable one to the Division.

Mention must be made of the excellent work being done by Mac 5MM in the matter of slow morse instruction and practice for the many undergoing that part of their studies. Night after night on 52 megs. Mac pounds away at it and as a result of his work a number of "students" expect to crack it at the next try. A pat on the back from us all, Mac.

By the way, next time a Federal Convention takes place it is hoped that VK5 will send Pansy as an observer to companion the one sent last time by VK3.

The last meeting of the VK5 Division was a lecture night when Mr. John Butler spoke on "Ionosonde" installation operating at W.R.E. and displayed a model of the antenna system, which he called two half rhombics. They were suspended from a lattice mast and the wire which normally would have become the top guys was in fact copper, forming the antenna. Normal Guys elsewhere. Measurements are taken at frequencies from 1.6 megs. to 20 megs. by an ingenious system starting with a v.f.o., and when one member suggested acquiring it, it was hands off. Films and prints showing the reflected signals were displayed and explained and a block diagram, measuring about 5 by 4 feet was displayed to demonstrate how the various oscillators (there were at least two fixed frequency oscillators in it) all played their part. The lecturer, also spread out on a table a schematic of the circuitry which was even larger than the block diagram. A most informative talk and introduced some new techniques to many.

Reference was made to the publicity given to the Australian satellite by Geoff 5TY, when he quoted that some misleading information had been published so he gave actual figures. It appears that two representatives from the Melbourne University Astronautical Society had flown up to Brisbane to seek W.I.A. Convention support for their project, the convention

had agreed to give support to a certain financial limit. No doubt this will appear elsewhere in due course.

There was no need for the caretaker's dog to do his usual scare-out job after the meeting, for with no Pansy it finished by 10.30 p.m.

Did you know that Ian 5IZ has come by a 7146 crystal? Sounds like a 40 metre broadcast of the Divisional notes soon, and judging from the experimental relay last week we can expect a good coverage of that frequency in future. It is many years since 7146 was regular in the matter of either original broadcast or relay.

5ZF heard saying the other day that he was going to try s.s.b. on 14 Mcs. soon, apparently he had a good go on c.w. and whilst pleased with the result was going to join the gang!!

Amongst those present at the last meeting were 5UJ of Whyalla, 5UX (until recently 5UX) who has now returned after five years at Alice Springs—and wishes he was back there too—and Len 5YF who was talking of when he takes up radio again, there is still some hope, Len.

Important visitors to this QTH (Gawler) recently included Den 7DK, well known to most VK5s. He was on a tour holiday and passed through here on his way to Broken Hill, whose ramparts of democracy are so ably defended by Dud 2DQ. Den was mobile 80, 40 and 20 s.s.b. with a Galaxy and also on a.m. with a H.B. rig, both being powered by a solid state device, and feeding into H.B. helical whips. All excellently made and fitted. Oh yes, there was room in the front seat for his XYL, but it was noted that she was confined to her side. It was learned later that he went out to Steven's Creek which is 9.99 miles from the Hill, or is it the entertainment centre that is that distance. By the way, if any of you Galaxy chaps have trouble with the dial drive vibrating when in motion, just ask Den or Dud and they will let you into a secret, and give the solution.

The Gawler "Happy Gang" have little to report this time, for apart from the DX work of Les 5AX, who mostly calls CQ and stands back for the choice calls, the rest here have been messing about with v.h.f., which of course may or may not be reported elsewhere. If anyone has a reasonably recent copy of the call-book that they don't want, then send it to Les, for when reading the mail recently he was trying to find Bob's 5ZDX address, and on reference to the only copy of the call-book he had it was noted that Bob's call was not listed.

Heard 5JH telling how he caught a 34-lb. cod up the river somewhere and noted that he was in no way encouraged by Hughie 5BC who said that somewhere in the local paper he read about a character at Waikerie who got a 70-pounder. Worse than quoting you have 280 countries to someone like Stew. 5MS! 5LG and 5CV got into a mixed up contact one evening, starting on antenna it drifted to fishing and grandchildren. George tells some good fish stories but it would not do to tell the game warden what George put over. They even waxed historical a bit. Quite interesting. Ian 5IZ putting up beams and has some 2000 feet of wire strung up over about 3 acres, with about 800 feet of feed line, plus a tower some 60 feet high. What a "farm," easy to see he is not a suburban type.

A recent evening produced an unusual complaint. A chap complaining of QRM. Nothing unusual about that you say, O.K., but this complaint had to do with gas mains, and that one I leave to your imagination, or best we have Pansy deal with it next month.

At the beginning of A.R.R.L. V.H.F. Handbook is the following: "How it all started . . . and if you think the beam you are using is a recent development, consider the fact that Hertz used a rudimentary form of Yagi in 1888 and Marconi employed a parabolic reflector to extend the range of his equipment before the turn of the century." All sounds like nothing new under the sun, does friend Yagi turn over at this?

Heard 5JX saying that his XYL was painting the house and that his part of the job was to hold the light. Boy has he seen the light. A voice in the background of a 3.5 meg. transmission, "You are coming in on the B.C. receiver inside"—momentary silence, then, "Well you can switch it off." How is that for a quick means of overcoming B.C.I. in one lesson—No names mentioned.

5TU has done some research lately and comes up with the result that about 98% of his contacts, on request, admitted some association with photography and now suggests an operating position in the dark room as a possibility. SDR has advised that he has been posted to Malaya in June, R.A.A.F. type. That great outdoor man 5JH says he prefers portable operation over lunch time rather than stopping to eat, must eat sometime Vic, all the same he has found an ideal site at Lady Bay near Normanville. Another mobliester is Max 5GF who was a Victor Harbour over the

## CRYSTAL DIVISION

Manufacturers of Quartz Crystals for Frequency Control and  
Crystal Filters for Highly Selective Circuits announce:—

### NEW LOWER PRICES FOR CLOSE TOLERANCE GOLD PLATED CRYSTALS FOR AMATEUR APPLICATIONS

	Amateur Net (each includ. Tax)
● 1.8 Mc. to 14.999 Mc. $\pm 0.005\%$ in Style "D" holders, $\frac{1}{2}$ " pin spacing	£2 8 6
● 15 Mc. to 47.999 Mc. $\pm 0.005\%$ in Style "D" holders, $\frac{1}{2}$ " pin spacing	£2 10 6
● 48.0 Mc. to 61.0 Mc. $\pm 0.005\%$ in Style "D" holders, $\frac{1}{2}$ " pin spacing	£2 16 3
● 100 Kc. $\pm 0.005\%$ in HC13/U holders, $\frac{1}{2}$ " pin spacing*	£4 10 0
● 1 Mc. $\pm 0.005\%$ in Style "D" holders, $\frac{1}{2}$ " pin spacing*	£4 10 0
* Specially designed for Crystal Calibrator purposes.	
● 455 Kc. nominal Crystals for Filter applications in Style "D" or "E" (B7G) holders	£4 10 0

Many other types and tolerances are available from our standard production.  
Please consult us on your Crystal requirements.

## PYE PTY. LTD. CRYSTAL DIVISION

CLARINDA RD., CLAYTON, VIC. (P.O. Box 105). Phone 544-0361

STATE OFFICES IN ADELAIDE, BRISBANE, HOBART, PERTH AND SYDNEY

# DISPOSAL BARGAINS

AT OUR BULK DISPOSAL STORE

8 PARK STREET, GLENFERRIE, VIC. (OFF GLENFERRIE ROAD)

Phone 81-1935

(Mon. to Fri., 10 a.m. to 5 p.m.; Sat., 10 a.m. to 12.30 p.m.)

## NEW VALVES

1A3	50c	5U4GB	\$1.45	6CM5	\$2.25	7E8	50c
1A5	50c	5V4G	\$1.75	6CW4	\$3.00	7L7	75c
1A7GT	\$2.60	5Y3	\$1.38	6F8	50c	7N7	75c
1C7	50c	5Y4	75c	6G6	75c	7W7	50c
1D4	75c	5Z3	\$1.75	6G8G	\$2.80	12A6	50c
1D8	75c	6A3	75c	6H6 Metal	50c	12AH7	50c
1F5	\$1.00	6A6	75c	6J5GT	\$1.00	12AT7	75c
1H5	75c	6AB7	\$1.00	6J6	\$1.00	12AU7	\$1.50
1K5	50c	6AC7	75c	6K8	\$1.00	12AU7A	\$1.50
1K7	50c	6AG5	50c	6K7	50c	12AV6	75c
1L4	50c	6AG7	\$1.25	6K8GT	\$1.25	12BE6	75c
1L5	\$1.00	6AJ5	75c	6K8 Metal	\$2.00	12CB	50c
1LN5	50c	6AK5	\$1.50	6L7	50c	12SA7GT	\$1.00
1M4	50c	6AL5	\$1.40	6N7	50c	12SC7	50c
1M5	50c	6AM5	\$1.50	6R7	75c	12SG7	75c
1Q5	50c	6AM6	\$1.00	6S5	75c	12SK7	50c
1R5	\$1.90	6AN7A	\$1.85	6SA7	75c	12SN7	75c
1S2	\$1.75	6AR7GT	\$2.10	6SC7	75c	12SQ7	50c
1S5	\$1.60	6AS7GT	\$2.00	6SF5	75c	12SR7	50c
1T4	\$1.00	6AU6	\$1.45	6SF7	75c	16A5	\$1.70
1U4	\$1.60	6AUA8	\$2.40	6SH7	50c	16A8	\$2.10
1U5	\$1.60	6AV6	\$1.40	6SJ7	\$1.25	25L6	\$1.00
2A5	75c	6B6	75c	6SK7GT	\$2.00	25Z6	\$1.00
2A7	75c	6BA6	\$1.55	6SL7GT	\$1.25	35L6GT	\$1.00
2D21	\$1.20	6BE6	\$1.35	6SN7GT	\$1.00	18	50c
2E28	\$2.50	6BL8	\$1.80	6SQ7GT	\$2.60	30	50c
2X2	50c	6BM8	\$1.85	6SS7	75c	47	50c
3A4	\$2.20	6BQ5	\$1.70	6U5	\$1.85	57	50c
3A5	\$1.00	6BR5	\$1.45	6U7	75c	58	50c
3Q5	\$1.00	6BXG	\$1.45	6U8	\$1.70	80	\$1.70
3S4	\$1.00	6BY7	\$1.45	6V4	\$1.14	717A	75c
3V4	\$1.50	6BZ6	\$1.80	6V6GT	\$1.75	807	\$3.75
5AR4	\$2.60	6C6	50c	6X4	\$1.00	808	\$1.00
5AS4	\$1.45	6C8	\$1.00	6X5	\$1.45	809	\$2.00
5R4GY	\$3.75	6CG7	\$1.55	7A8	40c	830B	\$1.50
5T4	\$1.75	6CH6	\$2.35	7C5	50c	832A	\$8.00
				7C7	50c		

## NEW PLUGS AND SOCKETS

Octal Plug	3/6 each
Octal Socket	1/6 "
5-pin Speaker Plugs	2/6 "
4-pin Speaker Plugs and Sockets	1/9 "
6-pin Jones Plugs and Socket	7/6 "
Pye Plugs	2/- each
Pye double bulk Chassis Sockets	2/6 "

## MODULATION AND DRIVER TRANSFORMERS

Modulation Transformer, 15 watts, pair of 6AQ5 to 2E26 valve.  
Also Driver Transformer, single ended primary to push-pull grids of 6AQ5s. £2 the lot, or mod. Trans. 30/-, and Driver Trans. 10/-.

## NEW CHOKES

7-5 H. 125 mA.	30/- each
8 H. 300 mA.	50/- "
14H. 60 mA.	12/6 "

## SPECIAL BARGAINS

Carpenter Relay and Socket, Type 3E1, 1800T 250 ohms, 900T 200 ohms, 15/- P.M.G. Strip Boards, containing 24 Jacks ..... 30/- each  
P.M.G. Strip Boards, containing 48 Jacks ..... 50/- each  
Head Phone Cords, new ..... 4/6 pair  
3-pin Plug and two yds. Cord ..... 4/6  
Mixed bags of Resistors (50) ..... 12/6  
P/M Fuse Holders ..... 4/6 each  
72 ohm Co-ax Cable, 35 ft. lengths, 3/16 inch diameter ..... 10/-  
72 ohm Co-ax Cable, 27 yd. lengths, 3/16 inch diameter ..... 20/-  
Vibrators, 122 Type ..... 20/- each  
122 Aerial Packs ..... 60/- each  
12-core Cable with Plug, 22 yards long ..... 50/-  
Wrecked 733D Receivers, less valves ..... 40/-  
Dural Tubing, 12 ft. lengths, 1/4 inch diameter ..... 3 for £1  
P.M.G. Key Switches ..... 7/6 each  
Radiogram Chassis—straight-out B/C new, completely wired, less valves and speaker, 30/-. Tube types 6V4, 6M5, 6BE6, 6BH5, 6BD7 available, extra.

## NEW VALVE SOCKETS

832A Sockets	20/- each
4/25A	20/- "
Acorn	3/6 "
Octal	2/- "
EF50	2/6 "
VCR97	10/- "
805	12/6 "
EA50	2/6 "
5-pin	2/6 "
6-pin	2/6 "
7-pin	2/6 "
7-pin P.T.F.E. Sockets	5/- "
Locktal P.T.F.E. Sockets	5/- "
Special completely shielded 7-pin P.T.F.E. socket and shield	10/- pair

## NEW TOGGLE SWITCHES

S.P.S.T.	5/- each
D.P.D.T.	10/- "

## NEW CONDENSERS

Metal Pack, E/I P/tail	
µF.	350 volt
1	350 "
0.25	350 "
0.1	100 "
0.1	500 "
0.05	350 "
0.01	1000 "
0.005	1000 "
0.002	1000 "
0.001	1000 "

## POTENTIOMETERS

Wire wound, 1 inch diameter.  
Sizes available:—  
5 ohms, 10 ohms, 25 ohms, 50 ohms, 100 ohms, 250 ohms, 500 ohms, 1000 ohms, 2000 ohms, 10K ohms, 50K ohms. 4/- each.

## NEW CHANNEL LOCK PLIERS

Type 337W	20/- each
Type 356 End Cutters	20/- "



# RADIO SUPPLIERS

Phone 81-1935

Established 1947



Easter week-end with a real man-sized 60 watts on a.m., not satisfied with this he is proceeding with a 100 watt rig, what then Max?

Tom 5TL did some shovel work (horrible word) over Easter, shifting some concrete slabs and got to work on five tons of sand to level and top dress some lawns. First he had to buy a shovel! The blisters were free, but now that the job is done, and that he has seen the light, who wants a shovel, no immediate enquiries will mean it will appear at the next buy and sell night. In spite of all this his weight did not reduce.

SFR does some good mobileing while travelling to work, quite an idea and recently had a good contact with a VK3 near Geelong, good signals it is understood but Bill was hampered by doing it on the Anzac Highway, not the best of places for that job.

Jack 5LN has gone over to the "man's mode" and even fixed a product detector ior Athol 5LQ, over to you Athol for the next move, but don't treat it like your 3-element beam job.

"IT" will be back next month, chaps, my sympathy to you all. 73, Comps VK5EF.

## WESTERN AUSTRALIA

A happy Pancake Saturday to you all, and greetings and congratulations to the new VK6 Council. I say "new," although there are only two new faces, quite a vote of confidence in those who served us so well last year!

It is with deep regret that we record the passing of Alan Buckie VK6AB. He will be greatly missed, not only by those who worked with him on the bands, but by his many friends throughout the country areas.

News to hand that Doc 6AQ has been on the move to see some of our Eastern neighbours. Possibly the chance to see some good football for a change, caused the brief stop-over in VK3. Hope you were able to round up a couple of leak-proof pens for the satellite recorder while you were at Doc!

There should be some noticeable QRM from the Mandurah area now with both Jack 6BU and Lance 6LR in the same street. Now take it easy men, one at a time please.

A recent visit to some of our country Hams confirmed that the busy bees at Narragin are particularly active. I understand that Ian 6XX has his new beam mounted on top of a mighty tower and was recently heard working W's on 10 metres.

Further east at Wickiepin, Aub 6XY has been crouched over text books and drawing board and has come up with a new filter type side-band rig which promises to be an extremely good one.

Also roaming at large around the countryside, Jack 6RT operating portable. Disguised as a quartermaster, he operated as communications officer on a tour of the north-west. Also singing and abetting him was a bus-load of students.

Reports from Y.R.C. leaders indicate an upsurge of interest here in the west. Good luck boys—and girls—hope to see many of you on the bands soon.

It was very pleasing to see a couple of YLs gracing our meeting recently. What a pity I couldn't talk them into forming a supper committee. Talking of supper reminds me of Cyril 6CR and it is hoped that he is enjoying better health. Perhaps we will see you at a meeting or on the breeze soon Cyril.

The aforementioned YLs became interested in Ham radio as a result of visiting the shack of Brian 6VW during the last Scout Jamboree of the Air. After some able coaching by Brian they sat for the April exam. Nice work, girls.

Len 6LG, who has also been in indifferent health for some time, appears to be hitting his stride again—just in time to do battle with that cursed Guldford grass—eh, Len?

Another old-timer enjoying a new lease of life, and incidentally, some good DX too, is Frank 6FL. When last seen Frank was smiling happily at the success of his newly-erected beam, and quite rightly so after hearing some of the reports he has been receiving.

Heard Jim 6RU chewing the rag the other evening—on 80 metres too! I gained the impression that he enjoyed the experience almost as much as hunting rare DX.

There is still considerable interest being shown in W.I.C.E.N. although the struggle to receive official recognition is a long, hard one. Meetings with the appropriate authorities are still going ahead.

With the onset of winter it is hoped that more life will appear on 80 m during the evenings, notwithstanding the cold, draughty shacks and the ever-present lure of the one-eyed monster.

A recent visitor to our sunny (?) shores was "The Admiral," officially recorded as Vern VK5VB. We hope that both Vern and his XYL benefit from their brief stay in Sandgroper Territory.

Our Federal Councillor, Roy 6RY, is still raving on about the many attractions of Queensland—it sure must have been a beautiful convention! We certainly can't hope to match some of the things he has told us about.

Popular rumour has it that many of the v.h.f. boys are secretly preparing for the launching of Australia's first satellite. It looks as though the d.c. lads might get a look in this time on 28 Mc. How about that, you v.h.f. guys? Hi!

From reports given at our annual meeting it is pleasing to note that prospects for the forthcoming year look particularly encouraging. The recent drive for membership has netted the Division some 60 or so members in 11 months.

Sunday morning news broadcasts have reached an all-time high, with services on 160, 80, 40, 20 and 6 metres f.m. A new service recently introduced is directed to our members in the far north and at Cocos and Christmas Islands. Fine business Bob 6BE and relay station operators Brian and Peter 6ZEP.

The march of progress has swept up Bill 6WY and he had constructed a new sideband rig for portable use at his shack at the Moore River. Next thing we know the dustmen will be complaining about the weight of all these AT5s that are being consigned to the rubbish bin.

Another welcome voice back on the band is that of our Patron, George 6GH, and we are hopeful that you will continue to enjoy improving health.

Somebody stop me quickly or I will be taking up too much space! Thanks, now I can bow out quietly.

With a call sign like mine it would be a piece of cake to sign as "DAISY," but in deference, or difference, or something to our esteemed friend from VK5 I will endeavour to contain myself. 73, Ross VK6DA.

## TASMANIA

What a month this April has been, I seem to have been out more nights than I've been home, not only the usual meetings, but two extra Council meetings as well, and no muckin' about either, all business, the last one towards the end of the month, going till around 11.30 p.m. I think every member of Council is on some other committee or sub-committee dealing with institute business, so none of us look like getting any real 'let-up' for a few months yet—still we don't complain only grumble, especially when one's efforts show signs of bearing fruit (who's talking about gardening?)

With any luck as many councillors as possible (it looks like six of us at this stage) will have visited the north-west, northern zones by the time you read this. The idea being to explain to members (and answer their questions) the meaning of Federation, and its effect on the Institute as we know it at present.

Which brings me to the next subject on my list which happens to be the Easter Convention which was held in Brisbane. From what Ted 7EJ tells us he had a right royal time, and although several agenda items were rather contentious matters, and agreement could not be reached, the convention as a whole, and the cordiality shown visiting councillors by VK4 was excellent, let's hope we in VK7 can do as well if not better in '67, when we are the hosts to the other Divisions.

Pencil bookings have already been made for accommodation at one of Hobart's hotels for next Easter, and if the way the last five months have flown continues, it won't be long before next March is upon us. Incidentally, we had fears prior to Easter that we might lose Ted 7EJ to VK8, but I'm pleased to inform you, he's not going (who said "What a pity?").

What a great boost was given the W.I.A. with the publicity in the press and on radio and T.V. regarding the "Australis" satellite project, our congratulations to all concerned, both with the actual project itself and the publicity.

At the Amateur Advisory Committee meeting in April a change of form was decided upon, the idea is that members work in pairs when in doubt regarding splatter, etc., especially with s.s.b. stations, just in case one's receiver is at fault, incidentally, if at any time you get an on-air comment from any member of the A.A.C. (or anyone else, for that matter) take it in good part and do the right thing!

Ian 7ZZ told me tonight that he has at last got a W5 confirmed (Mississippi) after six years, and now has his W.A.S. He said he has worked 126 countries but worst luck, they're not all confirmed. DX has been extra good of late on 15 and 20, with openings to Europe especially.

Now for a few tit-bits, Dave 7ZAI has changed his job (transferred to another branch within the department) so you can talk to him again now chaps, he's no longer the monitor! Den 7DK is at the time of writing away on the mainland, and Charlie 7KS is off to Sydney within the next couple of days (don't know for how long). He has been very busy of late, doing a complete rebuild, yours truly is rebuilding also, expect it will take most of the winter months. I hope to be "all systems go" by next summer's DX season, as well as having my c.w. by then, at least six of us so-called "half fulls" hope to be "full fulls" (fools) after the July exams.

That's about it for this month chaps, except to remind you that the "R.D. Contest" is not very far away, only a couple of months. Also, if you are still unfunctional, then brother this will be about the last lot of piffle you'll read of mine (that's if you ever do read it!).

73, Geoff 7ZAS.

## NORTH WEST ZONE

The last meeting of this Zone took place at Lakin's Hall, Ulverstone, on 3rd May in the form of a social affair with 17 persons present. Brian 7ZBE gave a very instructive lecture on transmission lines and showed the gathering the importance of a low reflected reading along the line and went on to show, by a practical demonstration, of s.w.r. measurements, using a 2 mx transmitter coupled through a moni-match to a yagi beam. Brian explained the set-up and by varying the adjustment of the gamma match on the antenna, was able to prove his previous theory on s.w.r. readings and what have you.

After Brian had stepped down, Sid 7SF produced an expensive looking movie projector which turned out to be one he had borrowed for the evening, and not as every one had surmised, the result of rifling the tin on top of the wardrobe! Anyway members were shown two very good films dealing with civil defence and nuclear explosions.

Supper was served 7ZRS/TMS style and one of the bits of gossip I managed to gather was the fact that George 7XL has now attired himself in a red spotted cravat and spiked shoes and joined ye old diehards of turf digger uppers, and can be heard yelling "fore!" whenever his powerful shoulders send a ball flying in the wrong direction!

Ken 7AI has now notched up 400 hours solo flying—or was it 400 db's worth of effort I can't quite remember which!

Ken 7KH has that rx chassis still sitting on the bench ready to be wired. Looks like you will have to give up working the GS on 20 mx a.m. Ken and get down to some unfinished construction work. 73, TMS.

## NORTHERN ZONE

Since the last notes local activity has been a little better and the meeting turnout is higher, but we still have a long way to go to break any records. What about it chaps? At our last meeting we welcomed two new members and an old member who has decided to rejoin. They were Carl Waldron and Bob Jackson with Don 7DB joining our ranks again. Sorry to hear that shift work interferes with the meetings, Don, but let's hope that you can make it now and again.

Bob Jackson is associated with the Civil Defence Organisation and provided the key to a long and interesting discussion on the W.I.C.E.N. activities. The result of this was to get everyone to combine on a picnic at some future date and carry out an exercise. I am sure that we are open to any suggestions that can be put forward.

Peter 7EP is going to give us our lecture at the next meeting on s.s.b. or "The Thing" as some refer to it. So come along and maybe we will see a little bit of wisdom in all that madness.

Bevan 7ZBW has returned from the big island and I believe that he was impressed by the gear he saw in the shacks over there. A few feet of film was run and at last report he was cutting all the juicy bits out, so he might even show us his trip. Anyway, Bevan, I'm sure that we all thought of you while you were away.

7ZLX has moved a new shack to his QTH and is very busy setting up his gear, along with constructing new equipment. Den 7DK has returned from his trip to the mainland with the car in one piece. The whip could not have made the car as top-heavy as I thought. Nice to hear your comments on the activity in VK3-5, Den, and also that you have had nearly as many contacts as my whole log shows. Also I gather that 3ZER did a remarkable job of keeping you occupied while he played host. I believe you found the hospitality on your trip to be lacking nothing. Well if that isn't a plug for the mainland what is?

That's all for the moment except that the next meeting requires yours and my attendance. See you there. 73, Frank 7ZFP.



**Stockists of Radio and Electronic Components for the Amateur Constructor and Hobbyist**

First Ring, Write or Call on

**WILLIAM WILLIS & Co. Pty. Ltd.**  
428 Elizabeth St., Melb'ne. Ph. 34-6539

**COMPUTER CIRCUIT BOARDS**

Containing switching transistors, resistors, condensers, diodes, etc. 20c per transistor.  
Also in stock: 1600v./0.75a. diodes, \$1.50; OA200-type silicon diodes, 100 for \$5.  
Everything tax paid and post free. \$2 min.

**AUSTRALIAN ELECTRONICS**

76 View Street, Hobart, Tasmania

**Repairs to Receivers, Transmitters; constructing and testing; xtal conv., any frequency; Q5-ers, R9-ers, and transistorised equipment.**

**ECCLESTON ELECTRONICS**

146a Cotham Rd., Kew, Vic. Ph. 80-3777

**A. R. R. L.**

Associate Memberships (and renewals) are available by forwarding £2/14/- (plus 6d. interstate cheques) to:

Business Manager, W.I.A.,  
49 Cookson Street,  
Camberwell, E.6,  
Victoria.

This includes the regular arrival of

**"QST"**

**HAMADS**

Minimum 5/-, for thirty words.  
Extra words, 2d. each.

Advertisements under this heading will be accepted only from Amateurs and S.w.'s. The Publishers reserve the right to reject any advertising which, in their opinion, is of a commercial nature. Copy must be received at P.O. Box 38, East Melbourne, C.2, Vic., by 8th of the month and remittance should accompany the advertisement.

**BARGAIN:** Q multiplier, which will increase selectivity and has variable null point for removing interference. Originally from Drake 2B and will work well with any 455 Kc. i.f., complete with small speaker in same case, £9/10/-. VK3AQ, 383 Warrigal Rd., Burwood, Vic. 28-2326.

**COLLINS KWM2**, all band s.s.b., V.O.X., PM2 solid state power supply, Collins mike, as new condition, \$1,000, O.N.O. S. G. McLean, VK5ME, 22 Celtic Ave., Clovelly Park, S.A. 76-1491.

**COLLINS KWM2**, factory mods., top condition and performance. VK2WS.

**COMMAND 7.0 meg. Tx** modified (QST) together with plugs and cable and Type S power supply, £15. One 3BX Tx unmodified, £10. Power Supply, 1000 volts at 300 mA., taps at 950v., 750v., 600v. and 500v., 2 x 866As swinging choke input, 2 section choke-

condenser filter, £12/10/-. One Rx R1155B with inbuilt 6V6 and speaker, no power supply, £10. J. E. George, VK1JG, 26 Holmes Crescent, Campbell, A.C.T. Phone 49-8380 after 1800 hrs.

**FOR SALE:** Complete Station. c.w./a.m. Tx, Geloso v.f.o., home-brew, 120 watts, neat console cabinet. Rx star 600, modern JA Rx, a.m./s.s.b., filter, calibrator, S meter, bandspread, etc. £225 (\$450) the lot. Will separate for reasonable offers. Also small 2-band Tx, a.m./c.w., xtal converters, sundry parts. Best offers. VK3WW. Phone 465-2991.

**FOR SALE:** Galaxy 5-band Transceiver with vox, mike, a.c. power supply, \$500. Save \$100 on new unit. Would consider part exchange for ART13 Auto-Tune Tx or Eddystone 640 Rx, "Commander" Rx or similar. D. M. Slowan, Spreyton, Tas. Phone Devonport 72117.

**FOR SALE:** National NCX-3 Tri-band s.s.b. Transceiver, complete with power supply, \$395. AR88 Receiver, good condition, \$95. F. R. O'Sullivan, Box 92, Bundaberg, Qld.

**FOR SALE:** Need room to move around! Shack clearance: Command Transmitters, 4.0-5.3, 5.3-7.0 Mc., \$6. Command Receivers, 3-6, 6.9 Mc., \$15. Q-5ers, 200-500 Kcs., \$20. BC-221 Frequency Meter with calibration book and a.c. supply, \$60. AT-14 Transmitter, \$100. Further lots of small and large valves, meters, A.W.A. V.T.V.M. and crystal calibrator, audio frequency meter, AT-13, Triplett signal generator, 200 Kcs.-120 Mcs., old-style tube tester, etc., etc. Arie Bles, VK2AVA, 33 Plateau Rd., Springwood, N.S.W. Telephone 51-1394.

**FOR SALE:** Philips PCR3 Rx 2.3-23 Mcs. plus B/c., 6 valves plus Si. Recs., S meter, a.c. P.S., spkr., £25. Box containing all parts for 12 valve AR8 Rx magic eye, L.F. and H.F. bands, H.F. bandspread, a.c. P.S., spare tubes, new condensers throughout, all bandwire circuit and diag., £10. R1155 Rx., 7 tubes plus Ge. A.N.L. with circuit, has minor fault, no P.S. or spkr., £7. Assorted other radio gear. Geoff Thomson, 115 Hawden St., Heidelberg, N.22, Vic. 45-6734.

**FOR SALE:** Swan 350 Transceiver, in new condition (had less than 20 hours' use), complete with a.c. power supply and speaker, \$400. Pair 6146B Tubes, new, in cartons, \$10. G. P. Butler, VK1GP, Flat 12, Block B, Currong Flats, Braddon, A.C.T.

**FOR SALE:** Three Command Transmitters, 80-40-20 metres, modified for 12v. operation, buffer-doublers, £7 each. Command Receivers: 3-6, £7; 200-550 Kcs. (Q5er), £9. A.W.A. Class C Frequency Meter, £10. Paton V.C.T. Valve and Circuit Tester, £10. Philips TA101C Signal Generator, £10. One home-brew 7 Mc. mobile Transceiver, containing Q5er tuneable I.F., £18. One 100 watt 400v./200v. transistorised Power Supply, £15. Plus other assorted gear. VK2GM, 78 Campbell Hill Rd., Chester Hill, N.S.W., 6-8 p.m. or week-ends, business phone B0544, ext. 294.

**HALLICRAFTERS** Receiver, SX117, \$500. Companion Transmitter HT44, including speaker and 115 volt power supply, \$600. Very satisfactory transceive operation can be obtained, using both Rx and Tx together. Both as new, excellent condition. 3-element wide-spaced 20 metre beam, 23 ft. boom, Gamma matched, 1½ in. diam. el.; home-brew, very well constructed, \$90. Hamm. M. Rotator, 115 volts, \$140. 37 ft. telescopic (wind up and wind over) tower, \$90. T. E. Straughair, VK3ABV, 23 Tristania St., E. Doncaster, Vic.

**SELL:** Apache Transmitter, a.m./c.w. 150w., 2 v 6146 final, time sequence keying, final can be switched to AB1 linear with step-down transformer, £100. Drake 2B Receiver and 2AQ Multiplier/Speaker combination, 110v., £195. Trimax Power Transformer, 1150/1150, 400 mA., and Trimax 10 Hy. Choke, 400 mA., £10 pair. Type 3 Mk. 2 Transceiver, £15. AR22 Rotator, £15. Heathkit Voice Control Unit, £12/10/-. AR88D Receiver, £95. Pyrox Tape Recorder, 7½ i.p.s., £35. Russell Bradshaw, VK3SX, Phone 82-2152.

**SELL:** Partridge high fidelity Output Transformer, type WWFB/0/1.7, 20 watts audio, primary 10-12 kilohms, 8 separate secondaries of 1.7 ohms each, \$10. Mechanical Filter, 455 Kc., 6 Kc. bandwidth, \$20. 1000.00 Kc. Crystal, \$5. 5000.00 Kc. Crystal (WWV), \$5. 0-1 mA. Meter, 6 in. dia. face, 270° scale, in polished case, \$20. O.N.O. Vox Unit, complete with valves and multiple c/o relay on 3½ in. panel, \$15. O.N.O. 2 metre Tx, 6/40 final, complete with modulator, P.T.T. dynamic mike and all power supplies, \$100. O.N.O. Ring Hepburn 96-2414 evenings or call 4 Elizabeth St., East Brighton, Vic.

**SELL:** 2 x 4X150A Valves, one 5-way coaxial switching unit, amphenol fittings, both new. Transistorised keyer, built-in oscillator/monitor, or swap for rotator and beam with cash difference. J. McCulloch, Flat 2, 23 Cresswell Ave., Niddrie, Vic.

**WANTED:** Cheap bug morse key in good condition. Coil boxes and circuit diag. for A.W.A. AMR101 Rx. R.T.T.Y. gear. Valves type CV302 and CV327 (ECH22 and EF52). Circuits AN/APN9 (R.C.A.), has Rx indicator. Geoff Thomson, 115 Hawden St., Heidelberg, N.22, Vic. 45-6734.

**WANTED:** Circuit of Tasma FM6000 Car Phone by J. R. White, 6 Hadley Court, Glen Iris, S.E.6, Vic. Phone 20-1660.

**WANTED:** Coil Boxes for AR7 Receiver, all bands. Please write to VK6ZFH, G. Hufner, 8 South St., Dalwallinu, W.A.

**WANTED:** Type 3EZ Transmitter rec. with 12v. power unit and book. K. McCarthy, VK4DU, James Ave., Currumbin Beach, Qld.

**WANTED:** 6 m. Transceiver or compact 6 m. Transmitter, with or without converter. Write details, W. Bennett, 24 Oxford St., Baranda, Qld.

# A LARGE RANGE OF TRANSMITTERS, RECEIVERS, TEST GEAR, AND DISPOSALS RADIO PARTS AVAILABLE

- ★ **BC221 FREQUENCY METER**  
Complete with Calibration Book, Crystal, and Headphones, \$90.
- ★ **SCR522 V.H.F. TRANSMITTER/RECEIVER**  
100-150 Mc. Complete with tubes, \$28.
- ★ **A.W.A. MR10 F.M. CARPHONES**  
70-85 Mc. 2E26 p.a. Complete with all tubes, power supply, control unit, handset, leads and plug for antenna, \$34.
- ★ **COMMAND TRANSMITTERS**  
4-5.3 Mc., 5.3-7 Mc. Complete with tubes, \$15.
- ★ **TR3624 TRANS./REC.**  
Approximate frequency, 200 Mc. Contains 46 miniature tubes, \$30.
- ★ **VARIACS, GENERAL RADIO**  
115v. 500w. New, in cartons, \$6.
- ★ **3J160E HIGH POWER TRIODES**  
120 Mc. full ratings. Heater 10v. 29a., anode max. volts 3000v., anode max. current 1000 mA. RF output 2150 watts. \$8 each.
- ★ **VALVES**  
EF50 20c ea., 7C7 10c ea., CV131 6CQ6 50c ea., 6AC7 20c ea., 6AL5 20c ea.
- ★ **SIGNAL GENERATORS**  
Type LSG10, 120 Kc. to 260 Mc., \$26. Type LSG11, 120 Kc. to 390 Mc., provision for xtal, \$30, both plus freight.  
TE22 Audio Generator, freq. range: sine 20 c/s.-200 k/c., square 20 c/s.-25 k/c., in four ranges. Output, 7v. p-peak. Output impedance, 1,000 ohms, \$42.
- ★ **METERS, P25 TYPE**  
0-500 uA., \$5.25; 0-100 uA., \$6.95; 0-1 mA. \$4.50; 0-10 mA., \$4.50; 0-50 mA., \$4.50. Full range of Meters and Multi-Testers available.
- ★ **CO-AXIAL CABLE**  
UR70 72 ohms, 3/16 inch diam., in 27-yard rolls, \$2 plus 75c pack and post. In as new condition.
- ★ **80-40 METRE TRANSCEIVER**  
San Electronics QTR7. Tx: 6BQ5 p.a., 6BQ5 modulator, xtal locked. Rx: Tunes 3.5 to 11 Mc., 1 watt audio output, 230v. a.c., \$90.
- ★ **BC348 COMMUNICATIONS RECEIVER**  
200 Kc.-18 Mc. in six bands. Xtal filter and b.f.o. Genuine original condition, \$90.
- ★ **RA1B COMMUNICATIONS RECEIVER**  
150 Kc.-15 Mc. in six bands. B.f.o., etc. Genuine original condition, with a.c. power supply, \$70.
- ★ **TR10A MULTIMETERS**  
100,000 ohms per volt. Ranges, DC volts: 0.5, 2.5, 10, 50, 250, 500, 1k. AC volts: 2.5, 10, 50, 250, 1k. DC current: 10 uA., 1 mA., 25 mA., 250 mA., 10A. Resistance: 20K, 200K ohms, 2 meg-ohms, 20 megohms. To clear, \$25.95.
- ★ **POTENTIOMETERS**  
Wire wound 40c each; carbon 25c each.
- ★ **RESISTORS**  
¼ watt, I.R.C., Welwyn, Eire, Ducon, Philips, \$2 per 100.
- ★ **MINIATURE CAPACITORS**  
New shipment. 600 v.w. Values: 0.001, 0.02, 0.005, 0.0005, 0.0002, 0.0001 uF. \$2 for 80 plus freight.
- ★ **¾ H.P. 2-STROKE MOTORS**  
Ohlsoon and Rice. Brand new, just imported from America. Weighs only 5½ lbs. 6,300 r.p.m. supplied with 3:1 reduction gearbox, output 2,100 r.p.m. Ideal for driving Alternators for Field Days. Fuel consumption 1 pint per hour. \$30.
- ★ **CRYSTALS**  
Personal shoppers only, \$1 each.
- ★ **SPECIALS**  
3API C.r.o. Tubes. New in cartons, £1.25. Vacuum sealed Relays, 670 ohm coil, four change-overs, 50c each.  
3000 Type Relays, 50 c each.  
Dual 3000 Type, £1.50 each.  
Brand new 4 inch Speakers, \$3.  
Inter-office Phones, 15-station type, \$4 each.  
7-pin skirted Valve Sockets, P.T.F.E., insulation, silver plated, only 20c each, c/w. shield.
- ★ **TRANSISTORS**  
Brand new. OC72, OC44, 2N132, OC66, OC45, 80c each. ATI138 Power Transistor, 30w., Class B, \$3. Also Diodes: OA71, OA81, OA95, 35c each.

## WANTED TO BUY

Communication Receivers, Test Equipment, etc. Call, write or phone. Equipment inspected and picked up at your convenience any night or week-end.

## ANY QUERIES

Beginners are welcome, ask Jim and Laurie Gardiner any questions. They are Amateur Radio operators and will be only too pleased to assist.

ALL ITEMS FREIGHT EXTRA

# UNITED TRADE SALES PTY. LTD.

280 LONSDALE ST., MELBOURNE, VIC. (Opp. Myers)

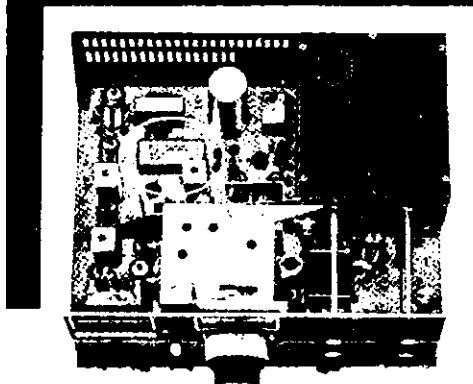
Phone 32-3815

IF YOU'RE LOOKING FOR

**SELECTIVITY**

LOOK INTO THE  
**SWAN-350**

AND ITS HIGH FREQUENCY  
CRYSTAL LATTICE FILTER

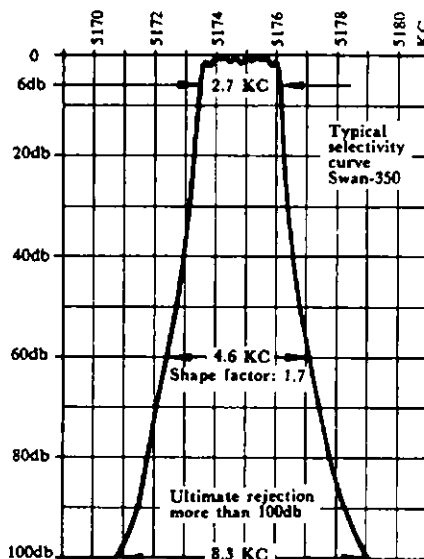


One of the reasons why the Swan-350 is the top selling transceiver today is its exceptional selectivity provided by a new crystal filter which we began installing in all production units a few months ago. This amazing little gem is made exclusively for Swan by C-F Networks. The selectivity it provides for voice communication is as good or better than the selectivity provided in any other sideband equipment, regardless of price.

There are 3 important factors about a filter which determine what the overall selectivity will be. One of these is its **bandwidth** at the 6 db points, and here we have carefully selected 2.7 kc. in order to give you good channel separation, and still retain the smooth, natural audio for which Swan transceivers are so well known.

The next consideration is **shape factor**, or the ratio between bandwidths at 6 and 60 db. In this respect the Swan filter gives you a "shape factor" of 1.7 to 1. This is substantially better than the 2 to 1 ratio of the mechanical filter, or 3 to 1 of the average 9 Mc. crystal filter. Best shape factors are achieved right around 5 Mc., and this is one of the main reasons for selecting 5175 kc. for the Swan I.F. (This choice of I.F. also permits single conversion design which results in fewer images and spurious signals. The only thing better than single conversion is no conversion at all.)

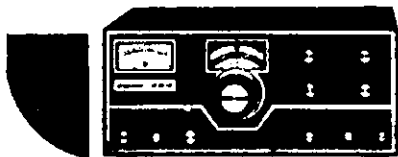
The third important factor, but by no means the least, is the measure of **ultimate rejection**, or how far the skirts fall before flaring out. Take a look at the graph and you'll see that this is better than 100 db with the Swan filter! Ultimate rejection determines how well your receiver attenuates those strong adjacent channel signals,



especially the guy down the street with the big linear. In this respect, the Swan filter is superior to others being used in Amateur sideband gear.

In Swan transceivers, the filter is also used when transmitting, of course, and in this mode the shape factor determines what your unwanted sideband suppression will be. We have been advertising 40 db, but this is a conservative figure, since it is really better than 50 db. Also, we've been advertising only 400 watts PEP input to the 350, but actually the average production unit peaks over 500 watts before flat-topping, which is why the 350 gets out so well, and sounds so good. Compare these features with any other sideband transceiver, and they all sell for more money!

73, Herb Johnson, W6QKI



**SWAN**

ELECTRONICS

Oceanside, California

AUSTRALIAN DISTRIBUTORS

W.F.S. ELECTRONICS SUPPLY CO.

227 Victoria Road, Rydalmere, N.S.W. 638-1715

ATLANTIC RADIO

36 Oxford St., Woollahra, N.S.W. 31-7811



# amateur radio

Vol. 34, No. 7  
JULY  
1966

**25c**

Registered at G.P.O. Melbourne, for  
transmission by post as a periodical

## BALUN TOROID

Type 355C. Impedance ratio 2:1. 52 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. For use at the base of a mobile whip antenna. coupled to fixed or adjustable tx output impedance. Lug terminals. \$3.50.

## NEW WELWYN INSULATED METAL OXIDE POWER RESISTORS

Wire Wound.  
Available in following sizes: 10 ohms, 20, 30, 40, 50, 60, 80, 100, 120, 150, 220, 270, 330, 370, 390, 470, 500, 560, 680, 720, 750, 820, 850, 1000, 1200, 1500, 1800, 2200, 2400, 2700, 3.3K, 3.9K, 4.3K, 4.5K, 4.7K, 5.6K, 6.8K, 8.2K, 10K, 12K, 15K, 18K, 22K, 24K, 25K, 27K, 33K, 35K, 39K, 47K, 56K, 68K ohms. Prices: 4 watts, 3/6; 8 watts, 4/6; 10 watts, 5/6.

TOLERANCE: Normal manufacturing tolerance plus or minus 5%.

Self Stability: Less than 2% over 12 hours.  
Full Load Stability: For 2000 hours at 70 deg. C. less than 5%.

Long-term Stability: Less than 0.1% per 1000 hours.

Temperature co-efficient: Less than plus or minus 500 ppm/deg. C. from 0-125 deg. C.

Dielectric Strength: 600 volts R.M.S.  
Encapsulation: Fireproof Silicone Cement.

Axial Leads: Minimum length 1 1/4 in. -21 s.w.g. dia.

## CONDENSERS

M.F.D.	Volts	Price	M.F.D.	Volts	Price
2	22	35c	50	150	75c
4	3	30c	50	350	\$1.35
5	6	30c	50 pl. 50	350 Can	\$1.60
5	12	30c	450		\$1.35
5	18	35c	64	6	35c
8	10	30c	64	18	35c
8	15	30c	100	3	35c
8	350	48c	100	6	33c
8	525	58c	100	12	35c
10	3	30c	100	25	50c
10	6	30c	100	50	72c
10	15	35c	100	100	75c
10	25	35c	100	200 Can	\$1.05
16	10	35c	100	300	\$1.33
16	300	50c	100	350 Can	\$1.60
16	525	75c	125	3	35c
20	200	62c	150	150	75c
24	350	65c	200	25	65c
24	500	97c	200	50	90c
25	3	32c	250	3	50c
25	6	35c	250	6	55c
25	12	35c	250	16	55c
25	18	35c	250	25	75c
25	25	35c	250	50	95c
25	50	45c	500	12D	50c
25	300	62c	500	25	88c
25	600	98c	500	50	\$1.25
30	6	35c	1000	6	92c
30	12	35c	1000	12	\$1.05
32	350	70c	1000	25	\$1.43
50	6	32c	1000	15	\$1.48
50	12	35c	1000	18	\$1.70
50	25	47c	2000	18	\$1.70

## NEW GANGED POTENTIOMETERS

Carbon, Linear	and Log Types.
10K plus 10K (C)	28/-
50K plus 50K (C)	28/-
100K pl. 100K (C)	28/-
250K pl. 250K (A)	28/-
250K pl. 250K (C)	28/-
1mg. pl. 1mg. (A)	28/-
1mg. pl. 1mg. (C)	28/-
2mg. pl. 2mg. (A)	28/-
50K plus 50K (C)	38/-
DPST	38/-
100K pl. 100K (C)	38/-
DPST	38/-
250K pl. 250K (C)	38/-
DPST	38/-
500K pl. 500K (C)	38/-
DPST	38/-
1mg. pl. 1mg. (C)	38/-
DPST	38/-
Other types to order.	

## TRANSISTORS AND DIODES

AC125	9/6	95c
AC126	9/6	95c
AC127	10/6	\$1.05
AC128	10/-	\$1
AF114N/OC171	10/-	\$1
AF115N/OC170	10/-	\$1
AF116N	9/6	95c
AF117N	9/6	95c
AF118	22/-	\$2.20
BC107	11/-	\$1.10
BC108	10/-	\$1
BC109	14/-	\$1.40
OC25	26/-	\$2.60
OC35/AT1138A	35/-	\$3.50
OC44N	11/-	\$1.10
OC45N	11/-	\$1.10
OC70	12/-	\$1.20
OC71/2N215	7/6 or 3 for \$1	
	75c or 3 for \$2	
OC72	13/6	\$1.35
OC74N	9/6	95c
OC75	13/6	\$1.35
OC189	19/6	\$1.95
OC170/AF115N	10/-	\$1
OC171/AF114N	10/-	\$1
2N217	9/6	95c
2N217S	9/6	95c
2N270	13/6	\$1.35
2N370	19/-	\$1.90
2N372	19/-	\$1.90
BY100/OA214	16/-	\$1.60
OA79	4/-	40c
OA80	3/-	30c
OA81	3/-	30c
OA90	3/3	32c
OA91	3/3	32c
OA95	3/3	32c
OA200	7/6	75c
OA210, IN1763, IN3184	8/6	85c
HR25	8/6	85c
OA211, S10AR2	16/-	\$1.60
IN3491	50 p.i.v.	18 a 9/6 95c

## ZENER DIODES

OAZ200	15/6	\$1.55
OAZ212	12/6	\$1.25
OAZ213	12/6	\$1.25
OAZ225	27/6	\$2.75
OAZ222/BZZ14	27/6	\$2.75
OAZ224/BZZ16	27/6	\$2.75

## POWER TRANSFORMERS

1992	150-0-150v. 30 mA., 6.3v. 1.75a.	37/6 \$3.75
1993	225v.-0-225v. 50 mA., 6.3v. 2a.	45/- \$4.50
2062	Voltage Doubler, 290, 265v. d.c. 80 mA., 6.3v. c.t. 2.25a.	67/6 \$6.75
2064	Voltage Doubler, 340, 315v. d.c. 125 mA., 6.3v. c.t. 2.25a.	87/6 \$8.75
2067	Voltage Doubler, 310, 285, 280v. d.c. 100 mA., 6.3v. c.t. 4a.	83/6 \$8.35
290-0-290v. 60 mA., 6.3v. 2a., 5v. 2a.		27/6 \$2.75
375-0-375v. 100 mA., 6.3v. 3a., 5v. 2a.		35/- \$3.50
385-0-385v. 125 mA., 6.3v. 3a., 6.3v. 2a., 5v. 2a.		45/- \$4.50

## AUDIO TRANSFORMERS

2624	7000 ohm s.e., 500 ohm s.e. prim.; 2, 3.7, 8, 15 ohm sec.	46/- \$4.60
4013	15 watt 6600 ohm c.t. 20% prim.; 3.7, 8, 15 ohm sec.	164/8 \$16.46
4020	10 watts prim. 9000 ohm c.t. 20% Ultra Linear (Mullard 10-10), sec. 3.7 or 15 ohm	

## TRANSISTOR TRANSFORMERS

TD1	Driver 3000 ohm, 2000 ohm c.t.	19/8 \$1.95
TD2	Driver, 420 o. c.t., 105 o. c.t.	19/8 \$1.95
TO1	Output, 375 ohm c.t., 1.5 ohm 500 mw.	16/- \$1.60
TO2	Output, 97 ohm c.t., 3.5 ohm 1 watt	18/6 \$1.85
TO4	Output, 300 ohm c.t., 3.5 ohm 5 watts	37/6 \$3.75

## FILAMENT TRANSFORMERS

T4/4	230v., 6.3v. 2 a.	32/6 \$3.25
2150	240v., 6.3v. 2.5 a. or two by 6.3v. 1.25a.	35/- \$3.50
2155	240v., 6.3v. 7.5v., 6.5v., 9.5v., 12.5v. 15v. 1 amp.	46/- \$4.60
12/64	240v., 6v. 4a., 12v. 4a.	50/- \$5.00
12/66	240v., 6v. 6a., 12v. 6a.	57/6 \$5.75

## ALIGNMENT TOOLS

Jabel No. 4 Alignment Tool Kits. All popular sizes. Four tools in plastic pouch. 12/-, \$1.20.

## TRANSISTOR SIGNAL INJECTOR

Pencil Type 2 Transistor, complete with instructions and battery. 55/-, \$5.50.

## DRIVER AND OUTPUT TRANSFORMERS

Transformer type RL3, Driver Transformer, 3000 to 1330 c.t. Transistor type JK8 Output Transformer, 300 c.t. to 15. Physical size: height 1 1/2 in., depth 1 1/2 in., width 1 1/2 in. 10/- \$1.00 each, or 17/6 (\$1.75) per pair.

## SATO SLIDER SWITCHES

Small type, d.p.d.t. 3- (30c) each  
Large type, d.p.d.t. 4- (40c) each

## NEW POTENTIOMETERS

Linear or log types. 500 ohms, 1K, 2.5K, 5K, 10K, 25K, 30K, 100K, 250K, 500K, 1 meg., 2 meg., 3 meg., 5 meg., 9. -

## BARGAINS!

Westinghouse LT91 Rectifier Unit, rated at 1.5 amps. (2 amp.), input 18 volts r.m.s. \$1.75 ea.  
Spring Terminals: black, red and green, 1 1/2 each (13c).  
Ferrite Aerial Rods, Flat Type 6 x 1/2 in., or Round Type 8 x 5/16 in. 10/- (15c) each.  
R.F. Choke, 2.5 mH. 4/9 (48c).  
Bib Tape Splicer Kit, 37/6 (\$3.75).  
Sato Baby Electric Key, 2700, 22/8 (\$2.25).  
Radio Cull Book 6/- ea. Radio Log Book 6/6 ea. 59 ohm Co-ax. Cable, 3/16 in. diameter, 2 1/2 (23c) per yard.  
Hook-up Wire, black, yellow, green, red, white, blue, grey, 4d. (4c) per yard, or 30/- (30c) per 100 yard reel.  
Twin Speaker Lead, white in color, 8d. (7c) per yard.  
3-Core Plastic Covered Cable, 2.3 (23c) yard.  
Twin Crystal Earpiece Wire, 4d. (4c) per yard.  
Stereo Extension Cables, 3-core, 25 ft. length with P.M.G. plug and cable joiner (plug ring tip and sleeve type). 25- (\$1.50).  
T.V. Ribbon, black or white or slotted, 8d. (7c) per yard.  
Microphone Cable, shielded: single core 1/6 (15c) yard; double core 2/6 (25c) yard.

## SCOPE SOLDERING IRONS

Scope Stand, \$5.50. De luxe, \$5.95. Birko, \$4.50. Miniscope, \$4.50. Vibroscope, \$4.50.

## MINISCOPE SPARES

Copper Tips	\$0.08	Insulating Bush	\$0.10
Barrel, Stainless	\$1.33	Switch Return	
Element	\$0.09	Spring	\$0.10
Push Rod As-sembly	\$0.80	Contact Lug	\$0.10
Handle, slotted half, c.w., brass nut and cable clip		Switch Lever	\$0.67
		Flex Lead	\$0.54
		Handle, unslotted half	\$0.71

## BATTERY CHARGERS

Dual, c/w. Meter in Metal Hammertone Case  
6 volt 4 amp., 12 volt 4 amp. ... 157/6 \$15.75  
6 volt 6 amp., 12 volt 6 amp. ... 217/6 \$21.75

## BEZELS AND NEON INDICATORS

Sato 3280 6.8v. sub-miniature, red, green, blue		4/6	45c
NEZ Neon Indicator, 65v., flying leads		3/-	30c
230v. Red Neon Bezel		6/8	65c

## PARTS FOR RTV & H TACHO

Meter (MR3P), 0-1 mA.	50/-	\$5.00
7080 or 5300 r.p.m. scale, extra	15/-	\$1.50
Henry Choke, ready wound	22/6	\$2.25
I.K. Trimmer Pot	4/-	40c
Circuit Board	6/-	60c



# RADIO SUPPLIERS

5A MELVILLE ST., HAWTHORN, VIC. Phone 86-6465

North Balwyn tram passes corner.

Money Orders and Postal Notes payable North Hawthorn P.O.

We sell and recommend Leader Test Equipment, Pioneer Stereo Equipment and Speakers, Hitachi Radio Valves and Transistor Radios, Kew Brand Meters, A. & R. Transformers and Transistor Power Supplies, Ducon Condensers, Welwyn Resistors, etc.

# "AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA FOUNDED 1910

JULY 1966  
Vol. 34, No. 7

## Editor:

K. E. Pincott ..... VK3AFJ

## Assistant Editor:

K. M. COCKING ..... VK3ZFQ

## Publications Committee:

G. W. Baty (Secretary) ..... VK3AOM  
A. W. Chandler (Circulation) ..... VK3LC  
E. C. Manifold ..... VK3EM  
W. E. J. Roper ..... VK3ARZ

## Draughtsmen:—

Ken Gillespie ..... VK3GK  
Clem Allen ..... VK3ZIV  
Ian Smith ..... 36 Green St., Noble Park

## Advertising Enquiries:

C/o. P.O. Box 36, East Melbourne, C.2, Vic.  
or  
Mrs. BELLAIRS, Phone 41-3535, 478 Victoria  
Parade, East Melbourne, C.2, Victoria. Hours  
10 a.m. to 3 p.m. only.

## Publishers:

VICTORIAN DIVISION W.I.A.,  
Reg. Office: 85a Franklin St., Melbourne, Vic.

## Printers:

"RICHMOND CHRONICLE," Phone 42-2419,  
Shakespeare St., Richmond, E.1, Vic.

★

All matters pertaining to "A.R." other than subscriptions, should be addressed to:

THE EDITOR,  
"AMATEUR RADIO,"  
P.O. BOX 36,  
EAST MELBOURNE, C.2, VIC.

Acknowledgments will be sent following the Committee meeting on the second Monday of each month. All Sub-Editors should forward their articles to reach "A.R." before the 5th of each month. Any item received after the Committee meeting will be held over until the next month. Publication of any item is dependent upon space availability, but in general about two months may elapse before a technical article is published after consideration by the Publications Committee.

★

Members of the W.I.A. should refer all enquiries regarding delivery of "A.R." direct to their Divisional Secretary and not to "A.R." direct. Non-members of the W.I.A. should write to the Victorian Division, C/o. P.O. Box 36, East Melbourne. Two months' notice is required before a change of mailing address can be effected. Readers should note that any change in the address of their transmitting station must, by P.M.G. regulation, be notified to the P.M.G. in the State of residence, in addition "A.R." should also be notified. A convenient form is provided in the "Call Book."

★

Direct subscription rate is \$3.00 a year, post paid, in advance. Issued monthly on the first of the month. January edition excepted.

## HANDBOOK NEGOTIATIONS

It is well known that a committee of the Federal Executive of the Wireless Institute of Australia has been engaged in a review of the Regulations governing the Amateur Service in Australia with senior officers of the Postmaster-General's Department.

Unfortunately certain information has been published which may have given the impression that some changes have already been made to the operating conditions of the Amateur Service. Indeed three recent incidents have come to notice of Federal Executive which have indicated that some Amateurs have misunderstood the position.

The position is that the negotiations have been completed but until Ministerial approval is obtained the amendments agreed cannot be implemented, therefore it must be stressed that the Regulations and Handbook remain at present unaltered and all Amateurs are bound to comply with the provisions of the current Handbook.

Immediately any changes are in fact made all Amateurs will be notified, probably in the first instance through the pages of "Amateur Radio."

HAROLD L. HEPBURN, Federal Vice-President, W.I.A.

## CONTENTS

Your Pye Reporter—Tunable or Crystal Locked ..... 2	VK-ZL—Oceania DX Contest, 1966 13
Novistor Converters for 50, 144, 220 and 432 Mc. .... 5	Prediction Charts for July, 1966 14
Sideband ..... 9	Publications Committee Reports .. 14
Book Review:	DX ..... 15
Technical Topics for the Radio	New Call Signs ..... 16
Amateur ..... 10	P.A.C.C. Award ..... 16
The Radio Amateur's Hand- book ..... 10	V.H.F. .... 17
Project Australis ..... 11	Correspondence ..... 17
Trade Review: Toroid Baluns . 11	S.W.L. .... 18
	Y.R.C. .... 18
	Federal and Divisional Monthly News Reports ..... 19





turn will cause a drastic reduction in conversion efficiency with crystal locked operation.

(3) The remaining triode section is wired up as a tunable v.h.f. Colpitt's oscillator. There is nothing critical in this operation so long as one observes the rules in relation to keeping grid and plate leads as short and rigid as possible. Actual layout will depend on whether you are working on a Mark 1 or a Mark 3. In my own Mark 1 I mounted the tuning gang (a split stator unit with a maximum capacity of 12 pF. a side) a little forward of the space between the crystal sockets. This enabled me to bring an extension shaft to the front panel where a small vernier dial was mounted. The oscillator padders (Philips type concentric trimmers) were fitted at the left side of the gang leaving ample space on the right side for the oscillator plate coil. This coil consists of nine turns spaced to  $\frac{1}{4}$  in. and wound on a  $\frac{3}{8}$  in. bakelite former. The leads from the coil are taken through to the underside of the chassis via feed-through insulators which were fabricated from the base sections of ordinary plastic spring terminals. The coil is braced centrally by its 47K feed resistor which is anchored to a 0.001  $\mu$ F. ceramic feed-through capacitor soldered to the chassis adjacent to the centre of the coil.

(4) The Mark 1 has a vacant socket hole adjacent to the transmitter oscillator tube, this was utilised by adding an OA2 regulator tube fed with h.t. through an 8,000 ohm 5 watt resistor via the function switch. This refinement is not essential. However, if you decide to dispense with it, a different value of h.t. feed resistor to the tunable oscillator will be required in order to obtain optimum first mixer injection for the tunable mode of operation. Remember, a great excess of injection voltage will over bias the mixer and seriously reduce its gain, a moderate increase over the optimum may not appreciably effect conversion gain but it will certainly result in the appearance of birdies.

(5) The function switch may now be mounted in some convenient position. An ordinary s.p.d.t. toggle switch will serve the purpose admirably, the manner in which it is connected up should be clearly indicated in Fig. 1.

(6) The final step requires the re-winding of L1, L2 and L3 so that they may be resonated at 53 megacycles with an absolute minimum of parallel capacitance preferably 5 pF. or less.

The hard work is now completed.

Apply power to your modified receiver, switch to "tunable" set the tuning capacitor at its mid position and with the aid of an absorption wave-meter set the 3-30 pF. trimmers so that the local oscillator resonates at 53 (minus the first i.f.) megacycles, aim at maintaining both trimmers' capacitances equal.

Next check that the oscillator may be tuned over a 2 megacycles range. This can be readily achieved by re-adjusting the coil spacing and trimmer settings.

Having done this and providing your wiring is correct the receiver should be showing signs of life.

The tuning capacitor is reset to its mid position and the r.f. coils peaked for maximum receiver noise.

The next step—tune to 54 megs. and pull out the 6AK5, a sharp drop in receiver noise should result, now tune to 52 megs. and replace the 6AK5, the receiver noise should increase. If these changes do not occur the frequency response of the front end is too sharp and L1, L2 and L3 will need to be stagger-tuned or loaded with 15K resistors. The ultimate aim is to adjust the front end tuning so that anywhere over the range of 52-54 megs. removing the 6AK5 from its socket results in a noticeable drop in noise output at the speaker. This ensures that the receiver will give its maximal usable gain over the entire band with no degradation of signal to noise ratio.

Finally, switch to "crystal locked" and repeak the harmonic amplifier plate tank for maximum noise or better still if there is a relatively weak signal available tune for maximum signal.

Your job is now completed, a few contacts on the band should have you convinced that your receiver is now as good as ever on your net frequency and is equally sensitive over the entire band on "tunable."

Some of the more discerning types may have some doubts because with either mode of operation there remains an unused tuned circuit permanently connected to the first mixer grid. By way of explanation let us consider the case of the receiver functioning as a tunable unit. Here the mixer grid circuit is inductively coupled to the unused harmonic amplifier tank circuit the mixer grid, however, sees nothing more than an absorption wave trap fixed tuned in the region of 65 megacycles, thus there is no degradation of

mixer performance, in fact, in the presence of a strong interfering signal in the region of 65 megacycles this normally unused circuit would prove to be of value in reducing such interference. Considering the ease of crystal locked operation a similar situation arises except that the wave trap is now capacitance coupled to the mixer grid and is centred on a frequency of 41 megs. or thereabouts. It is admitted that in this instance the capacitance coupling will result in some loss of signal from the mixer grid but in actual practice the loss is so small that it is not detectable.

Many will say that the top end of the band is dead anyhow, so why bother tuning the entire 2 megacycles range. For the benefit of those with this attitude, may I conclude by making the point that there is an active group in Illawarra on 53.982 with some 20 stations in the Wollongong area alone.

Finally, my thanks to the Wollongong manager of the Pye Service Workshop, Mr. Noel Boyd, who was kind enough to run a lab. check on the above conversion. He used a P.M.G. certified Marconi sig. gen. from which he obtained the following performance data:

- (1) Crystal locked on 53.982 megs. 0.5 microvolt for 50 mW. output. S/N ratio better than 10 db.
- (2) Tunable on 53.982 megs. 0.5 microvolts for 50 mW. output. S/N ratio better than 10 db.
- (3) Tunable 53.983  $\pm$  1 megacycle. 1.6 microvolt for 50 mW. output. S/N ratio better than 10 db.

The manufacturer's specification for the original Mark 1: 2 microvolts or better for 50 mW. output at 8 db. S/N ratio.

## CRYSTAL DIVISION

Manufacturers of Quartz Crystals for Frequency Control and  
Crystal Filters for Highly Selective Circuits announce:—

### NEW LOWER PRICES FOR CLOSE TOLERANCE GOLD PLATED CRYSTALS FOR AMATEUR APPLICATIONS

	Amateur Net (each includ. Tax)
● 1.8 Mc. to 14.999 Mc. $\pm$ 0.005% in Style "D" holders, $\frac{1}{4}$ " pin spacing	£2 8 6
● 15 Mc. to 47.999 Mc. $\pm$ 0.005% in Style "D" holders, $\frac{1}{4}$ " pin spacing	£2 10 6
● 48.0 Mc. to 61.0 Mc. $\pm$ 0.005% in Style "D" holders, $\frac{1}{4}$ " pin spacing	£2 16 3
● 100 Kc. $\pm$ 0.005% in HC13/U holders, $\frac{1}{4}$ " pin spacing*	£4 10 0
● 1 Mc. $\pm$ 0.005% in Style "D" holders, $\frac{1}{4}$ " pin spacing*	£4 10 0
* Specially designed for Crystal Calibrator purposes.	
● 455 Kc. nominal Crystals for Filter applications in Style "D" or "E" (B7G) holders	£4 10 0

Many other types and tolerances are available from our standard production.  
Please consult us on your Crystal requirements.

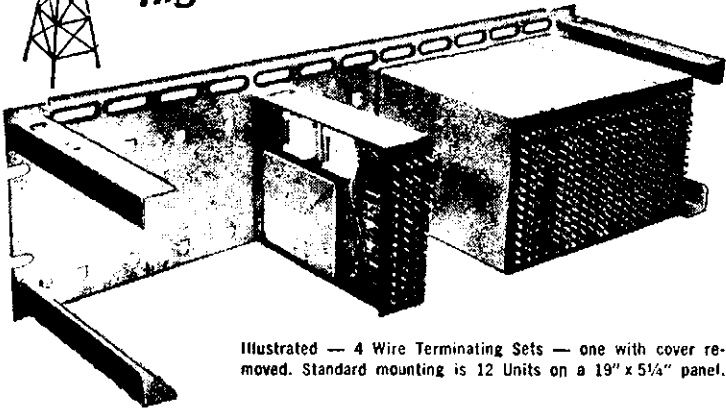
## PYE PTY. LTD. CRYSTAL DIVISION

CLARINDA RD., CLAYTON, VIC. (P.O. Box 105). Phone 544-0361  
STATE OFFICES IN ADELAIDE, BRISBANE, HOBART, PERTH AND SYDNEY



designed for efficient,  
high quality communication networks...

**4 WIRE TERMINATING SETS  
AND HYBRID COILS**



Illustrated — 4 Wire Terminating Sets — one with cover removed. Standard mounting is 12 Units on a 19" x 5 1/4" panel.

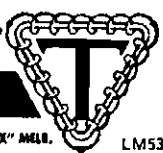
For use on high quality amplified voice frequency circuits at points where a 2 wire to 4 wire conversion is required. All units incorporate blocking capacitors in the line and network windings and basic components to provide for the average line balance network. Terminating sets contain variable attenuator pads in both the Hybrid-In and Hybrid-Out sides.

For further information please write giving application details.



**LM ERICSSON PTY. LTD.**

**"TRIMAX" DIVISION**



FACTORY: CHR. WILLIAMS RD. & CHARLES ST., NORTH COBURG, VICTORIA, 'PHONE: 35-1203 ... TELEGRAPHIC ADDRESS: "TRIMAX" MELB.

LM53

**FOSTER DYNAMIC MICROPHONES**

**SPECIFICATIONS:**

Output Impedance ..... 50 ohms or 50K ohms  
 Effective output level ..... -55 db. [0 db. = (one) 1V. Microbar]  
 Frequency response ..... 50 to 15,000 c.p.s.

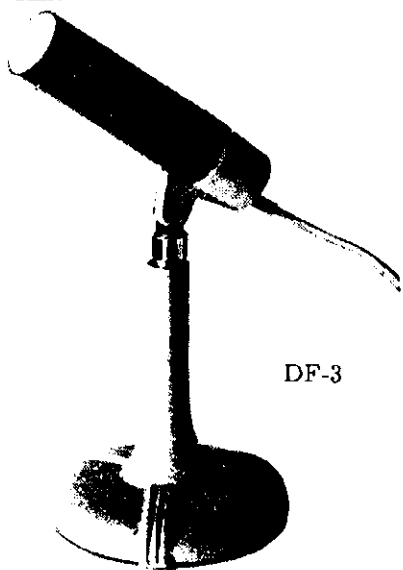
**OMNI-DIRECTIONAL DYNAMIC:**

Plastic Diaphragm. Swivel fits 5/8" 26 t.p.i. Stands.  
 Size: 4 1/2" long, 1 1/4" diameter. Colour: TWO-TONE GREY.  
 Cable: 12 ft. of P.V.C.

Retail Price 50K ohms: **£4/16/0** + Sales Tax 10/0

Retail Price 50 ohms: **£4/14/0** + Sales Tax 9/10

A QUALITY PRODUCT FOR TAPE RECORDERS & P.A. USERS



DF-3

Marketed by **ZEPHYR PRODUCTS PTY. LTD.**

70 BATESFORD STREET, CHADSTONE, S.E.10, VIC.



**Manufacturers of Radio and Electrical Equipment and Components**

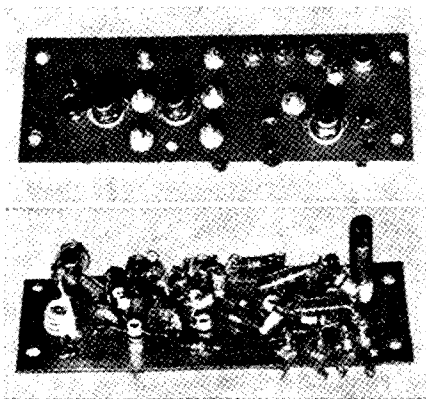
Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L; Jacoby, Mitchell & Co. P/L; T. H. Martin P/L.





The input circuit is tuned for best noise figure at 144 Mc. by adjusting the slug coil and series antenna capacitor. A noise generator is needed for this purpose since these adjustments usually are not the same as for maximum r.f. gain. The plate circuit is tuned to 144 Mc. by means of the two variable capacitors with one set at a different value than the other in order to get neutralization. These adjustments can be juggled back and forth until the amplifier does not oscillate and best noise figure is obtained. Grid leak bias was used in order to get best noise figure but this makes the tube subject to cross modulation from local two metre stations. In some locations, cathode bias on the 6CW4 tube would be necessary with probably not over 0.1 or 0.2 db. of deterioration.

The built-in power supply is about as simple as possible. The heater voltage is dropped to about 6 volts by means of a 3 mf. paper capacitor in the 115 v.a.c. line. This method causes quite a time lag in the tube reaching normal operation after the a.c. switch is turned on as compared to the use of a filament transformer. The 3 mf. capacitor takes less space and has no heat loss. The preamplifier uses about 7 mA.



Top and bottom views of the 220 Mc. converter. In the bottom view the multiplier crystal may be seen to the left of the 22.9 Mc. plug-in unit.

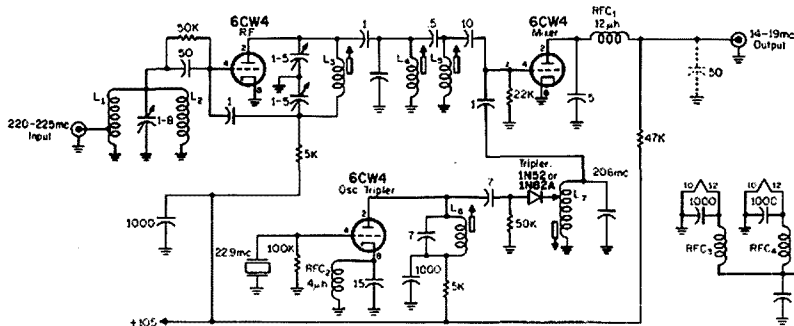
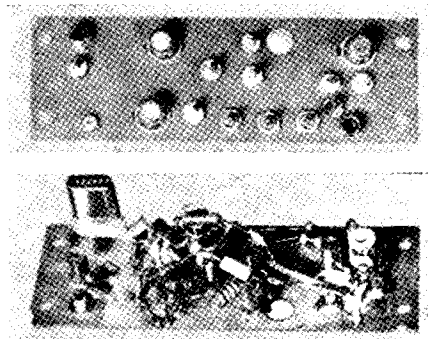


Fig. 4.—Circuit of a 220 Mc. Nuvistor converter with an i.f. output from 14 to 19 Mc. All resistors are 1/2 watt and all capacitors are in mmf.

- L1—4 turns 20 g. d.c.c., tapped 1 turn up from ground, 1/4 in. long, 3/8 in. diameter, air wound.
- L2—4 turns 20 g. d.c.c., 1/4 in. long, 3/8 in. diameter, air wound.
- L3—7 turns 20 g. d.c.c., 1/2 in. long, 1/4 in. diameter, air wound.
- L4, L5—4 turns 22 g. enamel, 1/4 in. long wound on 3-16 in. diameter slug tuned form.

of plate current at 100 to 125 volts, so both heater and plate supply may be taken from a receiver, or converter power supply.



Top and bottom views of the 432 Mc. converter. The bottom view shows the input pi-network on the left and the output tank L5 on the extreme right.

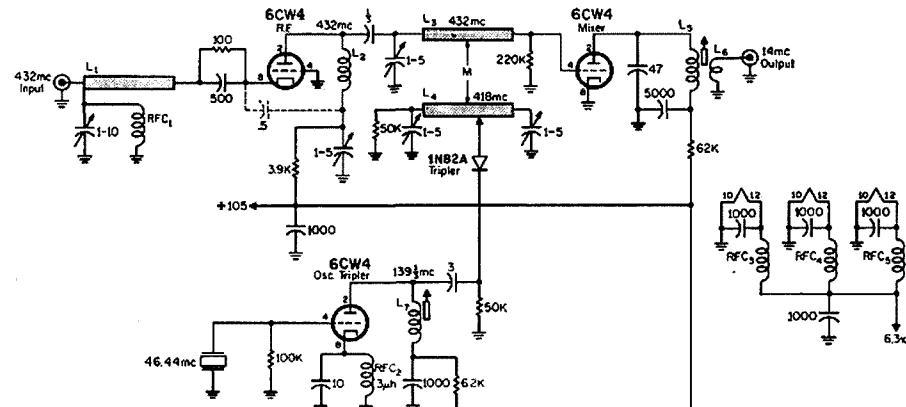


Fig. 5.—Circuit of a 432 Mc. converter. The output with the link coupled circuit shown above is at 14 Mc. with a 1 Mc. passband. For wider coverage the pi-network similar to that shown in Fig. 2 or Fig. 4 should be used. All resistors are 1/2 watt and all capacitors are in mmf.

- L1—1/2 in. wide copper strap, 1 1/4 in. long.
- L2—3 turns 1/2 in. copper strap, 3/8 in. long, 3/8 in. diameter.
- L3, L4—1/2 in. wide copper strap, 1 1/2 in. long, spaced 1/2 in. to 1/4 in. apart.
- L5—25 turns 28 g. enamel 3/8 in. long, wound on 1/4 in. diameter slug tuned form.
- L6—4 turns hookup wire link on cold end of L5.

## 220 Mc. CONVERTER

This converter, shown in one photograph and the circuit diagram of Fig. 4, was built for average signal reception in the 220 to 225 Mc. region with an i.f. output of 14 to 19 Mc. For very weak signal reception, a 222 Mc. paramp is used at W6AJF ahead of this and other 220 Mc. converters.

The single tuned double coil circuit in the r.f. stage grid circuit was used to more effectively ground out an i.f. signal. It seemed to be getting through the converter for a period of time during on-air tests. The improvement was not very great and wasn't entirely fixed without the use of a preamplifier, until the commercial station seemed to go out of operation (probably a temporary cure).

The circuit of Fig. 4 is quite similar to that of the 144 Mc. converter except for coil and capacitor values. A 68 1/2 Mc. crystal was not available so a surplus 22.9 Mc. one was used. A 68 1/2 Mc. crystal could be used with a cathode

- L7—6 turns 22 g. enamel, 1/4 in. long, wound on 1/4 in. diameter slug tuned form.
- RFC1—8 turns 20 or 22 g. enamel, 3/8 in. long, 1/2 in. diameter.
- RFC2—3 1/2 1/2 1/2 34 turns 28 g. enamel, 1/2 in. long, 1/4 in. diameter.
- RFC3, RFC4, RFC5—8 to 10 turns small hookup wire, 1/2 in. long, 1/8 in. diameter.

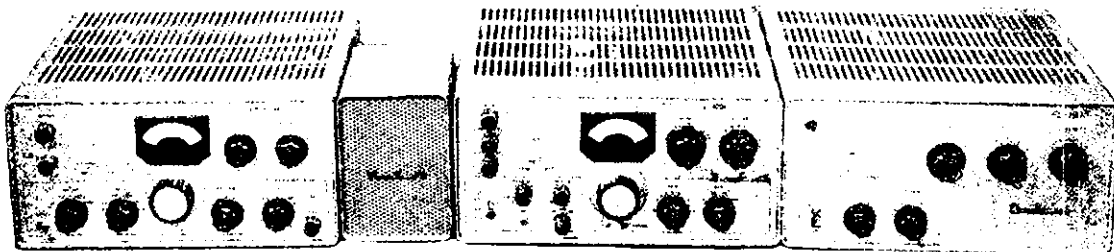
circuit in the oscillator tube similar to that used in the 144 Mc. converter, with the plate circuit tuned to 206 Mc. The use of a 22.9 Mc. crystal meant that an additional frequency tripler was needed. A type 1N52 or preferably a 1N82A diode can be used to triple the frequency to the desired value of 206 Mc. as shown in Fig. 4. Some diodes will give more output when tapped across only part of the 206 Mc. tuned circuit. The value of grid leak and the coupling capacitor to the diode tripler can also be modified to advantage with some types of diodes.

The noise figure runs at about 5 db. as measured here. The image rejection is only fair due to the higher signal frequency as compared to the i.f. value. The paramp solves that problem very well but can only be used over a small part of the 220 Mc. band. Two or even three grounded grid 6CW4 or 6DS4 nuvistor stages with several more tuned circuits would be a more prac-

(Continued on Page 14)

# F-SERIES S.S.B. EQUIPMENT

PROFESSIONAL QUALITY AT AMATEUR PRICES



## COMPACT TABLE-TOP STATION—MECHANICAL FILTER SYSTEM FIVE BANDS — 80-10 METRES. TRANSCIVE OR NORMAL OPERATION

**FR-100B: RECEIVER, S.S.B.-A.M.-C.W.**, dual conversion, with crystal locked front end, two mechanical filters for best reception of s.s.b. and a.m., high reduction precision gear driven dial reads to 1 Kc. Crystal filter for c.w. A.n.l. "S" meter, a.g.c., s.s.b. clarifier, built-in monitor. Additional crystals for 100 Kc. calibrator, full 10 mx coverage, WWV and three s.w. ranges. A professional quality receiver for the Amateur or discriminating S.w.l. £209½ (\$419) inc. S.T.

**FL-200B: TRANSMITTER, S.S.B.-A.M.-C.W.**, Two 6JS6A (similar 6DQ5) tubes in p.a. Solidly constructed and neatly wired, with high quality components, ceramic bandswitch, Kokusai M.F., built-in solid state power supply, antenna relay, etc. All plugs, inst. manual and p.b. microphone supplied. Nothing else to buy. Cabinets beautifully lacquered in dark driftwood wrinkle. Satin finish panel. This is a first class rig for c.w., also break-in operation, T9X note, clean chirpless keying, v.f.o. runs continuously. £245 (\$490) inc. S.T. All tubes, diodes available in Aust.

**FL-1000: LINEAR AMP.**, four 6JS6As in g.g., output power not exceeding 400w. p.e.p £139 (\$278) inc. Sales Tax.

Enables operation on the three modes without necessity for compromise. Fully imported. Used by Australia's leading Phone DX'er.

NEW! To be available soon: FT-100 Transceiver. FL-50 S.s.b. Exciter. V.f.o.. L.F. Filters, etc., all made by Yaesu Musen Co., of Japan.

Brochure available from  
the Australian Agents:

**BAIL ELECTRONIC SERVICES**

60 SHANNON ST., BOX HILL NORTH, VIC. 89-2213

N.S.W. Enquirers contact:

**MOSMAN TELEVISION SERVICES**

11 Ruby Street, Mosman. Phone 96-5342

NOW AVAILABLE—

THE 1966 EDITION

## ★ A.R.R.L.—Radio Amateur's Handbook

*The Standard Manual of Amateur Radio Communication*

Price \$6.10 posted, or 58/6 and postage 2/6

NOW AVAILABLE—

## ★ The Radio Transistor Handbook

by Stoner & Earnshaw.

Price \$6.65 posted, or 64/9 and postage 1/9

THIS UP-TO-DATE HANDBOOK COVERS A WIDE RANGE OF COMMUNICATION  
FOR BOTH AMATEUR RADIO & COMMERCIAL APPLICATIONS

## McGILL'S AUTHORISED NEWSAGENCY

Established 1860

183-185 ELIZABETH STREET, MELBOURNE, C.I., VIC.

"The G.P.O. is opposite"

Phones: 60-1475--6-7





## SIDEBAND

(Continued from Page 9)

first check that the chokes have very low resistance, and the output capacitor could well be increased to 30  $\mu$ F, or so to provide better dynamic regulation.

An excellent method of using one transformer for the whole transmitter (except bias supply) is to adopt the "Economy" power supply using a single transformer of 270 to 300 volts per side and rated at least 150 mA. This is shown in Fig. 3 and shows a full wave bridge supplying the full high tension voltage, with the 250 volt, well filtered supply obtained from the centre tap. The use of silicon diodes to give peak voltage, i.e. 600 x 1.4 or 840 volts, is essential, as the peak currents drawn by the capacitor are sufficient to take the oxide coating from the filament of most rectifiers. Such rectifiers (valves) will not last very long in this service. Choke input filters are a good proposition for most valve rectifiers where such high peak currents are involved, but of course the transformer voltage should be about 1.1 times the output voltage.

The rule for silicon diodes is to use one diode of 400 v. (peak inverse) rating for every 130 volts of transformer output with a 330K resistor across each diode, and 15 ohms of wire-wound resistor per diode in series with the string of diodes.

Finally, a useful trick for increasing the voltage of a power supply which is on the low side, is shown in Fig. 4. A t.v. type transformer of 250-0-250

volts was used to raise the output from a 600 v. modulator power supply to a useful 850 volts for an s.s.b. exciter. If the voltage looks low, simply change over the anode caps.

Next month: "A Few Thoughts on Crystal Filters."

73, Phil 5NN.

☆

## Book Review

### TECHNICAL TOPICS FOR THE RADIO AMATEUR

Regular readers of the R.S.G.B. Bulletin will be familiar with the monthly series entitled Technical Topics. Started in 1958, this series of articles attempted very successfully to present new circuits and ideas drawn from various technical publications, together with a few hints and tips, in an effort to keep the average Amateur well informed. The series met with such success over the years that the author, Pat Hawker G3VA, has now produced this book containing the best of the material that appeared in R.S.G.B. Bulletin. It is a worthwhile addition to the library of all Amateurs interested in construction and experimenting with new ideas. The book contains chapters on Semi-conductors, Components and Construction, Receiver Topics, Oscillators, Transmitter Topics, Audio and Modulation, Power Supplies, Aerials and Electrical Interference, and Fault-finding and Accessories.

Publisher, Radio Society of Great Britain; Australian price, \$1.90, postage 12c.

Review copy supplied by Technical Book and Magazine Co. Pty. Ltd., 289-299 Swanston Street, Melbourne, C.I.

### THE RADIO AMATEUR'S HANDBOOK

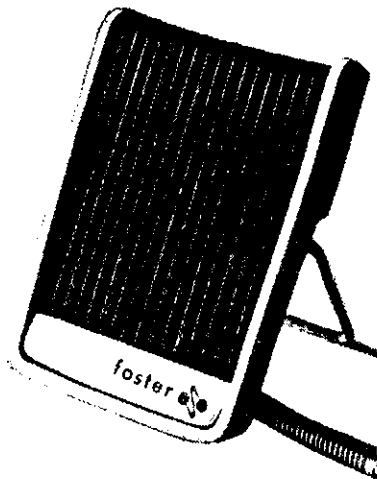
This A.R.R.L. publication has been the standard manual for Amateur Radio communication, construction and design for many years.

However, for the past few years each annual issue has been little different from its predecessor. This 1966 edition is the exception. It is sufficiently different in all departments to warrant purchasing, particularly if your present copy is a few years old. The quality of the paper and drawings has been improved, and quite a number of new constructional articles have been included.

Once again transistors have not been given the coverage that one might expect, but this position improves year by year. Likewise, s.s.b. does not receive very much attention but, of course, the A.R.R.L. Single Sideband for the Radio Amateur completely covers this subject. This 1966 edition contains 704 pages with over 1300 illustrations, including some 500 tube base diagrams.

Publisher, The American Radio Relay League; Australian price, \$6.10 posted.

Our copies from McGill's Authorised Newsagency, 183-185 Elizabeth Street, Melbourne, and Technical Book and Magazine Co. Pty. Ltd., 289-299 Swanston Street, Melbourne, C.I.



DF-2

## FOSTER DYNAMIC MICROPHONES

### FOR HAND-DESK USE

#### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
Effective output level ..... -55 db. [0 db. - (one) 1V. Microbar]  
Frequency response ..... 200 to 10,000 c.p.s.

#### OMNI-DIRECTIONAL DYNAMIC:

SIZE: 3" x 2-1/8" x 1".  
Cable: 12 ft. of P.V.C.  
Switch: on-off.  
Desk Stand. Clip folds for hand use.  
Colour: WHITE.  
Plastic Diaphragm.

Retail Price  
50K ohms  
**£2/14/0**  
+ Sales Tax 4/9

A QUALITY PRODUCT OF EXCELLENT DESIGN

Marketed by

## ZEPHYR PRODUCTS PTY. LTD.

70 BATESFORD STREET, CHADSTONE, S.E.10, VIC.

Manufacturers of Radio and Electrical Equipment and Components

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.

# PROJECT AUSTRALIS

As work progresses towards the launching of Australis I, the time has arrived to begin one of the biggest tasks connected with the project—the organisation of ground-based tracking and command stations, world-wide news broadcasts, orbital predictions and the passing on of information to all participating organisations. Newsletters will be prepared once a month, and, as the launch date approaches, their distribution will include all the Project Oscar national co-ordinators in all countries interested in Amateur Radio satellites.

While we will attempt to cover all aspects of the Australis I project in these newsletters, we are only human, and we have only a small administrative staff working on the project. Therefore, any comments or criticisms of these newsletters would be appreciated.

## PROGRESS REPORT

The Australis I satellite project is going ahead extremely well. As you have probably seen in the press, successful balloon flights of the 2 metre telemetry (1st May) and the 10 metre beacon (15th May) were recently conducted. These two flights proved the soundness of the Australis system. It is now hoped that the flight model Australis I will be completed by about August. After this, testing of the satellite will be carried out at Salisbury, South Australia, before its shipment to the U.S. for launching.

Most of the parts for the satellite have already been donated by several leading electronics firms. The excellent job done by all states in publicising the project undoubtedly helped a great deal in persuading these firms to "come to the party."

## TECHNICAL DETAILS

The technical details of Australis I have now been finalised, apart from one or two minor points. Here, briefly, is a functional description of the satellite:

**H.F. Beacon:** The h.f. beacon will radiate a c.w. signal on 29,450 Mc., at 250 mW. output. Every 80 seconds the letters VK will be transmitted for 10 seconds, in c.w. Each VK will take 1 second, with a 1-second break between VK's, so that 5 VK's will be sent during the 10-second period. At the end of each 10-second VK transmission, the h.f. beacon will revert to c.w. operation for the next 70 seconds, after which the 10-second VK sequence will be repeated, and so on. Because of the heavy battery drain imposed by the h.f. beacon, it will have to be commanded on and off the ground—it will not be able to run continuously. It is hoped that it will be on for about five out of every 15 orbits that the satellite completes every day. The command programming schedule will be posted to all co-ordinators before the launch.

**V.H.F. Telemetry:** The v.h.f. transmitter will operate on 144.050 Mc. and will be modulated by an 8-channel audio tone telemetry system. The eight

telemetry channels will comprise two temperature sensors, a battery voltage and a battery current sensor, two horizon sensors, a magnetic coil attitude sensor and the VK keyer. Each sensor will be sampled for 10 seconds. At the end of each 70-second telemetry read-out, the VK keyer will operate for 10 seconds at the rate of 1 VK each second, with a 1-second pause between each VK. The system will operate in sequence with the h.f. beacon, so that the VK's will appear on the v.h.f. telemetry at the same time as they appear on the h.f. beacon. The v.h.f. telemetry will be transmitted continuously, from launch until the battery is exhausted, approximately two to three months after launch.

**Command System:** The command receiver and command decoder will operate continuously, from launch until the satellite's batteries are exhausted. The command receiver will also operate on the 2 metre band. The function of the command system is to allow the h.f. beacon to be switched on and off, so that Amateurs around the world can be given an opportunity to monitor the beacon and, it is hoped, use it as an aid in predicting 10 metre band openings. Unless this beacon is commanded off when necessary, the satellite's batteries will be exhausted within a few weeks.

**Other Details:** Australis I will be an aluminium box-shaped satellite, measuring 17.5 by 12 by 6.5 inches. Four  $\frac{1}{4}$  wave dipole antennae will serve the telemetry transmitter and the command receiver. A loaded dipole will be used for the 10 metre beacon. The satellite's battery will have a capacity of 1.15 kilowatt-hours and will weigh 21 lb. The total weight of the satellite will be 35 lb. A paint pattern on the outside surface of Australis I will be designed to keep the internal temperature of the satellite at approximately 20 degrees C. No solar cells will be carried on Australis I, because of their very high cost at the present time, and their unavailability in Australia. Because this first satellite is an engineering test vehicle, the lack of solar power is of little importance, as all the necessary data on the performance of the satellite can be obtained during the two to three month lifetime of its chemical batteries.

Australis I will carry a pair of small bar magnets, in an attempt to align one axis of the satellite along the Earth's magnetic lines of force. If this can be achieved it will reduce the fading of signals from the satellite, caused by random tumbling as it orbits the Earth. Data on the performance of this system will be transmitted via the v.h.f. telemetry system.

Australis I will be launched from the Western Test Range, California, into a near-circular orbit, about 500 miles above the Earth. Each orbit will take about 1 hour 42 minutes and the orbit will take the satellite between 70 deg. north latitude and 70 deg. south latitude. In this orbit it will cover most of the populated areas of the world at least once a day.

## GROUND SUPPORT PLANS

You will appreciate that any satellite launched into orbit is useless unless there is an effective ground support system to track, command and gather data from it. Project Australis is anxious that the State Oscar co-ordinators should begin thinking about tracking the command stations in their states; we are working on the philosophy that there should be at least two primary stations in each state that will be able to receive the v.h.f. telemetry data from the satellite, monitor the h.f. beacon performance and, when necessary, send commands to the satellite to switch the h.f. beacon on and off.

Orbital computations for Australis I will be produced by Project Australis, using the University's IBM 7044 computer to process tracking data supplied by Amateur stations in VK and around the world. This orbital data will be broadcast daily and mailed weekly to all state and national co-ordinators. It is expected that the broadcasts will begin about a month before the launch. They will be on 30, 40 and 20 metres and will probably originate in VK3, although DX-ers in other states may be interested in helping with the transmission of the broadcasts.

★

## Trade Review

### TOROID BALUNS

"A. & R. Transformers" are now producing a range of "Baluns" suitable for use with transmitting and receiving antenna systems including mobile whips.

There are seven types, all epoxy resin encapsulated and suitable for outdoor use.

Types are available for most of the usual impedances with either S0239 or L604/S type sockets.

Frequency range is 3 to 30 Mcs. and power rating 200 w. or 400 w. p.e.p.

We received two of these transformers types 350A and 355C for inspection and test, and while there were not enough antennae to fully test the samples on the air, the 350A type was tried using co-ax. to feed a 7 Mcs. and 28 Mcs. dipoles, and in both cases no difficulty was experienced in loading the transmitter into each antenna with low s.w.r.

The 355C transformer was then tried using two mobile whips resonant at 7 Mcs. and 3.5 Mcs., and when thinking back to when these whips were originally made, and matched to the feed co-ax., then considering the ease with which this unit did the job, the only wish was that they had come along sooner.

From the results obtained from these two units they could be recommended for use in antenna matching and feeding within their specifications.

For further details see "A. & R. Transformers" advertisement in the May issue.

# LOW DRIFT CRYSTALS

FOR  
**AMATEUR  
BANDS**

ACCURACY 0.01% OF  
STATED FREQUENCY

**3.5 and 7 Mc.**  
Unmounted, £2/10/0  
Mounted, £3/0/0

**12.5 and 14 Mc.**  
Fundamental Crystals,  
"Low Drift"  
Mounted only, £5.

THESE PRICES DO NOT  
INCLUDE SALES TAX

Spot Frequency Crystals  
Prices on Application.

Regrinds ..... £1/10/0

## MAXWELL HOWDEN

15 CLAREMONT CRES.,  
CANTERBURY, E.7,  
VICTORIA

### VK2 DIVISION

Our thanks to everybody who inquired about a copy of the catalogue. These are still available if you have not sent for one yet. A new series in the catalogue will be produced towards the end of this year.

Our special for this month is 2 metre beams. A pair (2) of four-element yagi's cut for the 2 metre band. They are the last of a special order made for the W.I.A. by a local t.v. antenna firm. Same construction as t.v. aerials, they can be folded up which makes them ideal for portable use. They were \$8 each but to clear they have been reduced to **\$10 a pair f.o.r. Sydney**. Approx. weight 10 lb. packed in carton. Offer will not be repeated so do not delay.

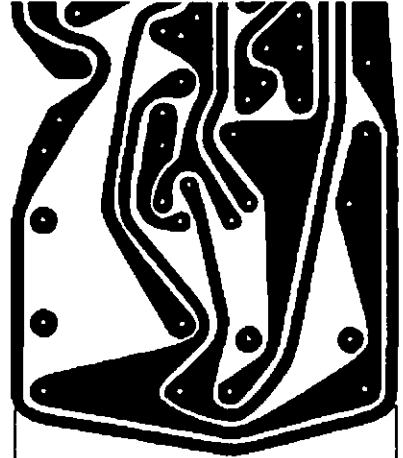
Twenty sets only to clear at \$10 a pair (f.o.r. Sydney). Inquiries to: Radio Equipment Store, Wireless Institute Centre, Crows Nest, N.S.W.

\* \* \*

The VK2 Division has conducted a correspondence course for the A.O.C.P. exam. for many years. If you are unable to attend a local club for classes may we suggest that you enrol with us. There are 50 lessons in the course and there are questions at the end of each paper. The total cost is \$36 or in three stages at \$14 each. Attention club committees, if you conduct your own classes you may purchase sets of lecture notes. All inquiries should be directed to the Course Supervisor, Wireless Institute Centre, Crows Nest, N.S.W.

### TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R." in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.



### NOW... PRINTED CIRCUITS TO YOUR OWN DESIGN!

Do you design your own circuits? All the advantages of printed circuits can be yours at modest cost. For many years Precision Windings have supplied printed circuits to Australian industry... and now streamlining of production techniques permits the economical manufacture of small quantities... even single circuit boards. You design and supply the artwork... we do the rest. Precision workmanship is guaranteed and delivery made within 7 days.

**FREE!!** As many enthusiasts will not be familiar with the preparation of "artwork", send a stamped, addressed envelope to us and we will forward a set of notes written to simplify preparation of "artwork". Instructions are clear and concise.

#### POST THIS COUPON NOW!

Please manufacture for me the printed circuits specified herewith in accordance with the artwork supplied.

Number required..... Scale of artwork.....

Size.....	Area.....	D/N.....	
Phenolic paper circuits @ 5c per sq. in.			\$
Epoxy paper circuits @ 8c per sq. in.			\$
Epoxy glass circuits @ 10c per sq. in.			\$
Holes drilled @ 5 for 1c (2c ea.)			\$
Cost of photonegative (fixed cost)			\$3.00
Sales Tax (12% or 25%)			\$
Packing and registered postage			\$0.50
Total \$			

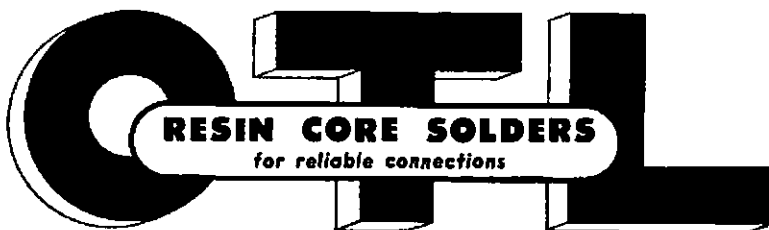
Please find cheque/money order/postal notes for total of \$.....c..... (All cheques and money orders should be made payable to Precision Windings.)

NAME..... (BLOCK LETTERS)

ADDRESS.....

STATE..... OCCUPATION.....

**CHOOSE THE BEST.—IT COSTS NO MORE**



O. T. LEMPRIERE & CO. LIMITED. Head Office: 27-41 Bowden Street, Alexandria, N.S.W.  
and at Melbourne • Brisbane • Adelaide • Perth



52 CAMBRO RD., CLAYTON, VIC.  
Phone 544-7370

# VK-ZL-OCEANIA DX CONTEST, 1966

N.Z.A.R.T. and W.I.A., the National Amateur Radio Associations in New Zealand and Australia, invite world-wide participation in this year's VK/ZL/Oceania DX Contest.

**Objects:** For the world to contact VK/ZL/Oceania Stations and vice versa. **Note:** VK and ZL stations, irrespective of their location do not contact each other for contest purposes.

**When? Phone:** 24 hours from 1000 G.M.T. Saturday, 1st October, to 1000 G.M.T. Sunday, 2nd October.

**C.w.:** 24 hours from 1000 G.M.T. Saturday, 8th October, to 1000 G.M.T. Sunday, 9th October.

## RULES

1. There shall be three main sections to the contest—

- (a) Transmitting Phone.
- (b) Transmitting C.w.
- (c) Receiving—Phone and C.w. combined.

2. The contest is open to all licensed Amateur transmitting stations in any part of the world. No prior entry need be made, Mobile Marine or other non-land-based stations are not permitted to enter.

3. All Amateur frequency bands may be used but no cross-band operation is permitted.

4. Phone will be used during the first week end and c.w. during the second week end. Stations entering both sections must submit separate logs.

5. Only one contact on c.w. and one contact on Phone per band is permitted with any one station for scoring purposes.

6. Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a competitor and must submit a separate log under his own call sign. (This is not applicable to overseas competitors.)

7. Entrants must operate within the terms of their licences.

8. **Cyphers:** Before points can be claimed for a contact, serial numbers must be exchanged and **acknowledged**. The serial number of five or six figures will be made up of the RS (telephony) or RST (c.w.) report plus three figures which may begin with any number between 001 and 100 for the first contact and which will increase in value by one for each successive contact. E.g. If the number chosen for the first contact is 021, then the second must be 022 followed by 023, 024, etc. After reaching 999, start again from 001.

9. **Scoring:** (a) **For Oceania Stations other than VK/ZL:** 2 points for each contact on a specific band with VK/ZL stations; 1 point for each contact on a specific band with the rest of the world.

(b) **For the rest of the world other than VK/ZL:** 2 points for each contact on a specified band with VK/ZL

stations; 1 point for each contact on a specific band with Oceania stations other than VK/ZL.

(c) **For VK/ZL stations:** 5 points for each contact on a specific band and in addition, for each new country worked on that band, **bonus** points on the following scale will be added:—

1st contact—50 points.
2nd " —40 "
3rd " —30 "
4th " —20 "
5th " —10 "

For this purpose the A.R.R.L. countries list will be used with the exception that each call area of W/K, JA, SM, UA will count as "countries" for scoring purposes as indicated above.

## 10. Logs: (A) Overseas Stations:

(a) Logs to show in this order—date, time in G.M.T., call sign of station contacted, band, serial number sent, serial number received, points, **underline** each new VK/ZL call area contacted. Separate log for each band.

(b) **Summary Sheet** to show call sign, name and address (**block letters**), details of station, and, for each band, QSO points for that band, VK/ZL call areas worked on that band. "All-band" score will be total QSO points multiplied by sum of VK/ZL call area on all bands while "single band" scores will be that band QSO points multiplied by VK/ZL call area worked on that band.

## (B) VK/ZL Stations.

(a) Logs must show in this order—date, time in G.M.T., call sign of station worked, band, serial number sent, serial number received, contact points, bonus points. Use a **separate log for each band**.

(b) **Summary** to show—name and address in **block letters**, call sign, score for each band by adding contact and bonus points for that band, and "all band" score by adding the band scores together, details of station and power, declaration that all rules and regulations have been observed.

11. The right is reserved to disqualify any entrant, who, during the contest has not strictly observed regulations or who has consistently departed from the accepted code of operating ethics.

12. The ruling of N.Z.A.R.T. Executive Council will be final.

13. **Awards. VK/ZL Stations:** N.Z.A.R.T. will award certificates to the top scorer on each band and the top scorer in each VK/ZL district and silver-mounted plaques to the top ZL scorers in both the phone and the c.w. sections.

**Overseas Stations:** Certificates will be awarded to each country (call area in W/K, JA, SM, UA) on the following basis:—

1. Top scorer using "all bands."
2. Top scorer on individual bands.
3. Other certificates may be awarded to be determined by conditions and activity.

14. Entries from **VK/ZL Stations** should be posted direct to N.Z.A.R.T. Contest Manager, 152 Lytton Road, Gisborne, New Zealand, to arrive not later than 31st December, 1966.

Entries from **Overseas Stations** should be posted to N.Z.A.R.T., Box 489, Wellington, New Zealand, to arrive not later than 21st January, 1967.

## S.W.L. SECTION

1. The rules are the same as for the transmitting section but it is open to all members of any S.w.l. Society in the world. No transmitting station is permitted to enter this section.

2. The contest times and logging of stations on each band per week end are as for the transmitting section except that the same station may be logged twice on any one band—**once on phone and once on c.w.**

3. To count for points logs will take the same form as for transmitting—as follows—date, time in G.M.T., call of the station heard, call of the station he is working, RS (T) of the station heard, serial number sent by the station heard, band, points claimed. Scoring is on the same basis as for transmitting section and the summary should be similarly set out.

4. Overseas Stations may log **only** VK/ZL stations but VK receiving stations may log overseas stations and ZL stations while ZL receiving stations may log overseas stations and VK stations.

5. Certificates will be awarded to the top scorer in each overseas scoring area and in each VK/ZL call area.

☆

## R.D. CONTEST RULES

Readers are asked to note that the Rules for the R.D. Contest published last month are almost identical to those for the 1965 Contest. Federal Convention ruled that the rules be changed, but this was not possible in the time available between the end of Convention and the publication deadline.

Anyone with thoughts on how limited licensees should participate in this most popular Australian Contest are asked to communicate with the Federal Contest Manager, 55 Moulden Ave., Mt. Yokine, W. Aust.

## ADDITIONAL NATIONAL FIELD DAY RESULT

VK3LC:—Sect. D, 24 hr., 4 operators, comm. equip., 170 contacts, 1505 points.

Phone 34-6539, write or call  
**WILLIAM WILLIS & Co. Pty. Ltd.**  
428 Elizabeth St., Melbourne  
for **GELOSO**  
Equipment and Components

# NUVISTOR CONVERTERS

(Continued from Page 7)

tical method of getting good sensitivity, better image rejection, and complete coverage from 220 to 225 Mc.

## 432 Mc. CONVERTER

This converter has about as few tubes as can be used for 432 Mc. converter service with crystal control unless one goes to transistors. The converter was built on a 2 x 6 inch copper-clad board with three nuvistor tubes and a diode frequency multiplier. The noise figure seemed to run about 6 db. which could be reduced to about 5 db. by using a nuvistor preamplifier on a separate copper-clad board.

The r.f. stage in Fig. 5 is a grounded grid type in which an attempt was made to reduce regeneration by a small feedback capacitor from plate circuit to cathode. The small trimmer from antenna jack to ground seemed to solve the problem quite effectively and permitted the use of a 432 Mc. paramp ahead of this converter. No regeneration problem was noted when the converter was loaded by a 50 ohm antenna system instead of the paramp.

For best noise figure, the 50 ohm antenna impedance should be stepped up to over 100 ohms for connection to the cathode of a grounded grid 6CW4 tube. This is accomplished by means of a pi circuit consisting of the antenna vari-

able capacitor, the  $1\frac{1}{2}$  x  $\frac{1}{2}$  inch copper strap and the input capacitance of the tube.

The r.f. stage plate circuit consists of a three-turn coil about  $\frac{1}{2}$  inch long and  $\frac{3}{8}$  inch diameter made of some more  $\frac{1}{8}$  inch wide copper strap. The circuit was capacity coupled to a pi circuit into the mixer grid. Another pi circuit tuned to 418 Mc. was inductively coupled to the grid pi circuit by spacing it about  $\frac{1}{4}$  to  $\frac{1}{2}$  inch.

The mixer plate circuit was a parallel tuned circuit peaked at 14 Mc. since all stations in this operate close to 432.0 Mc. If wide band coverage is desired, a low Q pi system similar to that shown in Fig. 4 or Fig. 2 should be used. The parallel tuned circuit is only good for about a 1 Mc. passband at 14 Mc.

The crystal oscillator is similar to that of Fig. 2 with a cathode circuit resonating between the fundamental and third overtone of a 46.44 Mc. crystal. It was also found that a seventh overtone crystal marked 139 $\frac{1}{2}$  Mc. oscillated quite well in this circuit. The 139 $\frac{1}{2}$  Mc. plate circuit drives a 1N82A tripler to provide output on 418 Mc. The diode tap on the 418 Mc. line and coupling to the mixer grid line have to be experimentally set for best weak signal response at 432 Mc. A signal generator or a noise generator can be used in these tests.

In all of these converters, power connections were made to 0.001 mf. feed-through capacitors in order to prevent stray signal pick-up. Double

shielded small co-axial lines should be used between the converters and the communications receiver, so strong signals in the 14 to 18 Mc. region will not be troublesome.

## Publications Committee Reports That . . .

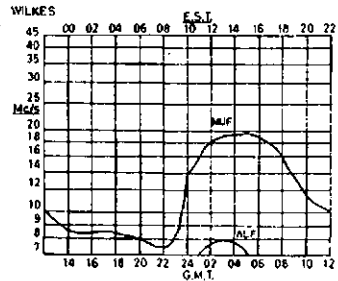
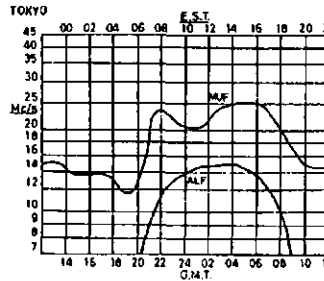
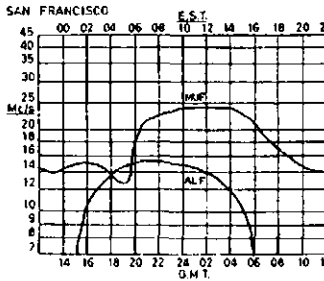
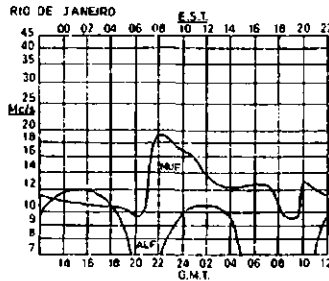
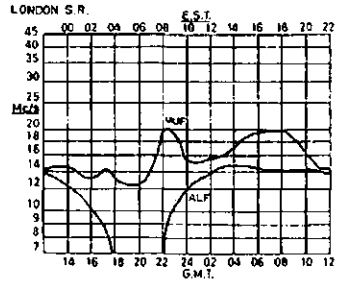
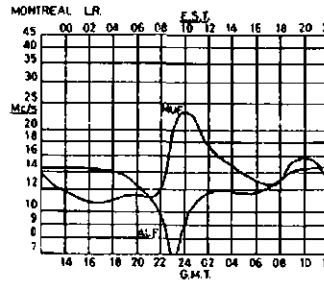
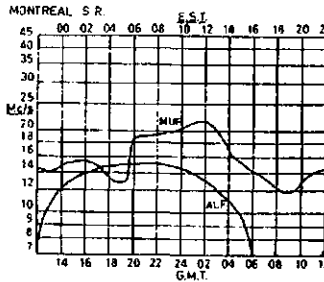
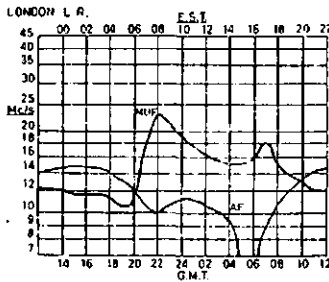
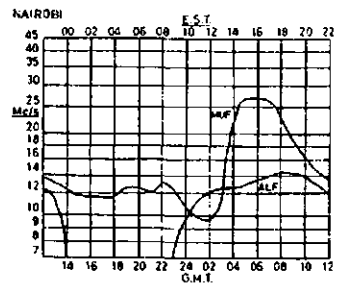
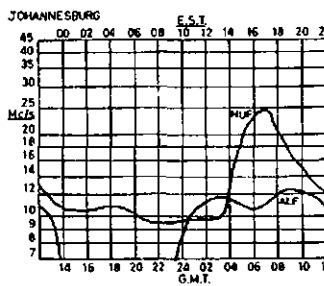
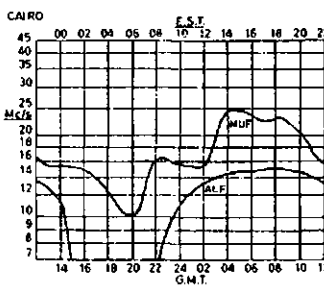
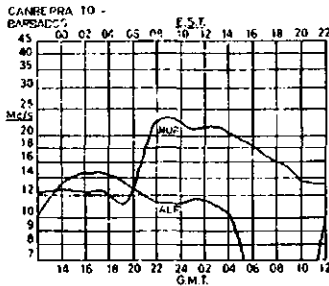
At the June meeting the committee considered correspondence from: VKs 2ADA, 2APS, 2ZTM, 2ZVC, 3UG, 3AHT, 3ACS, 6AG, 6DA, 6SI. Technical articles were received from VKs 2SA (2), 3XY, 3ZRY, 4AT and W2WLR. A number of these letters were in response to our request for comments on the Prediction Charts, and steps are being taken to comply with the suggestions received.

The Circulation Manager reported that mass deletions have been received from VK2, VK3 and VK4 who have deleted all non-financial members in their mailing lists. These deletions will take effect with the August issue of "A.R." The committee decided that only sufficient copies of August "A.R." to meet orders will be printed, hence there will be no copies available for anybody who misses out through non-payment of subs.

Further consideration was given to the Call Book, and size and format agreed upon. A date for publication has been tentatively set subject to arranging with the printer a date by which copy will be required. When this aspect is finalised all Divisional Secretaries will be advised by mail, with a request to send us firm orders.

Some notes have not arrived at the copy date and have therefore been omitted. All contributors are reminded that copy date as from now is the 5th of the month, notes arriving after the 5th will be either held for the following month or omitted as the contributor wishes, provided we are advised in time what action is desired.

## PREDICTION CHARTS FOR JULY 1966



(Prediction Charts by courtesy of Ionospheric Prediction Service)

# DX

Sub-Editor: ALAN SHAWSMITH, VKASS  
35 Whynot St., West End, Brisbane, Qld.

Reports of opening and DX worked are down somewhat this month. The winter hibernation perhaps when a warm bed is more desirable than the sometimes chilly shack, especially if the bands appear quiet. However, some good prefixes can be landed on both 7 and 14 Mcs.

## NOTES AND NEWS

**Heard Is.** More than one rumour is to hand re activity from this wind-torn and surf-buffed spot. It is said that Don W9WNV might try and take the ship leaving Malagasy Rep around 15th June and which should arrive at Heard about July. (Unofficial.)

**Japan.** Report to hand states that Japan will issue new prefixes commencing sometime July. JH1AAA through JH1XZZ for individual calls. JH1YAA to JH1ZZZ for club stations.

**Andaman Is.** VU2DIA is said to QRV on 14,180 around 0130z. Length of stay not known.

**Vietnam:** K1YPE/XV5 is sometimes heard on 14 c.w. and a.m. near low end of phone band. Try listening after 0700z. Also around 2230z.

**Tristan Da Cunha:** Expected to be s.s.b. activity from here by the time this reaches you.

**Rookall:** Several attempts have been made to put out a good burst of activity from this difficult spot. Latest information has it that a group of R.A.F. ops. intend to do a one-day stint here in July. Lloyd and Iris, W6KG and WB6QEP respectively hope to go along also.

**CR7GF** Jose expects to be on Comoro and later Aldabra July onwards. QSLs for FH8 go to WGLDA and the VQ9 stint if it comes off will go via YV5 bureau.

**Ethiopia:** ET3AC now on 14 s.s.b. Says QSLs for all QSOs after May 8 go via W4NJP.

**Senegal:** 6W8DD regularly on 14,050 at 2200z and 6W8DG is also expected to open up around the same frequency very soon.

**Tchad:** TT8AB, 21,280 at 1900z. On quite often.

**Montserrat:** VP2MW will be active for some considerable time. Mode 14 s.s.b.

**Afghanistan:** YA1KC, 14,215 s.s.b. YA1AW, 14,230 daily, 0130-0400z.

**Trinidad:** 8Y4VT on daily 14,230 around 2300z. QSL Box 149, San Fernando.

**Macao:** CR9AH operates now on 14,196. QSL WZAS.

**Trucial Oman:** MP4TBO and TBV on daily, 14,196 at 2230. QSL to VE1AKZ.

**Zanzibar:** ZS8L operates 14,105 at 1800z. QSL Box 194, Maseru.

**Rhodes:** SV0WU very active as of now, 14 s.s.b. 1300z.

**Volcano Is.:** KG6IC active, s.s.b., 14,250 1200z. Boss Is.: KC4USX, 14,315, 0700z. Will be active till October. QSL K1NAP.

**Seychelles:** VQ9BC on now 14 s.s.b./c.w. QSL Box 110, Mahe.

**Aleutian Is.:** WA2WVV/KL7, WA6YWT/KL7 are now active from Shenyra AFB.

**South Orkneys:** LU1ZG on often 21,251 c.w. at 1700z.

**Ivory Coast:** TU2AN, 21,275, 1900z.

**Jan Mayen:** LA5CI and several others active. Try 14,250 s.s.b. 2030z.

**Albania:** Did you work ZA2AA? Sorry, reported as a pirate.

**Tunisia:** F7EU is trying to obtain a licence to operate from here. June/July.

**Rio De Oro:** Plans to make it from here have gone astray. Trip now cancelled.

**Nigeria:** News item to hand says that 5N2 operation has been under suspension since beginning of year. Reason given, reassignment of calls in alphabetical order. (Unofficial.) Activity expected to recommence any time now.

**Formosa:** BV1USA and BV1USF both QRV 14 s.s.b. from 1300z regularly.

**Kuria Muria:** Ray VS9ARV is expected to activate this one in early August. Call will be VS9HRV. Don't miss it. All bands and modes.

**French Somali:** Smitty 601AU plans to sign FL8AU June into July. No information on duration of this one. Bands 7 and 14 s.s.b./c.w.

**Bahrain:** MP4BBA. Club stn. 21 a.m. most days.

**Br. Honduras:** VPIHB s.s.b. low end. VP1LP 21 c.w. On regularly.

**Guernsey Is.:** Dick GC8HT, who will operate until end of this year 1966, sends in a long and complex list of his daily schedules and band operating times. Far too complicated to list fully here. However, on a daily basis he indicates he will operate in the following manner: Sunday: 14,133, 14,242, 14,00z. Monday: 14,133, 14,242, 0900z. Tuesday: 14,133, 14,242, 1915z. Wednesday: 21,013, 21,333, 28,013, 28,533, 0900 and 1400z. Thursday: His day of rest. Friday: 3513, 3773, 7013, 14,013, 14,113, 1400z. Saturday: 3513, 3773, 7013, 7033, 0630z. Equipment is NCX5 Barefoot, 150 w. c.w. 200 p.e.p. Antennae V's and a Rhombic to the west. Just keep listening on the frequencies given on the stated days and you must run across him. If this doesn't suit you send him an airogram and he will come up on special sked for you. QTH La Cour de Longue, St. Saviour's, Guernsey, C.I. (via U.K.).

If you want an air mail reply to your QSL or letter add 3IRC.

(By courtesy VK3ARX. Thanks Rick O.M.)

**Stop Press:** DXpedition by CR7GF to Comoro and Aldabra has been brought forward by 3 weeks if all goes according to plan.

## ACTIVITIES

Chas. VK4UC reports conditions being quiet but works the following 20 c.w.: KE1OE 0430, OK1NE, OK2QR 0500z, OH6WW, OH2R 2200z, DM2CEL 0700, F8IH 0730, YE1CE 6000z, H18XAL 0615z, VK6DR 1040z, PA0LEN 0600z, etc. QSLs received: UM8AP, KX6SX, 9M8RS, VK6DR, KG4AA, VR1Z, VK0MI, CR9AH, GW3AQV, CE4AD, IICZE, ZC4CI, etc.

Chas. says that YS1IGM and CT1DJ are both very active daily 20 s.s.b. 0630z.

## QTHs

808BW via W4HKJ, 5U7AH via K9EAB, 6O1ND via WIW1Q, 531L via W2CTN 5B4TC via W2CTN, 4X0TF via VE3ACD, VQ9HD via G3PEK, 3L4A via ZL3IA, 3V8CA via W8UTQ, 457GE via G3JTG, YJ1JG via K7GGN, XZ2TZ via W4ECI, OH0VF via OH5VD, SUIAQ via 5Z4IV.

## SUMMARY

Don VK3ZIE, who is ex-VK0DS Wilkes and Mawson 1962-1965, writes to say that he has now QSL'd 100% of his 800 odd Antarctic QSOs to the various bureaux. Please check with your local bureau manager before writing Don. He thanks all those who have QSL'd promptly.

Don also raises the matter of piracy of his call. Immediately after he was QRT in Mawson he heard someone using VK0DS and has received QSLs for QSOs he did not make. (The price of status call O.M., even I rate from time to time.) So if your log shows you worked Don on Mawson 1964 and no QSL is forthcoming, draw your own conclusions. QTH for further information is 49 Cookson Street, Camberwell, E.6, Victoria.

Mention has often been made of the fast changing aspects in "A.R." However, besides those of the abstract, electronic sophistication has re-moulded drastically the physical proportions of our equipment.

Back in the days when many of the present O.T.'s began, the efficiency and know-how being what it was, it needed a rack and panel (or maybe two of) weighing about a quarter of a ton to put out 50 watts (the then licensed maximum) on one or two bands. Now nearly eight times as much power can be produced from a lightweight unit about the size of two boot boxes. However, on entering the modern shack one is struck with what might be termed, the sense of the absurd. In previous days the Ham looked as though he was controlling something, but now as one delightfully ignorant s.w.l. said on a recent shack visit, in which an oversized O.M. was hypnotically drooling over an undersized box. "Is that all there is to it?"

## OCEANIA NEWS

DX items from this area are always in demand. Any unusual call is avidly sought after and I must contribute my share on an exchange basis. So please fellows any rumour, snippet, item or fact on doings in this area let's have it. If this typing is irregular it's because I'm down on my knees pleading.

My sincere thanks to LIDKA, FLA, DX'er, "AIR WAVES," OH2YV, VK4UC, VK3ARX and s.w.l. C. Thorpe for items and bulletins received.

73, DX, Good listening. Al VK4SS.

## AMATEUR FREQUENCIES:

USE THEM OR LOSE THEM!

## CONTEST CALENDAR

2nd/4th July: Venezuelan Independence Contest (Phone only).

9th/10th July: R.S.G.B. 1.8 Mc. "Summer" Contest.

13th/14th August: Remembrance Day Contest.

10th/11th September: W.A.E. Contest (Phone).

1st/2nd October: VK/ZL/Oceania DX Contest (Phone).

8th/9th October: VK/ZL/Oceania DX Contest (c.w.).

15th/16th October: R.S.G.B. 21/28 Mc. Telephony Contest.

29th/30th October: R.S.G.B. 7 Mc. DX Contest (Phone).

12th/13th November: 7 Mc. DX Contest (c.w.).

10th Dec., 1966, to 15th Jan., 1967: Ross A. Hull Memorial Trophy V.H.F. Contest.

11th/12th Feb., 1967: John Moyle Memorial National Field Day Contest.

## W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

### PHONE

Call No.	Cer. No. rics	Call No.	Cer. No. rics
VK5MS	24 330	VK4HR	12 265
VK3AHO	51 323	VK2JZ	61 263
VK8RU	2 313	VK2ADE	85 239
VK5AB	45 312	VK3TL	62 237
VK6MK	43 310	VK2AAK	58 219
VK4FJ	21 292	VK6KW	4 211

### C.W.

Call No.	Cer. No. rics	Call No.	Cer. No. rics
VK3KB	10 340	VK3NC	19 286
VK3CX	26 313	VK3AHQ	79 281
VK2ADE	81 313	VK2EO	2 279
VK2QJ	5 308	VK3ARX	66 271
VK4FJ	29 308	VK8RU	18 265
VK2ADE	81 308	VK4HR	8 262

### Amendments:

VK3RJ	42 240	VK4UC	84 106
-------	--------	-------	--------

### OPEN

Call No.	Cer. No. rics	Call No.	Cer. No. rics
VK2ADE	28 331	VK4HR	7 294
VK2AGH	83 323	VK2VN	18 290
VK6RU	8 320	VK3NC	77 287
VK4FJ	32 315	VK3ARX	102 280
VK6MK	74 309	VK3JA	43 271
VK2ACX	8 300	VK3TL	85 257

New Member:  
VK4PX 101 119

## NEW! LOW PRICED S.S.B. TRANSMITTER FL-50

Five bands, 50w. p.e.p. s.s.b., c.w., a.m.; 6JS6A p.a., 5 Mc. crystal filter, c.c. (v.x.o.) or ext. v.f.o., a.l.c., p.t.t., bk-in c.w. Built-in 117/234v. a.c. pwr. supply, ant. relay, pi output with variable ant. loading. Superb performance, appearance and construction. All tubes and diodes available in Australia. Use as a complete transmitter, or as exciter for linear or v.h.f. converter.

Price: FL-50 £125 (\$250)

Matching FV-50 V.F.O.

Price: £32 (\$64)

If purchased together,

only £149 (\$298)

Sales Tax inc., Freight extra.

Australian Agents:

Bail Electronic Services

60 Shannon St., Box Hill N., Vic.

Phone 89-2213

For N.S.W. Sales and Service:

Mosman Television Services

11 Ruby Street, Mosman

Phone 96-5342





# VHF

Sub-Editor: CYRIL MAUDE, VK3ZCK  
2 Clarendon St., Avondale Heights, W.2, Vic.

Well, news time has come around again and I would like to thank all those who sent in their notes early and special thanks to Colin VK5ZJH for his neatly printed notes. Activities on the bands have been varied with openings on 2 metres and a new 432 Mc. record.  
73, Cyril 3ZCK.

## VICTORIA

Activity on both 6 and 2 metres has been poor except for Sunday, 29th May, when 2 metres had a five-hour opening to Adelaide and S.A. in general, at the same time some were trying 432 Mc. Ian VK3ALZ and Mick VK5ZDR made two-way contact on 432 Mc., 5 x 7 for what could be a new record for VK, a distance of some 480 miles. Among stations heard were 5RO, 5ZDR, 5BC, 5ZMJ, 5KM and 5ZC. Bill 5ZBZ claims that he also heard 5ZDR and 3NN. John 5ZDM states that he has heard and worked many VK5 over the past month on 2 metres and the following Melbourne stations on 432 Mc. 3ALZ, 3AUX, 3ZRG, 3ZBZ and 3ZSJ. John 5HP ex-5ZHL and Col 5ZKR have equipment in operating condition for 432 Mc. John continues, all this goes to prove that good conditions do favour us in the winter month and the active stations are justly rewarded.

The VK3 v.h.f. group is planning a convention over the week-end 8th and 9th October, 1966. A committee has been formed and is now making preliminary arrangements. Anyone with suggestions to help this convention to be the best VK3 convention should write to the V.H.F. Convention Secretary, P.O. Box 36, East Melbourne, Victoria. The only other activities in VK3 were the v.h.f. group meeting when Mike 3ZEO gave an excellent talk on the structure of the institute, F.E., F.C. and how they operated. Mike also spoke on some problems the institute has been working on to assist Amateurs.

The other two activities being the scramble on 2 metres held on the second Sunday of each month at 2045 hrs. and the 2 metre Fox Hunt held on the 4th Wednesday of each month at 2000 hrs. 73, Cyril 3ZCK.

## QUEENSLAND

Very little of interest has taken place, apart from the 6 metres Tx hunts. 2 metres is a dead loss for mobiles, even for home stations. With the approach of the winter months the usual decline in activity has taken place. In the past it was thought that during the cold months television was the main attraction, however, from certain observations, it seems clear that this is not the case. Soldering irons are busy in most shacks rebuilding equipment for use in the summer months. There are at least two new 150 w. transmitters nearly ready to be air tested. While on the subject there is a certain speech clipper-filter being used around town which apparently hasn't had a rebuild since it was made ten years ago. While its original bandwidth was 300-3000 cycles, its bandwidth ten years later has changed to 200-500 cycles.

Of some importance is the news that transmitter hunts have again been organised. As 2 metre mobile gear is very rare and as just about everyone has 6 metre mobile gear, 6 metres was the band that was chosen. 2 or 3 element loaded beams or a D.F. loop are used to locate the hidden transmitter. An important departure from the old 2 metre Tx hunt procedure is that the operator of the hidden Tx periodically conducts a "call in" of all cars participating to ensure that no cars go astray.

Some interesting contacts have occurred in the last month. VK4ZTW has been active from Tewantin working into Brisbane on Sunday mornings on 6 metres. George VK4BK ex-VK4ZLG, who works for Radio Station 4BK, is back on the bands after a long absence, working VK4SI and VK4PU in Woombey. ZL1TCK dropped into have a look at the 100 kw. 6 metre Ham station on the hill. Ray VK4ZRM and Lloyd VK4ZLO were both worked on 6 metres from Brisbane while they were enjoying a short holiday on the Gold Coast. Ross VK4ZAT has been active from Brisbane Island on 2 metres. Tom Lane VK4ZAL has not been on 6 metres since TVQ0 began transmission. 73, Peter 5ZFL.

## SOUTH AUSTRALIA

Activity during the last month has not by any means stimulated the writer of these notes to launch into any enthusiastic acclaim on behalf of the VK5 v.h.f. fraternity. Whether new equipment is under construction or just plain laziness has set in, remain an unknown quantity. Nonetheless it is an extremely unsatisfactory situation. Apart from a few members of the "old gang," Bob 5ZDX and Mick 5ZDR, it could be said that 6 and 2 in VK5 is dead. When compared to say two or three seasons ago this can easily be substantiated. How about it fellows, please create some activity so that I can provide an interesting cover of VK5 activity.

However, all is not lost as the t.v. group has really been upholding our reputation. Using initiative and enthusiasm the group recently imported the essential components required to construct a colour television receiver. Naturally the midnight oil has been burnt, so much so, that the receiver was completed, aligned and receiving a simulated colour transmission in the shortest of time. Although the writer has not personally witnessed the results of the group efforts he has been led to believe the receiver is a marvel to behold, not unlike the cockpit of a Boeing 727 jetliner. Regardless of looks the results achieved so far have realised great expectations for the future.

Unfortunately the prospect of a colour transmission on 432 megacycles has been dashed as strict laws governing this type of transmission both commercially and on the Amateur bands have prevented any move in this direction.

Nonetheless, undaunted and showing the true Amateur spirit the group are preparing a

## Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

### TOUR OF AUSTRALIA

Editor "A.R.," Dear Sir,  
During July and August next I expect to be on a tour of a large part of Australia and should be operating portable and mobile s.s.b. in VK3, 5, 8, 4, 2 and back to VK3. The call sign will be VK3UJ with the appropriate suffix and the main operating frequencies will be 3.675, 7.075, 14.125 and 14.210 Mcs. or near each of these.

Times of operation will not be very regular but should be generally around (local times) 8 a.m., 1 p.m. and in the evenings on the most suitable band for the time, conditions, etc.

A rough idea of locations and dates is:  
Melbourne to Port Augusta: July 2, 3, 4.  
Port Augusta to Alice Springs (on train, no operation).  
Alice Springs to Ayre's Rock, etc.: July 6 to 14.  
Alice Springs to Darwin: July 15 to 20.  
Darwin to Townsville and Cairns: July 21 to August 6.  
Cairns to Melbourne: August 7 to August 31.

I hope to have as many contacts as time will permit and a special QSL card is being printed and will be sent to all stations contacted, also s.w.l.'s who may report and request same.

—Andy Roudie, VK4UJ.

### OLDEST ACTIVE HAM?

Editor "A.R.," Dear Sir,  
It has occurred to me that it would be very interesting to know who is the oldest active licensed Amateur transmitter in the world.

In Western Australia we have a candidate for this title in the person of an ex-president and life member of the West Australian Division of the Wireless Institute of Australia, VK6WS, who, on the 18th of July next will be 92 years of age.

William Schofield, of 40 Irvine St., Peppermint Grove, West Australia, VK6WS, was active on the lower frequencies from the early 1930s to 1962, except for the war years, and was well known in most parts of the world as "Skipper."

He became blind and had to cease operating on the lower frequencies but is still operating daily on 52 Mcs., entirely by touch. He is in quite good health and his brain is as active as ever.

I would be very interested to have your views on my suggestion.

—W. E. Coxon VK6AG.

camera to provide a closed circuit colour t.v. system. Although it could well be expected to be impossible for a single person to undertake a similar project successfully, this group has shown how simple a complex undertaking can be sorted out by pulling together and working as a team. Congratulations fellows!  
73, Colin 5ZJH.

## WESTERN AUSTRALIA

Amateurs in W.A. were given good publicity in an edition of the "West Australia" in May when Don VK3HK, Harry VK6HP and Graham VK6ZDB were featured tuning up the equipment to receive "Essa," the American Weather Satellite. They used normal v.h.f. technique but the picturegram unit available used a 1200 cps. motor and as the audio tone from the satellite was 1020 cps some modifications had to be made. The system used was to divide 1020 cps. down to 60 cps. by standard means multiplying to 180 cps. and then mixing to 1200 cps. and amplifying, a total of ten tubes was used. The quality of the pictures was quite acceptable and one was shown over the local t.v. station TVW7. Interest in the receiving method used has been shown by the local weather bureau.

There was a field day on 22nd May and stations heard were 6ZDD on Mt. Solus, 6ZDB on Mt. William and 6LK on Mt. Wells. 6MM was on s.s.b. in the morning and portable on a.m. in the afternoon. Several new stations are rumoured to be building gear and can be expected on in the near future.

Viv 6ZCM had a coronary thrombosis about the middle of May and has a couple of months' sick leave ahead. 6ZAG.

## PROJECT OSCAR

Editor "A.R.," Dear Sir,  
Oscar H.Q. are anxious to know whether there have been any reports of the Oscar IV beacon being heard in VK since 10th April. There have been no reports in VK3 for several months. If anybody has heard the satellite since 10th April, please let me know as soon as possible. I am afraid that we cannot provide any orbital data on Oscar IV—we have had none from Project Oscar for several months. At last report, Oscar IV was still operating erratically, with the beacon cutting into the translator passband every few seconds. Interest in the satellite seems to have died now that there is no apparent hope of the beacon fault correcting itself. However, if any state co-ordinators want orbital data on Oscar IV, please let us know, and we will do our best to get hold of some from Norad.

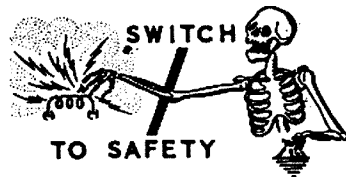
—Richard Tonkin, Chairman, Project Australia's Liaison Committee.

## PIRATING OF VK1 CALL SIGNS

Editor "A.R.," Dear Sir,  
During the last three years a vast number of QSL cards have arrived and are still arriving at the Canberra Radio Society for stations with VK1 call signs which have never been issued by the licensing authority.

A check of the hundreds of cards received shows no less than 90 different illegal call signs have been used. A check of the cards shows that while Pacific area stations have given strong signal reports to some of the illegal transmitters, indicating that they may be operating from Australia, others have received similar S8 or S9 signals from European and U.S.A. stations. The indications are that a VK1 call sign is popular amongst illicit operators around the world.

The actual number of licensed stations in the Australian Capital Territory is currently 61, of which only about a dozen are active on the h.f. bands with any regularity. It can be seen that there are one and a half times more illegal VK1's than legal operators. All stations are urged to treat with caution all contacts with VK1 stations whose calls do not appear in the latest Call Book but allowing for the possibility of newly issued call signs.  
—J. Weatherby, VK1QL, Secretary, Canberra Radio Society.



# ISWL

Sub-Editor: D. GRANTLEY, WIA-L2022  
Alexander Ave., Hazelbrook, N.S.W.

This month we say a temporary farewell to one of our top s.w.l.'s, Peter Drew of VK6, who shortly after you read this will be in the army for a two-year period. His absence will be a great loss to the s.w.l. ranks, for Peter has always been a solid and dedicated listener, and most certainly a brilliant one. He has been a worthy winner of many of our top contests over the past several years and will be missed in this field alone. The good wishes of all the chaps go to you, Peter, and should you return to the s.w.l. field after your discharge, I know that you will be welcomed by not only the VK6 group, but all the others as well.

Occasionally a listener queries a section of the notes as being unnecessary, and this month is no exception. Why print details of QSLs received by listeners? This question has arisen once again and I think requires an answer. For one reason alone we like to let other listeners and Amateurs know who is QSL-ing, and how the cards are being received, this in turn aids others in their pursuit of QSLs. Since I have been writing these notes, at least a dozen chaps, several of them licensed Amateurs have noted where a listener has received a QSL they have been chasing, and by contacting the listener concerned, they have been put on the right track.

**DX NOTES.** KISWT is looking for VK contacts on a.m. or c.w., he is on at about 1200z (presumably 14 Mc.) using 90 watts to a DX60 into a joystick. Anybody with cards for this Amateur may send them via Alan Rafferty, 22 Princess St., Croydon, S.A. VQ5AX, heard at good strength in VK recently, is Paul Caboche, Box 467, Port Louis, Mauritius. LA1LG/P, LA3P/P, LA5ZJ/P, LA6XF/P and LA8FG/P are all Jan Mayen, whilst LA4FG/P is on Svalbard. VS9MP from the Maldives, says QSL via W2CTN. XV5AA's QSL manager is WAUWC. W1A7Z does not reply to QSLs or reports. New QTH for Hammarlund DXpeditions is Box 7389, G.P.O., Newark, N.J. 07107, U.S.A. KS4AB heard on 7 Mc. c.w. is not genuine. Hammarlund should have the logs of ZD8AR and 4W1AA by now. G8KS will QSL all correct reports submitted to him on behalf of stations for which he is manager. Reception of VK1ATU has been reported from G on 7 Mcs. BY3AAB and BY8SC are reported as working G stations.

**NEW AWARDS.** The R-150-C. For verifications from 150 countries of which 15 are countries of the U.S.S.R. These must be for QSOs after June 1, 1956, and all phone or all c.w., not mixed. UNI is counted as UAI. Send a certified list of QSLs (that is a list certified by a radio club or the W.I.A. manager) to Central Radio Club, Box 88, Moscow, U.S.S.R. There is no charge. "Monitor."

**OVERSEAS NEWS.** Recently we published a short article on Roy Waite of U.S.A., and we are pleased to note in the current edition of "Monitor" that he now has reached the 300 countries verified on phone. I.S.W.L. members who hold their full ticket, have a fine reputation for QSL'ing. Here are some call signs whose holders are members. G3USF, G3KUK, VE3BNC, G3TZI, G3TLG, G3SDM, PY2DBU, WB6NTC, WA9INK, MP4TBU, G3QV, GM3UCI, G3UGH, G3TAS, 6Y5BB, 6Y3MJ, 9K2AU, KW6EK, HA5AWM, DL4AN, MP4TBU, LX3QX, IT1AGA and ZD8TV. If you are sending cards to these chaps via the bureau, mark your cards via I.S.W.L., London.

**QUERY CORNER.** Bill Jehn, QTH of OX3JV is via SM7ACB. Ernie Luff would like information on any U.S. s.w.l. awards. Wanted, loan of a copy of either June 1962 or June 1964 "A.R." which contains the article on the "like new" mixer for the AR7 Rx. This is required to modify my own Rx to the circuit supplied by 4UC. Bryan Prosser L6028 is looking for tape pals.

**LISTENING IN VK0.** Recently returned from Macquarie Island is Greg Johnston of VK7. Operating from VKOMI, Greg noted some of the worst dog piles ever when CQ was called on 20 metres. 80 metres is workable each evening when hail and snow is not driving in. VK7 and ZL being the best contacts on this band. Noise at the mainland end tends to make copy difficult on this band. 40 metres is also excellent to the same areas, but as well as this, plenty of really good DX can be worked on c.w. The main DX band, however, is 20 which is really good when open, however, it tends to go out very quickly.

Most operating was done on c.w., with tri-weekly skeds to G land at 0730z, using both modes. Greg says, "open slather down there at week-ends in evening when W's by the thousand fight each other to get in, must be heard to be believed. As the W's fade in and out, the Europeans fade out and in really heard some rare DX down there." Greg is now QSL manager for VKOMI.

**CONTESTS.** Don't forget the R.D. Contest is coming up next. We have had good participation over the last few years, and let this one be even better. It is a good contest, and one which provides plenty of operating practice.

**AROUND THE SHACKS.** L3043 Eric still as busy as ever, has had time to log on 14 Mc. VK9RH, UAZKAW, W9WNV/ZK1S, CO2JB, IT1ZGY, 9M8RS, UM8KAK, UQ2GA, 4X4QA. On 7 Mc. W5SM/MM, W9WNV/ZK1S, WQMY/MM were logged, 3.5 powered UR2KBT and top band was restricted to VKs 3WI, 3GK, 3ACH/P and 3BK. Eric asked me to pass on to you the fact that VK7LY heard most evenings on 3.5 Mc. using both a.m. and c.w., is former VK7ZYL. Andy is one of the former VK7 s.w.l.'s and a very active one at that. Eric's monthly statistics are always interesting and are a good measuring stick for the rest of us. This year to the end of April he has sent out 519 reports, log entries have moved to 301,628, and for this year he has received 205 QSLs from 65 countries in 30 zones. DX score at the moment is 296 heard and 293 confirmed. L6021 Peter Drew has still been on the ball over there in VK6 with some good Europeans being logged on 40 metres c.w. IM4A, 5W1AX and H18XAL were others heard on 40. On 20 metres Peter logged amongst others TG9EP, TG8FA, YN1AL, HR1SO, H13RAP, 5W1AX, FB8YU, 4U1TU, 6Y5AR, H10STU, VPMNA, 4K4JR and CO8HB. Only entry of note on 15 was T1ZCHV. New QSLs to Peter on 15, these were H1BWSR plus KR3GF, 6V0WF and KG6IG which I failed to mention last month. Bob L7031 set the local postmaster quite a problem by reporting in via telegraph, all went well as far as Katoomba where the tress system is in use, however, the link to Hazelbrook is by phone, and I believe the "Ham jargon" had them thinking. But the P.M.G. never fails, and all was deciphered 100%. Bob has received QSLs this month from ZK2AF, VR5AB, 7Q7PBD, E13S, VK9XI, TG9AD, ODSBZ. Over to VK5 and Alan Rafferty who reports in by tape, he has spent some time on the bands this month, and reports hearing good signals on 15, including Z55KA and VQ8AW. On 14 he logged many interesting calls including JT1KAA, VE6BR, Z5SRE, Z58BKV, KL7AJ, G13JM, OH5NW, ZE3ME, I1CAY, 7Z0GL and scores of W's inward QSLs for the month were YV5BIG/YV7, VK9SD (now VK5BD), KG6IG and XE1FFW. Bob L329, in between 6 metre contacts, and R modifications has done little listening but has inward cards from UR2AR, MB6CC, KC8BW and KG6IF. Ernie L5080 as usual has been busy, VP9CF, K44AA, EP3FMA, CE8BJ, UC2BF, UL7JA plus about 50 other prefixes, all on 14 a.m./s.s.b. ZL5AA and ELAF were also heard. Inward QSLs YV5AIP, BV1USA, UC2BF, 5W1AZ and W9WDD. L2022 only moderately busy, logged nothing more exciting than JT1KAA and FB8ZZ on 14, but general band conditions were extremely good. L3211 Warwick has been hearing some good ones on 15, including KG6, JA, TI, K56, FK8, KZ5, VR2 and many W call areas. 20 metres is still providing most of the DX in VK3 as in other states, and VP7, ZB2, EA, SV1, F9RY/PC, FW8, VE, OX3, UR2, VP1, KJ6, ZP1, XE1 and KC4 were heard by Warwick. Inward cards for him were EA5EX, LA5CI/P, CE5UF, UG6AW, UD0KAR, UA4AKED, ST2BSS, UR2AR, WZ2LA/ZK1, OZ3SK and H18MT. Inward cards via the personal section of the notes, however, last Monday our letter box was broken open by some youngsters, and though I recovered some of the mail, it would seem that other letters have been lost. So if your letter has not been acknowledged in this page or by letter, then it has been lost.

**DIVISIONAL NEWS.** One item from the VK2 group is that under the guidance of Alan Chatto, the AR7 Handbook has been reprinted and is available from the secretary for \$1. plus 10c postage. I understand also that Tony Wege L5073 is attempting to form the VK5 group, so any VK5 s.w.l.'s or other interested persons, would you please contact Tony.

**GENERAL DX.** Many of our listeners are interested in commercial DX and Peter Drew has drawn my attention to the Australian Radio DX Club, Box E73, St. James, Sydney. I understand that this club produces a magazine each month, and that the club would be of benefit to those interested in other than Amateur DX. From Chas. L2001 I have Radio New Zealand's new frequencies, taking effect from May 1. 9.54 Mcs. in the 31 metre band from 2000-2230 N.Z. time from ZL2. 15.11 Mcs. in the 19 metre band from 2245-0545 N.Z. time

from ZL21. On 6.08 and 9.54 megs. from 0900 to 1145 N.Z. time. On Sundays transmission from 15.11 Mcs. will be from 2000-0200 G.M.T. and 0300-0545 G.M.T.

**DX MANAGERS.** Here is a further list of DX managers, the station call sign is shown, with the managers' call in brackets. EY1US (W4SMZ), HZ1AT/SZ (G8KS), EL6AU (W8HMI), H18MMN (W2CTN), HL5X (W6ZY), VP7CX, VP8LJ, VS9MB, VP2AV, VP2KT, HK2YO, CP5EZ all QSL via Jack W2CTN. ET3DR (K8KLV), ODSCN (K4ISV), 9Q5AB (WA4STL), VP5RB (W4RC), W0YKD/K54 (WA5FPX), KG6IG (W3KTY), KC6BU (WZHN), TG6PB (WA4AYX), TT8AJ (F5EY), SV0WOO (K0GVB), LX3BD (DJ6SI) and HC1EY (W0BDM).

Don L2022.

☆



VK1 must lead off this month. Another young man, Len Whyte, has passed full A.O.C.P. at the age of 15 years 2 months—now has to wait till he turns 16 before he can operate his own Tx. Len goes to Telopea Park High, where there is no Y.R.C. because of lack of a leader, so he joined the group of juniors on Friday nights at Canberra Radio Society and then worked with Roger 1RD. Len joins George 1GB, Roger 1RD, Jim 1JR, David 1DD and Andrew 1DA in passing at 15 or 16.

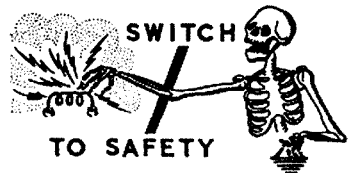
There's good news from VK3—Howard Rider 3ZJY has accepted the post of VK3 Supervisor of Y.R.S. Howard is most welcome and I feel sure he will one day look back on a solid period of development. All VK3 correspondence in future should go to Howard at 232 Cumberland Road, Pascoe Vale. More new clubs are showing up, at Oak Park High (23 members with Mr. Mackenzie as leader), and Camberwell Grammar (with instructor Peter Cole, of 5th Form, who passed A.O.C.P. recently). There is also good news that the Oakleigh Youth Club radio orphans have found a leader in Mr. Trevor Mitchell—now they need equipment and any donations will be welcome. After a donation to VK3 Y.R.S., by Fairchild, Dave Buck (one of my four readers and two correspondents!) did the very neighborly thing and sent a parcel to Rex 2YA, so Rex was able to reward holders of Junior, R.T., and W.T. Certificates.

Our far flung outpost, Christmas Island, has 52 members. It must be interesting to give radio instruction to four nationalities!

VK2 news is not plentiful this month but the number of clubs has topped 40, with new ones at Police Boys' (Bankstown) and Castle Hill High (leader is Mr. Swan), the latter putting on a good show at the school fete (including a noughts and crosses machine). VK2 Council lent a bit of weight by arranging presentation, at VK2 monthly meeting, of prizes from O.T.C. to Ernie Thatcher (first P.G. type to pass L.A.O.C.P.) and Greg Dunne (first Y.R.S. to pass Senior). All these gestures help. It also helps if you get such a letter as that received recently by Jan Oosterveen, P.G. leader up Westlakes way. Greg. Collins did some Y.R.S. work with Jan and now finds the experience a great help with progress towards A.O.C.P., and, best of all, a strong recommendation with the personnel officer of Qantas who was very interested in Y.R.S. and gave Greg a job in electronics. Greg is worth quoting—"I know a lot of boys who have an interest in radio but just content themselves by building a few things, as they have no goal to work for. I myself was once in that class but now that I have seen the enjoyment found in Ham Radio, there is no stopping me working for the ultimate goal—the ticket." Congratulations to both Greg, and Jan!

The offer for someone to take over my huge correspondent's salary is still open.

73, Ken 1KM.





# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL

The first meeting of the new Federal Executive for 1966 was held on the 18th May and the President, Mr. Max Hull, welcomed David Wardlaw to the meeting.

Amongst the correspondence was a letter from VK2ACU Hans Ruckert, who was going to Germany in May and amongst other things was attending a convention of the D.A.R.C. Hans was given the authority to address the convention and convey the greetings of Australian Amateurs to those in Germany and we are looking forward to his report when he returns.

The Boy Scouts' Association also wrote announcing the Jamboree on the Air for 1966 and once again the Institute has assured the Association of its support for this very important occasion.

The President wishes to place on record the superlative way in which the Queensland Division conducted the Federal Convention at Easter. It was a most successful convention and all those attending have nothing but praise for the way the VK4s organised accommodation, catering and the general paraphernalia which goes with the running of a convention.

More recent activities have been the compilation of the minutes and the President and Vice-President Harold Heppburn have completed this task and, by the time this is read, copies of the minutes will be in all Federal Councillors' hands.

Early in May Harold Heppburn, Kevin Connelly and Peter Williams attended the final meeting with the P.M.G. Officers dealing with the revision of the Handbook. All outstanding matters have been resolved and it is expected that the next issue of "A.R." will contain a full summary of proposed changes, and of special interest to all will be single sideband measurement, portable and mobile operation and many other matters.

One of the most important matters as far as the Executive is concerned is the organisation of the machinery necessary to write letters and provide all Divisions with the information that they should receive. Following the Federal Convention, Federal Council authorised the purchase of two Dictating Machines and these are being put to good use and will in no small way alleviate the mechanical work which has in the past and in the immediate present taken up so much of Executive's time. Executive by doing this will therefore be able to devote more time to furthering the cause of the Institute in many different directions and, all in all, we look forward to a year of great progress.

Actions taken as a result of motions passed at the last Convention will be reported in these columns when the States have ratified the minutes.

## AMATEUR ADVISORY COMMITTEES

New South Wales: B. Anderson, L. Gerly, G. G. Hall, N. MacNaughton, L. McMahon (Dr.), L. Woolnough.

Victoria: R. Anderson, F. O'Dwyer, R. Richardson, N. Storck.

Queensland: S. R. Baxter, J. L. Cantmill, R. Collins, A. Johnson, C. I. Patterson, S. D. P. Smith.

South Australia: R. E. Burns, K. S. Harris, R. T. Manuel, R. A. Murphy, D. Scott, P. M. Williams.

Western Australia: G. S. Byass, N. R. Penfold, J. E. Rumble, M. Saw, G. A. Sturcke, F. E. Taylor.

Tasmania: T. Allen, E. Beard, G. C. D'Emden, I. Nichols, C. Russell-Green, K. Spiegel.

## FEDERAL QSL BUREAU

CX2AJ, Enzo Sommaruga, Box 122 Montevideo, Uruguay, forwarding QSLs, states he has not yet received a single VK card and solicits my help. Do not let me down.

The city of Ria de Aveiro, Portugal, has sponsored an award for world Hams who contact two stations in that city after 1st January, 1966. Any band, any mode. Claims to be sent to: Comissao Municipal de Turismo, Aveiro, Portugal, accompanied by the two QSLs which with award will be returned free of charge. Aveiro stations are: CTICM, GN, HT, IE, JS, LG, ML, NO, NQ, NZ, OZ, PI, ZY.

The following change in the A.R.R.L. QSL Bureau list, effective immediately, is: KL7, Alaska QSL Bureau, Star Route C, Wasilla, Alaska.

For those dependent about non-receipt of QSLs, the following sighting is quoted: To VK3OF from K2EPP confirming 14 Mc. c.w. QSO on 8th Nov., 1966!

The Korean authorities have now licensed 40 portable stations with the prefix HM9. Previously they were not legit.

Cards through the Federal Bureau have average 7000 each month of 1966.

—Ray E. Jones, VK3RJ, Manager.

## NEW SOUTH WALES

The lecture for the VK2 Division's monthly meeting at Wireless Institute Centre on Friday evening, 27th May, was a most interesting one—a combination of talk, demonstration of equipment and colour slides. The large attendance showed its appreciation by close attention during the lecture and asking several questions afterwards.

John Featherstone, W5RPL, from Tucson, Arizona, was the lecturer and he chose as his subject "New Thoughts in Radio Communication," with emphasis on h.f. telegraphy. John is a Master of Engineering, has lectured at a number of universities and is widely travelled, so it was small wonder that the audience enjoyed what he had to impart. At the present time he is carrying out further investigations into h.f. communications at the University of Sydney.

The equipment on display included generators of high-speed c.w. and gave forth some of the queer noises that we have often heard on the h.f. bands. The speeds ranged from approximately 86 to 1000 w.p.m.

The colour slides gave very clear views of equipment and installations in America, England and Australia.

Chairman Tom 2OD called on Bob Leigh KH6CQZ, a visitor from Honolulu, to deal with the vote of thanks to the lecturer.

Further highlights of the meeting were two presentations to members of our Youth Radio Scheme, Ern Chalker and Greg Dunne. The latter's parents accompanied him to the meeting and were given a welcome.

Mr. Thatcher, of the Overseas Telecommunications Commission, presented a book donated by O.T.C. to Ern Chalker, who was the first member of a Y.R.S. Postal Group to gain the L.A.O.C.P. In offering his congratulations, Mr. Thatcher informed the gathering that Ern had not only made electronics a hobby but was making it his vocation by entering the employ of O.T.C.

Mr. Thatcher was also asked to present Greg Dunne with a prize of a soldering iron, which was one of those generously donated to the Y.R.S. in each Division by Mr. A. L. Royston, of Adcola Products, Melbourne. Greg has been doing excellent work as a pupil of Kingsgrove High School, and was the first Y.R.S. member to gain the Senior Certificate. The QSL Officer, Sid 2SG, said that during his recent absence on holidays the Bureau had been well looked after by Ted 2ACD and his daughter, who between them had handled 5800 cards for the month.

The Federal Councillor, Pierce 2APQ, said that satisfactory progress was being made with the minutes of the recent Federal Convention held in Brisbane. The Australis satellite project was proceeding well. In connection with the latter, the President reported that Divisional Council has made an immediate progress payment of \$80 towards the preliminary work that must be carried out prior to the launching.

The Supervisor of the Youth Radio Scheme, Rex Black 2YA, reported that a quantity of Fairchild transistors had been received and had been distributed to senior pupils of the Y.R.S. There were now 36 clubs, the latest being the Police Boys' Club at Bankstown. Rex also gave a resume of a function held recently at Kingsgrove High School, when Greg Dunne had been the recipient of a book at a full assembly of the school.

The President informed the meeting that during the previous week someone had broken into the Division's transmitting station at Dural, and had stolen two AR7 receivers, three coil boxes and a power supply. The matter was in the hands of the Farramatta police. In the meantime, members were warned to take the necessary precautions before purchasing any AR7 receivers that may be offered for sale.

Divisional Council has appointed Stan Dogger 2ZRD to fill the vacancy caused by the resignation of Maurice Marsden 2VV. However, at the moment Council is still one away, with the resignation of Kev Collins 2ANY.

Cyril Henderson 2CH and Vince O'Donnell 2ZOD are recent welcome additions to the Dural engineers' panel.

Congratulations to Alan Smith, of the Blue Mountains Branch, who recently gained the L.A.O.C.P.

One does not usually associate Amateur Radio with rifle shooting. However, George 2AZE (Kurnell George) manages to mix these two interests quite nicely. By all accounts he gives the bull's-eye a bit of a pasting most times.

Council members were pleased recently when a few donations arrived in the mail for the I.T.U. Fund, but VK2 is still a long way short of its quota and all those who so far have not "kicked in" are urged to do so without delay. It will be too late after our bands have been whittled down again.

The VK2 W.I.C.E.N. Committee continues to meet regularly each month, and the recent election of officers for the ensuing twelve months resulted as follows:—

Chairman, Keith Finney 2KJ; Secretary, Barry White 2AAB; Treasurer, Don Miller 2GN; Committee: Bruce Meldrum 2ZOT, Dave Downie 2ZSD, Brian Hill 2ZOW, Peter Campbell 2AXJ, Paul Doman 2ZPD. Technical, Communications and Zone Co-ordinators have yet to be appointed.

Clinics for 4.m. carphones on the 146 Mcs. Net were held at Wireless Institute Centre in April and May and a further session was set down for June. Some high quality test equipment was made available for these clinics and the following were checked and adjusted where necessary: Transmitter—Frequency, deviation and audio distortion, power output. Receiver—Quieting figure, netting to transmitter frequency. Antenna—S.w.r. checked.

A booklet outlining message handling procedure has been printed. This is a direct copy of that used by the VK3 Division, which has been fully tested under exacting conditions. Copies may be obtained from the W.I.C.E.N. Secretary, Barry White 2AAB or Wireless Institute Centre, Crows Nest. 73, Ivan VK2AIM.

## HUNTER BRANCH

Those members intending to go mobile were well catered for at the June meeting of the Branch held on 3rd at the Technical College. The first lecturer was Len 2ZFD, who gave a host of useful information about suppressing interference in the car. He introduced many members to a new technique of using ferrite beads on the plug leads right at the spark plug. Those who have used this method have reported that it is superior to the former method of fitting a 15K resistor in the ignition lead. Len also showed the co-axial capacitor for dynamo suppression but frightened many off when he mentioned the price.

Then followed the "Converters" lecture, delivered by Ian 2ZIF. Ian discussed the problems of designing a converter to suit the local conditions of the user and went into detail to speak about valve and transistors front ends and mixers. Following an extensive treatment of operating parameters and design considerations, Ian discussed his own design of a converter using a pair of nuvistor valves in grounded grid. This and all the other points made were summarised on a two-page photostat handed to each member of the audience. Thirty members and visitors were

## SILENT KEY

It is with deep regret that we record the passing of:

VK3AS—A. Stow.

VK3SA—L. Simpson.

present and Bill 2ZWM in his vote of thanks to the lecturers expressed the appreciation of the members when he referred to the lectures as being a most worthwhile contribution. The W.I.C.E.N. handbook of operating procedure was available and Gordon 2ZSG arranged distribution of these. The attention of members was drawn to the fact that a suspected pirate is operating in the area. It was suggested that this person be shown the error of his ways in some suitable fashion before he lands himself and others into trouble. One unhappy fact about pirates is that interference caused to other services by them is frequently blamed on licensed members. Almost invariably they are referred to in press reports as "Radio Amateurs" thus bringing discredit on legitimate Amateurs operating within the terms of their licence.

Some members have already received the new licence renewal card being issued by the Post Office. This takes the same form as the computer based listener's or viewer's licence. One rather strange thing is, however, that no call sign is stated on the card. Although a note in bold type on the reverse side indicates that payment may only be made to the Chief Cashier. I paid mine at the local Post Office without any argument.

The attention of members is drawn to the local broadcast of news which is made from VK2AWX every Monday night at 1900 Eastern Time. This broadcast is made for members and it cannot continue without your support. Every effort should be made to call back after the broadcast and comment on the subject matter or presenters. Comments are made from the Westlakes Radio Club building at Teralba and members are cordially invited to be present during the broadcast. Those who so desire may wish to volunteer to read or prepare the script and this would be greatly appreciated by those at present maintaining this service.

After hearing reports that his signal was only S9 instead of off the scale, Jim 2AHT decided to do something about it. Of course, this was his 40 metre signal, so, equipped with a rotatable beam for this band he went to work and extended the already tall mast to a full 90 feet and supported the new 7 meg. radiator atop it. This now gives Jim the distinction of being one of the strongest VK signals on 40, a fact which is already evident on his other h.f. band operation. Jim now has directed beams for bands 40 to 10 and, seeing him closely inspecting some railway wagons at the other day, I'm expecting 80 to be the next band of consideration. His new mast is certainly a landmark in Toronto.

During his recent visit to Newcastle, Don 2BAE did an amount of constructional work and was able to get a transmitter fully operational 80 in 7 minutes and 35 seconds, so I am told. Of course, the efficiency which accompanied this constructional feat was not as high as could have been expected. Too many cockroaches, no doubt.

While cosmonauts paddle around among the stars, those on earth have to be content with experiments with a Galaxy—or so. Les 2RJ tells me. To make the operation just that much more interesting, he has bought a new chariot to go with it and probably by now is operational on the DX bands. Whether this is an attempt to catch the star of local mobile operators or not I cannot say but for any who may wish to do so, here is the handicap. You are just 92 countries behind scratch—that's Bill's 2XT's mobile score at the present. By the way—good news for lady drivers. Sylvia, XYL of 2RJ, is allowed to drive the new car—outside the town. Those on 148 f.m. are having their day, too. A contact was made from Teralba to Kulnura on this frequency one Sunday night recently. Bill 2ZWM and Arthur 2ZTU are both on the way to having the S.T.C. units available soon for 146. Roy 2ASJ is planning a new aerial system to really get operational on the DX bands as well as 40 and 80. An inverted V appears to be his choice, so watch out soon for big signals.

Don't forget the next meeting of the Branch to be held on Friday, 5th August, when another lecture of interest has been arranged. Full details of this meeting and all Hunter Branch activities may be heard on the weekly broadcast—3595 Mondays—or may be read in the weekly column "News of Radio Amateurs," published every Saturday in the Newcastle "Morning Herald." Oh, and you won't forget the Field Day, it's less than 3 months away! See you, 73, 2AKX.

#### CENTRAL COAST BRANCH

The last meeting of the Central Coast Branch was held on Friday, May 20. It was a cold, very wet evening, but we had an attendance of 17 to hear Keith VK2AKX talk about his experiences at the Federal Convention in Brisbane and Tony Mullen VK2ZCT discuss his transistor converter. It was a most interesting and instructive evening and everyone appreci-

ated the efforts of Keith and Tony to devote their time to us.

We have a new call sign in our district—Peter Kerr VK2ZPK. 73, Mona VK2AXS.

## VICTORIA

### VICTORIAN COUNCIL MEETING

The meeting held on 23rd May was the first meeting of the new Council. The new members are John Beckett VK3ZCB, John Wilson VK3ZOQ, and Bill Faul VK3AGZ, who volunteered his services as Treasurer and is therefore an ex-officio member of Council.

The first task undertaken was the allotting of the many tasks involved in running the Division, and they came out as under:—

President: Ken Pincott, VK3AFJ.  
 Vice-Presidents: Michael Owen, VK3ZEO; Tom Cuthbertson, VK3ZIQ.  
 Secretary: Ken Seddon, VK3ACS.  
 Treasurer: Bill Faul, VK3AGZ.  
 Federal Councillor: Michael Owen, VK3ZEO.  
 Librarian: Bill Roper, VK3ARZ.  
 Instrument Library: Cyril Maude, VK3ZCK.  
 Inwards QSL Manager: Eric Trebilcock, L-3042.  
 Outwards QSL Manager: Ivor Stafford VK3XB.  
 Disposals Secretary: John Batrick, VK3OR.  
 Disposals Assistant Secretary: Jack Kelleher, VK3AIJ.  
 Disposals Committee: John Spicer, VK3ZEL; Tom Cuthbertson, VK3ZIQ; Jim Stewart, VK3ZFS; Len Poynter, VK3ZGP.  
 Broadcast Committee Chairman: John Wilson, VK3ZOQ.  
 Class Instructor (Theory): Cliff Pickering, VK3ATP.  
 Class Instructor (Code): Jay Lancaster, VK3JL.  
 Correspondence Course: Ken Seddon, VK3ACS.  
 Transmitting Officer: Peter Linden, VK3BX.  
 W.I.C.E.N. Co-ordinators: John Batrick, VK3OR; Michael Owen, VK3ZEO.  
 Technical Co-ordinator: John Spicer, VK3ZEL.  
 State Controller: Harold Hepburn, VK3AFQ.  
 T.V.I. Committee: Jack Taylor, VK3ZJF; Bill Rice, VK3ABP; Mr. Farthing, VK3AFR.  
 Publicity Officer: John Wilson, VK3ZOQ.  
 Y.R.S. Liaison Officer: John Batrick, VK3OR.  
 Editor "Amateur Radio": Ken Pincott, VK3AFJ.  
 Assistant Editor: Kel Cocking, VK3ZFPQ.

It was resolved that in order to ensure a continuity of the work of the Division, all office-bearers should have an assistant. Any member willing to assist with any of the work is asked to contact the Secretary.

The I.T.U. Fund was discussed and in view of the discussion at the May General Meeting it was agreed to publish the list of donations so far received. The list is up to 15/5/68.

£10: VK3s WB, AFW, APC.  
 £5/5/-: VK3s NI, QV, UM, AVY.

£5: VK3s DU, HC, IC, OH, VZ, ADN, AIM, AKX, ASY, AWF, ZIY, ZME, ZPL.

£3/6/5: Anon.  
 £3/3/-: VK3NM, L3102.  
 £3: VK3s BB, XO.  
 £2/10/-: VK3s BM, ABA, ZDP.  
 £2/2/-: VK3s AS, DG, EJ, HW, NB, AHA, AHZ, ZLR.  
 £2/1/-: VK3ACS.

£2: VK3s AL, BQ, BS, BT, FH, HJ, HL, HW, IT, KP, MU, NS, OL, PL, UF, VE, VQ, XY, YE, ZE, ABE, AGR, ADS, ADV, AJW, ALM, ANV, AOD, AOG, APM, ARJ, ASL, AVX, AWT, AXK, AZA, ZAN, ZBY, ZCF, ZCO, ZER, XFM, ZGL, ZHO, ZHR, ZIP, ZJF, ZKK, VK9AM.

£1/10/: VK3s AN, DY, EB, GG, QX, SO, WM, ADK, APH, APR, AVV, AWG, ZAM, ZXI.

£1/1/-: VK3s AI, LG, YT, AAC, ACD, AEO, AKO, ZBU, ZGC.

£1: VK3s AC, AX, AZ, BJ, BL, BP, BX, CB, CI, CJ, CO, CT, CZ, DM, DQ, DT, EC, EF, EH, EL, EM, EN, EW, FF, FG, GC, HF, HR, HZ, JA, JT, KB, KO, KS, KU, KZ, LC, LF, LI, LW, MI, NN, NY, PC, PH, PJ, PW, PZ, QL, QP, QR, RA, RM, RN, RS, RU, SC, SE, SK, SM, SY, TB, TF, TH, UG, UJ, VI, WC, WK, WY, XB, XK, XM, XP, ZG, YK, YL, YQ, YS, YU, ZB, ZC, ZF, ZG, ZN, ZQ, ZU, ZY, AAB, AAN, AAT, ABB, ABK, ABN, ABP, ACJ, ADU, ADY, AEC, AEO, AET, AFJ, AFP, AGB, AGC, AGD, AGH, AGS, AGY, AHI, AHR, AHU, AIJ, AIL, AJP, ALG, ALL, ALN, AMI, AMP, AMV, AND, ANH, ANQ, AOY, APA, APF, APG, AQA, AQW, ARM, ARF, ARY, ASC, ASX, ATB, ATL, ATP, ATR, AUG, AUJ, AUX, AVA, AVP, AVV, AWB, AWJ, AWM, AWO, AWS, AWV, AWZ, ZBI, ZCA, ZCU, ZCX, ZCY, ZEL, ZFA, ZFC, ZFF, ZGD, ZGS, ZHM, ZHN, ZHP, ZIG, ZIX, ZJA, ZJU, ZKG, ZKM, ZLP, ZLQ, ZMP, ZNB, ZOO, ZOQ, ZRH, L-3042, L-3157.

D. Andrews, J. A. Gilmour, R. J. Collender, C. Constable, M. Trainor.

These donations total just under £500 against out state quota of £800. Donations received after the 15th May will be listed and published as they become available.

It was resolved to start a membership drive. Some of the preliminary work has already been done and John Beckett undertook to assist with this project.

The 1968 State Convention was discussed and a proposition agreed to in principle. Steps will now be taken to check if it is possible to make suitable arrangements, and it is hoped to announce the venue and form of the Convention within a matter of a week or so.

#### EASTERN ZONE

The duck season is certainly with us, as Reg 3AVV has bagged himself a duck talking machine in the guise of a Galaxy 5. David 3DY must have persuaded him that this was the breed to purchase. Vic 3AVP is tempor-

## DURALUMIN, ALUMINIUM ALLOY TUBING

IDEAL FOR BEAM AERIALS AND T.V.

★ LIGHT ★ STRONG ★ NON-CORROSIVE

STOCKS NOW AVAILABLE FOR IMMEDIATE DELIVERY

ALL DIAMETERS— $\frac{1}{4}$ " TO 3"

Price List on Request

STOCKISTS OF SHEETS—ALL SIZES AND GAUGES

## GUNNERSEN ALLEN METALS PTY. LTD.

SALMON STREET,  
 PORT MELBOURNE, VIC.

Phone: 64-3351 (10 lines)  
 Telegrams: "Metals," Melb.



HANSON ROAD,  
 WINGFIELD, S.A.

Phone: 45-6021 (4 lines)  
 Telegrams: "Metals," Adel.

arily at 3GI broadcasting station, installing automatic and remote control gear, so that the station can become the first of the larger national stations to operate mostly unattended. V.I.C. 3AVP, Cliff 3AIT and Rodney 3UG are all going for various P.M.G. technical exams, so if you don't hear them until after the end of July you'll know why. After the exams all three should have more time for new projects. Rodney 3UG has been doing some operating on 160 of late and has been getting quite good reports from N.S.W., but mains noise is making copy difficult this end. Cliff 3AIT will shortly be on 163.12 Mcs. on the C.F.A. communications network. Cliff 3AJA is considering coming on 80, only trouble is t.v.i. in reverse.

I'm sorry to report that the St. Anne's Radio Club has this year not functioned at all. This is, I feel, due to the fact that Dan Warricke, last year's science master, has left and the present science master isn't radio minded. It is a pity as an approach by Rodney 3UG did not bring results.

George 3ZGG has evidently got a good v.h.f. location as he now is heard by the boys in Melbourne on their way to work on the 2 f.m. net. George must be about our keenest v.h.f. fan, and he certainly keeps the Eastern Zone on the v.h.f. map. Alex 3ZII has moved QTH in Sale, and is now trying a new mobile whip on 6 with drooping radials. Philip 3ZTF is still having trouble getting on 6, although whilst on holidays in V.S.A. had a few contacts on 53.023 Mcs. with a borrowed Pye Mk. I. As a matter of curiosity I have my 6 metre net transceiver in the kitchen. Is it unusual for an Amateur to have some of the shack equipment in the kitchen I wonder? My YK4 didn't voice undue concern, so in it went.

That's all, chaps, may hear you on the Zone hook-up on 80 one of these nights. 73, 3UG.

#### WESTERN ZONE

Activity in the Western Zone seems to be very limited at present. We have heard Gavin 3AEJ and Bob 3ARM with bigger and better signals on 80. Ray 3ATN is heard regularly on various bands discussing and organising his moonbounce and satellite interests.

The zone hook-ups see the usual regulars on Wednesday evenings—a sign of the times is that the mode is sometimes 50-50 sideband and a.m.

Associate Roy Goodwin has just completed the Civil Defence School Signals Instructors' Course. When are you going to get a ticket, Roy?

On 145 f.m. 3AFU/3KT have regular contacts with Roy 3AOS but have had no DX except for the morning of 29th May when five Melbourne stations were heard calling back to 3WI after the broadcast. Later 3KT heard and was heard by 3AOK but traffic on the channel prevented an effective QSO. Perhaps our disappointing season on f.m. will be compensated for by working 5PS on s.s.b.? 73, 3KT/3AFU.

noon and 2 p.m. to 5 p.m. on Sunday. So looks like a lot of Q.R.M. on the bands.

The VK4 boys have a very active 10 metre net up here every Wednesday night at 8.30 p.m. on 26.6 metres. VK4s up to 70 miles or so are regularly calling in on this net. We also break and look south for VK2s, VK3s and VK5s and then West a bit for VK6s. We would welcome breakers from other states, but the boys are real rag-chewers, so if you cannot break with phone, make and break your carrier somehow, as at least one of the fellows can read c.w. and will acknowledge, but the boys are real rag-chewers, so if you get a chance to say anything, as we usually have up to three fellows all talking at the same time. But here's hoping.

The station manager of VKAWI has asked me to advise that our weekly Sunday morning news broadcast takes place at 9 a.m. on 7.146 Kc., followed by the VKAWI town and country hook-up at 9.30 a.m. on 7.105. These are official frequencies, but over the last week or so we have had QRM from other stations in QSO on or near this frequency. It would be appreciated if this frequency can be kept clear at this time. A couple of Kcs. can make a lot of difference to copy up here. All stations VK4 and Interstate are welcome to join in and Alf, our station manager, will give you a good hearing. 73, Reg. 4VX.

#### TOWNSVILLE AND DISTRICT

The June meeting of the local radio club was poorly attended. Unless the local boys come along, methinks that will again fold up. This will be a pity, it has just been reorganised with great expectations of outdoing the previous club. Those that did come along witnessed a few films dealing with radio. The one on standing waves was really appreciated.

Looking through the Queensland Q.T.C. for the past three months, it was really sad to see that the majority of the local Amateurs in Sunny North Queensland have not renewed their subs. to the W.I.A., more is the pity, as this will decrease the overall financial aspect of the Queensland quota of the I.T.U. Fund, more so as one can frequently hear the non-members moaning about the commercials, etc., that infest our Amateur bands. One begins to wonder if they were so active in helping as they make out.

As this is the tourist season it is to be hoped that all Amateurs passing through will call in on some of the locals and be taken around and have an eye-ball QSO with the others. Most of the locals will be only too happy to get their car out and do the necessary driving by taking the shortest route to the different shacks. Alf 4OL just called and made his views known of the good time he has had meeting the boys further north. Even met Harry 4OH up in Mosman, while Basil 4ZW did the honours for the Cairns District, so much so that Alf will return at the end of the year.

73, 4RW.

bardment of enquiries from all present, a sure indication of the success of the lecturettes. The Chairman sincerely thanked all members of the panel for their part in the successful evening's entertainment and closed the meeting at 10.25 p.m., although at 11 p.m. the meeting was still being carried on unofficially at the demonstration table, and was finally broken up by the appearance of the caretaker and his Alsatian elephant, well, anyway, he looks as big as an elephant to me, although I must admit that the last ones around the demonstration table only departed at the third grinding of the teeth of the aforementioned hound dawg.

General reaction to this lecturette was more than enthusiastic, and there was no doubt of the fresh interest aroused among the members of the audience to the Delta-Het principle. Incidentally, Phil 5NN stated that two enquiries had been received for information on the Delta-Het from outside of VK. Personally myself, what with "The Thing," and now "The Monster," I am beginning to form the opinion that my crystal detector and headphones set-up is gradually being superseded. One's the pity! I suppose before long they will be suggesting I get rid of Dobbin and the buggy for one of those now-fangled automobiles.

Did you notice the photo of Joe 5JT in the "Advertiser" recently? plus the caption that he is 80 and still interested after 40 years as a Radio Amateur. Obtaining his licence firstly in Alice Springs during 1927, he acted as contact man for all the major expeditions venturing into the centre of Australia at that time. He hit the headlines even back as far as 1932 when a prospector became ill at Tennant Creek, and Joe is credited with saving his life by using a small radio set he had made himself, and contacting an Amateur in Adelaide who obtained instructions from a doctor and passed them back by radio to Joe. During World War II Joe was in charge of the radio station at Parafield, handling daily messages to Laverton and Point Coe, to say nothing of his many years of duty to the VK5 Division as its communications manager. Nice work, Joe—but keep down from that tower—remember the gypsy's warning!

Talking of pictures in the paper, did you also notice on the social whirl pages the photo of the State President of the S.A. Air Force Association and his charming and petite wife who were guests at the dinner in honour to Group-Captain Leonard Cheshire, V.C. Sitting on my upturned bucket in my tent at night and reading of the gay doings of the upper set, I glow all over at the thought that I once knew them when—Who was the President?—Sorry—Ray 5RK—and did he look the picture of sartorial elegance!

Another VK5 to hit the headlines in the local paper, somewhat unwillingly I fear, was George 5CV, who according to the paper had thieves break into his radio shack and steal a valuable American receiver. The paper did not make any mention of George's flow of oratory upon discovering the burgled shack, but rumour has it that he never used the same word for at least 20 minutes. My sympathy, George.

Understand that Mick 5ZDR was also a victim of unauthorised entry, although no details of just what was missing are to hand. Hope all is well, Mick.

At the moment of writing, Murray 5ZQ is on annual leave, both from his vocation and also from the 5WI broadcasts. The fort has been held in solid style by Uncle Tom 5TL, who apparently has quite enjoyed himself in the process, although a little rumour has reached me that he is not altogether carried away with excitement when stations using "The Thing" come back to him on the call-back. Try him on c.w., Dud 2DQ, he never misses on that.

The Mount Gambier boys have had to put their proposed convention over the June holiday week-end into cold storage for the moment. Seems that a baseball team has been around and booked up all available accommodation for that period, which definitely threw a spanner in the works for the convention. Bad luck, fellows.

The Canberra Radio Society dropped the VK5 Division a line concerning the matter of an excess number of QSL cards arriving in VK1 which remain unclaimed, simply because there are no such stations licensed. The moral behind the whole thing is, make sure the station worked and QSL'ed was in fact really a VK1 and not a phony. We have always had my doubts about that. Ken IKM—remind me to check him some time!

Geoff 5TY seen hurrying hither and thither recently, accompanied by three members of the Australis Project. Apparently they were over for a visit to WRE in quest of information on satellites, etc., and Geoff was the contact man where possible. I was about to track them down for an interview when I was tipped off that they were probably VK3s, which was enough to make me take to the hills, and how!

## QUEENSLAND

The June meeting of the Queensland Division of the Wireless Institute of Australia was held in the Social Services Rooms in Berwick Street, Valley. Despite a very cold night there was a full attendance of Councillors.

The VK4 V.h.f. Group is now well under way, and the following officers have been elected: President, Mick VK4ZAA; Treasurer, Roy VK4ZRH, and Secretary, Tom VK4ZAL. Tom is also a member of Council, so the v.h.f. boys and the VK4 will have close co-operation.

The Sunshine State Contest which is an intra-state contest, is set down for the weekend of July 9-10. There will be a V.H.F. Section, a H.F. Section and a Combined V.H.F./H.F. Section. Three first prizes with handsome Pennant for each section. The V.H.F. Section will run over 24 hours and scoring will be on a mileage basis. The H.F. Section will be run on a zone basis, using the W.I.C.E.N. official zone map for scoring. The V.H.F. Section will embrace 52 Mcs., 144 Mcs. and 432 Mcs. as there is activity on all these bands in VK4. The H.F. Section will embrace 80, 40 and 20 metre bands.

An innovation this year which will certainly stir up activity is that the Contest starts all over every hour, on the hour. This means that any contestant can contact every other contestant on all bands each hour, and then start all over again and work them on all bands the next hour. However, if a contact is made with one station in one hour a contact cannot be made with the same station until an intervening contact is made. Thus you cannot contact a fellow at 0059 and then again at 0100 unless you contact someone else in between.

The V.H.F. Section will run from midnight Saturday to midnight on Sunday. The H.F. Section will run from 3 p.m. on Saturday to 6 p.m. on Saturday, and from 9 a.m. to

## SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division was held as usual to an above-average attendance of members and visitors in the clubrooms on the fourth Tuesday night of May. The Chairman and President, Ross 5KF opened the meeting by calling for apologies from any members not present, and after several names had been acknowledged, the name of Warwick 5PS was accepted as an absentee, to the accompaniment of prolonged hand-clapping and delighted cheers from most parts of the hall. No Federal business was discussed, for the obvious reason that no Federal business had arrived, and aside from a discussion on the I.T.U. Fund, and a reference to the recent outbreak of burglaries to one or two of the members' shacks, with an accompanying warning as to keeping doors locked and not making it easy for the burglars, very little Divisional business was discussed.

Distribution of QSL cards followed, and after a short smoke-oh, the technical side of the night began. This took the form of several lecturettes on the much-discussed Delta-Het principle of reception, and was kicked off by Phil 5NN with a short discussion on the theory, together with oodles and oodles of circuits pinned to the blackboard, and ending with a detailed description of the components suitable for the project. Bowing out to sustained applause for his efforts, his place was taken by Gary 5ZK, who then took over with the construction side, and the silence which greeted his efforts was a clear indication of the job he did, and also of the definite interest of all members present. SZGW, no christian name to hand, then demonstrated a receiver which he had constructed, Peter 5ZKA and Neil 5WN also demonstrated their partly-built receivers to a keenly interested audience. Question time then followed, and all members of the panel were kept busy answering a bom-



# DISPOSAL BARGAINS

AT OUR BULK DISPOSAL STORE

8 PARK STREET, GLENFERRIE, VIC. (OFF GLENFERRIE ROAD)

Phone 81-1935

(Mon. to Fri., 10 a.m. to 5 p.m.; Sat., 10 a.m. to 12.30 p.m.)

## NEW VALVES

1A3	50c	SU4GB	\$1.45	6CW4	\$3.00	7L7	75c	866	\$2.50
1A5	50c	5V4G	\$1.75	6F8	50c	7N7	75c	954	50c
1A7GT	\$2.80	5Y3	\$1.38	6C6	75c	7W7	50c	855	50c
1C7	50c	5Y4	75c	6C8G	\$2.50	12A6	50c	856	50c
1D4	75c	5Z3	\$1.75	6H6 Metal	50c	12A7	50c	858A	50c
1D8	75c	6A3	75c	6J5GT	\$1.00	12A7	75c	1816	\$1.50
1F5	\$1.00	6A6	75c	6K0	\$1.00	12A1U7	\$1.50	1825	50c
1H5	75c	6AB7	\$1.00	6K0	\$1.00	12A1U7A	\$1.50	1826	50c
1K3	50c	6AC7	75c	6K7	50c	12A V8	75c	1829	50c
1K7	50c	6AG5	50c	6K8GT	\$1.25	12BE6	75c	5638	75c
1L4	50c	6AG7	\$1.25	6K8 Metal	\$2.00	12C8	50c	5763	\$2.80
1L5	\$1.00	6AJ5	75c	6L7	50c	12J5	50c	6021	\$1.00
1LN5	50c	6AK5	\$1.50	6N7	50c	12SA7GT	\$1.00	9004	50c
1M4	50c	6AL5	\$1.40	6R7	75c	12SC7	50c	EA50	40c
1M5	50c	6AM5	\$1.50	6S5	75c	12SG7	75c	ECC35	\$2.00
1P5	50c	6AM6	\$1.00	6SA7	75c	12SK7	50c	ECH33	\$2.00
1Q5	50c	6AN7A	\$1.65	6SC7	75c	12SN7	75c	ECH35	75c
1R5	\$1.90	6AR7GT	\$2.10	6SF5	75c	12SQ7	50c	EF39	50c
1S2	\$1.75	6AS7GT	\$2.00	6SF7	75c	12SR7	50c	EF86	\$1.85
1S5	\$1.60	6AU6	\$1.45	6SH7	50c	18A5	\$1.70	EY91	50c
1T4	\$1.00	6AU8A	\$2.40	6SJ7	\$1.25	18A8	\$2.10	KT66	\$3.00
1U4	\$1.60	6AV6	\$1.40	6SK7GT	\$2.00	25L6	\$1.00	QQE03/12	\$4.75
1U5	\$1.80	6B6	75c	6SL7GT	\$1.25	25Z6	\$1.00	QVE04/7	\$2.50
2A5	75c	6BA6	\$1.55	6SN7GT	\$1.00	35L5GT	\$1.00	RL18	75c
2A7	75c	6BE6	\$1.55	6SQ7GT	\$2.60	19	50c	UL41	\$1.00
2D21	\$1.20	6BL8	\$1.80	6SS7	75c	30	50c	UR33	50c
2E26	\$2.50	6BR8	\$1.85	6U5	\$1.85	47	50c	VR53	50c
2X2	50c	6BQ5	\$1.70	6U7	75c	57	50c	VR102	50c
3A4	\$2.20	6BR5	\$1.45	6U8	\$1.70	58	50c	VR135	50c
3A5	\$1.00	6BX6	\$1.45	6V4	\$1.14	80	\$1.70	VR136	50c
3Q5	\$1.00	6BV7	\$1.45	6V8GT	\$1.75	71A	75c	VR137	50c
3S4	\$1.00	6BZ6	\$1.80	6X4	\$1.00	807	\$3.75	VR150	\$1.25
3V4	\$1.50	6C6	50c	6X5	\$1.45	808	\$1.00	VT78 (6D8)	50c
5AR4	\$2.60	6C8	\$1.00	7A8	40c	809	\$2.00	VT127	50c
5AS4	\$1.45	6C7G	\$1.55	7C5	50c	830E	\$1.50	VT501	75c
5AGY	\$3.75	6CH6	\$2.35	7C7	50c	832A	\$8.00	VU39A	50c
6T4	\$1.75	6CM5	\$2.25	7E6	50c	837	\$2.00		

## TRANSCEIVER

TR1987. English (later version of SCR522). 15 watts, 21 Valves. Freq. coverage: 115 to 145 Mc. Crystal locked receiver. Transmitter uses TT15 output valves. Three stage exciter using 4.86 Mc. crystal osc. 6AM5, doubler 6AM5, driver amp. QV04/7. p.a. amp. TT15. In-built modulator, complete with 26 volt genemotor. Condition as new. To clear £15 (\$30). Circuit for above unit, 10/- each.

## NEW PLUGS AND SOCKETS

Octal Plug	3/6 each
Octal Socket	1/6 ..
5-pin Speaker Plugs	2/6 ..
4-pin Speaker Plugs and Sockets	1/9 ..
6-pin Jones Plugs and Sockets	7/6 ..
Pyre Plugs	2/- ..
Pyre double bulk Chassis Sockets	2/6 ..

## MODULATION AND DRIVER TRANSFORMERS

Modulation Transformer, 15 watts, pair of 8AQ5s to 2E26 valve.  
Also Driver Transformer, single ended primary to push-pull grids of 6AQ5s.  
£2 the lot, or Mod. Trans. 30/-, and Driver Trans. 10/-.

## SPECIAL BARGAINS

Carpenter Relay and Socket, Type 3E1, 1800T 250 ohms, 900T 200 ohms, 15/-  
P.M.G. Strip Boards, containing 24 Jacks ..... 30/- each  
P.M.G. Strip Boards, containing 48 Jacks ..... 50/- each  
Head Phone Cords, new ..... 4/6 pair  
3-pin Plug and two yds. Cord ..... 4/6  
Mixed bags of Resistors (50) ..... 12/6  
P/M Fuse Holders ..... 4/6 each  
72 ohm Co-ax Cable, 35 ft. lengths, 3/16 inch diameter ..... 10/-  
72 ohm Co-ax Cable, 27 yd. lengths, 3/16 inch diameter ..... 20/-  
Vibrators, 122 Type ..... 20/- each  
122 Aerial Packs ..... 60/- each  
12-core Cable with Plug, 22 yards long ..... 50/-  
Wrecked 733D Receivers, less valves ..... 40/-  
Dural Tubing, 12 ft. lengths, 1/2 inch diameter ..... 3 for £1  
P.M.G. Key Switches ..... 7/6 each  
Radiogram Chassis—straight-out B/C new, completely wired, less valves and speaker, 30/- . Tube types 6V4, 6M5, 6BE6, 6BH5, 6BD7 available, extra.

## NEW VALVE SOCKETS

832A Sockets	20/- each
4/250A	20/- ..
Acorn	3/8 ..
EF50	2/6 ..
VCR97	10/- ..
805	12/6 ..
EA50	2/6 ..
5-pin	2/6 ..
6-pin	2/6 ..
7-pin	2/6 ..
7-pin P.T.F.E. Sockets	5/- ..
Locktal P.T.F.E. Sockets	5/- ..
Special completely shielded 7-pin P.T.F.E. socket and shield	10/- pair

## Q PLUS COILS

AB1 T.V. Balun	\$1.75	VIF3 I.F. Trans.	90
AC2 Aerial Coil	\$1.00	VIF4	90
AC3	\$1.00	VIF5	90
AC4P	\$1.00	VIF6	90
ACAS	\$1.00	VIF8	\$1.30
AC7	\$1.30	VIF11	\$1.00
AC9	\$1.30	VIF12	\$1.00
IF14 I.F. Trans.	\$1.30	VIF14	\$1.00
IF15	\$1.30	VIF15	\$1.00
IF29	\$1.65	VIF25	60
IF34	\$1.30	VIF28	60
IF36	\$1.65	VR01	60
IF44	90	VW1	80
IF45	90	RC6 Reinhart Coil	\$1.00
		RC5	\$1.00

## NEW TOGGLE SWITCHES

S.P.S.T. 5/- each, D.P.D.T. 10/- each.

## POTENTIOMETERS

Wire Wound, 4 Watts, 1 inch diameter. Sizes available: 5, 10, 25, 50, 100 250, 500, 1K, 2K, 10K, 50K ohms. 4/- each.

## NEW CHANNEL LOCK PLIERS

Type 337W ..... 20/- each  
Type 336 End Cutters ..... 20/- each

## ROTARY WAFER SWITCH

1 pole 24 position 3 bank. Physical size: 3 x 3 inch. Price 30/- (\$3.00).

## MAGNETIC RELAYS

Sealed Type  
24 volt, 670 ohms, D.p.d.t., size 2 x 1 1/2 inch, Price 15/- (\$1.50).  
24 volt, 700 ohms, D.p.d.t., size 1 1/2 x 1 inch, Price 15/- (\$1.50).

## NEW CHOKES

7-5H. 125 mA. 30/- ea. 14 H. 60 mA. 12/6 ea.



# RADIO SUPPLIERS

Phone 81-1935

Established 1947

The call-sign books went off like hot cakes, and Uncle Tom 5TL, our publications officer, has been turning the Adelaide bookshops inside out in an endeavour to find an odd one or so to oblige a host of clamouring would-be buyers. The old story again—the early worm gets the bird—or something like that.

Another welcome visitor to VK5—his original stamping ground—was Ross, WB6DEX—3AJL—5AJJ, who was over from W land for a short period, lecture bound as usual—and my source of information informed me that he stayed with Pete 5FM for a couple of days, and also that there might be a remote chance of his snatching time to pay a quick visit to the meeting night. However, this did not eventuate, more's the pity, but perhaps there will be another time to renew acquaintances—or as he so aptly put it in a letter to me some time ago—even renew old animosities!!

It goes without saying that upon my return from my eight weeks' holidays, that the mail-bag was overflowing, including a letter from "Greg," who it will be remembered wrote that excellent article earlier in the year in the magazine on the crystal converter using the "Like New Mixer," etc., etc. He tells me that he wrote the article in somewhat of a hurry just prior to disappearing to Macquarie Island for the "summer." My suggestion in an earlier paragraph that his obvious qualifications—a B.Sc.—should make it a piece of cake for a call sign, drew the observation that as it was taken in zoology—birds and bees, etc.—its qualifications for radio was debatable. However, he qualified it somewhat by saying that during his stay at Macquarie his experience as Col's OMI officer helped to firm his resolve to give the call sign a go, even though he is still in the very, very, very slow c.w. section. Nice to hear from you Greg, and don't weaken on that ticket. By the way, he is QSL manager for VKOMI these days.

Worked all my usual stations during my fixed portable set-up again this year, even running the risk of missing the dinner gong in an endeavour to contact Carl SSS and Frank 5MZ. We just concluded the QSO as the gong went, which meant that I was only a spoon or so of soup behind the rest at the start of the meal, ending up a clear winner by a return of apple pie plus a couple of pieces of jam and cream.

Called and called Tom 5TL—Uncle Tom to you—but he was evidently so busy saving little Eva from Simon Legree, or some such other activity, that he treated me with ignore. He was heard bemoaning the fact of having missed me, as he has never worked me from the Oakbank Racecourse, and was apparently quite keen to join the elite band who have succeeded in doing so. You should hear them carrying on as soon as I hit the air, it's hard to sort out the abuse from the praise!

Worked Comps 5EF early in the piece, with what he sneeringly described as a mixture of a.m.—"The Thing"—and raw a.c. Quite alarmed, I backed out and after wielding a hammer and a tyre brace to good effect, plus changing the microphone, I returned rather guiltily to the air and was rewarded by contacting Comps again to be given a clean bill of health, somewhat reluctantly, I felt.

Ron 5KS had a trip to Port Pirie over the school holidays, and if my spy at that locality is on the job, called on as many of the local gang as possible in the time available. Sounds like a good public relations effort on the part of our latest Council member.

Bob 5BG also on holidays and was hoping to make the general meeting for the lecturettes on the Delta-Het receivers.

If any of my readers are in the grip of the one-eyed monster, and at the same time watch "Coles Question," they might be interested to know that the Judith Williams who is upholding the honour of VK5 in the junior section of the show, is none other than the daughter of that doyen of the s.s.b. followers, Phil 5NN, probably better known as the sub-editor of the s.s.b. column in the magazine—which I never read incidentally—someone told me about it! Anyone who knows Phil personally will not fail to recognise the likeness between daughter and father, in fact the reaction of my XYL as soon as she saw Judith was to say, "You can tell she is the daughter of that man from Blackwood." Upon my saying that it would not hold that against her, she smartly said, "How can you say such a thing?"—I think he is a nice, clean-cut type of young man," and then treated me with ignore for the rest of the viewing. How shrewd can they be—call to the house on the pretext of lending me some R.S.G.B. magazines, and then lay on the charm with a trowel. Nice, clean-cut—the next thing she will be wanting to listen to some station using "The Thing."

Received a letter from Harold 2AWH just prior to taking my annual leave, in which was enclosed a letter from G3RND who was writing for information regarding Amateur doings in VK because he intends to come to

live in our part of the world, no state mentioned, at the end of this year. Harold had replied to him giving him some general answers to his questions, and hoped that I might be able to give the letter to one of his countrymen around Elizabeth way, who might oblige with further information. All is well Harold, the letter has been re-directed, and thanks for the pot on the back.

Also received a communication from Don 4DZ, who had found some use for the photo-stats of the Type 2, Mark 2 that I lent to Cliff 4QJ and was returning them intact to me. He included a paragraph in the letter to tell me that contrary to whatever else I had heard, Pincott 3AFJ—never heard of him—and our Federal Councillor, Geoff 5TV had behaved themselves perfectly at the Convention, and concluded by saying that at least if VK5 cannot grow bananas, they certainly produce a good mustache! He also sent his regards to the caretaker's Alsatian may his teeth never grow blunt! A remark that I took as wishful thinking.

Upon my return from my holidays I was pleased to note that Muriel 2AIA was well on the road to good health again, and also to read that Herb 2AOK now has the distinction of being a member of the VK2 Council. Nice work my dears—Oh, I am a one—not a word to Bessy!

A spy of mine, planted on Macquarie Island, dressed in his white tie and tails to permit him to escape detection by mingling with the penguins, informs me that Len 5ZF recently contacted Col OMI on 80 mx and secured a more than average report on his signals. Although Len probably does not know it, he had quite a long conversation with the above-mentioned penguin, and when you consider that he was only using 15 watts input from VK, he should feel well satisfied. By the way Len, the penguin has posted away the QSL card for the contact via the bureau, would like to see it sometime, just to know what a penguin writes like!

Jack 6LR back from one of his numerous vacations and finding business with the goggle-boxes very brisk. Finds very little time for Amateur Radio these days, although he informed me with his well-known twinkle in the eye, that he has never regretted making up his version of "The Thing." See if I care!

I never believe in hitting below the belt, not more than once anyway, but in self-defence I must draw attention of all those kind-hearted friends (?) of mine, who at the slightest provocation burst into songs of praise concerning the efficiency and what-have-you of using "The Thing" to a recent letter printed in my favourite technical publication from VK2, with the heading—"S.s.b. in the Desert."

Modesty and a natural desire on my part not to engage in an argument on such a dangerous subject, prevents me from saying, "I told you so," but perhaps that "Nice, clean-cut type of young man" from Blackwood would like to comment in his monthly column in the magazine? What's that? He might not have seen it—are you kidding? If he has not, I will quick and lively shove it under his nose!

One of the younger members of the VK5 Division recently told me that at times he would like to rise to his feet at the general meetings and have his say on certain matters, but felt a little shy and somewhat awed by the presence of older members. I told him that I always felt that way myself, which was one of the reasons that I never stood on my feet at a meeting, nor did I attempt to argue on any matters. Ignoring the look of amazement on his face, I gathered that he could not believe his ears, I quietly, in my well modulated and tinkling voice, recited a little something which I learnt from bitter experience well back in the old "spark days." Would you like to hear it? You would not—Thank you for your insistence, and here goes:

I hate to be a knocker,

I always long for peace,

But the wheel that does the squeaking

Is the one that gets the grease.

—, de VK5PS—PanSy to you.

73 . . . . .

## WESTERN AUSTRALIA

The May meeting of the VK6 Division was again well attended. Not the least interesting pair of the evening was finding one's way into, and out of, the meeting place. Once again the Technical College holidays coincided with the meeting night and the area was locked. To add somewhat to the confusion, a slight earth tremor was experienced. Windows and doors were severely rattled, however, a close inspection of the foundations showed that no serious damage was done. The cause was later explained by experts, as being the direct result of the presence of Ian 6CL and O.M. Glad 6FG. Definitely a blasphemous statement, Ian, and it was certainly nice to

see you at the meeting. More so for me personally, being the first eyeball for something like 20 years. Shades of the old R.A.A.F.I!

However, some 48 members completed the obstacle course of car park and hole in the fence and gained the bright lights of the Chemistry Lecture Theatre. Once again the area was made brighter by the presence of two YLs and a number of visitors. The name-tags are gaining prominence again and seem to be selling like hot cakes after their re-introduction by Graham 6ZEZ (more commonly known as Henry).

Our hearty congratulations go to Graeme 6GR and his XYL, on the recent arrival of a new harmonic.

My big ears twitched convulsively when I detected (or is it demodulated?) the low whisper that George 6GH was talking sideband and, furthermore, was consulting with Jim 6RU on what type of beam to install. Could it be true? It certainly is because I distinctly heard him on 20. Not only that but imagine my pleasure when Alan 6MO was also heard making his presence felt, also on a new side-band rig. Boy, if only you still had the antenna farm at Watheroo, Alan, the DX would sure take a beating.

Lost, stolen or strayed, one 6FP Mick Paget. Where are you O.M.? Long time no see, have you been tripping around the North-West again?

Heard recently on 80, the lonely voice of an ex-VK3 seeking kindred souls from his home state. John Pritchard 6IP ex-VK3UI—nice signal, too. If any traitorous member of the VK3 divvy should happen to let his wayward eyes stray to these VK6 notes, what about giving John a shout?

Mobile activity again under notice. Cedric 6CD from Carnarvon and Geraldton areas with transistorised rig giving a very creditable performance. Pat 6PH, tripping back and forth, doing a "Good Samaritan" between Narrogin and Perth, to bring some gear to a sick member of the v.f. gang. It is also rumoured that "Kondinin Bob" VK6KN is operating mobile in "them thar hills" Jack 6RT running 2 watts to a piece of wet string, sorry, 50 feet of wire, from Mount Magnet and points north. V.h.f. boys, among them Peter 6ZEP and John 6ZBY, were also operating portable from various hilly locations in our glorious sunny state.

While on v.h.f. topics, our congratulations to Don 6HK, Harry 8HP and Graham 6ZDB for their extremely successful efforts relating to the weather satellite. Incidentally, they received quite a good wrap up from the local press and T.V. news service. This type of publicity is good for the Amateur service.

That old stalwart of the "Brass Pounders' League" Ron 6RS was an honoured guest at the holiday home of Bill 6WY recently, and Bill took the opportunity to demonstrate his portable rig. Despite some good-natured gooding from Bob 6BE and other interested parties it is extremely doubtful that Ron will reach for the modulator switch. Ah well, it was good fun while it lasted and some good points were made in favour of all modes of operating.

Conditions on 80 appear to show continued improvement with many ZL stations being worked. Those who would know, assure me that 10 is also on the move in the right direction, so it looks as though I'll have to string that 10 metre quad after all.

Attention all VK6 Amateurs; The R.D. Contest rules remain unchanged this year so what about making a very special effort to set aside as much time as possible during that week-end. Let's give it a burst this year, and try and wrest back that trophy while we still have the chance.

Don't forget also the Jamboree of the Air a little later in the year—best to plan ahead and give yourself time to get well and truly organised. Operators are also required for the Byford camp site, apply now!

First I thought it might have been the altitude, but that was quickly ruled out, now I'm not quite sure. Certainly something strange is motivating these characters to greater effort. In case you're wondering what this is all about, the cause of my head scratching is the fact that Bob 6BE, Roger 6DT and Les 6WL are all in the midst of designing new receivers. Such exotic notions as crystal locked front ends, mechanical filters, half lattice filters and product detectors are being freely tossed about during discussion on the breeze. While the subject of receivers, Noel of the v.h.f. fraternity has completed construction of a Delta-het—very nicely done, too.

The Carnarvon Tracking Station has naturally attracted quite a host of technical types and as a result of this migration the area now boasts quite a number of call signs. Hope duties permit some of these fellows to come on the breeze occasionally to have a yarn with the boys in the "big smoke."

In conclusion, don't forget to get cracking on gear for the proposed Australis satellite launching. 73, Ross VK8DA.



## TASMANIA

More and more of our fraternity are moving to "The Thing" these days. Last weekend I heard Jim 7JO using only one sideband, and a very good signal too. There are not many sidebanders who can be recognised by voice alone, but several people who heard Jim, including myself, knew who he was without a call sign being heard, a F.B. signal, and even though a commercial rig, a lot more will be heard of the "Elco" in the near future.

As mentioned last month, Council planned to visit the North and North-western Zones during May, well this visit eventuated, and was considered by all to be very successful, indeed, it will be recommended that future Councils make an annual visit. At the Northern Zone meeting on the Friday night there were about two dozen members present when five members of Council arrived at about 9 p.m. Saturday afternoon saw 10 members of the North-western Zone at "Lakin's Hall" at Ulverston, where after the usual formalities, Ian TZZ and Ted TEJ repeated their previous evening's explanations relating to the new Federal Constitution. Likewise, at the general meeting at Headquarters Zone last Wednesday they were asked very similar questions on practically the same points of the document. We now have the views of the Division on the whole thing, and in particular that one item, 38, and your Council can now answer and ratify, knowing that all members (interested ones that is) know the facts, and are fully behind them in their decision. While on the subject may I take this opportunity of thanking both Ian and Ted, as well as the other dedicated gentlemen in other divisions, on your behalf, for the amount of work (immeasurable in value) that they have put in in compiling, discarding and re-compiling this new constitution which we hope will soon be agreed upon, sealed and finished.

Another of our members off interstate—this time none other than your secretary Crosby 7CR, who has, by the time you read this, just had a month in Canberra (work he says) and

## COMPUTER CIRCUIT BOARDS

Containing switching transistors, resistors, condensers, diodes, etc. 20c per transistor.

Also in stock:

OA200-type silicon diodes, 100 for \$4.

Everything tax paid and post free. \$2 min.

## AUSTRALIAN ELECTRONICS

76 View Street, Hobart, Tasmania

Repairs to Receivers, Transmitters; constructing and testing; xtal conv., any frequency; Q5-ers, R9-ers, and transistorised equipment.

## ECCLESTON ELECTRONICS

146a Cotham Rd., Kew, Vic. Ph. 80-3777

Stockists of Radio and Electronic Components for the Amateur Constructor and Hobbyist

First Ring, Write or Call on

**WILLIAM WILLIS** & Co. Pty. Ltd.  
428 Elizabeth St., Melb'ne. Ph. 34-6539

## A. R. R. L.

Associate Memberships (and renewals) are available by forwarding £2/14/- (plus 6d. interstate cheques) to:

Business Manager, W.I.A.,  
49 Cookson Street,  
Camberwell, E.6,  
Victoria.

This includes the regular arrival of

"QST"

who are we to doubt him. Hope you found some time to relax Crosby, and work a few VKIs at least.

Hope you all say a little prayer for the v.h.f. boys who are sitting for the c.w. this month. With any luck at all there should be at least half a dozen in the South who will migrate to the d.c. bands in the very near future. We are struggling with about 18 w.p.m. at the moment, if we get 100% proficient in the next five or six weeks I think we'll be pretty right.

Don't forget it's only about six weeks to R.D. Contest time—and VK7 want to win this year. 73's, Geoff VK7ZAS.

## NORTHERN ZONE

Last month's meeting brought forward some suggestions of a field day, and it was decided to go ahead and hold an exercise. It went off quite well except for some minor incidents, Harry 7BR getting lost 15 miles away and out of range of the group, and Peter 7PF the case of lost modulation. The day was a success and a good time was had by all who joined in.

Peter 7ZPD has his hands full of antennae and can't decide whether to leave them on the ground or elevate them a few feet higher. Let's hope you decide soon and maybe we will hear a signal from you.

Harry 7BR is building a new mobile rig and will run a full 1/100th kilowatt. I believe that it will cover 80, 40, 6 and 2 metres a.m., of course. Hope we hear it soon.

Den 7DK is rebuilding his modulator and h.f. a.m. rig. Duck talk must be hard on the ears.

Len 7BQ is rebuilding 80, 40, 20 Tx about 50 watts a.m., so looks like the old envelope carrier is in preference.

Bevan 7ZBW has succeeded in acclaiming fatherhood all over again and there's another possible for the Ham bands later on. I am sure that I speak for all when I congratulate you on the addition.

Antarctica has again reached Launceston, brrr, or that's the way it feels. Every contact you hear has mention of a radiator or a fire close at hand or they complain of cold shacks.

Regular contacts Devonport to Launceston has been established (2 metres a.m.). Brian 7ZBE with cavity filter and all, is hearing everyone. I believe that the r.f. amp. is beaut, except that it takes off when you are not looking. A few trace chains might come in handy.

I believe that Joe ex-7ZGJ is returning for a week in July and if Lorraine eases the reins we might even hear or see him. Hope things are going O.K. for you, Joe, and that the adventure is a success. 73, Frank 7ZFR.

## HAMADS

Minimum 5/-, for thirty words.  
Extra words, 2d. each.

Advertisements under this heading will be accepted only from Amateurs and S.w.l.'s. The Publishers reserve the right to reject any advertising which, in their opinion, is of a commercial nature. Copy must be received at P.O. Box 36, East Melbourne, C.2, Vic., by 5th of the month and remittance should accompany the advertisement.

**COMM.** Receiver, Collins 51J4, 500 Kc. to 30.5 Mc. in 30 bands of 1 Mc. each. Xtal filters, noise limiter, three lattice filters (1 Kc., 3 Kc., 6 Kc.). Mint condition, suit connoisseur. Original cost £1,200. Take £550. Melbourne 86-6465 or after 6 p.m., 772-3686.

**DRAKE** 2B Receiver, excellent condition. Includes 230/110v. transformer, speaker, extra 10 metre crystal and instruction manual, £189. J. Bail, VK3ABA, 20 Relowe Cres., Box Hill North, Vic. Phone 89-8505.

**FOR SALE:** BC453 Rx unmod., spotless, \$20. 2 mx conv. E88C, incl. xtal, \$10. KWH. meter on power board, incl. fuses, \$11. 2 mx tuned line QJEO6/40 amp., suit linear or gated mod., rack mtg., plus 8 ft. 6 in. std. rack, \$25. G. Scott, 93-5804, evenings. VK3ZIP.

**FOR SALE:** Electronics Australia, from Feb., 1956, to December, 1965, 127 copies; June, July, 1957, short. English magazines. Wireless World, from November, 1957, to February, 1962, 49 copies, two short. Practical Wireless, from January, 1959, to December, 1965, 72 copies, few short. Practical Electronics, from February, 1965, to March, 1966, 13 copies; offers. Maurice Batt, Post Office, Rokewood Junction, Vic.

**FOR SALE:** MR3A FM Carphone, new hammertone finish, crystals for channels A, B, and C, matching a.c. plug-in power supply. Complete with 1/2 wave vertical antenna and 30 feet of quality co-ax., gutter mount mobile whip and co-ax., clip-in mobile mount and spare 6360 final tube, £38. Lot 59 Orchard Street, Mt. Waverley, or phone 232-9392.

**FOR SALE:** Power Supply, 400 volt, 200 mA., choke input, fully filterer, 6.4 volt 3 amp., metered, relay control, cabinet, \$27 ea. 866 Rectifier Valves, \$1.50 ea. 866 fl. Transformers, A. & R., \$2 ea. Filter Chokes, A. & R., 300 mA., \$4 ea. Ducon Block Condensers, 4 mfd., 1500 volt, \$2 ea. Ducon Block Condensers, 4 mfd., 1000 volt, \$1.50 ea. All plus freight. David Scott, VK3DY, 174 Johnson St., Maffra, Victoria.

**SELL:** Commercial S.W.R. Meter, as new, £3. Shure 401A, hi-imped. mobile mike, new, £4. Semi-automatic morse key, new, £4. 12 volt Bosch alternator, as new, £3. Gelson pi-output coil, 10/-, ICPI 1 in. CR tube, £1. Several 6146's, 10/- each. Ring 314-6760 (Vic.).

**SELL:** CRTs; 5API, 3BPI. Transformers: Henderson multi-top to 900v. and files (for C.R.O.). Ferguson PF265 (battery charger). A. & R. 1894, 300-0-300, 125 mA. and files. A. & R. 6.3v. x 5 amp., 2 only. Chokes: National 150 mA., National 80 mA. All one price, 10/-, Vic. 314-6760, after 5 p.m.

**SELL:** Eddystone 680x, mint condition, £100. Vic. 314-6760, after 5 p.m.

**TRANSCIVER** for sale: 144 Mc. all-transistor ("A.R." Nov. '65). Self-contained, dimensions: 8 1/2 x 3 1/2 x 3 1/2 in. Ceramic tuners, new parts, including imported 72.25 Mc. xtal, 3 AF102's, 2 OC71's, OC72, dynamic mike-spkr., Tx section works O.K. but needs alignment. Rx section not good, needs adjustment to regeneration. Price \$14.50. A. D. Proudfoot, Ormond College, University of Melbourne. Phone 34-2201.

**WANTED** for S.W.L.s: AR7, HRO, BZ3, BC342, BC348, Hallicrafters, National, CR100, or any set that can be converted for general coverage. Please advise details and price. H. L. Roach, 28 Foster Avenue, Glenhuntly. Phone 58-3757.

**WANTED:** Receiver NC190 or SX100. Cash to \$300. Phone Adelaide 31-1638 or write J. Thompson, 20 Alexandra Av., Rose Park, South Aust.

# A LARGE RANGE OF TRANSMITTERS, RECEIVERS, TEST GEAR, AND DISPOSALS RADIO PARTS AVAILABLE

- ★ **BC221 FREQUENCY METER**  
Complete with Calibration Book, Crystal, and Headphones, \$90.
- ★ **SCR522 V.H.F. TRANSMITTER/RECEIVER**  
100-150 Mc. Complete with tubes, \$28.
- ★ **A.W.A. MR10 F.M. CARPHONES**  
70-85 Mc. 2E26 p.a. Complete with all tubes, power supply, control unit, handset, leads and plug for antenna, \$34.
- ★ **COMMAND TRANSMITTERS**  
4-5.3 Mc., 5.3-7 Mc. Complete with tubes, \$15.
- ★ **TR3624 TRANS./REC.**  
Approximate frequency, 200 Mc. Contains 46 miniature tubes, \$30.
- ★ **VARIACS, GENERAL RADIO**  
115v. 500w. New, in cartons, \$6.
- ★ **3J160E HIGH POWER TRIODES**  
120 Mc. full ratings. Heater 10v. 29a., anode max. volts 3000v., anode max. current 1000 mA. RF output 2150 watts. \$8 each.
- ★ **VALVES**  
EF50 20c ea., 7C7 10c ea., CV131 6CQ6 50c ea., 6AC7 20c ea., 6AL5 20c ea.
- ★ **SIGNAL GENERATORS**  
Type LSG10, 120 Kc. to 260 Mc., \$26. Type LSG11, 120 Kc. to 390 Mc., provision for xtal, \$30, both plus freight.  
TE22 Audio Generator, freq. range: sine 20 c/s.-200 k/c., square 20 c/s.-25 k/c., in four ranges. Output, 7v. p-peak. Output impedance, 1,000 ohms, \$42.
- ★ **METERS, P25 TYPE**  
0-500 uA., \$5.25; 0-100 uA., \$6.95; 0-1 mA. \$4.50; 0-10 mA., \$4.50; 0-50 mA., \$4.50. Full range of Meters and Multi-Testers available.
- ★ **CO-AXIAL CABLE**  
UR70 72 ohms, 3/16 inch diam., in 27-yard rolls, \$2 plus 75c pack and post. In as new condition.
- ★ **80-40 METRE TRANSCEIVER**  
San Electronics QTR7. Tx: 6BQ5 p.a., 6BQ5 modulator, xtal locked. Rx: Tunes 3.5 to 11 Mc., 1 watt audio output, 230v. a.c., \$90.
- ★ **BC348 COMMUNICATIONS RECEIVER**  
200 Kc.-18 Mc. in six bands. Xtal filter and b.f.o. Genuine original condition, \$90.
- ★ **RA1B COMMUNICATIONS RECEIVER**  
150 Kc.-15 Mc. in six bands. B.f.o., etc. Genuine original condition, with a.c. power supply, \$70.
- ★ **TR10A MULTIMETERS**  
100,000 ohms per volt. Ranges, DC volts: 0.5, 2.5, 10, 50, 250, 500, 1k. AC volts: 2.5, 10, 50, 250, 1k. DC current: 10 uA., 1 mA., 25 mA., 250 mA., 10A. Resistance: 20K, 200K ohms, 2 meg-ohms, 20 megohms. To clear, \$25.95.
- ★ **POTENTIOMETERS**  
Wire wound 40c each; carbon 25c each.
- ★ **RESISTORS**  
½ watt, I.R.C., Welwyn, Eire, Ducon, Philips, \$2 per 100.
- ★ **MINIATURE CAPACITORS**  
New shipment. 600 v.w. Values: 0.001, 0.02, 0.005, 0.0005, 0.0002, 0.0001 uF. \$2 for 80 plus freight.
- ★ **¾ H.P. 2-STROKE MOTORS**  
Ohlsoon and Rice. Brand new, just imported from America. Weighs only 5½ lbs. 6,300 r.p.m. supplied with 3:1 reduction gearbox, output 2,100 r.p.m. Ideal for driving Alternators for Field Days. Fuel consumption 1 pint per hour. \$30.
- ★ **CRYSTALS**  
Personal shoppers only, \$1 each.
- ★ **SPECIALS**  
3API C.r.o. Tubes. New in cartons, £1.25. Vacuum sealed Relays, 670 ohm coil, four change-overs, 50c each.  
3000 Type Relays, 50 c each.  
Dual 3000 Type, £1.50 each.  
Brand new 4 inch Speakers, \$3.  
Inter-office Phones, 15-station type, \$4 each.  
7-pin skirted Valve Sockets, P.T.F.E., insulation, silver plated, only 20c each, c/w. shield.
- ★ **TRANSISTORS**  
Brand new. OC72, OC44, 2N132, OC66, OC45, 80c each. AT1138 Power Transistor, 30w., Class B, \$3. Also Diodes: OA71, OA81, OA95, 35c each.

## WANTED TO BUY

Communication Receivers, Test Equipment, etc. Call, write or phone. Equipment inspected and picked up at your convenience any night or week-end.

## ANY QUERIES

Beginners are welcome, ask Jim and Laurie Gardiner any questions. They are Amateur Radio operators and will be only too pleased to assist.

ALL ITEMS FREIGHT EXTRA

# UNITED TRADE SALES PTY. LTD.

280 LONSDALE ST., MELBOURNE, VIC. (Opp. Myers)

Phone 32-3815



# WARBURTON FRANKI

## NEW SIDAC (Silicon Symmetrical Diode)

The SIDAC is a five-layer semiconductor device (NPNPN) having two terminals, greatly simplifying a.c. control circuits. Being bi-directional, one SIDAC can replace two SCR's in conventional control systems. In addition, blocking voltages are less temperature sensitive in the SIDAC and since there is no reverse direction, voltage transients do not injure the device. Current surges also are less damaging than those encountered in SCR's as the current is not initially confined to a small area near a gate. The SIDAC is cheaper than comparable SCR's. Firing the SIDAC is simplicity itself. Either a parallel or series circuit may be used and a specially developed pulse diode is available with suitable pulse transformer.

Type **K5B20**: Normal a.c. (r.m.s.) Circuit Voltage—240  
—r.m.s. Current capacity 5 amps.

**\$3.45** + S.T. 12½%.

Pulse Diode, Type K2C, 78c + S.T. 12½%

Pulse Transformer, .... \$1.20 + S.T. 12½%.

Please add Pack and Post, 10c Set.

NOTE: A Circuit is available for making a 1,000 watt Light Dimmer using the K5B20, K2C, Pulse Transformer and a few Resistors and Condensers. Write or call for a copy.

## TELEVISION REPLACEMENT COMPONENTS

Telecomponents and Radar Brands Stocked.  
Write or call for Data and Price Lists.

## SPECIAL!!

### RHEOSTATS 50 WATT 200 OHM

Size: 2½ inch diameter, overall thickness 1¼ inch. Shaft diameter 0.235 inch, length from face 1¼ inch.

**\$2.50** + S.T. 12½% + Pack and Post 10c.

## IRISH BRAND MYLAR RECORDING TAPE

American Professional Quality

3 inch	225 feet	.....	70c each plus Sales Tax 12½%
5 "	900 "	.....	\$2.25 " " " " "
5½ "	1150 "	.....	\$3.00 " " " " "
7 "	1800 "	.....	\$3.75 " " " " "
7 "	2400 "	.....	\$5.55 " " " " "

Please add Postage.

## SILICON DIODES

1N3491—18 Amps. at 50 p.i.v.

Available with either K or A to case, 75c plus S.T. 12½%.  
Heat Sink Adaptors to suit, 25c plus S.T. 12½%.

S10AR2—1 amp. at 1,000 p.i.v. .... **\$1.20** plus S.T. 12½%

S15AR2—1 amp. at 1,500 p.i.v. .... **\$2.00** " " "

1N3193—750 mA. at 200 p.i.v. .... **40c** " " "

1N3194—750 mA. at 400 p.i.v. .... **55c** " " "

1N3195—750 mA. at 600 p.i.v. .... **75c** " " "

## 36" FLEXIBLE SHAFTS

Fitted with ¼ inch driving shank, pistol grip and ¼ inch chuck. Designed for use with any electric motor, drill press, or other power source.

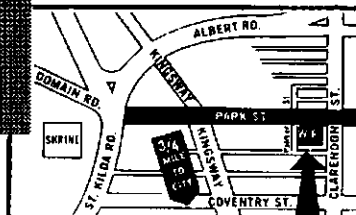
Shaft will work up to 6,000 r.p.m. intermittently.

**\$3** + S.T. 12½% + Pack and Post 10c.



# WARBURTON FRANKI

220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines **69-0151**



● TRADE ALSO SUPPLIED

● Please include postage or freight with all orders



# amateur radio

Vol. 34, No. 8  
AUGUST  
1966

25c

Registered at G.P.O., Melbourne, for  
transmission by post as a periodical

## NEW VALVES

JA3	50c	5U4GH	\$1.45	6CW4	\$3.06	7L7	75c	866	\$2.50
IA5	50c	5V4G	\$1.75	6F8	50c	7N7	75c	954	50c
IA7GT	\$2.60	5Y3	\$1.38	6G6	75c	7W7	50c	955	50c
1C7	50c	5Y4	75c	6G8G	\$2.60	12A6	50c	956	50c
1D4	75c	5Z3	\$1.75	6H6 Metal	50c	12A17	50c	958A	50c
1D8	75c	6A3	75c	6J5GT	\$1.00	12A77	75c	1616	\$1.50
1F5	\$1.00	6A6	75c	6J6	\$1.00	12A77	\$1.50	1625	50c
1H5	75c	6AB7	\$1.60	6K6	\$1.00	12A7A	\$1.50	1626	50c
1K5	50c	6AC7	75c	6K7	50c	12AV6	75c	1629	50c
1K7	50c	6AG5	50c	6K8GT	\$1.25	12B6E	75c	5636	75c
1L4	50c	6AG7	\$1.25	6K8 Metal	\$2.00	12C8	50c	5763	\$2.80
1L5	\$1.00	6AJ5	75c	6L7	50c	12J5	50c	6021	\$1.00
1L5N5	50c	6AK5	\$1.50	6N7	50c	12SA7GT	\$1.00	9004	50c
1M4	50c	6AL5	\$1.40	6H7	75c	12SC7	50c	EA30	40c
1M5	50c	6AM5	\$1.50	6S5	75c	12SC7	75c	EC135	\$2.00
1P5	50c	6AN36	\$1.00	6SA7	75c	12SK7	50c	EC133	\$2.00
1Q6	50c	6AN7A	\$1.65	6SC7	75c	12SN7	75c	EC135	75c
1R5	\$1.90	6ARTGT	\$2.10	6SF5	75c	12SQ7	50c	EF39	50c
1S2	\$1.75	6AS7GT	\$2.00	6SF7	75c	12SR7	50c	EF46	\$1.45
1S5	\$1.60	6AUG	\$1.45	6SH7	50c	16A5	\$1.70	EY91	50c
1T4	\$1.00	6AU8A	\$2.40	6SJ7	\$1.25	16A8	\$2.10	KT66	\$3.00
1U4	\$1.66	6AV6	\$1.40	6SK7GT	\$2.00	25L6	\$1.00	QVE03 12	\$4.75
1U5	\$1.60	6B6	75c	6SL7GT	\$1.25	25Z6	\$1.00	QVE04 7	\$2.59
2A5	75c	6BA6	\$1.55	6SN7GT	\$1.00	35L6GT	\$1.00	R118	75c
2A7	75c	6BE6	\$1.55	6SQ7GT	\$2.60	19	50c	UL41	\$1.00
2D21	\$1.20	6BL8	\$1.80	6SS7	75c	30	50c	UR53	50c
2E26	\$2.50	6BM8	\$1.55	6U5	\$1.95	47	50c	VR53	50c
2X2	50c	6BQ5	\$1.70	6U7	75c	57	50c	VR102	50c
3A4	\$2.20	6BR5	\$1.45	6U8	\$1.70	58	50c	VR135	50c
3A5	\$1.00	6BX6	\$1.45	6V4	\$1.14	60	\$1.70	VR136	50c
3Q5	\$1.00	6BY7	\$1.45	6V6GT	\$1.75	717A	75c	VR137	50c
3S4	\$1.00	6CZ6	\$1.80	6X4	\$1.00	807	\$3.75	VR150	\$1.25
3V4	\$1.50	6C8	50c	6X5	\$1.45	808	\$1.00	VT78 (6D6)	50c
3AR4	\$2.60	6C8	\$1.00	7A8	40c	809	\$2.00	VT127	50c
3AS4	\$1.45	6CG7	\$1.55	7C5	50c	830B	\$1.50	VT501	75c
3R4GY	\$3.75	6CH6	\$2.35	7C7	50c	832A	\$6.00	VU39A	50c
3T4	\$1.75	6CM5	\$2.25	7E6	50c	837	\$2.00		

## RECORDING TAPES

Well known makes.		Brand new in cartons. Guaranteed.	
150 ft. on 3 inch reel.	Acetate		50c
225 ft. " 3 " " "	"		75c
300 ft. " 3 " " "	Tensilised Mylar		\$1.25
500 ft. " 3 " " "	"		\$1.65
600 ft. " 5 " " "	"		\$1.20
900 ft. " 5 " " "	Acetate		\$1.75
1200 ft. " 5 " " "	"		\$1.95
1800 ft. " 5 " " "	Mylar		\$2.25
2500 ft. " 5 " " "	"		\$3.50
3500 ft. " 5 1/2 " " "	Tensilised Mylar		\$5.25
4500 ft. " 5 1/2 " " "	Acetate		\$1.75
1800 ft. " 5 1/4 " " "	Mylar		\$3.50
2400 ft. " 5 1/4 " " "	Tensilised Mylar		\$5.25
2400 ft. " 5 1/4 " " "	"		\$5.00
1200 ft. " 7 " " "	Acetate		\$2.75
1200 ft. " 7 " " "	Mylar		\$3.25
1800 ft. " 7 " " "	Acetate		\$3.75
1800 ft. " 7 " " "	Mylar		\$4.50
2400 ft. " 7 " " "	"		\$5.25
3000 ft. " 7 " " "	Tensilised Mylar		\$7.50
3600 ft. " 7 " " "	"		\$9.25

Empty Tape Reels		Plastic Storage Case and Empty Reel	
3 inch	25c	5 inch	50c
3 1/4 " "	35c	7 " "	\$1.29
4 " "	45c		
5 " "	40c		
5 1/2 " "	55c		
7 " "	50c	100 ft. reel	\$1.25

## BALUN TOROID

Type 355C. Impedance ratio 2.1:1, 52 ohms unbalanced to 25 ohms unbalanced, 3 to 30 Mc. For use at the base of a mobile whip antenna, coupled to fixed or adjustable 1x output impedance. Lug terminals. \$3.50.

## NEW WELWYN INSULATED METAL OXIDE

### POWER RESISTORS

Wire Wound.  
Available in following sizes: 10 ohms, 20, 30, 40, 50, 60, 68, 75, 82, 91, 100, 120, 150, 220, 270, 330, 370, 390, 470, 500, 560, 680, 720, 750, 820, 850, 1000, 1200, 1500, 1800, 2200, 2400, 2700, 3.3K, 3.9K, 4.3K, 4.5K, 4.7K, 5.6K, 6.8K, 8.2K, 10K, 12K, 15K, 18K, 22K, 24K, 25K, 27K, 33K, 35K, 39K, 47K, 56K, 68K ohms. Prices: 4 watts, 3/6; 8 watts, 4/6; 10 watts, 5/6.

TOLERANCE: Normal manufacturing tolerance plus or minus 5%.  
Shelf Stability: Less than 2% over 12 hours.  
Full Load Stability: For 2000 hours at 70 deg. C. less than 5%.  
Long-term Stability: Less than 0.1% per 1000 hours.  
Temperature co-efficient: Less than plus or minus 500 ppm deg. C. from 0-125 deg. C.  
Dielectric Strength: 600 volts R.M.S.  
Encapsulation: Fireproof Silicone Cement.  
Axial Leads: Minimum length 1 1/4 in. 21 s.w.g. dia.

## NEW GANGED POTENTIOMETERS

Carbon, Linear and Log Types.			
10K plus 10K (C)	28/-	100K, pl. 100K (C)	
50K plus 50K (C)	28/-	DPST	38/-
100K pl. 100K (C)	28/-	250K pl. 250K (C)	
250K pl. 250K (C)	28/-	DPST	38/-
250K pl. 250K (C)	23/-	500K pl. 500K (C)	
1mg. pl. 1mg. (A)	23/-	DPST	38/-
1mg. pl. 1mg. (C)	28/-	1mg. pl. 1mg. (C)	
2mg. pl. 2mg. (A)	23/-	DPST	38/-
50K plus 50K (C)	38/-	Other types to order.	

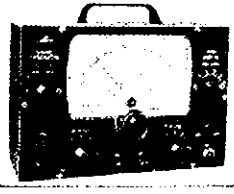
## TRIMAX INPUT TRANSFORMERS

Type TA 702S Serial D1. Max. level plus 3 db. Unbal. DCI-4 40 mA. Price \$3.

Posts	Bridge	C.T.	Imped.	Ohm
1 4	2 3	2	300	
1 2	1 3 2 4		75	
5 8		6	120K	

## LSGII SIGNAL GENERATOR

120 Kc.-390 Mc. Freq. range (six bands): 120 Kc. to 130 Mc. on fundamentals; 120 to 390 Mc. on harmonics. Mod. freq. 400 and 1000 c.p.s. Tubes: 12BH7, 6AR5. Rectifier: half wave selenium. Provision for crystal oscillator (xtal not supplied), 1 to 15 Mc, 100, 117 or 230v. a.c. input, 50/60 c.p.s. Size: 7 1/2 x 10 3/4 x 4 1/2 in. Weight: 6 lb.



Price: LSGII, £16/10/6 inc. tax  
LSG10, £13/17/6 inc. tax  
Packing and Postage 7 6

## DRIVER AND OUTPUT TRANSFORMERS

Transistor type RL8, Driver Transformer, 3000 to 1330 c.t. Transistor type JK8 Output Transformer, 300 c.t. to 15. Physical size: height 1 3/4 in., depth 1 3/4 in., width 1 3/4 in. 10 - (\$1) each, or 17 6 (\$1.75) per pair.

## FILAMENT TRANSFORMERS

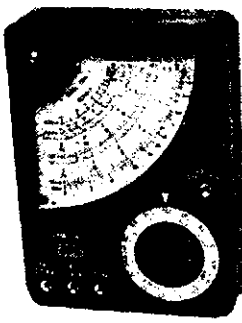
T4 4	230v., 6.3v. 2 a.	32/6	\$3.25
2150	240v., 6.3v. 2.5 a., or two by 6.3v. 1.25a.	35/-	\$3.50
2155	240v., 6.3v. 7.5v., 8.5v., 9.5v., 12.5v., 15v. 1 amp.	46/-	\$4.60
12 64	240v., 6v., 4a., 12v., 4a.	50/-	\$5.66
12 66	240v., 6v., 6a., 12v., 6a.	57/6	\$5.75

## ALIGNMENT TOOLS

Jabel No. 4 Alignment Tool Kits. All popular sizes. Four tools in plastic pouch. 12 1/2. \$1.20.

## MULTIMETER Model 200H

20,000 ohms per v. d.c. 10,000 ohms per v. a.c.



Specifications:  
D.c. volts: 0-5, 25, 50, 250, 500, 2,500.  
A.c. volts: 0-10, 50, 100, 500, 1,000.  
D.c. current: 0-50 mA., 25, 250 mA.  
Resistance: 0-60K ohms; 0-6 meg.  
Capacity: 0.01-0.3 µF. (at a.c. 5v.); 0.0001-0.01 µF. (at a.c. 250v.).  
Decibel: minus 20 db. plus 22 db.  
Output range 0-10, 50, 100, 500, and 1,000.  
Battery used: UM3 1.5v. 1 piece.  
Dimensions: 3 1/4 x 4 1/2 x 1-1/8 in.

Complete with internal battery, testing leads and prods.  
Price £5/12/6 inc. tax.  
Packing and Postage 3 6

# HAM RADIO SUPPLIERS

5A MELVILLE ST., HAWTHORN, VIC. Phone 86-6465

North Balwyn tram passes corner. Money Orders and Postal Notes payable North Hawthorn P.O.

We sell and recommend Leader Test Equipment, Pioneer Stereo Equipment and Speakers, Hitachi Radio Valves and Transistor Radios, Kew Brand Meters, A. & R. Transformers and Transistor Power Supplies, Ducon Condensers, Welwyn Resistors, etc.

# "AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA FOUNDED 1910

AUGUST 1966

Vol. 34, No. 8

## Editor:

K. E. Pincott ..... VK3AFJ

## Assistant Editor:

K. M. COCKING ..... VK3ZFQ

## Publications Committee:

G. W. Baty (Secretary) ..... VK3AOM  
A. W. Chandler (Circulation) ..... VK3LC  
E. C. Manifold ..... VK3EM  
W. E. J. Roper ..... VK3ARZ

## Draughtsmen:—

Ken Gillespie ..... VK3GK  
Clem Allen ..... VK3ZIV  
Ian Smith ..... 36 Green St., Noble Park

## Advertising Enquiries:

C/o. P.O. Box 36, East Melbourne, C.2, Vic.  
or  
Mrs. BELLAIRS, Phone 41-3535, 478 Victoria  
Parade, East Melbourne, C.2, Victoria. Hours  
10 a.m. to 3 p.m. only.

## Publishers:

VICTORIAN DIVISION W.I.A.,  
Reg. Office: 65a Franklin St., Melbourne, Vic.

## Printers:

"RICHMOND CHRONICLE," Phone 42-2419,  
Shakespeare St., Richmond, E.1, Vic.

★

All matters pertaining to "A.R." other than subscriptions, should be addressed to:

THE EDITOR,  
"AMATEUR RADIO,"  
P.O. BOX 36,  
EAST MELBOURNE, C.2, VIC.

Acknowledgments will be sent following the Committee meeting on the second Monday of each month. All Sub-Editors should forward their articles to reach "A.R." before the 5th of each month. Any item received after the Committee meeting will be held over until the next month. Publication of any item is dependent upon space availability, but in general about two months may elapse before a technical article is published after consideration by the Publications Committee.

★

Members of the W.I.A. should refer all enquiries regarding delivery of "A.R." direct to their Divisional Secretary and not to "A.R." direct. Non-members of the W.I.A. should write to the Victorian Division, C/o. P.O. Box 36, East Melbourne. Two months' notice is required before a change of mailing address can be effected. Readers should note that any change in the address of their transmitting station must, by P.M.G. regulation, be notified to the P.M.G. in the State of residence, in addition "A.R." should also be notified. A convenient form is provided in the "Call Book."

★

Direct subscription rate is \$3.00 a year, post paid, in advance. Issued monthly on the first of the month, January edition excepted.

## FEDERAL COMMENT

★

One important characteristic of an Australian is his capacity for survival.

Self help is the most reliable kind of help. With it a natural flair for improvising, making use of available materials, can turn a failure into a victory.

There is a tendency for today's Australians to follow a world fashion which dictates—"Don't fix it. Get a new one." This may be all right while the supply of "new ones" continues, but for a long while there will be many times and places in Australia with no guaranteed supply.

Knowing how to fix it with laboratory equipment available is one thing. Doing it in the field on the ground under a tent, while it is raining maybe, is a totally different task.

Field days seem a long way off at this time of year, but need they be? Should they be?

A field day as well as being an interesting excursion has a serious background. It develops that essential "know-how" which can deal with emergencies under "far-from-laboratory" conditions.

Emergencies do not, as a rule, choose to occur under perfect weather conditions. Preparation months ahead is time well spent even for summer field days.

There is no better time to ask yourself the following question than before a field day: "If the rig fails while I am 'portable' have I any hope of fixing it, or will I just pack up the little black box and go home?"

Are you an independent or a dependant? How well are you equipped in the self-help department?

L. A. SEEDSMAN.

## CONTENTS

A Transistorised Amateur Band Receiver .....	2	Book Review: 1966 World Radio T.v. Handbook .....	12
Some Thoughts on Six Metre T.v.i. ....	5	DX .....	13
Sideband .....	9	YRC .....	13
VK4AT might go on the Air .....	11	VHF .....	15
Father Xmas, Fairy Godmothers and all .....	11	Publications Committee Reports ..	15
Prediction Charts for August .....	12	SWL .....	17
		Correspondence .....	17
		Federal and Divisional Monthly News Reports .....	18

# A Transistorised Amateur Band Receiver

PART ONE

HAROLD L. HEPBURN,\* VK3AFQ

## PROLOGUE

A few months ago the Moorabbin and District Radio Club felt that a constructional project should be undertaken as a means of providing additional interest for its members.

At a meeting held to discuss the proposition it was obvious that keen interest existed in such a project and that it should involve the use of transistors. Few club members had done any constructional work with semi-conductors so that a "transistorised" project would also have some additional educational benefits. Ideas as to what should be made were many and varied, just about every bit of equipment known to Hamdom being suggested at one stage or another.

After more discussion and consideration at committee level it was decided to build a communications receiver. It was realised that this would be a rather ambitious entry into the world of semi-conductors but in spite of the obvious problems involved it was felt that a transistorised receiver had several advantages.

(1) A receiver has a much wider appeal than other, less complex, equipment such as signal tracers, oscillators, etc.

(2) Club members have always been keen on 80 metre transmitter hunts but of recent years there has often been more spectators than hunters due to the lack of equipment suitable for mobile or portable use.

(3) A single band h.f. receiver would be a good basic unit from which, and by the addition of, say, converters, other h.f. and v.h.f. bands could be explored.

(4) Since a very large proportion of club members are also active in the Victorian W.I.C.E.N. organisation it was felt that a transistorised receiver would meet a long unfulfilled need for a very low drain unit. Since the major use for h.f. in Victoria has been "watch-keeping" a low drain receiver is obligatory.

(5) Since at least one club member had already built a prototype transistorised single sideband generator for the 3.5 Mc. band, the possibility, at a later stage, of combining the two into a complete portable transistorised rig was most attractive.

## RECEIVER SPECIFICATIONS

The general specification of the receiver as it finally emerged is as follows:—

1. Capable of operation on any d.c. supply between 14 volts and 9 volts, thus allowing either mobile or portable use.

2. Circuitry is floating with respect to d.c., thus allowing use in either positive or negative earthed vehicles.
3. Low current drain—30-35 mA. quiescent, rising to over 60 mA. at maximum audio.
4. 250/300 mW. output.
5. Sensitive and capable of excellent performance on a.m., s.s.b. or c.w.
6. Provision made for the later addition of a mechanical or ceramic filter if required.
7. Tunes either 3.5-4.1 mcs. or 2.5-4.1 mcs.
8. Capable of being used as a tuneable i.f. in conjunction with either h.f. or v.h.f. converters.
9. Contained in an all-metal cabinet 4 in. high by 10½ in. wide by 7½ in. deep. Only about half the internal volume of this case is used by the receiver so that there will be ample room at a later date to add converters, sideband generator or what have you.

of design more usual in Amateur circles. It meant that it should be possible for everyone to build to the same design in the same way and obtain the same result. Junk box parts (unless they fitted the component specification exactly) were not used and modifications to suit the bits and pieces that participants might have were ruled out. Pretty obviously if thirty people each wanted a different "mod" the organisers would have thirty sets of problems to iron out, not just one set!

To spread the cost of the finished unit it was designed and constructed in five sections. Each section was paid for, made and tested before the next stage was started.

The sections, in the order of construction, were:

1. Audio amplifier.
2. B.f.o. and cabinet.
3. I.f. strip, detectors and a.g.c. circuitry.
4. Local oscillator.
5. R.f. and mixer stages.

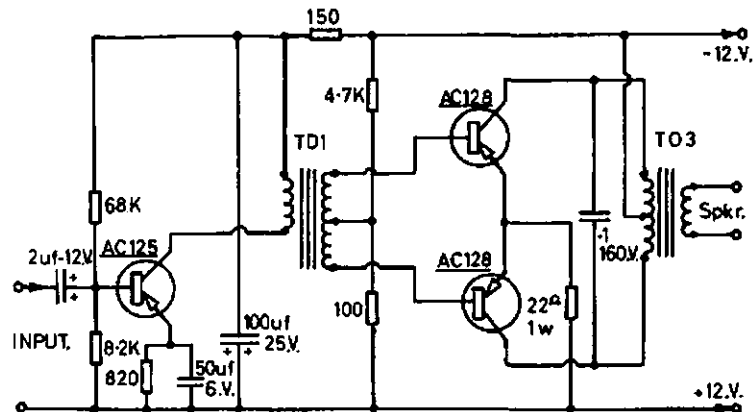


FIG. 1.

All resistors are ½ watt except where otherwise marked. The driver and output transformers specified are made by A. & R., while the condenser across the primary of the output transformer is a polyester type. The quiescent current of the unit is 3 mA. at 12 volts.

10. Calibrated dial and a double speed 8/1 or 36/1 reduction drive which has proved to be more than adequate for s.s.b. on the h.f. bands.
11. Uses 12 locally available transistors and three diodes.
12. Voltage regulation on all but the audio stages.
13. Sectionalised for simple stage by stage construction.
14. Uses parts freely obtainable in VK.

Since over thirty members were each interested in building a receiver the problems associated with large-scale production (such as parts procurement and reproducibility) were added to those encountered in the "one off" type

The cabinet was included in Stage 2 since the cost of the b.f.o. on its own was much lower than the other four sections.

The Moorabbin Club premises are not set up as a workshop capable of handling a large number of people so that a detailed set of instructions was prepared for each section and the actual constructional work was done by each participant in his own shack. This also avoided the problem of picking a series of constructional nights suitable to all participants.

At the start of the project three people—Neil Trainor (VK3ZRT), Bob Jordan (VK3AKJ) and the writer—each built a prototype and these early models used to develop the final cir-

\* 4 Elizabeth St., East Brighton, Vic.



cuitry and layout and to iron out as many of the inevitable "bugs" as possible. The final design proved to be highly reproducible, well tamed and very effective.

Obviously no claims can be made for either technical originality or technical superiority, but at least it can be said that the finished receiver can be built by any VK enthusiast without solving the problem of getting those special parts called for by overseas designs.

It is perhaps unnecessary to add that any group or individual requiring further information is welcome to seek it through the Moorabbin Club or direct from the writer.

Cost—oh yes—about \$15.50 per stage if you exclude the filter.

### DESCRIPTION OF CIRCUIT

Normally an article such as this would have one large circuit diagram appended to it. This approach will not be followed in this series of articles for the very good reason that the individual sections have already been diagrammed for the instructional material issued and the writer was too darn lazy to draw it all again!

### THE AUDIO SECTION

The circuit for the audio end of the receiver is shown in Fig. 1. Audio input from the detectors is amplified by the AC125 stage which in turn is transformer coupled to the bases of the pair of AC128's class B output transistors. Output is about 250 mW, into either a 3.5 or 15 ohm speaker. The 0.1  $\mu$ F. 160 volt polyester condenser across the primary of the output transformer is included to reduce the high frequency response of the unit.

It is realised that two AC128's in class B fed from a 12 volt rail are capable of an output in excess of that obtained, but here—as in other parts of the circuit—preference has been given to reliability rather than trying to squeeze the last drop out of the components.

The audio section was built on a specially prepared circuit board 4 in. x 2 1/2 in. and a layout diagram of this board is given in Fig. 2.

In the event that someone feels the printed circuit rules out having a try at this receiver—forget it. A "one off" can be made on "Veroboard" or even matrix board. It won't look quite as nice underneath of course but that may

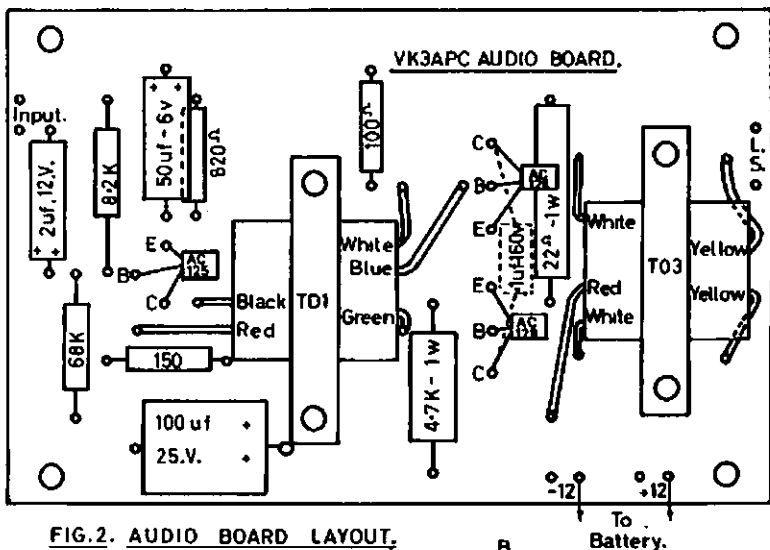


FIG. 2. AUDIO BOARD LAYOUT.



not be a real consideration. The original prototypes were built in this way and the use of boards only became feasible when a large number of people took part.

If you are interested in more details on the board—and for the boards to be described for later stages—they can be obtained by the simple process of asking!

### THE B.F.O. AND CASE

The b.f.o. was the second unit to be constructed in the project and included the 10 1/2 in. x 4 in. x 7 1/2 in. metal case used to house the completed receiver. The cabinets will not be described in detail here since other constructors may prefer to use what they have around. Anyone interested in exact duplication can—once again—get the information by asking.

The circuit of the b.f.o. is given in Fig. 3. An AF115N is used in a high C oscillator and a second AF115N used as a shunt fed buffer amplifier. This amplifier was included to isolate the varying load presented by the detector to the oscillator. Without the amplifier, strong s.s.b. signals were very distorted and almost unreadable.

An OAZ205 zener diode is used on the b.f.o. board to maintain the voltage applied to the collectors at a steady value (about 7.5 v., depending on the OAZ205 used) irrespective of the supply voltage and the variations in current drawn from the supply by the class B output stage. This regulated supply is also used to feed the r.f. and i.f. sections of the receiver. Thus all save the audio section has a stabilised supply—a strong contributing factor to the excellent stability of the finished receiver.

The two 0.0022  $\mu$ F. capacitors across L1 are silver mica, as is the 100 pF. padder used to reduce the capacitance swing of the 90 pF. Eddystone b.f.o. note condenser. Note that the tuner is bolted direct to the metal chassis and is isolated for d.c. from the board. No matter whether the positive or negative supply line is grounded to case r.f. continuity for the b.f.o. note condenser is provided by the 0.1  $\mu$ F. 25 v. capacitor across the supply rails of the b.f.o.

Adjustment of the b.f.o. will be described in a later article.

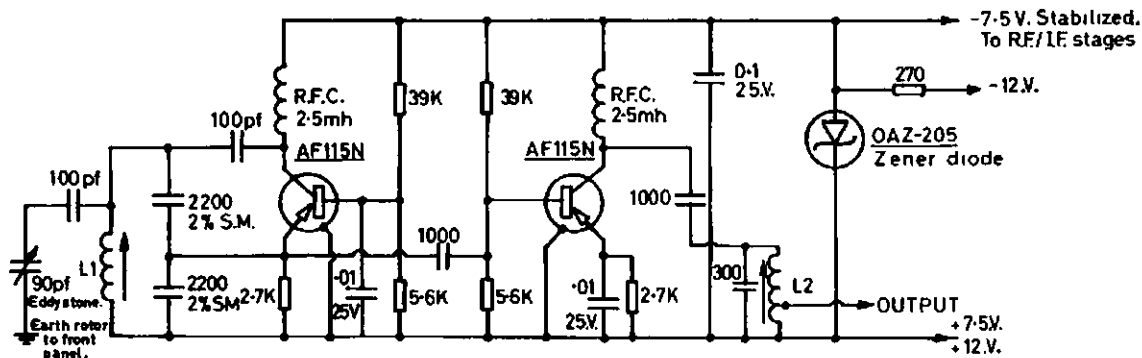


FIG. 3. VK3APC Receiver B.F.O. Unit.

All resistors are half watt types.

R.F.C.—Miniature 4-pie type, wound on ferrite core.

L1—45 turns of 36 s.w.g. on Ducon Q1 miniature pot core.  
L2—80 turns, tapped 28 turns from cold end, on a Ducon Q1 miniature pot core.

### F455 - FA - 21 FILTERS

COLLINS Type F455A Mechanical Filters, 455 Kc. Wiring instructions with each unit. Price (inc. S.T.): \$35.

### DOW KEY MANUAL CO-AXIAL SWITCHES

R.F. Ratings: 1kw. to 500 Mcs. Fine Silver Finish. Fitted with UHF type SO239 co-axial sockets.  
 DK78-2 Single Pole two throw ..... \$15.50  
 DK78-3 Single Pole three throw ..... \$15.50  
 DK78-6 Single Pole Six throw ..... \$15.50  
 Prices include Sales Tax.

### AMERICAN DOW-KEY ANTENNA RELAYS

Coil Ratings: 6, 12, 24 volts d.c. at 2 watts. 6, 12, 24 volts a.c. at 6va., 50-60 cycles. Special coil voltages available on request. R.f. Ratings: 1kw. power rating to 500 Mc.; 20 watts power rating to 500 Mc. in types DK60-G and DK60-G2C in de-energised condition. The DK60-G and DK60-G2C have a special isolation connector in the de-energised position to reduce cross-talk to a minimum.

V.S.W.R.: Less than 1.15:1 from 0 to 500 Mc. (50 ohm load). Isolation: Greater than 60 db. at 10 Mc. in DK60 and DK60-G2C; greater than 100 db. from 0 to 500 Mc. in DK60-G and DK60-G2C when in energised position.

Operating Time: Less than 30 milliseconds from application of coil voltage; less than 15 milliseconds between contacts.

Connections: Standard SO239 type v.h.f./U.h.f. Co-ax. Connectors. Available with Type N, BNC, TNC and C Connectors to order. \$4.18 extra.

Price: Type DK60 standard single-pole change-over ..... Price \$15.28

Type DK60-G standard single-pole change-over with special isolation contact in de-energised position to reduce cross-talk ..... Price \$10.80

Type DK60-2C, same as DK60, but includes external set of double-pole change-over contacts ..... Price \$17.60

Type DK60-G2C, same as DK60-G but with external double-pole change-over contacts ..... Price \$19.17

PRICES INCLUDE SALES TAX. Not always available ex stock. Delivery 3-4 months between shipments. Orders on hand first delivery.

### CO-AXIAL FITTINGS AND CABLE

PL259 Co-axial Plugs, suit 3/8 in. cable \$9.95  
 SO239 Co-axial Sockets ..... \$4.90

UG175/U and UG176/U cable Adaptors for use with PL259 ..... \$0.31

C32-16 Right-angle co-axial connector Jack to Plug, suit PL259 ..... \$1.88

C32-17 T. Connector—Plug and two Jack Ends—suit PL259 ..... \$2.33

C32-14 Coupling for two PL259 Plugs \$1.72

Belling & Lee L734P Co-ax. cable plug \$0.32

" " L604S co-ax. chassis socket ..... \$0.28

" " L603/B co-ax. chassis socket ground insulated \$0.25

" " L734/S recessed co-ax. chassis socket ..... \$4.25

" " L734/J co-ax. cable socket ..... \$0.43

" " L1421 Bulk-head cable socket ..... \$0.56

" " L618 Coupling—couple two L734/P plugs ..... \$0.36

PT81M (UR67) co-axial cable, per yd. \$0.55

RG58AU 50 ohm co-axial cable, per yd. \$0.55

PT91M (UR57) 72 ohm co-axial cable, per yd. \$0.55

PT11M 70 ohm co-axial cable, per yd. \$0.55

FORMULA 11 open wire 300 ohm transmission line, 100 ft. coils ..... \$5.06

### GELOSO V.F.O.

Model 4/104 V.f.o. Unit. Tunes 80, 40, 20, 15, 11 and 10 metres. Uses 6CL5 and 6783 valves. Price (valves extra), \$24.60.

Model 4/102 V.f.o. Unit. Tunes 80, 40, 20, 15 and 10 metres. Uses 6J5G, 6AU6 and 6L6 valves. Price (valves extra), \$24.60. Prices include Sales Tax.

4/105 Crystal controlled Beat Frequency Oscillator (valves extra). Price \$25.

Notes on Circuit Application of Geloso V.f.o. Units available upon request. All Geloso V.f.o. Units are supplied complete with calibrated dial, pointer and perspex escutcheon.

### PI-COUPLERS

**WILLIS MEDIUM POWER TYPE**  
 For use up to 600 watts p.e.p. Match plate loads of 2,000 to 3,500 ohms (Z) and higher into co-axial cable. Operating Q increases on higher frequencies to increase harmonic suppression enabling practical values of tuning capacity to be used on 10 and 15 metres and allowing for wiring inductance (L). Incorporates extra switch section for shunting additional capacity (C) if required, or switching other circuits. Switch rated for 10 amps. at 2,000 volts with contact resistance (R) of 0.8 milli-ohms. Price: \$7.95 (inc. S.T.)

**WILLIS PI-COUPLER CHOKE**  
 To suit above Pi-Coupler. No resonances within Amateur bands if spaced diameter or more from metal panels. Stands 6 inches high on 1 inch diam. ceramic former. Base mounting bracket included. Price: \$2.50 (inc. S.T.)

**GELOSO PI-COUPLERS**  
 Type 4/111 for use with parallel tubes type 6146s, 807s, etc.  
 Type 4/112 for use with single ended tubes type 6146, 807, etc.  
 Both Types, Price: \$3.95 (inc. S.T.)

**EDDYSTONE 250 pF. CONDENSERS**  
 Type 817 condenser, suitable for use with input of all above Pi-Couplers. Rated 1,200 volts r.m.s., ceramic insulation, fit space 2 inches square by 2 3/4 inches deep. (Output condenser normal small two or three gang b.c. condenser.) Price: \$4.50 (inc. S.T.)

**DUCON 20 KV. CERAMIC COUPLING CONDENSERS, 500, 1,000 pF.**  
 Price: \$1.20 (inc. S.T.)

Please allow for Freight when Ordering

### "WILLIS" AIR-WOUND INDUCTANCES

No.	Turns		B. & W. Equiv.	Price
	Diam. Inch	Length Inch		
1-08	1/2	8	No. 3002	52c
1-16	1/2	16	No. 3003	52c
2-08	5/8	8	No. 3006	62c
2-16	5/8	16	No. 3007	62c
3-08	3/4	8	No. 3010	73c
3-16	3/4	16	No. 3011	73c
4-08	1	8	No. 3014	84c
4-16	1	16	No. 3015	84c
5-08	1 1/4	8	No. 3018	\$1.05
5-16	1 1/4	16	No. 3019	\$1.05
8-10	2	10	No. 3907	\$1.38

Special Antenna All-Band Tuner Inductance (equivalent to B. & W. No. 3907 7 in.)

7 in. length, 2 in. diameter, 10 turns per inch, \$2.45

References: A.R.R.L. Handbook, 1961; "QST," March 1959; "Amateur Radio," Dec. 1959.

### S.W.R. METERS

KYORITSU Model K-109 Standing Wave Ratio Bridge, 1:1 to 1:10 s.w.r. Impedance 50 and 75 ohms. Frequency range 1.5 to 60 Mc. Includes 0-100 d.c. microammeter. \$30 inc. sales tax.

### GRID DIP OSCILLATORS

Just out! The transistorised EDDYSTONE "Edometer" type G.D.O. 390 Kc. to 115 Mc. with set of seven plug-in coils. Zener stabilisation maintains constant performance with falling voltage. Can be used as g.d.o., for resonance checks on tuning circuits, for actual measurement of inductance and capacity. An in-built modulator stage provides use as signal generator for receiver alignment or as a signal source for audio tests. Can be used as absorption wavemeter, heterodyne wavemeter and modulation monitor. Tuning is simplified by geared reduction drive while the clearly calibrated scale permits rapid reading. Meter sensitivity is adjustable. Unit includes jack for morse key for use as morse code practice oscillator. No external power source required. Price \$34.75 (inc. S. Tax).

### A & R TOROID BALUNS

General Specifications: Power rating—Types A, B, C, 200 watts or 400 watts p.e.p., provided the s.w.r. is less than 2:1. Construction—Toroidal ferrite cores, fully encapsulated with epoxy resin and silica under vacuum. Suitable for use in cold to sub-tropical areas. All except 355C and 356C are provided with antenna insulator support brackets. Balun dimensions approx. 2 in. diam. x 1 in. plus socket and lugs. Weight approx. 3/4 to 4 oz.

Type 350A—Impedance ratio 1:1. 75 ohms unbalanced to 75 ohms balanced. 3 to 30 Mc. For use at centre of a dipole antenna with co-axial cable feed line or at base end with 75 ohm twin line. Co-axial connector is Belling & Lee L604/S and lug terminals. Price \$3.77 (inc. S.T.)

Type 351A—Impedance ratio 1:4. 75 ohms unbalanced to 300 ohms balanced. 3 to 30 Mc. For use at centre of a folded dipole antenna with co-axial feed line or at base end with 300 ohm twin line connector and terminals as 350A. Price \$3.77 (inc. S.T.)

Type 352A/BC—Details as 350A except frequency range 500 Kc. to 5 Mc., or to 30 Mc., for receiving purposes only with increased attenuation. Price \$3.77 (inc. S.T.)

Type 353B—This is a type 350 with a co-axial socket SO-239 (Amphenol screw type). Price \$4.39 (inc. S.T.)

Type 354B—Type 351 with SO-239 co-axial socket. Price \$4.89 (inc. S.T.)

Type 355C—Impedance ratio 2:1. 52 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. For use at the base of a mobile whip antenna, coupled to fixed or adjustable transmitter output impedance. Lug terminals. Price \$3.49 (inc. S.T.)

Type 356C—Impedance ratio 3:1. 73 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. Lug terminals. Use as 355C. Price \$3.49 (inc. S.T.)

### PENETROX "A"

Famous American aluminium and copper corrosion inhibitor. Avoid bad electrical connections and corroded joints on beam antennae, T.V. antennae, etc. Use—

### PENETROX "A"

Price: \$1 per tube (Post paid)

### "JABEL" TR14 REAMERS

Ideal for clean finish on small panel holes and cleaning out for neat fit.

Price: \$1.05 each.

**WILLIAM WILLIS & CO. PTY. LTD.**  
 430 ELIZABETH STREET, MELBOURNE, C.1, VIC. Phone 34-6539

# SOME THOUGHTS ON SIX METRE T.V.I.

ROY HARTKOPF,\* VK3ZOM

THE fall off in 6 metre activity since Channel 0 started has been so great that—for a large part of the time—the six metre band is virtually unused. This is bad from every standpoint, especially if one believes in the “use them or lose them” philosophy.

Shortage of time has prevented the writer building any two metre gear and so he has been on six metres quite regularly and the results of his experience may be of some help to others.

The very first thing is to go over to vertical polarisation. If you like to make a rotatable vertical ten element beam there is nothing against it, but the writer has found that a simple ground plane is surprisingly effective. It eliminates practically all flutter when talking to mobiles; over three DX seasons it has proved—as far as can be seen—as good as any other type of antenna; and finally it has the great advantage that one does not miss contacts, both calling and listening, because the beam is pointing in the wrong direction.

Fig. 1 shows the general construction of a ground plane which can be made in a few hours at the cost of a few shillings (cents to you). Try it. One does not have to have the radials sloping down and out at this peculiar angle, but the general idea is that being half way between a vertical dipole (70 ohms) and a ground plane (35 ohms) it should be a reasonably good match for a piece of 50 ohm co-axial cable. An additional bonus comes from the fact that when you go over to a ground plane you will find a marked reduction in any interference from Channel 0 in the six metre converter.

The second and obvious thing is to keep on the 53.032 Mc. a.m. net frequency or slightly higher, especially during the evenings. The extra megacycle separation makes a great difference to t.v.i. and has no appreciable effect on one's ability to make contacts. If not working on the net choose a frequency within 100 kc. of the 53,032 net frequency. The reason for this is that an efficient high Q trap, when one has to fit it, has a very narrow bandwidth over which it is effective.

Thirdly, you will find there is a threshold power level of your transmitter above which t.v.i. becomes practically inevitable. This is normally somewhere in the region of 5-8 watts, a power when effectively used with a decent aerial is more than enough for normal local contacts. Look how effective the Pye Mark 1 Reporters are. Last summer the writer heard VK4ZLG mobile in the middle of Brisbane at RS 5 and 8. If you experiment with your own t.v. receiver, steadily reducing the transmitter power, you will find this “threshold” effect. A reduction of as little as ten per cent. will make the difference between no picture and practically negligible interference. As mentioned above, this maximum power

is something to be found by experiment. Mainly it seems to be governed by the aerial set up.

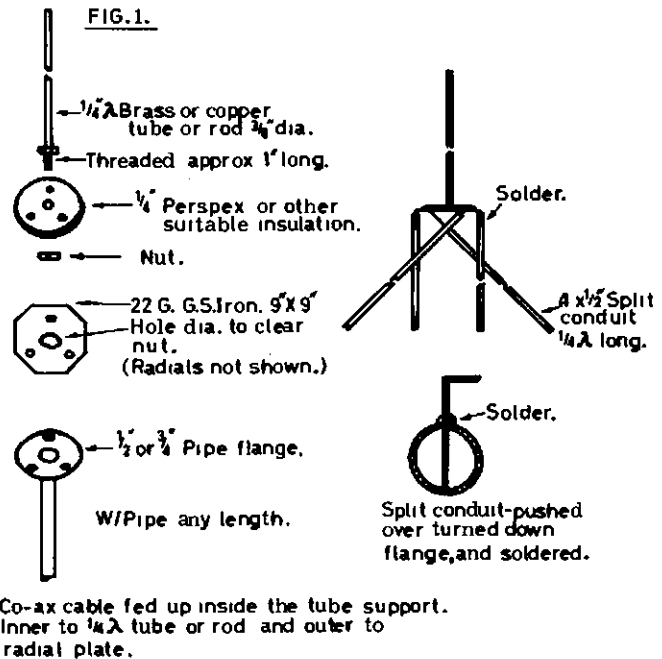
The above three suggestions are based on the assumption that the mechanical and electrical design of your transmitter is first class, which unfortunately is seldom the case. But here are a few things which can be checked and rectified with very little expense.

Make sure that as little radiation as possible is getting back into the mains either on the transmitting frequency or on any other. Don't take this for granted. If you do a thorough check round power points, etc., with a sensitive absorption meter with the transmitter working into a dummy load you will probably get a horrible shock. The

neater rig and things like cross-band working and tape recorders can be used without r.f. getting into every audio amplifier and creating a chorus of howls and squeals.

Much of the trouble with poor or unstable modulation at v.h.f. can be traced to r.f. getting into the audio circuits and overloading them. So for your own sake as well as for the prevention of t.v.i. make sure that the only r.f. radiation is that which comes from the aerial.

Even if you have done all these things you will, unless you are very lucky, still have a little t.v.i. to contend with. Begin by practising on the home set. Firstly make sure that the fine tuner covers the correct range. At



writer has an old home-brew sig. gen., completely enclosed in an aluminium box with only the mains lead coming out. It is low power, using an acorn tube (955) as oscillator. Yet when this is switched on in the house, with output control at zero and not even the output lead in the socket, the little brute gives enough signal to overload the mobile receiver in the car in a tin-roofed garage down at the bottom of the yard!! The car receiver isn't even connected to the mains! Imagine what a crystal oscillator on 48 Mc. could do! One of the simplest and most efficient ways of eliminating mains trouble is to use feedthrough capacitors in all h.t. leads including heaters which go to any part of the transmitter, together with a small r.f. choke. In using multipliers avoid like the plague any frequencies which fall in the Channel 0 band.

In any case it does no harm to screen all transmitting equipment. One has a

one end you should be able to get the picture breaking up with sound bars appearing and at the other end you should lose the sound. In between these positions there should be one where the best picture and sound coincide with the least t.v.i. If the interference is still noticeable then is the time to fit a trap.

Fig. 2 shows details of a simple trap which the writer has found to be extremely effective. It is basically a simple series resonant circuit and in effect makes a short circuit across the t.v. set input at the transmitter frequency. The reason for the two capacitors can easily be connected to the terminals of the set along with the 300 ohm ribbon. No soldering is needed. Then, since the coil centre axis is parallel to the back of the set it is very easy to insert a tuning wand and watch the result at the same time. (During the adjustment the transmitter must of course be running with a

\* 34 Toolangi Rd., Alphington, N.20, Vic.



COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF THE NAVY

## AIRCRAFT MAINTENANCE AND REPAIR BRANCH

### NAVAL DEFENCE ACT VACANCIES

#### **SENIOR TECHNICAL OFFICER,**

#### **GRADE 1 (2 positions)**

**SALARY:** \$4236-4540 (actual).

**DUTIES:** Position No. 23.

Responsible to an engineer to act as section leader on maintenance engineering aspects of Naval aircraft communication and navigation radio equipment and associated test equipment. Some development work is involved. Initiate and prepare technical orders and correspondence, progress investigations relating to defects, modifications, spares, etc.

#### **QUALIFICATIONS:**

Some theoretical training in Radio engineering. Considerable experience on the maintenance of aircraft communication and navigation radio systems and associated test equipment, and some knowledge of British and American procedures desirable. Ability to direct staff, prepare correspondence and reports.

**DUTIES:** Position No. 18.

Responsible to an engineer to act as section leader on maintenance engineering aspects of Naval Aircraft electrical and ignition systems including associated test equipment. Some developmental work is involved. Initiate and propose technical orders and correspondence, progress investigations relating to defects, modifications, spares, etc.

#### **QUALIFICATIONS:**

Some theoretical training in Electrical engineering. Considerable experience on the maintenance of aircraft electrical and ignition equipment together with associated testing facilities, and some knowledge of British and American procedures desirable. Ability to direct staff, prepare correspondence and reports.

**LOCATION:** of the above positions—

Initially in Melbourne but to transfer to Sydney in January, 1967. Transfer will be made to Sydney at departmental expense. An allowance will be payable to the successful applicant whilst located in Melbourne except for Melbourne applicants.

#### **TECHNICAL OFFICER, GRADE 2**

**SALARY:** \$3768-4072 (actual).

**DUTIES:** Position No. 50.

Responsible to a Senior Technical Officer for the provision of technical advice to all Contractors engaged in the servicing, repair and overhaul of aircraft radio and electronic equipment.

#### **QUALIFICATIONS:**

Sound basic training in radio and/or electronics. Wide experience in the maintenance of airborne radio systems, preferably in military aircraft. Ability to prepare reports and correspondence.

**LOCATION:** Sydney.

#### **APPLICATIONS**

To reach the Secretary, Department of the Navy, Canberra, A.C.T., by 5th August, 1966, preferably on forms obtainable from the following centres:

**Canberra** . . . . . Telephone 65-3629  
**Sydney** . . . . . Telephone 35-0444, Ext. 495  
**Brisbane** . . . . . Telephone 31-1611  
**Melbourne** . . . . . Telephone 69-0440, Ext. 6712  
**Perth** . . . . . Telephone 39-1521  
**Adelaide** . . . . . Telephone 49-6123-5

tone or a tape recorder or a second operator providing normal modulation.)

For those who haven't a tuning wand it can be made by cementing a small dust core slug to one end of a plastic knitting needle and a piece of brass or copper about the same size to the other end. Wrap a little tape over them to prevent the metal touching the coil and make sure the wand is small enough to go inside the coil. The first time the writer tried this on a neighbour's t.v. set the results were amazing. As the tuning wand was poked slowly and carefully into the coil the interference disappeared so suddenly and completely that the writer thought for a moment that the transmitter had packed up!

You can't of course leave the tuning wand permanently in the coil but here again the design of the trap makes adjustment very easy. If inserting the dust core end clears up the interference then squeeze the coil together a little, and if the insertion of the metal slug clears it then pull the ends of the coil apart.

For preliminary adjustment of the trap either use a g.d.o. with the leads which one normally connected to the t.v. set shorted or connect a torch bulb between them and hold it near the tank coil of your transmitter and squeeze or open the coil until it resonates. Use a frequency round about the middle of the band (i.e. 53 Mc.).

Another thing which can sometimes be helpful in very strong signal areas is to put a couple of small carbon resistors in series with the antenna leads. This will attenuate both the signal and the interference and reduce the possibility of front end overloading in the receiver.

## PUBLIC RELATIONS

So much for the technical problems. There still remains what we could call the social, public relations and personal problems. In the writer's opinion these are far more important even than the technical ones and unfortunately receive the least attention.

Imagine you are on the air one evening and a neighbour whom you hardly know bangs on the front door and tells you he cannot hear his programme because of interference. Like most people he is probably a well meaning bloke who hasn't a clue about anything technical. He feels annoyed and at the same time embarrassed about coming round and complaining. To get enough moral courage to come and knock on the door he has probably had to work himself into a state of real or imaginary temper. How to deal with such a person?

Don't start off by denying anything and, even worse, don't start apologising. Just be friendly and interested. Ask him how long it has been going on. If he has been a week or two working up enough courage to come and complain he will want to get it off his chest. So listen with sympathetic interest while he tells you how he missed the really good sexy bit of the review, and never found out who killed the blackmailer and missed the best part of the massacre in the Hollywood epic.

The longer he goes on talking the better and his relief at finding a sympathetic listener will make him feel so

much better that he will be prepared to co-operate to the full.

There was one classic instance of the effectiveness of this approach when one complaineer, after sorrowing for ten minutes and basking in an atmosphere of sympathetic interest, finished up by saying, "Of course it isn't really so bad and most of the programmes are so rotten it does not matter much if we do miss a bit."

When he has completely finished you can start asking him questions. Has he got an outside aerial and has it been put up by a qualified serviceman. If he hasn't tell him that the radio inspectors will have nothing to do with any installation which is not up to standard and in the same breath say that you have—being interested in radio—designed some special traps which will probably clean up the interference in spite of his sub-standard installation. (It is of course more tactful to use the words "indoor aerial.") When you go

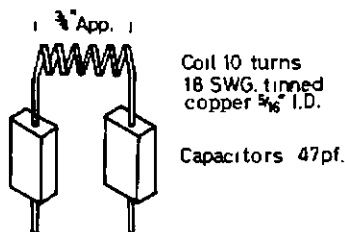


FIG. 2. 53 Mc/s trap.

down to fit the trap try moving the lead and the aerial. You will sometimes find that a few inches will make all the difference. Show him how critical this kind of set-up is, explain how dicey the television wavelengths are, and without being offensive, always make it clear that it is his installation not yours which is faulty.

If he has an outside aerial then ask him if the set has had Channel 0 fitted by a qualified serviceman. If the answer is no, then repeat the routine above with suitable variations.

If from his answers it seems that everything is in first-class order then tell him about the trap and arrange to go down and fit one. Before doing so, however, see that his aerial looks O.K. and is pointing to the television station and not in the wrong direction. Also check the socket and see that one lead of the ribbon is not hanging loose, a very frequent occurrence. Then fit the trap and unless you are very unlucky the troubles will be over.

Occasionally, however, you may come across a real no-hoper. There are two kinds of no-hoppers, human and electronic, and the method of dealing with them is the same in both cases. Get in touch with the radio inspector.

From the writer's personal experience it would be hard to find anyone more helpful, sympathetic and co-operative than the average radio inspector. In addition, he has had more experience in all kinds of interference than anyone else and has all kinds of unexpected clues and answers. One no-hoper (electronic, not human) problem, where the fitting of a trap eliminated Channel 0 interference but broke up Channel 2 (apparently because of tuner instability), was very neatly solved by the R.I. bringing a television

set which he carried in the car, into the house and showing the people that it would receive perfect, interference-free pictures on all channels, using the same aerial and power point.

Another case, where interference complaints came from a person several streets away, the trap removed the interference and a fair amount of Channel 0 as well. It was obvious that the front end r.f. stage was tuned to the Amateur band or higher.

Again the person was politely but firmly told by the R.I. that the receiver was responsible and should be attended to.

Human beings tend to accept and hold illusions just because they are too lazy to think for themselves. One of the most widespread of these illusions is that the majority are always right. Actually if we look at history we will find that progress has been achieved by the minority of cranks, saints, prophets and martyrs, with the majority dragging along reluctantly like Paddy's goat; and only moving of their own accord when things get so desperate (through their own laziness) that they have to do something.

One could enlarge on this theme indefinitely but the point is that, because a thousand people watch witless cowboy films and gangster thrillers and only one person runs an Amateur transmitter, that fact does not make a thousand right and the lone Amateur wrong. In the writer's opinion there is far too much apologetic talk among Amateurs about service to the community, as though they had to justify their existence. Has anyone thought of asking the square-eyed tele-addicts to justify their existence. They would be hard put to do it!

The average Amateur might not be a budding Marconi, but the very fact of using, operating, and (we hope) constructing radio gear means he is learning, without expense to the community, skills without which a modern society could not exist and without which the majority would not have any thrillers to look at.

A little pep talk along these lines, tactfully put over while one is curing t.v.i., does no harm at all, and one sign that it has been effective is when the people offer to pay for the time and cost of fitting the trap. It is very bad policy to accept anything, but the offer does at least show that the assistance has not just been taken for granted.

One final word of warning. Do not ever let your enthusiasm get the better of you to the extent of offering to do anything to the t.v. set. Do not ever even take the back off. If you can and do fix anything your efforts will be taken for granted and if anything goes wrong with the set for the next five years you will be blamed. On the other hand, if the people show any interest in Amateur activities by all means invite them to see your shack and say a few words over the air.

Curing t.v.i. is not necessarily a chore, it is another aspect of Amateur Radio and one in which it is still possible to make new and interesting discoveries. In fact, this and the u.h.f. bands offer perhaps the best opportunities for the pioneering Amateur of today. So good luck and see you on six.

# SIDEBAND TOPICS

## COST STRUCTURE OF IMPORTED S.S.B. TRANSCEIVERS

Recently, most American Amateur equipment has been increased in price. The SWAN SW350 and GALAXY V. Transceivers, without accessories, now cost U.S.\$420 in the U.S.A. Adding freight, insurance and handling overheads, this equals an even \$400 in Australian money. Disregarding local import duties, this comes to \$450 after adding the inevitable 12½ per cent. sales tax.

However, we have to allow for the 45% import duties on the importers' net cost. In the past I have tried hard to get admission of strictly Amateur gear under By-law (reduced or no import duties) provisions, but without luck. Here are some extracts from letters received from the Commonwealth Department of Customs and Excise:

"The Customs Tariff does not make provision for admission under By-law to single side-band Transceivers when for Amateur use."

"In respect of such goods for commercial use, Transceivers are available from . . . (names of Australian manufacturers) . . . and for the purpose of By-law administration, suitably equivalent to imported units."

In future, therefore, the cost structure of SWAN and GALAXY Transceivers, in round figures, will be:

U.S. dollar retail price .....	\$420
30% discount, only on large orders .....	126
	<hr style="width: 100%; border: 0.5px solid black;"/>
	<b>\$294</b>
45% import duties (add packing cost) .....	133
12½% S.T. on landed cost, plus 20% .....	64
Approximate freight, insurance, etc. ....	19
	<hr style="width: 100%; border: 0.5px solid black;"/>
Total landed cost in U.S. dollars .....	<b>\$510</b>
	<hr style="width: 100%; border: 0.5px solid black;"/>
Approximate Australian money equivalent .....	<b>\$460</b>

If sold for much under \$580, the Australian importers will have less than 20% gross profit mark-up to cover all their expenses, risk, warranty liabilities, etc. Few can be expected to do that.

It should be clear what real bargains Australian Amateurs have been enjoying. I shall continue to sell my present stock at the old prices, see April and May 1966 advertisements in "Amateur Radio," but when new supplies arrive the prices will have to go up. I maintain stocks of:

- ★ SWAN SW350 latest model Transceivers.
- ★ GALAXY V. Transceivers, with the best receiver of the lot.
- ★ HY-GAIN multiband verticals and 3-band Yagi Beams.
- ★ Co-axial Baluns.
- ★ C.D.R. and ALLIANCE Antenna Rotators.
- ★ WEBSTER Bandspanner all-band Mobile Whips.
- ★ Heavy duty A.C. Power Supply Speaker Units.
- ★ D.C.-D.C. Transistorised Mobile Power Supplies.
- ★ AUTRONIC Transistorised Automatic Keyers.
- ★ Crystal Filters, Verniers, Trimmers, etc., for the home-builder.

—Arie Bles.

## SIDEBAND ELECTRONICS ENGINEERING

P.O. BOX 23, SPRINGWOOD, N.S.W.

Telephone: Springwood 51-1394

# SIDEBAND

Sub-Editor: PHIL WILLIAMS, VK6NN

## CRYSTAL FILTERS FOR S.S.B.

It is apparent that the crystal filter will become the "work-horse" of commercial single-sideband during the early 1970's when many point-to-point and mobile h.f. services will be changing over to this mode of transmission. This is not to discount the widely used mechanical filters, mostly manufactured for the popular i.f. frequency of 455 kcs., and also on certain lower frequencies. Where equipment is to be kept simple, cheap, and free from the problem introduced by multiple mixing (such as the elimination of unwanted frequencies) the h.f. crystal filter in the 4 to 10 Mcs. frequency range, comes into its own.

Many Amateurs with patience, ingenuity and a certain amount of good fortune have been able to produce very good crystal filters in the 400 to 500 kcs. range using surplus type FT241 crystals, and in the h.f. range using FT243 type crystals. Although this is not a "how-to-make-one" article, you are referred to back copies of "A.R." and the article in "QST" of October, 1960, by D. J. Healey W3HEC. Just remember that any design using a high impedance filter terminator, e.g. a low C tuned circuit, should be suspect. David Robertson VK5RN/W2 went to the trouble to optimise the FT243, 2-half-lattice filter design by digital-computer studies, and his results were published in "QST" of July, 1964, p. 58. The curves he gives are worth studying as they could save a number of your "experimental" crystals. The use of plated surplus crystals should be avoided as the pole-zero frequency spacing is usually excessive, being about 5 kcs. or more. An exception to this statement is the special list of filter crystals marketed by the International Crystal Co. in U.S.A.—the crystals are specially made.

## COMMERCIALY MADE FILTERS

The following is a general discussion of a few of the "facts of life" about filters.

H.F. crystal filters are relatively new to come on the market in countries other than U.S.A., and even there, up until two or three years ago, were produced by only a few specialist firms. Now we hear of British, German, Japanese, Canadian, Russian and Australian firms about to produce reasonably priced s.s.b. filters in the 2 to 3 kcs. bandwidth class. These filters are usually of two grades, the 4-crystal filter having spurious "pop-ups" about 45 db. below maximum in-band response, and 6 (or 8) crystal filters in which the "pop-ups" are better than 60 db. down, and the shape factor slightly better (steeper sides). My experience has been that the former (cheaper) type is quite adequate for

transmitting duty with some treatment of the audio amplifier to reduce response below 300 cycles and above 3 kcs. They are also quite good enough for v.h.f. s.s.b. on 6 or 2 metres, where the band is megacycles wide, but for receiving or transceiving in your home station, the better filter will be justified for removal of strong signals on adjacent channels when you are struggling with "strength 2" DX stations.

Where separate filters are used for selecting upper or lower sideband, these may be asymmetrical filters having a steeper slope adjacent to the carrier crystal and the pop-ups, too, are lower on this side. The majority of filters made for the Amateur are symmetrical, and are supplied with upper and lower sideband crystals.

Since the manufacturer has to do quite an amount of development on each filter and then spend money tooling up and providing a test line, you are well advised to buy his standard filter. If you ask for another type on another frequency just to suit some surplus mixing crystals you have, you will be surprised at the price quoted, to say the least. You will get the same answer if you demand an "obsolete" type, too.

It is fortunate that the narrow band filters having a bandwidth of about 1.3 times the "pole-zero" spacing are the easiest and cheapest to produce.

Expressing the bandwidth as a percentage of the centre frequency we can roughly divide filters into the following classes:—

1. 0.005 to 0.3% bandwidth—relatively cheap and easy to make—includes Amateur 5 and 9 Mcs. types.
2. 2 to 10% bandwidth—so-called "wide-band" filters. These use inductances in special designs to broaden the pass-band, and designs are more complex.
3. 0.3 to 2% bandwidth—i.e. quasi-wideband filters. These are neither type 1 nor 2 and require quite a lot of design and development, resulting in a high-cost filter.
4. Non-standard configurations, such as steep cut-off on one side, special slope characteristics, delay and phase compensation and other special features. Cost will be high depending on stringency of specification, but equipment manufacturers can frequently obtain reasonable quotations for quantity production.

There are no standards either of the commercial or military variety for filters as yet, so you just have to trust the maker and go by his past record of production of acceptable filters—his published data and instructions as to how to use the filter, for optimum results.

One cannot expect fast delivery of special filters because of the relatively

slow ageing of the filter crystals. Several months is quite usual from a factory almost next door.

Delivery of standard filters already on the shelf, is, of course, ex-stock.

In general the cost of filters of the standard variety is dependent on the number of sections. The 3 section (6-crystal) filter is about 50% more costly than the 2 section (4-crystal).

The variables which must be specified when a manufacturer orders a filter, are:—

Termination.

Operating level.

Input power.

Attenuation.

Centre frequency.

Spurious responses.

Type of response.

Environment,

and tolerances on the above.

For Amateur application temperature tolerance is not of any consequence, where a 50-cycle frequency change is typical of 9 Mcs. over a 10 to 50°C. temperature range. A specification of—say 50 to +100°C., can give a frequency change ten times the above figure, and this is another story.

Termination of a filter is usually related to its natural impedance and is usually specified by the maker. The circuit designer must meet this requirement in his own way (many "equivalent" circuits are permissible), if the termination is not already sealed into the filter case. Low frequency filter crystals are better for "temperature range," and high frequency crystals for "vibration." While these do not worry Amateurs, some compromise will be necessary for a commercial or military design. Overdrive can frequently damage filters and degrade performance. An input of 10 milliwatts is a typical upper limit. Isolation from d.c. is essential, and goes without saying more.

Filter tolerances should not be tighter than required as this may reduce the yield of crystals from a production run making the cost of the system quite prohibitive. Many filters are specified on a c.w. response curve basis, but the user should remember that few of them work under this condition and therefore transient response is all important. For the Amateur, this means that the speech must "sound" right. I consider this to be a defect in the performance of the usual mechanical filter—but these still have other desirable attributes for purely "communications" quality.

The low loss of the crystal filter makes it desirable for Amateur use. When comparing loss figures, however, the basis on which these were taken should be considered, e.g. was the db. loss a power loss, or a voltage transmission loss when correctly terminated?

I trust this long list of considerations does not deter any Amateur from using up that stack of FT243 crystals and the jar of ammonium bi-fluoride (slowly eating its way through the bottle) on top of the cupboard in the shack. With care you will produce an acceptable filter.

73 for now, Phil 5NN.

N.B.: That old sidebander south of Perth, Bob VK6RG had his 66th birthday on the 6th day of the 6th month of 1966. Congrats. Bob!



# LOW DRIFT CRYSTALS

FOR  
**AMATEUR  
BANDS**

ACCURACY 0.01% OF  
STATED FREQUENCY

**3.5 and 7 Mc.**  
Unmounted, £2/10/0  
Mounted, £3/0/0

**12.5 and 14 Mc.**  
Fundamental Crystals,  
"Low Drift"  
Mounted only, £5.

THESE PRICES DO NOT  
INCLUDE SALES TAX

Spot Frequency Crystals  
Prices on Application.

Regrinds ..... £1/10/0

## MAXWELL HOWDEN

15 CLAREMONT CRES.,  
CANTERBURY, E.7,  
VICTORIA

### CONTEST CALENDAR

- 13th/14th August: REMEMBRANCE  
DAY CONTEST.  
10th/11th September: W.A.E. Contest  
(Phone).  
1st/2nd October: VK/ZL/Oceania DX  
Contest (Phone).  
8th/9th October: VK/ZL/Oceania DX  
Contest (c.w.).  
15th/16th October: R.S.G.B. 21/28 Mcs.  
Telephony Contest.  
29th/30th October: R.S.G.B. 7 Mcs. DX  
Contest (Phone).  
Dec. 10th/Jan. 15th: Ross Hull Contest  
(v.h.f.).  
11th/12th February: John Moyle Memo-  
rial N.F.D. Contest.

### NEW! LOW PRICED

#### S.S.B. TRANSMITTER FL-50

Five bands, 50w. p.e.p. s.s.b., c.w., a.m.;  
6JS6A p.a., 5 Mc. crystal filter, c.c.  
(v.x.o.) or ext. v.f.o. a.i.c., p.t.t., bk-  
in c.w. Built-in 117/234v. a.c. pwr. sup-  
ply, ant. relay, pl output with variable  
ant. loading. Superb performance,  
appearance and construction. All tubes  
and diodes available in Australia. Use  
as a complete transmitter, or as exciter  
for linear or v.h.f. transverter.

Price: FL-50 £125 (\$250)

Matching FV-50 V.F.O.

Price: £32 (\$64)

If purchased together,

only £149 (\$298)

Sales Tax inc., Freight extra.

Australian Agents:

**Bail Electronic Services**

60 Shannon St., Box Hill N., Vic.

Phone 88-2213

For N.S.W. Sales and Service:

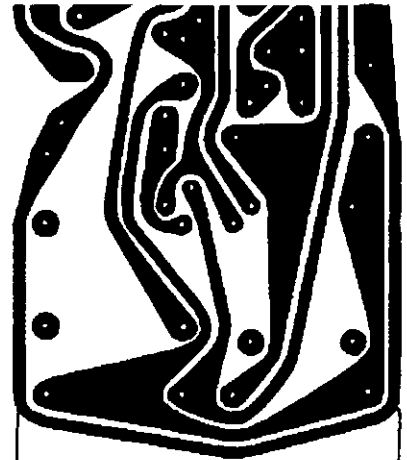
**Mosman Television Services**

11 Ruby Street, Mosman

Phone 96-5342

### TECHNICAL ARTICLES

Readers are requested to submit  
articles for publication in "A.R.,"  
in particular constructional arti-  
cles, photographs of stations and  
gear, together with articles suit-  
able for beginners, are required.



### NOW... PRINTED CIRCUITS TO YOUR OWN DESIGN!

Do you design your own circuits? All the  
advantages of printed circuits can be yours  
at modest cost. For many years Precision  
Windings have supplied printed circuits to  
Australian industry . . . and now stream-  
lining of production techniques permits the  
economical manufacture of small quantities  
. . . even single circuit boards. You design  
and supply the artwork . . . we do the rest.  
Precision workmanship is guaranteed and  
delivery made within 7 days.

FREE!! As many enthusiasts will not be  
familiar with the preparation of "artwork",  
send a stamped, addressed envelope to us  
and we will forward a set of notes written  
to simplify preparation of "artwork". In-  
structions are clear and concise.

### POST THIS COUPON NOW!

Please manufacture for me the printed circuits  
specified herewith in accordance with the art-  
work supplied.

Number required..... Scale of artwork.....

Size.....	Area.....	D/N.....	
Phenolic paper circuits @ 5c per sq. in.			\$
Epoxy paper circuits @ 8c per sq. in.			\$
Epoxy glass circuits @ 10c per sq. in.			\$
Holes drilled @ 5 for 1c (2c ea.)			\$
Cost of photonegative (fixed cost)			\$3.00
Sales Tax (12 1/2% or 25%)			\$
Packing and registered postage			\$0.50

Total \$

Please find cheque/money order/postal notes for total  
of \$..... (All cheques and money orders  
should be made payable to Precision Windings.)

NAME..... (BLOCK LETTERS)

ADDRESS.....

STATE..... OCCUPATION.....

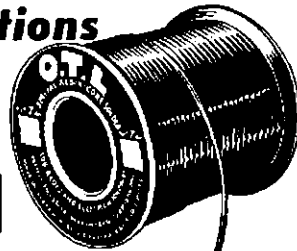
For Reliable Connections

# OTL

## RESIN CORE SOLDERS

O. T. LEMPRIERE & CO. LIMITED

Head Office: 27-41 Bowden Street, Alexandria, N.S.W.  
and at Melbourne • Brisbane • Adelaide • Perth.



OTL/78



52 CAMBRO RD., CLAYTON, VIC.  
Phone 544-7370

# VK4AT MIGHT GO ON THE AIR

**G**ETTING on the air! There's really nothing to it. I am already pawing the air. Everyone around here is exhausted, but not me.

I admit that my five passes in the A.O.C.P. exam. (not all at once) really shook me. No old war horse was faster off the mark. A power supply was acquired by ballot—sight unseen. It was advertised as a Minor Supply, but it would surely be big enough for a v.f.o.

My complacency was shattered somewhat when two big men successfully delivered it. Evidently they sold these things by the cwt. Its brand disturbed me not at all—R.A.A.F. Minor Unit No., etc. The sight of two 807s clearly indicated that the transmitter was still stuck on it.

There was no evident provision for the aerial lead on the relay and voltage regulating two 807s with a single 105/30 V.R. tube was a stunt that had escaped my notice in the past. However, the 5Y3 circuit was okay and a couple of 866s looked good. Now, on occasion I have myself depicted electrical currents flowing in paths not usually followed by them, but I needed no circuit now to show me similar phenomena.

Additional to the above were two manually operated resistor gadgets that allegedly raised the voltage as further resistors were introduced into the circuit. Poor Mr. Ohm! At such a sight I was pleased to note that my state of learning had reached such a level that I could effortlessly assume that air of horrified nonchalance sacred to the ranks of our older and very superior Hams.

On reflection I reverted to my former status and took the whole works into our Gympie Lecturer, Eric VK4XR. His verdict: I was to rip all gadgets and surplus bits out, change the bias wiring into a plus supply, replace the

former 20 watt 1500 ohm bleeder with a larger one (the present one measures 7 inches by 1 inch diam.) and change it from cap. to choke input. I was to leave the 500v. per side circuit as was, and was not to put my finger—**There, there and there** when the power was on!

In addition, if on adding the power the valves lighted up brilliantly and then went out, I was to re-check the wiring. If the switchboard fuse went it indicated a supply fused wired out. If no fuse went and the Supply started to smoke it only meant that I had by-passed all the fuses. On my departure with the precious Power Supply, he could not have been more warm in his way even if he had never expected to see me again.

I just had all the surplus bits ripped out when Barry 4LN arrived. He said that the local Radio Club was so short of active members that they couldn't afford the numbers to lessen, but I could hand him the side cutters and the pliers and he was going to take the Power Supply home with him when he left. I reminded him that I was already teaching a chap from a neighboring town who worked in the S.E.A. Barry 4LN was unimpressed but observed that as they were already short handed in the S.E.A. it would be a good idea to bring him along too, on my next visit to the Power Supply. This I did.

Now, 4LN tosses components around as though he were playing with his grandchildren, but on the first move from one of us he would yell, "Don't touch it—**There, there and there!**" He enquired if we both understood Relays. I could confidently answer in the affirmative. They were those things that made a chattering noise as you hooked the leads on the right terminals, but the chattering noise was not made

by them if you made a mistake and selected the wrong terminals. So now I am to have relays on my Power Supply . . .

As soon as I finish the last half of this little book that I'm currently reading (a translation of Albert Einstein's Relativity—The General and Special Theory 15th Edition 1954) I intend to hook on the said Power Supply to my \$10 Command Transmitter, take a tranquiliser and switch on! I understand that spits, sparks and sniffs don't worry you then.

—A. J. C. Thompson, Skyrings Creek, Pomona, Qld.

★

## Father Xmas, Fairy Godmothers and all

Has anyone ever telephoned you to ask whether you would like a transmitter and receiver covering the 3.5, 7, 14 and 21 Mc. bands which could be used on c.w., a.m., s.s.b. and r.t.t.y.?

Probably not, and it had certainly never happened to the Hon. Secretary of the Royal Signals Amateur Radio Society before. The caller was the society's president breaking the news that the Marconi Company were to present the society with a complete D11/R234 Installation.

Whilst many members of the Signal Corps will be familiar with the D11 a brief description for the benefit of readers will not be amiss.

The transmitter known by makers' designation as the type HS7, covers from 2 to 22 Mcs. and has a P.E.P. of s.s.b. of 350 watts.

The frequency range is covered in a series of 1 Kc. steps, the frequency being set on a series of decade switches and a phase locked oscillator locked to the synthesiser to give the required frequency. Once set a maximum drift of one-third of a cycle is claimed. The transmitter has a CRO built into it for radiation monitoring. Audio test oscillators are built in to give the standard two-tone test for linearity.

Apart from s.s.b. the transmitter can be used for c.w., a.m. and f.s.k., the latter with three shift frequencies.

The accompanying receiver, the R234 or makers' designation H28, covers 2-28 Mcs. continuously. It was built in 100 and 10 Mcs. calibration oscillators. When the received signal has a carrier, automatic frequency control compensates for any drift.

The operators at G3CIO, still slightly staggered by this magnificent gift, are busy familiarising themselves with the equipment which will certainly be fully used in the months to come.

Who said there was no Father Xmas?

—VK2ZVC. With acknowledgment to "The Wire" (The Royal Signals Magazine).

## DURALUMIN, ALUMINIUM ALLOY TUBING

IDEAL FOR BEAM AERIALS AND T.V.

★ LIGHT      ★ STRONG      ★ NON-CORROSIVE

STOCKS NOW AVAILABLE FOR IMMEDIATE DELIVERY

ALL DIAMETERS— $\frac{1}{4}$ " TO 3"

Price List on Request

STOCKISTS OF SHEETS—ALL SIZES AND GAUGES

## GUNNERSEN ALLEN METALS PTY. LTD.

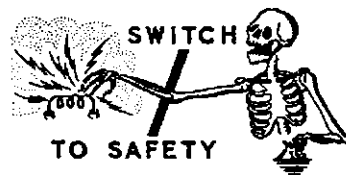
SALMON STREET,  
PORT MELBOURNE, VIC.

Phone: 64-3351 (10 lines)  
Telegrams: "Metals," Melb.



HANSON ROAD,  
WINGFIELD, S.A.

Phone: 45-6021 (4 lines)  
Telegrams: "Metals," Adel.



# CRYSTAL DIVISION

Manufacturers of Quartz Crystals for Frequency Control and  
Crystal Filters for Highly Selective Circuits announce:—

## NEW LOWER PRICES FOR CLOSE TOLERANCE GOLD PLATED CRYSTALS FOR AMATEUR APPLICATIONS

- |   | Amateur Net<br>(each includ. Tax) |
|---|-----------------------------------|
| ● 1.8 Mc. to 14.999 Mc. $\pm 0.005\%$ in Style "D" holders, $\frac{1}{2}$ " pin spacing .....                                     | £2 8 6                            |
| ● 15 Mc. to 47.999 Mc. $\pm 0.005\%$ in Style "D" holders, $\frac{1}{2}$ " pin spacing .....                                      | £2 10 6                           |
| ● 48.0 Mc. to 61.0 Mc. $\pm 0.005\%$ in Style "D" holders, $\frac{1}{2}$ " pin spacing .....                                      | £2 16 3                           |
| ● 100 Kc. $\pm 0.005\%$ in HC13/U holders, $\frac{1}{2}$ " pin spacing*   | £4 10 0                           |
| ● 1 Mc. $\pm 0.005\%$ in Style "D" holders, $\frac{1}{2}$ " pin spacing*<br>* Specially designed for Crystal Calibrator purposes. | £4 10 0                           |
| ● 455 Kc. nominal Crystals for Filter applications in Style "D" or "E" (B7G) holders .....  | £4 10 0                           |

Many other types and tolerances are available from our standard production.  
Please consult us on your Crystal requirements.

### PYE PTY. LTD.

Terms: Cash with order.  
Please state Call Sign.

CLARINDA RD., CLAYTON, VIC. (P.O. Box 105). Phone 544-0361

STATE OFFICES IN ADELAIDE, BRISBANE, HOBART, PERTH AND SYDNEY

## Book Review

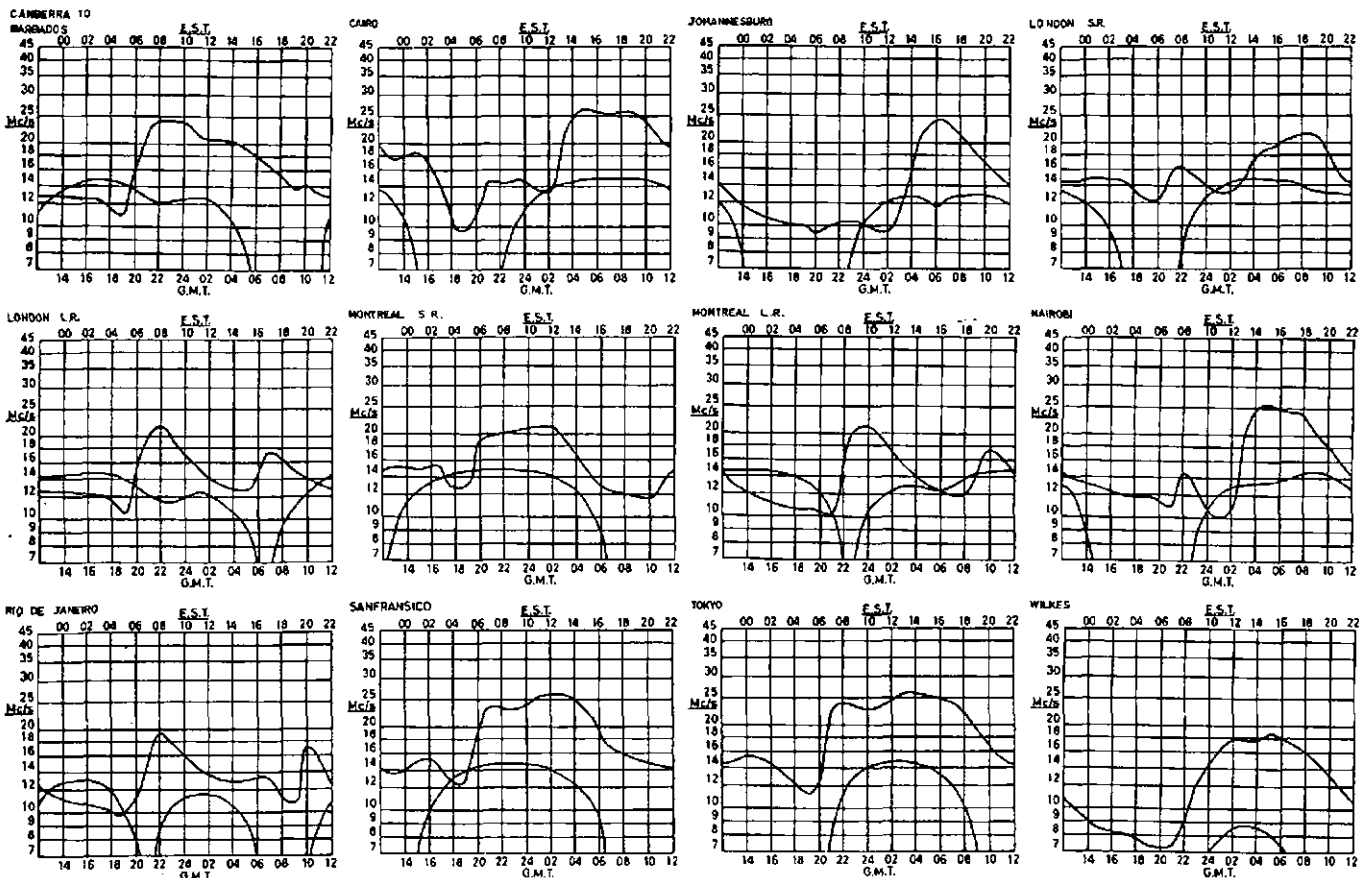
### 1966 WORLD RADIO T.V. HANDBOOK

This book is fast becoming an essential requirement for the serious short-wave listener. The 20th edition continues the high standard of its predecessors. All the usual sections have been brought up to date, and several new features have been added. Perhaps the best way to illustrate the comprehensive coverage of the short-wave spectrum that this book provides is to list some of the section headings, such as Call-sign Allocations, DX Clubs of the World, DX Programmes, Frequency Bands Allocated to Broadcasting, Television, Amateurs, News in English, Long and Medium Wave Stations, Radio Reception Conditions, Short-wave Stations of the World, Standard Frequency and Time Signal Stations; Where to Listen for Satellite Signals, and many more.

Publisher, World Radio T.V. Handbook Co. Ltd., Denmark; Australian price \$4.50, postage 15c.

Review copy supplied by Technical Book and Magazine Co. Pty. Ltd., 289-299 Swanston Street, Melbourne, C.I.

## PREDICTION CHARTS FOR AUGUST 1966



(Prediction Charts by courtesy of Ionospheric Prediction Service)

# DX

Sub-Editor: ALAN SHAWSMITH, VK4SS  
35 Whynot St., West End, Brisbane, Qld.

While the bands may seem a little quiet, there is, however, a fair amount of news to hand re future activities. This spring promises to produce some good DX. So how about the gear? Is it all tuned up and in GO condition?

## NOTES AND NEWS

San Salvador: Carlos YS2CL reported as very active on 14 s.s.b. after midday E.A.S.T. QSL Box 102, Santa Ana.

Andamans: VU2DIA on almost daily around 14,015. Audible here both mornings and afternoons E.A.S.T. Note sometimes a lil' ruff T7-8. Jeff Coles VK6JC reports having worked him and having his QTH as Hegde, ISPW, Port Blair. (Thanks Jeff.)

St. Maartin: PJ2ME, 14 c.w. after 0400z. Mongolia: JTIAG, JTIAD, JTIAA all active 14 c.w. Mostly after 0700z.

Comoro: FH8CD works 21 s.s.b. at week-ends. His English is limited so speak QRS.

South Shetland Is.: VP8IN QRA Graham Land is now on 14 c.w. 0500z or later.

(The above by courtesy of Roger, VE3FXR.)  
San Andres: HK0AI, HK0AV are both active, c.w., 14 Mcs., around 2300z.

Egypt: SU1AR is on 21 Mcs. c.w., SU11M, SU1DL aer on 21, 14 Mcs. c.w.; SUI5U is on 14 Mcs. s.s.b.

Vietnam: KIYPE/XV5 is now active. KIRAW is en route for here, and has applied for a permit to operate. QSL KIRAW/XV5-WAIAZW, C. Manscott, 37 Fester Dr., Framington, Mass., U.S.A.

Br. Honduras: VP1HB, s.s.b. low end 14 Mcs. VP1LP c.w. 21 Mcs.

Aleutian Is.: WA2WVY/KL7, WA6YWT/KL7 are now active from Shenyua AFB.

Bahrain: MP4BBA, a R.A.F. Club station, is active a.m., 21 Mcs., most days.

(By courtesy of G3UGT, "Airwaves")  
Lloyd and Iris: They have completed a stay GD5 and have now moved on to Jersey.

Glorieses? Comoro, Aldabra operation by CR7G and ZD8HL has been delayed until 25th June or 5th July.

Tristan Da Cunha: Alan, ZD9BE has received the s.s.b. equipment and is active on 20 mx.

Azores: CT1JJ and CT1IW will be active from here soon using call CT2JJ.

Malpelo and Bajo Nuevo: This trip is definitely off.

Algeria: Several 7X stations reported lately. 7X2AH probably the most active, 14 Mcs., c.w./s.s.b.

Turkey: TA2AA reported on 14,140, s.s.b., from 1400-1430. Also TA1AX at 0315 G.M.T. on 14,053.

Eto De Oro: A Spanish official who is licensed, will be a permanent resident here for about three years.

(By courtesy Fla DXer, Jesse, WA6VB.)  
Canton Is.: KA8ERU/KB8, Reg., 14,300 Kcs. at 0315 G.M.T. QSL via Bendix Field Engineer, 3131 Nimitz Hwy., Honolulu, Hawaii-ATTN Canton Is.

South Shetlands: CE9AO, Deception Is., 7009 at 0830 G.M.T. QSL via Calle Hospital, I.E.M.1, San Felipe, Chile.

Pitcairn Is.: Tom, VR8TC operates in the following manner: Mondays 21,065, 2000z; 21402, 2030z. During the week he is on 20 s.s.b., 14,153, 0700z.

Eastern Carolines: KC8CE, 14,228, at 1200 G.M.T., and KC8FM, 14,220 at 1130, are the only two stations active from here at present.

Midway: Bob, KM6BI, 14,245 at 1330 G.M.T., usually week-ends.

Brunei: VS5MH reported on 14,222 at 1230 G.M.T. by W2IOT.

Campbell Is.: ZL4CH, 14,053 at 0430 G.M.T., week-ends.

Fermosa: BVI5UA, op. John, says he will be on regularly at 1200 on 14,245. QSL to CB QTH.

French Galana: FY7YL asks that his QSL's go via FG7XL, S.A.E./I.R.C.'s G.M.T.

Qatar: John, OD5EB will be going here in the next month on business. Big John, the Texan, was here in Australia a couple of years ago but did not take out a call. He is always ready to yarn with VK's. His call will be MP4QBB. QSL K4TJL.

Guernsey: Loyid and Iris will sign GC5ACH/W6KG about the time you receive these notes. QSL YASME. With Dick, GC8HT, flat out from here also, I imagine some QRM may occur.

Rockall: Bob Lane, G5AAM/WA6ZIQ, G3GJQ and possibly Ian 4S7IW will be leaving Northern Ireland by ship on July 27, and make

their landing on the rock by helicopter on July 29 or 30 if all goes well. There is a 30 per cent. chance of successful landing, and conditions are quite dangerous. The operation will be a minimum of 4 and a maximum of 8-10 hours. They will operate only s.s.b. using 14,125, and listening 14,250-80. GR3RAF is a possible call. QSL via G3NAC. (Is it worth it?? A.)

Desroches and Farquhar: The proposed trip by VQ9BC, TC, HB has been put off, probably until August, due to transportation problems.

(By courtesy of LIDXA.)

## ACTIVITIES

Dud, VK4MY, now basking in the luxury of new gear reports working the following on 14 c.w.: VE7BSM, YU2GN, SM4CHM, UW9EA, DJ2GG, DJ6RK, XE2DL, DJLR3, OK2BIX, XW8LN, VE5KC, GC2FMV, G3GQS. Mostly around 0700 and 2000z.

Jeff, VK6VC, sends in no specific list, but reports: Conditions in west fb., Sth America in mornings, Europe in evenings, regularly.

Chas., VK4UC, still picking them off on 20 mx c.w. reports the following: YV1AB, VR0A (who might be a pirate?), UJ8AB, LA4ZH/MM, OH2BCF, QZ2AB, UA0DY, UA0EU, HM1CK, H18XAL. QSL's received, HR5LE, UB5ARTEK, UM8KAK, OH9QO, OH7PJ, 4X4MN, 9M2RI, UC2AN, H18XAL, etc.

Ossie, VK3AHK, writes an interesting letter giving details of someone usurping his call—a pirate in other words. This sort of thing is becoming far too common and blatant. Some publicity on an offender caught in the act would no doubt be a strong deterrent.

Ossie is a QRP man, 20 c.w. and sometimes a.m., 50-75 watts. Rx Eddystone. (How about some activity reports, O.M.)

## QTH's

EL8C, VE3DGX: ET3JK, W3MCB; KIYOO/KP8, W1MV; MP2AO, DJ1BZ; PJ5MF, VE8TP; PJS8B, KOGZN; PX1JS, F9JS; PX1IR, K7BVZ; PZ1AP, W2CTN; PZ1BE, WA4KXC; SUIMS, DJ0FB; VE2FW/SU, KI6AT; SV0WT, W6GMS; SV0WDD, W6EFW; T19RC, W4ECI; TT8AJ, K2UYG; TU2AU, VE4OX.

## SUMMARY

It seems that Edward L. Duffy, Chief Counsellor for the Alcoholic Research Clinic at Lanekau Hospital in Philadelphia, may have inadvertently aired some of Hamdomb's Domestic Dirty Linen; as far as the U.S.A. is concerned another. The hospital concentrates on the rehabilitation of women alcoholics. Of 69 patients, who said their husbands were insen-

sitive and un-loving, in an article which appeared in "Cosmopolitan," April, 1965, Mr. Duffy has this to say: I quote: "Many of these husbands happened to be Ham Radio Operators, a hobby of structural, indirect, distant communication. Some of them seem to need a wife who is a 'hat rack' on which to hang their own shortcomings."

(I've heard it all, if that's a psychiatrist's description of A.R.—Al.)

Personally, while I do not doubt Mr. Duffy's findings, I think he makes 2 plus 2 into 5, as I can't for the life of me see why A.R. should in this regard, be any better, or worse than any other hobby, or profession that tends to be demanding on one's time.

Anyway, it's food for thought for us all. Sorry to end on such a sombre note.

73, Al, VK4SS.



One of the finest traditions of Amateur Radio is being carried through by the graduates of Y.R.S.—helping others just as they were helped. I would like to hear news of others but the best examples I know are John Thyrd and Roger Davis. John, formerly of Kingsgrove North High, now with D.C.A. Radio School, is Club Leader of Postal Group No. 1 and also of Clempton Park Boys' Brigade Radio Club; he has passed morse to complete A.O.C.P.

—hearty congratulations to John on both counts. Roger IRW was always a great help while at Lyneham High, often demonstrates to young people in the Davis garage (with Andrew IDA), conducts morse practice for 2AWI on Saturday nights, and instructs classes both at Canberra Radio Society and Lyneham High. As I'm on the spot, Roger will proceed to tear a strip off me for mentioning him—but perhaps he will forgive me if I say that the mention has a better purpose than just making Roger better known. Can all club leaders at least find their own successors, and possibly a leader for elsewhere?

An interesting newsletter arrived from Howard Rider 3ZJY, new VK3 Supervisor. At least 20 clubs are now registered, including the latest newcomer—Donald Elgh, with Bruce Weibgen as Club Leader. Two new non-club types are Geoff Butcher and Peter Ficken at Murrumbidgee High—looks like a new club there if a club leader can be found. Dr. Warwick is forming a new club at Hamilton. The stalwart Equipment Officer—Val Barnes—has had a spell in Heidelberg Repat. Hospital but is home and we hope will soon be fully recovered. A generous donation of transistors from Fairchild has been distributed. My view is that club leaders should not hand out, haphazardly, such items as transistors (easily damaged and moderately costly). They should be on a written list to be accounted for and should only be supplied for a finished piece of construction (having been earmarked for that person). Transistor sockets are not a bad idea.

VK2 News is just as encouraging as ever. A most important item comes from Mr. Dick Smith, Physics Lecturer at Sydney Teachers' College. The 1966 membership is an entirely new group of 27 science students studying for Dip Ed. The 1965 membership has been allocated to schools and at least some of them will follow the lead of the 1965 Club President, Maurice Colman, who has already started a club at Meadowbank Boys' High. The S.T.C. club has been given the 100 Kc. crystal donated by Pye. Brother Lee Kinsella VK2AXK has lectured to 30 teaching brothers on the advantages a school gets from Y.R.S. Don 9DR, of Christmas Island, has two successful for Elementary—Sket Koon Mun (apprentice at the radio station) and Chiah-Ah-Ying (at telephone Exchange). Mona 2AXS has two successful P.G. Elementaries in Jill Trehwella (following in father's footsteps) and Don Cullen. Another Westlakes R.C. member in Col Christensen has passed full A.O.C.P. and is now VK2BCC—congratulations to Col and to prolific Westlakes with Keith 2AKX in charge. Donations have come from Mr. Waller of Lindfield, Milton 2LI, Alex 2TG, General Accessories, Commonwealth Electronics, Stan 2ZRD, Harold 2AAH, Mr. Streetfield of Kingsgrove, Mrs. Nott of Kingsgrove—and we don't know all of them. It all shows heartening appreciation of Y.R.S.

Unlike PS (where is my wandering friend?), I must not ramble on. Who said to look up "wandering" in the Concise Oxford?

73, Ken 1KM.

## W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

### PHONE

Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
VK5MS	24	330	VK4HR	12	265
VK3AHO	51	323	VK2ZJ	61	263
VK6RU	2	313	VK2ADE	65	239
VK5AB	45	312	VK3TL	62	237
VK6MK	43	310	VK2AAK	58	219
VK4FJ	21	282	VK6KW	4	211

New Member:

VK3IT 73 103

Amendment:

VK4DO 20 170

### C.W.

Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
VK3KB	10	340	VK3NC	19	286
VK3CX	28	313	VK3AHQ	79	281
VK2ADE	81	313	VK2EO	2	279
VK2QL	5	308	VK3ARX	86	271
VK4FJ	29	308	VK6RU	18	270
VK2AGH	71	290	VK4HR	8	262

Amendment:

VK4DO 20 199

### OPEN

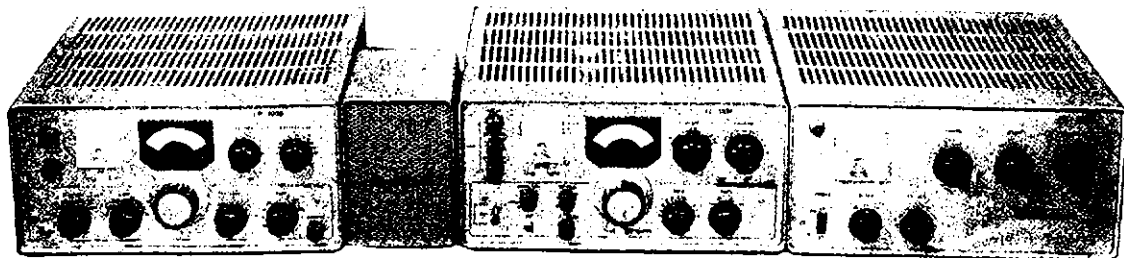
Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
VK2ADE	28	331	VK4HR	7	294
VK2AGH	83	323	VK2VN	18	292
VK6RU	8	320	VK3NC	77	287
VK4FJ	32	315	VK3ARX	102	280
VK6MK	74	312	VK3JA	43	271
VK2ACX	6	300	VK3TL	85	257

Amendments:

VK4DO 15 219 VK4PX 101 132

# F-SERIES S.S.B. EQUIPMENT

PROFESSIONAL QUALITY AT AMATEUR PRICES



**COMPACT TABLE-TOP STATION—MECHANICAL FILTER SYSTEM  
FIVE BANDS — 80-10 METRES. TRANSCEIVE OR NORMAL OPERATION**

**FR-100B: RECEIVER, S.S.B.-A.M.-C.W.**, dual conversion, with crystal locked front end, two mechanical filters for best reception of s.s.b. and a.m., high reduction precision gear driven dial reads to 1 Kc. Crystal filter for c.w. A.n.l., "S" meter, a.g.c., s.s.b. clarifier, built-in monitor. Additional crystals for 100 Kc. calibrator, full 10 mx coverage, WWV and three s.w. ranges. A professional quality receiver for the Amateur or discriminating S.w.l. £209½ (\$419) inc. S.T.

**FL-200B: TRANSMITTER, S.S.B.-A.M.-C.W.**, Two 6JS6A (similar 6DQ5) tubes in p.a. Solidly constructed and neatly wired, with high quality components, ceramic bandswitch, Kokusai M.F., built-in solid state power supply, antenna relay, etc. All plugs, inst. manual and p.b. microphone supplied. Nothing else to buy. Cabinets beautifully lacquered in dark driftwood wrinkle. Satin finish panel. This is a first class rig for c.w., also break-in operation, T9X note, clean chirpless keying, v.f.o. runs continuously. £245 (\$490) inc. S.T. All tubes, diodes available in Aust.

**FL-1000: LINEAR AMP.**, four 6JS6As in g.g., output power not exceeding 400w. p.e.p. £139 (\$278) inc. Sales Tax.

Enables operation on the three modes without necessity for compromise. Fully imported. Used by Australia's leading Phone DX'er.

NEW! To be available soon: FT-100 Transceiver, FL-50 S.s.b. Exciter, V.f.o., L.P. Filters, etc., all made by Yaesu Musen Co., of Japan.

Brochure available from  
the Australian Agents:

**BAIL ELECTRONIC SERVICES**

60 SHANNON ST., BOX HILL NORTH, VIC. 89-2213

N.S.W. Enquirers contact:

**MOSMAN TELEVISION SERVICES**

11 Ruby Street, Mosman. Phone 96-5342

## FOSTER DYNAMIC MICROPHONES

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
Effective output level ..... -55 db. [0 db. = (one) 1V. Microbar]  
Frequency response ..... 50 to 15,000 c.p.s.

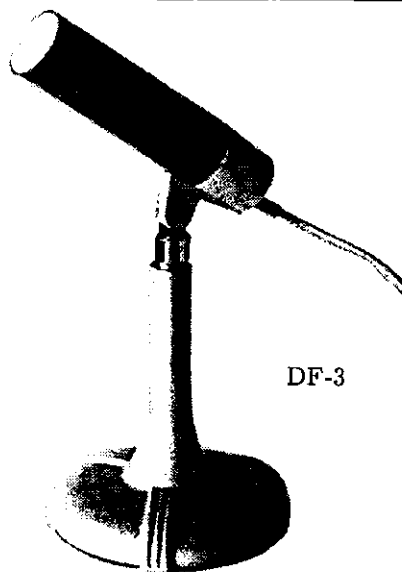
### OMNI-DIRECTIONAL DYNAMIC:

Plastic Diaphragm. Swivel fits 5/8" 26 t.p.i. Stands.  
Size: 4½" long, 1¼" diameter. Colour: TWO-TONE GREY.  
Cable: 12 ft. of P.V.C.

Retail Price 50K ohms: £4/16/0 + Sales Tax 10/0

Retail Price 50 ohms: £4/14/0 + Sales Tax 9/10

A QUALITY PRODUCT FOR TAPE RECORDERS & P.A. USERS



DF-3

Marketed by

**ZEPHYR PRODUCTS PTY. LTD.**

70 BATESFORD STREET, CHADSTONE, S.E.10, VIC.



**Manufacturers of Radio and Electrical Equipment and Components**

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.

# VHF

Sub-Editor: CYRIL MAUDE, VK3ZCK  
2 Clarendon St., Avondale Heights, W.2, Vic.

Well its news time again and not much has been received from the other states. I would like to remind correspondents that as from this month news must reach me no later than the 27th of the month. Where possible it would be appreciated if the news is written (preferably typed) on the standard size sheet as illustrated in "A.R." some months ago. If you must write the notes in longhand please PRINT ALL NAMES AND PLACE NAMES.

News items have been received from VK4, VK5, and the Hunter River Branch of VK2. Cyril, VK3ZCK.

## HUNTER RIVER BRANCH OF VK2

52 Mcs. This band is quiet except for our local net, each Saturday and Sunday mornings at 10 a.m., when new chaps try out their new converters, or transmitters and local rag-chews. New chaps who are on the way to join the "Weird Mob" on 6 metres are Frank VK2ZFX, who has a converter going and Jordon VK2ZSG, who after some years has at last got a converter going. If he takes as long to build his transmitter as it took him to build his converter we cannot expect to hear him on 6 metres before 1970. Bill VK2ZWM has built a combined rig for 6 and 2 metres using a QV04/7 with a common modulator power supply and works very well on both bands.

144 Mcs. This band is also quiet but one can usually have a QSO with someone, some are building gear for the summer months, or sitting beside the fire. Most active are VK2ZKW, ZWM, XZFX, ZSG, ZMO, ZUB, ZFR and others when time or mood permits.

Gordon Z2SG, the "Admiral" of you, "Topped and Sunk" himself some weeks ago trying to find the 2 metre band, to relay our "Hunter Branch" Station AWW from 3.5 Mcs. to 144 Mcs. for our weekly broadcast, Gordon now does a very good job of the relay.

Barry VK2ZUB is recovering after a series of minor accidents during the building of a model aeroplane of the radio-controlled variety. But he has not stopped building, he is working on transistor converters for 144 and 432.

Kevin VK2ZKW (Kilowatt Kev.) is causing much consternation in shacks around Newcastle when he switches on his final. Complaints have been received of burnt out front ends, 8 meters with bent needles and open circuit voice coils on speakers, the boys are threatening to retaliate soon. 73, VK2ZMO, V.H.F. Liaison Officer, Hunter Branch, W.I.A.

## VICTORIA

Activity on both 6 and 2 metres has been spasmodic over the past month. 6 metres is still quiet except for Saturday and Sunday during the mornings. 2 metres has had some shocks, first of all a station north of Melbourne claiming to be JA1ATE Maritime Mobile, 35 miles north of Launceston (about 40 miles from the sea), then a very good opening to Adelaide, a general opening to VK3 country districts, East VK5 and South VK2 and only the other day a day-long opening to Northern Tasmania.

The V.H.F. Group meeting featured a series of talks on v.h.f. hilltop sites in Victoria. About 30 hills were mentioned giving location, accessibility, and areas served. Mention was also made of other services which used the

## V.H.F. CONVENTION

The third Annual VK3 V.H.F. Group Convention will be held over the weekend 8th and 9th October, 1966. The Saturday events will be held in an eastern suburb of Melbourne and the Sunday events in the Mornington Area.

For further particulars write to V.H.F. Convention Secretary, Peter Wolfenden VK3ZPA, P.O. Box 36, East Melbourne, Victoria.

site and the interferences which could be expected from these services.

The 2 metre fox hunt was a bit of a novelty when the fox, Peter VK3ZAV, produced his 2 metre fox hunt transmitter, transistorised and running a full 800 milliwatt input, frequency modulated by a 1 Kc. transistor audio oscillator. Although at times he could not be heard most of the hounds managed to find him. Some showed disgust when only 100 feet from the transmitter, their snooter antenna would not hear him. So in future chaps put a discriminator in your snooter set-up. The only other news is that the V.H.F. Convention Committee is busy planning and plans to hold events for both h.f. and v.h.f. participants, also XYL's and YL's and harmonics. Cheerio, 73, Cyril VK3ZCK, VK3 V.H.F. Group Publicity Officer.

P.S.: Does any other division have their Sunday Broadcast simultaneously on 70 cm., 6, 2, 80, 40 and 160 metres? We do.

## QUEENSLAND

Contrary to what was anticipated last month, June has produced high activity on the v.h.f. bands in VK4.

6 Metres. Sunday morning is the time to hear 52 Mcs. signals on the band. In the past few weeks as many as 16 stations have been operating. Most notable signals have been those of VK4ZLG, VK4ZTW and VK4ZCA. Tom VK4ZAL is finally about to get his taxi-phone going again, it's certainly been some time since Tom was on 6 metres.

The 6 metre transmitter hunts have been proving very successful with a turn-out of about 10 cars. Laddered beams or D.F. loops have proved useful in finding the hidden transmitter. However, some cars have been led astray. David VK4ZDF is known as the side lobe chaser.

Some minor openings have occurred. In the third week of June, VK4ZAT heard a few VK3's but was unable to work any of them.

2 Metres. 144 Mcs. is producing some good country QSO's. VK4ZMC, VK4ZKC, 4ZCA, 4CP and 4ZWB have been active working Brisbane stations regularly. Sunday or Wednesday evenings is the time to hear the main 2 metre contacts. In town recently were VK's 2ZRQ, 2ZOG, 2ZKH. Most will remember 2ZKH under his old call sign of VK4ZKP. In passing, I have noted a few requests that Bert VK4CP should either clean his present crystal or buy a new one. Bert's present frequency is 144.2 plus, minus 40 Kc.

General News. The V.H.F. Group formed in Brisbane many years ago has until now been officially unknown to the W.I.A. (Qld.) Division. It seems likely that the group will soon be officially recognised by the division. The V.H.F. Group meets on the third Friday of every month in the rooms of the Brisbane Institute of Social Services, Berwick Street, Valley, at 8 p.m.

Transmitter hunts starting from River Terrace, Kangaroo Point, at 8 p.m., are held on the Friday after the W.I.A. general meetings.

At the April Federal Convention of the W.I.A. a motion was tabled seeking full participation of "Z" Licences in the R.D. Contest. The VK2 delegate was given an assurance that the participation of "Z" Licences would count in the determination of their states score in the contest. However, it seems that this year the v.h.f. section is still included on the grounds of an experimental basis. However, many VK4 stations will be operating and will be looking for a possible opening to the southern states.  
73, Peter VK4ZPL.

## SOUTH AUSTRALIA

The news of the moment for VK5 is that the 6 and 2 metre beacon transmitters are close to being on the air again. The problem of obtaining a suitable weatherproof, dustproof, tamper-proof and Amateur-proof cabinet in which to house the beacons has at last been solved. Due to the resourcefulness of Eric 5ZDQ and Rick 5ZPQ the ideal container has been obtained, and is at this moment undergoing final preparation before installation on the the Channel 7 T.V. Transmitter site. To coincide with the re-introduction of this Australia-wide service to v.h.f. Amateurs the antenna installation is also undergoing a major

refit. For 6 metres the turnstile is being re-built, and for 2 metres a cloverleaf or "big wheel" (depending on which college you attend) is to be used instead of the previous stacked turnstiles. Bob 5ZDX is supervising the project and is receiving tremendous support from the usual active participants of the v.h.f. art in VK5. No date has been estimated for the completion of the re-installation, however, now that work is well under way, the big day for re-commencement of transmissions by VK5VF is quite near.

Six metre activity of late has been on the increase due to the arrival of several new stations. The more recent stations have been Graham 5ZRJ at Balaklava, Tim 5TJ from Clare and Ron 5ZRW from Lyndoch.

Pat 5KM at Victor Harbour has also returned to 2 metres. Pat has rebuilt his shack on a hill that has been referred to as a "v.h.f. operators' delight." From reports to date it would appear that Pat's efforts have been well rewarded, especially into VK3 and the south-east of VK5. An interesting comparison on mode reliability has been well afforded recently by the change to s.s.b. from a.m. by Herb 3NN. Noted observations at this QTH have substantially proved the advantages that are available by using s.s.b., in that the readability of Herb's signal has been markedly increased.

Further to last month's notes when it was quoted that the T.V. Group had a colour television working, we have to report this month George 5ZEY has completed a 3-tube Vidicon Colour Camera. Although I have not personally viewed the results I have been told that the colour reproduction produced by the closed circuit system is comparable to commercial equipment. Enthusiastic over the results obtained with this prototype unit, the t.v. group are planning to construct another receiver and 3-tube Vidicon camera, so that their Royal Show exhibit this year will be a real eye-opener to the general public. 73, Colin 5ZEHJ.

## WESTERN AUSTRALIA

The main activity here has been the Field Day on the 21st May. Among the portable stations participating were VK6's LK, ZDB, ZCN, ZAG, MM, QJ and ZFJ. Logs were received from five stations, the winners being: A.M.: Charles VK6LK with 2852 pts. F.M.: VK6ZDD with 1242 pts. It was decided to hold another Field Day in the near future. Extracted from the VK6 Newsletter.

## ★ Publications Committee Reports That...

At the July meeting correspondence was received from VK's 2ADA, 2ZFB, 2QL, 3ABC, 3AKZ, 4DU, 5YB, 5NN, Sec. VK4 Division and 3DL/W5. A short technical article was received from VK2AKC.

Some Divisional notes did not arrive on or before the fifth of the month. As this was the first time notes were required by the fifth we waited for three extra days, but some notes have still not arrived.

The setting of the Call Book has been commenced. As this is the first complete reset since the Call Book was first published, an early start was necessary. The committee suggests that all Amateurs check their address in the current issue and if not correct advise the P.M.G.'s Dept. and the Publications Committee IN WRITING immediately. No alterations can be made otherwise.

Other matters considered were advertising rates for "A.R." and the Call Book, the budget for 1966-67, and the delays in delivery of "A.R." over the last few months. This last matter has already been discussed with the mailing service and an assurance received that this matter will be rectified, but we will have to co-operate by getting the magazine to the mailing service by the 25th of the month.

## KNOWN V.H.F. NET FREQUENCIES IN USE IN AUSTRALIA BY 10 OR MORE STATIONS

VK2: 146.0 f.m., 145.854 f.m.  
VK3: 145.854 f.m., 146.0 f.m., 146.146 f.m., 53.032 a.m., 52.525 f.m., 144.5 a.m.  
VK4: 53.032 a.m.  
VK5: 53.1 a.m., 146 f.m. (being formed).  
VK6: 52.656 f.m., 52.525 f.m., 52.765 f.m., 52-947-repeater, 145.00 a.m.  
VK7: 53.035 a.m., 144.1 a.m.

The approximate total of stations on 53.03 is close to 100 shared between VK3, VK4 and VK7.

## REMEMBRANCE DAY CONTEST RULES REMINDER

Date of Contest: 13th and 14th  
August, 1966

Crossmode operation is permitted.  
Log times MUST be in G.M.T.  
Complete Rules in June Issue.

# BRIGHT STAR CRYSTALS

FOR ACCURACY, STABILITY, ACTIVITY AND OUTPUT



Our Crystals cover all types and frequencies in common use and include overtone, plated and vacuum mounted. Holders include the following: DC11, FT243, HC-6U, CRA, B7G, Octal, HC-18U;

THE FOLLOWING FISHING-BOAT FREQUENCIES ARE AVAILABLE IN FT243 HOLDERS:—

6280, 4095, 4535, 2760, 2524 Kc.

5.500 Kc. T.V. Sweep Generator Crystals, £3/12/6  
100 Kc. and 1000 Kc. Frequency Standard,  
£8/10/0 plus 12½% Sales Tax.

Immediate delivery on all above types.



AUDIO AND ULTRASONIC CRYSTALS—Prices on application.

455 Kc. Filter Crystals, vacuum mounted, £6/10/0 each plus 12½% Sales Tax.

ALSO AMATEUR TYPE CRYSTALS—3.5 AND 7 Mc. BAND.

Commercial—0.02% £3/12/6, 0.01% £3/15/6, plus 12½% Sales Tax.

Amateur—from £3 each, plus 12½% Sales Tax.

Regrinds—Amateur £1/10/0, Commercial £1/17/6.

CRYSTALS FOR TAXI AND BUSH FIRE SETS ALSO AVAILABLE.

We would be happy to advise and quote you.

New Zealand Representatives: Messrs. Carrel & Carell, Box 2102, Auckland.

Contractors to Federal and State Government Departments.

## BRIGHT STAR RADIO

LOT 6, EILEEN ROAD, CLAYTON, VIC.

Phone 546-5076

With the co-operation of our overseas associates our crystal manufacturing methods are the latest.

### OLD-TIMER ACTIVE AGAIN

VK4DU, J. K. McCarthy, is ex-VK3FX and is re-entering Ham ranks after an absence of 12 years.

VK3FX first went on the air in 1930 with a 45 Hartley Osc. as Tx. and det. and 2 audio (all UX201A's) as Rx operating on 40 and 80.

In early '30's he was operator of 3RI on 215 metres on Sunday mornings—this was on the days when Hams were permitted limited operation on the broadcast band.

He joined the permanent R.A.A.F. in 1936 and retired in 1964 Squadron Leader with D.F.C., A.F.M., and an Efficiency Award. He was navigator and wireless operator of Lancaster G-ASXX, the last flying Lancaster, which was flown from Surfers' Paradise to Biggin Hill, U.K., in May last year—arriving on 13th May to coincide with the opening of the International Air Fair.

He now owns a power cruiser in which he intends cruising Barrier Reef waters and the renewal of Ham activity will be from his vessel "Pandemonium." Operation will be on 40 metres (daylight hours only) and 80 metres at night. VK4DU also used the following calls: VK3FX, VK2IM, VK2VM, VK4FX.

# LOG BOOK

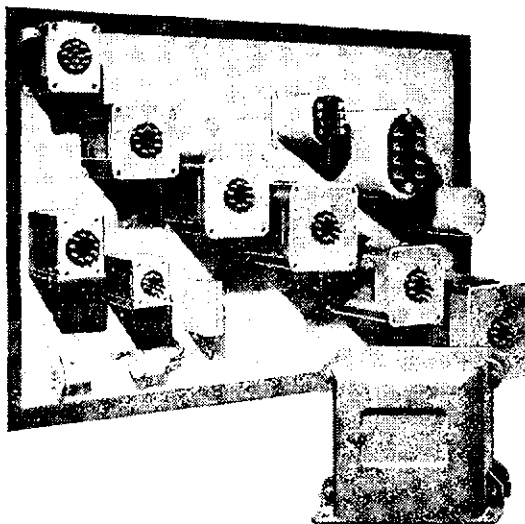
IS NOW AVAILABLE

Larger, spiral-bound pages with more writing space.

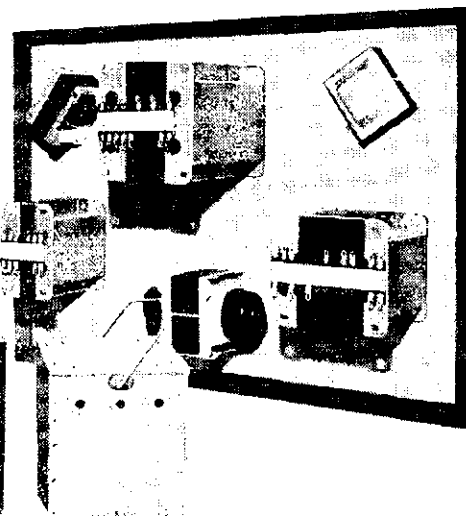
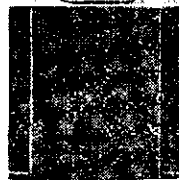
Price 7/6 each including Postage

Obtainable from your Divisional Secretary, or W.I.A., P.O. Box 36, East Melbourne, C.2, Victoria.

## TRIMAX for a complete transformer range!



Trimax have available most types of transformers, ranging in weight from a fraction of an ounce to half a ton. You bring us the problem—we will supply the transformer.



**LM ERICSSON PTY. LTD.**  
"TRIMAX" DIVISION



FACTORY: CNR. WILLIAMS RD. & CHARLES ST., NORTH COBURG, VICTORIA. PHONE: 35-1202... TELEGRAPHIC ADDRESS: "TRIMAX" MELB.

LM 51



# SWL

Sub-Editor: D. GRANTLEY, WIA-L2022  
Alexander Ave., Hazelbrook, N.S.W.

I have stated repeatedly that the W.I.A. is strictly an Amateur body, and "A.R." as its publication should be devoted to that which the Institute stands for. However, on certain occasions an item comes to light which, by its very nature must be passed on for general information. Such an instance occurs this month, thanks to one of our VK Amateurs, Geoff VK3AMK, who reports reception on 11 metres, of stations on the American Citizens' band at 2.30 p.m. E.A.S.T. This will be of interest to most of us, and for more information, over to Geoff. "The QRM is terrific—dozens of stations on each channel but usually one or two signals predominate and are quite Q5. The time was 1430K today (one day in the first week of June) and the gear here consists of a triband 3 EL beam at 45 ft., and a Geloso 209R." Ten metres has been open to W in Sydney up to 4.30 p.m. local time, so it is possible that some of our s.w.l.'s may care to check these two bands during the afternoon. Thanks, Geoff, for your interest in letting me know of this event.

It was a pleasure to renew acquaintance with former secretary of the VK2 S.w.l. Group, Gerry Albeck, when a letter arrived from him this week. Gerry is now at Woomera, and is QSL manager for VK5WC, the club station of the Woomera Radio Club. S.w.l.'s are invited to send reports on reception of this station to Gerry at Box 1, Woomera West, S.A., but please make them comprehensive, and not just reports of CQ's and tests. A 4c stamp if enclosed will bring a reply direct, otherwise all reports will come back via the bureau. For the interest of other listeners, Gerry encloses a list of his gear. A.W.A. TZ617 BC348M/BC453, and an AR88 which, together with his Braun T1000 fed from 20, 25 and 31 metre dipoles and a long wire, provide plenty of variety.

## DX NEWS

OX5AC reported from Thule on 21 Mcs. KC6BO is West Caroline whilst KC6BW is East Caroline Is. (see DX notes). FB8YY is on Adelle Is. I pass this item on from "Montor." VE4OX is QSL manager for the following: CR7GF, DUIMR, JY1AU, TU2AU, TU2AU/5U7, VP2SJ, ZD5R, 5U7AC, 601AU, 9L1HX and 9Q5HD. VE4OX requests all s.w.l.'s to enclose S.A.S.E. or I.R.C.'s, as he cannot reply through the bureau. This is a reasonable request, as he acts free of charge to DX-ers. EL2A is C/o U.S. Embassy, VOA, Monrovia, Liberia. CR5SP on 21 Mcs. from Sao Tome. The following are listed as new members of the I.S.W.L., and QSL's can go for certain via that Bureau: YV5BZ, W7AS, WA0GYQ, WB2PCF, WA5GLC, GW3TOB.

## AROUND THE SHACKS

Alan L6029 operating on 20 metres logged CE6CQ, CP5DK, OA4QW, XE1IR and YV5BQP. Bryan L6028 on 20 metres scored OH1AA, IT1FZ, KZ5PW, VQ8AH, FW8RC and UP2KNP. Geoff L6030 scored OX3JV, EA1GH, HB9FU, XE2BMM and UC2BF. Inward cards at the QTH of Bryan were OE8KI, PY3PH, VS6AJ, KZ5PW, ZS6BGJ. Back to VK5, where we look at the log of Gerry L5053. On 14 he heard KG6IG, OA4KY, XW8BM, KG6APD, K3SWW/KG6, 4X4FQ, VU2CK, MP4BCC, FW8RC, CN8MT, CT1PK, 5A4TK, IT1CFN, 5W1AZ, plus enough others to fill this column. On 21 Mcs. he logged many JA's plus BV1USA. Mac Hilliard has been concentrating on 10 metres and logged JA's and KR6 at 4.20 p.m.

Eric L3042 has had a quiet month, due to the fact that he is about to go on a tour in the course of duty, this to be followed by annual leave. He logged BY9SK and VE6WR on 14 Mcs., DL0KH/P, UF6PK, GI3OQR on 7 Mcs., and W8NRK on 3.5. Inward cards were HP1BR, VK0MI, VR5AB, VS6BJ, YV5BZ/6, ZC4TX and 4U1TU. 253 cards have actually been received by Eric this year, these from 73 countries in 33 zones, whilst 606 reports have been sent out. Total log entries now passed 302,000. A note from Greg Earl (now L7139, 32 Hampden Road, Battery Point) tells of good conditions on 15 during the midday period, when the band has been open to U.S.A., also strong signals on 20 metres at 11 p.m. From VK7 a note from Bob Mutton that he has just received QSL's from KK6BU, OE1HGW, KJ6DA and VP7NY. Greg Johnston is QSL manager for VK0MI, and this takes most of his time, particularly when sub-standard s.w.l. reports, and the usual batch of "bulk" JA reports have to be dealt with. Please chaps,

keep those reports confined to valuable information, and fact. The JA s.w.l.'s are doing a great job of harming S.w.l.-Amateur relations, and don't let us here in VK be guilty of it. Congratulations to our well-known VK3 listener, Warwick Smith L3211, on becoming the third s.w.l. to earn the W.I.A. S.W.L. DXCC award. Inward cards for the month were FS7RT, DU7SV, CT1IK, LX1CO, taking him to 133 confirmations thus equalling my score to date. Many prefixes were logged by Warwick for the month including on 20 metres: VP9, SW1, FB8, K56, HK4, IS1, VK0, OK1, 7X2, OE, EP3, Z55, 5A5, etc., and on 15 metres: K56, T12, VK9, CT1, K, VE and 6Y5. This year he has logged 155 countries. A final letter from Peter Drew before his departure to Puekapunyal tells of new confirmations in FR7ZG and VS9AAS to take his tally to 192 confirmations. Other cards received were from F25Y, F8CS, OEH3ZG, OX3JV (7 Mcs.), UH8AY, UR2AR, VE1RB, VO1FB and K0BAT. Pete has not been over active this month, nevertheless he managed on 14 s.s.b. 6Y5AR, U5ARTEK, VP7NA, KZ5PW, KE1KQ, YS2JG, YS2RU, T10STU, TG9EP, EA4BF, T12IO, SM6CKS, OZ7JK, KP4AST and LA5KG, whilst on c.w. ZL1AOP/P (Cocos), CO8HB, 4X4, JR, H18XAL, UW8LL were logged. On the other bands Pete heard only W's on 7 and 21, whilst VK9XI was heard on 3.5 Mcs. Here at L2022 I have had one of the best months on record for several years. 20 metres peaked here on 19/6 when H18XAL, VP9EP, OX5AC, ZD8J, CR8EI, ZS6AND, VP9BO/P were amongst those logged. Others for the month on this band on c.w. only were VQ9BC, FG7XX, VP2KJ (Nevis Is., QSL via W2EUV), 5N2AAW, CR9AH, EA8FE, GC2FMV, VU2DIA (Andaman) and ZS5UP. It was unfortunate that many of these were working Sydney DX men, thus reports from here are of no value, and will not therefore be sent. Best signal on the band was without doubt from Jim VK6RU on 19th, whilst the most important was VP2KJ which took me to 297 countries heard.

I note that 7 Mcs. can still produce some really fine DX in the early hours, that is if you can do battle with the QRM. YU3, OE, YO, UA6, UL7, UC2, UA1, DL, KP4, FB8YV P3 plus many W call areas were logged on this band in the c.w. segment. Finally over to Ernie Luff L5080, who with 78 confirmations is right on the trail of the leaders. His 20 metre log is a DX man's dream, prefixes such as KG4 KP6, KJ6, KL7, BV1, ZSL, YV5, EA1, OH0, FB8, HM2, OD5, ZS2, KC4, OE, HRI, EP Z56 and 9M6 being just a few. Inward QSL's for the month were: GW3OCD, ZL5AA, KS6BR, KH6BB, G2PU, KJ6CF, plus quite a number of Americans.

## BAND CONDITIONS

There seems to be increased activity on the higher frequency bands from all states, particularly on 15 metres in South and West Australia. 10 metres has been open as late as 4.30 p.m. local time, in the Eastern states, whilst the c.w. portion of 7 and 3.5 are alive with signals in the early hours of the morning when the Europeans are coming in 589. Seven Mcs. also still provides a lot of late afternoon and evening DX to the American continent, both on s.s.b. and c.w. The problem of commercial QRM makes copy extremely difficult unless one uses a first-class RX.

## R.D. CONTEST AND THE S.W.L.

In writing out the VK3 Divisional notes the subject of participation in the Listeners' section of the R.D. and other contests by former s.w.l.'s who now hold their L.A.O.C.P. again came to mind. In the past there have been cases I believe, where some of these chaps have entered the s.w.l. section. In all respect to our good friends who hold their L.A.O.C.P., we must draw attention to Rule 1 of the Receiving Section, "This section is open to all Short Wave Listeners in Australia, but no active transmitting station may enter." This is not an unfair rule, particularly as the v.h.f. men have their own section this year. If you as a L.A.O.C.P. holder have any doubts about the eligibility of your station in the R.D., I suggest you contact Jim VK6RU for an official ruling while you still have the chance. I am sure all the groups, plus the contest committee desire as much listener participation in contests as possible, but it would be rather demoralising to spend 24 hours in scoring a thousand or more points, then have your log disqualified. Whilst on the subject of the R.D., somebody once complained about such club stations as the VK3 group competing against the individual operator. I cannot recall offhand who mentioned this point, but Rule 5 in the RX section assures us that this is not so, and that the Club stations are not eligible for the "Single operator" award. How many s.w.l.'s enter these contests complete with pencil, log-keeper, tally checker, and somebody to check if stations have been previously logged.

## DIVISIONAL NEWS

From Ian Woodman on behalf of the VK3 group, "Our congratulations once again go to Robert Halligan, this time for obtaining highest score in the 1966 John Moyle National Field Day, VK3 also got 3rd place with Eric Trebilcock who was only 240 points away. The second edition of the group's newsletter "Zero-Beat" has been made available, we trust you have not forgotten to send your donation so that all future copies will be sent to you. The May meeting of the group was once again a full house, extra interest being a row of YL's as a result of the group's publicity in a Melbourne newspaper. At the June meeting we saw VK3WI, the Victorian Divisional Station, thanks to Bill Roper.

## VK2 NEWS

Per the 600 ohm line from Chas. Abernathy, we learn that the next outing of the VK2 group will be a visit to the O.T.C. at La Perouse. This will be held on Saturday, August 6, and for further information contact Chas. or your secretary. Attendances are on the increase at the meetings, and to encourage this, a film will be shown at each meeting night, sharp at 7.30 p.m. This is the 3rd Friday of the month at Institute Headquarters, and the films are being supplied by Mullard. I must apologise to the VK2 group for my inability to attend any of the group activities, but shift work together with a 70-mile trip rule this out.

## ELIZABETH RADIO CLUB

For those listeners who are making the effort to gain the Elizabethan award, Ernie Luff wants you to know that the weekly club round-up has commenced again as from June 20 on 80 metres. Timed at 8 p.m., the first get-together comprised seven stations, including the Club station VK3LZ, which counts as two points towards the award. Don't forget this one chaps, but once again make your reports worthy ones, and remember the time, 8 p.m. on Mondays using the 80-metre band.

# Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

## RECIPROCAL LICENSING

Editor "A.R." Dear Sir,  
I noted with interest the announcement on page 21 of the June issue of "A.R." that VK3ZGG had been issued with an F.C.C. permit to operate in this country under the Australia-U.S.A. reciprocal licensing agreement.

However, for the record, I would like to point out that this was by no means the first such permit issued, there being at least two earlier ones to my knowledge.

I believe the first one issued was to me and was dated August 25, 1965. I attach a copy of this for your information. This was just two months after the formal exchange of notes between the two governments.

Shortly after mine was issued, VK5RN, David Robertson, obtained his and he has been active from Long Island, N.Y., although I believe he is returning to Adelaide shortly. I am active on 14 Mc. and always looking for VK contacts. I keep on or around 14.075 c.w. and 14.205 s.s.b. particularly during the week-ends between 0400z and 0600z.  
Best of luck to the W.I.A. and "A.R."

—D. J. Medley, VK3DL/W5.

## NET OPERATING PROCEDURE

Editor "A.R." Dear Sir,  
It is very disappointing to hear the lack of Amateur spirit displayed on a net frequency one Saturday afternoon (11th June, 1966).

I agree that long overlays without breaks is thoughtless but this does not give other band users the right to broadcast their direct criticism.

If it is essential for fixed stations to radiate their kilowatts on mobile net frequencies then they could firstly try clearing the channel by tactful use of the telephone and as a last resort make official complaint through the W.I.A. It is very embarrassing to listen to the exchange of heated retort on the air.

Those Amateurs who are so impatient and ready to criticise others should take time out to hear a recording of their own procedure to see if they have achieved a standard of perfection which enables them to sit in judgment of their fellow Amateur.

I suggest that all net operators read or re-read an excellent article by Cyril Maude, VK3ZCK ("A.R.," May, 1966, p. 14).  
—David Voigt, VK3ABC.



# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL

The last meeting of Executive was held on the 28th June, and apart from considering the minutes of the last few meetings and quite a large agenda, dealt with items such as the appointment of an I.T.U. Representative and the handling of magazine subscriptions by Executive. Work is also on the way on the proposition of a case for novice licensing.

### AUSTRALIS PROJECT

From information received it appears that work is proceeding satisfactorily, although a meeting to be held early in July will clarify the situation somewhat. It does appear that there is quite a deal of interest, not only in Australis I, but in some future satellite, and Executive felt that whilst it is in order to begin thinking of such a project, all efforts should be directed towards satisfactorily completing the present project before any activity is undertaken on a second venture. It should be realised that a second attempt will be more expensive than the first as equipment will have to be more sophisticated for one thing. At the present stage, the Institute will not be considering any future requests for making any policies in this direction until Australis I is off the ground.

### I.T.U. REGION 3

Unfortunately, Harold Hepburn, Vice-President, was unable to be present at the meeting, but he did submit quite a list of ways and means of obtaining finance for a Regional Conference which we feel it is desirable to hold before the next I.T.U. Conference. This matter will be again on the agenda for the next meeting of Executive, and the fuller details in the minutes can be obtained from your Federal Councillor. It is sufficient to say that some positive thinking has to be done as well as implementing various schemes to raise the necessary money. However, letters have been written to all member Societies in Region 3 in an effort to start, through correspondence, an exchange of ideas and of problems so that we have, at least, a working basis for future discussions.

### RATIFICATION BY DIVISIONS

The voting of all Federal Councillors at the last Federal Convention in Brisbane has been ratified by their Divisions with the exception of N.S.W. As soon as an indication is given of agreement to the minutes as presented, work will proceed on the new Federal Constitution.

## FEDERAL QSL BUREAU

The Ravenna Radio Club (Italy) organised a field day from June 25/27. Their station was situated on the five miles off-shore iron island of Sarom Refinery and the station signed ID1IDA on 3.5 Mcs. to 28 Mcs.

The Municipal Commission de Turismo at Aveiro, Portugal, has made a nice award available to Amateurs contacting two Aveiro stations on any band after 1st January, 1966. Full details from this Bureau.

The N.R.R.L. (Norway) established a club for delegates attending the C.C.I.R. Conference held in Oslo during June and July. A club station was installed, working c.w. and s.s.b. on all bands with the call sign LAIITU.

The 4th Annual Illinois QSO Party, sponsored by the Illinois C.E.C. Chapter No. 17, is scheduled to take place from 18Z August 6 to 22Z August 7. Exchanges are Number RST, State and Country. Each QSO counts one point and multiplier is the number of Illinois countries worked. Awards to the highest scorer in each country. Logs to K9EAB, post-marked 1st September or earlier.

A few copies of the rules of the 12th European DX Contest, staged by the D.A.R.C. and scheduled as under, are available from this Bureau.

C.W.: Zero G.M.T., 13th Aug., to 24Z, 14th Aug.

Phone: Zero G.M.T., 10th Sept., to 24Z 11th Sept.

—Ray Jones VK3RJ, Manager.

## NEW SOUTH WALES

Although the attendance was down at the June meeting of the N.S.W. Division of the W.I.A., held at Wireless Institute Centre, Crows Nest, on Friday evening, 24th, those who were there had the pleasure of listening to one of the most interesting—and certainly the most humorous—talks it has been our pleasure to hear.

President Tom O'Donnell VK2OD occupied the chair and introduced Mr. K. Langford-Smith, who, with his wife, conducts the Marrella Mission Farm for Aboriginal Children at Kellyville, on the north-western outskirts of the Sydney metropolitan area.

Incidentally, Mr. Langford-Smith's only connection with Amateur Radio is that his brother was the editor of the Radiotron Designers' Handbook, well known to most Amateurs.

The lecturer had been a medical missionary in Arnhem Land for several years from 1928, when conditions in that part of the world were decidedly "wild and woolly," and had pioneered the use of aviation in the first flying medical service in that area. Over the years, communications ranged from aboriginal message-sticks, homing pigeons, to pedal wireless, and transport from camels, model T Ford, to an old Gypsy Moth aircraft. The latter was often repaired with bush timber, nuts and bolts from the Ford, and at one time the fabric was patched with the lecturer's shirt.

For an hour the audience was regaled with anecdotes that produced frequent bursts of laughter, and later the President, as well as the mover of the vote of thanks (Ivan Agar VK2AIM), both expressed the feelings of those present by hoping that we would have the pleasure of hearing Mr. Langford-Smith again. The Federal Councillor (Pierce) Healy VK2APQ submitted the minutes of the recent Federal Convention, held in Brisbane over Easter. Pierce detailed the main sections of the minutes, after which they were received by the meeting and left to Divisional Council to deal with. The most controversial section of the minutes dealt with the proportional voting by Divisions in connection with the proposed Federal Constitution, and the meeting was informed that the Constitution Committee would be discussing this matter in the near future.

Eleven applicants were admitted to Institute membership, as follows: Full—K. B. Brown, R. Waller VK2ZZR, T. Oirog VK2TO, P. L. Buchtmann VK2ZDP; Associates—R. L. Knight, B. North, G. Hines, C. Mackie, H. D. Lindell, M. Caratti, F. E. Aveling. With VK2 Divisional membership the highest on record, almost reaching 1300, it is unfortunate that approximately 100 names have had to be deleted from the roll because of failure to come forth with the necessary subscription. This means, of course, that these tardy characters will now lose all benefits of membership, and, once lost, these take some time to become organised again.

Overseas visitors welcomed during the evening were W6YFE and W6WPH, while several of our Hunter Branch friends also made the trip down.

The sympathy of all members was tendered to Don Miller VK2GN in the loss of his 19-year-old son, Robert, a member of the Royal Australian Navy, who lost his life in a car accident in Brisbane during the month.

The chairman informed the meeting that Cyril Henderson VK2CH had been co-opted to Council to fill the vacancy caused by the resignation of Kevin Collins VK2ANY. Council was now up to its full strength of seven members.

Councillor Stan Dogger VK2ZRD has been appointed Communications Officer, and would like to hear from anyone willing to act as Duty Engineer for the Sunday broadcasts at VK2WI. His telephone number is 55-1383.

Harold Burtoft VK2AAH, Education Officer, said that during the month he and Sid Molen VK2SG had combined in a fixed station/mobile

Amateur Radio demonstration for the benefit of the Pendle Hill Church of England Men's Club, and this had been very successful and much appreciated by the club members. Harold also gave a pat on the back to the organisers of the Penrith District Radio Club's field day, held during Queen's Birthday week-end. Although in existence for only three months, this club had made an excellent job of running its first function. A full report of this event appears elsewhere in these notes.

It would appear that a decision of last year's Divisional Council—to provide a memorial library with funds donated by the late John Peehl VK2WJ—should have become a reality by the time these notes appear in print. The President reported that he had obtained a suitable quotation and the work would commence almost immediately. The cabinet will have lockable, sliding, plate-glass doors, and this will enable members to see what is available, at the same time ensuring that books and popular magazines will not be removed by "cotton-pickin' fingers" during the absence of the librarian.

Sid Molen VK2SG, QSL Officer, reported that 1780 cards had been received and 3240 dispatched for the month. This number of outwards cards was the greatest since 1958.

During a short break in proceedings at the meeting, Phil Irvine VK2ZFI showed a film of the last combined VK4/VK2 "Eamess" held at Kingscliff, near the border. This film had been shown on t.v. stations in Brisbane and northern N.S.W., and was sent to us by Eddy VK2BB. A similar combined family gathering is set down for 20th November next, and it is to be hoped that it will be even more successful than the last one.

Old-timers were pleased to see Dick Dove VK2RP at the June meeting. He had been inactive for about 12 years and celebrated his return to the fold by winning the monthly competition for the overseas callbook. Dick held the office of Divisional Secretary for a time, in the days when our meetings were held at Science House.

The executive of the Institute of Radio and Electrical Engineers recently advised that they were making a donation of a large number of "CQ" and "QST" magazines for our library. This is a very generous gesture and merits the thanks and appreciation of all members.

While on the subject of donations, our Morse Tape Service has issued an appeal for used tapes in good condition. Anyone wishing to donate tapes to this popular and worthwhile service is asked to send them to the Supervisor, Ern Hodgkins VK2EH, Mangrove Road, Narara, N.S.W., or they may be left at Wireless Institute Centre, 14 Atchison Street, Crows Nest.

Reference was made to those who had returned creditable results in this year's John Moyle Memorial Field Day Contest. Arthur Mead VK2JM had the highest c.w. score for a six-hour period; Jan Oosterveen VK2BJO, David Russell VK2BSC and Susan Brown VK2BSE, working under the call sign of VK2ATZ/P, received a Merit A award for highest score in the low power, multi-operator section. That, of course, we have those busy "bodies"—Harold Burtoft VK2AAH, David VK2SG, Mac MacNaughton VK2ZH, David MacNaughton VK2ZVW, Laurie Cartwright VK2ZJC, Brian Anderson VK2AND, Dick Norman VK2ZCF, Al Williams VK2ZAL—who between them amassed the score of 3969 points—the highest on record for a 24-hour period. We heard on the grapevine that Laurie Cartwright, being the only bushman in the group, was No. 1 Boy when it came to hoisting v.h.f. antennae into position, and that much of the success of this part of the operation was due to his efforts.

One of the main events in the VK contest calendar, the Remembrance Day Contest, is with us this month, on the 13th and 14th. May we urge our members again this year to get into this event and be sure to enter your logs. If your Division is to have any chance at all, it must have more support from its members than has been the case in the past.

### VK2WI ENGINEER COMMISSIONS COASTAL RADIO STATION

For several weeks between April and June the early morning 80 metre net, known as the Goon Show, was without one of its regular stalwarts. We refer to Bill Jenvey VK2ZO, otherwise known as "Willoughby Will." Apart from his affiliation with the Goons, Bill is a

### SILENT KEY

It is with deep regret that we record the passing of:  
VK3XD—Dick Dowling.  
VK6RW—Bob Muir.  
VK6ZBF—Rodney Burke.

well-known c.w. operator, and nothing delights him more than an excuse to "pound the brass." He is also on the panel of engineers who assist at VK2WI broadcasts.

Before his retirement in 1984 from the position of Chief Engineer of Overseas Telecommunications Commission, Bill had recommended that a new coastal radio station be erected at Cape Schanck, Victoria, to house VIM, which was being operated from Melbourne, with receivers at Rockbank and transmitters at Fiskville. As a result of his report on this project, he was brought out of his retirement to commission the new station, and it is pleasing to report that his efforts have been crowned with success.

Bill's recommendation had been that a move nearer the coast would give a much better signal coverage for shipping in this area, and this had now been proved by results. The station is required to overlap the coverage of those at Adelaide, Hobart and Sydney, and excellent signal strengths have been reported by shipping throughout the area.

Three transmitters are housed in an air-conditioned building, one of these having a power of 2 k.w. into the antenna on the medium maritime frequencies, and another 1 k.w. on high frequency. The third is of 600 watts on both frequencies and is used as a standby. The station is also equipped with a diesel emergency power supply.

The main medium frequency aerial is an insulated 180 ft. steel mast which is itself the radiator, and on the 2 Mc. band, vertical fans are used to obtain coverage of several frequencies. On high frequencies, "Wells" cage quadrants are employed, and these cover a band plus or minus 10% referred to the centre design frequency, with an s.w.r. of less than 2:1 and an omnidirectional radiation pattern.

During preliminary tests the 500 Kc. transmission was received in Auckland (N.Z.) at QSA 4, compared to QSA 1 from the location at Fiskville 60 miles west of Melbourne.

The Cape Schanck station was officially opened on 3rd June by the Postmaster-General (Mr. A. S. Hulme), in the presence of a distinguished gathering.

An interesting sidelight to this story is that Bill's father, in 1901, was carrying out experiments in radio communication for the Melbourne Post Office, and it is indeed a coincidence that his most distant contact was with H.M.S. St. George, which at the time was off Cape Schanck.

#### SUCCESSFUL FIELD DAY

Overcast skies and a cold wind did not dampen the enthusiasm of those who attended the Nepean District Amateur Radio Club's first field day at St. Mary's on Sunday, 12th June. Thirty registrations were recorded, with a total attendance, including XYL's, YL's and harmonics, of 77. The Club's President (Max, VK2MP) has supplied the following information on the day's activities:

The first event was a mobile scramble, in which the contestants were allowed an hour to travel 15 miles (air-line) to the field day area. Prizes were awarded to the top-scorers in the h.f. and v.h.f. divisions, the respective winners being VK2AAH and VK2ASZ.

Four mobile events were staged during the day, a refreshing touch of showmanship being injected into these events by the introduction of a Le Mans starting procedure. The contestants were at first somewhat baffled by this procedure, but by the time of the last event were providing spectators with the sight of wheel spin, thrown gravel, etc. Three of the events were conventional hidden transmitter hunts and the one event was a continuing fox hunt.

A pedestrian hidden transmitter hunt proved that these events are very popular but are becoming the forte of the younger (and fitter) competitors. (How about an "old buffers" event at field days?)

Novelty events for ladies and children were keenly contested, particularly the ladies' events. This was a medley event, in the final stage of which each lady had to inflate a balloon until it burst, immediately after having bolted down a soda cracker biscuit!

An interesting backdrop to the day was a point-to-point communication net manned by the Penrith Civil Defence. This was the first known occasion on which the Civil Defence and the Amateur Service had co-operated so closely, this point being remarked on by the Divisional President, VK2OD, during his address.

Prizes were donated by A.W.V., Fairchild, O. T. Lempiere, Electronic Parts, Miniwatt, Mullard, Aerostat, I.R.C., Roland Grivas, W.I.A. (N.S.W. Division), and by the Nepean District Amateur Radio Club. Each registered person was presented with a folder of pamphlets and booklets donated by A.W.V. The club wishes to express its thanks to all these donors.

73, Ivan VK2AIM.

#### HUNTER BRANCH

A near record was established at the July meeting of the Branch when 43 members and visitors assembled to hear three outstanding lectures on diverse topics. Ian 2ZIF continued his theme of last meeting by presenting the completed "project" converter for two-metre operation. This, Ian explained, is easily built from ice-cream cans—the chassis that is—but of course the job is just a little more difficult. Presenting a detailed circuit and constructional details he had many of the audience thinking that most of the fears of v.h.f. construction are only bogies and, if the details

he described are followed, no difficulty should be experienced in getting the unit to give excellent results for the most thumb-handed of us. More will be heard of this excellent project and those experienced in techniques of the art are ready to help the new constructors who wish to have a lash at it. Ian's notes will no doubt be available on request and I suggest that you write to him at his call-book address if you were unfortunate enough not to be at the meeting. Second on the bill was Max McLachlan, who described in great detail the measures he has undertaken to soundproof and air-condition the shack at the Westlakes Radio Club. Max presented a folder of detailed drawings to assist those seeking the ultimate in soundproof comfort and was able to answer the questions of those who required further details.

Those following his suggestions should have no difficulty in putting a really first-class signal on the air. Bill 2XT was the third lecturer and he described his now famous helical whip aerials using which he has been able to make the mobile DXCC since February this year. Again with a sheet of drawings outlining all the details he told how simple it is to get a really efficient radiator for the mobile rig in little more than domestic receiver aerial size. The amount of research involved in such a project cannot be measured but it is true to say that Bill has reached a peak in perfection with mobile equipment—so much so that his signal reports are practically identical in the car as from the home station. Once again a letter direct will put you in the picture if you are contemplating high efficiency for mobile operation.

At the conclusion of the lectures, Gordon 2ZSG moved a vote of thanks to the three for their excellent presentation and this was heartily acclaimed by the audience. President Frank 2APO then performed a most pleasant function in presenting certificates recently won for prowess in both operating and construction. Colin Colgan and Philip Brown, members of the Youth Radio Scheme, were handed their Elementary Radio Certificates while Susan 2BSB accepted the John Moyle Memorial National Field Day award for the winning low power field station which was jointly manned by herself, Jan 2BJO, David 2BSC and Paul Linsley during the contest week-end. These young people deserve special praise for their efforts with relatively primitive gear especially when one considers that the battery charging was accomplished with a motor mower coupled to a car generator. This power source served both transmitters and the lights at VK2ATZ/P on the heights of Mount Mumbung, near Cardiff.

Some rarely heard calls have been on the air during the month and the DX watchers have reported hearing Allen 2KB, George 2AGD and Harry 2AFA working on bands 30 to 80 metres. George has a new sideband signal while Allen uses c.w. to talk to DX contacts and Harry makes do with a.m. phone on 40. Jack 2KQ has been forced to go QRT while he takes a spell in hospital and all members wish him a speedy recovery and a return to the duck talkers' brigade. Les 2RJ now has a modern aerial from the U.S.A. to go with the new sideband rig and the Valiant so it is expected that he will be among the rare ones mobile by now. Max 2BMK, having completed the flea-popper transmitter for 15 metres has had instant success and landed some W's at the first attempt. He says the report was 5 and 7 so it looks as if the conditions of 1983 may be returning—at least briefly. As far as the coaly city men are concerned, Civil Defence is taking up much of their time and communications for the recent evacuation to Dungong were ably handled by Chris's crew. Ray Robinson has cause for jubilation in being the latest to defeat the examiners for the limited ticket and he is almost ready to go on the air when the authority arrives. One local member who must remain nameless was most pleased to learn recently that a major fault in the transceiver could be repaired with a new fuse—and was he relieved! There are vague mutterings about left-footed Morse examiners since the results of the last examination and some candidates are wondering if "ability to send Morse would be an advantage" was taken literally in the advertisement for staff. Don 2BAE, a visitor from afar, has his own version of the causes so he says. Plans for the coming Spring Convention are well in hand and by all reports it should be another good one so you are advised to watch the Bulletin for the latest reports. The event will be held on the October long week-end with the Field Day at Bolton Point in the shadow of Jim's beams and almost at the end of Lionel's aerial. And to accommodate the meeting successfully an amendment has been made to September, which allows for two meetings—one on the first Friday, and another on the last. So watch the Bulletin and don't be caught! See you at both. 73, 2AKX.

## VK2 DIVISION

This month there are a few surplus items besides the usual stock of new equipment.

One only Heathkit DX40 Transmitter kit. Ready to assemble, c.w. or a.m. (80, 40, 20 and 10 metres). \$60.00

One only AR88 Receiver, 540 Kcs. to 32 Mcs. Good condition. \$170.00 (or offer).

One only, Collins ART13. \$60.00

Three only, Type Y1. Regulated Power Supplies, which suit BC221 frequency meters. \$10.00. (The above prices f.o.r. Sydney.)

Crystals: 3720, 3760, 3800, 3885, 3990, 3995 Kc., \$1 each or 5 for \$4. (4 mc. range will be listed next month.)

Inquiries to Radio Equipment Store, Wireless Institute Centre, 14 Atchison St., Crows Nest, N.S.W.

## LECTURE TAPES

These are available from the VK2 Division free of charge, except on postage both ways. A tape and slides will be sent upon request. Note the value of postage and include this value in 4 cent stamps with the tape when you return it. All inquiries to Education Officer, 14 Atchison St., Crows Nest. At the moment there are 37 tapes in the library. Each month in this column five tapes will be listed. A complete list is to be found in a copy of the "Amateur Guide" (a VK2 Division Publication).

No. 1. Transistors, 2 hours, 8 slides (VK2AAH).

No. 2. Aircraft Navigational Aids, 27 minutes, 27 slides (Peter Griffin).

No. 3. V.O.R., 1½ hrs., 8 slides (Peter Griffin).

No. 4. Phasing Type S.s.b. (s.s.b.-1), 1½ hrs., diagrams (VK2AC/VK2JR).

No. 5. Master Oscillators, 1 hr., 24 slides (VK2JR).

## AMATEUR GUIDE

A reminder that there are no complete copies of the above available at the moment. They are out of print and it is not expected that any further reprint will be made this year. Those who already have copies are reminded that the 4th sub-section will be available toward the end of this year. Watch this column for details.

# ● DISPOSAL BARGAINS ●

AT OUR BULK DISPOSAL STORE

8 PARK STREET, GLENFERRIE, VIC. (OFF GLENFERRIE ROAD)

Phone 81-1935

(Mon. to Fri., 10 a.m. to 5 p.m.; Sat., 10 a.m. to 12.30 p.m.)

## SWITCH BOARD

Completely wired, Type F. & F. T.M.C. C unit. Contains 26 key switches, 28 P.M.G. Plugs, 34 Drop Latches, hand-operated Genemotor for ringing. Size 20 in. wide, 18 in. deep, 21 in. high. Weight 60 lbs. Price \$25.

## CONDENSERS

30 uF. 200v., pigtail ..... 20c ea., \$2 dozen  
 500 uF. 12v., pigtail ..... 20c ea., \$2 dozen  
 12 uF. 50v., pigtail ..... 20c ea., \$2 dozen  
 3 uF. 100v., pigtail ..... 10c ea., \$1 dozen  
 10 uF. 12v., pigtail ..... 10c ea., \$1 dozen

## PP/439/APG-30 POWER SUPPLY

Radar type, new. Contains 36 valves—3 6AQ5, 5 6X4, 4 12AX7, OAG, 2 6AK5, 3 6AL5, 2 12AT7, 2 2D21, 6AS8, 4 2C51, 2 6J6, 6AG5, 2 6AH6. Also twin 28v. blower motor, relays, variable condns., transformers, etc. 28v. 800 cycle. Ideal for wrecking. Sorry, no further information. Brand New. \$35.

## STEEL TRANSFORMER BOXES

6 1/4 x 9 x 5 inch with matching lid, air vents each end. Ideal for battery charger, etc. Unpainted, new. \$1. Discount for quantity.

## DURAL TUBING

1/4 inch Tubing. 6 ft. lengths 36 ft. for \$2 or 40c per 6 ft. length.

## NEW TOGGLE SWITCHES

S.P.S.T. 5/- each. D.P.D.T. 10/- each.

## POTENTIOMETERS

Wire Wound, 4 Watts, 1 1/4 inch diameter. Sizes available: 5, 10, 25, 50, 100 250, 500, 1K, 2K, 10K, 50K ohms. 4/- each.

## NEW CHANNEL LOCK PLIERS

Type 337W ..... 20/- each  
 Type 356 End Cutters ..... 20/- each

## POWER TRANSFORMERS

1992 150-0-150v. 30 mA., 6.3v. 1.75a. 37/6 \$3.75  
 1993 225v.-0-225v. 50 mA., 6.3v. 2a. 45/- \$4.50  
 2062 Voltage Doubler, 290, 285v. d.c. 80 mA., 8.3v. c.t. 2.25a. 67/6 \$6.75  
 2064 Voltage Doubler, 340, 315v. d.c. 125 mA., 6.3v. c.t. 2.25a. 87/6 \$8.75  
 2067 Voltage Doubler, 310, 285, 260v. d.c. 100 mA., 6.3v. c.t. 4a. 83/6 \$8.35  
 290-0-290v. 60 mA., 6.3v. 2a., 5v. 2a. 27/6 \$2.75  
 385-0-385v. 100 mA., 6.3v. 3a., 5v. 2a. 35/- \$3.50  
 385-0-385v. 125 mA., 6.3v. 3a., 6.3v. 2a., 5v. 2a. 45/- \$4.50

## BATTERY CHARGERS

Dual, e/w. Meter in Metal Hammertone Case  
 6 volt 4 amp., 12 volt 4 amp. .... 157/6 \$15.75  
 6 volt 6 amp., 12 volt 6 amp. .... 217/6 \$21.75

## DISPOSAL METERS

G.E.C. Panel Meters, 3/4 inch round, 2 1/2 inch round mounting hole. Brand New. \$1.75.

## P.M.G. TYPE

Standard Rack. 19 inch panels and chassis. All sizes. Plenty to choose from. Personal shoppers only.

## T.V. PROBES

American Precision, TV-5B, 480 Mc., 30,000 volt. Brand New carton. \$8. 12 only.

## BRACKET BEZEL LAMPS

1/2 inch diam. Bezel in Red, Amber, Green. Suit screw type globe. 35c, 4 for \$1.20.

## Q PLUS COILS

AB1 T.V. Balun	\$1.75	VIF3 I.F. Trans.	80
AC2 Aerial Coil	\$1.00	VIF4 " "	80
AC3 " "	\$1.00	VIF5 " "	80
AC4P " "	\$1.00	VIF6 " "	80
AC4S " "	\$1.00	VIF8 " "	\$1.30
AC7 " "	\$1.30	VIF11 " "	\$1.00
AC9 " "	\$1.30	VIF12 " "	\$1.00
IF14 I.F. Trans.	\$1.30	VIF14 " "	\$1.00
IF15 " "	\$1.30	VIF15 " "	\$1.00
IF29 " "	\$1.65	VIF25 " "	80
IF34 " "	\$1.30	VIF28 " "	80
IF36 " "	\$1.65	VHO1 " "	80
IF44 " "	90	VW1 " "	80
IF45 " "	90	RC8 Reinartz Coil	\$1.00
		RC5 " "	\$1.00

## ROTARY WAFER SWITCH

1 pole 24 position 3 bank. Physical size: 3 x 3 inch. Price 30/- (\$3.00).

## MAGNETIC RELAYS

Sealed Type  
 24 volt, 670 ohms, D.p.d.t., size 2 x 1 1/2 inch, Price 15/- (\$1.50).  
 24 volt, 700 ohms, D.p.d.t., size 1 1/2 x 1 inch, Price 15/- (\$1.50).

## NEW CHOKES

7-5H. 125 mA. 30/- ea. 14 H. 60 mA. 12/6 ea.

## NEW VALVE SOCKETS

832A Sockets	20/- each
4/250A " "	20/- "
Acorn " "	3/6 "
EF50 " "	2/6 "
VCR97 " "	10/- "
805 " "	12/6 "
EA50 " "	2/6 "
5-pin " "	2/6 "
6-pin " "	2/6 "
7-pin " "	2/6 "
7-pin P.T.F.E. Sockets	5/- "
Loctal P.T.F.E. Sockets	5/- "
Special completely shielded 7-pin P.T.F.E. socket and shield	10/- pair

## TRANSCEIVER

TR1987, English (later version of SCR522), 15 watts, 21 Valves. Freq. coverage: 115 to 145 Mc. Crystal locked receiver. Transmitter uses TT15 output valves. Three stage exciter using 4.85 Mc. crystal osc. 6AM5, doubler 6AM5, driver amp. QV04/7, p.a. amp. TT15. In-built modulator, complete with 26 volt genemotor. Condition as new. To clear £15 (\$30). Circuit for above unit, 10/- each.

## NEW PLUGS AND SOCKETS

Octal Plug	3/6 each
Octal Socket	1/6 "
5-pin Speaker Plugs	2/6 "
4-pin Speaker Plugs and Sockets	1/9 "
6-pin Jones Plugs and Sockets	7/6 "
Eye Plugs	2/- "
Eye double bulk Chassis Sockets	2/6 "

## MODULATION AND DRIVER

### TRANSFORMERS

Modulation Transformer, 15 watts, pair of 6AQ5s to 2E26 valve.  
 Also Driver Transformer, single ended primary to push-pull grids of 6AQ5s.  
 £2 the lot, or Mod. Trans. 30/-, and Driver Trans. 10/-.

## SPECIAL BARGAINS

Carpenter Relay and Socket, Type 3E1, 1800T 250 ohms, 900T 200 ohms, 15/-  
 P.M.G. Strip Boards, containing 24 Jacks ..... 30/- each  
 P.M.G. Strip Boards, containing 48 Jacks ..... 50/- each  
 Head Phone Cords, new ..... 4/6 pair  
 3-pin Plug and two yds. Cord ..... 4/6  
 Mixed bags of Resistors (50) ..... 12/6  
 P/M Fuse Holders ..... 4/6 each  
 72 ohm Co-ax Cable, 35 ft. lengths, 3/16 inch diameter ..... 10/-  
 72 ohm Co-ax Cable, 27 yd. lengths, 3/16 inch diameter ..... 20/-  
 Vibrators, 122 Type ..... 20/- each  
 122 Aerial Packs ..... 60/- each  
 12-core Cable with Plug, 22 yards long ..... 50/-  
 Dural Tubing, 12 ft. lengths, 1/4 inch diameter ..... 3 for £1  
 P.M.G. Key Switches ..... 7/6 each  
 Radiogram Chassis—straight-out B/C new, completely wired, less valves and speaker, 30/-.  
 Tube types 6V4, 6M5, 6BE6, 6BH5, 6BD7 available, extra.



# RADIO SUPPLIERS

Phone 81-1935

Established 1947

## BLUE MOUNTAINS BRANCH

The May meeting of the Branch was held as usual at Lawson where we heard Bill 2HZ tell us all about the Water Board and the problems, etc., involved with the water restrictions. Bill had some slides and altogether the evening was very interesting. President Derek 2NR welcomed visitor Don 2ZRK from Wollongong Branch. Don and family were holidaying at Katoomba. After supper and the usual rag-chews everybody went their merry ways except 2TM and yours truly. It all started out with a call to a jammed cash register at Keith 2ABK's QTH. After a few minutes of poking with hammer and chisel, I realised it was a workshop job for an expert. Then Trev wondered if we might see Keith's Wuriltzer organ. Well, after seeing the wiring and considering the age, they are quite remarkable, even viewed from my computer aspect. Keith gave us a demo, which was very enjoyable. So again I had to fake my E.T.A. at home for XYL purposes.

Congratulations are in order again this month for Allen Smith as he has passed his limited licence at the last A.O.C.P. exam. His call 2ZFZ and it is understood that Allen will be up on 6 with a Pye, thence on 2. Well, with Allen through, it should not be long before Dan and Roy have a bash—how about it fellas?

Don 2ART, so I believe, has been batching whilst his family enjoyed a week in Holbrook during the school holidays. Did not hear Don on the local bands so may be you were catching up on your DX Don. By the way, as you all know, 2TM Trevor upsturbed Rickard Road on 7 Mcs. Well, my spies tell me his is going to do it again but on 2 mx and 6 mx, so wait for it! Trev has his 14VX working just fine, now up to 20 ft. Came the big night and my mate Roy W6LUZ gave Trev a favourable report against my G5RV so would say it is up this time for good. G5RV's—they are the greatest! Well, that should cause a four-hour rag-chew on 7 Mcs. for sure.

Bob 2ASZ has been giving some of the boys a flip while he builds up cross country flights. I understand Roy Hicks made one trip with Bob and found it quite enjoyable. Heard 2AVN on 2 mx, Ken seemed to be having some modulation trouble. I worked 2ZGW crossband, but Grahame was having trouble copying my 2 mx signals, so looks like my rig needs some long-awaited service.

The Construction Committee has erected a new antennae system for the club transmitter—noted the 2 mx rig in position at the last meeting, so dare say there will be plenty of QRM at future meetings. B.C.N.U. at Lawson, Ron 2ADA.

## CENTRAL COAST

The last meeting of the Central Coast Branch of the W.I.A. was held on June 17. There was a record roll-up for a very interesting evening with several visitors and some members we had not seen for a long time. Our President, Lindsay Douglas, VK2ON, demonstrated a r.f. probe and a Pf meter, Secretary Frank Jarvis, VK2AFJ, talked about his 6 m. converter, and associate Gordon Proctor gave a colourful demonstration of his condenser tester. The essence of all of this home-brew gear was improvisation in the true Amateur tradition. Gordon probably found the most original use ever made for an ash tray when he made it part of the condenser tester. This was a very popular evening and we look forward to having more of the same at a later stage and finding out about the hidden talent among our members.

Our meetings are always on the third Friday of each month unless an important public holiday intervenes. We are always pleased to see interstate visitors. 73, Mona.

## VICTORIA

### COUNCIL MEETING, 27th JUNE

All Council members were present at the June meeting, which developed into one of the longest on record.

Among the items discussed was the permit to include a 432 Mc. transmission of the weekly broadcast. Cyril VK3AEE has undertaken to make this relay.

The membership drive has been organised, and the circulars will be posted early in July. Circulars on the I.T.U. fund and disposals will be sent out at the same time.

A long discussion was held on the t.v.i. which is alleged to emanate from VK3WI. It was decided that steps be taken to replace the BCC610's with more modern equipment. In the meantime, Council confirmed the decision not to make any evening broadcasts from VK3WI until the t.v.i. problems are solved.

Y.R.S. Liaison Officer, John Battrick, reported on the Y.R.S. Supervisors' meeting. Council has been asked to get legal opinion as to liabilities of Y.R.S. Club leaders, in the

event of any accident involving club members while engaged in club activities.

The Instrument Librarian reported that he has completed a survey and finds that only 53 instruments out of 102 are accounted for. We hold the signatures for many of the missing pieces of equipment and those concerned are to be contacted and asked to arrange to return instruments immediately. Some instruments have been borrowed and not signed for. These items are to be sought by means of requests on the weekly broadcasts and in "A.R." Council decided that obsolete instruments will be scrapped and a range of new instruments, yet to be selected, purchased.

The minutes of the last Federal Convention were tabled. Council members will peruse these with that view to discussing them at the next meeting.

Other items considered were: Novice Licences, Slow Morse Transmissions, Correspondence Courses for the A.O.C.P., W.I.C.E.N. and the State Convention early next year.

## I.T.U. FUND

Latest donations received are listed below: \$30: VK3ADN; \$10: VK3's VZ, WB; \$5: VK3EG; \$3: VK3's UG, AIF, ATB, ZCF; \$2.10: VK3ZII; \$2: VK3AWZ, L3201; \$1: VK3's AEJ, AWM, G. Homilij, J. H. Smith.

## WESTERN ZONE

Herb 3NN has his 2 mx s.s.b. rig operating and seems to be getting exceptional results on other bands also, as he recently had a QSO with 3ALZ in Melbourne on 432 Mcs. Ray Lankie also heard Herb operating on 80 metres. Ray, a zone s.w.l., reports this from his new listening post at Madang.

Trev. 3ATR may earn a W.A.S. certificate after his 30 minutes of s.s.b., which also included other rare DX QSO's.

A VK6 visitor was welcomed to the zone network when Chas 3IB worked Bob 6KN/M. who would ever try a 80 mx dipole wound around a loaded semi-trailer—just ask Bob 6KN about his "Centre Loaded Semi --- Mobelee."

The pressure of work has caused Bert 3EF to miss a few hook-ups recently, but he was loud and clear again the other night. Bob 3ARM has been plagued with the "wog," but managed a F.B. QSO on 80 mx recently, to be monitored by Allan, his son, using a battery-operated Rx at Geelong.

It's hardly good swimming weather, but I dare say that Tony 5ZAI is well prepared for the summer with his new home-brew pool. I wonder how many backache units were involved?

The lack of power has kept 5YB off the zone network for some months. S.w.l. is his only resort from which source the bulk of these notes has been derived. 73's, de Barry-5 Yogi Bear.

## QUEENSLAND

### TOWNSVILLE AND DISTRICT

"QTC" for June of the Queensland Branch of the W.I.A. certainly pulled no punches in its monthly editorial. Maybe the punch-line in the third paragraph will certainly make some of the tardy members stop and think. It is hoped that this telling editorial will bear fruit in the increase of membership. It seems a pity that so many are so apathetic, especially at the time when we should be strengthening our membership to fight for our bands.

No southern members have passed through in the past month, at least none have called for an eyeball QSO. Charlie, my main informant being on the highway on Route 1. His antenna gracing the approach to our fair city ensures that there is a welcome for all that pass by.

Very little doing on the Amateur bands and my constant work every day leaves no time for monitoring the various segments of the various frequencies.

Ted 4EJ and Bert 4LB running into a spot of trouble with the home-brew Transceiver; certainly spend much time to ensure that all will perk well when finally put on the air. Ian, a VK3 s.w.l., has passed along the word that he will be visiting various Amateurs in

August and September. Hopes to tour the Tablelands and also has Cairns on high priority; apparently Basil 4ZW held out the velvet hand of welcome previously.

No news of the Local Club, will be a shame if it fails to function for lack of support from the Amateurs. 73, Bob 4RW.

## SOUTH AUSTRALIA

The annual general meeting of the VK5 Division was held in the clubrooms to a standing room only audience of members and visitors, which took the form of a buy and sell night, thus accounting for the overflow in the hall. Nothing much can be written about this type of night, so much to the disappointment of my band of followers in VK4 and VK6, I can only say that Phil 5NN and a ring-in for the night in Warwick 5PS acted as the extractors of the public money, much to everybody's enjoyment, and the meeting closed at 11.15 p.m., with still only standing room available, so need I say any more. I don't know what happened to the caretaker or his Alsatian elephant, but for once, all present made a dignified exit, although keeping one eye peeled for any signs of Jumbo.

Brian 5CA, who usually assists Phil 5NN as auctioneer, did not put in an appearance, unusual if I might say so, and the President, Ross 5KF informed members present that Brian was home in bed with the doctor, and did not clarify the situation any further. My spies are checking up on the situation at the moment, and further details will be given as received!

Noticed Rob 5WA at the meeting, and I was tickled pink to note that he now sports a call sign. Some two years ago when he told me that he planned to sit for a ticket when he retired from G.M.-H., I did not give him a chance, mainly because when one gets up in years it is one thing to say I intend to sit for a ticket, and another to really buckle down and get it. Anyway, he now has his ticket and is in full sail after contacts. It appears that over in W land there is a General Motors Firebird radio club, and Rob is dead keen to contact the members. I salute you, O.M., and your persistence should act as a tonic to several more of the "retirees," etc., in their attempts for a ticket.

I know it is "Catty," but a well-known book on s.s.b. only received two bids at the buy and sell, and was knocked down at a ridiculous figure. I was tempted to bid myself in an endeavour to help things along, but don't think I could have stood up to the Jeers and catcalls that would have followed, plus the fact that it would have been knocked down to me in sheer spite!

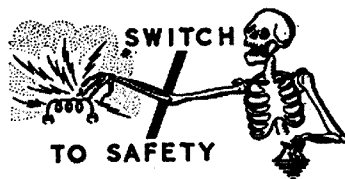
Colin 5ZHJ apparently has been kicking up his heels in the fair city of Canberra, judging by the message he brought back to me from Ken 1KM, and all I can say in reply is that raspberries are my favourite vegetable. How could you be so coarse, Ken? Especially when you know how sensitive my feelings are, to say nothing of my purity of thought.

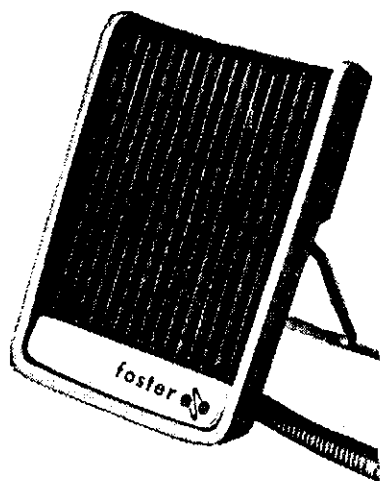
If you should have nothing to do on these cold winter nights, and would be interested in a little parlour game, I suggest that you get out your new call book and look up just where "ZL5" is situated. ZL5 says see CE9, which in turn says see VP8, which in turn says see CE9, which in turn says see VP8, which in turn says CE9—excuse me, this is where I got on.

Joe 5JO apparently back to perfect health once again, so much so that rumour has it that he is tinkering with the thought of painting the house. Not too much ladder climbing, O.M. remember that any Radio Amateur with 12 grandchildren to boast of reserves a place in the hall of fame, and one does not hold a place in the hall of fame by climbing ladders—get it Joe?

On the other end of the scale, Jack 5LR is having a bad trot. Three days after his XYL was hospitalised with a blood infection, Jack was whisked off to the Blackwood hospital for a sojourn with a temperature of 103 or so. How unlucky can one be? XYL in the Adelaide Hospital, Jack in the Blackwood Hospital, and neither the twain can meet. Latest reports state that both are as well as can be expected.

One of my best spies in W4 land, as a matter of fact he is disgraced a status in the gardens of Georgia Tech., tells me that Bob (ex-5PU, now W4) may possibly return to VK around September. Story goes that it is combination of homesickness, a realisation that he and the XYL are a long way from friends and relatives, plus the fact that Bob has sighted a stork flying around in the district, and the said stork told him on the quiet that he had never been to VK, and would appreciate the trip. Ever ready to oblige, Bob said that he would see just what he could do, and the stork was so gratified, that he offered to bring along a couple of his mates! Bob's reaction to this suggestion quickly





DF-2

## FOSTER DYNAMIC MICROPHONES FOR HAND-DESK USE

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
 Effective output level .... -55 db. [0 db. = (one) IV. Microbar]  
 Frequency response ..... 200 to 10,000 c.p.s.

### OMNI-DIRECTIONAL DYNAMIC:

SIZE: 3" x 2-1/8" x 1".  
 Cable: 12 ft. of P.V.C.  
 Switch: on-off.  
 Desk Stand. Clip folds for hand use.  
 Colour: WHITE.  
 Plastic Diaphragm.

Retail Price  
 50K ohms  
**£2'14'0**  
 + Sales Tax 4/9

A QUALITY PRODUCT OF EXCELLENT DESIGN

Marketed by

**ZEPHYR PRODUCTS PTY. LTD.**

70 BATESFORD STREET, CHADSTONE, S.E.10, VIC.



**Manufacturers of Radio and Electrical Equipment and Components**

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.

NOW AVAILABLE—

THE 1966 EDITION

## ★ A.R.R.L.—Radio Amateur's Handbook

*The Standard Manual of Amateur Radio Communication*

Price \$6.10 posted, or 58/6 and postage 2/6

NOW AVAILABLE—

## ★ The Radio Transistor Handbook

by Stoner & Earnshaw.

Price \$6.65 posted, or 64/9 and postage 1/9

THIS UP-TO-DATE HANDBOOK COVERS A WIDE RANGE OF COMMUNICATION  
 FOR BOTH AMATEUR RADIO & COMMERCIAL APPLICATIONS

## McGILL'S AUTHORISED NEWSAGENCY

Established 1860

183-185 ELIZABETH STREET, MELBOURNE, C.1, VIC.

"The G.P.O. is opposite"

Phones: 60-1475--6-7



let the stork know that these VK's are somewhat on the coarse side. My report from the Georgia Tech. spy concluded on a somewhat dismal note—it is possible that Bob will settle in VK3—How is that for punishment? My sympathies—Bob!

The editorial in June issue of the magazine —A Fable for Amateurs—made interesting reading, and the moral was quite obvious. Comments on the editorial, both on and off the air, gave the impression that there is plenty of room in Amateur Radio for all phases of activity, and that the motto, "Live and let live" still prevailed. In all hobbies and activities there are always the odd one or two who want to convert everyone else to their way of thinking, but eventually they come to their senses, or are ignored to such an extent that they wake up to themselves. Look at me —has anybody been ignored more than me? —don't answer that.

That Pincott 3AFJ is about again. Did you notice the sample of the R.D. Contest receiving log in the magazine? VK6RU is shown as having contacted VK5PS, and horror of horrors, the mode in use was s.s.—no, it is of no use. I cannot bring myself to write it. To add to the injury in the same issue of the mag., Comps 5EF alludes to me as "It." What with "The Thing"—"The Monster," and now "It," Amateur Radio is coming to a sorry thing.

Remarkable how in all walks of life and in various odd places, one bumps into ex-Radio Amateurs, or those who with little more encouragement in their early days would have gone on playing with radio. Visiting Jack 5LR in hospital the other day, the face of a chap in the bed opposite seemed very familiar, and upon enquiry he turned out to be the son of a very, very old-timer in Cyril Malpas. This name of course would mean nothing today in Amateur Radio, but the genuine old-timer would certainly remember Cyril, who incidentally is well alive and kicking, although his Amateur activities belong well in the past. Spent quite a time trying to find anybody who remembered his call sign, but so far nothing doing. What about it "Cookie" 5AC??

Bob 5LH—is it Bob?—heard discoursing on an outing chasing the elusive mushroom, apparently without much luck. However, after listening to his mouth-watering description of the barbeque that was part of the hunt, I sadly fear that the mushrooms and their chasing was only an alibi for catering to the inner man.

Max 5GF from his remarks is aiming at 100 watts for his mobile, and going on the same source of information. Les 5NT is entertaining somewhat similar ideas, although admitting that he might stop at 50. Long time to hear Les. Rumour had it that you were giving it away.

Have had one or two enquiries from over the border as to the whereabouts of Tubby 5NO and I quote from the Journal of the Elizabeth Amateur Radio Club, "INFO." "Club members and friends join in wishing Tubby farewell as he departs for Belgium in the very near future—a founder member of the club and one of the most ardent Amateurs in VK5, he will be in Belgium for about three months before returning to the Northern Territory where he will be station manager for an ELDO tracking station. We can expect to hear from Tubby from the shack of some ON station or other, and no doubt later with his own call of VK8, despite rumours that he has given the game away"—unquote.

It has been said that one can never tell just what is inside a parcel from its wrapper—or that one can never judge a sausage from its skin—and to this must now be added that one can never tell just what hidden fires of determination lie beneath the quiet exterior of the operator of 5WI, Murray 5ZQ. This assertion is prompted by the fact that on 14 Mc. the other Sunday evening, two VE stations were in QSO using "The Thing," and just as they were signing off, you should bob up on their frequency, and on a.m. at that, yes, you heard me, a.m. at that, none other than our intrepid hero, Murray, and calling them with all the assurance in the world. Well, to make a short story longer the first Canadian threw up his hands in unbelief, and then must have passed out, or something, because nothing further was heard from him. However, the remaining VE, probably made of sterner stuff, did come back and give a report, suggesting in a somewhat strained voice that it was getting late and he would like to have a look around the band, and then went QRT. Murray calmly thanked him for his report, and said he would not keep him, and then went back to his project quite pleased with his effort, and to all intents and purposes blissfully unconscious of the upheaval he had caused on the band. What a daredevil, what a villain, keep your eyes and ears on this young man, he will go far, but I am not sure in which direction!

Talking of "The Thing," and nobody wants to less than I, I bumped into Jack 5JS at the

## OBITUARY

BOB MUIR, VK6RW

It is with much regret that VK6 advise of the passing of VK6RW, Bob Muir. For very many years Bob was in business in the watch-making trade and was a staunch country Ham. A number of years ago he moved to the city and carried on business in North Perth. An enthusiast, he had a portable at his shop and worked mostly on 8c. Of late years his health gradually gave way, and selling out his business about Christmas time, he went into hospital and died on 3rd June.

The Institute extend to his wife and family their condolences. Bob was a very likeable fellow and will be sadly missed.

RODNEY BURGE, VK6ZBF

VK6 also regret to announce the death of VK6ZBF, Rodney Burge. Rodney was a P.M.G. technician and was actively engaged in extending to the country the broadcasting interests of the P.M.G. Department. We did not see much of Rodney as he was mostly out of town.

The Institute also extends its sympathy to his wife and family.

PAUL HARDWICK ANDREWS

Paul died suddenly on 23rd June, 1966, age 68. He leaves a wife, two sons and two daughters. Originally joined the Public Service at Wauchope, N.S.W., in 1915, saw overseas service in World War I, and served with Beam Wireless during 1920. In 1927 he was appointed as Radio Postmaster in Cammowal, Qld., where he handled communications prior to the inauguration of the Flying Doctor Service. He became Assistant Radio Inspector in 1931 and eventually rose to Superintendent Radio, Queensland, in 1957, holding this position until his retirement in 1962.

Although Paul never bothered to take out a call, he was very much one of the Amateur fraternity and will be remembered by many O.T.'s for his wide knowledge and wit and lectures at meetings, etc.

A self-made man who rose to the top.

supermarket the other morning, and when we had both picked ourselves up, he informed me that he was taking the plunge into the sea of s.s.b. Raising myself to my full height of five foot two inches, I asked him why, hoping that he would not see the tears in my eyes, and he simply said, "if you don't, you don't survive." And that coming from a man who only the other day told me that he would never use "The Thing," because there was always c.w. left. Woe is me.

Nobby 5WK on leave at the moment of writing, and although I have disguised myself and listened on the bands for his s.s.b. signals, so far nothing has been heard of him. Just before he left on his leave I asked him had he seen the paragraph in a certain VK2 publication under the heading of "S.s.b. in the Desert," but he started to go red in the face and stutter, so I decided that discretion was the better part of valour, and left somewhat hurriedly, thus not being able to ask him if he was going away for his leave.

Recently heard Carl 5SS on Shepherds Hill in QSO with Frank 5MZ and as Frank inferred that he had been having a trot around the lawn with the mower, I think I am safe in saying that he is almost back to complete health.

Heard Uncle Tom 5TL talking to Arch 5XK, and when Arch complained of "bugs" in the gear, Tom's suggestion that he had better get a Flicks man in, did not get a very happy reception. Incidentally, Arch had a few complimentary remarks to make about the programmes from the B.B.S., apparently he did not realise that I was earwigging on the frequency.

Ron 5KS, returning from Port Pirie, hobnobbing with his old pals, found that he had accumulated quite a lot of bits and pieces, and his next job is to dispose of them. Buy and sell night, here he comes!

Turned the volume control well up the other night when I heard my favourite banker Keith 5KH say that he was entertaining one of the local cats. However, all was well, the said cat had only adopted the QTH of Keith, apparently it makes no distinction between "The Thing" and a.m.

No doubt about these publicity hunters. No sooner does the publicity die down for Phil's 5NN daughter Judith in the Junior section of "Coles' Question" (she is reliably reported as having more oodle in the bank than the bread-

winner of the family—I can vouch for that because the said breadwinner of the family told me!) than up bobs Phil as the sharer of the 1965 Higginbotham (never heard of him) Award with VK6NJ. I rang him up to congratulate him on the honour, although stressing the dubiousness of his subject, and was cut to the quick to have him point out in reply that it was a pity that last year's winner, a modest and noble upright VK5, did not pay more attention to the said dubious subject! How ungrateful can they be. Anyway, as one winner to another, I congratulate both the recipients, and here's hoping that a VK5 figures in the next year's award.

Murray 5ZQ—I told you to keep an eye and ear on this joker—was not amused when after an absence of three weeks' vacation from the 5WI session, he ran into strife on his comeback. Apparently his mike cable became temperamental, and resisted all of the blandishment of Murray. Dame rumour has it that he showed an unexpected grasp of the language usually associated with a sailor's parrot—but this I would have to hear—not that I would understand a word, of course. One thing I am proud of—my purity of mind!

Was talking to a friend of mine today who has just commenced operation on all bands using "The Thing"—oh yes, believe it or not, I still have some friends despite their use of that mode of operation—and when I asked him what he thought of it, he came all over enthusiastic, and how. His only bit of a grizzle was that his contacts always seemed to degenerate into a round table QSO, with some wanted contacts and some not wanted. He told me that he has solved the problem of not being rude, by calling CQ and adding "for a short contact," thus allowing him to back out with dignity from the gasworks. His name will be withheld to protect the guilty!

W.I.C.E.N. in VK5 moves on from success to success, due no doubt to the drive and energy of its leader, "Simon" Egrege Taylor, STV—Geoff, to you. A foxhunt was held the other Friday night, which proved definite success, and the place-getters were—5ZMW, 5XK—and 5ZBE. The enthusiasm of the members is at the moment reaching a record high, and as an example, Graham 5ZAD has converted his motor-bike for W.I.C.E.N. with a Fye Reporter mounted on the bike, a small earpiece built into his crash helmet and a mike on the helmet visor. He has push-to-talk on the handle bars, and his polarisation varies from vertical at the stop signs, to horizontal when moving. Once he gets past 60 m.p.h. it remains constant at vertihori—or something. Anyway, how enthusiastic can one get—You tell me!

Nothing has been heard of the receiver that was lifted from the QTH of George 5CV. Latest information is that he is leaving it to the gendarmes and the insurance company, as it is no good having suspicions without any proof.

I learnt at an early age that the best form of defence is attack—so here goes. Geoff 5TY rang me at home the other night, and when informed by my better nine-tenths that I had retired early, but would be getting up about 10 o'clock to have a look at the VK3 football on t.v., chortled loud and long, and said that Pincott 3AFJ would certainly hear about this. Just in case he carries out his threat, I wish to publicly state that my XYL's modesty prevented her telling Geoff. The real reason for my intention to rise at 10 o'clock. The real reason was because I expected a man to call on me to have a discussion about a canine —so there.

73 de 5PS—PanSy to you.

## WESTERN AUSTRALIA

Greetings, fellow salt miners, from the frigid wastes of Western Australia. I hope that by the time you read these few lines the winter chills and ills will be preparing to give way to spring.

Once again it is my sad duty to advise of the passing of two more of our number, namely Bob Muir and Brian Burge. Our sincere sympathy to their respective families.

My award of the month goes to Mac 6MM for the most eye-catching advertisement to appear in the local Bulletin for some time. Most of us did a double take when we read of his ingenious offer of a "60-ft. tower with seven-room shack attached"—well, I ask you. Our congratulations must also go to Mac for his achievement in being selected to receive a Rotary Award for Technical Training. Mac was one of the lucky twenty-five candidates from a total of 165 candidates from all over the world. The award will enable him to attend the Milwaukee School of Engineering in the United States for one year. Sounds like a wonderful opportunity to acquire some additional knowledge and a bit of the latest Ham gear into the bargain. Safe travelling, Mac.



Another new voice, another new piece of gear, this time it's Carl 6XW, and the aforementioned piece of gear is, I understand, one of those long-necked birds. No, no, not an ostrich, a Swan. I told you before, those boys down at Narragin were busy bees, not only on the d.c. bands, but the v.h.f. as well. A couple of new 52 Mc. base stations were recently installed.

All this talk of birds and bees, crumbs, next thing I know I'll be writing a "lonely hearts" column.

Some of you may recall that man of many call signs, "Big John," VPDJR/MM on the vessel "Sea Search," well, he recently returned to this state for some five or six weeks and journeyed to Carnarvon. Such is the fatal charm of this Wildflower State.

A report to hand from one of my spies, who must remain unnamed for fear of reprisals in the form of extra homework, informs me that the C.B.C. Radio Club has resumed normal (?) operations, after their Northern Safari and are now settling down to a profound study of the Triode valve. Keen interest is also being shown by the newly-formed group in the neighbouring girls' school.

Laurie 6ZEA also tells me that the group at Wesley College is also progressing favourably. It is also within the realms of possibility that yet another Youth Radio Club may be formed in the near future, this time as far afield as Carmel. Rod 6SE is very interested in this aspect of our hobby. Good luck, O.M., hope it turns out some more call signs very soon.

Despite the strenuous efforts of a number of interested Hams it seems that W.I.C.E.N. in VK8 is slowly but surely grinding to a halt. The Sunday morning call-back has been discontinued and our sincere thanks must go to Brian 6VW for persisting so long against such long odds. Looking for the silver lining, we must consider ourselves rather lucky that natural disasters are not so prevalent in this state as they are elsewhere. Should disaster threaten I feel certain that Hams in this state will, if permitted, acquit themselves just as creditably as they have in the past.

Is this a sign of things to come, or just the impolite brush-off? Heard recently on the

band: "—sorry, O.M., but my receiver does not handle a.m." Sounds like a serious malfunction of the half lattice geranium whoosis to me.

One fellow who successfully combines business with pleasure is Eric 6VM, who has very neatly contrived to fit some mobile gear into his wagon, and waggles a whip on the rear end also. When circumstances (Jobs, that is) permit he joins in the regular 1 o'clock sited on 40 metres each Wednesday. As a bonus, he has also influenced his offside, Hank, to become interested in Ham radio. It was good to see them both at a recent meeting, too.

Heartiest congratulations to those successful candidates at the last A.O.C.P. exam.—good work. To those who were just a little unlucky, don't go cold on the project, imagining that you are a Robinson Crusoe. Many have been in a similar position and there will be many more in the future. Keep on slogging, the end result will be well worth while, believe me.

Saw Len 6LS at the recent Australian Post Office electronics exhibition, put the awed public in possession of some of the secrets of telecommunication. Couldn't get near enough to see his video-taped interview, but his modulation was loud and clear. See you in the R.D. Len, I hope.

The Christmas Island boys were not favoured by over-good conditions during their recent week-end Ham Fest, but operator Allan certainly got into a beaut. gagle, sorry, I mean round-table on the Sunday evening on 80 metres. Apart from the six or seven VK6's, a couple of ZL's managed to get into the act and Master of Ceremonies Bob 6BE was kept pretty busy.

I understand that that small cloud of dust on the horizon near Wubin was caused when Col 6CJ forcibly ejected a family of red-back spiders and sundry pests in order to fire up his rig on 40. Just getting ready for the you-know-what in August? By the way, where is brother Ray 6WU? We've missed you from the Schools' Broadcast (Wednesday sked to the uninitiated) O.M.

Quite a number of new calls appearing on the 52 Mc. f.m. nets, so my spies inform me. This facet of Ham activities is one which has received quite a lot of adverse criticism from quarters, its opponents claiming that going on the breeze with a converted two-way is where Ham radio ends with many fellows. Another school of thought is that at least they are on the air and not just inactively holding down a call sign by simply paying a quid. What do you think?

By the time you read these notes, Lionel 6LM should have commenced his second issue of long service leave. If previous holidays are any guide, listen for him operating portable as well as from his home QTH.

Well, happy listening customers, see you further down the log. 73, Ross VK6DA.

## HAMADS

Minimum 50c, for thirty words.

Extra words, 2c each.

Advertisements under this heading will be accepted only from Amateurs and S.W.'s. The Publishers reserve the right to reject any advertising which, in their opinion, is of a commercial nature. Copy must be received at P.O. Box 36, East Melbourne, C.Z., Vic., by 5th of the month and remittance should accompany the advertisement.

**CABINET** Chassis and Circuit for Geloso v.f.o. Class "B" zero bias driver and multi-tapped output Transformer. Car Radio coil kit and dial to suit. Dual wave coil kit. Crystal pick-up. Power Transformer 10-260 a.c., 1800v. C.T. at 7.5 mA. Ferranti Audio Transformers. T20 and 834 Valves. Numerous valves. 455 Kc. and 500 Kc. Crystals. W. M. F. Sievers, 24-4154 (Melbourne).

**FOR SALE:** Beam Sell-out: (1) Quad, new, unused. All best material. 2" x 8' 6" al. boom, 3/16" al. end plates, 3" al. cross tubes with fibreglassed dowel extensions. Complete with all hardware, not wired, \$24 and save hours. (2) 2 el. 20 mx, wood space frame, brass elements. Will dismantle for easy transport. Needs some insula-

tors and a paint, \$10. (3) 3 el. 10 mx, as above, \$4. A.W.A. Mobile 40 or 80 mx Transmitter, 12 volt vib. supply, in single metal case. Metered 6A6, 807 p.a. with p.p. Mod. 6V6's. Good condition, \$35, f.o.r. Genemotor type 19. 275v. at 110 mA. and 500v. at 50 mA., \$6. Type 11, 210v. at 50 mA., \$2. TU8B units, 3 to 4.5 and 6.2 to 7.7 Mc., original, \$24 the pair. BC458 80 mx v.f.o.'s, three at \$10 each. Geloso V.f.o. to 807 p.a., on chassis, less meters and p.a. tank, \$20. AVO Valve Tester with panel, tests about every valve made, as new and including new manual, \$40. Tx Valves, Taylor T40, new, 115w. triode, \$4. Eimac 35T, unopened, 140w. triode, \$5. 815's, \$3. 809's, \$1. 211's \$1. 6 volt Vib. packs, \$1. Xformers, meters, sockets, etc., etc. Write if looking for something. VK3DS, 123 Webster Street, Ballarat, Vic.

**FOR SALE:** Eddystone Model 888A Receiver, 6 Amateur bands, 1.8 to 30 Mc., prod. det., var. selectivity, spkr., audio filter, xtal. calibrator, monitor, superb tuning, spotless condition, new price, \$525, \$220 o.n.o. Type S Power Supply, new 866 rectifiers, connecting cables, all in good order, \$25. Relay Rack, fully enclosed type, 5 ft. 4 1/2 ins. panel space, takes 17" x 13" chassis, \$6. Grey crackle finish Cabinet with hinged lid, takes 19" x 10 1/2" panel, unused, \$6. Type 3 Mk. II. Tx and Rx, modulator, mike, phones, xtals, original spares, manual, watertight cases, \$40. Vibrator Power Supply, 12v. input, 500v. h.d. output, dual vibrators, separate rectifiers, \$3. H. P. Webber, VK-3PW, 3 Khartoum St., Caulfield, S.E.7, Vic. Phone 50-6023.

**FOR SALE:** Johnson Viking Match-box, \$50. Two Heathkit Q-Multipliers, suitable for 455 Kc., \$16 each. Heathkit 3" Oscilloscope, Model OL-1, \$40. Power Transformer, 240 to 110 volts, 500 watts, \$7.50. R. J. Baty, VK2ANB, 41 Lawson Pde., St. Ives, N.S.W. 44-3707.

**FOR SALE:** Mohican transistorised communication set, factory wired in United Kingdom, \$125. VK3AVU, 200 Elgar Rd., Box Hill S., Vic. 28-2785.

**SHACK** Clearance! Still plenty to dispose of. Command transmitters, testing equipment, hundreds of tubes from 6V6's to 803's, new and used, send S.A.E. 4 x 9 in. for list. VK2AVA, P.O. Box 23, Springwood, N.S.W.

**WANTED:** AR88 in good condition. State price. C. L. Bishop, VK5CY, Balaklava, South Aust.

**WANTED:** Hi-Fi Speakers, 20 watt. Woofer and others. Also amplifier and transistor-stereo, 50 watt per channel. S. Widgey, 181 Victoria St., Ballarat.

**WANTED:** Type 3 Mk. II in original condition, with book and transport case. Will consider separate items in event complete set not available. Write K. McCarthy, VK4DU, James St., Currumbin Beach, Qld.

**WANTED:** 30 LI or SB 200 or similar. Price and tech. details to VK3KN, Sandara Court, Mt. Eliza, Vic.

## Stockists of Radio and Electronic Components for the Amateur Constructor and Hobbyist

First Ring, Write or Call on  
**WILLIAM WILLIS & Co. Pty. Ltd.**  
428 Elizabeth St., Melb'ne. Ph. 34-6539

### 20c PER TRANSISTOR

with all diodes, resistors, condensers, etc., free, on our Computer Circuit Boards. Also in stock: OA202-type signal silicon diodes (100v./0.16a.), 100 for \$6. S.A.E. for Cat. containing other diodes, SCR's, etc. Everything tax paid, post free, \$3 min.

### AUSTRALIAN ELECTRONICS

76 View Street, Hobart, Tasmania.

**Repairs to Receivers, Transmitters; constructing and testing; xtal conv., any frequency; Q5-ers, R9-ers, and transistorised equipment.**

### ECCLESTON ELECTRONICS

146a Cotham Rd., Kew, Vic. Ph. 80-3777

### A. R. R. L.

Associate Memberships (and renewals) are available by forwarding \$5.40 (plus 5c interstate cheques) to:

Business Manager, W.I.A.,  
49 Cookson Street,  
Camberwell, E.6,  
Victoria.

This includes the regular arrival of

### "QST"

# A LARGE RANGE OF TRANSMITTERS, RECEIVERS, TEST GEAR, AND DISPOSALS RADIO PARTS AVAILABLE

- ★ **BC221 FREQUENCY METER**  
Complete with Calibration Book, Crystal, and Headphones, \$90.
- ★ **SCR522 V.H.F. TRANSMITTER/RECEIVER**  
100-150 Mc. Complete with tubes, \$28.
- ★ **A.W.A. MR10 F.M. CARPHONES**  
70-85 Mc. 2E26 p.a. Complete with all tubes, power supply, control unit, handset, leads and plug for antenna, \$34.
- ★ **COMMAND TRANSMITTERS**  
4-5.3 Mc., 5.3-7 Mc. Complete with tubes, \$15.
- ★ **TR3624 TRANS./REC.**  
Approximate frequency, 200 Mc. Contains 46 miniature tubes, \$30.
- ★ **VARIACS, GENERAL RADIO**  
115v. 500w. New, in cartons, \$6.
- ★ **3J160E HIGH POWER TRIODES**  
120 Mc. full ratings. Heater 10v. 29a., anode max. volts 3000v., anode max. current 1000 mA. RF output 2150 watts. \$8 each.
- ★ **VALVES**  
EF50 20c ea., 7C7 10c ea., CV131 6CQ6 50c ea., 6AC7 20c ea., 6AL5 20c ea.
- ★ **SIGNAL GENERATORS**  
Type LSG10, 120 Kc. to 260 Mc., \$26. Type LSG11, 120 Kc. to 390 Mc., provision for xtal, \$30, both plus freight.  
TE22 Audio Generator, freq. range: sine 20 c/s.-200 k/c., square 20 c/s.-25 k/c., in four ranges. Output, 7v. p-peak. Output impedance, 1,000 ohms, \$42.
- ★ **METERS, P25 TYPE**  
0-500 uA., \$5.25; 0-100 uA., \$6.95; 0-1 mA. \$4.50; 0-10 mA., \$4.50; 0-50 mA., \$4.50. Full range of Meters and Multi-Testers available.
- ★ **CO-AXIAL CABLE**  
UR70 72 ohms, 3/16 inch diam., in 27-yard rolls, \$2 plus 75c pack and post. In as new condition.
- ★ **80-40 METRE TRANSCEIVER**  
San Electronics QTR7. Tx: 6BQ5 p.a., 6BQ5 modulator, xtal locked. Rx: Tunes 3.5 to 11 Mc., 1 watt audio output, 230v. a.c., \$90.
- ★ **BC348 COMMUNICATIONS RECEIVER**  
200 Kc.-18 Mc. in six bands. Xtal filter and b.f.o. Genuine original condition, \$90.
- ★ **RA1B COMMUNICATIONS RECEIVER**  
150 Kc.-15 Mc. in six bands. B.f.o., etc. Genuine original condition, with a.c. power supply, \$70.
- ★ **TR10A MULTIMETERS**  
100,000 ohms per volt. Ranges, DC volts: 0.5, 2.5, 10, 50, 250, 500, 1k. AC volts: 2.5, 10, 50, 250, 1k. DC current: 10 uA., 1 mA., 25 mA., 250 mA., 10A. Resistance: 20K, 200K ohms, 2 megohms, 20 megohms. To clear, \$25.95.
- ★ **POTENTIOMETERS**  
Wire wound 40c each; carbon 25c each.
- ★ **RESISTORS**  
½ watt, I.R.C., Welwyn, Eire, Ducon, Philips, \$2 per 100.
- ★ **MINIATURE CAPACITORS**  
New shipment. 600 v.w. Values: 0.001, 0.02, 0.005, 0.0005, 0.0002, 0.0001 uF. \$2 for 80 plus freight.
- ★ **½ H.P. 2-STROKE MOTORS**  
Ohlsoon and Rice. Brand new, just imported from America. Weighs only 5½ lbs. 6,300 r.p.m. supplied with 3:1 reduction gearbox, output 2,100 r.p.m. Ideal for driving Alternators for Field Days. Fuel consumption 1 pint per hour. \$30.
- ★ **CRYSTALS**  
Personal shoppers only, \$1 each.
- ★ **SPECIALS**  
3AP1 C.r.o. Tubes. New in cartons, £1.25.  
Vacuum sealed Relays, 670 ohm coil, four change-overs, 50c each.  
3000 Type Relays, 50 c each.  
Dual 3000 Type, £1.50 each.  
Brand new 4 inch Speakers, \$3.  
Inter-office Phones, 15-station type, \$4 each.  
7-pin skirted Valve Sockets, P.T.F.E., insulation, silver plated, only 20c each, c/w. shield.
- ★ **TRANSISTORS**  
Brand new. OC72, OC44, 2N132, OC66, OC45, 80c each. AT1138 Power Transistor, 30w., Class B, \$3. Also Diodes: OA71, OA81, OA95, 35c each.

## WANTED TO BUY

Communication Receivers, Test Equipment, etc. Call, write or phone. Equipment inspected and picked up at your convenience any night or week-end.

## ANY QUERIES

Beginners are welcome, ask Jim and Laurie Gardiner any questions. They are Amateur Radio operators and will be only too pleased to assist.

ALL ITEMS FREIGHT EXTRA

# UNITED TRADE SALES PTY. LTD.

280 LONSDALE ST., MELBOURNE, VIC. (Opp. Myers)

Phone 32-3815



# WARBURTON FRANKI

now distributors of

# "SANWA" MULTITESTERS

For accuracy, reliability and versatility, choose "SANWA" Multitesters. You are assured of unsurpassed Tester performance, the result of SANWA's experience in Tester making since its establishment in 1937.

## MODEL 320-X

● 20-microampere high sensitivity meter. ● Will show its efficiency in measuring minute current and high resistance. ● Best suited for the use of senior servicemen and in laboratories.

### Measurement Ranges:

D.C. V.: 5, 25, 100, 250, 500v (50k ohm/v.); 1000, 5000v. (25k ohm/v.).  
A.C. V.: 5, 25, 100, 250, 500, 1000v. (5k ohm/v.).  
D.C. A.: 25μA.; 2.5, 25, 250 mA.  
OHM: 0 to 10k, 0 to 100k, 0 to 1 mg., 0 to 100 mg. (min. 2 ohm and max. 100 mg. ohm).  
DB.: — 20 to plus 16 to plus 62 db.  
Batteries: 1.5v. (UM-2) x 1 and 22.5v. (BL-015) x 1.  
Size: 8<sup>5</sup>/<sub>8</sub> in. x 5<sup>1</sup>/<sub>2</sub> in. x 3<sup>3</sup>/<sub>8</sub> in.  
Weight: 3.2 lb.

Price: \$29.50 plus S.T. 12<sup>1</sup>/<sub>2</sub>%

## MODEL 370-ES

● Specially designed A.C. current ranges measure up to 10 amperes. ● Germanium diode rectifiers. ● Wide-range and versatile instrument for all-round service and laboratory use. ● Diode protected.

### Measurement Ranges:

D.C. V.: 0.5, 2.5, 10, 50, 250, 500, 1000, 5000v (20k ohm/v.).  
A.C. V.: 2.5, 10, 50, 250, 1000v. (4k ohm/v.).  
D.C. A.: 50 μA.; 1, 10, 50, 250 mA.; 1, 10 A.  
A.C. A.: 250 mA.; 1, 10 A.  
OHM: RX1, RX100, RX1000, RX10000 (min. 1 ohm and max. 50 mg. ohm).  
DB.: — 20 to plus 10 db. plus 10 to plus 35 to plus 63 db.  
Batteries: 1.5v. (UM-2) x 2 and 22.5v. (BL-015) x 1.  
Size: 7 in. x 5<sup>1</sup>/<sub>4</sub> in. x 3<sup>1</sup>/<sub>4</sub> in.  
Weight: 3.1 lb.

Price: \$34.50 plus S.T. 12<sup>1</sup>/<sub>2</sub>%

## MODEL 380-C

● High-grade circuit tester of 50-microampere sensitivity. ● Ruggedly constructed to withstand the wear and tear of heavy-duty service. ● Large mirrored scale dial for accurate reading.

### Measurement Ranges:

D.C. V.: 0.3, 3, 12, 60, 300v. (33.3k ohm/v.); 1200, 3000 v. (16.6k ohm/v.).  
A.C. V.: 3, 12, 30, 120, 300, 1200v. (15k ohm/v.).  
D.C. A.: 30 μA.; 3, 30, 300 mA.  
OHM: X1, X10, X100, X1000 (min. 0.5 ohm and max. 20 mg. ohm).  
DB.: — 20 to plus 10 to plus 23 db. up to plus 63 db.  
\*μF (C): 0.001 to 100 μF.  
\*H (L): 0.1 to 2000H.  
Batteries: 1.5v. (UM-3) x 4 and 1.5v (UM-2) x 1.  
Size: 7<sup>1</sup>/<sub>4</sub> in. x 5 in. x 4 in.  
Weight: 2.5 lb.  
\* Use external power.

Price: \$23.50 plus S.T. 12<sup>1</sup>/<sub>2</sub>%

## MODEL U-50

● Handy meter of 35-microampere sensitivity.

### Measurement Ranges:

D.C. V.: 0.1, 0.5, 5, 50, 250, 1000v. (20k ohm/v.).  
A.C. V.: 2.5, 10, 50, 250, 1000v. (8k ohm/v.).  
D.C. A.: 50 μA.; 0.5, 5, 50, 250 mA.  
OHM: RX1, RX10, RX100, RX1k (min. 1 ohm and max. 5 mg. ohm).  
DB.: — 20 to plus 62 db.  
\*μF (C): 100 pF. to 0.2 μF.  
\*Megohm: 1 to 500 mg. ohm.  
Batteries: 1.5 v. (UM-3) x 2.  
Size: 5<sup>1</sup>/<sub>8</sub> in. x 3<sup>1</sup>/<sub>4</sub> in. x 1<sup>1</sup>/<sub>2</sub> in.  
Weight: 13.3 oz.  
\* Use external power.

Price: \$13.50 plus S.T. 12<sup>1</sup>/<sub>2</sub>%

## MODEL 370-X

● Multi-purpose tester covering practically all measuring requirements. ● Two current ranges afford the meter a dual function as a circuit tester and A.C.-D.C. ammeter.

### Measurement Ranges:

D.C. V.: 3, 6, 12, 120, 300, 1200, 3000v. (4k ohm/v.).  
A.C. V.: 6, 12, 120, 300, 1200, 3000v. (4k ohm/v.).  
D.C. A.: 0.3, 3, 30, 300 mA.; 3, 12 A.  
A.C. A.: 3, 12 A.  
OHM: R, 10R, 100R, 1000R (min. 2 ohm and max. 10 mg. ohm).  
DB.: — 10 to plus 17 db., 0 to plus 23 to plus 63 db.  
Batteries: 1.5v. (UM-2) x 2 and 22.5v. (BL-015) x 1.  
Size: 8<sup>5</sup>/<sub>8</sub> in. x 5<sup>1</sup>/<sub>4</sub> in. x 3<sup>3</sup>/<sub>8</sub> in.  
Weight: 2.6 lb.

Price: \$20.50 plus S.T. 12<sup>1</sup>/<sub>2</sub>%

## MODEL P-1B

● Rugged and accurate midget tester. ● Miniatured to the limit of practical use. ● Useful to check all sorts of electrical home appliances.

### Measurement Ranges:

D.C. V.: 10, 50, 250, 1000v. (1k ohm/v.).  
A.C. V.: 10, 50, 250, 1000v. (1k ohm/v.).  
D.C. A.: 100 mA.  
OHM: 0.1, 100k ohm (mid-scale — 25k ohm).  
DB.: — 10 to plus 22 db. plus 20 to plus 36 db.  
\*μF & H.: 0.001 to 0.1 μF. and 10 to 1000H.  
Battery: 1.5v. (UM-3) x 1.  
Size: 4<sup>1</sup>/<sub>8</sub> in. x 2<sup>7</sup>/<sub>8</sub> in. x 1<sup>1</sup>/<sub>2</sub> in.  
Weight: 9 oz.  
\* Use external power.

Price: \$6.25 plus S.T. 12<sup>1</sup>/<sub>2</sub>%

## MODEL F-7TR

● The unique range selector is really epoch-making, a red ball appearing in the slot on a clear acrylic dial. ● Half in size compared with conventional testers. ● The meter self-checks the internal batteries.

### Measurement Ranges:

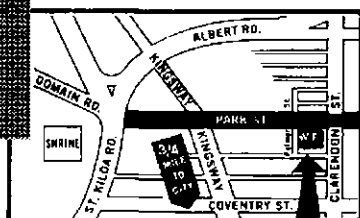
D.C. V.: 0.25, 2.5, 10, 50, 250, 1000v. (20k ohm/v.).  
A.C. V.: 2.5, 10, 50, 250, 1000v. (8k ohm/v.).  
D.C. A.: 50 μA.; 0.5, 5, 50, 250 mA.  
OHM: RX1, RX10, RX100, 50M (min. 1 ohm and max. 50 mg. ohm).  
DB.: — 10 to plus 36 db.  
L.I.: 20, 2, 0.2 mA.  
Batteries: 1.5v. (UM-3) x 1 and 22.5v. (BL-015) x 1.  
Size: 3<sup>3</sup>/<sub>8</sub> in. x 3<sup>1</sup>/<sub>4</sub> in. x 1<sup>3</sup>/<sub>4</sub> in.  
Weight: 14.4 oz.

Price: \$22.50 plus S.T. 12<sup>1</sup>/<sub>2</sub>%



# WARBURTON FRANKI

220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines 69-0151



Please include postage or freight with all orders



# amateur radio

Vol. 34, No. 9  
SEPTEMBER  
1966

25c

Registered at G.P.O., Melbourne, for  
transmission by post as a periodical

## PLASTIC PANEL METERS

F22 2-inch square. Clear Plastic Case. 1 1/4-inch round mounting hole; 1 1/2-inch deep.  
 P22 500 uA. £2 P22 1 mA. 37/6

P 25 2 1/4-inch square. Clear Plastic Case. 2 1/4-inch round mounting hole. 3/4-inch deep.  
 P25 50 uA. 82/6 P25 50 mA. 47/4  
 P25 100 uA. 72/6 P25 100 mA. 47/6  
 P25 500 uA. 55/- P25 15 volt d.c. 47/6  
 P25 1 mA. 47/6 P25 300v. a.c. 17/6  
 P25 5 mA. 47/6 P25 S. Meter 50/-  
 P25 10 mA. 47/6 P25 VU Meter 75/-  
 P25 20 mA. 47/6

MR1P 1 1/4-inch square Clear Plastic. 1-inch round mounting hole; 1 1/4-inch deep.  
 MR1P 1 mA. 32/6  
 MR1P 500 uA. 35/-

MR2P 1 1/2-inch square. Clear Plastic. 1 1/2-inch round mounting hole; 1 1/2-inch deep.  
 MR2P 50 uA. 55/-  
 MR2P 50-0-50 uA. 55/-  
 MR2P 100 uA. 47/6  
 MR2P 500 uA. 37/6  
 MR2P 1 mA., 5 mA., 10 mA., 15 mA., 20 mA., 25 mA., 50 mA., 100 mA., 250 mA., ALL. Each 35/-  
 MR2P 15 amp. D.C. 35/-  
 MR2P 15 volt D.C. 37/6  
 MR2P VU Meter 15/-  
 MR2P Stereo Balance 42/6  
 MR2P 300-30 amp. D.C. 42/6  
 MR2P "S" Meter 37/6  
 "S" Meter reads S1 to S9 plus 10 to 30 db. FSD 1 mA.  
 MR2P 300 volt A.C. 12/6

MR3P 3 x 3 3/8-inch square Clear Plastic. 2 1/4-inch round mounting hole. 1 1/2-inch deep.  
 MR3P 50-0-50 uA. £12/6  
 MR3P 50 uA. £3/12/6  
 MR3P 500 uA. £2/12/6  
 MR3P 1 mA. £2/10/-  
 MR3P 5 mA., 10 mA., 25 mA., 50 mA., 100 mA., 250 mA., 500 mA., ALL. 50/- each  
 MR3P VU Meter £3/17/6  
 MR3P 300 volt A.C. £2/10/-

MO52 2 1/2-inch round face. 2 1/2-inch hole. Black Plastic Case.  
 MO52 500 uA. 38/6  
 MO52 1 mA. 36/6

MR52 2 1/2-inch square. Black Plastic. 2-inch round mounting hole. 1 1/4-inch deep.  
 MR52 100 uA. 62/6  
 MR52 500 uA. 47/6  
 MR52 1 mA., 5 mA., 10 mA., 25 mA., 50 mA., 100 mA., 250 mA., 500 mA. £2 each  
 ALL

EW20 Edgewise Meter 2 1/4 x 1 1/4 inch rectangular. Clear Plastic Case. 2 inch deep.  
 EW20 1 mA. 42/6

EW16 Edgewise Panel Meter 1 x 3 1/4 inch face. 3 1/2-inch deep.  
 EW16 500 uA. £3/12/6  
 EW16 1 mA. £3/7/6  
 EW16 300 volt A.C. £3/12/6

MR65 3 1/4-inch square face. 2 1/2-inch round hole. Black Plastic Case.  
 MR65 500 uA. 52/6  
 MR65 1 mA., 5 mA., 10 mA., 25 mA., 50 mA., 100 mA., 250 mA., 500 mA. £2 each  
 ALL 50/- each  
 MR65 50 volt A.C. 42/6  
 MR65 VU Meter £4/2/6

MO65 3 1/4-inch round. 2 1/2-inch round hole. 1 1/2-inch deep. Black Plastic.  
 MO65 100 uA. 55/-  
 MO65 500 uA. 37/6  
 MO65 1 mA., 5 mA., 10 mA., 20 mA., 50 mA., 100 mA., 150 mA., 250 mA., 500 mA. ALL 35/- each  
 MO65 50 Millivolt 37/6  
 MO65 100 Millivolt 37/6  
 MO65 15 volt D.C. 35/-  
 MO65 30 volt D.C. 35/-  
 MO65 300 volt D.C. 42/6  
 MO65 300 volt A.C. 42/6  
 MO65 1 amp. D.C. 35/-  
 MO65 30-0-30 D.C. amp. 42/6

## "VU" METERS

Scale: —20—0 plus 3 VU.  
 0—100% (OVU) at 600 ohm.  
 Frequency Range: 30—7500 C.S.  
 Impedance: eq. 3900 plus minus 200 ohms.  
 Time Constant: eq. 0.3 sec.  
 (Time for 99% response.)

MR2P VU Meter 15/-  
 MR3P VU Meter £3/17/6  
 MR65 VU Meter £4/2/6  
 MR4P VU Meter £5/5/-  
 MR4P 1-inch x 4 1/2-inch square. 2 1/4-inch round hole. Clear Plastic Case.  
 MR4P 1 mA. £3/3/6  
 MR4P VU Meter £2/3/6

## TRANSISTOR RECEIVER KITS

Kits of parts for the Audio and B.F.O. Sections of the 80 Mx Transistor Receiver described in August "A.R." are now available. Audio Kit \$15.59. B.F.O. Kit \$15.59. Kits will be available for subsequent sections as they are published.

## RECORDING TAPES

Well known makes. Brand new in cartons Guaranteed.

Length	Reel	Material	Price
150 ft.	on 3 inch	Acetate	66c
225 ft.	3	"	75c
300 ft.	3	Tensilised Mylar	\$1.25
500 ft.	3	"	\$1.65
600 ft.	3 1/4	"	\$1.80
600 ft.	5	Acetate	\$1.75
900 ft.	5	"	\$1.95
900 ft.	5	Mylar	\$2.25
1200 ft.	5	"	\$3.50
1800 ft.	5	Tensilised Mylar	\$5.25
850 ft.	5 1/4	Acetate	\$1.75
1200 ft.	5 1/4	Mylar	\$3.24
1800 ft.	5 1/4	Tensilised Mylar	\$5.25
2400 ft.	5 1/4	"	\$7.95
1200 ft.	7	Acetate	\$2.75
1200 ft.	7	Mylar	\$3.25
1800 ft.	7	Acetate	\$3.75
1800 ft.	7	Mylar	\$4.59
2400 ft.	7	"	\$5.25
3060 ft.	7	Tensilised Mylar	\$7.59
3600 ft.	7	"	\$9.25

Empty Tape Reels Plastic Storage Case and Empty Reel

3 inch 25c  
 3 1/4 " 35c  
 4 " 35c  
 5 " 40c  
 5 1/4 " 55c  
 7 " 50c

5 inch 30c  
 7 " 30c  
 Leader Tape, White 100 ft. reel \$1.25

## BALUN TOROID

Type 355C. Impedance ratio 2.1:1. 52 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. For use at the base of a mobile whip antenna, coupled to fixed or adjustable tx output impedance. Lug terminals. \$3.50.

## DRIVER AND OUTPUT TRANSFORMERS

Transistor type RL8. Driver Transformer. 3000 to 1330 c.t. Transistor type JK8 Output Transformer. 300 c.t. to 15. Physical size: height 1 1/2 in., depth 1 1/2 in., width 1 1/2 in. 10- (81) each, or 17 1/2 (\$1.75) per pair.

## FILAMENT TRANSFORMERS

T4-4	230v., 6.3v. 2 a.	32/6	\$3.25
2150	240v., 6.3v. 2.5 a., or two by 6.3v. 1.25a.	35/-	\$3.50
2155	240v., 6.3v. 7.5v., 8.5v., 9.5v., 12.5v., 15v. 1 amp.	46/-	\$4.60
12/64	240v., 6v. 4a., 12v. 4a.	50/-	\$5.00
12/66	240v., 6v. 6a., 12v. 6a.	57/6	\$5.75

## TRIMAX INPUT TRANSFORMERS

Type TA 702S Serial D1. Max. level plus 3 db. Unbal. DCI-4 40 mA. Price \$3.

Posts	Bridge	C.T.	Imped.	Ohm
1 4	2 3	2	300	
1 2	1 3 2 4		75	
5 8		6	120K	

## MULTIMETER Model 200H

20,000 ohms per v. d.c. 10,000 ohms per v. a.c.

Specifications:  
 D.c. volts: 0-5, 25, 50, 250, 500, 2,500.  
 A.c. volts: 0-10, 50, 100, 500, 1,000.  
 D.c. current: 0-50  $\mu$ A.; 25, 250 mA.  
 Resistance: 0-60K ohms; 0-6 meg.  
 Capacity: 0.01-0.3  $\mu$ F. (at a.c. 5v.); 0.0001-0.01  $\mu$ F. (at a.c. 250v.).  
 Decibel: minus 20 db. plus 22 db.  
 Output range 0-10, 50, 100, 500, and 1,000.  
 Battery used: UM3 1.5v. 1 piece.  
 Dimensions: 3 1/4 x 4 1/2 x 1-1/8 in.

Complete with internal battery, testing leads and prods.

Price £5/12/6 inc. tax.

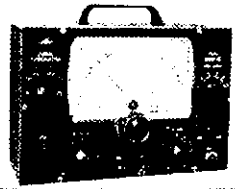
Packing and Postage 3/6

## ALIGNMENT TOOLS

Jabel No. 4 Alignment Tool Kits. All popular sizes. Four tools in plastic pouch. 12/-, \$1.20.

## LSG11 SIGNAL GENERATOR

120 Kc.-390 Mc. Freq. range (six bands): 120 Kc. to 130 Mc. on fundamentals; 120 to 390 Mc. on harmonics. Mod. freq. 400 and 1,000 c.p.s. Tubes: 12BH7, 6AR5. Rectifier: half wave selenium. Provision for crystal oscillator (xtal not supplied), 1 to 15 Mc. 100, 117 or 230v. a.c. input, 50/60 c.p.s. Size: 7 1/4 x 10 3/4 x 4 1/2 in. Weight: 6 lb.



Price: LSG11, £15/5/0 inc. tax

LSG10, £13/17/6 inc. tax

Packing and Postage 7/6



# RADIO SUPPLIERS

5A MELVILLE ST., HAWTHORN, VIC. Phone 86-6465

North Balwyn tram passes corner.

Money Orders and Postal Notes payable North Hawthorn P.O.

We sell and recommend Leader Test Equipment, Pioneer Stereo Equipment and Speakers, Hitachi Radio Valves and Transistor Radios, Kew Brand Meters, A. & R. Transformers and Transistor Power Supplies, Ducon Condensers, Welwyn Resistors, etc.

# "AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA. FOUNDED 1910

SEPTEMBER 1966

Vol. 34, No. 9

## Editor:

K. E. Plincott ..... VK3AFJ

## Assistant Editor:

K. M. COCKING ..... VK3ZFK

## Publications Committee:

G. W. Baty (Secretary) ..... VK3AOM  
A. W. Chandler (Circulation) ..... VK3LC  
E. C. Manifold ..... VK3EM  
W. E. J. Roper ..... VK3ARZ

## Draughtsmen:—

Ken Gillespie ..... VK3GK  
Clem Allen ..... VK3ZIV  
Ian Smith ..... 36 Green St., Noble Park

## Advertising Enquiries:

C/o. P.O. Box 36, East Melbourne, C.2, Vic.  
or  
Mrs. BELLAIRS, Phone 41-3535, 478 Victoria  
Parade, East Melbourne, C.2, Victoria. Hours  
10 a.m. to 3 p.m. only.

## Publishers:

VICTORIAN DIVISION W.I.A.  
Reg. Office: 65a Franklin St., Melbourne, Vic.

## Printers:

"RICHMOND CHRONICLE," Phone 42-2419.  
Shakespeare St., Richmond, E.1, Vic.

★

All matters pertaining to "A.R." other than subscriptions, should be addressed to:

THE EDITOR,  
"AMATEUR RADIO,"  
P.O. BOX 36,  
EAST MELBOURNE, C.2, VIC.

Acknowledgments will be sent following the Committee meeting on the second Monday of each month. All Sub-Editors should forward their articles to reach "A.R." before the 5th of each month. Any item received after the Committee meeting will be held over until the next month. Publication of any item is dependent upon space availability, but in general about two months may elapse before a technical article is published after consideration by the Publications Committee.

★

Members of the W.I.A. should refer all enquiries regarding delivery of "A.R." direct to their Divisional Secretary and not to "A.R." direct. Non-members of the W.I.A. should write to the Victorian Division, C/o. P.O. Box 36, East Melbourne. Two months' notice is required before a change of mailing address can be effected. Readers should note that any change in the address of their transmitting station must, by P.M.G. regulation, be notified to the P.M.G. in the State of residence, in addition "A.R." should also be notified. A convenient form is provided in the "Call Book."

★

Direct subscription rate is \$3.00 a year, post paid, in advance. Issued monthly on the first of the month, January edition excepted.

## FEDERAL COMMENT

★

### A.O.L.C.P. AND C.W.

At almost all recent Federal Conventions, Council has had to consider, in one form or another, the relationship of the A.O.L.C.P. holder to his request for the use and non-use of c.w. The last Convention was no exception and Council considered, and rejected, three agenda items—all variations on the same theme. Basically, this was to allow A.O.L.C.P. Licensees use of all types of emission or, as a variation, the extension of operating privileges to include the 28 Mc. band. With reference to the first point, you cannot use c.w. until you have been examined and passed in it. On the second point, and at the risk of provoking some all too infrequent correspondence, it must be pointed out that whilst the Institute may appear to be unsympathetic to these appeals, International Radio Regulations preclude the abolition of the c.w. requirement below a nominated frequency.

The full text of the appropriate regulation RR41-04 of 1959 reads: "Any person operating the apparatus of an Amateur station shall have proved that he is able to send correctly by hand and to receive correctly by ear, texts in morse code signals. Administrations concerned may, however, waive this requirement in the case of stations making use exclusively of frequencies above 144 Mc." Institute representations to the Postmaster-General's Department resulted in this frequency amended to 52 Mc. You may well ask how—if there is an International regulation on the matter—can the local administration make a contrary decision? This comes about because the I.T.U. has provisions for administrations to make decisions where the results will not affect other International users. The radio isolation of Australia, in so far as 52 Mc. is concerned, was the only reason for having this frequency approved.

It should now be clear why limited licensees have no chance of getting operating privileges on the 28 Mc. band because, when in season, it is capable of providing world-wide communications.

It is interesting to note that W.I.A. proposals in 1959 advocated the reduction of the then current frequency of 1000 Mc. to 30 Mc. A compromise was reached on 144 Mc. after both the U.K. and the U.S.A. had been only in favour of reduction to 250 Mc. It would be interesting to speculate on the A.O.L.C.P. population and the present state of the u.h.f. art if the frequency had been made 250 Mc., or even remained at 1000 Mc. and the local administration had refused to agree to a reduction.

This then, is the present situation, and whilst there are staunch supporters on both sides of the "to be or not to be" c.w. theory, the simple fact of life is that until the next I.T.U. Conference the International requirement for c.w. must stand. Whilst it is generally agreed that c.w. is a declining force in the field of communications, and could, conceivably be removed from the list of pre-requisites in the future, it still has its uses.

It is irksome and somewhat paradoxical to A.O.L.C.P. licensees to realise that whilst we are experimenting in the relatively unexplored field of space communications, and on frequencies available to the limited licensees, the only presently successful and reliable mode of communication, whether by Moonbounce or repeater satellite, is—c.w.!!

Therefore, you Z Calls, don't feel too badly about missing out on DX on 432 Mc.—after all, you can always sit for the C.W.!!

—PETER D. WILLIAMS, VK3IZ, Federal Secretary, W.I.A.

## CONTENTS

A Transistorised Amateur Band Receiver, Part Two	2	Prediction Charts for Sept. 1966	15
Transistorised S.s.b. Generator	3	Book Review: Mullard Voltage Regulator (Zener) Diodes	15
Transistor Amplifier Design, Part One	5	New Call Signs	15
Further Notes on VK4AT's Power Supplies	7	Technical Correspondence: Diodes in Power Supplies	17
Sideband	9	SWL	18
The 80 and 40 Metre "Transistor Special"	10	YRC	18
Hints and Kinks: Filed Information	11	DX	19
An F.E.T. Preamp. for 144 Mc.	13	Correspondence	19
Sunspots and Predictions	14	Publications Committee Reports	21
		VHF	21
		Federal and Divisional Monthly News Reports	22

# A Transistorised Amateur Band Receiver

PART TWO

HAROLD L. HEPBURN,\* VK3AFQ

**B**EFORE describing the third stage of the Moorabbin Club receiver, readers may be interested in some of the results obtained when the first 36 audio stages were tested at a project meeting held for that purpose.

A 1,000 cycle sine wave generator (transistorised of course!) was used as a signal source and fed to each unit through the 10K potentiometer provided. The 15 ohm speakers issued with each kit were used as the load. An oscilloscope and v.t.v.m. were connected across the load. Power was obtained from a regulated d.c. supply set at 12 volts. All test leads were terminated in crocodile clips to facilitate quick connection and release of each unit as it was tested.

The c.r.o. was set to give a 10 volt peak to peak pattern between fixed points on the tube graticule. The unit under test was connected and the 10K potentiometer adjusted so that the out-

Even so, the 6 mA. which should have been quoted, was still below the average found.

Further measurements on the prototype showed that the 100 ohm biasing resistor in the base circuit of the output transistors was nearer 80 ohms than the 100 ohms 5% indicated by its colour coding. (There must be a moral in this somewhere). With less bias than intended the quiescent current would be less than that measured with the correct value of biasing resistor in circuit.

Apart from this point, it was pleasing to note that the transition from prototype to the "production run" had gone well. Only two errors in assembly were found—both being the reversal of leads to a transistor.

## CHANGES TO B.F.O. UNIT

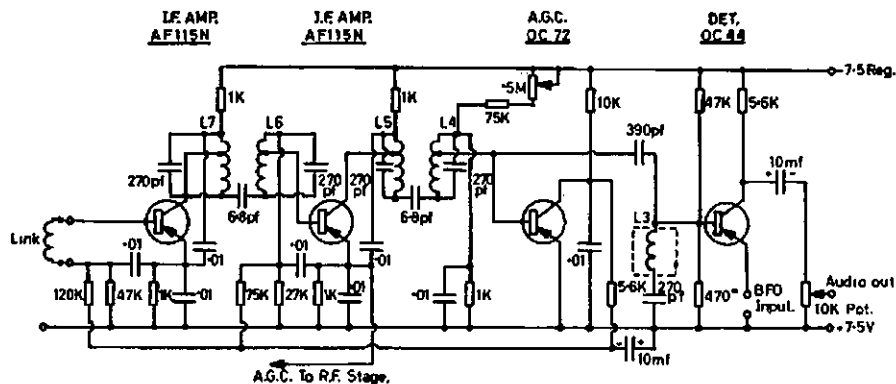
As a result of further development, two changes have been made to the b.f.o. unit described last month.

complete unit is built on a printed circuit board  $2\frac{1}{2}'' \times 6''$ .

The basic design for the i.f. strip was taken from a circuit appearing in the Editors and Engineers' Transistor Handbook, but several changes have been made. Minor alterations have been made to the biasing circuits to allow use of different transistors, while selectivity has been improved by including additional tuned circuits. The circuit diagram of the finished unit is given in Fig. 4.

Signal input to the unit is from a low impedance link on a transformer in the collector circuit of the mixer.

Each of the two coupling transformers between the two AF115N amplifier stages consists of 80 turns of 36 B. & S. enamelled wire on a Ducon Q1 miniature pot core. The collector tap is 20 turns from the cold end of



VK3APC. RECEIVER. I.F. STRIP

Fig. 4.

put waveform was just short of the flat-topping point. The peak to peak deflection on the c.r.o. was measured and from this, and the initial calibration, the output was calculated.

Whilst the method used might offend the purist, it was simple and gave comparable results. The standing current of each unit was also measured under no-signal conditions.

The mean output of the units tested was 220 mW., with a maximum of 240 mW. and a minimum of 210 mW.

The mean quiescent current drawn was 9.1 mA. with a maximum of 10 mA. and a minimum of 7.5 mA.

Readers may note a discrepancy between the figures now quoted and those published last month. In the August issue the standing current was shown as 3 mA., but should have read 6 mA. The error was due entirely to a most ambiguous entry in the handwritten manuscript submitted by the writer.

Firstly, the 2.5 mH. choke in the collector of the AF115N buffer amplifier has been replaced with a 2,700 ohm half watt resistor. It was found that, with the choke, the r.f. output was in excess of the amount required.

Secondly, the 90 pF. Eddystone "b.f.o. note" condenser and its associated 100 pF. silver mica series padder have been replaced with a Polar JBC-304-50 50 pF. variable. The Polar component is smaller and the cost below that of the Eddystone plus a padder.

It is hoped that the test results on the 40 odd b.f.o. units now under construction will be available for publication next month.

## STAGE III.—THE I.F. STRIP

The i.f. strip consists of two stages of amplification at 455 kc., a product detector which doubles as an a.m. detector in the absence of b.f.o. injection, and an a.g.c. rectifier/amplifier. The

## Kits Available for Transistorised Receiver

As a result of the article appearing in the August 1966 issue of "A.R." on the Moorabbin Club project, several enquiries—both Victorian and Interstate—have been received.

Since these enquiries have indicated a high level of interest in making a receiver of the type described, the Moorabbin Club has undertaken to provide complete kits—including printed circuit board, all instructional material and circuit diagrams—to those wishing to participate.

At this time kits for the first three stages—audio, b.f.o. and i.f. strip—are available. The local oscillator kit will be available in late September and the front-end kit a week or so afterwards.

The cost of the audio stage is \$15.50, less \$2.50 if a speaker is not required. The b.f.o. kit, which includes the metal cabinet for housing the complete receiver, is \$15.50, less \$1.75 if the metal case is not required. The kit for the i.f. strip is \$15. The cost of the local oscillator and front-end kits is not yet firm, but will be in the region of \$16.00.

Those wishing to make the receiver should send a cheque or money order for the stages required to—

The Assistant Hon. Secretary,  
Moorabbin & District Radio Club,  
4 Elizabeth St., East Brighton,  
Victoria.

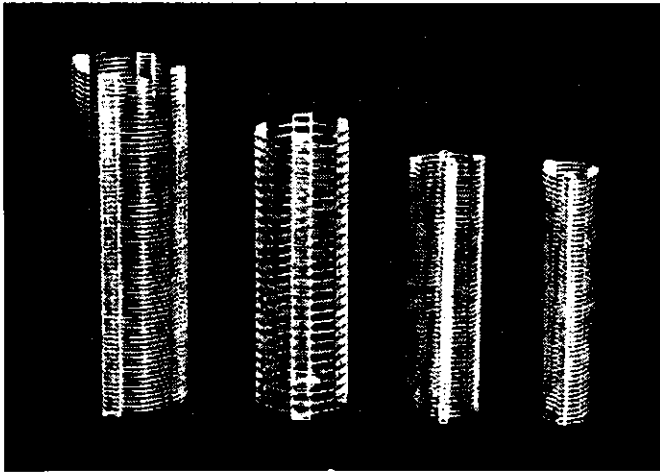
Remittances should be made payable to "The Moorabbin and District Radio Club."

\* 4 Elizabeth St., East Brighton, Vic.





# AIR-WOUND INDUCTANCES



No.	Diam.	Turns per Inch	Length	B. & W. Equiv.	Price
1-08	1/2"	8	3"	No. 3002	59c
1-16	1/2"	16	3"	No. 3003	59c
2-08	5/8"	8	3"	No. 3006	70c
2-16	5/8"	16	3"	No. 3007	70c
3-08	3/4"	8	3"	No. 3010	82c
3-16	3/4"	16	3"	No. 3011	82c
4-08	1"	8	3"	No. 3014	95c
4-16	1"	16	3"	No. 3015	95c
5-08	1 1/4"	8	4"	No. 3018	\$1.28
5-16	1 1/4"	16	4"	No. 3019	\$1.28
8-10	2"	10	4"	No. 3907	\$1.55

## SPECIAL ANTENNA ALL-BAND TUNER INDUCTANCE

(equivalent to B. & W. No. 3907-7")

7" length, 2" diameter, 10 turns per inch, \$2.76

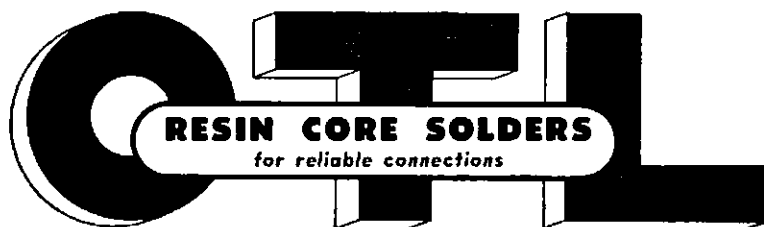
References: A.R.R.L. Handbook, 1961; "QST," March 1959; "Amateur Radio," December 1959.

Take the hard work out of Coil Winding—use "WILLIS" AIR-WOUND INDUCTANCES

## WILLIAM WILLIS & CO. PTY. LTD.

430 Elizabeth St., Melbourne, C.1, Vic. Phone 34-6539

**CHOOSE THE BEST—IT COSTS NO MORE**



**Q. T. LEMPRIERE & CO. LIMITED.** Head Office: 27-41 Bowden Street, Alexandria, N.S.W. and at Melbourne • Brisbane • Adelaide • Perth

# LOG BOOK

IS NOW AVAILABLE

Larger, spiral-bound pages with more writing space.

Price 7/6 each including Postage

Obtainable from your Divisional Secretary, or W.I.A., P.O. Box 36, East Melbourne, C.2, Victoria.

# LOW DRIFT CRYSTALS

FOR

## AMATEUR BANDS

ACCURACY 0.01% OF STATED FREQUENCY

3.5 and 7 Mc.

Unmounted, £2/10/0

Mounted, £3/0/0

12.5 and 14 Mc.

Fundamental Crystals, "Low Drift"

Mounted only, £5.

THESE PRICES DO NOT INCLUDE SALES TAX

Spot Frequency Crystals Prices on Application.

Regrinds ..... £1/10/0

## MAXWELL HOWDEN

15 CLAREMONT CRES.,  
CANTERBURY, E.7,  
VICTORIA

# TRANSISTOR AMPLIFIER DESIGN

## PART ONE

R. L. HARRISON,\* VK3ZRY

THIS article was written so that most Amateurs or other interested persons could design a transistor amplifier for low level and power r.f. and a.f. applications. Some small knowledge about transistors and simple mathematics is assumed, but the maths. is kept simple, all terms are explained and graphs are used where complicated formulae are encountered. These formulae are given though, because the graphs can only be used under certain specified circumstances as mentioned in the text.

### LOW LEVEL AUDIO AMPLIFIERS

I will limit my description to a common emitter amplifier as this one finds the widest application. Fig. 1 is the circuit to which I will make constant reference.

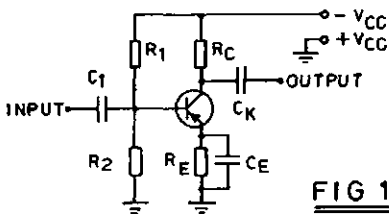


FIG 1

A PNP transistor is shown; only two things will change if an NPN transistor is used. The supply voltage  $V_{CC}$  will be reversed and the direction of the emitter arrow will be reversed. Everything else is the same (except perhaps the direction of current flow).

The first things to establish are the d.c. operating conditions. Fig. 2 will give you all the voltages and currents to be used and an explanation of the meanings of the ones that are not self-explanatory.

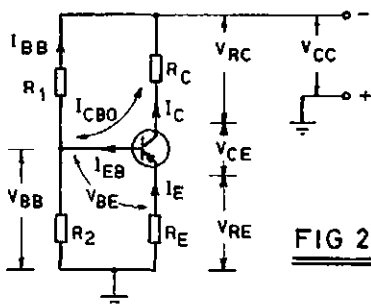


FIG 2

- $V_{BE}$  = Base to emitter voltage.
- $V_{CC}$  = Supply voltage.
- $V_{RC}$  = Voltage across collector resistor.
- $V_{CE}$  = Voltage from collector to emitter.
- $V_{RE}$  = Voltage across emitter resistor  $R_E$ .
- $V_{BB}$  = Base bias voltage.
- $I_{BB}$  = Bias components bleed current.
- $I_C$  = Collector current.
- $I_E$  = Emitter current.
- $I_{EB}$  = Emitter to base current.
- $I_{CBO}$  = Collector to emitter leakage current.

\* 1 Mary Street, North Balwyn, E.S. Vic.

I think some explanation of  $V_{BE}$ ,  $I_{EB}$ ,  $I_{CBO}$ ,  $R_E$ ,  $R_1$  and  $R_2$  is necessary.

The base-emitter voltage  $V_{BE}$  is determined by  $I_{EB}$  and the internal d.c. resistance, from base to emitter, of the transistor.  $I_{EB}$  is determined mainly by bias and is generally about 100 microamps. in practical circuits. The internal resistance of the transistor is about 1K to 10K ohms from base to emitter and this gives around 0.1 volt for  $V_{BE}$ . This is variable in practice, owing to changes in  $I_{EB}$  and  $V_{BE}$  and transistors, but  $V_{BE}$  is generally between 0.1 and 0.2 volt for germanium transistors. For silicon transistors  $V_{BE}$  is about 0.6 to 0.7 volt.

It will be found in practical applications that  $I_{EB}$  is around 100 to 500  $\mu A$ . Now  $I_{EB}$  flows through  $R_2$ ,  $R_E$  and the base-emitter junction. From the circuit it can be seen that  $I_E$  also flows through  $R_E$  and thus  $I_{EB}$  will be a part of  $I_E$ . In a practical circuit  $I_E$  is generally between 1 mA. and 5 mA.  $I_{EB}$  is a great deal smaller than  $I_E$  and will not generally be a significant part of  $I_E$ . Thus we can assume for design purposes that  $I_E$  approximately equals  $I_C$  or:

$I_E$  approx. equals  $I_C$ .

$I_{CBO}$  is the collector-base leakage current, and is due mainly to minority charge carriers moving from base to collector. For germanium transistors  $I_{CBO}$  doubles its value for every 8°C. rise in temperature. Since for germanium transistors  $I_{CBO}$  is typically around 10  $\mu A$ . at 25°C. (about room temperature), and will reach 0.32 mA. at 65°C., it will considerably affect  $I_{EB}$  with only a small temperature change, thus shifting the operating point. We have to design the amplifier to prevent this effect from affecting the operation of the amplifier.  $R_1$  and  $R_2$  are designed to minimise changes in  $I_{CBO}$  and correct these changes.

The resistor  $R_E$  is used to stabilise against forward conduction from emitter to base to ensure that  $I_E$  is relatively independent of changes in temperature. This is done to counteract the 2 mV. per °C. decrease in  $V_{BE}$  for a temperature rise.

Now that preliminary explanations and general guff are over and done with, we will get on with the design procedure (fully explained) and an example later.

(1) Choose  $V_{CC}$ . This depends on what battery or supply is convenient for you to use.

(2) Choose  $I_C$ . This is typically between 1 mA. and 5 mA. for most low level applications. If you want economy, go for 1 mA. But with silicon transistors operation is best between 2 mA. and 5 mA.

(3) Choose  $V_{CE}$ . This should be one-third or less of  $V_{CC}$ . See that  $V_{CE}$  is high enough to allow a reasonable voltage across the transistor ( $V_{CE}$ ) otherwise distortion and low gain may result. Check that  $V_{CE} \times I_C$  is less than

$P_C$  max.  $P_C$  max. is typically about 0.2 watt. If  $V_{CE} \times I_C$  is greater than  $P_C$  max., then lower  $V_{CE}$  to an appropriate value.

(4) Calculate  $R_C$ . The formula is as follows, if  $V_{CE} =$  one-third  $V_{CC}$ :

$$R_C = \frac{V_{CC}}{I_C}$$

This does not take into account  $V_{BE}$  which will reduce  $V_{CE}$  somewhat, but  $V_{CE}$  will decrease only a small amount (providing  $R_E$  is not too large) and this will not generally upset things.

Another way out if you know the input resistance of the following stage is to make  $R_C = 5$  to 10 times  $R_{in}$  for germanium transistors and 2 to 8 times  $R_{in}$  for silicon transistors. This is because  $R_C$  is also the a.c. load (or part thereof) of the amplifier.

You can decrease  $R_C$  about half to one-third to increase the input resistance but make sure  $V_{CE} \times I_C$  does not rise above  $P_C$  max.

(5) Calculate  $R_E$  by this formula:

$$R_E = \frac{V_{CC} - (V_{RC} + V_{CE})}{I_C}$$

where  $V_{RC} = I_C R_C$

Add the drop across  $R_C$  to  $V_{CE}$ , subtract this from  $V_{CC}$  and then divide by collector current. You can divide by collector current because, as explained earlier,  $I_C$  approx. equals  $I_E$ .

(6) Determine base bias resistors  $R_1$  and  $R_2$ . First find  $V_{BE} = I_C \times R_E$ , now add  $V_{BE}$ . This will give you  $V_{BB}$ .

i.e.  $V_{BB} = V_{BE} + V_{CE}$

$V_{BE}$  for normal operation of germanium transistors is 0.1 volt and for silicon transistors is about 0.7 volt. You have already found  $R_E$ , you know  $I_E$  (approx. equals  $I_C$ ), so, by ohms law,

$$V_{BB} = I_C R_E$$

therefore  $V_{BB} = I_C R_E + V_{CE}$ .

Now determine a bleed current. Your choice will depend on economy of current (if you want it) and temperature stability. For silicon transistors  $I_{CBO}$  is extremely small until quite high temperatures are reached and the resistors  $R_1$  and  $R_2$  are used mainly to determine correct bias. For germanium transistors a bleed current about 20 times  $I_{CBO}$  at normal temperatures is used so that the bias will not change significantly if  $I_{CBO}$  does. For germanium transistors  $I_{CBO}$  is around 10  $\mu A$ . at normally encountered temperatures, so a bleed current of 200  $\mu A$ . up to 500  $\mu A$ . is good practice.

Right, having chosen  $I_{BB}$  you can determine  $R_2$ .

$$R_2 = \frac{V_{BB}}{I_{BB}}$$

$$\text{Now } R_1 = \frac{V_{CC} - V_{BB}}{I_{BB}}$$

Having calculated  $R_1$  and  $R_2$ , check that the ratio  $R_1 \div R_2$  is less than nine (9), where  $R_1 = (R_1 \times R_2) \div (R_1 + R_2)$ .

There! You have six steps, each are explained and your d.c. conditions for the amplifier should be OK.

The next thing to do is to get the thing to amplify audio signals.

Have a look at Fig. 1. There are three capacitors marked C1 (input capacitor), C<sub>B</sub> (emitter resistor bypass) and C<sub>K</sub> (coupling capacitor to next stage). Their values will depend on the frequency response you want.

(1) Choose the lowest frequency of interest to you. For most of you this is probably 300 cycles. Don't worry about the high frequencies yet—unless you want hi-fi. The upper frequency is determined by the transistor. If you want to cut off at 3 kc. or 5 kc. then you put capacitors across R2. More about that later.

(2) Having established your lowest frequency of interest, you give it a fancy name \_\_\_\_\_ (censored!!). Call it the low frequency cutoff and give it the symbol f<sub>1</sub>. The output at this frequency is supposed to be 3 db. down on the mid-range frequency (half of it).

If you feel mathematically energetic you can calculate C<sub>B</sub> and C<sub>K</sub> from the following formulae. If you don't feel so inclined then use the graphs supplied for the amplifier basic general design in Fig. 3.

$$C_K = \frac{1 \times 10^9}{2 \pi f_1 \left( R_C + \frac{R_B R_{in}}{R_B + R_{in}} \right)} \quad (1)$$

$$\text{and } C_B = \frac{(\beta_0 + 1) \times 10^9}{2 \pi f_1 \left( R_{in} + \frac{R_B R_C}{R_B + R_C} \right)} \quad (2)$$

where C<sub>K</sub> and C<sub>B</sub> are in microfarads.

f<sub>1</sub> = desired 3 db. low frequency cutoff in cycles per sec.

R<sub>C</sub> = collector load resistor.

R<sub>in</sub> = the input resistance of the following transistor (R<sub>in</sub>) obtainable from the manufacturer's data but is generally in range of 300 to 1,000 ohms.

R<sub>B</sub> = (R1 R2) ÷ (R1 + R2) or resistance of R1 and R2 in parallel of following stage.

β<sub>0</sub> = the low frequency, small signal current gain of the transistor (h<sub>fe</sub>) obtainable from manufacturer's data. For germanium transistors it is typically 50 to 100 and for silicon transistors between 100 and 300.

π = 3.142.

From an examination of equation (1) it can be seen that C<sub>K</sub> depends primarily on f<sub>1</sub> and R<sub>C</sub>. From this information and by specifying values in a typical circuit for other components we can prepare a graph of R<sub>C</sub> versus C<sub>K</sub>.

Fig. 3 is a typical circuit to use and small variations in R1 and R2 will not appreciably affect the graphs.

Also, from examining equation (2) we can see that C<sub>B</sub> depends almost entirely on β<sub>0</sub> (or h<sub>fe</sub>) and R<sub>C</sub>, as R<sub>in</sub> is relatively small under most circumstances. Two graphs for C<sub>B</sub> have to

be plotted, one for germanium and one for silicon transistors. In the case of germanium transistors β<sub>0</sub> was taken as typically 50; for silicon transistors it was taken as being 150.

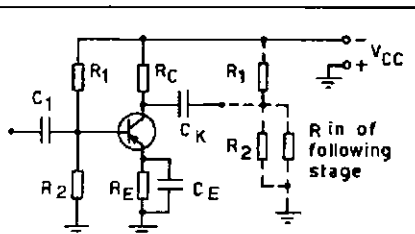


FIG 3

For this circuit:

- f<sub>1</sub> = 300 c.p.s.
- R<sub>in</sub> = 300, 500, 1,000 ohms (marked on graphs).
- R1 = 47K ohms.
- R2 = 10K ohms. (R1 and R2 of following stage).

### USE OF GRAPHS

(a) Look up vertical axis (R<sub>C</sub>) and find value of R<sub>C</sub> you have previously calculated.

(b) Draw a horizontal line across to the appropriate curve if you know R<sub>in</sub> of the following stage. If you don't know R<sub>in</sub> of following stage, use curve marked R<sub>in</sub> = 500 ohms for germanium transistors, or curve marked R<sub>in</sub> = 1,000 ohms for silicon transistors.

(c) Where the horizontal line touches the graph drop a vertical line down to the horizontal axis (C<sub>K</sub> or C<sub>B</sub>) and read off value of capacitor. Use the nearest value you can buy in your circuit, or parallel an electrolytic and some disc ceramics to make a close approximation.

### VALUE OF C1

By now you will be wondering what to do about C1. If this is the input capacitor to the first stage (driven by microphone, or what have you), make C1 at least as large as C<sub>K</sub>. If this capacitor (C1) is between two stages, i.e. you have just designed the second stage of an amplifier, then find C1 as you found C<sub>K</sub>. Use the values of R<sub>C</sub> and R<sub>B</sub> for the stages in use.

The usual thing to do is to design one stage and connect a couple together and then calculate the values of C<sub>K</sub> and C<sub>B</sub> as well as C1.

### EXAMPLES

You should now be thoroughly confused—like me. Here is a worked example to clarify (or confuse?) the methods outlined above. Circuit as for Fig. 3, neglect values shown underneath.

(i) V<sub>CC</sub> = 9v. I've got a 9v. battery handy.

(ii) I'm going to use an OC71, so a collector current of 1 mA. will be all right.

(iii) I'll let V<sub>CE</sub> = 3.0 volts,  
 $V_{CE} \times I_C = 3 \times 1 \times 10^{-3}$   
 $= 3 \text{ mW.}$

which is well within P<sub>C</sub> max. for an OC71.

$$(iv) R_C = 3.0 \div (1 \times 10^{-3}) = 3K \text{ ohms.}$$

Nearest value is 3.3K ohms so I'll use that.

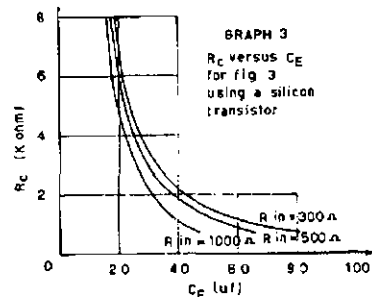
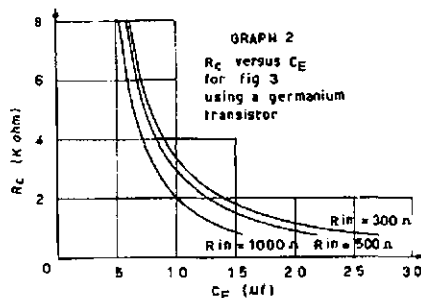
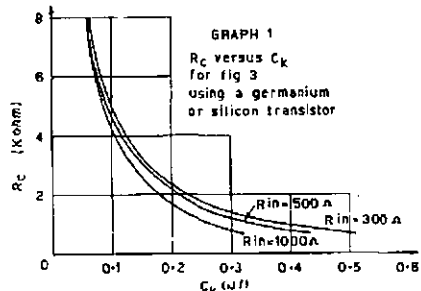
$$(v) R_B = \frac{V_{CC} - (I_C R_C + V_{CE})}{I_B}$$

$$= \frac{9 - (1 \times 10^{-3} \times 3.3 \times 10^3 + 3)}{1 \times 10^{-3}}$$

$$= \frac{9 - (3.3 + 3)}{1 \times 10^{-3}}$$

$$= \frac{9 - 6.3}{1 \times 10^{-3}}$$

$$= 2.7K \text{ ohms.}$$



$$(vi) V_{BE} = 1 \times 10^{-3} \times 2.7 \times 10^3 = 2.7 \text{ volts.}$$

$$V_{BB} = 2.7 + 0.1 = 2.8 \text{ volts.}$$

(OC71 is a germanium transistor so that V<sub>BE</sub> approx. equals 0.1 volt.)

I'll let I<sub>BB</sub> = 500 μA. (0.5 mA.).

$$\text{Now } R_2 = \frac{V_{BB}}{I_{BB}}$$

$$= \frac{2.8}{0.5 \times 10^{-3}}$$

$$= 5.6K \text{ ohms.}$$

$$\text{Now } R_1 = \frac{V_{CC} - V_{BB}}{I_{BB}}$$

$$= \frac{9 - 2.8}{0.5 \times 10^{-3}}$$

$$= 12.4\text{K ohms}$$

nearest value is 12K ohms.

Now to check the stability factor.

$$\frac{R_1 \times R_2}{R_1 + R_2}$$

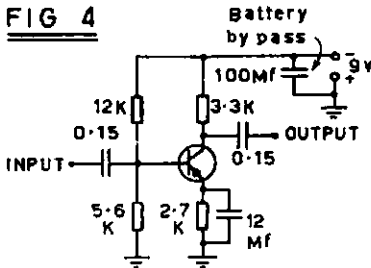
$$= \frac{12 \times 5.6 \times 10^6}{(12 + 5.6) \times 10^3}$$

$$= \frac{67 \times 10^3}{17.6}$$

$$= \frac{3.8}{2.7}$$

$$= 1.4$$

Thus the stability is much less than nine, so the stability should be good.



Now we have a few resistor values:

- $R_c = 3.3\text{K ohms}$
- $R_b = 2.7\text{K ohms}$
- $R_1 = 12.0\text{K ohms}$
- $R_2 = 5.6\text{K ohms}$

and a 9v. battery is being used. All we have to do is find  $C_1$ ,  $C_c$  and  $C_k$ .

(i) The lowest frequency of interest to me is 300 c.p.s.

(ii) Seeing as  $f_1 = 300$  c.p.s. and I'm going to follow up this amplifier with another exactly the same, the input impedance of an OC71 will be close to 300 ohms, so I'll work out the value of  $C_k$  and  $C_k$  by using both the graphs and the formula.

From Graph 1,  $C_k = 0.15 \mu\text{F}$ .

By formula (1):—

$$C_k = \frac{1 \times 10^6}{2 \pi f_1 \left( R_c + \frac{R_b R_{i_n}}{R_b + R_{i_n}} \right)}$$

$$\text{Now } R_{i_n} = \frac{12 \times 5.6 \times 10^3}{(12 + 5.6) \times 10^3}$$

$$= \frac{67 \times 10^3}{17.6}$$

$$= 3.8 \times 10^3$$

- Also  $R_{i_n} = 300$  ohms
- $R_c = 3.3\text{K ohms}$
- $f_1 = 300$  c.p.s.

$$\text{Now } C_k = \frac{1 \times 10^6}{2 \pi \times 300 \left( 3,300 + \frac{3,800 \times 300}{3,800 + 300} \right)}$$

$$= \frac{1 \times 10^6}{2 \pi \times 300 (3,300 + 278)}$$

$$= \frac{1 \times 10^6}{2 \pi \times 300 \times 3,578}$$

$$= 0.149 \mu\text{F}$$

Use a coupling capacitor of  $0.15 \mu\text{F}$ , as this value is easily obtainable.  $C_1$  will be the same value.

From Graph 2,  $C_c = 10 \mu\text{F}$ .

By formula (2):—

$$C_c = \frac{(\beta_0 + 1) 10^6}{2 \pi f_1 \left( R_{i_n} + \frac{R_b R_c}{R_b + R_c} \right)}$$

- Now  $R_{i_n} = 3.8 \times 10^3$
- $R_{i_n} = 300$  ohms
- $R_c = 3.3\text{K ohms}$
- $f_1 = 300$  c.p.s.
- $\beta_0 = 50$

$$C_c = \frac{(51) \times 10^6}{2 \pi \times 300 \left( 300 + \frac{3,800 \times 3,300}{3,800 + 3,300} \right)}$$

$$= \frac{51 \times 10^6}{600 \pi (300 + 1,770)}$$

$$= \frac{51 \times 10^6}{600 \times \pi \times 2,070}$$

$$C_c = 12.8 \mu\text{F}$$

The value of  $12 \mu\text{F}$ . is closer because the graphs are only correct for  $R_b = 8 \times 10^3$ . The discrepancy is only small in this case and a value of  $10 \mu\text{F}$ . in the circuit would not upset things too much.

Fig. 4 shows the completed circuit.

Now, if you want to limit the high frequency response you can put a capacitor in parallel with  $R_2$  (base to earth) to shunt the highs.

(i) Pick a frequency at which you want the response to drop by half (3 db.), for most Amateurs this will be 3 kc. Call this frequency  $f_2$ .

(ii) Calculate the value of  $(R_b R_{i_n}) \div (R_b + R_{i_n})$  and call it  $R_s$ .

(iii) Calculate the value of the shunt capacitance  $C_s$  (see Fig. 5) from this equation—

$$C_s \text{ (in } \mu\text{F.)} = \frac{1}{R_s} \times \frac{10^6}{2 \pi f_2}$$

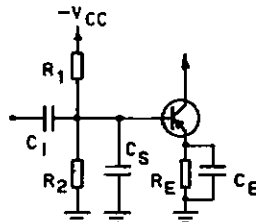


FIG 5

Example (from circuit in Fig. 4):—

- $f_2 = 3,000$  c.p.s.
- $R_b = 3.8 \times 10^3$
- $R_{i_n} = 300$  ohms

$$R_s = \frac{3,800 \times 300}{3,800 + 300}$$

$$= 278.$$

$$\text{Now } C_s = \frac{10^6}{278 \times 2 \pi \times 3,000}$$

$$= \frac{10^6}{52.4 \times 10^5}$$

$$= \frac{10}{52.4}$$

$$= 0.191 \mu\text{F}$$

Use a value of  $0.2 \mu\text{F}$ .

Well, that is the easy (?) way to design a low level audio amplifier without referring to equivalent circuits, hybrid parameters and a mass of manufacturer's data. I suppose it seems a bit long but once you've tried it, it becomes quite easy. A second article (Part Two) will give you an easy method of designing low level r.f. and i.f. amplifiers. A third article will deal with power r.f. and a.f. amplifiers.

#### REFERENCES

- (a) "Transistors," by Milton S. Kiver.
- (b) "Reference Manual of Semiconductor Circuits," by Mullard.
- (c) "73" Magazine, January 1965.
- (d) "Electronic Fundamentals and Applications," by John D. Ryder.

## FURTHER NOTES ON VK4AT'S POWER SUPPLIES

Quite recently I acquired a power supply with two different circuits attached, a 500-volt a side h.t. supply and a 75-volt a side bias supply.

This latter I wished to alter to an orthodox supply for my v.f.o.

Now under the original wiring scheme the common wires of each circuit were the common common wires. Therefore the correctly marked terminals were the common common common designated terminals. However, when changing one of the systems as above I quite naturally assumed that the common wires of the circuits were common common wires and I attached them accordingly.

Barrie VK4LN nearly had a fit at the sight of it. He explained that, under the changed system I had a common designated terminal that was now a centre tap and thus to be grounded. This didn't alter the fact that its wiring was still common, common only to that particular circuit. It was not common to the common common wires of the circuit as a whole. The wiring in the other circuit would now be common common wires only until it had ceased to be common to both common designated terminals.

This severance had become necessary now because of the potential difference between the two common systems.

He must have been right as the power supply now works as intended.

It appears that a common common is only feasible in a multiple circuit, with the common common common to each common circuit, and thus with no potential differences in any section of the common wiring.

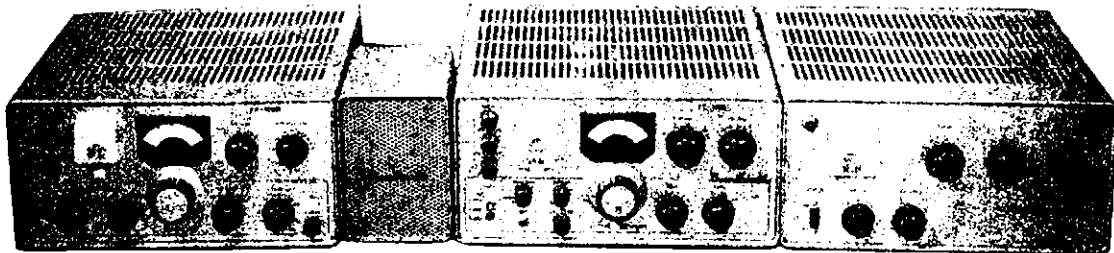
As you could not differentiate in the term at any point, you must have a common common in each leg.

Under these circumstances would it be a common common or a common common to both circuits?

—A. J. C. Thompson, VK4AT, Skyring Creek, Pomona, Qld.

# YM F-SERIES S.S.B. EQUIPMENT

PROFESSIONAL QUALITY AT AMATEUR PRICES



**COMPACT TABLE-TOP STATION—MECHANICAL FILTER SYSTEM  
FIVE BANDS — 80-10 METRES. TRANSCIVE OR NORMAL OPERATION**

**FR-100B: RECEIVER, S.S.B.-A.M.-C.W.**, dual conversion, with crystal locked front end, two mechanical filters for best reception of s.s.b. and a.m., high reduction precision gear driven dial reads to 1 Kc. Crystal filter for c.w. A.n.l., "S" meter, a.g.c., s.s.b. clarifier, built-in monitor. Additional crystals for 100 Kc. calibrator, full 10 mx coverage, WWV and three s.w. ranges. A professional quality receiver for the Amateur or discriminating S.w.l. £209½ (\$419) inc. S.T.

**FL-200B: TRANSMITTER, S.S.B.-A.M.-C.W.**, Two 6JS6A (similar 6DQ5) tubes in p.a. Solidly constructed and neatly wired, with high quality components, ceramic bandswitch, Kokusai M.F., built-in solid state power supply, antenna relay, etc. All plugs, inst. manual and p.b. microphone supplied. Nothing else to buy. Cabinets beautifully lacquered in dark driftwood wrinkle. Satin finish panel. This is a first class rig for c.w., also break-in operation, T9X note, clean chirpless keying, v.f.o. runs continuously. £245 (\$490) inc. S.T. All tubes, diodes available in Aust.

**FL-1000: LINEAR AMP.**, four 6JS6As in g.g., output power not exceeding 400w. p.e.p £139 (\$278) inc. Sales Tax.

Enables operation on the three modes without necessity for compromise. Fully imported. Used by Australia's leading Phone DX'er.

ALSO AVAILABLE: FF-30DX L.P. Filters, FC-2 and FC-6 V.H.F. Converters, FL-50 Tx. and American Mosley Beams and Trap Vertical. Coming later, FT-100 Transceiver.

Brochure available from  
the Australian Agents:

**BAIL ELECTRONIC SERVICES**

60 SHANNON ST., BOX HILL NORTH, VIC. 89-2213

N.S.W. Enquirers contact:

**MOSMAN TELEVISION SERVICES**

11 Ruby Street, Mosman. Phone 96-5342

## FOSTER DYNAMIC MICROPHONES

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
Effective output level ..... -55 db. [0 db. = (one) 1V. Microbar]  
Frequency response ..... 50 to 15,000 c.p.s.

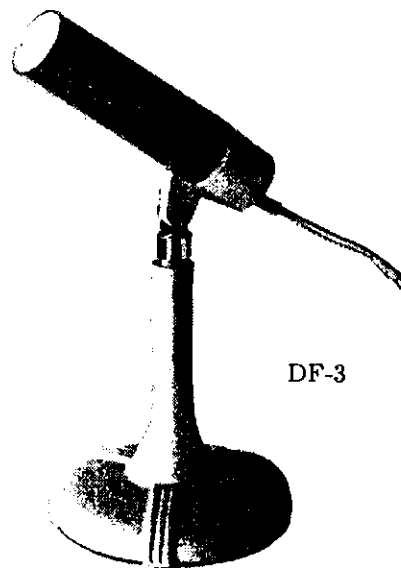
### OMNI-DIRECTIONAL DYNAMIC:

Plastic Diaphragm. Swivel fits 5/8" 26 t.p.i. Stands.  
Size: 4½" long, 1¼" diameter. Colour: TWO-TONE GREY.  
Cable: 12 ft. of P.V.C.

Retail Price 50K ohms: £4/16/0 + Sales Tax 10/0

Retail Price 50 ohms: £4/14/0 + Sales Tax 9/10

A QUALITY PRODUCT FOR TAPE RECORDERS & P.A. USERS



DF-3

Marketed by

**ZEPHYR PRODUCTS PTY. LTD.**

70 BATESFORD STREET, CHADSTONE, S.E.10, VIC.



**Manufacturers of Radio and Electrical Equipment and Components**

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L; Jacoby, Mitchell & Co. P/L; T. H. Martin P/L.

# SIDEBAND

Sub-Editor: PHIL WILLIAMS, VK5NN

During the past year or so I have been asked many times how to operate the old a.m. transmitter final as a linear amplifier for s.s.b. My answer is that in many cases the additional power which can be obtained with the existing power supplies, is not worth the extra trouble if the existing exciter uses a pair of 6146's or similar t.v. line tetrodes in class AB1. Since there are some exciters which use small tubes giving approximately 20 watts of power, the question of pressing the old 813 or similar final into use, arises.

distortion products and their owners are "warned off" by the neighbouring Amateurs.

One satisfactory circuit, which supplies r.f. drive to the zero-biased grid, and rectified "s.s.b. envelope" to the screen grid, is the "G2DAF Linear Amplifier," developed and patented in England by G. R. B. Thornley. The circuit is shown in Fig. 1.

Salient points worthy of mention are the necessity for swamping the input by a 300 ohm resistor for the benefit of the driver stage and the 27K bleeder across the screen grid by-

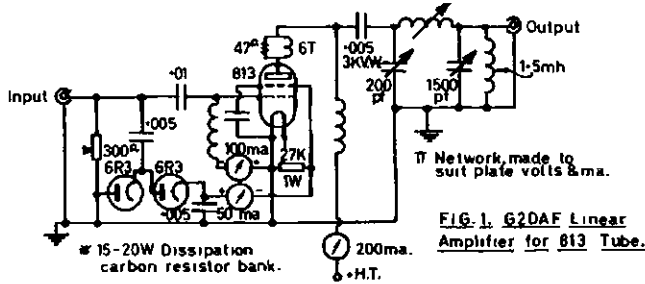


FIG. 1. G2DAF Linear Amplifier for 813 Tube.

To use these large tetrodes in class AB1 requires reasonably high bias (90v.) and screen grid voltage (600v.) and with low anode volts such as used in the old a.m. rig (say 1000 volts), the plate efficiency is low, the screen current may be high, the plate current under speech conditions without flattening is disappointingly low, and the complete exercise is hardly worth while—particularly after the neutralising operation. The only saving feature is the low drive requirements. Better results may be obtained by class AB2 operation with about 350 to 400 volts in the screen grid, but the grid circuit must be operated with "high-C" and some swamping resistance (about 2000 ohms) to minimise distortion. A stiff bias supply is essential.

pass capacitor. Some 813's do not appear to need it, but for older tubes it has been necessary to return the screen voltage to zero between words and syllables. The diodes recommended for the Cockcroft-Walton voltage doubler for the screen supply are t.v. booster diodes, with high heater-cathode voltage rating 6R3's or 6AL3's should be adequate. The 813 should not be driven beyond 150 mA. on single-tone input which requires about 20 watts of drive. Plate circuit tuning component values will be determined by the plate voltage used, but the amplifier is efficient as the peak screen voltage is only about 105 volts.

The elimination of screen grid and bias supplies can save complication and has been responsible for Eimac's triodes such as the 3-400Z being designed for zero bias operation in the grounded-grid mode. Such tubes are expensive but give low distortion in relatively simple circuits.

Several circuits which were developed 7 or 8 years ago used gated screen supplies for the 813 amplifiers, viz., the ZL-Linear, and the G2MA linear amplifier. These have worked well for those who are satisfied to operate them at very low plate currents, but most people have been accustomed to more than 70 to 80 mA. in an 813—one may as well use an 807 and save the 50 watts of filament power. When pushed any harder than this, these amplifiers emit excessive

The amplifier was described in the "R.S.G.B. Bulletin" for April, 1963, page 518. Further correspondence is to be found in the September, 1963, issue on page 199 and October, 1963, on page 231. Although I have not used this circuit, reports from users in England and Australia indicate that, when correctly loaded, the amplifier is capable of good output with low distortion. Reports of t.v. in the London area were traced to the higher output from the transmitter and the fact that B.B.C. television is on the third harmonic of the 14 Mcs. band. A 7094 amplifier in class AB1 was shown to produce similar interference under the same conditions.

## THE DRAKE TR-4 TRANSCEIVER

By courtesy of Arie VK2AVA we have, this month, a run-down on this unit which is a very nice little job, now very popular in the U.S.A., but there are relatively few of these in VK at the moment.

"The Drake TR-4 s.s.b./a.m./c.w. transceiver is the most versatile unit in its class presently on the American market. It is the only one providing also near a.m. output, has v.o.x. control, break-in c.w. u.s.b./l.s.b. selection and crystal calibrator as standard equipment. It also has a true a.m. envelope detector on reception. Size 5½ in. x 10½ in. x 14½ in. deep, weight 16 lb., 300w. peak input, power requirements 650v. at 300 mA., 250v. at 175 mA., 45-65v. bias and 12.6v. a.c./d.c. at 5.5a. Nominal output 50 ohms resistive. It uses 20 tubes (1 regulator), 9 diodes and 2 transistors (v.f.o.).

"It follows the now almost common practice of a fixed tuning range for the v.f.o. of 4.9-5.5 Mc. and crystal-controlled pre-mixing before the resultant heterodyne range is mixed with the incoming or outgoing signals. For instance, on 15 mx the v.f.c. signal is subtracted from a 35.5 Mc. crystal signal, giving a heterodyne range of 30.6-30.0 Mc., resulting in a 21.6-21.0 Mc. range after subtraction of the 9.0 Mc. crystal filter i.f. frequency. This system has the advantage of better stability in the v.f.o., better calibration, no v.f.o. switching. Also there is a higher image rejection

(Continued on Page 11)

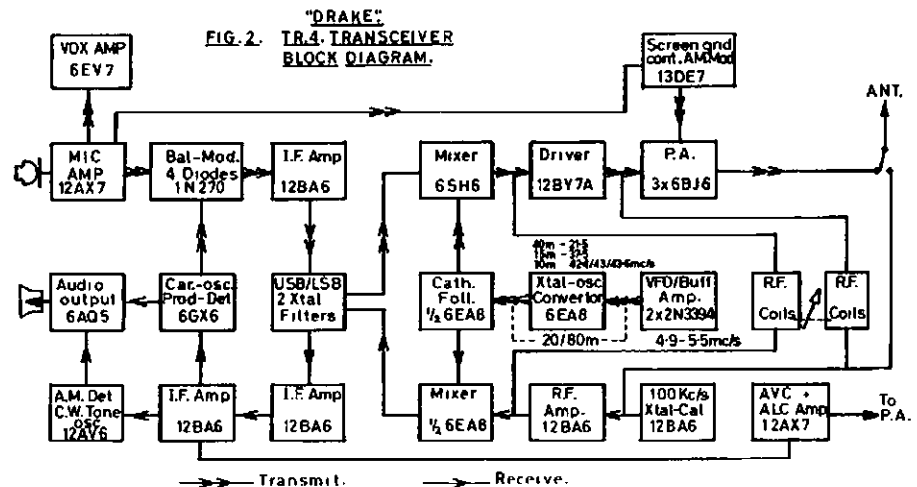


FIG. 2. "DRAKE" TR-4 TRANSCEIVER BLOCK DIAGRAM.



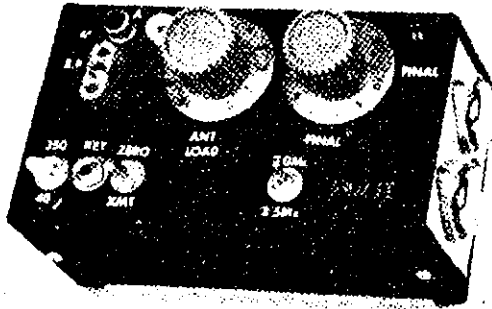
# THE 80 AND 40 METRE "TRANSISTOR SPECIAL"\*

JOHN S. HILL, K4QJZ

**M**OST Amateurs consider transistors beyond their pocket book and technical ability. Actually they can be less expensive and easier to handle than vacuum tubes. The rig described was built for a Novice nephew. It is also an ideal Field Day or brief-case transmitter for the James Bond set. Unlike so many transistor transmitters it has sufficient output to deliver a healthy signal and weekly schedules have been maintained in the Novice bands over a 600-mile distance.

## CIRCUIT DESCRIPTION

A transistor equivalent of the Pierce oscillator is used. Any crystals including low drive surplus metal can units can be used. 40 metre operation with 80 metre crystals is possible with some output decrease.



Top view of the transistorised 80-40 metre Novice c.w. transmitter. All controls are clearly marked. Note how the crackle finish was neatly removed in the area of the two output transistors for more efficient surface contact.

The oscillator is followed by an emitter tube cathode follower. Since the oscillator is relatively high impedance and the input impedance of the p.a. is very low, either tuned circuits or an impedance matching stage must be used. Power gain is limited with transistors at high power levels and the buffer gives about 10 db. gain which permits the oscillator to operate at low power. The original unit built did not include a buffer and worked well but the high oscillator input, about 1 watt, produced severe chirp and crystal drift.

The power amplifier uses two transistors to deliver about 16 watts output on 80 and 11 watts on 40 metres with a 24-26 volt power source. Input is 20-15 watts. Operation at 12-15 volts is possible but output will be about 5 watts on 80 and 0.25 watt on 40.

The power amplifier output impedance is very low, about 26 ohms at 12 watts output. An L-pi output circuit gives reasonable component values, excellent harmonic suppression, easy duplication and ease of tuning plus transistor protection. The L section (L1 and part of the tuning capacitor) transforms the low collector impedance to several thousand ohms where a conventional "vacuum tube" pi section can be used for tuning and loading. A

● This compact (2" x 3" x 5") 40 and 80 metre transmitter is completely transistorised, simple to construct, low cost, will operate into any antenna and produces 15 watts or more output.

switch is used to add tuning capacitance for 80 metres and the combination of a fixed and variable loading capacitor permit any antenna over 10 feet to be used on either band. Bulb type p.a. current and antenna voltage/current indicators are used for easy tuning, size, and cost reduction.

A d.p.d.t. switch is included for transmit-receive. In the receive mode the oscillator and buffer can be keyed

## TUNING

No tuning other than the final is required. Unlike vacuum tube transmitters, the p.a. draws very little current until fully loaded whether off resonance or not. The L network is basically a high impedance at all frequencies other than resonance, the opposite of a conventional parallel tuned vacuum tube tank circuit.

Transmitter adjustments should always be for **maximum output**, not minimum p.a. current. P.a. current measurement is included only to indicate relative power input. Adjust p.a. tuning for maximum output (antenna current) voltage indicators then adjust p.a. load for higher output if possible. Continue adjusting both until no further output increase is noted. With a 50 ohm load, typical total capacitor values are:

	80 Metres	40 Metres
Tune	390 pF.	105 pF.
Load	500 pF.	310 pF.

If antennae under 30 feet or half-wave are used, the output capacitance will be much less and the tuning capacitance more; the No. 49 bulb will show less current, but the neon bulb will ignite showing high voltage feed. In general, tune for maximum antenna bulb brightness regardless of load.

A calibrated wavemeter or S meter should be used for initial tune-up on 80 metres since the final doubles very efficiently. Mark the capacitor settings for future reference.

## COMPONENTS

The chassis used was a BUD, CU 3006A. The PADT 50's are mounted on one end using the entire case as a heat sink. Clean off the crackle finish, use mica insulating washers and a silicon grease when mounting. RFC1 should be low resistance; use a 1/2" loop stick core and at least 20 turns of No. 28 wire or larger. No component values

to zero a receiver and the transmitter tuned circuits act as a receiver pre-selector and matching unit for improved results with simple receivers. A companion 80-40 receiver of the same size has been built with only two tuned circuits.

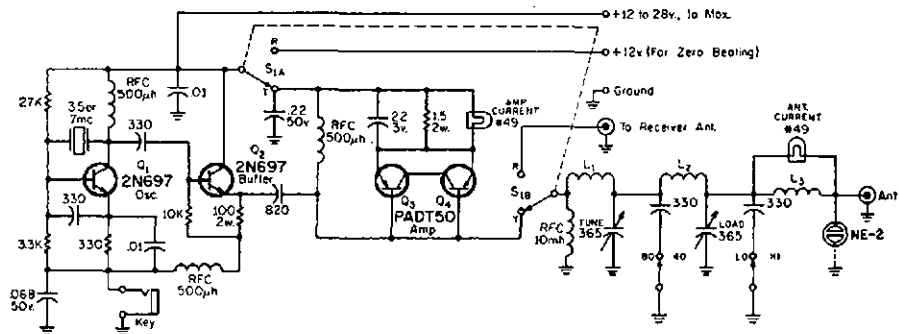


Fig. 1.—Circuit of a transistorised 80 and 40 metre c.w. transmitter. The buffer heat sink must be in 10 in.<sup>2</sup> and the Power Amp. heat sink 20 in.<sup>2</sup>. All capacitors greater than one are in pF.; those less than one are in µF. All resistors are 1/2 watt unless otherwise noted. Currents shown are for a 25 volt supply on 80 metres with 16 watts output.

- L1—22 turns 3/4 inch o.d. at 32 t.p.i. Air Dux 632 or equiv.
- L2—30 turns 3/4 inch o.d. at 32 t.p.i. Air Dux 632 or equiv.
- L3—5 turns cotton covered wire on small 1/4 inch powdered iron core.

Adjust turns for normal lamp brightness at maximum output into 52 ohm load.

RFC1—See text.

\* Reprinted from "CQ," April 1968.

are critical except for the p.a. coils which should be close to the values shown.

The NE-2 antenna voltage indicator should be mounted flat against the chassis near the No. 49 bulb with both leads connected to the antenna lead and only stray capacitance to ground. To save money the indicator bulbs may be mounted by pushing them through a rubber grommet.

The oscillator transistor requires no heat sink. The buffer transistor runs hot and a good heat sink must be used.

The overall size of the transmitter can be greatly reduced by using mica compression trimmers, Arco No. 303, for tuning but special knobs or screw-driver adjustments are required.

## OTHER BANDS

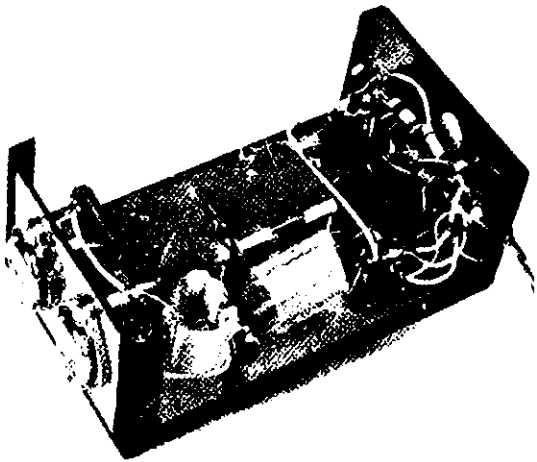
No changes are required for operation on any frequency from 3-8 Mc. Operation on 160 metres at full power can be obtained by changing L1 and

L2. Twenty metre or higher operation is not practical except at very low output, about 4 watts on 20, and 2 watts on 15, using half frequency crystals. Inductors L1 and L2 have to be changed for either band.

## RESULTS

The first two contacts using a dipole were a VE3 on 80 and a W7 on 40. Both answered CQs on a Saturday night on the first call! Neither realised that low power was being used, much less transistors, until told so, at which point I suddenly became 599 instead of 579.

Since that time schedules have been maintained on a regular basis day and night from Connecticut to North Carolina with a Novice using a "disguised antenna" (fine magnet wire any length thrown into the nearest tree with no insulators). The power supply is two small 12 volt Ni-Cad batteries and a trickle charger. ●



★  
Overall view of the interior of the 80-40 metre Novice transmitter shows the location of the loading and tuning capacitors and the coils. The buffer and oscillator circuits are on the right end of the chassis.

## SIDEBAND

(Continued from Page 9)

or suppression as unwanted mixing products fall far outside the wanted range.

"The double 9.0 Mc. crystal filter is a luxury, the job could have been done with one filter and u.s.b./l.s.b. carrier crystal switching. However, as the carrier crystal frequency remains constant, there is never any chance of operating frequency shift when changing sidebands. The a.m. operation, with a diode detector and no b.f.o. interference on reception, is unique. Full carrier is inserted by unbalancing the balanced modulator and the screen supply to the final tubes passes through the low- $\mu$  triode section of the 13DE7 audio-amplifier, giving a type of controlled carrier amplitude modulation, not unlike s.s.b. operation. The final stage can therefore handle a fair amount of a.m. as no constant carrier limits the input to the final.

"The set is provided with a plug for external second v.f.o. operation. With

the proper extra v.f.o. unit connected, switching of the particular wanted v.f.o. on reception or transmission is done automatically through the internal transmit-receive relay and controlled by a 4-position knob on the external v.f.o. One can then transmit and receive on two different frequencies in one band. Some tricky switching and input-output coupling to the filter is used, but otherwise the circuits follow normal s.s.b. design practice. Note in the block diagram that the final amplifier output stage is separated from the receiver tuned circuits. They are paralleled with other high impedance tuned circuits in the transmitter line-up providing better selectivity.

"The Drake TR-4 is a well-built unit with a well-calibrated dial and linear permeability tuning over the full v.f.o. range. It has a good receiver but its a.v.c. action and S-meter operation leave a bit to be desired. One has to "fiddle" with the r.f. gain control to keep strong signals from distorting. The lack of an audio amplifier between the product detector and audio out-

put stage no doubt makes the detector do overtime! Also, there is a "birdie" on reception on 21.2 Mc., the fourth harmonic of the v.f.o., and on 40 metres strong signals will show up on odd spots. The cause of this is that the third harmonic of the v.f.o. overlaps the heterodyne mixing range in the 16 Mc. range. However, these odd signals are 60 db. or so down on the unwanted spots, so never very loud and they tune three times faster than the genuine signals. It would have been better if the 40 metre band coverage had been 6.7-7.3 Mc. A change in the conversion crystal of 21.5 to 21.3 Mc. would do the trick as the odd reception signals would then fall outside the Amateur band range (below 7.0 Mc.)."

Correspondence received has included many requests for information on equipment. I gather there are many Amateurs who do not have access to overseas literature and so do not have much of an appreciation of the commercial type numbers and what they represent. One Amateur said he did not want these descriptions so that he could buy the gear but so that he would not have to sound so ignorant while in QSO with overseas stations. This point of view is appreciated, and Arie has promised further information which should help to satisfy the demand for information. 73, Phil 5NN.

## TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R." in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

## HINTS AND KINKS

### FILED INFORMATION

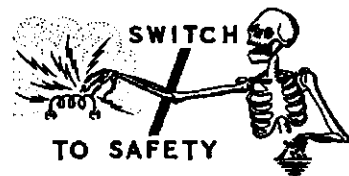
The following is an idea which I feel may be of interest to many Amateurs who, like myself, often have difficulty in remembering details of past QSOs, names, places, whether QSLs have been sent or received, etc., etc.

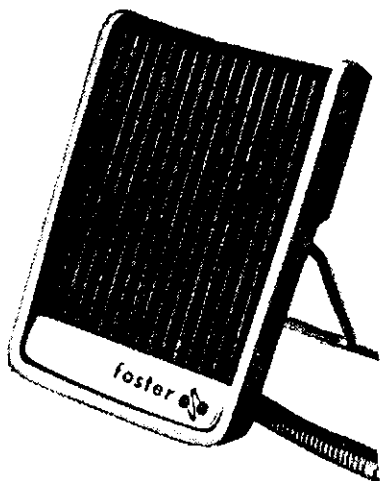
Simply it involves printing a QSL card which consists of two parts. One is the normal card giving details of the QSO on the standard QSL size of  $5\frac{1}{2} \times 3\frac{1}{2}$ .

The other section, which can be any desired size, is a tear off section on which details of the QSO can be recorded and filed for future reference when required.

Thus in one simple operation a QSL can be written and details filed. I feel sure that the little extra cost involved in printing would be well repaid.

Geoff Wilson, VK3AMK





DF-2

# FOSTER DYNAMIC MICROPHONES

## FOR HAND-DESK USE

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
 Effective output level ..... -55 db. [0 db. = (one) IV. Microbar]  
 Frequency response ..... 200 to 10,000 c.p.s.

### OMNI-DIRECTIONAL DYNAMIC:

SIZE: 3" x 2-1/8" x 1".  
 Cable: 12 ft. of P.V.C.  
 Switch: on-off.  
 Desk Stand. Clip folds for hand use.  
 Colour: WHITE.  
 Plastic Diaphragm.

Retail Price  
 50K ohms  
**£2/14/0**  
 + Sales Tax 4/9

A QUALITY PRODUCT OF EXCELLENT DESIGN

Marketed by **ZEPHYR PRODUCTS PTY. LTD.**

70 BATESFORD STREET, CHADSTONE, S.E.10, VIC.



Manufacturers of Radio and Electrical Equipment and Components

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.

NOW AVAILABLE—

THE 1966 EDITION

# ★ A.R.R.L.—Radio Amateur's Handbook

*The Standard Manual of Amateur Radio Communication*

Price \$6.10 posted, or 58/6 and postage 2/6

NOW AVAILABLE—

# ★ The Radio Transistor Handbook

by Stoner & Earnshaw.

Price \$6.65 posted, or 64/9 and postage 1/9

THIS UP-TO-DATE HANDBOOK COVERS A WIDE RANGE OF COMMUNICATION  
 FOR BOTH AMATEUR RADIO & COMMERCIAL APPLICATIONS

## McGILL'S AUTHORISED NEWSAGENCY

Established 1860

183-185 ELIZABETH STREET, MELBOURNE, C.1, VIC.

"The G.P.O. is opposite"

Phones: 60-1475--6-7

# AN F.E.T. PREAMP. FOR 144 Mc.\*

ALLEN KATZ, K2UYH

**A**LTHOUGH transistorised pre-amplifiers have been on the v.h.f. scene for several years, they have never really found acceptance on the 2 metre band. On the other hand, transistors are in almost universal use on the 70 Cm. band. The reason for this neglect on the part of two metre operators is twofold. First of all there is the feeling that nothing can beat the performance of the vacuum tubes presently in use. And secondly, there is the knowledge that transistors do tend to overload much more readily than tubes.

Possibly if more two metre operators were aware of the fantastically low noise levels transistors now produce on 432 Mc. they might begin to question the perfection of their tube front ends. (It is now possible using the best in low noise v.h.f. transistors and common emitter circuits to obtain a noise figure on 432 better than that of a 416-B on 144 Mc.) But then again there is still the problem of overload and cross modulation. After all how many 70 Cm. stations have to put up with the equivalent of a fellow with a Gonset a few blocks away. It is this problem of overload which first brought the f.e.t. to our attention.

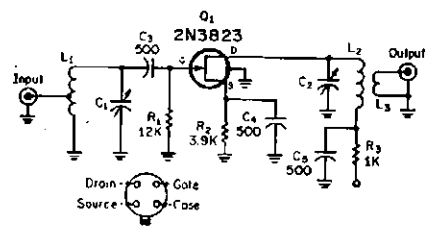


Fig. 1.—Circuit diagram of the two metre f.e.t. pre-amp. All capacitors are in pF. and all resistors are ½ watt.

## FIELD EFFECT TRANSISTORS

The f.e.t., a relatively old semiconductor device (first patented in 1935), has only recently become available to the Amateur and the electronics industry in general.<sup>2</sup> Its operation, covered in several good articles, resembles more closely that of a pentode vacuum tube than any transistor.<sup>3</sup> It has a high input impedance as contrasted to the low input impedance of a regular transistor. It is this quality which explains the f.e.t.'s high resistance to overload and cross modulation, and our interest in the device for use as a two metre pre-amp.

There are two types of f.e.t.'s (N channel and P channel). The N channel biases identically with the triode vacuum tube (negative voltage on the gate, positive voltage on the drain). The gate, source, and drain are the

names of the f.e.t. elements which correspond respectively to the grid, cathode and plate of a vacuum tube. As expected, the P channel biases exactly opposite to the N channel type.

The noise figure of a good v.h.f. f.e.t. remains almost constant (approximately 1.5 db.) as frequency is increased up to about 200 Mc. and then rises sharply.<sup>4</sup> Thus, though an f.e.t. at the present stage of the art will not produce as good a noise figure as that of many transistors on 432 Mc. (about 4 db. minimum), it should perform as well or better than the best transistor on 144 Mc.

It is said that the proof of the pudding is in the eating . . . and there is no better proof than hearing with one front end that which you can not hear with another. When we constructed our first f.e.t. pre-amp. we did not expect to hear anything outstanding. For how much better can one get than a good 416-B on two metres? Maybe one db. On this point we were greatly astounded. For after the initial tune up, we found that we could pull signals which were undetectable on the 416-B about half an S unit out of the noise with the f.e.t. To say the least we were jubilant. Furthermore, the f.e.t. performed as predicted and gave us no trouble with overloading.

## CIRCUIT

Fig. 1 shows the schematic of a 144 Mc. pre-amp. using an N channel (TI 2N3823) f.e.t. in a common source circuit. F.e.t.'s may also be used in common gate configurations (the f.e.t. equivalent of grounded grid), but common source appears to give a better noise figure.

The circuit is simple and the components inexpensive. Thirty-five cent 1-10 pF. tubular plastic piston trimmers are used to tune the input and output circuits to resonance. The tap on the input coil should be adjusted for best noise figure, which according to theory is about one-eighth of the way up the coil from the grounded end for a 50 ohm input. We found the optimum tap point to closer to one-quarter of the way up. The output coupling loop is adjusted for maximum gain. Bias is provided by a 3.9K source resistor which should supply about -2.5 volts of gate bias for a 9 volt drain supply.

## CONSTRUCTION

The amplifier was constructed on a 4" x 2½" piece of copper clad board. Ordinary copper or brass plates could be used as well; we just find printed circuit board a particularly easy material to work with. The photograph and Fig. 3 show the layout. Care should be taken to make sure the input and output circuits are well shielded from each other. If this precaution is not followed a neutralisation problem may

develop. In the two f.e.t. pre-amps. we have constructed thus far no such problem was encountered. However, should neutralisation prove a problem, inductive neutralisation, as used in vacuum tube circuits, may be used to cure it.

The amplifier described in this article is now in use at WA2FGK's QTH. Andy's operating results using the amplifier speak for themselves.

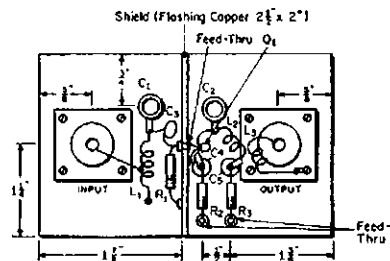


Fig. 2.—Layout of the f.e.t. two metre pre-amp. built on a 4 x 2½ inch copper clad board. The shield is a 2½ x 2 inch piece of flashing copper.

One final note, remember that an f.e.t. pre-amp. will add about 12 db. of gain to your receiving system. Thus though the f.e.t. front end may not overload, this does not mean that your h.f. receiver's front end will not overload. To avoid this problem, insert a variable pad between your converter and h.f. receiver.<sup>5</sup> Adjust the attenuation of the pad to a point where the noise output of the converter just rides over the noise level of your receiver. ●

\* Glanzer, K., "T-Pads for R.F. Circuits," "CQ," July 1964, p. 31.

★

## "THEY AND ME"

Ever hear a member say—"THEY ought to run our club this way?"  
 Ever wonder who are THEY, who get the brunt the live-long day?  
 THEY are the ones some call a clique, who plan the work and make things tick.  
 THEY fix the lights and sweep the floor; THEY handle every needed chore.  
 THEY keep the clubroom up to snuff; THEY worry about the heat and stuff.  
 THEY line up speakers, pictures too, and the people who will work for you.  
 THEY do the leg work, write the mail, provide a programme without fail.  
 Directors' meetings THEY attend, committee meetings without end.  
 On evenings THEY could spend at home, on your club's business THEY must roam.  
 THEY take new members into hand; THEY run instruction sessions, and . . .  
 THEY must manager all the work other members prefer to shirk.  
 Some pay their dues and think they may stand and smirk.  
 THEY pay the same dues, it's true, but gain no more than YOU and YOU.  
 Is paying dues your duty's end, or can a helping hand you lend?  
 As true as "GOD can make a tree," YOU ought to change the THEY to WE.

—"Scara News."

\* Reprinted from "CQ," May 1966.

<sup>1</sup> Brown et al., "V.h.f. Column," "CQ," Nov. 1965, p. 82.

<sup>2</sup> Kolk, P., "The Insulated Gate F.E.T.," Kmc. Semiconductor Corp., Long Valley, N.J., Nov. 1964.

<sup>3</sup> Angelo, E., "Electronic Circuits," Second Edition, 1964, McGraw Hill, p. 210-211.

<sup>4</sup> Application Notes, "V.h.f. Tuned Amplifiers Using The TI 2N3823 F.E.T.," Texas Instruments Inc., Dallas, Texas, Sept. 1965.

# SUNSPOTS AND PREDICTIONS

Frank Hine, VK2QL, has agreed to prepare an article for "A.R." on the aspect of propagation as it specifically applies to the Amateur Service and will include discussion on the Prediction Charts as supplied by I.P.S. and currently appearing in "A.R."

In the meantime, the following tables are the mean and smoothed mean sunspot numbers which he receives from I.P.S. This covers from the minimum period in 1954, and any Amateur taking the trouble to analyse the table will see that the increase in sunspot numbers of the current cycle is greatly lagging the peak of the record-breaking cycle and the climb to that peak.

Briefly, the "mean" indicates the average number of sunspots observed during a particular month, and "smoothed mean" is a 12-month running period of observation. It is the smoothed sunspot number, plotted over a long period of time, which exhibits the well known cycle variation.

The Observatory at Zurich, which has maintained records since 1749, has estimated the next peak in 1968.7 will reach only 100 as against the last peak of 201.2 in 1958.

Pending information to be supplied in greater detail, users of the charts may find the following of assistance.

The M.U.F. curve is the Maximum Useable Frequency for reliable communication by means of F layer reflection. Above that frequency, reflection may not be expected.

The A.L.F. curve is the Absorption Limiting Frequency, or the lowest useable frequency predicted, and frequencies below that can be expected to be absorbed beyond the ground wave. However, the closer we get to the A.L.F. the greater the absorption and the weaker the signal.

Where the A.L.F. curve crosses and exceeds the M.U.F. curve in frequency, no communication is possible by F layer reflection.

Do not take the times shown in A1 VK4SS' DX column as factual for VK. He is dependent, as I was, on overseas

information for his column. The times are often suitable for the opposite hemisphere, as for example, the reference to TN8AF in July "A.R." The short path to West Africa M.U.F. is only 11 Mc. at 2000z, whilst on the long path the A.L.F. exceeds 14 Mc. For VE1AED in Egypt, the A.L.F. exceeds

14 Mc. from 0430z to 1100z, so you see you would be wasting your time if you expected to hear those stations under normal propagation. I say under normal, but keen DXers know that without warning, we get abnormal conditions when anything can happen.—VK2QL.

## COMPLETE SUMMARY OF SMOOTHED MONTHLY MEAN VALUES OF SUNSPOT NUMBERS AT ZURICH

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1954	6.4	5.6	4.2	3.4	3.7	4.2	5.4	7.2	7.8	7.9	9.4	12.0
1955	14.2	16.4	19.5	23.4	28.8	35.1	40.1	46.5	55.5	64.4	73.0	81.0
1956	88.8	98.4	109.2	118.8	127.4	136.9	145.5	149.6	151.4	156.0	159.9	164.3
1957	170.2	172.2	174.3	181.0	185.5	187.8	191.4	194.4	197.2	199.5	200.8	200.0
1958	199.0	201.0	201.2	196.8	191.4	186.8	184.7	184.9	183.8	182.2	180.8	180.5
1959	178.6	176.8	173.5	168.4	164.4	161.4	155.8	151.2	146.2	141.0	137.2	132.6
1960	129.0	125.0	121.6	119.6	117.0	114.0	108.6	102.4	97.8	92.8	87.4	83.6
1961	80.2	74.8	68.8	64.3	60.0	55.8	53.1	52.4	52.3	51.8	50.9	48.7
1962	45.2	41.8	39.8	39.4	39.2	38.3	36.8	35.0	32.7	30.8	30.0	29.8
1963	29.4	29.8	29.8	29.0	28.8	28.2	27.7	27.2	26.9	26.0	23.8	21.3
1964	19.5	17.8	15.4	12.7	10.8	10.2	10.4	10.4	10.0	9.7	10.3	11.2
1965	12.0	12.3	12.7	13.8	14.7	15.2	15.4	16.5	17.2	19.4	21.9	23.9

## COMPLETE SUMMARY OF MONTHLY MEAN VALUES OF SUNSPOT NUMBERS AT ZURICH

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1954	0.2	0.5	10.9	1.8	0.8	0.2	4.8	8.4	1.5	7.0	9.2	7.6
1955	23.1	20.8	4.9	11.3	28.9	31.7	26.7	40.7	42.7	58.5	89.2	76.9
1956	73.6	124.0	118.4	110.7	136.6	116.6	129.1	169.6	173.2	155.3	201.3	192.1
1957	165.3	130.2	157.4	175.2	164.6	200.7	187.2	158.0	235.8	253.8	210.9	239.4
1958	202.5	164.9	190.7	196.0	175.3	171.5	191.4	200.2	201.2	181.5	152.3	187.6
1959	217.4	143.1	185.7	163.3	172.0	168.7	149.6	199.6	145.2	111.4	124.0	125.0
1960	146.3	106.0	102.2	122.0	119.6	110.2	121.7	134.1	127.2	82.8	89.6	85.6
1961	57.9	46.1	53.0	51.4	61.0	77.4	70.2	55.8	63.6	37.7	32.6	39.9
1962	38.7	50.3	45.6	46.4	43.7	42.0	21.8	21.8	51.3	39.5	26.9	23.2
1963	19.8	24.4	17.1	29.3	43.0	35.9	19.6	33.2	38.8	35.3	23.4	14.9
1964	15.3	17.7	16.5	8.6	9.5	9.1	3.1	9.3	4.7	6.1	7.4	15.1
1965	18.5	14.3	11.3	6.8	26.4	15.5	11.9	8.6	16.3	21.2	15.5	17.0
1966	26.7	23.5	24.5	47.5	43.7	46.4						

### HERE IS VALUE! FL-50 S.S.B. TRANSMITTER

Five bands, 50w. p.e.p. s.s.b., c.w., a.m.; 6JS8A p.a., 5 Mc. crystal filter, c.c. (v.x.o.) or ext. v.f.o., a.l.c., p.t.t., bk.-in. c.w. Built-in 117/234v. a.c. pwr. supply, ant. relay, pi output with variable ant. loading. Superb performance, appearance and construction. All tubes and diodes available in Australia. Use as a complete transmitter, or as exciter for linear or v.h.f. transverter.

Price: FL-50 £125 (\$250)

Matching FV-50 V.F.O.

Price: £32 (\$64)

If purchased together,

only £149 (\$298)

Sales Tax inc., Freight extra.

Australian Agents:

Bail Electronic Services

60 Shannon St., Box Hill N., Vic.

Phone 89-2213

For N.S.W. Sales and Service:

Mosman Television Services

11 Ruby Street, Mosman

Phone 96-4342

## DURALUMIN, ALUMINIUM ALLOY TUBING

IDEAL FOR BEAM AERIALS AND T.V.

★ LIGHT ★ STRONG ★ NON-CORROSIVE

STOCKS NOW AVAILABLE FOR IMMEDIATE DELIVERY

ALL DIAMETERS— $\frac{1}{4}$ " TO 3"

Price List on Request

STOCKISTS OF SHEETS—ALL SIZES AND GAUGES

## GUNNERSEN ALLEN METALS PTY. LTD.

SALMON STREET,  
PORT MELBOURNE, VIC.

Phone: 64-3351 (10 lines)

Telegrams: "Metals," Melb.



HANSON ROAD,  
WINGFIELD, S.A.

Phone: 45-6021 (4 lines)

Telegrams: "Metals," Adel.

# Book Review

# NEW CALL SIGNS

MAY 1966

## MULLARD VOLTAGE REGULATOR (ZENER) DIODES

This book should quickly become a standard reference for everybody interested in electronics. Although voltage regulator diodes are mainly of use in transistorised equipment, they are also very useful in valve circuits.

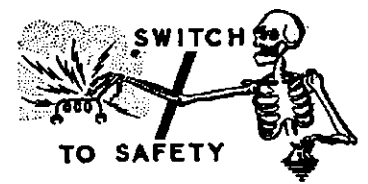
Most of us have encountered the problems associated with the lower limit of 70v. for gaseous regulator tubes—voltage regulator diodes completely fill the gap from 0 to 70v.

This book completely covers the subject including characteristics of voltage regulator diodes in general and the Mullard range in particular; voltage reference circuits ranging from a simple stabiliser to a complete bench power supply for transistor circuits; voltage shifting circuits; voltage clipping circuits; and miscellaneous applications such as bias circuits, video amplifier, instrument protection, and non-linear function generator.

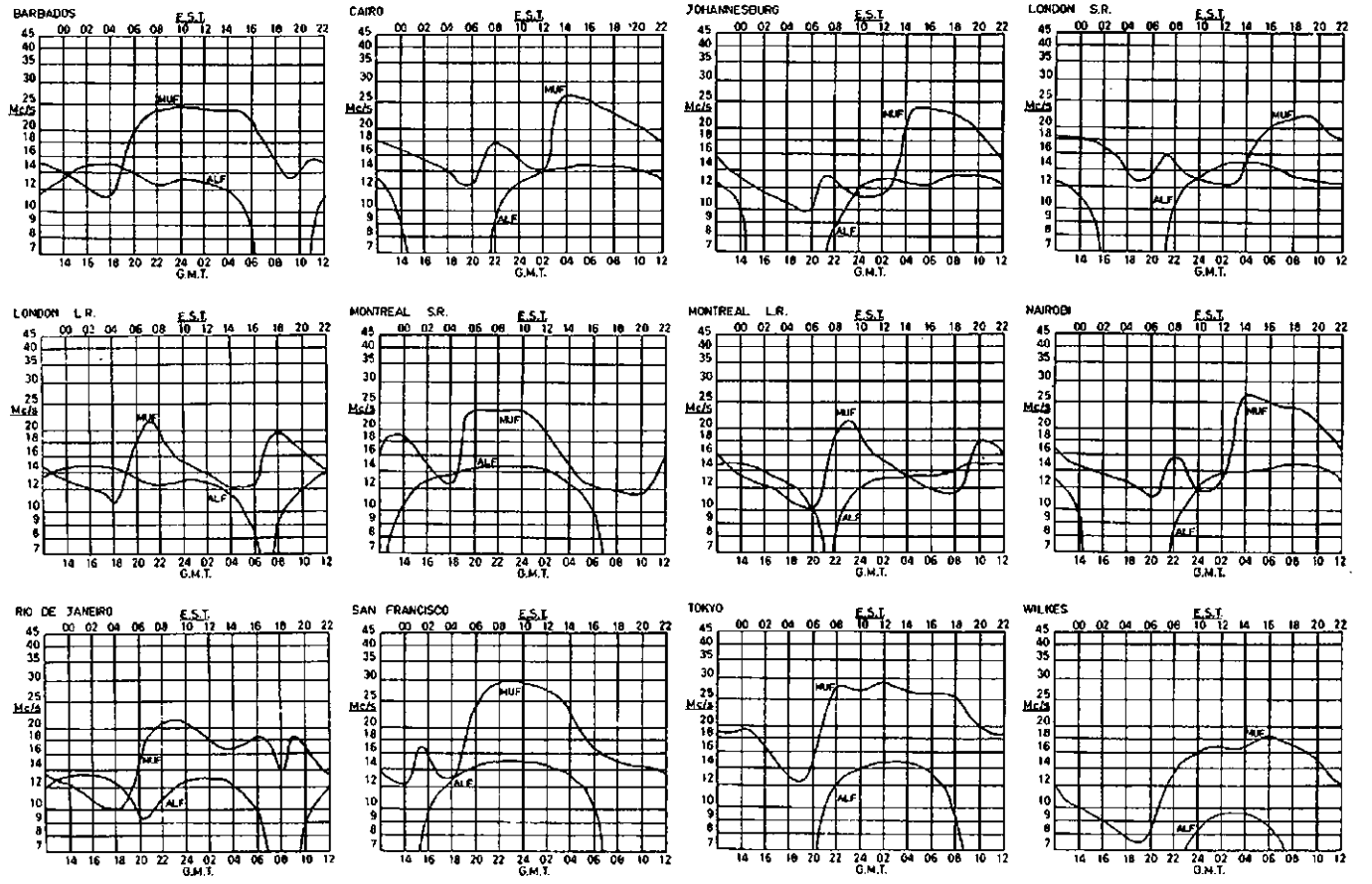
The book is available from all Mullard offices throughout the Commonwealth, retail price being 85 cents, postage 7 cents.

- VK2BAI—C. L. Matthews, 4 Potts St., Kingsgrove.
- VK2BGK—G. S. Kiernan, C/o. O.T.C. Receiving Station, Bringley.
- VK2BHX—W. R. Boydew, 108 Bayview St., Warners Bay Heights.
- VK2ZEC—E. A. Chaiker, Telopea Rd., Hill Top.
- VK2ZFG—J. E. Andersen, 9 Breaside Cres., Earlwood.
- VK2ZFK—F. A. Kerr, 32 Russell St., East Gosford.
- VK2ZRV—F. R. Forrester, 175 Margret St., Orange.
- VK3ZBT—M. L. Bartlett, 11 Ranelagh Dr., Mt. Eliza.
- VK3ZKJ—J. R. Adamson, 76 Shafer Rd., Blackburn North.
- VK3ZND—J. D. Vivian, 19 Thurleigh Ave., Croydon.
- VK3ZRC—P. D. Robertson, 10 Bath Rd., Burwood.
- VK3ZSC—G. F. Coward, 332 Buckley St., Essendon.
- VK3ZSR—A. C. Greening, 3 Ferguson St., Ascot Vale.
- VK3ZST—W. D. Brain, 179 Gladstone Rd., Dandenong.
- VK3ZTU—A. L. Tuckerman, P.O. Box 43, Kangaroo Flat.
- VK3ZVV—R. J. Halligan, 41 Windsor Ave., Mt. Waverley.
- VK3ZXO—T. P. J. Cosway, 102 Christmas St., Northcote.
- VK3ZYD—L. L. De Stefano, 13 Sheales St., Dandenong.
- VK3ZZG—I. R. Gillard, 25 Elliott Ave., Balwyn.
- VK3ZZO—D. S. Thomas, 24 Albert St., Mt. Waverley.
- VK4EP—P. Ellis (Rev. Bro.), St. Patrick's College, Shorncliffe.

- VK4LH—L. Grimshaw, 36 Leigh St., West End, Townsville.
- VK4ZGP—G. R. Phillips, 8 Chathams Post St., Enoggera.
- VK4ZLB—B. J. Byrne, 17 Boyd St., Wilsonton, Toowoomba.
- VK4ZMW—M. J. Willett, 18 Chisholm St., Stafford, Brisbane.
- VK4ZRL—R. D. Ross, C/o. Commonwealth Bank, Rockhampton.
- VK4ZTF—T. F. Armstrong, 2a Phillip St., Toowoomba.
- VK5CU—D. Clift, Flat 1, 25 Fitzroy Tce., Fitzroy.
- VK5FK—D. A. Millar, 90 Portrush Rd., Payneham South.
- VK5ZAU—B. J. Bryant, 1 Kilner Rd., Greenacres.
- VK5ZFW—A. S. White, 70 Devereux Rd., Beaumont.
- VK5ZHF—M. G. F. Huizinga, 14 Birch Gr., Dernancourt.
- VK5ZNN—T. G. Norris, Port Clinton.
- VK5ZTC—Adelaide Teachers' College Electronics Club, Kintore Ave., Adelaide.
- VK6GK—W. B. Nielsen, C/o. W. H. Pinniger, Ocean Beach Rd., Denmark.
- VK6VH—L. W. Hoobin, 9 Lilian Ave., Applecross.
- VK7ZPS—H. P. Schulz, 14 Liverpool Cres., West Hobart.
- VK9JD—J. F. Dalstead, 5 Ninth St., Lae, N.G.
- VK9ZCL—C. Lee (Rev. Bro.), Catholic Mission, Mt. Hagen, N.G.



## PREDICTION CHARTS FOR SEPTEMBER 1966



(Prediction Charts by courtesy of Ionospheric Prediction Service)

# SIDEBAND TOPICS

When you decide to spend a lot of money on a modern s.s.b. transceiver, you are actually buying two things, an s.s.b. transmitter and an s.s.b. receiver, combined in one package. Most transceivers now available can transmit potent good quality signals, there are no bad ones as their manufacturers would soon be out of business. Sometimes the outer appearance or finish of a set will influence a choice, but what is frequently neglected and taken for granted is the receiver performance. All transceivers are used much more for reception than transmission and it is the receiver in a **Galaxy V.** that makes this set so attractive.

**The GALAXY V. RECEIVER is:—**

- (a) The most sensitive one of the lot.
- (b) The one with the lowest background noise.
- (c) The only one with a near perfect a.v.c. action.

One can copy stations on the **Galaxy V.** that simply are not audible above the receiver noise in other sets. Except in very noisy locations there is absolutely no need to "fiddle" with its r.f. gain control, it can always be left at maximum receiver sensitivity. The receiver just cannot be overloaded, its a.v.c. system is better than any other s.s.b. receiver of my knowledge, none excepted. Why? Because of its product detector circuit, first developed by Galaxy, using a "frame grid" pentode, now copied and used in the Drake transceivers. This detector can handle a larger range of signals than any other detector.

Furthermore, the **Galaxy V.** has selectable sideband switching without shift in operating frequency, a system found only on much more expensive sets. Also, the accessories like VOX, crystal calibrator and external v.f.o. are cheaper than for other makes. The external v.f.o. does not need an extra adaptor, doubles the usefulness of the transceiver in separating the transmit and receive channels at will. In some mobile applications the smaller size of the **Galaxy V.** can also be a distinct advantage.

The best advice is: **Ask the man who owns one!**

**GALAXY V. all-band S.s.b. Transceiver, with heavy-duty matching power supply/speaker unit \$600**

**HY-GAIN Antennae:**

**14AVQ, 10-15-20-40 mx Vertical Antenna, 18 ft. tall, self-supporting, 4-band groundplane \$44**

**18AVQ, as the 14AVQ, but also for 80 mx, 32 ft. tall, requires 2-3 sets of guys (supplied) \$70**

**TH3JR 3-element 10-15-20 mx Junior Tri-band Yagi Beam ..... \$96**

**TH6DX 6-element 10-15-20 mx Senior Beam, 4 el. on 10 mx, 3 el. on 15-20 mx, 24 ft. boom \$200**

**ALLIANCE & C.D.R. Antenna Rotators, control-indicator units for 230v. included ..... \$55 to \$180**

**AUTRONIC Transistorised Automatic Keyers ..... \$70**

**MOBILE 12v. d.c.-d.c. Power Supplies, 300 and 500w. .... \$100/\$120**

**WEBSTER Bandspanner All-Band Mobile Whip, continually adjustable to frequency, complete with mounting assembly ..... \$48**

★ Expected next month: 572B Triodes! All hard-to-get types of transceiver tubes in stock.

★ For the home builder: Crystal Filters, Air Trimmers, Jackson Reduction Drives, 8.0 and 9.0 Mc. Crystals, etc.

## SIDEBAND ELECTRONICS ENGINEERING

P.O. BOX 23, SPRINGWOOD, N.S.W.

Telephone: Springwood 51-1394



## Diodes in Power Supplies

Editor "A.R.," Dear Sir,

In the July issue of "A.R.," Phil Williams has written a very interesting article on power supplies for Sideband. I should, however, like to say that I do not agree with all of his design considerations concerning the use of silicon diodes.

The R.C.A. Transistor Manual (p. 52) states that if no transient suppression is used, it is desirable to use a diode p.i.v. safety factor of three or four times the expected peak working voltage, because of switching transient overvoltages generated in the power transformer. Even when transient suppression is used, a safety factor of at least 1.5 is required, because "suppression" is not the same as "elimination". Transient suppression can be obtained simply by putting about a 0.01  $\mu$ F. condenser across the primary of the power transformer. When the primary is run from the 240v. mains, that condenser ought to be rated for at least 600v., since the condenser must withstand the transients it is trying to suppress.

In addition to the R.C.A. Transistor Manual, this subject has been discussed in the Selected Semiconductor Circuits Handbook, G.E. SCR Manual, and in numerous periodicals, eg. "Equipment Exchange Bulletin". And yet one frequently sees published designs which lack that all-important condenser. Why? Possibly because one can indeed ignore the existence of transients for a long time, until that one time when you turn the supply on (or off) at the wrong time in the cycle—then poof! This is taken stoically with the same attitude that one replaces valves. But a properly rated diode should never need replacement. And you can be reasonably sure that the one time it blows will be when you turn on the rig just after hearing a W1 call CQ on 2 metres.

Phil Williams suggests that a 400v. diode be used for each "130v. of transformer output," presumably meaning 130v. r.m.s. coming from the transformer, but this means a peak of  $130 \times 1.4 = 182v.$   $400v./182v. = 2.2$  safety factor. This 2.2 is inadequate for power supplies not protected by the transient suppressing condenser, but excessive for ones that are protected. Excess safety factor means higher unnecessary cost when putting diodes in series for h.t.

But why put 400v. diodes in series for h.t.? Several of the advertisers in "Amateur Radio" sell diodes rated higher than that, and two of them sell 2,000 p.i.v. diodes at a comparatively reasonable price; this even makes it practical to replace 866s with diodes, for obvious reasons. The only justification for putting a lot of diodes in series, is to save money. Sometimes this is better done with a string of diodes, or a few; before deciding on a design, it would be wise to see whether requirements are better filled by a few h.t. diodes rather than many m.t. ones.

The p.i.v. applied to a half wave diode feeding a condenser input filter is twice the peak voltage coming from

the transformer, because the condenser adds to it on the off cycles, not to mention the fact that a half wave circuit suffers far more from transient overvoltages than a full wave design; in the latter case the transformer is loaded on the off-cycle, but for the half wave it isn't. Well, if VK5NN's Fig. 2 actually feeds 240v. r.m.s. to his half wave 400v. diode, he is in trouble:  $240v. \text{ r.m.s.} = 340v. \text{ peak.}$   $2 \times 340v. = 680v.$  That is rather a lot to ask from a 400v. diode, not to mention safety factors.

Choke input filters can be responsible for horrid transient voltages too. With valves this was no great problem (unless running a mercury vapour one near its limits!), but with silicon diodes it can be critical. Again, the cure is simple: a 0.1  $\mu$ F. condenser in series with a 1K resistor, shunted across the choke. If I were you, I'd draw in that R-C across all diagrams of chokes following silicon diode rectifiers. The 0.1  $\mu$ F./1K should work in most cases. More detailed considerations can be found in the silicon diode article in the January 1965 issue of "QST" or reprinted in "Amateur Radio" several months later. [August 1965.]

Part of the confusion with respect to safety factors comes from the ambiguous or conflicting ratings of diodes. Australian and British commercial firms tend to give their diodes a working rating which includes a 1.5-fold safety factor in it already; American or surplus merchandise tends to be rated closer to "absolute maximum". Thus, an OA210 is nominally 400v., but its absolute rating is about 600v., which explains why it can be used with success on 240v. mains. Similarly the BY100 is nominally 800v., but its maximum voltage is given as 1,200, and is probably even better.

I do not think that it is desirable to include the p.i.v. safety factor in the nominal voltage rating of a diode because, as I discussed above, the actual safety factor needed depends on the circuit used. I think that it is more sensible to rate diodes explicitly at the "absolute maximum" value, making quite clear that this maximum is truly absolute, and letting the experimenter exercise his own discretion in applying the devices. This discretion must include some knowledge of transient suppression, safety factors, and circuit behaviour; silicon diodes are neat and cheap, but they are not nearly as simple and uncritical as selenium metal rectifiers or valves. See "Silicon Diodes and Common Sense," in the September 1965 issue of "CQ".

While I am about it, I might mention that because of the violence of the switching action, silicon controlled rectifiers operating from a transformer can require a p.i.v. safety factor of 2 or more, even when the a.c. input is transient suppressed. Design for suitable R-C suppressors is discussed in the "Miniwatt Digest" of January 1965. SCR's working directly from the mains are somewhat less critical, but it is still hazardous to use an SCR directly on the 240v. (r.m.s.) mains unless it has a p.i.v. rating of at least 500v., preferably 600v.

To a certain extent, the application of a diode p.i.v. safety factor will de-

pend on the reliability one needs. I have run diodes with a 1.1 safety factor when powered directly from the mains, with no sources of inductive disturbance nearby. But I also cooked a bunch of diodes in a rather h.t. circuit using a safety factor of 1.7, because the transformer was unusually inductive, or something. In this case I solved the problem by applying the formula used when putting a resistor in series with the transient suppressing condenser. R-C combination is more effective than C alone, because the capacity used is appreciably larger. But it can come to grief unless the formula is used, because of the danger of shock-excited resonance of the transformer with the condenser, if the latter is too large. The formula can be found in the "Miniwatt Digest" for July 1962, or in several of the data sheets in the Mullard "Technical Manual," Vol. 4, for diodes. Approximate values are given in the February 1965 issue of the "Equipment Exchange Bulletin," and the principles involved are discussed in the May 1965 "E.E.B."

—R. L. Gunther, VK7RG.

[The above letter was referred to VK5NN, whose reply follows.—Editor.]

Editor "A.R.," Dear Sir,

On first reading VK7RG's letter I had thoughts of having done something dreadful in the S.s.b. Notes for July, but on consulting Fig. 2 I was relieved to see that I had not done the dirty deed of which I was accused. If Lee sticks his chin out he will then see through the lower portion of his bifocals, that there is only 120v. applied to the rectifier in the bias circuit, and not 240v.

Following a loud "Touche!" I will now proceed to agree with him, and ask his forgiveness for omitting all the fuses, filters (r.f.), bleeders, milliammeters, and the 1,000 pF. capacitors across the diodes, all of which I have used in my own equipment (see "The Tetra-Linear," May 1964 "A.R.").

My own station uses a total of 82 silicon diodes in various configurations and I have only ever damaged one on a choke input circuit. This was replaced and an R-C circuit connected from choke input terminal to ground, or as he suggests, across the choke—but I prefer to ground them. An 0.05  $\mu$ F. 1,000v. paper condenser and 1.2K resistor were installed.

The figure of 130 volts a.c. per 400v. p.i.v. diode was published by Mullard and Philips in the data sheets for the OA210 rectifier, and I have used these, 1N1763s, HR25s, RS25AFs and possibly others in series, always with 330K and 1,000 pF. across each to equalise surges and back voltages.

We are fortunate that higher voltage rectifiers are available now for less than I paid for my original OA210s. By all means use them with as much safety factor as you feel you can afford. Amateurs always tend towards the use of I.C.A.S. ratings, don't we.

The Sideband Notes for July were intended to be a source of a few ideas which might prove useful for giving the voltages for s.s.b. equipment. The tips in Lee's letter are worthy of consideration, too.

—Phil Williams, VK5NN.

# SWL

Sub-Editor: D. GRANTLEY, W1A-L2022  
Alexander Ave., Hazelbrook, N.S.W.

When listeners get together it is inevitable that their conversation will turn to the situation pertaining to QSL cards and difficulty in obtaining same. Don't despair chaps, for this month some arrived at the VK2 S.w.l. QSL manager's QTH for reports dated as far back as 1960. What caused the delay is a mystery to us, but the main point is that they did eventually turn up and were mailed out promptly. All of which brings me to the point. Our bureau manager is Chas. Abernethy, who has something to say to s.w.l.'s new and old, who avail themselves of the W.I.A. outward bureau. I quote "During my handling of the VK2 s.w.l. inwards QSLs I find a considerable number of cards being returned to the sender stamped "Does not collect from VK2 Bureau." This is logic, I guess, as a large percentage of VK2 Amateurs are well away from the city. I suggest that listeners send all VK cards direct with S.A.S.E., as this will give them a better chance of getting a reply at the same time it will save double handling by the bureau. I would like to add to Charles' remarks, that it is necessary to keep a stamped envelope at the bureau if you are expecting cards back through that source. Address is Chas. Abernethy, 30 Urunga Cr., Miranda.

I have just returned from a hurried 10 days' holiday in Melbourne, unfortunately I was unable to meet any of the VK3 boys as time did not permit, nevertheless I was able to contact quite a few by phone enabling us to have a matter over things in general. Melbourne as usual turned on one of its best weather performances, sufficient indeed to make myself and family dispense with any ideas we had of returning there permanently.

## VK2 NEWS

It was most gratifying to the Committee to see such an improved attendance at the last meeting, and we look to a continued improvement as we continue with our successful film nights. These screenings, which were mentioned in the last issue of "A.R.," feature the "History of Science series." At this meeting it was a pleasure to welcome back Syd Underwood, who was promptly elected Vice-President, together with Alan Chatto as liaison officer upon the resignation of Ross Erwin. Ross resigned as he was unable to attend the meeting. Listeners are reminded that copies of the AR7 manual are still available from Chris Middleton-Williams at the cost of one dollar plus ten cents postage.

## AWARDS

Catalogued in the "odd and interesting" class is a new award sponsored by DJ80T, E. Warnecks, Postfach 1244, 562 Velbert, West Germany. Called "International Mobile Diploma," it is available to any Amateur or s.w.l. who has confirmations for 100 mobile stations. These stations can be ones signing /M, /MM or /AM. Any band may be used, including v.h.f., and confirmations can be a mixture of a.m., c.w. and s.s.b., but all contacts must be for the period after January 1, 1963. Cost is ten IRC's and you send check list of QSLs held, this to be certified by two licensed Amateurs.

## S.W.L. D.X.C.C.

We congratulate our prominent VK4 s.w.l., Chas. Thorpe LA018 on becoming the holder of certificate number 4. Other holders in order of issue are Eric L3042, Don L2022 and Warwick L3211. Any more takers?

## DX NEWS

FP8CQ, operating in this year's CQ DX contest is a suspected pirate. FL8RA QSLs via W2LJX. QSLs for MP4BFS go to Box 132, Bahrain, whilst MP4BFT's go to K0SZY. VK9AM has been reported on Nauru on 21,230 using a.m. VU2DIA on Andaman Is. heard by L2022 with a T7 note on 14,060. ZD9BE should be using s.s.b. by the time you read this. 7X2MD's manager is VE3EUU, whilst 7X2AH asks for his QSLs to manager WA4STL. All Amateur activity from 9GI ceased in March this year. Operation previously mentioned as probable from the Vatican in July, showed up on 40 metres from HVLCN. QSLs for this operation to K6CYG with IRCs. XE0AL has K7AL for manager. Watch K6KH for odd spots in the area of Guam for the next two years. K6JIC will

handle his QSLs, and operation will be on all h.f. bands, and possibly 160 as well. A further reminder that Box 7388, Newark, N.J., 07107, U.S.A., is the Hammarlund QSL QTH.

## AROUND THE SHACKS

Ernie Luff reports QSLs from FO8AB, OH0NJ, GC2FMV, G3MEQ, G3HTN, VP9CF, KG4AA, FW8RC, KP4CK, VE6ALX, and quite a number of W's. Loggings included HR1JAP, KC4USN, ID1DIA, FB8WW, HH9DL, VE2BUJ, port SU, 5N2AAW, ZS3JJ, TG9, ZS2, TG8, ZD7, HK, YU and YS2. Ern has qualified for the newly issued G award, from the progressive Elizabeth A.R.C.

Harry Major, who has assisted many a young radio enthusiast, sent me the wanted information on the mixer circuit requested last month, and would like it known that he will provide a copy of any circuit which he can supply at a cost of 4c plus S.A.S.E. These copies are really good, and I commend this service together with the query service which Harry runs. His RX by the way is a BC-624A.

Bob Mutton L7031 reports inward QSLs from OK3UL and VF5RB. His main listening has been on 40 metres, where HK, YV, KJ7 and a host of W's were logged. Alan L5065 has received QSLs from UJ8KAA, ITITAI, KR6MB, EA4GZ, JA7JM, LU8DAH, KX6EI, KG6IF, HMIAB, YV5AHR and DJ9VW. Warwick L3211 is going great guns on the QSL list, new ones are VQ8AR, HA5KBW, VP5RB, VK9DJ, ZD8HL and VS9MP. New countries heard were VP2LS, UJ8KAA and HH9DL.

Mac Hillard has been amongst the Europeans, including Y08CF, UP2WY, UC2DB and HTXK on 40 metres, and what is more he heard them on c.w. Mac is spending more time in mastering this mode of transmission, and I am sure we will be hearing more from him at contest time.

Bob Halligan L3229 is concentrating on his antenna system at the present time, a 40-foot tower for his 2 metre beam, a 2 metre GP (ever tried 15 metres on a GP chaps?), dipoles for 10. 15 and 40 metres being portion of the new project. New countries heard by Bob were PX, 5W1, and TG9 (40 metres), whilst inward QSLs were XV5AA, CN8BB, FW8RC, CP6FR, UB5ARTEK, K4OSR/KB6, LA5YE, UD6KAR, VS9AFR, ZC4CI, U06PK and HC1CV.

Tony Vege of VK5 also dropped me a line re last month's note to the effect that he was trying to re-form the VK5 group. Apparently I was misinformed on this matter, but somebody is attempting to reorganise the group, but not Tony who is tied up with final year at the University.

L2022, still trying to regain lost ground after several years' of light activity, is again sending out large quantities of reports to unconfirmed countries only, whilst trying to get up to the 300 heard mark. Band conditions are still good at Hazelbrook, where YU, OE, UA6, YO, FB8 and UC2 have been heard on 7 Mc., with ZS6SX, BV, VU2DIA, HC1TH, EA8FE, KG8AA and CR6EI being logged on 20 c.w. With a very unstable receiver, loggings on 15 metres are almost impossible, however, the usual JA's and W's have been noted. A new shack is at present under construction, this will give greater comfort for writing, operating and recording.

That concluded the news from our members, but before closing I would like to acknowledge tapes from John Simons and Bernard Hughes of G land via the I.S.W.L. tape club, and Mac Hillard also Bryan Prosser, on holidays in the general direction of VK5.

## VK3 NEWS

We just made it with the divisional news from VK3, by letter from Ian Woodman. I quote, "Great news to the listeners' group during the month of June, was the return of their AR7 after eight months' use by VK3WI. The group still continues to get new members along to its meetings, this is most encouraging to all those who put so much time and effort into the administration. The secretary is at present compiling a list of financial listeners for the next call book. Members are asked to watch for notices of future meetings, as visits of technical interest, and visiting lecturers have been organised for later months. Elections for office-bearers are due, and these will be reported in these columns as soon as possible in order to let the country members know what is happening. At the time of writing there has been a delay with the printing of the newsletter "Zero-Beat," and we hope you will all be patient for the next copy which will arrive in due course. President Harry Roach is still looking for reception reports for the Sunday broadcast from country to city members. If you can help, please post your report to Harry at 28 Foster Avenue, Glenhuntly, S.E.9, Vic.

## DX LADDER

There have been a few minor changes in the centre positions of the ladder, but the main item of interest is Warwick Smith's elevation to position number 3. Here is the present situation:

	Countries		Zones	W
	Conf.	Hrd.	Conf.	States
E. Trebilcock	293	296	40	50
P. Drew	192	265	38	40
W. Smith	139	214	35	7
D. Grantley	133	297	39	35
A. Westcott	106	159	34	11
R. Kearney	104	170	37	8
G. Earl	103	168	34	18
M. Hillard	98	246	33	14
R. Halligan	84	156	30	6
E. Luff	83	152	28	22
B. Prosser	79	241	17	8
C. Abernethy	70	107	33	14
A. Raftery	87	188	26	11
B. Mutton	62	100	28	10
B. Mackintosh	41	102	20	5



Misgivings have (rightly) been expressed about the harmful effect on the boy, the instructor, and Y.R.S. generally if there happens to be an accident with a.c. mains during practical instruction work. Complete safety must be aimed at. Our policy here in VK1 is that a.c. mains work is strictly prohibited until after the passing of Junior Certificate and discouraged even then. Where lack of money for transistors and associated parts forces the use of donated a.c. mains equipment in the progress after Junior or Senior Certificate, the a.c. mains equipment must be very strictly supervised by the instructor, instruction must be given on the dangers of electric shock, and proper resuscitation methods must be taught. This is still not enough—parents must be informed in "writing" with receipt returned to the instructor. Anybody interested in our four foolscap pages on "Effects of Electric Shock, Precautions with A.C. Mains, Methods of Resuscitation, Information for Parents, and Club Regulations on A.C. Mains" should send me a S.A.E. for a copy.

We don't hear often enough about VK6 but recent news from Laurie VK8ZEA shows excellent progress. Laurie's own club at Wesley College has produced six A.O.L.C.P.'s in W. Hines 6ZBJ, R. Godley 6ZEC, M. Vellnagel 6ZEV, T. Broom 6ZFX, J. Hughes 6ZEK and P. Pemberton 6ZEP—a great effort. Also in VK6, Christian Brothers' College Club has a membership of 30 and operates VK6LV. A third club should soon be set up at Carmel.

In VK4 the State Supervisor reports 17 active clubs registered up to the end of June, five ex-Y.R.S. members have A.O.L.C.P., one has A.O.C.P., two club instructors have A.O.L.C.P., and another is waiting for P.M.G. Exam. result. The numbers indicate that things are going very well—only regret that the personal details are not known.

VK2 has reached a total of 44 registered clubs and 1966 looks like a record year. Eight new High School clubs were recently registered and I'll be very surprised if these are not the result of the posting to schools of the graduates from Sydney Teachers' College Y.R.C. (Other Divisions please note urgently—have you infiltrated your Teachers' Colleges yet?) Keith 2AKX reports greatly increased activity at Junior Certificate level. There is much activity on the air for Y.R.S. Radio Telephony Certificates. Clempton Park Baptist Boys' Brigade are regulars on Saturday afternoon. Canterbury District Scouts are going to stress this training aspect. Radio Telephony Syllabus is obtainable for all by sending large S.A.E. (and extra stamps for duplicating costs) to Mike Hooper, 182 Melville St., Hobart.

Consideration is being given to the suggestion by VK3 Y.R.S. types that there should be a special Y.R.S. badge to be sold to members at cost so they can wear it for mutual recognition. Comments have been received from most supervisors, but individual club leaders who would like to offer comments are asked to contact their state supervisors with suggestions on designs and other matters. 73, Ken 1KM.

# DX

Sub-Editor: ALAN SHAWSMITH, VK4SS  
35 Whynot St., West End, Brisbane, Qld.

It would seem that the Don Miller stint from Heard Is. was not a success in the full sense. Two thousand QSOs were made, mostly with W's. Only 50 Europeans were worked and very little else. The question that comes to mind is, was it all worth it? It's a guess but it appears the venture cost more than a dollar per QSO.

## NOTES AND NEWS

**Easter Is.:** Jose CE0AC is said to be on at irregular times on 7001. Try listening 0500z.

**Nepal:** Terry 9N1BG reported on 14,108 s.s.b. Worked here 1800z. QSL to H.Q., British Gurkha, L. of C. Dharan.

**Oland Is.:** SM6BN/7 on now 14,135. Try the SR for this one, however, he may be QRT by the time this reaches you.

**Hong Kong:** Luke VS6AZ. On fairly regularly. Listen around 1400z on 14,195.

**Marcus Is.:** Now reported QRV again. Try 14,200 from 1200z.

**Andaman Is.:** Hedge VU2DIA still working them daily on 14,015 around 0130z.

**Glorieuses:** Jose CR7GF ran into generator trouble on the first leg of proposed DXpedition, consequently he doesn't expect to get on from Aldabra and Tromelin until late August at the earliest. Will then go to Farquhar, for which he already has a permit.

**Pantelleria:** IP1AA and IP1JT expected to show soon from Khamma. If you do manage to QSO these stations, QSL to Dave Noon, 1434 Brydges St., London, Ontario, Canada.

**Pitcairn Is.:** Tom is now to be found more often on 14,176, 0600z. He still keeps to his other schedules, however, i.e. 21,060, 2200z Mondays and sometimes 21 c.w. later.

**Prince Edward Is.:** VE1AKZ is said to be on from this spot very soon for period approx. 5 weeks. No times or frequencies available.

(Much of the above by courtesy of Geoff Watts.)

**Gurin—U.N. Trust Territory:** I0RB on 14,250 may count for D.X.C.C. Try around 0600 or 1300z.

**International Kon-Tiki:** Report to hand says that five men are setting out on a raft to drift from Peru to Australia. In the wake of the Norwegians and William Willis's "Age Unlimited." A Ham rig is supposed to be aboard. Date of departure is at present fixed for end of August. Any more information on this adventure would be greatly appreciated (so please chaps keep me posted).

**Desroches:** Plans for this spot also went astray. Transport difficulties. They may try it again in a couple of months.

**Stockholm:** Originally prefix SM5 but now SMD. Several are QRV. Just in case you didn't know.

**Ceylon:** 4S7PB on 14,110, 1800z. QSL K2MGEV. Also very active is 4S7DA on 7/14 c.w. Best time for the former is 1400z or 1930z. The latter 0130z.

**American Samoa:** Active as of now W5VWU/KS6, 14,002. Duration of operation not known.

**Bonin Is.:** This spot now has two ops. and their joint QSL manager is K6ZDL. Modes are 1 and 14 c.w./s.s.b.

**Kerguelen:** FB8XX active daily 14,140, 0400z.

**Bahrain:** Roger MP4TBO should show up any time now. 14 c.w./s.s.b. Duration of operation not known. QSL VE1AKZ.

**Rare Ones Coming Up:** Information to hand says that Ack and Don are planning operation from KCA, FO8 Clipperton, ZA, YI, FY0 and more in the not too distant future. Keep an ear to the frequencies.

(Much of the above by courtesy of Bill WA2EFN. Ed. LIDXA.)

**Turkey:** As reported previously TA2BK is on 14 c.w. and been worked here. TA2AA has shown up on 14 s.s.b., and said to be audible on LP from 1400z.

**Tunisia:** Previous notice on this place was that 3V8EU would commence operation. Now it seems it was all a foney. Another report to hand, however, says that WB6CIY is about to cause a stir. No other information.

**Juan de Nova:** Further word from Jose CR7GF says that he will endeavour to include this rare one in his itinerary probably

about next October or earlier if possible. Call will be FR7ZQ.

**Haiti:** HH9DL is QRV 14,190 and listening on 14,210.

**U.S.S.R.:** If the call U5ARTEK raises your blood pressure, forget it. QTH is Crimea. Box 88, Moscow, for a QSL. QTH is 14,240 s.s.b. also 14 c.w. after 0400z.

**Portuguese Guinea:** CR3KD worked 21,060. (Right alongside frequency of Tom VR8TO and about the same time, 2200z.)

(The bulk of the above by goodwill of Joe W4MVB. Ed. Fla DX'er.)

**Jan Mayen Is.:** Latest from here says that some four or more LA's are busy on the air. LA2IK, LA5AK, LA6XI, LA5CI, all on 14 c.w. The latter also has s.s.b. all bands

**Spitzbergen:** LA4FG/P is a loner from this spot at present.

**British Guiana:** 4U2BZ said to be operating 14 c.w. Try 14,075, 0500z.

**Wallis Is.:** Robert FW8RC as reported before mostly at week-ends. 0700z around 14,240 Kcs. QSL P. T., Mata-Uta, Wallis, New Caledonia.

**Brunei:** Another one from here is VS5JC, 14 c.w. low end daily around 1300z. QSL Sgt. Cooper, Gurkha Sig. Sqdn., c/o P.O. Box 777, Singapore.

**South Orkneys:** LUIZG is active on 21,251 c.w. (yes, c.w.). Says he will also work s.s.b. stations on this frequency.

(From Jim G3UGT. Ed. Airwaves.)

**Uruguay:** Remember Enzo CX2EJ. Sadly the sun has set on his disappointment, for this "old-timer" has just passed away at the age of 72 years without receiving a single VK QSL. A letter from his son to Chas. VK4UC tells of this. Enzo in his time worked quite a few VKs.

**Bootleggers:** If recently you worked FJ8CC or KS4AC, they are probably phonies. (VK4UC.)

## ACTIVITIES

Ken VK3TL reports working these juicy ones over the past week or two. All 14 Mc.: EA8ZE (Canary Is.), FP8CV, GC5ACH, HR1CP, LX2UW, ON4NM/LX, ON8XA, PX1YR, VO1IB, VO1GB, VPIHR, VP2AA (Antigua), VP9AX, VP9FC, VU2DIA (Andaman), 3A0DX, 5N2AAE, 9Q5QR, plus others. Best QSLs received were: HK0KL, SL7CA, 9V1MT, VE0MY, CO8MN, HR1JAP, ZP5LS, GD3ENK, XV5AA, OH0VF, BV1USG, 5Z4FB, FW8Z, UA1KED (F.F.L.), GW4NZ, HC8JG, FP8CV, GC8HT (Guernsey), KS4CA (Swan Is.).

Dud VK4MY reports conditions on the Gold Coast only fair and been QRL working on Tx and aerial. He logged 14 c.w.: UA4HW 0400z, UL7BX 0130, W5VWU/KS6 0150, ZS6RM 0700z, KR6WT 0545, UR2DE 0130, 6Y5BB 0845, and more.

Peter VK4PJ buys with things other than A.R. but managed these choice ones, around 14,125, s.s.b.: HI8XAL, YV5CMQ, F2BA, HK4PZ, VE2PA, SV1BH, HB9QO, HRIKS. Mostly around 2100z.

## QTHs

VP2AA via VESACD; FP8CV, W2GKZ; PX1YR, W2GHK; LX2UW, W2GHK; 3A0DX, K6CYG; VPIHR, Stann Creek Valley, British Honduras; ON4WM/LX, K2MYR; VP9FC, WA2VID; 9Q5QR, Box 10,061, Kinshara, Republic of Congo.

(My thanks to Ken VK3TL for these—AL)

## SUMMARY

Recently "CQ" magazine held what might be termed a miniature Gallup Poll on the question of the Ham and his equipment. While, for obvious reasons, the latest transceiver-type unit was immensely popular, it was surprisingly found that quite a number still pre-

ferred to build their own equipment. In fact, on a population increase basis, the home-brewer was more than holding his own. While there is something to create, and a challenge to go with it, there will always be triers. The end-product, most certainly will not look as well, and probably will not function as efficiently as the factory job, but it will provide a double satisfaction. The making and the using.

Henry Ford, one cold and frosty morning, was found vigorously chopping firewood. When reminded he did not have to do it, his reply was, "Yes, but this way, it warms me twice."

My thanks this month to Editors Jeff Watts, Bill WA2EFN, LIDXA, Joe W4MVB Fla. DXer, Jim G3UGT, Airways, and from Chas. VK4UC and S.w.l. C. Thorpe. 73, Al VK4SS.

## W.I.A. V.H.F.C.C.

Con.	Call	Confirmations
No.		144 Mc. 50 Mc.
1	VK5GG	114
2	VK3QV	215
3	VK2HE	102
4	VK2HE	118
5	VK7LZ	112
6	VK6BE	300
7	VK2HO	132
8	VK2ABR	177
9	VK5ZAX	100
10	VK4ZBE	100
11	VK3FW	157
12	VK4ZAZ	847
13	VK5BQ	165
14	VK3QV	204
15	VK4HD	104
16	VK2ADT	210
17	VK4ZBI	163
18	VK3NE	110
19	VK2ASZ	100
20	VK2XK	402
21	VK7LZ	104
22	VK3ZHF	104
23	VK3ZGP	118
24	VK2ZRU	103
25	VK4ZCH	101
26	VK9AU	107
27	VK5KK	143
28	VK1VP	100
29	VK4ZAL	100
30	VK2ASZ	100
31	VK4ZLG	100
32	VK6ZDS	108
33	VK3ZCR	107
34	VK5ZIR	100
35	VK4ZK	110
36	VK5WV	103
37	VK3ZE	214
38	VK6VV	102

# Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

## C.W. PRACTICE

Editor "A.R.," Dear Sir,  
For the benefit of those who really do wish to pass the Morse Exam., the following information may prove of interest.

Sydney radio VHP/VIX broadcasts 24 hours a day for ships. Traffic lists consisting of ships' call signs in alphabetical order, followed by traffic, are broadcast at 0001, 0401, 0801, 1201, 1601, and 2001 G.M.T. on these frequencies: 4286 Kc., 6428.5 Kc. and 8478 Kc. Weather messages in plain language and code groups of five figures are broadcast on the same frequencies at 0130, 0530, 0930, 1330, 1730 and 2130 G.M.T. Speeds range from 16 to 20 w.p.m. The ship/shore frequencies in the region of 6300 and 8400 Kc. provide useful practice.

San Francisco Radio stations KPH and KFS both give daily press bulletins: KFS at 1920 G.M.T. on 6365 Kc., and KPH at 1900 G.M.T. on 6488 Kc. KFS is 25 w.p.m. and KPH is 28 w.p.m.; those with tape recorder facilities can record these and play them at half speed.

You may care to publish this information for the benefit of those who need c.w. practice and do not wish to attend a class. For those who want extra last minute practice, VHP on 6428.5 often runs coded messages to ships at 18 w.p.m. at 8.30 a.m. most mornings.

—John H. Smith, VK3IQ.

## Aswel Audio Phaseshift Networks

Small quantity available in reply to recent demand.

Price \$8 including postage

## ASWEL

17 Clisdell Ave., Canterbury, N.S.W.

Phone 78-5368

# BRIGHT STAR CRYSTALS

## FOR ACCURACY, STABILITY, ACTIVITY AND OUTPUT

Our Crystals cover all types and frequencies in common use and include overtone, plated and vacuum mounted. Holders include the following: DC11, FT243, HC-6U, CRA, B7G, Octal, HC-18U:

**THE FOLLOWING FISHING-BOAT FREQUENCIES ARE AVAILABLE IN FT243 HOLDERS:—**

6280, 4095, 4535, 2760, 2524 Kc.

5,500 Kc. T.V. Sweep Generator Crystals, \$7.25;  
100 Kc. and 1000 Kc. Frequency Standard, \$17;  
plus Sales Tax.

Immediate delivery on all above types.

**AUDIO AND ULTRASONIC CRYSTALS—Prices on application.**

455 Kc. Filter Crystals, vacuum mounted, \$13 each plus Sales Tax.

**ALSO AMATEUR TYPE CRYSTALS—3.5 AND 7 Mc. BAND.**

Commercial—0.02% \$7.25, 0.01% \$7.55, plus Sales Tax.

Amateur—from \$6 each, plus Sales Tax.

Regrinds—Amateur \$3, Commercial £3.75.

**CRYSTALS FOR TAXI AND BUSH FIRE SETS ALSO AVAILABLE.**

We would be happy to advise and quote you.

New Zealand Representatives: Messrs. Carrel & Carell, Box 2102, Auckland.  
Contractors to Federal and State Government Departments.

## BRIGHT STAR RADIO

LOT 6, EILEEN ROAD, CLAYTON, VIC. Phone 546-5076

With the co-operation of our overseas associates our crystal manufacturing methods are the latest.



## THE RADIO HAM

The Radio Ham is a man apart, With valves in place of a human heart. He doesn't speak when with his mates, He only ever "communicates."

His thoughts are always far away, With dots and dashes and 3GK, His family knows that first of all He must answer at once the "CQ" call. Crackles and voices from near and far,

Echo whenever his door's ajar. At meals he's only half-way here, His mind's on the voice only he can hear.

Sunday morning's the sacred time, To call him then would be a crime. I sometimes long for the good old days Before Marconi and radio waves.

—Mrs. S. M. Gillespie.

## CONTEST CALENDAR

10th/11th Sept. — W.A.E. Contest (Phone).

1st/2nd Oct. — VK/ZL/Oceania DX Contest (Phone).

8th/9th Oct. — VK/ZL/Oceania DX Contest (c.w.).

15th/16th Oct.—R.S.G.B. 21/28 Mc. Telephony Contest.

29th/30th Oct.—R.S.G.B. 7 Mc. DX Contest (Phone).

12th/13th Nov.—R.S.G.B. 7 Mc. DX Contest (c.w.).

19th/20th Nov.—R.S.G.B. 2nd Top Band (1.8 Mc.) Contest.

10th Dec./15th Jan.—Ross Hull Memorial V.H.F. Contest.

11th/12th Feb.—John Moyle Memorial N.F.D. Contest.

# NON-DESTRUCTIVE

## INSULATION TESTING WITH THE TRIMAX IONISATION TESTER



The TRIMAX Ionisation Tester was developed as a means of testing insulation resistance and the onset of ionisation at any voltage from 50-10,000 V.D.C. The testing is non-destructive and the instrument itself is completely safe to the operator. Call our Sales Department for details on the TRIMAX Ionisation Tester.

### METER RANGES

0-1000/10000 Volts  
0-2/20/200 Microamps



**LM ERICSSON PTY. LTD.**

**"TRIMAX" DIVISION**

FACTORY (CNR. WILLIAMS RD. & CHARLES ST., NORTH COBURG, VICTORIA. PHONE: 35-1203 . . . TELEGRAPHIC ADDRESS: "TRIMAX" MELB.



LM40A

# VHF

Sub-Editor: CYRIL MAUDE, VK3ZCK  
2 Clarendon St., Avondale Heights, W.2, Vic.

Once again it is news time and I am on the deadline because of late arrival of news. Again I would like to remind correspondents that news must be in by the 27th of the month, it would be appreciated if the notes could be typed but if not please print all names and addresses. Where possible use the format illustrated in "A.R." some months ago.—Cyril VK3ZCK.

## V.H.F. CONVENTION

The third Annual VK3 V.h.f. Group Convention will be held over the week-end 8th and 9th October, 1966. The Saturday events will be held in an eastern suburb of Melbourne and the Sunday events in the Mornington area.

For further particulars write to V.H.F. Convention Secretary, Peter Wolfenden, VK3ZPA, P.O. Box 36, East Melbourne, Victoria.

## KNOWN V.H.F. NET FREQUENCIES IN USE IN AUSTRALIA BY 10 OR MORE STATIONS

VK2: 146.00 f.m., 145.854 f.m., 53.982 a.m.—Wollongong.

VK3: 145.854 f.m., 146.00 f.m., 146.146 f.m., 53.032 a.m., 52.525 f.m., 144.5 a.m.

VK4: 53.032 a.m.

VK5: 53.1 a.m., 148 f.m. (being formed).

VK6: 52.856 f.m., 52.525 f.m., 52.765 f.m., 52.947 repeater, 145.00 a.m.

VK7: 53.035 a.m., 144.1 a.m.

The approximate total of stations on 53.03 is close to 100 shared between VK3, VK4 and VK7.

## NEW SOUTH WALES

Activity on 2 metres has been fairly good of late and stations are already planning for the New Year's Field Day which will be on similar lines to last year's. It is anticipated that a message handling event will take place on the Sunday. There will be two sections—oper. and 144 Mc. only. The open is for 2 metres and above, six not being eligible owing to propagation conditions, although it may be used to arrange contacts.

Scoring will be: 0-50 miles, 1 pt.; 50-100 miles, 3 pts.; 100-150 miles, 6 pts.; 150-200 miles, 10 pts.; 200-300 miles, 15 pts.; 300-500 miles, 20 pts.; over 500 miles, 40 pts.

For 432 multiply by 2, and bands above multiply by 3.

Many 52 Mc. operators will remember Tim VK2ZTM and Joe VK2ZOO, well they are off on a two-month round Australia trip. Many well-known local personalities attended a farewell dinner and everybody had a good time.

Some news that may be of interest to the VK3 chaps—Reg VK1ZMR and Graham VK1ZCG are on regularly from Canberra. Reg is on 144.02 using narrow band frequency modulation and Graham 144.090. Both Reg and Graham regularly work Dennis VK2ZOW so how about a few more of you chaps trying to contact these gentlemen of the Federal Capital. 73, Stephen VK2ZSK.

## HUNTER RIVER BRANCH

52 Mc. This band has been quiet except for the week-end hook-ups on Saturday and Sunday mornings at 10 a.m.

Barry VK2ZUE at Vales Point has been working Grant VK2AXB of Sydney most week-ends on this band, some Newcastle stations have also worked him when conditions have been a little better than usual. Barry 2ZUB being south of Newcastle, receives Grant 2AXB 5 x 8 most times. Sydney stations are not usually heard at this QTH as we are north of Newcastle. Conditions have been poor owing to the very cold weather and fairly strong westerly winds.

144 Mc. This band has also been quiet, mainly because of the 'flu, cold or out of town, and more than likely by others staying near the fire or t.v.

Tony 2ZCT has returned from Sydney where he has been doing a refresher course for his employer and has worked into Sydney from his ideal QTH, on a ridge of high land at "Whitebridge" suburb of Newcastle, also working Sydney is Col 2YJ who also has a good QTH.

Ross 2ZRU of Sydney has been relaying the Sunday night v.h.f. broadcast in the Newcastle direction and has been heard up to S8, some including 2ZWM have passed in a report on the broadcast.

Barry 2ZUB will be on holidays during September and will be going to the Snowy Mountains and Cooma area, he will have 144 Mc. gear and also may have a 52 Mc. converter, so look out for him mobile.

Keith 2AKX, Des 2ZDN and a few others are now mobile on the 144 Mc. f.m. frequency, others are in the process of getting their "car-phones" going. Bill 2ZWM has had a couple of try-outs with his mobile gear, and has been heard well at this QTH. M. J. O. Brien, VK2ZMO.

## VICTORIA

Activity on 6 and 2 has not been very good but there have been a couple of small DX openings on 2 metres. Other activities include the 2 metre scramble which is held on the 2nd Sunday at 2045 hrs. E.A.S.T., the 2-metre Fox Hunt on the 4th Wednesday at 2000 hrs. E.A.S.T. and the V.H.F. Group meeting on the 3rd Wednesday at 2000 hrs. E.A.S.T. in the Institute rooms. The subject for July was Antennae, and the various types of antennae discussed were: the Long Tom Quad Yagi for 432, by Ian VK3ALZ; the Spiralray Circular Polarised Yagi for 144, by Roger VK3ZRY; Stacked Helices for 2 and 432, by Bill VK3ABP, and Cyril VK3AEE on his 15-foot dish for 432 and his proposed 30-foot dish. Further information on these may be obtained by writing to the speakers themselves enclosing a stamped addressed envelope. Cyril VK3ZCK.

Eastern Zone.—Activity on both 6 a.m. and 6 f.m. is very high. Some stations are still having contacts with Melbourne stations on 2 a.m. and Peter VK3ZDP at Sale is back on 2 a.m. and s.s.b.

Western Zone.—Activity on 6 metres is next to nil owing to high gain Channel 0 antennae and low signal strength from Melbourne's Channel 0. Activity on 2 metres looks forward to a bright future. Brian 3ZBS and Bob 3ZFT are constructing gear, and promise to be on soon. John 3HW's 2 metre gear is under modification. Eric 3ZL, John 3ZDM, Brian 3ZPU are consistent rivals on this band. 2 metre mobiles have been worked at good signal strength at distances in excess of 50 miles from Ballarat. 2 metre f.m. operators can expect contacts with Ballarat before December.

Activity on 70 c.m. Both John 3ZDM and Brian 3ZPU are hot rivals on this band. John 3ZDM runs 80 watts to a 6/40. Brian 3ZPU runs 40 watts to a 6/40. Both stations are using identical antennae, which consist of 4/13 element yagis, and also a circular element Quad Yagi which has boom length of 6 wavelengths. Both stations run schedules to Melbourne and Geelong.

Project Australia.—The Ballarat Astronomical Society has given a grant and facilities for construction of antenna and equipment for this project. This society has backed Ballarat Amateurs in the field of radio astronomy for many years, and is looking forward to the success of this project.

North-western Zone.—Ray VK3ATN reports "after a great deal of discussion and the use of a computer at the 'Bell' Lab. in New Jersey the beam window of his 4 section stacked Rhombic has been determined as being bounded by S (declination) N. 22 deg. to N. 25 deg. to G.H.A. (Greenwich Hour Angle) 152 deg.-155 deg. From this information we predicted an Azimuth and Elevation and thus a time on the 18th July. Our prediction was within 1 minute of practical results. Ray was able to copy K6MYC/K6CLM via 144 Mc. Moonbounce up to 15 db. and at times stronger above noise which was S5 for about 20 minutes (2300-2320 G.M.T.). During this time I did not listen for my own echoes, however, they would have been there. K6MYC/K6CLM were unable to copy my signals or their own because of an S7 noise at their end." Ray is using a noise blanket which he finds is most effective to the extent that a S2-3 signal can be heard through a S7-8 noise.

K6MYC/K6CLM are using a 320 element collinear array semi-fixed and 1 kw. input. Ray is only using 150 wt. input.

Ray says there are now quite a number of W's who are getting very interested in 144 Mc. Moonbounce. Ray's has four 15-foot-long horizontal beams at one end of the 4 section stacked Rhombic so that he can change Azimuth by approximately 1 deg. 12 ft. It is possible that 52 Mc. and possibly 432 Mc. Moonbounce will be attempted in the future using the same antennae with small modifications. The above news was received from Ray VK3ATN.

## QUEENSLAND

July was a busy month for the V.H.F. Group here in VK4. In the first week in July officers and some members attended the monthly Council meeting of the Institute (Queensland Division). As a result of this meeting the v.h.f. group has been officially recognised as an integral part of the Queensland Division. Further, Council will refer all matters pertaining to v.h.f. and u.h.f. activities and policies to the group for guidance and comment before committing the Division to any policy or commitment. Over the week-end 9th, 10th July the Sunshine State contest was held. The contest was so popular on the v.h.f. bands that more points seem to have been scored on these bands than on all the h.f. bands. Many stations operating were either portable or mobile and some long-distance contacts were made.

At the July general meeting of the Queensland Division, the lecture was devoted to v.h.f. techniques. Thanks to the many v.h.f. boys who supplied equipment for the large display. Indeed, the display was so big that the chairman and minutes secretary could not find a spare space to put their papers down on. The object of the lecture was to interest the h.f. boys in v.h.f. However, it seems that at least the lecture has interested the v.h.f. boys in u.h.f. Some 432 Mc. gear was on display and this showed the relative simplicity of the gear for this band.

The monthly transmitter hunt was held on the 29th July. The location had most hunters guessing. About 20 persons took part and first to find the transmitter was VK4ZRH. The transmitter was located on a ridge in Victoria Park. Afterwards everyone headed for a local coffee shop where an impromptu v.h.f. group meeting was held.

Finally, a couple of months ago a par appeared in these notes referring to George VK4ZLG. The significance of the par was of a purely local nature only. George has been spending so much time at work (4BK) that he was only very rarely on the bands. Apparently some VK3s thought that George had obtained a full call. This seems to indicate that some VK3s at least must read these notes. Peter VK4ZPL.

## SOUTH AUSTRALIA

Unfortunately due to mid-year examinations this scribe has been unable to keep his eyes and ears on the v.h.f. bands during the last month. However, my agents to whom I am indebted, have passed on the news that activity has been very quiet. The latest news on the VK5 beacons is that Bob 5ZDX has them operational again, and has been checking them out at his QTH prior to the installation back at the Channel 7 Transmitter Site on Mt. Lofy. Garry 5ZK has completed the Big Wheel Antenna for 2 metres and is currently checking out its performance.

Perhaps the greatest activity heard on the bands, apart from the Sunday morning call-hacks after the 5WI session, is whenever a scramble is conducted. The most recent scramble was conducted on 24th July on 2 metres. The eventual winner was Barry 5ZMW who has added many scrambles to his list of successes lately.

Recently, approximately ten 146 Mc. f.m. Channel B units have been placed into service in VK5. Whether or not they prove popular has yet to be determined as net operation has not at any time proved successful in VK5. However, there is always a first time for its success, and this could provide it, as has been achieved elsewhere, especially in VK3. 73, Colin VK5ZJH.

★

## Publications Committee Reports That...

At the August meeting correspondence was received from VK3UG, VK2ZSK, VK2QL, VK2 Secretary, W.I.A. Federal Secretary and the Boy Scouts' Association.

The main item considered by the committee was the 1966-67 issue of the Call Book. Publication is scheduled for late October or early November. The Call Book will be the same size as "A.R." and contain approximately 60 pages. The cover price will be 75 cents per copy.

Further discussion was held on the subject of Prediction Charts, and some alterations will be incorporated in future issues. We are indebted to Frank Hine VK2QL for his assistance with this matter.

A new scale of advertising rates was considered and agreed on by the committee, to become effective on 1st September.



# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL QSL BUREAU

W9PIO, Wil Grob, is looking for an Australian YL pen pal for his daughter Diana. Diana, who is 16 years of age, and doing her last year at high school, may be reached at 115 East Liberty St., Columbia, Illinois, U.S.A.

RAG, LASHE, who was a regular visitor to Australia when radio officer on the M.V. Beaumont a few years back, was a delegate to the I.A.R.U. Region 1 conference held in Yugoslavia during May. Rag sends his best wishes to his many VK friends.

QSLs for the final stages of Gus Brownning's last DX-pedition and mainly for West African areas, were recently received from W2GHK.

Further to paragraph these notes in "A.R." regarding CX2AJ, advice has now been received from his son that his father passed away suddenly on 20th June. CX2AJ made 72 years and death was due to heart trouble. His son is finalising all QSL obligations.

All QSLs for YO2 Hams may be sent via: YO2 QSL Bureau, P.O. Box 100, Timisoara, Romania.

Ray Jones, VK3RJ, Federal QSL Manager.

## FEDERAL AWARDS

### AUSTRALIAN DX CENTURY CLUB AWARD

At the recent Federal Convention it was decided when determining the highest twelve in each section of the W.I.A. D.X.C.C. in future, allowance is to be made for "deleted" countries, of which 24 are currently involved. Clause 2.2 of the Rules provides "should a country be deleted from the Countries List at any time, members and intending members will be credited with such country if the date of contact was before such deletion." This practice will continue.

Two totals will accompany the listing of the top twelve in each section in future. Position in the list will be determined by the first number shown which will represent the participant's total countries less any credits given for deleted countries. The second number shown will represent the total D.X.C.C. credits given, including deleted countries, in accordance with the Rules.

The first such list will appear in "Amateur Radio" next month.

A. Kissick, VK3KB, Federal Awards Manager.

## NEW SOUTH WALES

The July monthly meeting of the N.S.W. Division, held at Wireless Institute Centre on Friday evening, July 22, took the form of an Auction Night.

Such events have always been popular, never failing to draw good attendances, and about 100 members and visitors were present on this occasion.

Chairman Tom O'Donnell, VK2OD, dispensed with the usual preliminaries in about a quarter of an hour. The only business before the meeting was a motion by the Federal Councillor, Pierce Healy, VK3APQ, that the minutes of the recent Federal Convention be ratified, with the exception of the section dealing with the proposed constitution. This was seconded by Bill Lewis, VK2YB, and carried without discussion.

The following applicants were admitted to membership of the Institute: M. O'Grady, F. E. Corkeron, M. J. Payne, G. C. Chenhall (VK2BLC), P. C. Nieuwendyk, N. Spratt, G. T. Pile (VK2ZFG), R. G. Turner (VK2ZTR), T. S. Mayne (VK2AWM), Nepean District A.R. Club, A. E. Prentice, Leonard Deltch, R. C. Milton (VK2ZMM), Dick Treacy (VK2BAJ).

Proceedings were then handed over to Noel Millar, VK2AQH, who, as on past occasions, carried out the duties of auctioneer both efficiently and with good humour as he attempted to extract the D.B.'s from the audience. This proved a rather difficult task, for in spite of the large attendance there was considerable buyer resistance. High reserve prices on some equipment was one deterrent to brisk bidding, but even so it would appear that many of those present came along merely out of curiosity, or perhaps in an effort to

clear their own shacks of all manner of junk, at the same time resisting the usual Amateur impulse to fill up the shack again with someone else's doorstops.

This attitude is in direct contrast to the auctions held immediately after World War II, when Disposals equipment was first making its appearance. How well we remember an auctioneer of those days being almost knocked off his perch with the rush of bids, and the bidding was usually closed when he considered a sensible amount had been received. It seems those days are gone for ever.

About 11 p.m. the auctioneer called it a night. He had been assisted by Warwick Johnston as recording clerk, Bill Shakespeare, VK2AGF, as official extractor of dollars from purchasers, while equipment handlers were Norm Champion, VK2ZND, Kevin Trevitt, VK2BUZ, and Ivan Agar, VK2AIM. A vote of thanks to Noel and his band of helpers, moved by Bill Lewis, VK2YB, was carried by acclamation.

Before we get too far from the subject of auctions, we are seeking the purchasers of a receiver and a wave-meter offered for sale on behalf of the late John Peehl, VK2WJ, at the June, 1965, auction. We are holding a handbook for the former and coils for the latter, and these may be had from Ivan Agar, VK2AIM, telephone Sydney 86-5179, or address as in the callbook. Alternatively, if any reader can advise the identity of these purchasers it would be appreciated.

We are sorry to report that the Divisional President, Tom O'Donnell, VK2OD, had a fall during the month while on Institute business, when he stepped into a hole on a badly lighted footpath. Suffering abrasions and various aches and pains, he was confined to the cot for a day or so, and left the July monthly meeting after handing over to the auctioneer. Incidentally, Tom assures us that he was quite sober at the time, and he also assures us that the Shire Council which controls the offending footpath has received a few caustic comments.

Divisional Council has received a very good suggestion from Mona Swinton, VK2AKS, that a display be held of members' hobbies (other than radio). The idea has been well received and the Education Officer, Harold Burtoft, VK2AAH, has been asked to organise the display, which it is hoped will be held early next year.

The W.I.C.E.N. group held an exercise on Sunday, July 24, in the Berrima district, when there were 12 mobiles among the 17 call-signs in attendance. Much useful experience was gained by the operators as a result of this day out, one feature being the excellent coverage from VK2WI on 146 Mc. f.m. Using 50 watts to a ground plane, the headquarters station was received at S8 south of Berrima and two-way communication was maintained between Dural and Mittagong. The W.I.C.E.N. Committee had a meeting during the month with the N.S.W. Civil Defence Director, and a report of this was to have been submitted to the August meeting.

The Far Northern Radio Club members and their families assembled at Lennox Head on 24th July for the club's quarterly meeting. After a picnic lunch, the members got their heads together and held this meeting, and we would like to commend this idea to other country clubs—and city clubs, for that matter—for it is an excellent way to have a family get-together and a meeting at the same time.

The VK2 Division's Morse Tape Service is thriving. Ern Hodgkins, VK2EH, who now conducts the service, reports increasing applications for tapes from near and far. The nightly morse practice on approximately 3550 Kc., carried out by Doug, Courtney, VK2AUC, and his band of operators, is also received with much appreciation in several States.

## SILENT KEY

It is with deep regret that we record the passing of:

- VK2PDD—Jack D. Sibbald.
- VK3XU—Gordon Weynton.
- VK5UX—Leslie Wallbridge.

Many Amateurs on the air today owe their success in the A.O.C.P. to the dedicated work of these volunteers and the services they maintain.

Howard Lilley, VK2AYT, was the envy of his mates when he took off late in July for the U.S.A. for about six weeks. Howard is on the staff of ABC-TV Channel 2 and while in the States will undertake a course of study in connection with his work.

Our Zone 2 Officer, Max Francis, VK2BMK, has changed his QTH, and for the information of all concerned he is now to be found at 93 Kingdon Street, Scone.

Members of the N.S.W. Divisional Council, and indeed all thinking Amateurs, are most concerned at the lack of response in this State to appeals for I.T.U. Fund donations. It is very difficult to understand the mentality of those individuals who apparently think so little of their hobby that they would literally throw it to the wolves. It is known that while this Division is scratching along with little more than 25 per cent. of its quota, after three years of effort and appeals, the opposing forces are leaving no stone unturned in their efforts to prove that our bands are not being used sufficiently to warrant their retention by the Amateur service. And this is not confined by any means to the DX bands, for the v.h.f. segments, and the use made of them, are being scrutinised very closely by those who covet them. If we are to come out of the next I.T.U. Conference with any frequencies worth having, there are two things we must do—and do at once: Make full use of all our bands at every opportunity, and rally to the call for donations so that we will have a representative at Geneva. Our future is in jeopardy as it is, but with no one to speak for us it would be hopeless. 73, Ivan, VK2AIM.

## HUNTER BRANCH

Although many dislike the winter for its short days and cold mornings, it goes almost without question that this season is the ideal time for building programmes in the shack. It seems so in the Branch area anyway and many are the reports of newly-kindled activity. On the 146 f.m. net frequency there are now five stations in operation either fixed or mobile and one more at least, Henry, 2ZGK, should be on by the time you read this. Charles 2ZLH also has been bitten by the desire to join the net operators and, having availed himself of a give-away priced unit is in the process of converting it to 146. Latest members to come up on the frequency are Des 2ZDN and Jan 2BJO. Both have converted MR3 earphones to their use and Jan runs his mobile in the 6-volt horseless carriage known affectionately as the "Lurchmobile." It is said that quite heavy cables connect the unit to the battery! In an attempt to trap more signals, Des has erected a 3-element collinear as per the "handbook" recommendations and this has been copied by some others as well. It is possible now to hear 2WI on 2 metre f.m. at good strength at my location. All this activity on the W.I.C.E.N. frequency will no doubt do a great deal of good and provide a core of skilled operator-technicians for an emergency.

The presence of skilled operator-technicians is undoubtedly the reason for the success of the Cessnock Civil Defence radio network so ably managed by Chris 2PZ. When chaps know what is happening to the signal and how important a good aerial is then the equipment, however low powered, must be doing its job efficiently. This informed attitude is quite a long way removed from the antics of some, perhaps well meaning but misguided persons who may be seen daily cavorting to and fro in their high-powered autos—whip a-waving at the rear. Or even those others who ride up and down the spectrum, Amateur bands included, with their war game chit-chat issuing from ill-adjusted 19 sets and worse. One day perhaps the novelty will wear off and they'll give it away or else they'll become efficient and do some real signalling on spot frequencies outside our exclusive allocations. I am reminded while on the subject of a certain acting lance-blank file signaller who knew little about soldering but just a small amount about radio being severely reprimanded when seen using a resonant aerial on a vehicle set. "You'll use an 8-foot whip, soldier!" While in the back of his official mind echoed the chorus, "The



Handbook tells me so." Perhaps we'd better forgive the previous mentioned offenders—it may have told them so, too.

Now here's something that may cause no end of confusion and end in questions asked in the house and other places where questions are asked. The fact is, as I warned last month, there are two meetings this September. The first is on Friday, 2nd, which may already have passed by the time you read this, but the second is on Friday, 30th. This move has been made necessary by the arrangement of the October holiday week-end. Such arrangement means that the first event of the convention week-end will be on Friday, 30th—the Constructional Competition, at the Technical College as always, while the Annual Dinner will be on Saturday, 1st October, and the Field Day on Sunday, 2nd. The Dinner, by the way, will be held this year at the Charlestown Community Hall—right at the traffic lights. As usual the Field Day will be at Bolton Point where there is a large hall and plenty of room for outdoor activities as well. The programme and subscription will be published in the bulletin but this I can say, there will be—I think for the first time—"talk-in stations" on 2 metres f.m. and 40 metres a.m. The location of both transmitters will be at the Bolton Point Park and their purpose is to assist any who have difficulty in finding the location, or just to have a chat if there's no specific traffic. All the usual events have been arranged so watch the bulletin and listen to the broadcasts for the latest information. And please remember—there's no meeting in October!

After commencing with talk of activity on v.h.f. it is pleasing to speak now of activity on m.f., 160 metres to be precise. Colin 2BCC is having all manner of sport on this band and has had some good long-distance contacts. He says the Marconi coupler is just the thing for long pieces of wire. Susan 2BSB has at last erected an efficient aerial. It even has a balun fitted! Belmont Bob had some trouble with a tiger in his tank which burnt out all the switch contacts but in true BB fashion he sorted it out. I believe he still has trouble with Whistling Rufus, the one-man band. Paddy 2AXU learned to his displeasure the folly of having the shack in the humid atmosphere of the laundry. Never put your trust in false power transformers. Vic 2AKP had a spell on the sick list during the month but reports say he is well on the mend now. President Frank 2APO is spoken of as "Flat's best customer," and, come to think of it, Italian equipment graces the shack, too, while Jennifer, our Saturday column writer, keeps up the family tradition. I haven't yet decided whether that sound was a heterodyne whistle or the bosun's pipe from the quarter-deck at Bolton Point, but the Navy's been in port! Bill 2XT and Les 2RJ still continue to run up the DX ladder, both at a fair old speed while Bill 2ZL still uses the same 80's as he did in '58. So there it is again; please address complaints or condemnation to me at the meeting—but please, not in October. 73, 2AKX.

#### CENTRAL COAST BRANCH

The last meeting of the Central Coast Branch was held on July 15 at the Gosford School of Arts. We were very pleased to welcome several visitors and two new members, Ross

#### SOUTH-WEST ZONE CONVENTION

As we go to press we have received details of this year's South-West Zone Convention, to be held at Wagga on the Six-hour holiday week-end, October 1, 2 and 3.

Wagga Show continues into this week-end, so reservations for accommodation must be made early. What accommodation there is includes motel and camping, and those requiring same should contact Sid Ward VK2SW, 33 White Avenue, Koorringal, Wagga, without delay.

Registration for the convention will be \$1.50 per adult male, with ladies and children free. The charge for the official dinner on the Saturday evening will be adults \$1.75 and children 75c.

All the features and events usually associated with conventions will be on the programme, including a contest for mobileers while en route for Wagga on the Saturday.

A cordial invitation is extended to all, and the organisers hope that many VK3's will find their way over the border into sunny New South Wales for this popular convention. Sid VK2SW will be pleased to supply any further information for the benefit of intending customers. 73, Ivan VK2AIM.

## OBITUARY

### JACK D. SIBBALD, VK2PD

We regret that we have to record the death of Jack Sibbald, VK2PD, who contracted pneumonia during July and passed away after a short illness.

Obtaining his A.O.C.P. shortly after World War II, Jack was a member of the Kingsford Radio Club in company with several well-known Amateurs from the eastern suburbs.

He was active for some time on 144 Mc. and 14 Mc., but had not been active for some years prior to his death.

By occupation an electrical fitter, he had been engaged on experimental work with the Institute of Technology at Kensington.

A widow, three sons and one daughter are left to mourn their sad loss, and to them we offer the sympathy of all members of the VK2 Division.

### LESLIE WALLBRIDGE, VK8UX-VK5UX

The VK5 Division announces with deep regret the sudden passing of Leslie Walter Wallbridge, VK8UX-VK5UX, on July 26.

A keen and interested member of the VK5 Division for 25 or more years, Les never appeared on the city scene very much, as his duties of schoolmaster took him to a number of the important country towns with consequent very little chance of personal contacts.

Best remembered as a resident of Cook pre-war and until just recently as 5UX of Alice Springs, he made countless friendships through his beloved hobby of Amateur Radio, although meeting very few of them personally.

A regular attendant at the W.I.A. picnics of the past, he covered fantastic distances at times to show his loyalty to the Division and to be among those present.

To his wife Beryl, and his three sons, Derek, Roderick and Geoffrey, the Division extends its sincerest sympathy and hopes that the passing of time will help to erase the shock and sadness of his passing.

So mote it be.

VK2ZRQ and Fred VK2AHX. We also have another new call sign, VK2RC. John Campbell of Wyong. John is confined to his home because of an accident some years ago and I'm sure will find Amateur Radio a very satisfying hobby. John's son is also working towards acquiring a ticket.

Mr Fyfe VK2ZIF came down from Newcastle especially to talk about transistors and from his rich fund of knowledge gave many useful hints on working with transistors. The tools ranged from an inexpensive surgical instrument to ladies' spring-loaded hair clips.

The 2 m. converter kits were made available to members and our President, Lindsay VK2ON, gave a comprehensive description of the kit to make it quite easy to assemble. All parts are available from the W.I.A., Crows Nest, and anyone interested can get full details from VK2TM.

73, Mona VK2AXS.

#### BLUE MOUNTAINS BRANCH

A cold night kept members away for the July meeting at Lawson, and with the attendance poor it was agreed that the business could be held over till the August meeting. Our club Chef 2ZFZ was unable to attend, thus two lots of supper turned up, so with only a few to fight over the radiator and the usual rag-chews, a good night was had after all. Bill 2HZ, on behalf of the few present, wished to convey his thanks to my XYL for the extra supper, I might add that home-brew cakes are a rare item in our household.

Well the band chatter amongst members has been a little better. Bob 2ASZ helped in getting Trev 2TM and yours truly going on 6 the other night, thanks Bob, our Pye's were just about to receive the axe. Don 2ART got into the act also, all in all the club would have sounded busy on 40 and 6 mx. Understand Jack 2NC and Ken 2AVN are busy with gear for 432 Mc., best of luck fellas. Which reminds me I must get a grape-vine out on Wal 2MZ, hope you and yours are keeping well Wal. I hear 2TM will be doing his bird watching from Kingstable-land in future.

On the sick list for a few days was Keith 2ABK, looks like Keith can't take his own

medicine, wonder how his patients make out. Allen 2ZFF has been working cross town with Graham 2ZGW. I believe the t.v. was used as the receiver on this occasion and that the converter is well on the way. I also hear that Graham is keen to get our club net active again. Due to a few misunderstandings the club 80 metre antenna is still on the ground, but by all accounts it should not be long now, wait for it.

That Dave 2NK would be the hardest bloke to nab on the 800 ohm line ever. Even his own mob couldn't find him, wonder what new racket you are up to these days Dave? 2TM reckons I had my facts mixed up last month, well Trev we only print the facts as they come to ear, will speak to my spies!

Alec 2EX picked up a windfall in a 348 receiver a few weeks ago, good for you Alec. Well, till our next meeting at Lawson, 3rd Friday night. 73's, 2ADA.

#### THE NORTHERN DISTRICT RADIO CLUB

The bi-monthly meeting of the Club was held at Lennox Head on the 24th July, 1966. Members present were: VK's 2ACO, 2ZSW, 2ZFS, 2AGE, 2AEU, 2BGG, 2AAS, 2ZES, 2PF, 2ATI, 2ZLO, 2AEQ plus many XYLS and Harmonics.

Our meetings at this time of the year are always held on the 3rd Sunday so that members may take advantage of our northern winter sunshine. Our next meeting will be held on the 25th September, 1966, at the same place, so visitors please note the date; they will be most welcome to join us; just look for a mob of blokes who look like Hams, there is no mistaking them, and make yourself known.

The local club net on 3.6 Mc. every Thursday night needs some extra support, so members, what about it? 3.6 Mc., 8 p.m.—get on and give with the news!!!

## VK2 DIVISION

Items listed in "A.R." under this heading are carried in the store conducted by the Division and are available to members of any Division of the W.I.A. Full details and items available are listed in a catalogue. A new issue is in course of preparation and will be available in the next few weeks.

The following 4 Mc. Crystals are available from the VK2 Store, \$1 each or in groups of five for \$4. (Some frequencies are running out—include second choice.)

4035, 4045, 4080, 4095, 4135, 4175, 4215, 4240, 4255, 4265, 4280, 4330, 4340, 4445, 4490, 4495, 4535, 4540, 4580, 4620, 4695, 4710, 4735, 4780, 4785, 4840, 4852.5, 4880, 4930, 4980, 4995. (5 Mc. Range next month.)

All inquiries to Radio Equipment Store, 14 Atchison St., Crows Nest, N.S.W.

**Tape Lectures.** Details were given last month on this service.

Tape No. 6. Elimination of T.V.I. ½ hour, 7 slides. Horrie Oakes, VK2FA.

7. Remote Control of Supervisory Equipment. 16 slides, Peter Griffin.

8. High Frequency Direction Finding. 1 hr. 30 slides. Joe Reed, VK2JR.

9. Phasing Filter S.S.B. (s.s.b.-2). 1½ hr., diagram and 1 slide. Joe Reed, VK2JR.

10. Silicon Rectifiers. 97 min. Paul Free.

These may be obtained by writing to Education Officer, Wireless Institute Centre, 14 Atchison St., Crows Nest, N.S.W.



# DISPOSAL BARGAINS

AT OUR BULK DISPOSAL STORE

8 PARK STREET, GLENFERRIE, VIC. (OFF GLENFERRIE ROAD)

Phone 81-1935

(Mon. to Fri., 10 a.m. to 5 p.m.; Sat., 10 a.m. to 12.30 p.m.)

## SWITCH BOARD

Completely wired, Type F. & F. T.M.C. C unit. Contains 26 key switches, 26 P.M.G. Plugs, 34 Drop Latches, hand-operated Genemotor for ringing. Size 20 in. wide, 18 in. deep, 21 in. high. Weight 60 lbs. Price \$25.

## CONDENSERS

50 uF. 200v., pigtail ..... 20c ea., \$2 dozen  
 500 uF. 12v., pigtail ..... 20c ea., \$2 dozen  
 12 uF. 50v., pigtail ..... 20c ea., \$2 dozen  
 3 uF. 100v., pigtail ..... 10c ea., \$1 dozen  
 10 uF. 25v., pigtail ..... 10c ea., \$1 dozen

## PP/439/APG-30 POWER SUPPLY

Radar type, new. Contains 36 valves—3 6AQ5, 5 6X4, 4 12AX7, 2 6AK5, 3 6AL5, 2 12AT7, 2 2D21, 6AS6, 4 2C51, 2 6J6, 6AG5, 2 6AH6. Also twin 28v. blower motor, relays, variable conds., transformers, etc. 28v. 500 cycle. Ideal for wrecking. Sorry, no further information. Brand New. \$35.

## STEEL TRANSFORMER BOXES

6 1/2 x 9 x 5 inch with matching lid, air vents each end. Ideal for battery charger, etc. Unpainted, new. \$1. Discount for quantity.

## DURAL TUBING

1/2 inch Tubing, 6 ft. lengths 36 ft. for \$2 or 40c per 6 ft. length.

## NEW TOGGLE SWITCHES

S.P.S.T. 5/- each. D.P.D.T. 10/- each.

## POTENTIOMETERS

Wire Wound, 4 Watts, 1 1/2 inch diameter. Sizes available: 5, 10, 25, 50, 100, 250, 500, 10K, 50K ohms, 4/- each.

## NEW CHANNEL LOCK PLIERS

Type 337W ..... 20/- each  
 Type 356 End Cutters ..... 20/- each

## POWER TRANSFORMERS

1992 150-0-150v. 30 mA., 6.3v. 1.75a. 37/6 \$3.75  
 1983 225v.-0-225v. 50 mA., 6.3v. 2a. 45/- \$4.50  
 2062 Voltage Doubler, 290, 265v. d.c. 80 mA., 6.3v. c.t. 2.25a. 67/6 \$6.75  
 2064 Voltage Doubler, 340, 315v. d.c. 125 mA., 6.3v. c.t. 2.25a. 87/6 \$8.75  
 2067 Voltage Doubler, 310, 285, 260v. d.c. 100 mA., 6.3v. c.t. 4a. 83/6 \$8.35  
 290-0-290v. 60 mA., 6.3v. 2a., 5v. 2a. 27/6 \$2.75  
 385-0-385v. 100 mA., 6.3v. 3a., 5v. 2a. 35/- \$3.50  
 385-0-385v. 125 mA., 6.3v. 3a., 6.3v. 2a., 5v. 2a. 45/- \$4.50

## BATTERY CHARGERS

Dual, c/w. Meter in Metal Hammer-tone Case  
 6 volt 4 amp., 12 volt 4 amp. .... 157/6 \$15.75  
 6 volt 6 amp., 12 volt 6 amp. .... 217/6 \$21.75

## DISPOSAL METERS

G.E.C. Panel Meters, 50 mA., 3/4 inch round, 2 1/2 in. round mounting hole. Brand new, \$1.75

## T.V. PROBES

American Precision, TV-5B, 480 Mc., 30,000 volt. Brand New carton. \$8. 12 only.

## BRACKET BEZEL LAMPS

1/2 inch diam. Bezel in Red, Amber, Green. Suit screw type globe. 35c, 4 for \$1.20.

## NEW WELWYN INSULATED METAL OXIDE

### POWER RESISTORS

Wire Wound.

Available in following sizes: 10 ohms, 20, 30, 40, 50, 60, 68, 75, 82, 91, 100, 120, 150, 220, 270, 330, 370, 390, 470, 500, 560, 680, 720, 750, 820, 850, 1000, 1200, 1500, 1800, 2200, 2400, 2700, 3.3K, 3.9K, 4.3K, 4.5K, 4.7K, 5.6K, 6.8K, 8.2K, 10K, 12K, 15K, 18K, 22K, 24K, 25K, 27K, 33K, 35K, 39K, 47K, 56K, 68K ohms. Prices: 4 watts, 3/8; 8 watts, 4/6; 10 watts, 5/6.

TOLERANCE: Normal manufacturing tolerance plus or minus 5%.

Shelf Stability: Less than 2% over 12 hours.

Full Load Stability: For 2000 hours at 70 deg. C. less than 5%.

Long-term Stability: Less than 0.1% per 1000 hours.

Temperature co-efficient: Less than plus or minus 500 ppm/deg. C. from 0-125 deg. C.

Dielectric Strength: 600 volts R.M.S. Encapsulation: Fireproof Silicone Cement.

Axial Leads: Minimum length 1 1/4 in.—21 a.w.g. dia.

## MAGNETIC RELAYS

Sealed Type

24 volt, 670 ohms, D.p.d.t., size 2 x 1 1/2 inch, Price 15/- (\$1.50).  
 24 volt, 700 ohms, D.p.d.t., size 1 1/2 x 1 inch, Price 15/- (\$1.50).

## NEW CHOKES

7-5H. 125 mA. 30/- ea. 14 H. 60 mA. 12/6 ea.  
 10 H. 4 mA. 12/6 ea.

## NEW VALVE SOCKETS

4/250A Sockets ..... 20/- each  
 Acorn " ..... 3/6 "  
 EF50 " ..... 2/6 "  
 VCR97 " ..... 10/- "  
 805 " ..... 12/6 "  
 EA50 " ..... 2/6 "  
 5-pin " ..... 2/6 "  
 6-pin " ..... 2/6 "  
 7-pin P.T.F.E. Sockets ..... 5/- "  
 Locktal P.T.F.E. Sockets ..... 5/- "  
 Special completely shielded 7-pin P.T.F.E. socket and shield ..... 10/- pair

## ROTARY WAFER SWITCH

1 pole 24 position 3 bank. Physical size: 3 x 3 inch. Price 30/- (\$3.00).

## TRANSCEIVER

TR1987, English (later version of SCR522). 15 watts, 21 Valves. Freq. coverage: 115 to 145 Mc. Crystal locked receiver. Transmitter uses TT15 output valves. Three stage exciter using 4.88 Mc. crystal osc. 6AM5, doubler 6AM5, driver amp. QV04/7, p.a. amp. TT15. In-built modulator, complete with 26 volt genemotor. Condition as new. To clear £15 (\$30). Circuit for above unit, 10/- each.

## NEW PLUGS AND SOCKETS

Octal Plug ..... 3/6 each  
 Octal Socket ..... 1/6 "  
 5-pin Speaker Plugs ..... 2/6 "  
 4-pin Speaker Plugs and Sockets ..... 1/9 "  
 6-pin Jones Plugs and Sockets ..... 7/6 "  
 Pye Plugs ..... 2/- "  
 Pye double bulk Chassis Sockets ..... 2/6 "

## MODULATION AND DRIVER

### TRANSFORMERS

Modulation Transformer, 15 watts, pair of 6AQ5s to 2E26 valve.  
 Also Driver Transformer, single ended primary to push-pull grids of 6AQ5s.  
 £2 the lot, or Mod. Trans. 30/-, and Driver Trans. 10/-.

## SPECIAL BARGAINS

Carpenter Relay and Socket, Type 3E1, 1800T 250 ohms, 900T 200 ohms, 15/-  
 P.M.G. Strip Boards, containing 24 Jacks ..... 30/- each  
 P.M.G. Strip Boards, containing 48 Jacks ..... 50/- each  
 Head Phone Cords, new ..... 4/6 pair  
 3-pin Plug and two yds. Cord ..... 4/6  
 Mixed bags of Resistors (50) ..... 12/6  
 P/M Fuse Holders ..... 4/6 each  
 72 ohm Co-ax Cable, 35 ft. lengths, 3/16 inch diameter ..... 10/-  
 72 ohm Co-ax Cable, 27 yd. lengths, 3/16 inch diameter ..... 20/-  
 Vibrators, 122 Type ..... 20/- each  
 122 Aerial Packs ..... 60/- each  
 12-core Cable with Plug, 22 yards long ..... 50/-  
 Dural Tubing, 12 ft. lengths, 1/2 inch diameter ..... 3 for £1  
 P.M.G. Key Switches ..... 7/6 each

## P.M.G. TYPE

Standard Rack, 19 inch panels and chassis. All sizes. Plenty to choose from. Personal shoppers only.



# RADIO SUPPLIERS

Phone 81-1935

Established 1947

The coming field day, which is a combined VK2 and VK4 effort, is once again being held at Kingscliff on the 20th November, 1966, so all roll up and make this informal day one to remember.

Activity from this QTH has not been very great, 7 Mc. is worked every day at about 12.30 just to keep the cockroaches out of the rig. I believe Fred VK2PF and Ted VK2LT are getting their share of DX with their Swan 350's and I also believe Gordon VK2ZGE is active on 14 Mc. s.s.b. with a home-brew rig. Bob VK2AS has a filter job nearly ready to take the air, so we should hear some loud noises from Federal. John VK2KA and Ted VK2ZFS have been delegated to assemble gear for the forthcoming "Australis Satellite," so that it can be a combined club effort. Heard Graham VK2GJ putting in a S9 signal from Gulargumbone on 3.5 Mc. the other night, but he wouldn't respond to my call. Now that I know where all my r.f. was going I might have better luck next time.

Lindsay VK2ACQ, our President, has at last got his tower up with an inverted Vee-Antenna hanging on it, but is not happy about the angle of the Vee.

Fred VK2PF came up with an excellent idea about QSL cards, but more about that when we have some definite information; all the gang was very taken with it.

Bob VK2ATI is all ready to go mobile on 6 mx, if only someone can decide on a net frequency, so he can get the suitable crystal.

Has anyone seen Harold VK2AWH, one missing Ham; the Department must have caught up with you at last O.M.

Well chaps, till next time, 73's, George 2AEQ.

## VICTORIA

### VICTORIAN DIVISION COUNCIL MEETING

The major portion of the July Council meeting was taken up with discussion with the Advisory Committee. The infringements of Regulations and bad operating procedures that have become prevalent over the last twelve months are causing concern both to the Committee and this Division. Some of the operating on 80 metres is especially obnoxious, more so as it can be heard over a much greater area than the practices of some 8 and 2 metre operators. The group amusing themselves by playing "2" Cars on 6 metres may be under the impression they are humorists, but they are nothing but a pain in the neck to the serious operators wishing to use the band. It is most noticeable they do not give their call signs. The various net frequencies in the 6 and 2 metre bands are rapidly becoming "rag-chew" channels, which is far from the original intended use of these frequencies. It was ascertained that the present Advisory Committee is not large enough to watch all the bands and it has been agreed that extra personnel will be appointed to the Committee, and, if necessary, Observer stations will be appointed to assist the Committee to cover frequencies for which the Committee does not have equipment.

It was reported to Council that the response to the Membership Drive and the I.U. Appeal was gratifying in the short time that had elapsed since the letters were posted, and it was anticipated that results would improve before the end of the month.

It was decided that the President, Secretary and Treasurer would meet and draw up a budget for the last half of the year. The financial position at the end of July was satisfactory, but as most of our heavy expenses fall between now and Christmas, we must keep a very close watch on our general expenses. Other matters considered were W.I.C.E.N., the Instrument Library and the Minutes of the recent Federal Convention, which were ratified.

The August General Meeting was a most informative series of lectures ably handled by the fellows from Melbourne University who are responsible for the Australis Project. They gave a comprehensive description of the equipment, demonstrated the VK keyer, and with the aid of a vast amount of paper explained the method of predicting the times when the satellite will be in range.

The agenda item for September has not been finalised, but it is hoped to borrow a tape recorded lecture on the use of the Prediction Charts as used in "A.R." In October we will have a talk by Bill Bice VK3ABP on the weather satellites. Bill has done a lot of work in this direction and we hope to see copies of photographs he has received from the satellite.

### I.T.U. FUND

The following contributions have been received during the last month:—

\$10: Anonymous, VK3s KN, OG, AJT, AOK; \$5: VK3s IV, DS; \$4: VK3s AC, BW, NI; \$3: VK3s XN, APG; \$2.50: VK3FW, L323Z;

\$2: VK3s BQ, CN, JL, NX, OW, PY, QC, WD, ADB, AFK, AHL, ALD, ARZ, ZAS, ZRA, ZXX, M. Hepper; \$1.30: VK3ZHU; \$1: VK3s DA, JV, ASI, AUX, L3221, L3299, J. C. Belcher; \$0.50: VK3ADA.

Accidentally missed from previous lists: \$4: VK3ZFM; \$2: VK3s AR, FZ.

### EASTERN ZONE

I'm afraid that the news collected this month has been very sketchy as my activity on the bands has been quite low. 6 am. net has spasmodic activity and George 3ZCG has made contact with David 3DY and Rodney 3UG on the net frequency, with weak but readable signals, this is using ground-plane aerials to 3 element vertically polarised beam.

John 3AOJ is now on 80 and 40 with a borrowed 122, but hopes to have his own a.m.-c.w. rig going soon. John has also shifted recently to Sale. Phillip 3ZTF has been posted to Townsville in VK4 so what is our loss is their gain. Maybe we'll hear you on 53.032 Mc. sometime. On going through the call book I find several inactive call signs listed down here in Sale, such as 3ACO, 3ASS, 3AFG, 3ZLM, and possibly 3ZHD, it's a pity that these licensees are not known to be active.

Attention PanSy or 5PS to you, I have the ideal anti-s.s.b. receiver, it will definitely make garbage out of any s.s.b. signal no matter how good the signal is. This is a commercially available receiver, and if a S.A.E. is sent I will write on asbestos what I think of it, perhaps. The moral is don't buy a receiver until you can try it out under normal operating conditions. This poor quality receiver is another reason why I couldn't get much in the way of news as most of the chaps in the Eastern Zone are on s.s.b.

Three cheers to Z2RY for his article on conversion of Pye Reporters in the July issue of "A.R." It has provoked quite a bit of interest down this way. Come to think of it, why don't a few of you other fellows send in an article on your gear, it could well be what someone else is looking for. Let's not complain that "A.R." has nothing in it, if this is so perhaps it is because nothing has been sent in. What about it chaps, and I don't mean just Eastern Zone chaps, it only takes an hour or so to write an article up. 73, 3UG.

### WESTERN ZONE

Quite a number of chaps in the zone have sat for A.O.C.P. tickets. By the time these notes are published in "A.R." they should have the results. It will be interesting to see if it strikes up further activity in the zone by some of the older ones. The best of luck chaps.

Roy 3AOS tells me that the S.E.C. is due to connect the power at his QTH in a month or so.

I am running in a new vehicle at the moment so I took the opportunity of going over to see Herb 3NN and Garry 3ZOS to have a look at the new s.s.b. gear on 2 m. It is very nice indeed. I also called in on George 3ZEA who tells me he will be back on 2 m. after having trouble with t.v.i.

Bob 3ARM has a new rig on 80-10 m. which Rodney 3UG, now at Sale, built up for him, it sounds very nice. Bob tells me he is looking for DX now.

Two metres is very quiet with Herb about the only regular one on. Bill 3ZAX is rebuilding ready for the summer season.

Finally, from this QTH, have bought David 5AW's 432 Mc. gear. I have not tried it out yet but Herb and Ray 3ATN have both offered to listen for me. That is about the lot this month. 73's, Tony 3ZAI.

## QUEENSLAND

### TOWNSVILLE AND DISTRICT

Very sorry to pass on the news that after the last notes were sent in, Eddie 4WH had a sad bereavement in the loss of his wife. It was very sudden and took the local Amateurs by surprise. The funeral was attended by those that were available at the time. Eddie, who was the club secretary for such a long time has promised that he will again fill this role for the meantime.

The local club has difficulty in obtaining data on the A.O.C.P. courses either from the VK4 or VK2 Divisions and are now going to try VK3. Here is hoping that they will meet with success. It is being reported that there are quite a few inquiries being made into the procedure in obtaining the coveted ticket.

Andy VK3UJ has been and now wends his way farther north. Did attend the last meeting of the local club in company with VK3ZTF. Was fortunate to call Andy while he was in Mt. Isa to hear of his progress

since his trip through the centre to Darwin. Now in the north he will miss that horrid winter weather in Melbourne. (5PS please note.)

Evie 4EQ now heard at long last using her own call, now Charlie will have to keep those antennae in first-class condition. Merv 4DV chasing all the DX that happens to break through to get the D.X.C.C., while Bert 4LB almost has the transceiver ready. Did notice Alan 4PS at the University the other night to hear the discussion on outer space, believe he wanted confirmation of where his signals are being lost. Must be those horrid Quasars. Len 4GD still heard working the east coast of W land. Never seems to get tired working Stateside. 73, Bob 4RW.

## SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division for July was held to a somewhat below average gathering of members and visitors, understandably so when it is remembered that the day had been one of the bleakest and most miserable days in the history of VK5 winters. A succession of rain, hail, snow—yes, that's right—snow, thunder and lightning in fact, the works, had followed in rapid succession all day, but despite this the gathering was reported as between 50 and 60 brave souls, which all in all can be considered as very good.

Outside of a letter from the VK3 Publications Committee being read to members, very little business, either Federal or Divisional, was discussed, and with Murray 5ZQ acting for George 5RX with the QSL cards, the business side of the meeting came to a halt. The letter discussed was pointing out that it costs money to delete the names of un-financial members from the magazine mailing list and then to restore them to the list when the subs are paid. It was proposed by the magazine committee that the names be left off the list until perhaps November, and then restored, although going on the discussion which followed this did not meet with general approval. The treasurer, Harry 5MY was one of those against this proposal, and asked for permission to approach the com-

## A & R TOROID BALUNS

General Specifications: Power rating—Types A, B, C, 200w. or 400w. p.e.p., provided the s.w.r. is less than 2:1. Construction—Toroidal ferrite cores, fully encapsulated with epoxy resin and silica under vacuum. Suitable for use in cold to sub-tropical areas. All except 355C and 356C are provided with antenna insulator support brackets. Balun dimensions approx. 2 in. diam. x 1 in. plus socket and lugs. Weight approx. 3/4 to 4 oz.

Type 850A—Impedance ratio 1:1. 75 ohms unbalanced to 75 ohms balanced. 3 to 30 Mc. For use at centre of a dipole antenna with co-axial cable feed line or at base end with 75 ohm twin line. Co-axial connector is Belling & Lee L604/S and lug terminals. Price \$3.77 (inc. S.T.).

Type 351A—Impedance ratio 1:4. 75 ohms unbalanced to 300 ohms balanced. 3 to 30 Mc. For use at centre of a folded dipole antenna with co-axial feed line or at base end with 300 ohm twin line connector and terminals as 350A. Price \$3.77 (inc. S.T.).

Type 352A/BC—Details as 350A except frequency range 500 kc. to 5 Mc., or to 30 Mc., for receiving purposes only with increased attenuation. Price \$3.77 (inc. S.T.).

Type 353B—This is a type 350 with a co-axial socket SO-239 (Amphenol screw type). Price \$4.39 (inc. S.T.).

Type 354B—Type 351 with SO-239 co-axial socket. Price \$4.39 (inc. S.T.).

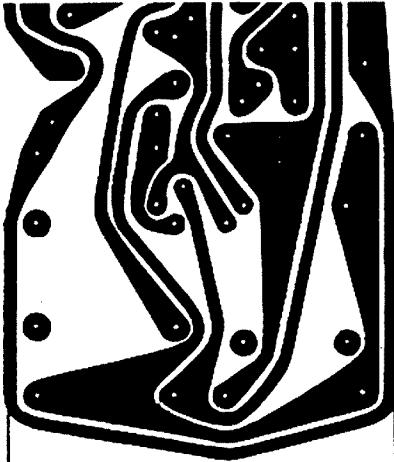
Type 355C—Impedance ratio 2:1. 52 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. For use at the base of a mobile whip antenna, coupled to fixed or adjustable transmitter output impedance. Lug terminals. Price \$3.49 (inc. S.T.).

Type 356C—Impedance ratio 3:1. 78 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. Lug terminals. Use as 355C. Price \$3.49 (inc. S.T.).

WM. WILLIS & Co. Pty. Ltd.

430 Elizabeth Street, Melbourne

Phone 34-6539



## NOW... PRINTED CIRCUITS TO YOUR OWN DESIGN!

Do you design your own circuits? All the advantages of printed circuits can be yours at modest cost. For many years Precision Windings have supplied printed circuits to Australian industry . . . and now streamlining of production techniques permits the economical manufacture of small quantities . . . even single circuit boards. You design and supply the artwork . . . we do the rest. Precision workmanship is guaranteed and delivery made within 7 days.

**FREE!!** As many enthusiasts will not be familiar with the preparation of "artwork", send a stamped, addressed envelope to us and we will forward a set of notes written to simplify preparation of "artwork". Instructions are clear and concise.

### POST THIS COUPON NOW!

Please manufacture for me the printed circuits specified herewith in accordance with the artwork supplied.

Number required..... Scale of artwork.....

Size..... Area..... D/N.....  
 Phenolic paper circuits @ 5c per sq. in. \$  
 Epoxy paper circuits @ 8c per sq. in. \$  
 Epoxy glass circuits @ 10c per sq. in. \$  
 Holes drilled @ 5 for 1c (.2c ea.) \$  
 Cost of photonegative (fixed cost) \$3.00  
 Sales Tax (12½% or 25%) \$  
 Packing and registered postage \$0.50

Total \$

Please find cheque/money order/postal notes for total of \$.....c..... (All cheques and money orders should be made payable to Precision Windings.)

NAME..... (BLOCK LETTERS)

ADDRESS.....

STATE..... OCCUPATION.....



52 CAMBRO RD., CLAYTON, VIC.  
Phone 544-7370

mittee on this score, after there had been another speaker with the same idea. Permission was granted, and possibly more will be heard later.

The technical side of the meeting was then commenced, and the subject for the night was "Transistors in communication receivers," the guest speaker being a tape recording by 2ABE, and a collection of slides displayed at appropriate points to show just what could be done, and how. Ron 5KS, as programme organiser, manipulator of the slides and tape recorder, was suitably thanked for his efforts, and also asked to pass on the thanks of the meeting to the appropriate source, and one of the members asked if it would be possible to publish the circuits displayed in the Divisional Journal, and was assured that if at all possible, efforts would be made to oblige. Uncle Tom 5TL was one of the last to leave the meeting, and he arrived home at 10.15 p.m., so it seems that if the caretaker and his hound dawg are to continue to get their monthly frolic with the members, then I must start attending the meetings again, and if I might say so, reluctantly be forced to become controversial and difficult. 10.15 p.m.—I am ashamed and mortified! Come rain or shine, Ses 5GF always manages to attend the meetings, and when you remember the distance he has to travel it speaks volumes. He seemed very interested in getting his quota of cards from the bundle Murray 5ZQ brought in on behalf of George 5RX.

My special spy, who it will be remembered, is planted in Georgia Tech., Atlanta, Georgia, disguised as a statue in the garden, reports that I need not have any further worries that Bob (ex-5PU—now a W4) might be returning to VK and possibly going to VK3. He tells me that Bob is still coming home, but VK5 will come out on top after all, because the WRE is now prime favourite. Once again good has triumphed over evil—evil in this case being represented by VK3!

Had quite a chat with "Shep" 5DC at the last meeting and could not help but notice just how young and spry he looked. His appearance is very deceptive because he looks by far too young to be in the old-timer class, but it must be remembered that he cut his teeth in Amateur Radio back in the old 200 metre days, and there are not too many of those boys left now. He used to broadcast on Sundays, especially for the music lover, and his 20 or 30 piece orchestra, out on the tennis court, will be remembered by many listeners of that era, the quality and general high standard of which compared favourably with the commercial stations of that early time.

Talking of young old-timers, Arthur 5HY was sitting next to "Shep," and believe me, put these two in a bag and shake it up, and

you would never know which one fell out—honestly. Perpetual youth, I suppose!

Received a letter from an ex-VK5 who is at the moment residing in VK2, not licensed these days, who said, among other things, that he had only just found out that I was the perpetrator of the VK5 notes, and was amazed somewhat because he did not remember me as much of a scholar at school. I was cut to the quick at this flattery, because if my correspondent had only stopped to think he would remember me as always getting high marks in spelling, riting and arithmetic—to say nothing of geography and mathematics. Surely he must remember the number of times I was given the honour of sitting in the corner on the stool, with the badge of success in the form of a funny looking hat on my head! Nice to hear from you O.M.—and I have respected your desire to remain unmentioned by name. Surely they would not still be expecting to be paid!!

I suppose that VK3 thought that I would not see it. I suppose that VK3 thought that if they could sneak it through very quietly, nobody would utter a protest. Well—"Hawkeye Parsons" saw it and definitely registers a protest, and especially as I am an ex-VK3 President, if only for three minutes. Editor indeed—why was I not given a chance to vote?—do you see how insidious it becomes—firstly on the magazine committee—then on the editorial side—as assistant—and then whom-m-m—EDITOR. I write, more in anger than in sorrow—to think my old Division could do this to me. A boob, and a couple of dip-thongs to Pincott 3AFJ.

Heard Ken 5IM hooked up with Tim 3TW and they both had a kindred subject in the prevalent cold weather. Tim's suggestion re two pairs of underpants seemed to meet with a chilly reception from Ken—Oh I am a one!

Frank 5MZ was another one to be complaining of the cold in his contact with Les 3AAO who managed to throw in a little snow on the subject, but Frank, not to be outdone, pulled out an ace from up his sleeve in the reply that some snow had fallen on Mount Lofty that afternoon. With true VK5 cunning he did not commit himself as to the quantity, but of course the quality of VK5 snow is not to be denied!

My mailbag this month was honoured by an epistle from VK2, from a gentleman who apparently felt that I was somewhat prejudiced against "The Thing." How he could have imagined such a thing is beyond me, but anyway I have written back to him with an explanation as to the facts of life in VK5 publicity, and I feel that we will become friends once again—Perhaps.

Strangely enough, I also received a communication from the same state, in which I was taken to task for "playing favourites."

## CRYSTAL DIVISION

Manufacturers of Quartz Crystals for Frequency Control and  
Crystal Filters for Highly Selective Circuits announce:—

### NEW LOWER PRICES FOR CLOSE TOLERANCE GOLD PLATED CRYSTALS FOR AMATEUR APPLICATIONS

	Amateur Net (each incl. Tax)
● 1.8 Mc. to 14.999 Mc. ±0.005% in Style "D" holders, ½" pin spacing .....	£2 8 6
● 15 Mc. to 47.999 Mc. ±0.005% in Style "D" holders, ½" pin spacing .....	£2 10 6
● 48.0 Mc. to 61.0 Mc. ±0.005% in Style "D" holders, ½" pin spacing .....	£2 16 3
● 100 Kc. ±0.005% in HC13/U holders, ½" pin spacing*	£4 10 0
● 1 Mc. ±0.005% in Style "D" holders, ½" pin spacing* * Specially designed for Crystal Calibrator purposes.	£4 10 0
● 455 Kc. nominal Crystals for Filter applications in Style "D" or "E" (B7G) holders .....	£4 10 0

Many other types and tolerances are available from our standard production.  
Please consult us on your Crystal requirements.

## PYE PTY. LTD.

CLARINDA RD., CLAYTON, VIC. (P.O. Box 105). Phone 544-0361

STATE OFFICES IN ADELAIDE, BRISBANE, HOBART, PERTH AND SYDNEY

Terms: Cash with order.  
Please state Call Sign.

It appears that on occasions I have mentioned Muriel 2A1A—Hebe 2AOK—and Verle 2MR, but never Mona 2AXS. I was overcome with remorse to read such an accusation, and my only excuse for such ungalantry is the fact that up until now, Mona has only been a call sign, but rest assured, as from now I shall battle hard for an invitation to afternoon tea, or possibly a teeny-weeny piece of home-made sponge-cake made by the dainty hands of that charming representative of the female side of Amateur Radio in VK2 (how am I doing?) and if all that fails, I might be persuaded to send her off on a trip to Europe, etc., with someone else's husband!!!—No, not that again, I could not take the strain of another possible libel suit!

Jack 5LR and his XYL Flo have now both been discharged from hospital, and although I have not seen them personally, I gathered from my telephone conversations that all is now well again, although they both must take it easy for a while.

Brian 5FQ, although I only hear him occasionally on the air, is still going strong, and incidentally proved a friend indeed to Jack 5LR whilst he was in hospital. Calling in every day, helping out with the laundry situation whenever needed, and finally taking to bed himself with a bad cold. Look after him Allison—they don't make them any better, according to Jack.

Murray 5HH heard calling loud and long to try and raise Jack 5JS on 7 Mc. the other evening. Murray, of course, was mobile, and putting in an extra good signal to me, although apparently not strong enough to raise Jack, who remained conspicuous by his absence.

Jack 5LN has finally made up his mind that he must scale the heights, come what may. Heard discussing that he would have to raise his aerial higher at the chimney end, what a daredevil.

I thought for one second that I was going to have the pleasure of hearing John 5MX on 7 Mc. the other late afternoon. Heard a VK3 calling him and sat on the frequency, but nothing doing, although the VK3 gave him quite a good report. Never mind, John, I will get you yet, although it has been a long time now since we contacted.

Carl 5SS working Frank 5MZ—how unusual—the other night and was well into his stride when his XYL decided to make a few running repairs to his shack with an axe or something. Carl lost no time in changing over to Frank, whether from self-protection or in an endeavour to help her still remains a mystery.

Howard 5XA and Vic 5JH, if rumour can be believed, have been seen and heard from the Mount Pleasant area, which only goes to prove how keen some people can be, come rain or cold.

Joe 5JO soon off for a trip to Whyalla, although from his remarks he was not too sure just when he would be going. Not a bad idea Joe, wait for the finer weather.

Talking of Joe 5JO reminds me that he did me a good turn the other evening. He was in QSO with Athol 5LQ and happened to mention that the rain had just started down his way, which would be about three miles or so from, and right in the path of the rain to me. Knowing my XYL had some washing on the line, I called out to her that from the feel of my big toe it would be raining in about five minutes. She scampered out to the rotary line and just came back inside the house as the rain started. My big toe is now respected by all of the family and any visitors who will listen. Thanks Joe!

Athol 5LQ heard the other night saying that he was off to a bowls match later on, and as he was playing with a partner the said partner would win them, and he would lose them. Nothing like confidence for a big game. Shame on you O.M.

Max 5OS is now the proud owner of a boat, plus a five-year-old harmonic who is pressing the claims of "going fishing," and as soon as is possible. Max has received plenty of advice, both on and off the air, as to the right things to say and do in the nautical world, especially as to the blunt end and the sharp end of the boat, bow and stern to you, plus thwarts and not seats, to say nothing of gunnel and not gunwale, and a host of new expressions which lead Max to think he is in a new world of language. To avoid a long list of comments from his possible gallery of "friends and wellwishers," he is keeping the date of the launching a secret, but he has promised me first consideration for the job of standing on the front—sorry—bow of the craft and putting out my hand as we go round the corners.

George 5CV, of the missing receiver, had yet another intruder the other night, and is fast moving into the "not amused" category. The situation is now reaching the stage when a few land mines, etc., must be installed, and how.

Ron 5KS is now reported as having enough steel available to put up a tower in the vicinity of 60 feet or so. The only trick remaining is that about 4000 lb. of concrete is required for the base, and this is a fair lump of concrete in anyone's language. For the purpose of accuracy, my figures are plus or minus a thousand pounds or so!

Ern 5EN, of Port Pirie, heard to say that he has a 70-foot tower which is to hold a stack of beams for 20-15 and 10, plus stacked Yagis on 144 Mc. I also report, more in sorrow than in anger, that he also has a s.s.b. (The Thing to you) project under consideration.

Discussing on the above sad topic, Les 5NJ on a recent visit to W land acquired a kit for "The Thing," which he duly constructed, and immediately diced the a.m. rig, only to be heard lately on 80 mx using a.m. as the mode. Tactful enquiries reveal that he now uses a.m. for local contacts, and "The Thing" for DX. How would he be?

Uncle Tom 5TL has been on holidays recently, and visited his beloved River Murray, cabin and all, and whilst in the region visited Hughie 5BC only to find that he was convalesce—convelece—convelesk—well, anyway, he was getting better after an attack of the "wog," and decidedly sick of being in bed.

Al 5EK, our genial and obliging secretary, is at the moment of writing on holidays also, but just as to where, when, how or why, I am not in the secret. Nevertheless, he can be trusted to thoroughly enjoy himself.

Noise limiters formed the basis of discussion on 80 mx one night recently between Moss 5TU—Len 5ZF—John 5JQ and Uncle Tom 5TL. Comment was about equal for and against, going on the experiences of those present, and the meeting closed with the fate of noise limiters still being in the balance.

Geoff 5TY, our recent representative up in the wilds of VK4, somewhat taken aback—to use his own expression—at the reference by a VK4 in the VK5 notes as to luxurious mustaches, and demanding a copy of the letter. Fortunately I kept the epistle, and he has now retired to his sanctum sanctorium—or wherever it is that Federal Councillors retire to when hurt—to compose a suitable retort. Incidentally, he reports that his Vee Wee is doing nicely, thank you, after the operation of removing a broken valve stem with the valve head stuck, broken stem first, or something, in the cylinder head. He claims that the operation did not make expensive noises either. What it is to be in the genius class!

Comps 5EF recently held a gun at my head for our contact up at Oakbank by demanding a QSL card or no more filling in as a correspondent during my absence. I somewhat reluctantly obliged, with suitable comment on the back!

Well—VK4 and VK6 are showing signs of becoming restive again, so perhaps I had better close for this month, although as a matter of fact I am not too sure just how well this new Editor joker can handle a red pencil, and with this in view I have cut out the verbosity (long-winded to you) this month, but never fear, VK5 will be back next month, bigger and better than ever—I hope—How is my palsy-walsy Pincott 3AFJ, nothing trivial, I hope! 73 re SPS—PanSy to you.

#### STOP PRESS

The sudden passing of Les (8UX-5UX) just as these notes were about to be posted away, came as a shock to all VK5 members who knew him personally or had contacted him on the air. His jovial nature and keen interest in Amateur Radio always made his contacts interesting, and it was a pity that he did not reside in the city or suburbs at some time or other, as he would have made an excellent Council member, displaying as he did such keenness in the administrative doings of the Division. Les will be missed by all with whom he came in contact.

— . . . —

## WESTERN AUSTRALIA

Now is the time for all good Hams to submit their R.D. logs! Time is running out so what about it you guys? So what, if you did only work the minimum number of stations, it's the log that counts. Well, no one can say that I didn't try—it's the old story, "You can lead a horse to water, etc., etc."

Institute meetings continue to be well attended, and it is pleasing to note the number of visitors to our ranks. Had the pleasure of meeting an old-timer (Ham-wise that is) at a recent meeting. VK6LU in person. Lou told me that after suffering a stroke some time back, he practised "brass pounding" to regain the use of his partially disabled hand. Now he's just about ready to come back on the breeze and dish it out with the best of them, probably better than some!

Heartiest congratulations to Clarrie VK6CF on being made a life member of the Division, a very fitting reward after many years of active Ham radio. Unfortunately Clarrie and his XYL have both been on the sick report for some time now and I am sure that their many friends join me in wishing them a speedy return to health.

The latest report from my spies indicates that Cedric 6CD has forsaken the gay lights (?) of the t.v. station and taken up duties in the teaching field. Has anyone tallied up the number of our VK6 Hams who are also in the teaching profession? Will someone let me know the answer please, I've just run out of fingers.

Not strictly under the heading of "Change of Occupation" is Mal 6SM, who has just branched out in business on his own account.

More good news to hand on the Youth Radio Scheme front. Reports from south of the river indicate that Doc 6AQ has found time among his many duties to organise a group of eager young beavers at Aquinas College. There should be no shortage of volunteers to climb trees and restore the missing half of that 40 metre wire now, Doc.

Still within the bounds of Aquinas, it may be of interest to members to learn that the "Eye on the Ionosphere" project has recorded no significant disturbance due to the Nuclear Experiments carried out by the Branch at the time of writing. However, Doc assures me that his eagle eye will continue to scan the charts for a while longer. The sky is no longer the limit it seems.

Talking of limits reminds me of the time-worn phrase, "I'm running the LEGAL LIMIT—whatever that is." Ah well!

What is it about the north of our state which casts its magic spell on so many of our holidaying Hams? Some rude type dared to suggest that so many of them had worn out their welcome down south that north was the only way open to them. That, of course, is most untrue, they can still go east or west, or somewhere. Seriously though, I understand that our President has recently visited some of our northerly regions.

Recent whispers seem to point to more activity from south of the river again, where Roy 6RY is building a bigger and better Linear. Must be going to stir up some of the other Federal Councillors on the other side of the Island.

It must be the association of ideas, but speaking of the other side of the rabbit-proof fence, reminds me of a very pleasant QSO I had recently. Laurie, ex-VK3VH now VK6VH, was on the other end, and at the time of the contact had been resident for about a month in our glorious sunny state. Welcome to the West, Laurie, hope that Swan and "trapped vertical" will make their presence felt on your return from holidays.

From smoke signals which I intercepted recently I gleaned the information that Bob 6KN is operating portable in Queensland. As soon as I saw that newspaper photo of the bikini-uncled girl armed with a smile and bagful of zacs I knew that before long the magic spell would exert its influence on some of us Westerners. Lucky guys!

If any of you hear an Aussie voice giving out with the Italian listen carefully because it will probably be Frank 6JK practising on his language course. On one of his rare appearances on the bands Frank mentioned that he had undertaken a course in Italian "as she is spoke." His interest in languages goes way, way back to schooldays when French was the order of the day. Another of his many interests is golf, so putting two and two together only confuses the issue, however, I suspect that the language study is only to enable him to address the ball without offending other players nearby.

A recent personal appearance at a meeting finally convinced most people that John 6ZW is still in the land of the living and tends to prove the claim that at least one of his transmissions was heard on 8 metres as far afield as Bunbury.

Eunbury, Eunbury, reminds me that Terry 6TK, ex-Norseman, is now a resident of that fair city. What about taking the wraps off the gear O.M. and appearing on the breeze, just to give us your impressions of the "heart of the South-West."

Herb 6XO is already preparing for summer and deep sea fishing by firing up the old 122, ready to install in the boat. Good, strong signal on 40 metres, too!

Of interest to all members of this division is the attempt to come together more closely with the W.A. V.H.F. Group to the mutual benefit of both bodies. Stay tuned for more news and progress reports from your Council members.

Well, that just about winds it up for now and remember—keep your weather eye open now that PanSy is toting his grease-gun. 73, de VK6DA.

## TASMANIA

So the R.D. Contest is over again for another year, and although I can't say for sure, I reckon VK7 has won, but then people can be contrary creatures—maybe we could win, it's up to you, each and every one of you, to get that log posted away NOW. Do not procrastinate (that means delay, to save you looking it up). If you post your log then VK7 will win.

The last A.O.C.P. exams saw three Hobart "Z" calls (Winston ZAP, Mike ZAV, and Dave ZMD) trying for their c.w. and they appeared very confident, and are more than hopeful, Ian ZZZ tells me there should be a further batch of 7 or 8 for the October exam (including me, so he says!). Ian is to be commended for the amount of time and effort he has put into the M.C.W. sessions, and at the time of writing is having a spell, before starting 3 nights a week again on 53.035 Mc., commencing on Tuesday, August 16 at 2000 hrs, then every Thursday, Sunday and Tuesday. Between times of course, he has still managed his usual amount of DX, and other divisional work, and yet he always seems to find time to help other Amateurs out, and should by now have his tower up and working.

### A.O.C.P. CLASS

#### ASSISTANT INSTRUCTOR

**WANTED:** An Assistant Instructor for A.O.C.P. Theory Class. One night weekly. Remuneration by arrangement. Apply in writing by the 7th September to the Secretary, W.I.A. Victorian Division, P.O. Box 36, East Melbourne.

**Repairs to Receivers, Transmitters; constructing and testing; xtal conv., any frequency; Q5-ers, R9-ers, and transistorised equipment.**

#### ECCLESTON ELECTRONICS

146a Cotham Rd., Kew, Vic. Ph. 80-3777

#### Stockists of Radio and Electronic Components for the Amateur Constructor and Hobbyist

First Ring, Write or Call on

**WILLIAM WILLIS** & Co. Pty. Ltd.  
430 Elizabeth St., Melbourne. Ph. 34-6539

#### POWER TRANSISTORS

T-13: Ge/PNP 20W/3A/80V \$1.15.

2N2990: Si/NPN 15W/1A/200V. \$1.65.

Also various Diodes, SCRs and of course Computer Boards (20c per transistor). All post free.

#### AUSTRALIAN ELECTRONICS

76 View Street, Hobart, Tasmania

### A. R. R. L.

Associate Memberships (and renewals) are available by forwarding \$5.40 (plus 5c interstate cheques) to:

Business Manager, W.I.A.,  
49 Cookson Street,  
Camberwell, E.6,  
Victoria.

This includes the regular arrival of

"QST"

Ted 7EB has been heard on the air a little more of late, and from what I've heard on the quiet, we could be hearing a lot more of him, too. Our other Ted 7EJ has promoted himself, or else someone did it for him, and now has a job which entails quite a bit of intrastate travel, so I've no doubt he'll have a s.s.b. mobile in the car before long. Talking of sideband, if 7WI isn't using this mode by now, then something is definitely wrong, we plan to be operational on s.s.b. by the 14th August, and you know what that day is, don't you?

At the July Council meeting, your Council had the usual yearly job of "dropping the axe," and I regret to say it fell 19 times, and it included some full members—too many full members!

Next year we intend to send everybody an account at the beginning of our financial year, so there will be no excuse for overlooking your sub.

Won't be long now till November, and that's Hamfest month, so start thinking about the last week-end of the 11th month, and try to make it this time for both the Saturday night and the Sunday.

Enough for now, see you again next month. 73, VK7ZAS.

## HAMADS

Minimum 50c, for thirty words.

Extra words, 2c each.

Advertisements under this heading will be accepted only from Amateurs and S.w.'s. The Publishers reserve the right to reject any advertising which, in their opinion, is of a commercial nature. Copy must be received at P.O. Box 86, East Melbourne, C2, Vic., by 5th of the month and remittance must accompany the advertisement.

**BC221** with calibration book and pwr. supply, \$70. Phasing exciter s.s.b., home-brew, B & W. Q4 audio phase network, 9 Mc. xtal, Command v.f.o., v.o.x., 6AG7 output 80, 20 metres, plug-in coils, inc. pwr. supply, \$40. VK-3ARP, Phone 85-1184.

**CAMERA:** 35 mm. Hanimex f3.5 50 mm. lens, coupled rangefinder, 8 speeds up to 1/300 sec., in leather carrying case, \$16. Projector 9.5 mm. movie Pathoscope H model with films including Charlie Chaplin and Laurel and Hardy, \$30. Movie Camera 9.5 mm. Pathoscope H model in leather carrying case with 3 close up lens, 3 filters and 9 cassettes, \$20. VK3ZTY, 55 Salmon Ave., Essendon, Vic. Phone 379-4846.

**COMM. RX:** Star 600, 3-30 Mc. in twelve 600 kc. bands, xtal front-end, triple conv., selectivity 0.5 kc. to 4 kc., product detector, 100 kc. cal., a.n.l., S meter, fast/slow a.g.c., sensitive, selective, superb, worth \$400, would like \$300. Will accept offers. VK3WW, Phone 465-2991.

**DO YOU KNOW** anyone who has built an s.s.b. transistor transceiver, 80, 40, 20 metres using locally available parts? Please! Circuit details required by G. Robinson, 11 Bourke St., Ringwood, Vic. Phone 870-8085.

**DRAKE 2B** Receiver, excellent condition. Includes 230/110v. transformer, speaker, extra 10 metre xtal and instruction manual. J. Bail, VK-3ABA, 20 Relowe Cres., Box Hill North, Vic. Phone 89-8505.

**FOR SALE:** Swan Tri-Bander, 80-40-20 mx, 240w. p.e.p., complete with a.c. power supply, s.w.r. bridge and external v.f.o. in matching case. Very clean 2-unit station, \$320. W. J. Bell, VK3WK, Staywood Park, Wangoom.

**FOR SALE:** Tunable I.F. Communications Receiver, 1650 to 2000 Kc., six multi-purpose tubes and eight silicon diodes, illuminated Collins-style dial, calibrated S meter, product detector, xtal locked b.f.o., squelch, professional finished. Complete with 2-valve xtal locked converter for 80 and 40 metres, \$57. VK3ARZ, Lot 59, Orchard St., Glen Waverley, Vic. Phone 232-9492.

**FOR SALE:** 3 cm. Radar Base complete, and other microwave and radio equipment, test instruments, etc. Would consider exchange for other Ham equipment or c.r.o. Wanted: Voice Frequency Line Unit TH5/T9 for Teleprinter TT4/T9 or similar unit. Paul Kochan, Lot 15, Norris St., Rowville, Vic. Phone 75-97441.

**MR3A** three channel, superior set, professionally aligned, use with either a.c. or d.c. power supply. Gilbert J. Sones, VK3ZGS, Phone 28-2794.

**QUAD** spiderhead for tri-band quad with assembly instructions, \$6. BC-348, a.c. supply built-in, \$60. Near-new Philips t.v. camera, transistorised, Schneider 1.4 16 mm. lens, video plus channels 0-1-2 output, 240v. a.c., \$200. Wagner 1A 10-80 mx. Transceiver, two built-in v.f.o.'s, single 6146 output stage, vox crystal calibrator, u.s.b./l.s.b. incl., \$300. A. Outtrim, VK2EX, 30 Boomerang Rd., Springwood, N.S.W.

**SELL:** Hallicrafter Amateur Band Rx Model SX117, 80 through 10 mx, provision for WWV and several other 500 kc. segments in 80/10 mx band, xtal locked front end, 3 positions of selectivity, excellent signal to noise ratio, a rx of high stability and performance, current production up to Jan. this year, Price \$500. Companion Tx Model HT44, 200w. p.e.p., pair of 6DQ5s in final, exact match for the SX117, same size, finish and styling, both may be used as a transceiver, has v.o.x., push to talk, anti trip, a.m., s.s.b. upper and lower, c.w. price including Hallicrafter p/supply, \$600. If both units taken \$1000. This equipment was new early last year and is in as new condition. Supply voltage 110v. Phone 82-2152. 23 Tristania St., East Doncaster, Melbourne.

**SELL:** 522 Tx., \$10. 522 Rx with electronic squelch, \$14. Class "C" Wavemeter, \$10. Genemotor 12v. d.c. input, 275v. at 110 mA. and 50v. at 50 mA., \$5. Miniature genemotor in shielded case with fan, 12v. d.c. input, 250v. at 120 mA., \$6. Rotary converter, 24v. d.c. input, 110v. a.c. 50 cycles output at 110 watts, \$6. Small motor 6 or 12v. d.c., \$6. VK3ZTY, 55 Salmon Ave., Essendon, Vic. Phone 379-4846.

**WANTED:** Galaxy V. or National NCX3 or similar, with commercial p/s. Full details, price, etc., Box 35, Narre Warren, Vic.

**WANTED to Buy,** borrow or rent for two weeks, Manual or Circuit of Swan 350. Bell, 53 Vasey Cr., Campbell, A.C.T. Phone (after 6) 4-6689. Call collect.

# A LARGE RANGE OF TRANSMITTERS, RECEIVERS, TEST GEAR, AND DISPOSALS RADIO PARTS AVAILABLE

- ★ **COSSOR 339A DOUBLE BEAM C.R.O.**  
D.c. 4 Mc. Blue trace, good condition, with spare 09J c.r.o. tube, comp. spare set new valves and handbook. One only at \$70.
- ★ **MARCONI TF1101 R/C OSCILLATOR**  
20 c.p.s. to 200 kc., 1% distortion, current model. \$240.
- ★ **SR550 DUAL CONVERSION COM. RECEIVER**  
160 metres to 6 metres, Amateur Bands only. 3.5 Mc. xtal band edge marker, xtal supplied, product detector for s.s.b. \$240, 10% discount for cash.
- ★ **SCR522 V.H.F. TRANSMITTER/RECEIVER**  
100-150 Mc. Complete with tubes, \$28.
- ★ **COMMAND TRANSMITTERS**  
4-5.3 Mc., 5.3-7 Mc. Complete with tubes, \$15.
- ★ **TR3624 TRANSMITTER/RECEIVER**  
Approximate frequency, 200 Mc. Contains 46 miniature tubes, \$30.
- ★ **3J160E HIGH POWER TRIODES**  
120 Mc. full ratings. Heater 10v. 29a., anode max. volts 3000v., anode max. current 1000 mA., r.f. output 2150 watts. \$8 each.
- ★ **SR700A TRIPLE CONVERSION COM. RECEIVER**  
80 metres to 10 metres. 1st and 3rd oscillators xtal controlled, 3.4-4.0 Mc. tunable i.f., selectable sidebands, 85:1 geared dial, v.f.o. output for transceive operation, selectivity: 0.5, 1.2, 2.5, 4 kc. Internal 1 Mc. xtal calibrator (xtal supplied). Undoubtedly the finest receiver ever to come out of Japan. \$500, 10% discount for cash.
- ★ **MILLER 455 Kc. PRE-WIRED I.F. STRIPS**  
Comprises two i.f. stages, ceramic filter, diode detector, 55 db. gain, NPN silicon transistors, d.c. requirements 6v. d.c. 2 mA., size 1½ x ½ x ½ inch. \$8.70 inc. tax.
- ★ **TR10A MULTIMETERS**  
100,000 ohms per volt. Ranges, d.c. volts: 0.5, 2.5, 10, 50, 250, 500, 1K.; a.c. volts: 2.5, 10, 50, 250, 1K.; d.c. current: 10 uA., 1 mA., 25 mA., 250 mA., 10 amp.; resistance: 20K, 200K ohms, 2 megohms, 20 megohms. To clear, \$25.95.
- ★ **POTENTIOMETERS**  
Wire wound, 40c each; carbon, 25c each.
- ★ **RESISTORS**  
½ watt, I.R.C., Welwyn, Eire, Ducon, Philips, \$2 per 100.
- ★ **½ H.P. 2-STROKE MOTORS**  
Ohlsson and Rice. Brand new, just imported from America. Weighs only 5½ lbs. 6,300 r.p.m., supplied with 3:1 reduction gearbox, output 2,100 r.p.m. Ideal for driving Alternators for Field Days. Fuel consumption 1 pint per hour. \$30.

## WANTED TO BUY

Communication Receivers, Test Equipment, etc. Call, write or phone. Equipment inspected and picked up at your convenience any night or week-end.

- ★ **VALVES**  
EF50, 20c ea.; 7C7, 10c ea.; CV131, 6CQ6, 50c ea.; 6AC7, 20c ea.; 6AL5, 20c ea.; 6C4, 6AM5, 50c ea.
- ★ **SIGNAL GENERATORS**  
Type LSG10, 120 Kc. to 260 Mc., \$26. Type LSG11, 120 Kc. to 390 Mc., provision for xtal, \$30, both plus freight.  
TE22 Audio Generator, freq. range: sine 20 c.p.s. to 200 kc., square 20 c.p.s. to 25 kc., in four ranges. Output, 7v. p-peak. Output impedance, 1,000 ohms. Price \$42.
- ★ **METERS, P25 TYPE**  
0-500 uA., \$5.25; 0-100 uA., \$6.95; 0-1 mA., \$4.50; 0-10 mA., \$4.50; 0-50 mA., \$4.50. Full range of Meters and Multi-Testers available.
- ★ **CO-AXIAL CABLE**  
UR70 72 ohms, 3/16 inch diam., in 27-yard rolls, \$2 plus 75c pack and post. In as-new condition.
- ★ **RAIB COMMUNICATIONS RECEIVER**  
150 Kc. to 15 Mc. in six bands. B.f.o., etc. Genuine original condition, with a.c. power supply, \$70.
- ★ **TRANSISTORS**  
Brand new. OC72, OC44, 2N132, OC66, OC45, 80c each. AT1138 Power Transistor, 30w., Class B, \$3. Also Diodes: OA71, OA81. OA95, 35c each.

## ANY QUERIES

Beginners are welcome, ask Jim and Laurie Gardiner any questions. They are Amateur Radio operators and will be only too pleased to assist.

- ★ **CRYSTALS**  
Personal shoppers only, \$1 each.
- ★ **SPECIALS**  
3AP1 c.r.o. tubes. New in cartons, \$1.25.  
3000 type Relays, 50c each.  
Inter-Office Phones, 15-station type, \$4 each.  
7-pin skirted Valve Sockets, P.T.F.E. insulation, silver plated, only 20c each, c/w. shield.  
Speaker Transformers: 7000 ohms to 2 ohms; 10,000 ohms to 3.5 ohms; 50c each.  
9-pin skirted P.T.F.E. Valve Sockets with shield, 50c each.  
Irish Recording Tape, Mylar Base: 150 ft. x 3 in., 75c; 900 ft. x 5 in., \$2.75; 1150 ft. x 6½ in., \$3.50; 1800 ft. x 7 in., \$4.75.  
3 uF. 1000v. d.c. Block Capacitors. Only 25c each or \$2 per dozen.
- ★ **MINIATURE CAPACITORS**  
New shipment. 600 v.w. Values: 0.001, 0.02, 0.005, 0.0005, 0.0002, 0.0001 uF. \$2 for 80, plus freight.

ALL ITEMS FREIGHT EXTRA

## UNITED TRADE SALES PTY. LTD.

280 LONSDALE ST., MELBOURNE, VIC. (Opp. Myers)

Phone 32-3815



# WARBURTON FRANKI

now distributors of

# "SANWA" MULTITESTERS

For accuracy, reliability and versatility, choose "SANWA" Multitesters. You are assured of unsurpassed Tester performance, the result of SANWA's experience in Tester making since its establishment in 1937.

## MODEL 320-X

● 20-microampere high sensitivity meter. ● Will show its efficiency in measuring minute current and high resistance. ● Best suited for the use of senior servicemen and in laboratories.

### Measurement Ranges:

D.C. V.: 5, 25, 100, 250, 500v (50k ohm/v.); 1000, 5000v. (25k ohm/v.).  
A.C. V.: 5, 25, 100, 250, 500, 1000v. (5k ohm/v.).  
D.C. A.: 25μA.; 2.5, 25, 250 mA.  
OHM: 0 to 10k, 0 to 100k, 0 to 1 mg., 0 to 100 mg. (min. 2 ohm and max. 100 mg. ohm).  
DB.: — 20 to plus 16 to plus 62 db.  
Batteries: 1.5v. (UM-2) x 1 and 22.5v. (BL-015) x 1.  
Size: 6<sup>3</sup>/<sub>4</sub> in. x 5<sup>1</sup>/<sub>2</sub> in. x 3<sup>3</sup>/<sub>4</sub> in.  
Weight: 3.2 lb.

Price: \$29.50 plus S.T. 12<sup>1</sup>/<sub>2</sub>%

## MODEL 370-ES

● Specially designed A.C. current ranges measure up to 10 amperes.  
● Germanium diode rectifiers.  
● Wide-range and versatile instrument for all-round service and laboratory use. ● Diode protected.

### Measurement Ranges:

D.C. V.: 0.5, 2.5, 10, 50, 250, 500, 1000, 5000v (20k ohm/v.).  
A.C. V.: 2.5, 10, 50, 250, 1000v. (4k ohm/v.).  
D.C. A.: 50 μA.; 1, 10, 50, 250 mA.; 1, 10 a.  
A.C. A.: 250 mA.; 1, 10 a.  
OHM RX1, RX100, RX1000, RX10000 (min. 1 ohm and max. 50 mg. ohm).  
DB.: — 20 to plus 10 db. plus 10 to plus 35 to plus 63 db.  
Batteries: 1.5v. (UM-2) x 2 and 22.5v. (BL-015) x 1.  
Size: 7 in. x 5<sup>1</sup>/<sub>2</sub> in. x 3<sup>1</sup>/<sub>4</sub> in.  
Weight: 3.1 lb.

Price: \$34.50 plus S.T. 12<sup>1</sup>/<sub>2</sub>%

## MODEL 380-C

● High-grade circuit tester of 30-microampere sensitivity. ● Ruggedly constructed to withstand the wear and tear of heavy-duty service.  
● Large mirrored scale dial for accurate reading.

### Measurement Ranges:

D.C. V.: 0.3, 3, 12, 60, 300v. (33.3k ohm/v.), 1200, 3000 v. (16.6k ohm/v.).  
A.C. V.: 3, 12, 30, 120, 300, 1200v. (5k ohm/v.).  
D.C. A.: 30 μA.; 3, 30, 300 mA.  
OHM X1, X10, X100, X1000 (min. 0.5 ohm and max. 20 mg. ohm).  
D.B.: — 20 to plus 10 to plus 23 db. up to plus 63 db.  
\*μF (C): 0.001 to 100 μF.  
\*H (L): 0.1 to 2000H.  
Batteries: 1.5v. (UM-3) x 4 and 1.5v (UM-2) x 1.  
Size: 7<sup>1</sup>/<sub>4</sub> in. x 5 in. x 4 in.  
Weight: 2.5 lb.  
\* Use external power.

Price: \$23.50 plus S.T. 12<sup>1</sup>/<sub>2</sub>%

## MODEL U-50

● Handy meter of 35-microampere sensitivity.

### Measurement Ranges:

D.C. V.: 0.1, 0.5, 5, 50, 250, 1000v. (20k ohm/v.).  
A.C. V.: 2.5, 10, 50, 250, 1000v. (8k ohm/v.).  
D.C. A.: 50 μA.; 0.5, 5, 50, 250 mA.  
OHM: RX1, RX10, RX100, RX1k (min. 1 ohm and max. 5 mg. ohm).  
DB.: — 20 to plus 62 db.  
\*μF (C): 100 pF. to 0.2 μF.  
\*Megohm: 1 to 500 mg. ohm.  
Batteries: 1.5 v. (UM-3) x 2.  
Size: 5<sup>1</sup>/<sub>2</sub> in. x 3<sup>1</sup>/<sub>4</sub> in. x 1<sup>1</sup>/<sub>2</sub> in.  
Weight: 13.3 oz.  
\* Use external power.

Price: \$13.50 plus S.T. 12<sup>1</sup>/<sub>2</sub>%

## MODEL 370-X

● Multi-purpose tester covering practically all measuring requirements. ● Two current ranges afford the meter a dual function as a circuit tester and A.C.-D.C. ammeter.

### Measurement Ranges:

D.C. V.: 3, 6, 12, 120, 300, 1200, 3000v. (4k ohm/v.).  
A.C. V.: 6, 12, 120, 300, 1200, 3000v. (4k ohm/v.).  
D.C. A.: 0.3, 3, 30, 300 mA.; 3, 12 a.  
A.C. A.: 3, 12 a.  
OHM: R, 10R, 100R, 1000R (min. 2 ohm and max. 10 mg. ohm).  
DB.: — 10 to plus 17 db., 0 to plus 23 to plus 63 db.  
Batteries: 1.5v. (UM-2) x 2 and 22.5v. (BL-015) x 1.  
Size: 6<sup>3</sup>/<sub>4</sub> in. x 5<sup>1</sup>/<sub>2</sub> in. x 3<sup>3</sup>/<sub>4</sub> in.  
Weight: 2.6 lb.

Price: \$20.50 plus S.T. 12<sup>1</sup>/<sub>2</sub>%

## MODEL P-1B

● Rugged and accurate midget tester. ● Miniatured to the limit of practical use. ● Useful to check all sorts of electrical home appliances.

### Measurement Ranges:

D.C. V.: 10, 50, 250, 1000v. (1k ohm/v.).  
A.C. V.: 10, 50, 250, 1000v. (1k ohm/v.).  
D.C. A.: 100 mA.  
OHM: 0.1, 100k ohm (mid-scale — 25k ohm).  
DB.: — 10 to plus 22 db. plus 20 to plus 36 db.  
\*μF & H: 0.001 to 0.1 μF. and 10 to 1000H.  
Battery: 1.5v. (UM-3) x 1.  
Size: 4<sup>1</sup>/<sub>2</sub> in. x 2<sup>1</sup>/<sub>2</sub> in. x 1<sup>1</sup>/<sub>2</sub> in.  
Weight: 9 oz.  
\* Use external power.

Price: \$6.25 plus S.T. 12<sup>1</sup>/<sub>2</sub>%

## MODEL F-7TR

● The unique range selector is really epoch-making, a red ball appearing in the slot on a clear acrylic dial. ● Half in size compared with conventional testers. ● The meter self-checks the internal batteries.

### Measurement Ranges:

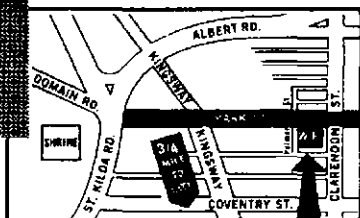
D.C. V.: 0.25, 2.5, 10, 50, 250, 1000v. (20k ohm/v.).  
A.C. V.: 2.5, 10, 50, 250, 1000v. (8k ohm/v.).  
D.C. A.: 50 μA.; 0.5, 5, 50, 250 mA.  
OHM: RX1, RX10, RX100, 50M (min. 1 ohm and max. 50 mg. ohm).  
DB.: — 10 to plus 36 db.  
L.I.: 20, 2, 0.2 mA.  
Batteries: 1.5v. (UM-3) x 1 and 22.5v. (BL-015) x 1.  
Size: 3<sup>3</sup>/<sub>4</sub> in. x 3<sup>1</sup>/<sub>2</sub> in. x 1<sup>1</sup>/<sub>4</sub> in.  
Weight: 14.4 oz.

Price: \$22.50 plus S.T. 12<sup>1</sup>/<sub>2</sub>%



# WARBURTON FRANKI

220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines 69-0151



Please include postage or freight with all orders





# amateur radio

Vol. 34, No. 10  
OCTOBER  
1966

**25c**

Registered at G.P.O., Melbourne, for  
transmission by post as a periodical

## NEW VALVES

1A3	50c	5U4GB	\$1.45	6CW4	\$3.00	7T7	75c	866	\$2.50
1A5	50c	5V4G	\$1.75	6F8	50c	7N7	75c	954	50c
1A7GT	\$2.60	5Y3	\$1.38	6G6	75c	7W7	50c	955	50c
1C7	50c	5Y4	75c	6G8G	\$2.60	12A6	50c	956	50c
1D4	75c	5Z3	\$1.75	6HG Metal	50c	12AH7	50c	958A	50c
1D8	75c	6A3	75c	6J5GT	\$1.00	12AT7	75c	1616	\$1.50
1F5	\$1.00	6A6	75c	6J6	\$1.00	12AU7	\$1.50	1625	50c
1H5	75c	6AB7	\$1.00	6K6	\$1.00	12AU7A	\$1.50	1626	50c
1K5	50c	6AC7	75c	6K7	50c	12AV6	75c	1629	50c
1K7	50c	6AG5	50c	6K8GT	\$1.25	12BE6	75c	5636	75c
1L4	50c	6AG7	\$1.25	6K8 Metal	\$2.00	12C8	50c	3763	\$2.30
1L5	\$1.00	6AJ5	75c	6L7	50c	12J5	50c	6021	\$1.00
1L5N5	50c	6AK5	\$1.50	6M7	50c	12SA7GT	\$1.00	9004	50c
1M4	50c	6AL5	\$1.40	6N7	75c	12SC7	50c	EA50	40c
1M5	50c	6AM5	\$1.50	6S5	75c	12SG7	75c	FCC35	\$2.00
1Q3	50c	6AM6	\$1.00	6SA7	75c	12SK7	50c	EC433	\$2.00
1R5	\$1.90	6ANTA	\$1.45	6SC7	75c	12SN7	75c	EC125	75c
1R52	\$1.75	6AR7GT	\$2.10	6SF5	75c	12SQ7	50c	EF39	50c
1S2	\$1.75	6AS7GT	\$2.00	6SF7	75c	12SR7	50c	EP46	\$1.85
1S5	\$1.60	6AU6	\$1.45	6SH7	50c	16A5	\$1.70	EY91	50c
1T4	\$1.00	6AU8A	\$2.40	6SJ7	\$1.25	16A8	\$2.10	KT66	\$3.00
1U4	\$1.60	6AV6	\$1.40	6SK7GT	\$2.00	25L6	\$1.00	QVE03 12	\$4.75
1U5	\$1.60	6B6	75c	6SL7GT	\$1.25	25Z6	\$1.00	QVE04 7	\$2.50
2A5	75c	6BA6	\$1.55	6SN7GT	\$1.00	35L6GT	\$1.00	RL18	75c
2A7	75c	6BE6	\$1.55	6SQ7GT	\$2.40	19	50c	UL41	\$1.00
2D21	\$1.20	6BL8	\$1.80	6SS7	75c	30	50c	UR53	50c
2E26	\$2.50	6BM8	\$1.85	6S5	\$1.95	47	50c	VR53	50c
2X2	50c	6BQ5	\$1.70	6U7	75c	57	50c	VR102	50c
3A4	\$2.20	6BR5	\$1.45	6U8	\$1.70	58	50c	VR135	50c
3A5	\$1.40	6BX6	\$1.45	6V4	\$1.14	60	\$1.70	VR136	50c
3Q5	\$1.00	6BY7	\$1.45	6V6GT	\$1.75	71A	75c	VR137	50c
3S4	\$1.00	6BZ6	\$1.86	6X4	\$1.00	807	\$3.75	VR150	\$1.25
3V4	\$1.50	6C6	50c	6X5	\$1.45	808	\$1.00	VT78 16D6	50c
5AR4	\$2.60	6CB	\$1.00	7A8	40c	809	\$2.00	VT127	50c
5AS4	\$1.45	6CG7	\$1.55	7C5	50c	830B	\$1.50	VT501	75c
5R4GY	\$3.75	6CH6	\$2.35	7C7	50c	832A	\$6.00	VU39A	50c
5T4	\$1.75	6CM5	\$2.25	7E6	50c	837	\$2.00		

## ROTARY TRANSFORMER MOTORS

Type X21010, new. Input 19 volts, output 370 volts at 70 mA. Size 6 1/2 in. long, diam. 2 1/4 in. Price \$4.50

## CABLES

2-core, shielded, new, 20c yard.  
12-core, shielded, new, 40c yard.

3-core, plastic covered, new, 20c yard.  
4-core, plastic covered, new, 25c yard.  
6-core, plastic covered, new, 30c yard.

## TRANSISTOR TRANSFORMERS

Output type, 300 ohms c.t., 15 ohms, \$1 each.  
Driver type, 3000 ohms c.t., 1330 ohms, \$1 each.

## CRYSTALS

27,240 Mc., new, \$3.  
26,785 Mc., new, \$3.

Frequencies available: 4852, 5660, 4735, 5205, 5780, 4840 and 5397 Kc. Three for \$2.

## BALUN TOROID

Type 355C. Impedance ratio 2:1:1. 52 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. For use at the base of a mobile whip antenna, coupled to fixed or adjustable tx output impedance. Lug terminals, \$3.50.

## TRANSISTOR RECEIVER KITS

Kits of parts for the Audio and B.F.O. Sections of the 80 Mx Transistor Receiver described in August "A.R." are now available. Audio Kit \$15.50, B.F.O. Kit \$15.50. Kits will be available for subsequent sections as they are published.

## TRANSISTORS AND DIODES

AC125	9/6	95c	OC169	19/6	\$1.95
AC126	9/6	95c	OC170 AF118	10/-	\$1
AC127	10/6	\$1.05	GC171 AF119	10/-	\$1
AC128	10/-	\$1	2N217	9/6	95c
AF114N/OC171	10/-	\$1	2N217S	9/6	95c
AF115N/OC170	10/-	\$1	2N270	13/6	\$1.35
AF116N	9/6	95c	2N370	19/-	\$1.90
AF117N	9/6	95c	2N372	19/-	\$1.90
AF118	22/-	\$2.20	BY100, OA214		
BC107	11/-	\$1.10	OA79	4/-	40c
BC108	10/-	\$1	OA80	3/-	30c
BC109	14/-	\$1.40	OA81	3/-	30c
OC26	26/-	\$2.60	OA90	3/3	32c
OC35/AT1138A			OA91	3/3	32c
OC44N	35/-	\$3.50	OC95	3/3	32c
OC45N	11/-	\$1.10	OC200	7/6	75c
OC70	12/-	\$1.20	OA210	1N1763, 1N3194	
OC71/2N215			HR25	8/6	85c
	7/6 or 3 for £1		OA211, S10AR2		
	75c or 3 for \$2			16/-	\$1.60
OC72	13/6	\$1.35	1N3491 50 p.p.v.	18/4	
OC74N	9/6	95c		9/6	95c
OC75	13/6	\$1.35			

## CHASSIS PUNCH SET

Hozan K-83, sizes 16, 18, 21, 25 and 30 mm. Complete with taper reamer in wooden storage box 70/- \$7.00

## ROTARY WAFER SWITCH

1 pole 24 position 3 bank. Physical size: 3 x 3 inch. Price 30/- \$3.00.

## DRIVER AND OUTPUT TRANSFORMERS

Transistor type RL8, Driver Transformer, 3000 to 1330 c.t. Transistor type JK8 Output Transformer, 300 c.t. to 15. Physical size: height 1 1/2 in., depth 1 1/2 in., width 1 1/2 in. 10 - \$1.15 each, or 17 6 (\$1.75) per pair.

## RECORDING TAPES

Well known makes. Brand new in cartons. Guaranteed.

150 ft. on 3 inch reel, Acetate	60c
225 ft. " 3 " " "	75c
300 ft. " 3 " " Tensilsed Mylar	\$1.25
500 ft. " 3 " " " "	\$1.65
600 ft. " 3 1/2 " " " "	\$1.80
600 ft. " 5 " " Acetate	\$1.75
900 ft. " 5 " " " "	\$1.95
900 ft. " 5 " " Mylar	\$2.25
1200 ft. " 5 " " Tensilsed Mylar	\$3.50
1800 ft. " 5 " " Acetate	\$3.25
1200 ft. " 5 1/2 " " Mylar	\$3.50
1800 ft. " 5 1/2 " " Tensilsed Mylar	\$5.25
2400 ft. " 5 1/2 " " " "	\$7.00
1200 ft. " 7 " " Acetate	\$2.75
1200 ft. " 7 " " Mylar	\$3.25
1800 ft. " 7 " " Acetate	\$3.75
1800 ft. " 7 " " Mylar	\$4.50
2400 ft. " 7 " " " "	\$5.25
3000 ft. " 7 " " Tensilsed Mylar	\$7.50
3600 ft. " 7 " " " "	\$9.25
Empty Tape Reels	
3 inch	25c
3 1/2 "	35c
4 "	35c
5 "	40c
5 1/2 "	55c
7 "	50c
Plastic Storage Case and Empty Reel	
5 inch	20c
7 "	\$1.20
Leader Tape, White	
100 ft. reel	\$1.25

## TECH MULTIMETER

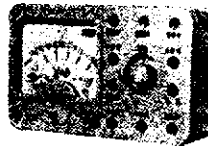
300  $\mu$ A. movement.

AC and DC voltages  
0-10, 0-50, 0-250, 0-500  
1-1000v.

Current ranges (mA):  
0-1, 0-100, 0-500 mA  
Ohms range: 0-100,000 ohms  
Size: 3 1/2 x 2 1/2 x 1 1/2 inches.

Complete with leads.

Price only \$6, post paid.



## TRANSISTOR RADIO PARTS

To suit Zodiac, Grays, Tele-tone, Chevron, Lincoln, Retraivision, Home Star and Vista (6 Transistor Radios)

Speaker, 8 ohms, 2 1/4 inch diam., power capacity 200 mw.	22/6	\$2.25
Gang with knob, capacity: 6-142 pF, ceramic, 6-80 pF, (oscillator)	20/-	\$2.00
Aerial Coil on Rod	7/6	75c
Output Transformer, 480 to 8 ohms	15/-	\$1.50
Interstage Transformer, 8000 ohms to 3000 ohms	12/6	\$1.25
Oscillator Coil, 360 microhenry	8/6	85c
Pot., switched with knob, 5K ohms	8/6	85c
6 Transistors and 1 Diode (second pricing: 2-2N408 OC71N, 3-2N410, OC45, 1-2N406, OC71, 1-OA90)	\$2/6	\$8.25
Three I.F. Transformers, 455 kc. Complete set resistors and condensers (32)	30/-	\$3.00
Printed Circuit Board	42/6	\$4.25
Cabinet, complete with earphone jack, earphone and carrying cases	10/-	\$1.00
	25/-	\$2.50



# RADIO SUPPLIERS

5A MELVILLE ST., HAWTHORN, VIC. Phone 86-6465

8 PARK STREET, GLENFERRIE, VIC. Phone 81-1935

North Balwyn tram passes corner.

Money Orders and Postal Notes payable North Hawthorn P.O.

We sell and recommend Leader Test Equipment, Pioneer Stereo Equipment and Speakers, Hitachi Radio Valves and Transistor Radios, Kew Brand Meters, A. & R. Transformers and Transistor Power Supplies, Ducon Condensers, Welwyn Resistors, etc

# "AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA. FOUNDED 1910

OCTOBER 1966

Vol. 34, No. 10

## Editor:

K. E. Pincott ..... VK3AFJ

## Assistant Editor:

K. M. COCKING ..... VK3ZPQ

## Publications Committee:

G. W. Baty (Secretary) ..... VK3AOM  
A. W. Chandler (Circulation) ..... VK3LC  
E. C. Manifold ..... VK3EM  
W. E. J. Roper ..... VK3ARZ

## Draughtsmen:—

Ken Gillespie ..... VK3GK  
Clem Allen ..... VK3ZIV  
Ian Smith ..... 36 Green St., Noble Park

## Advertising Enquiries:

C/o. P.O. Box 36, East Melbourne, C.2, Vic.  
or  
Mrs. BELLAIRS, Phone 41-3535, 478 Victoria  
Parade, East Melbourne, C.2, Victoria. Hours  
10 a.m. to 3 p.m. only.

## Publishers:

VICTORIAN DIVISION W.I.A.,  
Reg. Office: 65a Franklin St., Melbourne, Vic.

## Printers:

"RICHMOND CHRONICLE," Phone 42-2419.  
Shakespeare St., Richmond, E.1, Vic.

★

All matters pertaining to "A.R." other  
than subscriptions, should be addressed to:

THE EDITOR,  
"AMATEUR RADIO,"  
P.O. BOX 36,  
EAST MELBOURNE, C.2, VIC.

Acknowledgments will be sent following  
the Committee meeting on the second Mon-  
day of each month. All Sub-Editors should  
forward their articles to reach "A.R."  
before the 5th of each month. Any item  
received after the Committee meeting will  
be held over until the next month. Pub-  
lication of any item is dependent upon space  
availability, but in general about two  
months may elapse before a technical  
article is published after consideration by  
the Publications Committee.

★

Members of the W.I.A. should refer all  
enquiries regarding delivery of "A.R." direct  
to their Divisional Secretary and not to  
"A.R." direct. Non-members of the W.I.A.  
should write to the Victorian Division, C/o.  
P.O. Box 36, East Melbourne. Two months'  
notice is required before a change of mail-  
ing address can be effected. Readers should  
note that any change in the address of  
their transmitting station must, by P.M.G.  
regulation, be notified to the P.M.G. in the  
State of residence, in addition "A.R."  
should also be notified. A convenient form  
is provided in the "Call Book."

★

Direct subscription rate is \$3.00 a year, post  
paid, in advance. Issued monthly on the  
first of the month, January edition excepted.

## FEDERAL COMMENT

★

### 9th JAMBOREE-ON-THE-AIR

On the week-end of 22nd and 23rd October Amateur Transmitting Societies all over the world will be co-operating with the Boy Scouts World Bureau for the 9th Jamboree-on-the-Air. Since the inauguration of this event the Wireless Institute of Australia supported it, calling on all Amateurs interested in the activities of the youth of our nation to "open their shack doors."

The entire electronic industry—television, broadcasting, manufactur- ing, servicing and communications generally—are well aware of the growing need for skilled electronic people if Australia, with its increasing role in international affairs, is to keep technically abreast of the northern hemisphere.

The expedient way is to engender early interest by young people and like all other Amateur activities, the Jamboree-on-the-Air is an appropriate means. On the occasion of this event the Wireless Institute of Australia again asks all Amateurs to interest themselves in local Scout organisations and make arrangements for Scout groups to visit the shack while local, interstate and overseas contacts are in progress. This will not only add to the knowledge of Scouts as signallers but will also ignite that little flame in many to enquire further into the art of radio communica- tions and electronics in general.

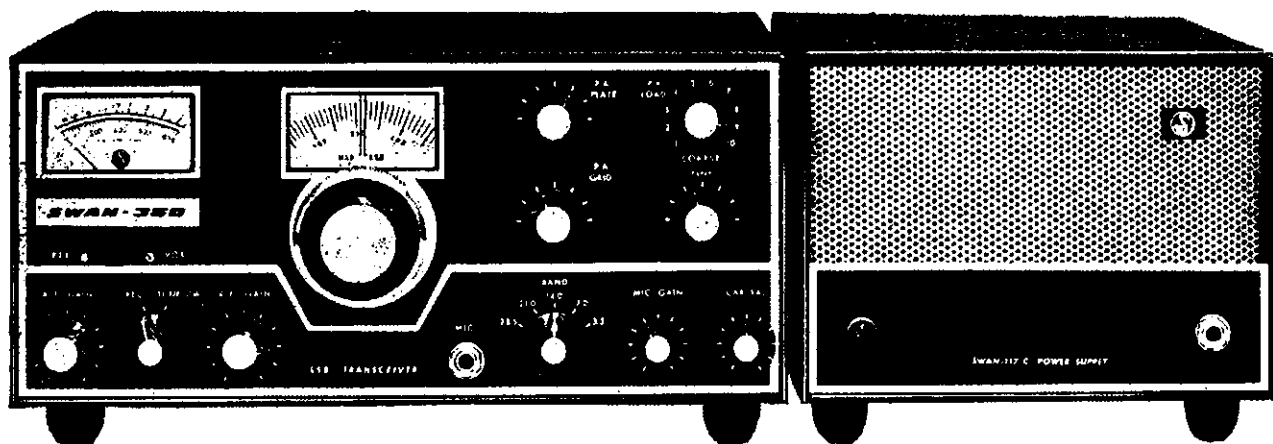
And with the Scouts in your shack you have an admirable opportunity to discuss with them the value of the W.I.A. sponsored Youth Radio Scheme whereby the boys can start off on the right foot to understand radio with a sound basic radio course. If you are unaware of the details of Y.R.C. training, then contact the W.I.A. in your State and you will find the Institute only too willing to assist you with all the information you want. Don't forget the date! October 22 and 23! Your co-operation will assist Australian youth and give YOU a lot of pleasure.

G. MAXWELL HULL, VK3ZS, Federal President, W.I.A.

## CONTENTS

Portable 240v. A.c. Power Sup- ply .....	3	Aust. Results of World-Wide DX Contest, 1965 .....	15
Series Phased Array for 14 Mc. ....	4	YO Awards .....	17
Technical Correspondence; Tran- sistor Amplifier Design .....	5	Amateur Radio Hall of Fame Announced .....	17
Transistor Amplifier Design— Part Two .....	7	VHF .....	19
A Transistorised Amateur Band Receiver—Part Three .....	11	SWL .....	20
"Fifty and Over" .....	14	YRC .....	21
New Call Signs .....	15	Publications Committee Reports ..	21
Survey of H.F. Bands .....	15	Prediction Charts for October, 1966 .....	21
		Federal and Divisional Monthly News Reports .....	23

# STILL AUSTRALIA'S MOST POPULAR S.S.B. EQUIPMENT



Swan SW350 Latest Model Transceiver only .....	£ 250 0 0	\$500.00
Swan SW350 Latest Model Transceiver. Fitted with opposite sideband and 100 kc. cal. (Aust.) .....	£ 264 0 0	\$528.00
Swan SW350 Latest Model Transceiver. Fitted with opposite sideband and 100 kc. cal. (Aust.), plus de luxe 240v. a.c. power supply with speaker and all cables and plugs in matching cabinet .....	£ 300 0 0	\$600.00
Swan SW400 Latest Model De Luxe Transceiver only .....	£ 275 0 0	\$550.00
Swan SW406 Transistorised VFO, five-band .....	£ 50 0 0	\$100.00
Swan SW420 Transistorised VFO, 20-band full coverage .....	£ 84 0 0	\$168.00
Swan SW410 Transistorised VFO, five-band full coverage .....	£ 80 0 0	\$160.00
Swan VX1 five-Transistor VOX Unit .....	£ 25 0 0	\$50.00
Swan SW22 VFO Adaptor Unit (split channel) .....	£ 20 0 0	\$40.00
Swan SW260C de luxe 240v. a.c. Power Supply w. speaker, in matching cabinet .....	£ 40 0 0	\$80.00
240v. a.c. Basic Power Supply, without cabinet .....	£ 35 0 0	\$70.00
Swan SS2 Opposite Sideband Kit (genuine) .....	£ 17 0 0	\$34.00
Swan 100 Kc. Xtal Calibrator (genuine) .....	£ 17 0 0	\$34.00
Swan WFS500 12v. d.c. 500 watt Power Supply .....	£ 65 18 0	\$131.80
Opposite Sideband Kit (Aust.) .....	£ 3 15 0	\$7.50
100 Kc. Xtal Calibrator Kit (Aust.) .....	£ 11 16 0	\$23.60
P.T.T. Ceramic Microphone with plug .....	£ 5 18 0	\$11.80

## OTHER ACCESSORIES AVAILABLE

Mobile whips, co-axial switches, plugs, sockets, spare parts, valves, plus full range of genuine SWAN spare parts. Easy terms available in N.S.W. and Victoria.

SWAN FACTORY DISTRIBUTOR:

**W.F.S. ELECTRONICS SUPPLY CO.**

227 Victoria Road, Rydalmere, N.S.W. 638-1715

**ATLANTIC RADIO**

36 Oxford St., Woollahra, N.S.W. 31-7811

# PORTABLE 240V. A.C. POWER SUPPLY

B. A. WHITE,\* VK5YB

THE problem of producing the much desired 240v. a.c. for the portable station can be overcome with the aid of a small 4-cycle petrol engine and a  $\frac{1}{4}$  h.p. single phase capacitor start induction motor.

The equipment detailed above could be quite expensive if bought via the normal channels, however there are many disposals sources releasing  $\frac{1}{4}$  h.p. motors for as low as \$2 and the job of reconditioning an old washing machine petrol engine is not beyond the average ability or pocket. It was thus that I economically secured my power plant components.

Be sure that the electric motor has good bearings, and that the "run" winding is OK. The "start" winding and capacitor have no effect in this reverse operation, likewise the starter switch mechanism on the rotor. Check to ensure that the motor is designed to run at 1,445 r.p.m. (or thereabouts) when on the 40-50 c.p.s. supply as this also determines the speed at which the engine must drive the motor to develop 50 c.p.s. as a generator. Higher speed types do turn up and will do the same job provided they are driven at the correct speed.

The petrol engine needs to be in good condition to maintain a constant speed to ensure even cyclage of the generator. I disconnected the "blow-type" governor and fitted a hand throttle to overcome governor surge and consequent variation of cyclage.

Having constructed a suitable base plate from scrap timber, a belt drive was fitted using a car fan belt and two random pulleys approx.  $2\frac{1}{2}$ " diam. each. The engine seemed to develop suitable power and stability at 1,500 r.p.m., but this may need experimentation with various engines—adjusting the pulley ratios to finally rotate the "generator" at approximately 1,500 r.p.m.

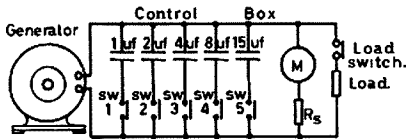


FIG. 1. GENERATOR CONTROL CIRCUIT.

The "generator" has to receive some initial excitation whilst rotating and this may be done by the use of a capacitor block and switches to vary the capacity across the output. A cheap moving iron 0-300 volt meter was set in the output stage to monitor the excitation process. Disposals oil-filled capacitors were used in the set up, but don't forget to parallel each one with a 250K bleeder or else they could give you quite a shock when left switched off.

To excite the generator, the 15  $\mu$ F. SW5 is closed and starting with SW1 the rest are closed until the meter shows a sudden kick. This occurs only if the particular "generator" has suf-

ficient residual magnetism to produce a low level a.c. voltage to charge the capacitor bank. No load must be applied during this excitation process or it will effectively dampen the small charges produced by the residual properties of the "generator". Once excitation is achieved the voltage will possibly be too high. Reduce the excitation capacity by switching out the lower capacities until about 250-260 volts is obtained. Switch in the load and more capacity if the load drops the voltage too much. Some generators have to receive a d.c. flash to excite them.



The cyclage may be checked with the aid of the synchronous record player connected to the home-brew a.c. source, a stroboscopic disc, used to check the gramo speeds, and a globe connected to the mains supply. Increase or decrease the engine speed until reasonable synchronisation is obtained. Alternatively, the pocket rev. counter is all that was available on the farm and served satisfactorily.

There are two disadvantages with this system:

- (a) Voltage variation with a change of load,
- (b) Slight beat due to slip or natural magnetic resonances against the exciting capacity.

The first (a) can be overcome by the use of dummy loads or the use of a common power supply for the transmitter and receiver used in portable work, and thus refrain from change of load.

There is little to be done with (b) as it depends on the design of the motor particularly in relation to the material of which it is made. This effect is noticed by slight fluctuation in a low

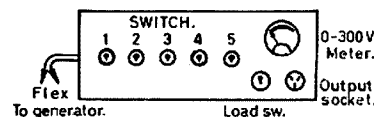


FIG. 2. CONTROL BOX LAYOUT.

powered filament lamp and possibly slight tonation of a b.f.o. against a resolved s.s.b. signal.

This power supply has delivered up to 250 watts and has been used for t.v. on the farm, powering a 100w. soldering iron, lighting and always to operate the receiver on the rig here, as well as the radiogram.

The direction of rotation of the "generator" is immaterial and a fuse system is unnecessary as overload cancels excitation and the whole circuit neutralises despite the continued rotation.

Higher h.p. motors are equally as effective, but appear to require larger capacity for excitation—they, too, would be capable of more output with a larger petrol engine.

The two-stroke motor was rejected due to continued variation of revs., noise and difficulties of handling, especially starting. The only suppression required for Amateur use was the plug suppressor on the 4-cycle engine. The generator is purely inductive and no variable connections are used to necessitate brush suppression.

The credit of this mode of power should be handed to Rollo VK6BO, who has been using this system on his portable gear and caravan for some time. I merely copied his idea and experimented to further the application.

## W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. Position in the list is determined by the first number shown. The first number represents the participant's total countries less any credits given for deleted countries. The second number shown represents the total D.X.C.C. credits given, including deleted countries. Where totals are the same, listings will be alphabetical by call sign.

Credits for new members and those whose totals have been amended are also shown.

### PHONE

VK3AHO	309/321	VK4HR	247/263
VK5MS	309/330	VK2JZ	246/261
VK5AB	288/312	VK3TL	237/241
VK6MK	283/310	VK2ADE	223/237
VK6RU	282/315	VK2APK	217/220
VK4FJ	273/290	VK2AAK	215/219

New Member:  
VK2MR 100/100

### C.W.

VK3KB	315/338	VK2EO	272/293
VK2ADE	291/313	VK3AHQ	287/279
VK3CX	290/311	VK3NC	266/286
VK2QL	288/308	VK3ARX	261/269
VK4FJ	284/308	VK6RU	250/271
VK2AGH	275/288	VK3XB	243/256

New Member:  
VK2PQ 104/105

### Amendments:

VK2APK	239/246	VK3AX	146/154
VK3TL	232/235		

### OPEN

VK2ADE	305/329	VK2VN	275/290
VK2AGH	303/321	VK3ARX	270/278
VK6RU	298/321	VK4HR	270/292
VK6MK	285/312	VK3NC	267/287
VK4FJ	291/313	VK3TL	256/260
VK2ACX	276/300	VK2APK	255/263

\* P.O. Box 228, Keith, South Aus.

# SERIES PHASED ARRAY FOR 14 Mc.

WAL SALMON,\* VK2SA

WITH the gradual return to more favourable propagation conditions more Amateurs are utilizing the frequencies of 14 Mc. and above. Whilst many possess excellent transmitting and receiving equipment, simple wire dipoles have been, in the main, the only effective antennae for most Hams living in suburban areas.

However, on reading the mail on most of the frequencies, discussions on antennae seem to be increasing in proportion to the rate of increase in sunspot activity. The problem of the acquisition of an efficient antenna can be solved by the installation of high towers and the construction of Quads or Yagis, or dipping deep into your pocket and letting someone else do the job for you.

It would appear that this antenna has not been successfully adopted for Amateur work, due to feed and phasing difficulties and reference to various articles on the subject has amplified this thought.

The basic theory of an antenna of this type originates in the fact that parallel elements spaced one-quarter wavelength apart and fed with equal currents 90 degrees out of phase will have a directional pattern. The maximum radiation is in the direction from the element in which the current leads to the element in which the current lags. In the opposite direction the fields from the elements cancel.

Thought was then given to the construction of an experimental Series Phased Array, and in assessing the problem of suitably feeding the ele-

the points. The greater the separation, the higher the impedance. With this theory in mind it was thought that a centre-loaded tapped coil resonated element would be suitable.

Three half wave elements were then constructed, the loading coil (see photo) consisting of 12 turns of 14 gauge enamel wound on plastic conduit  $1\frac{1}{2}$  in. in diameter. The total length of each half wave element when resonated at 14.1 Mc. was 20 ft. 6 inches. It will be immediately apparent that this is a very convenient

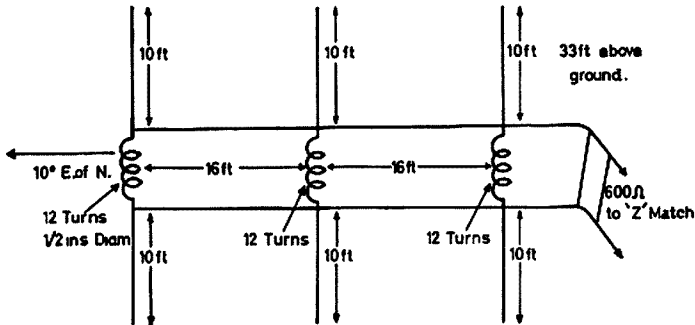


Fig. 1.—14 Mc. Array. (Coil diam. should read  $1\frac{1}{2}$  inches.)

The writer has given considerable thought to the problem and has acquired the habit of collecting data over the years on antennae and antenna heights, and a clear picture has emerged. It would seem that the best DX signals have their origin in an antenna height of a least 60 to 70 feet and one is amazed at the information obtained from some of our American friends. Yagi antennae at 70 or 80 feet are commonplace. One Amateur was using a 6 element Yagi at 100 feet, another a four-element Quad at 70 feet. All this adds up to the fact that if you have a fat purse, you can put out a fat signal.

With the idea of trying to get something for nothing, the writer embarked on a trial and error scheme of testing various types of vertical wire antennae, some with directors or reflectors, over the past 12 months. Some showed great promise on W and European DX signals but could never come close to matching the Yagi and Quad.

Quite recently the writer came across an article by Colin A. Mackenzie, VK3ACM, entitled the "Series Phased Array" (reference "Amateur Radio," February, 1959). As the article states, the antenna was known as the Marconi-Franklin Series Phased Aerial and is specifically designed for end-fire propagation.

ments, consideration was given to incorporating the Delta match system. It is well known that the impedance presented between any two points symmetrically placed with respect to the centre of a half wave antenna will depend on the distance between

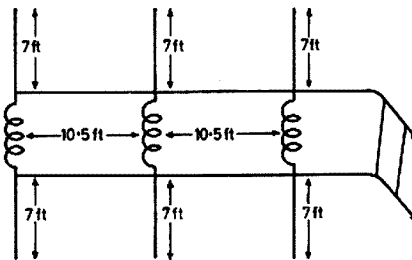


Fig. 2.—Suggestion for 21 Mc.

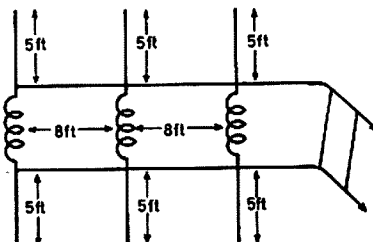
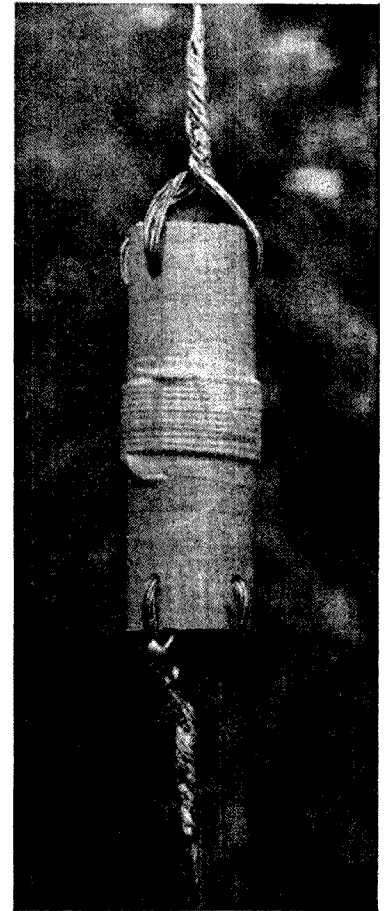


Fig. 3.—Suggestion for 28 Mc.



length to handle either as a vertical or horizontal radiator. The first experimental antenna was fed with 600 ohm open wire line from the transmitter through a "Z" match unit, the feeders being tapped directly across the centre loading coil of the first element. The interconnecting phasing stubs between the elements consisted of 75 ohm tapped across three turns of the element loading coils. In order to save space and time I will merely add that the s.w.r. went haywire and the antenna was a flop.

The co-ax. phasing stubs were then removed and 600 ohm open wire stubs tapped directly across the coils were

\* 77 Flora St., Kirrawee, N.S.W.

substituted, and we were in business with the antenna fring about 10 degrees east of North, this being the most suitable direction due to the lay-out of masts at this location. The s.w.r. was 1.3 to 1 at 14,250 Mc.

Seven-stranded copper earth wire is used in the construction of the elements which are spaced 16 feet apart, the total length of the array being 32 feet. The antenna hangs in a semi-vertical plane from a horizontal wire broken with insulators about 33 feet high. You have no doubt been wondering about results. In the brief period the antenna has been in operation reports have been received from Canada, United States and Alaska ranging from S5 to S9 plus 40 db. and in its evaluation I can only comment that I am quite satisfied that the antenna will match in strength many antennae of a more complicated nature. I might mention that the antenna was constructed and erected in about four hours.

One unknown question raised in VK3ACM's article centres around the detuning effects when the antenna is pieced together and raised. Tests were carried out at VK2SA with two of the centre-loaded dipoles, both being separately resonated at 14 Mc. When spaced from 2 inches to 2 feet the dipoles resonated at approximately 15 Mc. When spaced at eight feet to resonant frequency was 14.15 Mc.

I can see many angles for development, such as variation in element length, associated with centre-loading coil size and an increase in the number of elements to provide more gain in the favoured direction and the adoption of the antenna to higher frequencies. In this connection reference might be made to Figs. 2 and 3 for

21 Mc. and 28 Mc. antennae. The only unknown data is the centre-loading coil size which can be easily ascertained by the use of the station g.d.o. before the elements are connected to the feed line.

However, the proof of the pudding is in the eating and I conclude this article by referring to the original story with particular emphasis on the concluding words "so who is willing to carry on from here."

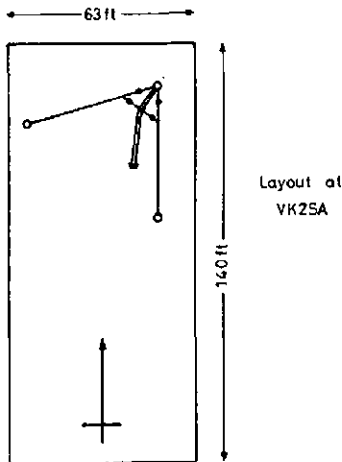


Fig. 4.

LATER VERSION

Recently I have put something up in the air which is really fantastic. Figs. 4 and 5 give full details of the array, the forward dipole being bent at an angle of about 80 deg. and the reflector dipole is almost straight. Fifty-nine plus reports from the U.S. and Alaska are pouring in.

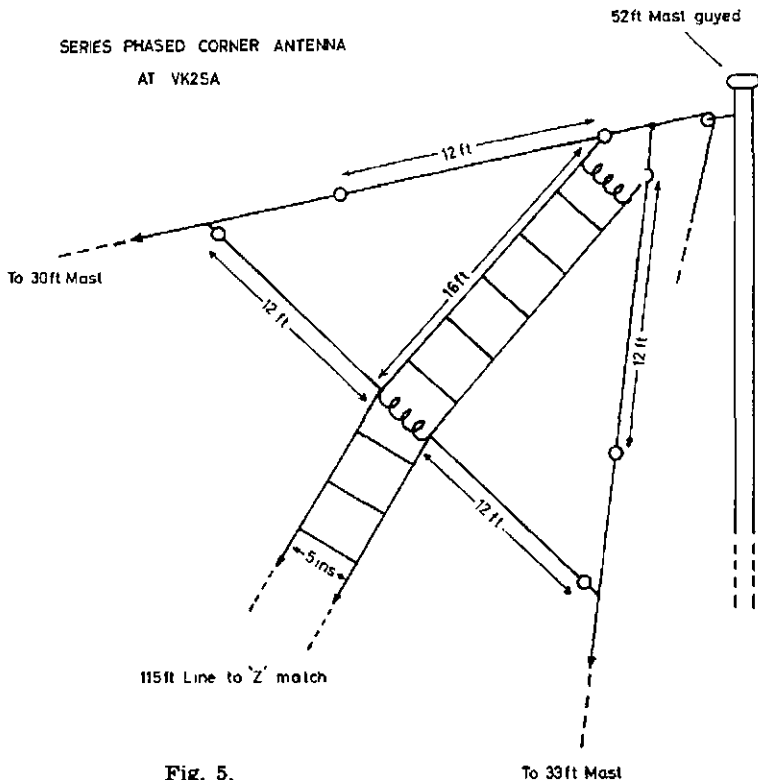


Fig. 5.

To 30ft Mast

The dipole coils were wound on 1/2 in. plastic conduit and consist of 17 turns each, the turns being pushed in or out so that the dipole will resonate at 14 Mc. before connection to the feeders. The coils were then doped and wound with plastic tape.

The antenna is fed with 115 feet of open wire line spaced 5 inches, the spreaders being used, "Biro" pencils. The s.w.r. is 1.4 to 1 and the coupling device to the final is the English "Z" match coupler.

At present I am working on another "corner" antenna for Europe.

☆

Technical Correspondence—

Transistor Amplifier Design

Editor "A.R.," Dear Sir,

I would like to draw your attention to an article by Mr. R. L. Harrison in the September issue of "A.R." There are several points that are wrong in the article, as well as several that I feel could be very misleading to the people who are likely to use the article. As I feel that mine will not be the only letter to condemn the correctness of the article. I will not give a large amount of detail, but merely point out parts that are wrong. They are:—

1. The choice for  $V_{CC}$  (one should consult the manufacturer's data for maximum ratings).
2. The choice of  $I_C$  (some silicon transistors have their highest  $I_{P_{max}}$  just below 2 mA.); silicon transistors can usually be operated with a very low  $I_C$ .
3. The equation  $R_C = V_{CC} \div I_C$  does not follow from the single fact that  $V_{CB} = V_{CC} \div 3$ , (it only follows if  $V_{RB} = V_{CC} \div 3$  also).

4. The equation—

$$C_b = \frac{(\beta_0 + 1) \times 10^9}{2 \pi f_1 \left( R_{in} + \frac{R_b R_c}{R_b + R_c} \right)}$$

is wrong. Its departure from the true equation is more, I feel, than could be attributed to a printer's error.

5. The assumption that  $R_{in}$  of the following stage = 500 ohms for germanium, or 1000 ohms for silicon, transistors, is again quite wrong, especially from what Mr. Harrison has said about the choice of  $I_C$ .

6. The statement that the input impedance of an OC71 will be close to 300 ohms is, as for point 5, quite wrong.

7. Mr. Harrison's philosophy for designing the lower cut-off frequency  $f_1$  is I feel very misleading and deserves clarification.

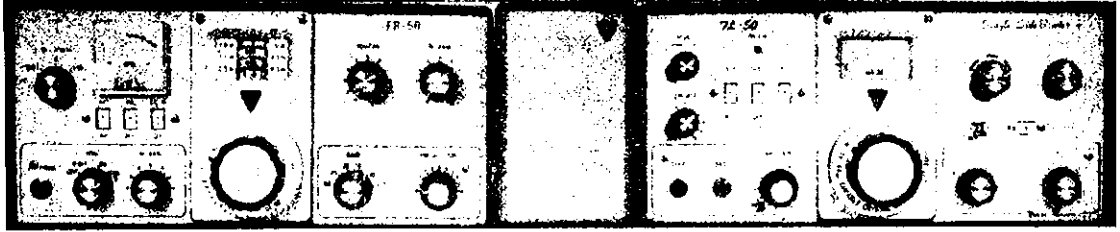
Finally, I do agree with Mr. Harrison on one point, he does appear to be confused about transistor amplifier design.

I hope these points may be of some use in assisting Mr. Harrison to rethink his subject. If clarifications on any of the points I have made is needed, please contact me.

—W. Metzenthén, VK3ZOF.



# YAESU F-SERIES S.S.B. EQUIPMENT



## Addition to the fine range of F-Series S.s.b. Equipment

The **FL-50 TRANSMITTER** depicted at right currently available and provides quality s.s.b. at low cost. Consider the value from the following description:—

- ★ This is a complete five-band crystal filter transmitter for s.s.b., a.m. and c.w.
- ★ Heavy duty p.a., 6J56A class AB1 with pi output (50-120 ohms), built-in antenna relay, rugged Amphenol type antenna connector.
- ★ S.s.b. is generated with a 5 Mc. crystal lattice filter with shunt and series elements; l.s.b. on 80 and 40 mc, u.s.b. on 20, 15, 10.
- ★ Crystal controlled carrier osc. matched to correct point on filter curve to provide excellent, easy to tune audio quality, with carrier and sideband suppression not less than 50 db.
- ★ Simple, safe tune-up with aid of 0-max. carrier level control. No need to balance out carrier, adjustment is pre-set.
- ★ Fully metered for final current and r.f. output; a.l.c. included.
- ★ P.T.T. control via suitable p.b. microphone or separate hand or foot switch. VOX modification kit optional extra.
- ★ For c.w. this is an excellent transmitter, providing clean chirp-less keying, and break-in operation if desired.
- ★ FV-50 matching VFO (transistorised) is available. VFO has smooth, free running dial with precision gear drive. No backlash. Large, clearly marked illuminated dial. Knob skirt adjustable. Without VFO the FL-50 may be operated with in-built VXO. VXO enables up to 10 kc. range with crystals. Crystals extra by order.
- ★ Built-in 115 230v. a.c. solid state power supply, voltage regulated.
- ★ Excellent appearance and performance, wiring is extremely neat, ruggedly constructed. Neat black semi-gloss cabinet, with satin aluminium front panel. Size 6 x 13 x 10½ inches. Wt. 23 lbs. FV-50 size 6 x 6 x 8½ inches. Wt. 7 lbs.
- ★ All necessary plugs supplied. Accessory socket on FL-50 provides for receiver muting and linear control.
- ★ Prices: FL-50, £135 (\$250); matching VFO, FV-50, £32 (\$64). If purchased together, only £149 (\$298). Sales tax incl. freight extra. TERMS AVAILABLE.

**Additional Yaesu Equipment:** FR-100B Receiver, FL-200B Transmitter, FL-1000 Linear, FF-30DX Low Pass Filter, FC-2 2 mc Converter, FC-6 6 mc Converter. Details and prices on application. TERMS AVAILABLE.

By importing, as accredited agents, direct from the Yaesu Musen Co. we are kept abreast of the latest developments, equipped to give full warranty, and have a comprehensive range of spares and service facilities.

FR-50, matching low-cost Receiver, and FL-50 can form a transceiver unit. Antennae available: American Mosley Beams and Trap Vertical.

Australian Agents:

**BAIL ELECTRONIC SERVICES**

60 Shannon St., Box Hill North, Vic. 89-2213

VK Rep.: **MOSMAN TELEVISION SERVICES**

11 Ruby Street, Mosman, N.S.W. Phone 96-5342

# FOSTER DYNAMIC MICROPHONES

## SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
 Effective output level .... -55 db. [0 db. = (one) 1V. Microbar]  
 Frequency response ..... 50 to 15,000 c.p.s.

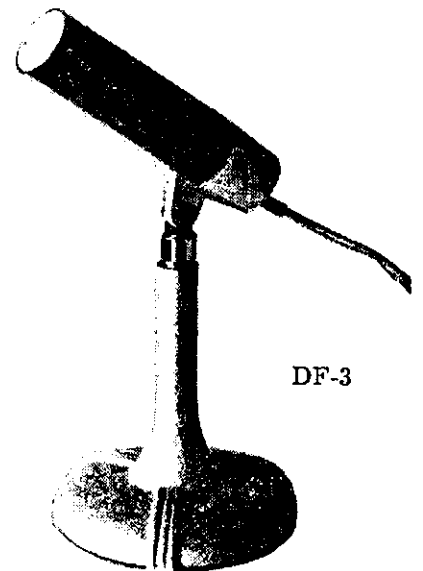
## OMNI-DIRECTIONAL DYNAMIC:

Plastic Diaphragm. Swivel fits 5/8" 26 t.p.i. Stands.  
 Size: 4½" long, 1¼" diameter. Colour: TWO-TONE GREY.  
 Cable: 12 ft. of P.V.C.

Retail Price 50K ohms: **£4/16/0** + Sales Tax 10/0

Retail Price 50 ohms: **£4/14/0** + Sales Tax 9/10

A QUALITY PRODUCT FOR TAPE RECORDERS & P.A. USERS



DF-3

Marketed by

**ZEPHYR PRODUCTS PTY. LTD.**

70 BATESFORD STREET, CHADSTONE, S.E.10, VIC.



Manufacturers of Radio and Electrical Equipment and Components

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L; Jacoby, Mitchell & Co. P/L; T. H. Martin P/L.

# TRANSISTOR AMPLIFIER DESIGN

R. L. HARRISON,\* VK3ZRY

## PART TWO

LOW level r.f. and i.f. amplifiers are very familiar items to most of us. Valve circuits have been pretty well standardised—and, to a point, so have transistors. This article was written to introduce design techniques that can be used by Amateurs. It is not necessarily an engineering approach. No complicated maths. is involved but that which is included is no more complicated than Ohms Law. An alternative graph is provided but can only be used under limited circumstances as explained later.

The design is set out in a step by step method again as this is most easily understood and followed. Coil design can be difficult and involve calculus, so a rule of thumb procedure has been outlined to enable transistor matching and coupling to the circuits. To obtain characteristics such as selectivity (narrow or broad) and coupled circuits with a desired amount of coupling is left to the constructor. These are basic characteristics of tuned circuits and to achieve a desired result the constructor should obtain a good text book or else buy manufactured coils to give desired results. Very successful home-brew results can be obtained from miniature ferrite pot-core assemblies and these are suggested in the text. It is advisable to follow manufacturers data supplied with the assemblies for best results.

The first circuit to be discussed is a common emitter amplifier. One circuit for germanium and one for silicon transistors is given in Fig. 1.

Now there are two applications of these circuits requiring separate considerations. The circuits can be used for an i.f. amplifier or an r.f. amplifier and will be treated in that order.

### I.F. AMPLIFIERS

From the circuits in Fig. 1 it is obvious that germanium transistors may require unilateralisation (neutralisation) to cancel the high internal feedback in the transistor itself. The external feedback in Fig. 1a is provided by  $R_F$  and  $C_0$ . The silicon transistor in Fig. 1b does not require these components as internal feedback is inherently low.

Here is the design method suitable for either silicon or germanium transistors.

1. Select a suitable transistor. The  $\alpha$ -cutoff frequency ( $f_\alpha$ ,  $f_{max}$  or whatever they call it) should be five to ten times the operating frequency at the least.

2. Determine the d.c. operating conditions and find the values of  $R_1$ ,  $R_2$ ,  $R_B$  and  $R_C$ , using the method outlined in Part 1 of this article for a low level audio amplifier.

3. Determine  $C_1$ ,  $C_2$  and  $C_B$  from the graph or the following equation:—

$$C (\mu F.) = \frac{10^9}{2 \pi f R_x}$$

where  $C$  = by-pass capacitor in  $\mu F.$

$f$  = frequency of operation.

$R_x$  = resistor to be by-passed, in ohms.

$$\pi = 3.1416.$$

In the case of the base bias network, for finding the value of  $C_1$ , the resistance to be by-passed is the parallel combination of  $R_1$  and  $R_2$ , or  $R_B$ , where

$$R_B = \frac{R_1 \times R_2}{R_1 + R_2}$$

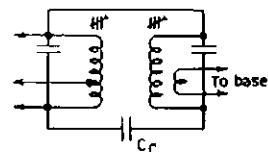
Two curves are given, one for 455 kc. and one for 1600 kc., as these are two commonly used frequencies. If a frequency higher than 1600 kc. is selected then values of by-pass capacitor can be determined as for 1600 kc.; they will be more effective by-passes!

4. Designing the transformers  $T_1$  and  $T_2$ . This task is best left to the engineer for optimum design and ready made coils are available, use these if applicable. If you wish to roll your own, here are a few hints:—

(a) Use a ferrite pot core assembly, e.g. Ducon type Q2 or Neosid assembly type A2 or B1. Use manufacturer's data guides for best results.

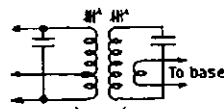
(b) For germanium transistors, the collector tap should be near the centre of the coil. For silicon transistors the collector tap should be about two-thirds down from hot end of coil.

(c) For germanium transistors the base coupling link should be about one-sixth of the total turns on the tuned winding. For silicon transistors, base coupling link should be one-twentieth to one-thirtieth of total tuned winding turns.



Two single assemblies  
e.g. Ducon Q2 or Neosid AZ

FIG. 2 (a)



Double assembly

e.g. Neosid B1 side  
by side assembly

FIG. 2 (b)

(d) To obtain narrow or wide band-pass characteristics, double tuned transformers (Fig. 2) should be used, but a sweep generator and c.r.o., or a signal generator plus much patience, is needed to align for best results.

To roll your own double tuned assemblies, couple two single tuned assemblies as in Fig. 2a, or use a double assembly as in Fig. 2b, and rely on mutual coupling internally. Refer to manufacturer's data for best results again.

Two i.f. amplifiers giving a typical, practical example of circuits are given in Figs. 3 and 4. Note that in Fig. 3 there are no collector dropping resistors; these are unnecessary as  $V_{CC}$  is only 4v. and  $V_{CE}$  is about 3v.

You will probably notice that by-pass capacitors are lower than that predicted by the formula given previously or by the graph. This is because a different assumption was made (see the end of this article for assumptions made and derivation of the equation) to calculate the by-pass capacitors.

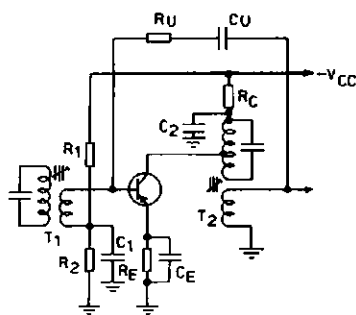
If you wish to use a mechanical filter in your i.f., the primary should be made parallel resonant and the secondary or output side made series resonant (see Fig. 5).

That concludes my screed on i.f. amplifiers. I haven't covered transistors and crystal filters but no doubt they are compatible; nor have I covered other useful i.f.'s such as 30 Mc. i.f.: strips. These require separate considerations which would take up one article themselves—later perhaps.

The next thing is r.f. amplifiers. I will discuss the common emitter design as in Fig. 1 first, then the common base arrangement.

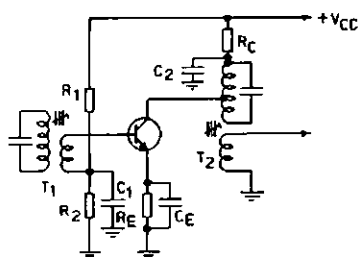
### R.F. AMPLIFIERS

Fig. 1 gives the basic circuits for germanium and silicon transistors. The germanium transistor circuit, though, may not need components  $R_F$  and  $C_0$  as transistor gain and internal feed-



PNP GERMANIUM TRANSISTOR

FIG. 1(a)



NPN SILICON TRANSISTOR

FIG. 1(b)

\*1 Mary Street, North Balwyn, E.9, Vic.



## PRINTED CIRCUITS AID AUSTRALIAN INDUSTRY!

Applications for printed circuits from Precision Windings in industry are growing daily . . . it's simply amazing how many leading electronic and design engineers specify "Precision Windings" boards. PW's photographic process does have many advantages . . . small numbers may be manufactured economically . . . definition and detail are crisp and clear . . . negatives are readily available for alterations . . . and tarnishing is prevented by a protective over-coating. Above all the PW process offers quality control at every stage of manufacture. This is why more and more industrial organisations are coming to Precision Windings for up to the minute technical advice and prompt, dependable deliveries.

### AND FOR THE HOBBYIST?

Don't worry . . . we're not neglecting our many friends who want a single circuit board. Send for our free folder on "How to prepare artwork" and for our price list. It matters little if you want one or a thousand boards . . . PW's price is most attractive. Many "Electronics Australia" designs are kept in stock and delivery is immediate. Special printed circuits are normally despatched within 7 days of receipt of your artwork. Artwork aids in the form of Solder Lands, Black Crepe Tapes, Clear Film and Transfer Letters are also available from Precision Windings at low cost. Write now!



52 Cambro Road, Clayton, Vic.  
Phone 544-7370

## WIRELESS INSTITUTE OF AUSTRALIA FEDERAL EXECUTIVE

The Institute can now offer annual subscriptions to the following Amateur Journals:

- ★ "QST"—Associate membership and renewals, \$5.40.
- ★ R.S.G.B.—"The Bulletin" is only sent with membership of the Society. Send for application form and FREE sample copy of the R.S.G.B. "Bulletin," \$5.95.
- ★ "CQ" Magazine, \$5.20.
- ★ "73" Magazine, \$2.83.

R.S.G.B. Publications and A.R.R.L. Publications available.

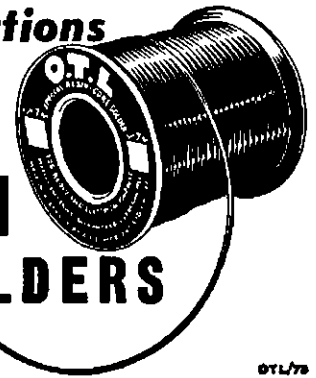
Send remittance to Federal Executive, C/o. Box 36, G.P.O., East Melbourne, C.2, Vic.

### For Reliable Connections

# OTL

## RESIN CORE SOLDERS

O. T. LEMPRIERE & CO. LIMITED  
Head Office: 27-41 Bowden Street, Alexandria, N.S.W.  
and at Melbourne • Brisbane • Adelaide • Perth.



OTL/75

## DURALUMIN, ALUMINIUM ALLOY TUBING

IDEAL FOR BEAM AERIALS AND T.V.

★ LIGHT      ★ STRONG      ★ NON-CORROSIVE  
STOCKS NOW AVAILABLE FOR IMMEDIATE DELIVERY

ALL DIAMETERS— $\frac{1}{4}$ " TO 3"

Price List on Request

STOCKISTS OF SHEETS—ALL SIZES AND GAUGES

## GUNNERSEN ALLEN METALS PTY. LTD.

SALMON STREET,  
PORT MELBOURNE, VIC.

Phone: 64-3351 (10 lines)  
Telegrams: "Metals," Melb.



HANSON ROAD,  
WINGFIELD, S.A.

Phone: 45-6021 (4 lines)  
Telegrams: "Metals," Adel.

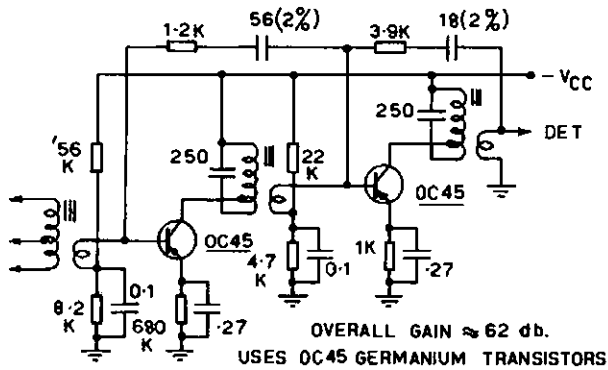
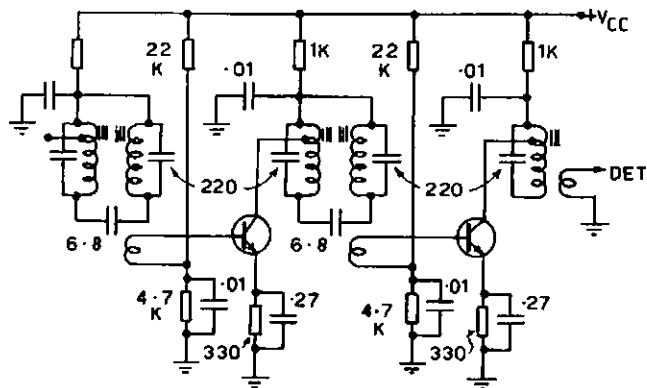
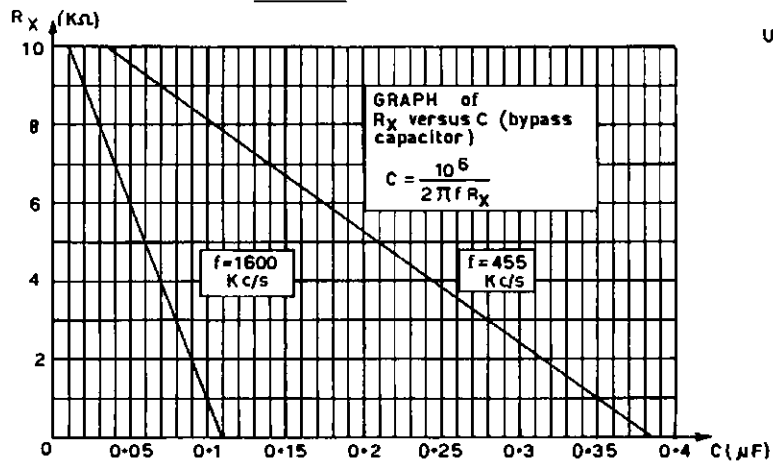


FIG. 3



OVERALL GAIN  $\approx$  104 TO 110 db.  
USES SE1002 SILICON TRANSISTORS

FIG. 4

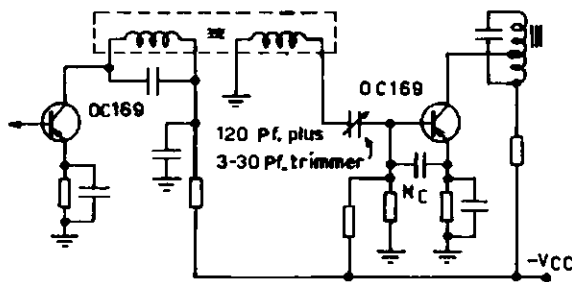


FIG. 5

back change at higher frequencies. Fig. 6 gives the general circuit for both silicon and germanium transistors. The amplifier is shown gang-tuned, but if used on a single frequency (or narrow segment) omit the tuning gang.

The design is the same as for i.f. amplifiers with the exception of the coils.

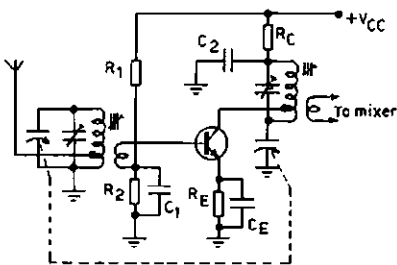


FIG. 6

### Coil Design

More conventional techniques are usable here—high L/C ratio, high Q and good quality components, as in valve circuits. The base coupling link should be a few turns closely coupled to the tuned winding, even a tap on the tuned winding can be used, but a link coil is much easier to experiment with to find optimum turns.

The collector tap is best found by experiment but a good rule of thumb is about half way down from hot end for germanium transistors and one-third to one-tenth down from hot end for silicon transistors (depending on out-

put impedance and gain). A link coupled into the collector tuned winding is usable if you want to experiment to squeeze everything out of the circuit.

For the 3 to 30 Mc. range of frequencies, the by-pass capacitors can be found from the graph for 1600 kc. For frequencies higher than 30 Mc. use your experience (if any). Generally 500 pF. and 1000 pF. will suffice up to 200 Mc.—keep leads short.

Now another circuit hops up—the common base circuit. Fig. 7 gives the most commonly (and most practical) used form. As you can see the signal is still fed into the emitter-base junction, but now output is taken across the collector-base instead of collector-emitter as in the common emitter amplifier.

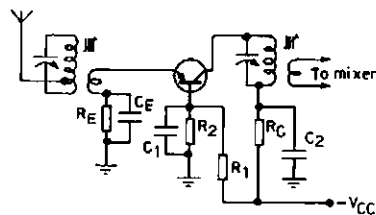


FIG. 7

The design of this amplifier follows the same lines as for the common emitter r.f. amplifier. R1, R2, Rc, RE, C1, and C2 are determined as outlined above. This circuit finds best use in the upper h.f. into the v.h.f.-u.h.f. region.

The collector may be connected to the hot end of the coil as it has a fairly high impedance in this configuration.

### ABOUT THE GRAPH

The curves were calculated from the formula for resistance-to-be-by-passed limits up to 10K ohms as this is what is generally encountered in practice. The formula was derived as follows:—

Assume  $X_c = R_x \div 1000$  (for effective by-passing).

$$\text{Now } X_c = \frac{1}{2 \pi f C}$$

$$\text{or } C = \frac{1}{2 \pi f X_c}$$

$$\text{Then } C = \frac{1}{2 \pi f \frac{R_x}{1000}}$$

$$= \frac{1000}{2 \pi f R_x}$$

Now C is in Farads if f is in cycles. For C to come out in  $\mu\text{F}$ . and f to be in kc:—

$$C = \frac{10^3 \times 10^3}{2 \pi f R_x}$$

$$\therefore C = \frac{10^6}{2 \pi f R_x}$$

where C = by-pass capacitor in  $\mu\text{F}$ .

f = frequency in kc.

Rx = resistance in ohms.

$\pi = 3.142$ .

(Continued on Page 13)

## TEST EQUIPMENT

### GRID DIP OSCILLATORS

Just out! The transistorised EDDYSTONE "Edometer" type G.D.O. 390 Kc. to 115 Mc. with set of seven plug-in coils, Zener stabilisation maintains constant performance with falling voltage. Can be used as g.d.o., for resonance checks on tuning circuits, for actual measurement of inductance and capacity. An in-built modulator stage provides use as signal generator for receiver alignment or as a signal source for audio tests. Can be used as absorption wavemeter, heterodyne wavemeter and modulation monitor. Tuning is simplified by geared reduction drive while the clearly calibrated scale permits rapid reading. Meter sensitivity is adjustable. Unit includes jack for morse key for use as morse code practice oscillator. No external power source required. Price \$84.75 (inc. S. Tax).

### VACUUM TUBE VOLT METER

#### "KYORITSU," MODEL K-142

Highly dependable for measurements of voltages from d.c. to r.f., output (db) and d.c. resistance.

A.c. volts: Sine wave: 0.1v.-1500v., 7 ranges. Peak-to-peak: 0-4000v., 7 ranges. Output (db m): minus 20 db to plus 85 db.

Input Impedance: 1.4 megohms.

D.c. Volts: 0.1v.-1500v., in seven ranges.

Input Impedance: 11 Megohms.

Resistance: 0.2 ohm to 1000 Megohms, in seven ranges.

The K-142 Vacuum Tube Voltmeter uses a P-80 d.c. 200 microammeter and operates from 240 volts 50/60 cycle a.c. mains. Large clearly calibrated meter gives ease of reading. Price \$86.25 (inc. S. Tax)

### HIOKI ELECTRICS MULTIMETER

HioKI Model OL-64 Multimeter is a reasonably priced unit suitable for normal Ham shack testing of voltage, current and resistance. Has anti-glare sloping front glass. D.c. Volts: 0.3, 1, 10, 50, 250, 500, 1000, 5000 volts (20,000 ohms/volt).

A.c. Volts: 10, 50, 250, 1000 volts (8000 ohms/volt).

D.o. Current: 0.03, 0.1, 50, 500 mA., 10 Amp. Resistance: 0 to 5K, 50K, 5 Meg., 50 Meg. The OL-64 incorporates inductance and capacity scales for useful measurement of C from 250 pF. to 0.02 uF., and inductance (L) from 0 to 5000 henries, using an external source of a.c. at 50 volts and 10 volts respectively. Direct read-out from C and L scales on meter. Full instructions included with each meter. Price: \$19.00 (inc. S. Tax)

### S.W.R. METERS

KYORITSU Model K-109 Standing Wave Ratio Bridge. 1:1 to 1:10 s.w.r. Impedance 50 and 75 ohms. Frequency range 1.5 to 60 Mc. Includes 0-100 d.c. microammeter. \$20 inc. sales tax.

### PEAK MULTIMETERS

#### MULTIMETER 370J

D.c. volts: 0.25, 1, 5, 25, 250, 1000 (20,000 ohms/volt).

A.c. volts: 1.5, 10, 50, 250, 1000 (8000 ohms/volt).

D.c. Current: 50 uA., 500 uA., 2.5 mA., 25 mA., 250 mA. (150 mV.).

Ohms: 0-5K, 0-50K, 0-500K, 0-5M.

Scale Centre, Ohms: 48, 460, 4.6K, 46K.

db: minus 10 to plus 5, 0 to plus 22.

Battery: Internal 1.5v. x 2.

Approx. size: 8 x 4 x 2 1/2 inches. Price: \$20.75 (inc. S. Tax)

#### MULTIMETER 400J

D.c. volts: 0.5, 2.5, 10, 50, 250 (100,000 ohms/volt); 500, 1000 (35,000 ohms/volt).

A.c. volts: 2.5, 10, 50, 250, 1000 (12,500 ohms/volt).

D.c. Current: 10 uA., 250 uA., 2.5 mA., 25 mA., 250 mA. (150 mV.).

Ohms: 0-2K, 0-200, 0-2M, 0-20M.

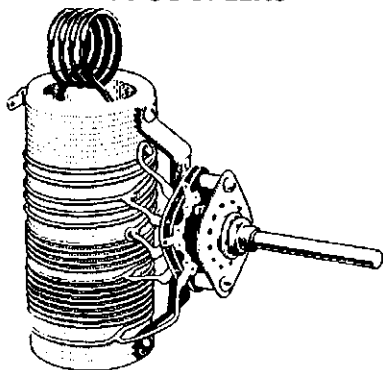
Scale Centre, Ohms: 160, 1.6K, 16K, 160K.

db: minus 20 to plus 62.

Battery: Internal 1.5v. x 2.

Approx. size: 6 x 4 x 2 1/2 inches. Price \$29.00 (inc. S. Tax)

## PI-COUPLERS



### WILLIS MEDIUM POWER TYPE

For use up to 600 watts p.e.p. Match plate loads of 2,000 to 3,500 ohms (Z) and higher into co-axial cable. Operating Q increases on higher frequencies to increase harmonic suppression enabling practical values of tuning capacity to be used on 10 and 15 metres and allowing for wiring inductance (L). Incorporates extra switch section for shunting additional capacity (C) if required, or switching other circuits. Switch rated for 10 amps. at 2,000 volts with contact resistance (R) of 0.8 milliohms.

Price: \$8.75 (inc. S. Tax)

### WILLIS PI-COUPLER CHOKE

To suit above Pi-Coupler. No resonances within Amateur bands if spaced diameter or more from metal panels. Stands 6 inches high on 1 inch diam. ceramic former. Base mounting bracket included.

Price: \$2.75 (inc. S. Tax)

**Please allow for Freight when Ordering**

### DUCON 20 KV. CERAMIC COUPLING

CONDENSERS: 100, 500, 1,000 pF.

Price: \$1.50 each (inc. S. Tax)

### GELOSO PI-COUPLERS

Type 4/111 for use with parallel tubes type 6146, 807s, etc.

Type 4/112 for use with single ended tubes type 6146, 807, etc.

Both Types, Price: \$3.95 (inc. S.T.)

### GELOSO V.F.O.

Model 4/104 V.f.o. Unit. Tunes 80, 40, 20, 15, 11 and 10 metres. Uses 6CL6 and 5763 valves. Price (valves extra), \$24.66.

Model 4/102 V.f.o. Unit. Tunes 80, 40, 20, 15 and 10 metres. Uses 6J5G, 6AU6 and 6L6 valves. Price (valves extra), \$24.66. Prices include Sales Tax.

4/105 Crystal controlled Beat Frequency Oscillator (valves extra), Price \$25.

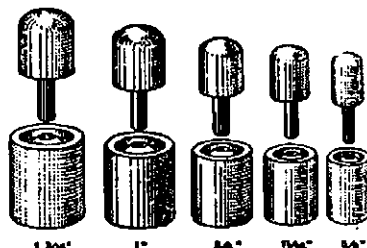
Notes on Circuit Application of Geloso V.f.o. Units available upon request. All Geloso V.f.o. Units are supplied complete with calibrated dial, pointer and perspex escutcheon.

### TRANSMISSION LINE EQUIPMENT

Formula III Low-Loss 300 ohm open wire Transmission Line. 100 ft. lengths, coiled and boxed. Price \$5.18 (inc. S. Tax).

14 gauge hard-drawn Copper Wire for Amateur Antenna Systems. Any length cut. Price: 8 cents per yard (inc. S. Tax). Porcelain Egg-type Insulators. Price: \$1 doz. (inc. S. Tax).

## PUNCHES



### WILLIS HAMMER DIE PUNCHES

WILLIS hammer type die punches are made to precise sizes for use in industry wherever a clean, round hole is wanted. Designed to punch down to 14 gauge steel. Centre remnant removed with a flick of the hand. Can be used in die press. Special sizes made to order at slight additional cost.

3/8 in. ....	\$2.40	1-1/2 in. ....	\$6.00
7/16 in. ....	\$2.40	1-5/8 in. ....	\$6.40
1/2 in. ....	\$2.60	1-3/4 in. ....	\$7.20
5/8 in. ....	\$2.80	1-7/8 in. ....	\$8.00
11/16 in. ....	\$2.80	2 in. ....	\$8.40
3/4 in. ....	\$3.00	2-1/16 in. ....	\$8.80
13/16 in. ....	\$3.20	2-1/8 in. ....	\$9.00
7/8 in. ....	\$3.80	2-3/16 in. ....	\$9.40
1 in. ....	\$3.80	2-1/4 in. ....	\$9.80
1-1/16 in. ....	\$4.00	2-5/16 in. ....	\$9.80
1-1/8 in. ....	\$4.00	2-3/8 in. ....	\$10.40
1-3/16 in. ....	\$5.00	2-1/2 in. ....	\$11.00
1-1/4 in. ....	\$5.20	2-3/4 in. ....	\$12.40
1-5/16 in. ....	\$5.20	3 in. ....	\$13.40
1-3/8 in. ....	\$5.80	3-1/4 in. ....	\$15.80
1-7/16 in. ....	\$5.80	3-1/2 in. ....	\$18.20

Trade Enquiries Invited

## A & R TOROID BALUNS

General Specifications: Power rating—Types A, B, C, 200 watts or 400 watts p.e.p., provided the s.w.r. is less than 2:1. Construction—Toroidal ferrite cores, fully encapsulated with epoxy resin and silica under vacuum. Suitable for use in cold to sub-tropical areas. All except 355C and 356C are provided with antenna insulator support brackets. Balun dimensions approx. 2 in. diam. x 1 in. plus socket and lugs. Weight approx. 3/4 to 4 oz.

Type 350A—Impedance ratio 1:1. 75 ohms unbalanced to 75 ohms balanced. 3 to 30 Mc. For use at centre of a dipole antenna with co-axial cable feed line or at base end with 75 ohm twin line. Co-axial connector is Belling & Lee L604/S and lug terminals. Price \$3.77 (inc. S.T.)

Type 351A—Impedance ratio 1:4. 75 ohms unbalanced to 300 ohms balanced. 3 to 30 Mc. For use at centre of a folded dipole antenna with co-axial feed line or at base end with 300 ohm twin line connector and terminals as 350A. Price \$3.77 (inc. S.T.)

Type 352A/BC—Details as 350A except frequency range 500 Kc. to 5 Mc., or to 30 Mc., for receiving purposes only with increased attenuation. Price \$6.77 (inc. S.T.)

Type 353B—This is a type 350 with a co-axial socket SO-239 (Amphenol screw type). Price \$4.39 (inc. S.T.)

Type 354B—Type 351 with SO-239 co-axial socket. Price \$4.39 (inc. S.T.)

Type 355C—Impedance ratio 2:1:1. 52 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. For use at the base of a mobile whip antenna, coupled to fixed or adjustable transmitter output impedance. Lug terminals. Price \$3.49 (inc. S.T.)

Type 356C—Impedance ratio 3:1:1. 78 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. Lug terminals. Use as 355C. Price \$3.49 (inc. S.T.)

# WILLIAM WILLIS & CO. PTY. LTD.

430 ELIZABETH STREET, MELBOURNE, C.I., VIC.

Phone 34-6539

# A Transistorised Amateur Band Receiver

PART THREE

HAROLD L. HEPBURN,\* VK3AFQ

BEFORE describing the local oscillator section of the Moorabbin Club project receiver, the results obtained during the testing of the finished b.f.o. units will be discussed.

This testing was done in two stages. Firstly, the two coils were checked for "out of circuit" resonance before being soldered on to the printed circuit board and, secondly, the completed units were tested for oscillation, wave form and frequency range. Both checks were done at various project meetings arranged for the purpose.

The test set up for measuring the "out of circuit" performance of the coils is given in Fig. 5.

Output from a 75 ohm signal generator was applied across the coil under test. The resonating capacitance for the oscillator coil was 1,100 pF. (2 x 2,200 pF. in series) and 300 pF. for the amplifier coil. A v.t.v.m. fitted with an r.f. probe, was connected across the test coil and used as a resonance indicator. A few coils were checked with core full in and core full out to determine the range of adjustment available but the majority of coils were checked with the core full in.

Results obtained are detailed in Tables 1 and 2.

Resonating Capacity pF.	Out of Circuit Resonance Kc.	Number of Coils in Group
1100 ±2½%	< 414	3
	415 - 419	1
	420 - 424	3
	425 - 429	10
	430 - 434	7
	435 - 439	3
	440 - 444	1
> 445	3	
Number of coils tested = 31.		
Average = 430 Kc.		

Table 1.—The Oscillator Coil, L1.

The spread of results on both coils was higher than expected, especially in the case of the amplifier coils. Investigation showed that—in all cases but one—coils exhibiting a high "out of circuit" resonance were improperly assembled. Either the ferrite ring was

loose in the can or was prevented from bedding down on to the base of the former by the winding wires. These faults were corrected in the obvious fashion. In the one unexplained case, the coil reacted properly after re-winding and may have had too few turns in the first place.

Of the three oscillator coils exhibiting a very low "out of circuit" reson-

Resonating Capacity pF.	Out of Circuit Resonance Kc.	Number of Coils in Group
300 ±2½%	< 489	1
	490 - 494	4
	495 - 499	3
	500 - 504	7
	505 - 509	-
	510 - 514	5
	515 - 519	3
	520 - 524	4
> 525	3	
Number of coils tested = 30.		
Overage = 507 Kc.		

Table 2.—The Amplifier Coil, L2.

ance, one was rewound with the correct number of turns and reacted correctly. The two remaining "low" coils were not rewound and after incorporation in the circuit would only just tune to 455 kc. with the b.f.o. trimmer capacitor at minimum capacity. It is assumed that these coils had been wound with too many turns.

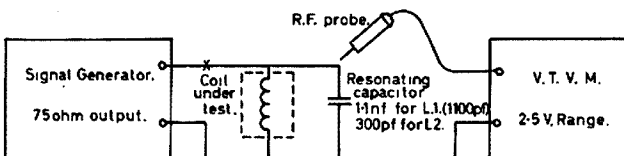
The equipment used to check the finished units is shown in Fig. 6.

Output from the unit was taken from the amplifier base and fed into a mechanical filter having a 455 kc. centre frequency and a 6 kc. bandpass at the -6 db. points. Output from the filter was fed into a c.r.o.

Adjustment was remarkably simple and consisted merely of setting the b.f.o. trimmer capacitor at half mesh and then adjusting the slug of the oscillator coil until a pattern was obtained on the c.r.o. The b.f.o. trimmer was then swung through its range and in most cases it was possible to tune the b.f.o. through the pass band of the filter.



Neil VK3ZRT and Harold VK3AFQ testing stage 1 audio boards at Moorabbin Radio Club's project meeting.



Note - If a high impedance signal generator is used, a series resistance of 3-10K should be inserted at the point marked "X".  
Fig. 5. COIL TESTING EQUIPMENT.

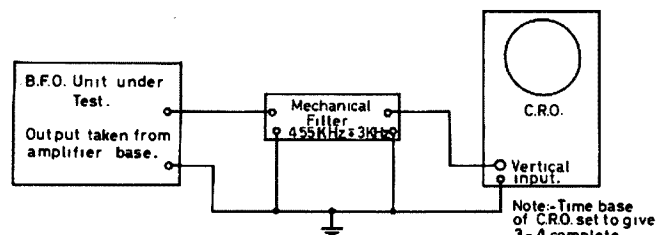


Fig. 6. B.F.O. UNIT TESTING EQUIPMENT.



# WARBURTON FRANKI

## LOUDSPEAKERS 4"

Available with 3.5, 8 or 15 ohm Voice Coil.

**\$1.50**

Plus S.T. 25%. Plus pack and post 10c.

## FILAMENT TRANSFORMERS DOUBLE WOUND

240v. to 6.3v. at 1 amp.

**75c**

Plus S.T. 25%. Plus pack and post 10c.

## RECTIFIERS

Bridge type. Contact cooled. Up to 20 volts at 1.5 amps.

**95c**

Plus S.T. 12½%. Plus pack and post 5c.

## STEREO CRYSTAL CARTRIDGES

Swiss made. Turnover type, w/Diamond Stereo/LP Stylus and Sapphire Standard Stylus.

**\$5.95**

Plus S.T. 25%. Plus pack and post 5c.

## MULTIMETERS 200H

The well known instrument with the fan-shaped dial. 20K o.p.v.

**\$9.50**

Plus S.T. 12½%. Plus pack and post 10c.

## CAR AERIALS

4-piece lock type, can be extended by use of key only. Cowl mounting.

**\$3.93**

Plus S.T. 25%. Plus pack and post 10c.

## RESISTORS

English Erie, 1 watt, ± 10%. Most preferred sizes available.

**50 for \$2.00**

Plus S.T. 25%. Plus pack and post 5c.

**DITTO ½ WATT 50 for \$1.00**

Plus S.T. 25%. Plus pack and post 5c.

## SMALL IMPORTED ELECTROLYTIC CONDENSERS

WHILE THEY LAST—ALL ONE PRICE!

**12c each, or lots of 50 \$5.00**

Plus S.T. 25%. Plus pack and post 10c.

2, 5, 10, 25, 50, 100 uF., 6v.w.      2, 5, 10, 25 uF., 12v.w.  
2, 5, 10, 50 uF., 25v.w.                2, 5, 10, 25 uF., 50v.w.

## SILICON DIODES

### SPECIALS

#### 1N3194

400 p.i.v. at 750 mA. Equivalent — OA210, 1763, etc.

**55c each** plus S.T. 25%

Lots of 12 — **50c each** plus S.T. 25%

Plus pack and post 5c

#### 1N3491

50 p.i.v. at 18 amps. Suitable for battery chargers, etc.

Either "K" or "A" to case available. **75c** plus S.T. 12½%.

Heat Sink Adaptors to suit ..... **25c** plus S.T. 12½%.

Plus pack and post 5c pair.

#### 1N3660

100 p.i.v. at 25 amps. Either "K" or "A" to case available

..... **\$1.25** plus S.T. 12½%.

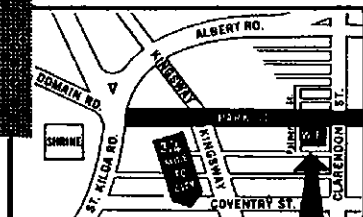
Heat Sink Adaptors to suit ..... **25c** plus S.T. 12½%.

Plus pack and post 5c pair.



# WARBURTON FRANKI

**220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines 69-0151**



Please include postage or freight with all orders



Two exceptions (noted above) would only just reach the lower side of the filter pass band and one would only just reach the high side of the filter.

Since the test is reasonably stringent the results imply that out of thirty-one units twenty-eight were correct and that the three exceptions were not more than 5-6 kc. off. Unless it was intended to use a mechanical filter centred on 455 kc. in the finished receiver, this minor variation would easily be taken up by centering the i.f. strip on the appropriate frequency.

Another twenty units were not tested at the project meeting, but all information to hand indicates that they are operating satisfactorily.

#### STAGE 4—LOCAL OSCILLATOR

The circuit diagram for the fourth stage of the receiver is given in Fig. 7. The emitter of the AF115N oscillator is tapped down the tank circuit by means of a capacitive divider formed by the 470 pF. and 1,000 pF. 5% silver mica condensers. These two in series provide 340 pF. of fixed tank capacity.

The tuning condenser is a Polar 15-392 single gang item. It was chosen for its excellent mechanical stability and ceramic insulation.

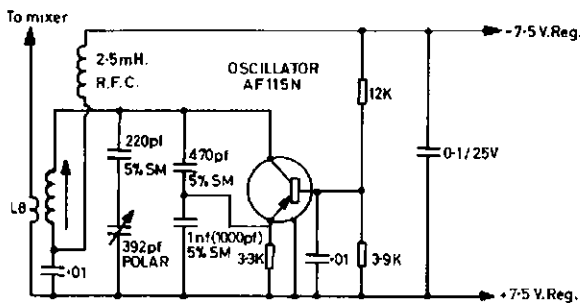


Fig. 7. **YK3APC.—LOCAL OSCILLATOR.**

The 220 pF. 5% silver mica series padder condenser restricts the effective tuning swing to about 140 pF. and under these circumstances the oscillator tunes 3.9 Mc. to 4.5 Mc. Since the oscillator is on the high side of the signal, the resultant tuning range is 3.45 to 4.05 Mc. This range covers the 80 metre band and is ideal for future use with h.f. converters.

Removal of the padder opens out the signal tuning range to approximately 2.7 to 4 Mc. and makes the receiver suitable for tuning any chosen 1.3 Mc. of say the 6 or 2 metre bands.

Use of the companion 15-500 pF. variable in the Polar catalogue would provide a greater coverage (which would approximate to 2.5 to 4 Mc.), giving a 1.5 Mc. section of the v.h.f. bands. This latter suggestion has not been tried.

The coil L8 consists of a 10 turn tuned winding of 29 B. and S. enamelled wire on a Ducon miniature Q2 pot core. The output link is a single turn of the same size wire.

The 0.01 and 0.1 uF. condensers are Ducon 25v. d.c.w. "Redcaps" and the three resistors are normal tolerance items.

The complete unit—like its predecessors—is built on a printed circuit board made specially for the project.

The dial and drive used on the receiver is a Jackson Brothers' 6/36. It has a dual speed drive, semi-circular scale and plastic cursor. In the forward direction the drive ratio is 6:1 and for the first reverse turn of the tuning knob is 36:1.

This dial seemed to be the ideal compromise between size, price and mechanical excellence. It is free from backlash and is readily calibrated for whatever frequency range is of interest.

In Melbourne it is obtainable from Ham Radio Supplies in Hawthorn.

Next month it is hoped to describe the final section of the receiver—the r.f. and mixer stages—and to give information on the (50 odd) i.f. strips now under construction.

#### ERRATA

It is regretted that three condensers were omitted from the diagram of the i.f. stage published last month.

A 100 uF. 15 volt electrolytic, paralleled with an 0.01 uF. 25 volt redcap, should have been shown across the 7.5 volt regulated rails, while a second 0.01 uF. 25 volt should be connected between the collector of the OC44 detector and ground (+7.5v.).

### Transistor Amplifier Design

(Continued from Page 9)

#### USING THE GRAPH

Look up the value of the resistor to be by-passed ( $R_x$ ) on the vertical scale, project a horizontal line across to the curve of the appropriate frequency. Where the horizontal line crosses the curve, draw a vertical line down to the horizontal axis (C) and read off the value of the capacitor and use the nearest value obtainable in your circuit.

Example: The emitter resistor of an i.f. amplifier at 455 kc. is 1K ohms.

A horizontal line drawn from 1K ohms on the  $R_x$  scale intersects the 455 kc. graph at a certain point. A vertical line drawn from this point down to the C-axis gives 0.35  $\mu$ F.

Well that is about the lot for i.f. and r.f. amplifiers. I have not covered all possibilities, but for most, the information presented above will help you to design and construct something to suit your needs.

#### REFERENCES

- "Transistors," by Milton S. Kiver.
- "Reference Manual of Transistor Circuits," by Mullard.
- "Fairchild Circuit Note B-4"—Fairchild.
- "A.R.," Sept. 1963 and May 1963.
- "73 Magazine," May, July, August 1965, January 1966.
- "Electronic Fundamentals and Applications," by John D. Ryder.

# LOW DRIFT CRYSTALS

FOR  
**AMATEUR  
BANDS**

ACCURACY 0.01% OF  
STATED FREQUENCY

**3.5 and 7 Mc.**

Unmounted, £2/10/0  
Mounted, £3/0/0

**12.5 and 14 Mc.**  
Fundamental Crystals,  
"Low Drift"  
Mounted only, £5.

THESE PRICES DO NOT  
INCLUDE SALES TAX

Spot Frequency Crystals  
Prices on Application.

Regrinds ..... £1/10/0

## MAXWELL HOWDEN

15 CLAREMONT CRES.,  
CANTERBURY, E.7,  
VICTORIA

# LOG BOOK

IS NOW AVAILABLE

Larger, spiral-bound pages  
with more writing space.

Price 7/6 each  
including Postage

Obtainable from your Divisional  
Secretary, or W.I.A., P.O. Box 36,  
East Melbourne, C.2, Victoria.

## "FIFTY AND OVER"

"Well, well, well. If it isn't my old friend Bill. Or should I say sister Mary's old friend Bill. Ha, ha, ha. Well, well, Bill. Haven't seen you since last night. Ha, ha, ha. You can come in because Mary's out. She knew you were coming. Ha, ha, ha. No, I don't mean it. She'll be back soon and until she comes I'll entertain you in the shack. I've just switched the transmitter on. We'll have some fun getting contacts. But no YL's for you, old man. You're hooked already. Ha, ha, ha.

"Let's tune around a bit and see what we get. There's Bert ZFC. Listen. He's just finished a contact. I'll call him. VK3ZFC, VK3ZFC, VK3ZFC, VK3ZFC, VK3ZFC. . . I'll give him a few more calls. Maybe the poor old man's deaf. VK3ZFC, VK3ZFC, VK3ZFC, VK3ZFC. This is VK3ZOM listening for you, old man. What's new in the chookhouse? VK3ZOM listening. Over.

VK3ZFC, VK3ZFC. Well, well, well. Glad to know you're still in the land of the living, Bert. Ha, ha, ha. O.K. about the new gear you're building. By the way I've got Bill here with me. He comes round every night to see me. Ha, ha, ha. Though he doesn't seem to be very interested in radio. He's got other fish to fry. Ha, ha, ha. Yes, we're going to build some gear here, too. We've got patents out for a electronic mouse-trap, a mother-in-law detector and lots of other things I can't tell you about over the air. Ha, ha, ha.

We're going to be pretty busy here when we get busy. Ha, ha, ha. Say hullo to Bert, Bill. You'll have to learn to speak up for yourself. If you don't do it now you won't get a chance later on, that's for sure. Ha, ha, ha.

That's right. Well I'll put it back to you, Bert, in case your receiver's packed up and I've been wasting my words on the desert air. Ha, ha, ha. VK3ZFC this is VK3ZOM pulling the big switch on the transmitter and pushing the little button on the receiver and listening for you. Over.

VK3ZFC, VK3ZFC. This is VK3ZOM pushing the big switch on the transmitter and returning. Bill missed your words of wisdom, old man. He suddenly remembered he wanted to get toffee for Mary so he's shot off down the street. Maybe the sight of the gear frightened him. Ha, ha, ha. Sorry you've got to go out. I was looking forward to a real long rag-chew. Don't seem to get them often nowadays. Everyone's so busy. I'm busy, too, but not that busy. Ha, ha. Never mind. I'll get you again soon. Cheers and beers and don't do anything I wouldn't. Ha, ha, ha. This is VK3ZOM off and clear with VK3ZFC and having a snoop round the band.

VK3AJE, VK3AJE, VK3AJE, VK3AJE, VK3AJE. VK3AJE, VK3AJE. This is VK3ZOM calling you. What say, Harry. Over.

VK3AJE, VK3AJE. Well, well. If it isn't old Harry. Ha, ha. Haven't heard you on the air for hours. And what's new in the State of Denmark? We've been very busy here doing lots of nothing. Ha, ha, ha. Anyway, back to you

she comes. VK3AJE this is VK3ZOM listening for you with both ears. Over.

VK3AJE, VK3AJE. In case you don't know it this is VK3ZOM returning. Well, well, well. Isn't that a coincidence. Must be a fight or a football match on this evening or something. Was just having a short and sweet contact with Bert. He had to go out, too. You'll have to get a mobile and then we can have a road chew. I mean a road rag chew. Ha, ha, ha. Well, cheers and beers and see you soon. This is VK3ZOM off and clear with VK3AJE and 'aving hanother 'unt—I mean having another hunt round the band . . .

Hullo sister Mary sweetheart. Yes, boy friend number one came in and shot out again to waste some money on you. Can't imagine why. Okay. I'll tell mum you've gone out with him. I'll be having a rag-chew if I can find anyone. Must be someone who hasn't got to rush out to a fire or something. Ha, ha.

Hullo CQ. Hullo CQ . . . Hullo CQ . . .

Hullo CQ. Hullo CQ. This is VK3ZOM with a sore throat looking for contacts. Isn't there anyone on the band? Or isn't the old transmitter working? . . . Hullo CQ. Hullo CQ. Hullo CQ . . . This is VK3ZOM closing down in disgust after talking to himself for the last half hour. Still even if the audience was small it was intelligent. Ha, ha, ha. Still I must say the band's not what it used to be. Never mind, we'll try again tomorrow. This is VK3ZOM pulling all the big switches and going to bye-bye.

—Roy Hartkopf, 34 Toolangi Road, Alphington, N.20, Vic.

## SIDEBAND TOPICS

Which manufacturer supplies each transceiver with an individual record of the v.f.o. temperature compensation-drift curve? **GALAXY** does that and no other! And with that graph there is a record of the drift compensation, never more than 500 cycles drift from cold to warmed-up and of the v.f.o. stability after 30 minutes warm-up period.

The **GALAXY** is a better bargain, better receiver, better a.v.c. action, sideband switching without frequency shift, up to \$100 savings with the full line of accessories.

- ★ **GALAXY V.** all-band Transceivers, with 240v. supply/speaker unit, \$600.
- ★ **Hy-Gain Beams:** TH3JR \$96; TH6DX \$200; 402BA \$150. **Hy-Gain Verticals:** 14AVQ \$44; 18AVQ \$70.
- ★ **ALLIANCE** and **C.D.R.** Antenna Rotators, 230v. a.c., \$55 to \$180.
- ★ **AUTRONIC** Automatic Keyers, \$70.
- ★ **Mobile** 12v. d.c.-d.c. Supplies, \$100 to \$120.
- ★ **WEBSTER ALL-BAND** Mobile Radiator, complete, \$48.
- ★ **5.7 Mc. and 9.0 Mc. Crystal Filters, Air Trimmers, Reduction Drives, hard-to-get Transceiver Tubes, Co-axial Cable Baluns, etc.** Sorry, no 572B Tubes yet, the manufacturer and Waters Co. have let me down!

### USED, RE-CONDITIONED EQUIPMENT

- **COLLINS 75S1** with Q-Multiplier; **COLLINS 32S1** with Collins a.c. supply, both immaculate condition, \$900 pair.
- **COLLINS** heavy duty 12v. d.c.-d.c. Supply, with **KWM-2** mobile mount, \$150.
- **Genuine SWAN SW240**, with neat home-made a.c. supply, \$275.

## SIDEBAND ELECTRONICS ENGINEERING

P.O. BOX 23, SPRINGWOOD, N.S.W.

Telephone: Springwood 51-1394

# NEW CALL SIGNS

JUNE 1966

VK1AN—R. C. Elliott, 37 Ingamells St., Gar-ran.  
 VK1ZBC—B. H. Christensen, 1 Bosch Place, Chifley.  
 VK1ZBJ—G. S. Jennings, 41 Carruthers St., Curtin.  
 VK2RC—J. M. Campbell, 10 Ingham St., Wyong.  
 VK2UQ—M. L. Steward, 68 Westbrook Ave., Wahroonga.  
 VK2BBC—J. R. Thyrd, 28 Hood Ave., Earlwood.  
 VK2BIA—H. E. Brown, 51 Miral St., Car-ningbah.  
 VK2BLC—G. C. Chenhall, 30 North St., West Dubbo.  
 VK2BUZ—G. K. Trevitt, 28 Schofield Ave., Earlwood.  
 VK2ZFG—G. T. Pile, 52 Clement St., Forbes.  
 VK2ZFY—K. L. Robinson, 8 Church St., Pymble.  
 VK2ZFY—A. J. Smith, 16 Loftus St., Katoomba.  
 VK2ZHF—J. F. Henneil, 564 Great Western H'way, Pendle Hill.  
 VK2ZNO—D. J. Waterhouse, 28 Rosebery Rd., Killara.  
 VK2ZPF—P. B. Fischer, 8 Aubrey Rd., North-bridge.  
 VK2ZTP—A. T. Deans, 29 Memorial Ave., St. Ives.  
 VK2ZTR—R. G. Turner, 32 Railway St., Went-worthville.  
 VK2ZXC—N. Deitch, 6 Water St., Camperdown.  
 VK2ZYF—North Shore Radio Club, 11 Ruby St., Mosman.  
 VK3AQ—R. J. Callander, 383 Warrigal Rd., Burwood.  
 VK3SL—M. L. Brane, 24 Ernest St., Broad-meadows.  
 VK3AAZ—P. H. Cole, 59 Aylmer St., North Balwyn.  
 VK3AEY—D. G. Semmens, Teachers' Resi-dence, Warrion, via Colac.  
 VK3AHS—W. Yates, 26 Henry St., Highett.  
 VK3AJV—R. E. Durrant, 1 Grosvenor St., North Blackburn.  
 VK3AMQ—G. C. Page, 72 Ursa St., North Balwyn.  
 VK3ATD—S. C. G. Macindoe, 101 Grange Rd., Toorak.  
 VK3AUW—B. J. Weldemann-Petersen, 58 Plen-ty Lane, Greensborough.  
 VK3ZIF—J. F. Holmes, 64 South St., Glenroy.  
 VK3ZRI—I. R. Price, 14 Wilks Ave., Malvern.  
 VK3ZRU—N. W. Ahrens, Diggers Rest.  
 VK3ZTS—P. J. Tyers, Tyers Rd., Bena.  
 VK3ZVC—M. T. Cole, 3 David St., East Bent-leigh.  
 VK3ZWK—W. M. Ketley, Flat 6, 3 Edward Ave., Dandenong.  
 VK4CO—G. Cole, Station: Nurses' Quarters, Chillagoe Hospital; Postal: C/o. P.O. Chillagoe.

VK4DU—J. K. McCarthy, Station: Maritime Mobile aboard M.V. "Pandemonium," Postal: 13 James St., Currumbin Beach.  
 VK4QT—A. Anderson, 1 Quarry St., Ipswich.  
 VK4UB—W. Dalgleish, 25 Crawford St., Red-cliffe.  
 VK4UD—R. C. Wright, 119 Elliot Heads Rd., Bundaberg.  
 VK4ZJC—R. J. Cummings, 56 Marsh St., Can-non Hill.  
 VK5QZ—J. A. Hackworth, 34 Oaklands Rd., Somerton Park.  
 VK5ZGO—G. K. Oates, 17 Angus Rd., Haw-thorn.  
 VK5ZPM—P. A. Matthews, 16 Gurr St., Good-wood Park.  
 VK6ZFE—L. M. Gierczycki, 88 Alexander Rd., Rivervale.  
 VK6ZFF—D. V. Robinson, 5 Jarvis St., Bun-bury.  
 VK6ZFR—P. C. L. Robertson, 9 Rutallip St., West Leederville.  
 VK8ZCF—H. Schroder, C/o Peko Mine, Ten-nant Creek.  
 VK9SR—Sopas Radio Club, S.D.A. Mission Hospital, Sopas, T.N.G.

☆

## SURVEY OF OCCUPANCY OF H.F. BANDS

Part of the work carried out at the Postmaster-General's receiving station at High Park, Victoria, for the I.F.R.B. is a survey of the occupancy of the h.f. bands. During these surveys, it is necessary to identify, rate (in SINPO code), and record all transmissions heard in the band.

To simplify the work for the opera-tors, a frequency measuring receiver had been designed and built having a range of 500 Kc. to 30 Mc. The fre-quency that the receiver is tuned to is shown on an eight digit in-line display. Accuracy is determined by the standard 1.0 Mc. crystal used in the counter, and in the present equipment will be 1 in 107.

The problems that had to be solved during the development of the counter mechanism which is attached to a standard communications receiver were many.

—Proceedings I.R.E.E. Australia, August, 1966.

## AUST. RESULTS OF WORLD-WIDE DX CONTEST, 1965

	C.W.			
*VK1DA	7	8,424	108	8
*VK2PV	A	140,430	321	59
VK2VN	A	73,080	207	42
VK2ADE	A	42,630	146	40
*VK2APK	14	74,706	317	32
†VK2GW	7	34,800	242	20
*VK3AXK	A	131,979	436	41
*VK3RJ	21	20,300	147	20
VK3ABA	21	10,500	102	14
†VK3ADB	14	295,596	788	35
VK3ABR	14	6,300	50	18
*VK3APN	7	12,240	102	17
†VK3XB	3.5	1,034	39	6
†VK4EL	21	80,178	396	21
*VK4UC	14	3,811	45	15
*VK4SS	7	8,964	85	18
VK5BS	A	2,112	33	13
*VK5KO	21	51,264	246	23
*VK5WC	14	8,106	83	18
*VK6RU	A	244,032	549	57
*VK7SM	A	72,974	252	42
VK9DR	14	120	7	4

### PHONE

*VK2APK	14	133,770	456	28
VK2VN	14	18,662	101	20
VK2WD	14	12,291	90	18
*VK3ATN	A	517,860	717	92
VK3LW	14	4,284	41	15
VK3XB	14	3,465	39	13
VK3KS	14	704	16	7
*VK4LT	A	141,750	360	49
VK4CK	A	5,049	51	17
*VK4EL	21	6,477	128	9
*VK4SD	14	118,692	339	34
VK5LC	14	3,116	28	16
*VK9DR	A	16,170	104	19

\* Certificate Winners.

† Continental Leaders—Single Band.

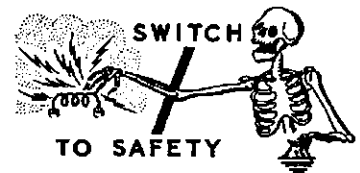
N.B.—Rules for the 1966 Contest are the same as for last year. Refer Octo-ber 1965 "Amateur Radio."

## TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R." in particular constructional arti-cles, photographs of stations and gear, together with articles suit-able for beginners, are required.

## ERRATA

Several embarrassing errors crept into the reprinted article last month, "The 80 and 40 Metre Transistor Spec-ial." In Fig. 1 the "transmit" side of switch SIB is shown connected to the two bases of Q3 and Q4, whereas it should be connected to the two collec-tors instead. The r.f. choke at the input of L1 should be 10 microhenries in-stead of 10 millihenries as shown. Col-lector current for the oscillator is 7.5 mA; for the buffer, 100 mA; and for the p.a., 800 mA., all with a 25v. supply, on 80 meters.



## ANOTHER WINNER FROM THE JOYSTICK STABLES THE JOYSTICK DX-MAGNET V.F.A.

Introducing this NEW LOW PRICED model of the  
WORLD FAMOUS "JOYSTICK" Antenna!!!

- 7' 6" long assembled, 2' 8" packed.
- Especially suitable for all receiving purposes and medium power trans-mitting. 1.4 to 32 Mc.
- The ideal antenna for all band work on DX-peditions and all portable applications.
- Lean it against the wall, hide it behind the window pelmet, lay it under the bed. Wherever you put it, the "JOYSTICK" DX-MAGNET gives an amazing account of itself.
- Do not confuse the "JOYSTICK" with conventional loaded whips—there is nothing conventional about the "JOYSTICK."

### SPECIAL INTRODUCTORY OFFER!

Complete "JOYSTICK" DX-MAGNET system comprising: DX-MAGNET V.F.A., "JOYMATCH" Type 3 A.T.U., 8 ft. special feeder, \$20.10 only!! (extra feeder 10 ft. for 30c)

The Revolutionary DX-Magnet V.F.A. (world patents pending) has been acclaimed already by G2FRY and G3HTU who report performance up to usual high "JOYSTICK" standard.

PENNANT IMPORTS (ELECTRONICS) CO.  
P.O. Box 26, Bectroft, N.S.W.

**CRYSTAL  DIVISION**

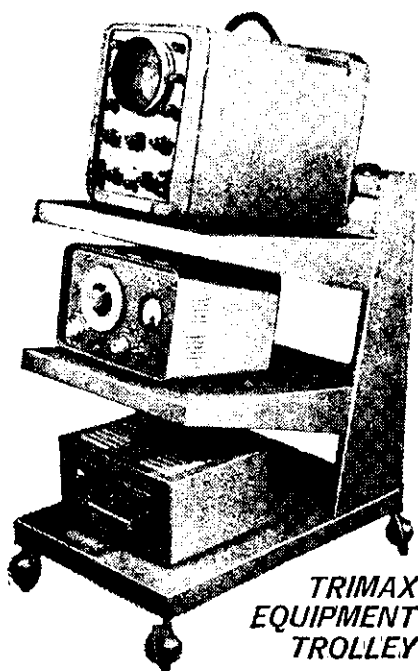
## New Lower Prices for Close Tolerance Gold Plated Crystals for Amateur Applications

	Amateur Net (each includ. Tax)
★ 1.8 Mc. to 14.999 Mc. ± 0.005%. In Style "D" Holders, ½" pin spacing	<b>\$4.85</b>
★ 15.0 Mc. to 47.999 Mc. ± 0.005%. In Style "D" Holders, ½" pin spacing	<b>\$5.05</b>
★ 48.0 Mc. to 61.0 Mc. . ± 0.005%. In Style "D" Holders, ½" pin spacing	<b>\$5.65</b>
★ 100.0 Kc. . . . . ± 0.005%. In Style HC13/U Holders, ½" pin spacing	<b>\$9.00</b>
★ 1.0 Mc. . . . . ± 0.005%. In Style "D" Holders, ½" pin spacing	<b>\$9.00</b>

Many other types and tolerances are available from our standard production.  
Please consult us on your Crystal requirements.

### PYE PTY. LTD.

<b>MELBOURNE:</b>	<b>P.O. BOX 105, CLAYTON</b>	<b>Phone 544-0361</b>
<b>BRISBANE:</b>	<b>97 MERIVALE ST., SOUTH BRISBANE</b>	.. 4-1571
<b>SYDNEY:</b>	<b>59 ARUNDEL ST., FOREST LODGE</b>	.. 68-4111
<b>ADELAIDE:</b>	<b>1 IFOULD STREET, ADELAIDE</b>	.. 23-3183
<b>PERTH:</b>	<b>151-155 BRISBANE STREET, PERTH</b>	.. 28-4338
<b>HOBART:</b>	<b>141 MURRAY STREET, HOBART</b>	.. 3-3707



**'SMOOTHEST  
MOVEMENT  
brings Australia-wide  
acceptance!**

Success shown by Australia-wide sales of the Trimax Laboratory Equipment Trolley is due to functional design, use of high quality rubber tyred swivelling castors, and finest workmanship.

Fitted (as illustrated), the unit is ideal for moving heavy electronic test equipment. By inverting the shelves, the unit becomes an ideal mobile production trolley with deep, easily accessible trays.

Made in standard order, the Trolley is finished in grey hammertone metal. Available with or without three mains outlet sockets which allows mains-operated equipment to be supplied by one extension lead.

Trolley supplied in easy-to-assemble knock-down form for economic transport.

**TRIMAX  
EQUIPMENT  
TROLLEY**



**LM ERICSSON PTY. LTD.**

**"TRIMAX" DIVISION**

FACTORY: GNR. WILLIAMS RD. & CHARLES ST., NORTH COBURG, VICTORIA. 'PHONE: 35-1203 . . . TELEGRAPHIC ADDRESS: "TRIMAX" MELB. L37/A



# YO AWARDS

## GENERAL RULES

The gallant idea of peaceful coexistence among people, as well as the tightening of friendly relations with all Radio Amateurs of the world, has animated the Central Commission of the Radio Sport of Rumania to sponsor a number of valuable awards.

All Radio Amateurs are entitled to these awards, by carrying out the conditions required for each particular award, under the following general rules:

Bands: 3.5, 7, 14, 21, 28 Mc.  
Mode: CW, AM, SSB, mixed.  
RST: Minimum 338; RS: Minimum 33.  
All contacts have to be confirmed by QSL cards. YO cards being in the applicant's possession. (Exception to this rule may be granted for QSOs made during the international contests.)  
YO awards are not issued for various modes, but each class is a separate award.  
The application is of GCR kind, and the log will be certified either by the awards manager of the Association, or by two licensed Radio Amateurs, having checked the validity of the sighted QSL cards. Thus, the original QSL cards are not needed for checking, but CCSR may, at any time, require some cards, or extracts of contest logs, for a direct inspection.

The fee for any award and class is 7 IRC's or \$1.00 (packing and mailing included).  
All SWLs may get these awards in accordance with the above mentioned rules.

DXCC and WAE official lists will be the basis for all YO awards.

Applications for all YO awards will be addressed to: Central Radio Club, P.O. Box 1395, Bucharest V., Rumania.

The awards will be issued only after the YO stations listed in the application logs have received the applicants QSL cards.

When there are fears that some cards have gone astray, the applicant is urged to send new QSL cards for the YO Hams, together with his application.

QSL cards must be sent for all YO contacts made during contests, too.

The applicants may get, at their request, YO badges too, at a cost of 7 IRC's or \$1.00 each.

## YO-AD—WORKED ALL YO DISTRICTS

The award is issued for two-way contacts with YO stations located in all YO districts, namely: YO2, YO3, YO4, YO5, YO8, YO7, YO8, YO9.

The award has three classes: Class I., for working all 8 districts; Class II., 6 districts; Class III., 4 districts. Each YO district worked will be awarded by a specific seal on the certificate.

A district is considered to be fully worked after two-way contacts with a minimum number of YO stations located in that district, depending on the applicant's location zone, as follows:

Location Zone	No. of QSOs needed for each YO district		
	Class I.	Class II.	Class III.
15, 16, 20	10	8	3
14, 17, 21, 33, 34	6	4	2
All other Zones	3	2	1

A YO station may be worked but once. Valid contacts after 1/1/60.

## YO-AM—YO ALMA MATER

This festive award is issued to celebrate the 100th anniversary of Bucharest University.

For this award only contacts after 15/7/64 will count. Depending on his location, the applicant has to gather the following number of points:

Location Zone	Need.	Pts. scored per contact			
		3.5	7	14	21 28 M.
15, 16, 20	60	3	1	1	4 8
14, 17, 21, 33, 34	40	4	2	1	3 6
All other Zones	20	8	3	1	2 4

The points mentioned above are scored for working different YO stations.

Working the same YO station on several bands, the points scored for these contacts will be multiplied by 2 for 2 bands, by 3 for 3 bands, by 4 for 4 bands, and by 5 for 5 bands. For instance: A Ham located in Zone 33 had 4 contacts with the same station on 3.5, 7, 14, 21 Mc. bands. The overall score for these contacts will be: 4 plus 2 plus 1 plus 3 equals 10 multiplied by 4, equals 40 points, which is enough to get the award.

## YO-BZ—WORKED BALKANS PEACE ZONE

This award is issued in three classes, for contacts made after 1/1/60, in accordance with the following rules:

Stations outside Europe (DX): Class I., 5 countries and 10 districts; Class II., 4 and 8; Class III., 3 and 6; including a minimum of three YO districts.

Balkan countries and districts considered for this award are:

Countries	Districts
1. BULGARIA	LZ1, LZ2
2. GREECE	SV
3. CRETE	SV
4. DODECANESE	SV
5. TURKEY	TA (European part)
6. ALBANIA	ZA
7. RUMANIA	YO2, YO3, YO4, YO5, YO6, YO7, YO8, YO9.
8. YUGOSLAVIA	YU1, YU2, YU3, YU4, YU5, YU6.

## YO-CM—YO CHECK MATE

This award is issued for contacts made after 1/1/60 with YO stations under following conditions:

The applicant keeps a record of his contacts like this:

A chess-board is chronologically numbered from 1-64 (the first row with figures from 1-8; the second row with figures from 9-16, etc.).

On the first row of squares (1-8) and on the eighth one (57-64) you will fill in the call signs of the YO DX Club members you have worked.

On the second row of squares (9-16) and on the seventh one (49-56) respectively, you will fill in the call signs of other YO DX Club members, or some of those of the 1st or 8th rows worked on other bands.

The 2nd and the 7th rows may be filled in also with other YO stations which are not members of the YO DX Club, but whose call signs include—among the last 2 or 3 personal letters—at least one letter identical with one of the last 2 or 3 personal call letters of an existing call sign of the 1st or 8th rows.

For instance: On the 3rd square is filled in the call sign YO6AW; on the 11th square you may fill in, for instance, either YO7WC, or YO5XA.

Consequently, there are needed 32 contacts with YO stations, including a minimum of 16 contacts with YO DX Club members.

It is suggested that the applicant should send—together with his regular application log form—the sketch of a chess-board with the call signs of all YO stations worked, filled in on the respective squares, in accordance with the above mentioned rules.

Radio Amateurs succeeding to fill the whole chess-board (64 YO contacts), including a minimum of 16 YO DX Club members, will receive the "YO Check Mate" award.

## YO-DC—WORKED DOUBLE CALL

There are needed 26 contacts with stations whose call signs have two identical letters after the district (or state) figure. (Combinations of 3 letters are not accepted).

These "double call" call signs must form the whole latin alphabet (i.e. ... AA to ... ZZ).

At least 15 different countries must be represented (DXCC list). For any country, only as much as 5 contacts will be considered for this award (there is no limitation for YO "double call" contacts), but European Amateurs have to work at least 4 YO "double call," and DX Hams at least 2 YO "double call." Valid contacts after 1/1/60.

## YO-DR—WORKED ALL DANUBE RIVER COUNTRIES

There are needed two-way contacts with Amateur stations located in the riparian countries of the Danube River, namely: DJ-DL, OE, OK, HA, YU, LZ, YO and UE5.

DX stations must have 2 contacts with each country mentioned above on any 2 different bands, plus 3 contacts with YO stations, on at least any 2 different bands.

Out of the needed contacts, at least 3 QSOs must confirm contacts with stations located in 3 different towns on the Danube River.

A YO station may be worked but once. Valid contacts after 1/1/60.

## YO-DX-C—WORKED YO DX CLUB MEMBERS

There are needed two-way contacts with YO DX Club members after 1/1/63, as follows:

Oceania Hams, 2 QSOs.

The following stations are member-stations of the YO DX Club at 1/8/65:

YO2BB, YO2BN, YO2BU, YO2CD, YO2FU, YO2IB, YO2QM, YO2KAE, YO2KAC, YO3AC, YO3CR, YO3FF, YO3IF, YO3IW, YO3RD, YO3RF, YO3RG, YO3RH, YO3RK, YO3RO, YO3RX, YO3VN, YO3YZ, YO3KAA, YO3KSD.

YO4CT, YO4WU, YO4KCA.

YO5LC.

YO6AW, YO6XI.

YO7DL, YO7DO, YO7DZ.

YO8CF, YO8DD, YO8RL, YO8KAE, YO8KAN.

YO9CN, YO9IA, YO9VI, YO9WL.

New members will be periodically made known.

Foreign Radio Amateurs completing the required conditions for the award during a YO Contest, may apply for "Honorary Membership" of the YO DX Club.

## YO-LC—WORKED YO LARGE CITIES

There are needed a number of contacts with YO stations residing in the large cities of Rumania:

Alexandria, Arad.

Bucuresti, Bacau, Baja Mare, Birlad, Botosani, Brasov, Braila, Buzau.

Calaras, Cimpina, Cimpulung Muscel, Cluj, Constanta, Craiova.

Deva.

Fagaras, Focsani.

Galati, Giurgiu, Gheorghiu-Dej.

Hunedoara.

Lugol, Lasi.

Medgidia, Medias.

Oras Georgehe, Oradea.

Petrosani, Piatra Neam, Pitesti, Ploiesti.

Resita, Roman, Rosiori de Vede, Rimnicu-Vilcea.

Sibiu, Sighetul-Marmatiei, Sighisoara, and Suceava.

Timisoara, Tigul Mures, Turda, Tulcea, Turnu-Severin.

Only one contact is allowed with each of the cities mentioned above, regardless of band, or mode. Class III., 10 cities; II. 20, I. 30. Valid contacts after 1/1/80.

## YO-NC—WORKED NAMESAKE CALLS

This award is issued for at least five two-way contacts between partners having the same personal 1, 2 or 3 call letters after the district (or state) figure.

For instance: YO3VN, HG3VN, OE1VN, W6VN, SM5VN, etc.

The same station may be worked but once.

Amateurs having a call sign with two personal call letters after the figure must make also a "namesake" contact with a YO station.

## YO-5 ON 5—WORKED 5 CONTINENTS ON 5 BANDS

There are needed 6 two-way contacts with 5 DX continents, each on a different band.

There are 6 continents: Asia, Africa, Europe, North America, Oceania and South America.

Own continent does not count for this award.

Additionally are needed a number of YO contacts as follows: DX Stations, 2 YO contacts. Valid contacts after 1/1/60.

## YO-10 BY 10—WORKED 10 YO ON 10 MX

There are needed 10 two-way contacts with 10 YO stations on 10 metre band (28 Mc.) after 1/1/58. A YO station may be worked but once, regardless of the mode of the contact.

(Other awards of this series will appear in a later issue.—Ed.)



## Amateur Radio Hall of Fame Announced

An International Amateur Hall of Fame is being organized to provide permanent recognition of individual contributions made by Hams around the world to the advancement of Amateur Radio.

Each year five Amateurs will be honoured by having their names and calls inscribed on a plaque to be displayed on the premises of the International Amateur Radio Club in Geneva, Switzerland. Each of the five will receive a replica of the plaque.

The five Amateurs will be selected from nominees submitted by fellow Amateurs from all parts of the world to a board of distinguished judges, themselves internationally known to the Ham fraternity. Nominations will be called for in the following fields of activity: (a) Advancements in electronic techniques and equipments; (b) Traffic and DX activity; (c) Achievements in exotic phases of Amateur Radio, i.e. Moonbounce, Oscar, Space Probes; (d) Emergency and Disaster communications; (e) Development of Amateur Radio. Nominees may be any man or woman holding a Radio Amateur's licence issued by a recognised authority in a member country of the I.T.U.

As a public service the Hallcrafters Company will provide the plaques and will donate advertising space for the announcements during the programme.

Amateurs everywhere are invited to join in honouring those Amateurs who have made significant contributions to the art in their respective fields by submitting their names, calls and a brief outline of accomplishment by December 31, 1968, through their Divisional Secretary, to Dorothy Strauber, K2MGE, Secretary, International Amateur Radio Hall of Fame, 12 Elm Street, Lynbrook, N.Y. 11563.

# STOCKTAKING CLEARANCE SALE

Now is your opportunity to obtain commercial equipment at low prices!


★ GALAXY III. Triband Transceiver	.....	\$419.91 incl. tax
★ GALAXY V. Transceiver, five bands	.....	\$563.90 " "
★ GALAXY 240v. a.c. Power Supply	.....	\$108.65 " "
★ HALLICRAFTERS SR150 Transceiver, a.m., c.w., sideband	.....	\$481.25 " "
★ HALLICRAFTERS SX111 Amateur Band Receiver	.....	\$160.00 " "
★ HALLICRAFTERS SX107 General Coverage Receiver	.....	\$62.50 " "
★ HALLICRAFTERS SX122 De Luxe General Coverage Receiver	.....	\$533.33 " "
★ HALLICRAFTERS SX146 latest selective sideband Amateur Receiver, matches HT46 Transmitter	.....	\$450.00 " "
★ HALLICRAFTERS HT46 full coverage Amateur Transmitter, transceives with matching SX146 Receiver	.....	\$507.00 " "
★ SWAN T.C. Units, suit SW240 and SW350	.....	\$60.00 " "

W.F.S. ELECTRONICS SUPPLY CO.

ATLANTIC RADIO

227 Victoria Road, Rydalmere, N.S.W. 638-1715

36 Oxford St., Woollahra, N.S.W. 31-7811



**TRANSFORMERS**  
**A & R**  
MELB. AUST.

## STOCK TRANSFORMERS for Popular Projects!

PUBLICATION	PROJECT	A & R TRANSFORMER TYPE
OUTLOOK MAY-JUNE 1966	3 Watt Transistor Stereo Amp.	PT5990
ELECT. AUST. JUNE 1966	Regulated Power Supply	PT1940
ELECT. AUST. JUNE 1966	Basic Stereo Amplifier	T1889
		Z3040
		K5/15 (2 req'd)
ELEC. AUST. MAY 1966	A Battery Charger for your Car.	PT5786
ELEC. AUST. MAY 1966	1966 R-C Bridge	PT2150
ELEC. AUST. MAY 1966	THREE Band Short Wave Converter	PT5890
ELEC. AUST. APRIL 1966	Twin 5 Watt Class A Transistor Stereo Amp.	Z3200 (2 req'd)
OUTLOOK JULY-AUG. 1965		Z3212
OUTLOOK JAN.-FEB. 1966	Protected DC Supply	PT5755
ELEC. AUST. APRIL 1966		PT2150
ELEC. AUST. APRIL 1966	3 Band Double Change Receiver	PT2062
		Z3040
		OT E7/15
ELEC. AUST. MARCH 1966	Playmaster 113 Stereo Power Amp.	PT5721
		PT TD19 (2 req'd)
ELEC. AUST. FEB. 1966	A Four Channel Audio Mixer	PT2150 (for AC Supply)
ELEC. AUST. FEB. 1966	Playmaster 112 Transistor Control Unit	PT2150 (for AC Supply)
ELEC. AUST. FEB. 1966	The 1966 Vacuum Tube Voltmeter	PT5890
ELEC. AUST. JUNE 1965	A Two Band Short Wave Converter	PT5890
ELEC. AUST. DEC. 1965	A Simple Public Address Amp.	PT1993
		OT E7/15
ELEC. AUST. OCT.-NOV. 1965	Playmaster Program Source	PT1993
ELEC. AUST. SEPT. 1964	A Powered Monitor for Radio Systems	PT5890
ELEC. AUST. AUG. 1964	A Practical Photographic Timer	PT5890

**Available from all leading Stockists!**

**A & R TRANSFORMERS PTY. LTD. 42-46 Lexton Rd., Box Hill, Vic. (Box Hill P.O. Box 170) Phone 89 0238**

# VHF

Sub-Editor: CYRIL MAUDE, VK3ZCK  
2 Clarendon St., Avondale Heights, W.2, Vic.

Well it's news time again and I hope that all the v.h.f.ers I heard giving numbers for the R.D. Contest have sent in their logs. It appears from the notes from Interstate that most v.h.f. Amateurs are preparing for the summer months with new gear and higher power. I wonder if those who plan to work DX this summer on 2 mx would like to let me know their normal operating frequencies so that the chaps in other States will know where to look for them. If I get a satisfactory response I will list them in "A.R." Those planning to operate 6 mx during the coming DX season are requested to read the letter regarding 6 mx operation in Channel 0 service areas that appeared in "A.R." and in "Electronics Australia," Feb. 1960, pp. 109, 110.

73, Cyril 3ZCK.

## NET FREQUENCIES

The following net frequencies are known to be in use within Australia:—

1.825 Mc. a.m.

28.22 Mc. a.m.; 28.60 Mc. s.s.b.

52.525 Mc. f.m., international 6 mx net frequency; 52.90 Mc. a.m., W.I.C.E.N.; 52.656 Mc. f.m.; 52.765 Mc. f.m.; 53.032 Mc. a.m.; 53.20 Mc. a.m., W.I.C.E.N.; 53.982 Mc. a.m.

144.05-144.15 Mc. a.m., Oscar frequency channel; 144.050 Mc. f.m., VK3 channel X repeater; 144.1 Mc. a.m.; 144.188 Mc. a.m.; 144.5 Mc. a.m.; 145.854 Mc. f.m., channel A; 146.000 Mc. f.m., channel B; 146.146 Mc. f.m. channel C; 147.8 f.m., VK3WI link; 147.950 Mc. f.m., VK3 channel Y repeater.

435.00 Mc. f.m.

It would be appreciated if people forming their own private nets would use one of the frequencies listed above so as to reduce the interference caused by operating within the limits of the receiver pass band. If you have any queries the VK3 Division would be quite willing to assist you. If any net frequencies are not listed, the V.h.f. Publicity Officer, Cyril 3ZCK, would like to receive full details so that the list can be amended. Please send all details including area of operation, frequency, type of transmission, polarisation, number of active operators.

## VK3 V.H.F. CONVENTION

The VK3 V.h.f. Group's third annual Convention will be held over the week-end 8th and 9th October. Saturday's events will be held in the Moorabbin area close to the QTH of Jack 3ZJF. On Sunday, the headquarters will be the Mornington Youth Club Hall close to Jim 3ZJM. Full details can be obtained from Peter Wolfenden, VK3ZPA, 423 Pascoe Vale Rd., Strathmore, or phone 378-5208.

## OSCAR NEWS

Euroscar, the German satellite, is undergoing balloon tests in Europe at the moment and will be despatched to the States shortly. The satellite will carry a translator and a 432 Mc. beacon. The translator frequencies will be: in, 144.05 to 144.15, and out, 145.85-145.95 Mc. The orbit will be similar to Oscar III, and it should be in orbit some time in the New Year.

Australis, the Australian satellite, is well under way. At the request of the Oscar organisers the Australis beacon will now transmit the call of HI instead of VK.

Australis frequencies are 144.050 to 29.450 Mc., the package will be sent to the States later this year and should be launched by the middle of 1967.

## HUNTER RIVER BRANCH

52 Mc.: This band is very quiet, only the locals on the week-end skeys at 10 a.m. Under fair conditions, Barry 2ZUB can work a few Sydney stations. Some of the boys are working on new converters or tx's, getting ready for the summer months, also for our Field Day in October. Kev 2ZKW has started to build a blackbuster for this band and has wound all the transformers for the power supply. He has even wound the modulation trans-

former. Mac 2ZMO has also started on a small 2E26 rig for this band.

144 Mc.: This band has also been quiet, most evenings. Tony 2ZCT did well in the R.D. Contest, 154 contacts. Also as there was a v.h.f. contest run by the VK2 Division of the W.I.A. at the same time as the R.D. Contest, this also helped. Others heard with fair scores were Colin 2YJ, Gordon 2ZSG, Dave 2ZFR, and also heard during the contest were 2ZFX, 2ZWM, 2ZMO, 2ZKW and others.

Sydney has been heard at times and worked by some who have good QTHs. Kevin 2ZKW has been working on mobile gear, plus a new rx. Dave 2ZFR has had rx trouble and study has also kept him off the air quite a bit. New Ham in Raymond Terrace is Bob 2ZGU who only got his ticket recently and is building gear. Mac 2ZMO has finished building the new tx for Ron 2ASJ. 73, Mac 2ZMO.

## NEW SOUTH WALES

The biggest event to have taken place for some time was the R.D. Contest. The contest soon developed into a dual between Tony 2ZCT, Chris 2ZDD and myself 2ZSK. At the moment it appears that 2ZCT is first, 2ZSK 2nd, and possibly 2ZDD 3rd. Let us all hope that there will be a section for limited licensees in next year's contest, which will allow the Z call to participate for his State. If anyone has ideas on this subject I for one would be quite interested to correspond with them, as no doubt F.C.C. would also like to hear your ideas, and remember brother Z calls, if you don't express logical comments on this matter, we may never see a national section for this contest—the most important of the year.

The August meeting of the Group was well attended, the lecturer for the evening being Lionel 2ZLD who removed the mystery from printed circuit boards and their design. This was a very good talk and practical demonstration and I am sure that everyone present learnt something.

The V.h.f. Group's Morse training programme on 2 mx is proceeding very well due to the efforts of Mick 2ARF, Norm 2PQ and our coordinator Alf 2ZIW. This session commences at 2000 hrs. local time each night except Sunday. The call sign used is 2BWI and frequency is approximately 144.75 Mc.

There is still a good deal of activity on 2 mx each night. This of course is very good and it is hoped by the committee that it keeps up. Remember, if we don't use our bands, we could lose them.

The arrangements for the New Year's Field Day are almost complete. There has been a slight change in scoring in one zone. This won't make any real differences however and final rules should appear next month.

There is another net frequency in operation. This time it is the Wooden Spoon net who seem to have chosen 144.188 as the operating channel. The net is growing rapidly, there being about 20 members now, and growing bigger all the time. The group also has the North Shore Radio Club, 2ZYF. This call is used whenever a group goes portable on field days, etc., so as to have no particular call sign favoured. It is also useful in contests and for other special occasions.

We also have another club call sign on the air, namely the Lakemba Radio Club 2BLR. Keith 2ZVL has been heard using this call on several occasions, so it appears that a rather old club is being revived again. 73, Stephen 2ZSK.

## VICTORIA

Activity over the past month has shown quite an increase especially on 6 mx where you can find quite a number of stations operating at all times of the day and night.

2 mx fox hunts and scrambles are still drawing the numbers and appear to be gaining popularity. For the interest of Interstate visitors to Melbourne, the run of activities is as follows each month: 2nd Sunday, at 2045 hrs., 2 mx scramble; 3rd Wednesday, 2000 hrs. V.h.f. Group meeting; 4th Wednesday, 2000 hrs. 2 mx fox hunt. Anyone wanting further information on these functions can telephone Cyril 3ZCK in Melbourne on 317-7579.

During the coming summer months a series of field days will be held. All frequencies above 52 Mc. can be used. The dates of field days are: Oct. 23, Nov. 20, Dec. 18. January to be decided, Feb. 11-12 (N.F.D.), March 19. See you all at the VK3 Convention, 73, Cyril 3ZCK.

## QUEENSLAND

V.h.f. activity in VK3 has been impressive during the last month. Seventeen members attended the monthly V.h.f. Group meeting at which some important questions were resolved. Results of the Sunshine State Contest were announced during August and it was noted that there was about three times the activity on the v.h.f. bands as there was on the h.f. bands.

Visitors to Brisbane during the latter part of the month included Reg 7RL and Bob 4ZRG. Roy 3ZOM was in and out of Brisbane a couple of times but was mostly heard from 4ZLG's shack. Roy 4ZRM has a new 417A 144 Mc. converter which seems to be working extremely well. Lloyd 4ZLO has been working Brisbane again from the Gold Coast. Bill 4ZBD has been in the text books looking for a suitable stacked array for 432 Mc., while Tom 4ZAL is at last a good signal on 144 Mc. with his driver.

The latter part of October should bring the first DX openings of the season on 52 Mc. However, this year many more VK4s will be looking for openings on 144 Mc. Maybe even 4RX will be on! 73, Peter 4ZPL.

## SOUTH AUSTRALIA

Reminiscence of the summer DX season, the 1966 Remembrance Day Contest saw spontaneous activity from the moment the contest started until its completion. Characteristic, nonetheless has been the virtual non-existence of v.h.f. activity ever since. It would appear these days that unless a "special" is offering, the majority of v.h.f. Amateurs are just not interested in furthering the art within the confines of VK5.

Digressing from the v.h.f. bands somewhat, it was interesting to note that six out of the top seven logs to be submitted for the h.f. section are by operators drawn from the v.h.f. ranks and active members at that. They are 5EF, 5NY, 5KM, 5IZ, 5EK and 5ZE. The other high scorer in 5NN does appear on 6 mx mobile occasionally, therefore by some stretch of the imagination all seven could possibly be classified as v.h.f. operators.

The most recent bi-monthly meeting of the VK5 V.h.f. Group was held on August 5. The lecture was on Amateur Television and was most capably delivered by Maitland Lane, 5AO. The lecture was both practical and theoretical as Maitland had brought along his complete closed circuit system to demonstrate.

It would appear that 146 Mc. channel B f.m. has made its mark in VK5. Approximately 15 units have been commissioned into service and from all accounts the channel is always occupied. However, it has had the detrimental effect of reducing 2 mx activity on the lower end of the band. Whether this reduction in activity on the lower portion of the 2 mx spectrum is permanent or temporary remains to be seen. Nonetheless, the weather map watchers have never had it so free from QRM which will please them no end—well until the DX rears its head again.

Recently Peter 5ZKA has completed 4 x 7 element Yagis stacked for 2 mx. Peter has only managed to lift them 15 ft. off the ground level and as yet has not had the opportunity to assess their performance. However, he has also managed to acquire a 75 ft. freestanding tower and is presently working feverishly to erect it. Jim 5ZMJ at Port Pirie is currently working on a sideband rig for 2 mx. His 14 Mc. exciter is complete and awaiting a check-out. In the meantime the transverter is being constructed. Jim is anticipating that when he makes it on to s.s.b. his t.v.i. problems will be reduced, thus allowing him to come on 2 mx prior to his usual time of 11 p.m.

The latest information on the VK5 v.h.f. beacon tx's received from Bob 5ZDX is that they will be recommissioned in plenty of time before the DX season commences. Many Interstate Amateurs have become dependent on our beacons, but apart from VK6 we receive no assistance from beacons at all. Seeing the door is wide open in regard to obtaining licensing conditions, there is no reason whatsoever that beacons from VK2, VK3, VK4 and VK7 should not be heard throughout VK land. How about it fellows? 73, Colin 5ZHI.

## WESTERN AUSTRALIA

There has been in the past year a falling off in activity, possibly due to various members of the group being posted to the country. However, we have some new, keen, upcoming members and activity appears on the rise again. We hope this trend will continue.

Some people put the fall of activity to the f.m. channel. This is partially correct, but it has its merits as well as its demerits. We have found that working with one set of equipment on one fixed frequency with limited antennae such as whips, or at the best, three element beams and relatively low powers, quite long distances have been accomplished. This, I feel, is due to getting to know one's equipment and having all the equipment working properly and not having a lot of equipment working only partially. An example of this has been Yunderup to Perth with only mobile equipment and relatively low powers with unsophisticated antennae, also Bunbury to Perth.

The net frequency operation can, however, be carried too far by the use of only one set. Net operation has been found to be desirable. However, there is room for more net chan-

(Continued on Page 20)



# SWL

Sub-Editor: D. GRANTLEY, WIA-L2022  
P.O. Box 222, Penrith, N.S.W.

Following my comment on A.O.L.C.P. holders participating in the receiving section of the W.I.A. controlled contests, our contest manager, Neil Penfold, VK6ZDK, has written to me giving an official ruling on the matter. Here is the position. Any non-active Amateur may enter the receiving section of any W.I.A. conducted contest. For any queries regarding contests and results, please write to: Federal Contest Manager, Neil Penfold, VK6ZDK, 55 Moulden Ave., Mt. Yokine, W.A. My apologies for mentioning Jim 8RU as holding this position. On behalf of all our listeners, Jim, congratulations on your fine operating and scoring in the R.D. Contest.

## AROUND THE SHACKS

Bryan Prosser, L6028, has recently returned from his holiday in VK5. On his return to the shack, he has been confined to 20 metres, but managed to hear VE3AIU, ZC4AK, ZS1IR, XE2CJ, XE2JZ, HB9VW, FB8YX and VPTNZ on s.s.b., whilst 15 mx has been producing only Ws and a KC4. Conditions have improved on 40 mx, where many Ws and a call from FB8YX were logged.

Alan L6029 has been listening on 20 mx s.s.b. also, and reports DL4SL, F2PN, CP5BK, OA4QW, CE8DQ and EA4DO.

Eric L3042 has been on holidays, following a series of trips around most VK call areas in the course of duty. We must realise that his duties with the QSL Bureau curtail Eric's listening time just as well for most of us. Nevertheless, his log sheet still grows and a sample of his listings were LA4ZH/MM, K8BAG/6 and W6AMO/6 on 80 mx; K3WVF/MM, YV3FB, VR2DK, ZDBJ, CM2QN, K2UME/MM, C6OPF, 4X4HF, W6ADN/MM, G6ZG and LA3GI on 40 mx. KG6AAQ, YV5ACP, ZE-SJJ, VK9CJ, G6FO, 5A1TY, VE7BMC, CT1DJ, HK0AJ, KZ5EX, UA2KAA, YU5AHM and SM-3WB were some of the 20 mx loggings. As a matter of interest, the logging of ZDBJ on 40 mx was at 0700z via the long path. Inward QSLs for the month included FK8AH, FK-8AT, HA5KFR (3.5), OE3PWW (3.5), UA3KZO, VK0TO, VR2EW, VS6DS, VS9MP, W1EVT, ZB2AM, ZC4CI, 4X4BS, plus two Ws on 3.5

I would like to welcome Barry Snell, L1316, of the School of Signals at Balcombe, who is at present having trouble with his rx and asks for assistance in his attempts to rectify it. Don L2022, has now got his CR100 back to its normal healthy state, and is very pleased with its performance. Unfortunately, it was not in operation for the R.D. Contest, and the AR7 lost its b.f.o. at a crucial moment, thus relegating L2022 to the also rans for the event. Countries heard on 20 metres of late include VP5AR, VR4LM, VK0MI (at last), 5W1AZ, HC1BM, IT1AUT, EA5CH, YS2LE, ZS8TE, EA7KE, GB3WIJ, GC2FMV and 9V13W. At last some inwards QSLs. These being from VK8AX, 5W1AZ and VP2KJ (Nevis Is.)—total being 136 confirmed.

Over to Greg Johnston of VK7. Using his converter as described in "A.R." earlier this year, Greg turned in an outstanding score for the R.D. Contest. Duties as QSL manager for VK0MI take most of Greg's time, but this job is doubly tough for him due to the dozens of inaccurate s.w.l. reports finding their way in. Once again we stress the importance of valuable reports and accurate ones—this applies not only to reports for VK0MI, but for all cards sent out.

Alan Rafferty, L5065, had a very good run in the R.D., and has rattled up a good score. Despite his concentrating on the R.D. and his studies, he had managed a couple of newbies, these are PX1SS (QSL via F9JS) and IP1AA, whose locality is unknown to Alan. As a matter of general interest, L5065 names VKs 6RU, 9DJ, 2AHM and 3MO as being amongst the best signals and ops. in the phone section of the R.D. A late note from Alan tells us that QSLs have been received from OK1ADP, FO8BJ, VE7CE, EA3OT, VK9JO, OH2BS, KX-6BQ, UA0SK.

Warwick L3211, out of the R.D. through studies, managed to log VP7, ZS6, FB8, ZB2, CN8, 5W1, ZL5 and IP1GAI. His inward QSLs were from LZ1BZ, VS9AFR, 5Z4IR, ZCARM, DM2ACB, UA0EH, UA4KHV, EA7HZ, UP2KAB and UC2BF with YK1AA for good measure.

Bob Halligan reports new countries heard, 9J2MM and ZF1GC, with confirmations in from UH8BO, LZ1BZ, PJ2MI, ET3WH and 6Y5AR.

Over to VK5, and Ernie Luff, who looks like being the next candidate for D.X.C.C. Using his newly acquired AR88D, Ernie has logged

a large number of countries, including VQ-9EF, ZEZ, TG9, SV1, F2, HR1, OH2, 7X2, GC5, ZS4, UP2, YS2, OD5, HC1, CR6, T12, 9V1, EP2, YNG, M18, ZS8, 5R8 and many others. Inward cards were received from WJ4OA, ZS5G, 8J2JC, VE8HM, JA3E, HC5BZ, HB9DL, 9J-2VK, HR1JAF, ZSSJJ, VK0MI, VO1EL and 6Y5MJ.

Finally, I wish to acknowledge interesting tapes from Mac Hilliard, Bryan Prosser, Doug Head, and a really informative "round robin" from four of the I.S.W.L. members resident in G land. Thanks chaps.

## VICTORIA

S.w.l. Group news, as supplied by Ian Woodman, Secretary. The Group held the annual election and had a slide show on Central Australia at the August meeting. The Sept. meeting was devoted to an excellent film evening, supplied by the Forestry Commission of Vic., and the agenda item for the October meeting is "Transistors and Their Operation." Nothing has been arranged for Nov., but our usual party will take the Dec. meeting.

The Group set up a listening station for the R.D. Contest, manned by six of the keenest members. Early Saturday afternoon they commenced to erect the aeriels. By starting time, the sky above the caravan had so much wire in it that it became a hazard to low flying birds. The Contest got under way with five members operating in the receiving section, and one in the tx (v.h.f.) section. Unfortunately all the receivers were flattened when the tx was switched on, and our stalwart A.O.L.C.P. holder narrowly escaped a lynching. However, it was a most enjoyable Contest, and the Group succeeded in turning in quite a presentable log.

## ADDRESS FOR FUTURE NOTES

Due to the fact that in the near future I will be moving QTH to either the lower Blue Mountains, or further south, would you please address all mail to me as from this issue to: Don Grantley, P.O. Box 222, Penrith, N.S.W. That's all for this month, 73 de Don L2022.

## DX NEWS

QSLs for IC1KDB go to Box 336, Naples, Italy. VU2DIA still active on 14015, 14303 and 14045 from 0001z-0200z, QSLs via VU2DI. XF1AA heard on the bands recently is legitimate and is based in Greenland. EV1USF with QSL via W3OCN. According to the I.S.W.L. magazine "Monitor," VU3KS and ZAZAA/YUI are not legitimate. 8W8DD has been heard on 7018 c.w.

I note in the personal notes, Alan Rafferty reported IP1AA and Warwick heard IP1GAI. However, only news I have from that area is that Don IT1AI was to operate from Pealga Is. as IL1AI, actual QTH on Lampedusa Is., provided the A.R.R.L. would grant separate status. Where will it all end?

Did anybody log HV3SJ on 14230 in the past few months? Time to hand this day says it was a special call allotted to WA6ZWL.

Further to the above memo on IP1AA, latest to hand is that the operator is OX5AH, QTH Thule, and operating on a special permit with 500 watts on 14110.

IT1AD has been heard on 14034 c.w., QSL to Box 641, Ulan Bator, Mongolia, whilst JT1AJ is on 14053, QSLs to Box 639, Ulan Bator.

Heard at 1500z, ZP8AY's manager is W2CTN. UW0WH is in Zone 18. QSL manager for ET3AC is W4NJF, who asks that either a s.a.s.e. or I.R.C. be included with all reports.

The following are new I.S.W.L. members, and QSLs for these chaps can be sent via that bureau: G2CMK, K1TEV, W6KWU, VE-6AKP, VE8AGO, WB2RLA, VE6WU, WB2CKS, W2PCJ, W1WFZ, HK4PZ, HP1JC, W8JAQ, G3UMA, G3FQC, G6DK. QSLs for ZD8J go via K4LJV. Address for QSLs to VS8JC is S/Sgt. Jack Cooper, C/o. 9V1 Bureau, Box 277, Singapore. VU3FN's QSLs go to the Canadian Embassy, New Delhi, India.

## AWARDS

The QRP Amateur Radio Club, formed with the object of demonstrating that the use of limited power (100 watts or less) can create less QRM on the Amateur frequencies, and that we are still able to enjoy our hobby by using the minimum power necessary to complete a QSO. S.w.l.s are considered as low-power operators, and Amateurs receiving s.w.l. reports may use these for award purposes in lieu of two-way QSOs. This is the only instance I know of where s.w.l. reports can actually assist an Amateur. Five awards are issued, and all are available to listeners. Briefly, and in the s.w.l. interest, they are: QRP-25 issued to s.w.l.s who have confirmations from 25 QRP club members anywhere in the world. Endorsements are issued for 50, 100 and 200 plus every additional hundred. Can be also endorsed for working 10 members on bands above 50 Mc.

No. 2 is the W.A.C./QRP, which is issued for contacts or s.w.l. reports on stations in all s.x continents. No. 3 W.A.S./QRP requires a card from each of the 50 States which make up the U.S.A. No. 4 is the D.X.C.C./QRP. No. 5 is the 1,000 mile per watt award. This may be collected by s.w.l.s if they hear a station at such a distance and using such power that the distance divided by the power input is 1,000 or more.

Cost of the first four awards is one U.S. dollar or 10 I.R.C.'s each, while the 1,000 mile award costs the DX station three I.R.C.'s or one I.R.C. and a stamped addressed envelope. Club members are issued awards at half rate. All club members are issued a number which is not published, but transmitted in QRP contacts. If you have heard this number in a QSO, then a QSL card is not necessary for the awards, however if you do not have this number, then the QSL must be produced, and power shown. The A.R.R.L. countries list applies to all applications, and for all awards other than the QRP-25, your QSLs can be from any station using less than 100 watts, regardless of whether he is a club member or not.

Many VK are club members, and they can be identified in a QRP QSO by the use of the suffix, example VK4UC/QRP.

The preceding information has been furnished to me on behalf of interested listeners by Chas. Taylor, VK4UC, who is a member of the club, and who is the holder of the W.A.C./QRP, and applicant for the 1,000 mile award. Thanks to you, Chas, for this information, and I for one will be looking for the QRP stations.

## VK-ZL CONTEST

Two things to remember here are that we may log ZL as well as overseas stations, and that we can log each station twice on any one band, once on phone and once on c.w. You must keep a separate log for each band and each call area of W, JA, SM and UA count as a separate country and bonus points can be claimed for them.

Entries from VK must be sent to the N.Z. A.R.T. Contest Manager, 152 Lytton Rd., Gisborne, New Zealand, by 31st December.

High scores and new countries are usually the thing in this Contest, full rules for which appeared in "A.R." of July 1968.

That winds it up for this month, 73, de Don L2022.

★

## V.H.F. NOTES

(Continued from Page 19)

nels on the bands than have been allocated to us.

With the rumoured advent of the availability of high band f.m. equipment, it would be good to see some 2 mx channels in operation. But it has been suggested that people normally calling CQ should endeavour to do so on the hour, thus enabling people tuning the band to know what activity is liable to be present.

Sunday, 7th August, was an interesting day on the f.m. net. Ken 6ZBT and Barry 6ZCF operated portable from Bluff Knoll parking area. Wayne 6ZDD and Wolf 6ZAY were portable on Mt. Solus and managed to work them. A distance of 170 miles.

From Mt. Solus other stations worked included Pat 6PH (Narrogin), Aub 8XY (Wickepin), Danny 6ZFF (Bunbury), Lance 6LR and Jack 6BU (Yunderup). Perth stations heard included 6ZEP, 6WV, 6ZDB, 6ZCL, 6ZEK, 6ZDS, 6ZFM, 6QJ. 73, 6ZBK.

★

## CONTEST CALENDAR

- 1st/2nd October: VK-ZL-Oceania DX Contest (Phone).
- 2nd/3rd October: W.A.D.M. Contest (c.w.)
- 8th/9th October: VK-ZL-Oceania DX Contest (c.w.)
- 15th/16th October: R.S.G.B. 21/28 Mc. Telephony Contest.
- 22nd/23rd October: "CQ" "World-Wide" DX Contest (phone).
- 29th/30th October: R.S.G.B. 7 Mc. DX Contest (phone).
- 12th/13th November: R.S.G.B. 7 Mc. DX Contest (c.w.)
- 13th/14th November: International OK DX Contest (c.w.)
- 19th/20th November: R.S.G.B. 2nd Top Band (1.8 Mc.) Contest.
- 28th/27th November: "CQ" "World-Wide" DX Contest (c.w.)
- 10th December to 15th January: Ross A. Hall Memorial Trophy V.H.F. Contest.
- 11th/12th February: John Moyle Memorial N.F.D. Contest.



Some important re-organisation is taking place in VK3. Circumstances are not the same in every Division so it does not follow that the VK3 re-organisation is a new pattern others must follow. State Supervisor Howard Rides and a keen committee are tackling their particular problems in a well thought-out way. They have prepared Articles of Association for the Youth Radio Clubs of Australia (Victorian Division), an organisation which is to be basically self-controlled and self-financed by fees (about one or two dollars) collected from the participating clubs or non-club participants. The exceptions to this independence are that the name of the State Supervisor (elected by the Y.R. Clubs) is to be submitted for approval to the W.I.A. (VK3), the auditors are to be from W.I.A. (VK3), and in the event of failure, funds are to revert to W.I.A.

It must be understood that this is in no sense a break-away movement and full co-operation in both directions is to continue. The whole question needs more discussion when the details and implications have been thought over. A separate organisation would absolve the W.I.A. from any legal responsibility (but pass it on to the shoulders of the new organisation) and allow enthusiasts free development of ideas without reference to a busy W.I.A. Council. On the other hand, the aforesaid busy Council could, under the new arrangement, tend to forget Y.R.C. business altogether—it should be remembered that, although the main business of a W.I.A. Division Council should be its work for senior members and the W.I.A. generally (and these Council members are spare-time workers already well burdened), the Youth Radio Clubs

can be given the support of the Division in many ways without involving the time or money of the W.I.A. Council.

While attending a Conference (on other matters) in Melbourne, I met a teacher from Aquinas College in Perth who gave me some details of Bro. McKenna's organisation at the College. What a pity Perth is so far away—it sounded so impressive that I would like to visit.

I am personally keen on the Duke of Edinburgh Award Scheme and I am glad to hear that soon there will be definite views of how Y.R.S. achievements fit into the pattern of Gold, Silver and Bronze Awards. Do Club Leaders have these in mind for development?

VK2 jottings are plentiful as usual. Y.R.S. certificate holders are to be allowed to purchase from the Divisional Disposals Store. Pierce 2APQ suggests that advanced clubs might participate in the Australis Project and should telephone him if interested. A new certificate for Radio Monitors is suggested (i.e. listening in a systematic way through specified s.w. segments). A total of 305 Elementarys have been awarded so far in VK2 alone. Alan Watson, secretary of Christmas Island Amateur Radio Club, has sent \$7.15 towards Y.R.S. expenses—even its adult members are sent for Y.R.S. certificates. Bruce North, of Klama High, has full A.O.C.P. and joins the small group of schoolboy A.O.C.P.'s. The experiment at Mittagong Training School for Boys (trying the effect of an absorbing interest in Electronics) is still proceeding but could benefit from some help in the way of parts, duplicated sheets and any instructional material. Mr. Jack Standard (Epping Boys' High) has the loan of a good 150w. a.m. tx and should now be on the air. (All interested in Y.R.S. should gather on 80 mx Wednesdays at 1800 E.S.T.)

Camp Technology will be on again at Christmas—enquiries should be made early to Mr. T. Mayne, 16 St. Aidan Ave., Dundas. Donations are gratefully acknowledged from Milton 2LI, Commonwealth Electronics, A.W.A., General Accessories, S.T.C., O.T.C. and Mr. Hope. New clubs are formed at Homebush Boys' High and Singleton High (thanks to Mr. Horsfield, who was a 1965 member of the Sydney Teach-

ers' College Radio Club). Jan 2BJO will help at Singleton and they should be a transmitting club before long. Max 2BMK reports that Scone High should be active soon—he is building a tx for it. 73, Ken 1KM.

— . . . —

## Publications Committee Reports

At the September meeting the Committee considered correspondence from the Secretaries of VK2, VK4, VK5 and VK7, and a verbal report from VK3, all dealing with the annual mass deletions on those unfinancial. It was decided that for this year the re-instatements will take effect from the October issue instead of January, as was suggested. Later in the year consideration will be given to the suggestion from VK5 that the Divisions be charged the costs involved in making the re-instatements.

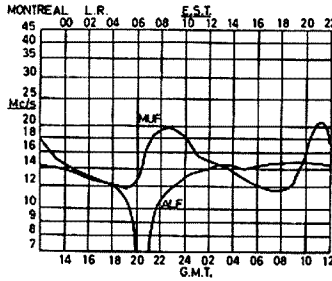
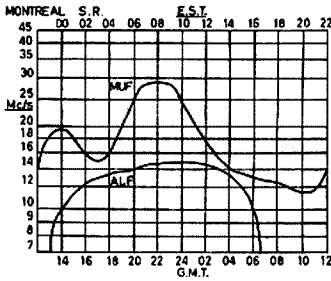
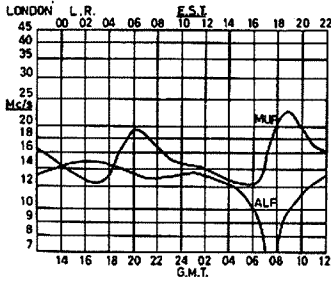
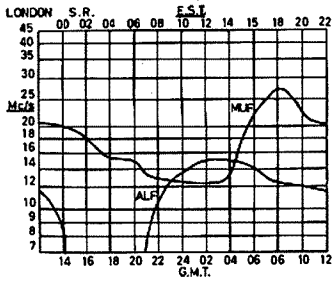
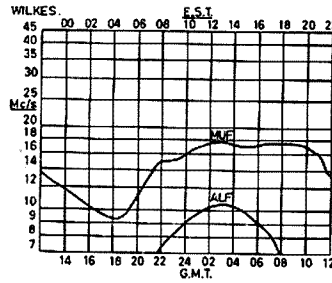
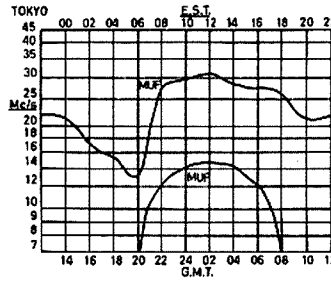
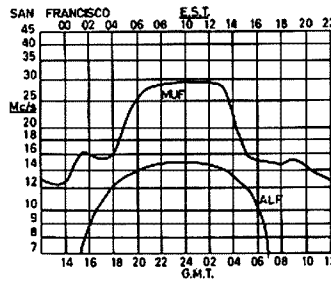
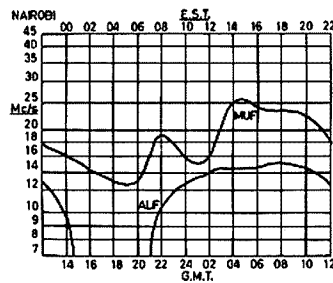
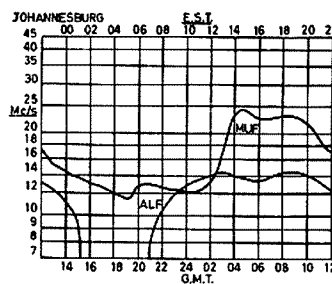
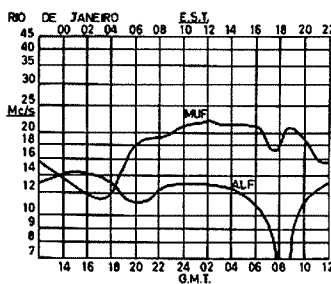
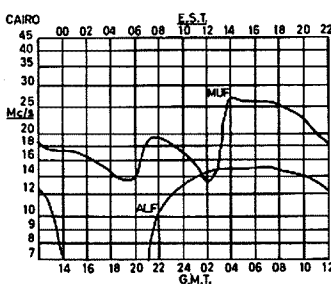
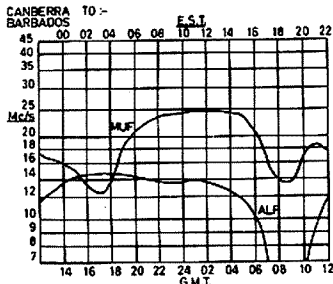
Correspondence on other matters was received from VKs 2ZTM, 3ZOF, 3ASC, 4AT, 4QL and Greg. Johnston. Mrs. Shawsmith wrote to advise that Al 4SS is on the sick list and would be unable to do the DX Notes this month.

Technical articles were received from VKs 1AU, 2FY, 2ZAI, 3UG, 3XY, 3ABF, 3AHT, 3ASC, 5ZDX, 5RG and Greg. Johnston. Sideband Notes have been omitted this month as they arrived too late for us to prepare drawings.

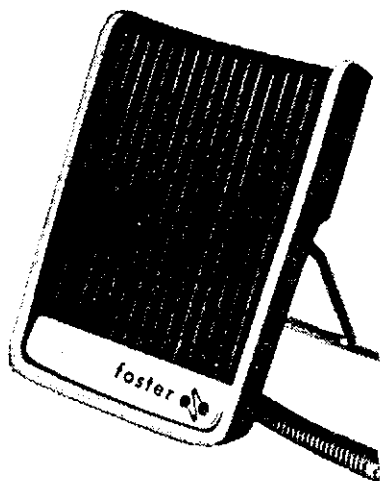
During the last month a number of letters were received from individuals advising changes of address for the magazine. These have been sent to Divisional Secretaries, to whom they should have been originally addressed. The only changes of address to be notified to "A.R." are those for direct subscribers and the Call Book. Call Book alterations must also be notified to the P.M.G. Department.

The Call Book is progressing to schedule and at this time no delays are foreseen.

## PREDICTION CHARTS FOR OCTOBER 1966



(Prediction Charts by courtesy of Ionospheric Prediction Service)



DF-2

## FOSTER DYNAMIC MICROPHONES FOR HAND-DESK USE

### SPECIFICATIONS:

Output Impedance 50 ohms or 50K ohms  
 Effective output level -55 db. [0 db. = (one) 1V. Microbar]  
 Frequency response 200 to 10,000 c.p.s.

### OMNI-DIRECTIONAL DYNAMIC:

SIZE: 3" x 2-1/8" x 1".  
 Cable: 12 ft. of P.V.C.  
 Switch: on-off.  
 Desk Stand. Clip folds for hand use  
 Colour: WHITE.  
 Plastic Diaphragm.

Retail Price  
 50K ohms  
**£2'14'0**  
 + Sales Tax 4/9

A QUALITY PRODUCT OF EXCELLENT DESIGN

Marketed by

## ZEPHYR PRODUCTS PTY. LTD.

70 BATESFORD STREET, CHADSTONE, S.E.10, VIC.



Manufacturers of Radio and Electrical Equipment and Components

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.

NOW AVAILABLE—

THE 1966 EDITION

## ★ A.R.R.L.—Radio Amateur's Handbook

*The Standard Manual of Amateur Radio Communication*

Price \$6.10 posted, or 58/6 and postage 2/6

NOW AVAILABLE—

## ★ The Radio Transistor Handbook

by Stoner & Earnshaw.

Price \$6.65 posted, or 64/9 and postage 1/9

THIS UP-TO-DATE HANDBOOK COVERS A WIDE RANGE OF COMMUNICATION  
 FOR BOTH AMATEUR RADIO & COMMERCIAL APPLICATIONS

## McGILL'S AUTHORISED NEWSAGENCY

Established 1860

183-185 ELIZABETH STREET, MELBOURNE, C.1, VIC.

"The G.P.O. is opposite"

Phones: 60-1475--6-7



# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL

As mentioned in these columns a month or so ago, it was reported that two Amateurs were going overseas, and would endeavour to find out a little about what is happening in other countries as far as Amateur Radio is concerned. Allan Elliott, VK3AL, is still away at the time of writing and we are looking forward to hearing of his observations after his visit to Japan. Dave Jeanes, VK2BSJ, has returned from vacation in U.S.A. West Coast and some of his comments may be of interest.

His comments on the attitude of the American Amateur to the future of Amateur Radio is particularly interesting, and to quote him: "No Ham that I spoke to was concerned about I.T.U. or the future of the Ham bands. They are so convinced that the government is well aware of the part they play nationally, and internationally, that they seem confident that the bands will be retained, if not expanded. Listening in locally, I can appreciate what they mean. There are literally thousands of them on the air at any one time. Their nets are something to hear. The skill and speed which they pass traffic is amazing. Frame patching is part of life and with calls for military personnel, etc., they, in fact, render an effective part in the communications set up."

This apparent complacency is something to be marvelled at, especially in the light of all the official comments that one hears, and whilst this state of affairs may be very good, and promising for the Amateur population in U.S.A., the same situation and appreciation of the Amateurs' worth will not necessarily apply in less fortunate countries with limited Amateur populations. However, the next I.T.U. Conference will tell the tale.

Dave also spoke with Bill Orr, W6SAI, at the Arnac factory and acquired some information on launching details for our "Australis" people. Some of the shacks he visited were K6JDF, W6LDD, W6VGS, VE7BJ, VE7AKB and VE7BHH. Reading between the lines, Dave apparently had a very pleasant tour and Federal Executive are indebted to him for the time he took to discuss some mutual problems—thanks a lot Dave!

## HANDBOOKS AND REGULATIONS

As mentioned before, all work has been completed and all that requires to be done is the drafting of the necessary regulatory changes by the Commonwealth Attorney General. All the submissions have been placed in this Department's hands but, as can be well understood, pressure of parliamentary business during the Budget session has slowed up the final release of all details.

## FEDERAL QSL BUREAU

The Czechoslovak Central Radio Club will again stage the International OK DX Contest from 0000z to 2400z on Sunday, 12th Nov. All bands 1.8 through 28 Mc. may be used and the Contest is for c.w. only. Full rules and sample log sheets may be obtained from this Bureau.

From 1st August the address of the W3 QSL Bureau is Jesse Bieberman, W3KT, RD1, Valley Hill Rd., Malvern, Pa. 19355, U.S.A.

The new address for the DL4/DL5 QSL Bureau is M.A.R.S. Radio Station, Hq. 93rd Signal Bn., A.P.O., New York 09173, U.S.A.

The XL (or Excellent) Radio Club advises of its aims and conditions of membership. This is based on long term service and excellent achievements in the field of Amateur Radio. Full details of the membership requirements may be obtained from this Bureau or from OH2YV. There is no membership fee.

The Radio Club A.P.A.S. is staging a celebration to mark the twentieth anniversary of its foundation. The festivities are scheduled for October and include an official station on the air continuously for 24 hours. This club, which is associated with the R.E.F., caters particularly for the listener section of that body.

The QRP Radio Club is conducting a publicity drive to increase its membership above the 3,000 mark. This active Club has members in all continents and in over 40 countries. It is an organisation of Amateurs who accept the challenge of operating under low power conditions to effect less QRM on very crowded

Amateur bands. Hundreds of its members are seasoned and veteran operators who depend on their operating ability and knowledge of radio and band conditions to effect contacts rather than to exercise brute force with high power and cause needless QRM. The club sponsors contests at regular intervals and a series of worth-while, attractive awards for operating ability are available.

Membership is restricted to stations employing a top power of 100 watts or less, and lifetime membership costs only one dollar (U.S.) or 10 I.R.C. This includes the receipt of the club's quarterly newsletter for the first year of membership. Renewal of subscription for the newsletter is one dollar or 10 I.R.C. annually. This club, which already has a score of VK/ZL members, should make great appeal to VK Amateurs considering our power limitations. All membership enquiries should be addressed to the writer, or to Fred Behrman, K7LNS, 3425 King Rd., Milwaukie, Oregon, U.S.A.

Traffic through this Bureau for August reached the all-time monthly high of 9,146 cards. Following on 8,000 for each of the three previous months, a record year seems assured.

—Ray Jones, VK3RJ, Manager.

## NEW SOUTH WALES

A larger than average attendance—about 80—turned out for the VK2 Division's monthly meeting on Friday, 26th August. In the absence of the President (Tom VK2OD), who had a dose of the 'flu, the chair was occupied by the Senior Vice-President, Bill VK2YB.

The lecture, "Integrated Circuits—Past, Present and Future," delivered by Mr. Trevor Andrews, of the Fairchild Transistor Co., was a very topical one for the times in which we are living and the lengthy question time afterwards was an indication of the interest shown by the audience. We would say that the large attendance was a direct result of the general and increasing interest these days in this particular subject.

As the lecturer pointed out, there has been such a remarkable change in the field of electronics since the advent of semi conductor devices, a mere 10 or 15 years ago, that it was impossible to even guess what the future held. Only a few years ago quite influential sections of the industry held the view that transistors would never take the place of valves; also that they would never operate above 3 to 6 Mc. However, there had been such vast technical advances that transistors were now available for operation in the 500 Mc. region, while even the most non technical person must realise that, to quote one instance, the success of the current space programmes revolved around the fact that valves have indeed been superseded to a very large extent by transistors. The building of computers was another field where transistors had come into their own, taking these instruments from their original standing of bulky electronic curiosities to the present stage where they were economic necessities.

The lecturer said that the output of integrated circuits in Australia over the past two years had risen from 50 to 180,000. The amazing increases in the use of semi conductor devices in such a short space of time had been assisted in large measure by improved methods of mass production.

Touching on what is perhaps the most important section of the art so far as we are concerned, Mr. Andrews said that manufacturers of communication equipment had been slow to change from valves to transistors. However, a change was coming over the scene. A further pointer to what we may expect in the future was that, in the U.S.A., at the present time, the complete sound channel for

colour t.v. receivers may be purchased (in large lots) for \$3.50 each.

In moving the vote of thanks to the lecturer, Rex 2YA said Mr. Andrews had illustrated by his very fine lecture what wonderful opportunities awaited the younger generation who were about to enter the field of electronics.

While still on the subject of lectures, the Education Officer (Harold 2AAH) has lined up Syd 2SG to give the lecture at the October meeting, the subject being "Television Signal Generation." Syd has had many years' practical experience in the field of television. The lecture for November will be given by Mr. Ted Banstead, an A.W.A. engineer, on "Solid State Sideband."

Visitors at the meeting included John ZL-3AAU and Jim ZL3LY. The Hunter Branch was represented by Keith 2AKX and Tony 2ZCT, while Mr. E. Archibald, Superintending Airways Engineer from D.C.A., was also present.

The following applicants were admitted to membership of the W.I.A.: Full Members—B. H. Christensen (1ZCB), J. M. T. Davies (2AUD), R. A. Emmerton (2AUC), J. K. Gibling (2KGD), S. G. Leatheram (2ZGL), R. G. Lukin (2ZDL), R. Mudie (2ZRQ), A. E. Peppercorn (1AEP); Associates—Geoffrey Campbell, D. P. Johnstone, J. E. Relf, W. Silberstein, F. Tubbs and R. R. Warleigh.

W.I.C.E.N. News: Peter 2AXJ informs us that the new 146 Mc. f.m. base station has been obtained and installed at 2WI Dural, and since then reports have been received of better coverage. This has released 2KJ's tx, which had been installed temporarily at Dural. Stations are now beginning to appear on the net from country areas. There have, of course, always been several stations in Orange, but 2IE (Bathurst) is now a regular, and 2ZFG is to appear from Forbes and 2ZJX is moving from Orange to Wongabin, near Dubbo. There will be another new station in Orange as soon as the call sign has been issued.

Other new stations over the past couple of months include 2ZDN and 2BJO (Hunter Branch), 2TX and 2ASA (Central Coast), 2ZZR (Berry) and 2GE, 2ZGB, 2ZRZ, 2ZGX, 2ZAF and 2ZJS from the city.

For the information of those interested in W.I.C.E.N. activities, the following frequencies are those for N.S.W.: Two Metres (f.m., plus or minus 15 kc. peak deviation)—Channel A, 145.854 Mc.; Channel B, 146.000 Mc.; Channel C, 146.100 Mc. Six Metres (f.m., plus or minus 15 kc. peak deviation)—Channel A, 53.920 Mc.; Channel B, 53.950 Mc. (a.m.); Channel 1, 53.786 Mc.; Channel 2, 53.826 Mc.; Channel 3, 53.866 Mc.

The QSL Officer (Syd 2SG) reported that during the past month there had been 2,250 inward cards and 1,736 outwards. Syd then drew attention to the fact that he had held the position of QSL Officer for the past seven years and he considered that that period of time was long enough to be in the one job. He therefore served notice that he would be resigning the position in three months' time. Syd made no secret of the work that went with the job of QSL Officer, and said that time spent on QSL affairs, so far as he was concerned, amounted to about 12 hours a week. He was giving three months' notice so that another QSL Officer could be found, and he offered every assistance in the training of anyone interested in the position.

In our opinion, the running of the QSL department would be one of the more onerous tasks among our Divisional activities. While Syd has been in charge the numbers of cards handled have broken all records, involving much extra work. Therefore, the members generally, and particularly those who specialise in working DX, certainly owe both Syd and Ted 2ACD a debt of gratitude for their efforts.

Cogitating on the necessary qualifications of Syd's successor while in a facetious frame of mind, one could almost visualise the following advertisement appearing in the Positions Vacant column: Wanted, lady or gentleman, dedicated to W.I.A. affairs, not afraid of work, a thick enough hide to withstand abuse, ability to decipher indecipherable call signs, worldwide geographical knowledge (including flyspecks on the map sometimes occupied by DX-peditors). Remuneration: You kidding??

The Youth Radio Scheme was well represented at the meeting when, in addition to the Supervisor (Rex 2YA), Keith 2AKX (Westlakes Radio Club), and Stan 2EL (Canterbury Scout Troop instructor), several ladies

## SILENT KEY

It is with deep regret that we record the passing of:

VK2AKP—Vic. Holmes.

VK3CA—Clive Hughes.

VK3YV—Howard Wohlers.

presented themselves for the handing over of various prizes and certificates they had won as a result of their studies. A "competition" conducted during the evening on behalf of the Y.R.S. was won by 2WP.

A group of ladies, organised by Mona 2AXS and assisted by Council member, Hebe 2AOK, and XYLs of Council members 2ZRD and 2CH, have commenced a new innovation at Wireless Institute Centre—providing (for a very small charge) afternoon teas on the second and fourth Saturday of each month. These are served between 3 and 4 p.m. to coincide with the opening of the disposal store. The first effort proved very popular and the larger than normal Bulletin-folding team very quickly took care of the scones, strawberry jam and cream. Ladies who would like to assist and at the same time have an eyeball QSO with the other ladies are asked to phone Hebe on 55-3660. OM's could help to make this venture a success by patronising it. In addition to assisting the Divisional financially, we commend this as an excellent opportunity for members and their XYLs to have a social chat over a "cuppa."

Continuing with social matters, Ivan 2AIM reported that the theatre party he had been organising for 8th Sept. to see the film "My Fair Lady," had resulted in a complete sell-out of 100 tickets, with 70 people booking for the theatre supper after the show. It is hoped that another party will be arranged when the opportunity occurs.

Reference was made at the August general meeting that a count of participating VK2 stations in this year's R.D. Contest tallied 140. It will be interesting to see just how many of this 140 have done the right thing by their Division and entered a log. With full support it was thought we would have a good chance of landing the trophy for the first time. However, if some of you have done what many have done in other years—left it to the other bloke—then we will have two chances of winning—our own and Buckle's.

We understand that the Westlakes Radio Club has been recommended for the 1965 Institute of Radio and Electrical Engineers Efficiency Pennant. This award is made annually to the most efficient Y.R.S. Club, and we are sure that we echo the sentiments of all when we say "heartiest congratulations."

## VK2 DIVISION

### CRYSTAL LIST

5030, 5035, 5127.5, 5165, 5205.  
5235, 5285, 5295, 5327.5, 5335, 5360,  
5385, 5435, 5437.5, 5485, 5545,  
5582.5, 5587.5, 5645, 5660, 5687.5,  
5730, 5740, 5780, 5782.5, 5815,  
5820, 5860, 5892.5, 5907.5, 5950,  
5955, 5995 kc. In FT243 holders,  
\$1 each or in groups of five for  
\$4. 6 Mc. range next month.

Goods listed for sale by the VK2 Division are available to W.I.A. members of any Division. Please address inquiries to Radio Equipment Store, 14 Atchison St., Crows Nest, N.S.W.

### LECTURE TAPES

No. 11—V.h.f. History, no slides or diagrams. (Ed. Tilton, W1-HDQ).

No. 12—Quad Antennae, 68 min., 20 slides. (H. Burtoff, VK2AAH and S. Molen, VK2SG.)

No. 13—Linear Amplifiers, 1 hr., 17 slides. (Bob Wilson.)

No. 14—Transistorised R.f. Converters, 1 hr., 12 slides. (Sid Molen, VK2SG.)

No. 15—The Spirit of Discovery, 55 min., no slides. Edwin H. Armstrong. (Recorded by H. Burtoff.)

Details in August "A.R.," page 19. Inquiries to Education Officer, Wireless Institute Centre, Crows Nest, N.S.W.

Tim 2ZTM and Joe 2ZOO landed back in Sydney about the end of August after a month spent touring right around Australia, covering nearly 10,000 miles in the process. At time of writing we had not sighted Joe, but the face fungus sported by Tim on his return makes us think of two possibilities—he is hiding from someone, or he is preparing for a job as Santa Claus over the Christmas period.

Gerald Sabin, one of the "pillars" on whose broad shoulders rests our Publications Department, has sent out an SOS for someone to give a few hours of their time, one Monday night a month, from about 6.30 p.m. Gerald would be delighted if you knocked him off his perch with offers of help.

To those who make a practice of reading only the disposals page of your Bulletin and then tossing it aside, may we suggest you dig it out of the waste-paper basket again and read (in the July and August issues, anyway) all about the very handy publications available merely by dropping a line (accompanied by the necessary db's of course) to the Secretary, W.I.C., 14 Atchison St., Crows Nest, N.S.W.

The publication of this issue of "A.R." will probably coincide with two important Conventions that are set down for the Six-Hour Day week-end—that is, the first week-end in October. Our friends of the Hunter Branch and the South-West Zone have been busily preparing for some time and we trust that both events will be blessed with good weather and large attendances. 73, Ivan 2AIM.

### HUNTER BRANCH

Spring is sprung,  
The grass is riz,  
I wonder where  
The signals is?

Yes, I wonder. Since the R.D. Contest hardly a thing has been heard on h.f. or v.h.f. bands. Where have all the operators gone? Deserted bands can do no good for the Amateur cause since it is a well known fact that band occupancy determines future planning and an I.T.U. Conference cannot be far away. To ensure that we still have our bands after this Conference there is a dual plan to be followed. Firstly, it is essential to use all the frequencies we have. And this applies equally to v.h.f. and h.f. allocations. That empty two megs. from 146 to 148 is just waiting for someone to use it. If we don't, someone else will. As for 146 f.m., use it as a calling frequency by all means, but not as a natter spot to the exclusion of other two metre operation. Top band, too, deserves more attention and is the ideal band for cross-town working. The Russians lost their 160 metre band because it was not used and very few countries have the 146-148 segment. Let's grab it while there is still time.

Now, secondly, we must have a representative at Geneva when the Conference is called. If your donation has not been made to the fund, then make it now—as next month or next year may be too late.

Local Amateurs were shocked to hear of the death of Vic 2AKP last month. Vic had been living in retirement at Balmoral on the lake and was a dally user of the 80 mx band. His son-in-law, Kevin 2ZKW, had also kindled in him an interest in v.h.f. and he was a listener on this band. Vic became an Amateur 30 years ago when he was a railway employee at Glen Innes and his work took him to many places in the State where he made use of his call. All who knew Vic will mourn his passing.

On the Eastern side of the lake where the grass grows greener than anywhere else, according to those whose domicile is there, big trouble is afoot. Belmont Bob has a broken down tx which defies all the experts to make it go. Added to this, his close neighbour, Milton, is awaiting his call sign. It appears that as soon as Bob's rig is ready he will have to draw up a roster of operating time. Two 150-watt tx's within 50 yards could cause some mutual interference perhaps. The solution is quite clear—it's the ducktalk for Bob. He tells me that he has a raffle ticket in a pair of ducks for Christmas so perhaps he'll do all right after all.

The Sept. meeting, the first one, was not as well attended as meetings of late, but those who didn't go really missed an outstanding lecture given by Warren O'Rourke, who is a technician for one of the large city firms. Warren brought along almost every type of carphone available and displayed them all on a large lecture bench in Room 6. The gear shown ranged from an early Pye Reporter to the very latest u.h.f. radiophone. While describing the equipment, Warren outlined the most common faults of each design and gave those present details of conversion of the popular phones for Amateur use. The lecture table was surrounded by interested operators for over an hour after the lecture and questions came from all angles. This was a fitting

## OBITUARY

V. A. (VIC.) HOLMES, VK2AKP

We regret to record the death of Vic. Holmes, VK2AKP, who passed away towards the end of August. Vic. was one of our well known country members, and for many years had resided at Maltland.

It was while living in the Maltland district that he made a name both for himself and the Amateur movement in a time of serious emergency. During the 1949 floods on the North Coast, Vic. carried out emergency communication work of such a high order that he was given a letter of commendation by the N.S.W. Commissioner of Police.

Vic. is survived by his wife and family (Kev. Watson, VK2ZKW, being a son-in-law), and to them we offer the sympathy of all members of the N.S.W. Division.

GORDON WEYNTON, VK3XU

When Gordon Weynton passed away last month after an incurable illness of more than 2½ years, the ranks of the Amateur Service lost a man whose bravery extended beyond the call of duty and whose activities as a prisoner of war in Changi during World War II, whilst bringing untold pleasure to his fellow prisoners at the risk of his own life, were little known to those outside.

Gordon, as an accountant and business executive in civil life, called to the cause and enlisted in the ranks at the beginning of World War II, and rose to the rank of Sergeant with the 8th Division Signals when moved to Malaya. Whilst on service he rose to the rank of Lieutenant and was taken prisoner when Singapore fell in 1942.

His experience in Amateur Radio since the 1920s gave Gordon the urge to provide the prisoners at Sandakan Prison Camp news of events outside. At severe risk to his own life, and with the assistance of several other prisoners and outside sympathisers, an organised underground resistance movement was organised by which various pieces of equipment were obtained and put together as a radio receiver. Special chemical rectifiers were made from test tubes by which the camp's a.c. mains were converted to d.c. and the receiver commenced to provide news to the prisoners from the B.E.C. on 4th November, 1942.

Construction of a transmitter was commenced by which it was hoped to guide a rescue force to the camp. Discovery of some of the components put an end to this project and resulted in Gordon and others being subjected to torture and privation. The bravery of Gordon Weynton in these years could not begin to be understood but suffice it to say that the receiver continued to operate and its whereabouts was never divulged.

After being charged and tried, Gordon was sentenced to 10 years in gaol. He became so ill he was sent to Changi Hospital and after recovering was again sent to gaol where he remained until the end of the war. In October, 1946, he was sent as a witness to the Tokyo War Crimes Trials.

Despite experiences too foul to relate, Gordon settled back to civilian life again, becoming Mayor of Castlemaine (1949-51) whilst an Executive of the Castlemaine Woollen Mills and later holding executive positions with the Wangaratta Woollen Mills, an Oil Company and a couple of years prior to his death, with General Motors-Holden in Victoria.

Although a busy man, Gordon found time to take up an active post as Vice-President and Awards Manager of the Federal Executive of the W.I.A. He conducted these posts with the same zest and zeal as he applied to everything he did. His calm disposition and experienced deliberations were an asset to the Executive of the Wireless Institute of Australia of which he was a member for so many years and whose interests were always his interests.

It is with great sadness that we record the passing of Gordon Weynton before his due time—a man who did so much and suffered so much in order that others could live.

support for the vote of thanks moved by Frank 2ZFX.

In an attempt to beat Dave 2AWZ at his own game, your humble scribe made and described a d.f. aerial for 40 mx. This is a quite simple device but the originator of the design says it gives results which is all that matters. From reports it looks as if there will be some opposition in future fox hunts on 40 mx.

Just in case you get this copy early enough, please remember that there is no meeting in October. The next meeting will be on Nov. 4 when Gordon 2ZSG will give all the latest clues on converting Command receivers. Gordon has had a great deal of success with these units and his ideas for getting the most out of them are quite revolutionary in some respects. Don't miss this lecture—it's a beauty.

A visitor to the Branch last month was Andrew 1RD, who is well known to listeners to the Morse practice service. He was accompanied by David 2BSC who is at present in Canberra. Also visiting on two occasions during the month were Gordon 2BGH and Steve 2ZGL. They provided plenty of activity on both 2 and 180 metres for the few hours they were in Newcastle. Stations testing on 2 mx f.m. are increasing and Phil 2TX and Doug 2ASA have both been heard at good strength in Newcastle. Now that 2WI has a strong enough signal to be heard locally, this is a good mark of reference.

By the time you read this, Phil will be on his way to London via the Bombay-London road. I wonder will he be working the DX? Bill 2XT is still going strong with DX mobile and now has over 108 countries. He says each succeeding one is ten times as hard to land! For those who are interested there is good news on v.h.f. aeriels. If you'd like to know more, ask at the next meeting and hear all about it. And please don't forget that there is no meeting in October—the next one is on Friday, 4th Nov.—usual place, Room 6, Clegg Building, Newcastle Tech., at 8 p.m. See you there. 73, 2AKX.

#### CENTRAL COAST BRANCH

On August 19 the members of the Central Coast Branch enjoyed an evening with Dave 2AWZ, who gave a very lively and interesting talk on fox hunting. There were 27 present including some visitors from Newcastle and

Sydney. Dave had his "Fox Box" with him and this contained some most unusual gadgets far removed from foxes, but still an important part of the game. One such item was an alarm clock (almost indispensable) and a cake of bon ami! He emphasised that it is necessary to understand the psychology of the fox, who gets up to all sorts of dodges to mislead the hunters. An accurate bearing with a compass before starting off is also very important. All in all, it was a very good evening and everyone appreciated Dave's efforts in travelling up from Sydney.

Ernie 2EH is off on an ocean voyage around the South Pacific in a few days and no doubt will return with a few choice anecdotes. Phil 2TX and his XYL, Rene, leave the middle of Sept. for an extended round the world tour. Highlight of their trip will be a bus tour from India to London. They expect to meet their travelling son, Mark, en route and have a few days with him. They have many interesting side trips planned and will be the envy of a good many people. Max, No. 1 son, will hold down the fort while they are away.

Don't forget the annual Field Day held at Gosford around the middle of February. A definite date will be announced later. 73, Mona 2AXS.

#### BLUE MOUNTAINS BRANCH

For the August monthly meeting at Lawson yours truly showed a half hour movie of various points of interest taken on my way home from the States. For a change it was very hard to get a word in with everybody present. The club h.f. antenna is still on the ground, but I understand that it could be up for the next meeting. No crack fellas. I know that conditions have not always been right.

Not much on the grape vine this month. Did hear that the Katoomba boys have found a supply of 6 mx net rocks. Well so much for our private line on 6 Trev. Allen 2ZFZ is on the air with a little more power, a 522 and a converter for receiver, and seems to be working more stations. A couple of more Z call stations are coming up on 2 mx soon, more info as it comes through. Seems like the old hill is starting to buzz just like the old days. Keep it up fellas.

I hear Jack 2NC is likely to be back on 2, so maybe with the right bait and tide you might catch him. Jack is also window shop-

ping for s.s.b. gear, not sure what for, maybe s.s.b. on 432? Ken 2AVN and Graham 2ZGW have been active, watch it chaps. Derick 2ND straightened out 2WI on behalf of the Branch the other Sunday. Thanks Derick, and while I am on holidays trying to catch cotton picken flathead, Trev 2TM will be helping out with the Branch call back on Sundays. Well fellas the Scout Jamboree on the air is just around the corner. I know you will assist again as in the past. Until the next meeting at Lawson, 73, Ron 2ADA.

## VICTORIA

### WESTERN ZONE

Once again there does not appear to be much activity in the Zone, however a few contacts are being made on v.h.f. and 20 mx. The usual stations appear on 3620 kc. at 1000 hrs. G.M.T. each Wednesday evening on the Western Zone net. We had the pleasure of hearing Merv 3AF0 on the net frequency during the past month. Merv had moved to a new QTH at Wodonga some 12 months ago and very little had been heard of him.

The R.D. Contest proved to be an enjoyable week-end with most Zone members participating. At least three members made one hundred plus contacts. John 3AFU, Harry 3ZX active on s.s.b. Chas 3IB active on c.w., Bill 3AKW, Bert 3EF and Herb 3NN being heard on a.m.

Alex 3ADA, who is now a student at a Melbourne university, joined the net during the term holidays as a visitor to 3ZX's QTH. This proved to be the first phone contact Alex had made. We look forward to hearing you again Alex. During the past few weeks your scribe has had the pleasure of visiting a number of Western Zone shacks, namely Bob 3ARM and Herb 3NN. It was interesting to note how Herb 3NN and son Garry generate an s.s.b. signal on 2 mx and it certainly works f.b. 73, Harry 3ZX.

## SOUTH AUSTRALIA

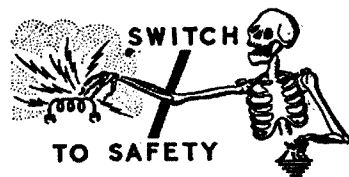
The monthly general meeting of the VK5 Division was held in the club rooms on the fourth Tuesday in August to a standing room gathering only. In fairness to my legion of dissatisfied readers in VK4 and VK6, I feel that I should point out that the reason for the standing room only was really due to the fact that the caretaker, for some reason or other, only put out half the usual number of chairs, and therefore it was a case of stand or go home.

Very little business of any importance was transacted, although I must refer to the fact that among the welcome visitors was Marge ZL3TC squired by that Gay Lothario, Gilbert 5GX, who happened to be visiting her sister in VK5 and decided to drop into the meeting just to see what makes VK5 tick.

The meeting took the form of a display of members' gear and the following members rallied around and gave a short description of their gear and assisted in the display. Barry 5ZAU, a 6 mx transistorised tx; Cur 5CL, a dummy load built into an intriguing container; Ron 5KS, an s.s.b. tx (his third to date); Trevor 5ZTM, a 2 and 6 mx v.f.o.; Rob 5RG, a two terminal oscillator; Bob 5ZDX, two regulated power supplies; Rex 5DO, a hybrid rx; Heinz 5GK, a protected transistor power supply; Eric 5ZEJ, a 2 mx converter; Trevor 5ZIS, a 146 Mc. f.m. transceiver; and Geoff 5TY, a communication 10 rx.

The awards were for three sections, v.h.f., instruments, and general. The v.h.f. award went to Barry 5ZAU, the instruments went to Bob 5ZDX, and as there were only two entries in the general award, and both of these were Council members, Ron 5KS and Geoff 5TY, and thus not permitted to compete, there was no general award. To these members and all who made the display possible, goes the thanks of all present for an enjoyable and interesting evening.

I was a little upset at not being able to describe the entry of Geoff 5TY, mainly be-



# BRIGHT STAR CRYSTALS

## FOR ACCURACY, STABILITY, ACTIVITY AND OUTPUT



Our Crystals cover all types and frequencies in common use and include overtone, plated and vacuum mounted. Holders include the following: DC11, FT243, HC-6U, CRA, B7G, Octal, HC-18U:

THE FOLLOWING FISHING-BOAT FREQUENCIES ARE AVAILABLE IN FT243 HOLDERS:—  
6280, 4095, 4535, 2760, 2524 Kc.

5,500 Kc. T.V. Sweep Generator Crystals, \$7.25;  
100 Kc. and 1000 Kc. Frequency Standard, \$17;  
plus Sales Tax.

Immediate delivery on all above types.



AUDIO AND ULTRASONIC CRYSTALS—Prices on application.

455 Kc. Filter Crystals, vacuum mounted, \$13 each plus Sales Tax.

ALSO AMATEUR TYPE CRYSTALS—3.5 AND 7 Mc. BAND.

Commercial—0.02% \$7.25, 0.01% \$7.55, plus Sales Tax.

Amateur—from \$6 each, plus Sales Tax.

Regrinds—Amateur \$3, Commercial £3.75.

CRYSTALS FOR TAXI AND BUSH FIRE SETS ALSO AVAILABLE.

We would be happy to advise and quote you.

New Zealand Representatives: Messrs. Carrel & Carell, Box 2102, Auckland.

Contractors to Federal and State Government Departments.

## BRIGHT STAR RADIO

LOT 6, EILEEN ROAD, CLAYTON, VIC. Phone 546-5076

With the co-operation of our overseas associates our crystal manufacturing methods are the latest.



# DISPOSAL BARGAINS

AT OUR BULK DISPOSAL STORE

8 PARK STREET, GLENFERRIE, VIC. (OFF GLENFERRIE ROAD)

Phone 81-1935

(Mon. to Fri., 10 a.m. to 5 p.m.; Sat., 10 a.m. to 12.30 p.m.)

## SWITCH BOARD

Completely wired, Type F. & F. T.M.C. C unit. Contains 26 key switches, 26 P.M.G. Plugs, 24 Drop Latches, hand-operated Genemotor for ringing. Size 20 in. wide, 18 in. deep, 21 in. high. Weight 60 lbs. Price \$25.

## CONDENSERS

50 uF. 200v., pigtail ..... 20c ea., \$2 dozen  
 500 uF. 12v., pigtail ..... 20c ea., \$2 dozen  
 12 uF. 50v., pigtail ..... 20c ea., \$2 dozen  
 3 uF. 100v., pigtail ..... 10c ea., \$1 dozen  
 10 uF. 25v., pigtail ..... 10c ea., \$1 dozen

## PP/439/APG-30 POWER SUPPLY

Radar type, new. Contains 36 valves—8 6AQ5, 5 6X4, 4 12AX7, OA2, 2 6AK5, 3 6AL5, 2 12AT7, 2 2D21, 6AS6, 4 2C51, 2 6J6, 6AG5, 2 6AH6. Also twin 28v. blower motor, relays, variable conds., transformers, etc. 28v. 500 cycle. Ideal for wrecking. Sorry, no further information. Brand New. \$35.

## STEEL TRANSFORMER BOXES

6 1/4 x 9 x 5 inch with matching lid, air vents each end. Ideal for battery charger, etc. Unpainted, new. \$1. Discount for quantity.

## DURAL TUBING

1/4 inch Tubing. 6 ft. lengths 36 ft. for \$2 or 40c per 6 ft. length.

## NEW TOGGLE SWITCHES

S.P.S.T. 5/- each. D.P.D.T. 10/- each.

## POTENTIOMETERS

Wire Wound, 4 Watts, 1 1/4 inch diameter. Sizes available: 5, 10, 25, 50, 250, 500, and 50K ohms, 4/- each.

## NEW CHANNEL LOCK PLIERS

Type 337W ..... 20/- each  
 Type 356 End Cutters ..... 20/- each

## ZENER DIODES

OAZ200 .. 15/6 \$1.55 OAZ222/BZZ14 ..... 27/6 \$2.75  
 OAZ212 .. 12/6 \$1.25 .....  
 OAZ213 .. 12/6 \$1.25 OAZ224/BZZ16 ..... 27/6 \$2.75  
 OAZ225 .. 27/6 \$2.75

## BATTERY CHARGERS

Dual, s/w. Meter in Metal Hammett Case  
 6 volt 4 amp., 12 volt 4 amp. .... 157/6 \$15.75  
 6 volt 6 amp., 12 volt 6 amp. .... 217/6 \$21.75

## MAGNETIC RELAYS

Sealed Type  
 24 volt, 670 ohms, D.p.d.t., size 2 x 1 1/4 inch, Price 15/- (\$1.50).  
 24 volt, 700 ohms, D.p.d.t., size 1 1/2 x 1 inch, Price 15/- (\$1.50).

## DISPOSAL METERS

G.E.C. Panel Meters, 50 mA., 3/4 inch round, 2 1/2 in. round mounting hole. Brand new, \$1.75

## T.V. PROBES

American Precision, TV-5B, 480 Mc., 30,000 volt. Brand New carton, \$8. 12 only.

## BRACKET BEZEL LAMPS

1/2 inch diam. Bezel in Red, Amber, Green. Suit screw type globe. 35c, 4 for \$1.20.

## NEW CHOKES

7-5H. 125 mA. 30/- ea. 14 H. 60 mA. 12/6 ea.  
 10 H. 4 mA. 12/6 ea.

## NEW VALVE SOCKETS

4/250A Sockets ..... 20/- each  
 Acorn ..... 3/6 ..  
 EF50 ..... 2/6 ..  
 VCR97 ..... 10/- ..  
 605 ..... 12/6 ..  
 EA50 ..... 2/6 ..  
 5-pin ..... 2/6 ..  
 6-pin ..... 2/6 ..  
 7-pin ..... 2/6 ..  
 7-pin P.T.F.E. Sockets ..... 5/- ..  
 Locktal P.T.F.E. Sockets ..... 5/- ..  
 Special completely shielded 7-pin P.T.F.E. socket and shield ..... 10/- pair

## CONDENSERS

M.F.D. Volts	Price	M.F.D. Volts	Price		
2	22	85c	50	150	75c
4	3	30c	50	350	\$1.35
5	6	30c	50 pL	50 350 Can	\$1.60
5	12	30c	50	450	\$1.35
5	18	35c	64	6	35c
8	10	30c	64	18	35c
8	15	30c	100	3	35c
8	350	48c	100	6	35c
8	525	58c	100	12	35c
10	3	30c	100	25	50c
10	6	30c	100	50	72c
10	15	35c	100	100	75c
10	25	35c	100	200 Can	\$1.05
16	10	35c	100	300	\$1.83
16	500	50c	100	350 Can	\$1.60
16	525	75c	125	3	35c
20	200	62c	150	150	75c
24	350	65c	200	25	65c
24	500	97c	200	50	90c
25	3	32c	250	3	90c
25	6	35c	350	6	65c
25	12	35c	350	16	35c
25	18	35c	250	25	75c
25	25	35c	250	50	95c
25	50	45c	500	12D	50c
25	300	62c	500	25	88c
25	600	96c	600	60	\$1.25
30	6	35c	1000	6	92c
30	12	35c	1000	12	\$1.05
32	350	70c	1000	25	\$1.43
50	6	32c	1000	15	\$1.48
50	12	35c	2000	18	\$1.70
50	25	47c			

## NEW PLUGS AND SOCKETS

Octal Plug ..... 3/6 each  
 Octal Socket ..... 1/6 ..  
 5-pin Speaker Plugs ..... 2/6 ..  
 4-pin Speaker Plugs and Sockets ..... 1/9 ..  
 6-pin Jones Plugs and Sockets ..... 7/6 ..  
 Pye Plugs ..... 2/- ..  
 Pye double bulk Chassis Sockets ..... 2/6 ..

## MODULATION AND DRIVER TRANSFORMERS

Modulation Transformer, 15 watts, pair of 6AQ5s to 2E26 valve.  
 Also Driver Transformer, single ended primary to push-pull grids of 6AQ5s.  
 £2 the lot, or Mod. Trans. 30/-, and Driver Trans. 10/-.

## SCOPE SPARES

Copper Tips, Standard ..... \$0.11 Each  
 Return Spring ..... \$0.12  
 Flex Lead ..... \$1.98  
 Bakelite Lock Nut ..... \$0.18  
 Copper Tips, Instrument ..... \$0.11  
 Brass Nut ..... \$0.25  
 Barrel, Standard ..... \$1.02  
 Handle, complete ..... \$1.93  
 Barrel, Stainless ..... \$0.25  
 Switch Ring ..... \$0.25  
 Steel ..... \$1.95  
 Rubber Grip ..... \$0.03  
 Elcment, Carbon ..... \$0.10  
 Grommet Spring ..... \$0.18  
 Bead Retaining Nut ..... \$0.03  
 Grommet Nut ..... \$0.18  
 Beads, Ceramic ..... \$0.03  
 Terminal Box Cover for assembly ..... \$1.08  
 transformer ..... \$0.40

## SPECIAL BARGAINS

DC Crystal Holders, new, less crystal, 75c.  
 Carpenter Relay and Socket, Type 3E1, 1800T 250 ohms, 900T 200 ohms, \$1.50.  
 P.M.G. Strip Boards, containing 24 Jacks, \$3.  
 P.M.G. Strip Boards, containing 48 Jacks, \$5.  
 Headphone Cords, new, 45c pair.  
 3-pin Plug with two yards Cord, 45c.  
 Bags of Mixed Resistors (50), \$1.25 bag.  
 P/M Fuse Holders, 45c each.  
 72 ohm Co-ax Cable, 35 ft. lengths, 3/18 inch diameter, \$1.  
 72 ohm Co-ax Cable, 27 yard lengths, 3/16 inch diameter, \$2.  
 Vibrators, 122 Type, \$2 each.  
 122 Aerial Packs, \$6 each.  
 12-core Cable with Plug, 2 1/2 yards long, \$5.  
 Dural Tubing, 12 ft. lengths, 1/4 inch diameter, three for \$2.  
 P.M.G. Key Switches, 75c each.

## P.M.G. TYPE

Standard Rack, 19 inch panels and chassis. All sizes. Plenty to choose from. Personal shoppers only.

## ROTARY SWITCHES (JABEL)

3-pole, 3-position ..... 10/- \$1.00  
 4-pole, 3-position ..... 10/- \$1.00  
 2-pole, 6-position ..... 10/- \$1.00  
 1-pole, 12-position ..... 10/- \$1.00



# RADIO SUPPLIERS

5A MELVILLE ST., HAWTHORN, VIC. Phone 86-6465

8 PARK STREET, GLENFERRIE, VIC. Phone 81-1935



cause during his description of the rx he said that he had kept an account of just how much the project had cost him and swore the meeting to secrecy, just for safety sakes. Naturally I can't report any further, bound as I am to secrecy, but if by any strange chance Christine should be reading this, I would suggest that she go out immediately and buy that half dozen or so hats and shoes, plus a couple of dresses and you-know whats, just to even up the score. Whatever you do, my dear, find another hiding place for the milk money, etc. I think he has found the present one!

A newly re-joined member was present at the meeting in Joe Vardon, a Council member and Treasurer during the 1919-1930 period, who has been bitten again by the bug and is trying to get his licence back. Is talking hopefully of a little rig on 40 mx ere long. Welcome back OM.

Curl 5CL brought the house down with his short and to the point explanation of his dummy load on display. He walked to the table, picked up the "mystery container" and said: "This is a tin with some resistors in it, a co-ax connector at one end, sealed at the other. I connect it to my tx and no noises or such can get out on to the air. Thank you." The cheers and applause could be heard for miles. Oh that some others would copy his device! (And be as brief—with their notes!—Editor.)

Bob 5ZDX was another one to rock the meeting. When queried as to his statement that he was using OAZ10s in his two regulated power supplies and passing an amp, simply replied that they had been up-rated recently to pass 750 mA, and remained poker-faced despite the uproar!

Ron 5KS disappointed me somewhat. He usually points proudly to his s.s.b. rig on display and shows something from his XYL's kitchen utensils which he has cunningly utilised in the set-up. This time, however, nothing was mentioned. Has she put on a buck, or have you lost your nerve, Ron?

The judges at the meeting for the awards were Brian 5ZNK, Neil 5WN and Phil 5NN. Unusual, but no jeers or cheers greeted their decisions so can only suppose they gave every satisfaction. I was busy at the time or else I would have jeered just from principle!

Nobody could ever accuse me of being a gossip, nobody could accuse me of being a "nark," or even of cramping anybody's style, but did you copy the number that Phil 5NN exchanged with Brenda 3KT in the R.D. Contest? Well, if you did not, it was 59-288. How low can he get? Did you tell John 3AFU about it, Brenda? 888 indeed.

According to my reckoning, Rob 5RG has been mixed up in this business of "The Thing" since about 1955, but was recently noticed back on 7 Mc. using the more conventional form of a.m. Can it be that my preaching of the gospel had at last paid off? I doubt it!

My paragraph in the July issue of the "mag" re my figuring in the R.D. Contest receiving log sheet sample accusation of contacting 8RU using "The Thing" brought forth a letter from a well wisher—I think—who pointed out that not only was I libelled, but I was also cheated out of an extra three points in the score, anybody else would have been listed as five points instead of two. How can I win?

(What's this my MY spies tell me about PanSy being heard on s.s.b.—Editor)

Anyway, I did not enter the R.D. Contest this year, discretion proving the better part of valour. I had been carrying a heavy cold all the week, but decided to rise from my bed of sickness and valiantly line up for punishment late in the afternoon of the Sunday. Unfortunately I stubbed my toe on the end of the bed and when the commotion had died down and the air cleared somewhat, my better nine-tenths appeared from nowhere, and with that particular glint in her third eye that I have come to know so well, sweetly suggested that I get back to bed, contest or no contest. I normally am a brave and valiant creature, but going on about forty years of experience, I disappeared below the blankets and did not surface for about an hour or so, with the R.D. Contest being just a memory. This is the first one that I have missed, but at least I live to fight again—in the contest I mean.

Cec 5CD is usually away during the week days and appears on the bands only at weekends, using an 813 and about 140 watts. A keen mobileer, I had the pleasure of renewing acquaintance with him whilst I was at Oakbank last Easter, but I don't think he was using the 813 in his mobile set-up!

Mixed up in the hash-cum-overseas broadcasts, etc., to be found at night on 7 Mc., 5MM and 5TL were heard talking to a VK4 recently, who by the sound of his voice, was of W origin. The said VK4 commented, in a somewhat surprised tone of voice, on the amount of 7 Mc. being used by other than Amateurs. After the surprise usually comes the frustration.

5ZF reports having worked a VK0 in the R.D. Contest. Len reckons it was quite a battle seeing as he did it on 3.5 Mc. This would be the understatement of the week I would think.

Vern 5VB, "The Admiral" to you, recently spent quite a time looking for trouble in his s.s.b.—horrible word—rig, and eventually found that apparently the ducks had been eating steel wool, judging by the number of strands he found inside. Putting two and three together and getting six, and remembering just where the rig came from, I can only assume that the XYL of Ron 5KS is missing on a packet of steel wool! He is always boasting of how he borrows his XYL's kitchen utensils for his experiments.

Now I know that I am an old fuddy-duddy, I also know that I always seem to get hold of the wrong end of the stick, but an emphatic statement recently in the magazine made it quite clear that G.M.T. time would be used in all W.I.A. contests until such a time as it was revoked at a convention. I noticed with some surprise at the meeting that our crabby Federal Councillor, Geoff 5TY, announced that the Ross Hull Contest would be OK for Australian time on the log sheets. May I be so rude as to ask why? And also what is the difference between the Ross Hull and the Remembrance Day. Please bear with me if I have misunderstood, possibly it is my age creeping in!

Two new W.I.C.E.N. appointments to hand. Mr. T. Slater, 5ZIS, as assistant co-ordinator, and Mr. B. Roberts, 5ZNK, as technical officer. W.I.C.E.N. still marching forward with increased numbers, in fact I notice in the monthly rosters that no name appears more than once, which is sufficient to show the present enthusiasm. I should probably say that this is due in no small measure to the drive behind the co-ordinator, Geoff 5TY, but I won't because I am tired of mentioning his name in these notes. By the way, he will represent the W.I.A. (S.A. Division) at the E.F.S. Conference to be held at the Police Headquarters in Sept. With a bit of luck they might get enough on him to never let him out, if they need any help I will be only too pleased to come clean with what I know. Fiddling with the cookie jar for one thing. What about laying a charge, Christine?

Two well known members of the VK5 fraternity, both said to be allergic to postage stamps and envelopes, were heard indulging in a c.w. contact the other night at about 9.30 p.m. Both these gentlemen were overcome with pride a couple of days later to receive a QSL card from a well known source reminding them of the need for call signs every five minutes or so. Their names are withheld to protect the guilty!

Comps 5EF went all computerish recently and came up with the information that despite—or because of—the enormous score that Tubby 5NO turned in at the 1965 R.D. Contest, VK5 would still have won. Let's hope that it turns out that way this year, because Tubby certainly won't be here for this year's R.D.—unless he works with an ON call sign.

The old rivalry between Jim 5FO and Harry 5MY was upset a bit because Jim was able to get about 45 contacts logged up before Harry got into his stride. Harry reckoned that 45 contacts start in the R.D. Contest was too much leeway to make up.

George 5CV when last heard of was in the direction of Kingoonya and Mount Eba, well on his way to Alice Springs or somewhere in that area. Reports have it that he was made so welcome at Woomera by the boys of 5WC that his progress was retarded somewhat. He seemed to think his time had been well spent however. Another "Blue Hills" George?

Joe 5JT is well set up for the higher frequencies these days with his Mosley beam, but is apparently having a bit of difficulty with 80 mx. Uncle Tom's (5TL) bottle inductance is in the process of being test runned, but it is too early as yet to assess results. Tom claims no patents to the idea, but gives credit to a VK2 for its introduction and says that the proof of the pudding, etc., etc., is enough.

Brian 5CA again missing from the general meeting, but the excuse was a good one. He was in the throes of producing the next issue of the VK5 Journal, and was trying to sort out the hundreds of contributions sent in by members for the said Journal. Get the message—hundreds of contributions from members—what about it, chaps?

Fred 5MA, until recently of Renmark, is now living in the area of no QRM, see Geoff 5TY for this area, and has not as yet been heard on the air. Nice to hear some news concerning you Fred, long time no hear. He used to be a regular correspondent from Renmark some years ago. Welcome back OM.

Have you been keeping an eye on the VK6 notes these days? Well, I have, and I cannot help but see a possible rival, both with his sense of humor and the length of his notes.

This, of course, going on my experience, will be the only pat on the back he is ever likely to receive from any one, but never fear, Ross 6DA, I will scratch your back if you will scratch mine, thus forming an enduring mutual admiration society. Joking aside, the VK6 notes make good reading, and I am the first to admit it. Even if it hurts! 73, de 5PS—PanSy to you.

## WESTERN AUSTRALIA

Yo ho ho and a bottle of spa water, it's off we go to seek for buried whatsiname or something. No, not us, but Doc 6AQ and some of his students and staff recently took off for those well known islands off the Geraldton coast. Naturally no modern expedition is complete without radio communication and this one was no exception as Doc was well equipped to operate on 40 and 80 mx. Their final refuge was one of the small islands of the Mangrove group. Weather was not quite what it should have been and after a couple of rough days and nights it was the popular consensus that the island be renamed Geometric island because everything finished up on an angle. The antenna pole was at 45 degrees and even the rain was coming in on a horizontal plane. However, as the weather moderated, the boys were able to adjourn to neighbouring islands to investigate vegetation, marine biology, bird life, etc. Fish were in abundant supply and the group certainly did themselves proud as far as meals were concerned. In fact they were well catered for in every respect as their number included two medical men, a priest, a crabboat skipper and a professional skindiver. To cap it all off, Doc reported that conditions from a Ham Radio point of view were ideal.

The portable bug seems to be biting a number of our Hams. Bernie 6KJ and son Kim (a communications engineering student) also took unto themselves mobile gear and traversed a good deal of the State from home QTH at Albany to Carnarvon and the Murchison River.

Also heard with a fine signal on 40 mx a.m. from various country centres was a visitor from VK3 land. Welcome to VK6, Bob 3AHF/Portable 6. The roads were not always kind to Bob's caravan and rig, however he seems to have overcome most of the difficulties encountered and still find time for a spot of Ham Radio.

Lionel 6LM, who I recently reported as being on long service leave, has put his time to good purpose, constructing a capacitance meter, two-tube phasing type rig, and a helical whip as well as checking his portable equipment.

Paid a visit to Waroona the other day and caught Bob 6RG red-handed, right in the act of—yes, you've guessed it—pulling his gear to bits, or as he termed it, a necessary modification. Spent a couple of very pleasant hours yarning with Bob and learning quite a lot in the process.

Bill 6WY tells me that Yanks are still plentiful on 20 mx. His X beam seems to be functioning well despite its proximity to salt air and its devastating effects. Incidentally, Bill has been firing up an old No. 19 on occasions from the Moore River.

Heard Brian 6VW recently giving voice on some piece of portable gear acquired from one of the Division's disposal sales. Nearly time you modulated that "suitcase Special" of yours Brian.

Another of my spies received instant promotion to the rank of bird watcher for the startling item of news that one of our leading s.w. listeners, Peter Drew, has won the lottery and joined the ranks of national servicemen for two years. Good luck, Peter, and I hope the experience will be beneficial to you. I understand that rather than let his receiver gather cobwebs, Peter has loaned it to another very keen s.w.l. in Harry Price, for the "duration." Judging by the number of stations logged by Harry during the R.D. Contest, its loan was fully justified.

Another who apparently could not resist the lure of our sunny (?) shores was George 2AGO. Nice to see you at our meeting OM, hope that your stay in VK6 was a pleasant one.

Our favourite news reader, Bob 6BE, reports that the news broadcasts are maintaining good coverage, and who can deny this when after a recent broadcast on 20 mx, Bob called for reports and back came a G station.

Once again the R.D. Contest brought to light some of the well-nigh forgotten call signs, but to save some people asking embarrassing questions, I will not mention any of them by name—unless they forget to submit a log. It appears to me that once again there were some fabulous scores attained in all States, and not all by sideband stations either! I wonder which State will run out winners on this occasion? As one Eastern State's gentleman put it to me shortly before the thing

started, "VK6 should win, after all you guys are marking the logs"—now there's an ideal Relax Contest Committee, we know that you are above reproach in these matters and may I lead a resounding cheer for a job well done? Talking of little heard of call signs, which I promised not to do but I will, reminds me of John 6NJ of far off Yoruppu. Why are you hiding your light under a bushel OM? If I hadn't read PanSy's column I would never have found out about your well deserved award for that fine series of articles on the History of Radio. However, I suspect that some extra studies may be instrumental in keeping you virtually off the air.

Reports to hand indicate that John 6IP may have faint leanings toward X Beams. True John?

Len 6LG, Bob 6RG and Aub 6XY appear to be holding the fort on 80 mx with occasional bursts of activity from other stations.

After months of silence, Col 6CJ made an appearance on the bands with a new rig. As another was heard to remark, it just didn't sound like Col, however it is probably so long since we heard his charming tones that they are growing dim in the memory.

One of my fans (yes, I actually have two), complained that I am always writing about the same few people. While this is virtually true I hasten to point out that the ones I repeatedly mention are at least active. Please do not hasten to heave a brick through the window of your local cop shop to get into the act, however if you possess information which you think should become general knowledge, please drop me a line.

For some inexplicable reason I have no v.h.f. scandal to pass on this month, but with school holidays looming up again something is bound to pop. The more optimistic types are predicting an early JA break through on 6 mx. Hope this is true, as it may add stimulus to a slumbering area.

It is pleasing to note a number of Z calls showing signs of interest in the proposed Morse classes to be run by the Division.

#### ERRATUM

In the W.I.A. advertisement on page 8 of this issue the subscription rate to "73" Magazine is incorrectly shown. The price should be \$3.50.

## THE EQUIPMENT EXCHANGE BULLETIN

is a lovely technical publication in a casual yet informative style.

S.A.E. (4" x 9") for free sample.  
P.O. Box 177, Sandy Bay, Tasmania

Repairs to Receivers, Transmitters; constructing and testing; xtal conv., any frequency; Q5-ers, R9-ers, and transistorised equipment.

### ECCLESTON ELECTRONICS

146a Cotham Rd., Kew, Vic. Ph. 80-3777

Stockists of Radio and Electronic Components for the Amateur Constructor and Hobbyist

First Ring, Write or Call on

WILLIAM & Co. Pty. Ltd.  
**WILLIS**

430 Elizabeth St., Melb'ne. Ph. 34-6539

#### FOR SALE

Basic Transceiver Power Supply Kits. Transformer 700/540v. d.c. at 300 mA., 280/230v. d.c. at 200 mA., bias 80v. d.c. 10 mA., heaters 12.6v. at 5a. E.h.t. Choke 12/2H. 25/300 mA. H.t. Choke 2H 200 mA. \$33 inc. tax, p.p. \$2. Availability mid to late October.

Resistors for Dummy Loads. 30 x 2w. 1500 ohm ERIE carbon. Suitable non-inductive 60-50 ohm load. \$3, p.p. 25c.

S. T. Clark, 26 Bellevue Ave., Rosanna, N.22. Vic.

Geraldton is still on the map Ham Radio-wise (how's that for a word), mainly due to the fine signal radiated by Noel 6MF—could easily be mistaken for that other rig up on the North-West Cape.

Steve 6SG, of Bunbury, was wrestling manfully with a couple of unruly 6146s when I contacted him the other day so at least I can talk to one bloke down there even if I can't catch up with Les 6WL.

Just before I suffer an attack of "typist's toes," a quick reminder about the Jamboree-on-the-Air, and please consult your Contest Calendar. '73, Ross 6DA.

## TASMANIA

Here it is nearly holiday time once again, three parts of the year are gone and the better weather is on the way (we hope). Also, of course, the v.h.f. DX season, quite a few locals are increasing power and/or re-building in anticipation of a good season.

The July exams saw quite a few members sitting for various sections of the A.O.C.F. requirements. Winston (formally 7ZAP) and Mike (previously 7ZAV) were two of the locals who passed the c.w. and now sport the full calls of 7WH, 7FB respectively; also Les Cooper who has been an associate for some years is now 7LS.

This year's R.D. saw excellent participation in all Divisions, and in this one particularly, both on h.f. and v.h.f. There appeared to me to be a much better spirit existing this year, far more friendly QSOs, it was good to hear, and when you think there are a lot of the general public who take a listen on R.D. weekend, it helps to make them realise that "an Amateur is a gentleman."

Our congrats must go to Sam 7SM who had 451 contacts; Den 7DK with 423 contacts, plus v.h.f. operation; and Brian 7TX with 342 contacts. The average of our top six should be in excess of last year. Hope its a good enough score to have won the trophy.

Don't forget next month is Hamfest month. The last week-end of November (28-27) at the usual spot at Campbell Town. Hope you'll make the effort to come at least for the Sunday, if not for Saturday night as well, for the barbecue and monster camp fire.

Our Sept. meeting at Hdq. Zone saw a clearance of disposals junk. Things had reached the stage when we could not comfortably get in the disposals room. Space had to be found for equipment of a better class to be housed so out went the goods which have been hanging fire for quite a long time.

7WI is now being re-broadcast on Sunday morning on 432 Mc. band by John 7ZJG and four or five other members are consequently in various stages of building gear for that band.

Don't know how many Tasmanians went on board the H.M.A.S. Hobart when she paid us a visit, but I did. I think someone must have recognised the W.I.A. badge on my coat, because the radio room was securely locked, but she certainly bristled with antennae of all sorts.

The Departmental exams in October should see about seven or eight more members sitting for their c.w. Won't be long before there is a shortage of Z calls if this keeps up. Good luck, chaps. 73, Geoff 7ZAS.

## HAMADS

Minimum 50c, for thirty words.  
Extra words, 2c each.

Advertisements under this heading will be accepted only from Amateurs and S.W.'s. The Publishers reserve the right to reject any advertising which, in their opinion, is of a commercial nature. Copy must be received at P.O. Box 36, East Melbourne, C.2, Vic., by 5th of the month and remittance must accompany the advertisement.

ATTENTION! Shack sell out. (1) Brand new "Woden" UM3, 120w., potted modulation transformer, \$15; A & R IT588 driver transformer, \$4.50 (originally purchased to construct "A.R." Class B modulator). (2) Used, excellent condition: C core 750 mA. 23 ohm d.c. resistance choke, \$8. Power Transformers: (a) 600v.-0-600v. at 400 mA., 5v. at 4a. x 2, 6.3v. at 3a. x 2, \$10; (b) 565v.-0-565v. at 250 mA., 5v. at 4a. 6.3v. at 3a. x 2, \$6. P. G. M. Bruer, VK5ZGX, 95 Church Terrace, Walkerville, South Australia. Phone 65-1363.

FOR SALE: AVO Precision Sig. Gen., 50 Kc. to 80 Mc., with instruction book. Taylor 45C Mutual Conductance Valve Tester, with calibrations and instruction book. Both above prices

in new condition, hardly used. Tx, Gelooso v.f.o. and 807 final, control panel, indicator lights, fuses, etc. Power Supply: 600-0-600v., 250 mA., 6.3v., 5v. (Hilco); two supplies of 400-0-400v., 120 mA., 6.3v., 5v.; all relay operated. Valves: 829B, 832, RK34 (300 Mc.), 809, 807, 805, 8AG6, 802, 866, variety of metal and glass electrode types. Transmitter section of SCR522 (v.h.f.). Variety of coils with silver plated wire on ceramic formers, 1 1/4 and 2 1/2 inch diam. (some rotating types with roller contact). Transmitting condensers, high voltage, split-stator and single, welded frames, various capacities. Various power transformers. Porcelain sockets for 832 or 829B type valves. Large assortment of odds and ends, relays, key switches, condensers, resistors, etc., suitable for hobbyists or instructional purposes. Gen. Motor, 12v. input, 250v. output at 60-70 mA. I.F.F. Gen. Motor converted to 230v. a.c., suit beam rotation. Best offer for major items. Odds and ends available FREE to anyone who can put them to good use in the interests of Ham Radio (too much to mail). J. Reid, VK3A/R, 601 Barkly St., Ballarat, Vic. Phone 2-2041.

FOR SALE: Galaxy V. Transceiver with a.c. power supply and remote v.f.o. (also Galaxy), \$650 cash, very seldom used, 100 per cent. condx. Will air freight anywhere. Bendix Freq. Meter with power supply, \$80, also 100 per cent. condition. Grundig TK25 twin track Tape Recorder, \$50. A.W.A. V.t.v.m. with d.c. and r.f. probes, \$40. VK4JA, J. T. Marston, 187 Aberdeen Pde., Boondall, Brisbane, Qld.

FOR SALE: Six Metre Transmitter, 25w., 6146 final, v.f.o. built-in, also matching Receiver, 7-11 Mc., b.f.o., a.v.c., xtal calibrator, etc. Also power supply to suit, 300v. 150 mA., 6.3v. fil. 6 mx and 2 mx Converter on one chassis, own power supply, tunes 7-11 Mc. 522 Transmitter, 2 metres plus power supply. Also 4 over 4 Channel Master 2 Metre Beam. All units working. Offers to P.O. Box 206, Liverpool, N.S.W.

FOR SALE: Swan SW350, new, never used. Latest model. \$500. 35 Reading Road, Brighton, Sydney, N.S.W.

FOR SALE: Transmitter AN-ART13 autotune, uses 813 and of course is a.m. modulated with 811. Complete with power supply delivering 1100v. at 500 mA., 400v. at 20 mA., 28v. d.c. at 10 amps. Best offer over \$120; will get some spares included. Also, complete manual, \$12. Sundries including two Simpson 25-0-25 microamp. Meters, new, \$12 ea. BC221 with book but less xtal, \$60. BC733 Receiver, \$10. T.v. Chassis, less pix tube and pwr. tranny, \$8. Phone 437-1811. Williams, VK3IZ, Ingrams Rd., Research, Vic.

FOR SALE: Type S Power Supply, 0.5 amp. at 500 volts, 12 volts a.c. and d.c., 300 volts d.c., \$24. Type 3 Mark II Transmitter and receiver, \$50. VK3ARP. Phone 85-1184.

FOR SALE: 50 ft. crank-up steel tower with hinge base. Excellent condition. \$50. R. Hobby, VK3ACI, 18 Cavalier St., East Doncaster, Vic. Telephone 842-2064.

GELOSO 222TR Transmitter. Must sell. Six bands, a.m. and c.w. Guaranteed perfect condition with handbook, spare valves, crystal mike. Just plug in and work the world. \$120 o.n.o. VK4JI, P.O. Box 30, Goondawindi, Qld. Phone 684 (after 6).

JOHNSON-VALIANT with manual. 250 watts c.w. and a.m., v.f.o. directly calibrated 1.8 to 28 Mc. Pi output, \$250. D. H. Duff, 34 William St., Hornsby, N.S.W. Phone 47-2050.

WANTED: Some AR7 Coil Boxes, good mechanical condition. Prices and particulars to R. W. Martin (VK2AHI), P.O. Box 143, Casino, N.S.W.

WANTED TO BUY or have made. Small Transistor Tx/Rx or TRx to work 146 f.m. Particulars, Box 23, Kurri, N.S.W.

WANTED: To buy, rent or borrow. Handbook for 122 Set. R. N. Fenton, 52 Steven St., Hurstbridge, Vic. VK3ARF. Phone 718-2284.

WANTED TO BUY: 2 mx F.M. Carphone, converted and preferably operating on all three channels; MR3 or similar. Must be clean and in good operating condition. May consider base station. R. A. Ellis, 16 Clinnick St., Reservoir, N.19, Vic. VK3ZDE. 47-2444 evenings.

WANTED TO SELL: One Heathkit SB10 Sideband Adaptor, \$70, with 813 Linear \$90 complete. Two H.R.O. Receivers, one bandspread, the other general coverage, \$70 each. One BC221 \$70. One G.R. Output Power Meter (audio), type 783A, milliwatts to 100 watts, precision lab. Meter, \$90. C. J. Manning, VK3CJ, P.O. Box 400, Orbst, Vic.

# A LARGE RANGE OF TRANSMITTERS, RECEIVERS, TEST GEAR, AND DISPOSALS RADIO PARTS AVAILABLE

- ★ **TRANSCEIVERS, TR1986-7**  
115-145 Mc. Employs heterodyne exciter in tx. TT15 p.a. Single xtal locks Tx and Rx on same frequency. In-built modulator. Supplied with 4.86 Mc. xtal. \$30, circuit \$1.
- ★ **MARCONI TF1101 R/C OSCILLATOR**  
20 c.p.s. to 200 kc., 1% distortion, current model. \$240.
- ★ **SR550 DUAL CONVERSION COM. RECEIVER**  
160 metres to 6 metres, Amateur Bands only. 3.5 Mc. xtal band edge marker, xtal supplied, product detector for s.s.b. \$240, 10% discount for cash.
- ★ **SCR522 V.H.F. TRANSMITTER/RECEIVER**  
100-150 Mc. Complete with tubes, \$28.
- ★ **PERSPEX SHEET**  
1/16 inch thick. Size 4 $\frac{1}{2}$ " x 16". \$1 per sheet.
- ★ **COMMAND TRANSMITTERS**  
4-5.3 Mc., 5.3-7 Mc. Complete with tubes, \$15.
- ★ **TR3624 TRANSMITTER/RECEIVER**  
Approximate frequency, 200 Mc. Contains 46 miniature tubes, \$30.
- ★ **3J160E HIGH POWER TRIODES**  
120 Mc. full ratings. Heater 10v. 29a., anode max. volts 3000v., anode max. current 1000 mA., r.f. output 2150 watts. \$8 each.

## WANTED TO BUY

Communication Receivers, Test Equipment, etc. Call, write or phone. Equipment inspected and picked up at your convenience any night or week-end.

- ★ **VALVES**  
EF50, 20c ea.; 7C7, 10c ea.; CV131, 6CQ6, 50c ea.; 6AC7, 20c ea.; 6AL5, 20c ea.; 6C4, 6AM5, 50c ea.; QQE03/12, \$2 ea.
- ★ **SIGNAL GENERATORS**  
TE22 Audio Generator, freq. range: sine 20 c.p.s. to 200 kc., square 20 c.p.s. to 25 kc., in four ranges. Output, 7v. p-peak. Output impedance, 1,000 ohms. Price \$42.
- ★ **METERS, P25 TYPE**  
0-500 uA., \$5.25; 0-100 uA., \$6.95; 0-1 mA., \$4.50; 0-10 mA., \$4.50; 0-50 mA., \$4.50. Full range of Meters and Multi-Testers available.
- ★ **CO-AXIAL CABLE**  
UR70 72 ohms, 3/16 inch diam. in 27-yard rolls, \$2 plus 75c pack and post. In as-new condition.
- ★ **RAIB COMMUNICATIONS RECEIVER**  
150 Kc. to 15 Mc. in six bands. B.f.o., etc. Genuine original condition, with a.c. power supply, \$70.
- ★ **TRANSISTORS**  
Brand new. OC72, OC44, 2N132, OC63, OC45, 80c each. AT1138 Power Transistor, 30w., Class B, \$3. Also Diodes: OA71, OA81, OA95, 35c each.

- ★ **SR700A TRIPLE CONVERSION COM. RECEIVER**  
80 metres to 10 metres. 1st and 3rd oscillators xtal controlled. 3.4-4.0 Mc. tunable i.f., selectable sidebands, 85:1 geared dial, v.f.o. output for transceive operation, selectivity: 0.5, 1.2, 2.5, 4 kc. Internal 1 Mc. xtal calibrator (xtal supplied). Undoubtedly the finest receiver ever to come out of Japan. \$500, 10% discount for cash.
- ★ **MILLER 455 Kc. PRE-WIRED I.F. STRIPS**  
Comprises two i.f. stages, ceramic filter, diode detector, 55 db. gain, NPN silicon transistors, d.c. requirements 6v. d.c. 2 mA., size 1 $\frac{1}{2}$  x  $\frac{1}{2}$  x  $\frac{1}{2}$  inch. \$8.70 inc. tax.
- ★ **TR10A MULTIMETERS**  
100,000 ohms per volt. Ranges, d.c. volts: 0.5, 2.5, 10, 50, 250, 500, 1K.; a.c. volts: 2.5, 10, 50, 250, 1K.; d.c. current: 10 uA., 1 mA., 25 mA., 250 mA., 10 amp.; resistance: 20K, 200K ohms, 2 megohms, 20 megohms. To clear, \$25.95.
- ★ **POTENTIOMETERS**  
Wire wound, 40c each; carbon, 25c each.
- ★ **RESISTORS**  
 $\frac{1}{2}$  watt, I.R.C., Welwyn, Eire, Ducon, Philips, \$2 per 100.
- ★ **H.P. 2-STROKE MOTORS**  
Ohlsson and Rice. Brand new, just imported from America. Weighs only 5 $\frac{3}{4}$  lbs. 6,300 r.p.m., supplied with 3:1 reduction gearbox, output 2,100 r.p.m. Ideal for driving Alternators for Field Days. Fuel consumption 1 pint per hour. \$30.

## ANY QUERIES

Beginners are welcome, ask Jim and Laurie Gardiner any questions. They are Amateur Radio operators and will be only too pleased to assist.

- ★ **CRYSTALS**  
Personal shoppers only, \$1 each.
- ★ **SPECIALS**  
3AP1 c.r.o. tubes. New in cartons, \$1.25.  
3000 type Relays, 50c each.  
Inter-Office Phones, 15-station type, \$4 each.  
7-pin skirted Valve Sockets, P.T.F.E. insulation, silver plated, only 20c each, c/w. shield.  
Speaker Transformers: 7000 ohms to 2 ohms; 10,000 ohms to 3.5 ohms; 50c each.  
9-pin skirted P.T.F.E. Valve Sockets with shield, 50c each.  
Irish Recording Tape, Mylar Base: 150 ft. x 3 in., 75c; 900 ft. x 5 in., \$2.75; 1150 ft. x 6 $\frac{3}{4}$  in., \$3.50; 1800 ft. x 7 in., \$4.75.  
3 uF. 1000v. d.c. Block Capacitors. Only 25c each or \$2 per dozen.
- ★ **MINIATURE CAPACITORS**  
New shipment. 600 v.w. Values: 0.001, 0.02, 0.005, 0.0005, 0.0002, 0.0001 uF. \$2 for 80, plus freight.

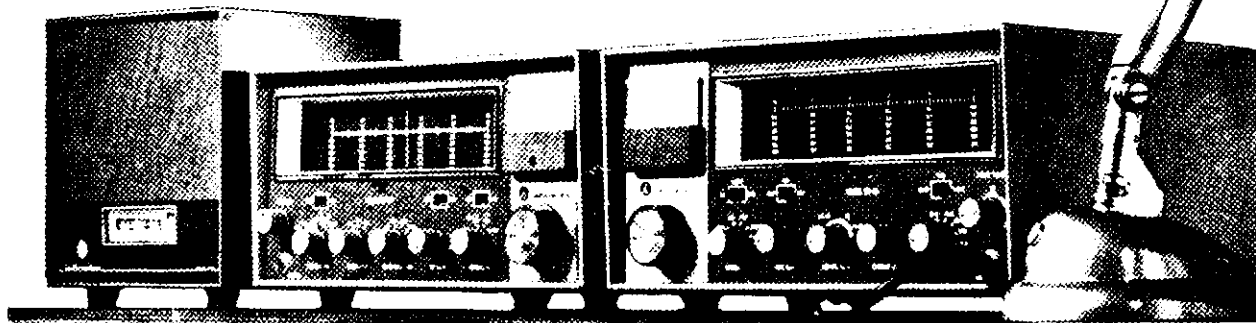
ALL ITEMS FREIGHT EXTRA

## UNITED TRADE SALES PTY. LTD.

280 LONSDALE ST., MELBOURNE, VIC. (Opp. Myers)

Phone 32-3815

# Hallicrafters' advanced technology brings you a new breed of amateur equipment



## SX-146 Receiver

This is an Amateur band receiver of advanced design employing a single conversion signal path and pre-mixed oscillator chain to assure high order frequency stability and freedom from adjacent channel cross-modulation products. The SX-146 employs a high frequency quartz crystal filter and has provision for installation of two more crystal filters. The receiver may also be used from 2 to 30 Mc., with the exception of a narrow gap at 9.0 Mc., with the connection of auxiliary oscillators. The highly stable conversion oscillator chain may be used for transceiver operation of matching HT-46 transmitter.

**FREQUENCY BANDS:** 3.5-4.0, 7.0-7.5, 14.0-14.5, 21.0-21.5, 28.0-28.05, 28.5-29.0, 29.0-29.5, 29.5-30.0 Mc. (28.0 to 28.5, 29.0 to 30.0 requires extra crystals at user's option.)

**SENSITIVITY:** Better than 1  $\mu$ V. for 20 db. S/N.

**TUBES AND FUNCTIONS:** 6JD6 r.f. amplifier; 12AT7 signal mixer and cathode follower; (2) 6AU6A 9 Mc. i.f. amplifier; 12AT7 a.m. detector—a.v.c. rectifier—product detector; 12AT7 u.s.b.-l.s.b. crystal oscillators; 6GW8 audio amplifier and audio output; 6BA6 variable frequency oscillator; 6EA8 crystal heterodyne oscillator and pre-mixer; plus diode power supply rectifier, a.n.l. diode and a.v.c. gates diode; \*6AU6A 100 kc. crystal calibrator oscillator; \*harmonic generator diode.

**I.F. SELECTIVITY:** Uses a 6-pole crystal filter to obtain a nose-to-skirt ratio better than 1 to 1.8.

**PHYSICAL DATA:** Size, 5 $\frac{7}{8}$  x 13 $\frac{1}{4}$  x 11 inches. Shipping weight, 20 lbs.

**FRONT PANEL CONTROLS:** Frequency—Power off, c.w.-upper-lower and a.m.; audio gain; band selector—3.5, 7.0, 14, 21.0, 28.0, 28.5, 29.0, 29.5; selectivity—0.5, 2.1, 5.0 kc. +0.5 and 5.0 kc. filters optional extra; pre-selector; r.f. gain; a.v.c. on-off; cal. on-off; a.n.l. on-off; phone set jack; Sinter.

**REAR CHASSIS:** S-meter zero adjust; internal-external oscillator switch; slave oscillator output; external oscillator input; antenna socket; speaker, ground and mute terminals; grounding stud; a.c. power cord.

**POWER REQUIREMENTS:** 105-125 volt—50-60 cycle a.c.—55 watts.  
\* Part of HA-19 calibrator.

Amateur net, \$450.00

Optional crystal filters: 0.5 kc., 5.0 kc., available.

**MODEL HA-19** plug-in 100 kc. quartz calibrator available as accessory.

## HT-46 5-Band Transmitter

All new from the ground up! Here's the "new breed" transmitter that matches your SX-146 . . . works independently or may be interconnected for transceiver operation.

**FEATURES:** 180 watts p.e.p. input on s.s.b.; 150 watts on c.w.; frequency control independent or slaved to SX-146 receiver; upper or lower sideband via 9 Mc. quartz filter; built-in power supply; press-to-talk or optional plug-in v.o.x.; grid block keying for c.w.

**FREQUENCY COVERAGE:** 3.5-4.0, 7.0-7.5, 14.0-14.5, 21.0-21.5 Mc. and 28-30 Mc. in four 500-ke. steps. Crystal supplied for 28.5-29.0 Mc. coverage. Other plug-in crystals at user's option.

**TUBES:** 6BA6 v.f.o.; 6EA8 heterodyne crystal oscillator and mixer; 12AT7 carrier oscillator—third audio; 12AT7 mic. amplifier; 6EA8 9 Mc. i.f. amplifier and a.a.l.c.; 6AH6 mixer; 12BY7 driver; 6HF5 power amplifier; OA2 reg.

**FRONT PANEL CONTROLS:** Frequency tuning; operation-off; standby, u.s.b., l.s.b.; c.w.-tune; standby, l.s.b., u.s.b.; microphone gain; driver tune; carrier level; band selector; final tune; v.f.o. selector—transmitter-receiver; dial cal.; calibrate off-on; meter MA-RFO.

**REAR APRON FUNCTIONS:** A.c. cord; ground lug; fuse; key jack; v.o.x. accessory socket; antenna jack; receiver input (for transceiver); 11-pin control socket; bias adjust.

**PHYSICAL DATA:** Size, 5 $\frac{7}{8}$  x 13 $\frac{1}{4}$  x 11 inches. Shipping weight, 20 $\frac{1}{2}$  lbs.

Amateur net, \$507.00

HA-16 Vox Adaptor.

W.F.S. ELECTRONICS SUPPLY CO.

227 Victoria Road, Rydalmere, N.S.W. 638-1715

ATLANTIC RADIO

36 Oxford St., Woollahra, N.S.W. 31-7811



# amateur radio

Vol. 34, No. 11  
NOVEMBER  
1966

25c

Registered at G.P.O., Melbourne, for  
transmission by post as a periodical

## SEMI-CONDUCTORS

TRANSISTORS		GERMANIUM SILICON AND ZENER DIODES	
AC107	\$1.90	BA100	45c
AC125/OC70	90c	BY100	\$1.55
AC126/OC75	90c	OA5	70c
AC127	\$1.00	OA79	30c
AC128	\$1.25	OA80/OA80/	
AD149/OC26	\$2.25	1N34A	30c
AF114N/OC171	95c	OA91/OA81	30c
AF115N	95c	OA200	70c
AF116N/OC170	90c	OA202	75c
AF117N/OC169	90c	OA210/1N1763/	
AF118N	\$2.00	1N3194, HR25.	
AS220/2N370	90c	400PIV, 400MA	55c
AT126/AC126	90c	OA211/BY100/	
AT310 Silicon	95c	SIAR2, 1000PIV	
AT311 Silicon	95c	1 amp.	\$1.60
AT312	90c	OA605/1N3193	55c
AT313	\$1.00	OA850	\$1.10
AT314	90c	OAZ200	\$1.50
AT315	95c	OAZ202	\$1.50
AT316	95c	OAZ205	\$1.50
AT1138A/OC35	\$3.25	OAZ208	\$1.25
BC107	\$1.00	OAZ212	\$1.25
BC108	90c	OAZ222/BZZ14	\$2.00
BC109	\$1.30	OAZ223	\$1.25
BF115	90c	OAZ224/BZZ16	\$2.00
OC26/AD149	\$2.25c	OAZ225	\$2.00
OC30	\$4.10	ORP12 LIGHT/SENS	
OC35/AT1138A	\$3.25c	1N3194/OA210	85c
OC44N	90c	1N3193/OA605	55c
OC45N	90c	1N3491 50PIV/	
OC70	\$1.16	18A	95c
OC71/2N215	75c	1N3491R	95c
Or 3 for \$2.		1N3492 100PIV/	
OC71	\$1.25	18A	\$1.20
OC72	\$1.25	1N3492R	\$1.20
OC74N/AC128	95c	1N3493 200PIV/	
OC75/AC126	95c	18A	\$1.30
OC202	\$5.00	1N3660 100PIV	
2N217	95c	25A	\$1.55
2N217/S	95c	1N3660R	\$1.55
2N370/ASZ20	90c	SPECIALS	
2N372	\$1.75	CV448/OA81	
2N410	85c	Germanium Diodes.	
2N278 Delco	\$3.00	22c each of 12 for	
		\$2.00.	
		2SA29/OC44	
		75c or 3 for \$2.00.	

## CHASSIS—ALUMINIUM

Type 1. 5 in. x 3 in. x 2 in.	75c
" 2. 6 in. x 4 in. x 2 in.	80c
" 3. 8 in. x 5 in. x 2 1/2 in.	\$1.00
" 4. 10 in. x 6 in. x 2 1/2 in.	1.25
" 5. 11 in. x 8 in. x 2 1/2 in.	1.50
" 6. 13 in. x 7 in. x 2 1/2 in.	1.50
" 7. 13 in. x 10 in. x 3 in.	1.75
" 8. 17 in. x 8 in. x 3 in.	2.15
" 9. 17 in. x 10 in. x 3 in.	2.46
" 10. 17 in. x 12 in. x 3 in.	2.62

(Pack and Post 40c.)

## VERNIER DIALS

Ratio 8 to 1. Reduction scaled 0-10.	
Type T 501 1 1/2 in. diam.	\$1.75
" T 502 2 in. diam.	2.20
" T 503 3 in. diam.	2.80

## ROBLAN BROADCAST GANGS

RMG1 Single Gang, 10-50 pF.	\$1.85
RMG1 Single Gang, 10-415 pF.	1.85
RMG2 2 Gang, 10-415 pF.	2.50
RMG3 3 Gang, 10-415 pF.	3.35

(Pack and Post 20c.)

## TRANSISTOR RECEIVER KITS

Kits of parts for the Audio and B.f.o. Sections of the 80 Mx Transistor Receiver described in August "A.R." are now available. Audio Kit \$15.50. B.f.o. Kit \$15.50. Kits will be available for subsequent sections as they are published.

## BALUN TOROID

Type 355C. Impedance ratio 2:1. 1. 52 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. For use at the base of a mobile whip antenna, coupled to fixed or adjustable tx output impedance. Lug terminals. \$3.50.

## NEW TOGGLE SWITCHES

S.P.S.T. 5/- each. D.P.D.T. 10/- each.

## NEW CHOKES

7-5H. 125 mA. 30/- ea. 14 H. 60 mA. 12/6 ea.  
10 H. 4 mA. 12/6 ea.

## NEW VALVE SOCKETS

4,250A Sockets	20/- each
Acorn	3/6
EF50	2/6
VCR97	10/-
8c5	12/6
EA50	2/6
5-pin	2/6
6-pin	2/6
7-pin P.T.F.E. Sockets	5/-
Loctal P.T.F.E. Sockets	5/-
Special completely shielded 7-pin P.T.F.E. socket and shield	10/- pair

## NEW PLUGS AND SOCKETS

Octal Plug	3/6 each
Octal Socket	1/6
5-pin Speaker Plugs	2/6
4-pin Speaker Plugs and Sockets	1/9
6-pin Jones Plugs and Sockets	7/6
Pye Plugs	2/-
Pye double bulk Chassis Sockets	2/6

## SCOPE SPARES

Copper Tips, Standard	\$0.11
Each	
Copper Tips, Instrument	\$0.11
Barrel, Standard	\$1.02
Barrel, Stainless Steel	\$1.95
Element, Carbon	\$0.10
Bead Retaining Nut	\$0.63
Beads, Ceramic	\$0.03
Push Rod Assembly	\$1.08
Return Spring	\$0.12
Flex Lead	\$1.68
Bakelite Lock Nut	\$0.18
Brass Nut	\$0.25
Handle, complete	\$1.80
Switch Ring	\$0.25
Rubber Grip	\$0.03
Grommet Spring	\$0.18
Grommet Nut	\$0.18
Terminal Box Cover for transformer	\$0.40

## RECORDING TAPE SPECIALS

(This month only.)

Scotch Brand, 1200 ft., on 7 in. reel, lubricated Acetate	\$3.50
Scotch Brand, 300 ft., on 3 in. reel, polyester base	\$1.20
Lafayette Brand, 1800 ft., on 7 in. reel, polyester base	\$3.95
Lafayette Brand, 2400 ft., on 7 in. reel, polyester base	\$5.00
Lafayette Brand, 1200 ft., on 5 in. reel, polyester base	\$3.25

(Pack and Post 15c.)

## VARIABLE CONDENSERS EDDYSTONE (CERAMIC)

1/4 in. shaft.	
570 Condenser, 13.5 pF.	\$2.25
582 Condenser, 83 pF.	2.50
584 Butterfly Cond., 32 x 32 pF.	2.50
585 Condenser, 91 pF.	2.75
586 Condenser, 140 pF.	3.85
817 Transmitting Cond., 270 pF.	5.25

(Pack and Post 20c.)

## MICROPHONES

LM1 Crystal Lapel Type	\$1.00
BM3 Crystal Pencil Type w. on/off switch	\$5.00
CM30 Crystal Small Tape Rec. Type	\$1.95
DF2 Dynamic Tape Rec. Type 500HM or 50K available	\$5.00
DF3 Dynamic Pencil Type 500HM or 50K available	\$9.00
B1051 Dynamic Thin Pencil Type, polished aluminium finish. (Response 15-15 Kc., 50K ohm only)	\$7.50
B1052 Dynamic Dual Impedance Pencil Type (600 ohm and 50 K.) (Response 15-15 Kc.)	\$11.50
B1053 Uni-Directional Slim Pencil Type (Dual Impedance 500-50K. (Response 15-15Kc.))	\$18.00
B1401 Microphone Stand Desk Type	\$1.80

(Pack and Post 25c.)

## STEREO AMPLIFIER 10 WATT

Model ST-100 Stereo Amplifier, 5 watts per channel, valve type, Response 15-15Kc., 4, 8, 16 ohm output, \$38.00.  
24 Watt Stereo Amplifier and Pre-amp (Similar Star SA30), 12 watts per channel, 8 and 16 ohm outputs, Rumble filter, etc. Few only at this price, \$82.00.

## IMPORTED STEREO TURNTABLES

STP-66 12 Inch Turntable, 3 speed Synchronous motor, complete with all balance arm and magnetic cartridge well below 0.2%. Rumble below 40 db. Price \$55.00.  
10 inch Turntable, as above, \$50.00.  
Spare Magnetic Cartridge, \$6.75.  
Polished Base for above turntables, \$6.00 extra.

## HI-FI LOUDSPEAKERS

6 in. twin cone, rated 5 watt, 60-16 Kc., 8 or 16 ohm available	\$5.00
8 in. twin cone, rated 10 watt, 60 to 16 Kc., 8 or 16 ohm available	\$7.50
12 in. twin cone, rated 10 watt, Ferrite Magnet	\$10.00
6 in. Co-axial, rated 8 watt, 60 to 16 Kc., 8 or 16 ohm available	\$11.00
8 in. Co-axial, rated 10 watt (40-16 Kc.), 8 or 16 ohm available	\$15.00
12 in. twin cone, rated 20 watt (30-13 Kc.), 8 or 16 ohm available	\$19.00

Speaker Enclosures for above speakers available to order. P.O.A.  
(Pack and Post 40c.)

## Mullard Magnavox Mini Bookshelf Speaker Box

(Mullard Outlook, April 1966 edition.) Built by approved Magnavox manufacturer. Completely built and polished maple, walnut or teak, with speaker, \$27.00.

# HAM

# RADIO SUPPLIERS

5A MELVILLE ST., HAWTHORN, VIC. Phone 86-6465

8 PARK STREET, GLENFERRIE, VIC. Phone 81-1935

North Balwyn tram passes corner.

Money Orders and Postal Notes payable North Hawthorn P.O.

We sell and recommend Leader Test Equipment, Pioneer Stereo Equipment and Speakers, Hitachi Radio Valves and Transistor Radios, Kew Brand Meters, A. & R. Transformers and Transistor Power Supplies, Ducon Condensers, Welwyn Resistors, etc

# "AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA. FOUNDED 1910.

NOVEMBER 1966  
Vol. 34, No. 11

## Editor:

K. E. Pincott ..... VK3AFJ

## Assistant Editor:

K. M. COCKING ..... VK3ZFK

## Publications Committee:

G. W. Baty (Secretary) ..... VK3AOM  
A. W. Chandler (Circulation) ..... VK3LC  
E. C. Manifold ..... VK3EM  
W. E. J. Roper ..... VK3ARZ

## Draughtsmen:—

Ken Gillespie ..... VK3GK  
Clem Allen ..... VK3ZIV  
Ian Smith ..... 36 Green St., Noble Park

## Advertising Enquiries:

C/o P.O. Box 36, East Melbourne, C.2, Vic.  
or  
Mrs. BELLAIRS, Phone 41-3535, 478 Victoria  
Parade, East Melbourne, C.2, Victoria. Hours  
10 a.m. to 3 p.m. only.

## Publishers:

VICTORIAN DIVISION W.I.A.,  
Reg. Office: 478 Victoria Pde., East Mel-  
bourne, C.2, Victoria.

## Printers:

"RICHMOND CHRONICLE," Phone 42-2419,  
Shakespeare St., Richmond, E.1, Vic.



All matters pertaining to "A.R.," other  
than subscriptions, should be addressed to:

THE EDITOR,  
"AMATEUR RADIO,"  
P.O. BOX 36,  
EAST MELBOURNE, C.2, VIC.

Acknowledgments will be sent following  
the Committee meeting on the second Mon-  
day of each month. All Sub-Editors should  
forward their articles to reach "A.R."  
before the 5th of each month. Any item  
received after the Committee meeting will  
be held over until the next month. Pub-  
lication of any item is dependent upon space  
availability, but in general about two  
months may elapse before a technical  
article is published after consideration by  
the Publications Committee.



Members of the W.I.A. should refer all  
enquiries regarding delivery of "A.R." direct  
to their Divisional Secretary and not to  
"A.R." direct. Non-members of the W.I.A.  
should write to the Victorian Division, C/o  
P.O. Box 36, East Melbourne. Two months'  
notice is required before a change of mail-  
ing address can be effected. Readers should  
note that any change in the address of  
their transmitting station must, by P.M.G.  
regulation, be notified to the P.M.G. in the  
State of residence. In addition "A.R."  
should also be notified. A convenient form  
is provided in the "Call Book."



Direct subscription rate is \$3.00 a year, post  
paid, in advance. Issued monthly on the  
first of the month, January edition excepted.

## FEDERAL COMMENT



### "ON GROWING UP"

Having long attained its majority, this Institute is, in many ways, still adolescent. In no sense is this comment to be taken as belittling the effort of past and present Honorary Officers of Divisions and Executive, but is intended to be a reflection on the status and relationship of the Federal body to the Institute as a whole. Let us look at the present situation, and consider a little theory.

It is not unusual or abnormal to find that organisations or societies have a Head Office, with administrative and executive staff, together with a reasonable income collected by subscription from its members. If there are Divisions or Branches, it is reasonable to assume that they are responsible for their own affairs, and follow generally the policies laid down by Head Office. The finance necessary for the conduct of Branch affairs may, in the case of an affluent Head Office, be provided on a per capita basis, or by a small levy on the members of the Branch.

This, then, is the normal course of events. But what do we find when we look at the Institute? We find a classical example of "six tails wagging the dog," or, to mix the metaphor, "the part being greater than the whole"; six Divisions all collecting a subscription and then forwarding the pittance of 30 cents a head to Federal Executive so that they can administer the complex and varied affairs of "The" W.I.A.

Surely the time has come when we must reorganise, and do some drastic revision of our Constitution. The amendments that have been proposed over the past years are steps in the right direction, but they do not go far enough. On the evidence available, it is obvious that efforts to make major changes are fraught with extreme difficulty because of problems in some quarters. If members of all Divisions rid themselves of certain inhibitions and aberrations, they must then find themselves free to consider the reorganisation of their Head Office—an Executive with a paid general manager or secretary and an editor for their national journal who does not have to squeeze in his social and family responsibilities with "A.R."

This Institute has some 4,000 members in all grades, and it is not on the level of the "Any Town Branch of the Society for the Care of Anxious Felines," nor is it at A.R.R.L. status.

The day of honorary officers in the posts of Secretary and Editor of the W.I.A. has ceased. If they still exist, then these officers are not fulfilling their obligations either to their families or the Institute.

The practical benefits of implementing these proposals need not be stated here at this time, and to a large extent, are self evident. They are limited only by the imagination and resourcefulness of the man employed, backed up by an efficient Executive, ensuring continuity of effort and implementation of all policies.

It would also provide the lie to those critics who level comments at the Institute to the effect that it does nothing and provides even less. In any event, it would have been proper to fire the bullets at the critic's own Division. After all, how much criticism can you give at 30 cents a head!

—P. D. WILLIAMS, Federal Secretary, W.I.A.

## CONTENTS

Interference to Television and Radio Reception by Nearby Radio-Communications Transmitters .....	2	Ross Hull Memorial V.h.f. Contest, 1966-67 .....	17
"The Thing"—Transistorised .....	5	1966 R.D. Contest Results .....	18
A High Stability V.f.o. for Receiver or Transmitter .....	6	Prior Notice of National Field Day Rules .....	8
A Transistorised Amateur Band Receiver—Part Four .....	7	Correspondence .....	21
Transistor Amplifier Design—Part Three .....	9	Project Australis .....	21
Sideband Notes .....	13	DX .....	23
Technical Correspondence: Transistor Amplifier Design .....	15	SWL .....	24
V.h.f./U.h.f. State Records .....	15	New Call Signs .....	24
		VHF .....	25
		Publications Committee Reports .....	25
		Federal and Divisional Monthly News Reports .....	27
		Prediction Charts for November .....	29

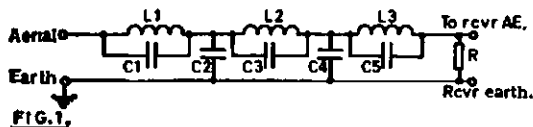


# Interference to Television and Radio Reception by Nearby Radio-Communications Transmitters

R. A. MURPHY,\* VK5ZDX, and R. S. GURR,† VK5RG

ON frequent occasions the operation of nearby radiocommunications transmitters (e.g. Taxis, Police, Amateur, etc.) causes interference to the reception of Radio or Television programmes. In rare cases this interference may be due to deficiencies in the interfering transmitter, but as the operation of these is controlled to rigid standards by the appropriate authorities, trouble from this source is not common. In such cases, no amount of work on the receiver will cure the interference, if the transmitter is radiating spurious signals in the Broadcast or Television bands.

The following types of interference may, however, confront a Radio or Television serviceman from time to time—cure may be effected in all these cases at the receiver.



In general the mixing of the oscillator harmonics, and the unwanted signal occurs in the mixer of the broadcast receiver. The obvious cure is to stop one or other of these two signals from reaching the mixer.

The harmonic level of the oscillator in the receiver can be greatly reduced by lowering the applied voltage on the anode of the oscillator. It is wise to check the oscillator grid current as this may be excessive in some sets.

To prevent the unwanted high frequency signal reaching the mixer, better radio frequency selectivity (additional r.f. stage or the use of a low pass filter is necessary.

A typical low pass filter that will allow broadcast band signals to pass on to the receiver, but will attenuate all signals on frequencies above 1600 kcs., is shown in Fig. 1 (see "R.S.G.B.

## BROADCAST INTERFERENCE

### 1.—Superheterodyne Spotting.

The harmonic radiation from the local oscillator of some broadcast sets—particularly transistor portables—is of a sufficient level to produce beats, with the nearby transmitter, that are on the same frequency as the local broadcast station. The beats are usually unnoticed on sets using an r.f. stage, where additional selectivity prevents the short wave signal from reaching the mixer stage.

A harmonic of the oscillator that falls 455 kcs. (the i.f.) away from the nearby transmitter frequency, will also cause a beat.

#### Example A:

- |                                  |           |
|----------------------------------|-----------|
| 1. Broadcast station frequency   | 1200 kcs. |
| 2. Receiver oscillator frequency | 1655 "    |
| 3. Oscillator 2nd harmonic       | 3310 "    |
| 4. Local transmitter frequency   | 4510 "    |
| 5. Beat between 3 and 4          | 1200 "    |

#### Example B:

- |                                  |           |
|----------------------------------|-----------|
| 1. Broadcast station frequency   | 1200 kcs. |
| 2. Receiver oscillator frequency | 1655 "    |
| 3. Oscillator 4th harmonic       | 6620 "    |
| 4. Local transmitter frequency   | 7075 "    |
| 5. Beat between 3 and 4          | 455 "     |

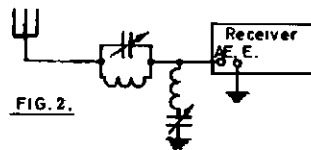
Amateur Radio Handbook"). L1, L2, and L3 should have adjustable cores and are tuned to that L1 C1 and L3 C5 resonate at 1.8 Mcs. and L2 C3 resonate at 3.6 Mcs. Component values are: C1, C5, 330 pF.; C2, C4, 360 pF.; C3, 27 pF. L1, L3, 21.45 microhenries; 50 turns No. 32 s.w.g. enamelled wire on ½ in. diameter iron slugged former. L2, 71.7 microhenries; 90 turns No. 38 s.w.g. enamelled wire on ½ in. diameter iron slugged former. R, 400 ohms ½ watt. The use of an outdoor aerial in conjunction with this filter is recommended.

Direct "image" interference often occurs from signals in the 1500 to 2500 kcs. band—small ship, police, Amateur, etc., transmissions can cause trouble. If only one frequency is involved, re-alignment of the intermediate frequency amplifier to an alternative frequency will remove this problem.

Often medium frequency transmissions in the 400-500 kcs. band are picked up direct in the intermediate frequency stages—once again re-alignment of the i.f. to an alternative frequency is the cure. If it is desired to eliminate one frequency only at the aerial of the receiver, single tuned circuit may be used as a "trap." The trap (Fig. 2) is usually a parallel resonant circuit, tuned to the frequency of the interfering signal, inserted in series with the broadcast aerial, as close to the set as possible. Alternatively, a series tuned trap shunted across aerial terminal to chassis is satisfactory.

### 2.—Audio Rectification.

If the audio content of the interfering station can be heard at all points of the dial (i.e. not tuneable), it is possible that the signal is being detected in the audio frequency section of the receiver. To confirm this, the normal aerial of the receiver should be disconnected and any change in the level of the interference noted.



If the interference ceases, then installation of suitable traps in the aerial lead may provide a satisfactory cure. If it persists, then some work will have to be carried out on the audio circuits in the receiver.

This same effect will sometimes be noticed in radiograms even when used as amplifiers only—i.e. with the tuner turned off. This interference is caused by rectification, usually at the control grid of the first stage in the audio amplifier—i.e. the stage following the detector. After the trouble persists irrespective of the volume control setting.

To overcome this form of rectification, it is necessary to prevent radio frequency energy from reaching the grid of this audio stage. Standard techniques for curing this are as follows:—

1. Reduce grid load resistor to 2 or 3 megohms and bypass with a 250 pF. condenser. (See Fig. 3.)

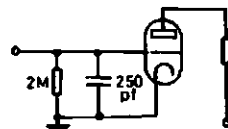


FIG. 3.

2. Insert 50,000 ohm resistor between grid resistor and grid as close to grid pin as possible—in addition bypass with 100 pF. condenser. (Fig. 4.)

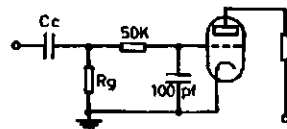


FIG. 4.

3. In some sets, audio is coupled from the detector to the first audio stage by means of cathode injection. In this case, bypassing the cathode resistor with a 100 pF. condenser will be satisfactory.

\* 274 Diagonal Road, Oaklands Park, South Australia.

† 9 Richmond Avenue, Colonel Light Gardens, South Australia.

In a number of cases, similar treatment to the following audio stage has been necessary to completely eliminate the trouble.

### TELEVISION INTERFERENCE

#### 1.—Front End (R.F. Overload).

Because of the wide band of the t.v. station transmissions the front-end (r.f. stage) of a t.v. receiver is usually quite broad in response (minimum of 7 Mcs.). As a result, the attenuation presented to signals on frequencies on either side of the t.v. channel is not very great.

This feature is often the reason why a strong local station, operating on a nearby frequency, can cause interference to a more distant t.v. transmitter.

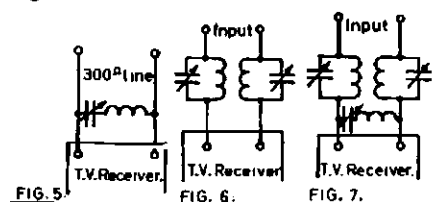
Often transmissions on frequencies quite remote from the t.v. bands may cause interference due to the same effect. In strong t.v. signal areas, the t.v. set is frequently overloaded by the t.v. transmitter often to the extent where r.f. patterning, loss of synchronisation, pulling, etc., occur. This is because the a.g.c. system of the set is not correctly adjusted or in some cases not designed correctly.

In some cases, the overloaded set may produce perfect pictures, but under the influence of a nearby transmitter, r.f. patterns will be produced. As an example, an Amateur transmitter operating on 3.5 Mcs. caused interference to all channels on strong local t.v. transmissions. The transmitter was tested and it was confirmed that there were no spurious radiations in the t.v. bands. When viewing the t.v. receiver with the 3.5 Mcs. transmitter running, but the t.v. stations off the air, no interference was noted on any channel.

When a t.v. transmitter commenced operating, an interference pattern was produced on that particular channel. The cure to this trouble proved to be the insertion of a 20 db. resistive attenuator in the aerial lead-in, at the aerial terminal of the set, but often adjustment of the receiver a.g.c. control would be adequate.

A large number of cases have occurred where taxi services, Amateur stations, police transmitters, etc., have caused interference to neighbouring television reception. A number of cases have been cured by the installation of traps, tuned to the unwanted frequency, fitted to the aerial terminals of the set, but a few required installation of the traps at the feeder terminals on the t.v. turret.

The trap circuits usually consist of a small coil and a condenser in series connection (Fig. 5), but parallel tuned combinations may be used in difficult cases (Fig. 6). Sometimes a combination of both series and parallel resonant traps is necessary, as shown in Fig. 7.



Traps using 300 ohm ribbon quarter wave stub lines, and closely coupled tuned circuits made from 300 ohm ribbon in conjunction with a small trimmer condenser are also popular. Details are to be found in the various references mentioned below.

The effect of overload may vary from complete blocking of the screen through to fine wire mesh patterns. Not all r.f. patterns appearing in a t.v. screen need be caused by a nearby transmitter. Cases have occurred where the r.f. amplifier of the receiver itself has "taken off" in self oscillation and produced spurious signals throughout the r.f. spectrum. In most cases of this nature, replacement of the amplifier tube, bypass condenser, etc., in the r.f. stage will produce a cure, but often the oscillation is due to incorrect loading on the grid of the valve caused by an open circuit aerial feedline.

Audio grid rectification, as listed under "Broadcast Interference," applies equally to the t.v. set.

As a general rule, overload interference may be overcome by:—

1. Overlap t.v. ribbon 2-4 inches.
2. Fit a suitable trap if the interfering signal is in the v.h.f. range.
3. Install a "high pass" filter if interfering signal is below 30 Mcs. (see Fig. 8).

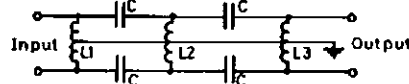


FIG. 8:  
C equals 20 uufd.  
L1 equals 40 turns centre earthed 30 gauge enamelled close wound on 1/4 inch diameter knitting needle.  
L2 equals 22 turns centre earthed 30 gauge enamelled close wound on 1/4 inch diameter knitting needle.  
(Similar high pass filters are available commercially—e.g. "Austenna".)

### AERIAL INSTALLATIONS

No radio or television receiving installation is complete without the inclusion of a "good" outside aerial. It is recognised that most modern sets are sensitive enough to give satisfactory reception with little or no aerial connected at all, but as the amount of signal induced into the set then depends more on the nature of screening and reflecting materials in the adjacent area, it is obvious any stray r.f. energy fed back into the mains (or induced into them) by nearby transmitters, will be at a level sometimes approaching that of the received signal.

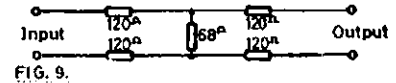
The erection of a good outdoor aerial in a large number of cases has often overcome extremely aggravating cases of interference. For broadcast reception a single insulated wire running from the eaves or gable of a house to a convenient fruit tree, and oriented at right angles to the aerial of the nearby transmitter is adequate.

For television use, the "rabbits ears" or similar aerials mounted on top of the t.v. receiver rarely give satisfactory reception under normal circumstances. Flickering due to body reflections and passing vehicles, etc., are overcome when these types are replaced with a good chimney/roof mounted outdoor type. The installation of a good quality aerial inside the

roof of the house where it usually sits 6 to 12 inches above interference conducting power wiring is not satisfactory, and usually costs nearly as much as the accepted outdoor type.

Some broadcast sets are designed to work with very short aerials, and often the use of too much aerial may tax the a.v.c. system of the receiver. To overcome this and maintain the signal-to-interference improvement, overload may be corrected by cutting the aerial lead about 12 inches from the receiver and twisting the two wires together again. Alternatively, a small 2 or 10 pF. coupling condenser may be adequate.

The problem of a.v.c. in t.v. receivers can be overcome by adjusting the appropriate controls or alternatively by the installation of an attenuator. A 20 db. attenuator for installation in 300 ohm line at t.v. frequencies can be made by connecting some quarter or half watt resistors as shown in Fig. 9.



In the field, overlapping 300 ohm ribbon by 3 or 4 inches and locking the overlap with plastic adhesive tape, may be found satisfactory.

Most t.v. sets are designed to work with 300 ohm feed and consequently with resonant aerials. It is difficult therefore to expect perfect reception when a Channel 3/8 aerial combination is used to receive Channels 1/8—standing waves on the feedline can produce ghost signals and resultant "smearing," etc.

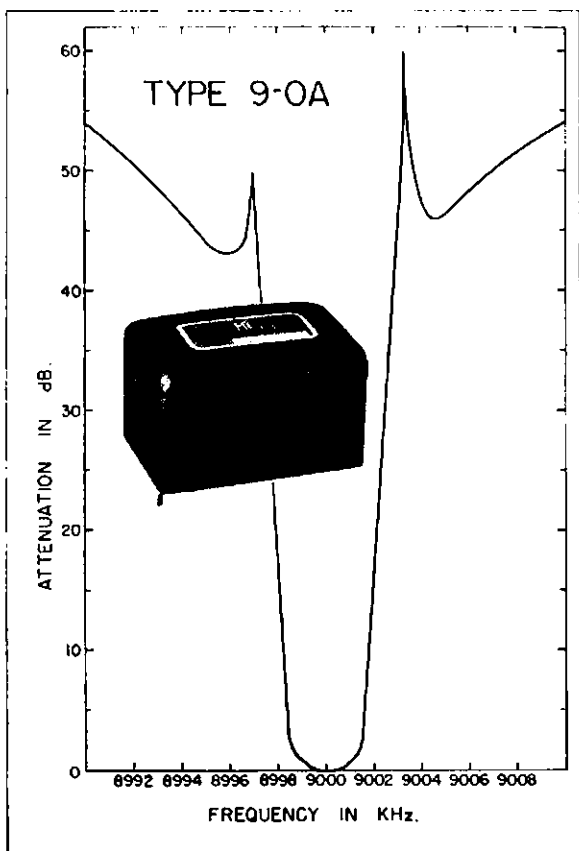
In many fringe areas, "booster" amplifiers have been installed to assist long-distance reception. Some are broadband transistorised types and are more pre-amplifiers than pre-selectors—i.e. they generally amplify everything they receive, on all frequencies. Local transmissions from nearby t.v. stations, radio-telephone transmitters, Amateurs, etc., can overload these pre-amplifiers, sometimes even though the amplifier may not be switched on, and the resultant mixture of signals fed down the feedline to the receiver.

The elimination of this type of amplifier from the aerial system can do a lot to help overcome difficult interference problems. In many cases the cause of r.f. patterning on neighbouring t.v. screens has been found to be due to this type of transistorised mast-head amplifier operating in a state of self oscillation.

Servicing of an existing aerial or earth system can frequently help overcome interference problems. Loose corroded joints cause rectification and resultant mixing or re-radiation and harmonic generation. The insertion of a diode in series with an aerial is an excellent way to cause deliberate broadcast or television interference—have you considered the likelihood of crystal sets used by youngsters in the near vicinity?

Some interesting comments on the influence of aerials in broadcast reception may be found on pages 907 and 908 of the Fourth Edition of the "Radiotron Designers' Handbook."

(Continued on Page 6)



**NEW!** DESIGNED AND PRODUCED IN AUSTRALIA

## Pye 9 Mc. Crystal Filter Unit

### TYPE 9-0A FOR S.S.B. TRANSMITTERS

To satisfy an ever-increasing demand for a filter suitable for s.s.b. transmitting purposes, Pye engineers have developed the Type 9-0A which is now in production at our Crystal Division.

This filter, supplied with two Style "D" carrier frequency crystals and sockets, comprises a package unit. With each unit a typical schematic circuit diagram is supplied.

- Specifications:** 6.0 db Bandwidth: 3 Kc. min.  
 40 db Bandwidth: 6 Kc. max.  
 Pass Band Ripple: 2 db max.  
 Input Termination 150 ohms plus 150 pF.  
 Output Termination: 150 ohms plus 120 pF.  
 Physical Dimensions: 2" x 1.375" x 1.125".

Recommended Oscillator Crystals: 8998.0, 9002.0 Kc.

**Price each package unit – \$30.00 plus tax**

Quantity discounts will be negotiated.

## Close Tolerance Gold Plated Crystals for Amateur Applications

Amateur Net  
(each includ. Tax)

- ★ 1.8 Mc. to 14.999 Mc. ± 0.005%. In Style "D" Holders, ½" pin spacing **\$4.85**
- ★ 15.0 Mc. to 47.999 Mc. ± 0.005%. In Style "D" Holders, ½" pin spacing **\$5.05**
- ★ 48.0 Mc. to 61.0 Mc. . ± 0.005%. In Style "D" Holders, ½" pin spacing **\$5.65**
- ★ 100.0 Kc. . . . . ± 0.005%. In Style HC13/U Holders, ½" pin spacing **\$9.00**
- ★ 1.0 Mc. . . . . ± 0.005%. In Style "D" Holders, ½" pin spacing **\$9.00**

Many other types and tolerances are available from our standard production.

Please consult us on your Crystal requirements.

## PYE PTY. LTD.

<b>MELBOURNE:</b>	<b>P.O. BOX 105, CLAYTON</b>	<b>Phone 544-0361</b>
<b>BRISBANE:</b>	<b>97 MERIVALE ST., SOUTH BRISBANE</b>	<b>„ 4-1571</b>
<b>SYDNEY:</b>	<b>59 ARUNDEL ST., FOREST LODGE</b>	<b>„ 68-4111</b>
<b>ADELAIDE:</b>	<b>1 IFOULD STREET, ADELAIDE</b>	<b>„ 23-3183</b>
<b>PERTH:</b>	<b>151-155 BRISBANE STREET, PERTH</b>	<b>„ 28-4338</b>
<b>HOBART:</b>	<b>141 MURRAY STREET, HOBART</b>	<b>„ 3-3707</b>

# "THE THING"—TRANSISTORISED

## AN EXPERIMENTAL SIDEBAND EXCITER

K. A. KIMBERLEY,\* VK2PY

THESE articles are the result of a series of adventures the author experienced in the development of a transistorised sideband transmitter. How I came to be sucked into this project is not, even at this stage, really clear to me.

However, looking back over the past few months, this is how I think I was hooked. The old "idiot box" was, after all these years, fast running out of picture tube. After much procrastination, a re-gun was purchased and fitted. Much joy! We now had sound and picture again. With that chore out of the way, I thought it time something was done about my lagging interest in Ham Radio.

The first thing was to catch up on my neglected reading, yes, but how many times can you read the same jazz? Then one warm evening I casually glanced into the old junk box and my! There among the treasure trove of goodies was a box of low frequency crystals. Now what could be done with them. Ah, an idea came to mind.

Being the proud owner of a c.r.o. and a sweep generator (made to keep the one-eyed monster serviceable), I foolishly decided to play around with a crystal filter. Thinking to myself, "a few nights' fiddling around would soon convince me of the folly of it all and then I would have a good excuse to purchase a filter."

However, on this occasion "Finnagles Law†" exerted itself. The filter worked right from the beginning and this is where I really fell for the "three card trick." Could my initial success have

been a fluke? As a test, a second filter was knocked up and worked just as well.

Another experiment was now tried. The filter was re-aligned using channels 0 and 1, then channel 0 was changed to 2 and the filter re-adjusted. This took only about 60 seconds, next channel 3 was substituted for channel 1 and so on until I ran out of crystal pairs at nos. 29 and 30. In every case re-alignment from one pair to the next needed no more than about 60 seconds.

Such easy success encouraged me to go further, so then a two-section filter was constructed. Very little extra trouble was encountered here, although this was probably due to having pre-aligned the stages separately first before attempting the overall alignment.

So far OK, but of what use is a filter on its own? Logically it has to be incorporated into some equipment. Still being in the mood for experimentation, it was decided to make a transistorised sideband exciter which at some future date could be readily converted to a transceiver.

Judging by my luck previously, with the filters, this should have been a piece of cake. You know, a few transistors, a handful of small components and a 9 volt battery. Oh yeah! Three months and many cans of ale later, good, clean sideband is being produced on 3.5 Mc.

In following articles I will describe the exciter in detail as well as a brief run-down on the sweeper. If you do not own a c.r.o. and sweeper, don't despair as it is possible to use a modified g.d.o. The use of a modified g.d.o. or other bandspread oscillator is rather tedious and not to be recommended.

An explanation of the block diagram now follows. All transistors, with the exception of those used in the audio stages, are germanium FNP types with cut-off frequencies in the order of 14 Mc., i.e. OC44 types. The audio is a two-stage affair consisting of a microphone amplifier capacity coupled to a single ended output stage. The resulting audio is transformer coupled, to the balanced modulator.

The balanced modulator uses two transistors having their bases in push-pull for the audio, the emitters in parallel for r.f. and the collector push-pull for r.f.

The carrier oscillator is a common emitter crystal control oscillator and drives the emitters of the balanced modulator. The resulting oscillator output is then fed into the two-section filter. A common emitter amplifier is used in each section of the filter. Great care must be exercised here to prevent overload and hence bad signals. These amplifiers may not be needed in a straight exciter. However, as this unit is primarily intended for transceiver work, it is felt that these amplifiers would be necessary for receiving. The isolation provided by the transistors is helpful in alignment.

The resulting signal is now s.s.b. and now requires heterodyning to the Ham bands. Mixer circuits are notorious for the spurious signals they produce, hence it was decided to use a balanced type in an effort to reduce the spurious. As good results had already been had with my balanced modulator, it was only natural to use the same circuit configuration.

The output from the filter is single ended and, rather than make a new output transformer, a phase-splitter

(Continued on Page 8)

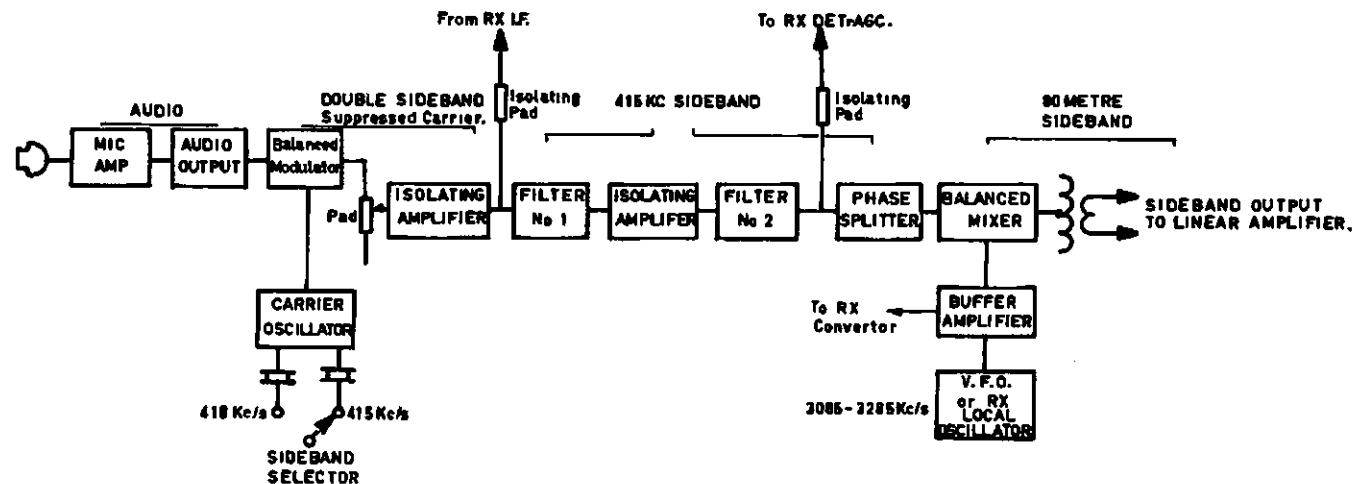


FIG. 1. BLOCK DIAGRAM.

Note: Carrier frequencies rounded out for convenience. Actuals will be quoted in following articles.   
Block diagram of an experimental sideband exciter.

# A High Stability V.f.o. for Receiver or Transmitter

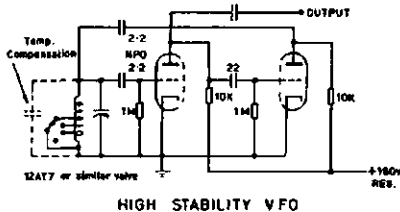
GREG. JOHNSTON, B.Sc.

In a recent article (January, 1966) I made brief reference to the possibility of using a V.F.O. in conjunction with the converter described, employing a fixed i.f. in the 3 Mc. range.

This V.F.O. has finally been constructed and is now in use in conjunction with a crystal filter (home-brewed) on 5327 Kc. For the benefit of any fellow s.w.l.'s, this is the set-up used in the R.D. Contest just past—the converter in a crystal locked form was the heart of the gear used in the 1965 R.D. Contest.

As the more avid readers will realise, the V.F.O. here is none other than the Franklin, not a very modern circuit but one which does not seem to enjoy a great deal of popularity at present, possibly because its output is not as high as some other types. However, for the "Like New Mexer," output is optimum with good conversion gain and low mixer noise.

The principal advantages of the Franklin oscillator are that a two-terminal coil may be used and that since voltage levels are comparatively low (a mere 70 volts h.t. on the plates) heat induced instability and drift is minimised. When this is coupled with the great inherent stability of the circuit, it could be expected that such a V.F.O. in either receiver or transmitter would be equal to the standards of performance and stability demanded by the present state of "the art." This is, in fact, the case as may be illustrated by my own experience.



HIGH STABILITY VFO

As mentioned earlier herein, using an i.f. of 5327 Kc. it was necessary to use the V.F.O. on a frequency of 9 Mc. approx. for both 20 and 30 metre reception. Taking the bull by the tail, the V.F.O. was constructed to oscillate on a fundamental frequency of this order and the results on first switching on are well worthy of mention. With a total of 39 pF. N.P.O. across the tuned circuit excluding the gang, drift from warm up was a mere few Kcs. in an hour. Compensation was very simply accomplished by placing 1.8 pF. of N750 ceramic condenser across the coil, at which stage drift was negligible after 5 to 10 minutes' warm up as shown by beating against a crystal frequency standard reference for an hour.

What about 40, 15 and 10 metre reception? Well, this is very simply accomplished by progressive shorting of pre-selected coil taps to ground so

that the circuit oscillates at 12 Mc. for 40 metres and 16 Mc. and 23 Mc. for 15 and 10 metres respectively. In other words we have a single coil grounded at one end usable on all five bands simply by tapping the inductance at the appropriate points and making provision to switch them to earth as required to permit resonance at the higher frequencies.

As with all frequency determining equipment, mechanical rigidity in construction will pay handsome dividends in performance of the finished article. In the present case this is the only "critical" component necessary as all condensers used with the exception of the 1.8 pF. N750 temperature compensating and the tuning gang, which was a ceramic type, all others were only ordinary NPO ceramic, but do not attempt to use those with a negative or positive temperature coefficient in the coupling from the "hot" end of the coil.

## "THE THING"—TRANSISTOR'D

(Continued from Page 5)

was added between the filter and the balanced modulator. The phase-splitter worked like a charm and, at this stage, does not need further comment.

In common with most transceivers the receiver local oscillator serves as the transmitter v.f.o. On receive this oscillator mixes with the desired signal to produce an intermediate frequency which is made to be the same as our sideband generator. On transmit the reverse procedure is used, i.e. the generated low frequency sideband is mixed with the local oscillator and VOILA sideband output on the receiving frequency.

Later, if found desirable, I will add a separate v.f.o. to make it possible to transmit on frequencies other than that being received. A buffer was added between the local oscillator and the balanced mixer. This was done firstly to prevent possible frequency changes when going from receive to transmit, and secondly to boost the level going into the balanced mixer. High levels of oscillator signals here make for better sounding sideband.

The generator outlined above produces 1.5v. of 80 metre sideband. This is with the output unterminated. Enquiries are currently being made regarding price, etc., of suitable power transistors before a decision is made on the construction of a suitable linear amplifier. The project, being of an experimental nature, was built bread-board style. Each of the main sections were made on board 6 in. x 2½ in., and when going to my satisfaction, mounted on a common base plate.

Matrix board could have been used, however, my "Scotch blood" would not allow this. Instead I used scrap 1/16 in. Laminex (bakelite sheet would be OK), drilled and eyeletted where required. Some day I hope to fit the whole into a nice-looking cabinet.

Well, chaps, that's about it for now, hope you managed to sort out the g.g. from the garbage. Next month I hope to rave on about filters and sweep generators.

## YO AWARDS

### YO-15 BY 15—WORKED 15 YO ON 15 MX

There are needed 15 two-way contacts with 15 YO stations on 15 mx band (21 Mc.) after 1/1/60. A YO station may be worked but once, regardless of the mode of the contact.

### YO-20 Z—WORKED ZONE 20

This award is issued in three classes, for contacts made after 1/1/60 with Amateur stations of the countries belonging to Zone 20:

Bulgaria (LZ), Crete (SV), Cyprus (5B4, ZC4), Dodecanese (SV), Greece (SV), Israel (4X4), Jordan (JY), Lebanon (OD5), Rumania (YO), Syria (YK), Turkey (TA) as follows:

Location Zone	Minimum number of countries worked		
	Class I.	Class II.	Class III.
15, 16, 20, 21, 34	10	8	6
14, 17, 22, 23, 33,			
35, 36, 37	8	6	4
All other Zones	6	4	2

A YO contact is obligatory in all cases.

### YO-20 BY 20—WORKED 20 YO ON 20 MX

There are needed 20 two-way contacts with 20 YO stations on 20 mx band (14 Mc.) after 1/1/64. A YO station may be worked but once, regardless of the mode of the contact.

## INTERFERENCE TO T.V. AND RADIO RECEPTION

(Continued from Page 3)

### EXTERNAL CROSS MODULATION

The major part of these notes has been concerned with some comments on the problems of intermodulation of signals within a receiver, and the most suitable cures. Unfortunately, from time to time cases occur where the intermodulation is external to the receiver, and location of the source is a difficult problem.

The methods and cures for this are too numerous to mention at this stage, but if an external source is suspected in any case our readers may be concerned with, check the following domestic sources:—

1. Corrosion on mains earth clamp.
2. Dry joints or loose clamps on a.c. mains entry to premises.
3. Loose fuse holders at main power board.
4. Poor or corroded junctions in conduits in electrical system.
5. Power earth wires in loose contact with gas or oil pipes.
6. Corrosion at downpipe entry into rainwater tanks, etc.
7. Gas and chip bath heater flues not completely earthed or isolated from iron roofs.
8. Presence of nearby crystal sets or t.v. masthead amplifiers.
9. Any suspected corrosion between two dissimilar metals of large dimensions.

### REFERENCES

- "Television Interference" (Second or third edition), Remington Rand, Laboratory of Advanced Research, South Norwalk, Conn., U.S.A.
- "Television Interference. Its causes and cures," by Phil Rand, 1958.
- "Radio Amateur's Handbook," A.R.R.L.
- "Amateur Radio Handbook," R.S.G.B.
- "How to Locate and Eliminate Television Interference," by Rowe (Rider Publication).
- "Radiotron Designer's Handbook," R.C.A.

# A Transistorised Amateur Band Receiver

PART FOUR

HAROLD L. HEPBURN,\* VK3AFQ

THE i.f. strip of the Moorabbin project receiver, while not difficult to construct in the absolute sense, was somewhat more complex than the previous units (audio and b.f.o) and this was reflected in the results obtained when some 30 completed units were tested.

The test procedure was divided into two parts:—  
 (a) Measurement—by the participant—of the current drain of the various stages.  
 (b) Frequency alignment and sensitivity checks—using the test set up of Fig. 9—at a project meeting.

### CURRENT TESTING

Each participant was asked to measure the following currents:—

1. The basic current—i.e. the current drawn by the unit with all collector feed resistors disconnected.
2. The no-signal current drawn by the OC44 detector stage (measured at the cold end of the 5.6k collector resistor).
3. The no-signal current drawn by the OC72 a.g.c. amplifier.
4. The no-signal current drawn by the second AF115N i.f. stage.
5. The no-signal current drawn by the first AF115N i.f. stage.

Results obtained are listed in Table 1.

Test No.	Stage	Average current mA.	Range of results mA.
1	Basic	0.26	0.20-0.30
2	OC44	0.03	Nil-0.06
3	OC72	0.18	0.15-0.20
4	2nd AF115N	0.78	0.61-1.00
5	1st AF115N	0.90	0.82-1.08
Total current (av.)		2.15	—

Table 1.

The average of the results was much as found during the testing of the prototypes, but the range of results was a little wider than expected. However, this spread did not in any way affect the sensitivity of the units.

One omission in the instructions for testing caused some confusion and it is now pointed out that it is not possible to measure the current drain of the two AF115N stages until the 10k resistor is soldered into place.

Consideration of the results obtained indicates that the OC72 is insufficiently biased back and that a modification of the bias network to reduce the standing current might improve the a.g.c. action a little.

It is interesting to note that unless the currents indicated above were found, then the unit was not working

properly and some trouble shooting was necessary before frequency alignment was carried out.

### ALIGNMENT AND A.G.C. ACTION

The test set up of Fig. 9 was used. Each board was prepared for testing by:—

- (1) Bridging across the r.f. volume control.
- (2) Bridging the input from the b.f.o.
- (3) Bridging the a.f. output leads with a 10k resistor.

A variable signal centred on 455 Kc. was applied from a low impedance generator via a double-wound test transformer made for the purpose. It had a step-down ratio from tuned winding to link of about 10/1. A 20,000 o.p.v. multimeter set on its 10 volt range was hung between the a.v.c. line and ground as a resonance indicator.

The great majority of units came on to frequency without trouble and performed well. Using the first movement of the voltmeter as an indication, it appears that the sensitivity of the unit is around 30  $\mu$ V. Some individual units gave first indications as low as 10  $\mu$ V., whilst the least sensitive appeared to start a.g.c. action at 50  $\mu$ V. In all cases the a.g.c. was still functioning at the maximum output of the generator, i.e. 250 mV.

In all, six units did not work at first. In two cases the OC44 or OC72

transistors had been incorrectly wired, in another three cases the coils were incorrectly wound, and in one case violent regeneration was encountered. The reasons for this last problem have still to be determined, but in view of the docile behaviour of all the other units, a sub-standard component is suspected.

In addition to all 30 units tested another 40 are known to be under construction. Verbal reports to date indicate that they are performing satisfactorily.

### STAGE 5

#### The R.F. Mixer Board

The final stage of the project receiver is the board containing the r.f. amplifier (an AF114N), the mixer (an AF117N) and a top coupled pair of i.f. transformers feeding the i.f. strip. The circuit diagram is given in Fig. 8.

The AF114N r.f. amplifier is used in the grounded base configuration. Those who have read the excellent article by VK3ZRY in the October issue of "A.R." will already know the advantages of this configuration, i.e. low input impedance, high output impedance and comparative freedom from feedback.

The input coil, L12, is wound on a Ducon Q2 miniature pot core and the tuned winding consists of 13 turns of 29 B. & S. wire, tapped at 3 turns

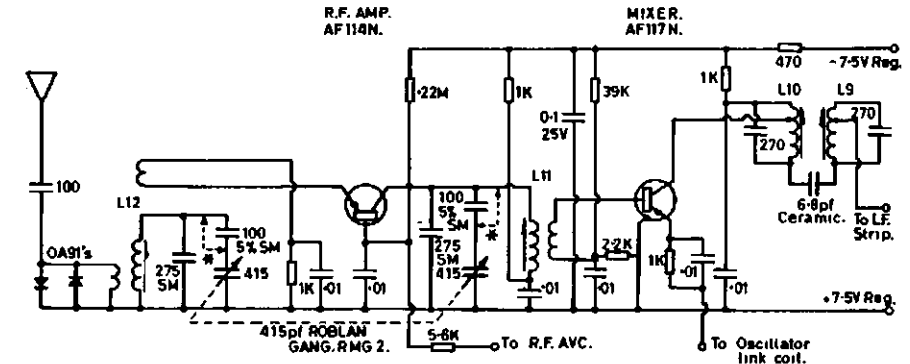


FIG. 8. VK3APC RECEIVER - R.F. & MIXER STAGE.

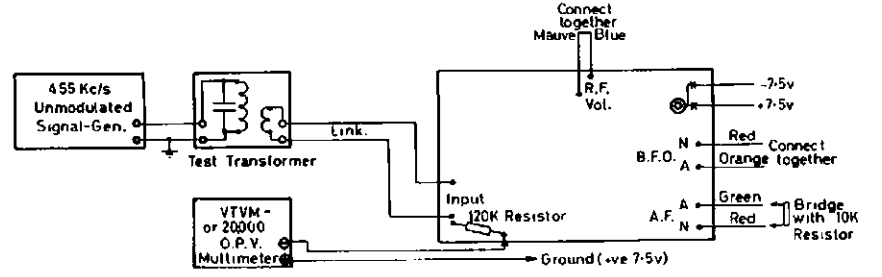


FIG. 9. TEST SET FOR I.F. STAGE.

\* 4 Elizabeth Street, East Brighton, Vic.

for the antenna. The link winding to the emitter of the AF114N has 1½ turns of the same wire. The 270 pF. fixed condenser across the coil supplies most of the tuning capacitance required, while the variable part is provided by one section of a Roblan 415 pF. RMG2 which has a 100 pF. fixed capacitor in series with it to restrict the tuning range.

A.v.c. is applied to the r.f. stage via the 5.6k resistor in the base circuit, while back-to-back OA91 diodes are used before the input to provide some measure of front-end protection.

**Mixer**

L11, the interstage coupling transformer, is also wound on a Ducon Q2 miniature pot core. The tuned winding again consists of 13 turns of 29 B. & S. wire. The base link has 1½ turns of the same sized wire. The second section of the 415 pF. Roblan two-gang is also padded with a 100 pF. capacitor to restrict the frequency range.

Oscillator injection is via the 1000 ohm and 0.01 µF. 25 volt condenser in the emitter circuit.

**I.F. Transformer**

L9 and L10 are the two top-coupled transformers. Each is wound on a Ducon Q1 miniature pot core and each consists of an 84-turn winding of 36 B. & S. wire. In L10 the collector tap is 22 turns from the cold end (i.e. —7.5v. feed end) while L9 is tapped at 12 turns from the cold end.

As in the four preceding stages the whole unit is built on to a printed circuit board specially made for the project.

At some later date—probably in the new year—the results obtained when testing the completed receivers will be published. Also around that time it is hoped to publish details of the h.f. converters now being designed. At a still later stage—and if warranted by the demand—the Moorabbin Club will be following this project with a side-band generator. Two such units are now being developed—one on 455 Kcs. using a mechanical or ceramic filter, and one on 9 Mcs. using a four-crystal filter.

This article then concludes the first phase of the Moorabbin project.

Although for convenience the writer's name has appeared on this series of articles, it must be emphasised that the running of the project has been a team affair. Bob VK3AKJ, Ken VK3AFJ, Bert VK3AAF and Col VK3XV have been assisting on the procurement side, Neil VK3ZRT and Ken VK3AKK have been the main strengths on the technical and "trouble-shooting" front, Eddie VK3EM has spent countless hours on the many drawings involved, Jim VK3KE has provided the hundreds of drawing reproductions required, Peter VK3XK has borne the full weight of setting up and duplicating the instructions, while Ron VK3RN and Lindsay VK3ZNS have spent many evenings making up the kits.

The project as a whole has been of far greater interest than was originally envisaged. When first mooted the committee estimated that, perhaps, 20 members would take part. At the moment there are no less than 73 participants from all states and a couple from ZL.

What's next?—N.F.D. of course!



**NATIONAL FIELD DAY RULES**

The Rules of the Field Day of 11th and 12th February, 1967, will be the same as those of 1966, which were published in "A.R." of December, 1965, except for:—

- (1) Crossmode operation is permitted, and will count for scoring purposes.
- (2) Fixed Stations working Mobile/Portable will be eligible for Certificates.



**AMERICAN CALL BOOKS**

The Federal Treasurer of the W.I.A. has a small number of copies of the American and Foreign Call Books for sale—price \$2 each. Send application without money (in case a ballot is necessary) to Federal Treasurer, W.I.A., c/o P.O. Box 36, East Melbourne. Also state if you wish to have your application held over if not successful this time.



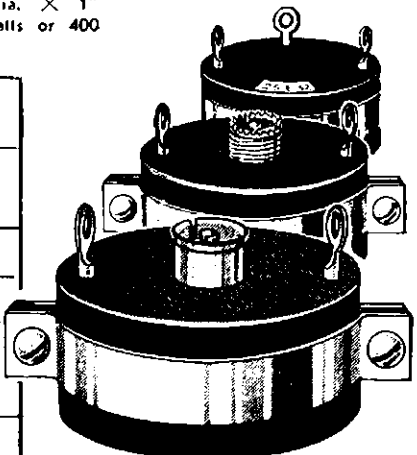
**ANTENNA MATCHING and BALANCING TRANSFORMERS**

*For use with Transmitting and Receiving Antenna Installations!*

**TOROID. BALUNS.— A Special Series Product.**

Toroidal ferrite cores, fully encapsulated with epoxy resin and silica under vacuum. Suitable for use in cold to sub-tropical areas. All except 355C and 356C are provided with antenna insulator support brackets. Balun dimensions approx. 2" dia. X 1" + Socket and lugs. Weight approx. 3½ to 4 oz. Power rating—200 Watts or 400 Watts P.E.P.,

<b>350A</b>	Impedance ratio 1:1. 75 ohms unbalanced to 75 ohms balanced. 3 to 30 Mc/s. For use at centre of a dipole antenna with coaxial cable feed line or at base end with 75 ohm twin line. Coaxial connector is Belling & Lee L604/5 and lug terminals.
<b>351A</b>	Impedance ratio 1:4. 75 ohms unbalanced to 300 ohms balanced. 3 to 30 Mc/s. For use at centre of a folded dipole antenna with coaxial feed line or at base end with 300 ohm twin line connector and terminals as 350A.
<b>352A/BC</b>	Details as 350A except freq. range 500 Kc/s to 5 Mc/s, or to 30 Mc/s, for receiving purposes only with increased attenuation.
<b>353B</b>	This is a type 350 with a coaxial socket SO 239 (Amphenol screw type).
<b>354B</b>	Type 351 with SO 239 coaxial socket.
<b>355C</b>	Impedance ratio 2:1:1 52 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc/s. For use at the base of a mobile whip antenna, coupled to fixed or adjustable transmitter output impedance. Lug terminals.
<b>356C</b>	Impedance ratio 3:1:1. 78 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc/s. Lug terminals. Use at 355C.



For further details see your nearest A & R Stockist!

**A & R TRANSFORMERS PTY. LTD., 46 Lexton Road, Box Hill, Vic.**

**Phone 89-0238**



# TRANSISTOR AMPLIFIER DESIGN

## PART THREE

R. L. HARRISON,\* VK3ZRY

**T**HIS article will cover class A, large signal, audio amplifiers. I will first discuss classes, limitations and requirements that have to be considered before setting out a design method. The method itself is, of necessity, graphical and thus, before attempting to design an audio power amplifier, you must obtain the base and collector characteristic curves. That is  $I_c$  versus  $V_{CB}$ ,  $I_c$  versus  $V_{BE}$ , and  $I_B$  versus  $V_{BE}$ . Some basic knowledge of transistors and transistor terminology is assumed.

### CLASSES OF AMPLIFIERS

Amplifiers, r.f. or a.f., are divided into four classes. These classes are defined by the operating conditions under which the amplifiers operate. The four classes are designated A, AB, B and C. For audio work we will be interested in classes A, AB and B.

**Class A:** The base-emitter bias is set so that collector current flows at all times.

**Class B:** The base-emitter bias is set to approximate collector cut-off so that collector current flows for only 180° of the input cycle.

**Class AB:** The base-emitter bias is set between class A and class B. Collector current flows for more than 180° but less than 360° of the input cycle.

Class A amplifiers are used where linearity or freedom from distortion is the main requirement, but efficiency is low. Typical efficiency for transistors is from 20% to 35%. Maximum theoretical efficiency is 50%.

Class B amplifiers are extremely efficient and provide high power output. With transistors, the inherent linearity of the collector characteristics gives low distortion figures not normally encountered with tubes. Efficiency is typically 70 to 75%, which makes this configuration very attractive for mobile. Maximum theoretical efficiency is 78.5%.

Class AB amplifiers give more power output than class A but less distortion and power output than class B. With transistors, the difference in distortion figures between class B and class AB is so small as to be only a minor criterion. Typical class AB efficiencies approach 60%.

### LIMITATIONS AND REQUIREMENTS

For audio work only, class A amplifiers can be used in a single ended stage. Class B must be used in push-pull arrangements because a single stage would have severely distorted output as the transistor is conducting only over portion of the input cycle.

For all classes of operation the power output is limited by:—

- (a) Maximum power dissipation rating ( $P_c$  max.). This depends on the ambient temperature and design of the cooling system.

- (b) Maximum collector to emitter voltage ratings ( $V_{CE}$  max.). This rating is generally due to the zener breakdown of the collector-base junction.

- (c) Maximum emitter current rating, or more usually, maximum collector current rating ( $I_c$  max.). This depends on the fall-off of  $h_{FE}$  with increasing emitter current.

In designing an amplifier we must check that none of these ratings are exceeded at any time.

One of the main requirements of audio power amplifiers is thermal stability. In most cases (low power) this is readily obtained by normal biasing methods similar to that outlined in Part 1. The exception here though is that the bias components' bleed current is relatively high and the emitter resistor  $R_E$  is very low or non-existent. By-passing of  $R_2$  or  $R_E$  is not often encountered as little signal is lost in these components and by-pass capacitor values would be impractical.

Complementary to thermal stability is the prevention of, and compensation for, temperature rise. A good heat-sink and adequate cooling facilities should be provided, keeping in mind the power involved. Temperature compensation will be discussed fully later.

### CLASS A DESIGN

Fig. 1 gives the circuit suitable for class A, low to medium power applications. Note that it is a single ended stage—push-pull comes later.

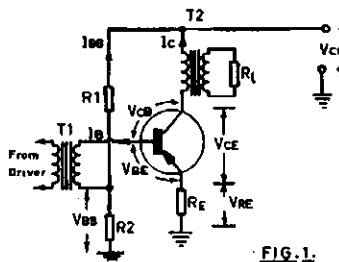


FIG. 1.

The first thing you have to do is obtain several sets of different transistor characteristics. Now, assuming you have several suitable base and collector characteristics, you can follow the procedure set out below.

1. Choose peak power output ( $P_o$ ) required to be delivered to the load and add 20% (one-fifth) to account for losses.

2. Calculate  $P_c$  max. from following equation:  $P_c$  max. =  $Z P_o + \frac{1}{2} P_o$ .

3. Choose  $V_{CC}$  (collector supply voltage). You will probably already know what this is to be. Check that  $V_{CC}$  is greater than or equal to  $\frac{1}{2} V_{CE}$  max. (where  $V_{CE}$  max. is to be taken from manufacturer's data).

This is because the instantaneous collector voltage swings to twice  $V_{CC}$  on signal peaks.

4. Now choose your transistor, keeping in mind the limitations set out

above. The  $P_c$  max. value found in No. 2 above should be equal to or, preferably, somewhat less than  $P_c$  max. of the transistor you select. This criterion will be your deciding factor. Gain of the transistor is another consideration and I will leave that up to you.

5. Using the value of  $V_{CC}$  chosen in No. 3, calculate your working point (quiescent or Q-point) collector current ( $I_Q$ ) from this equation:—

$$I_Q = \frac{Z P_o}{V_{CC}}$$

where  $I_Q$  is in amps.

$V_{CC}$  in volts.

$P_o$  is the power output required plus 20%, in watts. From now on  $P_o$  is this value.

6. The junction of  $I_Q$  and  $V_{CC}$  on the collector characteristics determines your Q-point (see Fig. 2). Now draw a straight line from  $2 \times I_Q$  through the Q-point to  $2 \times V_{CC}$ . This is your a.c. (signal) load line which will give the power output you desire, unless of course you have made a mistake. Unfortunately, mistakes made here will not be discovered until later.

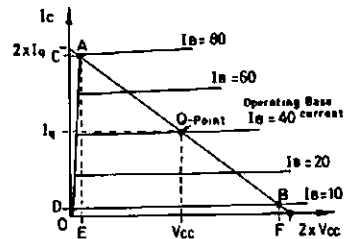


FIG. 2.

7. Determine your operating base current ( $I_B$ ) at the Q-point.

The Q-point will come near or on one of the collector characteristics which will be marked with a certain base current (see Fig. 2). If the Q-point falls on a line, then you are lucky; the value marked on this line will be your operating base current. If the Q-point is between two lines, you will have to figure out approximately what your base current is—don't be too accurate, it is not necessary.

8. Determine your base-emitter voltage  $V_{BE}$  from the base characteristics ( $I_B$  versus  $V_{BE}$ ), see Fig. 3.

Look up the  $I_B$  axis to the value of  $I_B$  found in No. 7, project a line across to the appropriate curves for different temperatures—assume  $T_c = 25^\circ\text{C}$ . unless you wish to run your transistor at

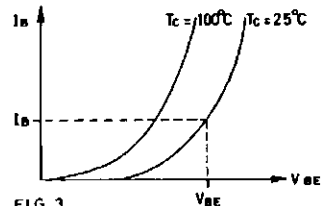


FIG. 3.

\* 1 Mary Street, North Balwyn, E.4, Vic.

# FOSTER DYNAMIC MICROPHONES

## SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
 Effective output level ... -55 db. [0 db. - (one) 1V. Microbar]  
 Frequency response ..... 50 to 15,000 c.p.s.

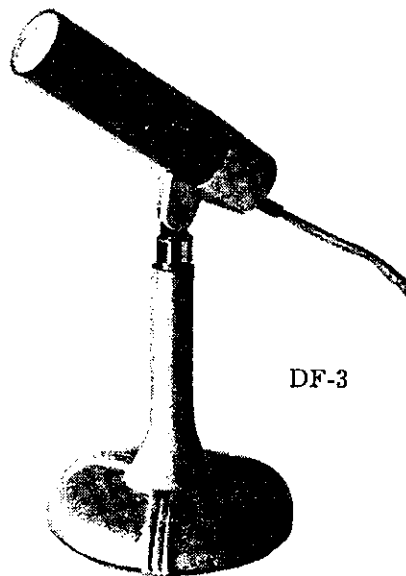
## OMNI-DIRECTIONAL DYNAMIC:

Plastic Diaphragm. Swivel fits 5/8" 26 t.p.i. Stands.  
 Size: 4½" long, 1½" diameter. Colour: TWO-TONE GREY.  
 Cable: 12 ft. of P.V.C.

Retail Price 50K ohms: £4/16/0 + Sales Tax 10/0

Retail Price 50 ohms: £4/14/0 + Sales Tax 9/10

A QUALITY PRODUCT FOR TAPE RECORDERS & P.A. USERS



DF-3

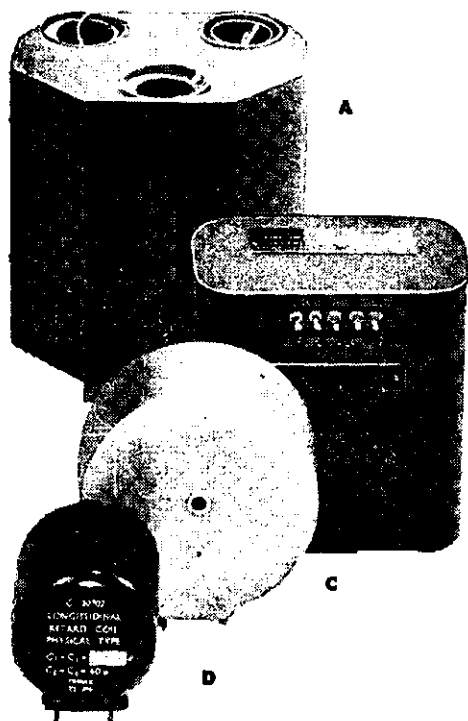
Marketed by **ZEPHYR PRODUCTS PTY. LTD.**

70 BATESFORD STREET, CHADSTONE, S.E.10, VIC.



Manufacturers of Radio and Electrical Equipment and Components

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.



# RESIN ENCAPSULATED TRANSFORMERS BY TRIMAX...

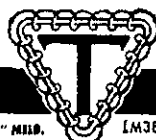
Designed for specific applications such as High Voltages, direct burial in the ground or other extreme environments! We've developed (and time proved) these construction techniques at "TRIMAX" using Epoxy resin for encapsulation! Leave your transformer problem to our skilled design team and we'll solve it! Illustrated at left  
 (A) Airport Runway Lighting Transformer..  
 (B) Telephone Isolation Transformer  
 (C) Telephone Drainage Coil.  
 (D) Telephone Longitudinal Retard Coil



**LM ERICSSON PTY. LTD.**

**"TRIMAX" DIVISION**

FACTORY: CHR. WILLIAMS RD. & CHARLES ST., NORTH COBURG, VICTORIA. 'PHONE: 35-1203 ... TELEGRAPHIC ADDRESS: "TRIMAX" M31B.



LM38

a higher temperature. Now drop a line down to the  $V_{BE}$  axis and this is your value for  $V_{BE}$ .

Another way is to look up the graph of  $I_C$  versus  $V_{BE}$  (see Fig. 4). Find your collector current value ( $I_Q$ ) on the  $I_C$  axis, project a line across to the appropriate curve ( $T_C = 25^\circ\text{C}.$ ) and another line down to  $V_{BE}$  from the curve (Fig. 4).

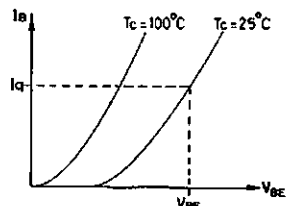


FIG. 4.

9. Now we have to consider our bias and stabilisation components.

So that only a small loss occurs in  $R_2$  and  $R_B$ , their resistances should be low. In practical circumstances we find that  $V_{BE}$  is one-tenth or less of the collector supply voltage ( $V_{CC}$ ).

This ensures that  $R_B$  has a low value and yet provides part of the bias voltage we need and also reduce changes in forward conduction due to a rise in temperature.

Calculate  $R_B$  from the following formula:—

$$R_B = \frac{V_{CC}}{10 I_Q}$$

where  $R_B$  is in ohms.  
 $V_{CC}$  in volts.  
 $I_Q$  in amps.

Use a resistor of proper power rating; this being given by:—

$$P_{BB} = V_{BE} \times I_Q \text{ watts.}$$

You can make  $R_B$  higher than this value for better thermal stability, but the bias and stabilisation components discussed here will only serve over a limited temperature range. More will be said about this in Part 4 on class B amplifiers.

10. To calculate  $R_1$  and  $R_2$ , use the following formulae (refer to Fig. 1):—

$$\text{Let } I_{BB} = 10 \times I_B$$

$$\text{then } R_2 = \frac{V_{BB} - V_{BE}}{I_{BB}}$$

where  $R_2$  is in K ohms  
if  $V_{BB}$  and  $V_{BE}$  in volts  
and  $I_{BB}$  in milliamps.

$$\text{Now } R_1 = \frac{V_{CC} - V_{BE}}{I_{BB} + I_B}$$

where  $R_1$  is in K ohms  
if  $V_{CC}$  and  $V_{BE}$  are in volts,  
 $I_{BB}$  and  $I_B$  are in milliamps.

At this point check to see that  $V_{CB}$  max. is not exceeded:—

$$V_{CB} \text{ max.} > V_{CE} - V_{BE}$$

Those are the ten steps for setting up the d.c. and part of the a.c. conditions necessary for the proper operation of your chosen transistor. The next thing is to determine the turns ratio of  $T_1$  and  $T_2$  and the power required to drive the stage adequately.

#### Output Transformer T2

Let us take a look at what loads the output transformer  $T_2$  has to match (see Fig. 5).

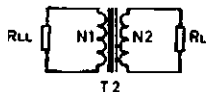


FIG. 5.

The load on the secondary,  $R_L$ , may be a speaker or the modulating impedance of the p.a. of a transmitter. The primary load,  $R_{LL}$ , is the effective load presented to the transistor collector to produce maximum power output.  $R_{LL}$  is actually the reciprocal of the slope of the a.c. load line found in No. 6 previously.

Therefore:—

$$R_{LL} = V_{CB} \div I_Q$$

$$\text{or } R_{LL} = V_{CC}^2 \div 2 P_o.$$

The turns ratio is then given by:—

$$N_1 \div N_2 = \sqrt[3]{R_{LL} \div R_L}$$

Now you can either obtain a transformer suitable for the purpose or design your own. Designing your own transformer would take an article in itself and, as this has already been done, I'll refer you to an excellent book, Bernard's Radio Manual, called "Coil Design and Construction." It is quite cheap and easy to follow—it would also come in handy for Part 2 of these articles.

#### Input Transformer T1

2. The input transformer  $T_1$  is a different kettle of fish. In some cases it is not necessary to have one and a capacitor input can be provided (see Fig. 6).

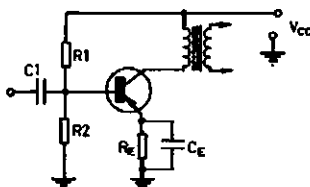


FIG. 6.

$R_1$ ,  $R_2$ ,  $C_1$ ,  $C_E$  and  $R_B$  are found from Part 1 of these articles and the transistor and transformer found as outlined above.

3. The arrangement in Fig. 6 is suitable for transistors delivering up to 300 mW. output. If more than this is desired from a single ended output stage a transformer input must be used as in Fig. 1.

We can represent the driver transistor, the transformer  $T_1$  and the input circuit of the output transistor by the equivalent circuit in Fig. 7.

$R_1$  and  $R_2$  are neglected—assumed negligible. The two rings crossing each other represent a constant current generator (e.g. a transistor).

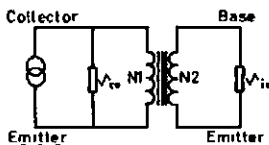


FIG. 7.

$r_{ce}$  = Collector-emitter signal resistance of driver transistor.

$r_{ie}$  = Signal input resistance of output stage.

Now  $r_{ie}$  can be obtained from the formula:—

$$r_{ie} = \frac{v_{be}}{i_b}$$

where  $v_{be}$  = Base-emitter signal voltage swing (peak to peak).

and  $i_b$  = Base current swing with signal (peak to peak).

The value of  $v_{be}$  can be found from the collector current versus base-emitter voltage curves (see Fig. 8). Unless you plan to operate at a high temperature assume  $T_C = 25^\circ\text{C}.$  ( $77^\circ\text{F}.$ ).

Now you will know your collector current swing (C to D on Fig. 2). Project the values across to the appropriate curve (Fig. 8) and down to the  $V_{BE}$  axis. By subtracting  $V_{BE}$  min. from  $V_{BE}$  max. you will find  $v_{be}$ .

The value of  $i_b$  can now be found by subtracting the value of  $I_B$  at point C in Fig. 2 from the value of  $I_B$  at point A,

i.e.  $I_B$  at C = 10  $\mu\text{A}.$   
 $I_B$  at A = 80  $\mu\text{A}.$   
then  $i_b = 70 \mu\text{A}.$  (p.-p.).

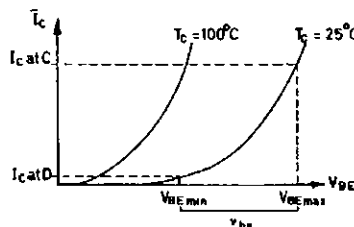


FIG. 8.

The value of  $r_{ce}$  (Fig. 7) must be known to enable us to determine the turns ratio of the transformer from the formula:—

$$N_1 \div N_2 = \sqrt[3]{r_{ce} \div r_{ie}}$$

The method above (1 to 10) can be used to select a driver transistor but first the power needed to drive the output stage must be known as this is the first criterion. The power input to the output stage is given by:—

$$P_i = v_{be} \times i_b \times 1.5$$

(multiply by 1.5 to account for losses, etc.)

using the values of  $v_{be}$  and  $i_b$  calculated above.

After designing your driver stage up to number 5,  $r_{ce}$  can be found from the formula:—

$$r_{ce} = \frac{V_{CC}}{I_Q \text{ (driver)}}$$

Knowing this will then enable you to calculate the turns ratio of the driver transformer.

#### PUSH-PULL CLASS A AMPLIFIERS

For proper operation of the amplifier in Fig. 9 the circuit must be electrically symmetrical. That is, the base currents, base signal voltages, base bias voltages, emitter resistors, collector currents and voltages must be arranged so as to produce identical output signals across each half of the primary of  $T_2$ .

It sounds like a tall order but it is not very difficult to produce and the advantages are great.

The advantages of push-pull operation are:—

- (a) More than twice power output over single ended stage for a given distortion.
- (b) Even harmonics cancelled in output.
- (c) When driven hard produces less distortion than a single ended stage.
- (d) Ripple voltage on  $V_{CC}$  line does not appear in output owing to cancellation in output transformer.
- (e) Output transformer less bulky for same power output from a single ended stage.

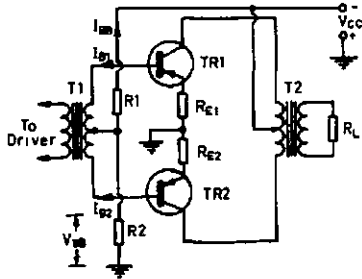


FIG. 9.

The disadvantages are:—

- (a) Some difficulty can be experienced in trying to obtain gain-matched transistors.
- (b) Requires more components and centre-tapped transformers.
- (c) Draws more current from the supply than a single ended stage.

The design of a push-pull stage follows very closely that of a single ended stage.

Modifications to the procedure are as follows (refer to Fig. 9):—

1.  $P_o$  max. of T1 or T2 =  $P_o$ . Power output ( $P_o$ ) having first been determined, this takes the place of No. 2 in method outlined above.
2. For calculating R1 and R2 use the following equations instead of those in 10 above:—

Now we assume  $I_{BB} = 10 (I_{B1} + I_{B2})$  therefore  $I_{BB} = 20 (I_{B1})$ —assuming base currents approx. equal.

$$\text{Now } R2 = \frac{V_{BB} + V_{RB1}}{I_{BB}}$$

$$\text{and } R1 = \frac{V_{CC} - V_{BB}}{I_{BB} + 2 I_{B1}}$$

(assuming symmetry).

3. The design of the output transformer will have to be modified slightly. The circuit of Fig. 7 can be modified to that in Fig. 10.

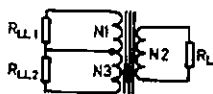


FIG. 10.

For symmetry,  $N1 = N3$ .

The turns ratio is given by:—

$$N1 \div N2 = \sqrt[3]{R_{LL1} \div R_L}$$

$R_L$  = Load on secondary (speaker or mod. impedance of tx).

$R_{LL1} = (V_{CB} \div I_Q)$  for  $T_{B1}$

Now, seeing as both sides are symmetrical (we hope),

$$R_{LL1} = R_{LL2} = V_{CB} \div I_Q$$

(for  $T_{B1}$  OR  $T_{B2}$ ).

So the turns ratio can be easily found and the primary turns either side of the centre tap will be equal. It is suggested that the primary be bifilar wound. The start of one wire is connected to the finish of the other to provide the centre tap. The reasons for winding the primary in a bifilar fashion is to reduce transient response, increase coupling and reduce size and cost.

Note that the above design method for the transformer only considers one half of the primary at a time. If the collector to collector impedance is desired to be known (more usual) then multiply  $R_{LL1}$  by 4 (four). Or the turns ratio is given by:—

$$(N1 + N3) \div N2 = \sqrt[3]{4 R_{LL1} \div R_L}$$

Most ready made transformers specify a collector to collector impedance instead of collector to centre tap impedance. In that case use the above equation.

4. The input transformer (T1) turns ratio can be calculated from the following formula with reference to Fig. 11:—

$$N_D \div N_{BB} = \sqrt[3]{r_{ce} \div (4 \times r_{ie})}$$

where  $r_{ce}$  = collector-emitter small signal resistance of driver transistor.

$r_{ie}$  = small signal input resistance of the output transistor.

$N_D$  = Number of turns on primary.

$N_{BB}$  = Total base-to-base (c.t.) turns on secondary.

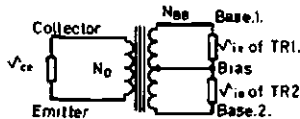


FIG. 11.

The values of  $r_{ce}$  and  $r_{ie}$  can be found as in the single ended stage method for either  $T_{B1}$  or  $T_{B2}$ .

5. For push-pull operation the power input required to drive the amplifier is found from

$$P_i = 3 \times v_{be} \times i_b$$

Design your driver accordingly.

Well, that completes a simple (?) approach to the design of class A power amplifiers. Unfortunately I had to limit the design cases and have not included complementary symmetry or transformerless amplifiers as I considered these special cases that did not have wide applications in Amateur Radio.

One thing I have not considered above is the stabilisation of base current against large temperature changes. This will be included under class B design—which will include a discussion on heat sinks.

The above data applies to PNP as well as NPN transistors—all you have to do is use the right symbols in the circuit and the right battery polarity.

Any queries should be addressed to me including an s.a.e.

#### REFERENCES

- "Transistor Circuit Design," Texas Instruments.
- "Transistor A.F. Amplifiers," Jones and Hillbourne.
- "Transistor Physics and Circuits," Riddle and Ristenhaft.
- "Principles of Transistor Circuits," R. F. Shea.
- "73 Magazine."

# LOW DRIFT CRYSTALS

## FOR AMATEUR BANDS

ACCURACY 0.01% OF STATED FREQUENCY

3.5 and 7 Mc.

Unmounted, £2/10/0

Mounted, £3/0/0

12.5 and 14 Mc.  
Fundamental Crystals,  
"Low Drift"

Mounted only, £5.

THESE PRICES DO NOT INCLUDE SALES TAX

Spot Frequency Crystals  
Prices on Application.

Regrinds ..... £1/10/0

## MAXWELL HOWDEN

15 CLAREMONT CRES.,  
CANTERBURY, E.7,  
VICTORIA

# LOG BOOK

IS NOW AVAILABLE

Larger, spiral-bound pages  
with more writing space.

Price 7/6 each  
including Postage

Obtainable from your Divisional  
Secretary, or W.I.A., P.O. Box 36,  
East Melbourne, C.2, Victoria.

# SIDEBAND

Sub-Editor: PHIL WILLIAMS, VK6NN

## S.S.B. IN THE R.D. CONTEST

This month I must comment on the obvious increase in s.s.b. operation during the Remembrance Day Contest. It is, of course, a fact that most people now operate throughout the contest with the c.w./s.s.b. detector with b.f.o. in the "on" position and tune all the a.m. stations as single sideband signals. The high scorers, such as VK2AHM, use a.m. transmission so that they can collect up all of the stations which appear on the band. Those like myself, who do not possess a.m. gear (except on 142 mcs.) are prepared to miss out those a.m. stations which are either too badly frequency modulated or "pulled," or which are not equipped with b.f.o.'s, or whose ancient procedures are too long-winded for contest operation.

One instance which comes to mind was when four sideband stations were all on frequency for a "fresh" a.m. station which had just opened up on the 80 metre band on Saturday evening. After a few minutes of calling, in turn and without mutual interference, they all agreed to seek pastures new as the a.m. man did not answer, did not comment, but just went on calling CQ with no a.m. replies, even. I am sure the sidebanders have absolutely no complaint about the a.m. stations which were correctly operated except perhaps for the occasional loud heterodynes from the carriers.

This year I operated for about 14 hours for 291 contacts, about 29% of which were a.m. and the rest sideband. This indicates the trend towards s.s.b., and the improved operating procedures which have accompanied its introduction. Even in the so-called "dog-piles" it was possible to sort out who was in there about third layer down, without the clobbering of the carriers—which, of course, blot out everything, with the result that everybody has to start all over again.

It was a wonderful contest and gets better every year—but where were the VK2s this year?

## CERAMIC FILTERS FOR S.S.B.

A recent article in the R.S.G.B. "Bulletin" for July 1966 describes a transistor s.s.b. exciter using a ceramic disc filter with characteristics at the 6/60 db. points similar to the popular mechanical filters from U.S.A. and Japan. The particular filter used is a Brush-Clerite filter type TL-2D5A, which uses 17 ceramic disc elements arranged in a very compact filter as shown in Fig. 1. This ingenious filter is compatible with transistor equipment as far as both size and imped-

application of these for receivers for elimination of strong signals on adjacent channels. Other advantages of the ceramic filters are their robustness, stability, low pass-band ripple (1 to 3 db. when correctly terminated) and wide range of operating temperature ( $-40^{\circ}\text{C.}$  to  $+85^{\circ}\text{C.}$ ). Before anybody gets too excited about such performance, it must be stated that the price in Australia is likely to be just in excess of that of a mechanical filter (several dollars more).

So far I have been unable to find out whether carrier crystals for the oscillators are available to suit the filters, but these of course would cost extra, and would need to be specially selected.

Although I have not had an opportunity to test these filters as none, to my knowledge, have been imported yet, but my "G" sources tell me they are absolutely ideal for transistor receivers, being about the size of an inch and a half of the end of your "Biro"

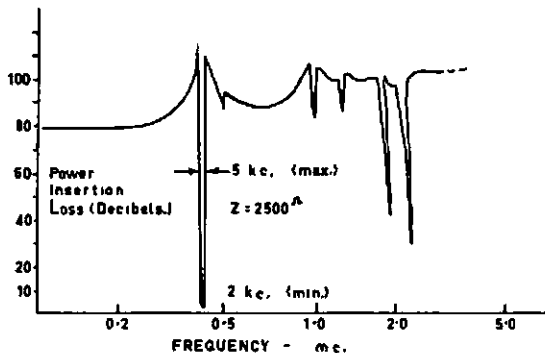


FIG. 2. Approx. Wide band response of Ceramic filter type TL2D5A. (17 Element)

ance are concerned, as its input and output impedances are both 2500 ohms, and it requires no coils or tuning capacitors, so that connection directly to the circuits is practicable.

The wide-band response curve shown in Fig. 2 indicates some quite remote spurious responses which are easily removed by simple i.f. transformers of the type used in 455 Kc. circuits in receivers. A good feature of these filters is the high attenuation just outside of the passband, which settles down at better than 70 db. below the level of the frequencies within the band. Sidebanders will appreciate the

pen. About 80 db. of stop band attenuation in one-tenth of a cubic inch is quite an achievement.

Where these filters are to be used with valve circuits, the use of L or Pi matching circuits to increase the input and output impedances, is normal practice.

Published data states that the linearity of the phase-shift throughout most of the pass-band is adequate for most applications, and speech quality in the exciter described in the R.S.G.B. article was stated to be excellent.

Vibration and shock tests as per MIL-STD-202B, were stated to be mild for this type of filter, and extreme tests indicated that G-forces in excess of 100 were necessary to cause intermittent performance, and the filter returned to within tolerance after the test.

This data is published for pure interest for readers as these filters are relatively new and could offer a new avenue for experiment. I should be interested to pass on information from anybody who has had practical experience with them.

73 for now, Phil 5NN.

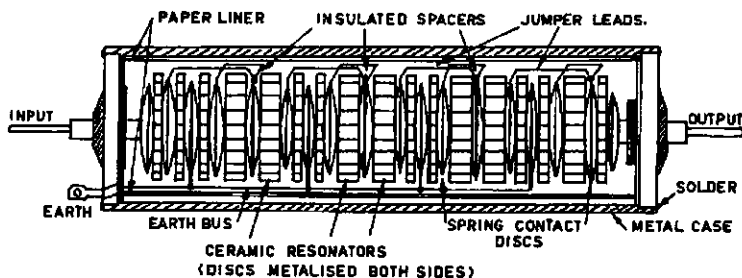
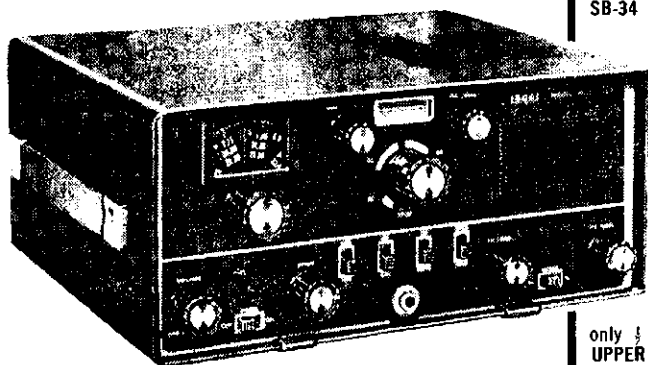


FIG. 1. CERAMIC LADDER FILTER.- 17 ELEMENT.  
(Approx  $1\frac{1}{2}$ " Long x  $\frac{5}{16}$ " Dia.)



NO/68EA.

# now introduces the newest 4 BAND, SINGLE-SIDEBAND TRANSCEIVER with BUILT-IN POWER PACK for AC or mobile use.



## SB-34 leads the field.

### SPECIFICATIONS

**FREQUENCY RANGE:** 3775-4025 kc, 7050-7300 kc, 14.1-14.35 mc, 21.20-21.45 mc. **TUBE AND SEMICONDUCTOR COMPLEMENT:** 2—6GB5 power amplifier, 1—12DQ7 driver, 23—transistors, 18—diodes, 1—zener diode, 1—Varactor diode. **SIZE:** 5"H, 11½"W, 10"D. **Shipping weight,** Approx. 2½ pounds. **TRANSMITTER POWER INPUT:** 135 watts. (Slightly lower on 15) **DISTORTION PRODUCTS:** Down at least 25 db. **CARRIER SUPPRESSION:**—50 db. **SIDEBAND SELECTION:** Upper or lower sideband selectable by panel switch. **UNWANTED SIDEBAND:** Down 40 db min @ 300 cps. **ANTENNA IMPEDANCE:** 40-100 ohms unbal. **AUDIO BANDSWITCH:** 300-2400 cps @ 6 db.

### RECEIVER

**SENSITIVITY:** 1 $\mu$ V for 10 db signal/noise. **SELECTIVITY:** 2.1 kc @ 6 db, 5.3 kc @ 60 db. **SPURIOUS RESPONSE:** Images and IF response down at least 40 db. **STABILITY:** Less than 100 cps drift in any 30 minute period under any normal ambient condition. **AUDIO OUTPUT:** 2.0 watts @ 10% distortion. **TUNING RATE:** 14 kc per revolution (slow) 80 kc per revolution (fast). **SPEAKER:** 3.2 ohms built-in. Terminals on rear for external speaker. **POWER SUPPLY:** Built-in 117V AC/12V DC (negative ground) dual supply. Conversion is made automatically by proper line cord.

### POWER CONSUMPTION

**AC OPERATION:** 35 watts, receive. 165 watts transmit (single tone). **DC OPERATION:** 0.5A receive only. (Standby) 3.6A receive (xmtr ready) 16.0A transmit (single tone).

### ACCESSORIES

● Model SB-2, VOX ● Model SB-2XC, 100 kc crystal calibrator ● Model SB1-MB mounting plate for mobile use ● Model SB-1MIC controlled magnetic microphone ● SB1-LA LINEAR AMPLIFIER. Operates at 1,000 P.E.P. input on 80, 40 and 20 meters, 750 watts on 15 meters. Size: 5½"H x 11½"W x 11½"D.

**SINGLE SIDEBAND** communications on four popular amateur radio bands (80, 40, 20 & 15 meters) are offered in a new transistorized transceiver from Sideband Engineers, a unit of Raytheon Company. Compact, 20-pound SB-34 measures only 11½" by 10" by 5" and can be operated as a base station or a mobile unit from either 117 volt AC or 12 volt DC. From SBE . . . **A COMPLETELY NEW SIDEBAND TRANSCEIVER, SB-34!** All of the design features introduced originally in the SB-33, and now well proved, have been retained . . . an entirely new series of "plus performance" features have been added. And SB 34 is handsome equipment . . . conservatively styled, attractively appointed . . . is in a physical "package" that is even smaller than SB 33! Feature-wise . . . dollar-wise . . . **SB-34 LEADS THE FIELD** . . . represents the biggest transceiver value EVER! Here are some of the reasons:

### SB-34 HAS A BUILT-IN UNIVERSAL

**POWER SUPPLY!** Just connect the equipment directly to the vehicle 12 volt battery using the cable provided! Or use the second cable and plug it into 117 volt AC power supply. No inverters or other supplementary equipment needed.

**LOW-DRAIN STANDBY OPERATION.** Drain-saving panel switch turns off transmitter tube filaments and power supply for casual listening. In this condition, SB-34 draws

only ½ ampere from the car battery!

**UPPER OR LOWER SIDEBANDS ARE SELECTABLE BY PANEL SWITCH.** The two sidebands are locked positively to the carrier — dial shift can't occur.

**LOUDSPEAKER IS BUILT-IN.**

**A COLLINS MECHANICAL FILTER** is used both on transmit and receive; gives exceptional selectivity and a clean, sharp transmitted signal.

**EXPANDED FREQUENCY COVERAGE.** SB-34 provides 250 kc on 80-40-20-15 meter bands, covers MARS and out-of-band DX frequencies. (See specifications for specific ranges.)

**SOLID-STATE SWITCHING . . . NO RELAYS.** In SB-34, all circuits are switched from receive to transmit by modern solid-state techniques — a breakthrough in transceiver design that eliminates all relays!

**SOLID-STATE, ALC CONTROL.** **SOLID STATE DIAL CALIBRATION: EXCLUSIVE!** Varactor circuitry and control allows easy dial calibration to operating frequencies. SB-34 has provision for 100 kc crystal calibrator, includes calibrator ON-OFF front panel switch.

**DELTA RECEIVER TUNING.** With this feature receiver can be tuned over a range of several kilocycles either side of the transmitter frequency. This eliminates the "leap-frogging" problem.

**LOW FREQUENCY DRIFT . . .** Drift is normally less than 100 cycles in any 30 minute period under normal ambient conditions.

**DUAL-SPEED TUNING.** Shaft mechanism allows fast dial movement to desired part of the band and smooth, slow-speed drive for positive vernier tuning. Tuning system avoids dial shift under severe vibration.



For further information contact: Electronics Sales Dept.,  
**HAWKER DE HAVILLAND  
AUSTRALIA PTY. LTD.**

12 KITCHENER PARADE, BANKSTOWN, N.S.W. Phone 70 2073, 70 2100, 709 2759

# Transistor Amplifier Design

## AUTHOR'S REPLY

Editor "A.R.," Dear Sir,

I feel obliged to defend myself in the face of Mr. Metzenthens's criticisms as I feel some misunderstanding has occurred. I will answer his points as he presented them.

1. Somehow this did not appear in the article—it is in my notes, but I think that, as some knowledge of transistors is assumed, then people who choose to use a high supply voltage would check this anyway.

2. My choice of  $I_c$  was made to cover the general case. I will admit that out of approximately 160 transistor characteristics I perused, I found three that had their highest  $h_{FE}$  just below 2 mA. They were: SE4010, 2N3639, and 2N3640.

I found that  $h_{FE}$  was, in most cases, best between 3 and 5 mA.

I do not agree that silicon transistors can usually be operated with a very low  $I_c$  except where gain is of secondary importance and/or a higher input impedance desirable.

3. Quite true—but the equation

$$R_c = \frac{V_{CE}}{I_c} \dots \dots \dots (1)$$

was taken from the half voltage rule which states

$$V_{CE} \text{ is less than or equal to } \frac{V_{CC}}{2} \dots \dots \dots (2)$$

Now, for thermal stability we must have an emitter resistor, the voltage drop ( $V_{RE}$ ) across which cannot be ignored—thus

$$V_{CE} < \frac{V_{CC}}{Z} \dots \dots \dots (3)$$

for these circumstances.

So as to provide people with a starting point, I said let

$$V_{CE} = \frac{1}{3} V_{CC} \dots \dots \dots (4)$$

as this fulfils the above condition in equation (3). When all worked out,  $V_{CE}$  will not equal  $V_{CC} \div 3$ .  $V_{RE}$  will be less than  $V_{CC} \div 3$  and consequently  $V_{CE}$  will approach  $V_{CC} \div Z$ , thus making equation (1) valid.

It is next to impossible to say what the final value of  $V_{CE}$  is beforehand. I chose to let  $V_{CE} = V_{CC} \div 3 \dots (4)$  to enable  $R_E$  and  $R_C$  to be calculated and provide a starting point that would not upset the final value of  $I_c$  by a significant amount. For further information see "Reference Manual of Transistor Circuits" by Mullard; "Germanium and Silicon Transistors and Diodes" by Philips, and the "Transistor Manual" by G.E.

4. Arguments on the correctness of this equation could cause a major controversy. I have seen a derivation of this equation which, to me, appears reasonable. Mr. Peter Hammer (VK-3ZP1) kindly supplied me with his version of the correct equation plus a derivation. Mr. Metzenthens has failed to supply me with what he thinks the correct equation is and a derivation (which, I think under the circumstances, is needed). I wonder if we all end up with separate equations?

I feel though that I should defend my use of this equation and answer Mr. Metzenthens's criticism.

- (a) It is not a printer's error.
- (b) Prior to publication, and despite much research, I found no other equations.
- (c) Upon investigation it appeared to work satisfactorily.

5. I think these assumptions are quite reasonable for the following reasons:—

(a) Considering the wide variations in  $R_{IN}$ , I had to fix upon some value that would give reasonable results (i.e. nothing drastic would occur). For germanium transistors the value of  $R_{IN} = 500$  ohms was chosen to suit many situations—I will admit it is on the low side as is the value for silicon transistors.

(b) The values are chosen this low to give errors that are on the high capacitance side which, I think, is the desirable side.

(c) For most cheap, low level application, silicon transistors (i.e. ones that are most likely to be used), the range of  $R_{IN}$  is between 480 and 1400 ohms (roughly). Is not 1000 ohms a reasonable average? (For further reference, see "Transistors" by Diver, and "Transistor Manual" by G.E.)

6. Here I shall concede that I made a genuine blunder—sorry. It should read 1300 ohms. I made a mistake in transcribing some information from a piece of paper to my notes. This type of error is hard to pick up when you have innumerable things to consider simultaneously (ever tried to write an article?).

It should be understood that the example serves just to illustrate the method—nevertheless, it should be correct and I apologise for my error.

7. I hope Fig. 1 clarifies the situation.

I did consider including this in the article but when I came to condense my notes I decided that it was unnecessary and would be reasonably clear from the later example.

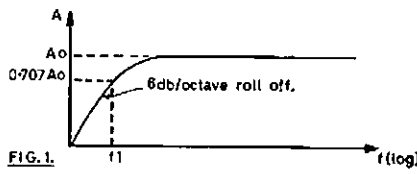


FIG.1.

Anyhow, the equations (1) and (2) were only included so that people who found that the graphs did not fit their circumstances could calculate an appropriate value for  $C_B$  and  $C_K$ .

I shall ignore his last comment.

In conclusion, I would like to add that Mr. Metzenthens seems to have lost sight of the fact that the article was not an engineering approach to the subject.

It was written for the home constructor who—

- (a) Cannot find a circuit to suit his needs;
- (b) Wants to use a transistor on hand, or just wants to use a transistor;
- (c) Does not just want to "lift" a circuit from elsewhere, or

(d) Does not wish to involve himself in lengthy theoretical considerations which he may not understand.

Despite the fact that the equation for  $C_K$  is in dispute and assumptions were made for the values of  $R_{IN}$ , the system works and nothing catastrophic will result from its use.

—Roger L. Harrison, VK3ZRY.

## V.H.F./U.H.F. STATE RECORDS

New South Wales:	miles
50 Mc: VK2ADE to VET1AQQ, 8/4/59	7320
144 Mc: VK2ZMR to ZL2AAH, 8/1/65	1410
432 Mc: VK1VP/1 to VK2ZPT, 14/8/65	178
576 Mc: No claim.	
1296 Mc: VK2ZAC to VK2ZCF/2, 4/3/63	46.8
Victoria:	
50 Mc: VK3ALZ to XE1FU, 1/5/59	8418
144 Mc: VK3ZNC to ZL2HF, 13/12/65	1673
432 Mc: VK3ALZ to VK5ZDR, 28/5/66	402
576 Mc: VK3AKE to VK3ANW, 11/12/49	80.7
1296 Mc: VK3ALZ to VK3AUX/3, 10/4/66	25.6
2300 Mc: VK3XA to VK3ANW, 18/2/50	9.0
3300 Mc: VK3ZGT/3ZGK/3 to VK3ZDQ/3, 14/12/63	03.5
Queensland:	
50 Mc: VK4ZAZ to K6ERG, 16/3/58	5305
144 Mc: VK4ZWB to VK7ZAO/TZAQ, 9/1/65	1117
No other claims	
South Australia:	
50 Mc: VK5KL to W7ACS/KH6, 26/8/47	5361
144 Mc: VK5ZHL to VK6ZCN, 8/1/65	1330
432 Mc: VK5ZDR to VK3ALZ, 28/5/66	402
576 Mc: VK5ZTM/5ZFG/5 to VK5ZIS/5ZJH/5, 28/1/65	105.5
1215 Mc: VK3LA/5 to VK5ZCR/5 (now VK5EK), 4/1/62	1.0
Western Australia:	
50 Mc: VK6BE to JA9BP, 30/10/58	5490
144 Mc: VK6ZCN to VK5ZJH, 8/1/65	1330
432 Mc: VK6ZDS to VK6LK/6, 25/4/66	66.5
576 Mc: VK6ZDS6 to VK6LK/6, 15/12/63	101.2
1296 Mc: No claims.	
Tasmania:	
50 Mc: VK7LZ to JA9IL, 3/12/59	5462
144 Mc: VK7ZAO/TZAQ to VK4ZWB, 9/1/65	1117
432 Mc: VK7LZ to VK3ZDM, 8/1/66	312

### PUNCHES

1 3/8" 1" 3/4" 1/2" 1/4"

#### WILLIS HAMMER DIE PUNCHES

WILLIS hammer type die punches are made to precise sizes for use in industry wherever a clean, round hole is wanted. Designed to punch down to 14 gauge steel. Centre remnant removed with a flick of the hand. Can be used in die press. Special sizes made to order at slight additional cost.

3/8 in.	\$2.40	1-1/2 in.	\$6.00
7/16 in.	\$2.40	1-5/8 in.	\$6.40
1/2 in.	\$2.60	1-3/4 in.	\$7.20
5/8 in.	\$2.60	1-7/8 in.	\$8.00
11/16 in.	\$2.80	2 in.	\$8.40
3/4 in.	\$3.00	2-1/16 in.	\$8.60
13/16 in.	\$3.20	2-1/8 in.	\$9.00
7/8 in.	\$3.80	2-3/16 in.	\$9.40
1 in.	\$3.80	2-1/4 in.	\$9.60
1-1/16 in.	\$4.00	2-5/16 in.	\$9.60
1-1/8 in.	\$4.00	2-3/8 in.	\$10.40
1-3/16 in.	\$5.00	2-1/2 in.	\$11.00
1-1/4 in.	\$5.20	2-3/4 in.	\$12.40
1-5/16 in.	\$5.20	3 in.	\$13.40
1-3/8 in.	\$5.60	3-1/4 in.	\$15.80
1-7/16 in.	\$5.80	3-1/2 in.	\$18.20

Trade Enquiries Invited

### WM. WILLIS & Co. Pty. Ltd.

430 Elizabeth Street, Melbourne  
Phone 34-6539





# WARBURTON FRANKI

## SIDAC New Silicon Symmetrical Diode

The SIDAC is a five-layer semi-conductor device (NPNPN) having two terminals greatly simplifying a.c. control circuits. Being bi-directional, one SIDAC can replace two SCR's in conventional control systems. In addition, blocking voltages are less temperature sensitive in the SIDAC and since there is no reverse direction, voltage transients do not injure the device. Current surges also are less damaging than those encountered in SCR's as the current is not initially confined to a small area near a gate. The SIDAC is cheaper than comparable SCR's. Firing the SIDAC is simplicity itself. Either a parallel or series circuit may be used and a specially developed pulse diode is available with suitable pulse transformer.

Type K5B20: Normal a.c. (r.m.s.)  
Circuit Voltage, 240 r.m.s., Cur- **\$3.45** + S.T. 12½%  
rent capacity 5 amps.

Pulse Diode, Type K2C ..... 78c plus S.T. 12½%  
Pulse Transformer ..... **\$1.20** plus S.T. 12½%  
Please add packing and post, 10c Set.

NOTE: A Circuit is available for making a 1,000 watt Light Dimmer using K5B20, K2C, Pulse Transformer and a few Resistors and Condensers. Write or call for a copy.

## SILICON DIODES

IN3491—18 amps. at 50 p.i.v.

Available with either K or A to case, 75c, plus S.T. 12½%

Heat Sink Adaptors to suit, 25c, plus S.T. 12½%.

S10AR2—1 amp. at 1,000 p.i.v. .... **\$1.20** plus S.T. 12½%  
S15AR2—1 amp. at 1,500 p.i.v. .... **\$2.00** " "  
IN3193 750 mA. at 200 p.i.v. .... **40c** " "  
IN3194 750 mA. at 400 p.i.v. .... **55c** " "  
IN3195 750 mA. at 600 p.i.v. .... **75c** " "

## LOUDSPEAKERS 4"

Available 3.5, 8 or 15 ohm impedance.

**\$1.50** + 25% S.T.

## TANTALUM CAPACITORS

 Available from Stock.

SOLID, SMALL-BEAD TYPE, RESIN DIPPED.

50 uF.	3 v.w.	Size 8.1 mm. x 5.6 mm.	46c each
40 uF.	3 v.w.	Size 8.1 mm. x 5.6 mm.	46c "
30 uF.	3 v.w.	Size 7.6 mm. x 4.9 mm.	46c "
20 uF.	6 v.w.	Size 8.1 mm. x 5.6 mm.	46c "
15 uF.	10 v.w.	Size 8.1 mm. x 5.6 mm.	46c "
10 uF.	15 v.w.	Size 8.1 mm. x 5.6 mm.	46c "
7 uF.	20 v.w.	Size 8.1 mm. x 5.6 mm.	46c "
5 uF.	25 v.w.	Size 8.1 mm. x 5.6 mm.	46c "
4 uF.	35 v.w.	Size 8.1 mm. x 5.6 mm.	46c "
3 uF.	35 v.w.	Size 7.6 mm. x 4.9 mm.	46c "
2 uF.	35 v.w.	Size 7.6 mm. x 4.9 mm.	46c "
1.5 uF.	35 v.w.	Size 6.6 mm. x 4.1 mm.	46c "
1.0 uF.	35 b.w.	Size 6.6 mm. x 4.1 mm.	46c "
.7 uF.	35 v.w.	Size 6.1 mm. x 3.6 mm.	46c "
.5 uF.	35 v.w.	Size 6.1 mm. x 3.6 mm.	46c "
.4 uF.	35 v.w.	Size 6.1 mm. x 3.6 mm.	46c "
.3 uF.	35 v.w.	Size 6.1 mm. x 3.6 mm.	46c "
.2 uF.	3 v.w.	Size 6.1 mm. x 3.6 mm.	46c "
.15 uF.	3 v.w.	Size 6.1 mm. x 3.6 mm.	46c "
.1 uF.	3 v.w.	Size 6.1 mm. x 3.6 mm.	46c "

Above prices are plus Sales Tax 25%.

## TRANSCEIVERS

Three transistors. Range up to ½ mile, depending on terrain. Supplied complete ready for use with telescopic antenna and batteries.

**\$17.35 Set of Two** + 12½% S.T.

Also 5-transistor model.

**\$23.50 Set of Two** + 12½% S.T.

And 9-transistor model.

**\$53.85 Set of Two** + 12½% S.T.

## BELPHONE INTERCOMM. SYSTEMS

Comprises two handsets (similar P.M.G. telephone) and connecting wire. Very clear reproduction. Loud bell to call.

**\$8.65 Set (inc. batteries)** + 12½% S.T.

## NEW! MINIATURE POWER SUPPLY

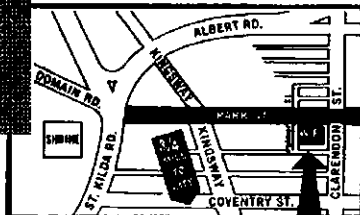
6, 9, 12 volts at 500 mA. Useful for transistor equipment such as tape recorders, record players, radiograms, etc. May also be used as trickle charger for car batteries.

**\$10** + 12½% S.T.



# WARBURTON FRANKI

220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines **69-0151**



OPEN SAT.  
MORNING

Please include  
postage or  
freight with  
all orders

# ROSS HULL MEMORIAL V.H.F. CONTEST, 1966-67

The Federal Contest Committee of the Wireless Institute of Australia invites all Australian and Overseas Amateurs and Short Wave Listeners to participate in this annual contest which is held to perpetuate the memory of Ross Hull whose interest in v.h.f./u.h.f. did much to advance the art.

A Perpetual Trophy is awarded annually for competition between members of the W.I.A. in Australia and its Territories, inscribed with the name and life work of the man whom it honours. The name of the winning member of the W.I.A. each year is also inscribed on the Trophy. In addition, this member will receive a suitably inscribed certificate.

**Objects:** Australian Amateurs will endeavour to contact as many other Amateurs in Australia and Overseas under the following conditions.

**Date of Contest:** From 0001 hrs. E.A.S.T., 10th December, 1966, to 2359 hrs. E.A.S.T., 15th January, 1967.

**Duration:** Any seven calendar days within the dates mentioned above, not necessarily consecutive. These periods are to be at the operator's convenience. A calendar day is from 0001 hrs. E.A.S.T. to 2359 hrs. E.A.S.T.

## RULES

1. There are two divisions, one of 48 hours duration, and one of 7 days. In the 7-day division, there are three sections:—

- (a) Transmitting, Open;
- (b) Transmitting, Phone;
- (c) Receiving, Open.

2. All Australian and Overseas Amateurs may enter for the Contest whether their stations are fixed, portable or mobile.

3. All Amateur v.h.f./u.h.f. bands may be used, but no crossband operating is permitted. Operators are cautioned against operating transmitting equipment on more than one frequency at a time, particularly when passing cyphers. Crossband operation to assist contest working is prohibited.

Such operation will be grounds for disqualification. Cross mode contacts will be permitted.

4. Amateurs may enter for any of the transmitting sections. The seven-day winner is not eligible for the 48-hour award.

5. Only one contact per band per station is allowed each calendar day.

6. Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular sta-

tion, each will be considered a contestant and must submit a separate log under his own call sign.

7. Entrants must operate within the terms of their licenses.

8. **Cyphers:** Before points may be claimed for a contact, serial numbers must be exchanged. The serial numbers of 5 or 6 figures will be made up of the RS (telephony) or RST (c.w.) report plus three figures commencing from 001 for the first contact and will increase in value by one for each successive contact. If any contestant reaches 999, he will start again with 001.

9. **Entries MUST** be set out as shown in the example, using only one side of the paper. Entries must be postmarked not later than the 13th February, 1967, and clearly marked "Ross Hull Contest," and addressed to **Federal Contest Manager, Box N1002, G.P.O. Perth, W.A.**

## SCORING TABLE

Distance in Miles	Mc.					Higher
	52	144	432	576	Mc.	
Up to 25 miles	1	1	2	10	20	20
26 to 50 "	1	1	10	25	50	50
51 to 100 "	2	5	25	75	100	100
101-200 "	5	10	50	100	200	200
201-300 "	15	15	75	200		
301-500 "	10	20	100			
501-1000 "	5	25	200			
1001-1500 "	10	50				
1501-2500 "	20	100				
2501-3500 "	35	200				
3501-5000 "	50					
5001-8000 "	100					
8001 and over	200					

10. **Scoring** for all sections will be based on the attached table. Distances must be shown in the log entry as shown in the example. Failure to make this entry will invalidate the particular claim. Some typical distances are given in the attached table.

11. **Logs:** All logs shall be set out as in the example and addition will carry a summary sheet showing the following information:

Name..... Call Sign.....  
 Address..... Division.....  
 ..... Claimed Score.....  
 Operating Dates..... (7 cal. days)

Highest score over a 48-hour period was..... points.

Operating period:  
 from..... hrs. E.A.S.T. .... /... /6...  
 to..... hrs. E.A.S.T. .... /... /6...

**Declaration:** I hereby certify that I have operated in accordance with the conditions of my licence and abided by the Rules of the Contest.

Signed.....  
 Date.....

12. Entrants not abiding by the Rules of this Contest will be disqualified.

13. The ruling of the Federal Contest Committee of the W.I.A. will be final. No dispute will be entered into.

14. **Awards:** Certificates will be awarded to the winners of each section in each VK and Overseas Call Area. The VK contestant who returns the highest score in the transmitting section and who is a financial member of the W.I.A. will have his name inscribed on the Trophy which will be held by his Division for the prescribed period. A certificate will be awarded to the contestant, who shall not be the Trophy winner, and who returns the highest scoring log covering a period of any 48 consecutive hours. Also, certificates will be awarded for operating in the Ross Hull Contest and breaking any Australian v.h.f./u.h.f. distance record.

The Distance Table for scoring is shown on Page 19.

## RECEIVING SECTION

1. Short Wave Listeners in Australia and Overseas may enter for the Contest, but no active transmitting station may enter.

2. Contest times and logging of stations on each band are as for the transmitting stations, however there is no 48-hour sub-section.

3. To count for points, logs will take the same form as for transmitting sections, but will omit the serial number received. Logs must show the call sign of the station heard (not the station worked), the serial number sent by it, and the call sign of the station being worked.

Scoring will be on the same basis as for transmitting stations, i.e. on the distance between the listener's station and the station heard. See the examples given. It is not sufficient to log a station calling CQ.

4. A station heard may be logged only once per calendar day on each band for scoring purposes.

5. **Awards:** Certificates will be awarded to the highest scorer in VK and Overseas countries.

## EXAMPLE OF TRANSMITTING LOG (Brisbane Station)

Date/Time E.A.S.T.	Band Mcs.	Emission Power	Call Sign	RST/No. Sent	RST/No. Rcvd.	Dist. Miles	Points Claim
24th Dec. 0100 E.A.S.T.	52	A3 (a)	VK7ZAI	59001	59004	1110	10
0110 E.A.S.T.	52	A3 (a)	VK4NG	58002	57051	330	10
0230 E.A.S.T.	144	A3	VK5ZK	56003	55043	990	25
0235 E.A.S.T.	144	A3	VK5ZJQ	45004	46021	850	25

## EXAMPLE OF RECEIVING LOG (Perth S.w.l.)

Date/Time E.A.S.T.	Band Mcs.	Call Heard	RST/No. Sent	Station Called	Distance Miles	Points Claim
2nd Jan. 1000 E.A.S.T.	52	VK5ZDX	59221	VK8KK	1330	10
1025 E.A.S.T.	52	VK2ZCF	58195	VK6ZAA	2040	20
1110 E.A.S.T.	432	VK6ZDS/6	57061	VK6LK/6	60	25
3rd Jan. 0500 E.A.S.T.	144	VK5ZHZ	44102	VK6ZCN	1330	50

# 1966 R.D. CONTEST RESULTS

## VK6 FOR '66

The Federal Contest Committee announces the results of the 1966 R.D. Contest. VK6 wins by a narrow margin from VK5, who have held this position for the past two years.

Allowing for cross-mode operation, the States' scores are higher than previous years. This is due to enthusiastic participants making better use of their time.

The logs this year were of a higher standard and operators are complimented for their prompt despatch of their logs, enabling an early announcement of the results.

Next year's rules will include Z call licensees and the scoring principle as suggested by the Federal Communications Manager.

—Neil Penfold, VK8ZDK, for F.C.C.

### DETAILS OF STATE SCORES

State	Log Entry	Licences	%	Total State Score	Aver. Top Six Logs	State Points
New South Wales	100	1,296	7.7	19,286	778	2,264
Victoria	74	1,101	6.7	21,619	897	3,239
Queensland	90	444	20.3	18,510	996	4,754
South Australia	97	474	20.5	20,539	832	5,043
Western Australia	74	266	27.8	15,405	944	5,228
Tasmania	39	128	30.5	8,093	840	3,108

### STATE TROPHY WINNER

Western Australia

#### STATE PLACINGS

Western Australia	1
South Australia	2
Queensland	3
Victoria	4
Tasmania	5
New South Wales	6

### AWARD WINNERS

Phone—		Points
VK1QL	610	999
2XA	675	873
3MO	1273	173
4BQ	1013	1539
5EF	916	

C.w.—		Points
VK2QL	493	392
3AXK	481	252
4XW	305	273
5FO	365	165

Open—		Points
VK1DA	433	1365
2AHM	1304	1290
3AKS	693	828
4RH	1369	990
5BI	588	

#### Section D—Receiving

VK1—J. Hurrant	375
VK2—A. Nutley	1083
VK3—P. Forbes	784
VK4—D. Clark, L4144	1042
VK5—J. Ross	917
VK6—F. Price, L6003	675
VK7—G. C. Johnston	1305
Club Entry—Vic. Amateur Listeners' DX Club	954

#### Section E—V.h.f./U.h.f.

VK2ZCF	84	VK5ZDX	53
3ZCK	60	6ZNR	6
4ZEP	8	7ZJG	26

### AUST. CAPITAL TERRITORY

Top Six Logs—		433 pts.
VK1QL	610	
1VP	389	312
1VK	210	206

Phone—		206 pts.
VK1QL	610	
1VP	389	158
1JG	312	50

Open—		63 pts.
VK1DA	433	
1VK	210	

### NEW SOUTH WALES

Top Six Logs—		644 pts.
VK2AHM	1304	
2BO	888	572
2XA	675	524

Phone—		94 pts.
VK2XA	675	
2BGF	644	93
2AKF	524	85

2PF	470	84
2ALV	444	80
2AEC	439	80
2AEO	424	72
2AFD	368	71
2BMK	366	67
2FM	356	67
2ACD	289	61
2OD	289	58
2AGF	280	54
2RU	256	52
2AHV	236	49
2SS	225	47
2ARZ	217	47
2QZ	193	46
2HO	180	44
2MW	179	44
2AVT	178	40
2EK	175	40
2AUC	174	37
2BB	160	36
2XT	127	27
2ZX	120	24
2AVJ	118	13
2AFA	113	12
2TS	111	12
2ACK	103	11
2AHP	88	9

C.w.—		155 pts.
VK2QL	493	
2AGI	335	147
2YB	305	142
2XQ	296	138
2VN	273	118
2ADJ	249	65
2EO	228	61
2WT	217	47
2NS	215	33
2GT	194	13
2GW	171	9

Open—		236 pts.
VK2AHM	1304	
2BO	888	204
2ATT	572	141
2AAB	365	134
2AGH	349	80
2PU	339	88
2DA	266	54
2SU	244	25

### VICTORIA

Top Six Logs—		789 pts.
VK3MO	1273	
3ARD	935	733
3DF	930	721

Phone—		214 pts.
VK3MO	1273	
3ARD	935	210
3DF	930	200
3EG	789	185
3WK	733	178
3LW	721	175
3RV	718	162
3AFW/P	640	157
3AEJ	633	150
3ADW	627	149
3XY	519	138
3AUL	526	98
3ASN	476	94
3AGM	388	88
3VZ	376	86
3AMK	343	85
3SM	308	83
3GC	293	61
3DG	286	54
3EK	276	50
3FR	272	36
3DV	259	33
3AAO	239	26
3ZU	231	19
3AWT	228	

C.w.—		205 pts.
VK3AXK	481	
3APJ	423	145
3ADB	360	82
3EB	314	20
3RJ	251	7
3APR	248	

Open—		137 pts.
VK3AKS	693	
3QV	578	118
3XB	422	118
3APN	380	112
3OP	346	102
3SR	171	86
3ABA	140	60

### QUEENSLAND

Top Six Logs—		886 pts.
VK4RH	1369	
4LT	1066	875
4BQ	1013	768

Phone—		51 pts.
VK4BQ	1013	
4WV	886	48
4AL	875	48

4AK	788	46
4JI	787	40
4JM	757	40
4FA	756	38
4JC	599	35
4NH	566	33
4MF	472	32
4PS	402	32
4DO	355	31
4KO	322	30
4CK	321	26
4HB	302	26
4MW	287	25
4DZ	245	24
4OF	237	23
4PJ	219	22
4MY	217	21
4AF	201	21
4CF	179	20
4TQ	165	20
4DV	156	19
4UW	148	19
4EQ	131	15
4RL	97	14
5CZ	89	14
4XY	88	14
4LE	88	13
4XJ	86	13
4UD	86	10
4SD	73	10
4CS	69	9
4BG	66	6
4UB	64	5
4FX	61	5
4RO	61	5

C.w.—		74 pts.
VK4XW	305	
4JF	238	18
4UC	121	

Open—	
VK4RH .. 1369 pts.	VK4A1 .. 134 pts.
4LT .. 1068 "	4QW .. 79 "
4VX .. 727 "	4WO .. 66 "
4RZ .. 653 "	4YS .. 26 "
4DP .. 449 "	4VO .. 12 "

## SOUTH AUSTRALIA

### Top Six Logs—

VK5EF .. 916 pts.	VK5KM .. 814 pts.
5IZ .. 861 "	5EK .. 779 "
5NY .. 845 "	5GZ .. 773 "

### Phone—

VK5EF .. 916 pts.	VK5CH .. 75 pts.
5IZ .. 861 "	5FH .. 74 "
5NY .. 845 "	5LQ .. 67 "
5KM .. 814 "	5MS .. 66 "
5EK .. 779 "	5VB .. 64 "
5GZ .. 773 "	5TU .. 62 "
5NN .. 736 "	5NW .. 57 "
5ZE .. 693 "	5YS .. 49 "
5ZZ .. 553 "	5CJ .. 46 "
5OH .. 541 "	5DJ .. 45 "
5CD .. 501 "	5EW .. 45 "
5GX .. 487 "	5ZL .. 40 "
5RG .. 463 "	5FJ .. 38 "
5FT .. 444 "	5PM .. 38 "
5LN .. 442 "	5MM .. 36 "
5TY .. 364 "	5ZA .. 35 "
5TJ .. 363 "	5FC .. 34 "
5UJ .. 334 "	5CL .. 33 "
5FL .. 308 "	5KF .. 29 "
5XM .. 298 "	5VG .. 29 "
5LC .. 287 "	5FR .. 29 "
5WN .. 270 "	5WI .. 26 "
5JC .. 232 "	5DO .. 23 "
5WG .. 230 "	5JO .. 22 "
5KL .. 213 "	5OK .. 22 "
5MD .. 188 "	5ID .. 17 "
5MF .. 166 "	5KO .. 15 "
5TM .. 157 "	5DF .. 13 "
5BQ .. 150 "	5KS .. 13 "
5WL .. 145 "	5BP .. 11 "
5SS .. 102 "	5UF .. 11 "
5TN .. 99 "	5ZK .. 9 "
5OB .. 86 "	5GF .. 8 "

### C.w.—

VK5FO .. 365 pts.	VK5RX .. 49 pts.
5XK .. 224 "	5ST .. 42 "
5LD .. 197 "	5RK .. 32 "
5OR .. 117 "	5RH .. 32 "
5GP .. 99 "	5HO .. 30 "
5TL .. 61 "	5JG .. 29 "
5MZ .. 61 "	5BZ .. 13 "
5MR .. 50 "	5KU .. 8 "

### Open—

VK5BI .. 588 pts.	VK5HM .. 191 pts.
5PF .. 488 "	5NH .. 161 "
5AX .. 401 "	5FH .. 157 "
5WO .. 369 "	5AU .. 150 "
5ZF .. 314 "	5CV .. 115 "
5MY .. 299 "	5EO .. 101 "
5ZQ .. 288 "	5NK .. 85 "
5QR .. 275 "	

## WESTERN AUSTRALIA

### Top Six Logs—

VK6RU .. 1365 pts.	VK6PH .. 954 pts.
6RY .. 999 "	6CW .. 687 "
6XX .. 987 "	6LR .. 673 "

### Phone—

VK6RY .. 999 pts.	VK6EZ .. 95 pts.
6XX .. 987 "	6BR .. 90 "
6CW .. 687 "	6LG .. 83 "
6LR .. 673 "	6HK .. 79 "
6XY .. 556 "	6FL .. 67 "
6XW .. 518 "	6NM .. 62 "
6MF .. 483 "	6KW .. 56 "
6VK .. 448 "	6VM .. 54 "
6DA .. 429 "	6BU .. 52 "
6WY .. 425 "	6MM .. 50 "
6LK/P .. 330 "	6XO .. 45 "
6CT .. 308 "	6RX .. 40 "
6CN .. 266 "	6CR .. 37 "
6CF .. 241 "	6VF/P .. 32 "
6CY .. 205 "	6MK .. 30 "
6JH .. 176 "	6JO .. 30 "
6RG .. 176 "	6NN .. 29 "
6CD .. 173 "	6LM .. 27 "
6KH .. 173 "	6PW .. 24 "
6DR .. 161 "	6CS .. 23 "
6OR .. 161 "	6BC .. 21 "
6TX .. 148 "	6KN .. 21 "
6DT .. 147 "	6GW .. 18 "
6KJ .. 143 "	6YL .. 17 "
6BA .. 136 "	6WI .. 16 "
6WL .. 130 "	6TH .. 15 "
6EB .. 103 "	6TL .. 10 "
6EH .. 103 "	6GL .. 10 "
6GH .. 88 "	

### C.w.—

VK6WT .. 392 pts.	VK6ZZ .. 28 pts.
6RS .. 206 "	6AJ .. 26 "
6WW .. 111 "	6WG .. 24 "
6WQ .. 76 "	6QJ .. 16 "
6AS .. 65 "	6JK .. 11 "

Open—	
VK6RU .. 1365 pts.	VK6SM .. 340 pts.
6PH .. 954 "	6AV .. 221 "
6BE .. 636 "	6MA .. 68 "
6KK .. 434 "	6RP .. 43 "
6NS .. 423 "	

## TASMANIA

### Top Six Logs—

VK7SM .. 1290 pts.	VK7AI .. 620 pts.
7DK .. 1286 "	7ZZ .. 615 "
7TX .. 873 "	7XL .. 454 "

### Phone—

VK7TX .. 873 pts.	VK7KC .. 58 pts.
7AI .. 620 "	7LY .. 54 "
7XL .. 454 "	7CT .. 53 "
7JF .. 371 "	7PA .. 40 "
7SF .. 237 "	7RX .. 28 "
7RM .. 212 "	7BT .. 23 "
7KH .. 141 "	7CR .. 20 "
7EB .. 89 "	7DW .. 20 "
7TR .. 87 "	7NZ .. 14 "
7WH .. 61 "	7BQ .. 12 "
7CK .. 59 "	7EJ .. 9 "

### C.w.—

VK7GK .. 252 pts.	VK7KA .. 34 pts.
7RY .. 172 "	7KS .. 22 "
7GV .. 84 "	7AB .. 19 "
7JB .. 60 "	7LJ .. 13 "
7BJ .. 60 "	7CH .. 9 "

### Open—

VK7SM .. 1290 pts.	VK7OM .. 259 pts.
7DK .. 1286 "	7FB .. 75 "
7ZZ .. 615 "	7YL .. 32 "
7AL .. 376 "	

## NORTHERN TERRITORY

### Phone—

VK8DI .. 173 pts.

### C.w.—

VK8HA .. 273 pts.

## PAPUA-NEW GUINEA AND TERRITORIES

### Phone—

VK9DG .. 1539 pts.

### C.w.—

VK9CJ .. 165 pts. VK9MV .. 15 pts.

### Open—

VK9AG .. 828 pts. VK9DR .. 281 pts.

9XI .. 340 "

## ANTARCTICA

### Open—

VK0MI .. 990 pts.

## SECTION E—V.H.F.

### New South Wales—

VK2ZCF .. 84 pts.	VK2ZWM .. 14 pts.
2ZSK .. 68 "	2ZFX .. 12 "
2ARF .. 35 "	2ZSG .. 10 "
2ZCT .. 34 "	2ZEM .. 9 "
2ZRU .. 22 "	2ZMO .. 8 "

Victoria—	
VK3ZCK .. 60 pts.	VK3AMK .. 8 pts.
3ZVV .. 42 "	

### Queensland—

VK4ZEP .. 8 pts.	VK4RG .. 3 pts.
4ZMW .. 7 "	

### South Australia—

VK5ZDX .. 53 pts.	VK5ZKB .. 19 pts.
5ZDA .. 35 "	5ZSW .. 19 "
5ZDM .. 31 "	5FD .. 15 "
5JX .. 24 "	5ZEH .. 11 "
5ZSJ .. 21 "	5CA .. 6 "

### Western Australia—

VK6ZER .. 6 pts.

### Tasmania—

VK7ZJG .. 26 pts.	VK7ZFR .. 11 pts.
7ZAS .. 17 "	7DK .. 5 "
7ZPT .. 17 "	7ZAH .. 5 "
7ZTM .. 17 "	

## RECEIVING SECTION

### Australian Capital Territory—

J. Hurrant .. 375 pts.
L. Whyte .. 278 "

### New South Wales—

A. Nutley .. 1083 pts.
A. Ozolins .. 705 "
J. Richards, L2042 .. 673 "
J. Hillard, L2074 .. 549 "
P. Linsley .. 501 "
F. McGrath, L2244 .. 459 "
D. Grantley .. 427 "
C. Middleton-Williams, L2019 .. 410 "
P. Cearns .. 128 "

### Victoria—

P. Forbes .. 784 pts.
E. Trebilcock, L3042 .. 403 "
P. Solly, L3303 .. 104 "
A. Cash .. 75 "

### Queensland—

D. Clark, L4144 .. 1042 pts.
G. Emborloff, L4197 .. 395 "
D. Hunter, L4052 .. 336 "
K. Cunningham .. 229 "
G. Franks, L4010 .. 174 "
N. Boxley, L4195 .. 143 "

### South Australia—

J. Ross .. 917 pts.
A. Rafferty, L3065 .. 778 "
K. Prendergast, L5084 .. 670 "
D. Clegg .. 451 "
A. Wege, L5073 .. 328 "
R. Edmeades .. 20 "

### Western Australia—

F. Price, L6003 .. 675 pts.
M. Ryan .. 471 "
G. Allen .. 368 "
B. Prosser, L6028 .. 274 "
S. Marvin, L6088 .. 25 "

### Tasmania—

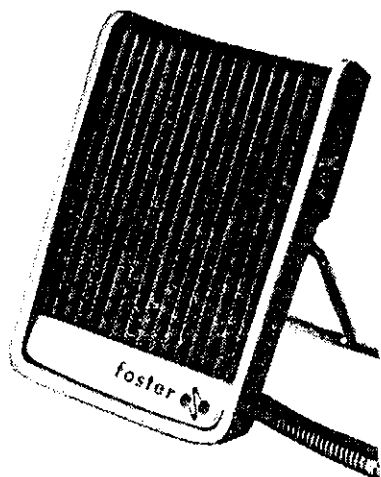
G. C. Johnston .. 1305 pts.
B. Morgan .. 940 "
B. Mutton, L7031 .. 914 "
R. Everett, L7043 .. 825 "
T. Cox .. 436 "
R. Verral .. 350 "
G. Earl, L7138 .. 331 "
H. Westerhof .. 203 "
I. Ellings, L7038 .. 195 "

### Club Station Entries—

VK3 Vic. Amateur Listeners' DX Club .. 954 pts.
VK3 S.w.l. Group of Vic., L3100 .. 768 "
VK6LV Leederville C.B.C. .. 309 "

V.h.f. Contest Distance Table. See Page 17 for Rules.

	Syd.	Canb.	Bris.	Melb.	Hob.	Adel.	N. Zea.	Dar.	Perth
Sydney ..	0	160	460	460	660	710	1300/1500	1950	2040
Canberra ..	160	0	600	290	530	670	1300/1500	1930	1940
Brisbane ..	460	600	0	860	1110	990	1500/1700	1790	2240
Melbourne ..	460	290	860	0	400	400	1500/1700	1930	1720
Hobart ..	660	530	1110	400	0	710	1300/1500	2280	1880
Adelaide ..	710	670	990	400	710	0	1900/2100	1620	1330
New Zealand ..	1300/1500	1300/1500	1500/1700	1500/1700	1300/1500	1900/2100	0	2550	3000/3200
Darwin ..	1950	1930	1790	1930	2280	1620	2550	0	1850
Perth ..	2040	1940	2240	1720	1880	1330	3000/3200	1850	0



DF-2

## FOSTER DYNAMIC MICROPHONES FOR HAND-DESK USE

### SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
 Effective output level ..... -55 db. [0 db. = (one) IV. Microbar]  
 Frequency response ..... 200 to 10,000 c.p.s.

### OMNI-DIRECTIONAL DYNAMIC:

SIZE: 3" x 2-1/8" x 1".  
 Cable: 12 ft. of P.V.C.  
 Switch: on-off.  
 Desk Stand. Clip folds for hand use  
 Colour: WHITE.  
 Plastic Diaphragm.

Retail Price  
 50K ohms  
**£2'14'0**  
 + Sales Tax 4'9

A QUALITY PRODUCT OF EXCELLENT DESIGN

Marketed by **ZEPHYR PRODUCTS PTY. LTD.**

70 BATESFORD STREET, CHADSTONE, S.E.10, VIC.



**Manufacturers of Radio and Electrical Equipment and Components**

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L; Jacoby, Mitchell & Co. P/L; T. H. Martin P/L.

NOW AVAILABLE—

THE 1966 EDITION

## ★ A.R.R.L.—Radio Amateur's Handbook

*The Standard Manual of Amateur Radio Communication*

Price \$6.10 posted, or 58'6 and postage 2'6

NOW AVAILABLE—

## ★ The Radio Transistor Handbook

by Stoner & Earnshaw.

Price \$6.65 posted, or 64'9 and postage 1'9

THIS UP-TO-DATE HANDBOOK COVERS A WIDE RANGE OF COMMUNICATION  
 FOR BOTH AMATEUR RADIO & COMMERCIAL APPLICATIONS

## McGILL'S AUTHORISED NEWSAGENCY

Established 1860

183-185 ELIZABETH STREET, MELBOURNE, C.1, VIC.

"The G.P.O. is opposite"

Phones: 60-1475--6-7

# Correspondence

An opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

## HISTORY OF EARLY DAYS

Microscope Department,  
University of Queensland,  
George St., Brisbane.

Editor "A.R." Dear Sir,  
I am very interested in obtaining the history of our early pioneer Hams and particularly with respect to the early days of Queensland.

I have endeavoured to seek the knowledge locally and it was suggested that it would possibly be more expedient to write to you.

I would be grateful for any information you could make available or for further sources of reference.

If you are unable to assist me, could you pass my request to the Federal Secretary of the Institute.

Looking forward to your reply.

73's, A. M. SIMPSON,  
Head, Microscope Department.

## SCATHING CONDEMNATION

Editor "A.R." Dear Sir,  
It was with regret that I read in the "A.R." October, 1966, the scathing condemnation by W. Metzenthon of the article by R. L. Harrison on Transistor Amps. Pt. 1.

I feel that Mr. Harrison is to be congratulated on his initiative in preparing this article and assure him that his efforts are greatly appreciated by many.

If W. Metzenthon wishes to air his superior knowledge I would suggest that it might be more palatable in the form of a constructive article rather than a destructive criticism.

—John Paul Hayden VK4ZBV.

## C.W. HOODOO

Editor "A.R." Dear Sir,  
Re Federal Comment, "A.R." September, 1966, c.w. To break the c.w. hoodoo I had to use the following method in 1947:

Key an audio oscillator, with headphone earpiece on one ear only.

Have persons in room talk to you on any subject and you reply while you are sending off a newspaper, etc.

—W. N. Short, VK2ARA.

P.S.: Unfortunately I had learnt the code in 1930 by the dot and dash, when I was able to join the W.I.A. classes in Sydney in 1947, couldn't get above 10 w.p.m. until the above method was used.—Bill.

## GOVERNMENT SUBSIDY

Editor "A.R." Dear Sir,  
For many years the Federal Government has subsidised the rifle club movement throughout Australia on the grounds that rifle shooting as a sport has some defence value in the event of war. It seems to me that the Amateur Radio movement has an equally valid claim for requesting Federal subsidy, especially when one considers the noteworthy contribution made by Amateur Radio operators in the last war.

In the event of such a subsidy being granted, there may be some conditions specified by the Government agencies concerned, but I cannot contemplate any situation whereby such conditions could adversely affect Amateur operations.

It seems to me that we have ample grounds for claiming a per capita subsidy for each successful A.O.C.P. or A.O.L.C.P. candidate trained by W.I.A. agencies—by our evening classes, by our correspondence courses and, perhaps, by the Youth Radio Scheme.

Any moneys received on this basis could be applied to the improvement of our training facilities rather than to general W.I.A. administration. In any case, the approval for such subsidies would give the Institute a status at Government level which it lacks at present and would add weight to any further representations made on other matters at Federal levels.

I submit that this is a matter well worth consideration by Federal Executive.

—Rex Black, VK2YA.

## MACQUARIE ISLAND

14 Buckley Street,  
Sale, Vic.

Editor "A.R." Dear Sir,  
I will be going down with this coming year's Antarctic Expedition to Macquarie Island, leaving Australia at the beginning of December.

It has been suggested to me that someone may be interested in loaning me 6 and possibly 2 metre gear for the duration of 1967. I would be willing to set up a v.h.f. station to attempt to communicate with Australia, rare DX and all that. I haven't any workable 2 m. gear, but hope to be constructing some 6 metre gear during the year, time permitting.

Should anyone be interested in supplying some gear, I would stipulate the following: (1) That the gear be reasonably high power a.m. (c.w.); (2) Compact; (3) Good condition, with circuits; (4) Possibly a rugged aerial; (5) That the gear be well packed and with spares; (6) That the person supplying arrange insurance on the gear. I would take all care but no responsibility for the equipment.

It has also been suggested that a v.h.f. beacon be set up at Macquarie Island. The permission for such an installation would have to be sought through the P.M.G.'s Department and through the Director of the Antarctic Division. If a beacon were to be set up I would like it registered under a separate call sign from my own. I feel this could be worth while. If you're interested please do something about it quickly.

—Rodney Champness, VK3UG.

P.S.: When at Macquarie I will be VK0CR.

## DX QRO—NOT ON NET CHANNELS

Editor "A.R." Dear Sir,  
With summer and 52 Mc. DX very close I and many others have some concern regards mobile DX.

Mobile nets have waxed and waned several times over the years, but with increased importance of W.I.C.E.N. and the ready availability of complete mobile units suitable for 52 Mc. a.m. conversion, we now have two large and important nets formed on 53.032 Mc. and 53.1 Mc. These are primarily mobile nets, and in S.A. even the majority of base stations are using units identical to those installed in cars and on motor-cycles. A reasonable harmony exists because of accepted net procedures and similarity of power levels for most equipment. However, it is not the local problems which concern us, but those due to DX when it arrives.

When the band opens, local mobile to mobile and/or base contacts will cease due to higher signal strengths from the DX stations. Consequently many of the mobiles will not only prefer, but be forced to use interstate channels, since they are all crystal controlled on one or both of the net frequencies. The co-operation between the mobiles will be of no avail, with all their net procedures, if even one higher powered v.f.o. control station commands the net frequency. Would any considerate operator, having tuneable equipment at his disposal deliberately and continuously use a net frequency whilst some 20 mobile stations have to sit and wait because they cannot shift from his frequency like as he has on to theirs? Whilst signals are good, surely they have as much right, and possibly more, to their net frequency than the one who occasionally puts his v.f.o. on the net allocations.

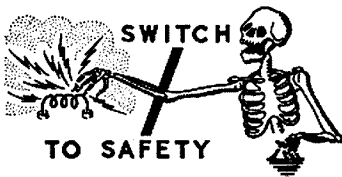
May I, on behalf of the many net limited mobiles and crystal controlled bases, plead to the v.f.o.'s with "Big Bertha" to find some other spot than 53.032 or 53.1; we have 2 Mc. to use! Surely such a gentleman's agreement is not too much to ask of those few who can help, or hinder, the process and limitations of net operations.

Perhaps it may be helpful to remind net operators of the use of the different channels in different states. Where possible it may be advantageous to include the alternate net, if necessary by diode switching of crystals, even if only for the DX season. A number of VK5 mobiles now have 53.032 Mc. available for the DX, so perhaps 53.1 Mc. may be a help to VK3, 2 or 7, and an occasional call may produce amazing results if an opening occurs.

I call on both frequencies each Monday to Friday, 1640-1710 C.S.T., just in case something happens.

Hoping co-operation helps, best DX.

H. J. Harvey, VK5ZBE.



## PROJECT AUSTRALIS

Following a request from Project Oscar, the VK-keyer for Australis has been changed to a HI-keyer. This is in line with the Oscar policy that Amateur Radio satellites should not identify themselves with any national group, but should be representative of Radio Amateurs throughout the world. There will be two to three HI's transmitted by Australis during every ten second identification period.

Some problems have developed in the construction of the flight model of the 144,050 Mc. telemetry transmitter for Australis. While these difficulties are now being overcome, it is expected that the delivery date for the satellite to Project Oscar in California will slip into January next year. All other systems of Australis are working well.

Don Graham VK6HK has been appointed Oscar State Co-ordinator for Western Australia, succeeding Wally Howse VK6ZAA, who has resigned because of increasing business responsibilities. We wish to thank Wally for his hard work on both the Oscar and Australis Projects, and we hope that he will continue to take an active interest in Amateur Radio satellites.

Project Oscar have advised us of the operating frequencies of the Euro-Oscar 2 metre translator satellite. The input centre frequency will be 144.10 Mc. and the output centre frequency will be 145.900. The translator output will be about 1 watt p.e.p., and the passband will be 40 Mc. wide. It is expected that the Euro-Oscar satellite will be launched into an Oscar III-type orbit, about 500 miles high. The approximate launch date is not yet available, as the satellite has still to be tested by Project Oscar, and a 432 Mc. beacon installed.

There have been several enquiries about the names of the VK State Co-ordinators for Oscar and Australis. These are listed below.

New South Wales—Alex Swinton, VK2AAK.  
Victoria—Bill Rice, VK3ABP.  
Queensland—Laurie Blagbrough, VK4ZGL.  
South Australia—Brian Tideman, VK5TN.  
Western Australia—Don Graham, VK6HK.  
Tasmania—Peter Frith, VK7FP.

The Project Australis address is:  
Astronautical Society, Union House, University of Melbourne, Parkville, N.2, Victoria.

## A & R TOROID BALUNS

General Specifications: Power rating—Types A, B, C, 200w. or 400w. p.e.p., provided the s.w.r. is less than 2:1. Construction—Toroidal ferrite cores, fully encapsulated with epoxy resin and silica under vacuum. Suitable for use in cold to sub-tropical areas. All except 355C and 356C are provided with antenna insulator support brackets. Balun dimensions approx. 2 in. diam. x 1 in. plus socket and lugs. Weight approx. 3/4 to 4 oz.

Type 350A—Impedance ratio 1:1. 75 ohms unbalanced to 75 ohms balanced. 3 to 30 Mc. For use at centre of a dipole antenna with co-axial cable feed line or at base end with 75 ohm twin line. Co-axial connector is Belling & Lee L604/S and lug terminals. Price \$3.77 (inc. S.T.).

Type 351A—Impedance ratio 1:4. 75 ohms unbalanced to 300 ohms balanced. 3 to 30 Mc. For use at centre of a folded dipole antenna with co-axial feed line or at base end with 300 ohm twin line connector and terminals as 350A. Price \$3.77 (inc. S.T.).

Type 352A/BC—Details as 350A except frequency range 500 kc. to 5 Mc., or to 30 Mc., for receiving purposes only with increased attenuation. Price \$3.77 (inc. S.T.).

Type 353B—This is a type 350 with a co-axial socket SO-239 (Amphenol screw type). Price \$4.39 (inc. S.T.).

Type 354B—Type 351 with SO-239 co-axial socket. Price \$4.39 (inc. S.T.).

Type 355C—Impedance ratio 2:1:1. 52 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. For use at the base of a mobile whip antenna, coupled to fixed or adjustable transmitter output impedance. Lug terminals. Price \$3.49 (inc. S.T.).

Type 356C—Impedance ratio 3:1:1. 78 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. Lug terminals. Use as 355C. Price \$3.49 (inc. S.T.).

WM. WILLIS & Co. Pty. Ltd.  
430 Elizabeth Street, Melbourne  
Phone 34-6539

# SIDEBAND TOPICS

I am frequently asked what future developments can be expected in the field of Amateur S.S.B. Transceivers. The main brands, Swan SW350 and Galaxy V, have been on the market for almost two years. New and radically different models may soon be brought out, what about full transistorisation?

Well, there is no doubt that in the long run, another 3 to 5 years' time, we shall see things change that way. But the changeover is not a simple process. Several hundred watts peak-output is now considered normal and still hard to get with transistors, if at all. It will always require proximity to a solid, heavy-duty power source. The only transistorised S.S.B. Transceiver now available, the SBE34, still uses tubes in driver and final. So will the Japanese product, which is now almost a year behind schedule, and they are still chasing the bugs out of the prototypes!

Replacing parts of the set with transistor circuits makes only sense if one gains something with it, space-saving or reduction in power consumption. A transistor VFC has no merit as such, still requires a large coil box and certainly complicates temperature compensations. So the conclusion is that for a number of years to come the cheaper popular makes will still be with us as they are now, except for possible minor circuit improvements.

When this appears in print I may still have a few new Swans and Galaxies at the old prices in stock, but they are moving fast now and the new supplies that are sailing will have to suffer price increases (see my August issue advertisement).

- SWAN/GALAXY 5-banders, with H.D. supply/speaker units ..... \$600
- GALAXY duo-band, 40/80 m. full output, ideal for mobile ..... \$225
- HY-GAIN triband beams: TH3JR, \$100; TH6DX, \$200.
- HY-GAIN verticals: 14AVQ, \$50; 18AVQ, \$75, yes, all prices are going up.
- CDR/ALLIANCE rotators, 220/230v., \$200 to £55.
- DC-DC mobile supplies, \$100 and \$120. Automatic keyers \$70.
- WEBSTER Bandspanner mobile whips, complete, 10-80 m., \$50.

## USED, RE-CONDITIONED EQUIPMENT

- WAGNER 1A 10-80 m. S.S.B. Transceiver, with Wagner a.c. supply/speaker unit ..... \$350
- GALAXY III 80/40/20 m. S.S.B. Transceiver, VOX unit included ..... \$325
- Perfect EDDYSTONE 888-A 160-10 m Hamband Receiver, A.M./S.S.B./C.W. .... \$225
- LM-14 Frequency Meter and lots of excellent gear, estate of the late VK2ADC, see Ham-Ads in this issue of "A.R."

Prices quoted are net, cash with order. If you cannot pay cash, do not consider hire-purchase buying at exorbitant interest and legal charges! See your local branch of the Bank of New South Wales for a personal loan at normal bank interest.

## SIDEBAND ELECTRONICS ENGINEERING

P.O. BOX 23, SPRINGWOOD, N.S.W.

Telephone: Springwood 51-1394

This telephone number cannot be dialled automatically from anywhere but the Penrith exchange area, it is not a Sydney exchange number!!!



# DX

Sub-Editor: ALAN SHAWSMITH, VK4SS  
35 Whynot St., West End, Brisbane, Qld.

My apologies for last month's omission of notes. Man proposes, but God disposes—or if you like, the fates were unkind to me. It was the "wog virulent." Usually this page is a rushed affair without the full attention it requires but this issue I hope may prove a little more comprehensive. There is quite a stock of mail and notes to hand, so here goes:—

## NOTES AND NEWS

**Rio de Ore:** Latest information on this spot is to the effect that EA7ID and EA7JQ are struggling to obtain permits. Hope to be on soon.

**Solomon Is.:** VR4LN Steve seems very active 14.240. Try 0700 or earlier. QSL W7WLL.

**Adelle Land:** Paul seems to be very active judging by reports. Look around 14.104 kcs. at 0400z. QSL REF. Gear is Swan 350 to G.F. Muscat: MP4MAW on 14.203 transceiver at 0200z.

**South Georgia:** VP8AM, VP8HY both on 14 c.w. Also VP8IQ who is on Falkland Is.

**British Honduras:** Dick VF1RC, 14150, 2200z. Duration of stay not known.

**Spltsbergen:** New prefix for here is reported to be JW not LA. JW4NI said to be active. Other new prefixes. Jan Mayen—JX. JX2IN, JX2CI both QRV.

**Guatemala:** TG0AA, 14 s.s.b. after 0600z. Good for WPX.

**Iceland:** TF2WJT, WJU, WJW, WJX and WJY all now on 14 s.s.b.

**Small:** 801AU and PF 21 s.s.b. No times given.

**Shema Is.:** W8DGP/KL7 and KL7FRY both QRV 7/14 c.w./s.s.b. The latter worked here on 7010 at 0730z.

**Knrre Is.:** W4TEZW/KH6, 14 s.s.b., 0800z.

**Uganda:** 5K5AU, FS, IH, JK and KD are the only legitimate ones from this country. Others said to be phoney.

**Rockall Is.:** Now reported off till next year. Also Knrre Maris Is. retired delayed.

**Malagasy Rep.:** 5R8AK is on 14,114 listening 14.205 at 0530z. 5R8AL can be worked on 7010 nightly around 1530z.

**Philippines:** W4BIC/DUI QRV 1245z, 14,030 kcs. QSL via Euro.

**Marcus Is.:** Reports indicate that KG6IF is very active from here. FQ given is 14,200 from 1200z.

**Bornholm Is.:** OZ4GF 14,127 1530z. OZ9KP 14,020 0730z. Both O.K. for Bornholm Is. award. Others on from here are OZ1IF, OZ4PM and OZ4FF. This latter being award manager.

**Andaman Is.:** At time of writing this Hedge is still very active at 0130z daily on 14,020 approx. QSL to FT Blair or to home QTH VU2DI.

**Congo:** TN8AA active 21 mcs. 1900z. QSL Box 574, Brazzaville.

**Europa Is.:** The trip by CR7GF to this spot and later to Comoros, Glories Tromelin, Aldabra, etc., does not as yet appear to have got under way but should be by the time this reaches you.

**Spanish Morocco:** EA9ED on now from CEUTA 14 c.w. Worked here but no idea of length of operation. Also EA9EO 14,090 2030z.

**Des Roches:** This has been given country status for DXCC.

**Easter Is.:** CE0AC. Try 7 c.w., 0440z.

**Ascension Is.:** ZD8RB is on 21 mcs., s.s.b.

**Saudi Arabia:** 7Z3AB, 14 mcs., 0300z.

**Dominica:** HI8XAL, 14 mcs., c.w., 1028z.

**Masirah Is.:** VS9OC, all bands and modes, 1000-1800z.

**Portuguese Guinea:** CR3KD, 21 mcs., c.w. and a.m.

**Newfoundland:** VO1RW, AW, HP, 14 mcs., c.w., 0142-1138z.

**Genevas 4UIITU,** 21 c.w., 2035z.

**Vart:** VS0A was heard 14 mcs. c.w. this week. Name stated as Bob. QSL via Bureau. No further details at present.

**Dag Is.:** MP4DAN is active from here. QSL DEAB.

**West Carolines, Kocer, Palan Is.:** KC6BO is active from here s.s.b.

**St. Pierre and Miquelan:** FP8CA active on c.w. s.s.b., 14, 21 mcs. QSL K2OJD.

**Madeira:** CT3AS active 14, 21 mcs., c.w., at times on 21 mcs. a.m. Also CT3AU 14,050 2000z.

**Cook Is. Aitaki:** ZKIAR is active again here on c.w., s.s.b. He will also come up on 7 mcs.

**Albania:** We are informed that there are no official licensed stations in Albania. Even though ZA1BE is reported as active 14,038, 2300z.

**Trinidad:** 9V4VS, 9V4VU both active evenings on 21 mcs., c.w.

**Cuba:** CM1AR, CO2BO both active 21 mcs., c.w. CM2BL, CO2RL active 14 c.w.

**Sao Thome:** CR5SF active s.s.b., 14 mcs., low end. QS W2GHK.

**Faqqnbar:** VQ9HB, G8KS. It is rumoured that these will be making a trip to this island for a week's stay but no details as yet.

**Ceylon:** 4S7FB has daily sked with K6CAZ on 14,222 kcs., s.s.b. 4S7YV is active 14 mcs., c.w. 0100z. Also 4S7DA, 14,030 kc., 0130z.

**Don Miller W9WNV** seems to have scrapped plans for Clipperton and Malpolo in favour of the Indian Ocean, reports the grapevine. It is quite possible that he will team up with CR7GF, for they both have what each other needs at the present.

**Maderas Is.:** Lloyd and Iris are presently signing CT3AU from here. Their usual frequencies are 14,050 and 21,050, listening 3 up on c.w., and 14,200 and 21,335, listening as directed on s.s.b. Rumoured for possible operation next are Mauritanin, Senegal and Laccadives. QSL via YASME, Box 2025, Castro Valley, California, 94548.

**Kure Is.:** K5QFH/KH6 is a new station active from here. He promises to be quite active in the coming months.

**Turkey:** TA2FM, 14,004 at 2100 G.M.T., TA2FG, 14,030 at 1930 G.M.T., and TA2AC, 14,035 at 19-2200 G.M.T. (QSL via K4AMC), are new stations active from here.

**Aldabra:** There is news that VQ7HY will be on air from here for about six months.

## ACTIVITIES

**Peter VK3APN** records some fb 7 mc. c.w. QSO's. FB8YB 2045, CM2QN 0935, HK7BDA 1035, 9V1MX 2000, VP8AK 0800, 5R8AL 1430, PY1NEW 0700, ZL5AD 1000, YV1AD 0715, 4X4MR 2215, P3JCJ 0700, VP9EP 0900, W4ANXC/VP7 1110, W0GTA/8F4 2000, and CE0AC heard 7020 0515. All times G.M.T. Best QSLs received were UJ6KAA, HI8XAL, TI2PZ, UBSARTEK, 5Z4JX, FJ2MI, EP2BQ. (Nice list Peter, please send more.—AL)

**Henry VK8HA** writes to report on conditions generally and his doings on 7, 14 and 21 mcs. On the former band European QSOs are possible around 0730 and 1830z, ONSZO was worked both ways during one 24-hr. period. Some 20 mc. prefixes logged were 6W8DD, FBNE, ZD6J, OH1AD, OH5AD, and very many other European prefixes.

(Keep me posted please Henry.—AL)

**Len VK4CK** provides on specific list but gives a run-down on conditions from his QTH on the Darling Downs. JA, W and an odd 9V1 audible 28 mcs. from 0100z. Plenty Asian and W's on 21 mcs. during the mornings. 20 mc open each day from 0400z to Europe on LP and taking SA on the way.

**Dud VK4MY** now seemingly converted to the s.s.b. ranks worked this past week or two KZ5EX, KEXCW, SV1BH, FB8YB, CN8BB, VP7EA, ZS4OI, DL8RM, VK0MI, KL7CKQ, M1E San Marino, VR4LN Reef Island, KG6IF Marcus, 5N2AW, etc., all 14 mcs. (Nice work Dud. Keep it up.—AL)

**Barry VK5BZ** has been appointed VK-ZL rep. for the QRP Club. So if you want to join go ahead and write. Barry would like to put out a quarterly QRP news sheet, DX and Social (if he gets enough support), so do your bit and send any news you can and supply him with any QRP call signs (and there are a lot active) you know about.

(Any QRP news appreciated here Barry. I get very little.—AL)

**Greg Johnston** writes with information of activities of VK0MI for whom he is QSL manager. It seems someone has been pirating MI's call. The usual story. Greg has been getting QSL's from overseas for QSO's not in VK0MI's log. I quote him. "Be suspicious of the call VK0MI on c.w. on frequency other than 14,000. Re the QSL situation. I will only QSL those for the R.D. Contest on request, as there are some 200 QSO's involved. Already some 500 cards have been sent out to 30 odd countries and 49 states. Unless IRC's and S.A.E. are sent all cards will be sent via bureau." Latest QSL's received by VK0MI are G13OQR, EP3AM, ZS6LW, VK9DJ, on a.m. OKIAKQ, EA2CR, VR2DK, UA0KCA, PY2SO, PY2CQ all 20 c.w. All cards for MI, c/o 3 Ingils St., Newtown, Hobart. Col on Macquarie Is will QRT late November or early December. The call VK0MI may be used by his successor but it is not known for sure. Greg Johnston also may continue as QSL manager. Col has worked some nice ones during his stay. Here are just a few: EP3AM, G2RO, G13OQR, PA0HBO, SM5BYG, XE2YP, ZS5JM, ZS6LW, all on phone. EA2CR, G2BVM, G2LB, HC1TH, KB8BY, KR6JZ, OA4FW, VS6EN, PY2SO, PY2CQ, UW0IX, UA0KCA, UA0DV, UA0OH, VE3AAZ, VE4OX, VE6JR, VE7MT, Y08CF, ZC4TX, 9M2LO, on c.w. mainly around 0700z.

**Ken VK3TL** reports his usual choice ones on 20 mx: CT3AU, CM2WS, DM4WPL, EESS, GD3RWF, GD6IA, GW6YQ, HA0HR, IS1FOL, 11AUM/MI, SLOAX, SM1CVJ, SV1AB, VP2GS, XE3PL, VPIPV, YS2RC, ZC4CL, 5W1AZ, 6W8DD, 9G1RY. QSL's received FX1IE, FX1JS, EA9EO Spanish Morocco, HC5CRC, KS4AC, VO1FB, 4X1DK, ZS8H, etc.

## QTH'S

9N1BG—H.Q. British Gurkha. L. of C. Dharan, Nepal.

VS6AZ via K8GMA; LA1EE/P via W2GHK; HB0J via W2CTN; FL8MC via W7WLL; FOCH/FC via HB8TL; CT3AR via K8CYG; VP5RS via K7UXN; KL7FRY (Shema Is.) via KL7 bureau.

## SUMMARY

Conditions are unquestionably on the up and up. There is DX on all bands now at some period of the 24 hours cycle. The signals are overall stronger too, and consequently easier to work. This should be an incentive to brush the cobwebs off the rig, and at least, try a CQ. There's a variety of prefixes nightly on 20 mx at 1300z.

My thanks to the column's contributors. 73, Al VK4SS.



## CONTEST CALENDAR

- 12th/13th November: R.S.G.B. 7 Mc. DX Contest (c.w.).
- 13th/14th November: International OK DX Contest (c.w.).
- 19th/20th November: R.S.G.B. 2nd Top Band (1.8 Mc.) Contest.
- 26th/27th November: "CQ" World-Wide DX Contest (c.w.). For rules, refer October 1965 "Amateur Radio."
- 10th Dec./15th Jan.: Ross A. Hull Memorial Trophy V.h.f. Contest.
- 11th/12th February: John Moyle Memorial National Field Day Contest.

## W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. Position in the list is determined by the first number shown. The first number represents the participant's total countries less any credits given for deleted countries. The second number shown represents the total D.X.C.C. credits given, including deleted countries. Where totals are the same, listings will be alphabetical by call sign.

Credits for new members and those whose totals have been amended are also shown.

### PHONE

VK3AHO	309/321	VK4HR	281/277
VK5MS	309/330	VK2JZ	249/264
VK5AB	283/312	VK3TL	241/245
VK6MK	293/310	VK2AE	223/237
VK8RU	282/315	VK2APK	217/220
VK4FJ	273/290	VK2AAK	215/219

### C.W.

VK3KB	315/333	VK2AGH	275/288
VK2ADE	291/313	VK2EO	272/293
VK3CX	290/311	VK3NC	266/286
VK2QL	288/308	VK3ARX	261/269
VK4FJ	284/306	VK6RU	250/271
VK3AHQ	276/288	VK4HR	243/265

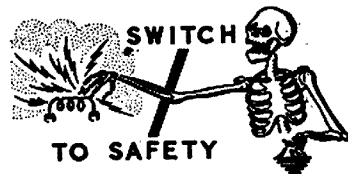
VK3TL	236/239	VK3RJ	229/242
-------	---------	-------	---------

### OPEN

VK2ADE	305/329	VK2ACX	276/300
VK2AGH	303/321	VK2VN	275/290
VK6RU	298/321	VK3ARX	270/278
VK6MK	295/312	VK3NC	267/287
VK4FJ	291/313	VK3TL	260/264
VK4HR	279/301	VK2APK	255/263

### Amendment:

VK4PX 137/141



# SWL

Sub-Editor: D. GRANTLEY, WIA-L2022  
P.O. Box 222, Penrith, N.S.W.

Over the past two weeks I have been through log books dating back to 1957 when I moved to VK2, in order to compile an accurate record of countries heard on the various bands and modes, and also a check was made of hundreds of QSL cards to record similar data. The figures and statistics extracted are of little interest, and I won't bore you with them except possibly to point out that of 298 countries heard, 292 were on 20 metres, and of those 282 were recorded from c.w. QSO's. Many interesting comments were noted beside log entries, one in particular extracted from an EI operator who had returned to c.w. to quote "get back amongst the good ops.", or the two s.b. stations, a KH6 and a W who had to resort to c.w. to finish their contact, a VK2 giving a VK7 5x9 on an a.m. QSO, then asking him to repeat his handle as he didn't get it, and so on, a W operating /A mobile searching for an aircraft presumed lost off KH6, the ill-fated Yasme in her travels, W8OLJ on "Project Hope," a c.w. race between Z1ZAFZ and a KG6 whose call I forget. These two fine operators got to such a speed that I had to use a tape recorder to take them down at 7 1/2 ips, and replayed at 3 1/4 ips to get them down to a readable speed. And while all these comments were read and the events remembered, it was the check of VK QSL cards which gave me the most pleasure. For years I have been sounding off in no uncertain manner about Amateurs and their lack of interest where the s.w.l. was concerned. Yet here in the old shoe-box was a far different story. Words of encouragement, offers of assistance, perfectly filled out QSL cards, advice and friendly words even when a report which they received could have been of no assistance to them whatsoever. And above all, friendly help and guidance from senior Amateurs and former listeners, all anxious to do the right thing to a green newcomer. I realise now, that if I had not met with this type of encouragement I would have given radio away as a hobby long ago and, I would like to take this opportunity of thanking these fellows one and all for their interest, and apologise for any harsh words which I may have said in the past on the subject of Amateur/S.w.l. relations.

**Band Conditions:** In general conditions on 20 are much the same as usual, with some unpredictable openings such as we had a few nights ago, when the band opened at 1000z to Europe with stations coming in from all over the Northern African and European Continents. The 15 metre band has been very spasmodic, with some good openings in the mid-afternoon, particularly in VK6, whilst here in VK2 the band is often open as late as 7 p.m. 10 metres is on the improve, but little other than Pacific has been reported, apart from W's. 40 metres, despite the QRM, still provides plenty of DX in the early mornings and is always wide open to W and the Pacific in the evenings. Reports on 80 vary from fair here in the eastern states. I heard a KL7 at 8 p.m. on 26th September, to excessive static over in VK6, where similar conditions have prevailed on 40.

**Did You Hear?** A flashing c.w. signal on 7 mcs. on 25th September at about 8 p.m. local time? Yes, believe it or not, Jock White ZL2CX was actually calling CQ looking for a contact which he promptly received. FK8AU on 14 s.b. with a signal which nearly popped the front end of the AR7? CEAS very weak, but right in the clear on 7 mc. working a W8. An unannounced (?) TR8AG made an appearance on 14 c.w. in mid-September with every signal in Japan on his back? Fantastic opening on 10 metres about 8 a.m. local time on Sunday, 25th, when according to Mac Hilliard 5 by 9 signals were pounding in from areas ranging from W3 to VK9 and JA. Shades of 1958, when this band produced some of the finest signals and best DX on the air.

**Around the Shacks.** Firstly over to Bryan Prosser L6028, who reports in per medium of a very fine tape. Very little listening done by Bryan this month, with HL9, W, G2, KR6, XE, VP7 and HB9 being the only calls heard on 20. The lower bands have been too noisy to use. Inward QSL's were received from F9Y1, VS6DS, 9M6AP, CT1PK, KX6BW and KC6SZ (West Carolines, Yasme).

From Laurie Wescombe L5079 comes a letter which clarifies the position re the reforming of the VK5 s.w.l. group, it seems that a few months ago Laurie tried to get the

VK5 gang together once more, but met with very little success, however, should any readers wish to contact Laurie on this matter his address is 4 Miller Terrace, Blackwood, S.A. To hand this month is a letter from Ralph Cooper, of Liverpool, who enquires about inwards QSL cards. I would like to point out once again that Charles Abernathy, 30 Urunga Parade, Miranda, is the VK2 S.w.l. QSL manager, and all information on this subject is in his capable hands. All VK2 s.w.l. cards reach his QTH, and if you are using the bureau it is advisable to keep a stamped addressed envelope in Charles' care for returns. Ralph, who is a W.I.A. member as L2054, also uses the call of RA3160, issued by the N.Z. DX R.A. Ernie Luff L5080 is still doing well with the AR88, logging such prefixes on 20 s.b. as FK8, UG6, DJ, KC6, HB9, CR7, PJS, YS1, PA0, CT2AN, M1E, CN8, SV1, GW3, KZS, GM2, OHT, UC2, plus ZL4CH and many others. Inward QSL's for the month were ZD7RH, 5R8AK, ZL4CH, ZC4KF and WA4ICB. With 94 countries heard Ernie is getting close to the DXCC, however, in the process he has collected several of the I.S.W.L. awards. Mac Hilliard has been hearing some good signals on 10 metres, particularly on Sunday, 18th September, when W6, W4 and KH6 were really solid, these being followed by an opening into JA and other Pacific areas.

Alan Raftery L5085 dropped a note to supply some DX QTH's. Here at L2022 I have been looking around on the 7 mc. band once again, and despite the heavy commercial interference, JASDYU/6, W, CE9AS, VR2DK, F08BJ, KL7FRY, KH6HR, KH6LJ, H18XL, HK5CR, UA0LJ were logged. On 80 metres, despite the use of my much-improved CR100, I heard only KL7, apart from VK and ZL. 15 metres revealed nothing of interest, but 20 was another story by far. TR8AG as previously mentioned was the most acceptable logging here, being country number 298. I won't take up valuable space by elaborating on 20 metres, suffice to say that it is still by far the best band no matter which mode of reception you favour. Inward QSL's here were FK8AC, Z53E, several VK's for QRP awards, OD5EZ, these taking the score a little higher up the ladder.

**DX News.** Very little of interest this month, other than some QTH's of interest. KC4AAA/MM and CE0ZI have WA5ENK for manager, VP8CW has been active from the Falklands, the two /MM's mentioned here are one and the same, using the particular call to suit their operating area. Vessel is the U.S.N.S. "Eltanin." VE0MB is a lightship off the coast of Nova Scotia. HB9X/MM has regular nightly skeds at 1000z and 1200z on 14.320 if you happen to be chasing the mobile award. HC1BM "Buzzy," says QSL to W3CQZ. 5B4TC, 5L3JR, KA5RC and 9M4LP all go via W2CTN. W1BPM is manager for both TR8SW and TTA8W, whilst TN8AF goes via the REF. Cards for W1BNB/MM go to his home QTH, whilst 8L1HX's manager is G3RAM. TR8AG's QTH is B.P. 157, Libreville, Gabon, and that of TR8AD is B.P. 1025 same town. 9M6AP says QSL via G3TXE, OA3T says QSL to Padre Ben Meyer, A.P.T. 100, Huarez, Peru. Can anybody assist Alan Raftery with the QTH of 9M4LT, as his card was returned? OK4CM is /MM, reports to OK3UL, Josef Straka, Box 44, Malacka, Czech. All reports for OA3T go to Fred Gleeson, 3412 Talisman, Louisville, Kentucky, U.S.A. W8ADT/MM is active from S.S. "Green Bay" and his QSL address is Box 53368, New Orleans, La. Recent additions to the I.S.W.L. from the DX ranks are: HP1JC, HK4PZ, GW3TOB, 6Y5BB and M.J, H18JSM, TG9EP, ITIAGA, PY2DBU, 9K2AU, DJ5XI, YV5BZ, MP4TBU, VE8WU and F8RU. QSL's for these Amateurs can go via the I.S.W.L. Bureau, or if using your local bureau mark your card "I.S.W.L. BUREAU."

**Stop Press.** First item of interest is a letter from our good friend Peter Drew. Peter, as you know, is doing his national service at present. Should anybody care to contact him, the QTH is 5714484, Sig. P. Drew, E. Comm. Wing, School of Signals, c/o Milpo, Ingleburn, N.S.W.

Secondly, chaps, in view of the mail situation at this time of the year, could I have any notes as early as possible.

**QSL Ladder.** This will be the final appearance of this feature for 1966, congratulations to those who have climbed higher, particularly to Ernie Luff for his advancement, and of course to our No. 1 listener, Eric Trebilcock, for his consistent operating, and exceptional achievements in having and maintaining such a fantastic Heard/Confirmed ratio.

That winds it up for another month, chaps, '73's, and get amongst that summer DX. de Don L2022.

## NEW CALL SIGNS

JULY 1966

- VK1JT—J. P. Talbot, 4 Charlotte St., Red Hill.
- VK1PA—J. W. Talbot, 4 Charlotte St., Red Hill.
- VK1VE—V. F. Burnham, 10 Dawson St., Curtin.
- VK2AJJ—K. E. Brown, 73 Western Cres., Gladstone.
- VK2BAJ—I. E. Treacy, 129 Amlens Av., Millperra.
- VK2BLR—Lakemba Radio Club, 33 Rogers St., Lakemba.
- VK2BRH—R. M. Harrison, 7 Edwards Rd., Wahroonga.
- VK2ZGX/T—D. W. Bridge, New Tribes Mission, Plumpton.
- VK2ZGU—R. G. Comrie, 20 Cambridge Av., Raymond Terrace.
- VK2ZHN—R. J. McHardie, 36 Beattie St., Jamberoo.
- VK2ZIG—R. G. Henley, 512 Blazland Rd., Eastwood.
- VK2ZIO—J. W. Rufus, 9 Bridge Rd., Homebus.
- VK2ZKG—J. K. Gibling, 304 High St., Chatswood.
- KK2ZMV—A. A. Griffard, "Woodlands," 15 Prince St., Springwood.
- VK2ZNG—A. R. Marjoram, 3 Francis St., Epping.
- VK2ZOR—F. A. Blackwood, 3 Laundess Av., Panania.
- VK2ZPE—E. P. Clark, 23 Ruby St., Yagoona.
- VK2ZPN—E. L. North, 18 Eastern Av., Shell Harbour.
- VK2ZTE—R. G. Gibson, 142 Connels Pt. Rd., South Hurstville.
- VK2ZYM—R. C. Morgan, 24 Central Rd., Beverly Hills.
- VK3FE—J. C. Beckett, Station: Everest Cres., Olinda; Postal: P.O. Box 33, Olinda.
- VK3ABU—R. L. Brownhill, 43 Nelson St., Sandringham.
- VK3AOJ—J. M. O'Kelly (Rev.), St. Mary's Presbytery, Duke St., Maffra.
- VK3APO—P. A. Orchard, 1 Sunlit Court, Moorabbin.
- VK3ATV—J. F. O'Toole, 12 Mark St., Rosebud.
- VK3AZS—T. P. Said, 31 Kilpatrick Av., Shepparton.
- VK3ZQM—B. D. Mitchell, 18 Donald St., Highett.
- VK3ZQQ—R. F. Casey, Lot 4, Floods Rd., Warrendyte.
- VK3ZSI—R. A. Flack, Lot 77, Lawrence Rd., Mt. Waverley.
- VK3ZSQ—B. Gardiner, 63 Edinburgh St., Clayton.
- VK3ZSU—G. Sutherland (Dr.), 48 Darling St., South Yarra.
- VK3ZTO—J. T. Bayley, 9 Dominic St., East Camberwell.
- VK3ZWH—H. L. Wickes, 29 Alford St., Warragul.
- VK4OM—I. C. Morrison, Station: Unit 2, "Karoonda," Mary Avenue, Broadbeach; Postal: 46 Aaron Avenue, Hawthorne.
- VK4ZFD—R. F. Dannecker, 52 Pohlman St., Southport.
- VK4ZKI—R. K. Ivins, Duporth Avenue, Maroochydore.
- VK4ZKJ—E. W. Davis, 39 Miva Street, Cooroy.
- VK5EY—A. W. Holt, 43 Wood Ter., Whyalla.
- VK5SK—R. W. Streeter, 184 Mt. Gambler Rd., Millicent.
- VK5UK—E. Owen, 26 Symonds Cres., Clovercrest.
- VK5ZA—R. G. Jolly, 16 Melville Rd., Paradise.
- VK5ZAZ—C. L. Price, 12 Fleming Av., Ridgehaven.
- VK5ZRB—R. L. Bubner, 9 Brighton Rd., Glenelg.
- VK5ZRZ—W. S. Baynes, 29 Strathspey Av., Hazelwood Park.
- VK6RH—R. Haslett, 109 West Coast Highway, North Beach.
- VK6ZBA—C. A. Lewis, 77 Stubbs Ter., Daglish.
- VK6ZFI—K. M. Cole, 25 James St., Kellerberrin.
- VK7ZDF—D. V. Johnstone, 9 Somerton Cres., Moonah.
- VK7ZHF—H. J. Ferrall, 9 Willowdeene Av., Sandy Bay.
- VK7ZWN/T—W. J. Nickols, Station: 2 Elboden St., South Hobart; Postal: 31 Bay St., Burnie.
- VK8JR—R. J. Linsket, R.A.A.F. Base, Darwin.

### DX LADDER

	Countries		Zones		W
	Conf.	Hrd.	Conf.	St	
E. Trebilcock	293	296	40	50	
B. Prosser	197	241	31	42	
P. Drew	192	265	38	40	
W. Smith	145	214	35	7	
D. Grantley	142	298	39	40	
A. Westcott	106	159	34	11	
G. Earl	103	168	34	18	
M. Hilliard	98	248	33	14	
E. Luff	94	172	31	22	
R. Halligan	89	158	32	7	
C. Abernathy	70	107	33	14	
A. Raftery	69	189	26	11	
R. Mutton	66	102	28	10	
B. Mackintosh	43	105	20	8	

# V.H.F.

Sub-Editor: CYRIL MAUDE, VK3ZCK  
2 Clarendon St., Avondale Heights, W.2, Vic.

Well, here we are again with a very busy month ahead with the VK3 V.H.F. Convention, the Jamboree on the Air, writing articles for "A.R." etc., anyway news this month comes from VK4, VK5, VK2, VK3 and VK6 from Graham VK6ZDB who is making a trip to Brisbane with Wayne VK6ZDD. Included in the notes are the first reports of 6 metre DX of the Season.

Here's a thought for those who would like to keep the 4 mcs. that we have at the moment on 2 metres, after listening on 2 metres for months I have noticed that over 80 per cent. of the activity is in the 144-145 mc. segment. What about using some more of the band, e.g. use 145-146 for crossband and local a.m. nets and those long rag-chews, I for one will be tuning 145.5 mc. down in future, so why don't some of you others do likewise and show that we want to keep 2 metres, remember the next I.T.U. conference is only two years away and almost all countries are pressing for more space in the radio spectrum.

Talking of the I.T.U., don't forget to send your donation to the W.I.A. I.T.U. Fund, whether it be large or small it will still help the Institute to send a representative to the next conference and give some backing to Amateur representatives from other parts of the world.

73's, Cyril Maude, VK3ZCK.  
V.H.F. Sub-Editor.

P.S.: If the gentlemen of VK2 cannot afford a typewriter would they please print ALL NAMES and PLACE NAMES as my maps do not show all the pimples and one horse towns in N.S.W.

## NEW SOUTH WALES

432 mcs. activities in VK2 are increasing at a very satisfactory rate. Currently known operators on 432 are VK2's ZCF, HL, ZRU, HO, ZAH, ZAC, ZHH and several others. There are also many stations constructing gear for this band.

Two metres is becoming quite crowded with a batch of new calls appearing. Some heard to date being VK2's ZCL, ZMV, ZJQ. The group is endeavouring to encourage stations to use the second megacycle. This will not only reduce crowding but will show the authorities that we do in fact justify having a reasonably wide band.

Don't forget the New Year's Field Day which is coming up as the last event of this year and the first event of next year. Last year David VK2ZVW worked ZL from Mt. Kosciusko as well as many other long hauls, so all you v.h.f. DX-ers get with it and help to make this one the best yet.

A very successful Field Day was held in mid-September at the Marsden Park Air-strip. This day consisted of pedestrian fox-hunts, treasure hunts, and ordinary mobile fox-hunts. Approximately 80 attended and had a very good time. This fine day was organised by John VK2ACK and Mac VK2ZH and was very well conducted.

73's till next month.

Stephen VK2ZSK.

## HUNTER RIVER BRANCH

52 Mc. This band has been quiet, except for one DX opening on the 10th September to VK5 and the lucky one to declare the "DX Season Open" was Bill VK2ZWM when he saw funny things happening to Channel 2, and going to the shack heard a nice lot of VK5 signals that were very strong for quarter of an hour then the band closed about 7 p.m. Stations were heard for some time but were too weak to work because of the fading, Bill worked 5ZDR, 5FD and others. The 52 mc. net still operates each Saturday and Sunday morning at 10 a.m. Gordon 2ZSG and Frank 2ZFX will be airborne in the next week or so on this band, and Fred 2ZAP also has gear well on the way.

Kev 2ZKW has a blockbuster well on the way for 6 metres.

144 Mc.: This band has been rather quiet except for Monday nights, when most of the boys are about to hear our local broadcast on 3.5 mc. relayed by Gordon 2ZSG on 144 mc., most stay around for a rag-chew afterwards.

Conditions have been poor during the month as we have had days of "strong westerly winds" and thick dust which makes conditions poor on 2 metres. Most of the boys are getting gear ready for our "Hunter Branch" Convention at the end of the month, some getting mobile gear ready, others testing sniffers and the like.

Ron VK2ASJ has been on at nights with his new transmitter, built by Mac 2ZMO, and is making a lot of new friends.

Conditions to Sydney have not been the best, Col 2YJ and Tony 2ZCT can work into Sydney most nights probably due to their excellent location. 73's, Mac VK2ZMO.

## VICTORIA

The activity on the bands in VK3 over the past month has not been over exciting except that on Saturday, the 17th of September, the boys operating on the 53.032 mc. a.m. net heard a very strong station breaking in and announcing himself as VK4ZPL but alas we were unable to work Peter.

Jim Goding VK3ZGG, who has recently returned from an extended stay in the U.S.A. where he obtained the first licence (open to doubt.—Ed.) issued under the new reciprocal licensing scheme. Jim spoke about Amateur activities in the States including field days and spoke about one Amateur who has an S line set-up in almost every room in his house. Jim continued his talk with some details of the work that took him to the States and showed a colour film which demonstrated the research work that he is engaged in at the Melbourne University. Other activities in VK3 include fox-hunts and scrambles, at the moment both of them are only held on 2 metres.

Well, until next month. 73's Cyril VK3ZCK.

## QUEENSLAND

The September V.H.F. Group meeting was of some importance to members of the group. Twenty-five members attended which is somewhat of a record. The main business of the night was a group discussion on the need for a net frequency for 6 metre mobile work particularly in Brisbane.

While it was realised that some mobiles were equipped with 53.032 mc. gear, it was felt that the further removed the chosen frequency was from the 52 mc. band edge, the better for all concerned. Consequently a frequency of 53.955 mc. was chosen because of a readily available supply of crystals. Already about 45 crystals have been purchased from the group. At a cost of only \$1.00 per crystal, the new net frequency seems very attractive. Crystals are obtainable from the Treasurer of the V.H.F. group, Royce VK4ZRH.

Mobile net operation will begin in October after the transmitter hunt on 30th September. Only one or two stations have been heard working at night in Brisbane. The new net frequency should allow more interference-free operation at night on the 6 metre band.

A number of new call signs have appeared on 6 metres of late. Those being heard include 4ZSC, 4ZDD, 4ZRP, 4ZPC. The question now being asked is "Does the Civil Aviation Dept. use minitran transmitters?" For those willing to turn their beams north the following may be heard on 6 metres of a Sunday morning, VK's 4ZCA, 4PU, 4SI, 4ZMC, 4ZKC. These stations can be classified as country DX.

The mobile night held early in September was a terrific success. Altogether a total of about 23 call signs were present at the starting point near Surfers' Paradise. The mobile night lasted until 2300 hrs. and at times mobiles were not being chased only by other mobiles! The V.H.F. Group in VK4 are very informal. Indeed a meeting (official of course) may be convened at any unusual time. The mobile night was not an exception to the rule. Two meetings were held during the night. At the second meeting it was decided to purchase some ammonium bifluoride for the use of the group. Have you ever seen a v.h.f. group call a meeting during a mobile night in the middle of Surfers' Paradise to decide to buy some ammonium bifluoride?

Personally, I can remember V.H.F. Group meetings being held in the middle of general meetings of the Institute. Such is the informality of the group. Have you heard that as a special service to the v.h.f. group, TVQO will now radiate a spurious signal on 53.955 mc.? 73, Peter VK4ZPL.

## SOUTH AUSTRALIA

At last the benign heavens have condescended to allow 6 metre operators from within the confines of VK5 to again work interstate via Sporadic E communication. The afternoon of September 10 last saw the monitoring of Channel 0 in Brisbane at strength 9 plus for hours on end by many VK5 operators. Consistent and sustained calling in the VK4 direction were to no avail as not the

slightest inkling of an Amateur signal was heard. However, according to the saying "All good things come to them that wait" an opening on that evening to VK1 and VK2 rewarded those who still had their ears "glued" to the receiver. Only one VK1 in 1ZCG was audible, at R5 S9 plus nonetheless, and approximately seven VK2's were available to the trumulous VK5 gathering. As usual the signal from Albert 2ZFB was the thundering blockbuster of old, which should at this stage tend to quieten the sceptical band opening forecasters who have been predicting the gloomiest of band openings for the coming season. The following morning, the 11th September, at 1000 hours C.S.T. the VK6 beacon was audible at strengths up to S7 eventually disappearing back into the noise at approx. 1130 hours. Only one signal from VK6 was heard, in that of VK6ZCM, who incidentally finished up being much sought after by the newly licensed Amateurs in VK5. Speaking of new licensees, VK5 is currently being inundated with them, which is beneficially adding to 6 metre activity in particular, with the birth to the bands. The latest additions to the 6 metre band have been 5Z1A and 5ZAU.

On the other hand though, 2 metre activity just doesn't exist at the present time. By activity I refer to serious and practical applications of the art devoid from net activities. However, some consolation is available in that Jim 5ZMJ from Port Pirie transmits a fine signal into the Adelaide area on Saturday and Sunday mornings on 2 metres, which is the only time that Jim has the opportunity to get on the air without his naive neighbours complaining about t.v.i.

However, with the coming DX season promising to be all as good as previous years, the chances of scoring an exotic 2 metre DX contact should create increased activity in the ensuing months.

So until next month, when I look forward to detailing all the DX heard and worked by the VK5 fraternity. 73's, Colin 5ZHJ.

## WESTERN AUSTRALIA

As usual for this time of the year the level of activity on the v.h.f. bands is not particularly high and the bulk of operating is being done on the f.m. and a.m. nets on 6 metres. For the information of those in other states the main net frequencies are as follows: 6 metres f.m., the main channel is 52.856 mcs. with about 30 mobiles and 16 base stations capable of operating here. The secondary channel is 52.525 mcs., however, this is not often used and only relatively few stations have crystals for this channel.

6 metres a.m.: The main channel here is 52.584 mcs. with about 15 units at present in use. There are several other frequencies in common use in VK6 but the number of stations using these is not great and could scarcely be referred to as nets.

There is negligible activity on 2 metres in VK6 and there are no established nets in operation on this band.

A v.h.f. scramble was held on Sunday, the 18th September, and quite a high level of activity resulted, thus proving that given the incentive there is a large number of Amateurs capable of operating on the v.h.f. bands. The last fox-hunt was held on Saturday, 24th September, and run by Graham VK6ZDB and David Priestley and even though the aerial system was faulty the hunt was deemed successful. The winner was Tony VK6ZDT, who made the 250-mile trip from Albany for the week-end.

Andrew VK6ZCN, formerly from Bunbury, has now been transferred to Exmouth about 800 miles north of Perth and he hopes to be set up and operating in the near future on both 6 and 2 metres. 73's, Graham VK6ZDB.

## Publications Committee Reports

At the October meeting correspondence was received from VK's 2QA, 2ARA, 3UG, 3ZOM, 3ZRY, 4ZAE, 4ZBV, 5NN. Technical articles were received from 2PY, 2QL and 3AEE.

The proposed V.H.F. issue of "A.R." has been postponed, as the technical articles promised have not yet arrived, but they are in course of preparation and we anticipate the issue will be published early in the new year.

A large number of "A.R.'s" are being returned each month due to addressees not notifying change of address. Divisions are requested to check their mailing lists carefully before advising the non-arrival of the magazine.

The Call Book is running a little behind schedule, but it is still expected to be ready well before Christmas. Due to the increase in paper and printing costs, the committee has been forced to consider what additional material will be included and what will be omitted.

# A LARGE RANGE OF TRANSMITTERS, RECEIVERS, TEST GEAR, AND DISPOSALS RADIO PARTS AVAILABLE

- ★ **TRANSCIEVERS, TR1986-7**  
115-145 Mc. Employs heterodyne exciter in tx. TT15 p.a. Single xtal locks Tx and Rx on same frequency. In-built modulator. Supplied with 4.8 Mc. xtal. \$30, circuit \$1.
- ★ **MARCONI TF1101 R/C OSCILLATOR**  
20 c.p.s. to 200 kc., 1% distortion, current model. \$240.
- ★ **SR550 DUAL CONVERSION COM. RECEIVER**  
160 metres to 6 metres, Amateur Bands only. 3.5 Mc. xtal band edge marker, xtal supplied, product detector for s.s.b. \$240, 10% discount for cash.
- ★ **SCR522 V.H.F. TRANSMITTER/RECEIVER**  
100-150 Mc. Complete with tubes, \$28.
- ★ **PERSPEX SHEET**  
1/16 inch thick. Size 4 $\frac{3}{4}$ " x 16". \$1 per sheet.
- ★ **COMMAND TRANSMITTERS**  
4-5.3 Mc., 5.3-7 Mc. Complete with tubes, \$15.
- ★ **TR3624 TRANSMITTER/RECEIVER**  
Approximate frequency, 200 Mc. Contains 46 miniature tubes, \$30.
- ★ **3J160E HIGH POWER TRIODES**  
120 Mc. full ratings. Heater 10v. 29a., anode max. volts 3000v., anode max. current 1000 mA., r.f. output 2150 watts. \$8 each.

## WANTED TO BUY

Communication Receivers, Test Equipment, etc. Call, write or phone. Equipment inspected and picked up at your convenience any night or week-end.

- ★ **VALVES**  
EF50, 20c ea.; 7C7, 10c ea.; CV131, 6CQ6, 50c ea.; 6AC7, 20c ea.; 6AL5, 20c ea.; 6C4, 6AM5, 50c ea.; QQE03/12, \$2 ea.
- ★ **SIGNAL GENERATORS**  
TE22 Audio Generator, freq. range: sine 20 c.p.s. to 200 kc., square 20 c.p.s. to 25 kc., in four ranges. Output, 7v. p-peak. Output impedance, 1,000 ohms. Price \$42.
- ★ **METERS, P25 TYPE**  
0-500 uA., \$5.25; 0-100 uA., \$6.95; 0-1 mA., \$4.50; 0-10 mA., \$4.50; 0-50 mA., \$4.50. Full range of Meters and Multi-Testers available.
- ★ **CO-AXIAL CABLE**  
UR70 72 ohms, 3/16 inch diam., in 27-yard rolls, \$2 plus 75c pack and post. In as-new condition.
- ★ **RAIB COMMUNICATIONS RECEIVER**  
150 Kc. to 15 Mc. in six bands. B.f.o., etc. Genuine original condition, with a.c. power supply, \$70.
- ★ **TRANSISTORS**  
Brand new. OC72, OC44, 2N132, OC66, OC45, 80c each. AT1138 Power Transistor, 30w., Class B, \$3. Also Diodes: OA71, OA81, OA95, 35c each.
- ★ **SR700A TRIPLE CONVERSION COM. RECEIVER**  
80 metres to 10 metres. 1st and 3rd oscillators xtal controlled, 3.4-4.0 Mc. tunable i.f., selectable sidebands, 85:1 geared dial, v.f.o. output for transceive operation, selectivity: 0.5, 1.2, 2.5, 4 kc. Internal 1 Mc. xtal calibrator (xtal supplied). Undoubtedly the finest receiver ever to come out of Japan. \$500, 10% discount for cash.
- ★ **MILLER 455 Kc. PRE-WIRED I.F. STRIPS**  
Comprises two i.f. stages, ceramic filter, diode detector, 55 db. gain, NPN silicon transistors, d.c. requirements 6v. d.c. 2 mA., size 1 $\frac{1}{2}$  x  $\frac{1}{2}$  x  $\frac{1}{2}$  inch. \$8.70 inc. tax.
- ★ **TR10A MULTIMETERS**  
100,000 ohms per volt. Ranges, d.c. volts: 0.5, 2.5, 10, 50, 250, 500, 1K.; a.c. volts: 2.5, 10, 50, 250, 1K.; d.c. current: 10 uA., 1 mA., 25 mA., 250 mA., 10 amp.; resistance: 20K, 200K ohms, 2 megohms, 20 megohms. To clear, \$25.95.
- ★ **POTENTIOMETERS**  
Wire wound, 40c each; carbon, 25c each.
- ★ **RESISTORS**  
 $\frac{1}{4}$  watt, I.R.C., Welwyn, Eire, Ducon, Philips, \$2 per 100.
- ★  **$\frac{1}{2}$  H.P. 2-STROKE MOTORS**  
Ohlsson and Rice. Brand new, just imported from America. Weighs only 5 $\frac{1}{2}$  lbs. 6,300 r.p.m., supplied with 3:1 reduction gearbox, output 2,100 r.p.m. Ideal for driving Alternators for Field Days. Fuel consumption 1 pint per hour. \$30.

## ANY QUERIES

Beginners are welcome, ask Jim and Laurie Gardiner any questions. They are Amateur Radio operators and will be only too pleased to assist.

- ★ **CRYSTALS**  
Personal shoppers only, \$1 each.
- ★ **SPECIALS**  
3AP1 c.r.o. tubes. New in cartons, \$1.25.  
3000 type Relays, 50c each.  
Inter-Office Phones, 15-station type, \$4 each.  
7-pin skirted Valve Sockets, P.T.F.E. insulation, silver plated, only 20c each, c/w. shield.  
Speaker Transformers: 7000 ohms to 2 ohms; 10,000 ohms to 3.5 ohms; 50c each.  
9-pin skirted P.T.F.E. Valve Sockets with shield, 50c each.  
Irish Recording Tape, Mylar Base: 150 ft. x 3 in., 75c; 900 ft. x 5 in., \$2.75; 1150 ft. x 6 $\frac{1}{2}$  in., \$3.50; 1800 ft. x 7 in., \$4.75.  
3 uF. 1000v. d.c. Block Capacitors. Only 25c each or \$2 per dozen.
- ★ **MINIATURE CAPACITORS**  
New shipment. 600 v.w. Values: 0.001, 0.02, 0.005, 0.0005, 0.0002, 0.0001 uF. \$2 for 80, plus freight.

ALL ITEMS FREIGHT EXTRA

# UNITED TRADE SALES PTY. LTD.

280 LONSDALE ST., MELBOURNE, VIC. (Opp. Myers)

Phone 32-3815



# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL QSL BUREAU

The A.R.R.L. advise the following QSL Bureau changes effective immediately:—

W3, Jesse Bleberman, W3KT, RD1, Valley-hill Rd., Malvern, Pa., 19355.  
W5, Hurley O. Saxon, K5QVH, P.O. Box 9915, El Paso, Texas, 79989.  
W9, Ray P. Birren, W9MSG, P.O. Box 519, Elmhurst, Ill., 80126.

W4GYF forwards details of the Potomac Basin Award and also the Twin Counties Award. Details of both awards may be obtained from this Bureau.

Tom Lelliott, VK3AZW ex-VK3ZW, on a second world tour spent 14 days with his old friend Chuck, W9IHN, at Suring, Wisconsin, during October. Albert Zander, VK3PG, on the tail end of his world tour, is currently enjoying a comprehensive bus tour of U.S.A. and Canada. While in N.Y.C. Bert called on Al, W2CC.

Tops member G2AOL, Sam Hall, presently in Australia, seized the opportunity to meet fellow members VK3CX, VK3KB and VK3RJ.

The following U.S.A. Hams together with their XYLs visited the eastern mainland states of Australia during October: W1BIH (John Thompson); W1TX (Roy Fosberg) and W2ADE (John Doremus). Owing to a tight touring schedule time only permitted brief contacts with several F.O.C. members. W1BIH took out the call sign VK2BIH, and was anxious to give this call an airing from one or more VK stations.

—Ray Jones, VK3RJ, Manager.

## NEW SOUTH WALES

The September monthly general meeting of the VK2 Division on Friday evening, the 23rd, had an attendance of about 60. The President, Tom O'Donnell, VK2OD was back in the saddle again following his indisposition of the previous month, and after the usual preliminaries he extended a hearty welcome to Don VK5ZDZ and Mr. Frank Cook, of the Ionospheric Prediction Service.

The lecturer for the evening, Mr. Norman Burton, had as his subject "A Look at the History of Radio," and with the aid of slides he took his listeners back over 60 years to the first experiments of people like Marconi.

These days there probably would be no one around who would give a second thought to working DX with a crystal set, but in those early days there was very little choice in the equipment available, with spark gap transmitters and crystal detectors being the usual set-up for many years. Prior to World War I it was quite common for regular communications over distances up to 3000 miles or so, using the long-wave bands anywhere up to 30,000 metres or more.

Mobiles in the audience must have been taken aback when they saw a slide of the first attempt at this section of the art. It is hard to describe the kind of vehicle used, but we would like to see someone try it out on a modern day foxhunt. Mobile marine was not overlooked, either, with two men in a canoe, complete with the bulky equipment which included a large horn speaker like those used on the old Edison phonographs. As the lecturer remarked, the most marvelous thing about the whole business was that the canoe didn't sink.

Unfortunately, Mr. Burton had received a batch of slides too late for inclusion in that evening's talk, as a result of which he was forced to conclude his tracing of radio history in the middle 1920s. There were a few shots of modern ships' transmitters and the radio room as used by a well-known shipping line, and these served to illustrate just how far maritime communications had progressed in the past half-century.

In moving a vote of thanks to the lecturer, Bill Lewis, VK2YB remarked that although Mr. Burton had displayed such a vast knowledge of the history of radio, he had no connection with it in his everyday life, being a chemist by profession. In addition to his interest in radio history, he had a considerable knowledge of receiving techniques, and had also become very proficient in reading c.w. so that he could follow transmissions from shipping. It is to be hoped that a further talk by Mr. Burton will be arranged for some time in the future.

In the absence of Syd Molen, VK2SG (the QSL officer), Ted Whiting, VK2ACD reported that cards handled for the month totalled 6939, including 3463 inwards and 3476 outwards.

Bert Hayes, VK2AGW said that while overseas recently he had been questioned by British Amateurs about the Division's QSL Bureau. It appeared that these Amateurs had been warned over the air by certain VK2 operators that it was useless sending cards through the VK2 Bureau, which, they said, would not deliver cards to non-members of the Institute. Bert said he was raising the matter because he felt that the Institute's image would suffer overseas if these individuals continued to spread such stories.

Other speakers agreed and said that they had heard these statements being made on the DX bands.

It is very difficult for the average person to understand what goes on in the minds of people like this. Here we have an organisation set up purely for the benefit of the Amateur Radio movement, with unpaid volunteers giving up their time, for years on end in many instances, providing services for members—and, in the case of the QSL Bureau, for non-members as well.

The facts are, of course, that the VK2 QSL Bureau will handle cards for non-members on payment of a small fee and provided a stamped addressed envelope is left with the QSL officer.

What more could be expected by these individuals? Perhaps a special card-delivery service, free and without any effort on their part. We would remind them that in some overseas QSL Bureaux, cards not collected by non-members after a certain period are destroyed. In our book a non-member should not be entitled to any consideration. However, in view of the fact that they are catered for by our QSL Bureau, one would certainly be pardoned for expecting that this service be received graciously instead of wingeing and deliberately giving a false impression overseas.

No one would deny that faults have occurred in the past. Indeed, we would like to hear of any organisation—especially a voluntary one—where mistakes have never been made. What we are objecting to is untrue criticism by people who are not entitled to criticise at all.

If those concerned ever read these notes—let's hope they do—may we ask do they really think they would still be using the present frequency bands if it were not for the existence of such organisations as the W.I.A.?

Tom O'Donnell, the VK2 Divisional President, informed the meeting that he would take the matter in hand. He has asked us to state that if anyone—member or non-member—feels they have just cause for complaint about any section of the Institute's service, they should write either direct to Council or go along to a monthly general meeting and state their case. They should first, however, be very sure of their facts.

We regret to report two further Silent Keys from among our members—Ralph Miller, VK2ARM and Gordon McLeod, VK2ADC. One minute's silence was observed in their memory and that of Vic Holmes, VK2AKP, whose passing was recorded last month. Ralph Miller had been a commercial operator before taking out an Amateur ticket some years ago, since when he had been active mainly on v.h.f. Gordon McLeod played an active part in flood emergency communication work during the 1950s. He was formerly a member of the Royal Australian Navy, and was a shipmate of the late Bob Winch, VK2OA.

A visitor to these shores during September was Wayne Green, W2NSD, publisher of "73" magazine, who at the moment is making a tour that will take him to many countries. Naturally, the main purpose of the tour is to

gain first-hand information on the state of the Amateur Radio movement. Before taking his departure on the Tuesday morning, Wayne was met by the Divisional President, Tom, VK2OD and entertained by several well-known members, including Mac, VK2ZH, Hebe, VK2AOK and Pierce, VK2APQ. The latter recorded an interview with the visitor and no doubt we will read all about it in a future issue of a certain publication.

The only general business before the meeting was in connection with memorials for deceased members who had given outstanding service to the Institute. This has been somewhat of a problem for a long time and the present Divisional Council sought expressions of opinion from members. Everyone appeared to agree that we should avoid cluttering up the meeting hall with plaques, etc., which would turn the place into what some speakers described as a mausoleum. One suggestion was a memorial book with names and other particulars inscribed, while another was for a plaque to the memory of all who had worked for the Institute—past, present and future—with no names mentioned at all. No finality was reached and Council will go into the matter further and arrive at a decision.

In the Youth Radio Scheme department, the Supervisor (Rex Black, VK2YA) would like to hear from someone who is journalistically inclined and willing to write Y.R.S. doings for publication in "Amateur Radio." It is on the cards that Ken Mattel, VK1KM will not be in a position to do so much longer, and it is most important that this section of our activities shall continue to be publicised. Rex reports an excellent result in the recent Elementary Certificate examination conducted by Mr. Doug Williamson, Manual Arts Master at Miller High School, near Liverpool. All 21 candidates passed. Roger Davis, VK1RD is to be heartily congratulated, for two of his Postal Group pupils, Eric, Gauja (98%) and A. Klason (98%) gained highest marks and the two O.T.C. prizes. In addition to these there were boys from Marist Bros. Matland; Lynneham High School; Canberra Radio Society Youth Group; Marist Bros., Pagewood; Grif-fith High School, Ryde High School, and Canterbury District Scouts' Radio Club. All candidates have received transistors from A.W.V. and resistors and capacitors from S.T.C.

Our northern members are reminded of the combined VK4/VK2 Family Picnic ("Famfest" is the term for it), to take place at Kings-cliff on November 20. We hope all those within range of this event will make it a "must," so that it will be an even greater success than it was last year.

We heard during the month that Ron VK2ALR and Ern, VK2EH and their good ladies were enjoying a Pacific cruise. This should be just what the doctor ordered and we hope they had a good time.

Last month's notes mentioned that a theatre party had been arranged for September 8 to see the film "My Fair Lady." In spite of some rain on the night, 102 people saw the film and of these, 71 stayed for supper afterwards. Harry, VK2AEC and his family, from Grong Grong, took out the hours for the longest distance travelled to see the show. Everyone appeared to enjoy the evening and at the first opportunity we will organise another party.

We would like to remind all those who would like to take out an Amateur ticket, and perhaps are having trouble with their theory, that the N.S.W. Division conducts personal classes at Wireless Institute Centre, 14 Atchison St., Crows Nest. Morse code instruction is also given for those after their full licence. A new set of classes will commence next February, and if you drop a line to the instructor, Mr. Cec Bardwell, at the Centre, he would be pleased to advise you.

In view of the recent move to use the word "hertz" in place of our old friend "cycles per second," an item in August issue of "QST" magazine makes rather interesting reading. According to this publication, opinion on the wisdom and need for the change is not by any means unanimous. While some U.S. magazines, instrument manufacturers and scientific societies have changed to "hertz," on the other hand some government agencies feel an obligation to adhere to the requirements in the I.T.U. Regulations, which state that frequencies shall be expressed in kilocycles per second and megacycles per second. The same article includes a rather humorous letter taken from the "R.S.G.B. Bulletin" of

## SILENT KEY

It is with deep regret that we record the passing of:

- VK2ADC—Gordon McLeod.
- VK2ARM—Ralph Miller.
- VK3ZB—Reg. Hollis-Bee (ex-VS2AG, VSIAG, VK3DL).
- VK3AVE—Arthur Dixon.

April last, the writer of which gives many reasons why he thinks there should not be a change. So far as we are personally concerned, after hearing some broadcast operators manfully trying out the new term we have come to the conclusion that, on phone, it sounds like an audible digestive upheaval brought about by an unfortunate culinary experiment!

Those who are in a position to attend our monthly general meetings are reminded that the next one will be held at Wireless Institute Centre on Friday evening, November 25. A lecture on "Solid State Sideband" will be given by Mr. Ted Banstead, an A.W.A. engineer. 73, Ivan VK2AIM.

#### HUNTER BRANCH

A most successful Convention was held during the October long week-end. The activities commenced on Friday night and continued until Sunday, 2nd October. At the monthly meeting members were invited to display and describe some item of home-built equipment and thus compete for a valuable prize; the Radiotron Designer's Handbook. The effort considered most praiseworthy by the judges and the votes of the audience was the 2 and 6 metre transmitter and modulator described by Bill VK2ZWM. However, because of the high standard of constructional work, magazine subscriptions to "Radiotronics" were awarded to the others taking part in the contest, Tony 2ZCT, Ian 2ZIF and Gordon 2ZSG. The only disturbing point is that only four members could present equipment for judging when perhaps all of us have built some equipment worthy of display since the last convention.

At the Annual Dinner there were fewer guests than usual but the convivial atmosphere at the hall was a fitting reward for those who attended and supported the branch. Among the guests were Cyril 2CH, who represented the N.S.W. Division, and Ray VK2HC. The welcome to the visitors was given by Bill 2XT and Ray 2HC proposed the toast to the Institute. The response was given by Cyril 2CH who commended the Branch on the standing it holds with the Divisional Council.

An interesting address, outlining the progress of Amateur Radio in the Newcastle area was given by Lionel 2CS, who spoke at length about activities of both past and present members. The dinner was a social and financial success and the choice of venue proved to be a wise one. In addition to a tastefully prepared programme and menu a large bundle of informative literature was presented to each of the diners.

On Sunday, 2nd October, the Field Day was held at the Bolton Point park. Attendance early was disappointing but by early lunch-time a representative crowd had gathered and

entrants for the events numbered more than six in each case. Once again Dave 2AWZ proved to be an outstanding competitor with a win in the second two metre hunt and an unbelievable score of 21 contacts in the half-hour afternoon scramble. The 40 metre transmitter was unfound although it produced a very loud signal throughout the hunt. Winner of the afternoon 2 metre hunt was Greg Partridge, the 2nd op. of 2VU. In addition to the mobile events there were two pedestrian transmitter hunts on 2 metres. These resulted in wins for David Fraser and Michael Korsch. David is a member of the Westlakes Radio Club while Michael is a Gosford member. Since the regulations regarding raffles have been relaxed, a raffle was conducted with a "Radiotron Designer's Handbook" as a prize. Much to his own and the audience's delight, the book was won by Otto 2SI and this and other prizes were presented at a short ceremony on the ground. At this time it announced that all proceeds would go to the I.T.U. Fund as a Hunter Branch contribution. So seriously does the branch consider the situation of international pressure on our exclusive allocations that a census of members was taken and all agreed on the direction of all funds towards the cost of representation at the all-important conference. It is believed that a sum of about \$40 will be added as a result of the field day profits. Another field day has been planned for Sunday, 4th December, and once again all profits will go to the I.T.U. fund.

Harry 2AFA has increased his activity since being visited by Paul Linsley, a very keen short wave listener. Apparently Paul paid Harry several visits and by some means or other was able to convince him to get back on the air. The added activity on the bands caused by irregular operation becoming regular can only help the cause of the hobby. There are some who would have us out of the r.f. spectrum altogether if a case could be brought for our exclusion. So help preserve the hobby by operating as frequently as possible on as many bands as you are able. Jan 2BJO has become the proud owner of a high power rig originally owned by Jack 2KQ. Jack now operates sideband exclusively and passed on the excellent rack-mounted gear to Jan. Watch out for some high power shortly—thanks to Jack; Paddy 2AXU was heard on the air recently after a long absence caused by a failure of some power

supplies. And Jim 2AHT is widening his field by adding some local contacts. It is good to hear Jim on the air with the local boys and he certainly has a fine signal on s.s.b. Sherwood 2AJF, Len 2ZFD and Cyril 2CH recently hit the headlines with a picture in the "Herald" and as a result Sherwood has made a vow to be on the air by the time this appears in print. We'll see! Susan 2BSB and Charles 2ZLH are the latest to acquire carphones for 146 f.m., so there soon should be additional QRM on this frequency. And, perhaps best of all, "Bones" Bedford is applying for his licence while Bruce Morley is preparing for the big quiz. Good luck men—the sooner you are on the air, the better. And, as they say on the films, that just about wraps it up for now. Don't forget the November meeting on Friday, 4th, at the usual venue. Ian Pogson, of "Electronics," will be there and rumour has it that he will be talking s.s.b. Don't miss it. See you. 73, 2AKX.

#### CENTRAL COAST BRANCH

The last meeting of the Central Coast Branch was held on September 16. Lionel Doolan VK2ZLD, well known as an instructor at Gore Hill Technical College, gave a most interesting lecture on Printed Circuits which seemed to emphasise how apt the term "wireless" really is. He also presented an American film in colour and sound on making Printed Circuits. One of the comments heard repeatedly was about the difference between the American and Australian pronunciation of the word "solder." The American version comes out as "sodder."

The annual Field Day will be held at Gosford around the middle of February with all the usual attractions plus something new. Keep an eye open for the exact date which will be published in a few weeks.

The Branch Christmas Party will be held on December 7 at the new Bistro Restaurant in William Court, Gosford. A delicious smorgasbord dinner is planned, to be preceded by "punch," conversation, etc. 73, Mona VK2AXS.

#### SUMMERLAND AMATEUR RADIO CLUB

The bi-monthly meeting of the club was held at Lennox Head on 25th September. Members present were Gordon 2AGE, Graham 2GJ, Ted 2ZFS, Horrie 2ZES, John 2ZLO, John 2KA, Fred 2PF, Jack 2BGG, Lindsay 2ACO, Kevin 2ZSW, Ken 2ZKH. The main item of business

### VK2 DIVISION

#### CRYSTAL LIST

6100, 6142-5, 6185, 6235, 6275, 6315, 6362-5, 6405, 6450 Kc. \$1 each or 5 for \$4.00. They are in FT243 holders.

This completes the list from 3680 to 6450 Kcs. There are a few others in HC6U holders in ranges of 8, 9, 13, 14 and 25 Mcs. Details later.

Radio Equipment Store, 14 Atchison St., Crows Nest, N.S.W.

#### LECTURE TAPES

16. "Tally Ho." 7 Mcs. Fox Hunting, 1 hr. with slides, H. Burtoft, VK2AAH.

17. Cause and Chance Creation, 40 min. No slides. Prof. Monison.

18. Grid Dip Oscillators, 80 min. 15 slides. Bob Winch, VK2OA.

19. Balun Transformers, 2 hrs. 33 slides. Joe Reed, VK2JR.

20. "How does my Signal go?" 70 min. 19 slides. Frank Hine, VK2QL.

Details in August "A.R."

# BRIGHT STAR CRYSTALS

## FOR ACCURACY, STABILITY, ACTIVITY AND OUTPUT

Our Crystals cover all types and frequencies in common use and include overtone, plated and vacuum mounted. Holders include the following: DC11, FT243, HC-6U, CRA, B7G, Octal, HC-18U:

THE FOLLOWING FISHING-BOAT FREQUENCIES ARE AVAILABLE IN FT243 HOLDERS:—  
6280, 4095, 4535, 2760, 2524 Kc.

5,500 Kc. T.V. Sweep Generator Crystals, \$7.25;  
100 Kc. and 1000 Kc. Frequency Standard, \$17;  
plus Sales Tax.

Immediate delivery on all above types.

AUDIO AND ULTRASONIC CRYSTALS—Prices on application.

455 Kc. Filter Crystals, vacuum mounted, \$13 each plus Sales Tax.

ALSO AMATEUR TYPE CRYSTALS—3.5 AND 7 Mc. BAND.

Commercial—0.02% \$7.25, 0.01% \$7.55, plus Sales Tax.

Amateur—from \$6 each, plus Sales Tax.

Regrinds—Amateur \$3, Commercial £3.75.

CRYSTALS FOR TAXI AND BUSH FIRE SETS ALSO AVAILABLE.

We would be happy to advise and quote you.

New Zealand Representatives: Messrs. Carrel & Carell, Box 2102, Auckland.

Contractors to Federal and State Government Departments.

## BRIGHT STAR RADIO

LOT 6, EILEEN ROAD, CLAYTON, VIC. Phone 546-5076

With the co-operation of our overseas associates our crystal manufacturing methods are the latest.





was a notice of motion given by our president, 2ACO, to change the name of the club from the Far Northern District Radio Club to the "Summerland Amateur Radio Club." This was dealt with and the result was that we are now known as the "Summerland Amateur Radio Club."

Some apologies were received from members, namely Blue 2AEU, Harold 2AWH and Bob 2AAS.

A good day was had by all present and the next meeting, the annual meeting, it was decided to hold at the QTH of Lindsay 2ACO, our President, on the 25th November. Members please note this date and all roll up.

Band activity has not been very good, especially on the 3.6 Mc. net every Thursday night at 8 o'clock, so what about it chaps, blow the dust out of the rig, put some sigs. on the air.

Once again I am plugging for the Kings-cliff get-together on 20th November, so please make a special effort and attend, you will be assured of a good time.

The notes this month consist of mostly pleas and dates, promise I will do better next month. 73, George 2AEO.

## VICTORIA

### I.T.U. ACKNOWLEDGMENTS

Further donations received are as follows:—  
 \$8.00: P. Dettman, 3APJ.  
 \$5.00: L. L. McInnes, 3AMK; R. K. Smyth, 3AKS; A. K. Fielden, 3AKD; S. McIndoe, 3ATD.  
 \$4.00: G. S. Vincent, 3AGV; G. Luckman, 3ADL; J. A. Moran, 3ABQ.  
 \$2.00: J. A. Ferguson, 3AXL; D. Voight, 3ABC; E. Blake, 3ZHA; L. Foynter, 3ZGP; R. Chalmers 3ARO; R. Torrington, 3TJ; M. G. Foster, 3ZOL.  
 \$1.00: M. Lodge, 3JM; I. Smith, Assoc.; M. Dalton, 3DF; K. Duff, 3CV; E. C. Phillips, 3AEF; A. Lord, 3BE.

## EASTERN ZONE

Shortly 3RC will be moving to Stratford, and from all reports he is a keen v.h.f. fan and will be heard most likely on Channel A 2 f.m. Barry 3ZQC at Mirboo North, has moved in from Western Victoria and works at Ch. 4, is another 2 f.m. fan. Arch 3ZAT also works at Ch. 4 and has 2 f.m. and is attempting to get his Pye going on 53.032 Mc., the Tx is okay but the Rx won't receive. Joe 3TO is another recent arrival on 2 f.m., after many years off the bands, and Dave 3ZOZ has also come up on f.m. as well as a.m. Lee 3ZSS, of Moe, is a new member of the Amateur fraternity and is active on 2 a.m. What about giving him a call you 2 metre fellas.

Albert Cash and George 3ZCG are working on some super-regen. equipment for 432 Mcs. Albert hopes to go for his ticket in October, so all the best Albert. Sorry to report that there is no h.f. news, as I haven't had the time to listen to the 20000 hrs. hook-up on 80 of a Friday, because I'm down in the city all week and only have the week-end free.

I have been transferred from 3GI to the Antarctic Division and am doing familiarization courses before sailing to Macquarie Island in early December. I hope to take gear for most bands, 80, 40, 20 and 6 metres in particular, and s.s.b. at that if possible. Don't forget if you hear Macquarie don't forget to give a yell. Is there a volunteer to carry on this task of keeping the Eastern Zone on the map as far as notes go? I will endeavour to glean notes until the end of the year if anyone can send me some in rough form. George 3ZCG has supplied me with a goodly proportion of the v.h.f. news for which I am most grateful. 3UG.

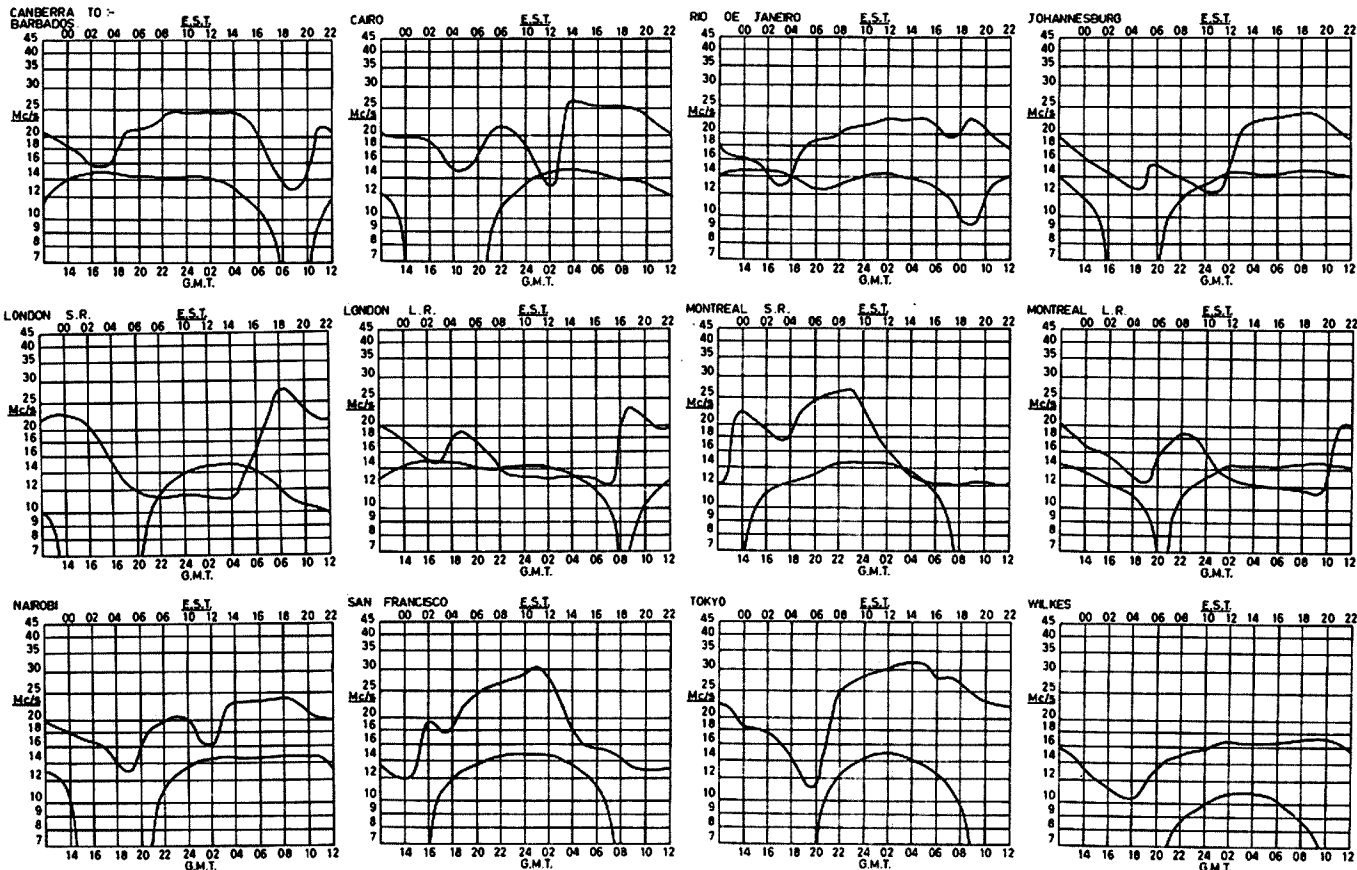
## SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division for September was held in the club-rooms to an attendance of members and visi-

tors well over the 70 in number, despite the inclement weather. Very little business, either Divisional or Federal, was discussed, although the Federal Councillor, Geoff. 5TY read out a letter sent to the VK2 Division protesting on their action over the new Federal Constitution, and judging by the comments which followed the reading, the members present thoroughly approved of its contents. Details were also given of the coming large-scale W.I.C.E.N. exercise which will be held over the long week-end of October, and will be the largest to date, with 24 stations participating in a v.h.f. net covering the area from Port Pirie to Murray Bridge. George 5RX then took over with the distribution of QSL cards, and after a short smoke-oh the meeting was handed over to Messrs. Judd and Farrell, from Tektronix Australia Pty. Ltd., whose subject was naturally oscilloscopes, and what oscilloscopes they were, making the old faithful 5BPI seem like the lace-up boot era. The first unit demonstrated was flat from d.c. to 50 megs, and locked on to complex waveforms like the caretaker's Alsatian elephant would like to lock on to the seat of my pants at the end of the meeting. Its unique features were demonstrated to an entranced audience, the double time base which allowed any selected portion of the trace to be brightened up for closer examination, fairly laying the audience in the aisles. Having showed the first unit's capabilities, Mr. Farrell then switched on the second unit which displayed some 5 cycles of a sine wave on the screen, casually mentioning that the frequency of the signal was 100 megs. This unit was capable of handling inputs of up to 870 megs. with a sensitivity of 2mv/cm, and with his audience still gasping for breath he then showed how a desired waveform could be stored on the screen for up to one hour on a half screen, whilst another pattern was being stored or displayed on the other half.

Having by now almost stunned the audience with his dexterity at the controls, the lecture was concluded by a film on the production of cathode ray tubes. The vote of

## PREDICTION CHARTS FOR NOVEMBER 1966



(Prediction Charts by courtesy of Ionospheric Prediction Service)





## PRINTED CIRCUITS AID AUSTRALIAN INDUSTRY!

Applications for printed circuits from Precision Windings in industry are growing daily . . . it's simply amazing how many leading electronic and design engineers specify "Precision Windings" boards. PW's photographic process does have many advantages . . . small numbers may be manufactured economically . . . definition and detail are crisp and clear . . . negatives are readily available for alterations . . . and tarnishing is prevented by a protective over-coating. Above all the PW process offers quality control at every stage of manufacture. This is why more and more industrial organisations are coming to Precision Windings for up to the minute technical advice and prompt, dependable deliveries.

### AND FOR THE HOBBYIST?

Don't worry . . . we're not neglecting our many friends who want a single circuit board. Send for our free folder on "How to prepare artwork" and for our price list. It matters little if you want one or a thousand boards . . . PW's price is most attractive. Many "Electronics Australia" designs are kept in stock and delivery is immediate. Special printed circuits are normally despatched within 7 days of receipt of your artwork. Artwork aids in the form of Solder Lands, Black Crepe Tapes, Clear Film and Transfer Letters are also available from Precision Windings at low cost. Write now!



52 Cambro Road, Clayton, Vic.  
Phone 544-7370

## WIRELESS INSTITUTE OF AUSTRALIA FEDERAL EXECUTIVE

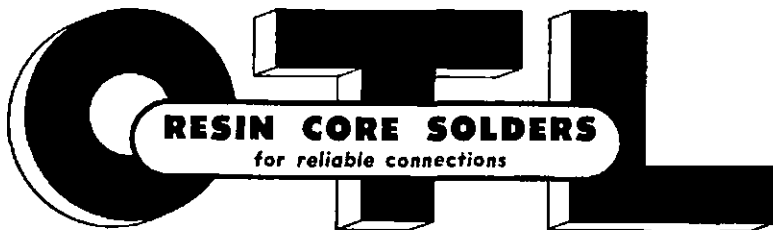
The Institute can now offer annual subscriptions to the following Amateur Journals:

- ★ "QST"—Associate membership and renewals, \$5.40.
- ★ R.S.G.B.—"The Bulletin" is only sent with membership of the Society. Send for application form and FREE sample copy of the R.S.G.B. "Bulletin," \$5.95.
- ★ "CQ" Magazine, \$5.20.
- ★ "73" Magazine, \$3.50.

R.S.G.B. Publications and A.R.R.L. Publications available.

Send remittance to Federal Executive, C/o. Box 36, G.P.O., East Melbourne, C.2, Vic.

## CHOOSE THE BEST.—IT. COSTS NO MORE



O. T. LEMPRIERE & CO. LIMITED. Head Office: 27-41 Bowden Street, Alexandria, N.S.W.  
and at Melbourne • Brisbane • Adelaide • Perth

## DURALUMIN, ALUMINIUM ALLOY TUBING

IDEAL FOR BEAM AERIALS AND T.V.

- ★ LIGHT
- ★ STRONG
- ★ NON-CORROSIVE

STOCKS NOW AVAILABLE FOR IMMEDIATE DELIVERY

ALL DIAMETERS— $\frac{1}{4}$ " TO 3"

Price List on Request

STOCKISTS OF SHEETS—ALL SIZES AND GAUGES

## GUNNERSEN ALLEN METALS PTY. LTD.

SALMON STREET,  
PORT MELBOURNE, VIC.

Phone: 64-3351 (10 lines)  
Telegrams: "Metals," Melb.



HANSON ROAD,  
WINGFIELD, S.A.

Phone: 45-6021 (4 lines)  
Telegrams: "Metals," Adel.

thanks was ably proposed by John 5KX, being carried with more than the usual enthusiasm by the members, most of whom had to be forcibly removed from the rooms at the end of the meeting by a new caretaker, minus any Alsatian. I can't give any finishing time, mainly because the time for the night flew so fast, but this I will say, anybody who missed this meeting, missed a beauty, and the programme organiser Ron 5KS deserves a special pat on the back for serving up such a dish.

Never see Leith 5LG at the meetings these days, in fact, it is so long since I have seen him that all I seem to remember of him is his machine efficiency and inborn ability for precise working. Now I know a certain VK5 who carefully filled out his R.D. Contest log-sheet, neatly addressed it to Perth, then very carefully put the envelope inside a parcel he was sending to Queensland and posted it away unconsciously. Now there is efficiency—Leith would never do a thing like that—or would he?—!!

This has been the season for colds, virus infections and what have you. Jack 5LN, heard on 7 Mc. the other evening had a cold, etc., etc., which would have licked any other form of winter infection hollow. When heard, he said that he was feeling a lot better than he had been feeling, and all I can say to that understatement of the year is that I would not have liked to have heard him when he was feeling any worse!

Athol 5LQ, the other half of the perpetual sked with Jack 5LN, however, was feeling in the pink when heard, in fact, I rather thought that I detected an air of complete resistance to colds, etc., etc., in his remarks. His later remark that he had been on the air the other Sunday for so long that the family had begun to think that he had left home, made me wonder just what their reactions would have been if this had been true. You tell me Athol!

Frank 5FJ heard commenting on the fact that he had been on 8 mx doing a little reading of the mail, as well as a few contacts. His comment that on 8 mx most of the gang appeared to talk for hours and hours was a little surprising. Why only on 8 mx Frank?

Was listening to Keith 5ZY the other Sunday on 7 Mc. Have not heard or seen him for some time, but from comments heard at various times from local stations I knew he was still on the job. We used to meet fairly regularly in the members' stand at the football once upon a time, but as the fences are getting higher, or perhaps the effort is too much for me these days, football is out!

Rex 5DO was another one to be heard the other Sunday on 7 Mc., the first time in fact I have heard him since his trip on sea, land and air to G land. I listened carefully to see if I could detect any trace of an Oxford accent, but nothing doing, still the same old Rex, thank you.

Twelve months ago to the day that Frank 5MZ was first taken ill, I happened to be in the vicinity of his QTH and decided to call in and find out at first hand just how he was getting on. His XYL answered the door and was tickled pink to tell me that he had now gone back to work, and was fighting fit, well, fighting anyway. Good news, Frank, if ever there was a battler, it's you.

Wayne Green W2NSD, editor of the well-known magazine "73," touched down at Adelaide Airport one evening this month, en route from Perth to Melbourne, and thence homewards to the U.S.A. The jet did not stop long in VK5, about three-quarters of an hour to be precise, but I took the opportunity on behalf of VK5 to extend greetings to him, and also to have a chat on current radio topics. I have always been intrigued with Wayne, the publicity both for and against never quite rang a bell with me, and whilst I would be the first to admit that it is difficult to form a solid opinion in such a short time, I cannot but say that he impressed me immensely with his knowledge of the radio world and also his intense enthusiasm for Amateur Radio, and after all, that is all that matters to me. I consider our brief meeting both an honour and a privilege.

Apparently as I write, Phil 5NN is jaunting around in VK6, judging by the telegram I received from him concerning the fact of Wayne W2NSD passing through VK5. What it is to belong to the idle rich!

It is either a feast or a famine. I heard a whisper that W2NSD would be passing through, but there my information ended. However, on the day of his arrival, first came Phil's telegram, closely followed by a letter from David 3QV with the arrival date, and last but by no means least, somebody rang from the airport to pass on the times of arrival, etc., and to top it off I received my copy of "73" with full details of the trip, together with full arrival times and flight number. I thanguyou—I thanguyou.

I notice 3UG calling my attention to his having the ideal anti-s.s.b. receiver. Just why he should consider that anything anti-s.s.b. would be of any interest to me I cannot for the life of me understand—ahem—however, I thank him for his interest in my welfare, and hasten to assure him that I feel for him due to the fact that he is somewhat dependent upon s.s.b. for news in his column. When that day comes for me brother, it will have to be ring down the curtain I can't write tonight!

Also notice that Bob 4RW comments on the horrid winter weather in VK3 at present, and asks me to note! Cut it out, Bob, don't you think I am in enough strife with VK3 at the moment, without you putting my weights up with YE ED!

Anybody outside VK5 who read the August copy of the VK5 Journal could be forgiven for thinking that old age is the present theme of the VK5 Division. Firstly Harry 5MY wrote a paragraph or so on the subject of "It is later than you think," which after reading I immediately rang my insurance office and checked up to see if my policy was well and truly paid up, then Murray 5ZQ launched out on the back page with an ode entitled "A prayer for those growing older," definitely written with his tongue in his cheek and both eyes on me! and to finally sink the ship, Geoff 5TY in his Federal Comment insinuated that, and I quote: "Although Warwick 5PS gets abused for asking awkward questions, at least he makes the other members think, keeps Council on their toes, and will probably get his lughole (whatever that coarse remark may mean) thumped one night!" unquote. Flattery, flattery, that is all I seem to get lately. Some are borne to fame, some achieve fame, etc., etc. Just think of it—I keep Council on their toes—Oh yeah—I would hate to tell you where they all hope to put their toes one day, if ever they catch me unawares!!

It is fast approaching renewal of subscription time for QST-CQ-73. It would be very good if it was possible to renew these subs. through the W.I.A., instead of only QST. I receive the three magazines above-mentioned, no I am not a plutocrat, my XYL and daughter do the right thing for my birthday and Christmas, but it is hardly likely that I would renew QST through the W.I.A. and then go to the trouble to renew CQ and 73 elsewhere. What about it, my buddies from VK3? Surely it can be done, or am I behind the times with my information. (You're behind the times.—Ed.)

This month has been a very dangerous month for VK5—My XYL answered the front doorbell about 9 p.m. the other night, to be confronted by three rather seedy looking customers, one carrying a black box, who proudly claimed to be VK3's and asking for Pansy. My XYL, who has rehearsed the panic procedure for such an occasion many, many times, immediately pressed the red button situated strategically just behind the door, marked "action stations," and then went into her act like a veteran. In a voice intended to inspire fear, she said, "Mr. Parsons is at the moment having his nightly training session with his pet lions and tigers, after which he will practice for an hour or so at Judo and Karate, but if you care to come in and wait, I am sure he will be pleased to see you." Apparently VK3s don't frighten easily, because Fred 3YS—David 3QV and a young man of very presentable appearance in Greg., moved in as a body, black box and all, and took their seats in the portion of the tent marked "sitting room." Joking aside, they turned out to be good fellows, and after a short chat, they took over the shack, closely checking the receiver for labels like "upper and lower"—"product detector"—etc., etc., and then went into a demonstration of the black box which turned out to be none other than a FT100, which snared a VK6-VK4—and a VK5—in a few seconds on 7 Mc. Much more could be said on this subject, but in deference to my army of a.m. followers I will refrain, only saying that the demo, was too convincing for comfort, and my XYL told me later that all she could see of me during the later inspection of the innards of the FT100 was a pair of slippers sticking out of the little black box! Anyway, somewhere in the wee small hours the visitors departed, well pleased with the unsettling effect their demonstration of "The Thing" had been to me, and the XYL summed up the position later when she said "I think you have been leading me up the garden path about VK3, and also about that duck business!" "I quite enjoyed their visit, and I certainly never heard any duck-talk!" How cunning can a VK3 be? By the way, both ends of my centre-fed Zepp were decidedly drooping upon inspection next morning, probably from shame and disgrace! and this only goes to show just what "The Thing" will do to a good and faithful centre-fed Zepp—shame upon me—

Bob 5RI still has his radio-controlled gates on his estate. It appears that the radiator grille on his vehicle, suitably insulated, makes an extra good radiator at the required frequency. I was boasting to a non-Amateur friend of the ingenuity of the average Amateur, but he turned out a bit of a nark, he asked me what if the vehicle backed up to the gate. Wouldn't it?

Uncle Tom 5TT at the age of 82 years, has gone back to school two nights a week, and the radio school at that. I suppose I could say "carting coals to Newcastle," but he tells me that he realises that there is a lot he does not know, and this is a good way to find out. I salute you O.M.

The paragraph in the August issue of the magazine regarding Cyril Malpas, and the tag-line asking Roy 5AC if he remembered his call sign, if any, succeeded in smoking Boy out into the open, so much so that he sent me a welcome letter containing a lot of details of the early days in VK5, most of which will come in very handy as copy for the future. Many thanks, O.M., good to hear from you again.

Vern 5VB, the Admiral to you, has recently changed his vocation, his main reason being that he thought at his age it was getting too hard. He is enjoying the change, and I noticed that his famous Quad was written up in the equivalent of our VK5 Journal which is printed in VK6. What it is to be famous!

Les 5NJ has fitted another 10 watt a.m. rig in his car, and has now become neither fish nor fowl, using as he does both modes of communication, to wit, s.s.b. and a.m. Apparently my preaching on "The Thing" has reached the heart of at least one sinner!

Being of such a modest and retiring nature, it is only natural that few in VK5 realise that among my many accomplishments is that of inventing. Reading at breakfast recently of a new gadget in Japan which switches circuits on and off by a couple of hand-claps, I leaned forward on the table and said to my better nine-tenths "we were born too early in the century." On her querying this profound remark, I told her of my flair for inventing—a fact of which she was apparently unaware, judging by her caustic comment on the tap in the bathroom that has been dripping for weeks—and proceeded to tell her that I wished that the above-mentioned hand-clapping gadget had been around when we were court-ing. "Just think of it," I said, "you and I sitting on the couch in the drawing room, me giving a couple of brisk claps of the hand, and out would go the light." Yum-Yum. Giving me that look that has now become so familiar over the past forty years or so, my XYL simply said, "I would have had an invention to lick that one." "Just two brisk slaps on the face and the lights would have come on again immediately!!" I don't know, nobody seems to appreciate my inventive ability!! 73 de 5PS—PanSy to you.

## WESTERN AUSTRALIA

Well, another moon has passed with alarming alacrity and already Christmas cards are on sale and by the time you read this screed the old gentleman with the white whiskers will only be seven or eight weeks away.

My prize this month for the most surprised gent. in VK6 Division goes without doubt to Jim 6RU. The reason for his surprise (a pleasant one) was the unexpectedly large number of interested members who turned up to learn Morse after Jim had offered his services as instructor. A very gratifying result and it certainly shows that c.w. still has some attraction. Hope the numbers are just as large or larger at the end of the course.

As the worthy steeds drew my chariot around Dog Swamp 't'other day my fleeting glance perceived some additional hardware up on the hill at the QTH of Dennis 6AW. At first glance I took it to be a "Halo" and observed as much to those members of my family who accompany me on such occasions. Usually my remarks regarding antennae and towers, etc., meet with stony silence or hissing rebuke. However, I was somewhat stunned when one of the team quipped, "Yeah, it probably belongs to his guardian angel." What say, Dennis? It's really a "Big Wheel" or some such I suppose.

Once again we have news of an intrepid traveller venturing on to this side of the rabbit-proof fence. Welcome to George VK5CV and XYL who have been soaking up the sunshine in the Wild Flower State. WOT SUNSHINE?? Understand that George was present at a small gathering of local Hams while staying in Perth. Among those present were Dave 6WT, Bill 6WY, Glad 6FG. Hope your tour was successful, O.M.

It must be about this time every year when wives assert themselves and demand a forty-hour week and three weeks' annual leave,

etc., etc. That is judging by the number of Merry Mobiles and Holidaying Hams that have come under my "Eagle Eye." Woops, no advertising—please.

Worked Pat 6PH portable at Geraldton and Noel 6MF portable at Bunbury recently and heard that Cole 6CS was operating from the mouth of the Murchison (where, incidentally, he was joined by George VK5CV). Called John 8ZW who was operating portable at Kalgoorlie, the other Sunday morning but he disdained to reply—probably too busy prospecting I suppose. Thought the Kalgoorlie area had been unusually quiet for some time but at last the secret has filtered through. Doug 6EP has been away, holidaying in VK5 land. I'm told. Hope you had a good trip Doug.

Another of my cloak and dagger boys staggered in to report that George 6GM has been holidaying with Basil 8BS and may at a later date venture further south.

I must admit that during my long service leave I, too, ventured south for a very brief visit and could not pass through Waroona without visiting Bob 6RG. It is my happy duty to report that Bob is sporting a new receiver these days and appears very happy with his new purchase. Together with the fact that Bob has recently given his beam a facelift (or whatever it is that one gives beams) with some able assistance from Tom 6TH we can expect big things from this neck of the woods.

Sufficient time has elapsed and NOW IT CAN BE TOLD. You know how versatile most Hams are? Well, Vic 6VK is no exception, and my spies tell me that he has, unknown to most, been experimenting with flying saucers. His greatest success came recently when a prototype, guided by remote control, lifted off its launching pad after several minor delays. Amid hand-claps and cheers of encouragement from the neighbours it successfully negotiated the dividing fence and settled gracefully to earth on top of a high-standing clothes hoist, which it conveniently flattened. Served it right for looking so much like an X beam. (The hoist that is—not the flying saucer.) Seriously though, I understand that the garage roof has been repaired and securely fastened down where it can never again threaten man or beast, or clothes hoists!

News to hand from one of my friends in VK5 (yes, thank you, I do still have some friends) who had just had a contact with Bob 6KN. Bob was operating 40 metres mobile in the fair city of Melbourne. His many friends in the west will be pleased to know that he is still alive and kicking.

At the time of tapping out these notes Don 6HK is in hospital with a fractured hip. I understand that he was unfortunate enough to slip on a wet road and came down rather hard. We wish you a speedy recovery Don—just think of all the hours you can idle away in front of your rig while you are convalescing.

Football fever is raging at its peak just now and one-eyed supporters are quite commonplace. Black eyes, too, are not entirely out of the question. I wonder. The cause of my head-scratching is Herb 6XO who, according to my informant, is doing a Dr. Cyclops. Herb insists that he walked into a

bramble bush—sorry, an Oleander, which did him deadly damage. Any witnesses, Herb?

Imagine my surprise recently when a very strong sideband signal crashed its way into my shack. The voice sounded familiar, but not in the sideband mode, yet sure enough it was Jack 6TX all right. Knocking off the DX in fine style, too. Looks as though I'll just have to get my linear working.

It is with deep regret that we record the passing of the XYL of Clarrie 6CF. Sincere sympathy is extended to you and yours at this time, O.M.

Well fans, that just about winds up my "walk-about-talk-about" for this month, so cheers and good DX till next time.

73, Ross VK6DA.

## TASMANIA

September was a great month, something happened at our general meeting that is a rather rare occurrence, namely, the unanimous election of Terry 7CT to the status of life membership. A brief summary of Terry's outstanding service is: Councillor 9 years, Vice-President 3 years, Publicity Officer for 1 year, a member of the Distribution Committee 2 years, Broadcast Officer 5 years, A.O.C.P. class instructor both at Technical College and the clubrooms for 8 years, and at present is a Councillor, Vice-President, Treasurer, A.O.C.P. instructor, and an active Amateur, besides being a very busy businessman, with a home and family to look after.

In response Terry told the meeting that he had only done what was his reflection on life, "If you are involved in something, then become really involved and contribute something," in other words the old adage reads once again, "As you sow so shall ye reap."

One thing that is coming up and won't be over till the end of the month is our Annual Hamfest at Campbelltown on the last week-end of this month, that is the 26th and 27th in case you haven't a calendar. I understand most people will be catered for in the way of foxhunts and such capers, also that quite a number are going up for the whole week-end, and that includes Friday night. So bring the family and pitch your tent and "go bush" for the two days and relax.

A "May-day" was sent out one recent Sunset morning, when your disposal committee found they had too much stuff to move in too short a time. Reg. 7ZAO came to light with his car and trailer and Barry 7ZBR met the others at the clubrooms, shortly after saw John 7ZJG, Tim 7ZTM, Phil 7ZPT and associate Brian roll up, and the number of trips up those two long flights of stairs was considerably reduced, and sorting and stacking became almost a pleasure, real production line technique, thanks chaps for your response.

I am assured by the little bird who hears all, and occasionally passes on little bits of news to yours truly, that a certain Launceston gentleman (even though he's a side-bander) isn't giving the game away at all, so just to write him to the rumours, I'll tell you it's just the opposite, in fact he's on for getting a "ave hand duck talker," admittedly he's having a short spell, but let's face it, he's been bitten by the bug for long enough not to give up completely, on the contrary, he'll be bigger, brighter and better (?) than ever.

See you at the Hamfest. 73's, Geoff 7ZAS.

## HAMADS

Minimum 50c. for thirty words.  
Extra words, 2c each.

Advertisements under this heading will be accepted only from Amateurs and S.w.'s. The Publishers reserve the right to reject any advertising which in their opinion, is of a commercial nature. Copy must be received at P.O. Box 84, East Melbourne, C.2, Vic., by 5th of the month and remittance must accompany the advertisement.

BOOKS: Contents of Library of the late Allen Stow, VK3AS. Beautifully bound copies of "QST," 1927 to 1944 incl. and 1953 to 1963 incl., plus unbound copies 1945 to 1952, 50, O.N.O. the lot. Plus many reference books mainly of radio historical nature. Contact Leo Fowler, VK3ZGF, 16 Bourne Road, Glen Iris, Victoria.

DRAKE 2B Receiver, excellent condition. Includes 230/110v. transformer, speaker, extra 10 metre xtal and instruction manual. J. Bail, VK3ABA, 20 Relow Cres., Box Hill North, Vic. Phone 89-8505.

ESTATE of the late Gordon McLeod, VK2ADC: 4-el. 10-15-20 M. Mosley type beam, 26 ft. boom, with rotator-indicator unit and cables, \$100. Perfect improved AR-88 Receiver with speaker, excellent on Ham-bands for a.m./s.s.b./c.w., \$200. Heath V.t.v.m., \$25. Master A.V.O. Multimeter, \$25. Philipscope, \$25. Bendix field-strength meter, \$10. Heath grid-dip-meter, \$20. Heath antenascopce, \$10. All-band 150w. (83) final a.m. Transmitter, \$50. AR-88 vernier Dial and Scale, \$15. Complete set 6 HRO-coils, 4-gang condenser with HRO dial, chassis, etc., \$50. 57 ft. 4-section crank-up Tower, \$50. Same 75 ft. 3-section Tower, \$80. Contact Mrs. McLeod after office hours or week-ends for above items. Sydney 57-2839, for score of perfect components, VK2AVA in Springwood: Kokusai mechanical Filter with carrier crystals, \$25. McCoy Golden Guardian 9 Mc. Filter with carrier crystals, \$40. Collins 250 Kc. mech. Filter, \$15. Large assortment Tubes, 6146, 6293, 5R4, also 4-150A's, \$5. Dozens Meters, 5 in. square 0-1 mA., 3 in. 100 microamps, and 500 microamps, \$3. 0-30 to 0.500 mA. 2 and 3 in., \$1 each. 3 Electro-voice dynamic Mikes, \$10. 2 Zephyr and 1 Jap. dynamic Mikes, \$5. Immaculate BC221 w/a book in case and a.c. supply, \$80. Universal PP dynamic Mike, \$10. 3-6 Mcs. Command Receiver, \$15. Several Command Transmitters, some detent tubes missing, \$4 each. For technical details and components, only VK2AVA, Springwood, 51-1394.

FOR SALE: Complete Amateur Station. Central Electronics, 200v. exciter, 600L matching final. Collins 75S2 Receiver. All as new. Galv. 100-lb. Tower, hinged at 50 ft., special design and manufacture, hinges down in 3 mins. Hy-Gain 3 EL TH4 Beam. Write Box 164, Leongatha, Vic., or phone Leongatha 2485.

FOR SALE: Gelson Receiver, G209, excellent condition. Highest offer. 51-5709 (Melbourne), 9 a.m.-6 p.m.

FOR SALE: NCX3 Triband Transceiver with NCXA, 110v. a.c. Power Supply/Speaker, also spare VOX relay, one owner, used 100 hours. Perfect condition. Enquire J.B.C., Box 2099S, Melbourne.

FOR SALE: Tech. Valve Tester, \$18. Davenport 6 volt 1/2 amp. Charger, \$5. 6 volt to 125 volt 25 mA. Vibrator, P.S., \$2. 20 ft. collapsible self-supporting Mast, \$15. 32 volt to 240 volt a.c. inverter, 100w., \$4. No. 19 Genemotor, \$4. ATS AT7, \$5. AT5 Transmitter, \$10. 8 watt 160 metre xtal locked a.m. Transmitter, \$24. Classic TR2 Tape Recorder, 3 speed, \$70. Banda Spirit Duplicator, \$40. Lafayette HE-30 Receiver, \$70, and the following Heathkit equipment, Cheyenne MT-1 Transmitter, a.m./c.w., modified for plate modulation, 90 watts, \$90. Comanche MR-1 Receiver, 80 to 10 metres, 3 Kc. bandwidth companion to MT-1, \$100. 0-12-U 5 in. Oscilloscope, \$100, and 455 Kc. Q-Multiplier, \$14. Items 3, 5, 7 in fair order, all other units in good working condition, AT5 never used by me, no handbook available either, but all other major units supplied with circuits and handbooks. Rodney Champness, 14 Buckley St., Sale, Vic., VK3UG.

HEATH HW20, 144 Mc., 20 watt Transceiver, 144-148 Mcs. v.f.o. plus 4 crystal positions. Suitable 110v. a.c. or 12v. d.c. for fixed or mobile operation. Complete with microphone, 10 element beam, mobil whip and all mounting accessories. As new £95. VK3TD. Phone Melbourne 787-1407.

HEATH Type M.T.I. 90 watt d.s.b. controlled carrier Transmitter v.f.o. 10-80 metres. Suitable home or mobile, c.w. microphone, £85. HEATH Type M.R.I. companion Receiver to above, £75. HEATH P.S.I. a.c. Power Supply unit to supply both, £20. All as new and ready to go. Phone VK3TD, 787-1407 (Melbourne).

KEW V.T.V.M. K-142, worth \$60, sell \$39.50. Also 18 AVQ vert Ant., \$55. Phone 772-2880, 13 Graham Rd., Carrum, Vic.

SELL: A.W.A. Carphone (Senior), complete with power supply, leads and crystals, for 52 Mcs., i.m. net, 24 watts to 2E26. Perfect condition, \$45. O.N.O. VK3ZTC, Norm Richardson, 38 Aberdeen Rd., South Blackburn, Vic. (88-3265).

WANTED: Galaxy 5 or similar, with commercial P.S. Full details to P.O. Box 35, Narre Warren, Victoria.

WANTED: Radio Control Tx and Rx. Also books and gear for model boat. Sell or swap record player and tape recorder. Full details, price, etc., G. O. Kuch, "Ramahyuck," Stratford, Vic.

## Stockists of Radio and Electronic Components for the Amateur Constructor and Hobbyist

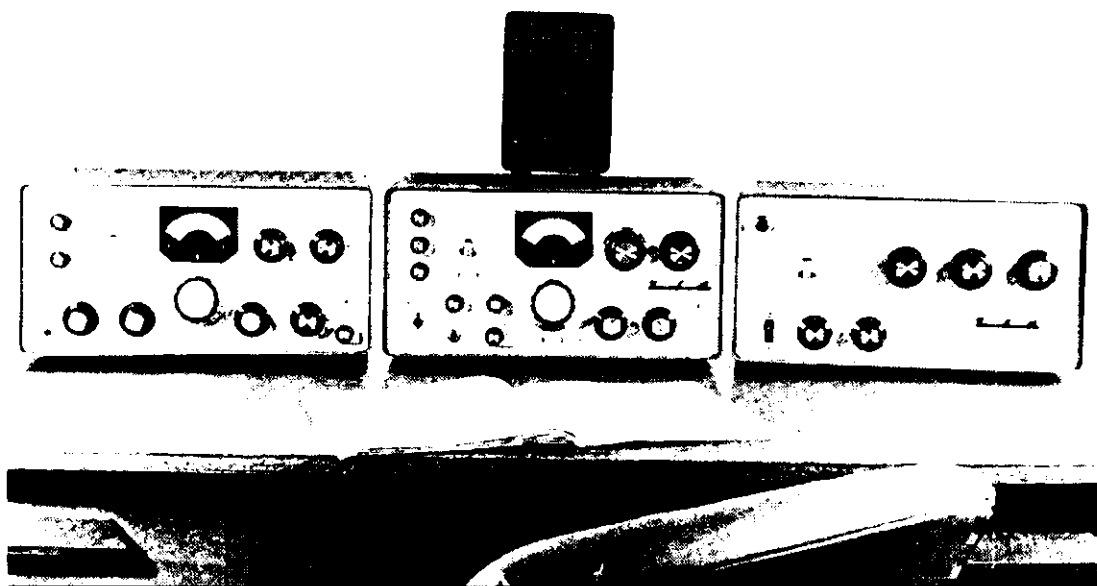
First Ring, Write or Call on  
**WILLIAM WILLIS** & Co. Pty. Ltd.  
430 Elizabeth St., Melb'ne. Ph. 34-6539

## THE EQUIPMENT EXCHANGE BULLETIN

is a lovely technical publication treating Pseudoconductors and Semi-conductors in a casual yet informative style. S.A.E. (4 in. x 9 in.) for free sample. Don't delay! P.O. Box 177, Sandy Bay, Tasmania.

Repairs to Receivers, Transmitters; constructing and testing; xtal conv., any frequency; Q5-ers, R9-ers, and transistorised equipment.

**ECCLESTON ELECTRONICS**  
146a Cotnam Rd., Kew, Vic. Ph. 80-3777



## A COMPACT DESK-TOP HIGH POWER INSTALLATION FROM THE FINE RANGE OF YAESU F-SERIES EQUIPMENT FIVE BANDS 80-10 METRES MECHANICAL FILTER

S.S.B. with V.O.X. & P.T.T., C.W. break-in, and A.M. Transceive or separate operation.

FL-200B Transmitter (centre) provides all these facilities—no extras required.

FR-100B Receiver (at left) has features you expect for modern S.S.B., C.W. and A.M. reception.

FL-1000 Linear (at right) provides safe and EFFECTIVE output power. Equally suitable on other transmitters and transceivers.

### SPECIFICATIONS:

**FR-100B: RECEIVER.** S.S.B.-A.M.-C.W. dual conversion with crystal locked front end; sensitivity, less than 0.5 micro-volts for 10 db S/N ratio. Two mechanical filters, 2.1 kc. for S.S.B. and 4 kc. for A.M. Crystal filter for C.W. High reduction precision gear driven dial with read out of 1 kc. A.N.L., "S" meter, A.G.C., offset tuning, crystal controlled B.F.O. with selectable sidebands, built-in monitor, ring demodulator. Frequency ranges: 3.5-4.1 Mc., 6.9-7.5 Mc., 13.9-14.5 Mc., 20.9-21.5 Mc., 27.9-28.5 Mc., 28.5-29.1 Mc. Additional crystals available for 100 kc. calibrator, WWV, 26.9-29.5 Mc. and three other s.w. ranges between 7.5 and 30 Mc. Adaptor kit available for F.M. Solid state voltage regulated power supply 230v. a.c., 50w. £199/10/- (\$399).

**FL-200B: TRANSMITTER.** S.S.B.-A.M.-C.W., two 6JS6A (similar 6DQ5) tubes in p.n., 240w. p.e.p. input. Includes inbuilt VOX, ALC, USB-LSB selection, extremely stable VFO, Kokusai M.F. Carrier and sideband suppression better than -50 db. Accessory socket provides connections for receiver muting and linear control. Built-in solid state 230v. a.c. power supply, antenna relay, etc. Frequency ranges: 3.5-4.1 Mc., 6.9-7.5 Mc., 13.9-14.5 Mc., 20.9-21.5 Mc., 27.9-28.5 Mc., 28.5-29.1 Mc. All plugs, inst. manual and p.b. microphone supplied. Nothing else to buy. On C.W., break-in operation is possible, T9X note, clean, chirpless keying, VFO runs continuously. £219/10/- (\$439).

**FL-1000: LINEAR AMP.** four 6JS6As in g.g., 80-10m. Will match any S.S.B. exciter capable of output power of 30 to 100 watts p.e.p. Power switch controls built-in relay for barefoot or amplifier operation without any cable changes. A real signal booster for any Amateur exciter or transceiver available in VK. Simple to connect, easy to tune. Fully metered. Fan cooled. £139 (\$278).

Australian Agents:  
**BAIL ELECTRONIC SERVICES**  
60 Shannon St., Box Hill Nth., Vic. Ph. 89-2213

VK2 Rep.: **MOSMAN RADIO SERVICES**  
11 Ruby St., Mosman, N.S.W. Phone 96-5342

# DISPOSAL BARGAINS

AT OUR BULK DISPOSAL STORE

8 PARK STREET, GLENFERRIE, VIC. (OFF GLENFERRIE ROAD)

Phone 81-1935

(Mon. to Fri., 10 a.m. to 5 p.m.; Sat., 10 a.m. to 12.30 p.m.)

## CABLES

2-core, shielded, new, 20c yard.  
12-core, shielded, new, 40c yard.  
3-core, plastic covered, new, 20c yard.  
4-core, plastic covered, new, 25c yard.  
6-core, plastic covered, new, 30c yard.

## DRIVER AND OUTPUT TRANSFORMERS

Transistor type RL8, Driver Transformer, 3000 to 1330 c.t. Transistor type JK8 Output Transformer, 300 c.t. to 15. Physical size: height 1 1/2 in., depth 1 1/2 in., width 1 3/4 in. 10/- (\$1) each, or 17 6 (\$1.75) per pair.

## ROTARY WAFER SWITCH

1 pole 24 position 3 bank. Physical size: 3 x 3 inch. Price 30/- (\$3.00).

## SWITCH BOARD

Completely wired, Type F & F T.M.C. C unit. Contains 28 key switches, 26 P.M.G. Plugs, 34 Drop Latches, hand-operated Genemotor for ringing. Size 20 in. wide, 18 in. deep, 21 in. high. Weight 60 lbs. Price \$25.

## DISPOSAL METERS

G.E.C. Panel Meters, 50 mA., 3 1/4 inch round, 2 1/2 in. round mounting hole. Brand new, \$1.75

## NEW CONDENSERS

M.F.D.	Volts	Price	M.F.D.	Volts	Price
2	22	35c	50	150	75c
4	3	30c	50	350	\$1.35
5	6	30c	50 pl. 50	350 Can	\$1.60
5	12	30c	50	450	\$1.35
5	18	35c	64	6	35c
8	10	30c	64	18	35c
8	15	30c	100	3	35c
8	350	48c	100	6	35c
8	525	58c	100	12	35c
10	3	30c	100	25	50c
10	6	30c	100	50	72c
10	15	35c	100	100	75c
10	25	35c	100	200 Can	\$1.05
16	10	35c	100	300	\$1.33
16	300	50c	100	350 Can	\$1.60
16	525	75c	125	3	35c
20	200	62c	150	150	75c
24	350	65c	200	25	65c
24	500	97c	200	50	90c
25	3	32c	250	3	50c
25	6	35c	250	6	55c
25	12	35c	250	18	55c
25	18	35c	250	25	75c
25	25	35c	250	50	95c
25	50	45c	500	12D	50c
25	300	62c	500	25	88c
25	600	98c	500	50	\$1.25
30	6	35c	1000	6	92c
30	12	35c	1000	12	\$1.05
32	350	70c	1000	25	\$1.48
50	6	32c	1000	15	\$1.48
50	12	35c	2000	18	\$1.70
50	25	47c	2000	18	\$1.70

## SPECIAL BARGAINS

Block Condensers, 2 mF./2500 v.v. .... \$2.50  
(Pack and Post 25c.)  
DC Crystal Holders, new, less crystal, 75c.  
Carpenter Relay and Socket, Type 3E1, 1800T  
250 ohms, 900T 200 ohms, \$1.50.  
P.M.G. Strip Boards, containing 24 Jacks, \$3.  
P.M.G. Strip Boards, containing 48 Jacks, \$5.  
Headphone Cords, new, 45c pair.  
3-pin Plug with two yards Cord, 45c.  
Bags of Mixed Resistors (50), \$1.25 bag.  
P/M Fuse Holders, 45c each.  
72 ohm Co-ax Cable, 35 ft. lengths, 3/16 inch diameter, \$1.  
72 ohm Co-ax Cable, 27 yard lengths, 3/16 inch diameter, \$2.  
Vibrators, 122 Type, \$2 each.  
122 Aerial Packs, \$6 each.  
12-core Cable with Plug, 22 yards long, \$5.  
Dural Tubing, 12 ft. lengths, 1/4 inch diameter, three for \$2.  
P.M.G. Key Switches, 75c each.

## GLIDE PATH RECEIVERS

Type 733D, complete with valves and Crystals ..... \$10.00  
(Pack and Post \$1.00.)

## TRANSISTOR TRANSFORMERS

Output type, 300 ohms c.t., 15 ohms, \$1 each.  
Driver type, 3000 ohms c.t., 1330 ohms, \$1 each.

## ROTARY TRANSFORMER MOTORS

Type X21010, new. Input 19 volts, output 370 volts at 70 mA. Size 6 1/2 in. long, diam. 2 1/4 in. Price \$4.50

## BATTERY CHARGERS

Dual, c/w. Meter in Metal Hammett Case  
6 volt 4 amp., 12 volt 4 amp. .... 157/6 \$15.75  
6 volt 6 amp., 12 volt 6 amp. .... 217/6 \$21.75

## CHASSIS PUNCH SET

Hozan K-83, sizes 16, 18, 21, 25 and 30 mm. Complete with taper reamer in wooden storage box 70/- \$7.00

## P.M.G. TYPE

Standard Rack, 19 inch panels and chassis. All sizes. Plenty to choose from. Personal shoppers only.

## ROTARY SWITCHES (JABEL)

3-pole, 3-position ..... 10/- \$1.00  
4-pole, 3-position ..... 10/- \$1.00  
2-pole, 6-position ..... 10/- \$1.00  
1-pole, 12-position ..... 10/- \$1.00

## T.V. PROBES

American Precision, TV-5B, 480 Mc., 30,000 volt. Brand New carton, \$8. 12 only.

## PP/439/APG-30 POWER SUPPLY

Radar type, new. Contains 36 valves—8 6AQ5, 5 6X4, 4 12AX7, OA2, 2 6AK5, 3 6AL5, 2 12AT7, 2 2D21, 6AS6, 4 2C51, 2 6J6, 6AG5, 2 6AH6. Also twin 28v. blower motor, relays, variable conds., transformers, etc. 28v. 500 cycle. Ideal for wrecking. Sorry, no further information. Brand New. \$35.

## STEEL TRANSFORMER BOXES

6 1/4 x 9 x 5 inch with matching lid, air vents each end. Ideal for battery charger, etc. Unpainted, new. \$1. Discount for quantity.

## DURAL TUBING

1/4 inch Tubing, 6 ft. lengths 36 ft. for \$2 or 40c per 6 ft. length.

## POTENTIOMETERS

Wire Wound, 4 Watts, 1 3/4 inch diameter. Sizes available: 5, 10, 25, 50, 250, 500, and 50K ohms, 4/- each.

## NEW CHANNEL LOCK PLIERS

Type 337W ..... 20/- each  
Type 356 End Cutters ..... 20/- each

## MAGNETIC RELAYS

Sealed Type  
24 volt, 670 ohms, D.p.d.t., size 2 x 1 1/2 inch, Price 15/- (\$1.50).  
24 volt, 700 ohms, D.p.d.t., size 1 1/2 x 1 inch, Price 15/- (\$1.50).

## MODULATION AND DRIVER TRANSFORMERS

Modulation Transformer, 15 watts, pair of 6AQ5s to 2E26 valve.  
Also Driver Transformer, single ended primary to push-pull grids of 6AQ5s.  
£2 the lot, or Mod. Trans. 30/-, and Driver Trans. 10/-.

## BRACKET BEZEL LAMPS

1 1/2 inch diam. Bezel in Red, Amber, Green. Suit screw type globe. 35c, 4 for \$1.20.

## CRYSTALS

HC6/U or HC18/U holders.  
27.240 Mc., new, \$3.  
26.785 Mc., new, \$3.  
Frequencies available: 4852, 5660, 4735, 5205, 5780, 4840 and 5397 Kc. Three for \$2.

## CONDENSERS

50 uF. 200v., pigtail ..... 20c ea., \$2 dozen  
500 uF. 12v., pigtail ..... 20c ea., \$2 dozen  
12 uF. 50v., pigtail ..... 20c ea., \$2 dozen  
3 uF. 100v., pigtail ..... 10c ea., \$1 dozen  
10 uF. 25v., pigtail ..... 10c ea., \$1 dozen



# RADIO SUPPLIERS

5A MELVILLE ST., HAWTHORN, VIC. Phone 86-6465

8 PARK STREET, GLENFERRIE, VIC. Phone 81-1935



# amateur radio

Vol. 34, No. 12  
DECEMBER  
1966

**25c**

Registered at G.P.O., Melbourne, for  
transmission by post as a periodical

## PLASTIC PANEL METERS

P22 2-inch square. Clear Plastic Case, 1 1/4-inch round mounting hole; 1 1/4-inch deep.	P22 1 mA.	37/6
P22 500 uA.		£2
P25 2 1/4-inch square. Clear Plastic Case, 2 1/4-inch round mounting hole, 3/4-inch deep.	P25 50 mA.	47/4
P25 100 uA.	P25 100 mA.	72/6
P25 500 uA.	P25 15 volt d.c.	47/6
P25 1 mA.	P25 300v. a.c.	47/0
P25 5 mA.	P25 S. Meter	50/-
P25 10 mA.	P25 VU Meter	75/-
P25 20 mA.		47/6

MR1P 1 1/4-inch square Clear Plastic, 1-inch round mounting hole; 1 1/4-inch deep.	MR1P 1 mA.	32/0
MR1P 500 uA.		85/-

MR2P 1 1/4-inch square. Clear Plastic, 1 1/2-inch round mounting hole; 1 1/2-inch deep.	MR2P 50 uA.	55/-
MR2P 50-0-50 uA.	MR2P 100 uA.	47/6
MR2P 100 uA.	MR2P 500 uA.	37/0
MR2P 1 mA., 5 mA., 10 mA., 15 mA., 20 mA., 25 mA., 50 mA., 100 mA., 250 mA., ALL.	Each	35/-
MR2P 15 amp. D.C.		37/6
MR2P 15 volt D.C.		45/-
MR2P VU Meter		42/6
MR2P Stereo Balance		42/6
MR2P 300-30 amp. D.C.		37/6
MR2P "S" Meter		37/6
"S" Meter reads S1 to S9 plus 10 to 30 db. FSD 1 mA.)		42/6
MR2P 300 volt A.C.		42/6

MR3P 3 x 3 3/4-inch square Clear Plastic, 2 3/4-inch round mounting hole, 1 1/2-inch deep.	MR3P 50-0-50 uA.	£4/2/6
MR3P 50 uA.	MR3P 500 uA.	£2/17/6
MR3P 1 mA.	MR3P 5 mA., 10 mA., 25 mA., 50 mA., 100 mA., 250 mA., 500 mA., ALL.	50/- each
MR3P VU Meter		£3/17/6
MR3P 300 volt A.C.		£2/10/-

MO52 2 1/4-inch round face, 2 1/2-inch hole. Black Plastic Case.	MO52 500 uA.	38/6
MO52 1 mA.		36/6

MR52 2 1/4-inch square. Black Plastic, 2-inch round mounting hole, 1 1/4-inch deep.	MR52 100 uA.	62/6
MR52 500 uA.		47/6
MR52 1 mA., 5 mA., 10 mA., 25 mA., 50 mA., 100 mA., 250 mA., 500 mA., ALL.		£2 each

EW20 Edgewise Meter 2 1/4 x 3 3/4 inch rectangular. Clear Plastic Case, 2 inch deep.	EW20 1 mA.	42/6
--	------------	------

EW16 Edgewise Panel Meter 1 x 3 1/4 inch face. 3 1/2-inch deep.	EW16 500 uA.	£3/17/6
EW16 1 mA.		£3/7/0
EW16 300 volt A.C.		£3/17/6

MR65 3 1/4-inch square face, 2 1/2-inch round hole. Black Plastic Case.	MR65 500 uA.	52/6
MR65 1 mA., 5 mA., 10 mA., 25 mA., 50 mA., 100 mA., 250 mA., 500 mA., ALL.		50/- each
MR65 50 volt A.C.		47/6
MR65 VU Meter		£4/2/6

MO65 3 1/4-inch round, 2 1/2-inch round hole, 1 1/2-inch deep. Black Plastic.	MO65 100 uA.	55/-
MO65 500 uA.		37/6
MO65 1 mA., 5 mA., 10 mA., 20 mA., 50 mA., 100 mA., 150 mA., 250 mA., 500 mA., ALL.		35/- each
MO65 50 Millivolt		37/6
MO65 100 Millivolt		37/6
MO65 15 volt D.C.		35/-
MO65 30 volt D.C.		42/6
MO65 300 volt D.C.		42/6
MO65 300 volt A.C.		42/6
MO65 1 amp. D.C.		85/-
MO65 30-0-30 D.C. amp.		42/6

## "VU" METERS

Scale: -20-0 plus 3 VU.  
0-100% (OVU) at 600 ohm.  
Frequency Range: 30-7500 C/S.  
Impedance: eq. 3900 plus/minus 200 ohms.  
Time Constant: eq. 0.3 sec.  
(Time for 99% response.)

MR2P VU Meter	43/-	
MR2P VU Meter	£3/17/6	
MR65 VU Meter	£4/2/6	
MR4P VU Meter	£5/0/-	
MR4P 1-inch x 4 1/2-inch square, 2 3/4-inch round hole. Clear Plastic Case.	MR4P 1 mA.	£3/5/-
MR4P VU Meter	£3/3/-	

## VARIABLE CONDENSERS EDDYSTONE (CERAMIC)

580 Condenser, 13.5 pF.	52.25
582 Condenser, 83 pF.	2.50
584 Butterfly Cond., 32 x 32 pF.	2.50
585 Condenser, 91 pF.	2.75
586 Condenser, 140 pF.	3.85
817 Transmitting Cond., 270 pF.	5.25

(Pack and Post 20c.)

## CRYSTAL MICROPHONES

Model BM3 (illustrated): Response 100-8,000 c/s. Fitted with 6 ft. cable and phone plug with on-off switch. Can be used on stand for hand use.	Price only	52/6
BM3 Insert	Stand to suit	22/- extra.
	Packing and Postage 2/6	

## SEMI-CONDUCTORS

TRANSISTORS		GERMANIUM SILICON AND ZENER DIODES	
AC107	\$1.80	BA100	45c
AC125/OC70	90c	BY100	\$1.55
AC126/OC75	90c	OV50	70c
AC128	\$1.00	OA79	30c
2-AC128	\$2.25	OA90/OA80/	
AD149/OC26	\$2.25	IN54A	30c
AF149, OC171	95c	OA91/OA81	30c
AF115N	95c	OA200	70c
AF116N/OC170	90c	OA202	70c
AF117N/OC169	90c	OA210, IN1763/	
AF118N	\$2.00	IN3194, HR25,	
ASZ20/2N370	90c	400PIV, 400MA	65c
AT126/AC126	90c	OA211/BY100/	
AT310 Silicon	95c	S1A2, 1000PIV	
AT311 Silicon	95c	1 amp.	\$1.00
AT312	90c	OA605, IN3193	55c
AT313	\$1.00	OA650	\$1.10
AT314	90c	OAZ200	\$1.50
AT315	95c	OAZ202	\$1.50
AT316	95c	OAZ203	\$1.60
AT138A/OC35	\$3.25	OAZ205	\$1.50
BC107	\$1.00	OAZ208	\$1.25
BC108	90c	OAZ212	\$1.25
BC109	\$1.30	OA2213	\$1.25
BF115	90c	OA2224/BZZ14	\$2.00
OC26/AD149	\$2.25c	CAZ224/BZZ16	\$2.00
OC30	\$4.10	OAZ225	\$2.00
OC35/AT138A	\$3.25c	ORP12 LIGHT/SENS	
OC44N	90c	IN3194, OA210	85c
OC45N	90c	IN3193, OA605	55c
OC70	\$1.16	IN3491 50PIV/	
OC71/2N215	75c	18A	95c
Or 3 for \$2.		IN3491R	95c
OC71	\$1.25	IN3492 100PIV/	
OC72	\$1.25	18A	\$1.20
OC74N/AC128	95c	IN3492R	\$1.20
OC75/AC126	95c	IN3493 200PIV/	
OC202	\$3.00	18A	\$1.30
2N217	95c	IN3660 100PIV	
2N217/S	95c	25A	\$1.55
2N370/ASZ20	90c	IN3660R	\$1.55
2N372	\$1.75		
2N410	85c		
2N278 Delco	\$3.00		

## CHASSIS—ALUMINIUM

Type 1	5 in. x 3 in. x 2 in.	75c
" 2	6 in. x 4 in. x 2 in.	80c
" 3	8 in. x 5 in. x 2 1/2 in.	\$1.00
" 4	10 in. x 6 in. x 2 1/2 in.	1.25
" 5	11 in. x 8 in. x 2 1/2 in.	1.50
" 6	13 in. x 7 in. x 2 1/2 in.	1.50
" 7	13 in. x 10 in. x 2 1/2 in.	1.75
" 8	17 in. x 8 in. x 3 in.	2.15
" 9	17 in. x 10 in. x 3 in.	2.45
" 10	17 in. x 12 in. x 3 in.	2.62

(Pack and Post 40c.)

## VERNIER DIALS

Ratio 8 to 1. Reduction scaled 0-10.		
Type T 501	1 1/2 in. diam.	\$1.75
" T 502	2 in. diam.	2.20
" T 503	3 in. diam.	2.80

## ROBLAN BROADCAST GANGS

RMG1	Single Gang, 10-50 pF.	\$1.85
RMG1	Single Gang, 10-415 pF.	1.85
RMG2	2 Gang, 10-415 pF.	2.50
RMG3	3 Gang, 10-415 pF.	3.35

(Pack and Post 20c.)



# RADIO SUPPLIERS

5A MELVILLE ST., HAWTHORN, VIC. Phone 86-6465

8 PARK STREET, GLENFERRIE, VIC. Phone 81-1935

North Balwyn tram passes corner.

Money Orders and Postal Notes payable North Hawthorn P.O.

We sell and recommend Leader Test Equipment, Pioneer Stereo Equipment and Speakers, Hitachi Radio Valves and Transistor Radios, Kew Brand Meters, A. & R. Transformers and Transistor Power Supplies, Ducon Condensers, Welwyn Resistors, etc.



# "AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA FOUNDED 1910

DECEMBER 1966

Vol. 34, No. 12

## Editor:

K. E. Fincott ..... VKJAFJ

## Assistant Editor:

K. M. COCKING ..... VK3ZPQ

## Publications Committee:

G. W. Baty (Secretary) ..... VK3AOM  
A. W. Chandler (Circulation) ..... VK3LC  
E. C. Manifold ..... VK3EM  
W. E. J. Roper ..... VK3ARZ

## Draughtsmen:—

Ken Gillespie ..... VK3GK  
Clem Allen ..... VK3ZIV  
Ian Smith ..... 36 Green St., Noble Park

## Advertising Enquiries:

C/o. P.O. Box 36, East Melbourne, C.2, Vic.  
or  
Mrs. BELLAIRS, Phone 41-3535, 478 Victoria  
Parade, East Melbourne, C.2, Victoria. Hours  
10 a.m. to 3 p.m. only.

## Publishers:

VICTORIAN DIVISION W.I.A.,  
Reg. Office: 478 Victoria Pde., East Mel-  
bourne, C.2, Victoria.

## Printers:

"RICHMOND CHRONICLE," Phone 42-2419.  
Shakespeare St., Richmond, E.1. Vic.

★

All matters pertaining to "A.R." other  
than subscriptions, should be addressed to:

THE EDITOR,  
"AMATEUR RADIO,"  
P.O. BOX 36,  
EAST MELBOURNE, C.2, VIC.

Acknowledgments will be sent following  
the Committee meeting on the second Mon-  
day of each month. All Sub-Editors should  
forward their articles to reach "A.R."  
before the 5th of each month. Any item  
received after the Committee meeting will  
be held over until the next month. Pub-  
lication of any item is dependent upon space  
availability, but in general about two  
months may elapse before a technical  
article is published after consideration by  
the Publications Committee.

★

Members of the W.I.A. should refer all  
enquiries regarding delivery of "A.R." direct  
to their Divisional Secretary and not to  
"A.R." direct. Non-members of the W.I.A.  
should write to the Victorian Division, C/o  
P.O. Box 36, East Melbourne. Two months'  
notice is required before a change of mail-  
ing address can be effected. Readers should  
note that any change in the address of  
their transmitting station must, by P.M.G.  
regulation, be notified to the P.M.G. in the  
State of residence. In addition "A.R."  
should also be notified. A convenient form  
is provided in the "Call Book."

★

Direct subscription rate is \$3.00 a year, post  
paid, in advance. Issued monthly on the  
first of the month, January edition excepted.

## FEDERAL COMMENT

★

### A.O.C.P. EXAMINATIONS

The following letter is of importance to all prospective Amateurs and  
S.w.'s. Please note for the future.

Federal Secretary, W.I.A.,

Dear Sir,

As you are aware, following the discussions which took place  
on the revision of the Amateur Handbook, it was decided to reduce  
the frequency of examinations for Amateur Operators' Certificates  
from four to two a year, to be held on the third Tuesday in Feb-  
ruary and August, with supplementary examinations on the third  
Tuesday in May and November in Section L (Telegraphy).

In the light of developments which have occurred since the  
discussions it has now been decided to introduce the new examin-  
ation arrangements as from August, 1967. Quarterly examinations  
will be held in January and April, 1967, as usual but not in July,  
1967. The first supplementary examination in the subject of tele-  
graphy will be held in November, 1967.

The selection of August, 1967, for the introduction of the  
proposed new arrangements was influenced largely by the period  
which was considered necessary for adequate notice to be given to  
all interested parties. It is expected that this date should provide  
sufficient time also for the Wireless Telegraphy Regulations to be  
amended as required and for the new Handbook to be printed  
and made available so that the paper on the subject of Regulations  
for the first examination to be held under the new arrangements  
may be based on the revised rules.

It would be appreciated if you would be good enough to  
arrange for the matter to be publicised through the normal  
channels of the Institute, please.

Yours faithfully,

C. M. Carroll,

for Director-General.

Federal Council and the Executive of the Wireless Institute of  
Australia wish all members the Compliments of the Season and bright  
prospects for 1967.

## CONTENTS

A Simple Transistor Tester .....	3	John Moyle Memorial National Field Day Contest, 1967 .....	11
Single Sideband—Power Meas- urements .....	6	Prediction Charts for December 1966 .....	21
How is Your Dial Calibration? .....	7	New Call Signs .....	13
Technical Correspondence:		DX .....	13
Transceiver Power Supplies .....	5	SWL .....	16
"The Mode of Power" .....	3	VHF .....	15
Sideband:		Youth Radio Clubs .....	15
Netting with Transceivers .....	9	Federal and Divisional Monthly News Reports .....	17
Bad Sideband Signals .....	9	Index to Volume 34—1966 .....	24
A.R.R.L. International DX Com- petition .....	7		
W.I.A. D.X.C.C. ....	10		

### VACUUM TUBE VOLT METER

"KYORITSU," MODEL K-142  
Highly dependable for measurements of voltages from d.c. to r.f., output (db) and d.c. resistance.

A.c. volts: Sine wave: 0.1v.-1500v., 7 ranges.  
Peak-to-peak: 0-4000v., 7 ranges.  
Output (db m): minus 20 db to plus 85 db.

Input Impedance: 1.4 megohms.  
D.c. Volts: 0.1v.-1500v., in seven ranges.  
Input Impedance: 11 Megohms.  
Resistance: 0.2 ohm to 1000 Megohms, in seven ranges.

The K-142 Vacuum Tube Voltmeter uses a P-60 d.c. 200 microammeter and operates from 240 volts 50/60 cycle a.c. mains. Large clearly calibrated meter gives ease of reading.  
Price \$56.25 (inc. S. Tax)

### TRANSMISSION LINE EQUIPMENT

Formula III. Low-Loss 300 ohm open wire Transmission Line. 100 ft. lengths, coiled and boxed. Price \$5.18 (inc. S. Tax).  
14 gauge hard-drawn Copper Wire for Amateur Antenna Systems. Any length cut. Price: 8 cents per yard (inc. S. Tax).  
Porcelain Egg-type Insulators. Price: \$1 dos. (inc. S. Tax).

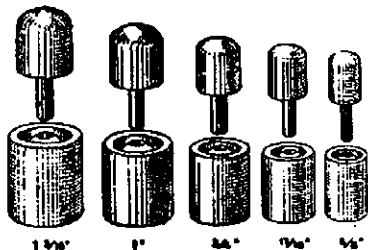
### GRID DIP OSCILLATORS

Just out! The transistorised EDDYSTONE "Edometer" type G.D.O. 390 Kc. to 115 Mc. with set of seven plug-in coils. Zener stabilisation maintains constant performance with falling voltage. Can be used as g.d.o., for resonance checks on tuning circuits, for actual measurement of inductance and capacity. An in-built modulator stage provides use as signal generator for receiver alignment or as a signal source for audio tests. Can be used as absorption wavemeter, heterodyne wavemeter and modulation monitor. Tuning is simplified by geared reduction drive while the clearly calibrated scale permits rapid reading. Meter sensitivity is adjustable. Unit includes jack for Morse key for use as Morse code practice oscillator. No external power source required. Price \$84.75 (inc. S. Tax).

### S.W.R. METERS

KYORITSU Model K-109 Standing Wave Ratio Bridge. 1:1 to 1:10 s.w.r. Impedance 50 and 75 ohms. Frequency range 1.5 to 60 Mc. Includes 0-100 d.c. microammeter. \$20 inc. sales tax.

### PUNCHES



### WILLIS HAMMER DIE PUNCHES

WILLIS hammer type die punches are made to precise sizes for use in industry wherever a clean, round hole is wanted. Designed to punch down to 14 gauge steel. Centre remnant removed with a flick of the hand. Can be used in die press. Special sizes made to order at slight additional cost.

3/8 in. ....	\$2.40	1-1/2 in. ....	\$8.00
7/16 in. ....	\$3.40	1-5/8 in. ....	\$9.40
1/2 in. ....	\$2.60	1-3/4 in. ....	\$7.20
5/8 in. ....	\$2.60	1-7/8 in. ....	\$8.00
11/16 in. ....	\$2.80	2 in. ....	\$8.40
3/4 in. ....	\$3.00	2-1/16 in. ....	\$8.60
13/16 in. ....	\$3.20	2-1/8 in. ....	\$8.90
7/8 in. ....	\$3.80	2-3/16 in. ....	\$9.40
1 in. ....	\$3.80	2-1/4 in. ....	\$9.60
1-1/16 in. ....	\$4.00	2-5/16 in. ....	\$9.60
1-1/8 in. ....	\$4.00	2-3/8 in. ....	\$10.40
1-3/16 in. ....	\$5.00	2-1/2 in. ....	\$11.00
1-1/4 in. ....	\$5.20	2-3/4 in. ....	\$12.40
1-5/16 in. ....	\$5.20	3 in. ....	\$13.40
1-3/8 in. ....	\$5.60	3-1/4 in. ....	\$13.80
1-7/16 in. ....	\$5.80	3-1/2 in. ....	\$18.20

Trade Enquiries Invited

### A & R TOROID BALUNS

General Specifications: Power rating—Types A, B, C, 200 watts or 400 watts p.e.p., provided the s.w.r. is less than 2:1. Construction—Toroidal ferrite cores, fully encapsulated with epoxy resin and silica under vacuum. Suitable for use in cold to sub-tropical areas. All except 355C and 356C are provided with antenna insulator support brackets. Balun dimensions approx. 2 in. diam. x 1 in. plus socket and lugs. Weight approx. 3/4 to 4 oz.

Type 350A—Impedance ratio 1:1. 75 ohms unbalanced to 75 ohms balanced. 3 to 30 Mc. For use at centre of a dipole antenna with co-axial cable feed line or at base end with 75 ohm twin line. Co-axial connector is Belling & Lee L604/S and lug terminals. Price \$3.77 (inc. S.T.)

Type 351A—Impedance ratio 1:4. 75 ohms unbalanced to 300 ohms balanced. 3 to 30 Mc. For use at centre of a folded dipole antenna with co-axial feed line or at base end with 300 ohm twin line connector and terminals as 350A. Price \$3.77 (inc. S.T.)

Type 352A/BC—Details as 350A except frequency range 500 Kc. to 5 Mc., or to 30 Mc., for receiving purposes only with increased attenuation. Price \$3.77 (inc. S.T.)

Type 353B—This is a type 350 with a co-axial socket SO-239 (Amphenol screw type). Price \$1.30 (inc. S.T.)

Type 354B—Type 351 with SO-239 co-axial socket. Price \$4.30 (inc. S.T.)

Type 355C—Impedance ratio 2:1:1. 52 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. For use at the base of a mobile whip antenna, coupled to fixed or adjustable transmitter output impedance. Lug terminals. Price \$3.49 (inc. S.T.)

Type 356C—Impedance ratio 3:1:1. 78 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. Lug terminals. Use as 355C. Price \$3.49 (inc. S.T.)

WM. WILLIS & CO. PTY. LTD., 430 Elizabeth Street, Melbourne, C.1, Vic. Phone 34-6539

# FOSTER DYNAMIC MICROPHONES

## SPECIFICATIONS:

Output Impedance ..... 50 ohms or 50K ohms  
Effective output level ..... -55 db. [0 db. — (one) IV. Microbar]  
Frequency response ..... 50 to 15,000 c.p.s.

## OMNI-DIRECTIONAL DYNAMIC:

Plastic Diaphragm. Swivel fits 5/8" 26 t.p.i. Stands.  
Size: 4 1/2" long, 1 1/4" diameter. Colour: TWO-TONE GREY.  
Cable: 12 ft. of P.V.C.

Retail Price 50K ohms: £4/16/0 + Sales Tax 10/0

Retail Price 50 ohms: £4/14/0 + Sales Tax 9/10

A QUALITY PRODUCT FOR TAPE RECORDERS & P.A. USERS

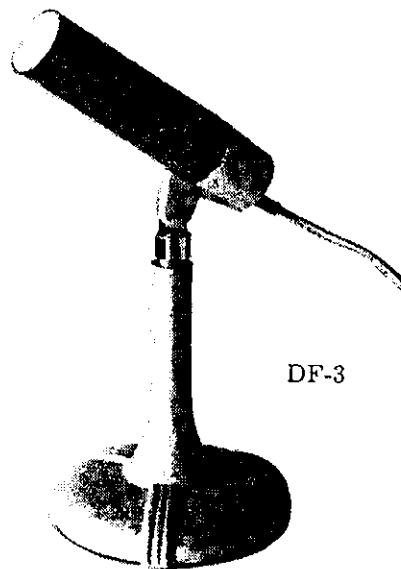
Marketed by **ZEPHYR PRODUCTS PTY. LTD.**

70 BATESFORD STREET, CHADSTONE, S.E.10, VIC.

Manufacturers of Radio and Electrical Equipment and Components



Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.



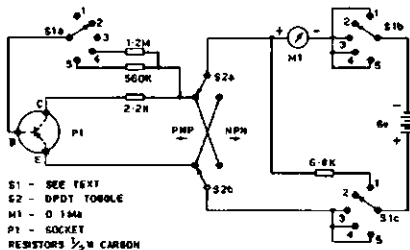
DF-3

# A SIMPLE TRANSISTOR TESTER

ROY PROWSE,\* VK3XY

The transistor field has made great strides in the last several years and their use has become widespread. The practical application of these devices is increasing in the Ham shack, as is evidenced by the number of Hams who are using transistorised equipment both commercially manufactured and home-built.

The author has been experimenting with various transistor applications for the last few years and were it not for the fact that the junk box—a product of some 30 years' Hamming—holds many tubes and tube circuitry components, transistorised equipment would be used exclusively. However, the pocket-book dictates that the junk box be used wherever possible. When this is not possible then transistors are used and in this regard the cost is much less when compared with tubes and their circuit components. Also, metalwork requirements are considerably less.



SIMPLE TRANSISTOR TESTER

This experimentation has revealed that the spread of characteristics between transistors of the same type is sometimes quite large, and it quickly became apparent that to achieve the best results only the best of the type to be used should be procured. Also, a method was required for confirming the continuing serviceability of these devices, both PNP and NPN, which had been used again and again in various experimental circuits.

The answer, of course, is a transistor tester, but have you seen the price? Therefore, a tester was required which would provide the answers the author wanted at little cost and the box described is the simplest method the author could find of achieving this requirement, and the instrument has proved invaluable. Readers may be interested in the box which can be built from scratch for a few dollars, the only item which could be considered as expensive being the meter. The box will, of course, not read all required parameters but for a simple "go no-go" device it has been found to be all that is required.

Incidentally, use of the box in a dealer's premises has produced many looks of amazement but the desired result has been achieved in that some transistors for which the dealer wanted good money were not acceptable to

the author. Only the best of the particular type wanted were taken and it can only be presumed that those that were not acceptable were sold to other experimenters and placed into use with not always the desired results being achieved.

The circuit and physical make-up of the tester is shown in the accompanying diagram and photograph. The box used is the familiar BC1366 from disposal sources and which was referred to in a previous article by the author. All components in the box are removed and the only item which is reused is the switch which is re-located, and re-wired as shown. The other items used are shown in the parts list.

Study of the circuit diagram will show that S2 selects the correct applied voltage polarity for either PNP or NPN type transistors, and that S1 has five positions. For those who do not know the BC1366, position No. 1 of this switch is a spring-loaded position from No. 2 position, and the switch must be physically held in No. 1 position to register. This position is used to test the battery voltage by placing the 6.8K resistor in series with the meter and the battery. It is not essential of course that this type switch be used—any 3-pole, 5-position switch will do.



Position No. 2, as shown, is the OFF position. Position No. 3 tests emitter-collector leakage (with the base floating), and it has been surprising to find how high this can be in many allegedly high quality transistors. However, due regard must be given, of course, to the effect that a rise in temperature can have on this parameter. Positions Nos. 4 and 5 read the common-emitter forward d.c. current-transfer ratio (beta or  $H_{FE}$ ), which of

course will also be subject to temperature effects, particularly with germanium types.

Positions Nos. 4 and 5 read respectively up to a maximum  $H_{FE}$  of 200 and 100. For example, on the X200 range position a reading of 0.4 mA. equals a d.c. beta of 80.

If this article stimulates your interest in transistors, then one of the aims of the author has been achieved. There are many bargains available in the transistor field and this tester will allow you to make a reliable selection of the good from the not so good, and more important still, to reject the bad, of which there are many about. A little experimenting with these devices and, like the author, you will say goodbye to tubes, pocket-book permitting. The safety factor alone warrants their use—think of the low operating voltages involved. No need to keep one hand in the pocket in the time-honoured way, which is not always successful.

★

## Technical Correspondence—

### "THE MODE OF POWER"

Editor "A.R.," Dear Sir,

On page 3 of the October issue of "A.R." appears an article on a 240v. a.c. power supply by B. A. White, VK5YB.

In the last paragraph he credits me with "the mode of power".

I would be pleased if, in a subsequent issue, you would correct this statement. It is true that Barry VK5YB saw the power plant which I made up and have been operating successfully for very many years. However, I myself gained the information from an article published in the June 1956 issue of the American publication "CQ" and which was loaned to me by Wally Green, VK6WG.

The article in "CQ" also contained additional information and circuits of alternative methods of excitation which might be of interest to other readers. Unfortunately I have no complete copy of the article. However, knowing that there is another published article could be of some assistance to those who desire to go further into the matter.

I would add that the control box containing the condensers and switching can be located at the load or operator's end of circuit. This is a decided advantage since the power unit can be placed at a distance from the operator, so reducing the exhaust noise of the prime mover. The scheme's biggest advantage appears to be that, apart from the ignition noise from the spark plug (and which is as easily suppressed), it is electrically noise free.

—Rolo Everingham, VK6BO.

AMATEUR FREQUENCIES:

USE THEM OR LOSE THEM!

\* 83 Brewers Rd., Bentleigh, Vic.



**WARBURTON  
FRANKI**

# XMAS BARGAINS

## TRANSISTOR TRANSFORMERS

**ROLA LDR 43:** 4300/600 ohms c.t.

**25c each** + 25% S.T. plus pack and post 5c.

**A & R TO9 and TD5:** Set of output and driver transformers. Impedance: TO9—375 c.t./3.5 ohms; TD5—3000/1300 ohms c.t.

**75c pair** + 25% S.T. plus pack and post 5c.

## POWER TRANSFORMERS

**A & R Type 51113:** 250 volts a side at 80 mA. and 6.3 volts at 4 amp.

**\$1.50** + 25% S.T. plus pack and post 25c.

**A & R Type 2005:** 180 volts a side at 40 mA. and 12.6 volts at 1 amp.

**\$1.00** + 25% S.T. plus pack and post 20c.

## SPEAKER TRANSFORMERS

**A & R Type 2655:** Size E, 5000-33 ohms.

**50c** + 25% S.T. plus pack and post 5c.

## TRANSCEIVERS

Three transistors, range up to  $\frac{1}{2}$  mile, depending on terrain. Supplied complete ready to use with telescopic antenna and batteries.

**\$17.35** set of 2 + 12½% S.T. Also 5 transistor model

**\$23.50** set of 2 + 12½% S.T. And 9 transistor model

**\$53.85** set of 2 + 12½% S.T.

## FILAMENT TRANSFORMERS

Double wound. 15 volts at 500 mA.

**75c** + 25% S.T. plus pack and post 10c.

## RECTIFIERS

Bridge type. Contact cooled. Up to 20 volts at 1.5 amp.

**95c** + 12½% S.T. plus pack and post 5c.

## SILICON DIODES

**IN3491:** 18 amps. at 50 p.i.v. Available with either K or A to case, 75c plus S.T. 12½%.

Heat Sink Adaptors to suit, 25c plus S.T. 12½%.

**S10AR2:** 1 amp. at 1,000 p.i.v. .... **\$1.20** plus S.T. 12½%.

**S15AR2:** 1 amp. at 1,500 p.i.v. .... **\$2.00** " " "

**1N3193:** 750 mA. at 200 p.i.v. .... **40c** " " "

**1N3194:** 750 mA. at 400 p.i.v. .... **55c** " " "

**1N3195:** 750 mA. at 600 p.i.v. .... **75c** " " "

## LOUDSPEAKERS 4"

Available in 3.5, 8 or 15 ohms impedance.

**\$1.50** + 25% S.T.

## DIAL LAMPS

6-8 volts, M.E.S. tubular. Box of 10—

**35c** + 25% S.T. plus pack and post 5c.

## BELPHONE

## INTERCOMM. SYSTEMS

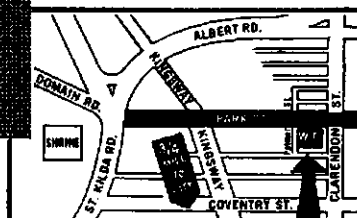
Comprises two Handsets (similar P.M.G. telephone) and connecting wire. Very clear reproduction. Loud bell to call.

**\$8.65** set (inc. batteries) + 12½% S.T.



**WARBURTON FRANKI**

**220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines 69-0151**



**OPEN SAT.  
MORNING**

*Please include  
postage or  
freight with  
all orders*

# Transceiver Power Supplies

Editor "A.R.," Dear Sir,

The comments of Phil VK5NN and Lee VK7RG in "A.R." for July and September are very much to the point.

Many Amateurs long to own a piece of American-made equipment and will refuse to buy a locally made product. In some cases this is justified because the Australian maker may have failed to supply a reliable product, however, this aversion to the local product is often unjustified and many local manufacturers have demonstrated their ability to design and construct high quality equipment.

We must not lose sight of the fact that there are, in fact, three markets in Australia. Firstly, there is the "consumer product" market—Radio, T.V., etc. Then follows the "professional or capital equipment" market—this requires an entirely different design approach to cater for the much higher reliability required by people who depend upon these devices to provide saleable services. Professional engineers usually make the purchasing decisions and equipment is installed and maintained by qualified engineers and technicians. The third is the "military market." Here the demand is for very reliable equipment capable of operation under the most arduous conditions.

As the demands made upon the equipment increase, so the cost rises. It may also rise because the quantity required is quite small.

Australian Amateurs, as a class, have become used to using equipment made mostly for the military market demand somewhere between the consumer product and the professional equipment market. Equipment must be inexpensive and reasonably reliable, but, no service of vital importance will fail if the equipment does not work and so the "over-running" of certain components such as final tubes is justified.

Many years in the electronic field leads me to believe that at least one area where the Australian product is definitely superior is power supplies. The main reason for this is that supplies made in Australian factories are designed for operation from 240 or 250 volts c.p.s. a.c. and not 110/220 or even 117/234. American supplies are usually designed for 117v. 60 c.p.s. and will in many instances run hot on 50 c.p.s.

My criticism in the case of transceiver supplies is not that they run hot, but that they supply voltages which are considerably in excess of the absolute maxima listed by the tube makers in equipment where the tubes are already being run beyond their normal limits. The National NCX-A power supply is rated to supply 700v. d.c. at 300 mA., 280v. d.c. at 200 mA., plus bias and filament voltages. It performs satisfactorily without overheating and will handle an a.c. input of plus or minus 10% without distress. The dynamic regulation is quoted as 2%. **But what of the equipment voltages under these conditions of high line voltage?**

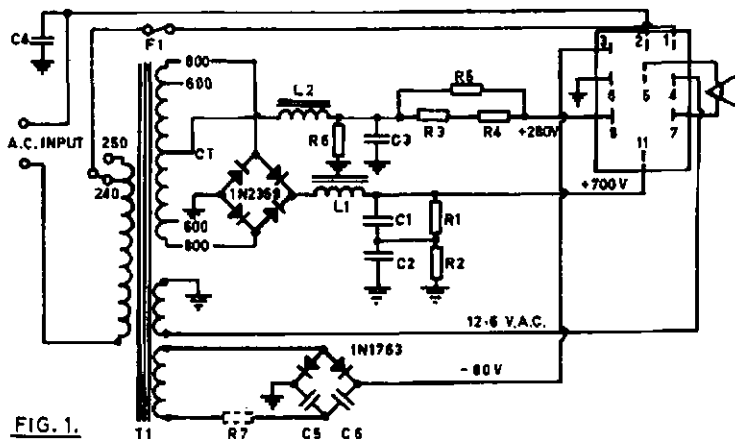


FIG. 1.

- C1, C2—80μF. 450v. wkg.
- C3—40μF. 450v. wkg.
- C4—0.01μF. 600v. D.C.W.
- C5, C6—20 μF. 150v.
- R1, R2—4 x 7.5 k ohms 10w. w.w. in series.
- \*R3, \*R4—330 ohms 10w. w.w.
- R5—660 ohms 10w. w.w.

- R6—30k ohms 10w.
- \*R7—Value to be decided on test (50-500 ohms).
- T1—800/600v. c.t. 300 mA., 35v. 10 mA. (doubler), 12.6v. a.c.
- L1—12/2 Hy., 23/300 mA., 60 ohms d.c. Res.
- L2—2H. 200 mA., 44 ohms d.c. Res.

Table 1 lists the readings I have obtained. (Voltmeter AVO Model 8, checked at better than 1% on all ranges.) From these figures it can be seen that the static regulation between an e.h.t. load of 50 mA. (s.s.b. idling) and full plate current of 300 mA. is 720 x 100, equals 10.7% (approx.) on the 234v. input figures. This is very good indeed under static conditions and is due very largely to the low resistance of the transformer and chokes. With an e.h.t. filter capacitance of 40 μF. one could expect that the claimed dynamic regulation figure of 2% will be achieved.

they idle at 50 mA. (2 x 6JB6's or similar), the plate dissipation is 40 watts.

Because of this feature of the use of American supplies, it has been decided to design Australian-made supplies which will meet the requirements of such transceivers and permit operation at the full rated 200w. (p.e.p.) input or a lower figure of about 120 watts, by simply changing secondary taps.

Australian Amateurs can purchase basic kits consisting of a transformer and two chokes for a modest sum and complete power supplies are available at prices which are about half that of an imported supply. The transformers are provided with primary taps at 240 and 250 volts to cater for the line conditions usually encountered in Australia.

S. T. Clark, VK3ASC.

a.c. input voltage	700 volt line		280 volt d.c. line		Bias	Heater a.c.	a.c. Tol.
	no load	300 mA.	idling	full o/p			
258	900	790	750	310	300	-82	13.7 plus 10%
250	870	780	720	300	290	-80	13.3 plus 6%
234	820	720	680	282	272	-75	12.5 Nominal
220	770	675	640	270	260	-70	11.8 minus 6%
210	735	645	610	255	245	-67	11.2 minus 10%
When the heater voltage was adjusted to read 12.6v. other readings as follows:							
236	830	730	690	285	275	-76	12.6

Table 1.

AMATEUR FREQUENCIES:

ONLY THE STRONG GO ON—  
SO SHOULD A LOT MORE  
AMATEURS!

# SINGLE SIDEBAND-POWER MEASUREMENTS

Following the discussions carried on over the past year with the Postmaster-General's Department on the subject of single sideband power levels and methods of measurement, Federal Executive of the W.I.A. have received the following letter from the Department. It sets out quite clearly the allowable power and acceptable method of measurement, both of which are fully endorsed by the Institute.

The concept of listing acceptable commercial equipment is an extremely practical one and should be of assistance to all concerned. This first list does not presume to be exhaustive and suggestions from all Amateurs for additions to it would be welcomed.

Such suggestions should be sent to the Federal Secretary, W.I.A. (P.O. Box 2611W, Melbourne, Victoria), and not to the Department. Inclusion of photostat copies of the maker's specifications and recommended operating conditions will be of great assistance in negotiating approval.

Additions to the list of approved equipment will appear in "A.R." as and when such approval is obtained.

—H. L. Hepburn,  
Federal Vice-President,  
W.I.A.

Federal Secretary, W.I.A.,

Dear Sir,

As discussed previously in connection with the use of single sideband equipment, forwarded herewith is a list of equipment types which the Department is prepared to accept as meeting the 400 watt. p.e.p. power output limitation when operated in accordance with the maker's specification.

B. & W.:  
6100

Central Electronics:  
\*200V  
\*10A  
\*600L

Collins Radio:  
\*32S1  
\*32S3  
KWM1  
\*KWM2

R. L. Drake and Co.:  
\*TR4  
TX4  
\*TR3

Dynalab Co.:  
HW12  
HW22  
HW32

E.I. Co.:  
757  
\*753

Hallcrafters:  
HT46  
SR150  
SR160  
\*HT44  
\*SR500  
\*HT32B  
\*HT37

Hammarlund:  
HX500  
\*HX50  
\*HX50A

Heathkit:  
SB110  
\*HW12  
\*SB100  
\*SB400

E. F. Johnson:  
Viking 200  
Valiant 500  
Courier  
Invader

Lafayette:  
HA250 (linear amplifier)

National:  
NXC3  
NCX5

R.F. Communications:  
RF301

Swan Electronics:  
120  
\*350  
\*400

Transcon Electronics:  
SBT-3

KW Electronics:  
\*KW800L  
KW2000  
KW2000A

World Radio Laboratories:  
Duobander 84  
\*Galaxy III.  
\*Galaxy V.

Yaesu Musen:  
FL100  
FL200  
\*FL1000

\* This equipment must be modified in such manner as to preclude operation with input power in excess of 150 watts to the final transmitter stage when employed for type A1 emission.

In those cases where it becomes necessary to make a measurement of the peak envelope power, the following method shall be employed.

Apply two non-harmonically related sinusoidal tones of equal amplitude to the single sideband transmitter which is operating into a matching resistive dummy load and an appropriate r.f. current meter. With an oscilloscope connected across this load, the transmitter with the carrier fully suppressed is adjusted for maximum power output coinciding with linear operation as indicated visually on the oscilloscope.

The power output is then calculated by the formula:—

$$P_m = I^2 R$$

where  $P_m$  = mean power in watts.

$I$  = r.f. current in amps. flowing in the dummy load.

$R$  = resistance of the dummy load in ohms.

The resultant figure, being mean power, is doubled to give peak envelope power and this value must not exceed 400 watts.

Your comments on the above measuring method and advice of other types of equipment which might meet requirements would be appreciated in due course, please.

Yours faithfully,

C. M. Carroll,

for Director-General.

☆

## CONTEST CALENDAR

10th Dec. to 15th Jan.—Ross A. Hull Memorial Trophy V.h.f. Contest.

4th/5th Feb.—33rd A.R.R.L. International DX Competition (phone).

11th/12th Feb.—John Moyle Memorial National Field Day Contest.

18th/19th Feb.—33rd A.R.R.L. International DX Competition (c.w.).

4th/19th Feb.—A.R.R.L. Novice Round-up.

## WIRELESS INSTITUTE OF AUSTRALIA FEDERAL EXECUTIVE

The Institute can now offer annual subscriptions to the following Amateur Journals:

★ "QST"—Associate membership and renewals, \$5.40.

★ R.S.G.B.—"The Bulletin" is only sent with membership of the Society. Send for application form and FREE sample copy of the R.S.G.B. "Bulletin," \$5.95.

★ "CQ" Magazine, \$5.20.

★ "73" Magazine, \$3.50.

R.S.G.B. Publications and A.R.R.L. Publications available.

Send remittance to Federal Executive, C/o. Box 36, G.P.O., East Melbourne, C.2, Vic.

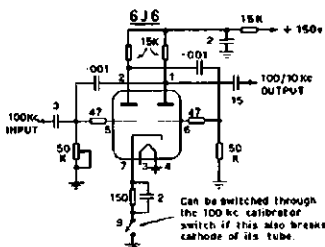
# HOW IS YOUR DIAL CALIBRATION?

BILL MAGNUSSON,\* VK3AHT

Not many years ago the person who had a 100 Kc. crystal calibrator was indeed fortunate. Today, however, a commercial receiver or transceiver which does not include this facility would be difficult to find. Such is progress. That which was once considered an accessory is now a normal functional part of the equipment. We refer to it constantly; to check calibration, meet skeds, give frequency checks, etc. But is it enough? How many times have you wondered as I did, "Just how accurate is the dial read-out or interpolation within these 100 Kc. check points?"

You may be surprised and probably not agreeably! In all but the most expensive equipment you will find small errors due to non-linearity in the tuning mechanism. True, they may be small, but what's the use of having dial read-out to one Kc. if the calibration is half a Kc. out at some point between the 100 Kc. calibration pips?

After having been accused a few too many times of being off frequency I decided to do something about it. But what? That was the question. A 50 Kc. crystal? Perhaps, but these are specials, very expensive and would probably require circuit modifications. A multivibrator, why not? They'd worked quite well for me in the past. But it had to be simple, the finished unit compact and above all no circuit mods. or holes to be drilled in the parent equipment.



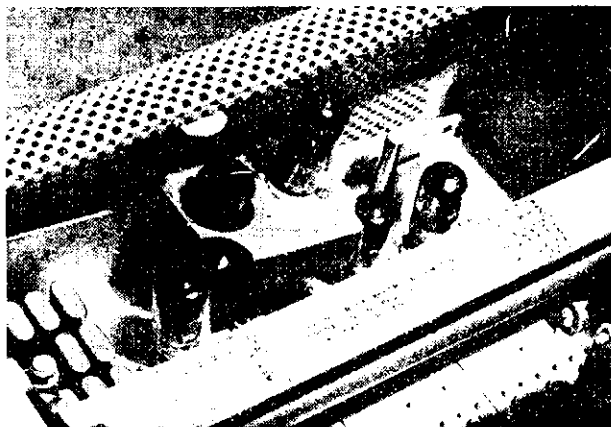
FREQUENCY DIVIDER CIRCUIT FOR CALIBRATOR

The little unit to be described filled all requirements admirably. There are no critical components, it can be constructed on a small panel  $1\frac{1}{2}$  in. by  $2\frac{1}{4}$  in., hardly bulky, which can be tucked away between a couple of valves and bolted to a suitable hole (there are usually plenty). Circuit connections are simply a matter of borrowing power from the parent equipment.

Basically this is it. The 100 Kc. calibrator output is used to lock a frequency divided at its 10th harmonic. The output, containing undiminished 100 Kc. and very slightly weaker 10 Kc. check points, is fed back to the receiver via a small coupling capacitor.

## CIRCUIT

This is quite standard and was gleaned from a R.S.G.B. article of some years ago where it was actually one stage of a more pretentious frequency sub-standard. It contains no tricks and should work first time. The tube can, of course, be virtually any twin triode but the 6J6 is ideal. The switched cathode connection is necessary to prevent hash from being generated by the multivibrator when drive is not present from the 100 Kc. source.



## CONSTRUCTION

This will depend on the availability of space in the parent equipment. As can be seen in the circuit and the photograph, the only components of any size are the tube and the pot. These therefore make up most of the total bulk of the unit.

The photograph will give an idea of the size of my own unit which is fitted to the 75S-1 receiver.

## ADJUSTMENT

- (1) Identify two adjacent 100 Kc. check points and calibrate the dial.
- (2) Slowly advance the pot. from the earthy end while rocking the receiver dial back and forth around the 50 Kc. mark midway between the two previously identified 100 Kc. pips.
- (3) At approx. mid scale on the pot. a signal will be heard which should zero at 50 Kc.
- (4) Leave the pot. and count the number of signals between the two 100 Kc. pips. There should be nine. If not, advance or retard the pot. until nine pips can be counted.
- (5) The final setting can be obtained by tuning in one of the 10 Kc. pips and then slowly rotating the pot., first one way and then the other, until the divider drops out of sync. The correct adjustment is approx. half way between these points.

I used a panadaptor to set mine and this considerably simplifies the adjustment as the number of pips can be counted directly from the c.r.t. display.

## OPERATION

Once adjusted the unit is perfectly stable and the note at each 10 Kc. point is T9. Output is quite usable to 30 Mc., the 10 Kc. pips being about S2 at this frequency.

Used in conjunction with a receiver which has direct one Kc. readout on the dial, it should now be possible to hit a specified frequency within  $\pm 100$  cycles. This is quite good accuracy, indeed, to achieve any greater degree one would require equipment much more costly than the couple of dollars outlay for the above unit.

## A.R.R.L. INTERNATIONAL DX COMPETITION

Amateurs throughout the world are invited to participate in the 33rd A.R.R.L. International DX Competition. Special certificates of performance will be issued to the top phone and c.w. scorer in each country. In addition, a handsome plaque will be awarded to the continental high scorers (non W/VE), single operator, on phone and on c.w.

Dates: Phone—Feb. 4-5, March 4-5, 1967.

C.w.—Feb. 18-19, March 18-19, 1967.

Times: 0001 G.M.T., Saturday, to 2400 G.M.T., Sunday.

Object: DX stations QSO as many continental U.S. and Canadian stations as possible. Repeat contacts on additional bands are permitted.

Points: Each complete contact counts three points, incomplete contacts count two points.

Exchange: Send RS(T) and input power. (The W/VE will send RS(T) and his State/Province.)

Multipliers: On each band, your multipliers are the 48 continental U.S. States plus VE1-VE8 and VO. Your final multiplier is the sum of multipliers worked on each band. QSO points time the final multiplier equals the final score.

Logs: Logs must contain dates, times in G.M.T., bands, exchanges and points. Logs, with summary sheet and multiplier check list, must be sent to A.R.R.L. no later than April 22, 1967. Send to: A.R.R.L. International DX Competition, 225 Main St., Newington, Connecticut, U.S.A. 06111.

\* 359 Williamstown Rd., Yarraville, Vic.



**NEW!** DESIGNED AND PRODUCED  
IN AUSTRALIA

## Pye 9 Mc. Crystal Filter Unit

### TYPE 9-0A FOR S.S.B. TRANSMITTERS

To satisfy an ever-increasing demand for a filter suitable for s.s.b. transmitting purposes, Pye engineers have developed the Type 9-0A which is now in production at our Crystal Division.

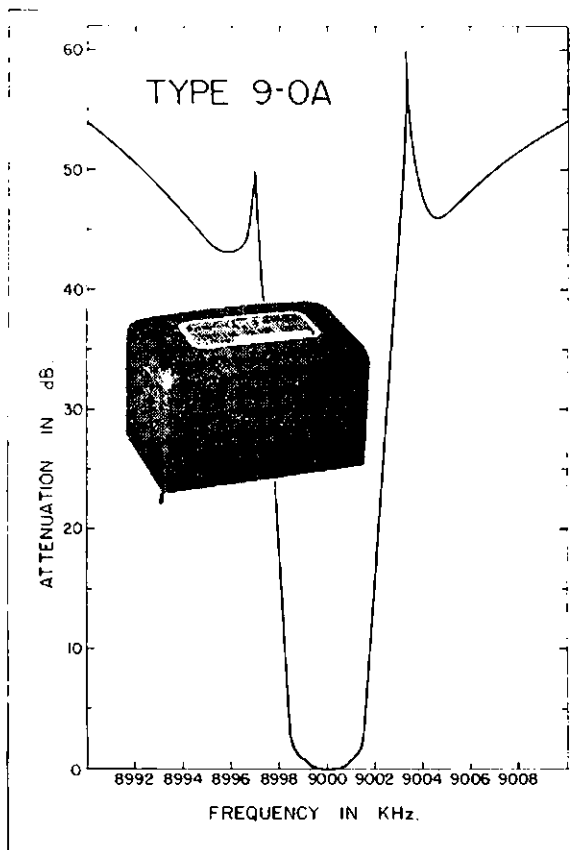
This filter, supplied with two Style "D" carrier frequency crystals and sockets, comprises a package unit. With each unit a typical schematic circuit diagram is supplied.

- Specifications:** 6.0 dB Bandwidth: 3 Kc. min.  
40 dB Bandwidth: 6 Kc. max.  
Pass Band Ripple: 2 dB max.  
Insertion Loss: 4.5 dB.  
Input Termination: 150 ohms plus 150 pF.  
Output Termination: 150 ohms plus 120 pF.  
Physical Dimensions: 2" x 1.375" x 1.125".

Recommended Oscillator Crystals: 8998.0, 9002.0 Kc.

**Price each package unit – \$30.00 plus tax**

Quantity discounts will be negotiated.



## Close Tolerance Gold Plated Crystals for Amateur Applications

Amateur Net  
(each includ. Tax)

- ★ 1.8 Mc. to 14.999 Mc.  $\pm$  0.005%. In Style "D" Holders,  $\frac{1}{2}$ " pin spacing **\$4.85**
- ★ 15.0 Mc. to 47.999 Mc.  $\pm$  0.005%. In Style "D" Holders,  $\frac{1}{2}$ " pin spacing **\$5.05**
- ★ 48.0 Mc. to 61.0 Mc.  $\pm$  0.005%. In Style "D" Holders,  $\frac{1}{2}$ " pin spacing **\$5.65**
- ★ 100.0 Kc. . . . .  $\pm$  0.005%. In Style HC13/U Holders,  $\frac{1}{2}$ " pin spacing **\$9.00**
- ★ 1.0 Mc. . . . .  $\pm$  0.005%. In Style "D" Holders,  $\frac{1}{2}$ " pin spacing **\$9.00**

Many other types and tolerances are available from our standard production.

Please consult us on your Crystal requirements.

## PYE PTY. LTD.

<b>MELBOURNE:</b>	<b>P.O. BOX 105, CLAYTON</b>	<b>Phone 544-0361</b>
<b>BRISBANE:</b>	<b>97 MERIVALE ST., SOUTH BRISBANE</b>	<b>.. 4-1571</b>
<b>SYDNEY:</b>	<b>59 ARUNDEL ST., FOREST LODGE</b>	<b>.. 68-4111</b>
<b>ADELAIDE:</b>	<b>1 IFOULD STREET, ADELAIDE</b>	<b>.. 23-3979</b>
<b>PERTH:</b>	<b>151-155 BRISBANE STREET, PERTH</b>	<b>.. 28-4338</b>
<b>HOBART:</b>	<b>141 MURRAY STREET, HOBART</b>	<b>.. 3-3707</b>

# SIDEBAND

Sub-Editor: PHIL WILLIAMS, VKENN

Main observations on the single sideband front this month have been the extensive use of this mode during the week-end of the "CQ" World-Wide DX Contest—phone section, and the Boy Scouts' Jamboree-on-the-Air, both of which happened to fall together. The organisers of both of these had better get together and arrange different week-ends in future, as I heard so many people say that they would have liked to have been in both, but, of course, a prior arrangement with the Scouts precluded participation in the DX Contest.

The Jamboree is now a well established feature of the Scout calendar throughout the world, and the number of sideband transceivers operating in Scout Halls, with antenna systems erected by the boys was commendable. These small transceivers lend themselves to this type of portable operation very readily. A pleasing feature this year was the large participation by Girl Guides. There appeared to be many more groups of girls on the air this year, and they were very good operators, too.

Since the Jamboree I have had numerous enquiries from Scouts regarding the methods of studying for the exam and obtaining a licence, and these lads will certainly make good Amateurs.

## NETTING WITH TRANSCIVERS

One hears many discussions on the air (and complaints) regarding netting and tuning up, especially the problems encountered with transceivers. The following points should be remembered and scrupulously observed:—

- Tune the station in carefully until you consider that the voice sounds natural—not just intelligible.
- After you have netted as well as possible, do not proceed to tune up the transmitter on the net frequency before you call.

It has been established that a male voice is intelligible with carrier insertion anywhere between minus 200 and plus 500 cycles per second from the correct frequency required for natural voice reproduction. While writing this I am listening to two VK3 stations, both using transceivers, using break-in with vox control, and about 200 c.p.s. apart. To me, one sounds quite natural and the other rather higher pitched, but both are perfectly intelligible. However, if I make the latter station sound normal—and I know his normal speaking voice, then the first station sounds anything but normal—quite ghastly, in fact.

I can only wonder whether my friend's transceiver oscillators are changing frequency between transmit and receive modes—this is possible—or whether he is just not very fussy about

tuning in. This oscillator frequency changing can sometimes occur with very strong signals actuating the a.g.c., and it is a good plan to check the oscillators, both crystal and v.f. types, on a separate receiver, if you are constantly receiving complaints about your netting and your procedures are apparently correct in other respects.

And now, on the subject of tuning up your transmitter or transceiver on a net frequency. I can only ask that you move to a clear spot on the dial to tune up, or preferably, and as stated in the Handbook for the Guidance—using a dummy aerial, the most satisfactory of which is a large non-inductive resistor. Many of the antenna tuners, "match boxes," or whatever they may be called, have a 50 ohm load built into them and this makes the job very simple.

Some transmitters and transceivers use an audio oscillator to provide a signal into the audio amplifier on

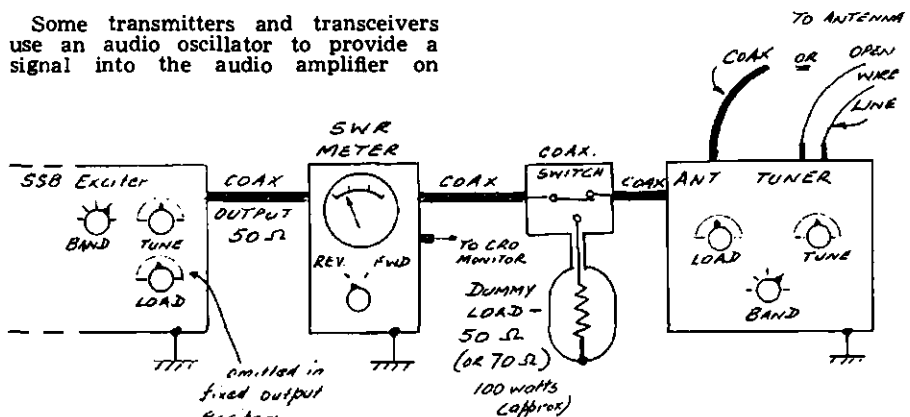


Fig. 1.—Set-up to give correct loading impedance to an s.s.b. exciter (or amplifier).

transceiver. This system of tuning up is quite good, but we must warn operators that, for example, the 1000 c.p.s. audio tone, if put on top of another net, can cause complete dislocation of the net and I sometimes wonder at the tolerance of net operators when they welcome (?) a new operator into the net after he has just tuned up for half a minute "bang" on top of the net stations.

I can only say, that if you do not possess a dummy load, then please move to a clear channel, or park on top of another source of noise (there are some infernal machines left running in the Amateur bands, and you can tell from the sound of them just what they are or are not doing) in order to get your tuning done. This subject is treated at some length, because I am quite sure some operators think they are putting out a "carrier" frequency, zero-beating with other (absent) carriers on the net, and therefore causing no interference.

## BAD SIDEBAND SIGNALS

Yes, there are plenty of them, and you'll hear more of them around as more stations come on. The causes are numerous, but I shall list some of the common causes here, in the hope that it may help the unfortunate sidebander who gets the thumbs down sign from his fellow Amateurs.

"Audio gain too high" is the commonest complaint of all, especially for the newcomer to sideband, who is anxious to get amongst the DX and does not watch either the meters or his enthusiasm, when working the weak, rare ones. The tendency to climb into the mike should be watched, and a "weather-eye" kept on the plate meter or output meter at all times. These should kick up to about half of the peak c.w. readings on test, when you speak. The handbooks usually tell you all about this and owners of commercial gear should read them carefully. The monitor oscilloscope is a very good monitor, and infallible in detecting flat-topping whatever the cause.

Incorrect loading of the transmitter is another frequent cause of broad distorting signals and even those exciters with variable loading controls should normally be adjusted using an s.w.r. meter followed by an aerial tuner. The improvements are quite amazing where

the aerial s.w.r. is high, as even if proper matching is possible, the resulting low or high Q of the output circuit may cause some queer results. The aerial tuner, Z-match, match box, a.c.u.—call it what you like—will make sure your final is presented with its correct load on the pi output tuned circuit. Linear amplifiers must be correctly loaded, otherwise spurious emissions may occur, even including parasitic oscillations at near output frequency. Sudden troubles with previously tame installations often result from broken aerials or feeders, for which the remedies are obvious. The s.w.r. meter will show up troubles of this sort very quickly.

Parasitic oscillations are diabolical things to cure, and I can only suggest that you be sure to include all the suppressors and chokes when you build and make provision for neutralising all class AB1 or AB2 linear amplifiers. You may operate on 80 and 40 without

(Continued on Page 10)



## PRINTED CIRCUITS AID AUSTRALIAN INDUSTRY!

Applications for printed circuits from Precision Windings in industry are growing daily . . . it's simply amazing how many leading electronic and design engineers specify "Precision Windings" boards. PW's photographic process does have many advantages . . . small numbers may be manufactured economically . . . definition and detail are crisp and clear . . . negatives are readily available for alterations . . . and tarnishing is prevented by a protective over-coating. Above all the PW process offers quality control at every stage of manufacture. This is why more and more industrial organisations are coming to Precision Windings for up to the minute technical advice and prompt, dependable deliveries.

### AND FOR THE HOBBYIST?

Don't worry . . . we're not neglecting our many friends who want a single circuit board. Send for our free folder on "How to prepare artwork" and for our price list. It matters little if you want one or a thousand boards . . . PW's price is most attractive. Many "Electronics Australia" designs are kept in stock and delivery is immediate. Special printed circuits are normally despatched within 7 days of receipt of your artwork. Artwork aids in the form of Solder Lands, Black Crepe Tapes, Clear Film and Transfer Letters are also available from Precision Windings at low cost. Write now!



52 Cambro Road, Clayton, Vic.  
Phone 544-7370

## SIDEBAND

(Continued from Page 9)

neutralisation, but not on 15 and 10 metres.

R.f. getting into the audio is another common cause of bad signals. This occurs with improperly shielded and filtered microphones and cables, especially where linear amplifiers are in use, and an older crystal microphone is retained in use. Keep the r.f. in boxes and low impedance co-axial cables, properly matched, in the shack, ground all of the equipment, and make sure the mike and its cables are well screened. Early audio stages must be screened and grids by-passed for r.f., and it is worth pointing out that these measures are better carried out while building than having to add them afterwards.

Again I would add, that if you receive a bad report, just accept it in the spirit in which it is given and get the fault repaired, using a dummy load on the transmitter for testing. The oscilloscope and station receiver may be very useful for tracking down such faults.

As a final word of warning—please keep the covers on the linear tube compartment so that you will not kill yourself on the e.h.t. supply to the final plates. A 6146 will stand 800 volts, but the operator probably will not!

Next time I have a few notes on input circuits for grounded-grid amplifier stages. 73, Phil VK5NN.

## W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. Position in the list is determined by the first number shown. The first number represents the participant's total countries less any credits given for deleted countries. The second number shown represents the total D.X.C.C. credits given, including deleted countries. Where totals are the same, listings will be alphabetical by call sign.

Credits for new members and those whose totals have been amended are also shown.

### PHONE

VK3AHO	310/322	VK4HR	261/277
VK5MS	309/330	VK2JZ	253/268
VK5AB	300/314	VK3TL	241/245
VK6MK	298/315	VK2ADE	223/237
VK6RU	296/319	VK2AAK	221/225
VK4FJ	273/290	VK2APK	217/220

### New Members:

VK5GX	101/101	VK6XX	110/110
VK4FX	108/109		

### Amendments:

VK3SM	117/119	VK2AGH	108/118
-------	---------	--------	---------

### C.W.

VK3KB	317/340	VK2AGH	276/289
VK2ADE	291/313	VK3AHQ	276/288
VK3CX	291/312	VK3NC	266/286
VK2QL	288/308	VK3ARX	261/269
VK4FJ	286/308	VK6RU	251/272
VK2EO	279/300	VK3XB	246/261

### Amendments:

VK3YL	239/256	VK3KS	203/209
VK3RJ	231/244		

### OPEN

VK2ADE	305/329	VK4HR	279/301
VK2AGH	305/323	VK2ACX	276/300
VK6RU	301/324	VK3ARX	270/278
VK6MK	300/317	VK3NC	267/287
VK4FJ	292/314	VK3JA	265/283
VK2VN	285/300	VK3TL	260/264

### New Member:

VK4CK 103/104

### Amendments:

VK2SG	161/165	VK4PX	143/148
-------	---------	-------	---------

# BRIGHT STAR CRYSTALS

## FOR ACCURACY, STABILITY, ACTIVITY AND OUTPUT

Our Crystals cover all types and frequencies in common use and include overtone, plated and vacuum mounted. Holders include the following: DC11, FT243, HC-6U, CRA, B7G, Octal, HC-18U:

**THE FOLLOWING FISHING-BOAT FREQUENCIES ARE AVAILABLE IN FT243 HOLDERS:—**  
6280, 4095, 4535, 2760, 2524 Kc.

5,500 Kc. T.V. Sweep Generator Crystals, \$7.25;  
100 Kc. and 1000 Kc. Frequency Standard, \$17;  
plus Sales Tax.

Immediate delivery on all above types.

**AUDIO AND ULTRASONIC CRYSTALS—Prices on application.**

455 Kc. Filter Crystals, vacuum mounted, \$13 each plus Sales Tax.

**ALSO AMATEUR TYPE CRYSTALS—3.5 AND 7 Mc. BAND.**

Commercial—0.02% \$7.25, 0.01% \$7.55, plus Sales Tax.

Amateur—from \$6 each, plus Sales Tax.

Regrinds—Amateur \$3, Commercial £3.75.

**CRYSTALS FOR TAXI AND BUSH FIRE SETS ALSO AVAILABLE.**

We would be happy to advise and quote you.

New Zealand Representatives: Messrs. Carrel & Carrel, Box 2102, Auckland.  
Contractors to Federal and State Government Departments.

## BRIGHT STAR RADIO

LOT 6, EILEEN ROAD, CLAYTON, VIC.

Phone 546-5076

With the co-operation of our overseas associates our crystal manufacturing methods are the latest.



# JOHN MOYLE MEMORIAL NATIONAL FIELD DAY CONTEST, 1967

SATURDAY, 11th FEB., 0800 G.M.T., TO SUNDAY, 12th FEB., 0800 G.M.T., 1967

The Federal Contest Committee of the Wireless Institute of Australia invites all Australian Amateur and Short Wave Listeners to participate in this Annual Contest, which is held to perpetuate the memory of John Moyle, whose efforts advanced the Amateur Radio Service.

There are two divisions of this Contest, one of 24 hours continuous duration, and one of 6 hours continuous duration. The six-hour period has been included to encourage the operator who is unable to participate for the full 24-hour period.

Operators using 25 watts or less input to the final stage will be considered for a certificate where his activity warrants its issue.

## DATE

From 0800 G.M.T., 11th February, to 0800 G.M.T., 12th February, 1967.

## OBJECTS

The operators of Portable and Mobile Stations within all VK Call Areas will endeavour to contact other Portable/Mobile and Fixed Stations in Australia and Overseas Call Areas.

## RULES

1. There are two divisions, one of six (6) hours, and one of twenty-four (24) hours duration. The six-hour period for operating may be chosen from any time during the Contest. But the six-hour period so chosen must be continuous. In each division, there are six sections:—

- (a) Portable/Mobile Transmitting, Phone.
- (b) Portable/Mobile Transmitting, C.w.
- (c) Portable/Mobile Transmitting, Open.
- (d) Portable/Mobile Transmitting, Multiple Operation, open only.
- (e) Fixed Transmitting Stations working Portable/Mobile Stations, open only.
- (f) Reception of Portable/Mobile Stations.

2. All Australian Amateurs are encouraged to take part. Operators will be limited to their licensed power. This power shall be derived from a self-contained and fully portable source.

(a) Portable/Mobile Stations shall not be situated in any occupied dwelling or building. Portable/Mobile Stations may be moved from place to place during the Contest.

No apparatus shall be set up on the site earlier than 24 hours prior to the Contest.

All Amateur bands may be used, but no cross band operating is permitted. Cross mode operation is permitted.

Entrants in Section (d) for Multiple Operator Stations can set up separate transmitters to work on different bands at the same time. All such units of a Multiple Operator Station must be located within an area that can be encompassed by a circle not greater than half a mile diameter.

For each transmitter of a Multiple Operator Station a separate log shall be kept with serial numbers starting from 001, and increasing by one for each successive contact. All logs of a Multiple Operator Station shall be submitted by the operator under whose Call Sign the transmitters are working. No two transmitters of a Multiple Operator Station are permitted to operate on the same band at any time.

3. Amateurs may enter for any section.

4. One contact per station for phone to phone, also one for c.w. to c.w. per band is permitted. Cross mode operation will be accepted for scoring.

5. Entrants must operate within the terms of their licences and in particular observe the regulations with regards to portable operation.

6. Serial numbers consisting of RS or RST report plus three figures commencing with 001 and increasing by one for each successive contact shall be exchanged.

## 7. Scoring—

### (a) Portable/Mobile Stations:

For contacts with Portable/Mobile Stations outside entrant's Call Area ..... 15 points

For contacts with Portable/Mobile Stations within entrant's Call Area ..... 10 points

For contacts with Fixed Stations outside the entrant's Call Area ..... 5 points

For contacts with Fixed Stations within the entrant's Call Area ..... 2 points

### (b) Fixed Stations:

For contacts with Portable/Mobile Stations outside entrant's Call Area ..... 15 points

For contacts with Portable/Mobile Stations within entrant's Call Area ..... 10 points

8. The following shall constitute Call Areas: VK1, VK2, VK3, VK4, VK5, VK6, VK7, VK8, VK9 and VK0.

9. All logs shall be set out under the following headings: Date/Time (G.M.T.), Band, Emission, Call Sign, RST/No. Sent, RST/No. Received, Points Claimed. Contacts must be listed in numerical order.

In addition, there shall be a front sheet showing the following information:—

Name.....Address.....

Call Sign..... Section.....

Division..... (6-hour or 24-hour)

Points Claimed.....

Call Sign of other op./s (if any).....

Location of Portable/Mobile Station....

From..... hours to..... hours

A brief description of equipment used, and points claimed, followed by the declaration:

"I hereby certify that I have operated in accordance with the rules and spirit of the Contest."

Signed..... Date.....

10. The right is reserved to disqualify any entrant who, during the Contest, has not observed the Regulations and the Rules of this Contest, or who has consistently departed from the accepted code of operating ethics.

11. The decision of the Federal Contest Manager of the Wireless Institute of Australia is final and no disputes will be entered into.

12. Certificates will be awarded to the highest scorer of each section of each division. Additional certificates may be issued at the discretion of the F.C.C. The six-hour certificates cannot be won by a 24-hour entrant.

## 13. Return of Logs:

All entries must be postmarked not later than 28th February, 1967, and be clearly marked "John Moyle Memorial National Field Day Contest, 1967," and addressed to:—

Federal Contest Manager, W.I.A.,  
55 Moulden Ave., Mt. Yokine,  
Western Australia.

## RECEIVING SECTION

14. This section is open to all Short Wave Listeners in VK Call Areas. The Rules shall be the same as for the Transmitting Stations, but may omit the serial numbers received.

Logs must show the Call Sign of the Station heard, the serial number sent by it, and the Call Sign of the Station being worked.

Scoring will be on the same basis as for Transmitting Stations. It will not be sufficient to log a station calling CQ. A station may be logged once only for phone and once for c.w. in each band.

Awards: Certificates will be awarded for the highest scorer in each Call Area.

# LOW DRIFT CRYSTALS

FOR  
**AMATEUR  
BANDS**

ACCURACY 0.01% OF  
STATED FREQUENCY

**3.5 and 7 Mc.**  
Unmounted, £2/10/0  
Mounted, £3/0/0

**12.5 and 14 Mc.**  
Fundamental Crystals,  
"Low Drift"  
Mounted only, £5.

THESE PRICES DO NOT  
INCLUDE SALES TAX

Spot Frequency Crystals  
Prices on Application.

Regrinds ..... £1/10/0

**MAXWELL HOWDEN**  
15 CLAREMONT CRES.,  
CANTERBURY, E.7,  
VICTORIA

- ★ **GALAXY V. All-Band S.s.b. Transceiver**, u.s.b./l.s.b. switching, xtal calibrator, with heavy duty 240v. a.c. supply/speaker unit in matching cabinet ..... \$650
- ★ **SWAN SW350 Transceiver**, same features as the Galaxy V. .... \$650
- ★ **GALAXY Duo-Bander 84, 40/80 mx S.s.b. Transceiver**, 300w. plus ..... \$225
- ★ **Hy-Gain TH3JR**, 10-15-20 mx 3-element Beam ..... \$100
- ★ **Hy-Gain TH6DX**, 10-15-20 mx 6-element Beam ..... \$200
- ★ **Hy-Gain 14AVQ**, 10-15-20-40 mx Vertical, coax-fed ..... \$50
- ★ **Hy-Gain 18AVQ**, same as 14AVQ with 80 mx coverage added ..... \$75
- ★ **Webster Bandspanner**, all-band mobile centre-loaded Whip, with bumper or body mounting ..... \$50
- ★ **D.c.-D.c. Mobile Power Supplies** for Galaxies and Swans ..... \$100 and \$120
- ★ **Alliance U98 and CDR TR44 and Ham-M Antenna Rotators**, with 230v. a.c. indicators-control units ..... \$55 to \$180
- ★ **Type Swan SW350 Vernier Dial Movement assembly** ..... \$3
- ★ **50 pF. Air-Trimmer Condensers**, with extension shafts ..... \$1
- ★ **9 Mc. German Crystal Filters**, with carrier crystals ..... \$35
- ★ **5180 to 5325 Kc. Crystal Filters**, octal plug-in, with carrier crystals ..... \$15½
- ★ **Used Eddystone 888A 160-10 mx bandspread Receiver** ..... \$225
- ★ **Used Wagner 1A all-band s.s.b. Transceiver**, with Wagner a.c. supply and speaker unit ..... \$350

All prices are net, cash with order.

## SIDEBAND ELECTRONICS ENGINEERING

P.O. BOX 23, SPRINGWOOD, N.S.W.

Telephone Springwood 51-1384, part of the Penrith telephone exchange area, not a Sydney exchange number!

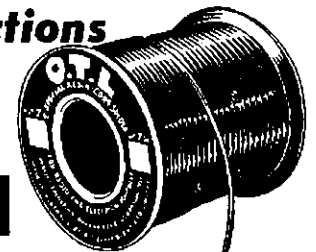
**For Reliable Connections**

# OTL

## RESIN CORE SOLDERS

**O. T. LEMPRIERE & CO. LIMITED**

Head Office: 27-41 Bowden Street, Alexandria, N.S.W.  
and at Melbourne • Brisbane • Adelaide • Perth.



OTL/79

## DURALUMIN, ALUMINIUM ALLOY TUBING

IDEAL FOR BEAM AERIALS AND T.V.

★ LIGHT      ★ STRONG      ★ NON-CORROSIVE

STOCKS NOW AVAILABLE FOR IMMEDIATE DELIVERY

ALL DIAMETERS—¼" TO 3"

Price List on Request

STOCKISTS OF SHEETS—ALL SIZES AND GAUGES

## GUNNERSEN ALLEN METALS PTY. LTD.

SALMON STREET,  
PORT MELBOURNE, VIC.

Phone: 64-3351 (10 lines)  
Telegrams: "Metals," Melb.



HANSON ROAD,  
WINGFIELD, S.A.

Phone: 45-6021 (4 lines)  
Telegrams: "Metals," Adel.

# LOG BOOK

IS NOW AVAILABLE

Larger, spiral-bound pages  
with more writing space.

Price 7/6 each  
including Postage

Obtainable from your Divisional  
Secretary, or W.I.A., P.O. Box 36,  
East Melbourne, C.2, Victoria.

# DX

Sub-Editor: ALAN SHAWSMITH, VK4SS  
35 Whynot St., West End, Brisbane, Qld.

Worthy of comment this month is the improved conditions on 21 and 28 Mc. The latter during the mornings has been open to U.S.A., Central America and Caribbean areas, as well as a few short skip signals in the Pacific and South East Asia. 21 Mc. also in the course of a day is open to North and South America and Asia, with Europe putting in a brief appearance in the later afternoons and occasionally at night around 1200 G.M.T. Both these bands should steadily improve.

20 mx. of course, is wide open to everywhere during each 24-hour cycle. 80 and 40 mx appear to have fallen away somewhat; the long and short path on the latter to Europe being something of a fringe circuit, with signals weak and difficult to work. On 80 mx the Asians are becoming audible before midnight, but the QRN at this QTH is also increasing rapidly.

## NOTES AND NEWS

Easter Is. Wally WA2PTQ plans to operate from here for a period of three months, starting about Oct. 10. He'll be using a Swan 350, but is unsure of his call sign at the moment. (LIDXA)

United Nations Neutral Zone: Paul IIRBJ will be operating IORB from what might very well be a new country for D.X.C.C. He plans to be on s.s.b. only. Probably QRT by the time you read this, but if you made a QSO, QSL via W2GHK, Box 7388, Newark, New Jersey, 07107. (LIDXA)

9X5VF: QSLs may be had from ON5PD, the customary GMT/GMD and SAE/IRCs for reply are required. (LIDXA)

VU2DIA QSL: These may be obtained from this address: B. S. Hedge, VU2DIA, Extra Assistant Director, I.S.P.W. Stn., Port Blair, Andamans, India A. A dollar or so goes a long way in assuring a speedy and direct reply.

Wallis Island: FW8RC, Robert, has a sked with some W/K7 stations most Saturdays and Sundays at 0600 G.M.T. on 14244 s.s.b. (LIDXA)

Cameroon: HK1QQ will be here for a two-year stay. Call now TJ1QQ, QSL via W4DQS. (G3UGT)

Malawi: 7Q7PBD, Peter, plans to be active again now that he has returned. (G3UGT)

Seychelles: George VQ9G is active from here. (G3UGT)

Gabon: TR8AD is active a.m., around 21190, 14225 kc., mostly week-ends. TR8AG is still active c.w. (G3UGT). QSL via Guy Vallier, B.F. 157, Libreville.

Zambia: Bon 9J2BK is active 15, 20 mx. (G3UGT)

Greenland: All KG1 now changed to OX5. (G3UGT)

Canada: For the Centennial year 1967, all VE prefixes change to 3C, VO to 3B. (G3UGT)

Guatemala: TGOAA operated by TG9EP is active week-ends around 14330 kc. from 2100z. QSL P.O. Box 684, Guatemala City. (G3UGT)

Indonesia: Bob 9V1LP is presently signing W0GTA/8F4 from Sumatra. He will be on almost daily at 1400 G.M.T. on 14140 s.s.b., listening 14225. He also operates 15 mx as well as c.w. on all bands. (LIDXA)

Brunei: VSSMH on 14192 listening 14210 at about 1230 G.M.T., is active. (LIDXA)

Christmas Island: VK9DR and VK9XI are back again. VK9XI was worked on 14110 listening 14240, at about 12-1600 G.M.T. QSL via W2GHK. (LIDXA)

Crozet: Max FB9WW has been on about 14210 at 1145 G.M.T. He usually QRT as soon as the pile-up grows. QSL K2MGE. (LIDXA)

Ebon and Cormoran QSLs: These are not worth the paper they are printed on. You can hang them next to KW8AW/BY and Gus' Chagos card. They count for nothing, and A.R.R.L. has disqualified them for D.X.C.C. status. (LIDXA)

Solomon Is.: Steve VK4LN has been active on 14240 around 0700 G.M.T. QSL via W7WLL. Also VR4CR 14015, 0500z. (Fla. DXer)

Galapagos Is.: HC8FN and HC8JG are both active on 14 and 21 Mc. (Fla. DXer)

Crete: SV0WL will stay here for two years. QSL via W3CJX. (VE3FXR)

Dahomey: 5N2AAW and 5N2AAX have licences to operate from Dahomey. They will be active week-ends. Signs TY2BC. (VE3FXR)

Das Is.: Active here is MP4DAH on 21 Mc. s.s.b. QSL D44AB.

Aldabra: VQ7HY is said to be active, for a period of six months. Modes c.w./s.s.b., 14 Mc. (VE3FXR)

Farquhar Is.: Don W9WNV at the time of typing this is about to open from here after just concluding a stint from VQ9AA/D Desroches Is. Call will be VQ9AA/F. Don and Jose CR7GF intend to go on from here to other exotic India Ocean areas so keep an ear to the frequencies. Don is always easily located by the big pile-up about 5-up from his frequency. QSL W4ECI.

Brunei: More info from here says that Jack VS5JC is on nightly from 1200-1600z. Freq. approx. 14025 and 7008. Also uses a.m. QSL W3VA. Jack will QRT from here on Jan. '67 and move to Malaysia where his call will be 9M2XX.

Sir Gus. W4BPD: The great DX-peddler is now putting out a DX magazine. It is reported to be a good publication and it should be if it included extracts from Gus' fabulous travels. No other info as regards rates, etc.

Falkland Is.: VP8HJ reported active on c.w. 14 Mc. around 1030z. QSL W2CTN. (VK4UC)

Uruguay: Have you worked CX9AAN. This is Willi from Zanzibar, who incidentally admits unashamedly that he is an uncertain QSL. Did anyone get a card from him when he was VQ1GDW? However, now that he has appointed W2CTN to handle the situation, all should be OK.

Azores: Lloyd and Iris are currently signing CT2YA from here. Some doubt as to their next movement, but keep an ear to the usual frequencies. QSL Yasm.

Grand Cayman Is.: This stint is now over, but I have been asked by Doc K4CAH to publish QSL info as there seems to be some confusion re same. ZFIEP, C/o W4FJG, P.O. Box 1647, Ft. Myers, Fla. 33902. Several VKs did make the QSO.

Antarctica: KC4USH gives his QTH as Howard Station, 2,000 miles south of N.Z. QSL to K1NAP, Davisville, Rhode Is.

The following by courtesy of ZL1HV:—  
Port. Timor: CR8AB is now reported as a boot-legger. Was thought to be ex-CR-6JJ, but not so.

Shetland Is.: GM3SVK active and looking for Oceania stations on all bands including 1.8 Mc.

Volcano Is.: KG6IC still active, 14 s.s.b., 0830z.

South Orkneys: LU1ZG, LU2ZG, VP8EG all on 14 c.w. now.

VF4LN/VB1 reported as foney.

Botswana (used to be Bechuanaland): ZS9G on 28 Mc., a.m. 1900z.

Ian Mayen: JY6XF 14 c.w. 1400z s.s.b. 1700z.  
New Amsterdam: FB8ZZ worked on 20 c.w. 1100z. QSL FR7ZD.

Dakar: 6W8DD daily on 14 c.w. 0730z.

Lord Howe Is.: When you read this if all goes according to plan, Arch VK5XK will be in the middle of his holiday and stint from this peaceful spot. Bands 80, 40 and 20 c.w. around 3508, 7010, 14015 give or take a few, depending on QRN.

## ACTIVITIES

Dad VK4MY reports from the Gold Coast that conditions overall are improved. Another convert to s.s.b., he has worked the following on 14 Mc.: 4X4HW, GM3FEK, VS4BL, DU1EH, KC4USS, GC2FMV, SL6BH, IS1TDW, IT1SAI, CX1AAC, CX3CO, H18XAL, FB8YY, EP2BQ, OX3BX, KC4USH, also Ks and Ws on 10 mx.

Chas VK4UC, who really runs QRP, logged these nice ones on 14 Mc. c.w.: VP8HJ 1030z, HK5VS 0600z, UG6AW 0430z, ON4NC 0830z, ON5SO 0700z, PY5BAJ 1000z, HC1BW 0600z, HC1HB 0700z, KS4CC 0800z, CT2YA 0830z, CX9AAN 1040z, HK5YC 0600z, UA2KAW 0600z, FB8YY 0700z, HK7UL 0700z, also Europeans.

Peter VK4PJ writes giving an impressive list of s.s.b. worked on 20, 15, 10 mx. His Galaxy and beam seem to be really doing the job. Peter reports many good openings on 15 and 10 mx, which is confirmed by other reports, both local and overseas. On the latter band, several Europeans were worked at good strength, also some Oceania prefixes. On 15 mx calls such as HV9J, CR9AK, YA5RG, MP4MAW, F8FA, PA0LS, SM7SX, ZC4CN were QSOed just to mention a few. On 20 mx some of the best were: O8D, CN8BV, VS9OC, VS9AGH, VF5RB, F2KC, CE1FC, ON4NC, ON4EZ, TT-2HP, VE2AUT, HK2KL, VS8AJ, VQ9AA, ZS-6VX, ET3AC, OK1AOP, etc.

Ken VK8TL, with his big quad, landed this long list of choice ones: 20 mx c.w., s.s.b.: CE8CA, CE9AO (Sth. Shetlands), CN8BV, CR-7GJ, CR7GF, CT3AU, CX1FB, CX1OP, CX9CO, CX9AAN, CX2CO, E18S, EP3BQ, ET3AC, GC-2FMV, GC3FKW, GD6TIU, GM2HCZ, H18XAL, H18LC, KM9AB, MP4TO, KP4A00/KG4 (Guantanamo B.), OA8V, OX3BX, PJ2AQ/C, SL3ZV, VE3FJZ/SU, SV1BH, TG8CJ, T18LH, U76KPE, UF6QB, VO1HP, VP2AC, VP2KJ (St. Kitts), VP9BDA, VQ8AX, VQ9AA/D, VR8TC, W8WCA, YV9AA, ZC4CN, ZC4CI, IIR4U/

4X4HQ (Israel), 5A4TR, 5U7AK, 6O6BW, 6Y-5BB, 9M8RS. Best QSLs received: LA5CI/P (Jan Mayen), 1ICX7/IS, ZB2AM, ZB2AJ, W5HWR/VF9, 9G1FR, ZC4CI, TG8CJ, E18S, VP2AAW, VP2AA, VP2GR, VP2GS, HB0ABS.

## QTHs

KS4CC—Box 1148, Miami, Fla., 33148.  
HC1HB, HC1BW—W3CQZ.  
W0GTA/8F4—W2CTN.  
VQ8AX—VQ8AD.  
11RB/4U—W2GHK.  
PJ2AO/C—P.O. 273, St. Nicolas.  
6O6BW—W4HKJ.  
H18XMT—U.S. Embassy, Santa Domingo.  
CT3AS—R.S.G.B. ex-G8SJ.  
VS8HRV Kuria Muria—VS9ARV or R.S.G.B.  
5J4RCV—Box 2300, Medellin, Colombia.  
CO8MN—Box 102, Bayamo, Cuba.

## SUMMARY

Being a Ham is belonging to the great Brotherhood. One half-million of us: equal, without class prejudice, color or creed. But, even within this big family, clubs are daily being created to meet the needs of those who have special interests or activities. The Int. S.s.b.'ers puts personalities before prefixes. The A.H.C. or Award Hunters' Club is self explanatory in its aims. Also other clubs exist for technical discussion rather than social togetherness. In them each Ham finds his sense of belonging according to his particular desires.

Let me bring to your notice the P.L.C. (Professional Loafers' Club). Its membership is world wide and anyone who is disabled, pensioned, retired or has a valid reason for not pursuing further the rat race may apply. The resultant certificate makes good wall paper, but what is more important, one finds oneself in good company. I have read the membership list and it includes some worthy names, Ham and otherwise. Many are disabled through war or accident. Its president is confined to a wheel chair, but his endeavours show that along with countless others of this world's limping men that the word defeat is not in his dictionary. The club has his frgs. for rag chewing, etc. If further interested, write to P.L.C., W8DVV, Eimer J. Malone, Pres., P.O. Box 8042, Riverside, California, 92505.

My thanks to the month's contributors: LIDXA, Fla. DXer, "Air Waves," G3UGT, ZL1HV (Ed. "Break-in"), VE3FXR, VK4UC, VK4PJ, VK3TL, VK4MY, 73, AI VK4SS.

## VK CONTEST MEN

Remember your 1966 VK/ZL Contest log must be posted this month. It must arrive in ZL before 31st December. Address: N.Z.A.R.T. Contest Manager, 152 Lytton Road, Gisborne, New Zealand.



## NEW CALL SIGNS

AUGUST 1966

- VK1ZMB—B. J. Mayfield, Reid House, Allard St., Canberra.
- VK2BDR—A. M. Brighton, 73 Best St, Wagga Wagga.
- VK2BIE—C. S. Shaw, 193 Jamison Rd., Penrith.
- VK2BIH—J. H. Thompson, 34 William St., Hornsby.
- VK2BKH—K. R. Harvey, 18 Hilltop Cres., Fairlight.
- VK2BMG—G. M. Browning, 34 William St., Hornsby.
- VK2ZGL—S. G. Leatham, 31 Arcadia St., Coogee.
- VK3AKL—K. S. Hunt, 112 Roslyn St., Middle Brighton.
- VK3AYN—H. W. Gilbert, 1 Roseberry St., Hawthorn.
- VK3ZKH—G. J. Cohen, 24 Pakington St., Kew.
- VK3ZSS—L. De Vries, 167 Lloyd St., Moe.
- VK3ZTD—T. D. Ryan, 56 Hillview Ave., Mt. Waverley.
- VK3ZUK—B. K. Freer, 7/98 Brighton Rd., Elsternwick.
- VK3ZVS—A. G. Le Grip, 37 Moorhouse St., East Camberwell.
- VK4CM—C. A. Miller, "Lumeah," 26 Grigor St., Moffat Beach, Caloundra.
- VK4ZBV—L. Guralnek, 120 Hardgrave Rd., West End, Brisbane.
- VK4ZDB—S. R. Brooks, 142 Long St., Too-womba.
- VK4ZJE—J. K. Edwards, 39 Robertson St., Sherwood.
- VK4ZWE—W. E. Bennett, 24 Oxford St., Buranda.
- VK5ZIA—R. W. Anderson, 9 Stockton St., Elizabeth.
- VK5ZM—R. M. E. Olesnick, 25 Edwards St., Colonel Light Gardens.
- VK5ZA—A. A. Cooper, 33 Lincoln Cres., Pooraka.
- VK6ZEX—B. C. Campbell, Flat 9, 90 Wanneroo Rd., Tuart Hill.

# A LARGE RANGE OF TRANSMITTERS, RECEIVERS, TEST GEAR, AND DISPOSALS ADIO PARTS AVAILABLE

- ★ **TRANSCIEVERS, TR1986-7**  
115-145 Mc. Employs heterodyne exciter in tx. TT15 p.a. Single xtal locks Tx and Rx on same frequency. In-built modulator. Supplied with 4.86 Mc. xtal. \$30, circuit \$1.
- ★ **MARCONI TF1101 R/C OSCILLATOR**  
20 c.p.s. to 200 kc., 1% distortion, current model. \$240.
- ★ **SR550 DUAL CONVERSION COM. RECEIVER**  
160 metres to 6 metres, Amateur Bands only. 3.5 Mc. xtal band edge marker, xtal supplied, product detector for s.s.b. \$240, 10% discount for cash.
- ★ **SCR522 V.H.F. TRANSMITTER/RECEIVER**  
100-150 Mc. Complete with tubes, \$28.
- ★ **PERSPEX SHEET**  
1/16 inch thick. Size 4½" x 16". \$1 per sheet.
- ★ **COMMAND TRANSMITTERS**  
4-5.3 Mc., 5.3-7 Mc. Complete with tubes, \$15.
- ★ **TR3624 TRANSMITTER/RECEIVER**  
Approximate frequency, 200 Mc. Contains 46 miniature tubes, \$30.
- ★ **3J160E HIGH POWER TRIODES**  
120 Mc. full ratings. Heater 10v. 29a., anode max. volts 3000v., anode max. current 1000 mA., r.f. output 2150 watts. \$8 each.
- ★ **SR700A TRIPLE CONVERSION COM. RECEIVER**  
80 metres to 10 metres. 1st and 3rd oscillators xtal controlled, 3.4-4.0 Mc. tunable i.f., selectable sidebands, 85:1 geared dial, v.f.o. output for transceive operation, selectivity: 0.5, 1.2, 2.5, 4 kc. Internal 1 Mc. xtal calibrator (xtal supplied). Undoubtedly the finest receiver ever to come out of Japan. \$500, 10% discount for cash.
- ★ **MILLER 455 Kc. PRE-WIRED I.F. STRIPS**  
Comprises two i.f. stages, ceramic filter, diode detector, 55 db. gain, NPN silicon transistors, d.c. requirements 6v. d.c. 2 mA., size 1½ x ½ x ½ inch. \$8.70 inc. tax.
- ★ **TR10A MULTIMETERS**  
100,000 ohms per volt. Ranges, d.c. volts: 0.5, 2.5, 10, 50, 250, 500, 1K.; a.c. volts: 2.5, 10, 50, 250, 1K.; d.c. current: 10 uA., 1 mA., 25 mA., 250 mA., 10 amp.; resistance: 20K, 200K ohms, 2 megohms, 20 megohms. To clear, \$25.95.
- ★ **POTENTIOMETERS**  
Wire wound, 40c each; carbon, 25c each.
- ★ **RESISTORS**  
¼ watt, I.R.C., Welwyn, Eire, Ducon, Philips, \$2 per 100.
- ★ **¾ H.P. 2-STROKE MOTORS**  
Ohlsson and Rice. Brand new, just imported from America. Weighs only 5½ lbs. 6,300 r.p.m., supplied with 3:1 reduction gearbox, output 2,100 r.p.m. Ideal for driving Alternators for Field Days. Fuel consumption 1 pint per hour. \$30.

## WANTED TO BUY

Communication Receivers, Test Equipment, etc. Call, write or phone. Equipment inspected and picked up at your convenience any night or week-end.

- ★ **VALVES**  
EF50, 20c ea.; 7C7, 10c ea.; CV131, 6CQ6, 50c ea.; 6AC7, 20c ea.; 6AL5, 20c ea.; 6C4, 6AM5, 50c ea.; QQE03/12, \$2 ea.
- ★ **SIGNAL GENERATORS**  
TE22 Audio Generator, freq. range: sine 20 c.p.s. to 200 kc., square 20 c.p.s. to 25 kc., in four ranges. Output, 7v. p-peak. Output impedance, 1,000 ohms. Price \$42.
- ★ **METERS, P25 TYPE**  
0-500 uA., \$5.25; 0-100 uA., \$6.95; 0-1 mA., \$4.50; 0-10 mA., \$4.50; 0-50 mA., \$4.50. Full range of Meters and Multi-Testers available.
- ★ **CO-AXIAL CABLE**  
UR70 72 ohms, 3/16 inch diam., in 27-yard rolls, \$2 plus 75c pack and post. In as-new condition.
- ★ **RAIB COMMUNICATIONS RECEIVER**  
150 Kc. to 15 Mc. in six bands. B.f.o., etc. Genuine original condition, with a.c. power supply, \$70.
- ★ **TRANSISTORS**  
Brand new. OC72, OC44, 2N132, OC66, OC45, 80c each. AT1138 Power Transistor, 30w., Class B, \$3. Also Diodes: OA71, OA81, OA95, 35c each.

## ANY QUERIES

Beginners are welcome, ask Jim and Laurie Gardiner any questions. They are Amateur Radio operators and will be only too pleased to assist.

- ★ **CRYSTALS**  
Personal shoppers only, \$1 each.
- ★ **SPECIALS**  
3AP1 c.r.o. tubes. New in cartons, \$1.25.  
3000 type Relays, 50c each.  
Inter-Office Phones, 15-station type, \$4 each.  
7-pin skirted Valve Sockets, P.T.F.E. insulation, silver plated, only 20c each, c/w. shield.  
Speaker Transformers: 7000 ohms to 2 ohms; 10,000 ohms to 3.5 ohms; 50c each.  
9-pin skirted P.T.F.E. Valve Sockets with shield, 50c each.  
Irish Recording Tape, Mylar Base: 150 ft. x 3 in., 75c; 900 ft. x 5 in., \$2.75; 1150 ft. x 6½ in., \$3.50; 1800 ft. x 7 in., \$4.75.  
3 uF. 1000v. d.c. Block Capacitors. Only 25c each or \$2 per dozen.
- ★ **MINIATURE CAPACITORS**  
New shipment. 600 v.w. Values: 0.001, 0.02, 0.005, 0.0005, 0.0002, 0.0001 uF. \$2 for 80, plus freight.

ALL ITEMS FREIGHT EXTRA

# UNITED TRADE SALES PTY. LTD.

280 LONSDALE ST., MELBOURNE, VIC. (Opp. Myers)

Phone 32-3815



# VHF

Sub-Editor: CYRIL MAUDE, VK3ZCK  
2 Clarendon St., Avondale Heights, W.2, Vic.

Well the Festive Season is around again with the Ross Hull Memorial Contest, the VK2 New Year's Field Day and let's hope lots of DX. This will be my last note until February so The Compliments of the Season and the best of DX. How about this for a New Year's resolution: Send in "A.R." notes neatly typed on half a quarto page by 25th of the month, 73, Cyril 3ZCK.

## V.H.F. CONTEST/FIELD DAY

The VK2 V.h.f. Group are holding a large scale contest cum field day in N.S.W. over the New Year Week-end. All Divisions are invited to participate in this previously successful contest in which logs have been received from all States of VK and ZL.

The contest will be of three days' duration, i.e. Sat. Dec. 31, Sun Jan. 1, and Mon Jan. 2. It is felt that this gives keen operators a reasonable amount of time in the field. Perhaps interstate V.h.f. Groups could organise stations in their own States to help make this the best yet held.

The times of operation will be as follows: Saturday, 31st Dec., 1700-2100 hrs. E.A.S.T. (0700-1100z 31/12/66) period one. Sunday 1st Jan., 0500-0900 hrs. E.A.S.T. (1900-2300z 1/1/67) period 2. 1100-1500 hrs. E.A.S.T. (0100-0500z 2/1/67), this section is a message handling contest only. 1700-2100 E.A.S.T. (0700-1100z 2/1/67), period 3. Monday, 2nd Jan., 0500-0900 E.A.S.T. (1900-2300z 2/1/67).

Last year skeds were made with ZLs at 0400 E.A.S.T., the result being a VK-ZL contact. There are three sections for the contest: Section (a), home station—open. Section (b), field station—open. Section (c), field station—2 metres only.

Open sections are all bands 144 and up. Six metres is not included owing to peculiar propagation conditions.

Scoring is as follows: For 144 Mc., 0-50 miles, 1 pt.; 50-75 miles, 2 pts.; 75-100 miles, 3 pts.; 100-150 miles, 6 pts.; 150-200 miles, 10 pts.; 200-300 miles, 15 pts.; 300-500 miles, 20 pts.; 500 and up, 40 pts. For 432 and 576 Mc., multiply by two, and for 1296 Mc., multiply by three.

The normal numbering system will apply (e.g. 59003 or 599005 for c.w.). Logs may be submitted for all periods worked, but only one period may be submitted for scoring with the exception of the message handling section, which should be submitted as a separate part of the contest—therefore you may submit a message handling log along with the DX log.

Interested parties should contact the contest committee of the VK2 Group for further details, we would however like to receive from you the following details: Name, Address and Call Sign, proposed location, frequency of operation and expected time of operation—this applies to either home or field stations. The VK2 Group will act as the collection point for all information and will keep all interested parties informed. Please send in details as soon as possible to Mr. P. Carter, VK2ZPC, 5 Bell Place, Mt. Pritchard, N.S.W.

## HUNTER RIVER BRANCH

52 Mc.: Things have been quiet for the month of October, the only break throughs so far being the small one reported when Bill 2ZWM hit the jackpot, Channel 0 has been heard often but think this is only Wagga or Bega.

Most of the 52 Mc. boys have been keeping an eye on the band, but nothing so far. The 52 Mc. net is in operation at 10 a.m. Saturdays and Sundays. At times conditions have not been the best, what with the storms and west winds, the band has been noisy. Key 2ZKWV now has his 6148 final going on this band and has tested it with Mac 2ZMO. Luckily for 2ZMO he only had 300v. and not 600v. on it, so you VK5s look out, and bolt down your converters and speakers to the bench. (Note, many VK3s run in excess of 60w. on 6 mx as well.—Ed.) By the time this gets into print, I hope that the band will have been open a number of times. See you all on 52 Mc.!

144 Mc.: The main events this month have been our yearly Convention and Field Day, with our monthly meeting on the Friday night

with a competition for home-built gear. This was won by Bill 2ZWM, who described a 6 and 2 mx tx with a common modulator. His prize was a "Radio Designer's Handbook," so now you VK5s can get all the answers from Bill. It is noted that only four took part in the competition, all being Z calls.

On 12th of the month the band opened to Sydney, quite a few were caught unprepared. The lucky ones were Gordon 2ZSG, Bill 2ZWM, Des 2ZDN and a few others, most signals were 9 plus and the band stayed open till fairly late. As far as I know, Des 2ZDN worked Dick 2ZCF on 432 Mc. while the band was open. 73, Mac 2ZMO.

## NEW SOUTH WALES

The V.h.f. Group Christmas Party will be held on 10th Dec. at QTH of Joe 2ZOO at 7 Tralee Ave., Killarney Heights, starting at 8.30 p.m. There will be a fox hunt prior to the event—for details of this keep an ear on the broadcast. If you intend coming, please advise 2ZSK or 2ZOO so we know how many to cater for.

By now the path to ZL should have opened again—if last year was any indication. We should be in for some good openings.

It has been noted that attendances at the fox hunts have dropped a bit, so come on you mobile enthusiasts. How about coming along and enjoying yourself for the evening as well as the hot dogs and coffee at the conclusion of the event?

The results for the VK2 V.h.f. R.D. Contest are as follows: 1st, Tony 2ZCT; 2nd, Stephen 2ZSK; 3rd, Col 2YJ; 4th, Arthur 2ZGA. Congratulations to Tony who has done the hat trick with three wins in a row. The trophy for this will be presented to Tony at the Christmas Party.

The October meeting was very well attended, with Keith 2BK lecturing on the uses of laboratory type test equipment. Equipment on display included a spectrum analyser, frequency counter, audio signal generators, and many other pieces of test equipment.

The December meeting will be the Annual Auction Night, which usually draws a good crowd. The January meeting is an open night when anyone can get up and talk on his pet subject or show slides or movies.

The committee would like to hear from any of the country stations who wish to work into Sydney—particularly Orange, Bathurst, Canberra, etc. (Melbourne operators would like to hear from any Sydneysites wishing to work into Melbourne.—Ed.)

Reg 1ZMR is on regularly from Canberra and was portable on Mt. Ainsley with 1ZCG a couple of weeks ago. The signals into Sydney were excellent. 73, 2ZSK.

## VICTORIA

Conditions over the month of October have been reasonably good with an excellent opening to VK7 to 2 mx and to all States on 6 mx. I would like to request all VK operators wishing to work ZLs to (a) On 2 mx call with their beams East between 1700 and 1900 E.A.S.T. (2) On 6 mx listen for the ZL Chan. I t.v. on 50.75 and call on six metres between 52 and 53 Mc. This little request is from Harry ZL2APC.

It is hoped to have a 6 mx beacon operating from Macquarie Island at the end of 1966. The proposed call sign is VK0KB. Listen to VK3WI Sunday morning broadcasts for further information. 73, Cyril 3ZCK.

## SOUTH AUSTRALIA

Strange things are happening it would appear with respect to sporadic E DX on 6 mx. Since the 10th and 11th Sept. not one signal of DX proportions has been heard in VK5, that is if you disregard the Channel 0 transmissions from both VK3 and VK4.

On the local front the main 6 mx activity is provided by the ever-faithful watch dogs on the band and also by W.I.C.E.N. on their net frequency of 53.1 Mc. Geoff 5TY, the coordinator for VK5, of recent months has by various means commissioned in excess of 25 mobiles on the net. Numerous exercises have been conducted to improve operating procedures. Nonetheless the results obtained by Geoff have been extremely gratifying. To test the capabilities of the group, an exercise extraordinary was conducted on the long week-end on October 8 and 9. Briefly, the object of the exercise was to conduct message handling between Murray Bridge via Adelaide to Port Pirie, an approx. distance of 150 miles, utilising low power mobiles using only whip antennae, placed at strategic locations. In all, 23 stations participated and although the results were most commendable, many faults were observed in operating procedures. Officers of the E.F.S. observed the exercise and were impressed by what they saw.

On the same week-end, Jim 5ZGV, with Edwin 5ZTS, located at the South Hummocks, received television signals from Maitland 5AO,

Rick 5ZFG and Andrew 5ZBP, stationed portable at Willunga Hill, a distance of 96 miles. Photographed evidence of the received pictures indicate that excellent picture quality was available at the receiving location. The receiving equipment at the Hummocks consisted of a 420 Mc. transistorised converter to a commercial transistorised t.v. rx. The tx used was the home station of Maitland 5AO transported complete to the portable location and powered with a motor generator. Whether or not this constitutes an Australian record for Amateur Television transmissions is incidental as the Amateur T.v. Group are extremely pleased with their results so far and intend raising this distance of 95 miles in the near future. They are also intending to make it a two-way contact.

With respect to 2 mx activity, the only news of any consequence comes from Port Pirie where Jim 5ZMJ is currently using s.s.b. It would appear from results to hand so far that the t.v. situation has been minimised and perhaps extended hours of operation from the Pirie district will be available. 73, Colin 5ZHJ.

## MT. GAMBIER

The South Eastern Radio Group would like to advise all Amateurs that the June Convention that was postponed will be held over the long week-end at the end of January. Those who registered for the June Convention are automatically registered for the January one, but others can register but no guarantee of accommodation can be made. It is therefore suggested that if you book, first make your own accommodation arrangements. Any further information can be obtained from Colin Hutchesson, 5ZKR, Yahl, via Mt. Gambler.



# YOUTH RADIO CLUBS

By the time this is printed, it will be the season of good wishes. I have a few myself. First a load of good wishes to all the brave instructors who weathered the 1968 storms—and also had a lot of pleasure. Then more good wishes to all the W.I.A. administrators who have helped Y.R.S.—they will be happy with the end result. Special good wishes to Rex 2YA who has given so much for years before 1968. Special good wishes to the young graduates of Y.R.S. who are giving back to the scheme some of the help they were given—in some cases more. Finally, good wishes to all the budding electronic experts—they'll always enjoy it. I should perhaps add a few best wishes to my four readers over the past few years—I'm hoping this is my last effort at these notes—personal matters are pressing hard for time. Y.R.S. will continue to expand and a future correspondent will have plenty of events to chronicle.

The Articles of Association of the Youth Radio Clubs Scheme of Australia (Victorian Division) has been printed and no doubt Howard Rider will discuss the idea or send you a copy if you get in touch. This new development should be watched with interest. Certainly Howard and his committee are very keen and much good work is sure to follow.

Young graduates of Y.R.S. in VK2 are putting a great deal back into the scheme, particularly Roger 1RD and Susan 2BSB. Roger is not only instructor on Friday nights for a Canberra group of Y.R.S., but also puts a lot of work (with help from Susan) into producing the "FG3 and FG4 Bulletin," running from 4 to 12 pages and containing a lot of news and hints—4 cents a copy. Roger has also prepared a correspondence course for Junior Certificate. This contains a lot of theory notes (although of course being 29 pages, is not a text book), a set of assignment questions and other necessary comments on theory and practical sections of Junior. This was mainly prepared for use by members of Roger's Postal Group but is very likely to be suitable for clubs. Anyone who wants a copy (especially new club leaders who would like to see how another club is instructed) should send 40 cents to Roger (only with 4 cent stamps).

This raises the point of expenses. Costs are mounting as the scheme expands. There are two possibilities at the moment—one is to charge fees for registration, instruction and examination (and we must remember that very often a free service is not valued), and the other is to get many or large donations. At the very least, donations of stamps could be sent back to the Division or group which sends out material. Christmas Island Club donated £3/11/6—why can't others give something?

I hope I'm not doing a Nellie Melba farewell, but I will again say "Cheers" to my four readers and best wishes to the new correspondent. 73, Ken 1KM.

# SWL

Sub-Editor: D. GRANTLEY, W1A-L2022  
P.O. Box 222, Penrith, N.S.W.

The highlight of October listening was the VK/ZL Contest, and although I personally did not participate in the phone week-end due to other commitments, conditions over the c.w. period indicated that there will be some high scores once again. To me the greatest surprise was the breakthrough on 15 metres on Sunday of the c.w. period. This band was open here from 7 a.m. to 7 p.m., with loads of good DX. One hesitates to mention an individual performance amongst the transmitting stations in an event such as this, where it is possible (as I did) to go through the entire week-end and not hear a call from other than the Eastern States. But at the risk of repeating myself, I must congratulate Dave 2EO for an outstanding performance on c.w., and for his fine operating.

## QUERY SERVICE

A couple of months ago I mentioned that Harry Major is able to provide copies of circuits, etc., and gave all the details. However I failed to give you his address. It is: Harry Major, W1A-L3102, 30 Seaton St., Glen Iris, S.E.6., Vic. I can recommend these copies, they are clear and really well done.

## AROUND THE SHACKS

Often when a member takes on a special office with the Institute, so much of his time is taken up in fulfilling his task that operating time is sadly reduced. This unfortunately applies to Eric L3042, but despite his long hours with QSL handling, Eric's log book still increases at a state which would put all of us to shame. Some of the loggings for Oct., all of which on c.w., were: 80 mx—W2GWE; 40 mx—Eric heard over 100 Europeans, plus KH6J, KL7FRY, PY1CSF, VR2DK, VETVC, IS1PEM, JA1EVV/MM, K3WWE/MM, 4X4QA, and 6Y5BB, the latter making his appearance at 0715z. 20 mx again proved to have plenty of good ones including FH8AH, HK3RG, LU-6DJK, KL7FRY, KP4BBN, OX3BC, KX6ER, OA4VE, OA4PF, ODLXK, FT1DX, ODSEB, T12LZ, ZC4GB, VK0MI, and VR4CI. 15 mx. If I remember correctly, is rarely frequented by Eric, who can keep himself fully occupied on 40 and 20, however this month is an exception and loggings of JA1AB JA1THL, W5BRW, W6LCX, W6ITA and W6GMN were made. Inward QSLs for L3042 were CR6BK, EA7ME, UA2CA, LU8BAJ, KH6FLC, SV0WKK, YV5ACP, 4X4ON, 5A1TY, W2AIW/MM, VESWT, plus the following which were the result of 80 mx reports: UA9KMB, UA0KCC, UBSARTEK, UB-5KDS, WSKUN and W9GL. Thanks Eric for a swell report and I trust you get into the DX which is coming through on 15 at present.

Mac Hilliard has been active in s.w.l. circles for many years and as most of you know is very interested in reception on the higher frequencies. Thus he was delighted last week to catch a breakthrough on 20 mx, when in a moderate period, he was able to log all W call areas, plus many stations in the Islands and also UW0. Mac tells me that it was the best opening on 10 in the last four years or so, and is hopeful of this band coming good in 1967. The overseas reports coming in here indicate that there have been good loggings made on this band in G land and other parts of the globe.

On the home front here at L2022, I have been rather inactive other than for the c.w. section of the VK/ZL Contest, which as I mentioned earlier, was highlighted by the activity on 15 mx. Some loggings on that band on c.w. were: KW9DS, CP5EZ, VK3GN, VR2DK, and W and JA call areas and HK3RG. To give you an idea of the way this band was coming in I turned to 21 at 2107 and by 0200z, less two hours when I had to go out, I claimed 3500 points. This, despite the easy scoring system, goes to show that this band can be fantastic when the right conditions (and operators) are about. 20 mx has been very good and the usual Europeans plus HK3, PY2, OA4, OD5 and many others were heard. 40 mx was quite active here during the contest, but unfortunately the commercials made it hard to hear the DX, nevertheless OZ1LO and a number of K, VE and JAs swelled the score a little. 4X4WN, OZ5DK and CE9AS were heard at other times, whilst JTIAG appeared on 20 c.w. working into VK2. A good month, with the promise of an excellent summer period.

Greg Johnston, our VK7 listener and QSL Manager for VK0MI, has been listening on 20 c.w. and heard HRIAT, OA8D/3, ON5ZO, ZC-4TX and several OKs, and on s.s.b. DJs, FB-

8YY (Adelle Isld.), KP4CL, LA1KI, LA5YE, OH400, PA0HBO, PA0XPQ, SM2BLA, T14JF, VK0MI, YS1SRD, 4X4JU plus the three DX-peditors PY0XA, KIIMP/KC4 and W9WNV/HK0. Greg will be returning to VK0 for another short period at the end of this year.

Ernie Luff, L5080, is still reaping the benefit of his AR8D and this month has heard the following prefixes on 20 mx s.s.b. and a.m.: EA3, VQ8, UF6, UG8, HZ1, OA, TG9, CR6, XE, YU, ON4, OE2, M1B, G13, E14, PJ5, EP2, 9Q5, 7Q7, Z56 and a great many more common ones. Ernie's list was dated early October, thus it is most likely that his overall score of countries heard has increased by this time from the 173/94 at that date. Newest cards received by him were W0ZTL, KC4USB with VK5GD for a top-band report.

From Bernard Hughes in London I received an interesting tape with a recording of a QSO on 10 mx between a DJ and a P4, on s.s.b. The recording was taken on Worcester, U.K., and if this copy is a sample of the doings on ten metres, then it explains the very high scoring of European and W.s.w.'s on this band. For instance, in this month's all-band post-war table, the highest single s.w.l. score on 10 mx is 220 countries by a GM listener, a W has heard 207, whilst six more have scores ranging from 110 to 184. The top scorer for this band does not operate c.w.

At one time or another our equipment lets us down, and this month it is Bryan Prosser, L6028, whose Murphy decided that it was time to expire. We don't hear much from Maurie Cox these days, due to studies and outside interests. It is necessary, due to certain conditions prevailing in Sydney, that I cut short the personal news at this date, Oct. 23. I must apologise to any individual member and also to the various groups for taking this action, but I assure you it is necessary. Letters were also received from Al 4SS, whilst tapes are acknowledged from Bryan Prosser, Doug Head, Mac Hilliard, Bernard Hughes and John Simons.

## DX NEWS

Firstly, in reply to a query which I made to the I.S.W.L. boys re cards from the Don Miller DX-peditors, thus far none have been seen by these chaps. G6FU is requesting reports from s.w.l.'s who hear his transmissions. IR1RE was at the Radio and Electronics Exhibition in Rome and asks for his reports to be sent to Box 361, Rome. The station ID1IDA, which was the subject of discussion here recently when operating on June 28-29, was situated on an oil rig 16 kilometres east of Ravenna, Italy. Activity from TF7J and 2WJ are strongly suspect. TG9EP will answer all s.w.l. reports, provided they contain the name of the station which he is working. As a matter of interest, this operator is particularly helpful, as he tries to come on the air for about quarter of an hour during every I.S.W.L. "Set Listening Period" in order that s.w.l.'s can have a chance of hearing this country. (These S.L.P. contests are held periodically, at a given time on a given band and mode, the aim is to receive as many countries as possible in that period. Usually about two hours.)

TA2BK QSLs go to DJ2PJ. More stations for the W2CTN list are YS1IM, YS1RS, VP-6PJ, CR3KD, CX9AAN, HC1GC and HK2YO. Cards for D76QT/LX LX2UW and ZD9BE go to Box 7388, Newark, N.J., 07017, U.S.A. The following stations are new members of the I.S.W.L. and reports to them can be passed through their bureau: W8EVZ, W6DQX, KV-4CI, G3ETU, W2ONK, W9CBD, VESWT, VE2BV, KIIMP and K5DYD. YA1FY can be QSL'ed per Box 711, Hollins College, Virginia, U.S.A. HC2MV can be reached at Cas 611, Guayaquil, whilst another Eucadorian HC5BJ hails from Box 790, Cuena. VF8CW is at Box 168, Port Stanley, Falkland Isld. (Txn Monitor.)

A note here in a copy of Monitor just arrived, to the effect that HR3SM will QSL 10 per cent. all s.w.l. reports which are completely accurate. Also that JW is the new prefix for Svalbard, with JX likewise for Jan Mayen. This will overcome the trouble we have had in the past when trying to identify these LA/P stations.

## SUMMARY

As we come to the end of another year, we can look back over 1966 and remember several highlights. The year has been marked, particularly in VK2 and VK3, by better attended s.w.l. meetings. At this stage I would like to thank Chris Middleton-Williams for the time and trouble he has taken in his position as Secretary of the VK2 Group. Due to my geographical situation, and the nature of my job, I have been unable to attend any of the VK2 meetings, but members have commented favourably on the "doings" in VK2.

The introduction finally of the VK D.X.C.C. for s.w.l.'s late last year has given some of our boys a little more incentive to climb the

ladder. However, to date only four have been issued, Eric Trebilcock (VK3), Don Grantley (VK2), Warwick Smith (VK3) and Chas Thorpe (VK4). I feel that number five is just around the corner, for a note from Ernie Luff this morning reveals that he has now 103 confirmations. Congratulations Ernie.

Two of our listeners have entered their National Service training, our top VK6 Peter Drew, who at present is up here at Ingleburn, and Barry Snell of VK3, who is at the time of writing, in Queensland. I had hoped that either Eric or myself would have become the first VK s.w.l. to reach the elusive "300 heard" mark, but they are few and far between when you get up there. Unfortunately, I have in the last few weeks missed two or possibly three DX-peditors which would have done the trick, but it was not to be. There is always next year—and the year after—etc.

I would like to extend our thanks to Bernard Hughes, John Simons, Doug Head, Roy Waite and Bob Fowler for taped information from I.S.W.L. sources, and also to Bryan Prosser, Mac Hilliard and Alan Raftery for their regular reports. To all my regular and irregular reporters I would like to take this opportunity of thanking you for writing and furnishing information which is necessary for the compilation of this page and I would like also to mention Chas Abernathy and Syd Underwood who regularly get dragged to the telephone in the middle of their evening meal, also Mac who once or twice each week has to climb out from under a switchboard to answer some query. Finally, to Ken and the Publications Committee, I thank you for your assistance and co-operation, and I would like to point out here that if any of you consider that our page has been cut short, it has never been pruned by the editor or the committee who have regularly given all the space asked for—only lack of information has caused me to cut down.

To all mentioned afore by name or implication, and to licensed operators and s.w.l.'s alike who have provided technical advice, etc., I would like to take the opportunity to thank you and wishing you all a most happy Christmas and may 1967 bring joy and happiness—and better DX. Should anybody be passing through the Blue Mountains over this period, stop at Hazelbrook, ask somebody where Camp Fletcher is, and call in and say hello. 73, Don L2022.

## SHORT-WAVE BOOSTER

3.5 - 12 Mc/s.

This transistorised unit will improve sensitivity, selectivity, and signal/noise ratio of a receiver. Distant stations received clearly without fade.

### SPECIFICATIONS:

Power Gain: 25 db.  
Connection: In series with aerial.  
Size: 2" long, 1½" high, 1¼" wide.  
Current drain: 1.5 mA.  
Voltage: 3-12 volts.

## DISCOUNT PRICE

Kit-Set Form 45/- (\$4.50)

Wired & Tested 55/- (\$5.50)

## KIT-SETS AUST.

Box 176, P.O.,  
Dee WHY, N.S.W.



# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL QSL BUREAU

Rex Glew, ex ZL2ASM, now resident in Moorabbin, Vic., with the call sign VK3ASQ, has been successful in obtaining his old call letters and shortly will sign VK3ASM.

Bob W4CHA expects to be active from Norfolk Island for several months commencing end of January 1967. Call sign to be used is not yet known.

The V.R.Z.A. (Society of Radio Amateurs in the Netherlands, founded in 1951) is a non-commercial radio society for the promotion and co-ordination of two-way Amateur Radio communication. Almost all Dutch active and DXing Hams are members of this Society.

The V.R.Z.A. PA QSL Bureau forwards QSLs to ALL Dutch Radio Amateurs (members or non-members of the Society), monthly, and free of charge. The other Dutch QSL Bureau (V.E.R.O.N. of Rotterdam) sends the QSLs to non-members only twice a year, in June and December, which gives a long delay.

All cards for the Netherlands (PA, PE and PI stations) as well as for the Netherlands Antilles (PJ stations) and Surinam (PZ stations) may be sent via PA QSL Bureau, V.R.Z.A., Post Box 190, Groningen, Holland.

Following are the details of the Tenerife Eterna Springs Paradise Certificate for which five QSOs with the Canary Islands are needed in the period stated: Starts 0000 G.M.T. Dec. 21, 1966, ends at 2400 G.M.T., March 20, 1967. During each QSO local maximum and minimum temperatures of each station shall be mentioned and shall be also mentioned on the corresponding QSL. All modes of operation (c.w., a.m., s.s.b.) and assigned frequencies can be used. QSLs to be sent to P.O. Box 215, Santa Cruz de Tenerife, Canary Islands, Spain.

K.A.R.L. News says: "Recently, HM1BU call has been heard mostly on 20 mx band s.s.b. HM1BU was licensed about 3 years ago, but his licence was expired as the date of Dec. 31, 1965. He did not renew his licence and the call of HM1BU was disappeared. Now, HM1BU call is transmitted by the KW2-2 from a small island in the west sea of Korea, but it is the illegal operation. K.A.R.L. warned him by the letters not to operate illegally and to obtain the new licence. So, K.A.R.L. advice to Ham stations all over the world not to contact with HM1BU for a while until he gets the new licence. K.A.R.L. does not handle the QSLs to and from HM1BU."

—Ray Jones, VK3RJ, Manager.

## NEW SOUTH WALES

The Wireless Institute Centre was comfortably filled by members and visitors on Friday evening, 28th Oct., the occasion being the usual monthly meeting combined with the official opening of the John Peell Memorial Library.

President Tom ZOD occupied the chair and extended a hearty welcome to all. Among the visitors were Mrs. Peell and party, which included Miss Hardy, Mr. and Mrs. Peell and Mrs. Tooney, Mr. and Mrs. Stracey (who had donated to the Division a large number of text books, "QSTs," etc., left by the late Wal Ryan, VK2TI, as well as a handsome silver cup that was won in the 1938 VK-ZL Contest by a N.S.W. team); Mrs. McLeod (widow of the late Gordon McLeod, VK2ADC), who has donated to the Division the technical library owned by her husband. Also at the meeting was Don Wallace, W6AM, well known to the DX fraternity.

The following applicants were welcomed into membership of the Institute: Gordon Clapp, Patrick C. Bennett, Peter J. Shannon, Geoffrey E. Bailey, Gilbert Armstrong, R. W. Walker, and the following Associates: Noel Wayne Gibson, Daniel Adrian Clift, Allan Lloyd Riddle, A. C. M. Anderson, Kevin Clive Hutchinson, Joe Pietras, Kendall Young.

At this stage an adjournment was made to the room where the John Peell Memorial

## SILENT KEY

It is with deep regret that we record the passing of:

Ex VK2NO—Don Knock

Library had been installed. It will be remembered that last year the Council then in office had received a donation from John Peell (VK2WJ) following the action of his gear. Following his death shortly afterwards, Council decided that this money should be used to establish a memorial library. Much preliminary "spadework" was carried out and it is very gratifying, particularly to those who interested themselves in this project, to see that the present Council has been able to bring it to finality.

The very attractive cabinet occupies almost the whole of one wall of the centre room at W.I.C. The lower half has stained wooden doors, with plate-glass doors above. Councillor Charlie Wilkins, in his usual quiet way of working more than talking, has spent much time on the decor of the room and the whole effect brought forth much favourable comment.

After brief remarks by the President and Senior Vice-President on the purpose of the function and the history of the project, Mrs. Peell handed over the key of the library. In doing so, she expressed her thanks and appreciation to Divisional Council for the invitation to attend, and trusted that members of the Institute would derive much benefit and pleasure from the books that the library contained.

In accepting the key on behalf of the Division, President Tom said that, thanks to the many generous donations of books, the new cabinet was almost full and it appeared that a branch library would have to be opened shortly. He paid tribute to the librarian, Keith de Haan (VK2UE) and his assistant, Phil Tavares (VK2ATA), for their efforts in sorting and cataloguing books.

It was announced later that a set of rules would be formulated shortly to cover the borrowing of books from the library, and these will be published for the guidance of members immediately they come to hand.

The lecturer for the evening was Syd 2SG, who spoke for approximately two hours on "Television Techniques." The subject is such a vast one that even in a lecture time about double the usual length, Syd did very well to cover so much ground. The research necessary for such a lecture must have been colossal and his remarks, while very interesting to all members, would be particularly useful to those who are themselves working in the field of television and broadcasting in general.

As the writer of these notes had to leave the meeting early to attend another function, we must record our thanks to Stan Z2BD for jotting down the main details of the lecture.

Syd began by giving a description of the optical system of television cameras and different types of lenses—zoom, telephoto, etc., and various methods of lighting—artistic, illusion, realism, sunlight, and lighting of the human form. In a large studio there would be from 50 to 100 kilowatts of light. A high quality telephoto lens could give a good picture at a distance of one mile from the camera.

On the electronic side of television, descriptions were given of the operation and usage of the image ophicon in studio cameras, and likewise the vidicon in the broadcast camera for outdoor operation. All descriptions were illustrated by colour slides showing the "works" of the Marconi Mk. IV camera.

Then followed a section on camera control unit, vision mixing and vision distribution amplifiers, which included a "lecture within a lecture" on multi-vibrators. A central apparatus room was described with slides, showing both valve and transistor-operated shaping and line amplifiers. Syd then gave details of automated switching of telecine chains, studios, slide monoscopes, etc., and amazed the audience by stating that a television station could be operated by four persons, mainly with the aid of push-button control. Automation performed the correct sequence of technical operation to produce the pre-arranged programme.

Some excellent shots were shown of the Ampex VR2000 video tape recorder, an amazing piece of apparatus which enables video tape to be edited virtually automatically. Further slides and descriptions covered a typical studio set, distribution amplifiers, and sketches of individual sections of television apparatus.

Syd's lecture was given in the usual VK2SG racy manner, and he fully deserved the acclamation of the audience following the vote of thanks moved by Stan Z2RD.

## W.I.C.E.N. NEWS

Peter 2AXJ, the W.I.C.E.N. publicity officer, says that since the publication of the net frequencies in the monthly Bulletin he has received many inquiries regarding the 2 mx Channel C f.m. net frequency. The correct frequency for VK2 is as published for Channel C, that is, 146.100 Mc. All crystal frequencies published are based on this. It will be noticed that this channel does not agree with that used in VK3, and Peter thinks this is where the confusion has arisen. However, it will be noted that Channels A and B do agree with those used in VK3, so that people travelling interstate will be able to operate on the interstate net.

## GENERAL NEWS

The Federal Councillor (Pierce Healy, 2APQ) reported that he had represented Divisional Council at the South-West Zone Convention over the October holiday week-end. Fifty-two people attended the dinner and the day events were also well patronised. The official con-

## VK2 DIVISION

### Radio Equipment Store

We would like to wish all readers the Compliments of the Season. You will find a list below of some HC6U crystals. Some of the FT243 series which have been featured over the past few months are now in short supply so please advise second choices where possible. Many inquiries for teletype were received this year and several units have been sent interstate. Inquiries still welcomed as we may still have something that will suit your requirements.

The catalogue is to be revised early next year. If you have found it hard to obtain coil formers we now have quite an extensive range in 4 mm. and 7 mm. formers with cans, tag rings and slugs to suit.

Merry Christmas and a Happy New Year.

—R.E.S. Committee.

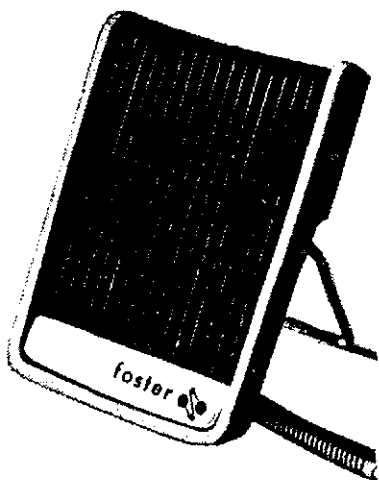
### CRYSTALS

In HC6U holders, \$1 each, limited numbers in most cases: 7586, 8964, 8971, 8977, 9044, 9051, 9057, 10,042, 10,780, 12,093, 13,930, 13,940, 13,950, 13,970, 14,050, 14,060, 14,070, 25,193 kc.

### TAPED LECTURES

21. V.h.f. Aerials, 1 hr., 32 slides, H. Burtoft, VK2AAH.
22. A Field Day with a Difference, 1 hr., 34 slides, Eric Warren.
23. Principles of A.g.c., 77 mins., 20 slides, Bob Winch, VK2OA.
24. S.s.b. and C.w./A.g.c., 73 mins., 14 slides, Bob Winch, VK2OA.
25. A New Look at Radiation, 90 mins., 30 slides, Joe Reed, VK2JR.

14 Atchison St., Crows Nest, N.S.W.



DF-2

# FOSTER DYNAMIC MICROPHONES FOR HAND-DESK USE

## SPECIFICATIONS:

Output Impedance	50 ohms or 50K ohms
Effective output level	-55 db. [0 db. = (one) IV. Microbar]
Frequency response	200 to 10,000 c.p.s.

## OMNI-DIRECTIONAL DYNAMIC:

SIZE: 3" x 2-1/8" x 1".  
 Cable: 12 ft. of P.V.C.  
 Switch: on-off.  
 Desk Stand. Clip folds for hand use.  
 Colour: WHITE.  
 Plastic Diaphragm.

Retail Price  
 50K ohms  
**£2/14/0**  
 + Sales Tax 4/9

A QUALITY PRODUCT OF EXCELLENT DESIGN

Marketed by

# ZEPHYR PRODUCTS PTY. LTD.

70 BATESFORD STREET, CHADSTONE, S.E.10, VIC.



Manufacturers of Radio and Electrical Equipment and Components

Agents: D. K. Northover & Co.; Neil Muller Ltd.; Homecrafts (Tas.) P/L.; Jacoby, Mitchell & Co. P/L.; T. H. Martin P/L.

NOW AVAILABLE—

## THE 1966 EDITION

# ★ A.R.R.L.—Radio Amateur's Handbook

*The Standard Manual of Amateur Radio Communication*

Price \$6.10 posted, or 58/6 and postage 2/6

NOW AVAILABLE—

# ★ The Radio Transistor Handbook

by Stoner & Earnshaw.

Price \$6.65 posted, or 64/9 and postage 1/9

THIS UP-TO-DATE HANDBOOK COVERS A WIDE RANGE OF COMMUNICATION  
FOR BOTH AMATEUR RADIO & COMMERCIAL APPLICATIONS

## McGILL'S AUTHORISED NEWSAGENCY

Established 1860

183-185 ELIZABETH STREET, MELBOURNE, C.1, VIC.

"The G.P.O. is opposite"

Phones: 60-1475--6-7

vention station, 2WG, was active over the week-end and aroused the interest of the Wagga City Council's representative (Aid. R. J. Harris). He said the fact that a radio network was available for use in times of emergency was very reassuring.

Pierce also released details of this year's Remembrance Day Contest. As the results of this contest will be published before these notes appear in print, we will confine our remarks to offering congratulations to the VK6 Division for their win; also to the following VK1 and VK2 State section winners: Phone—VK1QL (610 pts.), VK2XA (675 pts.); C.w.—VK2QL (493 pts.); Open—VK1DA (433 pts.), VK2AHM (1304 pts.); V.h.f.—VK2ZCF (84 pts.), also first in Commonwealth; Receiving—VK1, J. Hurren (375 pts.), VK2, A. Nutley (1083 pts.).

Keith 2AKX said that there was an attendance of over 50 at the Hunter Branch annual Convention in October, and the field day was also well patronised. Divisional Council was represented at the dinner by Cyril 2CH, while two other councillors (Peter 2AXJ and Stan 2ZRD) as well as the secretary/treasurer (Mrs. Betty Gerdes) with OM, Barry 2ZAH, attended the field day. Keith went on to say that the Hunter Branch will hold another field day on 4th Dec., at Bolton Point Park. There will be the usual events, but on this occasion there will be a more informal atmosphere. Visitors from Sydney and other areas would, as usual, be very welcome.

As reported in previous notes, Syd 2SG had tendered his resignation from the position of QSL officer, after a period of seven years in office. At the October meeting it was announced that from 25th Nov. onwards QSL cards will be handled by Roger 2ZIG, with the outwards cards still being dealt with by Ted 2ACD. The well known G.P.O. Box No. 173 would be retained. Following the above announcement, Bill 2YB moved that a hearty vote of thanks be accorded Syd for his good work on behalf of the Division, and this was carried by acclamation.

The Education Officer, Harold 2AAH, advises that he has arranged a selection of films for the December meeting. Members are asked to take special note that this meeting will be held on the third Friday, the 18th, and not the fourth Friday, as in other months. The December meeting is a family night, so take Mum and the Harmonics along for a night out.

As this will be the last issue for 1966, may I wish all my readers a Merry and Safe Christmas, with health, prosperity and good DX during the coming year. 73, Ivan 2AIM.

#### HUNTER BRANCH

The November meeting of the Branch, held at the Technical College, was addressed by Ian 2AZN, of the staff of "Electronics". Ian gave a detailed and very interesting talk on the new s.s.b. transmitter which he has designed, to be featured in the magazine this month. The unit uses 21 transistors and two valves and can operate all h.f. bands except 160 mx, either upper or lower s.b. From questions which followed the lecture, it was evident that members had thoroughly enjoyed the visit by Ian and were anxious to find out as many things as possible about the new unit. Stuart 2AYF expressed the thoughts of the members in his vote of thanks which was carried by hearty acclamation.

There was a further sale of some hard drawn aluminium rods suitable for v.h.f. beams and this has resulted in more money being made available for the Branch contribution to the I.T.U. fund. A quite pleasing amount has now been put aside for this purpose and the final sum is to be transmitted to the Divisional headquarters at the end of the month.

Quite a deal of activity on both h.f. and v.h.f. has been noticed during the last few weeks, possibly due to the conditions which now exist regarding our friends in the P.M.G. Department. Some members have recently had quite close contact with the gentlemen concerned, but it appears that they have escaped unscathed in most cases. It is to be hoped that this position is maintained.

Troubles have been the order of the day with 2AWX of late and it has been increasingly difficult to hear the broadcasts. Men who know all about these things report that much work is going on to improve the position and it is expected that soon the reliable signal of former days will return. Until then, anything might, and probably will, happen.

On v.h.f., some good 6 mx openings have appeared during the month and both Bill 2ZWM and Kevin 2ZKW report interstate contacts a plenty, so I suppose the others of us on this band have had the same success. Des 2ZDN, who uses his vertical collinear to monitor DX t.v., raced to the shack a week or so back when he heard what appeared to be an opening. He scored again, making solid contact both ways with Dick 2ZCF on 432. The

### OBITUARY

#### DONALD BRADER KNOCK (Ex VK2NO)

As we go to press we learn with much regret that Donald Brader Knock (Ex VK2NO) had passed away in hospital on 31st October, following a lengthy illness.

Undoubtedly it would be true to say that both the name Don Knock and the call sign VK2NO became one of the best known combinations among Amateurs in this country, particularly among those whose association with Amateur Radio goes back prior to World War II.

Born in Southport, Lancashire, 68 years ago, Don saw service in World War I. Being an adventuresome type, he joined the 1918 expedition to Russia in what proved to be an abortive attempt to overthrow the Bolsheviks who had taken over the country following the Russian Rebellion.

Having served with the Engineers, with emphasis on radio communication, Don took out a G call on his return to England in the early 1920s.

Arriving in Australia around 1925, he undertook the organisation of radio communication for the Vestey Meat Company at Wyndham, Western Australia, and his efforts there resulted in considerable progress being made in opening up the North-West.

Another of Don's interests was radio journalism and he continued a rather chequered career by publishing a monthly magazine, "Radio News," and also became Radio Editor of the Sydney Bulletin. A post-war attempt to re-enter the radio magazine field was, however, short lived. Still later, he was employed by Phillips Electrical Industries and in a civilian capacity with the Department of the Navy.

About 10 years prior to his death, Don surprised his friends by disposing of his gear and relinquishing his call sign. However, he continued to take an interest in Amateur doings, in spite of a deterioration in his health.

Perhaps we could say that one of Don Knock's greatest contributions to Amateur Radio was in v.h.f., for during the 1930s, he and other kindred souls carried out much pioneering work on 56 Mc. An early edition of the A.R.E.L. Antenna Handbook carries a description and photograph of a 56 Mc. beam antenna developed by him.

The N.S.W. Division of the W.I.A. was well represented at the funeral on Thursday, 3rd Nov., which took place at Eastern Suburbs Crematorium following a service at St. Mary's Church of England, Waverley.

To Mrs. Knock and son, Rodney, may we offer sincere sympathy on behalf of all members of the Wireless Institute of Australia.

reliability of this frequency between the two cities appears to be improving and the chaps just mentioned have fairly regular contacts.

Nobody in the Branch area appears to have hit the high spots in the R.D. Contest, but Geoff 2BGF from Taree was up among the leaders and quite a number of Newcastle and district stations took part although I suspect that they forgot to send their logs in. One good excuse was the incidence of the 'flu during that week-end, and many a good man was laid low by it. Belmont Bob scored well in another activity, the Scout Jamboree-on-the-Air and so impressed the Mayfield boys who visited him that he has agreed to their request that he become official signalling instructor at the Scout Hall. Bob is looking for a cheap 122 ZCL or similar for this purpose so that 2BOB/P may go on the air. Perhaps you may be able to help him.

Another of the club members, Susan 2BSE is about to commence operation on 146 f.m. with a carphone as soon as crystals arrive for the unit. Jan 2BJO has made the necessary conversion and the set plays but the arrival of crystals will put Susan on the air from home. John Bedford still awaits his call sign so that he too can go on the v.h.f. bands.

And guess what, 2AKX has done it again. Another card, from Malaya this time, has arrived to add to the collection for those 14 meg. c.w. contacts. Just a few more to go and I'll have the DXCC-pirate. Whoever uses the call sign certainly has some contacts! Please sir, show yourself, patch, cork leg and all, and I'll let you have them.

In case the postal authorities or whoever, allows you to read this before the end of December, you will please note dear reader, some interesting facts about coming events.

The next meeting of the Branch will be at the usual place, Room 6, Clegg Building, Newcastle Tech. College, on Friday, 2nd Dec. Lionel 2CS is to show some slides of a recent trip overseas and supper—I have been looking forward to this all year! The Sunday following there will be a Field Day at Bolton Point Park with no charge for admission—you know, Christmas and all that, and finally, but perhaps most important, there is no meeting in January. The first meeting in 1967 will be on Friday, 3rd Feb., 1967, which, although you may not know it, is far off. So it remains only to say, Happy Christmas, good DX, Prosperous New Year, and all the best from President and fellow members of the Hunter Branch, including your scribe, 2AKX.

#### CENTRAL COAST

The last meeting of the Central Coast Branch was held on Oct. 21 at the Gosford School of Arts. Ernie 2EH gave a very interesting illustrated talk on his recent trip to the South Pacific which had everyone mentally planning a future excursion to similar places. Honlra seemed to be the most interesting port-of-call and from the pictures was certainly very beautiful.

We had several visitors from Newcastle and Sydney and, as usual, it was a most enjoyable evening. The final matter over a cup of tea and home-made goodies tops off the meeting.

We have had word from Phil 2TX, who is travelling with his XYL somewhere in the Middle East. He had a few days in Bombay and was able to meet a few Hams. He says that during the monsoons they take down their quads (I wonder why?) and then re-erect them after the blow is over.

Our Field Day will be held at Gosford in mid February 1967. It will be at the usual place and the definite date will be announced in December. This is always a popular day and as Gosford is a delightful tourist town situated on Brisbane Water, the day offers many attractions for all the family. All activities and meals are included in the entry fee.

Happy to report that Muriel 2AIA is feeling much better and spends a little time on the air now. 73, Mona 2AXS.

### VICTORIA

#### I.T.U. FUND ACKNOWLEDGMENTS

A. K. Ballantyne, 3AKB, \$4; J. Humphreys, 3ANH, \$2.15; G. Sutherland, 3ZSU, \$2; V.R.I. Wireless Club, 3RI, \$2; G. Gillingham, \$2; D. Long, 3ZVL, \$2.

#### WESTERN ZONE

Of major importance in our notes this month is a report on the proceedings of our Annual Convention which was this year held at Bordertown, S.A. The combined gathering of Amateurs from VK3 and VK5 was a most successful affair which attracted members from Adelaide, Melbourne, Warrnambool, Mt. Gambier and a good roll-up from our own Zone.

The initial point of convergence was the home of Tony 5ZAI, where the hungry travellers—some arriving by aeroplane and motor-bike—made good use of Tony's splendid barbecue facilities. It was not quite warm enough to try out the swimming pool though Tony! Bob 3ARM had set up his h.f. gear to talk in the mobiles and 2 mx carphones also served to augment this facility. Tony's v.h.f. shack attracted a lot of admirers with the set-up reminiscent of a N.A.S.A. tracking station.

At the Annual General Meeting, Bill 3ZAX was elected our new Secretary, allowing Bill 3AKW (our Secretary for the past 15 years or so) to step down for a well earned rest.

### A.O.C.P. THEORY CLASS

The Victorian Division of the W.I.A. will commence a theory class in February 1967.

Those wishing to enrol should do so immediately by contacting the Administrative Secretary, P.O. Box 36, East Melbourne, or by phoning 41-3535.

# DISPOSAL BARGAINS

AT OUR BULK DISPOSAL STORE

8 PARK STREET, GLENFERRIE, VIC. (OFF GLENFERRIE ROAD)

Phone 81-1935

(Mon. to Fri., 10 a.m. to 5 p.m.; Sat., 10 a.m. to 12.30 p.m.)

## NEW VALVES

1A3	50c	5T4	\$1.75
1A5	50c	5U4GB	\$1.45
1A7GT	\$2.60	5V4G	\$1.75
1C7	50c	5Y3	\$1.38
1D4	75c	5Z3	75c
1D8	75c	5Z4	\$1.75
1F5	\$1.00	6A3	75c
1H5	75c	6A8	75c
1K3	50c	6AB7	\$1.00
1K7	50c	6AC7	50c, 5-\$2
1L4	50c	6AG5	50c
1L5	\$1.00	6AG7	\$1.25
1LN5	50c	6AJ5	75c
1M4	50c	6AK5	\$1.50
1M5	50c	6AL5	\$1.40
1P5	50c	6AM5	\$1.50
1Q5	50c	6AM6	\$1.00
1R5	\$1.80	6AN7A	\$1.65
1S2	\$1.75	6AR7GT	\$2.10
1S5	\$1.80	6AS7GT	\$2.00
1T4	\$1.00	6AU6	\$1.45
1U4	\$1.80	6AUBA	\$2.40
1U5	\$1.60	6AV6	\$1.40
2A5	75c	6B6	75c
2A7	75c	6BA6	\$1.55
2C26	50c, 5-\$2	6BE6	\$1.55
2D21	\$1.20	6BL8	\$1.80
2E28	\$2.50	6BM8	\$1.85
2X2	50c	6BQ5	\$1.70
3A4	\$2.20	6BR5	\$1.45
3A8	\$1.00	6BX6	\$1.45
3Q5	\$1.00	6BY7	\$1.45
3S4	\$1.00	6BZ6	\$1.60
3V4	\$1.50	6C8	50c
5AR4	\$2.60	6C8	\$1.00
5AS4	\$1.45	6CG7	\$1.85
5BP1	5.00	6CH6	\$2.35
		6CM5	\$2.25

6CW4	\$3.00	7L7	75c
6F6	50c	7N7	75c
6G6	75c	7W7	35c, 8-\$2
6H6G	\$2.60	12A6	50c
6HG6T & Metal		12AH7	50c
20c, 12 for \$2		12AT7	75c
6J5GT	\$1.00	12AU7	\$1.50
6J6	75c, 3-\$2	12AU7A	\$1.50
6J7G	50c, 5-\$2	12AV6	75c
6K6	\$1.00	12CB6	75c
6K7	50c	12C8	50c
6K8GT	\$1.25	12J5	50c
6K8 Metal	\$2.00	12SA7GT	\$1.00
6L7	50c	12SC7	50c
6N7	50c	12SG7	75c
6R7	75c	12SK7	50c
6S5	75c	12SN7	75c
6SA7	75c	12SQ7	50c
6SC7	75c	12SR7	50c, 5-\$2
6SF5	75c	16A5	\$1.70
6SF7	75c	16A8	\$2.10
6SH7	50c, 5-\$2	25L6	\$1.00
6SJ7	75c, 3-\$2	25Z6	\$1.00
6SK7GT	\$2.00	35L6GT	\$1.00
6SL7GT	\$1.25	19	50c
6SN7GT	\$1.00	30	50c
6SQ7GT	\$2.60	47	50c
6S7	75c	57	50c
6U5	\$1.85	58	50c
6UTG	50c, 5-\$2	80	\$1.70
6U8	\$1.70	84	50c, 5-\$2
6V4	\$1.14	100TH	3.00
6V6GT	\$1.75	717A	75c
6X4	\$1.00	807	\$3.75
6X5	\$1.45	808	\$1.00
7A8	35c, 8-\$2	809	\$2.00
7C5	50c, 5-\$2	830B	\$1.50
7C7	50c	832A	\$8.00
7E6	35c, 8-\$2	837	\$2.00

## PP/439/APG-30 POWER SUPPLY

Radar type, new. Contains 36 valves—8 6AQ5, 5 6X4, 4 12AX7, OAZ, 2 6AK5, 3 6AL5, 2 12AT7, 2 2D21, 6AS8, 4 2C51, 2 6J6, 6AG5, 2 6AH6. Also twin 28v. blower motor, relays, variable conds., transformers, etc. 28v. 500 cycle. Ideal for wrecking. Sorry, no further information. Brand New. \$35.

## STEEL TRANSFORMER BOXES

6 1/2 x 9 x 5 inch with matching lid, air vents each end. Ideal for battery charger, etc. Unpainted, new. \$1. Discount for quantity.

## DURAL TUBING

1/4 inch Tubing. 6 ft. lengths 38 ft. for \$2 or 40c per 6 ft. length.

## POTENTIOMETERS

Wire Wound, 4 Watts, 1 1/2 inch diameter. Sizes available: 5, 10, 25, 50, 250, 500, and 50K ohms, 4/- each.

## NEW CHANNEL LOCK PLIERS

Type 337W ..... 20/- each  
Type 356 End Cutters ..... 20/- each

## MAGNETIC RELAYS

Sealed Type  
24 volt, 670 ohms, D.p.d.t., size 2 x 1 1/2 inch, Price 15/- (\$1.50).  
24 volt, 700 ohms, D.p.d.t., size 1 1/2 x 1 inch, Price 15/- (\$1.50).

## TRANSCEIVER

TR1987, English (later version of SCR522), 15 watts, 21 Valves. Freq. coverage: 115 to 145 Mc. Crystal locked receiver. Transmitter uses TT15 output valves. Three stage exciter using 4.86 Mc. crystal osc. 6AM5, doubler 6AM5, driver amp. QV04/7, p.a. amp. TT15. In-built modulator, complete with 28 volt genemotor. Condition as new. To clear \$15 (\$30). Circuit for above unit, 10/- each.

## NEW VALVE SOCKETS

4/250A Sockets	20/- each
Acorn	3/6 "
EF50	2/6 "
VCR97	10/- "
B05	12/6 "
EA50	2/6 "
5-pin	2/6 "
6-pin	2/6 "
7-pin	2/6 "
7-pin P.T.F.E. Sockets	5/- "
Locktal P.T.F.E. Sockets	5/- "
Special completely shielded 7-pin P.T.F.E. socket and shield	10/- pair

## NEW CHOKES

7-5H. 125 mA. 30/- ea. 14 H. 60 mA. 12/6 ea.  
10 H. 4 mA. 12/6 ea.

## SPECIAL BARGAINS

Block Condensers, 2 mF/2500 v.v. .... \$2.50 (Pack and Post 25c.)  
DC Crystal Holders, new, less crystal, 75c.  
Carpenter Relay and Socket, Type 3E1, 1800T 250 ohms, 900T 200 ohms, \$1.50.  
P.M.G. Strip Boards, containing 24 Jacks, \$3.  
P.M.G. Strip Boards, containing 48 Jacks, \$5.  
Headphone Cords, new, 45c pair.  
3-pin Plug with two yard Cord, 45c.  
Bags of Mixed Resistors (50), \$1.25 bag.  
P/M Fuse Holders, 45c each.  
50 ohm Coaxial Cable, 3/16 inch diam., new, 25c yard.  
72 ohm Co-ax Cable, 35 ft. lengths, 3/16 inch diameter, \$1.  
72 ohm Co-ax Cable, 27 yard lengths, 3/16 inch diameter, \$2.  
122 Aerial Packs, \$6 each.  
12-core Cable with Plug, 22 yards long, \$5.  
Dural Tubing, 12 ft. lengths, 1/4 inch diameter, three for \$2.  
P.M.G. Key Switches, 75c each.

## GLIDE PATH RECEIVERS

Type 733D, complete with valves and Crystals ..... \$10.00 (Pack and Post \$1.00.)

## MODULATION AND DRIVER TRANSFORMERS

Modulation Transformer, 15 watts, pair of 6AQ5s to 2E26 valve.  
Also Driver Transformer, single ended primary to push-pull grids of 6AQ5s.  
£2 the lot, or Mod. Trans. 30/-, and Driver Trans. 10/-.

## BRACKET BEZEL LAMPS

1/2 inch diam. Bezel in Red, Amber, Green. Suit screw type globe. 35c, 4 for \$1.20.

## CONDENSERS

50 uF. 200v., pigtail ..... 20c ea., \$2 dozen  
500 uF. 12v., pigtail ..... 20c ea., \$2 dozen  
12 uF. 50v., pigtail ..... 20c ea., \$2 dozen  
3 uF. 100v., pigtail ..... 10c ea., \$1 dozen  
10 uF. 25v., pigtail ..... 10c ea., \$1 dozen

## CABLES

2-core, shielded, new, 20c yard.  
12-core, shielded, new, 40c yard.  
3-core, plastic covered, new, 20c yard.  
4-core, plastic covered, new, 25c yard.  
6-core, plastic covered, new, 30c yard.



# RADIO SUPPLIERS

5A MELVILLE ST., HAWTHORN, VIC. Phone 86-6465

8 PARK STREET, GLENFERRIE, VIC. Phone 81-1935



Harry 3ZX became our new President and controller of our Wednesday night hook-ups which will be held in future on 3610 kc.—I said kc. fellas, my new slogan is nertz to Hertz!! Vice-President and Junior Vice-President were elected, Herb 3NN and Gavin 3AEJ respectively. Our W.I.C.E.N. Co-Ordinator is Roy 3ZYG, who will delegate h.f. sked responsibilities to Bob 3ARM when necessary.

Following the general meeting a display of home-built equipment was held which was won by Harry 3ZX with his all-band table-top filter s.s.b. tx—handicap of three 807s (uncracked) next time mate!

Next on the agenda was the 80 mx hidden tx hunt which was tracked down in pretty slick time by Roy 3ZYG—following S meter readings only and no d.f. loop—grrr! and me wasting all that brasso on my loop. 3AFU and 3IB/3ZX were only a few minutes behind the winner. The next excursion was a guided inspection of the microwave station which attracted a capacity roll-up and we are very much indebted to the Supervising Technician, Mr. David Kentish, for a most informative description of all phases even if most of us did get lost in the wave guides, channels and glicycales!

The day wound up with a magnificent spread at the Bordertown R.S.L. Hall for which we are grateful to SZAI's XYL Jill, and very able assistant Rayleen, not to mention the other kind ladies who contributed so much hard work. I must also mention the President of the Tatiara District Council, Cr. McLellan, who kindly addressed our meeting and took a keen interest in our activities.

The following week-end many Zone Amateurs were actively engaged in the annual Jamboree-on-the-Air. 3ZX, 3AEJ, 3ATR and 3IB are known to have participated. At 3IB, the station was set up in the local Guide Hall which is very well situated not far from the main town shopping centre. The station was active most of Saturday and Sunday, and a large number of Scouts, Guides, Brownies and Cubs thoroughly enjoyed the occasion. The only disappointment was the clash with the "CQ" Contest, which largely precluded satisfactory overseas contacts. Nevertheless many

fine inter and intrastate Jamboree contacts were made. This is the first time a Jamboree station has operated from Dimboola and the event attracted a large number of interested members of the public as well as some welcome publicity and photographs in the local press.

3AEJ is currently working on a phasing rig and hopes to join the sidebanders before long. S.w.l. Neil at Dimboola has revamped a t.v. tuner as a 2 mx converter ahead of his Lafayette rx and is currently constructing a beam, so hopes to be able to copy some of the v.h.f. boys soon. Neil hopes to sit for his ticket in the near future. 3IB still snooping the DX bands and recently hooked 8F4 and VS5 to bring the DX countries score to 149. 28 Mc. observed to be opening to W and JA DX the past few week-ends. Chas 3IB acknowledges a backlog of several hundred QSLs for VR1B activity, but hopes to tidy these up by early in the New Year, a movement of QTH earlier in the year interrupted these activities. 73, Chas 3IB.

— . . . —

## SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division for October was held in the club rooms to a good roll-up of members, and took the form of a buy-and-sell. Very little official business took place, in fact when one looks back on the evening, very little took place at all, and after the distribution of QSL cards was disposed of, and a short smoke-oh took place, the meeting was handed over to the gentlemen in charge of the buy-and-sell—none other than Brian 5CA and Phil 5NN. For the first time in the long history of such nights, very little was offered for disposal and despite the valiant attempts of several members of the audience to keep the night on its feet, it finally expired with a gasp at the unheard hour of 9:40 p.m. A number of members stayed behind to natter and exchange ideas, but the vast majority having absorbed the lethargic conditions existing at the meeting, listlessly left for home, giving their families the shock of their lives, causing

several XYLs to wonder as to whether they should call the doctor or wait until the morning. Opportunity was taken at the meeting to welcome back Bob 5PU, ex Georgia Tech., who has returned to VK5 after his sojourn in W land. He looked fit and well, and settled in at the meeting in such a manner that it did not seem that he had been away at all. I meant to ask him as to his proposed QTH, the rumours have had him in residence in the area of Geoff 5TY, but I believe it will be Kensington. Right Bob?

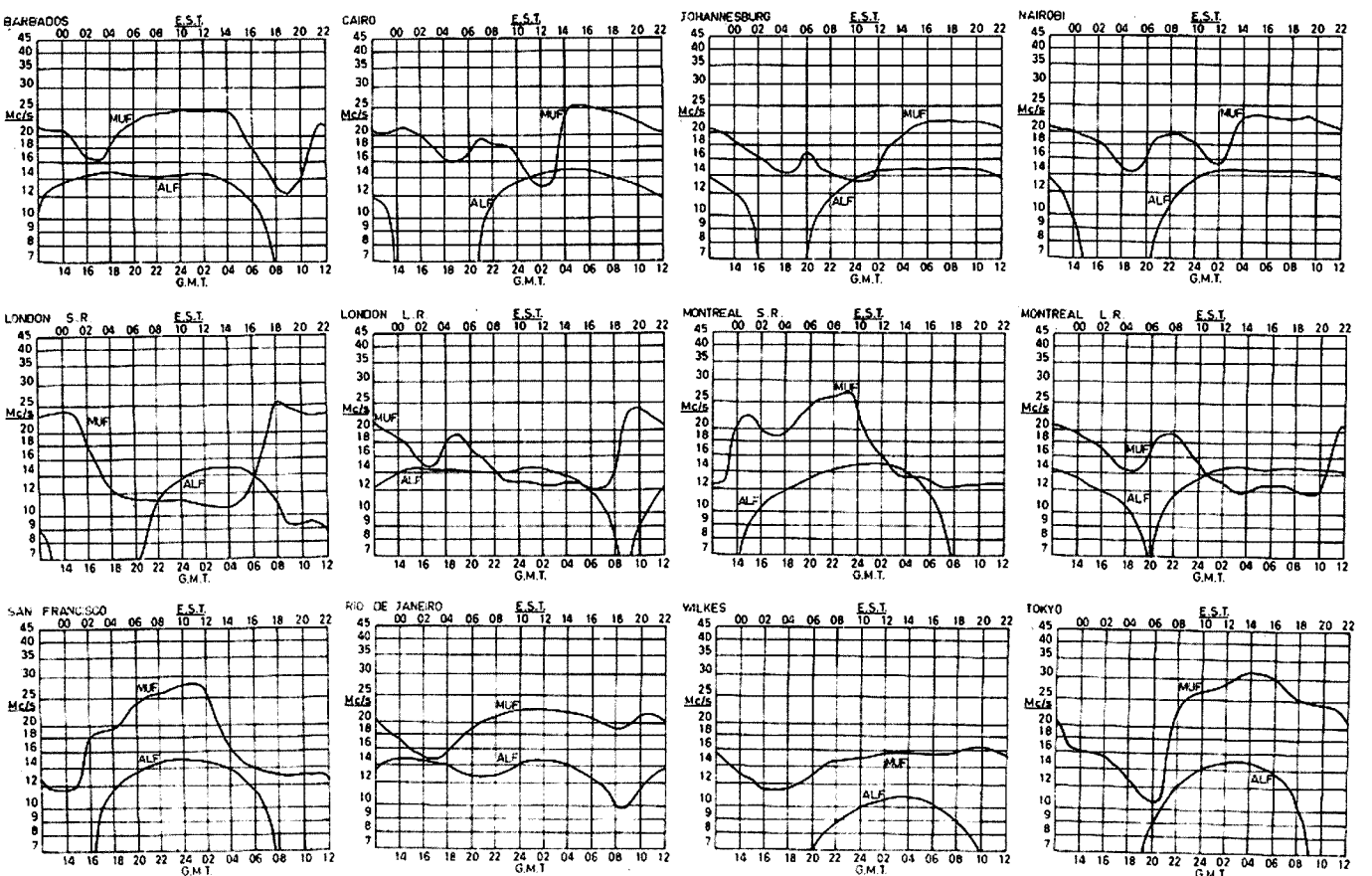
Sat next to Brother John 5VG, better known on the air as Griff, at the meeting and was cut to the quick when he told me that he has been nominated for the W. S.s.b. Club, despite the fact that he is still an a.m. man. I gave him the Gypsy's warning as to what would happen to those who desert the cause for "The Thing," but I don't think he was very impressed. Anyway, I will keep an ear on him, little does he know that I listen into his Sunday morning sked with Ross 6DA on 14 Mc.—now wait a minute, is it Sunday morning, afternoon, or night? Oh dear, oh dear, I might miss something.

Wicen was represented in the recent E.F.S. Bushfire Clean-up Week Procession the other Saturday. The vehicles were those of Treva 5ZIS and Geoff 5TY, being accompanied by John 5KX, Brian 5CA, Howard 5ZBE and the old reliable, George Edmeades. Both vehicles were suitably decorated with signs drawing attention to Wicen, as well as with anti-bushfire slogans, to say nothing of an abundance of aerials, in fact they were later described as resembling a couple of enraged porcupines.

Regarding the above paragraph, was more than pleased to hear Geoff 5TY when describing the procession to the meeting, give George Edmeades a pat on the back for his untiring enthusiasm in the cause of Wicen. George is one of those retiring, self-effacing hard workers who can always be relied upon at all times for that little bit extra when needed. You'll do us George—keep up the good work.

John 5KX, complete with number one son, noticed at the meeting and from all accounts the said son is showing signs of being keen

## PREDICTION CHART FOR DECEMBER 1966



(Prediction Charts by courtesy of Ionospheric Prediction Service)



on Amateur Radio. Understand that he cut his teeth on the recent successful Wicen exercise, and if this is true, then he could not have had a better background.

Rob 5WA and Marshall Hider, firm buddies, noticed together at the recent Department of Supply auction at Flinsbury. Both gentlemen were more than impressed with the quantity and quality of the goods offered for sale, and but for the fact that they never had time to rob a bank on the way down, nor did they have a spare fork lift, they probably would have made a decided dent in the goods offered. You should have seen the glint in their eyes as they told me about it!

Bob 5ZNH, the instructor at the radio classes, has certainly made an impression on his pupils. Snooping around for news at the meeting, I could not but note the enthusiasm and keen interest displayed by the said pupils in their conversation with each other, and also the respect they had for his knowledge and his sincere interest in their welfare.

Geoff 5TY, the Wicen co-ordinator, made a short explanation in answer to the letter written by John 5JC on the recent exercise, not because he wanted to, but because some member in the audience sought clarification on several points covered in the letter. I thought he handled it quite well, as did the audience, judging by their reactions.

A number of VK5 boys, not really old timers in the true sense, but who have been in the game for a long time, were saddened to hear of the passing of Gordon 3XU and ex-5DU, and felt that the obituary in the October magazine spoke for itself. Speaking personally, Gordon will always be remembered in VK5 for his cheerful and adventurous approach to Amateur Radio during his sojourn in this State and as one who was always more than willing to assist him in his self-assumed role of Don Quixote and the tilting at any windmills available. I sincerely regret his passing, as they never came any better than Gordon.

I notice in the VK2 notes that afternoon teas are going for the asking, and prepared by the dainty hands of my palsy-walsies Mona 2AXS and Hebe 2AOK and the XYLS of Council members 2ZRD and 2CH. Just think of it, scones, strawberry jam and cream, and oodles and oodles of tea, to say nothing of an eyeball QSO with the femininity. I have noted the numbers to ring, 55680, so look out girls, that hunk of masculinity from VK5 might appear from the clouds at any time. Whacko!!

Rumour has it that the mystery of George's 5CV stolen rx is almost solved, and that he is happy to report that no Amateur is involved. Nice work George, hope the rumour is true. Sorry to learn that Comps 5EF, he of the quack-quack fraternity, has had a spell in hospital, but glad to know that he is home and on the way to good health again. Quack-quack or no quack-quack, he is a good scout.

During Oct., some of the VK5 gang decided to have a shot at the VK one-way t.v. record, with very satisfactory results. The group transmitting from Willunga Hill were successfully received at South Hummocks, a distance of approximately 85 miles, photos being taken of the received picture as evidence and good clear evidence it was. The South Hummocks set-up was manned by Jim 5ZGV and Edwin 5ZTS, with the Willunga Hill gang including Mait 5AO, Rick 5ZFQ and Andrew 5ZBP. Nice work, fellows.

Jamboree-on-the-Air seemed to be quite a success in VK5, judging by the number of stations on the air for the event. During my short period of listening on the bands was intrigued to hear a voice from the shack of Carl 5SS calling Ross 5KF at Crystal Brook. Now I know that there are times when our respected and revered President might wish he were anywhere than in Adelaide, but putting him in Crystal Brook was stretching it a bit. Anyway, I would expect the citizens of Manningham to put on a bit of a buck if Ross was snatched from their domain.

Received a letter and a couple of colour slides of my shack taken by Fred 3YS during his recent visit. With expected VK3 cunning, parked right in the most prominent position on shack table is "The Thing," black box and all, the sight of which can be expected to give my legion of a.m. followers a bad attack of the collywobblers, or possibly xpto2bbkka! Don't believe your eyes chaps, it was a frame-up!

I sneaked across the border into VK3 this month—Ballarat to be precise—the reason being that my daughter was over there adjudicating in the physical culture and calisthenics section, at South Street, and as my XYL and I had not been there since 1949, I decided to run the risk and mingle with enemy. I managed to come out unscathed, although by the way those VK3 motorists came at me from all sides and crossings, to say nothing of the stop signs, I began to wonder at times whether my visit was as unknown as I thought it was. Several times I thought I saw Pincott

(3AFJ) lurking around the corners, but luck was with me, although possibly my false beard helped a lot. Thoroughly enjoyed ourselves, and there is no doubt about it, Ballarat is definitely a garden city, well worth visiting, although I would deny it if asked!

Note from the current issue of the VK5 journal that Gary 5ZK was married to Cecily on 5th September, the honeymoon being spent at Fort Lincoln. I also note with some dismay that he is reported as saying that the design of the new residence provides for the shack to be next to the kitchen which will give him an opportunity of working some DX whilst doing the cooking and polishing the floors, etc. This, of course, provides me with the chance to come up with my well known and tried advice: "DX Before Dishes". Congratulations to the happy couple, and best wishes for the future. Cecily—keep a watchful eye on the kitchen utensils, baking dishes, cake tins, etc. They have been known to become chassis in the most mysterious fashion. Ask my XYL, she can speak with experience!

The appeal by Eric 5ZEJ in his v.h.f. notes in the journal for A.R.R.L. Handbooks and Valve Data books for the Port Pirie Radio Club, met with pleasing results, but further copies will be gratefully received as the number of boys interested by far exceeds the supply of books.

Visitors to VK5 during September included Doug 6EP, 8ZDB and 6ZDD, to say nothing of David 3ZTN and Martin 3ZOL. We trust they enjoyed their stay in the city of culture and beauty. Quiet please, gentlemen, remember we come of modest stock!

The letter to VK2 from the VK5 Federal Councillor, Geoff 5TY, on the matter of the proposed Federal Constitution, a copy of which appeared in the current issue of the VK5 journal, made interesting reading, and should certainly merit consideration by those concerned. I have moved over in the hot seat to make room for Geoff, although just how we both will exist in such close proximity is open to conjecture!

It was reported in the VK5 journal recently that the Sunday morning 5WI broadcasts on 3.5 Mc. were to be discontinued and that the transmission would be transferred to 7 Mc., owing to propagation conditions varying as the sunspot cycle progresses. I thought this worthy of a paragraph in the W.I.A. column in the local "Advertiser" only to find at a later date that not only was this purely a test transmission on 7 Mc., but horrors of horrors, that it was on s.s.b. by Phil 5NN, who in explanation said that apparently the lines of communication had become crossed somewhere, but I have an uneasy suspicion that it is just an undercover attempt to infiltrate "The Thing" into the realms of the s.w.l. and non-technical readers of the "Advertiser" column! I tell you, you have to watch them, they will come at anything.

The earlier paragraph regarding George's 5CV stolen rx unfortunately has an unhappy sequel. It now appears that the culprit was a 13-year-old who specialised in wrecking and disposing the parts to various shops. Just imagine it? A Collins rx wrecked for parts!! No wonder George wept tears of blood. My sympathies OM.

In the recent flurry and skurry connected with the lost nine-year-old little girl at Mylor and the subsequent activities associated with the search, noticed the name of Jack 5AM, of Murray Bridge, and his alsatian dog as having been among the host of searchers. This is not the first time that he has had a hand in such activities, and it is good to be able to comment on such public spirited actions of this nature. Nice work Jack, when will the hound-dawg be radio controlled?

At great cost, and certainly without the permission of the gentleman concerned, I have it on definite authority that a certain VK5 has kept his radio activities hidden, or should we say concealed, for years from even his family. It seems that on a certain occasion a daughter's boy friend happened to catch a glimpse of the shack and queried the daughter "Is your father a radio amateur?" Daughter's reply: "I don't think so," would rock everything, especially as he is still ranked among the very active VK5s and known world wide. Just how did he do it? The name will not be revealed to protect the guilty, but just have a teeny-weeny guess!

Uncle Tom 5TL has joined the 58.1 Mc. net using one of the W.I.A. converted Pye transceivers, of which there are about 48 in use at the moment of writing. This forms the basis of a useful network, should the occasion ever arise, which we hope never will, but it is better to be prepared.

Jim 5JK has been on the sick list again, bronchitis and its associated discomforts. Jim is giving Frank 5MZ a run for his money for the title of VK5's gift to doctors and chemists because he is, at the moment of writing, about to enter hospital for surgery on his back,

although he bravely assured me that it was nothing, only two or three stitches or so! What it is to be a hero, I nearly keeled over at the thought of those stitches. Hope all is well by the time you are reading this Jim.

Can't help but notice an increasing tendency in the magazine for readers to write in and somewhat shoot down in flames the writers of articles which appear at various times in the magazine. I can't claim to be a judge of good manners myself, being only in the peasant class, but I see a personal letter to the writer of the article would serve the same purpose, without holding the author of the article or column up to the public gaze. After all, it is hard enough to persuade the average Amateur to put pen to paper, let alone cheerfully accept a fee of criticism. The time taken to write in the letter of criticism could well be put to writing an article on the subject and thus joining the targets to be sniped at!

Well, just as I was about to "put this month's notes to bed" it dawned on me that they are for the December issue. Therefore, it is with pleasure that on behalf of the VK5 Division I extend the Season's Greetings to all other Divisions. May Xmas be a merry one to all. Don't eat all the goodies, leave some for me, and above all, when the festivities are at full blast, spare a thought for a grey haired old so-and-so who will be in hiding somewhere in the hills, for fear of the inevitable invasion of VK3s during the festive season. 73, de 5PS—PanSy to you.

## WESTERN AUSTRALIA

Greetings and salutations to you all from this side of the black stump. The months are certainly rolling around in quick time this year, or so it seems, however as my old pal Alby was wont to quote: "everything is relative." That scratching, scraping noise you can hear is the old gentleman in the red bathrobe and white whiskers struggling to make his way down the chimney. Personally I am going to leave the door open for him in case he damages the Swan 350 I ordered.

On the sick list this month we have Bill 6WP, a life member, who has had quite a spell in hospital. Hope the road to recovery is swift and easy for you Bill.

Another who has also been in hospital is Mike 6QJ, who recently moved into VK3 territory in order to undergo surgery. Our best wishes for speedy recovery are also extended to you OM.

Well another Jamboree-on-the-Air has come and gone, what a pity it was marred by a world-wide DX contest. Of course, there are those who will argue that the Jamboree marred the DX contest, but whichever side is correct, it seems a great pity that the powers that be could not choose a couple of weekends which do not clash. After all, there must be plenty of "free" weeks in the contest calendar.

During the last couple of Divisional meetings we have been fortunate enough to view a couple of excellent technical films. After viewing the first of these, Aub 8XY was determined to be present at the next. Sure enough, he turned up, complete with tape recorder (cunning lad) after travelling the 160 or so miles from Wickiepin. It was also rumored that the rest of the Narragin group were going to turn up in force, but they failed to show. Probably they learned that I had alerted the local constabulary.

News to hand that Herb 6XO has not only been on the air, but also IN the air, winging his way eastwards with charming ease. Right across to ZL, I understand. Only a relatively short trip from the point of view of time, but none the less very enjoyable I'll bet.

Tuning across the bands not so long ago I came across a mighty signal which originated from the QTH of 6GB, who it seems, is making something of a comeback to Ham Radio. All the more the merrier.

Band conditions on the average seem to be improving again, with some good openings on 15 and 10 m.x. 40 m.x. is still very patchy, while 80 is enjoying quite a spate of QRN.

From the Cloak and Dagger department, my spies have taken off sufficient time from their plans to destroy the "Barracks archway" and inform me that Brian 6VW and Peter 6ZEP have made moves to alter sky line around their homestead. A tower of some sixty odd feet complete with rotators and so forth. What about a commercial triband beam now, fellers? Together with their hilly location, this structure should provide an additional hazard for unwary airplane pilots.

Talking of airplanes and pilots, reminds me that Tom 6TH recently took part in an air race. Always up in the air about something, this chap, why, last time I heard about him he was 40 feet up on 6RG's tower helping with some repairs. Puts out quite a respectable sideband signal, too.

Clem 6CW, who has been enjoying oodles of long service leave had quite a busy week-end recently. At a Boy Scout function, in which the Institute was invited to participate, Clem and a few stalwarts erected and operated a typical Ham station. Among those responsible were Norm 6NS, Graham 6ZEZ, Laurie 6ZEA. There were others, too, no doubt, but my memory is not serving me too well. Just as well, too, or I might remember the name of the shocker who took one end of a hundred yard reel of wire in his teeth and shinned up a near-by pole in order to anchor one end of the long wire antenna. The fact that the aforementioned pole was one belonging to the S.E.C. and was adorned by a street light, and furthermore was located in Canning Highway is neither here nor there. The rig was housed in a tent and included a KWM2 and a 6 mx rig working into a ground plane. The KWM2 worked into the long wire and also on occasions, into a nearby p.a. system, thus greatly mystifying a bewildered stall holder who henceforth regarded his microphone with great suspicion. Also available in the tent were a number of screeds extolling the virtues of Ham Radio and the Youth Radio Scheme. Well done, sirs, well done!

I think that in all fairness the VK3 Division should be warned that an invasion seems most likely to occur about the latter end of this month. Those involved are 6AQ, 6RT, 5VG, 5YB, 4EP, and they plan to depend on the unsuspecting city like a pack of—err, Hams, for a couple of weeks, too, mark you! Will someone please advise VK3 cause I can't be sure that they will read these notes. Thanks.

Another of my DX type spies reports that John G3LXV, ex VK6JJ, is treasuring fond memories of his recent five-year stay in this fair city and passes 73 to his many friends.

May I take this opportunity, on behalf of the VK6 Division to wish you, one and all, a Very Merry Xmas and a Happy New Year, 73, Ross 6DA.

## TASMANIA

Following the recent elevation of Terry 7CT to the rank of life membership, a little further investigation took place into the records and it was discovered we had on our books another member whose record appeared to eclipse that of Terry. This member's details went something like this: A Councillor for 15 years, commencing back in 1937, QSL Manager 9 years, Publicity Manager 1 year, Vice-Pres 2 years, Traffic Manager 1 year, B'cast Officer for 4 years, President for 7 years, member of the Distribution Committee for 2 years, and Lecture Officer for the last 12 months. The said gent (and who could call him anything else) appears to have had some job or other since 1937, excluding the war years, which seems a pretty good record, and so prompted Ian 7ZZ to propose Tom 7AL for life membership, and I feel sure there would not be one member who could not say, "Congratulations 'Uncle Tom'! If anyone deserves this honour, then you do." However, don't let it go to your head, we aren't going to pension you off yet, you're good for a few more years in some capacity. What about Div. Correspondent for instance—or Secretary even!

This year's Jamboree was without a doubt our best ever effort, a total of 45 Scout Groups were catered for, and I feel this is indeed a credit to all who took part. Do you realise this is three times the Australian average based on population. Congrats, to VK7, we may be the smallest Division in numbers, but we certainly aren't in participation, a most commendable effort indeed, of which we can feel justifiably proud.

At the time of writing the Hamfest is four weeks away, but by the time you read this, if you do, it will be over by about a week, but if preparations are any indication, it will be a beaut this year. All I can say at the moment is, "I hope I saw you there, and you'll come again next year."

The Hamfest might be over, but the v.h.f. season is just starting, and it gets away this year with the "Ross Hull" Contest, commencing on Dec. 7. Remember, it's your best seven days that count, and as I've said before, they don't count a bumper if you don't get your log away.

We should have a "Kiwi" visitor in the State over the holiday period. My spies tell me that ZL2NH will be touring the State. I don't know of any other visitors at this stage, but I've no doubt there will be quite a number coming to see the best place in the Commonwealth. To those who are coming, may I remind you to bring your Call Book. It has got the addresses of most licensees in it, and make yourself known wherever you go. I'm sure you will be shown the renowned "Tassie hospitality."

Speaking of holidays, I'm going to have one myself this Christmas for a change, normally it's a mid-winter job for me, but it has all been planned what's got to be done—might get a better rest if they were in winter time again, still, one can but try.

As this will be the last you'll read of my piffle for the year 1966, may I take this opportunity of wishing my readers, on behalf of the President, Council and members of the VK7 Division, a Very Merry Xmas, a Bright and Prosperous 1967, and in fact all the things you wish yourselves. 73, Geoff 7ZAS.

## HAMADS

Minimum 50c, for thirty words.  
Extra words, 2c each.

Advertisements under this heading will be accepted only from Amateurs and S.w.'s. The Publishers reserve the right to reject any advertising which, in their opinion, is of a commercial nature. Copy must be received at P.O. Box 36, East Melbourne, C.2, Vic., by 5th of the month and remittance must accompany the advertisement.

DUE to withdrawal of loaned gear, Cessnock Youth Radio Club would like to beg, borrow, or buy very reasonably a Communications Rx. Particulars to Hon. Sec., 78 Aberdare Rd., Cessnock, N.S.W.

ESTATE the late VK2ADC. Gordon McLeod was constructing a copy of the Collins KWM-2 Transceiver, including an exact duplicate of the Collins PTO with its dial mechanism, etc. All components, all brand new, including switches, relays, Collins mechanical filter, etc., are there, now sorted out, chassis construction remains to be undertaken. Anyone interested to complete the project, contact VK2AVA. The lot is available for \$250. Arrie Bles, VK2AVA, P.O. Box 23, Springwood, N.S.W.

FORD Falcon De Luxe Sedan 1961/2, beautiful condition, been under wraps all this year, surplus to requirements. Will exchange for Collins 32S-2 or 3, p.s.u. and handbook in mint condition, or sell \$750. VK3TD, Phone 787-1407 (Melb.).

FOR SALE: Going s.s.b., must sell. Hallcrafters HT40 Tx, 75 watts a.m.c.w., 80 to 8 metres, \$100. 240/100v. a.c. 300 watts step-down transformer, \$10. Heathkit VF19 v.f.o., 80 to 10 metres, \$19. Heathkit HP20 power supply, 120 watts at 600v. 200 mA, or 600v. 120 mA. and 300v. 100 mA., plus 130v. 30 mA., 6.3v. 11 amp. or 12v. 5 amp., \$20. Heathkit HP20 Rx, s.s.b., 80 to 10 metres, \$95. Leader LSG11 Signal Generator, 125 Kc. to 300 Mc., \$20. All equipment in good condition. Complete with circuits and Handbooks. Will sell complete, \$230 or best offer. VK3ABQ, J. Moran, 54 Mont Albert Rd., Canterbury, E.7, Vic. Phone 81-0321, Ext. 32.

FOR SALE: New National 1 watt Citizen Band 11 transistor Transceiver, Model RJ-15A, with external Zephyr mic., write for more information, \$80. Also one set Tokal C.B. Band 9 transistor Transceivers with separate built-in speaker and mic. for telephone-like operation, \$60. J. Sykes, 90 Melbourne Rd., Sorrento, Vic. Tel. 42874 after 5 p.m.

FOR SALE: One 240 volt 400 watt portable Alternator including Villiers 4-stroke motor as new. Suitable Field Day purposes, \$145. T. Rodda, VK3ATR, 140 Scott St., Warracknabeal, Vic.

FOR SALE: 120 watt a.m. home-built Transmitter, band switched 80-40-20, v.f.o. and parallel 6146s, 600v. power supply, class B zero bias 807s modulator, good condition. Home-built 5-band switched Receiver, 455 Kc. xtal filter, requires little work. BC457A, BC453B (Q5er), both with tubes. 455 Kc. Collins mechanical filter and 3 crystals (never used) for s.b. exciter. 1966 A.R.R.L. Handbook. Quantity tubes, parts, etc. Offers for any or all. W. Yates (VK2AWY), Box 434 Post Office, Orange, N.S.W.

PANDA CUB, all band table top commercial tx, 60w. c.w./40w. a.m., self contained with in-built v.f.o. and power supply, \$80 or consider exchange for Lafayette HA230 Receiver. VK5WD, Box 1962P, G.P.O., Adelaide, S.A.

SELL: Hy-Gain Model 2TQ matched trap kit for building 40 and 80 metre Doublet comprising 2 large end insulators, 2 40 mx traps plus centre insulator and instruction manual. An ideal 40 and 80 mx antenna for confined space. Cost \$25 to land. Sell at \$18. Roth Jones, 1 Albert Rd., Melbourne, S.C.2, Vic. Tel. 26-6911.

SELL: Six Receivers specially modified for S.w.'s. CR100 with manual, £35. B. & H. Hambander (9 valves and 3 diodes), £25. Hambander, 4 bands, 13 valves and 4 diodes, £35. Hambander, 6 bands, 15 valves and 3 diodes, £45. General coverage, 75 Kc. to 19 Mc., £22. S.W. 3 to 18 Mc., 10 valves and 2 diodes, £25. 144 Mc. Super-regen. with r.f. stage, £10. Tasma 70 Mc. i.m. Carphone and vibrator power supply, 26 valves (no crystals), £15. Six band Mod. Osc., 85 Kc. to 75 Mc., £10. Aires 35v. Camera with three lenses, normal, tele., wide angle. Astronomical Telescope 50 x 50 for sale or exchange for good Tape Recorder or other equipment. H. Roach, 28 Foster Ave., Glenhuntly, Vic. 58-3757.

SELL: T.V. Chassis, new tuner, sync. and sound good, no pix tube, \$30. Geloso V.f.o., \$15. Woden UM2 Mod. Trans., \$15. Also converters, etc. Offers or trade for antenna tower. VK3WW, 465-2991 (Melb.).

SELL: 12 volt 300 watt Genemotor powered by a 1 hp. 4-stroke engine, \$60. Eye Echo Sounder, 12 volt, \$50. Phone 87-1930 (Melb.).

SWAP: As new No. 19 Mk. II. with manual, for AR8. Cash adjustment if necessary. P. Ward, WIA-L3284, School Residence, Litchfield, Vic.

WANTED: Woden UM3 Modulation Transformer. E. R. Gray, VK3ZSB, 95 Atherton Road, Oakleigh, Vic. Phone 32-4529 (working hours), 56-3201 (after hours).

## Aswel Audio Phaseshift Networks

Further quantity available  
Price \$8 including postage

ASWEL

17 Clisdell Ave., Canterbury,  
N.S.W. Phone 78-5368

## "WIND UP" TOWERS

57 ft. to 100 ft., rotators, special aerials  
for u.h.f. and v.h.f. frequencies.

Write to

ANTIFERRENCE (AUST.) PTY. LTD.  
P.O. Box 49, North Brisbane, Q'land

Repairs to Receivers, Transmitters;  
constructing and testing; xtal conv.,  
any frequency; Q5-ers, R9-ers, and  
transistorised equipment.

## ECCLESTON ELECTRONICS

146a Cotham Rd., Kew, Vic. Ph. 80-3777

Stockists of Radio and Electronic  
Components for the Amateur  
Constructor and Hobbyist

First Ring, Write or Call on

WILLIAM WILLIS & Co. Pty. Ltd.

430 Elizabeth St., Melb'ne. Ph. 34-6539

## Universal L.T. Transformer

Six windings: 3v./1.5a. each (3a. max.  
per winding). Amazingly versatile,  
\$3.50, post free. Also available: Many  
good technical books at reasonable  
prices. S.a.e. for list.

AUSTRALIAN ELECTRONICS  
76 View Street, Hobart, Tas.

# INDEX TO VOLUME 34-1966

## ANTENNAE

An Indoor Pylon Slot Aerial for 145 Mc.	May p.11
Matters Mobile	Feb. p.3
Series Phased Array for 14 Mc.	Oct. p.4

## AUDIO AND MODULATORS

Matters Mobile	Feb. p.3
Transistor Amplifier Design:	
Part One	Sep. p.5
Part Two	Oct. p.7
Part Three	Nov. p.9

## BOOK REVIEWS

Mullard Voltage Regulator (Zener) Diodes	Sep. p.15
Technical Topics for the Radio Amateur	Jul. p.10
The Radio Amateur's Handbook	Jul. p.10
Transistor Interchangeability List	May p.17
1966 World Radio T.v. Handbook	Aug. p.12

## CONTEST RULES AND RESULTS

Aust. Results of World-wide DX Contest, 1965	Oct. p.15
John Moyle National Field Day Contest:	
1966 Results	Jun. p.9
1967 Rules	Dec. p.11
Remembrance Day Contest: Corrections and Additions to 1965 Results	Mar. p.13
1966 Rules	Jun. p.12
1966 Results	Nov. p.18
Ross Hull Memorial Contest:	
1965-66 Results	May p.18
1966-67 Rules	Nov. p.17
VK-ZL-Oceania DX Contest:	
1965 Results	Apr. p.13
1966 Rules	Jul. p.13

## INSTRUMENTS

An Experimental 100 Mc. Crystal Oscillator	May p.10
How is Your Dial Calibration?	Dec. p.7
Matters Mobile	Feb. p.3
Modifying the Palec Valve and Circuit Tester	Apr. p.2
Monimatch Mark 3 and 4	Feb. p.11
Self Powered C.w. Monitor	Jan. p.9
Simple Transistor Tester	Dec. p.3

## MISCELLANEOUS

Amateur Radio Hall of Fame Announced	Oct. p.17
Australian DX Century Club Award	Jan. p.11
Australian D.X.C.C. Countries List	Jan. p.12
Australian V.h.f. Century Club Award	Jan. p.11
Boeing Demonstrates Meteorburst Communication	Jun. p.15
Central Queensland Branch Display	Jun. p.15
Father Xmas, Fairy Godmothers, and all	Aug. p.11
"Fifty and Over"	Jun. p.11
"Fifty and Over"	Oct. p.14
Gateway of India Award	Feb. p.15
Great Circle Map	Feb. p.13
Higginbotham Award	Jun. p.21

## Hints and Kinks:

Feeder Spacers	May p.17
Filed Information	Sep. p.11
Protective Cover for SO239 Connector	Jan. p.8
Lightning	Apr. p.15
More About Morse	Jan. p.7
P.A.C.C. Award	Jul. p.16
Project Australis	May p.14
Project Australis	Jul. p.11
Project Australis	Nov. p.21
Reciprocal Licence issued by U.S.A.	Jun. p.21
Standard Stations received in Far East	Jun. p.15
Sunspots and Predictions	Sep. p.14
Survey of Occupancy of H.F. Bands	Oct. p.15
Telepersonality—George Jacobs	Mar. p.6
The Radio Ham	Sep. p.20
"They and Me"	Sep. p.13
VK4AT might go on the Air	Aug. p.11
Further Notes on VK4AT's Power Supplies	Sep. p.7
VS9MP, Maldive Is.	Jun. p.11
W.I.A. Federal Convention, Easter 1966	May p.15
W.I.A. Federal President's Annual Report	Jun. p.17
YL Operator Club	May p.10
YO Awards	Oct. p.17
YO Awards	Nov. p.6

## POWER SUPPLIES

Portable 240v. A.C. Power Supplies	Oct. p.3
Power Supplies for S.s.b. Exciters	Jul. p.9
Technical Correspondence:	
Diodes in Power Supplies	Sep. p.17
"The Mode of Power"	Dec. p.3
Transceiver Power Supplies	Dec. p.5

## RECEIVERS

Accessory Package for Transceivers	May p.5
A High Stability V.f.o. for Receiver or Transmitter	Nov. p.6
A Pre-Amp. for 2 Metre F.M. Audio Clipper/Limiter for C.w./Phone Reception	Mar. p.9
Band Switched All-Triode Converter	Jan. p.3
Errata—Pye Reporter	Feb. p.12
F.E.T. Pre-amp. for 144 Mc.	Sep. p.13
How is Your Dial Calibration?	Dec. p.7
Matters Mobile	Feb. p.3
Netting with Transceivers	Dec. p.9
Noise Limiter for Mobile Use	Jun. p.5
Nuvistor Converters for 50, 144, 220 and 432 Mc.	Jul. p.5
Some Thoughts on Hang A.g.c. Systems	Jun. p.7
Some Thoughts on Six Metre T.v.i.	Aug. p.5
SX28 Receiver Modifications	Mar. p.2
Transistorised Amateur Band Receiver:	
Part One	Aug. p.2
Part Two	Sep. p.2
Part Three	Oct. p.11
Part Four	Nov. p.7
Two-Unit Pye Base Station Conversion	Jun. p.3
Your Pye Reporter—Tunable or Crystal Locked	Jul. p.2

## SIDEBAND

A.m. Final as Linear Amp.	Sep. p.9
Bad Sideband Signals	Dec. p.9
Ceramic Filters for S.s.b.	Nov. p.13
Class A Amplifiers	Apr. p.11
Commercially Made Filters	Aug. p.9
Crystal Filters for S.s.b.	Aug. p.9
Drake TR-4 Transceiver	Sep. p.9
Linear Amplifiers	Apr. p.11
Linear Amplifiers (cont.)	May p.13
Netting with Transceivers	Dec. p.9
Power Supplies for S.s.b. Exciters	Jul. p.9
Single Sideband—Power Measurements	Dec. p.6
Some Thoughts on Hang A.g.c. Systems	Jun. p.7
S.s.b. Transceivers	Jan. p.17
S.s.b. Transceivers (cont.)	Feb. p.15
Technical Correspondence:	
Diodes in Power Supplies	Sep. p.17
"The Thing"—Transistorised	Nov. p.5
Transceiver Power Supplies	Dec. p.5
Transistorised S.s.b. Generator	Sep. p.3

## TECHNICAL MISCELLANEOUS

Amateur Television Activities in South Australia	May p.3
Experimental F.M. Station for Victoria	Feb. p.17
Interference to Television and Radio Reception by Nearby Radio-Communications Tx's	Nov. p.2
Overlay Transistors	Feb. p.8
Some Low-Pass Filter Designs for Amateurs	Apr. p.9
The Fatal Current	Feb. p.9
Technical Correspondence:	
Transistor Amplifier Design	Oct. p.5
Author's Reply	Nov. p.15
V.h.f. Net Frequencies	May p.14

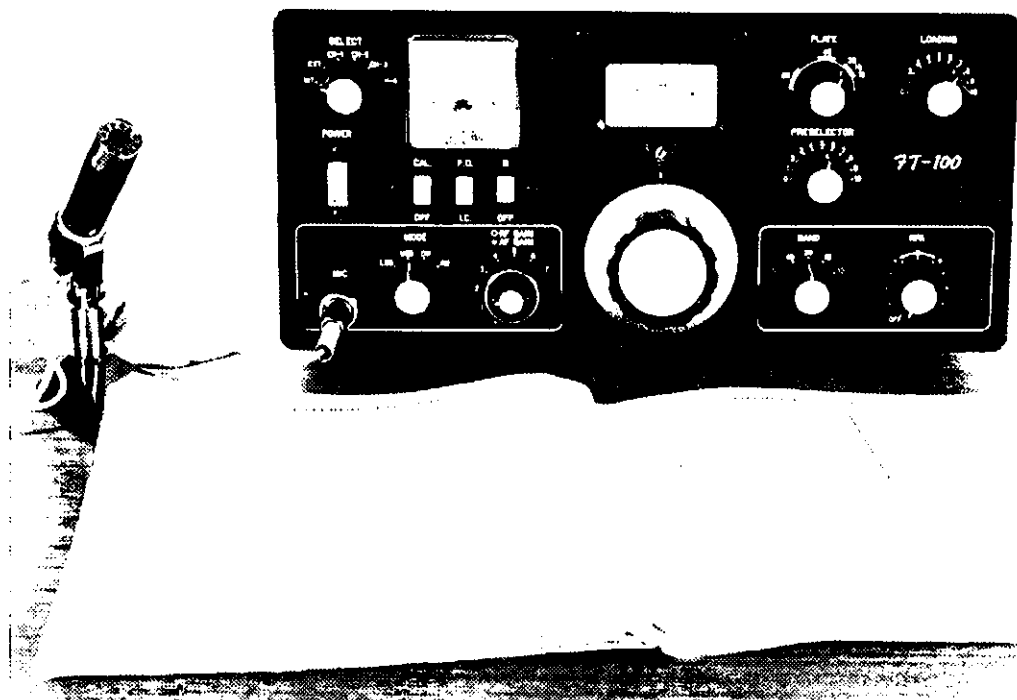
## TRADE REVIEWS

Great Circle Map	Feb. p.13
Toroid Baluns	Jul. p.11

## TRANSMITTERS

Accessory Package for Transceivers	May p.5
A High Stability V.f.o. for Receiver or Transmitter	Nov. p.6
An A.M.-C.W. Exciter for 144 Mc.	Apr. p.5
An Experimental 100 Mc. Crystal Oscillator	May p.10
Errata—Pye Reporter	Feb. p.12
Matters Mobile	Feb. p.3
Netting with Transceivers	Dec. p.9
Single Package Transmitter for 160 and 2 Metres	Jan. p.4
Single Sideband—Power Measurements	Dec. p.6
Some Thoughts on Six Metre T.v.i.	Aug. p.5
The 80 and 40 Metre "Transistor Special"	Sep. p.10
Errata	Oct. p.15
Transistor Amplifier Design:	
Part One	Sep. p.5
Part Two	Oct. p.7
Part Three	Nov. p.9
Two-Unit Pye Base Station Conversion	Jun. p.3
6/60 Special	May p.6

*As Modern as tomorrow!*



## *Yaesu FT-100 Transceiver*

**FIVE BANDS – BUILT-IN POWER SUPPLY – TRANSISTORISED**

Combining all the features you expect in a modern s.s.b. transceiver, PLUS many more:—

**THE FT-100 SSB-CW-AM Transceiver** incorporates a selective ultra-modern six-crystal lattice filter designed to give excellent audio quality and an easy-to-tune signal. Use of transistors ensures reliability with low current drain (Receiver fully transistorised, approx. 500 mA.; Transmit standby, 2½ amp.; Transmitting, average 10 amp). Now you can operate portable with safety!

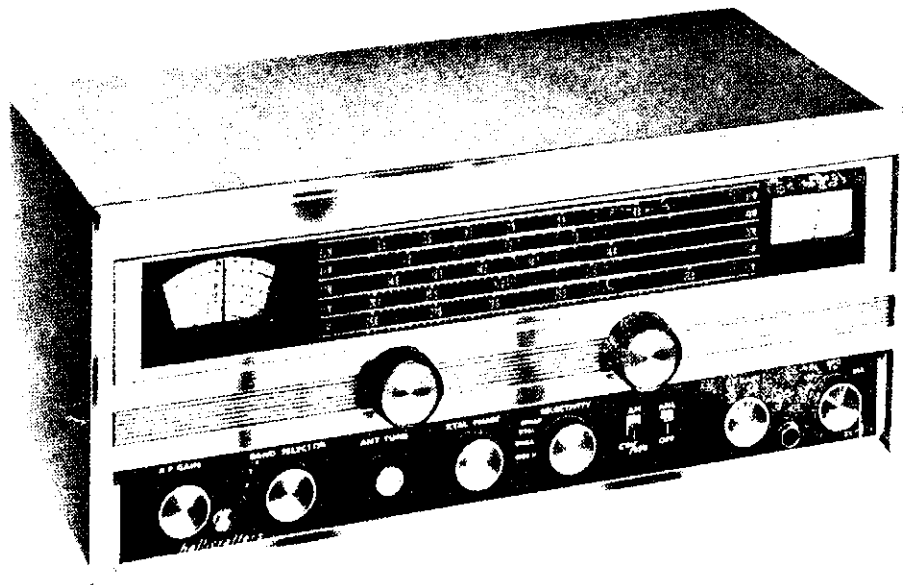
**SELF-CONTAINED** power supply is built-in, voltage regulated, can be used on 230v. a.c., 50 c/s., and 12v. d.c. simply by plugging in the special power cords provided. Makes mobile, portable or home station operation a dream.

**FACILITIES:** Selectable USB-LSB-CW-AM. Provision for external VFO, plus built-in facility of a minimum of four crystal-locked frequencies, and 100 kc. calibrator. Dial is similar to that used on the larger "F" Series equipment—precision gear driven type giving accurate linear tuning with 1 kc. readout. Exceptionally stable VFO, no warm-up. Frequency ranges: 3.5-4, 7-7.5, 14-14.5, 21-21.5, 28.5-29 Mc. Only valves used are transmitter driver 1 x 12BY7 and p.a. 2 x 6JM6 (similar 6DQ6). Rated at approx. 150w. p.e.p. input. Suitable for standard p.t.t. high impedance microphone. Dual "S" meter and p.a. cathode current, a.l.c., 10 kc. off-set tuning, variable antenna loading, antenna relay. 25 transistors, 32 diodes, 3 valves. Conservatively rated, heavy duty power transformer for best regulation and cool operation. Connections at rear for co-ax antenna line, power, speaker, VOX and linear control. Size 6" x 13" x 10½". Professionally finished in black enamel with white etched panel. Available early in the new year. Price £299/10/0 (\$599), inc. S.T.

*Australian*  
**Agents: BAIL ELECTRONIC SERVICES**  
60 Shannon St., Box Hill North, Vic. Tel. 89-2213

*VK2 Rep.:* **MOSMAN RADIO SERVICES**  
11 Ruby St., Mosman, N.S.W. Tel. 96-5342

# NEW FROM HALLICRAFTERS



## MODEL SX-130 GENERAL COVERAGE RECEIVER

The Hallicrafters Model SX130 Communications Receiver is a four-band superheterodyne receiver tuning 535 Kc. to 31.5 Mc. The frequency range covers foreign and domestic short-wave broadcasts, amateurs, aircraft, and marine band plus standard a.m. broadcasts. The receiver provides for the reception of c.w., a.m. and s.s.b. signals over its entire tuning range, the upper or lower sideband being readily selectable by means of a front panel control. This feature greatly simplifies tuning of s.s.b. signals.

### FEATURES INCLUDE:

- Calibrated electrical bandspread on 80, 40, 20, 15, 10 metres and citizen bands.
- Slide-rule bandspread dial.
- Crystal filter.
- Product detector for c.w. and s.s.b.
- Antenna trimmer for maximum signal transfer.
- Front panel controlled automatic noise limiter.
- New handsomely styled cabinet.
- Audio power output—2 watts.
- "S" meter for accurate tuning.
- Calibrated b.f.o. for u.s.b.-l.s.b. c.w.

### FRONT PANEL CONTROLS

R.f. gain, band selector, antenna trimmer, crystal phase, selectivity, noise limiter on/off, a.m.-c.w./s.s.b. selector, b.f.o., audio gain, main tuning, bandspread tuning.

### TUBES AND FUNCTIONS

One each 6DC6, r.f. amplifier; 6EA8, mixer and oscillator; 6EA8, 1st i.f. amplifier and xtal selectivity; 6BA6, 2nd i.f. amplifier; 6AL5, a.m. detector and noise limiter; 6BE6, b.f.o./product detector; 6GW8, audio amplifier; 1N3195, rectifier.

### COVERAGE

Standard broadcast: 535-1610 Kc.; three s.w. bands: 1725 Kc. to 31.5 Mc.

Band 1: 535 Kc. to 1610 Kc. Band 2: 1725 Kc. to 4.7 Mc. Band 3: 4.5 Mc. to 13.0 Mc. Band 4: 11.9 to 31.5 Mc.

### EXTERNAL CONNECTIONS

3.2 ohm speaker and standby terminals. Terminals for single wire or double antenna, a.c. cord, audio output terminal, "S" meter electrical adjustment. Phone jack on front panel.

**W.F.S. ELECTRONICS SUPPLY CO.**

227 Victoria Road, Rydalmere, N.S.W. 638-1715

**ATLANTIC RADIO**

36 Oxford St., Woollahra, N.S.W. 31-7811