Contact Lowe Electronics for all that's Good in Receivers

TRIO R1000
THE FINEST RECEIVER ON THE MARKET
£298 inc. VAT

2 metre FM = SR9
SR9 Value £46 inc. VAT
2m FM TUNABLE 144-146 MHz
0.3µV Sensitivity. 12V Operation plus 11 Channel Crystal Control

THIS PRICE INCLUDES DC KIT FITTED AND THE PEACE OF MIND THAT COMES FROM BUYING YOUR TRIO FROM AN APPROVED DEALER!

LOWE SRX-30
NEW LOW PRICE
£158 inc. VAT

The SRX30 is the most impressive mid price Receiver available to the keen DX-er.
500 kHz — 30 MHz Continuous.
Drift Cancelling System.

AM/USB/LSB/CW with 6 kHz and 3 kHz filters. Completely self contained. For AC mains and optional 12V DC operation.

AND FOR THE AIR BAND ENTHUSIAST WE HAVE THE LOT

THE DIGITAL FLIGHT SCAN DOES EVERYTHING £215 inc. VAT

R517 HAND HELD TUNABLE 118-144 MHz plus Crystal Control on three Fixed Frequencies UNDER £50 inc. VAT

AND SO MUCH MORE IS HERE AT MATLOCK. SEND 48p in stamps for Full catalogue

LOWE ELECTRONICS Ltd. TEL. 0629 2430
CHESTERFIELD RD., MATLOCK, DERBYS. DE4 5LE
The new TR7800 has just been voted the best 2 metre FM transceiver to appear on the world scene. Following detailed market research, Trio have produced what we think is the perfect mobile/home station rig for all users, incorporating all the features which were requested by amateur radio operators worldwide.

What does it do?
Let's take the basic specification first, and say that the TR7800 is a fully synthesised 2 metre FM transceiver having a minimum output power of 25 W on transmit (typically 30 - 35 W on random samples), and an incredible receiver which is typically producing sensitivity measurements of 0.12 microvolts for 12 dB S/N. This certainly is the best FM receiver of which we know (we have naturally checked samples of its major competitors and they are all inferior). That's the basic story so let's go on to the user features.

It's clear from the photograph that you have direct keyboard entry of frequency actually from the front panel. From the keyboard, you can also select simplex and repeater shift functions for use either on UK or American repeaters. The digital readout tells you the operating frequency including any selected shift so you are completely in touch with your mode of operation.

So far so good — but what about the mysterious knob on the right hand side of the panel? Well, that selects a bank of 15 keys (19 memories for frequency storage and the smart part is that these are designated not 1 to 15 but 0 - 14. “So what?” you say. “Ah-ha!” sez I, that means that if you programme in all repeater channels from R0 to R9 using memories 0 to 9, the memory channel display shows you the repeater channel number whilst at the same time, the digital readout shows you transmit and receive frequencies. In addition to this, the memory channels also store the repeater shift so that it's called up automatically when you use the channel.

The remaining memories can be used to store any frequencies within the band, but a further smart part is that memories 13 and 14 can store completely separate transmit and receive frequencies for non-stationary shifts etc. And memory 14 is also designated the priority channel so that any frequency put into it can be constantly monitored at 5 second intervals, whatever else the transceiver may be doing. And if you have the volume turned down, a piezo bleeper alerts you if a signal has appeared on the priority channel. You also have direct access to the channel by simply pushing the “Priority” button.

Final features for repeater operation include a tone burst which can be turned on or off as desired, and reverse repeater operation at the touch of a button.

Now for more facilities pertaining to scanning. In keyboard operation, you can scan the entire band in 25 kHz or 5 kHz intervals by simply touching the 5 button. In memory mode, you can scan all fifteen memories using the same 5 button. The scan system is (in my opinion) the best yet offered in that the transceiver scans until a signal is heard, stops on the frequency for about 5 seconds to allow you to check what's on, then steps on automatically to find the next busy frequency.

If you want to stop the scan, simply press the D button on the microphone or touch the C (cancel) button on the keyboard. By scanning this way, you eliminate the annoying locking up on busy repeater channels that so often ruins your enjoyment of an otherwise satisfactory scanning system.

In addition to scanning, the TR7800 can be stepped up and down the band in 25 kHz or 5 kHz steps using the UP/DOWN buttons on the hand microphone. The microphone is supplied as a standard with the TR7800. If either button is held down, the TR7800 tunes across the band until the button is released.

The mic buttons also allow you to step up and down the memory channels.

LED indicators show Simplex, 600 or 0 - 600 operation, a busy lamp on occupied frequencies and “on air” indication. Signal strength and TX output are indicated on an LED bar display.

Memory contents can be retained by inserting four standard AA size batteries inside the radio. The batteries are charged when the TR7800 is switched on, and the memories are then retained for up to five days on the batteries.

All in all, the TR7800 is an amazing transceiver and follows the Trio design pattern for the 80's. Let's face it, Trio are now showing the way to go and the others are truly a long way behind. Why not see the TR7800 soon and test the truth in what I've been saying.

---

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>GENERAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semiconductors:</td>
</tr>
<tr>
<td>Frequency range:</td>
</tr>
<tr>
<td>Frequency synthesizer:</td>
</tr>
<tr>
<td>Mode:</td>
</tr>
<tr>
<td>Antenna impedance:</td>
</tr>
<tr>
<td>Power requirement:</td>
</tr>
<tr>
<td>Grounding:</td>
</tr>
<tr>
<td>Operating temperature:</td>
</tr>
<tr>
<td>Current drain:</td>
</tr>
<tr>
<td>Dimensions:</td>
</tr>
<tr>
<td>Weight:</td>
</tr>
</tbody>
</table>

**TRANSMITTER SECTION**

RF output power (at 13.8 V DC, 60% load): 25 W min. LOW 5 W approx. (Adjustable)

Modulation: Variable reactance direct shift

Frequency tolerance: Less than ± 20 x 10^-6

Spurious radiation: Less than 60 dB

Maximum frequency deviation: ± 5 kHz

Microphone: Dynamic microphone with PTT switch

**RECEIVER SECTION**

Intermediate frequency: Double conversion superheterodyne

1st IF: 10.655 MHz
2nd IF: 455 kHz

Receiver sensitivity: FM better than 0.2 µV for 12 dB SINAD

Receiver selectivity: FM 12 kHz (-3 dB)

Spurious responses: Better than 80 dB

Squelch sensitivity: 0.16 µV (threshold)

Auto scan stop level: More than 2.0 W across 8Ω load (10% dist.)

---

Don't forget, we stock almost everything that the keen DXer, short wave listener or radio amateur could possibly need, including the complete range of J Beam aerials, Microwave Modules equipment, feeder, clamps, insulators — in fact our catalogue makes good reading for 48p and includes honest advice on aerial matters. For all that's good in Amateur radio, contact Lowe Electronics at Matlock.
If you sat down at some time and designed your ideal 2 metre multimode rig, you probably laid down the specification for the new Trio TR9000. I believe that this transceiver will satisfy the needs of every radio amateur, combining as it does small size (same as the TR7600), light weight (same as the TR7600), and powerful performance.

As you can see, the TR9000 has a complete array of facilities including all mode operation, noise blanker, PTT, S memories, twin digital VFDs and digital frequency readout to 100kHz. Now for the smart parts.

The TR9000 is based on a 100kHz synthesizer controlled either by a photo microsensor on the main dial or by the remote up down microphone. On FM, the operator has instant selection of either 25kHz steps (for convenient mobile use), 5kHz steps (for future use), or 100kHz steps (for continuous tuning). On SSB and CW, the synthesizer steps are automatically switched to 100kHz and the digital display is extended to match.

A special feature is the search facility on SSB which tunes the whole band, and the scan facility on FM which scans in 25kHz or 12kHz steps, stopping momentarily on any received signal. The scan may then be held by touching the HOLD button or depressing the PTT switch on the microphone.

The TR9000 has so much to offer, it's bound to be yet another leader, from Trio. Contact us soon for further details.

**GENERAL**
- **Frequency range:** 144,000.0 to 145,999.9 MHz
- **Frequency synthesizer:** Digital control, phase locked VCO
- **Mode:** FM (F3), CW (A1)
- **Frequency stability:** Within ±500 Hz during the first hour after 1 minute of warm up, and within 50 Hz any 30 minutes thereafter at 25°C (constant)
- **IF:** 10.695 kHz
- **Intermediate frequency:** 10 kHz
- **Audio output:** More than 2.0 Watts across 8 ohm load

**UNWANTED SIDE BAND SUPPRESSION**
- Better than 50 dB

**RECEIVER SECTION**
- **Circuitry:** FM: Double conversion superheterodyne (F1, F2, F3), SSB: Single conversion superheterodyne (F1, F2, F3), CW: SSB: CW
- **Receiver sensitivity:** FM: better than 1 μV for 12 dB SINAD
- **Spurious interference:** Better than 70 dB
- **Signal to noise ratio:** Better than 10 dB

**AUTHORISED DEALERS IN THE UK**
- **Yorkshire:** Leeds Amateur Radio
- **Birmingham:** Ward Electronics
- **South London:** Catronics Ltd
- **North London:** Radio Shack Ltd
- **Lancashire:** Stephens-James Ltd
- **Wales:** M.R.S. Communications Ltd
- **Essex:** Waters & Stanton Electronics
- **Sussex:** Bredhurst Electronics

Everyone is talking about the new Lowe credit card scheme, following its introduction at Leicester. This is the new, easy way to have the rig you wanted right away and avoid any future price rises. How does it work? You simply agree to pay a fixed amount each month and you then get instant purchasing power of 24 times the payment. For example, a payment of £10 gives you £240 of credit, more than enough to buy that TR2400, aerial and accessories, no fuss and no hefty deposits needed. A further advantage is that as the payments continue your credit is automatically extended to allow further purchases. Why not send for full details right away and join the growing numbers who hold the Lowe blue card — the way to have tomorrow's equipment today. A major advance to your purchasing power.

As sole official distributors for Trio, we recommend that you purchase your Trio equipment from an approved dealer (full list above). Any dealer NOT on this list has no connection with the Trio UK sales and service organisation and cannot, despite claims to the contrary, offer any meaningful guarantee of backup service on Trio equipment.
LOWE ELECTRONICS Ltd.

TS520SE VOTED "MY FAVOURITE TRANSCEIVER" BY RADIO AMATEURS WORLDWIDE

In the face of ever increasing complexity in amateur radio equipment, it's comforting to know that the TS520SE is still in volume production. Radio amateurs all over the world anddealers alike have voted the TS520SE "my favourite transceiver", because of its astounding reputation for reliability, high sensitivity receiver and, of course, the unequalled audio quality coming from the TS520SE. The TS520SE incorporates all the features demanded by today's amateur, and at an outstandingly low price. No wonder it's top of the list in popularity, and comparison with other transceivers will convince you that the TS520SE is the best value for money on the market today.

Of course, the bare figures cannot tell you just how nice the TS520SE feels in use, nor can they tell you the pleasure of hearing other operators saying "never heard better audio GM, what rig are you using?"

The TS520SE standard specification includes: CW wide/marrow switching (using the optional 300Hz filter), semi break-in keying with sidetone, PTT or VOX operation, effective noise blanker, switched AGC time constants, 5 function metering, switched HI attenuator RT, speech processing for punchy transmit audio, fixed channel facsimile, 25kHz calibrator, fan cooled PA, internal loudspeaker, and of course the TS520SE will take all the wide range of current accessories including the DOS 9:11 frequency digital listeners, and VFO-56000 via the VFO unit, the SM220 station monitor scope and panoramic display and so on.

When talking to prospective purchasers of the TS520SE, the question we are most often asked is "how does it compare in price to its rivals?" and the transceiver is most compared with is the Yaesu FT101Z series. The price for the FT101Z taken from March 1980 RadioCom is £575 including VAT and you should add VAT at 10% (£640 the inc VAT standard on the TS520SE making a grand total of £688.80. THE TS520SE costs £437 including VAT.

Now tell me if that is not value for money.

HOKUSHIN AERIALS

From the makers of our popular HF5 vertical, we have a complete range of vehicle aerials for VHF and UHF use. All the whips terminate in a PL259 plug so that you have complete flexibility, and any aerial in the range will fit the RG4M base or the magnetic mount. The 2E, 2NE, and 43OE have a quick foldover joint at the base so that you can drive in and out of your garage without dismantling the aerial.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Price (inc VAT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2E</td>
<td>2m 5:8, 3:4dB gain foldover whip</td>
<td>£6.50</td>
</tr>
<tr>
<td>2NE</td>
<td>2m 7:8, 5:8dB gain foldover whip</td>
<td>£11.00</td>
</tr>
<tr>
<td>43OE</td>
<td>70cm 5:8, 5:8, 5:6dB gain</td>
<td>£100.00</td>
</tr>
<tr>
<td>HS-F1</td>
<td>2m rubber helical on PL259 plug</td>
<td>£3.95</td>
</tr>
<tr>
<td>32D</td>
<td>2m stainless quarter wave on PL259</td>
<td>£1.50</td>
</tr>
<tr>
<td>RG4M</td>
<td>Base for all above units including 4 metres of cable</td>
<td>£3.00</td>
</tr>
<tr>
<td>G5S</td>
<td>Heavy duty gaffer boot mount to take RG4M base</td>
<td>£3.15</td>
</tr>
</tbody>
</table>

Please add £1 for carriage on above.

SEND 48p IN STAMPS FOR COMPLETE CATALOGUE AND ANTENNA BOOK
PLEASE SPECIFY ANY PARTICULAR INTEREST AND WE WILL SEND FULL INFORMATION

HEAD OFFICE AND SERVICE CENTRE
CHESTERFIELD ROAD, MATLOCK, DERBYSHIRE, TEL: 0629 2817, FAX 2430, TELEX 377482, OPEN 9-5 MON-SAT, PHONE IN 9AM-9PM

For personal attention on the South Coast contact John, G3JYG, 16 Harvard Road, Ringmer, Lewes, Sussex. Ringmer 812071.

For equally helpful attention in Scotland contact Jim, GM3SAN, 10 Ellishall Road, Ballochton, Nr. Glasgow. 041-771 0364.

FOR ALL THAT'S BEST IN HAM RADIO CONTACT US AT MATLOCK ANYTIME
Masts and Towers

Lift Yourself Above the QRM with WESTOWER

A range of steel lattice telescopic, tilt-over towers offering high strength at moderate prices. Used extensively by commercial and professional bodies, the WESTOWER is designed to the latest British Standards by our own Chartered Engineers and manufactured in our own factory using modern electrically controlled welding techniques.

DON'T FORGET!

With WESTOWER you deal DIRECT with the DESIGNERS/MANUFACTURERS and NOT WITH THE AGENTS.

FIRST-HAND INFORMATION AND ADVICE is YOURS for the asking.

... AND NOW FOR SOME PRICES

2S/FBP 42 ft, framed base, standard .................................. £396.75
3S/FBP 56 ft, framed base, standard .................................. £515.20
2S/W 42 ft, wall mounting, standard .................................. £354.20
2HD/FBP 42 ft, framed base, heavy duty ............................. £516.35
3HD/FBP 58 ft, framed base, heavy duty ............................. £631.35
4HD/FBP 75 ft, framed base, heavy duty ............................. £759.00

* Carriage is FREE except Cornwall/Devon/Scotland. VAT at 15% is included in above prices.

OR AS A LIGHTER ALTERNATIVE...

THE UNIQUE ALUMAST

"THE TOWER THAT COMES IN A TUBE"

A COMPLETE

30 ft (9.15m) MAST for 375/PSS/3; HB-1; RMP-1; TP-1

FULL PRICE LIST

375/PSS/3 30 ft mast (3 sections) .................................. £207.00
375/PSS/1 Additional 10 ft section .................................. £69.00
HB-1 Hinged base unit .................................................. £31.05
FB-1 Fixed base unit .................................................... £21.85
RMP-1 Rotor mounting plate ........................................... £12.08
TP-1 Top plate with sleeve ............................................. £13.23
GB-1 Guy brackets (set of 3) .......................................... £11.50

All prices include carriage and VAT at 15%

DEALER ENQUIRIES WELCOME

CREDIT FACILITIES AVAILABLE

DESIGNED and MANUFACTURED in GREAT BRITAIN by Western

Our Agents

Southern: Alan Paxton, G4BIZ, Southampton, Hants (0703) 582182
Scotland: Jim Henderson, GM4HKW, Falkirk (0324) 25559
N. Ireland: Les Lyske, G13CDF, Newtownards (0232) 812449

Opening hours:
LOUTH: 9-12; 1-5pm Mon-Fri. By appointment Sat 9-12.
LEICESTER: May's Hi-Fi, Churchgate (Tel: 0533-586621)
Mon-Sat 9-6pm; closed Thurs.
Western for General Coverage Receivers

TRIO R-1000 £289
The newest on the general coverage scene. Full coverage 200 kHz-30 MHz with digital frequency readout and clock/timer. Switched selectivity for optimum performance and other features making it a joy to use and first-class value for money.

Western for HF Transceivers

FROM TRIO—KENWOOD
TS120S A really popular solid-state mobile (or base) transceiver. Small in size but big on features and performance. Digital readout, IF shift to beat the QRM, VOX and CW break-in keying are all standard. 100 watts RF out on all bands 80-10m, slightly lower on 10m. Outstanding value in the HF field.

TS-180S/DFC The truly de-luxe solid-state HF transceiver. Full band coverage, 160-10m, with allowance for adding new WARC frequencies. Digital Frequency Control (DFC) and 4 memories allow for full operating flexibility. RF power control, digital readout, VOX and compandor are all fitted as standard. Try one today!

TS-820S Trio’s well-proven base station transceiver for those who prefer valve PAs. In use world-wide, tried and respected, this is one of the classics among transceivers. Full coverage 160-10 metres: 6146Bs in the PA for years of dependable service, factory-fitted digital readout, IF shift control. Top Trio quality as always.

From Yaesu Museum

Yaesu FT-101Z (2D) Latest in a famous line, but with an improvement! Full band coverage, IF width control for superior selectivity, excellent performance and Yaesu’s well-known quality. 2D model has digital readout built-in, both models in excess of 100 watts RF out (lower on 10m). Try our price size!

FT-707 Truly christened the “Wayfarer”. Yaesu’s new solid-state rig goes anywhere, base or mobile, and has all the facilities of the bigger rigs. Digital readout, IF width and other features. This is the HF rig you Yaesu lovers have been waiting for — ALL THE NEW WARC BANDS FITTED!

Western for VHF/UHF Transceivers

Yaesu

FT-720RV Yaesu’s new modular approach to 2m FM mobile. A 10-watt transceiver module with separate removable control head for maximum freedom of vehicle mounting. Fully synthesized, including scan and memory facilities.

FT-720RU The 70cm counterpart to the FT-720RV. Similar modular concept, using the same control head (FT-720K). 10 watts output on 70cm FM, 25 kHz channels. One control head can be used (with optional 7-2 switch until to operate two rigs (one on 2m, one on 70cm).

FT-227RB Fully synthesized 2m FM mobile, 10 watts up/down scanning from microphone, full band coverage, tone-burst and 4 memories.

ALL LISTED PRICES INCLUDE VAT AT 15% AND CARRIAGE

HAVE YOU GOT YOUR Western CREDIT CHARGE CARD YET?

SPECIAL OFFERS!

Yaesu CPU-2600RK Reduced to £299
Yaesu FT-301D Transceiver (ex-demonstration) £599
Drake SPR-4 G/C Receiver £375
Aldo 105 5-band Transceiver £399

All new except where noted. VAT INCL. WHILE STOCKS LAST
Western Electronics (UK) Ltd

**Western** CAN ALSO FIX YOU UP WITH . . .

**ROTATORS**
from the well-known EMOTO range — now with 360° DIAL PRESENTATION! (Models 103 and 502 only)
EMOTO 103SAX (NEW!) For light HF and large VHF arrays .................. £86.25
EMOTO 502SAX For heavier HF beams plus VHF/UHF .................. £125.35
EMOTO 1102MXX The really big one for the largest HF monobanders and big VHF/UHF arrays: £189.75
EMOTO 1103MXX As the 1102MXX but slower rotation speed and greater tuning power £194.35
EMOTO MB-300 The well known rotary mast bearing £13.80
COMMANDER EP-200 (NEW!) A budget-priced, lightweight but robust rotor for VHF/UHF arrays only £29.95

UNBEATABLE VALUE FOR MONEY
FM MOBILES . . .

IS THERE REALLY ANY CHOICE?

WATERS & STANTON ELECTRONICS

18-20 MAIN ROAD, HOCKLEY, ESSEX. TEL: (0702) 206636

FDK "700" SERIES

£199

It's the price our competitors dream of!!!

MULTI 700EX

25 watts variable

25kHz & 12½ kHz steps

144-146 mHz

Selective Scanning

READ ON . . . . . . . . IT COULD SAVE YOU MONEY

£199 buys a transceiver covering the whole of 2 metres 144-146 mHz with a host of features that make the competition look both expensive and complicated. In the 700EX you have a pedigree stretching back through the famous FDK range made by a manufacturer specialising solely in VHF and UHF equipment. This means better value, cleaner signals and above all, the most sensitive receiver sections on the market. The famous "VARIO" power control means smooth, continuous control of power output from 1 watt to 25 watts (typically 30 watts) — full coverage in either 25kHz or 12½ kHz steps (to meet new European requirements) — full simplex and repeater operation, including instant reverse repeater switch — crystal controlled automatic tone-burst — additional 1.6 mHz shift for 70cros — diode programmable priority channels plus 2 crystal controlled channels — selective channel scanning between main dial and priority channels (most ordinary rigs lock onto the same old beacon or repeater!) — a new super tough P.A. that's guaranteed for 12 months — plug and socket board connections for easy servicing and many other features that are contained in our colour brochure — oh yes and you also get a microphone, "slide-in" mounting bracket, 12v DC lead, desk stand, fuses, mic clip and sundry hardware — it really does make other rigs seem rather expensive!

SPECIAL OFFER ! £11.50

inc vat p&p 50p

SWR/POWER/FIELD STRENGTH METER

3-150 mHz 1kW max

This is a meter that every station should have. Finished in black and silver with S0239 standard connectors, this instrument will tell you the truth about your antenna system and how well it matches your transmitter and coax feeder. The direct reading power meter is calibrated in forward powers of 10, 50 and 100 watts (although powers well in excess of this can be used for SWR measurements). A separate meter indicates reflected power and SWR ratios anywhere between 3mHz and 150mHz. And for those of you with mobile or hand-helds, there is a field strength meter to indicate actual radiated RF levels. The instrument comes to you ready for operation with comprehensive operating instructions at a really competitive price.

MODEL YW3

BARCLAYCARD — ACCESS — HIRE PURCHASE
WATERS & STANTON ELECTRONICS

ALL MODES AT AN "FM ONLY" PRICE! £299 inc. VAT

FDK "700" SERIES

MULTI 750 FM-SSB-CW
10 watts or 1 watt switchable
5KHz or 100Hz tuning 144-146mHz
(144-148mHz optional) 600Khz &
1.6mHz repeater shifts.

+ 70cms EXPANDER SOCKET FOR DUAL BAND OPERATION

BASE STATION POWER SOURCE

MODEL PS 134
13.5v DC 4 AMPs
230v AC FUSED
ELECTRONIC PROTECTION FULLY
STABILISED
£22.95 inc. VAT carriage £1.30 extra.

SOUND AIR 008 FM POCKET MONITOR

2 metre amateur band or marine versions

8 channel scanning, individual channel lockout, AC mains battery charger, Ni-CAD battery pack, telescope whip, "Fly Lead" antenna, mobile mount bracket, manual/auto scan, metal case, squelch control.

STATE WHETHER AMATEUR OR MARINE VERSION REQUIRED

This is a delightful little receiver that enables the user to continually monitor the 2 metre band when away from the base station or mobile unit. Robustly constructed in a metal case, this is certainly the most sensitive receiver for portable use we have come across. Up until now we have been very disappointed with both the construction and the performance of many pocket monitors, particularly the cheaper ones. Certainly in this day and age you get what you pay for. Therefore we are happy to tell you that if you are interested in a serious pocket monitor then we can promise you that you will not be disappointed with this one. If you should not happen to be totally satisfied with this unit and you return it to us in good order we promise to refund your money – we can’t be fairer than that!

£69 inc. VAT FREE DELIVERY FITTED 820 OR CHANNEL 16

THIS UNIT HAS A REALLY HUSKY TRANSFORMER – THOROUGHLY RECOMMENDED

70cms HAND-HELD

6 channel capability, xtal automatic tone-burst, 1.6KHz frequency shift, Ni-CAD battery pack, 230v AC charger, helical BNC antenna, 1 watt output, condenser microphone, external 12v DC socket, fitted 5v20 extra channels, £3 each. 12 months warranty.

MODEL PALM IV

£159 inc. VAT
LARGEST STOCKS
IN THE SOUTH!

THE HAM RADIO CENTRE
YOU CAN TRUST . . . .

MAIL ORDER THROUGHOUT THE UK
IF IT'S WORTH BUYING WE STOCK IT!

All goods despatched are covered by our own insurance — no risk to the customer.

THINGS YOU SHOULD KNOW!

- We are located in the quiet village of Hockley — fresh country air, no parking problems and four miles from the sea.
- We are situated between Rayleigh and Southend and are easily reached via A127 or A130.
- All our prices include VAT — we consider retail advertising excluding VAT is deliberately misleading.
- All services carried out on the premises and we have full on-air demonstration facilities for HF or VHF on our first floor.
- Many of the items are imported direct by us and always have a 12-month guarantee.
- We stock a wide range of new, exciting products on show long before they reach other dealers' shelves. In six years we've become the leading supplier of amateur radio equipment in the South — if you want a good deal plus friendly sales service if something goes wrong, then call, write or telephone for latest prices and delivery information.
- We can supply virtually any make of equipment advertised in this magazine (except ICOM), usually from stock. Over 4,000 square feet of floor space is stocked with all the top names — YAESU, TRIO, FDK, STANDARD, DENTRON, JAYBEAM, MICROWAVE, MOSLEY, etc. Remember, if it's worth buying we stock it, so why not come and see what we don't stock as well as what we do stock!

HOW TO ORDER

All prices on this page are carriage free for orders over £20 unless otherwise indicated. For orders less than this, please add £1 for carriage and insurance. Large items are sent Securicar, smaller items by post. Any item not listed can be supplied at normal advertised prices — but if in doubt, please telephone (020) 890 8025. Orders may be placed by telephone, post or by bank transfer in the form of cheque or postal order. H.P. quotations can be given by telephone or letter — and if you happen to find our telephone lines engaged, don't despair, it's probably yet another customer who has decided to buy from Waters and Stanton in the future.

BUYING AN FT7 OR
FRG7000 RECEIVER

We actually guarantee you the lowest price on these two lines whilst present stock lasts. If you can find a genuine current offer below our prices on new, fully guaranteed stock, send us a copy of the competitors' advertisement stating price and date of publication together with your order. Providing we receive your order within one month of this journal's publication date, we'll match it.

VHF MONITORS

TM50B Amateur ... £78.00
TM50B Marine ... £79.00
SR9 Amateur ... £46.00
SR9 Marine ... £46.00
Bearcat 220 VHF/ULF ... £76.00
FX213 Aircraft ... £28.30
Sound VHF ... £89.00
Sound Hand-held ... £109.00
AP12 Aircraft ... £129.00
Ingersoll MW/FM-Aircraft ... £139.00

DENTRON HF

M9A2500B 2kW linear ... £125.00
Clipperton "L" 2kW linear ... £140.00
GLA1000B 1kW linear ... £295.00
MT3000A 3kW ATU ... £275.00
HF/200A Transceiver ... £195.00
Doublet 200 100-100kHz ... £225.00
700h Feeders 100kHz ... £135.00

SUNDRIES

9502 Rotator ... £49.00 (2.00)
KR400 Rotator ... £105.00 (2.00)
AR40 Rotator ... £59.00 (1.50)
Stolle 2030 Rotator ... £50.00 (1.50)
Stolle 2100 Rotator ... £50.00 (1.50)
MM2005 Safety Mic. ... £25.00 (0.95)
500m balun ... £15.00 (0.95)
Drake low pass filter ... £18.00 (0.75)

ORDER WITH CONFIDENCE

OUR REPUTATION IS YOUR GUARANTEE

CALLERS WELCOME. WE ARE OPEN 9-5.30 P.M. MONDAY — SATURDAY EX. WEDNESDAY 9-1.00 P.M.

TELEPHONE ORDERS—SIMPLY PHONE IN YOUR BARCLAYCARD OR ACCESS NUMBER AND WE WILL DESPATCH GOODS WITHIN 24 HOURS.

MAIL ORDERS—SEND CHEQUE OR POSTAL ORDER FOR CORRECT AMOUNT AND PRINT CLEARLY NAME AND ADDRESS — WE WILL DO THE REST!

WARREN HOUSE, 18-20 MAIN ROAD, HOCKLEY, ESSEX.

TELE: 0702 206835
TELEX: 995896 HDSG
AMATEUR ELECTRONICS UK

KEEP AHEAD WITH YAESU!

AS FACTORY APPOINTED DISTRIBUTORS WE OFFER YOU —
WIDEST CHOICE, LARGEST STOCKS, PROMPTEST DEAL AND
FAST, SURE SERVICE RIGHT THROUGH —

FT-480R — THE 2 METRE MULTIMODE MOBILE

Now in stock, the 2 metre transceiver that everyone is talking about—one look at
the specification confirms that this is the unit that sets completely new standards on VHF.

MODES
USB, LSB, FM, CW

POWER
30 Watts PEP INPUT, SSB, 30 Watts DC FM/CW

FACILITIES
Clear, easy-to-read, digital display
Synthesized dual VFO system
Steps of: 1kHz, 10kHz and 25kHz on
FM, 10Hz, 100Hz and 1kHz on
SSB/CW
Full scanning with priority channel
scanned every five seconds

Four memory channels
Satellite switching
Matching PSU FP-80 for base station
operation

508-514 ALUM ROCK ROAD
BIRMINGHAM 8
021-327 1497
Telex 337045 6313
AMATEUR ELECTRONICS UK

AEUK — Your number one

TWO FINE RECEIVERS & WHAT SUPERB VALUE FOR MONEY!

GENERAL COVERAGE COMMUNICATIONS RECEIVER FRG-7

- £199.00 VAT INCL.

- 0.5-29.9 MHz Coverage with 10kHz Readout

  The FRG-7 is a precision-built all-purpose communications receiver, featuring all solid state construction for long life and high performance. Utilizing the Wadley Loop drift cancellation system, in conjunction with a triple conversion superheterodyne circuit, the FRG-7 boasts high sensitivity along with excellent stability. It provides broadcast listeners with such features as a 3-position tone selector, an RF attenuator, and an automatic noise suppression circuit. For many years of satisfying reception, the FRG-7 is the receiver for you.

DIGITAL DISPLAY COMMUNICATIONS RECEIVER WITH CPU DIGITAL CLOCK & TIMER FRG-7000

- £299.00 VAT INCL.
source for YAESU MUSEN

WE OFFER YOU — WIDEST CHOICE, FAST, SURE SERVICE RIGHT THROUGH

THE NEW YAESU FT-707 COMPACT H.F. ALL SOLID STATE TRANSECEIVER which combines the technology engineered in the FT-707 and the FT-7B. The new FT-707 is, as would be expected, typically YAESU in design, construction and cosmetics and sets new standards for equipment in its class. Taking into account the time, money and effort which YAESU MUSEN put into their extensive research and design laboratories it is no wonder that YAESU MUSEN, the world's largest manufacturer of amateur radio equipment, always lead the field.

YAESU FT-707

AEUK — THE COMPLETE AMATEUR RADIO STORE

DON'T FORGET THAT WHEN YOU BUY FROM AMATEUR ELECTRONICS UK YOU ARE DEALING WITH ONE OF THE OLDEST ESTABLISHED AMATEUR RADIO BUSINESSES IN THE COUNTRY — SEVEN OF OUR STAFF BEING FULLY LICENSED ACTIVE OPERATORS. THE LATEST FULL TIME ADDITIONS TO OUR STRENGTH ARE JOE ROTHERY, G3RJR, WHO IS CHIEF SERVICE ENGINEER AND WHO HAS A LIFETIME OF EXPERIENCE IN ELECTRONICS, AND FRED RENDELL, G4HXX, WHO YOU WILL FIND ON OUR SALES FLOOR. BOTH JOE AND FRED, LIKE THE REST OF US, ARE VERY ACTIVE AND CAN BE HEARD REGULARLY ON THE BANDS. THE POINT THAT WE ARE MAKING IS THAT AMATEUR ELECTRONICS UK IS AN ORGANISATION DEDICATED TO THE AMATEUR RADIO HOBBY AND OFFERS YOU THE COMBINED EXPERIENCE OF LONG ESTABLISHED OPERATORS WHEN MAKING THAT IMPORTANT AND FINAL CHOICE ON EQUIPMENT. REMEMBER ALSO, THAT YOU HAVE THE ADVANTAGE OF DEALING WITH THE DIRECT IMPORTER WITH ALL THE BENEFITS THIS ENTAILS ON SPARES AND AFTER SALES SERVICE. IF YOU CANNOT CALL IN FOR A FRIENDLY CHAT WITH US THEN WE GUARANTEE YOU THE FINEST MAIL ORDER SERVICE AVAILABLE ON THE UK MARKET TODAY WITH OUR FREE SECURICOR DELIVERY FACILITIES. WHY NOT WRITE, PHONE OR CALL TODAY AND FIND OUT EXACTLY WHY AMATEUR ELECTRONICS UK HAS THE FINEST REPUTATION IN THE BUSINESS.

Hours: 9.30-5.30 Continuous including Saturdays — Early closing Wednesday, 1 p.m.

HOW TO REACH US (EASY PRIVATE PARKING ON OUR 90ft FORECOURT)

FROM SOUTH AND EAST. We are located approximately two miles from Junction 5 of the M6 from which follow signposts to Birmingham. Within ½ mile turn right at Clock Garage and proceed towards city. After one mile look for traffic lights at Fox & Goose and immediately over the lights take minor left fork into Alum Rock Road. We are located one mile from this point.

FROM NORTH. Leave M6 at Junction 6 (Spaghetti) and follow left fork down to traffic island beneath motorway complex. Take third turning off to Lichfield. One mile farther on follow A4042 to the right and within 100yds veer again to the right, approximately one mile further on brings you to the Fox & Goose. Turn right and see preceding directions.

FROM THE WEST AND SOUTH/WEST. Follow M5 then M6 to Spaghetti Junction (see above). Alternatively, leave M5 at Junction 4 or 3 and proceed to inner ring road. Turn South on ring road and leave on A47 (East). We are located three miles from this point.

AGENTS:

NORTH WEST — THANET ELECTRONICS LTD, GORDON, G3LEQ, KNUTSFORD (0655) 4040.
WALES & WEST — ROSS CLARE, GW3NWS, "GLENVIEW", NEWPORT ROAD, MAGOR, GWENT (0633) 880146.
EAST ANGLIA — Dr T. THRIST (Tim) G4CTT, NORWICH. 06925 403.
NORTH EAST — NORTH EAST AMATEUR RADIO, DARLINGTON. 0325 55969.
SOUTH EAST — AMATEUR ELECTRONICS, UK — COASTAL, CLIFTONVILLE, KENT. KEN McINNES, G3FTE, THANET (0843) 291291, 9 a.m.-10.30 p.m.

508-514 ALUM ROCK ROAD BIRMINGHAM 8 021-327 1497

G3FIK

Telex 337045 6313
Credit Cards
Money today is expensive, very expensive. Unfortunately many people ask only "what are the repayments" when entering into an agreement. We take Access and Barclaycard over the 'phone to permit speedy despatch of your order. If you pay your statements promptly there are no charges, used for credit at 2.25% per month means an effective annual equivalent rate of 30.6%!!!

Budget Plans
Sign a "credit budget account" agreement advertised "as only 2.5% interest on the loan per month" and pay a fixed amount each month by bankers order (whether you use the credit facility or not) and will receive, a nice plastic card embossed with a retailers name, be credited with 5% annum interest on a credit balance, that is 34.5% a year interest!!!

S.M.C.'s Prices
The cash price (including last year's VAT increase) of the bulk of SMC's equipment is now lower than it was two years ago (much cheaper in inflation adjusted terms) and with inflation peaking at 22%, this must be time to buy — and owning one of the best communications equipment in the world has never been easier than with SMC's plan.

Free Finance
How does it work? Simple. Take your pick of either of our schemes:

6 months — pay 20% down, split the balance into 6 equal parts
Eg. £120 invoice 6 months agreement; £24 deposit, £16 a month

12 months — pay 50% down, split the balance into 12 equal parts
Eg. £120 invoice 12 months agreement; £60 deposit, £5 a month

NOTE — you pay no more than the cash price!!!

Give us a ring or drop us a line for further details and subject to clearance and a minimum of £100 invoice we will help you to enjoy new regular priced Yaesu, KDK, Gem Quad, Ascot, SMCHS, CDE, Hy Gain, Stillo, Channel Master, SMC, Hansen, MFJ, KLM, Mirage and Hi-Mound — Tommorrow!

REMEMBER: When you deal with SMC you get:
The SMC two-year guarantee on Yaesu. The speedy free Securicor service.
The security of dealing direct with the largest authorised importer.
The spacious, very well equipped, ably staffed test and service facility.
The knowledge that we carry tens of thousands of pounds of spare parts.
Our licensed credit broker status, HP quotations supplied on request.
Our personal and trade export documentation for VAT and tax free exports.
Our in-person, or over the 'phone time saving credit card acceptance.
Our honest advice and evaluation of part exchange equipments' worth.
Our deep interest and knowledge in most facets of our common hobby.

Visit our showrooms and service facilities. Examine the best.

Totton H.Q. 9 till 5.30, Saturday 9 till 1.30 (0703) 867333.
Motorway 1 mile; Car Park 100+ on the doorstep; Rail Station 300 yards.

Leeds 9 till 5.30 Monday to Saturday (0632) 782326.
Ring road 1/4 mile; Forecourt Parking; Rail Station 4 miles; main Bus Route.

Chesterfield 9 till 5 Tuesday to Saturday (0246) 34982.

Woodhall Spa 9 till 5 Tuesday to Saturday (0526) 52793.

AGENTS STOCK AND SALES
G3ZUL Brian Stourbridge (03843) 5917
G3JKDR John Bangor (0247) 55162
G3MGEC Jack Edinburgh (031665) 2420
G3WYY Mervyn Tandragee (0762) 840656
GW3TMP Howarth Pontybedlin (032587) 846324
GW4GSW Alan Swansea (0700) 24140
Communications Ltd

SMC FOR ALL YOUR STATION REQUIREMENTS

HF BALUN TRANSFORMER
1:1 Ratio 2-40 MHz (UHF) Socket 5/16" x 1/4" D. 7/8 oz. "Hang up type". High power handling. (Post free of charge) £10.00

V.H.F. LINEAR AMPLIFIERS

WATTMETER
Absorption type 1.8 MHz - 500 MHz. 5-20-120W FSD 'N' Type Sockets. LDM880 (p&p) £1.00 Sale Price £47.00

MULTIMETERS
20 ohms per volt. 1000X overload on ohms. Plug in range selection.

VHF/UHF SWR/POWER METER
Power 10W FSD on 50 (701, 144, 432 MHz) VSWR. Calibrated to 3:1 50 ohms. Detachable RF head indicator unit. UH74 (p&p) £9.95 £12.86

DIGITAL MULTIMETER
1-10-1000-10000 ACV-DCV-A/CmA, DCmA. Ohms. 10M ohm input impedance. AC & DC. Automatic zero and polarity. Multi-tester. £82.00

COAXIAL RELAYS
12v dc operation. 50 ohms. 1kW PEP@300 MHz. 50dB isolation at 1GHz. C63380 3894R sockets. £18.50. C6503D 3894R + 'N' (p&p foc) £18.50. C6507D 3 'N' sockets. (p&p foc) £18.50.

AERIAL ROTOR 'OFFSET TYPE'
Carriage UK, Post free, all models. CDE manufacture
Silent self-calibrating control box AR30 - "Dial and push" £41.00.

STOIL manufacture
Silent automatic control box. Turning shaft passes through rotor (as illustrated). 2060 Memonic control box with moving light gives indication of beam heading during rotation period. £37.50.

HIGH GAIN 2 METRE COLINEAR
GP144W 6dB gain over 1/4λ ground plane. Multiple λ design. Ultra low angle radiation. SO239 connector recessed in support tube. Outstanding value. GP144W (ills, right) (p&p) £11.00 £21.74

POWER SUPPLY
12v dc regulated supply.
240V 50Hz input. 3 Amps cont. 5 Amp peak @ 3 x 4½ x 6½. 3½ lbs.
ODR129C (Post free) £13.50

V.H.F. LINEAR AMPLIFIER
1600W out for 15W maximum drive. 145MHz. 12v dc (circa 18A). RF or manual switching. SSB/FM Excellent heat sink. - 15W. Trip out/reset. PA 15-160WLS (Post free) £175.50

COAXIAL SWITCHES
High quality, shorting Types. Ask for spec.
KSW3 in 1 out £10.30. KSW3 in 3 out £19.55. KSW4 in 4 out £25.65.

ANTENNA COUPLER
3.5 30MHz, 50/75 ohm Coax (VSWR<5:1) and Single Wire (10-250 ohms) transformed to 50 ohms. 500W PIP SSB. Wattmeter. 20 + 250W FSD meter. LAC886. Sale price £82.60

RFとり・VHF SWR METER
Twin Meter. 3.5 to 170MHz. 50 ohms. SWR. Calibrated to 3:1. Test Lead. £145.00

DIGITAL FREQUENCY COUNTER
10kHz to 30MHz. 12v dc operation. 5-7 segment display. Displays resolves to 1Hz. Only 6½ x 2½ x 5".
RT170D (p&p) £50 Sale Price £38.26

TRANSVERTERS, SOLID STATE
MMT1/8/1410, 2m, 1F 10W out £79.00. MMT1/8/1410, 2m, 1F 10W out £100.00. MMT1/8/1410, 2m, 1F 10W out £86.00. MMT1/8/1410, 2m, 1F 10W out £119.00. MMT1/8/1410, 2m, 1F 15W out £160.00.

ANTENNA ROTOVS 'BELL TYPE'
Carriage UK (Post or Securicor) free. AR40 Silent self-calibrating control box. AR40 £155.00. AR40 £185.00.

SMC (Jack Tweedy) LTD
Roger Baines, G3ZBY
79 Chatsworth Road, Chesterfield, Derby.
Tel.: Chesterfield (0246) 34982 9-5 Tuesday-Saturday.

NORTHERN (Leeds) BRANCH
Colin Thomas, G3PSM
257 Oldery Road, Leeds 16, Yorkshire.
Tel.: Leeds 15321 782326 9-5 Monday - Saturday.

SMC (Jack Tweedy) LTD
Jack Tweedy, G3ZY
150 Horncastle Road, Woodhall Spa, Lincs.
Tel.: Woodhall Spa (0526) 52793 9-5 Tuesday-Saturday (+ appoint.)
The FRG7 is a precision-built all purpose communications receiver, featuring solid state construction for long life and high performance. It utilizes a Wadley Loop drift cancellation system, for high sensitivity, image rejection and stability.

* Versatility: listen to shortwave broadcasts, commercial mediumwave stations, amateur radio, CB operators, etc.
* Better than 10kHz direct readout. The extremely stable VFO is equipped with precision dial mechanism.
* High-performance engineering: The Wadley Loop System, (triple conversion superheterodyne) provides high sensitivity with stability. Set the dial to your favourite programme, and start up your tape recorder, confident that your FRG 7 will stay on frequency.
* RF Attenuator: The three-position RF attenuator is effective when confronted by local or very strong stations.
* Automatic Noise Suppression Circuit: minimises impulse noise during AM reception.
* Three Position Tone Selecter: limits the audio spectrum to increase signal readability: LOW, NORMAL and NARROW.
* Built-in Power Supply: Ready to go for 234V AC and 12V DC operation, also available is an internal battery holder.

The FRG7000 modern computer technology provides the convenience features: CPU controlled clock/timer and counter, ease of use etc, demanded in a general coverage receiver by today's discriminating S.W.L.'s.

* Digital frequency display gives resolution to 1kHz, using large bright LED's for maximum readability.
* The built-in digital clock can be set to your local time plus GMT. Just flick a switch for selection.
* If you want to record a programme, but have to be away the FRG7000 will do it for you! The clock contains a timing feature that activates the receiver and a relay. Set the time you want to start and stop recording, hook up your tape recorder, and the FRG7000 will do the rest!
* AN FET front end provides excellent sensitivity, and the "Wadley Loop" system yields rock-solid stability.
* Separate SSB and AM filters allow selection of the optimum selectivity for your application.
* Ease of operation is ensured by careful selection and positions of controls and switches.
* The built-in AC power supply allows operation from 110/234 volts AC, 50/60Hz. A 12V DC supply is an option.

FRG7 . . . . £199! FRG7000 . . . £299!

SOUTH MIDLANDS COMMUNICATIONS LIMITED

OSBORNE ROAD, TOTTON,
SOUTHAMPTON SO4 4DN
9-5.30 Mon-Fri 9-1.30 Sat.
Communications Ltd

SMC FOR ALL YOUR STATION REQUIREMENTS

**YAESU FOR MF**

The FT707 'The Wayfarer' is an ultra-compact solid-state transceiver ideally suited for the home station or as a travelling companion, providing performance previously proffered only by the 'Top Liners'.

The complementing line of accessories include the FP707 regulated power supply, the FT707, the FC707 antenna coupler/switch/SWR meter and the FV707DM, digital scanning V.F.O.

- 80 - 10 metres (including 10, 18 and 24MHz bands!!!!)
- USB - LSB - CWW - CWN - AM (Tx and Rx)
- All solid state - including 'advanced' final amplifier
- 100W PEP. 60% power output at 3:1 VSWR
- Full 'broad band' no tune output stage
- Excellent Rx. dynamic range, power transistor buffers
- Rx Schottky diode ring mixer module
- Local oscillator with ultra-low noise floor
- Variable IF bandwidth - 16 crystal poles
- Bandwidths 6kHz, 2.4kHz - 300Hz
  - (600 - 1500kHz * - 300Hz *
- AGC, slow-fast switchable from the front panel
- VOX built-in and adjustable from the front panel
- Semi-break in with side tone for excellent CW
- Digital (100Hz) plus analogue frequency display
- LED Level meter reads: S, PO and ALC
- Convenient concentric AF/RF gain controls
- Indicators for: calibrator, fix, int/ext VFO
- Receiver offset tuning (RIT-clarifier) control
- Advanced noise blanker with local loop AGC
- 25kHz crystal calibrator feature
- Internal, xtal or external VFO control

**FT707 . . . £523**

**YAESU FOR VHF**

The FT480R is the very latest and, we think, the very best compact multimode 2m transceiver available. Feature filled, not gimmick ridden, it provides superb performance. If you have never tried SSB mobile the noise blanker, the 10Hz step tuning (yielding 500Hz per turn) is a revelation, if FM is your forte the 25 and/or 12½kHz steps, scanning, priority are all in your 480R.

- 144-146MHz (143.5-148.5MHz possible)
- USB-LSB-CW-FM (A3, A1, F3)
- 12v DC (13.8v DC) operation negative earth
- 30W PIP A3, 30W DC A1 and F3
- Excellent dynamic range and sensitivity
- Bandwidth 2.4kHz and 14kHz at - 6dB
- Semi break in with slide tone
- Very bright blue display, to 100Hz
- Display shows Tx and Rx freq (inc RIT)
- String LED display for 'S' and PO
- Advanced effective noise blanker
- FM: 100, 25 (12½), 1kHz steps
- SSB: 1,000, 100, 10Hz steps
- Dual digital VFO system
- Any desired Tx Rx split plus ± 600kHz split
- Four easy write in 'keep alive' memories
- Memory scanning with slot location display
- Up/down tuning/scanning from mic
- Priority channel on any memory slot
- 'F set' clears the non step component
- Satellite mode allows tuning during Tx
- Scanning for busy or clear channels

**FT480R . . . £359**

SMC (Jack Tweedy) LTD.
Roger Baines, G3YBO
79 Chatsworth Road.
Chesterfield, Derby
Tel.: Chesterfield (0246) 34982
9.5 Tuesday - Saturday

NORTHERN (Leeds) BRANCH
Colin Thomas, G3PSM
257 Otley Road,
Leeds 16, Yorkshire
Tel.: Leeds (0532) 782326
9.5 Monday, Wednesday & Friday, Saturday

SMC (Jack Tweedy) LTD.
Jack Tweedy, G3ZY
150 Horncastle Road,
Woodhall Spa, Lincs.
Tel.: Woodhall Spa (0526) 52793
9.5 Tuesday - Saturday (appt.)
MAIL ORDER AND RETAIL SERVICE – check our prices

2 METRE HANDHELD TRANSCEIVER

TRIO TR2300
IDEAL FOR PORTABLE, MOBILE OR HOME USE

£166 inc. VAT & Carriage

A fully synthesised 25kHz spaced rig offering full band coverage, digital readout of frequency and auto tone burst. The excellent 1 watt transmitter and very sensitive receiver make this rig excellent value for money and comes complete with case, charger, power lead etc.

MARINE RECEIVER

SR11 VHF Receiver

ONLY £69 inc. VAT & Carriage

6 Channel Scanning + Tunable 156-162 MHz
The SR11 is a self-contained VHF Monitor receiver suitable for use at home or mounted in a car or boat using the bracket supplied. It requires only a 12V supply. The automatic scanning of up to six crystal controlled channels is ideal for continuous monitoring of the important services whilst the VFO allows you to listen to the complete band.

— TRANSCEIVERS —

TRIO TS 120V

£347.00

TRIO TS 120S

£432.00

TRIO TS 500Z

£437.00

Yaesu FT 707

£500.00

Yaesu FT 101Z

£488.00

Yaesu FT 101ZD

£589.00

Trio TS 1900

£579.00

Yaesu FT 107M

£880.00

2 M MOBILES

Icom IC 240

£169.00

FDK Multi 700EX

£199.00

Standard C8000

£235.00

Icom IC 255E

£256.00

Trio TR 7800

£265.00

2 M HANDHELDs

FDK Palm II

£89.00

Yaesu FT 202R

£99.00

Icom IC 2E

£148.00

AGR AR 240A

£165.00

Trio TR 2300

£168.00

Yaesu FT 207R

£198.00

Trio TR 2400

£210.00

2 M MULTIMODEs

Icom IC 250E

£338.00

Icom IC 251

£478.00

FDK Multi 750

£525.00

Trio TR 9000

£345.00

Yaesu FT 480R

£559.00

— RECEIVERS —

Lowr SX 30

£158.00

Yaesu FRG 7

£199.00

Trio R 1000

£288.00

Yaesu FRG 7000

£299.00

Search 9

£45.00

AR22

£39.00

FDK 7506

£74.00

Bearcat 220

£259.00

MARINE V.H.F.

Search 9

£45.00

SR 11

£39.00

TMS56B

£74.00

Bearcat 220

£259.00

AIR BAND

Walhain W144

£29.95

RS17

£44.95

AP12

£125.00

Bearcat 220

£259.00

** PRODUCT NEWS **

BEARCAT 220FB

VHF RECEIVER

available from stock

£258 inc. VAT & carriage

ACCESS • BARCLAYCARD • PART EXCHANGE

MID SUSSEX HOUSE • HIGH ST. • HANDCROSS • WEST SUSSEX RH17 6BW

Mail Order 

Tel.: 0444 400 0786 9am - 5.30 pm 

Retail Callers

TO ORDER ANY OF THE ABOVE ITEMS SIMPLY WRITE ENCLOSED A CHEQUE OR PHONE YOUR CREDIT CARD NUMBER
SHORT WAVE MAGAZINE

(GB3SWM)

ISSN: 0037-4261

Vol. XXXVIII SEPTEMBER, 1980 No. 443

CONTENTS

VHF Bands, by N. A. S. Fitch, G3FPK........................................ 415
VHF Dummy Load, by Ian H. Moth, G8SOH ................................ 420
The Lambda Diode VFO, by R. W. Micklewright, G3MYM ........... 421
The Belgian VHF Convention, by Bryn Llewellyn, G4DEZ ............ 422
Clubs Roundup, by "Club Secretary" ........................................ 423
A Transverter for Two or Four Metres, by R. I. Thomas, GW4BCD ... 427
"SWL" — Listener Feature ...................................................... 433
Courses for the R.A.E., 1980-81 ............................................... 436
Communication and DX News, by E. P. Essery, G3KFE .................. 437

Editor: PAUL ESSERY, G3KFE/G3SWM
Advertising: Charles Forsyth

Published at 34 High Street, Welwyn, Herts. AL6 9EQ, on the last Friday of the month, dated the month following. Telephone: 04-3871 5206 & 5207

Annual Subscription:
Home: £6.50, 12 issues, post paid Overseas: £6.50 ($13.00 U.S.), post free surface mail


Prices shown in advertising in this issue do not necessarily constitute a contract and may be subject to change.

AUTHORS' MSS

Articles submitted for Editorial consideration must be typed double-spaced with wide margins on one side only of quarto or foolscap sheets. Photographs should be lightly identified in pencil on the back with details on a separate sheet. All drawings and diagrams should also be shown separately, and tables of values prepared in accordance with our normal setting convention — see any issue. Payment is made for all material used, and it is a condition of acceptance that full copyright passes to the Short Wave Magazine, Ltd., on publication.

Short Wave Magazine Ltd.
E. & O. E. VAT Reg. No. 239 4864 25
HERE...NOW...
A really competitive range of scanning receivers, all offering top-grade technical specifications and unbelievable value for money. Come and try them in the shop, or phone your orders and enquiries (24-hour answer service when we're closed).

A RAMA-8A 16-channel capability crystal-controlled air band scanning receiver covering 108 - 136 MHz. Choose 8 or 16-channel scanning, or manual operation. Sensitivity 2μv (10db S/N), 12v or mains. BASIC PRICE £79.

B MK-10 VHF FM scanning receiver, covering 144 - 152 MHz. Scanning or manual tuning through up to 12 crystal-controlled frequencies, OR VFO control on main dial. Automatic lock-out facility. Sensitivity 1μv (25 db S/N). 12v or mains. BASIC PRICE £69.

c MR-110 VHF FM scanning receiver 10-channel capability with lock-out facility. Sensitivity 0.8μv (20db S/N). 12v only, ideal for mobile operation. SPECIAL PRICE JUST £49 FITTED 5 CHANNELS EX-STOCK.

d MR-1000A The finest-value pocket receiver ever offered. VHF FM scanner, 10 channels, and allowing scan or manual tuning across selected crystal-controlled channels. Complete with Nicads and charger. BASIC PRICE ONLY £39.

CRYSTALS: £2 PER CHANNEL FOR ALL MODELS. ALL PRICES ARE POST-FREE AND INCLUDE VAT.
Canaries Captured

ROGER Thorn, G3CHN, added another bit of history on August 6 when, at 2234, he worked EA8XS on 2m via tropospheric propagation. According to SM5AGM’s records, G3CHN’s QSO with UP2BBC in March 1976 is a European Auroral DX record. Now, this 2,656 km contact convincingly shatters the previous mode/band record set by IT9KSO and 4Z4AQ of 2,168 km. in August, 1977. The respective QTH locators are YK61b and SO73d.

This is believed to be the first England to Canary Islands contact on 2m. although the EA8 told Roger he had worked five G stations on 2m. before. If there are any claims for earlier 2m. tropo. G/EA8 QSO’s, it would be nice to hear of them. However, it seems unlikely that anyone would work into EA8 from the U.K. and keep quiet about it.

At the time of this contact, Roger was working an EA in northern Spain and the opening lasted till 2250 ending with the EA8 slowly fading into the noise. On this evidence, CT2 at a mere 2,200 km. should be a “dodile!”

Universal Locator System

In the October, 1978 column, mention was made of a proposed worldwide QTH locator system to replace the current European one. In the interim, during which 18 systems were considered, mainly by IARU Region 1 VHF Managers, little has been heard about this idea. The matter was discussed at the Maidenhead meeting on April 26/27, prior to which some proposals had been sent to IARU Region 2 and 3 officials for comment.

A modified G4ANB system has emerged as front runner in which the Earth is divided into “fields” of 20° by 10° to be identified by unique pairs of letters, the first denoting longitude, the second latitude. Thus there would be 18 x 18 fields from “AA” through “RR.” Each field would be sub-divided into 10 by 10 “squares” each 2° by 1° as in the primary QTH Locator Square system, but identified by two figures from 00 through 99. These squares would then be further divided into 24 by 24 “sub-squares” each 5’ by 2.5’ and identified by two further letters from AA through XX.

At latitude 54° the sub-squares would be 5.44 by 4.63 kms. giving a maximum diagonal error of plus/minus 3.57 kms. which is about 400 metres less accurate than the present system. Your scribe’s QTH locator ZL60j would be 10 91 WH under the new proposals. The advantage of this idea is that the system is unique and lends itself to computer calculation of distances. It is suggested to refer to this simply as the Locator System without any QTH or QRA description and the final decision whether or not to adopt it was be taken during the 1981 IARU Region 1 conference. Readers’ comments would be appreciated, meantime.

Awards News

The 10th QTH Squares Century Certificate has been awarded to Edmund Ramm, DK3UZ, from Kaltenkirchen in EN20c. He has 206 squares confirmed so the basic certificate plus the stickers for 125, 150 175 and 200 has been despatched, dated July 28. 160 QSO’s were on A1. 45 on SSB and one on FM. Propagation modes were: 11 via tropo; 6 via E’s; 35 via Ar; 45 via MS and one by an MS/tropo. mixture.

Eddi started serious VHF work in 1975 running 50 watts into a 20-ele. colinear array on 70m. During the next couple of years, the aerial corroded badly so was replaced by four 8-ele. Yagis vertically stacked. The latest array consists of a couple of home made 10-ele. DL6HU Yagis vertically stacked, fed with 300 watts of RF. The feeder is now 22mm. cellflex, still 50m. long. The first Rx front end was a BF225/TIS88 affair, later a 3SK28SC, now a BF981.

VHFCC Certificate no. 325 for 2m. has been awarded to Ken Porter, G3KEN, from Ansdell, Lancs. First licensed as GW3KFN in Cardiff, his first ever QSO was with GW8UH on 2m. CW on Jan. 26, 1955 using an SCR-552 TX feeding a home made 4-ele. Yagi turned by the popular “armstrong” method. The RX was a home made converter using three CV66 (EC54) valves feeding an R-1155 RF. Ken moved to Canada in 1957 and operated as VE3CFK from 1958 to 1964, using 100 watts input to a 10-ele. beam. He gained the Ontario 2m. Century Award.

The first QSO as G3KEN was on June 20, 1965 from the Wirral, with G3SKT and he moved to the present QTH in Aug. 1970. The present gear comprises the Trio-Kenwood TS-520SE driving a valve type, home made transverter with an 832A PA stage at 25w. input, feeding a 10-ele. beam at 25ft. For FM, an Icom IC-22A feeding a coaxial dipole is used. Ken listens on 4m. and 70cm. but says that 2m. has always been his favourite band. He enjoys building his own gear and reckons he is one of a diminishing breed.

Beacon Notes

The Cyprus 4m. beacon referred to in last month’s column is now operational from the QTH of 5B4AZ on a frequency of 70.112 MHz. It runs 15 watts to a 4-ele. beam pointing to the U.K. from locator QU51b. John Baker, GW3MHW, sends bleeps and its callsign on Al between 1200 and 2200 GMT. G4BPY, who made this beacon, would like to hear from any other 4m. enthusiasts with the ultimate aim of setting up more 4m. beacons in various places. (See the 4m. section later.)

Contests

Results: 29 entries were received for the 70 MHz contest on June 1. The single operator, fixed station section was won by GM3WOJ whose 42 contacts totalled 422 points. G2DHDZ was runner up with 308 pts. from 34 QSO’s. The other stations part was won by the Addiscombe ARC who operated GW4ALE/P from Clwyd, making 80 QSO’s and 730 pts. The Westmorland VHF Group were second with 618 pts. from 64 contacts from G3FDW/P. The best DX was GW4ALE/P to ZB2BL at 1,925 kms.

The Barking Club’s contest on Mar. 30 attracted a record entry. The Essex stations section was won by G8PUB, the Hadrams Group, with 3,813 pts. with G8KAX/P runner up with 3,213. The outside Essex section was won by G8KXZ/P with 8,800 pts., G3NAQ being runner-up with 8,190 and G8RZ/P in 3rd place with 8,036. The s.w.l. part was won by N. B. Henbrey, BR52180, with 1,364 pts.

Coming events: The VHF (2m.) part
of the IARU Region 1 contest is scheduled for the weekend Sept. 6/7, 1600-1600 GMT. There are two sections: 1) Single operator — not clubs — and 2) All other stations. Exchanges to consist of usual RS(T) followed by serial number and QTH locator with scoring at one point per kilometre. This one coincides with the RSGB’s 144 MHz event and only the QTH locator need be sent. The sections are as for the main event but with radial ring scoring. Both contests may be entered with the one log but with two sets of points.

The 12th BARTG VH/F/UHF contest is in the usual two parts, the first from 1800-2300 GMT on Sept. 13, the last on Sept. 21 0700-1200 GMT. This is open to all RTTY folk in WAZ zones 14 and 15 using 144 and 432 MHz but no cross-band QSO’s permitted. Radial ring scoring. Full details from G8APB, 148 Porter Road, Brighton Hill, Basingstoke, Hants., RG22 4JT.

The RSGB Region 1 VH/F Contest is from 0900-1700 GMT on Sept. 16 and covers 70, 144, 432 and 1,296 MHz, with participants free to choose any three. The three sections comprise: 1) Multi-op., fixed or portable with separate call signs on each band and simultaneous operation; 2) Single op., fixed or -/P. All operators must state they are in or from RSGB Region 1 which comprises Cheshire, Cumbria, Gtr. Manchester, Lancs., Merseyside and GD. They may travel up to 20 kms. outside this region. The third section is for operators outside Region 1 working Region 1 stations. Scoring is one point per five kms. on 1,296 MHz and normal radial ring points on the other bands.

Sept. 21, 0900-2000 GMT sees the fifth and final leg of the 10 GHz Cumulatives. The last of the 1980 AGCW-DL contests is due on Sept. 27 from 1900-2300 GMT on 2m. CW. Contest exchanges as page 41 in the March issue, with entries postmarked before Oct. 31.

Satellite News

The AMSAT Convention at the University of Surrey, planned for September has been postponed till next year. AMSAT satellite A-O-10, if ready in time, could be launched by ARIANE LO-11, early in 1982. AMSAT-UK has launched a £40,000 appeal for funding the next Phase 3 satellite and is spearheading the appeal in Europe, IARU Region 1. It is proposed to donate the fund to AMSAT-DL as the German organisation will be constructing most of the electronics as it did for the ill-fated A-O-9. All contributions should be sent to AMSAT-UK, marked “Project Oscar Fund” to the secretary, G3AAJ at 94 Horngate Road, London E12 5EQ.

Oscar 7 appears to have bucked up again and is once more operating well off its solar cells. The battery has long since been defunct and now acts as a capacitor, it seems. AMSAT-UK is requesting telemetry reports from users/listeners for 0-7 and 0-8. 0-7’s mode “B” beacon on 435.1 MHz is now coming in very well.

Murphy Strikes Again

Bryn Llewellyn’s, G4DEZ, proposed QRO 2m. operation from WR square was a sad failure. The family arrived to find nobody waiting for them at ferry. They had understood they would be able to operate from a house built for the parents of GMBSAU. However, said house had not been built. On their first night, they had to evacuate their tent and sleep in the car as wind gusts of 160 km. per hour were recorded. Next day, they went up to a hut on a nearby hill where there was supposed to be a mains supply. Unfortunately there was not so they had to use 300 feet of cable from the nearest power source. It took some time to dry it out though.

During a trip to another high spot, 30 miles away, more rain and gales occurred. All the radio gear was put into the Land Rover. Later on, one of Bryn’s daughters asked did he know the Land Rover’s door was open? All the gear had got soaked, water having to be poured out of the memory keyer, cassette recorder, the amplifier. Obviously, it was impossible to use the QRO gear for MS and only a few local QSO’s were made.

DX notes

Mike Theiss, LA0BY, operates periodically from an Ekojisk oil rig in the North Sea. Your scribe and many others, worked him on July 25 when he was signing LA1EKO from BQ37g. Eddi Ramm, DK3UZ, has passed on Mike’s periods on the rig for the months ahead as follows: Sept. 26-Oct. 3; Oct. 12-19; Oct. 28-Nov. 4; Nov. 13-Dec. 2; Dec. 15-6 and Dec. 31-Jan. 6. His CW QRG is 144.045 and the SSB one, 144.290 MHz using a Yaesu FT-225RD and 6-ele. Quad.

The QSL address is: Mike Theiss,
Safety Dept., Ekofisk Q, c/o Helicopter Service, N-4003 Forus, Norway.

Anyone looking for VO square and Co. Donegal will be pleased to read that E14DU and EI9DM have been worked from London. They are in VO29e and G3KEQ had a contact with them on 2m. on July 10.

**Four Metres**

Jim Whittle, G3KEP, (Lancs.) is active on SSB most evenings from 1950 to 2015 but did not indicate if that was BST or GMT. Alan Scott, G4BYP, (Cheshire) worked a few new ones for the table during VHF NFD using a dipole at 15ft. These included GM4IPK/P (Grampian); G3PDH/P (Norfolk) and GM4HAP/M (Borders). Dave Thorpe, G4FKI, (Essex) has compiled a list of stations operating on the band, indicating their counties and modes and shed details, if known. A large s.a.e. will bring a copy of it and it is proposed to issue an up-dated version in October. Send your requests to: G4FKI at 161, Tomwood Hill, Hainault, Ilford, Essex, IG6 2HR. It occurs to your scribe that perhaps Dave and G4BYP should get together as the latter has been contemplating the creation of a 4m. club along the lines of the 6m. SMIRK group.

Gary Allitt, G4HNS, (Notts.) has now finished an amplifier for the band and hopes to have an aerial up in time for the Aug. 17 contest. Arthur Breeze, GD2HZ, used NFD weekend to add 11 new counties. On July 23, G4HEB provided Cleveland, while the 27th produced G3UKV/P in Cornwall and G13TLT in Co. Down.

John Baker, GW3MHW, (Dryfed) has worked Franz Turk, OE3NTK, for the first GW/OE crossband 4m./10m. QSO. G4BYP made and sent a converter to Franz. DK1PZ is also looking for crossband QSO's and heard meteor pings from John. G4BYP has sent a converter to ZE2JV who reports that it is working satisfactorily and that he hopes to hear S5B4Y via transsequatorial propagation. During NFD, John noted more stations on than for a long time and from his difficult QTH, worked 46. He keeps his nightly sked with G2AOK and G3LIT and new stations call in quite often. GW3MHW enters the annual table with 40 counties and five countries. Confirmations are not required but only in-band QSO's are counted. Dave Lewis, GW4HMK, (Gwent) reports that his local club, Blackwood and District,

operated on 4m. in NFD using his call making 73 valid QSO's, best DX being GM3WQI/P. At home, he has had to close down due to TVI to Ch. 5. “Roll on, 1982!” he says. G4CMV is now on with 40 watts to a dipole from W. Yorks.

**Two Metres**

Anyone complaining that this past month was not very good must either have a very deaf receiver or live in an impossible QTH. There have been several E's openings, some excellent tropo., an Auroral event and, as this is being compiled, the Perseids meteor shower is in full swing. But first, the E's happenings, the first of which was on July 11. In the first phase, there was an opening to the Swedish 4, 5 and 0 districts for half an hour from about 1630. Few readers caught this, but Roger Thorn, G3CHN, (Devon) worked nine, Ken Osborne, G4IGO, (Bristol) one as he only arrived home at the end, and Geoff Brown, GJ4ICD, two new squares — HT and IT but he did not say how many others he worked.

A warning of imminent E's to the south was received at G3FPK at 1710 and Spanish and Italian stations were very strong on Band 2 FM broadcast. From about 1715 to 1745, stations in Sardinia, Malta and Sicily were worked by stations in the Midlands and south of England, and in South Wales. G3CHN's list included Paul Galea, 9H1BT, from his new Dingli home, HV12b. G4IGO worked ISO5CB and G4ICD contacted ISO5DKU, both in E266a. Sheldon Hands, G8ELR, (Dryfed) heard a 9H1 at 1730 and worked ISO5DPQ (EZ) Paul Broadhurst, G8LGL, (Avon) worked three ISO's and EA6FB from 1730-1746.

A third phase to Spain started just after 1800 when G4IGO worked EA3BRC (BB23a) at 1804. This opening continued in spams till about 2000. No doubt the star catch was EA6FB (AY07j) from Ibiza, who was barely audible in London, worked by G3PBV, G4IGO and G8ELR. An unusual one, which may have caused seizures for some, was 9G1JX operating portable from EA5. Jurgen is now back in Ghana and says to QSL via DL7SI. Many operators worked ZJ square for the first time, thanks to EA5TD and EA5AVX. The former’s QSL has arrived at G3FPK but does not reveal any rig information. EA3LL (AB56b) was worked by Mark Turner, G8OBS, (Bed.) at 1805 and by G8ELR at 1854. During these openings, YUIEU said he worked into C3, CT, EA and F; while CT1WW had 150 QSO’s. Clive Morton, G4CMV, (W. Yorks.) heard EA3LL, EA6FB and the 9G and reckons the south Midlands fared best.

On July 12, another E’s even began at about 1700 lasting about 2½ hours, on and off. G4IGO heard IT9TDS (HY) at 1704 briefly, then contacted him at 1712, followed quickly by 12KSX/8 in the

---

**QTH LOCATOR SQUARES TABLE**

<table>
<thead>
<tr>
<th>Station</th>
<th>23 cm.</th>
<th>70 cm.</th>
<th>2 m.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>G3JXN</td>
<td>39</td>
<td>81</td>
<td>107</td>
<td>227</td>
</tr>
<tr>
<td>G3COJ</td>
<td>24</td>
<td>66</td>
<td>93</td>
<td>183</td>
</tr>
<tr>
<td>G3LMT</td>
<td>14</td>
<td>30</td>
<td>68</td>
<td>108</td>
</tr>
<tr>
<td>GD2HZD</td>
<td>12</td>
<td>41</td>
<td>76</td>
<td>129</td>
</tr>
<tr>
<td>GB4HY</td>
<td>12</td>
<td>73</td>
<td>70</td>
<td>153</td>
</tr>
<tr>
<td>G3KMK</td>
<td>12</td>
<td>48</td>
<td>95</td>
<td>155</td>
</tr>
<tr>
<td>G3BML</td>
<td>5</td>
<td>51</td>
<td>79</td>
<td>135</td>
</tr>
<tr>
<td>G3PSJ</td>
<td>10</td>
<td>36</td>
<td>71</td>
<td>127</td>
</tr>
<tr>
<td>G4CMV</td>
<td>4</td>
<td>58</td>
<td>104</td>
<td>166</td>
</tr>
<tr>
<td>G3LMT</td>
<td>7</td>
<td>39</td>
<td>94</td>
<td>139</td>
</tr>
<tr>
<td>G4AEZ</td>
<td>1</td>
<td>1</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>G3POI</td>
<td>1</td>
<td>1</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>HEAT</td>
<td>-25</td>
<td>238</td>
<td>263</td>
<td>501</td>
</tr>
<tr>
<td>G3TJF</td>
<td>-25</td>
<td>238</td>
<td>263</td>
<td>501</td>
</tr>
<tr>
<td>G8XXY</td>
<td>-25</td>
<td>238</td>
<td>263</td>
<td>501</td>
</tr>
<tr>
<td>G3FJK</td>
<td>-25</td>
<td>238</td>
<td>263</td>
<td>501</td>
</tr>
<tr>
<td>G3QK</td>
<td>-25</td>
<td>238</td>
<td>263</td>
<td>501</td>
</tr>
<tr>
<td>G3KIX</td>
<td>-25</td>
<td>238</td>
<td>263</td>
<td>501</td>
</tr>
<tr>
<td>G3ZJF</td>
<td>-25</td>
<td>238</td>
<td>263</td>
<td>501</td>
</tr>
<tr>
<td>G4CMV</td>
<td>-25</td>
<td>238</td>
<td>263</td>
<td>501</td>
</tr>
<tr>
<td>G4BGW</td>
<td>-25</td>
<td>238</td>
<td>263</td>
<td>501</td>
</tr>
<tr>
<td>G3KJF</td>
<td>-25</td>
<td>238</td>
<td>263</td>
<td>501</td>
</tr>
<tr>
<td>G3XJF</td>
<td>-25</td>
<td>238</td>
<td>263</td>
<td>501</td>
</tr>
<tr>
<td>G4JNF</td>
<td>-25</td>
<td>238</td>
<td>263</td>
<td>501</td>
</tr>
<tr>
<td>G3LMT</td>
<td>-25</td>
<td>238</td>
<td>263</td>
<td>501</td>
</tr>
<tr>
<td>G3P01</td>
<td>-25</td>
<td>238</td>
<td>263</td>
<td>501</td>
</tr>
</tbody>
</table>

Starting Date January 1, 1975. No satellite or repeater QSO's. "Band of the Month" 23 cm.
same square. Ken made seven contacts including IC8EGO (HA32g) in Capri. All stations worked and logged were in the 8, 9 and 0 districts. G3CHN’s tally were all from the 5, 6, 7 and 8 districts, including I1TVF in I1TVF. Dave Sellers, G3PSB, (Devon) worked I8TUS (HY) at 1659 but this one also signed I8TUS/P in I8TUS according to G4IIOG’s report. Dave’s last QSO was with ISCTE (FD) at 1915.

Mike Hearsey, G8ATK, (Surrey) contacted DK8FY/18 who said he was in Paestum, which is HA45, plus I0SSW (GB); I2KSSX/8 and IC8ZUQ (HA), Tony Collett, G8GXE, (Berks.) caught his first ever E’s opening to IT9TDDN., who was also worked by G4CMV (W. Yorks.). John Pilaga, G8HGI, (Surrey) worked IC8ZUQ and I0EIO (GB) for his first E’s contacts. In a quarter hour from 1900, Jim Rabbitts, G8LFB, (London) heard IC8KSSX/8, IT9TDDN IC8ZUQ and I0EIO (GB) with an Icom IC-202S and indoor, 4-ele. Yagi. George Gullis, G8MJJ, (Wilt.) had three QSO’s into HA and HY and Kevin Piper, G8TGGM, (W. Sussex) had his first E’s QSO’s starting at 1800 with I2KSSX/8, then DK8FY/18 and finally DH8DL/18 in HZ20g. From Dyfed, GW8ELR heard IC8CVS (HA) very strongly but did not work anyone. G8LGL got IT9 and five 1’s from 1705-1752 in GB, HA, HB and HY and two more 1’s in GB from 1915-1922.

On July 13, the first time after a bout in hospital, Bill Hodgson, G3BW, (Cumbria) switched on the rig and worked EASTD for a new square. G3CHN’s list shows Roger’s first QSO at 1650 with IC8EGO, the last Italian heard being I0DZ/6 in HC at 1733. However, at 1915, he worked EA5HM (ZZ39f) for a new square. G3PSB managed exchanges with IC8ZUQ and IC8CVS between 1704 and 1709, then EA5HN (ZZ) and EA5NY (ZZ) exactly two hours later before fade out at 1918.

G4BYP reckons he was one of the few northern stations to get in when he worked IT9TDDN and, in common with many others, wonders why all the Italians seem to cluster around the calling frequency creating colossal QRM. G4CMV worked 9H1BT at 1704 for country no. 34, and I0AMU (GB) 12 mins. later. This one lasted from 1650-1740. Clive heard someone calling “CQ Sporadic E” John Cleaton’s, G4GHA, (Dorset) sole success was I0CMD (GB), G4GIO was on for the whole period from 1649 to 1920 and lists lots of Italians heard, all 8, 9 and 0 districts, and worked a couple. At 1907, Ken worked EASTD and heard EA5HM and EA5AMR, both in ZZ square.

The only one worked by G8ATK in this affair was Q0MN (GC). Using just three watts to a 9-8.e beam, G41RX worked CT1AIF in VB square for a very choice piece of DX. This was at 1736. G8LGE managed the rare GA thanks to I8CTRA on Ischia, plus I8REK (HA); 1W0AYO (GB) and IC8EGO. G8HGI contacted IC8CVS and IC8EIDJ (HA) and heard 1W9A1G/P in HY. G8LFB opened his evenings at 1700 working 9H1FL (HV13a). Other 8’s and 9’s were heard and IC8KSSX/8 was worked at 1740, using just three watts from Jim’s “barefoot” IC-202S.

G8LFJ (Essex) heard everyone calling “CQ Sporadic E” at 1655 and heard 9H1FL with whom he exchanged reports. Shortly afterwards, Jon worked 9H1BT, then IC8KSSX/8 and IT9TDDN. G8MFJ contacted eight Italians between 1708 and 1734 but George, the IC8 was TRA, not ERA in GA30a. Derek Simpson, G8NDF, (N. Yorks.) was using a Belcom Liner 2 to a 19-ele. Cushcraft “boomer” aerial worked 9H1BT and IT9VMN (GY) between 1706 and 1711. G8TGGM heard IT9TDDN blasting in at 1700 and worked IT9TCA (HY) at 1706. Then IO1DL/P (GB) and IC8CVS. Roger Gregory, G8TIN, (Oxon.) had his first ever E’s QSO with IC8ZUQ so is justifiably pleased. From 1656-1738, GW8ELR worked 170 and 171’s in GA, GB, GC, HA, HC and HY then, at 1900 EASTD and at 1916 EA5AMR (ZZ).

At 1650 on the 13th, GW8ELR is certain he heard UG6?? calling CQ just before the opening proper commenced. He later worked IC8KSSX/8, IT9TDDN, IC8EGO and I8REK. Sheldon mentioned that last year, just prior to an E’s opening, GW8BXXQ reckons he heard an OD5. G3CHN wrote that FICRP told him that, on July 14, a French station in CE square had worked OD5MR, and that someone in CH had worked into Israel.

On July 21, GW8ELR’s CQ call at 1753 was answered by I1Z1AB, and another at 1928 by YUJ10H (KE). G4DE2 (Essex) was in on another E’s affair on July 31 which did not reach into the London area. Bryn worked IT9VMN, I8WABZ and IT9XIX. G4GHA also mentions this opening from 1750-1830 during when he worked IT9KIF and IT9XIX in HY square. Finally, on Aug. 9, G8ATK caught a fleeting opening amid the fine tropospheric conditions and worked IS0DSQ/P (EZ62c) at 1809 and heard IS0DKU/P.

There was a good Aurora which began at about 2315 on July 25 when G8GXE heard a very strong signal from GM4MBP (YR) whom Tony promptly worked with just 10 watts. Afterwards, he switched on the 250 watts amplifier and contacted GM4AFF (YR); GM8BFJ, GM8TSI (YP) and GM8FOX (YR). The last was very strong but had little AR sound. The last signal heard in this, his first Aurora, was an unidentified CW one at 0035. G4HNS heard LA8JSJ (FT05j) and LA1EKO on CW and worked GM8BFJ in Edinburgh on SSB. The event was happened upon at G3FPSK at 2325. QTF’s were due, true north and for once, SSB signals were very easy to read. LA8JSJ and SM41VE (HT6od) were worked on CW. Activity seemed low but the GM’s were working PA and DL stations.

There have been several periods of really excellent tropo. In the past month, the first of which was on July 22 when G3PBW at last worked BG square — FIDV and FIDOF — plus portable in CJ and DJ. On the 28th, after reading the G2B2S news bulletin, Dave worked F1EUI/P (BC) who was 2,000m. a.s.l. The funny beacon, FX5THF, in AC08d. nominally on 145-145 MHz, was coming in and remained audible till the following morning. G4GHA also worked BG for the first time on the 22nd and found signals to southern France consistent but weak. On the 28th, John worked AE and ZE for two more new ones, best DX being FIDSQ (ZD) on the Spanish border.

Martin Blythe, G4HFO, has now moved from Tiverton to St. Austell (CwL.) and was in on the first good opening on the 22nd. Stations worked included F6DRQ/P (YF); FICHR (PC); F6GQE/P (ZC); F9NL (AD) and EA2WM (ZD). G8ATK worked three French portable in CE, CJ and DF on the 24th and two more in CG and CH the next day. The period 27/28 brought a whole lot of fine DX to southern France, including five stations in AD, one in ZD and EA1ED in VDS9e.

G8GXE’s trip to Wales was quite successful and Tony enjoyed better weather than was the case most everywhere else at the end of June. From XM square, 90 stations were worked on 2m. while from Anglesey, XN, the tally was 110 stations. The path to London seemed marginal with better propagation to the east coast. From home, Tony added G8RZ/P (CwL.)
on July 17; GD8SFI/P on the 20th. On the 22nd, French stations in AF, AG, AH, BF, BG, ZH and ZL were worked late at night, while Lancs. was worked at last on the 26th in the shape of G8SZ/P, just 200 yards inside the county. On the 27th, more DX French stations were worked including F1EGB (AD61g).

G8HHI heard EA1CV (XD) on the 27th and worked F1FAG (ZG9a) on the same day. Between 2032 and 2219 on July 22, G8LFI added F6GDX (AF) and F1DTC/P (CE) for a couple of new squares, plus F1GAF (AG). On the 27th, F6CCH and F1FAG, both in ZG, were contacted but EA1ED was very weak at 2300 when Jon went to bed. On the 23rd, G8MFJ got his signals down to F1AGO and F6GRA in AG and to F1FHI and F6BQX/P in ZH. The lift of July 22 and 27 enabled Neil Montanana, G6RWG, (Surrey) to add another seven squares including F1C17 in AD69g. G8TGM did not fare so well however on the 24/25 period with F6GDX (AF) the only DX worked. Kevin heard EA1CV in Gijon on the 26/27th plus lots of Frenchmen in AD, BD, BE, etc. His station comprises an Icom IC-202, 25 amplifier and 9-ele. Tonna Yagi.

David Hutchinsson, G14FUM, (Antrim) now runs an FDK Multi 750E. Just three miles away is an excellent site for portable operation, 1,200ft. a.s.l. He uses a portable 9-ele. Tonna on an 18ft. Tufnel lifeboat mast lashed to a convenient fence post in X01Ha. On July 22, David worked into F, ON, DL and PA, and reports increased SSB activity in G1 with G1's 4GVS, 4GID, 8JPG and 8ULK in Antrim; 37TLT, 35J and 8TBQ in Down and 5MPS and 8RE in Armagh. GW8ELR worked F1EV1/P (BC11g) on the morning of July 27. The F1 was running about 10 watts to an 8-ele. beam and was very strong. That evening, Sheldon heard stations in ZL square working EA1ED whose signal he could not even detect in Milford Haven. On July 27, G4JICD worked EA1ED for a new square plus twenty stations in CD square!

On the morning of Aug. 6, Jack Mitchell, G3KEQ, your scribe’s near radio neighbour, worked EA3AQ/T and EA3BBB (ZB1id) on tropo. They were about 8,000ft. a.s.l. They were still operating on Aug. 9 in the evening when many people worked them. Also in demand was F6GRC/P (YG10e) and C31RN in Andorra, (AC). The conditions seemed to be a re-run of those on July 27.

Seventy Centimetres

More operators are using 70cms now and have been rewarded with some fine tropo. conditions recently, paralleling those on 2m. Surprisingly, though, G3PBV found little to report with just YH square added. Mike Lee, G3YVF, (Essex) added GD8SFI/P on July 16, and, on the 22nd, F1DTC/P (CE); F8QD/P (BF); F1EKQ (CF); F1EAN (AG); F1DOF (BE) and F1IQV (AG). In the 27/28th lift, he managed QSO's with F6CCH (ZG); F1BYM and F1ADT (ZL); F9NL (AD); F1COW/P (ZF) and F1CDI (ZD).

G4HFO has a very good look out from east through south and is on from 2100 local time, most evenings from Cornwall. On July 21/22, Martin worked F9NL and F6CBC/P (ZD) but reckons his best DX was EA1CR (XD). His station comprises an Icom IC-202, 25 amplifier and 9-ele. Tonna Yagi.

G4TAK worked F1DTC/P on the 24th and had a ball on the 27/28th with F9NL, F1BYM, F1ADT (ZL), F8SM/P (ZF), F6BMC (ZG), F1AJD (AF), F1COW/P, F1CBL (ZL), F6BQX/P (ZH), F6EAS (ZJ), F6CBC/P and F1IQV. The best DX for the past two months was for Ray Cox, G8FMK, (Oxon.) F9NL at 940 kms.

During the Welsh trip, G8GXN managed 17 QSO’s from XM and 18 from NFN. After returning home, Tony added Clwyd, N. Yorks., Stafford, S. Glam., Cornwall, Lincs., and Dorset to his 1980 haul. He comments on the ducting to the south on the 22nd July when F1DTC/P was worked but when stations in AG, BI and ZH were barely detectable. On the 27th, F1BYM, F6BQX/P and F1AJD were all new ones and were still there the following morning along with F9NL, who was working into ZM square. G8HHI also worked F1AJD, F1BYM and F9NL on the 27th.

During NFD, G4JICD worked into GM which could be a “first” GJ/GM on the band? GM4DJI/P was at the other end. G3KP is on SSB now and was expecting to put up a new beam. G4FJL also has 10 watts of SSB going to a 48-ele. Multibeam. G4GHA is getting near to being fully operational from Dorset and G4GSA in Weymouth has a linear on the stocks.

Twenty-three Centimetres

It is proposed to include the latest All-time table next month so would the participants please up-date their scores and base them on the current counties/regions only so as to make it fair for the newcomers. G3PBV reports that GB3JOW is putting out a fine signal, S3-4 at least, never fading into the noise. It was S9 plus-40 dB on July 21! Dave has a sea path to it and says it is often a good signal in the early morning. G8BAND and GB3BBO have been heard weakly, two days out of three.

From London, John Tindell, G3JXN, made 48 contacts in NFD during eight hours of spasmatic operation. He now has an amplifier with 2C39’s going. July 17th was the night when G8GXE made his first QSO on the band with G3NNG. On the 19th, a sked with G4ERX did not quite come off, nor did one with G3AUS in Devon. Early on the 24th, Tony just managed a QSO with G8KU1 (Surrey). Ian Gordon, G8FFT, was contacted from the first YM and for Hereford and Worcestership — not W. Midlands as wrongly stated in the July piece. On the 27th, Tony just made it with G8IEM (Hants.) and ZK square. He is making a 2C39 amplifier to boost the present five watts. G4CMV is QRV with a SOTA transverter and 36-ele. Q-L-Y.

GD2HDZ is a happy man; Arthur has at last worked the Isle of Man on 23cm., thanks to GD8SFI/P, worked on July 16. He reckons this four mile QSO to have been a “first,” and one for which he has been waiting for at least five years!

There seems to be support for the inclusion of 23cm. in the Annual Table. Before making any firm proposals, more readers’ views are sought. The basic idea is to compensate Class B licensees who cannot use the 4m. band.

Sign Off

Space precludes any more news so we will try to catch up on the MS, etc., next time. All your contributions to: “VHF Bands,” SHORT WAVE MAGAZINE, 34 High Street, WELWYN, Herts.; AL6 9EQ. The October deadline is Sept. 3, and the following one, October 8. 73 de G3FPK.
VHF DUMMY LOAD
IAN H. MOTH, B.Sc., G8SOH

The dummy load is one of those items of test equipment which lie about in the instrument cupboard, hardly ever used. When the occasion arises however, it is surprising how indispensable they quickly become. A sudden fault in a transmitter system can be analysed to the extent of proper operation of the transmitter. If the transmitter operates normally into the dummy load, which is, in effect, a perfect ideally matched antenna as far as the transmitter’s output transistors are concerned then it is OK – the fault must be elsewhere. Most amateurs will fully appreciate the sense of relief that one feels when a serious fault is shown to lie in the £2’s worth of home made ‘Slim Jim’ out on the roof rather than the more expensive transceiver lying on the table. An SWR meter is valuable here also, but when the SWR goes high good quality meters become rather inaccurate and may become unreliable and misleading. The dummy load described in this article is intended for VHF use up to 10 watts in 50-ohm systems.

Fig. 1 CIRCUIT DIAGRAM

Circuit

Fig. 1 shows the circuit diagram, which is merely a coaxial cable terminated by 20 resistors connected in parallel. The resistor values are 1K ½W and the ‘sum’ therefore 50 ohms, 10 watts. 20 resistors may seem rather a handful, but any fewer would entail a non-standard resistance value and more power dissipated per component. Also, the more resistors there are, the less accuracy matters. Small errors in each resistor will tend to even out so the result will approach 50R very closely.

Fig. 2 DIMENSIONS OF BOARD

Construction

The resistors are mounted on a circular piece of copper-clad board, Fig. 2. The dimensions given are appropriate to resistors in a CR37 package, Fig. 3. If appreciably different size resistors are obtained the board dimensions will require to be altered.

Take a short length of good quality 50-ohm coax and strip back one inch of plastic cover. Push the braid sheath back so that it ‘concertinas’ and pull the edges to make a disc; trim away excess sheath and solder the cable to the board. Resistors are added as in Fig. 4, bearing in mind that it is desirable to use the minimum possible lead length. The resistors should be carbon, other types will not work so well. Purists will arrange the resistors so that adjacent pairs point in opposite directions, the colour bands defining the resistor’s polarity. It is said that in this way residual inductance will cancel out: in fact the ‘coils’ are not close enough at this frequency to make any difference.

A common variation on the layout described here is to make two identical boards and mount resistors between them like a sandwich. This would unfortunately be a parallel plate capacitor and may compromise performance, but it must be admitted that the result is much neater and that the effect at these dimensions is probably very slight.

Another slight effect would be produced by mounting the resistor assembly inside an enclosure, tin can, tobacco tin etc. The dummy load will certainly last longer so protected but capacitance inside the can may affect performance. The author’s dummy load is stored in a tin, the cable entry via a grommet in the lid. When the dummy is required, the tin is opened and the resistor assembly allowed to hang clear of any metal or system circuitry. This method is recommended, but be sure to pass the cable through the grommet before connecting the plug onto the end of the cable!
The Lambda Diode is a negative resistance, two terminal device, that dissipates very little power, and can be used to make a simple and stable VFO. The diode is an N-channel jFET and a P-channel jFET connected as in Fig. 1. The voltage/current curve of this configuration has a substantial negative resistance region, see Fig. 2, and it is the shape of this curve that gives the diode its name.

Increasing the supply voltage from zero will cause the channel conductance to fall and the voltage across the device to rise. Initially the increasing drain-source voltage will dominate, and the current will increase from zero. Eventually the decreasing channel conductance will become the significant factor, and a further increase in the supply voltage will produce a decrease in the lambda diode current. This is the negative resistance region. This process will then continue until the current finally reaches zero.

The writer’s mathematical analysis shows that the negative resistance region will start when the supply voltage is approximately equal to \( \frac{V_{C1} + V_{C2}}{3} \) and will end when the supply voltage is equal to \( \frac{V_{C1} + V_{C2}}{2} \). \(\text{V}_{C1}\) and \(\text{V}_{C2}\) are the gate-source cut-off voltages (pinch-off voltages) of jFET, and jFET, respectively.

**Lambda diode operation**

Fig. 1 shows that the gate and source of each jFET are connected across the supply voltage, and that the polarity of the supply is such that the voltage is a reverse bias for each transistor. Fig. 1 also shows that the channels of the two jFETs are in series across the supply, and therefore the current in each channel must be the same. The magnitude of this current depends on two factors, the conductance of the channel and the voltage between the drain and source of the jFET, and in the lambda diode both these parameters are functions of the supply voltage.

**VFO circuit**

A negative resistance VFO will oscillate when the positive resistance of the tuned circuit is cancelled by the negative resistance of the active device. The basic circuit for the lambda diode VFO is shown in Fig. 3. An MPF102 N-channel jFET and a 2N3820 P-channel jFET are used for the lambda diode, as both are readily available and their lead arrangements make the physical construction of the diode easy. See Fig. 4.

The voltage to the lambda diode is stabilised by \( R_1, C_2 \), and the Zener diode. The Zener voltage should be between \( \frac{V_{C1} + V_{C2}}{3} \) and \( \frac{V_{C1} + V_{C2}}{2} \). The VFO frequency is determined by the tuned circuit \( L, C_2 \), and the criterion here is that the loaded dynamic resistance should be as high as possible.

**Conclusion**

The writer’s circuit was designed to operate on 14 MHz. It has been completely successful in operation, and is used as the VFO in a 20 metre direct conversion receiver.
THE BELGIAN VHF CONVENTION

A LIGHT-HEARTED ACCOUNT

BRYN LLEWELLYN, G4DEZ

THE idea of going to the Convention arose when Chris Bartram, G4DGU, was invited over to Belgium to give a talk on his experiences of back-garden moonbounce on 70cm. Chris mentioned the trip to me, and also to other amateurs who have a keen interest in VHF/UHF matters, and the final party to go included: Chris Bartram, G4DGU, and XYL (70cm. E-M-E); Charlie Suckling, G3WDG, and YXL (70cm. E-M-E); Julian Gannaway, G3YGF, and Hugh Griffiths, G4CNN (both from the Oxford University E-M-E Group); John Morris, G4ANB (Harwell group and Radio Communication “4-2-70” feature writer); Paul Turner, G4JIE, and myself (both keen 2m. DX-er’s, plus contests).

The best laid plans . . .

The trip has all that is loved by contest operators — absolute chaos! The plan was for one group, driving a Landrover complete with roof-mounted dish, to go directly to Felixstowe, and the other group to make their way from Didcot, via Sheering to pick up G4JIE, to my QTH in Hockley and thence to Felixstowe to meet the others.

A schedule was made for Paul to call Chris on two-metres to arrange talk-in to Sheering. Unknown to Paul, Chris’ rig was in pieces and hence no talk-in! A phone call from Chris, asking for directions, showed that he had overshot Sheering by some ten miles. However, G4DGU and co. arrived at last and we set off to Felixstowe to catch the 2330 ferry.

We arrived at the docks at eight minutes to eleven, only to be told that the ferry had already left because the dock was needed for a container ship! Meantime the Landrover was still trundling slowly towards Felixstowe, blissfully unaware of the situation. At about 2305 both parties met, and the news of the missed ferry was met first with disbelief and then frustration.

After various unprintable suggestions had been made as to what could be done, it was discovered that the only way to get to Zeebrugge was to catch a ferry from Dover at 05.30! We also decided that we ought to try and telephone ONSFF, Marc, the Convention organiser, and the Holiday Inn Hotel (where the Convention was being held), in order to prevent Belgian amateurs from waiting for us at Zeebrugge at 0700.

So off we all set, back to Hockley, to make the phone calls and perhaps raise some Belgians on two-metres. When we arrived there, Charlie, G3WDG, found phone numbers for the hotel and ONSFF. The call to the hotel in Charlie’s halting French ended in hysteric when it was realised that the hotel receptionist spoke fluent English; however, a message was left, and we continued our journey to Dover. We arrived in Dover early!

Onboard Entertainments

Safely aboard, we wondered if we might be able to persuade the ship’s R/O to send a message to Zeebrugge to let the Belgians know that we would be arriving on a later ferry. Chris arranged this — and, indeed, we were all invited to visit the ship’s radio station.

The visit was arranged for 0700, and at this time we duly appeared and were met by the ship’s radio/electronic officer. We arrived in time to hear our message being relayed over the ‘wireless’ to Zeebrugge. The radio officer made us all very welcome and spent considerable time explaining the function of the various pieces of equipment in his ‘shack’.

As we were about to leave, he asked if we would like to visit the bridge — needless to say we agreed. We then spent another hour or so with the company of the Master and Officers and were allowed access to radar navigation equipment, again being given a full explanation of everything.

The hospitality we received from Townsend Thoresen was superb.

The Arrival

When we finally arrived in Zeebrugge, we expected to be greeted by the ON’s who were to take us on to Ghent, but — there were none to be seen! After more phone calls it became apparent that the messages we had arranged had not got through. However, an hour later three cars arrived and we began the final phase of the journey to Ghent. The time was now midday with the Convention in full swing.

One of the most notable aspects of the journey was the antenna array on nearly every household we passed: they were enough to make the average amateur in this country green with envy. Almost every house had a tower on the roof, sometimes 6m. tall, with steel guys and rotatable TV/FM arrays.

The Convention

We arrived at the Convention at lunchtime, unfortunately having missed Chris’ lecture period. After lunch a group of us settled down for a chat about E-M-E with F9FT and PAVOSB, and during the afternoon session I went into the lecture room and listened to ONSFF give a talk on 3cm. equipment. The lecture, accompanied by slides and epidiascope pictures, was tri-lingual — Flemish, French and English. During the coffee recess I met several amateurs who until then I had only spoken.
Visit to Ghent Radio Club

After the Convention we were taken to our hotel to freshen-up (remember, no sleep for nearly two days): we had about twenty minutes for this! Then we left for Ghent Amateur Radio Club, which was an experience in itself. Most British clubs meet in factory canteens, church halls, pubs, etc., but the Ghent A.R.C. is what it says it is: a club — complete with bar and eating facilities. There they serve a rather remarkable beer called 'Trapiste', and Chris now has a reputation in Belgian amateur circles as a man who can hold his beer (though this fact has long been established in Britain); three small glasses being enough to raise a 4/1 with QSB report to a glowing 5/9-plus — rather like the proverbial angler’s tale.

A group visited ON7RB’s shack and were amazed at the range and complexity of his equipment. The whole day finally ended at about 0300, though this is only a guess.

Next morning, some went to see ON4DY’s moonbounce system, while others explored Ghent in the rain. Finally we had lunch at the hotel with ON6UG Freddy, ON5FF Marc, and ON4DY Bob, where again all aspects of amateur radio were discussed at length. The meal was excellent, but it is now thought that the delicious steaks were of equine, not bovine, variety! ON5FF made all the arrangements for the trip back to Zeebrugge.

I would like to thank, on behalf of this British contingent, all Belgian amateurs concerned, for their overwhelming hospitality during the weekend visit; everyone said they are already looking forward to the next Belgian Convention.

G4DEZ is a regular contributor to “VHF BANDS”.

CLUBS ROUNDUP

BY ‘Club Secretary’

We have a pretty full pile on the desk right now, and pressures on space, so we may as well press on straight away.

Nationals

Our first is the G-QRP Club, comprising the amateurs and SWLs who are interested in low-power activity, the nominal figure being just on the five watts DC input as a maximum — albeit one feels on occasion that the club is as much for home constructors as anything! Details, of course, from the Hon. Sec. at the address in the Panel.

The invalid and blind are catered for in all sorts of ways by RAIBC, and of course they are the full members. There are also the representatives, who are active helpers in getting full members along the way to their own station either as SWL, or hopefully with a ticket. As for the supporters — that’s us, in the main: the general run of people who offer what help they can, right down to nagging the club treasurer to make a donation when AGM time comes round. Every little helps, and the Hon. Sec’s address details are in the Panel.

A.R.M.S. is the one for the /M enthusiasts, whether at VHF or on the HF bands. Details from the Hon. Sec. his address being in the Panel.

WACRAL is the group who are practising Christians wherever they may be in the world — groups exist in Africa, VK/ZL, USA, and of course in UK. Again we refer you to the Hon. Sec. — see Panel.

The Ex-G Club is meant for those who were born in UK but are now resident in other parts of the world (wonder if “North of Watford” counts as foreign?). Seriously, the club is well worth getting to know about if you are an expatriate, or have friends who are members. Details from the UK Hon. Sec. — see Panel.

Scotland and North England

Our first one is Dumfries & Galloway who are based at Cargenholm Road, New Abbey Road, Dumfries, on the first and third Mondays of each month. This gives September 1 for a social evening and a short visit to a rural telephone exchange, while on September 15 they have GM4DJJ talking about the practical approach to UHF and microwaves. We also note they are approaching the local Tech. for an RAE class this autumn, details of which can be obtained from the Hon. Sec. at the address in the Panel, or direct from the Dumfries Technical College.

That old English weather seems to have attacked the York lads when they went to visit R.A.F. Linton, as the heavens opened up — but they were right-royally entertained by the R.A.F. to make up for not seeing the night-flying activities. They are normally to be found on Fridays at the United Services Club, 61 Micklegate, York, every Friday evening except the third in each month. We notice that they will also be at the Great Yorkshire Show at Harrogate, Stand 568 and signing, as for many years, GB2GYS.

Northern Heights covers the Halifax area, and the HQ is at the Bradshaw Tavern, Bradshaw, Halifax, every Wednesday evening. Our latest newsletter says the new committee is “slaving over a hot syllabus”, which rather indicates it has been “got at” for something!
Wales & West

Exeter's Hon. Sec. has been ill for some time, and so for the moment we have the address of the PRO in the Panel. He tells us that the group have a place at the Community Centre, St. Davids Hill, Exeter. The general arrangement is to foregather on the second Monday — thus on September 8, G3OFY will be talking to them of the principles of FM transmitters and receivers, with the AGM on October 13.

A familiar handwriting comes in now, by way of the Yeovil club scribe, who tells us that the gang are to be found at Building 101, Houndstone Camp, Yeovil, where they have a lecture room, a comprehensive club station, and a library of books on amateur radio.

With a rush the South Dorset club’s PRO writes to indicate that they are looking for a new Hq and this may involve a change of meeting-night as well; hence contact should be made with the Hon. Sec. — see Panel — for the latest state of play.

It is sad to hear that the Axe Vale group is having such a hard time finding a place to get together. However, they will have a gathering in the George Hotel in Axminster at 7.30 p.m. on 3rd September — but a contact with the Hon. Sec. would give you all the gen.

At Loughor we hear the membership is growing nicely which can’t be a bad thing. The venue is Loughor Boating Club, fortnightly on Mondays unless this should fall on a Bank Holiday, in which case the Tuesday evening is used. Talk-in is available for anyone who wants to attend, and to the Hon. Sec. should be consulted for the latest gen and talk-in if required.

Just up the road is Swansea, based on the Technician’s Common Room on the second floor of College House, Swansea University, and assembling there fortnightly on Thursdays.

Down we go now to Plymouth, where the venue is now Tamar Secondary School, Paradise Road, Stoke, Plymouth; September 1 is an Activity Night and on 15th G3YJQ is to talk about teleprinters.

September 3 for Cornwall is set aside for G3OCB to chat about test gear — a large subject to compress into a short time. It is also a large club to squeeze into their clubroom, which is the SWEB Clubroom, Pool, Camborne.

Midlands

Off we go with Stourbridge who have honoured us this time with a newsletter bearing two front covers! It says they are still at Longlands School, Brook Street, Stourbridge, and the dates are: September 1 for Construction, September 5 for preparation for SSB Field Day on 6/7th, and September 15 is down for D/F.

Now we head for Worcester where the front page of our copy of the newsletter is full of details of the Rally. The club hold their normal meetings at the Old Pheasant in New Street; September 1 is down for an Open Forum, and October 6 will be interesting too — G3TQZ is going to bring along some test gear and show how to “Test Your Spec.” — we hope nobody’s gear is unlucky enough not to pass muster!

Bury come next, at the Mosses Youth and Community Centre in Cecil Street, Bury. They are in attendance on every Tuesday evening but try to ensure something a bit special is fixed up for the second Tuesday each month. Thus on September 9 they have a talk on Commercial Micros and BASIC programming. We notice in addition they have an RAE course lined up at Bury Technical College on Thursday evenings from the first week in September 7 to 9 p.m. Interested? Contact either G4JAG or the College direct.

The club now known as Douglas Valley is the reformed ex-Wigan gang who meet every Thursday in the month except the second, in Shevington Conservative Club, Wigan. More details from the Hon. Sec. — see Panel. We note that, despite a bit of novel spelling, their newsletter is one of the best — we hope they can keep it up.

Deadlines for “Clubs” for the next three months

(October issue — August 29th)
November issue — September 26th
December issue — October 31st
January issue — November 28th

Please be sure to note these dates!

The numbers are slowly increasing at Kidderminster, where on Mondays they have a pint at Bellmans Cross Inn, Shatterford, some 2 miles out on the Bridgnorth Road, and on alternate Tuesdays they can be found at Aggborough Community Centre, Hoo Road, Kidderminster from 2000 clock.

The Derby Hq is the top floor of 119 Green Lane, Derby, and the programme: September 3 for a Junk Sale, September 10 a session when you can bring your rig along to be checked for nasties. G2CVV will be talking about “How it all began” on 17th, and there is a Film Show on 24th.

On we go again, this time to Wirral — the one which is based at the Sports Centre, Grange Road West, Birkenhead (as distinct from the other club which uses a similar place at the other end of the peninsula). This Birkenhead group are to be found on the first and third Wednesdays.

Cheltenham are at the Old Bakery, Chester Walk, Clarence Street on the first Thursday and the third Friday, although we are not able this time to tell you precisely what will be going on in September. From the newsletter’s HF DX correspondent we noted what must be something of a record for a fast QSL — he

"Short Wave Magazine" is the only periodical freely available from newsagents throughout the U.K. which is devoted exclusively to the pursuit and interests of Amateur Radio.
Names and Addresses of Club Secretaries reporting in this issue:

ACTON BRENTFORD & CHISWICK: W. G. Dyer, GIGEH, 188 Gurneys Avenue, London W3 8LB. (01-922 3770)

A.R.M.S.: N. A. S. Fitch, G3PFK, 40 Eskdale Gardens, Purley, Surrey CR2

AXE VALE: Mr. & Mrs. Retier, G4GBG, 48 Fairway Rise, Chard, Somerset. (Chard 4163)

BACING: A. Sammons, G8IZN, 80 Lyndhurst Gardens, Barking, Essex IG1 5AZ. (01-594 2471)

BISHOPS STORTFORD: T. E. White, G8LX, 79 Elmbridge, Old Harlow, Essex CM20 2DG.

BOURNEMOUTH: G. R. Freeth, G4HFO, 9 South Avenue, New Milton, Hants BH25 6EY. (New Milton 61802)


BURY: M. Bainbridge, G4GYS, 7 Rothbury Close, Bury BL6 2TT. (Lanes. 0561 765 5083)

CAMBRIDGE: D. Leary, G8UKV, 9 Priory Avenue, Swavesey, Cambridge CB4

CHAPEL-HAM: G. Crichtley, G4LI, 47 Golden Hill Road, Prestbury, Cheltenham. (Cheltenham 43891)

CHESHUNT: W. Poole, G6VBL, 36 Montayne Road, Cheshunt, Herts. (Cheshunt 31298)

CHI, FERN: B. Catherall, G4WIC, 78 Fairways, Prestwood, Gt. Missenden, Bucks. (Gt. Missenden 4504)

CORNISH: S. T. S. Evans, G3GQG, "Glenormeary", Cannon Downs, Truro, Cornwall. (Devoran 66255)

CRAWLEY: D. L. Hill, G4QIM, Reigate Close, Pound Hill, Crawley, West Sussex RH10 3TJ. (Crawley 892464)

CRAY VALLEY: P. J. Clark, G4FUG, 42 Shooters Hill Road, London SE3. (01-893 7507)

DERBY: Mrs. J. Shardlow, G4EYM, 19 Portreath Drive, Darley Abbey, Derby. (0312 — Derby — 558875)

DOUGLAS VALLEY: H. Hughes, G4HSC, Brackley House, Warrington Road, Goose Green, Wigan. (Wigan 41670)

DUMFRIES & GALLOWAY: D. Rodgers, GMR1KA, 5 Elder Avenue, Dumfries, Dumfries G20 NL.

EDGWARE: D. L. Lisney, G3MNO, 119 Draycott Avenue, Kenley, Harrow HA3 2DA. (01-807 2379)

EXTERTON: G. F. W. Fletcher, G2FXU, 53 St. Ives Park, Ringwood, Hants. BH24 2XJ. (Ringwood 3551)

GL-2Q: J. G. Deeds, G3JQV, 7 Asprey Avenue, Chelmsford. (Chelmsford 79918)

GREAT YARMOUTH: A. D. Besford, GINHU, 49 Blake Road, Gt. Yarmouth, Norfolk NR30 4LT.

GUILDFORD: L. Bright, G4ROQ, 4 Dagley Farm, Shalford, Guildford, Surrey. (Guildford 76375)

HEREFORD: J. Jessop, G4CNK, 181 Kings Acre Road, Hereford. (Hereford 3237)

IPSWICH: J. Tooril, G4IFF, 76 Fircroft Road, Ipswich, Suffolk IP1 6PY. (Ipswich 44047)

ISLE OF WIGHT: T. Fallick, G4FYL, "Harmony", Main Road, Chillerton, Newport, I.O.W.

KIDDERMINSTER: R. Manton, G4LQ, 7 Osborne Close, Offmore Estate, Kidderminster DY10 3XW. (Kidderminster 4930)

LIVERPOOL: A. Neilson, G4CVZ, 79 Acker Hall Avenue, Liverpool L14 2EA. (051-220 54700)

LOUGHBOROUGH: T. Griffith-Thomas, GWJTSYS, Riverside Manor, 77 Castle Street, Loughborough. (Loughborough 893592)

LOWESTOF: P. Godfrey, G8JBB, 81 St. Margarets Road, Lowestoft, Suffolk NR32 4HT. (Lowestoft 604320)

MIDLAND: N. Gutteridge, G8BHE, 68 Max Road, Quinon, Birmingham B33 2AN. (01-222 9875)

MID-SUSSEX: J. Brooker, G3JMB, 20 Farnham Avenue, Hassocks, Sussex.

NORFOLK: P. W. Forster, GW4WQ, 12 Thor Road, Thorpe St Andrews, Norwich NR7 OJS. (Norwich 7771)

NORTHERN HEIGHTS: M. Topham, 1200 Great Horton Road, Bradford. (Bradford 727241)

ORKMSKIRK: J. K. Higgins, G4IGX, 8 Delph Top, Greety Hill, Ormskirk L39 2DX. (Ormskirk 73546)

PLYMOUTH: Mrs. P. J. Day, 46 Beatrice Avenue, Saltash, Cornwall PL12 4UG.

RAI. B.C.: Mrs. F. Woolley, G3WLY, 9 Rannoc Court, Adelaide Road, Surbiton KT4 4TE.

REIGATE: D. J. S. Roberts, G8FDJ, 15 Bakehouse Road, off Horley Road, Reigate, Surrey RH2 8RS.

ST. NEOTS: P. Herod, G8QTL, 49 Luke Street, Eynesbury, St. Neots, Cambs. (Huntingdon 74647)

SEPTON: P. T. Taylor, G9MTMR, 1 Hornby Place, Walton, Liverpool L19 3DB. (051-323 2553)

SOUTH DORSET: R. Cridland, GZCGP, 13 Clarendon Avenue, Redlands, Weymouth. (Weymouth 812589)

SOUTHGATE: J. Fitch, G6EGW, 16 Kent Drive, Cockfosters EN4 0AP. (01-440 8253)

STOURBRIDGE: C. Williamson, G4IEB, 14 Lawn Street, Stourbridge. (Stourbridge 804862)

SURREY: R. Howells, G4FFY, 7 Betchworth Close, Sutton, Surrey SM1 4NR. (01-942 9071)

SWANSEA: R. Williams, G4WHSH, 116 West Cross Road, Swansea. (Swansea 834 SQO. (Swansea 207410)

VALE OF LEWES: A. Lovelace, 16 Church Lane, Wadhurst. (Wadhurst 3496)

VERULAM: H. Clayton-Smith, G4JKS, 115 Marshallwick Lane, St. Albans AL1 4UW. (St. Albans 39358)

W. A. C. R. A. L.: J. Colley, G4AXG, Mica, 13 Ferry Road, Rawne, Nr. Hull HU7 5XU.

WEST KENT: B. P. Castle, G4DFY, 6 Pinewood Avenue, Sevenoaks, Kent. (0732 567800)

WIRRAL: A. Fisher, G3WSD, 23 Kylstone Drive, Hessle. (051-442 1662)

WORCHESTER: M. Tinsman, G4EKG, 16 Dornoch Road, Evesham, Worcs.

YEVIOL: D. L. McLean, G3N0F, 9 Cedar Grove, Yeovil.


received a card for his contact with ZD8KM in just 15 minutes. No secret, ZD8KM’s QSL Manager lives just round the corner!!

The Ipswich Hq situation is so complex that we suggest you contact the Hon. Sec. — see Panel before attending meetings. Second and last Thursdays are the dates, and the general area seems to be Handford House, Ranelagh Road.

We have a letter from a reader next, which indicates the clubs regarded as “local” to him in Great Yarmouth. These are: Great Yarmouth club itself where the venue is 67 Southtown Road on the last Thursday of the month; Lowestoft who are based on North Suffolk Teachers Centre, Lovewell Road, Lowestoft, where they meet fortnightly, September 12 being the AGM; and Norwich, who are at Crome Community Centre, Telegraph Lane East, every Wednesday evening.

Hereford have G8CGK, Grant Dixon, talking to them about Slow Scan TV on September 5, and on 19th they have an informal; both are at the County Control, Civil Defence Hq, Gaol Street, Hereford.

Ormskirk have a place at the ‘Over-Sixties Hut’ in Liverpool Road, which is opposite Christ Church, the starting time being 8.30 every Tuesday evening.

Another ‘every Tuesday’ group is at Liverpool; on September 2 they have G3PFZ to talk about “LF DX on a Simple Aerial”, and a Surplus Sale on 9th. September 16 is down for a talk on CW operating techniques by G3XSN, and on 23rd the tape-and-slide lecture on an expedition to St. Pierre & Miquelon by W1PFA/FPBH will be shown. September 30 is a pre-AGM evening so that the AGM on October 7 will run nice and smoothly. All this at the Conservative Rooms, Church Road, Wavertree.

Yet another group in this area is the one called Setlon, based on the Liverpool Prison Officers Social Club, where they are to be found every fortnight. They say they have a very interesting and varied programme coming into shape and would like to see visitors and new members. For the details, contact the Hon. Sec. — see Panel.

At Midland work continues on the new club premises, with the target set for occupation sometime in the early part of 1981; all the heavy and dirty work is completed which is a blessing. Coming back to the current programme, they are at Aston University on September 22 for G3HAZ to give his talk on VHF arials.

South-East

A definition to be treated fairly loosely. Let us make our
start at Verulam. Their Hon. Sec. landed himself in the local 'bandage factory', but nonetheless they made sure someone would pass on the word that their main meeting is now on the fourth Tuesday (was fourth Thursday) at the new venue, which is Charles Morris Memorial Hall, Tyttenhanger, near St. Albans. Under the circumstances, for this time we will put the PRO's call in the Panel.

At Bournemouth the dates are September 5 and 19; the first for a show of films from the RSGB Film Library, and the second will be an Open Meeting for all members. The venue, as ever is the Dolphin Hotel, Holdenhurst Road, Bournemouth, 7.30 for 8 p.m. — which gives time for the natterer to stop when the business begins!

On we go now to Barking, where the Westbury School, (Westbury Recreation Centre), Ripple Road, Barking, lies between the Westbury Arms and the Railway crossing; the meeting is on Thursday evenings formally, but they also are open on Monday, Wednesday and Friday — and there are Morse classes on Tuesday evenings! The club re-opens after the summer break on September first. Details from the Hon. Sec. — see Panel.

We must be careful to get the West Kent September 12 programme right: for those who have booked in advance, there is a trip to see the GB3SX/GB3WHA beacon site, while for the others, there will be a two-metre Fox Hunt, meeting in the car park behind Marks and Spencer. As for September 26, they are back to the Adult Education Centre, Monson Road, Tunbridge Wells, for an Open Evening at which there will be an equipment display, a short talk, a sale of RSGB and ARRL publications, and the opportunity to chat to club members.

'Open' means just that — a chance for the public to get to know all about our hobby.

A new group has been formed, called the Vale of the White Horse who foregather at the White Hart in Harwell on the first Monday in each month. The start is timed 7.30 in the lounge, ready for an organised move at 8 p.m. to the upstairs meeting room.

Over to Bishops Stortford, who have the third Monday in each month at the British Legion Club in Windhill; it is nice to see this club is now out of its bad patch. They have a programme pretty well organised to the end of the year.

It's a long time since last we heard of that old game where the club is divided up into groups, each with an identical box of components, and the first lot to get a working receiver together wins a small prize. It is being revived at Crawley on September 14, against other clubs, but to make it harder they have to put a transmitter/receiver together and make some contacts. They are calling it the Desert Island Contest! On 21st, they have a 21st birthday party on the air, with as many present and former members as possible: 14310 kHz 0830z under G3TR, 1000-1130 on 3.7 MHz under G3YVR, and 11.30-12.30 on S21 under G3GRO. On September 24 they have a Junk Sale. Hq is at Trinity United Reformed Church Hall, Ifield, Crawley.

Chiltern have their venue at the John Hawkins furniture works, Victoria Street, High Wycombe, and the date is always the last Wednesday of each month — the September one being at Film show and demonstration of microcomputing.

Over to Acton, Brentford & Chiswick at the Chiswick Town Hall, High Road, Chiswick; on September 16 G3OJX will be giving a talk on his visit to VK and ZL.

September at Cray Valley is Surplus Sale time; the first Thursday, at Christ Church Centre, High Street, Eltham, S.E.9. The third Thursday in the month is at the same place but is the natter night.

Another new group report for the first time — this one from St. Neots, who are now at home in Ernulf Community School, Barford Road, Eynesbury, St. Neots, on alternate Mondays. More details from the Hon. Sec. — see Panel.

Now we go over the water to the Isle of Wight; we have it that they meet on Friday evenings at Unity Hall, near the Sloop Inn, Wootton Bridge, I.O.W. Details from the Hon. Sec. — see Panel — or by telephone from G8SOH on Freshwater 3948.

Back up to the north side of London, to Cheshunt, where they can be found every Wednesday evening in the Church Rooms, Church Road, Wartley. September 3 is down for CW and a Natter, and 10th for Mr. Parker to come and talk about the Fire Communications System — he is from the County Fire Service. Another Natter and CW date is on September 17, while on 24th, Derek Bastin will be talking about audio modules.

Now to Guildford where we seem to have been left in the dark for once; however we can tell you that they are based on Guildford Model Engineering Society's Hq, on the second and fourth Fridays. GMES, by the way is in Stoke Park. For more details, contact the Hon. Sec. — see Panel.

Southgate have the use of the Scout Hut in Wilson Street, near Winchmore Hill Green, N.21. On the second Thursday in September the subject will be Hi-Fi and the speaker G8VCM.

At Mid-Sussex the dates to watch are September 4 and 18; the former for a talk on Aerial Design and Tuning Quad by G5RV, and the latter date for an SWL's evening. The venue is Marle Place, Burgess Hill, Leylands Road, Burgess Hill.

Brighton have what the newsletter describes as a good Hq at 47 Cromwell Road, Hove; on September 10, H. S. O'Neill will be talking about the Apple Computer, and on 24th out come the goodies for the Construction Contest.

From the South Coast we head north again up to Cambridge, where the Hq is in the Visual Aids Room, Coleridge Community Centre, Radegund Road. Every Friday evening they are in residence, but some are informals with no set programme or speaker. If we disregard those, we see a Top Band D/F Hunt starting from Hq at 7.30 on September 5, while the details for September 19 were in the pipeline at the time of their letter. Contact the Hon. Sec. — see Panel.

At Reigate, it looks as though the newsletter will close down because no-one is prepared to take on the task of being the editor in succession to a chap who has put in 21 years and 235 editions; however, such is life. The club itself is a thriving and active one, getting together on the third Tuesday of each month in the Upstairs Meeting Room of the Constitutional and Conservative Centre, Warwick Road, Redhill; September 16 sees G3RIM, the Chairman, talking about Switched-Mode Power Supplies.

**Deadlines**

These are given in the 'box', and your material should be posted to arrive here on the given date. Address it to: "Club Secretary", SHORT WAVE MAGAZINE, 34 High Street, Welwyn, Herts. AL6 9EQ.

**OPEN CHANNEL**

As we closed for press, the Government published its Green Paper entitled "Open Channel — A Discussion Document". Copies of this publication (which carries an address to write to with your views) may be obtained, free of charge, from: Officer-in-Charge, Home Office Supply and Transport Branch, Royston Road, Caxton, Cambridge CB2 8PN.
A TRANSVERTER FOR TWO OR FOUR METRES

R. I. THOMAS GW4BCD

THE following article describes a VHF transverter design which has been successfully used by the author for two prototype rigs, one for two metres and one for four. Identical circuitry was used for them both (except for the tuned circuits, of course) and the author can recommend this design as being reliable and trouble-free. No claims are made for originality, the design is certainly not state-of-the-art, but if care is taken in alignment the transverter will put out a clean, stable signal on the chosen band. Valves are used on the transmit side as the author's junk box was full of them, and the cost of VHF power transistors is still quite high. MOSFETS are used in the receive converter however.

Circuitry

An EF80 oscillator is used — at 42 MHz for 4 metres and 38.666 for 2 metres, see Fig. 1; this is fed by a stabilized 150 volt supply. This arrangement was found to give more than adequate drive to an E180F, which is a straight amplifier in the 4 metre version, and triples to 116 MHz in the 2 metre rig. From the anode of the E180F the local oscillator signal is inductively coupled to the grids of a QQVO3-10A balanced mixer (Fig. 2). This method is preferred by the writer to cathode injection, as it was found that to obtain adequate cathode injection another stage of local oscillator amplification was needed, this especially so at 116 MHz. About 500 mW of 28 MHz RF is applied to the mixer cathode, resulting in 70 or 144 MHz RF appearing at its anode.

The buffer amplifier, another QQVO3-10A, is essential in the interests of a clean signal. It is possible to drive the final amplifier directly from the mixer, but the output is then far from clean. (Try explaining to the Home Office that "CQ" was not really being called on 98 MHz!) Also do make sure that the 28 MHz exciter has a fairly clean output spectrum, as even the best designs which utilize mixing from HF to VHF are bound to produce some spurious. A 28 MHz filter is shown at Fig. 2a which should substantially reduce any 'nasties' which accompany the wanted 28 MHz output. Shown in Fig. 2b are two methods used successfully by the author of attenuating the 100 watts or so normally obtainable from a HF transceiver to the 500 mW needed by the transverter. One method requires internal modification to the exciter, whilst the other dissipates most of the transceivers output into a dummy load. Neither method is the most elegant of solutions, but they both work well.

Returning to the transverter, the final linear amplifier is a QQVO6-40A, run at about 100 watts input. This is a well-tried and reliable design, and when run at this sort of power level the '6-40 should last a long time. Initially, in the 2 metre rig, the writer attempted to run the '6-40 final at 200 watts p.e.p. input. This involved applying a plate voltage of around 1000 to the '6-40 which was, to say the least, not very successful. All sorts of problems were met — parasitic oscillation, as well as seemingly incurable instability. As soon as plate voltage was dropped to a more reasonable 600v, all these problems disappeared as if by magic. Output was considerably reduced of course, but this would appear to be a small price to pay for complete stability in the final. Both the author's finals are about 35% efficient, a figure which would seem to be hard to improve upon, at least judging by the results at this QTH. Note the slight difference in the 2 and 4 metre final amplifiers (Fig. 3), the 144 MHz version requiring two fewer capacitors than the 70 MHz rig. The receive converter is straightforward. Mixer injection is taken from the E180F anode which enables the transceive facility to be retained at VHF.

Fig. 1 CIRCUIT OF LOCAL OSCILLATOR AND AMPLIFIER

Note that the E180F is a straight buffer at 70 MHz, and a tripler to 116 MHz in the two-metre rig.
Note that it is very unwise to omit the converter RF amplifier protection circuitry. This was discovered the hard way by the writer, who lost three MOSFETs, which were damaged by RF leaking across the c/o relay during transmission. The converter had two diodes wired back-to-back across its input when this occurred: they proved to be useless — be warned! The author is indebted to Microwave Modules Ltd for suggesting this form of converter protection, see Fig. 4.

Construction

This follows standard VHF practice. All tuned circuits are mounted very close to their associated valves. In most cases the tuned circuit coil is soldered to its relevant valve pin; reference to the photographs will show this clearly. It is very important to employ this 'no lead' technique at VHF as it is very easy to introduce instability problems at these frequencies. Note the liberal use of decoupling capacitors — the 'no lead' rule applies here also. They should be soldered to the nearest earth tag with minimal lead length if instability problems are to be kept at bay.

Apart from the aforementioned 2-metre PA stage no problems were encountered with instability in either of the prototype transverters. This could be due to the pains taken in decoupling and layout, or more likely, sheer luck. Stages where instability is most likely to be a problem are the straight amplifier stages, that is the 42 MHz amplifier in the 70 MHz version, and the two buffer amplifiers. If problems do arise here a simple screen mounted across the valve base should take care of the situation. The screen should be earthed of course, and mounted so that the anode/grid coils of the stage cannot 'see' each other. The layout used by the author is shown in Fig. 5.

All coupling between stages which are any distance apart is done by miniature coaxial cable; ceramic stand-off insulators and solder tags are used to anchor the co-ax at its termination point. Note that if a screening ring is not used with the QQV06-40A valveholder it is advisable to mount the valveholder so that the internal screening in the valve is level with the chassis. This helps maintain PA stability.

Considerable trouble was taken by the writer in screening the two-metre version which was the first of the two prototypes to be assembled. (See Fig. 5). When contemplating building an identical four-metre rig the writer happened to take a look inside a commercial transverter at a rally: this was totally devoid of any screening. It was then decided to build the four-metre version without screening on the basis of "if they can do..."
Two methods of achieving low level drive from a medium power HF rig. Method (1) involves inserting a 10 pF capacitor in the driver stage of the HF rig. Method (2) is to use a 10 pF capacitor in the driver stage of the HF rig. The receive converter was built on a piece of plain Veroboard and incorporated screening between input and output of both 3N204 RF amplifiers; this was found to be essential. Local oscillator injection was taken via coaxial cable from the anode of the EL80 local oscillator amplifier/tripler.

Alignment

Making sure that voltages appear normal on the rig, ascertain that the EF80 oscillator is operating. In the 70 MHz rig with a 42 MHz third overtone crystal, a carrier will be heard at 14 and 28 MHz on a near-by receiver. Insert a meter at point 'X' in Fig. 2: it should show a quiescent mixer current of about 12 mA. Next tune TC1, TC2 and TC3 for maximum current. Mixer current with TC1, 2 and 3 at resonance should rise to around 60 mA in the 70 MHz version, and about 25 mA in the 144 MHz rig. It will be necessary in the 70 MHz rig to loosen the coupling between L5 and L6 so that mixer current reduces to around 25 mA. Remember to keep re-peaking the relevant trimmer whilst doing this. (It should be done fairly quickly as the rated dissipation of the '3-10 mixer is 10 watts).

Having achieved this, apply about 500 mW of 28 MHz RF to the mixer cathode: mixer current should rise by 2 or 3 mA. This gives optimum mixing levels. Ensure that when 28 MHz drive is ceased mixer current falls back to 25 mA. Remove the meter and replace at point 'Y' in Fig. 2.
**Table of Values**

**Basic Circuit**

- R1, R21, R23 = 100K
- R2, R3, R4, R5, R12, R20 = 47K
- R10, R15 = 1K
- R7 = 50R
- R9, R13 = 100R
- R11, R30 = 330R
- R14 = 10K
- R16, R17 = 120R, 1w.
- R18 = 100R, 5w.
- R19 = 150R, 5w.
- R22, R28 = 270R
- R24, R27 = 22K
- R25, R29 = 270K
- R26 = 470K
- RV1 = 10K

**Screen**

- C1 = 25 pF, s/m
- C2 = 220 pF/s/m
- C3, C4 = 1000 pF
- C5 = 50 pF/s/m
- C6 to C15 = 1000 pF
- C16, C37 = 1000 pF, 3 kV.
- C17 to C23 = 1000 pF
- C24 = 3.3 pF/s/m
- C25, C27, C28, C31 = 1000 pF
- C32, C34, C35, C36 = 1000 pF
- C26, C29 = 33 pF/s/m
- C30 = 150 pF/s/m
- C33 = 33 pF/s/m
- RFC1 = 2.5 mH
- RFC2, RFC3 = 33 µH
- D1 = OA90 or similar
- X1 = 42 or 38.666 MHz crystal

**Screen**

**Note:** All resistors are 1/2-watt unless otherwise stated; all capacitors are 1000v. DC disc-ceramic unless otherwise stated.

**Table of Values**

**70 MHz Transverter Tuned Circuit**

- L1, L2 = 13t, 18 swg, air-wound
- L3, L4 = 1 link at earthy end of L2
- L5 = 2t, 20 swg, at centre of L6
- L6 = 7 + 7t, 18 swg, 1/4" dia., with 1/2" gap at centre
- L7, L9, L11 = 5 + 5t, 18 swg, 1/4" dia., with 1/2" gap at centre
- L8 = 2t, 20 swg, 1/2" dia., at centre L7
- L10 = 2t, 20 swg, 1/2" dia., at centre L9
- L12 = 2t, 20 swg, 1/2" dia., at centre L11
- L13 = 3 + 3t, 14 swg, 1 1/2 long, with 1/4" gap at centre
- L14 = 2t, 16 swg, at centre of L13 (exact position to be optimised for max. power transfer)
- L15, L17, L18, L19 = 5t, 18 swg, 1/4" dia., tap 1/2 from cold end
- L20 = 1/2t, 20 swg, on 1/4" dia., slug tuned former
- L21 = 1t link on L20
- TC1, TC2 = 30 pF trimmer
- TC3 = 38 + 38 pF split stator, or two 30 pF trimmers
- TC4, TC5, TC6 = 38 + 38 pF split stator
- VC1 = 38 + 38 pF split stator, wide spaced
- VC2 = 60 pF

**Table of Values**

**144 MHz Transverter Tuned Circuit**

- L1 = 13t, 18 swg, 1/2" dia., air-wound
- L2 = 3t, 18 swg, 1/4" dia., air-wound
- L3, L4 = 1 link at earthy end of L2
- L5 = 1 link at centre of L6
- L6 = 2 + 2t, 18 swg, 1/2" dia.
- L7, L9, L11 = 2 + 2t, 16 swg, 1/2" dia., 1/2" gap at centre
- L8, L10, L12 = 1 link at centre L7
- L13 = 3t, 14 swg, 1" outside dia., 1" long
- L14 = 1t, 16 swg, at centre L13

- L15, L17 = 4t, 18 swg, 1/2" dia., air-wound, tap 1/2 from earthy end
- L16, L18 = 4t, 18 swg, 1/2" dia., air-wound
- L19 = as L16 closely coupled to L18
- L20 = 11t, 20 swg, on 1/4" dia., slug-tuned former
- TC1 = 30 pF trimmer
- TC2 = 10 pF trimmer
- TC3, TC4, TC5 = 15 + 15 pF split stator
- TC6 = not required
- TC7 to TC11 = 15 pF trimmer
- VC1 = 15 + 15 pF split stator, wide spaced
- VC2 = 50 pF
The underside of the 70 MHz transverter. The local oscillator and 42 MHz amplifier are on the left, next the mixer and buffer amplifier, with the PA valve base almost in the centre of the picture; the 'rat's nest' on the right is the PSU.

Terminate the output of the PA with a dummy load capable of dissipating 40 watts or so; this should be connected via an SWR bridge. Next energise the relay that applies screen voltage to the PA and HT to the buffer (buffer amplifier quiescent current should be around 20 mA). Set the PA standing current to 30 mA by means of VR1. Now resonate the mixer anode — that is tune TC4 for maximum current through the buffer amplifier; buffer amplifier current should rise to around 30 mA in both versions. Excess drive is only likely to be a problem in the 70 MHz version, and is easily taken care of by loosening coupling between L7 and L8, again keeping associated resonating capacitors 'on the nose'.

Next resonate the buffer amplifier anode circuit, keeping an eye on the final amplifier current meter. It should be possible
to drive the PA plate current to around 250 mA off resonance and, with the PA tuned for maximum RF output into the dummy load, this should drop to about 200 mA. As previously stated, expect about 35 - 40 watts RF output for around 100 watts input.

Do make sure the PA is stable before trying the rig on the air! Make sure also that when 28 MHz drive ceases all RF output ceases. Until these two conditions are met the rig is not ready to be air-tested. If all seems well, however, it should now be possible to raise someone locally who knows what to look for to check out the signal. Aligning the receive converter is relatively simple: all the writer did was peak the 28 MHz coil for maximum 'sharsh' on the receiver, and then peak all the trimmers for maximum S-meter reading on a 70 or 144 MHz signal. With the circuitry shown it is possible to hear GB3SU at an average S7 on 70.695 MHz at a QRB of about 200 miles. The antenna for four metres here is a four-element beam at 40 feet.

Once again, don't be tempted to omit the protection circuitry unless you are prepared to replace the RF amplifier MOSFET after every transmission.

**Control Circuitry**

This is self-explanatory and is shown in Fig. 6. Apart from signal path switching, which is done by RL1, all that is needed is to remove screen voltage from the PA and HT from the buffer. This is taken care of by RL2 which also applies the 12v to the MOSFET protection circuitry. It is worth adding here that since this protection circuitry has been in use no MOSFET has ever been damaged by RF, even when running a pair of 4CX250B's at full power.
Points to Note

When resonating the different stages in the transmitter do make sure that they resonate at the wanted frequency. It is very easy, for example, to tune the E180F amplifier to 56 MHz in the 70 MHz rig. This could result in a good signal being radiated on 84 MHz as the following stages would quite possibly tune to this frequency. This, of course, is the quickest way of losing one's licence, quite apart from the chaos that could be caused to other services. It should be possible to beg or borrow a GDO to align the tuned circuits in the rig before complete alignment is attempted. At the very least a digital frequency meter should be to hand during alignment to ensure the different circuits are on the correct frequency.

Conclusion

Both the prototype transverters are in regular use on their respective bands, and no problems have arisen in three years of operation. Providing care is taken in alignment the writer has no hesitation in recommending this method of getting onto two or four metres, using one's existing HF gear.

---

SHORT WAVE LISTENER FEATURE

By Justin Cooper

The Post

K. Askham (Huddersfield) wants to know about QSL handling. Basically, you either send 'em direct, or to the call's QSL Manager, or through the QSL Bureau system. To do the last-mentioned you need to be a member of — in UK — either RSGB or ISWL.

It's a bit late now, but we have a letter from G2HOF (Wallasey) about our comments on AM phone back in May. He reckons Phone DX was easier to work in 1956 than it is today. Maybe there was something to do with location in G2HOF's case, or that he was a dab hand at DX, but his list of countries picked out at random from his old log shows some very nice DX. But on the other hand, the writer maintains that the majority of DX worked was on CW because the average AM phone operator just couldn't make a two-way of it through the QRM. What makes it even harder today is the world-wide fall in standards of behaviour, and the enormously increased numbers of stations on the HF Bands.

G3JRX points out the ins and outs of the stations heard from USA signing with a call/Interim and a couple of letters; for example, KA8AOT/Interim DT. This is normal practice over there now while a licence up-grade is being processed after the test for it has been passed, and the two letters indicate the test centre where the pass was obtained — in this case Detroit. The idea is that when a chap upgrades his licence category for more facilities, say from Novice to General, once he has the pass he can use the higher grade band limits and any of the FCC monitor stations wishing to check can refer to the office where the test was taken directly. As Lawrence points out the current systems of USA callsigns is clear enough if you take the number as indicating where the call was issued initially; most Americans, in fact, sign with the number suffix of the call area they are currently situated e.g. W6XYZ/W2 — but not all, and that's where the confusion lies.

Now we have a monster letter from J. P. Goodrick (Bognor Regis). For one thing he wants this piece to be monthly — no fear, we'd never get any time to listen ourselves! Talking of CW, his speed is, he reckons, somewhere between 25 and 30 as checked against W1AW transmissions, but as he says, some of the really high-speed ops are too fast for him. If you want to write it down, then 25 or so is about the limit for most, albeit those who print rather than write may find it hard to reach 12. Copy after your writing speed is exceeded is a matter of memory storage; or you can use a Morse decoder, such as the Xitex coupled to the receiver to give either printer output or a display on a VDU or TV screen. In effect this box turns Morse code into Murray code in either direction, even to accepting some pretty lousy sending and decoding it right!

Now we have N. W. Thornton (Romford) who has an FRG-7 now but reckons he would still be on homebrew if he could find the bits and pieces. He started with an H.A.C. one-valver and had many hours of pleasure building it, listening with it, modifying it, building an ATU, playing aerials and all the rest. On a different tack, here is another contributor who finds the transmitting stations are often far too lax over call signs — sometimes, your J.C. believes, to the extent of breaking the terms of their licence.

Another one with the same thoughts on receivers and homebrews is H. M. Graham (Moulton). Maurice found 28 MHz not so good with lots of short-skip and the occasional opening north-south, and 14 MHz not very exciting either, so he opted for 21 MHz and sort himself out a goodly crop. As for 40 and 80, it was just a case of filling in the odd WAB square here and there.

K. Kyezor (Brandon) has built himself a peak and notch filter to fit between receiver and speaker or phones, and not surprisingly it is a great success. It’s an interesting point that the notch filter is not built in to any of the modern receivers, and yet it is extremely useful. There is a Datong FL2 at S.W.M. for review and by all accounts the notch is the most useful facility in all modes. When your J.C. had his bite at it, he tackled it on the end of a KW77 receiver and compared the receiver IF notch filter and the one in the FL2, and in a CW contest session was surprised to realise he was using both notchers at once!

Now to F. C. D. Barnes (Cardiff) who points out that the Ally Pally Rally could have ‘gone for a burton’ because of the fire there; something which this writer, for one, hadn’t thought
about! If the site is rebuilt, in whatever manner it is done, the cost of the work is likely to make the economic hire charge impossibly high. On a different tack, he has a QSL from YJ1 to add to his collection — or rather, to start it.

At Staines, B. Shepherd didn’t send in an entry to the point where we were on the way to dropping him; he hadn’t given up, but just wasn’t hearing any new ones. The classic cure was applied, namely a change of listening hours to early mornings and a few more go on to his total.

M. Law (Chesterfield) heard ZB2FA/MA in QSO with ZB2FU/MM. Two maritime mobiles, of which one was at anchor, if (they were genuine), both calls issued in Gibraltar. The /MA doesn’t start a new series!

The summer doldrums on Ten annoy J. Doughty (Bloxwich), he being a lover of that band; but, as he says, things will improve in the autumn if all goes to the book.

The matter of the new Y prefixes being used in what was DM seems to be worrying B. A. Payne (Horsforth); the rules were never intended to cope with the callsign styles being adopted in 1980 when they were formulated in 1969! But, since we have accepted ‘25’ and ‘50’ in commemorative special calls, we have to accept that Y2 and Y21, for instance, are different prefixes. Perhaps the GDR had the WPX contest in mind in formulating their new allocation system!

Another one with prefix queries is J. F. Hobson (Ely) who heard an AN3ADW in the Latin-America/Span ‘thing’ on May 24, and sounding to Spanish; a strong aroma of fish as well as onions! The other one is Market Reef, and here John’s question is simply — where is the dorn place? The Times Atlas doesn’t show it, neither does the Edinburgh. However when the place originally came up, years ago, we had a search round; bear in mind that the usual jumping-off ground is Aland, and we find that at the mouth of the Gulf of Bothnia and the Gulf of Finland. To get even close you must then turn to naval charts and look for lighthouse symbols!

B. F. Hughes (Worcester) is a wise man who knows when the time has come to renew aerial supports, by regular inspection, and a complete overhaul to the mast is called for before the gales; this will give Bernard a chance to change aerials too.

Looking at his list, he has quite a few assorted AN calls and it does raise the possibility that John Hobson’s one, a Spanish-speaking operator, might be genuine; as AN is allocated to Spain it would make sense, although they have never before used the block even as ‘specials’.

D. J. F. Gordon has quite an array of gear; an FRG-7000 and ATU, a seventy-foot end-wire, a Microwave Modules 2-meter converter plus some dipoles, FT-207RB, Standard C8800, with Top Band and 70cm coming shortly. Quite an array!

Mrs. R. Smith (Nuneaton) has a couple of lists; as she remarks the Pacific contest certainly brought out the Japanese prefixes in force!

N. Edwards-Bell (Newcastle-on-Tyne) wants to know lots of things! Firstly, a club in his area. G4DQA on Boldon 2274 might be able to help there; he is the nearest we have on file, but there is surely a club closer to the Chopwell district. Neil says he lives in a house with no site for any aerials, indoors or outside, and what does he do about that? We have never come across such a place yet! One must think of thin wire, 28 s.w.g. at the thickest, bearing in mind the reduced breaking strain requires lighter insulators, like buttons or curtain rings of plastic; and of course these thin wires won’t bear the weight of a coaxial cable in their middle, so you have to think of a way of dealing with that. (J.C. is prepared to say that he could go outside now, and put up a good SWL aerial that even his own family could not spot). Another fair question is “how does the TV signal get to the set in this house?” — which should offer some indications. Indeed, the TV set aerial outer and inner shorted together and fed to the receiver with a good earth and an ATU could be very rewarding when the box is switched off. Finally, the HPX Rules — these are reprinted in full in the piece two or three times a year, and last appeared on p. 299 of the July issue.

R. Baker (North Walsham) queries that bit about “No AM-only or SSB-only entries accepted” in the HPX rules. The meaning is essentially that we have one Phone listing and one CW listing. There was a time, many years ago, when people started putting in two entries for Phone, separating the AM from the SSB — nowadays doubtless it would be three with an HP list. The operators of these lists all seemed to get in a twist with their records and so did we, in the end we opted-out.

The most anyone can have is One Phone entry and one CW entry; the separation of the Phone into All-Time and annual is to let the newcomers play themselves against others of similar calibre, and then at 500 to go into the ring with the experts. Thus, as far as may be, like is matched by like — the equipment, site and aerials being all secondary considerations compared with operator skill. However, the words are not intended to mean that you must have an AM station or an FM station in each update list you send in. If they happen to be all-SSB, or all-AM, fine; nowadays practically all entries are in effect all-SSB if the SWL is on the HF bands only, or mixed SSB/FM if he listens also on Ten and the VHFs.

J Worthing (Shrewsbury) harks back to March when we were talking about low-pass and high-pass filters. It’s still a Good Question, because we got a bit carried away with the front-end of the receiver, and didn’t mention filters in the IF and AF sections of the receiver. These two are, in essence, for sorting out two signals that are too close together — but of course if the front-end overloads, the non-linearities resulting therefrom will produce a noise which the whole band will feel. The case can well be observed by putting a receiver with two RF stages or a bipolar transistor RF stage on to a good aerial on, say 7 MHz; tune the band, and the noise floor will be so high that no amateurs can be distinguished. Turn down the RF gain control slowly, and you will notice as the gain goes down the noise goes with it until, suddenly, the noise drops away and amateur signals appear. Now, before you turned the RF gain down, no amount of filtering at IF or AF would have brought those signals to light; at the non-linear stage the big signal(s) were driving it out of linearity and then, in effect, every signal was mixing with every other signal. Turning the RF down had no effect until the biggest signal was reduced to a level which

**ANNUAL HPX LADDER**

*Starting Date, January 1, 1980*

<table>
<thead>
<tr>
<th>SWL</th>
<th>PREFIXES</th>
<th>HF stations</th>
<th>VHF stations</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. D. Newall (Bracknell)</td>
<td>493</td>
<td>J. Weston (Borehamwood)</td>
<td>266</td>
<td></td>
</tr>
<tr>
<td>J. Worthing (Shrewsbury)</td>
<td>437</td>
<td>Miss J. Ribton (Oxlet)</td>
<td>243</td>
<td></td>
</tr>
<tr>
<td>R. Baker (North Walsham)</td>
<td>413</td>
<td>C. M. Nagle (Lisburn)</td>
<td>221</td>
<td></td>
</tr>
<tr>
<td>B. Musselwhite (Warminster)</td>
<td>335</td>
<td>M. Hill (Bedworth)</td>
<td>207</td>
<td></td>
</tr>
<tr>
<td>T. Morgan (Swansea)</td>
<td>200</td>
<td>T. Morgan (Swansea)</td>
<td>200</td>
<td></td>
</tr>
</tbody>
</table>

200 Prefixes must have been heard for the entry to be made, all since January 1, 1980, and in accordance with HPX Rules (see p. 299, July issue).
caused no non-linearity; then signals appeared at IF which could be sorted by filters or whatever.

From the above argument it doesn’t need a genius to see that the ideal is a crystal filter in the aerial lead, which is a bit impractical. But then another factor comes into the picture, which is the noise of the receiver itself; if we have the crystal filter in the aerial, it looks like we don’t want any more selectivity, but each stage generates noise itself and amplifies the noise of the one ahead, and each oscillator will add an extra component of noise depending on its spectral purity. So, practically, we buy a receiver which gives us what its designer thought to be the best trade-off to keep the sales graph going up, of the sort of buyers he is aiming at; taken from that point of view, the better amateur receivers do very well at their price. As for adding filtering to the front-end of a receiver, and whether to build it or buy it, we do it in the crude sense by way of an ATU, and an attenuator or RF gain control. Anything much sharper would be such a nuisance in operation as to negate the advantages (save in special circumstances such as a ship, where transmitters and receivers may share an aerial, and both transmitter and receiver in use simultaneously albeit on different frequencies). Turning to aerials, our friend has Joystick and wonders about its directional properties if used horizontally with a rotator. Your scribe hasn’t heard of such a system, but it is in general true of very short arrangements that they will not show much directivity, and the pick-up from the single-wire feeder would mask the effect. If memory serves right, some years ago someone used to write to 'CDXN with results from two Joysticks in a phased arrangement.

D. Brierly (Blackpool) wants our views on the comparison between Yaesu FRG-7, Trio R-300 and Lowe SRX-30 — and we get two or three like him every month. It’s very difficult, however, to make any meaningful comparison which can help

the individual because, as we said earlier, there are so many factors in the design of (and so in the choice of) a receiver, and their relative importance is different in the mind of every designer and every buyer. All we can say in a competitive market such as this is that you get pretty well what you pay for, and hence if you find the receiver you’ve bought doesn’t suit you and your interests, you’ve chosen the wrong one rather than a bad specimen.

J. Rowland (Mansfield) added another 100 to his list, and remarks how nearly all the /MMs heard were found between 9th and 16th June — odd coincidence, isn’t it.

M. Shaw (Huddersfield) sends in a Nil report, and says he has decided that the pressure of work means he will have to get the RAE out of the way before he tackles the Morse.

Next we come to J. Timms (Barking) who has done a countdown and now wants to know whether we want QSL cards as proof; and we hope that when he wrote ‘countries’ he really meant ‘prefixes’ since the two are a lot different! We want prefixes, we don’t want QSLs.

D. C. Casson (Earley) has done less listening and more RAE study — a good thing. However he still has time for some nice pickings.

The controversy surrounding the new-style RAE is off-putting, says R. Howes (Weymouth); but it is interesting to see that the pass-rate for the first of the new-style papers was within a fraction of the pass-rate for the last few in the old mode. Before he listens to the “experts with degrees in electronics” Ray needs to remember they have probably forgotten their basics! Sure, there are some wacky questions and equally wacky answers — but that sometimes happened in the old-style RAE too!

Lists

Have come in from B. L. Henderson (Salisbury); L. Stockwell (Grays); S. Foster (Metheringham); E. W. Robinson (Bury St. Edmunds); R. Middleton (Bury St. Edmunds); D. W. Waddell (Herne Bay); and P. Ford (Longlevens). Thank you all, and we have taken them in to the Ladder.

Ending

Means we’ve got through the pile again; the deadlines for arrival for the next two SWL pieces are September 18th and November 20th, and the address is to your old scribe, “SWL”, SHORT WAVE MAGAZINE, 34 HIGH STREET, WELWYN, HERTS. AL6 9EQ.

Please mention “Short Wave Magazine” when contacting Advertisers — it helps you, helps them and helps us.

October issue due to appear on Friday, September 26th.
COURSES FOR THE R.A.E., 1980-81

Bangor: Bangor Technical College, commencing Sept. 16, enrolment from Sept. 3, Tuesday and Thursday evenings. Details from course tutor, C. A. Billington, GI3WSS, QTHR. (Tel: Holywood 4277.)

Belfast: College of Technology (GW2BX), College Square East, Belfast, commencing Sept. 16, Tuesdays 5.30-8.30 p.m. (Theory and Practical), Thursdays 6-8 p.m. (Morse), enrolment early Sept. Further details from lecturer, J. E. Wilson, at the above address.

Belfast: Castlereagh College of F.E., commencing late Sept. Details from W. McKinney, GI3TZZ, QTHR.

Birkenhead: North Wirral College of Technology, Borough Road, Birkenhead, starting Sept. 15, enrolment Sept. 8-10. Tutor, D. E. Owen, G4GGB. Further information from Dept. of Electrical Engineering, 051-652 1521 ext. 21.

Birmingham: Bournville Institute, Selly Park Centre, Pershore Road, Selly Park, Birmingham, Thursdays 7.15-9 p.m., enrolment date for all B'Aham Adult Education will be announced in the local press. Course tutor, Ron Blacker G4GBE.

Birmingham: Perry Common Adult Education Centre, College Road, Birmingham 23, enrol between 7.15-8.15 p.m. Sept. 9, fee £4 per term: teacher, Frank Fear G8CVR.


Bracknell: Bracknell College, Dept. of Engineering and Science, Church Road, Bracknell, starting Sept. 29, enrolment Sept. 11/12/15, tutor G8K1L.


Colchester: Colchester Institute, Sheepen Road, Colchester, Tuesdays 6.30 p.m. starting Sept. 16, enrolment at first meeting. Further details from G3FJ1, QTHR.

Crawley: Marle Place A.E. Centre, Leylands Road, Burgess Hill, Sussex, Tuesdays 7.30-9.30 p.m. starting Sept. 23. Tutor Dr. R. C. Lock B.Sc., Ph.D.

Crawley: Sarah Robinson School, Ifield, Crawley, Sussex, Thursdays 7-9 p.m. starting Sept. 25, enrolment Sept. 8/9. Contact R. Scrivens, G3LNM (Crawley 22540) for further details.

Derby: Allestree Adult Centre, Woodlands Road, Allestree, Derby, Tuesdays at 7 p.m. starting Sept. 23. Course tutor, R. Buckby, G3GWG. Further details from Mr. B. Dobson, Derby 31111 ext. 404.

Dudley: Dudley C. of T., Dudley, West Midlands, Tuesdays 6.30-8.30 p.m., enrolment commences Sept. 2. Further details from Mr. R. Dobson, Dudley 31111 ext. 404.

Dumfries: Contact D. Rodgers, GM8TKA, 5 Elders Avenue, Lincluden, Dumfries DG2 ONL, for full details.

Exeter: 3 Palace Gate, South Street, Exeter, commencing Sept. 30 at 7 p.m., enrolment at first meeting.

Hemel Hempstead: Dacorum College, Marlowes, Hemel Hempstead, Wednesdays at 6 p.m. starting Sept. 24, enrolment Sept. 8. Further details from course organiser, C. Burke, G3VOZ (Hemel Hempstead 833300).

Leamington: Mid-Warks. College of F.E., Warwick New Road, Leamington Spa, Thursday evenings starting Sept. 18; enrolment Sept. 4/5 between 9-12 a.m., 2-4 p.m. or 6.30-8 p.m.

London (Harrow): Harrow College of F.E., Hatch End High School, Headstone Lane, Harrow, Wednesdays 7-10 p.m. starting Oct. 8; enrolment at Nower Hill School on Sept. 27, 10 a.m. to 3 p.m. Lecturer, D. T. Busby, G4HFL.

London (Highbury): De Beauvoir ILEA School, Tottenham Road, London N1, Mondays, Tuesdays, Wednesdays and Thursdays 7.30-9.30 p.m., starting Sept. 17, enrolment commences Sept. 8. Two tutors and a Morse instructor. Full details from senior tutor, F. J. Barns, G3AGP, QTHR.

London (Holloway): Holloway Institute, Mondays 7-10 p.m., commencing Sept. 15, enrolment week Sept. 8-12. Lecturer B. C. Bond, G3ZKE (01-485 7065).

London (Paddington): Paddington Evening Institute, Amberley Road, Paddington, Mondays and Thursdays 7-9 p.m. beginning Sept. 15; enrolment week Sept. 8-12, 6-9 p.m. Lecturer, D. T. Busby G4HFL.

Manchester: Pendlebury High School, Cromwell Road, Swinton, Thursdays at 7.30 p.m., commencing end of Sept., enrolment prior to first class. Details from course instructor, P. Whatmough, G4HYE (061-794 3706).

Melton Mowbray: Melton Mowbray College of F.E., Asfordby Road, Melton Mowbray, enrolment early Sept., watch local press for details, or contact College of course tutor, K. Melton, G3XPL (Melton 68810).

Newcastle-upon-Tyne: Gosforth Adult Association, Gosforth Secondary School, Gosforth, Newcastle-upon-Tyne, Tuesdays 7-9 p.m. starting in Sept. Course tutor D. R. Loveday, G3FPE. Enquiries to The Principle at the above address, or ring Newcastle-upon-Tyne 668439.

Newport (Gwent): Newport A.R.S., Brynglas House, Brynglas Hill, Newport, Mondays at 6.30 p.m. beginning Sept. 8, Lecturers will be GW3YTJ, GW4HZ, GW3NWS and T. J. Wynn.

Northampton: Duston Upper School, Duston, Northampton, Tuesdays 7-9 p.m. commencing Sept. 23; enrolment evenings Sept. 3/4 and 8/9, fee for 30 lectures £15. Lecturer D. F. Watton, G4AYZ, QTHR. Further details ring 0604-33834.

Slough: Langley College of F.E. (G3XPL), Station Road, Langley, Slough, Mondays 5.30-7 p.m. (Operating Techniques), Mondays 7-8.30 p.m. (Morse), Thursdays 7-9 p.m. (Theory); enrolment Sept. 9/10, 12-8-0 p.m. Contact senior lecturer, E. C. Palmer G3FVC, for further details.

Southampton: Southampton Radio Club, The Clubroom, City Engineers' Yard, Kent Road, Portswood, Southampton, Fridays at 7.30 p.m. beginning Sept. 5. Further information from J. R. Compton, G4COM, QTHR.

Stockton-on-Tees: Stockton-Billingham C. of T., Oxbridge Avenue, Stockton, Mondays at 6.30 p.m., enrolment Sept. 2/3. Contact J. A. Ross, Science Dept., at the above address, for full details.

Walsall: Broadway North Centre, Walsall, enrolment Sept. 15/16 6.30-8.30 p.m., fee £4 per term. For further information contact F. Fear, G8CVR, QTHR.
COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

One of the more satisfying aspects of this hobby is the unexpected, both 'rough' and 'smooth'. For your scribe there was the realisation that his sked with A22AJ wasn't going to work, either on 21 or 14 MHz, and a somewhat disconsolate G3KFE dropped down to Forry, where he has not been for some time. On the other hand, playing with the Datong FL2 trying to find a situation which would overwhelm it, your scribe heard C31TY calling "CQ" who responded to my first call before the Roller Gang noticed! Then again, I built a VFO to go with the home-brewed Top Band QRP rig, buckled it to the Tx, and found my little half-watt load getting nicely warmed up after just one component change to persuade the keyed stage not to double to Eighty. Great! Go to lunch; then return. Misery - the VFO wouldn't oscillate save intermittently, and the keyed stage reverted to doubling. Some you win, some you lose! Or, as a friend put it - "I get lots of luck, but it's always added by the time I get it!"

The Bands

Varied from excellent, to good, to fair, to mediocre, to just plain awful (largely summer static and thunderstorms). But - regardless of it all, we have fun; CW, or SSB or RTTY or even SS/TV if that's your thing - build the gear or buy it, operate it or make it work, and with either chase the DX or take what the gods have to offer - it's all fun.

Happenings first; if you can't work Okino Torishima by the end of the year, you can say farewell to that one as a new country - as of December 1, 1980, it comes off the DXCC list. This of course was a political decision, at least in part; the initial agreement to make an exception for 7J1RL was probably taken in the awareness that JARL wanted to celebrate its 50th birthday fittingly, and that its moneybags would help more than somewhat in the run-up to WARC '79. Now that the battle is over, our bands very much less mauled than we had dare hope, the 7J1 prefix will be quietly forgotten with no loss of face on either side. That will make the current countries total some 318 which is enough for the young squirts to work on!

Serrana Bank, and possibly Bajo Nueva is planned to happen in the first week in September, says HK0BKX, and noises are being made at the time of writing about a possible Market Reef operation in late September. Jim seems to have somewhat pre-empted the original dating - but it's an ill wind that blows nobody any good, and 28 MHz should be livelier in September.

If you are after Willis Is., then take note that VK9ZG is going to be around until the end of the year; it seems the weather station will be automated after that and the chances of amateur operation there corresponds reduced.

There are plans afoot for an operation in YI-land, to be a combined effort of Y1 and YJ4 chaps, signing, it is hoped, Y11JY. At the time of writing there seems a certain vagueness as to the dates, mid-August, mid-September and later in the year all having been mentioned!

Juan de Nova plans are being made by DK9KD and a group, with intentions to leave Cologne on September 9, stopping off at Reunion first; apparently they made a good impression in Reunion last time around.

Now we turn to another letter from P29JS on the Heard Island DX Association and its proposed expedition to Heard. The letter says that the licence has been issued, the call being VK0JJS, and that the Government department concerned has indicated no objection in principle to the expedition, provided certain conditions pertaining to the wildlife and safety of personnel are met. Negotiations are underway for a boat charter, and this is the big hurdle, whereas the costs are going to bite. Some 20 days of the charter will be concerned with merely getting there and back, and the intent at the time of writing was for a stay of some 14 days; six operators, with a vacancy for a scientific officer with Antarctic experience who will assist the expedition and help add to the store of knowledge of Heard. Jim says they need, right now, help in any form whatever, with donations to cover the boat charter as an obvious priority. However, it is quite clear, reading between the lines, that they have a very tough nut to crack indeed, and any help or information which can be imparted will be eagerly appreciated. Write to HIDXA, PO Box 2053 Konodobu, Papua, new Guinea.

Eighty

G2NJ (Peterborough) has been having trouble again with the noise from various electrical appliances around his place, especially during his favourite midday sessions with the QRP lads. However, one evening at 2020 he found G3CFW in London - you know, that little village up the road! who was testing a transceiver giving out less than a watt. It was, it seems, built by G3CFW's son, who was waiting for his licence to come through, and it rated a good 579 report in Peterborough. Another one of interest was with DF6XP/PA in Hulst and due to travel to UK later the same day to commence a fortnight's holiday in Scotland, sadly without a licence for operation in this country.

Next we hear from G3ZPF (Dudley) who economised in postage for the local club by dropping his "Clubs" report in with his "CDXN" offering. David says he's been trying to be a bit more active and so keep clear of the micro-computer; thus on eighty CW he worked 4K1A, PY1MA, LU9E1E, and OH1DL/OH0. On a different tack David notes the odd reasons which lure people back to CW operation; in his own case a touch of laryngitis, while G3SIO came back to it when he found a keyer built in to his nice new rig. David says the keyer merchants are pulling away from him in sending speed, as he can't go above 18 w.p.m. with his straight key, although he still has some reserve of receiving speed left; he finds it difficult to write it down much above 20, but by using the brain as a store he can copy the gist of 30's without too much strain.

G4BUE (Upper Beeding) has been somewhat busy at work and at home, which caused him to miss reporting last time out. This time Chris has a little
groan about the DL-AGCW Summer QRP contest, where the rules have been changed to the degree that you have to make a good score by sitting on a band and working lots of QRO chaps, instead of the old aim of contacts between QRP stations. In the event, over that weekend, G4BUE played the old-fashioned way with nearly all his 87 QSOs with other QRP stations; on Eighty these included G4ELZ, PA3FFF, SM7BNG, DJ5KB, OR5AG, Y27EO, F9YZ, OK1DKW and OZ6SF.

5N4BPC (Enugu) says that in Nigeria now there are some 90 or more operators licensed, of whom most are the users of the Lagos repeater 5NORA, which has 145.025 and 145.625 MHz. Brian has been appointed “State Scout Commissioner for Communications” — an HF station signing 5N4BSE is planned for JOTA, and there will be at least ten tours on VHF, using equipment that they will be building themselves as part of the team. As a postscript to his letter Brian asks for the QTH of G4JOC, and skeds with Greater Manchester. Contact him with anything on these by writing to B. P. Collinge, 5N4BPC, P. & T. Division, Service Centre Enugu, Nigeria.

G2HKU (Sheppey) had an interesting one: at 0449z he was on the prow around the band and there was just one signal, from LU9ELE on 140.

Nice to hear from G3PKS again: Jack had a holiday at Weymouth and took along the HW-101 and wire for an aerial. The set up was to have the rig in a small bedroom, with the aerial six feet below the transmitter — some 70-odd feet of wire about 8-9 feet above the lawn, end-fed, with an “earth” comprising a wire hung out of the window, into a galvanised bucket full of water, in its turn standing on a cast-iron manhole cover set in a paved area; and the thing worked. The site was a bit more in the clear than the home QTH, and so the G3PKS sked contacts on Eighty and Forty were all kept without trouble. Oh, yes, and we forgot to mention in describing this wonder aerial-system that there was some end-loading, by way of an eighty-metre whip secured to the iron frame of a children’s swing. Back at home, Eighty was used for the regular skeds, but while it is slowly improving for local QSOs it is quite unstable and occasionally the skip is long as early as tea-time.

Forty

G4EZA (Colchester) attacked the early-morning stuff, rising at least once at 0400z — crikey! — to find some strong signals from the Americas and the Caribbean, but not much VK/ZL. SSB yielded C31HD and FM0FJE (Martinique), while CM managed to latch on to C1MHJ, K1K, K20Y, K3EST, K5O6U/4, K9FW, L7U7AT, N4XY, PY2XB, PY7JWZ, VE2FOU, VE3HNN, W1ZM, W3RL, WJ4BB, WJ3GYW, WB2JVP/1; QRP CW added DL5KC, GM3HSF, GW5M, PA0LIS, SP6C1K and, believe it or not, Y37ZK/P/22DK! What a fistful of a call that was!

G4EELV (Arbroath) has been all QRP, and on 7 MHz he offers VP8QG, CP6EL, H13JEI, LU3MCO, PT2ASB/PJ2, FS7JS, CX5CH, LU33EG, RP5PT, OX52M, SL8AEN (an Arctic Survey Expedition and SM4G0U the op.), PY1APJ, U6DCN, VK6LK, EL0AP/MM, KP4A, PT7CAW, PY7CPC, KB2DF/VP9, and a ZBB2 about whom David has a doubt as the call does not appear in the Call Book.

Continuing with Forty, we next have a list from G4BUE all gleaned from the QRP contest, on CW, including E11DA, PA0WX, G31GU, FO5EV, and DL1IP.

G2HJU (Earley) seems to have been in the wars, with a visit to the local bandage works which pulled him down a bit more than he realised, so his activity has been mainly a gentle attack on the garden, and the odd hour in the shack when sleep eluded Harold. On Forty, and indeed on Eighty, it was a case of ratchewing on the key.

To G3PKS the band seemed very lively, with good inter-G working and sudden changes in the skip. He wonders what the LX1PD around 7.09 MHz, heard several afternoons just holding a channel, CW and S9 + in signal strength.

Snippets

We have a nice long letter from Jock Perrett, who was 7Q7DW before all 7Q7 licences were determined and gear impounded; they are still off the air, although after much lobbying there has been one concession, in that Jock has finally got the gear back, with the stipulation that it was to be handed over to him, or someone, who was leaving Malawi — so it now sits with the Radio Dept. Hq at Johannesburg where Jock went on leave. However, he didn't get any ham radio there as they refused to issue a call as in the past, despite him showing all his past history and documentation. So — Jock has been buying books to get up-to-date with the technical requirements of the new RAE, and hopefully in a year’s time he will be on the air again with a ZS call.

Meantime, he threatens to write an article, on operating standards and ethics as seen by an OT who for four years has been forced to be just an SWL watching both sides! It sounds as if it could be interesting and well worth writing.

Looking a little ahead, there is the popular VK/ZL/Oceania contest, Phoned October 4-5, CW October 11-12, in both cases 1000z to 2000z. The emphasis is on working VK/ZL stations; Oceania stations score two for each VK or ZL, one for others. Stations outside Oceania score two for VK/ZL stations worked and one for any other Oceania station. Multiplier is the total number of VK and ZL call areas on each band. As to logs, they must show date-time GMT, station worked, number sent and received and QSO points. Underline the QSO with each new call area on each band, and of course a separate log for each band. Summary sheet and declaration as usual, and all logs to be in the hands of ZL2GX, 152 Lynton Road, Gisborne, New Zealand by January 31, 1981. For the SWL section, you must log the VK/ZL stations only, including the call of the station he is working, and the final score for the SWL is the sum of the Phone and CW score.

RSGB’s 21/28 MHz contest is on October 12, 0700 to 1900z, and it indicates that we have 42 prefixes when you include the numerals but exclude the GB stations. Swap RS plus serial number starting at 001, 3 points a QSO and the multiplier is the number of prefixes. You may work the same station once on each band and the same prefix once on each band, final score the sum of the two band scores so computed. Logs to M. Harrington, 123 Clesham Lane, Sutton, Surrey SM1 2ND to arrive before December 1st.

October 18-19 is a busy weekend, with the CLARA YLs battling it out, JOTA, and WADM DX contest all on, not to mention the ARCI QRP contest. October 25-26 is the CW WW DX Phone weekend, and the CW leg is November 29-30. Rules as in the past years, but some clarifications: Multi-multi entries require all transmitters within a
CDXN deadlines for the next three months

October issue — September 4th
November issue — October 2nd
December issue — November 6th

Please be sure to note these dates.

HF

So — in sum, July has seen summer conditions on the bands. On Ten, mainly short-skip Europeans by day, with the odd evening PY/LU. On 21 MHz, the band has been quiet between, say, 0800 and 1500z; Pacific openings from 0600z, including VK, the west coast of W, and KH6. JAs on short path on occasion from 1000 to 2100z, a few ZS signals around 1900 but most of the Africans heard were north of the Equator. SE Asia around 1600-1800, and the east coast Ws 10-1200z, and again in the late evening. West coast Ws appear around 1600-1800, and again around 2200. Turning to 14 MHz, it has been lively most mornings around 0700 and in the evenings; but the morning VK/ZLs, which one recalls as almost daily during the last peak, seem to be patchy, and there is a shortage of the Pacific stations — maybe buried under QRM. Thus the summary by G3NOF (Yeovil). Don seems to have been leaving Ten alone and concentrating on the other two: 14 MHz gave him, on sidband, F08U, KL7H, KB2DNO/OHO (Degerby Island), VK92G (Wills Island), WA4MBG/OHO, WA7UIB/5, and 4U11TU. Much more of the log space devoted to 21 MHz, where Don talked to: A4XGC, A4X1H, A4XYI, A6XJC, AH2E, C5ACA, C5ACO, CE1BLL, CT2CE, C31MK, C31SY, DJ6T/1/HBO, F0CH/FC, FM0AB, G4CPC/OY, H44DX, HC6EE, HH2W, HPIRX, HZ1TB, JAs, K5Y/K56, K7JJ (Nevada), KA7DQ (Arizona), KH6I, KH6XX, KL71TG, KP4AH, N4ADJ/KH2J, PJ2CZ, T18WH, TU4AT, UAI/PAL (Fritz Josef), U18AEE, VU2WIR, VQ9DM, W6s, W7s, including W7EOI in Montana, WA4MBG/OHO, WB0ACL, YB2BSF, YVIPH, ZB2BL, ZE8JD, ZF1GC, ZK1BQ, ZL1BFR, ZS1EZ, ZS3MS, ZS6BR, 3D2CS, 3D2SG, 457TK, 5N2AKY, 5N0DOG, 5N0SID, 5NO9M, 9G1RF, 9M2DW, 9M2GZ, 9V1UH, W1XK/PJ7, ZD7SD, and ZD8TC.

Twenty for G2HKU was a matter of SSb with ZL1V, ZL3E, ZL3FV and TU2GH, but the CW managed with VE6AYI, 1212Z/IA5 (Isle of Elba), CX4CQ; and on 21 MHz, four watts of CW went from the 'Argonaut' to RZ3AH and UA0ACJ.

G3PKS noted quite a lot of DX on Twenty at times, but also some of the one-way propagation. For example Jack heard a call from KH6I3J to him at 0630 one Sunday; it took four tries to read the call sign correctly, and then Jack received a 579 report but could only give a 319 in return (!) and at that he was being kind. After the QSO, KH6I3J was heard calling again but with no takers. Turning to 21 MHz, Jack found it variable but with DX a-plenty. He worked WOT, and U18AW who said the temperature was 30-40°C, a 2C3XC of whom we have doubts, N6NY, NOAIE and a few "locals." This was better than Ten, where the highlights were UL7MAR and PPSAN, and the rest, including South Americans and JAs, were all Goaways although they were giving good reports to Europeans.

G2HLU, as we have seen, hasn't been too active, but he did manage to work some Ws on Twenty, including Bill, W3KRG, who made his start in amateur radio back in 1913 with spark. On the Gotaway front was ZK1AC, heard at good strength but working Antipodes stations; before he got to Europe he decided to change to SSB!

For G2NJ the 14 MHz band meant another trip with GSXN/M, keybashing on the back seat while GSXN/M played two-metre phone and drive. This trip around Northants seems to have been largely working HAs — the first QSO as they moved off was with one, and so were the last three before QRT — it was only a short run, but the Europeans kept Nick plenty busy with the key.

G3ZPF and the locals around him have their rattle-channel on 28.3 MHz; and on 21 MHz there was a QSO with F0CH/FC. This last was a bit of a problem as he was working split and David doesn't have an external VFO, so some smart knob-twiddling was needed to complete the QSO. The only answer to this problem and ensure you come back to the same place each time is to use the IRT on one or both end-stops, which adds to the changeover function (hitting the button and twiddling the IRT), but the limit of the pot is at least consistent usually.

G4EZA didn't think much of 14 MHz save for a bit of QRP CW in the IARU contest, with lots of Europeans and Russians with "Olympic" call signs. 21 MHz SSb accounted for NP4A (really, and in KP4-land too!) and YV1DQ, while the CW brought home the bacon from JAs, PT2CWR, TA1UA, and W6RDF. The proportion was reversed on Ten, with C31s, FG7BH, HJ2VO, VK6ND, VK6NQ, ZP5CPE, 4X4HQ, 5B4IC, and a single CW QSO, with ST2A. Interesting contrast, in that Tim reckons he spent about the same proportion of time on CW on each band.

G4M4ELV offers A15P/SV1, DF1TS/IA5, VP2AZG, a station which looks like "VS7AE" but is probably being misread by your conductor, and a WP4.

G4BUE is now at 201 countries-up on QRP, by way of a contact with 9V1UH on 21 MHz SSB, and OY8KH was also worked on the same band and mode. For the rest it was all QRP CW during the AG CW weekend. On Twenty there were contacts with SP5AGU, OK1DKW, SM7LCV, DK5RY, I7CCF, F9YZ and OZ6SF; plus a couple more on 21 MHz in the same contest in DL7IA and F9YZ.

Finale

Sadly, we know that there is at least one poor soul who is going to miss the bus because his letter is still en route to your scribe. The local postmen seem to be falling back on schedules with the summer leave period at its peak. However, the deadline for next time is as you see it in the "box", to arrive at Welwyn; address your letter to "CDXN", SHORT WAVE MAGAZINE, 34 HIGH STREET, WELWYN, HERTS AL6 9EQ. Thanks to all for letters and info, particularly of course Geoff Watts' invaluable DXNS, and TDXB from the States. But — we can always use more news.
It's the fastest mover yet, so try to catch one!

THE MOBILE OF CHOICE FROM THE WORLD FAMOUS ICOM STABLE — THE IC-255E

25 WATTS — 5 MEMORIES — SCANNING — 600 KHz AND USER SELECTABLE REPEATER SHIFT — FULL COVERAGE IN 5 KHz or 25 KHz STEPS

We have had a poke around one of these little beauties and are certain that Icom, yet again, have come up with a winner. As you can see, it has the expected smart Icom appearance. Features include:

- Crystal controlled Tone Burst
- Full band coverage — extendable to 148 MHz if required
- Four digit LED display
- 25 Watts output or 1W low power
- A superb receiver using grounded gate FET front end
- Scanning over a user programmable range
- Memory scan
- Stop on empty or busy channels
- Tuning in 25KHz or 5KHz steps
- 5 Memories — retained while the power is connected to the rig
- Built-in 600 KHz Repeater shift
- Alternative programmable shift
- Reverse Repeater facilities
- RIT (±3 kHz) for those off channel stations
- Scan control from the microphone (an optional mic available shortly)
- Good loud audio
- Optically coupled tuning between control knob and CPU
- Multiway 24 pin socket on back for touchpad, computer, or external control (note the current RM3 cannot be used but a new version is to be introduced)
- Rugged modular PA (guaranteed of course!)
- Mobile mount which can be padlocked

Price
£255 inc.

At £255 including VAT these are such value for money that demand may exceed supply for a while — but they are worth waiting for! (Delivery is free of course by Registered First Class Letter Post.)
ICOM IC251E £479 inc.

DON'T WORRY – WE GUARANTEE ALL SOLID STATE RIGS INCLUDING PAs

AFTER YEARS OF SUCCESS THE IC211E HAS NOW BEEN REPLACED BY THE IC251E. NOT JUST A FACELIFT, BUT A NUMBER OF IMPORTANT DEVELOPMENTS HAVE BEEN INCORPORATED.

MICROPROCESSOR CONTROL - CPU control with Icom’s original programs provides various operating capabilities. No backlash dial controlled by Icom’s unique photo-chopper circuit. Band edge detector and Endless System provides out-of-band protection. No variable capacitors or dial gear, giving problem-free use. The IC251E provides FM, USB, LSB, CW coverage in the 144-146 MHz frequency range. Thus the IC251E can be used for mobile, DX, local calls, and satellite work.

MULTI-PURPOSE SCANNING - Memory Scan allows you to monitor three different memory channels. Program Scan provides scanning between two programmed frequencies. Adjustable scanning speed. Auto-stop stops scanning when a signal is received in all modes.

DUAL VFO’s - Two separate VFO’s can be used either independently or together for simplex operation, and any desired frequency split in duplex operation.

CONTINUOUS TUNING SYSTEM - Icom’s new continuous tuning system features a luminescent display that follows the tuning knob movement and provides an extremely accurate readout. Frequencies are displayed in 7 digits representing 100 MHz to 100 Hz digits.

Automatic re-cycling restarts the tuning at the bottom of the band when the top is reached - and vice versa. Quick tuning in 1 KHz steps is available, and fine tuning in 100 Hz steps in the SSB and CW modes, and 5 KHz steps and 1 KHz steps in the FM mode, is provided for trouble free QSO.

EASIER OPERATION AND LIGHTER WEIGHT - The most compact, lightest weight all-mode 144 MHz transceiver. First to use a pulse power supply in communication equipment, for lighter weight. 50 mm diameter large tuning control knob for smooth and easy tuning. Trouble-free controlling knobs for both receiving and transmitting. LED indicator for transmit and receiving modes.

MOST SUITABLE FOR BOTH FIXED AND PORTABLE STATIONS - Built in 240V AC and DC power supplies. Convenient Dial Lock switch for mobile operation. Easy carry handle. Effective Noise Blanker. IC5M high quality stand microphone is suitable for fixed station operation. Powerful audio output 1.5 Watts at 8 ohm, for easy listening even in noisy surroundings.

OUTSTANDING PERFORMANCE - The RF amplifier and first mixer circuits using MOS FETs and other circuits provide excellent Cross Modulation and Two-Signal selectivity characteristics. The IC251E has excellent sensitivity demanded especially for mobile operation, high stability, and with Crystal Filters having high shape factors, exceptional selectivity. The Transmitter uses a balanced mixer in a single conversion system, a band pass filter and a high performance low-pass filter. The system provides distortion-free signals with a minimum spurious radiation level.

MODES - USB, LSB, CW and FM output.

SENSITIVITY - CW and SSB - Less than 0.25 microvolts for 10 dB S+N-N. FM - More than 30 dB S+N-D-N - D at 1 microvolt or less than 0.3 microvolts for 20 dB Noise quieting.


FROM THANET OF COURSE
ICOM

AT LAST!! A two-metre FM handy Talkie from the famous ICOM stable; probably the smallest sized one, too!

CHECK THE FEATURES —
FULLY SYNTHESIZED — covering 144-145.995 in 400 5KHz steps.
POWER OUTPUT — 1.5W with the 9V rechargeable battery pack as supplied — but lower or higher output available with the optional 6V or 12V packs.
BNC ANTENNA OUTPUT SOCKET — 50 ohms for connecting to another antenna or use the Rubber Duck supplied.
WEIGHT — 450 Grams with supplied power pack and antenna.
DIMENSIONS — Height 116.5mm (without battery pack); width 65mm, depth 35mm.
SEND/BATTERY INDICATOR — Lights during transmit but when battery power falls below 6V it doesn’t light indicating the need for a recharge.
FREQUENCY SELECTION — by thumbwheel switches, indicating the frequency.

+5KHz SWITCH — adds 5KHz to the indicated frequency.
DUPLEX SIMPLEX SWITCH — gives simplex or plus 600KHz or minus 600KHz Transmission.
H/L SWITCH — reduces output power from 1.5W to 150mW reducing rapid battery drain.
EXTERNAL MICROPHONE JACK — If you do not wish to use the built-in electret condenser mic an optional microphone speaker with PTT control can be used. Useful for pocket operation.
EXTERNAL SPEAKER JACK — for speaker or earphone. This little beauty is supplied ready to go complete with nickel battery pack, charger, rubber duck and an IN HOMEBAY WARRANTY.

By skilful design and the use of highly advanced technology ICOM have produced this gem for £159 incl VAT!

THIS IS THE CHOICE FOR THE MAN WHO WANTS
THE MOST FROM HIS MOBILE — THE IC260E

THE NEW ALL-MODE MOBILE

The IC-260E is obviously going to be one of the best selling multimode 2M Transceivers of all time. Never before has so much been included in such a small package.

Replacing the IC-245E, the IC-260E offers such extras as full frequency read out, upper and lower sideband, and scanning. Thus, it makes an ideal base station, when used with a DC power supply, as well as a mobile. The use of a microprocessor instead of an LSI chip has enabled Icom to offer this at a lower price than the IC-245E.

144 MHz ALL-MODE TRANSCIEVER INCORPORATING A MICRO-COMPUTER — CPU control with Icom’s original programs provides various operating capabilities. No backlash dial controlled by Icom’s unique photo-chopper circuit. Band edge detector and Endless System provides out-of-band protection. No variable capacitors or dial gear, giving problem-free use. The IC-260E provides FM, USB, LSB, CW coverage in the 144-145 MHz frequency range. Thus the IC-260E can be used for mobile, DX, local calls and satellite work. Easily extendable to 144 148.

MULTI PURPOSE SCANNING — Memory scan allows you to monitor three different memory channels. Program Scan provides scanning between two programmed frequencies. Adjustable scanning speed. Auto stop stops scanning when a signal is received, in all modes.

DUAL VFO’S — Two separate VFO’s can be used either independently or together for simplex operation, and any desired frequency split in duplex operation.

CONTINUOUS TUNING SYSTEM — Icom’s new continuous tuning system features an LED display that follows the tuning knob movement and provides an extremely accurate readout. Frequencies are displayed in 7 LED digits representing 100 MHz to 1000 MHz. When in Duplex and using the tuning knob the two VFO’s track together. Automatic recycling restarts tuning at the top of the band, i.e. 145.999 MHz when the dial goes below 144 000 0 MHz. Recycling changes 145.999 MHz to 144 000 0 MHz as well. Quick tuning in 1KHz steps is available, and fine tuning in 100 Hz steps in the SB and CW modes, and 5 kHz steps and 1 kHz steps in the FM mode, is provided for trouble-free QSO.

OUTSTANDING PERFORMANCE — The RF amplifier and first mixer circuits using MOS FET’s and other circuits provide excellent Cross Modulation and Two Signal Selectivity characteristics. The IC-260E has excellent sensitivity demanded especially for mobile operation, high stability and with Crystal Filters having high shape factors, exceptional selectivity. The transmitter uses a balanced mixer in a single conversion system, a band pass filter and a high performance low pass filter. This system provides distortion free signals with a minimum spurious radiation level for an output of 10W or more.

ADDITIONAL CIRCUITS — The IC-260E has a built-in Noise Blanker, CW Break-in, CW Monitor, APC and many other circuits for your convenience. The IC-260E has everything you need to really enjoy VHF operation, in an extremely compact rugged transceiver.

Phone — or put a message on the answering machine for further details.

MICROWAVE MODULES WESTERN ANTENNA SPECIALISTS STANDARD
J-BEAM G WHIP YAESSU MUSEN RSGB PUBLICATIONS BEARCAT

HP AND PART EXCHANGE WELCOMED FROM THANET OF COURSE
THE MOBILE/PORTABLE CHECKLIST:—

IC240 The most popular, simplest to operate, synthesized 10w – 2m – FM mobile ever made

IC255E The 25w, digital, synthesized, 2m – FM mobile for the man that wants just a little more

IC260E The 10w, multimode, synthesized, digital, 2m mobile for the man that wants even more again!

IC2E The smallest, synthesized, 2m—FM, hand-portable available

IC202S The BEST SSB/CW, 3w -2m, portable made

IC402 The ONLY SSB/CW, 3w-70 cm portable made

Note all our prices include VAT, some dealers prefer to show the lower VAT-less prices — so don’t get caught out.

We offer FREE DELIVERY for all equipment too!

ANNOUNCING A NEW COMMUNICATIONS COMPUTER!

Theta 7000E

£640 inc.

receiving speeds — 10CW speeds + 8RTTY ★ Built-in demodulator for high performance for 170, 425 and 820 Hz shift ★ Crystal controlled modulator for AFSR — Hi or Lo tone ★ Convenient ASCII key arrangement ★ Large capacity display memory — 2 pages 32 chr x 16 lines split screen for Rx & Tx if required ★ Automatic transmit/receive switch ★ Anti noise circuit ★ Battery backed-up memory 7 channels of 64 chr ★ Send function ★ Buffer memory — 53 character type ahead, rub out function ★ Simultaneous access of the memory ★ Pre-loading function ★ CR (carriage return) LF (line feed) cancel function ★ Cursor control function ★ Word mode operation ★ Automatic CR/LF (72, 60 or 80 chr per line) ★ Echo function ★ Word Wrap around function ★ Transmit/receive in ASSC11 mode in RTTY ★ CW identification function ★ Mark and break (space and break) system ★ Monitor circuit ★ CW practice function ★ Variable CW weights ★ Cross pattern checking output terminal ★ Log computer output provided ★ Test message function (Ry and QBF).

Some of the Outstanding Features

COMMUNICATIONS COMPUTER THETA 0-7000E VHF and Composite Video Output Provided Printer interface ★ Wide range of transmitting and

THANET ELECTRONICS

143 Reculver Road, Beltinge, Herne Bay, Kent (02273 63859)
SWL-610 Dual Receiver magnetic
C-1210 Dynamic, foam padded
C-1230 3-200 ohms, TELEKS BEST

MICROPHONES (battery powered)
PROC 1 High Output
PROC 3M Variable gain
C-730R Dynamic, noise-cancelling
C-73S as above with 6 wire lead.

ADVANCED ELECTRONIC APPLICATIONS
MM-1 Morse Key Special Tender
MK-1 Keyer
ISO-144 2m antenna

HUSTLER ANTENNAS
MO-1 Foldover Mast (fold is 15 inches above base)
MO-2 Foldover Mast (fold is 27 inches above base)
BM-1 Bunch Mount
C-2 Ball Mount
C-29 Stainless Steel Spring
RM-10 High Power 10m Resonator
RM-15 High Power 15m Resonator
RM-20 High Power 20m Resonator
RM-40 High Power 40m Resonator
RM-80 High Power 80m Resonator
SF-2 2m VHF (up)
RM-105 High Power 10m Resonator
RM-155 High Power 15m Resonator
RM-205 High Power 20m Resonator
RM-405 High Power 40m Resonator
RM-805 High Power 80m Resonator
4870 Vertical
5-5070 Vertical
DCX Discos VHF/UHF 40-700 MHz
DCL Discos VHF/UHF 40-700 MHz (with 50 ft cox)
OD-10 Quick Disconnect
OD-10B Quick Disconnect
HLM Trunk Lift Mount
G-144 2m Coax with Mount
G-7144 2m Coax for Base Station Mount
G-7144 Electric Coax for Base Station Mount (dAB)

ASTATIC MICROPHONES
T-UG9-D104 Golden Eagle
T-UGP-D104 Silver Eagle
UGB D104 Crystal D104
UGD D104 D104 with amplifier and p.i.t.
525 D6 Hand microphone, Dynamic, 400 ohms
505 M6 Hand microphone, Dynamic, BUCKEYE
5056 M6 Hand microphone, FET, amp. MARINER
D104 M Hand microphone, FET, amp.
D104 M Hand microphone, FET, amp. 4 wire
555 M Hand microphone, FET, noise-cancelling, 4 wire
556 M Hand microphone, FET, noise-cancelling, 6 wire
531 Hand microphone Noise impedance
532 Hand microphone Noise impedance
1104-C Desk Microphone, FET, amp.

TRIO OSCILLOSCOPES
CS-1570 Dual trace 30 MHz, B with delayed sweep
CS-1577 Dual trace 30 MHz with signal delay
CS-1572 New dual trace 30 MHz scope for VTR servicing
CS-1560A Dual trace 15 MHz, 100 V/cm on X and Y
CS-1562A Dual trace 10 MHz, autorange and trigger
CS-1362 Dual trace 15 MHz, portable, mains 120

The above scopes are complete with probes.

DRAKE * SALES * SERVICE

BARCLAYCARD

RADIO SHACK LTD.
188 BROADHURST GARDENS, LONDON NW6 3AY
Giro Account No. 598 7151 Telephone: 01-624 7174 Cables: Radio Shack, NW6 Telex: 237118
**TRIO TS120 TRANSCEIVER**

**ALL SOLID STATE HF BAND TRANSCEIVER**


- TS120V 10 watts PEP £347.30
- TS120S 200 watts PEP £432.40

**NEW ATENNA MODELS**

- H.S. HFS Vertical 10-60m £41.40
- H.F. Round Plane Kit £23.00
- GDX 2 Discare Antenna 50-460 MHz £36.80

**TRIO R1000**

R1000 Transceiver £298.00

The latest general coverage from Trio. Frequency coverage 200 KHz to 30 MHz in 30 bands. Using an advanced PLL system. Full digital readout. 3 filters 12 KHz for AM - 8KHz narrow AM and 2.7 KHz SSB. Also incorporates a noise blanker. Operation is from 100-240 VAC or 12 V DC.

**NEW ATENNA MODELS**

- H.S. HFS Vertical 10-60m £41.40
- H.F. Round Plane Kit £23.00
- GDX 2 Discare Antenna 50-460 MHz £36.80

**TRIO**

- RT820 Receiver £680.00
- TR9000 Transceiver £669.30
- VFO820 £118.45
- DSIA 12V, DC Inverter £42.93
- SP820 Speaker £37.95
- SM120 Monitor £197.80
- TLB922 Linear Amplifier £672.75
- VFO5205 £98.80
- SP720 Speaker £17.25
- TS120V BO 10m. Mobile Transceiver £343.30
- TS2-2AC power supply for 13120V £17.25
- SP720 Speaker £18.40
- R1000 Transceiver £298.00
- TR2300 Mobile Transceiver £166.75
- TS520SE HF Transceiver £437.00
- TR2400 Handheld Transceiver £210.45
- TS2-2AC £44.85
- TL120 Linear Amplifier £128.80
- HS5 Headphones £21.85
- HS4 Headphones £7.85
- MC50 Microphones £24.15
- MC35 Hand Microphone Sok £13.80
- DM800 G.D.O. Wave meter £51.75

**TRIBANDS**

- MC3OS Hand Microphone £690.00
- MC 50 Desk Microphones £890.00
- TR2400 Receiver £669.30
- TS1800 Transceiver £679.65

**TRIBANDS TRANSCEIVERS**

- TRIBANDS £298.00
- TRIBANDS 120S £214.00
- TRIBANDS 120S £199.00
- TRIBANDS £135.00
- TRIBANDS £113.50
- TRIBANDS £109.00

**TRIBANDS TRANSCEIVERS**

- TRIBANDS £264.00
- TRIBANDS £275.00
- TRIBANDS £214.00
- TRIBANDS £199.00
- TRIBANDS £166.75
- TRIBANDS £106.75
- TRIBANDS £98.80
- TRIBANDS £90.00
- TRIBANDS £82.00
- TRIBANDS £75.00
- TRIBANDS £67.95
- TRIBANDS £60.00
- TRIBANDS £53.00
- TRIBANDS £46.00
- TRIBANDS £42.93
- TRIBANDS £39.95
- TRIBANDS £35.80
- TRIBANDS £31.80
- TRIBANDS £28.18
- TRIBANDS £24.84
- TRIBANDS £21.51
- TRIBANDS £18.29
- TRIBANDS £15.30
- TRIBANDS £11.29
- TRIBANDS £10.35
- TRIBANDS £9.37
- TRIBANDS £4.93
- TRIBANDS £4.45
- TRIBANDS £3.04
- TRIBANDS £2.85
- TRIBANDS £2.44
- TRIBANDS £2.13
- TRIBANDS £2.01
- TRIBANDS £1.89
- TRIBANDS £1.74
- TRIBANDS £1.60
- TRIBANDS £1.47
- TRIBANDS £1.3K
- TRIBANDS £1.20
- TRIBANDS £1.14
- TRIBANDS £1.08
- TRIBANDS £1.02
- TRIBANDS £0.96
- TRIBANDS £0.90
- TRIBANDS £0.84
- TRIBANDS £0.78
- TRIBANDS £0.72
- TRIBANDS £0.66
- TRIBANDS £0.60
- TRIBANDS £0.54
- TRIBANDS £0.48
- TRIBANDS £0.42
- TRIBANDS £0.36
- TRIBANDS £0.30
- TRIBANDS £0.24
- TRIBANDS £0.18
- TRIBANDS £0.12
- TRIBANDS £0.06
- TRIBANDS £0.00
**Telephone**

**STEPS-JAMES LTD.**

47 WARRINGTON ROAD, LEIGH, LANCs. WN7 3EA

Telephone (0942) 676790
THE SHORT WAVE MAGAZINE
September, 1980

WESTERN COMMUNICATIONS (Galway) LTD.
KILCOLGAN, GALWAY, IRELAND

Tel. Within the State: 091-86206 or 22567. U.K. Callers: 0009-86206 or 22567
Telex: 8933 MHTC EI

THIS MONTH WE SET A NEW STANDARD

The C8800 and the C7800 Transceiver.
144 - 146 MHz and FM 430 - 440 MHz.

FEATURES:
2 Speed Scanning — 15 Watts RF OUT — The sharpest receiver on the band. Each receiver adjusted at our workshops at .22 uv for a 20 DB Quieting figure. 5 memory position micro processor controlled + Memory Scan and all Scan. 3 Repeater shifts standard. Complete with Workshop Manual.

Fitting Kit — Instructions + ¼ wave on ¾. H.M.P. Professional Antenna — your choice! @ £258 incl. V.A.T. for C7800. This offer for orders placed this month.

Your nearest AGENT — West, Midlands and South for:
YAESU MUSEN; DRAKE;
BEARCAT; H.M.P.;
G. WHIP; SYT;
J. BEAM; CUSHCRAFT;
DANCOM Landmobile;
QUARTZ Crystals;
DATONG; LUNAR;
SPECTRUM;
DANCOM Marine;
SAXTON Cable.

Importers — Exporters — Factors
Distributors of Telecommunication Equipment

ANNOUNCING THE BEARCAT 300
WORK MORE DX
Datong RF clippers make your speech sound louder and clearer. The worse the conditions the greater the benefit. This is exactly what you need for working DX. After all, if they can't hear you, you can't work them. All three models use the same innovative r.f. clipping techniques which have made the name Datong synonymous with r.f. clipping.

MODEL ASP is fully automatic with calibrated push-button selection of degree of r.f. clipping in steps of 6 db. from 0 to 30 db. It adjusts itself to suit your voice and microphone.

MODEL RFC/M is a fully tested printed circuit module for building into your own case. All three units feature very long life battery operation and connect in series with your microphone. No internal modifications are required to your rig.

RECEIVE MORE BANDS
The Datong UP-CONVERTER (Model UC1) converts any good quality ten-metre or two-metre receiver or transceiver into a really high performance general coverage receiver. It gives full coverage in thirty 1MHz segments from 60 kHz to 30 MHz. At low cost, UC1 adds a new dimension to your expensive amateur bands only equipment and for sheer performance beats most of the common general coverage receivers.

INDOOR ANTENNA
MODEL AD170
Active Antenna is designed for under-roof mounting and gives sensitive reception night through from below 60 kHz to Band 1 TV around 50 MHz. It needs no tuning and includes a switchable 12 db broadband amplifier. Although only three metres long, Model AD170 has the same directional properties as a full size dipole, even at 60 kHz.

Full data sheets on any product available free on request. New literature includes short form catalogue, new ASP data sheet, FL2 data sheet.

DATONG ELECTRONICS LIMITED

PRODUCTS FOR THE SERIOUS COMMUNICATOR

IMPROVE RECEPTION
Our two no-compromise audio filters give a remarkable ability to filter out the intelligence from the noise.

MODEL FL2 the new "top-of-the-line" filter, offers extremely sharp pass-band edges for truly exceptional filtering performance on all modes, but especially for SSB. Its 10 poles of fully variable low and high pass filtering give sharper filter edges even than normal crystal filters. A separate manually tuned notch filter is also fitted.

MODEL FL1 on the other hand, was recently described in "73 Magazine" (October 1979) as "the only filter in the world which can notch out an interfering whistle from SSB signals automatically. Additionally, for CW, bandwidths down to 20 Hz are practicable thanks to the use of limited AFC - another Datong exclusive.

Both filters connect in series with the loudspeaker and will improve virtually any receiver. An external DC supply is required.

LEARN MORSE THE EASY WAY
The Datong Morse Tutor (Model D70) is your passport to a full licence. Compact, with internal battery and speaker plus personal earphone it provides unlimited random morse to practice on. With D70 you can practice morse anywhere, anytime and at your own pace. With the Morse Tutor, practice becomes a pleasure because you get results quickly.

Prices: All prices include delivery in UK. Basic prices are shown with VAT inclusive prices in brackets.

<table>
<thead>
<tr>
<th>Product</th>
<th>Price (Ex VAT)</th>
<th>Price (Inc VAT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASP £59.00</td>
<td>£69.35</td>
<td>£89.45</td>
</tr>
<tr>
<td>D75 £49.00</td>
<td>£56.35</td>
<td>£63.05</td>
</tr>
<tr>
<td>RFC/M £23.00</td>
<td>£26.45</td>
<td>£31.45</td>
</tr>
<tr>
<td>FL2 £78.00</td>
<td>£89.70</td>
<td>£103.05</td>
</tr>
<tr>
<td>FL1 £59.00</td>
<td>£67.85</td>
<td>£79.85</td>
</tr>
<tr>
<td>UC1 £119.00</td>
<td>£136.85</td>
<td>£155.00</td>
</tr>
<tr>
<td>D70 £43.00</td>
<td>£49.45</td>
<td>£57.25</td>
</tr>
<tr>
<td>AD170 £33.00</td>
<td>£37.95</td>
<td>£44.95</td>
</tr>
<tr>
<td>AD170 + Mains Power Unit £60.00</td>
<td>£66.00</td>
<td>£76.00</td>
</tr>
<tr>
<td>Mains Power Unit £37.00</td>
<td>£42.55</td>
<td></td>
</tr>
</tbody>
</table>
S18 and S19 are now added to our stock range

CRYSTALS FOR BRITISH 70CM CHANNELS

Due to the much higher multiplication involved (3 times that on 2m) all our stock 70cm crystals are now of much closer tolerances than our standard amateur range.

We are stocking the following channels RBO (434.60/432.00), RB2 (434.65/433.05), RB4 (434.70/433.10), RB6 (434.75/433.15), RB8 (434.80/433.25), RB10 (434.85/433.25), RB14 (434.95/433.35), SU18 (434.45/433.50), SU20 (434.50/433.50), SU22 (434.60/433.60), TX and RX for use with PYE UHF Westminster (W15U), UHF Cambridge (U10U), Pocketfone (P/P) and STORNO COL (COM 683.2) at £2.32. For the U450L Base Station, the aforesaid are available for all the above channels. The RX crystals (P/P) or U450L Base Station; together with the TX and RX crystals for the remaining SU crystals (SE12 - 343.30 RTTY, SU16 - 343.40 and SU22 - 343.50) for all the above equipments are available at £3.94 to Amateur Spec or £4.64 to same spec as stock items.

Delivery approx. 4-8 weeks.

1zm. CRYSTALS FOR 70.26 MHz - HE6/U
TX 8.7825 MHz and RX 6.7466 MHz or 9.780 MHz £2.32.
10.245 MHz ‘ALTERNATIVE’ if CRYSTALS £2.32. For use in PYE and other equipment with 10.7 MHz and 455 kHz IF’s to get rid of the “birdy” just use 145.0 MHz in HE6/U. HC18/U and HC25/U.

CRYSTALS SOCKETS - HE6/U, HC18/U and HC25/U (Low loss) 16 each (10 pkp free on order with crystals)

CONVERTER/TRANSVERTER CRYSTALS - HC18/U
All at £3.00, 38.6666 MHz (144/28), 42 MHz (170/28), 58 MHz (144/28), 70 MHz (144/44), 71 MHz (144/24), 95 MHz (342/52), 96 MHz (1296/434/144), 101 MHz (342/28), 105 MHz (343/28), 105 MHz (343/116/444/28).

TEST EQUIPMENT FREQUENCY STANDARD CRYSTALS
100 kHz in HC13/U and 100 kHz in HC13/U and 200 kHz and 455 kHz in HC6/U, £2.95.
1 MHz and 5 MHz in HC6/U and 10 MHz and 10.7 MHz in HC6/U and HC25/U, £2.89.

ANZAC MD-108 DOUBLE BALE CASE MIXER
5-500 MHz supplied with full details for only £5.95.

EXPRESS SERVICES
Many types made to order crystals are available on our EXPRESS SERVICE with a delivery of three days on our class “A” service. Telephone or Telex for details.

TERMS: CASH WITH ORDER - MAIL ORDER ONLY - S.A.E. WITH ALL ENQUIRIES - PRICES INCLUDE P.P. (BRITISH ISLES) EXCEPT WHERE STATED - OVERSEAS CHARGED AT COST.

2 ALEXANDER DRIVE, HESWALL, WIRRAL, MERSEYSIDE L61 6XT
Tel: 051-342 4443. Cables: CRYSTAL BIRKENHEAD. Telex: 627371
QSL leads the field in supplying crystals world-wide to major communications companies, broadcasting authorities and post and telecommunications administrations. As a result we can supply the amateur with a high quality, price-competitive product over a frequency range from 10KHz to 225 MHz. Get the power of the professionals in crystal supply behind you!

Made to Order Crystals Single Unit Pricing

<table>
<thead>
<tr>
<th>Price and Delivery</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundamentals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.00 (total)</td>
<td>10</td>
<td>19.999 kHz</td>
</tr>
<tr>
<td>2.00 (total)</td>
<td>20</td>
<td>29.999 kHz</td>
</tr>
<tr>
<td>3.00 (total)</td>
<td>30</td>
<td>39.999 kHz</td>
</tr>
<tr>
<td>4.00 (total)</td>
<td>40</td>
<td>49.999 kHz</td>
</tr>
<tr>
<td>5.00 (total)</td>
<td>50</td>
<td>59.999 kHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.10 1.50 to 1.999 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.10 2.00 to 2.999 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8.10 3.00 to 3.999 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9.10 4.00 to 4.999 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10.10 5.00 to 5.999 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11.10 6.00 to 6.999 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.10 7.00 to 7.999 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13.10 8.00 to 8.999 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14.10 9.00 to 9.999 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15.10 10.00 to 10.999 MHz</td>
</tr>
</tbody>
</table>

Please note that it is not always possible to provide the A delivery service but a telephone call will confirm its availability.

Any orders received for A delivery when it is not available will automatically be placed on B delivery and a credit note issued for the difference in price.

Discounts: 5% mixed frequency discount for 5 or more crystals at B delivery. Price on application for 10 or more crystals to same frequency specification. Special rates for bulk purchase schemes including free supply of crystals used in UK repeaters.

Emergency Service Surcharges (to be added to A delivery price): 4 working days £12, 6 working days £15, 10 working days £3, (maximum of 5 crystals on 4 day delivery).


Minimum Order Charge £1.50.

Commercial users: Crystals can be supplied for MPU, industrial, control etc. in the range 4.21MHz fundamental and 3rd OVT 18 to 60 MHz at £1.15 for 100 off. This is only a limited example of our capabilities. Please enquire about other quantities, frequency ranges, watch and sub-carrier crystals. We can supply crystals for marine and land mobile telephone radio use. Send for details.

Terms: Cash with order, cheques and postal orders payable to QSL Ltd. All prices include postage to UK and Irish addresses. Please note Southern Irish cheques and postal orders are no longer acceptable. Please send bank draft in pounds Sterling.

Overseas Distributors:
West Germany, Austria and Benelux countries: SSB Electronic, Karl Arnold Str. 23, 58605 Iserlohn, West Germany.
Denmark — Asbjorn Jorgensen, Asbrinken 1, Tapstrup, DK800, Viborg, Denmark, Portugal — Sobral S.A., Rua General Pimentel de Castro, 15 81, Lisboa 5, Portugal.

(Enquiries invited from companies in other countries.)

Beginner’s Guide to Radio
8th Edition
232 pages £3.70 inc. post

Beginner’s Guide to Electronics
Latest 3rd Edition
240 pages £3.35 inc. post

Publications Dept.
SHORT WAVE MAGAZINE LTD.,
34 High Street, Welwyn, Herts., AL6 9EQ
**ONLY THE PRICES HAVE CHANGED**

(WITH YAESU TRIO FDK STANDARD AND ICOM)

Pretty pictures are fine... Journals these days are packed full of them — Trouble is they're so repetitive... Same Gear... Same Price... Even the same dialogue! Check now, you'll see what we mean — Only the address is different! The question is — What do they cost you?

The quality of sales and service comes down to overheads, you know it and we know it — Simply stated, use it one way and you can't use it the other — So that's why we're at the end of this Mag — No pretty pictures here, only value for money deals — in a nutshell that's our aim — TO HELP YOU WHERE IT HURTS — in your pocket! For example look at our HP deal — A real super saver — The best ever offered to Radio Amateurs, so if you're looking for easy payments — Look no further — Our deal is aimed TO HELP YOU WHERE IT HURTS and we know WHERE IT HURTS — in your pocket! Ask the Amateurs who've bought from Amcomm — They'll tell you — First Class Service — Absolutely No Quibble Guarantee — Express collection and return guarantee service — Average Repair Time 48 Hours — That's where our overheads go — No pretty visuals, just top deals and service TO HELP YOU WHERE IT HURTS — in your pocket! — More Good News — By the time you read this we'll have added the Yaesu 707, Icom 255, Icom 251, Trio R1000, Trio TR9000 and FDK Mutt 700 to the List above — So Get Cracking! Calculator first! — Telephone Next! — WE'LL HELP YOU WHERE IT HURTS

Call 01-864 1166 or 01-422 9585 for the Gen.

<table>
<thead>
<tr>
<th>Yaesu FT 901DM</th>
<th>Yaesu FT 101ZD</th>
<th>Yaesu FT 225RD</th>
<th>Yaesu FT 78</th>
<th>Yaesu FT 1012</th>
</tr>
</thead>
<tbody>
<tr>
<td>List Price</td>
<td>£799.56</td>
<td>£699.56</td>
<td>£499.88</td>
<td>£399.04</td>
</tr>
<tr>
<td>Deposit</td>
<td>£312.00</td>
<td>£223.00</td>
<td>£194.00</td>
<td>£156.00</td>
</tr>
<tr>
<td>12 monthly rpymts</td>
<td>£40.63</td>
<td>£28.88</td>
<td>£25.49</td>
<td>£20.32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yaesu FT 107</th>
<th>Yaesu FRI 7000</th>
<th>Yaesu FRI 7000</th>
<th>Standard 8800</th>
<th>Standard 8700</th>
</tr>
</thead>
<tbody>
<tr>
<td>List Price</td>
<td>£787.76</td>
<td>£499.08</td>
<td>£252.00</td>
<td>£275.08</td>
</tr>
<tr>
<td>Deposit</td>
<td>£306.00</td>
<td>£191.00</td>
<td>£159.00</td>
<td>£199.00</td>
</tr>
<tr>
<td>12 monthly rpymts</td>
<td>£40.23</td>
<td>£31.34</td>
<td>£25.49</td>
<td>£20.32</td>
</tr>
</tbody>
</table>

MAIL AND TELEPHONE ORDERS!... Well our competitors are terrific at this — We just do our best. That means if we have your order before Midday it leaves before 4.00, no parcel post — Everything First class Mail or Securicor (not Jaybeam or Hygain) because we know you want it NOW. If we're short on stock (almost never) we'll ring you. If you can't wait we'll recommend another dealer to you. So whatever you're after, check the glossies then call the "Try Harder People" at Amcomm.

The opportunity is below — Try us once and we'll prove it — Cash or Terms we're with you — TO HELP YOU WHERE IT HURTS — in your pocket!

★ Check our Mail Order list in last 3 Radiocomms. Prices haven't changed.
★ If you need pretty pictures send us 25p and we'll send you a bundle — in colour too!
★ Other low charge deals available over 18 and 24 months. Call us with your requirements and we'll tailor a deal for you.

**AMCOMM SERVICES**

194A NORTHLAND ROAD, SOUTH HARROW, MIDDX.
Tel: 01-864 1166 & 01-422 9585
Opening hours: Tues—Sat 9.00—5.30, Sundays by appointment. Closed Monday.

**QRX 1!**

OPENING 1st SEPTEMBER 1980

**MERSEYSIDE AMATEUR RADIO SUPPLIES**

117 OXFORD RD, WATERLOO, LIVERPOOL L22
Tel: 051-920 7384. After hours enquiries 0704 79600 or 051-5202094.
NOW, from CATRONICS—
Real Value for Money in Microcomputers

video genie system

Advanced features are:
1. Built-in TV interface, the user's TV set may be used as the display terminal, thus saving money.
2. Main Control Unit contains the CPU plus,
   i) 51 key typewriter keyboard, with 10 key rollover.
   ii) High quality cassette recorder, enables recording and playback of programs, data and the use of prerecorded tapes.
3. Built-in audio cassette interface for connecting another cassette recorder to serve as cheap and compact storage for large amounts of data on tapes.
4. 16k user RAM included, expandable to 48k.
5. Fully TRS level II software compatible, thus a huge range of software is already available.
6. Full 12k Microsoft BASIC in ROM.
7. Full expansion capability to Discs and Printer, a small system with big possibilities.
8. Self-contained, all in one attractive case.
9. The system uses the powerful 280 processor.

Catronics price only £379.50 inc. VAT.
Also available 9" Monitor -- built to full professional specification (NOT a converted television) Model CV/M600 £130.00.
Full range of supporting programs and accessories available, including Amateur Radio packages.

CATRONICS LTD. Dept. 19, Communications House, 20 Wallington Square, Wallington, Surrey SM6 8RG
Tel: 01 669 6700 Shop/Showroom open Mon to Fri 9am to 5.30pm Closed for lunch 12.45 to 1.45pm Sat 9am to 1pm.

J. BIRKETT
25 THE STRAIT - LINCOLN - LN2 1JF
Telephone: 20767

WOOD AND DOUGLAS KITS are available for Callers.
WIRE ENDED HF to VHF SWITCHING DIODES untested 25 for £1.50.
SPECIAL VHF SUB-MINIATURE 0.5 to 3p JUBULAR TRIMMER @ 15p.
UHF POWER MODULES 50 M.W. Input 2.5 Watt Out 13 volt 420 to 480 MHz 50 Ohm Type BGY 22 C £12.50.
BLY 34 2 WATT 13 VOLTS 175 MHz TRANSISTOR @ 7.5p.
VERY USEFUL POWER TRANSISTOR with Data Type 587 BLY SSB-FM, 27 to 80 MHz 40 watts 28 volt @ £3.50 each.
BLY 97 24 VOLT 175 MHz 4 WATT with data @ £3.
BFR 64 470 Mhz 13 volt 3 WATT with data @ £4.
UNMARKED GOOD 2N 3886 VHF POWER TRANSISTORS @ 3 for 75p.
H.P. HOT CARRIER DIODES 5800-2800 @ 40p each.
R.F. SIGNAL TRANSISTORS 2N 918 @ 25p, 2N 5179 @ 50p.
2N 5180 @ 60p.
2N 4417 VHF-UHF FET LOW NOISE STRIPLINE with data @ £2.20.
X BAND DIODE MICRO-WAVE ASSOCIATES 1N218 @ 75p.
X BAND GUNN DIODES with data @ £1.65.
POWER FETS VN100M @ 40p each.
VHF FETS BF 256 @ 4 for 75p, £304 @ 30p, 4 for £1.
WIRE ENDED AERIAL PIN VHF SWITCHING DIODES with data @ 40p each.
SPECIAL MOTOROLA UHF POWER MODULE 13 Watt out Drive 150mW 13 volt type MHW71/2 240 MHz with data @ £12.50.
5 GHz STRIPLINE NPN LOW NOISE TRANSISTORS with data @ £3 each.
2 GHz STRIPLINE NPN TRANSISTORS @ £1 each.
10.7 MHz CERAMIC FILTERS VERTRON FM 4, @ 50p, 3 for £1.
3/16" COIL FORMERS with core at 6 for 25p.
MINIATURE AIRSPACED VARIABLE CAPACITORS 250 + 250pf (500pf) @ 8p.

SOLDER-IN FEED THRU'S 6.8pf, 27pf, 300pf, 1000pf. All 20p doz.
EDDYSTONE TRANSMITTING VARIABLE 30 + 30p (60pf) £2.20.
R.F. TRANSISTOR BGY 90 at 50p each.
VHF FETS BF 269C at 4 for 75p, £304 @ 30p, 4 for £1.
SPECIAL VISCONOL CAPACITORS 0.005uf 1 K.v.w. @ 25p, 0.0005uf 25 K.v.w. @ 40p, 0.005 25 K.v.w. @ 75p.
FERRITE RINGS Orange Ext. Dia. 7/8" Int. Dia. 3/8" @ 35p each.
500 METRE REELS OF PVC CABLE 13 Strands .019 @ £10 Reel.
Carriage Paid.
FERRITE BEADS FX 1115 @ 15p each. Long Type 1/2" @ 9p for 10p.
VERY USEFUL MAINS TRANSFORMER 250 Volt input 43 volt 50mA 11 volt 2.5 amp. 220-0-220 volt 150mA, 16 volt 120mA, 15 volt 1.5 amp. 20 volt 275mA @ £3.90 (3p each.
POWER CAPACITORS 10uf 370 volt A.C. Size 5 3/4" x 2 3/4" 1% @ £1.50.
T03 SILICON PIN TRANSISTORS 60 volt 10 amp 2N 3789 @ 55p.
T03 SILICON NPN TRANSISTORS BDY 157 120 volt 25 amp @ £5.40, BDY 91 100 volt 15 amp @ 80p, 2N 5039 120 volt 20 amp 60 MHz @ £1.15, 2N 6354 150 volt 10 amp 80 MHz @ £1.15, 2N 6481 150 volt 15 amp 60 MHz @ £1.

HFC 600 FREQUENCY COUNTER 8 Digit 600 MHz @ £123. S.A.E. for leaflet.
Please add 20p for post and packing on U.K. orders under £2. Overseas postage charged at cost.
NORTHERN COMMUNICATIONS

AMATEUR ★ COMMERCIAL ★ MARINE

YAESU, FDK, ATLAS, DENTRON, STANDARD, JAYBEAM
NAG, ASP, SWAN, G WHIP, MM, CDE, SEM

CUSHCRAFT Power and Performance
ANTENNAS

<table>
<thead>
<tr>
<th>Antenna</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATV3</td>
<td>Vertical 10/15/20</td>
<td>£35.40</td>
</tr>
<tr>
<td>ATV5</td>
<td>Vertical 80/10m</td>
<td>£76.00</td>
</tr>
<tr>
<td>A144/11</td>
<td>11 element 11.3db Yagi 144Mhz</td>
<td>£26.85</td>
</tr>
<tr>
<td>A145/12</td>
<td>8 element 16.5db long Yagi 144Mhz</td>
<td>£64.00</td>
</tr>
<tr>
<td>A146/13</td>
<td>6 element 11.3db Yagi 214MHz</td>
<td>£27.95</td>
</tr>
<tr>
<td>A3219</td>
<td>15 element &quot;Boomer&quot; 16.5db long Yagi 144Mhz</td>
<td>£76.00</td>
</tr>
<tr>
<td>ARK2</td>
<td>Ringo Ranger 5db Vertical 144Mhz</td>
<td>£26.50</td>
</tr>
<tr>
<td>A10/3</td>
<td>3 element Yagi 7.6db 10metres</td>
<td>£52.00</td>
</tr>
<tr>
<td>A20/3</td>
<td>3 element Yagi 7.6db 20metres</td>
<td>£139.75</td>
</tr>
<tr>
<td>A1634</td>
<td>3 band HF Yagi 7.6db 10/15/20metres</td>
<td>£235.75</td>
</tr>
</tbody>
</table>

Prices include VAT, carriage extra. (a) £1.50, (b) £2.50, (c) £3.50

OR our very own 2 metre 12 element ZL SPECIAL
ZL-12 13db gain from a 10ft 6in long boom | £28.75

NEW Portable, Compact 8 element ZL SPECIAL
ZL-8 9.5db gain only 6ft long split boom | £17.25

NEW! — WIDEBAND ANTENNA — NORCONE

The new "NORCONE DISC 512" is a wideband, unity gain antenna, specially developed for coverage of 66Mhz to 512Mhz. An ideal partner for the BEARCAT and other scanning monitor receivers. It may also be used for transmission. Full coverage of 70, 144, 432 Mhz Amateur bands, Aircraft, Marine and Public Services.

<table>
<thead>
<tr>
<th>Antenna</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
</table>
| SWAN 100MX HF TRANSCEIVER — Now at a Price You Can Afford
80-10 metre Solid State, compact HF rig for mobile and fixed operation. 235 watts input. Send for details of this amazing rig! Including VAT | £24.95 |

If you liked the Multi 700E then you'll love the EX version! The new M750EX makes it possible to work the SSB DX, without breaking the bank! Contact us for details.

M700E | £199.00
M750 | £299.00

303 CLAREMOUNT ROAD, HALIFAX HX3 6AW, West Yorkshire
VISIT OUR SHOWROOM — Tues-Sat inc. 9.45am - 5.30pm.
Tel: (0422) 40792 and 24-hour answering service

Barclaycard

Optimum Performance with KW Ancillaries

Antenna Tuning System Incorporates E-ZEE Match, SWRF power meter; Dummy Load: Antenna switch.

DECCA-KW 107 SUPERMATCH
A high power version of the KW107 is available.

DECCA-KW BALUN Mk II
The DECCA-KW Balun is broadband—3 to 30 MHz, rated up to 2 kw p.e.p. 11 Ratio 50 ohms "unbalanced" feed to "balanced" output. Waterproof moulded case. Suitable for Dipoles and Beams.

Other KW Favourites—DECCA KW Dummy Load, KW Traps (original and the best); KW Trap Dipoles; Stockist for HY-Gain beams and parasols; CDE Radiators; Shure Microphones, etc.

Write or phone for catalogue...

Serving Radio Amateurs World-Wide
AMATEUR RADIO RETAILERS ASSOCIATION
Secretary: Fred Hopewell, P.O. Box 36, Loughborough LE11 1DW

Presenting the NINTH

AMATEUR RADIO AND ELECTRONICS

"EXHIBITION"

at the

GRANBY HALLS, LEICESTER

on 6th, 7th and 8th NOVEMBER 1980

OPEN DAILY, 10 a.m. to 6 p.m.

£500 IN VOUCHER PRIZES TO BE WON!
PLUS FABULOUS FREE DRAW PRIZES THROUGHOUT THE EXHIBITION!

DON'T MISS THIS EXCITING EVENT — BARGAINS GALORE,
REFRESHMENTS, BAR AND ALL THE USUAL AMENITIES

ADMISSION: 75p. Concessionary Tickets 50p for Parties of 15 or over

NO ADVANCE TICKETS. ON RECEIPT OF YOUR REMITTANCE WITH ORDER, TICKETS WILL BE RESERVED FOR
YOU TO PICK UP AT THE BOX-OFFICE. IF YOU REQUIRE AN ACKNOWLEDGEMENT, PLEASE ENCLOSE A
STAMPED-ADDRESSED ENVELOPE.

BOOK THE DATES NOW FOR THE SHOW OF THE YEAR!

R. T. & I. ELECTRONICS LTD.
where equipment is fully overhauled

COLLINS 51J4 Receiver .................................................. P. O. A.
DRAKE SPR4 Receiver .................................................. £405.75
EDDYSTONE E835 Receiver ............................................. £118.45
EDDYSTONE E830 Mk. 1 Receiver ................................... £118.45
EDDYSTONE 830 Receiver .............................................. £485.75
EDDYSTONE 900S Receiver 230-870 MHz, AM/FM ................... P. O. A.
G.E.C. C410 Receiver 2-3 MHz ...................................... £118.45
G.E.C. C411R Receiver 0.15-30 MHz ............................... P. O. A.
TRIO 9R80D Receiver ................................................... £91.80
TRIO JR310 Amateur Bands Transceiver ............................ £131.10

We are MAIN DISTRIBUTORS for AVO, MEGGER, TAYLOR and SULLIVAN INSTRUMENTS

THE LATEST AVO AND TAYLOR METERS IN STOCK

AVO Digital Multimeter Model DA211 ................................ £51.75
AVO Digital Multimeter Model DA212 ................................ £74.75
AVO Digital Multimeter Model DA116 ................................ £122.93
AVO Digital Multimeter Model DA117 ................................ £155.25
Taylor Analogue Multimeter Model 131 .............................. £14.37
Taylor Analogue Multimeter Model 132 .............................. £20.70

Cases for AVO, TAYLOR & MEGGER instruments in stock.
Send for Details
We also repair all types of instruments
Trade and Educational enquiries invited

S. G. BROWN'S HEADPHONES. Type "F" 120 ohm, 2000 ohm, 4000 ohm, £18.05; Rubber Earpads for same, £2.87 per pr.; Standard Jack plugs, 50p.

SINCLAIR EQUIPMENT

DM235 Digital Multimeter .............................................. £58.99
Carrying Case for DM235 .............................................. £10.92
Main Adaptor for DM235 .............................................. £15.17
PDM35 Pocket Digital Multimeter .................................... £35.59
PFM200 Pocket Digital Frequency Meter ............................ £58.42
YAESU MUSEN FRG-7 Receiver ....................................... £204.75
YAESU MUSEN FRG-7000 Receiver ................................... £344.75

TRIO EQUIPMENT

New Trio R-300 Receiver, in stock, £193.89
All Bands with xtal calibrator

SHURE MICROPHONES, 526 T £35.42; 444 £29.21; 401A £14.95; 202 £13.80, 201 £13.11; 414A £22.43; 414B £22.43. Full details on request.

SCOPEX OSCILLOSCOPES IN STOCK.
VALVES. Please state your requirements.

TMK METERS: Model TP105, £18.05. Model 500TU-B £33.23. Model TW20CB £39.56. Model TP55N £21.27. Model 700 £68.42. Also in stock
Leather cases for above.

Model 7008, £72.16. Model 3020E (Digital) £115.00. Full details on request.
In present conditions we regret that all prices are subject to alteration without notice.

R. T. & I. ELECTRONICS LTD.
Ashville Old Hall, Ashville Road, London E11 4DX Tel. 01-539 4986
NEAREST STATION: LEYTONSTONE (Central Line)

HOURS — 9.30 am - 5.30 pm MON.-FRI. CLOSED SATURDAYS
## Lee Electronics Ltd

### LOWEST PRICES IN TOWN

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1000 RECEIVER</td>
<td>£289.00 inc VAT</td>
</tr>
<tr>
<td>+ A FREE PAIR OF HEAD PHONES</td>
<td></td>
</tr>
</tbody>
</table>

**FREE PAIR OF HEADPHONES**

**COMING ON IN AND SEE THEM WORKING!**

**COME ON IN AND SEE THEM WORKING!**

400 EDGWARE ROAD
LONDON W2
01-723-5521

**SECURICOR IS £3.50 EXTRA ON THE RECEIVERS**

**PUMA/SOUND-AIR PLS ADD £1.00**

C.B. ELECTRONICS

**UNIT 3, 771 ORMSKIRK ROAD, PEMBERTON, WIGAN, WN5 8AT**

Telephone: Wigan (0942) 216567

**THE BEST IN THE NORTH-WEST**

**HOW TO FIND US** — From M6 junction 26 follow signs for Wigan A577 at first traffic lights (T junction) turn right towards Wigan. At next traffic lights you are there, BUT turn left and 10 yards further turn right by telephone kiosk. Premises are slightly to your right. Plenty of parking space. Mileage from motorway ½ mile. From Wigan follow the A577 Skelmersdale to traffic lights at Fleet Street, Pemberton (Ye Olde White Swan on your left). Turn right then 10 yards right again. By Co-op. Mileage from Wigan 2½ miles.

<table>
<thead>
<tr>
<th>Product</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>YAESU FT9101M</td>
<td>£920.00</td>
</tr>
<tr>
<td>FT1012</td>
<td>£755.00</td>
</tr>
<tr>
<td>FT1012D</td>
<td>£961.25</td>
</tr>
<tr>
<td>LF1000D</td>
<td>£606.25</td>
</tr>
<tr>
<td>FT7B</td>
<td>£431.75</td>
</tr>
<tr>
<td>FT101</td>
<td>£132.25</td>
</tr>
<tr>
<td>FT101A</td>
<td>£210.00</td>
</tr>
<tr>
<td>FT101C</td>
<td>£148.50</td>
</tr>
<tr>
<td>FT227RD</td>
<td>£263.35</td>
</tr>
<tr>
<td>FT227RB</td>
<td>£119.00</td>
</tr>
<tr>
<td>FT207</td>
<td>£199.00</td>
</tr>
<tr>
<td>FT207R</td>
<td>£198.00</td>
</tr>
<tr>
<td>FT207M</td>
<td>£758.00</td>
</tr>
<tr>
<td>FT307</td>
<td>£523.25</td>
</tr>
<tr>
<td>FT307R</td>
<td>£106.25</td>
</tr>
<tr>
<td>FT707</td>
<td>£108.25</td>
</tr>
<tr>
<td>FT707R</td>
<td>£253.25</td>
</tr>
<tr>
<td>FT707M</td>
<td>£722.45</td>
</tr>
<tr>
<td>FC707</td>
<td>£106.25</td>
</tr>
<tr>
<td>FC107</td>
<td>£132.25</td>
</tr>
<tr>
<td>Charger</td>
<td>£18.67</td>
</tr>
<tr>
<td>QTR24</td>
<td>£18.40</td>
</tr>
<tr>
<td>YP150</td>
<td>£67.27</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Morse keys</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>£3.15</td>
</tr>
<tr>
<td>Nye King</td>
<td>£12.00</td>
</tr>
<tr>
<td>Nye King heavy duty</td>
<td>£13.90</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emotator</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>108.8X</td>
<td>£98.00</td>
</tr>
<tr>
<td>502CXX</td>
<td>£146.12</td>
</tr>
<tr>
<td>1102</td>
<td>£239.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HF Antennas</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>HGi Mini beam</td>
<td>£96.50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Antennas</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASP Antennas 2008 5/8 wave</td>
<td>£11.38</td>
</tr>
<tr>
<td>201 1/4 wave</td>
<td>£4.31</td>
</tr>
<tr>
<td>2000 Low Band</td>
<td>£7.13</td>
</tr>
<tr>
<td>4662 UHF</td>
<td>£6.75</td>
</tr>
<tr>
<td>677 5/8 wave</td>
<td>£14.95</td>
</tr>
<tr>
<td>462 5/8 wave</td>
<td>£7.66</td>
</tr>
<tr>
<td>Magnetic Base</td>
<td>£10.50</td>
</tr>
<tr>
<td>Boot mount</td>
<td>£3.50</td>
</tr>
<tr>
<td>High Pass Filter</td>
<td>£3.00</td>
</tr>
<tr>
<td>Headphones</td>
<td>£5.20</td>
</tr>
<tr>
<td>PTT mics</td>
<td>£4.50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Headphones</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2m Colinear</td>
<td>£22.00</td>
</tr>
<tr>
<td>Ringo Ranger</td>
<td>£22.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rotators</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR30</td>
<td>£47.15</td>
</tr>
<tr>
<td>AR40</td>
<td>£59.00</td>
</tr>
<tr>
<td>CD44</td>
<td>£108.25</td>
</tr>
<tr>
<td>CD45</td>
<td>£113.95</td>
</tr>
<tr>
<td>Ham IV</td>
<td>£186.75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rotators</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>C8800</td>
<td>£252.45</td>
</tr>
<tr>
<td>C7800</td>
<td>£275.45</td>
</tr>
</tbody>
</table>

**TERMS: ACCESS, C.W.O. CARRIAGE AND POST EXTRA AT COST.**

**INSTANT H.P. FOR LICENSED AMATEURS**

**S.A.E. ALL ENQUIRIES**

**H.P. AND CREDIT TERMS**
MAKE IT A GOOD START

A GOOD START is essential to short wave listening and expert advice is important in achieving this — So here’s some — If you’ve made up your mind to buy a receiver you should be aware it will perform only as well as the antenna it sees. The old adage regarding wire antennas ‘As long and as high as you can’ is still good, but at best is only good for PEAK PERFORMANCE on one or two frequencies, at worst none.

Whichever frequency you tune your receiver to, for PEAK PERFORMANCE on all frequencies you need good matching between your Receiver and Antenna to hear the best from it. If you plan to listen on the high frequency bands up to 30MHz then you know you can’t handle every frequency! Or can you? — Well, not quite! BUT we can offer you MUCH IMPROVED PERFORMANCE from your receiver by using an antenna tuning unit, that will electrically change the length of your antenna to match the frequency you select — In other words — A MATCH AT ALL FREQUENCIES.

You’ll see many antennas being advertised under gimmicky names, but when it comes down to it they’re only random wires or odd configurations. At the end of the day, if you’re expecting the performance the manufacturers specified, then you’ll still have to buy an antenna tuning unit.

Tell you what we’ll do — we’ll prove it to you — we’ll give you one ABSOLUTELY FREE when you buy your FRG 7 or FRG 7000 and we’ll give you complete advice on an antenna to suit your available space, which should only cost you a couple of pounds!

So let’s put the offer in big print for you!

| **1 YAESU FRG7 + AMTECH 200 ATU** | **£199.00** |
| **1 YAESU FRG 7000 + AMTECH 300 ATU** | **£299.00** |

What’s the difference between the Amtech 200 and Amtech 300? Well both will tune any random length of wire but the Amtech 300 will do a little extra — it will also tune co-axial fed antennas — Their normal selling price £25.95 — What can you lose?

So get cracking MAKE A GOOD START! HAVE PEAK PERFORMANCE FROM THE OFF.

**AMCOMM SERVICES**

194A NORTHOLT ROAD, SOUTH HARROW, MIDDX.
Tels: 01-864 1166 & 01-422 9585
Opening hours: Tues—Sat 9.00–5.30, Sundays by appointment. Closed Monday.

REG WARD & CO. LTD G2BSW

**YAESU**

FTG01DM ................................ £800.00 FTG01D ................................ £710.00
FTG01 ................................... £1760.00 FTG01 ................................ £1680.00
FTG01 ................................... £985.00 FTG01 ................................ £979.00
FP01D ................................... £142.19 FTG01 ................................ £275.29
FT101D .................................. £575.00 FTG01 ................................ £183.05
FT101 ................................... £720.00 FTG01 ................................ £188.50
FT101 ................................... £455.00 YG501 ................................ £110.00
FT76 ..................................... £375.00 YF125 ................................ £55.00
FT7 ....................................... £195.00 FP1072 ................................ £55.00
FT7 ....................................... £346.96 FP200 ................................ £55.00
FP101D .................................. £600.00 FP12 .................................. £67.00
FR101 .................................... £350.00 FP4 .................................... £35.00
FR7000 .................................. £132.00 SP101 ................................ £24.00
FR7 ...................................... £225.00 SP101 ................................ £19.00
FR7 ...................................... £185.00 YD148 ................................ £18.50
FL110 .................................... £170.00 YD844 ................................ £18.00
YO101 .................................. £185.90 YD846 ................................ £7.50

**SWAN UK APPOINTED DEALERS FOR THE SOUTH-WEST**

| **ASTRO 1028X** | £863.91 | **PSU 6** for 1021 | £123.48 |
| **ASTRO 150** | £533.04 | **PSU S** for 150/1001 | £137.39 |
| **100MX** | £365.48 | **ST3 ATU** | £106.09 |

**KDK FM202SE** £217.39


HP Available. Carriage extra. Add 15% VAT to all prices. Please check prices and availability before ordering.

**ACCESS/BARCLAY CARD/TRUST CARD**

GEORGE STREET, AXMINSTER, DEVON. EX13 5DP.
Telephone: 33163 (Std 0297).

**We give you the world.**

Enrol in TUTORCOURSE and we’ll take you step by step towards a full Amateur Radio Operator’s Licence.

Clip the coupon and discover the world.

**TUTORCOURSE**

Amateur Radio Operator

Please give the details of your AMATEUR RADIO COURSE

**Name**

**Address**

**Postage** Please

First name, without obligation to

SWT/9

British National Radio
& Electronics School

P.O. Box 100, Jersey, Channel Isles
The Short Wave Wizards

TRIO R1000 PLL SWL Receiver 200 kHz to 30 MHz  £297.85

(Securitor delivery arranged if required)

Price inc. VAT

TX300 SWL Receiver 189.00
RXB00 The ultimate SWL receiver 690.00
S6200 Speaker 37.95
IS10 Communications headphones, tailored response 21.95
I4A Communications headphones, tailored response 10.95
TR2000 Multi-Mod 234.00

VHF AMATEUR RECEIVERS

X15 Tuneable crystal 3m-2m and 144 MHz 46.00
AMR2125 Schemer with Excalibirs, mains battery 120.75

TUNERS & SWITCHES

KX 2m SWL 3-way Antenna Switch 7.20
KX1 1K 3-way Antenna Switch 18.95

AIR BAND RECEIVERS

SHARP FX 231 A All Band Portable Receiver 18.75
SKY ACE R517 A All Band Portable 48.50
CRP7000 24-hour Digital Clock, mains operated 12.95
Send 50p for details. All prices include new VAT rate.
NEW FROM HEATHKIT

From the finest range of electronic kits in the world, two new top quality kits you can build easily.

2 Metre FM Digital Scanning Transceiver
Fully synthesised with digital readout, it scans 2 metres complete, monitors selected frequency before scan and provides Simplex and Repeater operation.
An AC power supply is also available.

2 Metre 80 Watt Mobile Amplifier
This is suitable for all models and available for Base Station use with AC supply models.
Full information of these and all Heathkit Amateur Radio Kits is available in the Heathkit catalogue. Send for your copy today.

To: Heath Electronics (UK) Limited, Dept SW17, Bristol Road, Gloucester, GL2 6QE. Please send me a copy of the Heathkit catalogue.
Enclose 25p in stamps.

Name
Address

NB: If you are already on the Heathkit mailing list you will automatically receive a copy of the latest Heathkit catalogue without having to use this coupon. When you receive your catalogue you will get details of this free offer.

HEATHKIT

Give for those who Gave

Thousands of men and women who served in the Royal Air Forces have given their health or even their lives in the defence of Freedom and many of them or their dependants are now in need of help.
Please assist by giving all you can for an emblem during WINGS WEEK or please send us a donation.

PLEASE WEAR THIS EMBLEM DURING WINGS APPEAL in September

Wings Appeal

BATTLE OF BRITAIN

Space donated by: S W Magazine

details. (Eire) — Box No. 5720, Short Wave Magazine Ltd., 34 High Street, Welwyn, Herts. AL6 9EQ.

Selling: 80-ft. aerial, UHF/VHF, with two-man inspection gantry. Best offers considered. — Ring Payne, Lincoln (0522) 32160.

Sale: FRG-7000, good condition, 2 years old, £220 including carriage. — Bishop, 73 Holcombe Green, Upper Weston, Bath, Avon.

Wanted: Heathkit HFW-1 and Knightkit KG-687 alignment generators. Good prices paid, repairable models considered. — Healey, 7 Firtree Road, Hastings, Sussex. (Tel: 0424-427374).

Sale: Bearcat 220 with Discone antenna, little used since new in May, £200 including Securicor delivery. — Ring Harris, Aycliffe (0325) 314638.


Selling: FDK Multi-700E 2m. FM transceiver with five-eighths mag-base whip, as new, £170. Standard C.7800 70cm. FM transceiver, U5 colinear, 48-element multibeam, all brand new, £260. — Ring Dykes, Orpington 35616.


For Sale: Labgear Topbander Tx, modified to anode-and-screen modulation, uprated PSU, £30. — Ring Bayly, Hatfield, 72337.

Sale: Complete station of the late G. Killick, G3ADM: Heathkit DX-1000 transmitter and Eddystone 940 receiver. — Ring Hatfield 62508 after 7 p.m.

Selling: National HRO receiver, good working order, with BFO and full coverage coils, £40 or near offer. — Ring Chester, Weeton (039136) 321.

Wanted: Morse key, and head and mic. set, as used with WS-19 or WS-18, must have original plug and lead and be in very good condition. Details and price please (stamp refunded). — Barker, 42 Swinhoe Gardens, Wideopen, Newcastle-upon-Tyne NE13 6AF.

Selling: Realistic DX-300 digital display receiver, new this year, £150. — Barker, 57 Portland Road, Rugby. (Tel: Rugby 70385).

October issue: due to appear September 26th. Single copies at 60p post paid will be sent by first class mail for orders received by Wednesday, September 24th, as available. — Circulation Dept., Short Wave Magazine Ltd., 34 High Street, Welwyn, Herts. AL6 9EQ.

For Sale: Marconi TF-1060/3 signal generator, waveform analyser, pulse generators, Advance signal generators, Radivet magnetometers, etc. — Ring Yelverton 3318 after 5 p.m.

Sale: FT-101 Mk.11 with fan and microphone, £300. Datong automatic speech clipper, £60. KW-107 antenna tuning unit, £80. All in excellent condition. Buyers collect, or carriage
CALL BOOKS
INTERNATIONAL:
RADIO AMATEUR CALL BOOKS (1980)
"DX Listings"
"U.S. Listings"
£9.65
£10.15
£3.80

MAPS
"SHORT WAVE MAGAZINE" DX ZONE
MAP (GREAT CIRCLE)
In colour, 8th Edition
£2.50

AMATEUR RADIO MAP OF THE WORLD
Mercator Projection - Much DX Information
in colour, Second Edition
£1.10

RADIO AMATEUR MAP OF THE U.S.A.
AND NORTH AMERICA
State Boundaries and Prefixes, size 24" x 30"
paper
95p.

RADIO AMATEUR'S WORLD ATLAS
In booklet form, Mercator projection, for desk use. Gives Zones and Prefixes
(Latest 10th Edition)
£1.65

LOG BOOKS
Amateur Radio Logbook
Receiving Station Log
Mobile Logbook
£2.60
£1.70
£1.10

(The above prices include postage and packing)

Available from:
Short Wave Magazine
Publications Dept.,
34 High Street, Welwyn, Herts. AL6 9EQ
Tel: Welwyn (043871) 5206/7
(Counter Service, 9.30-5.15 Mon. to Fri.)
(Giro A/c No. 547 6151)

FT101EE + Y0101 £549

<table>
<thead>
<tr>
<th></th>
<th>List</th>
<th>Sale</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT101EE</td>
<td>578.45</td>
<td>£429</td>
</tr>
<tr>
<td>Y0101</td>
<td>541.96</td>
<td>£369</td>
</tr>
<tr>
<td>FT101EX</td>
<td>514.60</td>
<td>£399</td>
</tr>
<tr>
<td>FTV250</td>
<td>212.75</td>
<td>£129</td>
</tr>
</tbody>
</table>

All Prices include VAT @ 15%

SMC NORTHERN (Leeds) BRANCH
SOUTH MIDLANDS COMMUNICATION LIMITED
257, Osley Road, Lees 16, Yorkshire
Telephone: Leeds (0532) 762208

extra. — Clark, 38 Teignmouth Road, London NW2 4HN.
(Tel: 01-450 4466).

For Sale: Trio TS-520SE transceiver, £395. Katsumi electronic
squeeze keyer, £60. Marconi Atlanta marine receiver, 15 KHz
28 MHz, with transformer, £100. Buyers inspect and collect,
or arrange delivery. — Ring Kelly, 061-431 9710.

Moving House: Must sell urgently: Yaesu FT-207R plus
charger and spare NiCad. SR-9 tunable 2m. Rx. All absolutely
mint, boxed. N.E.C. CQ-110E digital HF transceiver, Hy-
Gain 18AVT/WB, perfect condition. Joystick Type 'J', brand
new. 'Brainbank' personal computer with language modules.
Low prices for quick sale. — Ludkin, G4BKM, QTHR. (Tel:
0895-834358).

Selling: Bearcat 210 VHF/UHF scanner, covers 2m., £165 or
near offer, Hammarlund SP-600, working but needs
attention, £55. NR-56 2m. monitor, £35. All complete with
manuals. — Ring Janetta, Red Row (0670) 760655.

Sale: FT-101E transceiver, excellent condition, late model,
original packing, with manual, £385. — Ring Davis, G4IZG,
Worthing (0903) 41109.

Selling: FT-101E, 30 hours use since new, £435. TR-2200GX,
crystalled S20-S24, R6/7/8, with Nicads, charger and case,
£110. MB-1 mobile mount, £8. SP-101B speaker, £14. Mizuhbo
SB-2M, 114.2-144.4 MHz, £105. All immaculate, with original
boxes, handbooks and mics. The following new: YTK filters;
SSB, £16; FM, £18; CW, £16. LSB/USB xtal, £2 each. Osker
SWR-200, £26. 4CX250B, £12; 829B, £9; 832, £5. Carriage
extra. — Hope, GM3MGT, 17 Longhill Gardens, Dalgety
Bay, Fife KY11 5SG. (Tel: 0383-822131).

Wanted: R.A.F. air publications relating to radio/radar
equipment from 1939 onwards (e.g. AP.1186, etc., etc.),
Whole or odd parts purchased at your price. — Gee, 29
Studland House, Aston Street, London E14 7NL. (Tel: 01-790
2846).

Sale: Heath SB-101 transceiver complete with SB-600 speaker,
HP-23 power supply, GH-12a mic., and handbook, only £135.
(Glos.) — Box No. 5721, Short Wave Magazine Ltd., 34 High
Street, Welwyn, Herts. AL6 9EQ.

Selling: FT-101E, new PA valves and accessories, all in mint
condition, offers invited around £400. — Stubbs, G4DBX,
QTHR. (Tel: Crewe 581657).

Sale: Icom IC-701 HF transceiver with PS-701, in mint
condition, £600. (Cheshire). — Box No. 5722, Short Wave
Magazine Ltd., 34 High Street, Welwyn, Herts. AL6 9EQ.

Selling: 16-ele 2L. 2m. beam, unused, £30. Pye Starphone,
UHF, £25. Taylor valve tester, £10. — Ring Hadley, G4JXX,
021-773 6488 evenings.

For Sale: Joystick antenna (System 'J'), new, with
headphones, £25. Denshi radio block set, with amplifier, £15.
— Ring Monan, Workington 4776.

Sale: Hammarlund HX-50 SSB/CW Tx, £60. KW-600 linear,
£125. Eddysonse 888 receiver (ideal SWL ham bander), £75
KW-77 receiver, £55. All in very good condition, and with
manuals. — (Herts). — Box No. 5723, Short Wave Magazine
Ltd., 34 High Street, Welwyn, Herts. AL6 9EQ.

Wanted: Military radios built inside civilian-style suitcases.
Any condition! — Melton, Box 2037, Ogden, Utah 84404,
U.S.A.
Wanted: Power Unit for suitcase set, condition immaterial. Any other B.2 ancillary equipment to units also required. — Morris, G4GEN, QTHR. (Tel: 0825/1-2205).


Wanted: Eddystone mains unit adaptor and Eddystone ‘active aerial’ unit to match improved EC-10 receiver. — Ring Kane, 051-709 7303.

("SITUATIONS" AND "TRADE")

20p per word, minimum charge £2.40. No series discount. All charges payable with order. Insertions of radio interest only accepted. Add 50p per cent for Bold Face (Heavy Type). No responsibility accepted for transcription errors. Box Numbers 40p extra. Replies to Box Number should be addressed to the Short Wave Magazine Ltd., 34 High Street, Welwyn, Herts., AL6 9EQ.

TRADE

Radio Amateur Examination City and Guilds. Pass this important Examination and obtain your G8 Licence with an RRC Home-Study Course. For details of this and other courses (GCE, professional examinations etc.) write or phone: THE RAPID RESULTS COLLEGE, Dept. JVI, Tunition House, London SW19 4DS. Careers Advisory Service, 01-947 7272 or ring 01-946 1102 for Prospectus (24-hr. Recordacall.)

October issue: Due to appear September 26th. Single copies 60p post paid will be sent by first class mail for orders received by Wednesday, September 24th, as available. — Circulation Dept., Short Wave Magazine Ltd., 34 High Street, Welwyn, Herts. AL6 9EQ.

Coax cables at trade prices. UR43, UR67, UR76, UR57 and UR70. Also mains and multicores, s.a.e. for lists. — W. H. Westlake, Clifton, Holsworthy, Devon.

Good second-hand equipment always wanted. Come to AMATEUR RADIO EXCHANGE for the best deal. — 2 Northfield Road, Ealing, London W13 9SY. (Tel: 01-579 5311.)

QSL cards. Sample pack and price list forwarded on receipt of £0p stamp. — Derwent Press, 69 Langstone Drive, Exmouth, Devon EX8 4HZ.

Second-hand amateur radio equipment bought and sold. In stock: HF base station, antennas, mobile HF antennas, SWR bridges, coax plugs and cable, base station microphones, compressor microphones, plus a very good range of car suppression equipment. Not forgetting, of course, our super ½-wave mag. mount complete (tested to 110 m.p.h.) only £175.00. Jaybeam, A.S.P., and Sommerkamp also stocked. — The C.B. Shack, 61 High Street, Orpington, Kent. (Open six days a week).

Mixed: 200 components, £4; 50 transistors, 95p; 100 diodes, 85p. Lists, 15p. — Sole Electronics (SW), 37 Stanley Street, Ormskirk, Lancs.

FR101SD + FL101 £799

List | Sale
---|---
FR10ID | 707.25 £699
FR10IS | 454.25 £399
FR10SD | 592.25 £499
FL101 | 500.25 £399.00
FL10IP | 547.98 £419.00
YO101 | 194.93 £148.00

All Prices include VAT @ 15%

SOUTH MIDLANDS COMMUNICATIONS LTD.
Osborne Road, Totton, Southampton, SO4 4DN
Tel: Totton (0703) 607333, Telex: 477351 SMCOMM G

POPULAR QUALITY LINES IN PLUGS AND SOCKETS, ETC.
All below inc. VAT at 15%. Post 20p par parcel, any quantity.
PL259 PLUGS, Excellent Quality 55p each (8 or more 50p each)
REDUCERS for above for UR43/76 15p each (8 or more 14p each)
4 PIN MIKE PLUGS. As used on most rigs 60p each
4 PIN MIKE SOCKETS to fit above. chassis mt. 60p each
2 x SO239 COUPLER. 2 Plugs back to back, in line. 70p each
2 x PL259 COUPLER. 2 Plugs back to back 70p each
SO239 SOCKET. Square Chassis Mount 55p each
SO229 SOCKET. Single Hole Mount 50p each
SO239 to PL259 ELBOW COUPLER. £1.00 each
T' CONNECTOR. 3 x SO239 outlets £1.20 each
T' CONNECTOR. 2 x SO239, 1 x PL259 £1.30 each
SOLDERLESS SPLICE/PLUGS for UR76 80p each
SO229 to BNC PLUG. Adaptor £1.60 each
BNC PLUG TO PL259 PLUG. Adaptor £1.60 each
BNC COUPLER. 2 x Female £1.40 each
BNC COUPLER. 2 x Male £1.95 each
DUMMY LOAD. 100 watts £6.00 each
DUMMY LOAD. 50 watts £4.00 each
DUMMY LOAD. 20 watts £3.00 each

SAE for Full Lists.
W. H. WESTLAK, G3MWW, Clifton, Holsworthy, Devon.

ALL

VALVES
& TRANSISTORS

Call or phone for a most courteous quotation
01-749 3934

We are one of the largest stockists of valves etc. in the U.K.

COLOMOR ELECTRONICS LTD. 170 GOLDFAX ROAD LONDON W12

CONGRATULATIONS!
to Vernon GBSG

The first RSGB, 2 metre FMD award gained with our ZL-12 Special Antenna.
Well done!

From:
NORTHERN COMMUNICATIONS See page 454

MORSE MADE EASY BY THE RHYTHM METHOD!

FACT NOT FICTION
ONLY A RECORD PLAYER REQUIRED

If you start RIGHT you will be reading amateur and commercial Morse within a month. (Most students take about three weeks). That's why after 26 YEARS we still use three scientifically prepared special records with which you cannot fail to learn the MORSE RHYTHM automatically. It's as easy as learning a tune.

20 w.p.m. in 4 weeks guaranteed. Complete course comprising 2 x 12" + 1 x 7" multi-speed records + books. £5.50 plus (U.K. p.p. £7.50, Overseas sufficient for 750 grms.). For details only: ring S. Bennett 01-880 2286. SNOOPER radar detectors, 4 year guarantee £79.50.

S.A.E. to S. BENNETT (Box 14) 45 GREEN LANE, PURLEY, SURREY CR2 3PD
YOUR SOMMERKAMP IMPORTER

GEMINI COMMUNICATIONS

SOMMERKAMP TS20QFM 40WATT/10WATTS
80 Channel 50 watt 2 meter Transceiver. Rapid channel switching with digital read-out. Tone set 10 watt low power output switch. Complete with mobile mount & mic for £199
Low power as above 10 watt/1 watt £169.

SOMMERKAMP TS802
Hand held 80 channel 2 watt 2 metre Transceiver. Electronic scanning, digital read-out, tone burst. Complete with carry case. Flexible aerial and a battery charger for £172.90.

SOMMERKAMP
FRG7 = £185. FT2076E = £195. FT2276A = £225. FT307 (FT1107 etc) = £348. FT501 = £314. FT2776D (FT1107D etc) = £681 and the new FT7671 = £765.

ROTORANTENNAS. GENUINE SOMMERKAMP SWR BRIDGES AND 12 VOLT POWER SUPPLIES.
All prices include VAT. Barclaycard and Access welcome. H.P. terms available. Part Exchange S.A.E. for details.

G2BAR HAM BAND AERIALS

Price

2 metre Folded Dipole YAGI

inc
VAT

5/DF. 1/2 Element Square section Boom £6.92 £1.15
6/DF. 1/2 Element Reinforced Boom £9.78 £1.15

2 metre "J" Pole

1/JP. 1/2 wave matching sections, enclosed connectors with 1/2 wave radiator 15mm square elements £6.33 £1.15

2 metre Stacked 2 x 1/2 Colinear Vertical "J" matching section enclosed connectors £14.95 £3.45

70/DF. Folded Dipole YAGIs £6.33 £1.15
6/DF. Square Element section Boom £9.78 £1.15

11/DF. 1/2 Element Reinforced Boom £9.78 £1.15

HF 1/2 wave Mono Band Verticals with insulator and ground post sections £6.63 £1.15

10/6/4 metre vertical. 3 sections of telescoping tubing. dia. 1" to 2" £6.63 £1.15

15/6/4 metre vertical. 4 sections of telescoping aluminium tube. dia. 1" to 2" £9.78 £1.15

20/6/4 metre vertical. 6 sections of telescoping aluminium tube. dia. 1" to 2" £11.50 £1.15

2 metre YAGI Beams

Driven and Director elements. Boom to element clamps. Tubular Gamma Match tuning unit supplied.

10 metre = 1 element array £28.85 £4.00
15 metre = 2 element array £36.00 £4.00
20 metre = 3 element array £46.20 £4.00

Well designed and constructed.

Boom to Mast. Bracket plate. 4/1 Bolts £32.80 £1.15

Trapped Vertical 1/2 wave 300 watt. 10-15 and 20 metres. Tuned. Solid line traps. Telescoping Aluminium ELEMENTS FOR easy adjustment £25.30 £4.00

Double "J" Pole Vertical for 10-15-20 metre £39.80 £5.00

15mm Square section aluminium tubing. Individual 1 waves. Single 50 ohm feed £18.40 £4.00

Portomasts 12/4 telescoping aluminium tubing extended to 12 50 portomasts £12.06 £1.15

18/6.18. Portomasts with 6 guys and ground pegs £12.06 £1.15

For descriptive leaflets please send £2.00 in stamps.

Uppington Tele-Radio (Bristol) Ltd.
12-14 Pennywell Road, Bristol BS5 0TJ
Telephone: 0272 557732

LONDON CAR TELEPHONES

have the following vacancies in Croydon for top calibre personnel:

SERVICE MANAGER — To take total charge of our service department, liaise with customers and suppliers.
A sound knowledge of current VHF/UHF radio technique with the relevant practical experience is required together with the ability to supervise others.

SERVICE TECHNICIANS — Required to maintain VHF/UHF radio equipment.
We are seeking experienced personnel although we may be prepared to train suitable applicants.

FIELD SERVICE MANAGER — To be responsible for the repair, maintenance and commissioning of all types of VHF/UHF base stations. The ability to liaise with customers and contractors is essential.
Applicants should have experience maintaining GEC/PYE etc base stations and to be familiar with line signalling techniques and aerial multi-coupler systems.
Experience is considered more important than formal qualifications. Working throughout South London and Surrey, we would provide a company car which is available for private use.

All the above positions offer attractive salaries and other fringe benefits.

Contact:

LONDON CAR TELEPHONES on 01689 4444
9/13 Lower Addiscombe Road, Croydon, Surrey.

SAMSON ETM-3C C-MOS KEYER

1mA battery drain — Why switch off?

- Self-completing dots/dashes/spaces — Can be used either as normal electronic keyer or as an iambic mode squeeze keyer — 5-50 wpm — Constant 3:1 dash-dot ratio — 6 C-MOS ICs and 4 transistors — Plug-in PCB — Long battery life — typically 1mA drain when idling — Built-in battery holder for 4 x 1.5 v. batteries (but will work over 3-10 v. range) — PCB has both a read relay (250 v., 0.5 amp., 25 w. max.) and a switching transistor (200 v., 30 mA max.) — either keying method can be used — Has the well-known fully-adjustable Samson precision twin keying lever assembly — Operate/Tune button — Sidetone oscillator — Grey case 4" x 2" x 6" — ETM-3C, £65.30.

ETM-4C MEMORY KEYER — Has ETM-3C features plus 4 memories of 22 characters each or 2 of 44. Erase/Rewrite memories as needed — Send £25.96 by canceling button. £12.46.

BUILT FOR DEPENDABLE MARINE AND COMMERCIAL SERVICE

JUNKER PRECISION HAND KEY: A superbly engineered straight key for many years by professionals afloat and ashore. With this key you can’t help but send good Morse. Free standing — no screwing down. Front and back contacts — fully adjustable gaps/tension. Key-click filter. Hinged grey cover. £37.89.


88 mH TOROIDS: For CW. RTTY. SSTV and other filters. £1.15 each.

All prices post paid UK and include 15% VAT

Please send stamp with enquiries

SPACEMARK LTD.
THORNFIELD HOUSE, DELAMER ROAD
ALTRINCHAM, CHESHIRE
(Tel: 061-928 8458)
CRAYFORD ELECTRONICS
GB1WX

FLEXIBLE HELICAL AERIALS FOR HAND PORTABLES
VHF - UHF

Frequency Connector Fitting Price
70MHz (4m) 2B, BNC, PL259 £6.00
145MHz (2m) 2B, BNC, PL259, Pye PF70, 2200GX
2300. IC125, IC202S £4.20
88MHz angle BNC, PL259, TNC £5.35
Storno 500 Pye Bantam £5.00
443MHz (70cm) 48A fuse on PFI £2.65
BNC, min BNC, Pye PF70, 3200. Storno £3.35

Prices inclusive of VAT and carriage, most items ex stock. Many others available including commercial, marine etc.

ACCESS SAE all enquiries BARCLAYCARD
6 LOVELACE CLOSE, WEST KINGSDOWN, SEVENOAKS, KENT TN2 6DJ
24th Answer Service 047486 2577

LOSING DX?
ANTENNA WRONG? Poor reports? Check it FAST with an Antenna Noise Bridge. MEASURE resonance 1-150MHz and radiation resistance 2-1000 ohms, get MORE DX, £11.80.

60KHz RUGBY RECEIVER, atomic time signals, serial data output, 100Km range, built-in antenna, £13.70.

MISSING DX? QRM? Dig out the RARE DX with a Tunable Audio Notch Filter, between your receiver and speaker, BOOST your DX/QRM ratio, 400Hz notch, £10.90.

V.L.F. EXPLORE 10-150KHz. Receiver £13.70.

Each fun-to-build kit includes all parts, printed circuit, case, postage etc., instructions, money back assurance so SEND off NOW.

CAMBRIDGE KITS
45 (S.J) Old School Lane, Milton, Cambridge.

ROBOT '800' SUPER TERMINAL
THE FIRST INTEGRATED RTTY, ASCII, MORSE, SSTV, TERMINAL

The Super Terminal has everything you need for specialty mode operation built in, with far too many bounds capabilities and features to list here. Please send 12NP stamp for complete description and full details of this exciting unit. £465 including VAT. H.P. available if required.

AERIAL AND GENERAL SUPPLIES
Building 23, East Midlands Airport, Castle Donington, Derby.
Tel: 0332 812570 or 0602 397588

HAM RADIO
A BEGINNER'S GUIDE
by R. H. Waring

Written by a well-known author, this book deals with transmitting and receiving equipment: its installation and maintenance; the operation of amateur stations; call signs; amateur transmitting licences; Morse Code transmission described in detail.

Excellent reading for those wishing to gain a sound knowledge of Amateur Radio without the need to become too technically expert. 152 pages £3.95 inc. post

Publications Dept.,
Short Wave Magazine Ltd., 34 High Street,
Welwyn, Herts. AL6 9EQ. Tel: Welwyn (043871) 5206/7

G2DYM ANTI-TVI AERIALS
1980 Range: Shortwave Listener Indoor models £14.50 & £27.50. Outdoor models £30.00 & £36.00.

Tx-ing models £42.50, £52.50 & £59.75.

Lists 10 x 8in 17p SAE. Aerial Guide 50p.

New Publication "Invisible Aerials for S.W.L.s" — £3.50.

G2DYM, UPLEWMAN, TIVERTON, DEVON

RADIO AMATEUR PREFIX COUNTRY-ZONE LIST
published by GEOFF WATTS
Editor of "DX News Sheet" since 1962

The List you have always needed, the list that gives you everything, and all on one line! For each country:-
- its DXCC "status"
- the QRM prefix
- the special prefixes
- the ITU Zone No.
- the ITU call sign block allocation

Full information on Antarctic stations, USSR clubs stations, obsolete prefixes used during the past 5 years, and much more, and the List can be kept always up-to-date because ample space has been provided for adding every new prefix, each new ITU allocation etc.

Everything arranged alphabetically and numerically in order of prefix ideal for Contest operators and SWL's.

Tell your Club-members about it. Order an extra copy for that overseas friend. 15 pages. Price 50p (UK), overseas, get 2l.00 or 6 IRCs.

GEOFF WATTS
62 BELMORE ROAD, NORWICH NR7 0DU, ENGLAND

BUTTERWORTH TITLES NOW IN STOCK...
The Practical Aerial Handbook, 2nd Edition
by Gordon J. King

232 pages (Soft Cover) £7.00 inc. post
Foundations of Wireless and Electronics, 9th Edition
by M. G. Scroggie

521 pages (Soft Cover) £5.40 inc. post
Radio and Electronic Laboratory Handbook, 9th Edition
by Scroggie-Johnstone

591 pages (Hard Cover) £19.05 inc. post

Available from Publication Dept.,
Short Wave Magazine Ltd.,
34 High Street, Welwyn Herts., AL6 9EQ
### a selection of specially recommended titles ...

<table>
<thead>
<tr>
<th>Title</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>* LEARNING TO WORK WITH INTEGRATED CIRCUITS (ARRL)</td>
<td>£1.70</td>
</tr>
<tr>
<td>* SIMPLE, LOW-COST WIRE ANTENNAS, by W. Orr W6SA1</td>
<td>£3.50</td>
</tr>
<tr>
<td>* A GUIDE TO AMATEUR RADIO, 18th Edition (RSGB)</td>
<td>£2.95</td>
</tr>
<tr>
<td>* TEST EQUIPMENT FOR THE RADIO AMATEUR (RSGB)</td>
<td>£4.50</td>
</tr>
<tr>
<td>* WORLD RADIO TV HANDBOOK 1980</td>
<td>£9.40</td>
</tr>
<tr>
<td>* WORLD DX GUIDE</td>
<td>£6.40</td>
</tr>
<tr>
<td>* WORKING WITH THE OSCILLOSCOPE</td>
<td></td>
</tr>
<tr>
<td>* AMATEUR RADIO TECHNIQUES, 6th Edition (RSGB)</td>
<td>£4.00</td>
</tr>
<tr>
<td>* AMATEUR RADIO OPERATING MANUAL (RSGB)</td>
<td>£4.80</td>
</tr>
<tr>
<td>* VHF/UHF MANUAL, 3rd Edition (RSGB)</td>
<td>£7.20</td>
</tr>
<tr>
<td>* VHF HANDBOOK, by W. L. Orr W6SA1</td>
<td>£4.00</td>
</tr>
<tr>
<td>* RADIO COMMUNICATION HANDBOOK, Vol. I (5th Ed.) RSGB</td>
<td>£9.75</td>
</tr>
<tr>
<td>* RADIO COMMUNICATION HANDBOOK, Vol. II (5th Ed.) RSGB</td>
<td>£8.40</td>
</tr>
<tr>
<td>* SOLID STATE BASICS FOR THE RADIO AMATEUR (ARRL)</td>
<td>£3.35</td>
</tr>
<tr>
<td>* RADIO AMATEUR'S EXAMINATION MANUAL, 8th Ed. (new syllabus) RSGB</td>
<td>£2.70</td>
</tr>
</tbody>
</table>

(all prices include post/packing)

Available from **SHORT WAVE MAGAZINE**
Publications Dept.,
34 HIGH STREET, WELWYN, HERTS. AL6 9EQ.  Telephone: Welwyn 5206/7.

---

### Elements of Electronics

**by F. A. Wilson**

This book, published by Babani in three volumes, aims to provide a comprehensive introduction to the fundamental principles of modern electronics — while assuming no more than ordinary arithmetical skills on the part of the reader. Each volume consists of over 200 pages, and each is priced at **£2.50** inc. post/packing.

**Book 1:** The Simple Electronic Circuit and Components.

**Book 2:** Alternating Current Theory.

**Book 3:** Semiconductor Technology.

Order from:
Publications Dept.
**SHORT WAVE MAGAZINE LTD.**
34 HIGH STREET, WELWYN, HERTS. AL6 9EQ

---

### Callbook 1980

**DX Listings £9.65**

**U.S. Listings £10.15**

The above prices include postage and packing
Technical Books and Manuals

(ENGLISH AND AMERICAN)

AERIAL INFORMATION
Antenna Handbook (Orr and Cowan) ................................ £4.10
Practical Aerial Handbook, 2nd Edition (King) .............. £7.00
Beam Antenna Handbook ........................................... £3.15
Cubical Quad Antennae, 2nd Edition ......................... £3.15
Simple Low Cost Wire Antennae, by Orr ..................... £3.50
73 Vertical Beam and Triangle Antennas (E. M. Noll) .... £4.00
73 Dipole and Long Wire Antennas (E. M. Noll) ........... £4.00
Antenna Book (ARL) 13th Edition ........................... £3.60
The ARRL Antenna Anthology .................................. £2.75
Two-metre Antenna Handbook, F. C. Judd G2BCX ...... £4.35

BOOKS FOR THE BEGINNER
Questions and Answers on Amateur Radio, by F. C. Judd G2BCX .................................................. £2.05
Elements of Electronics, Book 1 ................................ £2.60
Elements of Electronics, Book 2 ................................ £2.50
Elements of Electronics, Book 3 ................................ £2.50
Solid State Short Wave Receivers for Beginners (R. A. Penfold) .................................................. £1.15
Beginners Guide to Electronics ................................ £3.35
Beginners Guide to Microprocessors and Computing .... £2.05
Course in Radio Fundamentals, ARRL ....................... £2.80
Guide to Amateur Radio (new 18th Edition) (RSGB) .... £2.95
Ham Radio (A Beginners Guide) by R. H. Waring ........ £3.95
Morse Code for the Radio Amateur (RSGB) ............... £1.20
Understanding Amateur Radio (RSGB) ...................... £3.65
Radio Amateur's Examination Manual, 8th Edition (new syllabus) (RSGB) ................................ £2.70

GENERAL
How to Build your own Solid State Oscilloscope (Rayer) .... £1.75
Projects in Radio and Electronics (Newnes) ............... £2.60
How to Make Walkie Talkies (Rayer) ......................... £1.50
How to Build Advanced Short Wave Receivers (Penfold) .... £1.40
FM & Repeaters for the Radio Amateur (ARL) ............ £3.20
Essibinder (to hold 12 copies of "Short Wave Magazine" together) .................................................. £2.70
Oscar - Amateur Radio Satellites ............................ £4.30
World DX Guide ...................................................... £5.40
Guide to Broadcasting Stations (new 18th Edition) .... £3.40
Radio Stations Guide ................................................. £1.75
Long Distance Television Reception (TV-DX) for the Enthusiast .................................................. £1.75
Counter Driver and Numerical Display Projects, Rayer .... £2.05
Weekend Projects for the Radio Amateur, ARRL .......... £2.15

HANDBOOKS AND MANUALS
TVI Manual (2nd Edn.) (RSGB) ................................. £8.40
Radio and Electronic Laboratory Handbook by Steve Johnstone, 1980 (9th Ed) ................. £19.05
RTTY Handbook (73 Magazine) .............................. £3.55
Slow Scan Television Handbook (73 Magazine) ............. £3.55
Specialized Communications Techniques for the Radio Amateur (ARL) ................................ £2.85
Working with the Oscilloscope ................................. £4.05
The Radio Amateur's Handbook 1980 (ARL) soft cover ...... £7.65
The Radio Amateur's Handbook 1980 (ARL) hard cover .... £10.65
Shortwave Listener's Handbook ................................. £3.30
Learning to Work with Integrated Circuits (ARRL) ..... £1.70
Weather Satellite Handbook ..................................... £0.00
Single Sideband for the Radio Amateur (ARL) ............ £2.95
Test Equipment for the Radio Amateur (RSGB) .......... £4.50
Amateur Radio Operating Manual (RSGB), new title ................................. £4.80
Satellite Communications (ARL) ............................. £3.25

USEFUL REFERENCE BOOKS
Solid State Design for the Radio Amateur (ARRL) ........ £5.00
Foundations of Wireless and Electronics, 9th Edition (Scoppe) .................................................. £5.40
Amateur Radio Techniques, 6th Edition (RSGB) ............ £4.00
U.K. Call Book 1980 (RSGB) .................................. £3.80
Hints and Kinks (ARRL) .......................................... £2.85
Radio Data Reference Book (ARRL) ......................... £3.66
Electronics Data Book (ARRL) ................................ £3.25
ARL Ham Radio Operating Guide ............................. £1.00
Radio Frequency Interference (ARRL) ...................... £2.20
Amateur Radio Awards, RSGB ................................ £3.40

VALVE AND TRANSISTOR MANUALS
 Towers' International Transistor Selector 1980 Edition (Up-Date No. 2) ................................ £10.40
Service Valve and Semiconductors Equivalents ............. £1.00
Radio Valve and Semiconductor Data (10th Edition) .... £4.35

VHF PUBLICATIONS
VHF Handbook, Wn. 1 Orr ..................................... £4.00
VHF Manual (ARRL) ............................................. £3.30
VHF/UHF Manual (RSGB) 3rd Edition ...................... £7.20

O/P (Out of print) THE ABOVE PRICES INCLUDE POSTAGE AND PACKING
O/S (Out of stock) Many of these titles are American in origin (Terms C.W.O.)

Prices are subject to alteration without notice.

Available from SHORT WAVE MAGAZINE
Publications Dept.
34 High Street, Welwyn, Herts. AL6 9EQ - Welwyn (043871) 5206/7
(Counter Service, 9.30-5.00 Mon. to Fri.) (GIRO A/C No. 5476151)
TRANSCIEVERS ETC.

We reckon we’re offering the LOWEST YAESU PRICES
Try phoning us for your personalised quote with or without Partridge antennas.
For example:
- FT901DM — only £790
- FT101ZD — only £567
- FT7B — only £369
If you take Partridge products as part of a “Package” deal you’ll save even more!

VHF BUSINESS RADIO

- We can help! Just phone or send stamp.

ANTENNAS

THE JOYSTICK VFA
- The MICROSCOPIC 230cm GIANT Joystick VFA (Variable Frequency Antenna)
- Simple, rapid erection
- not only 6-band but CONTINUOUS 0.5-30MHz incl BC
- Omni-directional
- Substantially Harmonic FREE
- 1 million miles per watt, world record!
- Poor QTH’s enhanced!
- QUOTE from RADIO ZS (South Africa) “A remarkable antenna with great possibilities. Its physical size makes confined space operation a practical proposition.”
- Includes matching ATU SYSTEM “A” For the SWL or 160m. Tx.

NEW JOYMASTER SYSTEMS
- Amateur Bands 3.5-30MHz
- System “J” has been superseded by our IMPROVED JOYMASTER SYSTEM
- System “JM2” SYSTEM “JM3” is a NEW DEVELOPMENT for the PRISONER OF CIRCUMSTANCE!
- THE HIGH-RISE BLOCK DWELLER’S DREAM!
- Can be coax fed at a distance.
- Includes matching ATU SYSTEM “JM2” 500w.p.e.p.

RECEIVERS

- FRG7 • FRG7000
- COMPLETE RECEIVING STATIONS — ASSEMBLED IN SECONDS!
- FRG7 + free wire aerial ONLY £187.00 • FRG7000 + free wire aerial ONLY £336.00
- Package “R.1.” (FRG7 + ATU + World Record VFA and FREE HEADPHONES) £218
- Package “R.2.” (FRG7000 + ATU + World Record VFA and FREE HEADPHONES) £368.00.