WORLD WIDE COMMUNICATION
LOWE ELECTRONICS

119 Cavendish Road, Matlock, Derbyshire, DE4 3HE

Tel. Matlock 2817 or 2430 9 a.m. - 9 p.m.

John: G3PCY  Bill: G3UBO  Alan: G3MME

MAIN DISTRIBUTOR FOR YAESU MUSEN EQUIPMENT

Hours: Tuesday to Saturday 9-5.30 (closed 1-2 and all day Monday)

SERVICE AND SALES (evenings and weekends only); John G3JYG, 16 Harvard Road, Ringmer, Lewes, Sussex. Tel. Ringmer 812071. Sim GM3SAN, 19 Ellisimuir Road, Baillieston, Nr. Glasgow. Tel. 041-771 0364. Alan GW3YSA, 35 Pen y Waun, Efail Isaf, Nr. Pontypridd, Glam. Tel. Newton Llantwit 3809. Peter Ward, G3XWX, 47 Radstock Avenue, Ward End, Birmingham B36 8HD.

Sim, John, Alan and Peter will be happy to demonstrate New Yaesu Gear by appointment. They also have a pretty good selection of second-hand trade-ins at the right price.

When operating transceive with a companion transmitter, an adjustable monitor control allows a continuous check on the transmitted signal.

The A.F. amplifier section has overall negative feedback applied which results in a standard of audio quality not often found on a communications receiver.

When it comes to Yaesu equipment Lowe Electronics have more to offer than anyone else. When it comes to Service, Lowe Electronics again give you more than anyone else.

For Customers wishing to have their new FR5OB modified by us, the price is as follows (and it includes carriage by Securicor and V.A.T.).

£22
£71.50
£7.50
£5.50
£2.75
£2.73

For Customers wishing to have their new FR5OB modified by us, the price is as follows (and it includes carriage by Securicor and V.A.T.).

£22
£71.50
£7.50
£5.50
£2.75

When it comes to Yaesu equipment Lowe Electronics have more to offer than anyone else. When it comes to Service, Lowe Electronics again give you more than anyone else.

When it comes to Yaesu equipment Lowe Electronics have more to offer than anyone else. When it comes to Service, Lowe Electronics again give you more than anyone else.

The FR500 is without any shadow of doubt the best amateur band receiver you can buy at anywhere near the price. Take, for example the r.f. amplifier, for wide dynamic range it is true to say that a good valve will still beat a good transistor, and of the valves available, the 6BZ8 as used in the FR500 is probably the best for the purpose. This is followed by a 12AX7 tuned mixer which shows its superiority over multi grid mixers in terms of lower noise while maintaining good conversion gain. Typical of the Yaesu thoroughness in design is the use of a tapped i.f. transformer, to provide correct impedance matching to the mixer.

In contrast to r.f. and mixer stages, the oscillator stage is one in which transistors can outperform valves. Stability is all important and the absence of heat and microphone in a transistor allied with its long-term gain and internal capacitance etc., stability, makes it an ideal choice for an oscillator. Needless to say, Yaesu use transistor V.F.O.'s in all current equipment. Isolation of the V.F.O. from following stages is essential to avoid oscillator pulling. Yaesu achieve this in the FR500 by use of an emitter follower stage.

In common with many receivers intended for use with a companion transmitter, a V.F.O. output socket is provided on the rear chassis. I wonder how many people realise what a greatful source of i.f. breakthrough such an output can be. The FR500 incorporates an i.f. trap in the output, thus heavily minimising breakthrough from this source. Another example of Yaesu attention to detail.

The 2nd oscillator is crystal controlled for unconditional stability and is unison in the double tuned transformer used in the feed to the mixer to prevent harmonic mixing.

Ceramic transfilters are used for i.f. selectivity having the advantage of long-term stability and ease of alignment using a good test equipment.

For easy resolution of SSB, a product detector is essential and the FR500 6BE6 product detector used with separate BFO injection gives excellent performance without overload. The tunable BFO is a blessing for the CW man, allowing him to vary pitch without retuning the receiver.

A point which is often overlooked is the importance of isolating the BFO from the AGC system. Inadequate isolation allows the BFO signal to generate an a.c. voltage which of course reduces receiver gain. This problem does not occur in the FR500 due to the use of a separately excited 688A. An unusual feature for a receiver in this price class is the provision of both fast and slow a.g.c.

The A.F. amplifier section has overall negative feedback applied which results in a standard of audio quality not often found on a communications receiver.

When operating transceive with a companion transmitter, an adjustable monitor control allows a continuous check on the transmitted signal.

Easy resolution of SSB signals require a slow tuning rate and this is achieved by using the same high quality gearboxes as on the well known FR100B with its 1 kHz readout.

Good though the FR500 undoubtedly is some of our Customers have commented that it would be nice to have both top band coverage and the whole of 10m. for converter use. Therefore as part of our normal Customer service we have developed suitable modifications to provide both these facilities.

Specifications

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Audio output</th>
<th>Power source</th>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>80m: 3.5-4.0 mc/s</td>
<td>15w-4 ohm, 500 ohm, speaker built-in</td>
<td>119 x 117 x 220 x 234 x 6 cm</td>
<td>19.3 x 6.9 x 10.9 x 2.5 inches</td>
<td>17 lbs. approx</td>
</tr>
<tr>
<td>40m: 7.0-7.3 mc/s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20m: 14.0-14.3 mc/s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10m: 21.0-21.3 mc/s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10m: 28.0-28.2 mc/s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10m: 36.0-36.2 mc/s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10m: 41.0-41.2 mc/s</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity: CW 55b Less than 0.5 uV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selectivity: +180 kHz at -60dB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calibrator: 150 kHz (crystal optional)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rejection: More than 50dB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The 2nd oscillator is crystal controlled for unconditional stability and is unison in the double tuned transformer used in the feed to the mixer to prevent harmonic mixing.

Ceramic transfilters are used for i.f. selectivity having the advantage of long-term stability and ease of alignment using a good test equipment.

For easy resolution of SSB, a product detector is essential and the FR500 6BE6 product detector used with separate BFO injection gives excellent performance without overload. The tunable BFO is a blessing for the CW man, allowing him to vary pitch without retuning the receiver.

A point which is often overlooked is the importance of isolating the BFO from the AGC system. Inadequate isolation allows the BFO signal to generate an a.c. voltage which of course reduces receiver gain. This problem does not occur in the FR500 due to the use of a separately excited 688A. An unusual feature for a receiver in this price class is the provision of both fast and slow a.g.c.

The A.F. amplifier section has overall negative feedback applied which results in a standard of audio quality not often found on a communications receiver.

When operating transceive with a companion transmitter, an adjustable monitor control allows a continuous check on the transmitted signal.

Easy resolution of SSB signals require a slow tuning rate and this is achieved by using the same high quality gearboxes as on the well known FR100B with its 1 kHz readout.

Good though the FR500 undoubtedly is some of our Customers have commented that it would be nice to have both top band coverage and the whole of 10m. for converter use. Therefore as part of our normal Customer service we have developed suitable modifications to provide both these facilities.

For Customers wishing to have their new FR500 modified by us, the price is as follows (and it includes carriage by Securicor and V.A.T).

£22
£71.50
£7.50
£5.50
£2.75

When it comes to Yaesu equipment Lowe Electronics have more to offer than anyone else. When it comes to Service, Lowe Electronics again give you more than anyone else.

For Customers wishing to have their new FR500 modified by us, the price is as follows (and it includes carriage by Securicor and V.A.T).

£22
£71.50
£7.50
£5.50
£2.75

When it comes to Yaesu equipment Lowe Electronics have more to offer than anyone else. When it comes to Service, Lowe Electronics again give you more than anyone else.

For Customers wishing to have their new FR500 modified by us, the price is as follows (and it includes carriage by Securicor and V.A.T).

£22
£71.50
£7.50
£5.50
£2.75

When it comes to Yaesu equipment Lowe Electronics have more to offer than anyone else. When it comes to Service, Lowe Electronics again give you more than anyone else.

For Customers wishing to have their new FR500 modified by us, the price is as follows (and it includes carriage by Securicor and V.A.T).

£22
£71.50
£7.50
£5.50
£2.75

When it comes to Yaesu equipment Lowe Electronics have more to offer than anyone else. When it comes to Service, Lowe Electronics again give you more than anyone else.

For Customers wishing to have their new FR500 modified by us, the price is as follows (and it includes carriage by Securicor and V.A.T).

£22
£71.50
£7.50
£5.50
£2.75

When it comes to Yaesu equipment Lowe Electronics have more to offer than anyone else. When it comes to Service, Lowe Electronics again give you more than anyone else.

For Customers wishing to have their new FR500 modified by us, the price is as follows (and it includes carriage by Securicor and V.A.T).

£22
£71.50
£7.50
£5.50
£2.75

When it comes to Yaesu equipment Lowe Electronics have more to offer than anyone else. When it comes to Service, Lowe Electronics again give you more than anyone else.

For Customers wishing to have their new FR500 modified by us, the price is as follows (and it includes carriage by Securicor and V.A.T).

£22
£71.50
£7.50
£5.50
£2.75

When it comes to Yaesu equipment Lowe Electronics have more to offer than anyone else. When it comes to Service, Lowe Electronics again give you more than anyone else.

For Customers wishing to have their new FR500 modified by us, the price is as follows (and it includes carriage by Securicor and V.A.T).

£22
£71.50
£7.50
£5.50
£2.75

When it comes to Yaesu equipment Lowe Electronics have more to offer than anyone else. When it comes to Service, Lowe Electronics again give you more than anyone else.
### Antennas

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS-103W</td>
<td>Wide spaced 3 element 10m. beam</td>
<td></td>
</tr>
<tr>
<td>AS-104W</td>
<td>Wide spaced 4 element 10m. beam</td>
<td></td>
</tr>
<tr>
<td>AS-203W</td>
<td>Wide spaced 3 element 20m. beam</td>
<td></td>
</tr>
<tr>
<td>AS-204W</td>
<td>Wide spaced 4 element 20m. beam</td>
<td></td>
</tr>
<tr>
<td>AS-120W</td>
<td>Wide spaced 3 element 10m. beam</td>
<td></td>
</tr>
<tr>
<td>Polycon</td>
<td>2 element glass fibre kit</td>
<td></td>
</tr>
<tr>
<td>DP-1K</td>
<td>Diamond 80 and 40m.</td>
<td></td>
</tr>
<tr>
<td>DP-1K04</td>
<td>Diamond 20, 10, and 15m.</td>
<td></td>
</tr>
<tr>
<td>DP-1K05</td>
<td>Diamond 80, 40, 20, 15, and 10m.</td>
<td></td>
</tr>
<tr>
<td>Azhi</td>
<td>Echo 80, 40, 20, 15, and 10m.</td>
<td></td>
</tr>
</tbody>
</table>

### G-Whips

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triband</td>
<td>20, 15, and 10m.</td>
<td></td>
</tr>
<tr>
<td>Multiband</td>
<td>20, 15, and 10m.</td>
<td></td>
</tr>
<tr>
<td>Top whip</td>
<td>section for above</td>
<td></td>
</tr>
<tr>
<td>Flex whip</td>
<td>10m. with whip</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>10m.</td>
<td></td>
</tr>
</tbody>
</table>

### Multimobiles

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2m. Mobile Whips</td>
<td>Diamond DP-25 guitar mounting</td>
<td>£11.55</td>
</tr>
<tr>
<td>G-Whips</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Verticals

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diamond</td>
<td>DP-1K04 20, 10, and 15m.</td>
<td></td>
</tr>
<tr>
<td>Diamond</td>
<td>DP-1K05 80, 40, 20, 15, and 10m.</td>
<td></td>
</tr>
<tr>
<td>Azhi</td>
<td>Echo 80, 40, 20, 15, and 10m.</td>
<td></td>
</tr>
</tbody>
</table>

### Station Accessories

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coax UR43</td>
<td>50 ohm</td>
<td></td>
</tr>
<tr>
<td>Coax UR47</td>
<td>50 ohm</td>
<td></td>
</tr>
<tr>
<td>Twin feeder</td>
<td>300 ohm</td>
<td></td>
</tr>
<tr>
<td>Twin feeder</td>
<td>75 ohm</td>
<td></td>
</tr>
<tr>
<td>Rotor cable</td>
<td>4 core (ARZ2)</td>
<td></td>
</tr>
<tr>
<td>Rotor cable</td>
<td>6 core (TR3-20)</td>
<td></td>
</tr>
<tr>
<td>Baluns</td>
<td>HZP (1:1 or 1:4:1)</td>
<td></td>
</tr>
<tr>
<td>Rotators</td>
<td>AR22</td>
<td></td>
</tr>
<tr>
<td>Ham-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWR Meters</td>
<td>Hansen single meter</td>
<td></td>
</tr>
<tr>
<td>Ashi twin</td>
<td>twister</td>
<td></td>
</tr>
</tbody>
</table>

### Station Accessories

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dummy load</td>
<td>1/4W(VHF/UHF)</td>
<td></td>
</tr>
<tr>
<td>PL259</td>
<td>plugs</td>
<td></td>
</tr>
<tr>
<td>Sockets</td>
<td>1W/40 W (VHF/UHF)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Station Accessories

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plain brass</td>
<td>mouse keys</td>
<td></td>
</tr>
<tr>
<td>Katumi keys</td>
<td>5 x 9 x 6</td>
<td></td>
</tr>
<tr>
<td>Katumi keys</td>
<td>5 x 6 x 6 (main)</td>
<td></td>
</tr>
<tr>
<td>Katumi keys</td>
<td>5 x 6 x 6 (battery)</td>
<td></td>
</tr>
<tr>
<td>C.W.</td>
<td>practice oscillators</td>
<td></td>
</tr>
<tr>
<td>Headless</td>
<td>low impedance, padded</td>
<td></td>
</tr>
<tr>
<td>Microphones</td>
<td>Yaesu YD844 table mike</td>
<td></td>
</tr>
<tr>
<td>DMS10 hand</td>
<td>mike</td>
<td></td>
</tr>
</tbody>
</table>

### Valves

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>6A46, 6A52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6C6A, 6C6E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6E6W, 6E6M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6E7H, 6B88</td>
<td>12BY74, each</td>
<td></td>
</tr>
</tbody>
</table>

### Filters

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystal</td>
<td>QTC1246AA 5 kHz SSB filter</td>
<td></td>
</tr>
<tr>
<td>S.R.I.</td>
<td>QTC1246AZ 9 kHz CW filter</td>
<td></td>
</tr>
<tr>
<td>S.R.I.</td>
<td>QTC1246AW 9 kHz SSB filter 2.3 kHz</td>
<td></td>
</tr>
<tr>
<td>S.R.I.</td>
<td>QTC1246AX 9 kHz SSB filter 2.4 kHz</td>
<td></td>
</tr>
<tr>
<td>These FT101 CWfilter</td>
<td>FT101 AM filter</td>
<td></td>
</tr>
</tbody>
</table>
NORTH WEST ELECTRICS, G3MAX
769, STOCKPORT ROAD, LEVENSHULME,
MANCHESTER, 19.
Phone: 061-224 4911

EDDYSTONE RECEIVERS & DIECAST BOXES.
TRIO RECEIVERS. JACKSON CAPACITORS & DRIVES. DENCO COILS.

PLUS 10% V.A.T.

CABINET FOR FREQUENCY COUNTER. 12" x 3" x 6" with cut out to suit 8 digit readout. Ventilation louvres. Silver grey stove enamelled, £3.25, post 25p.

FIBRE GLASS BOXES. With fitted lid. Post 10p per box.

Cat. No. 7969P 3/4" x 1/2" x 1 7/32", 39p
Cat. No. 7123P 4 1/4" x 2 1/2" x 1", 46p
Cat. No. 6908P 4 1/4" x 2 1/2", 65p
Cat. No. 6827P 3 1/4" x 4", 61-04
Cat. No. 6357P 7 1/2" x 4 1/2" x 3", 11-13

Sizes shown are approx. internal dia.

DIECAST BOXES. With fitted lid. Post 10p per box.

3" x 2" x 1", 33p
4" x 2 1/2" x 1 1/4", 38p
4" x 4 1/2" x 1 1/4", 38p

3 1/2" x 4" x 1 1/2", 43p
4" x 2 1/2" x 2", 38p
5" x 2 1/2" x 1 1/4", 38p

FINNED ALUMINIUM HEAT SINKS. 5" x 2" ready drilled for TO3, 25p. 3" x 4" undrilled, 375p. 5" x 8", undrilled, 65p, post 10p.

POLYPROPYLENE ROPE. 500 lb. Strain. 100 yd. reel, £1, post 15p. (This item is now in stock).

DENCO COILS. Most ranges in stock, 40p ea., post paid.

PULSE GENERATOR LBR2. 50uS, 100uS; 200uS, 500uS, 1mS, 2mS, £18, carriage by arrangement.

MARCONI OSCILLATOR TF 1246. 40 kHz to 50 MHz with handbook. £42, carr. £2.

Business Hours: Tuesday–Friday, 9.30 a.m. to 6.00 p.m.
SATURDAY: 9 a.m.–5 p.m. OPEN ALL DAY
CLOSED ALL DAY MONDAY

COMPONENTS FOR FREQUENCY COUNTERS & CLOCKS

NEW BOARDS MANUFACTURED TO OUR SPECIFICATION, COMPONENTS NOT INCLUDED IN PRICE OF BOARD.

8 DIGIT READOUT BOARD ASSEMBLY, £4-50, post 10p. Printed to use ZM1020 1" dia. and readout tubes. Front board takes holders for ZM1026s and 74141N Nixie drivers. Back board takes 7490 and 7475 Quad latch. Boards mount back to back to make an ideal assembly for frequency counter, etc. Board size: 10" x 2".

READOUT BOARD: 4 Digit, uses GNP7 wire ended, side viewing tubes, 7490 dividers, 74145 latch and 74141 Nixie driver. Printed for reset 4, can be wired to reset 9. Size: 4 1/2" x 3 1/2", £1-50, post 5p.


TIME BASE BOARD. Gives all pulses needed to control readout for counter. Uses 7400 Osc. 1 MHz. 6 off 7490 Divider chain to 1 cycle. 7474 clocked dual D, 7413 Schmitt trigger. 7400 pulse output. 2N5370B latch output. Size: 4 1/2" x 2 3/4". Use BC107 to drive 8 latches, £1-50, post 5p.

PRINTED BOARD FOR 7211N op amp. Counter front end. 2 3/4" x 1 1/4", 45p, post paid.

PRINTED CIRCUIT HOLDERS FOR ZM1026, 25p each, post 5p. 8 way ribbon cable for connecting boards, 20p yd., post 5p yd. (8 x 4" sections required for linking boards.)

READOUT TUBES. ZM1001 1" dia. and viewing, £1-50 each with holder, 4 for £5, post paid. Supplied with Chassis or printed circuit holders.

DISTRIBUTOR'S PRINTED BOARD FOR 72141. Counter output. 2 1/2" x 1 1/4", 38p, post paid.


A7001 TUBES. Full set of parts for 12 hour clock, £30, post paid.

NEW TEXAS I.C.'s. 7400, 25p; 7413, 40p; 7490, 86p; 7474, 45p; 74140, £1-12; 7475, 66p; 72710, 45p; 72711, 75p; 72718, 35 MHz Counter, £1-50; SN74176, 25p; SN74176, 25p. Post 5p each.

ALL BOARDS ARE HIGH QUALITY PRINT ON FIBRE GLASS. HOLDERS FOR I.C.'s. Low profile 14 or 16 pin, 15p each, postage 5p each and including up to 5 off.

WE WELCOME ALL ENQUIRIES HOWEVER SMALL. Stamped address envelope please for special offer list.
MEMBER OF THE AMATEUR RADIO RETAILERS ASSOCIATION
Heathkit 2 Metre FM Equipment

All solid-state design. Can be completely aligned without instruments.

- **Multi-channel capability**—independent pushbutton selection of 6 transmit and 6 receive crystals.
- **10-Watts Minimum Output**—designed to operate into even an infinite VSWR without failure.

**Optional Tone Burst Encoder**—mounts inside, gives front-panel selection of four presettable tones.

**Available with a full-line of accessories**—for both mobile and fixed operation.

**Includes push-to-talk mike**—ceramic tailored-response microphone provides outstanding audio transmission.

**Kit K/HW-202 £89.10 Carr. 66p (VAT £8.16 incl.)**

**New Heathkit 2-metre FM Amplifier, HA-202**

40 watts nominal out for 10 watts in—requires only 12v. D.C. supply. Perfect match for the HW-202 Transceiver—also gives fully automatic operation with any 2-metre exciter delivering 5-15 watts drive. Solid-state design—all components mount on single board for fast, easy assembly.

**Kit K/HA-202 £38.50 Carr. 44p (VAT £3.54 incl.)**

**New Heathkit VHF Wattmeter**

Perfect tune-up tool for 2-metre gear—has built-in SWR bridge. 50 to 160 MHz range—covers 2-way commercial, aircraft and ham communications.

**Kit K/HM-2102 £19.80 Carr. 44p (VAT £1.84 incl.)**

**Heathkit Regulated A.C. Power Supply**

**Kit K/HWA-202-1 £15.40 Carr. 44p (VAT £1.44 incl.)**

**Heathkit Tone Burst Encoder**

**Kit K/HWA-202-2 £12.10 Carr. 44p (VAT £1.14 incl.)**

**FREE HEATHKIT CATALOGUE**

Contains something for everyone: Hi-Fi Stereo, Testers & Instruments, SWL, Metal Detectors, even a Battery charger Kit. Mail the coupon ... Today!

Heath (Gloucester) Limited, Gloucester GL2 6EE.
Radio Shack Ltd  
Just around the corner from West Hampstead Underground Station

DRAKE  ★ ★ ★ ★ SUPERIOR PERFORMANCE ★ ★ ★ ★
LONG TERM RELIABILITY ☆☆☆☆
MODEST COST ★

COMPARVE QUALITY AND PRICE WITH ANY OTHER EQUIPMENT AND CONFIDENTLY BUY DRAKE

PRICES INCLUDE VAT

RECEIVERS and ACCESSORIES

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-C</td>
<td>Receiver—SSB, AM, CW, RTTY</td>
<td>£146.30</td>
<td>MMK-3</td>
<td>Mobile Mounting Kit for TR-4C</td>
<td>£3.30</td>
</tr>
<tr>
<td>2-AC</td>
<td>Crystal Calibrator for 2-C</td>
<td>£9.35</td>
<td>RV-4C</td>
<td>Remote V.F.O. for TR-4C</td>
<td>£52.80</td>
</tr>
<tr>
<td>2-CS</td>
<td>Matching Speaker for 2-C</td>
<td>£11.00</td>
<td>FF-1</td>
<td>Crystal Control for TR-4C</td>
<td>£24.20</td>
</tr>
<tr>
<td>2-CQ</td>
<td>Q-Multiplier/Speaker for 2-C</td>
<td>£25.30</td>
<td>MC-4</td>
<td>Mobile Console</td>
<td>£33.00</td>
</tr>
<tr>
<td>2-NC</td>
<td>Noise Blanker for 2-C</td>
<td>£13.20</td>
<td>R-4C</td>
<td>Receiver—SSB, AM, SW, RTTY</td>
<td>£241.00</td>
</tr>
<tr>
<td>R-4C</td>
<td>Receiver—SSB, AM, SW, RTTY</td>
<td>£241.00</td>
<td>FILTERS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bandwidths—250, 500, 1-5, 6-0 kHz for R-4C

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-NB</td>
<td>Noise Blanker for R-4C</td>
<td>£24.75</td>
</tr>
<tr>
<td>MS-4</td>
<td>Matching Speaker for R-4C</td>
<td>£31.35</td>
</tr>
<tr>
<td>SW-4A</td>
<td>Receiver—AM, International SW</td>
<td>£165.00</td>
</tr>
<tr>
<td>AL-4</td>
<td>Loop Antenna for SW-4, SPR-4</td>
<td>£14.85</td>
</tr>
<tr>
<td>SPR-4</td>
<td>Receiver—General Purpose</td>
<td>£286.00</td>
</tr>
</tbody>
</table>

Amateur Band Crystal Kit for SPR-4

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-NB</td>
<td>Noise Blanker for SPR-4</td>
<td>£13.20</td>
</tr>
<tr>
<td>SCC-4</td>
<td>100 kHz Calibrator for SPR-4</td>
<td>£9.35</td>
</tr>
<tr>
<td>TA-4</td>
<td>Transceiver Adaptor for SPR-4/ T-4XC</td>
<td>£11.33.00</td>
</tr>
<tr>
<td>DC</td>
<td>Power Cord for SPR-4</td>
<td>£13.20</td>
</tr>
<tr>
<td>DSR-1</td>
<td>Digital Receiver</td>
<td>£2.42</td>
</tr>
</tbody>
</table>

TRANSCEIVERS and ACCESSORIES

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>TR-4C</td>
<td>SSB Transceiver</td>
<td>£297.00</td>
</tr>
<tr>
<td>34-PNB</td>
<td>Plugin Noise Blanker for TR-4C</td>
<td>£31.35</td>
</tr>
<tr>
<td>AC-4</td>
<td>115/240v, Power Supply for TR-4C, T-4XC</td>
<td>£49.50</td>
</tr>
<tr>
<td>DC-4</td>
<td>12v. Power Supply for TR-4C, T-4XC and Receiver</td>
<td>£60.50</td>
</tr>
</tbody>
</table>

Carriage extra on all items

DRAKE — SALES — SERVICE
SECURICOR ★ COURIER EXPRESS ★ B.R.S. ★ ACCESS ★ BARCLAYCARD ★ UDT

RADIO SHACK LTD.

OPEN 6 DAYS 9-5 CLOSED 1-2 p.m.
AMAZING PRICE BREAKTHROUGH
RECEIVER.

A COMPLETELY NEW CONCEPT IN PORTABLE RADIO DESIGN

1. 0·5 to 30 MHz continuous coverage—direct readout.
2. Antenna tuning for maximum sensitivity.
3. AM, CW, SSB (selectable USB and LSB).
4. Self powered by six SP2 batteries.
5. Power jack for external 6-12v. D.C. supply.
6. Headphone jack
7. Drift free reception.

NOW ONLY £79.75. Insured delivery 75p
TR801 FM TUNER, £13.75. Insured delivery 25p
All prices include VAT

RADIO SHACK LTD.

Open 6 days 9 a.m. until 5 p.m.
Closed for lunch 1 p.m. until 2 p.m.

ECHELFORD COMMUNICATIONS LTD.

11 BROADWAY, KINGSTON ROAD, STAINES, MIDDLESEX.

MAURICE STANFIELD (G8DNM), RAY BOWDEN

and the rest of the Staff here are available from 9 a.m.-6 p.m. every day except Thursday, when the hours are 9-1 p.m. and Sunday, when we are closed all day. Your queries regarding your radio and electronic requirements either by mail, telephone, or a personal visit will receive most careful attention and what we may not have actually in stock can usually easily be obtained. We are now in close contact with most suppliers of equipment and maintain constant stocks of the following:

TRIO — Receivers
Transmitters
Test Gear

J BEAM — VHF/UHF Aerials
Mast clamps and
accessories
Stolle Rotators

Sentinel Converters
and Pre-Amps

K.W. ELECTRONICS
Range of equipment

MICROWAVE MODULES

2 metres, 4 metres, 70 cm. converters
2 metre AM Transmitters
2 metre AM Receivers
432 MHz Varactors
The NEW 2 meter Preamp

Eagle, TTC, Jacksons, Chassis, Diecast and Aluminium Boxes, PLUS large stocks of used and reconditioned Transmitters and Receivers.

EASY CREDIT TERMS AND PART EXCHANGE TRANSACTIONS ARE EASILY ARRANGED

We are attending the following raffles:

Ipswich, 22nd July ; Woburn, 5th August ; Derby, 12th August.

MEMBERS OF THE AMATEUR RADIO RETAILERS ASSOCIATION
**WESTERN ELECTRONICS (UK) LTD**

**YAESP MUSEN U.K. MAIN DISTRIBUTOR**

**YAESP'S NEW WINNER! FT-501**

**FR50B Receiver**
10-80m, SSB/AI/M/CW Receiver with 1 kHz Readout and crystal calibrator. The receiver sensitivity is equal to units costing three times the price.

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT-75</td>
<td>£109.00</td>
</tr>
<tr>
<td>FP-75</td>
<td>£122.50</td>
</tr>
<tr>
<td>DC-75</td>
<td>£122.50</td>
</tr>
<tr>
<td>FT-101 Mk. 1</td>
<td>£229.00</td>
</tr>
<tr>
<td>FT-101 Mk. 2</td>
<td>£280.00</td>
</tr>
<tr>
<td>FT-101P200</td>
<td>£190.00</td>
</tr>
<tr>
<td>FT-401</td>
<td>£265.00</td>
</tr>
<tr>
<td>FT-501</td>
<td>£335.00</td>
</tr>
</tbody>
</table>

**FT-401**
The "401" is becoming increasingly popular and justifiably so. We respectfully draw your attention to the excellent R.I.C.U. Test Review in April, 1973 "Radio Communication" and our own full test report in that issue. The "401" covers 30-10m, at 560w, p.e.p. input on SSB, 480w, DC input on CW. The unit is fitted with blower, CW Filter and VOX as standard; no extras to buy.

**FT-101 Mk. I SPECIAL OFFER**
We still have stocks of this unit. Some people prefer it to the Mk. 2 and at £229 (+ £22.90 VAT) there is certainly no better buy so don't delay in snapping up one of these at the special offer price.

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT-101 Mk. 1</td>
<td>£99.00</td>
</tr>
<tr>
<td>FT-101 Mk. 2</td>
<td>£190.00</td>
</tr>
</tbody>
</table>

**FT-101 Mk. 2 160-10m.**
You'll find the "101" in use in just about every country in the world. It bears the hallmark of Yaesu as regards superb quality of craftsmanship and performances. Naturally, we offer it EX-STOCK and with the after-sales service that one expects from us as main distributor.

**FT-75**
If your requirement is for a highly compact transceiver or merely good value then this unit gives 12v. DC operation with the DC-75 or AC operation with the FP-75. Buy at pre-Yen revaluation prices whilst stocks last.

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT-2FB</td>
<td>£79.00</td>
</tr>
<tr>
<td>FP-2AC</td>
<td>£160.00</td>
</tr>
<tr>
<td>FP-ACB</td>
<td>£42.00</td>
</tr>
</tbody>
</table>

**YAESP PRICES (Carriage free by Securicor) add 10% VAT**

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT-3PB</td>
<td>£68.00</td>
</tr>
<tr>
<td>FT-3PB</td>
<td>£80.00</td>
</tr>
<tr>
<td>FP-2AC</td>
<td>£27.00</td>
</tr>
<tr>
<td>PP-ACB</td>
<td>£19.00</td>
</tr>
<tr>
<td>FT-2AUTO</td>
<td>£197.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£69.00</td>
</tr>
<tr>
<td>FT/FM200</td>
<td>£135.00</td>
</tr>
<tr>
<td>FT/FM200</td>
<td>£175.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£119.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£165.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£265.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£335.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£399.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£497.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£697.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£997.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£1297.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£1697.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£1997.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£2297.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£2597.00</td>
</tr>
<tr>
<td>HP RECEIVERS</td>
<td>£2897.00</td>
</tr>
</tbody>
</table>

**SPEAKERS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP-101</td>
<td>£11.00</td>
</tr>
<tr>
<td>SP-101P</td>
<td>£24.00</td>
</tr>
</tbody>
</table>

**LINEAR AMPLIFIERS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL-200</td>
<td>£165.00</td>
</tr>
<tr>
<td>FL-210</td>
<td>£165.00</td>
</tr>
<tr>
<td>FL-250</td>
<td>£130.00</td>
</tr>
</tbody>
</table>
Western Electronics (UK) Ltd

ADVANCE INFORMATION

144 MHz
FM and SSB TRANSCIEVER. YAESU'S FT-220 is the answer. This has full VFO coverage, 144-146 MHz in 4 500 kHz bands + 3 xtal channels. Power is 10w, output. Dial readout is to 1 kHz. With this unit you can work all the FM and SSB boys! Price is not fixed by Yaesu but our 'guesstimate' is £150-200.

432 MHz
We are pleased to be the first to introduce a 432 MHz 10w FM Transceiver. No doubt our lead will be followed by others shortly but our aim is to provide a high quality unit with good after sales service. Watch our ads!

Satellite Tracking
To further cater for the VHF/UHF men we are introducing a new satellite tracking rotator, the only one in the world we believe! It will adjust the angle of elevation ± 45°.

Telescopic Aluminium Masts
In a few months we will have the answer to your prayers for a short mast to go in the car for holiday or portable work or tall masts up to 70'

144 MHz LINEAR 2 SSB 24 channel Transciever (Ex Stock) £135 VAT £135

NEW/USED EQUIPMENT (3 months guarantee. Delivery £1 by Securicor)

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR2R</td>
<td>£20</td>
<td></td>
</tr>
<tr>
<td>TR44</td>
<td>£15</td>
<td></td>
</tr>
<tr>
<td>HAM-M</td>
<td>£70</td>
<td></td>
</tr>
<tr>
<td>HY-GAIN 400</td>
<td>£115</td>
<td></td>
</tr>
</tbody>
</table>

G WHIPS (Carr. 50p Coils, 20p) THE FINEST MOBILES (Ex-Stock) VAT

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Th10, 70 MHz, 1 wave</td>
<td>£20.00</td>
<td></td>
</tr>
<tr>
<td>TH20, 144 MHz, 1 wave</td>
<td>£15.00</td>
<td></td>
</tr>
<tr>
<td>TH40, 440 MHz, 1 wave</td>
<td>£35.00</td>
<td></td>
</tr>
<tr>
<td>MP40, 10m, coil</td>
<td>£15.00</td>
<td></td>
</tr>
<tr>
<td>MP40, coiled</td>
<td>£12.50</td>
<td></td>
</tr>
<tr>
<td>TH10, 10m, coil</td>
<td>£75.00</td>
<td></td>
</tr>
<tr>
<td>TH10, 10m, Flexiwhip</td>
<td>£60.00</td>
<td></td>
</tr>
</tbody>
</table>

GEM-QUAD. The best FIBREGLASS 10-15-20m. QUAD VAT

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ele.</td>
<td>£74.50</td>
<td></td>
</tr>
<tr>
<td>3 ele.</td>
<td>£109.00</td>
<td></td>
</tr>
</tbody>
</table>

J BEAM ANTENNAS. Most types (Ex-Stock)

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH3, 10-20m, 2 ele.</td>
<td>£24.50</td>
<td></td>
</tr>
<tr>
<td>TH3, 10-20m, 2 ele.</td>
<td>£30.00</td>
<td></td>
</tr>
<tr>
<td>TH4, 20m, 2 ele.</td>
<td>£40.00</td>
<td></td>
</tr>
<tr>
<td>TH5, 20m, 2 ele.</td>
<td>£45.00</td>
<td></td>
</tr>
</tbody>
</table>

HY-GAIN (Carr. pd.) VAT

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hy tower, 10-80m, (inclup)</td>
<td>£110.00</td>
<td></td>
</tr>
<tr>
<td>16V, 10-80m, vertical</td>
<td>£110.00</td>
<td></td>
</tr>
<tr>
<td>12AV, 20-20m, vertical</td>
<td>£110.00</td>
<td></td>
</tr>
<tr>
<td>12AV, 20-20m, vertical</td>
<td>£110.00</td>
<td></td>
</tr>
<tr>
<td>12AV, 10-80m, 2 ele.</td>
<td>£32.50</td>
<td></td>
</tr>
<tr>
<td>12AV, 10-80m, 2 ele.</td>
<td>£70.00</td>
<td></td>
</tr>
</tbody>
</table>

NEWTRONICS HUSTLER MOBILE ANTENNAS Inc. VAT

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMI Mount</td>
<td>£35.00</td>
<td></td>
</tr>
<tr>
<td>RSAI</td>
<td>£95.00</td>
<td></td>
</tr>
<tr>
<td>RMX</td>
<td>£15.00</td>
<td></td>
</tr>
<tr>
<td>RMX</td>
<td>£15.00</td>
<td></td>
</tr>
<tr>
<td>RMX</td>
<td>£15.00</td>
<td></td>
</tr>
</tbody>
</table>

W.E. QUAD 10-20m. "boomless" type. Cast aluminium centre, bamboo, etc. £27 (Carr. pd.)

We've trapped dipoles for 10-80m. All are fitted with resin encapsulated traps and a high quality commercial grade centre assembly with cable strain relief.

*Type 5.500 watts, £14. Type HP for 1 kw pwr., £15-25. Type F with special copper/terylene braid element for ease of coiling up.

*Supplied with window profiles and 70' coils, £17.50.

Western Electronics (UK) Ltd
TOTTON, SOUTHAMPTON

ADVANCE INFORMATION

144 MHz
FM and SSB TRANSCIEVER. YAESU'S FT-220 is the answer. This has full VFO coverage, 144-146 MHz in 4 500 kHz bands + 3 xtal channels. Power is 10w, output. Dial readout is to 1 kHz. With this unit you can work all the FM and SSB boys! Price is not fixed by Yaesu but our 'guesstimate' is £150-200.

432 MHz
We are pleased to be the first to introduce a 432 MHz 10w FM Transceiver. No doubt our lead will be followed by others shortly but our aim is to provide a high quality unit with good after sales service. Watch our ads!

Satellite Tracking
To further cater for the VHF/UHF men we are introducing a new satellite tracking rotator, the only one in the world we believe! It will adjust the angle of elevation ± 45°.

Telescopic Aluminium Masts
In a few months we will have the answer to your prayers for a short mast to go in the car for holiday or portable work or tall masts up to 70'

144 MHz LINEAR 2 SSB 24 channel Transciever (Ex Stock) £135 VAT £135

NEW/USED EQUIPMENT (3 months guarantee. Delivery £1 by Securicor)

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR2R</td>
<td>£20</td>
<td></td>
</tr>
<tr>
<td>TR44</td>
<td>£15</td>
<td></td>
</tr>
<tr>
<td>HAM-M</td>
<td>£70</td>
<td></td>
</tr>
<tr>
<td>HY-GAIN 400</td>
<td>£115</td>
<td></td>
</tr>
</tbody>
</table>

G WHIPS (Carr. 50p Coils, 20p) THE FINEST MOBILES (Ex-Stock) VAT

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Th10, 70 MHz, 1 wave</td>
<td>£20.00</td>
<td></td>
</tr>
<tr>
<td>TH20, 144 MHz, 1 wave</td>
<td>£15.00</td>
<td></td>
</tr>
<tr>
<td>TH40, 440 MHz, 1 wave</td>
<td>£35.00</td>
<td></td>
</tr>
<tr>
<td>MP40, 10m, coil</td>
<td>£15.00</td>
<td></td>
</tr>
<tr>
<td>MP40, coiled</td>
<td>£12.50</td>
<td></td>
</tr>
<tr>
<td>TH10, 10m, coil</td>
<td>£75.00</td>
<td></td>
</tr>
<tr>
<td>TH10, 10m, Flexiwhip</td>
<td>£60.00</td>
<td></td>
</tr>
</tbody>
</table>

GEM-QUAD. The best FIBREGLASS 10-15-20m. QUAD VAT

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ele.</td>
<td>£74.50</td>
<td></td>
</tr>
<tr>
<td>3 ele.</td>
<td>£109.00</td>
<td></td>
</tr>
</tbody>
</table>

J BEAM ANTENNAS. Most types (Ex-Stock)

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH3, 10-20m, 2 ele.</td>
<td>£24.50</td>
<td></td>
</tr>
<tr>
<td>TH3, 10-20m, 2 ele.</td>
<td>£30.00</td>
<td></td>
</tr>
<tr>
<td>TH4, 20m, 2 ele.</td>
<td>£40.00</td>
<td></td>
</tr>
<tr>
<td>TH5, 20m, 2 ele.</td>
<td>£45.00</td>
<td></td>
</tr>
</tbody>
</table>

HY-GAIN (Carr. pd.) VAT

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hy tower, 10-80m, (inclup)</td>
<td>£110.00</td>
<td></td>
</tr>
<tr>
<td>16V, 10-80m, vertical</td>
<td>£110.00</td>
<td></td>
</tr>
<tr>
<td>12AV, 20-20m, vertical</td>
<td>£110.00</td>
<td></td>
</tr>
<tr>
<td>12AV, 20-20m, vertical</td>
<td>£110.00</td>
<td></td>
</tr>
<tr>
<td>12AV, 10-80m, 2 ele.</td>
<td>£32.50</td>
<td></td>
</tr>
<tr>
<td>12AV, 10-80m, 2 ele.</td>
<td>£70.00</td>
<td></td>
</tr>
</tbody>
</table>

NEWTRONICS HUSTLER MOBILE ANTENNAS Inc. VAT

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
<th>VAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMI Mount</td>
<td>£35.00</td>
<td></td>
</tr>
<tr>
<td>RSAI</td>
<td>£95.00</td>
<td></td>
</tr>
<tr>
<td>RMX</td>
<td>£15.00</td>
<td></td>
</tr>
<tr>
<td>RMX</td>
<td>£15.00</td>
<td></td>
</tr>
<tr>
<td>RMX</td>
<td>£15.00</td>
<td></td>
</tr>
</tbody>
</table>

W.E. QUAD 10-20m. "boomless" type. Cast aluminium centre, bamboo, etc. £27 (Carr. pd.)

We've trapped dipoles for 10-80m. All are fitted with resin encapsulated traps and a high quality commercial grade centre assembly with cable strain relief.

*Type 5.500 watts, £14. Type HP for 1 kw pwr., £15-25. Type F with special copper/terylene braid element for ease of coiling up.

*Supplied with window profiles and 70' coils, £17.50.

Western Electronics (UK) Ltd
Agents: 3GURR Shipston on Stour (0600) 31839
GSPH Chesham (02420) 4143

Hours of business: 9-5:30; 9-12:30 (Saturdays)

OSBORNE ROAD TOTTON SOUTHAMPTON S044DN
TELEPHONE: TOTTON (04216) 4930 or 2785
CABLES: AERIAL, SOUTHAMPTON
RADIO AMATEUR HANDBOOK (ARRL 1973)

This HANDBOOK, the most widely used manual of communications theory, design, and construction, contains descriptions of the latest solid-state devices and their application. The construction projects included cover the entire field of Amateur Radio interest. Written in a no-nonsense style, the HANDBOOK appeals to beginners and advanced amateurs alike.

This edition contains 700 pages, including index, and nearly 100 new illustrations and drawings. The price remains at £2.85.

Order from

Publications Dept.
SHORT WAVE MAGAZINE LTD.
55 VICTORIA STREET,
LONDON, SW1H 0HF

BERNARD BOOKS

COIL DESIGN AND CONSTRUCTION MANUAL
HANDBOOK OF TESTED TRANSISTOR CIRCUITS
HOW TO MAKE AERIALS FOR T.V.
HIGH FIDELITY LOUDSPEAKER ENCLOSURES
RADIO & ELECTRONIC COLOUR CODES & DATA CHART
RADIO TELEVISION AND ELECTRONICS DATA BOOK
TRANSISTOR CIRCUITS MANUAL (Band 1 & 3) AND V.H.F. (Band 2)
HANDBOOK OF TRANSISTOR EQUIVALENTS & SUBSTITUTES
HANDBOOK OF RADIO, T.V., & INDUSTRIAL TUBE & VALVE EQUIVALENTS
SOUND & LOUDSPEAKER MANUAL
WORLD'S SHORT WAVE MEDIUM & LONG WAVE RADIO STATIONS & FM & TV LISTING

THE AMATEUR RADIO SHOP G4MH

13 CHAPEL HILL, HUDDERSFIELD,
Telephone: 20774

(MEMBER OF THE AMATEUR RADIO RETAILERS ASSOCIATION)

Agents for Edystone, Yaeuu, KW, Trio, J Beam, Shure.
Tavausu Mobile, S.S.M. Converters, G. Whips, Healkit
Barclay Card, Acces, etc.

Please ring for information on all new equipment, we have quite a lot in stock and demonstration facilities are available.

Second-hand: Due to rallies (see you at South Shields, Star-
borough, and The Anglican Rally) stock of gear is changing fast, we have usually a good selection and offer money back guarantees.

2 Metres: Our 4MHz 2 metre Tx and Modulator is now available again after hold ups due to shortage of components. S.a.e. for details. 2 metre 8 MHz xtal in stock at 99p inc. VAT and post are as follows:—

- 8001, 8002, 8006, 8008, 8013, 8021, 8029, 8035, 8046, 8047, 8064, 8071, 8078, 8080, 8090, 9093, 9106, 9108. All are New 10X (will fit into wander sockets.)

Morse Practice Oscillator with LJS and battery. Fully wired.

£1 inc. VAT. Morse Key. 75p inc. VAT. Both post paid.

Odds and Ends: SWR Ind TCC, £5.00; Shure Mics.: 4447, £17.50; 444; £20; 441, £40; 77; TCC Hand Mic., £3.90.

Components: 5-pin din plugs, 6p each, 60p doz.; £3.00; 3-pin din plugs, 7p each, 70p doz., £5.10; 750 piv rings, 5p each, 50p doz. UHF plugs PL259, 30p each. 2 pin din LJS plugs 5p each, 50p doz., £4 100. All post paid.

WANTED ALL TYPES OF GEAR

S.A.E. for any gen.

Closed Tuesdays, Late Night Thursdays 73 G4MH, G4NEW

G2CTV

J. & A. TWEEDY (ELECTRONIC SUPPLIES) LTD.

Member Amateur Radio Retailers' Association

TAVASU MOBILE AERIALS. Centre loaded with spring based top section. Top band complete, £10-19.

RESONATORS. 100m., £3.57; 80m., £3.37; 40m., £3.30; 20m., £3.00; 15m., £3.80. Base with covers, £1.30-50. Spring based top section, £2.15; 30nh. chromed base section, £2.53. Postage 22p.

G WHIP MOBILE AERIALS. Tribander 20/15/10, £11.55; Duex-bender, £9.50; Ranger (150m.), £8.89; Multimobile 10/15/20, £11.75; Base mounts, £1.50; Additional coils, £4.67 each. Postage 22p.

OSKES BLOCK SWR/POWER METERS, £20; Field strength meters inc. xtal expiries and telecascopic aerial, £3.50.


YAESU FR50B. Receivers fitted with calibr. (£1 only), £49.30.

KW — YAESU — CASLON CLOCKS — CDR ROTATORS — MOSLEY HY GAIN SPACEMARK KEYERS — HAMGEAR PRESELECTORS, ETC. — J BEAM.

USBD EQUIPMENT...

Heathkit DX1000U + SB10U. Excellent condition, £66. JR5005E, £33; FLDX400, £120; HWY7A + Pre-amp + Halo + D.C. p.s.u. Ideal portable rig, £63; Eddystone EC10 Mic. II + A.C. p.s.u. Mint, £25; EC10 Mic. I + 2 meter + CB. £1.50; Milt. £50; Hammarlund HX50, £63; Eddysonne 504, £16.50. All prices include V.A.T.

Open Tuesdays to Saturday 9 a.m. to 5.30 p.m.

HP terms available

Part exchanges

78, CHATSWORTH ROAD,
CHESTERFIELD S40 2AP

Tel. 4982 (68005 evenings until 8 p.m.)
This month we show a corner of our demonstration room, this section of our premises being devoted exclusively to the display and demonstration of equipment, where the prospective purchaser may take a comfortable seat and test out the gear of his choice to his heart’s content without the slightest question of being pressurised into buying. In other words, you are welcome to operate any equipment on display without obligation or distraction from our sales counter which is well removed.

Whilst we carry large and ever-changing stocks of used equipment, please don't forget that we also have a first-class range of new gear by SOMMERKAMP, YAESU, TRIO, KW ELECTRONICS and other leading manufacturers of equipments, serials and accessories. This includes the SOMMERKAMP range of 2 metre FM gear and we shall shortly have stocks of 2 metre SSB equipment.

PLEASE NOTE: All prices shown include carriage but not VAT

RACAL RA7 RECEIVER. Excellent condition and complete with case ...
HAMMARLUND SP-600X RECEIVER. Very good condition ...
HAMMARLUND SP-600UX RECEIVER. Exceptionally good condition ...
HAMMARLUND HX-500 TRANSMITTER. The finest TX ever produced by the famous American company, $38, AM, PM and FSK, 10 thru to 80 MHz, good ...
TRIO TS-510/PS-510 TRANSMITTER with extra VFO-5, superb ...
TRIO TS-500/PS-500 TRANSMITTER. Superb finish marks only ...
TRIO JR-310 RECEIVER. Absolutely as new ...
YAESU FR50 RECEIVER. As above but with cal. etc. ...
EDDYSTONE 89A RECEIVER. Absolutely immaculate complete with accessories ...
EDDYSTONE EC10 MARK 2 RECEIVER, with mains PSU, immaculate ...
EDDYSTONE 880A RECEIVER. Excellent condition throughout ...
EDDYSTONE 710A RECEIVER. In superb condition ...
SOMMERKAMP FL2000B LINEAR. Very good condition indeed ...
KW VESPA MARK I TRANSMITTER. Very clean condition ...
EDDYSTONE 840C RECEIVER. Good performance, sold out ...
EDDYSTONE 840C RECEIVER. Excellent unmarked condition ...
KW 650 LINEAR. A nice piece of equipment in all respects ...
TRIO 9R59D RECEIVERS. This month we have several in stock, all in mint condition and original packing ...
TRIO 9R59DE RECEIVERS. We have a good selection of these from ...
TRIO 9R59DS RECEIVERS. This month we have several in stock, all in mint condition and original packing ...
EDDYSTONE 730/4 GENERAL COVERAGE RECEIVERS. As advertised last month, fuller details on receipt of your S.A.E. 

PLEASE NOTE: Our stocks are continually changing and for the very latest used equipment list please let us have your S.A.E.

Oskar Block SWB200 Power Meters. The ultimate in SWR/Power Bridges ...

TCC SWR Bridges C362. Single meter model ...

TCC SWR/Power Bridges C300S. Twin meter model ...

Sanyo Miniature SWR/Power Meter SE406 ...

Medico Filters. The best on the market, FLM2A and FLM2A 50 ohm Belling Connector ...
F40B and F575 75 ohm PL259 connectors ...
FH40 High Pass ...

Copel Clocks. Now down in price. All types of clock, illustrated list on return.

Amphenol PL219 Connectors ... ea. ...
Belling Coaxial Connectors ... ea. ...
50 ohm Heavy Duty Coax ... ea. (Carriage extra) ...

Oskar Block SWB200 Power Meters. The ultimate in SWR/Power Bridges ...

J. Beam Antennas. Illustrated catalogue on request of S.A.E., full range in stock.

G-Whip Antennas all models, Catalogue by return.

Share Microphones Model 201 Hand ... £5-75
Model 444 Desk ... £15-25

Mystery Antennas TAD Jnr. ... £9-50
TAD Jnr. E ... £22-50
TAD Jnr. E ... £35-50

Hy-Gain Antennas 12-AVO Vertical ... £10-25
14 AVQ Vertical ... £15-35

LC-702 Loading coil £7-50

THJ 9m, 3 ele. beam £89-50
TH8 Mk III 3 ele. beam £97-00

BN-86 Balun £9-00

Carriage extra on Mystery/Hy-Gain

Roscotrons. All post paid, Stelle Memetronic 3001 £13-40
Stelle Automatic 3001 £18-00
CDE AR20 £30-40
CDE AR22 £35-65
CDE TR41 £45-75
CDE Ham-M £60-80

Please don't forget to add 10% VAT on all prices shown.

HOME DEMONSTRATION SERVICE! As previously announced this is available on all new gear through our Northern and Southern representatives—

Northern: JOHN ROWLEY, GIKAE, Castle Rd, West Ayton, Scarborough. Tel: West Ayton 3039.

Southern: JEFF HARRIS, GILWYN, Cricketfield Lane, Bishops Stortford, Herts. Tel: 0279-56479.
WE STOCK A COMPREHENSIVE RANGE OF R.S. COMPONENTS, J-Beam Aerials and Fittings and Amtron Kits.

**NEW : P36 Dual gate MOSFET pre-amplifier**
We have again been pressed to demand another new module. This is a completely new pre-amplifier, based on the proved performance of our converters. It has been produced with a very small volume (about 1 cubic inch) so its the receive aerial lead of

- Stock IFs for 2 metres: 2-4 MHz, 4.7-5.1 MHz, 5-6.1 MHz, 16-20 MHz, 18-25 MHz, 23-25 MHz, 24-26 MHz, 27-29 MHz, 29-30 MHz.
- A four stage IF: 28-287 MHz
- Satellite Band IFs: 4-5 MHz, 10-12 MHz, 16-19 MHz, 20-22 MHz, 26-26 MHz, 28-29 MHz, 45-54 MHz. 16 spindle. 2-4 MHz and 4-5 MHz which bring double conversion are 21° x 4° x 1°.

**THE SENTINEL 1,METRE OR 4 METRE OR SATELLITE BAND DUAL GATE MOSFET CONVERTER**
By far the most popular converters. Stock IFs for 2 metres: 2-4 MHz, 4.7-5.1 MHz, 5-6.1 MHz, 16-20 MHz, 18-25 MHz, 23-25 MHz, 24-26 MHz, 27-29 MHz, 29-30 MHz.
- A four stage IF: 28-287 MHz
- Satellite Band IFs: 4-5 MHz, 10-12 MHz, 16-19 MHz, 20-22 MHz, 26-26 MHz, 28-29 MHz, 35-45 MHz. 16 spindle. 2-4 MHz and 4-5 MHz which bring double conversion are 21° x 4° x 1°.

**THE SENTINEL X DUAL GATE MOSFET 2 METRE CONVERTER**
This 2 metre converter is a de luxe version of our well established Sentinel converter. Contains integral mains power supply but can be used with external batteries. It features an RF gain control to reduce cross modulation and overload of the main receiver. Size: 3" x 12" front panel, 4" deep. Two years fundamental crystals on the required frequency which is no multiplexation.

**MEMBERS OF THE AMATEUR RADIO RETAILERS ASSOCIATION**

- **SOLID STATE MODULES**
  - Telephone: 0484 - 23991
  - 63 Woodhead Road, Solid, Lookwood, Huddersfield, HD4 6ER.
  - 7441 7440 7420 7404 7402 7401 7400 7447
  - **INTEGRATED CIRCUITS**
  - 7410 7409 7408 7407 7406 7405 7404 7403 7402 7401 7400 7447
  - **MEMBERS OF THE AMATEUR RADIO RETAILERS ASSOCIATION**
  - **YOUR MIDLAND STOCKISTS**
  - **NUMERICAL INDICATORS**
    - RS Uses Tube (Dec.) £2.35
    - Minitrans 301SF (27 seg.) £6.00
    - T10 29 35p
    - 50 PIV 3A Brake Cork £2.85
    - 2M 6D Skts: LOW PROFILE £2.50
    - 16 D Skt for 301SF £3.95
    - A 7001 Nixi Tube (180v. Dec.) 50P
    - T109 209 35p
    - **TEST METERS**
      - **CARRIAGE**
        - TPIOS £29.96, 25p
        - E10 299, 21p
        - 20K/V £2.40, 16p
        - 41.40 approx.
    - **TEST METERS**
      - **CARRIAGE**
        - TPIOS £29.96, 25p
        - E10 299, 21p
        - 20K/V £2.40, 16p
        - 41.40 approx.
**The Catalogue you MUST have!**

Details of our popular Credit Account Service and our Easy Ordering System are included in the catalogue.

Please use block capitals

Name: ____________________________________________

Address: ____________________________________________

HOME RADIO (Components) LTD. 72996 London
Dept. SW, 234-240 London Rd, Mitcham, CR4 3HD

Only 55p.

The price of 77p applies only to catalogues purchased by customers in the UK and to BFPO addresses.

The Catalogue you MUST have!

Details of our popular Credit Account Service and our Easy Ordering System are included in the catalogue.

Please use block capitals

Name: ____________________________________________

Address: ____________________________________________

HOME RADIO (Components) LTD. 72996 London
Dept. SW, 234-240 London Rd, Mitcham, CR4 3HD

WE ARE THE ANTENNA PEOPLE

**SOME ANTENNAS**

**MONO-BANDERS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>10 metres</th>
<th>15 metres</th>
<th>20 metres</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-310</td>
<td>3 Element</td>
<td>£25.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-315</td>
<td>3 Element</td>
<td>£25.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A-200</td>
<td>2 Element</td>
<td>£27.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TA-10</td>
<td>Ground Plane</td>
<td>£18.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DUAL-BANDERS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>10 metres</th>
<th>15 metres</th>
<th>20 metres</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elan</td>
<td>3 Elements</td>
<td>£20.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elan</td>
<td>2 Elements</td>
<td>£22.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TD-1</td>
<td>Trap Dipole</td>
<td>£22.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TRI-BANDERS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>10 metres</th>
<th>15 metres</th>
<th>20 metres</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mustang</td>
<td>3 Elements</td>
<td>£44.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TA-33</td>
<td>3 Elements</td>
<td>£45.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TA-33 Jr.</td>
<td>3 Elements</td>
<td>£45.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TA-33 Jr.</td>
<td>Rotary Dipole</td>
<td>£47.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CLASSIC-S™**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>10 metres</th>
<th>15 metres</th>
<th>20 metres</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classic-20</td>
<td>5 Elements</td>
<td>£70.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classic-30</td>
<td>5 Elements</td>
<td>£90.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classic-40</td>
<td>3 Elements</td>
<td>£87.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V-3 Jr.</td>
<td>3 Elements</td>
<td>£77.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V-3</td>
<td>Trap Vertical</td>
<td>£77.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ATLAS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlas</td>
<td>Vertical</td>
<td>£65.00</td>
</tr>
</tbody>
</table>

**QUAD-BANDERS**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWL Antennas</td>
<td>Trap Vertical</td>
<td>£22.00</td>
</tr>
<tr>
<td>RD-5</td>
<td>Dipole</td>
<td>£1.00</td>
</tr>
</tbody>
</table>

**Note:** All "E" Models (2" mast fitting) | £1.00

**Note:** All prices ex works carriage and insurance extra.

Send for HANDBOOK containing full details of Antennas and other technical information. 25 pages 15p.

Refundable upon purchase of Antenna.

**Mosley Electronics Ltd**

40 Valley Road, New Costessey, Norwich,

R. T. & I. ELECTRONICS LTD.

where equipment is fully overhauled

KW VEOPA 2 and p.a.u. ............................................... £105.00 (21-00)

HEALTHKIT XII .......................................................... £215.00 (22-50)

KW/GELOSO CONVERTER (into 4-3 MHz) ......................... £195.00 (21-50)

LAFAYETTE HA150 ....................................................... £160.00 (21-50)

LAFAYETTE HD100 ....................................................... £195.00 (21-50)

HEALTHKIT RAI ........................................................ £35.00 (5-00)

LAFAYETTE HA 80 ....................................................... £35.00 (5-00)

HAMMARLUND SP-600-JX4 ............................................. £35.00 (5-00)

EDDYSTON Equ 600 .................................................... £35.00 (5-00)

HEALTHKIT DX 100 Transmitter .................................... £45.00 (5-00)

EDDYSTONE MK 10 ..................................................... £30.00 (5-00)

KW 2000A with A.C. p.s.u. ........................................... £190.00 (21-00)

NATIONAL HA900 with A.C. p.s.u. ................................. £190.00 (21-00)

TRIO TS 510 with A.C. p.s.u. ....................................... £130.00 (25-00)

EDDYSTONE NO Receiver .............................................. £190.00 (21-00)

HEALTHKIT RGI Receiver ............................................. £130.00 (25-00)

TRIO JR-350-3E Receiver ............................................... £130.00 (25-00)

RCA ARIBD Receiver ................................................ £75.00 (15-00)

TW 100 Communicator 12v. D.C. ................................... £85.00 (17-00)

WE CAN ALSO SUPPLY ANY MAKE OF NEW EQUIPMENT - and have pleasure in giving a few examples which are normally in stock:

STOCKISTS OF YAESU MUSEN EQUIPMENT.

LAFAYETTE HA35D.................................................. £165.00 (33-00)

HEATHKIT SW 4500 ................................................ £65.00 (13-00)

EDDYSTON PR40, 2890 .............................................. £293.00 (59-00)

902 Mk, 2, 429.50 (50p) ; Telescopic Aerial, LP.3I26, 42-50 (25p) ; Die-cast Boxes from 45p (I0p). Brochure on request.

902 Mk, 2, 429.50 (50p) ; Telescopic Aerial, LP.3I26, 42-50 (25p) ; Die-cast Boxes from 45p (I0p). Brochure on request.

General Purpose Speaker, 935, 45.55 (40p)

Plinth Speaker, 906, 1.6.20 (50p)

Shure Microphones, 444T, 415.00 (40p)

R. T. & I. ELECTRONICS LTD.

March 1973

2 CROMWELL ROAD, SPROWSTON, NORWICH, NOR 6SR.

(Office only)
We can offer the most comprehensive range of amateur equipment in the country. Full guarantee on all new equipment. Three months guarantee on secondhand range. No money back guarantee. We purchase equipment for cash. Please state full details of the equipment and the price you require. Our second hand range changes rapidly, but if you require any specific items let us know and we will inform you as soon as we have them available. A large S.A.E. will bring you full information on any equipment we stock. All prices include V. A. T.

**SOMMERKAMP FT 501 E**

Digital Read Out Transceiver

560 watts p.e.p. separate 9 MHz filters for USB, LSB and CW

£364
THE KW 204 transmitter excellent value & performance

Includes the following features:
- 10-160 metres—180 watt pep—SSB/AM/CW.
- Reliable 6146’s in PA.
- Beautiful CW keying characteristic.
- 10 metre coverage 28-0—30-0 MHz. Built-in power supply.
- Good audio “punch” on SSB.
- Smooth 2-speed slow-motion drive.
- KW after sales service and spares.

Send for catalogue which includes: MATCHING RECEIVER KW202 (another winner) with the KW “Q” Multiplier built-in (which many cw operators prefer to a narrow filter).

MATCHING KW1000 LINEAR AMPLIFIER, MATCHING KW107 SUPERMATCH, MATCHING KW108 MONITORS CPE. Also—KW101 SWR METER, KW103 SWR /RF POWER METER, KW DUMMY LOAD, KW TRAP DIPLODES, KW LOW PASS FILTERS, KW ANTENNA SWITCH—Beams, Baluns, etc. Coming shortly—KW160 metre, AERIAL TUNING UNIT.

WATERS ELECTRONICS
SOLE DISTRIBUTORS FOR AN EXCITING NEW RANGE OF PRODUCTS

EXPORT SERVICE. We are European agents for all the products we handle and export regularly to most countries. We can quote comparative rates and advise overseas readers to take advantage of our service. No complicated form filling. We deliver the goods direct to you upon receipt or order.

Callers by appointment

EASY TERMS ON EQUIPMENT AVAILABLE OVER 12, 18 OR 24 MONTHS

WATERS ELECTRONICS

EVENINGS TEL. 03 704 4930
SHORT WAVE MAGAZINE

(GB3SWM)

Vol. XXXI JULY, 1973 No. 357

CONTENTS

Editorial .................. .................. ........... .......... .......... ........... ....... ........... Page 273
ABOVE ALL

IT'S THE ANTENNA THAT COUNTS!

A PARTRIDGE PACKAGE COMES COMPLETE WITH THE VITAL WORLD RECORD JOYSTICK V.F.A.

Phone us with your ACCESS/BARCLAYCARD Info.

WE DO THE REST! (Tel. 0843 62335)

The Space Age WORLD RECORD award winning 7' 6" long All Band JOYSTICK V.F.A.—JOYOMATCH A.T.U.—TRIO RECEIVER or TRANSCIVER—Matching HEADPHONES—COMPLETE STATION IN ONE COMPACT PACKAGE—THE FLAT DWELLER'S DREAM!

JOYSTICK V.F.A £12.54 (A); JOYOMATCH A.T.U. £18.04 (C);

PARTRIDGE PACKAGE No. 2

RT800 receiver £9.45
* Items (A); (B); (D) above £13.10
Complete Gen. Coverage .. £66.35

PARTRIDGE PACKAGE No. 3

TS9X receiver £18.00
* Items (A); (C); (D) above £21.00
Complete TX/Free RX Station .. £231.00

PARTRIDGE PACKAGE No. 4

TS9X15 Transceiver £210.60
Complete TX/Free RX Station .. £231.00

Also : SP5D SPKR. £6.95; OA2 MAINS STABILISER 74p

NEW: World-wide reception on the amazing "DX—CRYSTAL SET" £2.20 including unique aerial.

NEW: Partridge are appointed stockists of AMTRON quality kits—Send for fully illustrated Brochure and Price List.

PARTRIDGE BUDGET LINE—

ARTIFICIAL EARTH—SOLVES YOUR EARTH PROBLEMS £5.28; AERIAL BANDSWITCH—TUNED AERIAL £5.28; A.T.U. KIT—FULL COVERAGE TX/RECEIVER £5.28; ASSEMBLED £6.38.

(All including V.A.T., Carriage, Packing, Accessories and Insurance.)

Send 3p stamp for full illustrated details of Partridge Products. TRIO brochures (state which) 3p stamp extra.

NO V.A.T. ON OVERSEAS ORDERS!

CARRIAGE & INSURANCE EXTRA OVERSEAS

BOX 4,

Telephone: 0843 62353 or 62839 cheap periods

ESSENTIAL BOOKS

AMATEUR RADIO SSB GUIDE. A complete guide to the understanding, operating and maintenance of SSB equipment, £1.50, post free.

HOW TO MAKE WALKIE TALKIES FOR LICENSED OPERATION. Only 49p, p.p. 10p.

HANDBOOK OF BASIC ELECTRONIC EQUIPMENT. Gives specific details of the components and equipment used in Radio, Television, Short-Wave Listening, Amateur Radio; Tape-Recording, Record Playing. Enables you to choose the best components and accessories and use them economically and safely. Illustrated, £1.50, post free.

THE GOVERNMENT SURPLUS WIRELESS EQUIPMENT HANDBOOK. Gives details of surplus wireless equipment stores and dealers including addresses plus equipment and spares that they are likely to have available. A valuable book, only 40p, p.p. 10p. Allow 28 days for delivery as directory is being brought up to date.


THE SCATTERING AND DIFFRACTION OF WAVES. A collection of information for the experimenter, amateur and scientist. Profusely illustrated. Published by Oxford University Press. Price £1.60, post free.

TRANSISTOR SUBSTITUTION HANDBOOK. Gives the substitutes for thousands of European, American and Japanese transistors. Where no substitute is available shows how to select a replacement. Includes over 10,000 types, £1.40, post free.


EQUIPMENT DEALERS.

G. J. MYERS (SW)

Publisher & Bookseller

All mail orders to:

16, SHAFTESBURY STREET,

LEEDS LS12 3BT

for immediate dispatch unless otherwise stated.
Justification

We have often enough outlined broadly what might be called the Argument for Amateur Radio in face of the Pressure on Ether Space—it being agreed that the ether, like the air we breathe, is free for all to use, subject to reasonable safeguards.

To deal with some questions so frequently asked when Amateur Radio is under discussion, such as—"What good are amateurs?"—"What do they do?"—"Can they serve any useful purpose?". The quick answer is, of course, that the mere fact of there being some 18,000 of them in the U.K. alone, and nearly 500,000 in the world of the West as a whole, is by itself a good enough reply to these questions. If no benefits flowed or advantages accrued from the pursuit of Amateur Radio, it could not possibly exist on such a scale—and continue to expand at the rate it does. (In the U.K. 50% in six years).

It is this fundamental interest in and practical knowledge of radionics that make the radio amateur, and the Amateur Radio movement, so important from the national point of view. As a nation, we are among the leaders in the Electronic Age into which the world has moved. Amateur Radio is one of the influences by which radionics engineers and technicians of the best type are produced. This is not an imaginary or high-falutin' conception of the value of Amateur Radio, nor even a theoretical appreciation of its potential usefulness, but is actual fact, proved over and over again. These lines will fall under the eye of some of the leaders, senior engineers and executives, of the radio industry, to say nothing of many "lesser lights" in it—let them ask themselves how much they owe to Amateur Radio, and whether it was not as transmitting amateurs that they got their start!

For its educative influence alone, therefore, the healthy development of Amateur Radio is of the utmost importance to the nation. Those who, as juniors, learn the fundamentals simply because they want to get on the air, go on to take out a licence, and then have ideas of becoming professional, are regarded as being of the very best—provided they progress to getting themselves properly qualified. Amateurs, as amateurs, cannot expect to get far in a professional environment.

And in the larger context, can it be seriously suggested that tens of thousands of radio amateurs, in daily communication with one another all over the world—and to a lesser degree the correspondence, personal contact and mutual interest which such communication entails—do not together contribute anything to the international understanding and co-operation for which the politicians are striving?
HELLO, again! As your scribe sits at his typewriter on a fine evening, with birds chattering in the garden and a real June heatwave in progress, it seems almost sacrilege to think of DX, let alone work it. However, let the receiver loose on a DX callsign, and most of us would instantly drop whatever we are doing to take up the chase again.

Since this is the case, let us begin by looking at the most difficult band of them all where real DX is concerned, namely Top Band. We make a start with W1BB (Winthrop, Mass.) and his invaluable Bulletin. Perhaps the first point he makes which is of interest in our context is that he found DX conditions for Top Band very poor indeed, from March 9 right through April and for the first week of May. Stew himself had been stuck fast at 113 countries since June 1972 - and then in February added ZD9BM and 4W1AE to his total in one evening! Talking of 4W1AE, John believes that one can find a spot from which one can work DX, and yet not be able even to hear it from somewhere nearby, due to selective skip effects.

An interesting point in W1BB's discourse is the paragraph on loop antennas. It seems that in a noisy QTH, a loop operated into a transistor pre-amp offers some advantages over a bigger aperture aerial, although of course the half-wave layout is clearly ahead in a quiet location. There are several W's using loops for receiving, among whom one notes W7DOL/6, who has used it for reception while working Europeans-a three-foot diameter job, and a 65-foot loaded vertical for the transmitter, managed to work among others GMSYCH, and to hear but not connect with G3YUV. K5CIT/KH6 says that many Europeans don't look up as high as 1997 kHz, where he sits calling his head off. VK6HD suggests that the VK boys use 1825-1830 kHz when wanting U.S. contacts, and 1803 kHz for European QSO's. Talking of Europeans, G3YUV, G3LIQ and G3XAP might be interested to know that their signals have been heard by VK6HD.

Still with the real, intercontinental DX on this band, ELON/MM writes (both direct and through G3CED) to let us know how his trip is coming along. The Joystick was mounted vertically on the side of the upper bridge deck, fed through about 15ft. of wire and resonated to Top Band with the Joymatch ATU-he was still hearing DHJ when off Western Australia. "The FT-101 is not fitted with the CW filter, and this was the prime cause of the loss of the report from EI9J when the ship was at 29° South, 15° East. However, from 6'S, 5°W, LU5EVM was heard and lost in QSB apparently calling EL0N/MM, and PY1DV was also hooked. All this goes to show what an enormous difference is made to the propagation both on "send" and "receive" when a vertically polarised aerial is used in conjunction with a near-perfect take-off, despite local noise and QRN problems. His ship is the cruise-liner Fairstar, SMXH.

The first ZS6-VK6HD contact fell to ZS6ZE and VK6HD at 2254z on June 9, peaking at 2300z. John is now really on the DX trail and can be found on Friday and Saturday evenings on 1932 kHz, plus possibly the odd evening in the week if he sits up late for any reason.

Nearer to home, we have a bind from G4BWZ, who uses only AM and CW on Top Band, that he has a feathered phoney friend on Eighty, active enough to net QSL's.

"Grass grows in inverse proportion to DX worked," theorises G2HKU (Sheppey), who adds that it doesn't take genius to guess on whose side the dice is not loaded! However, Ted keyed with PA0ABM and PA0PN, while SSB contacts were made with GM3UPK, GM3YXU and, again, PA0PN.

Eighty

In the main, the troops have reverted to their previous attitude of "treat with ignore" as far as...
Eighty goes. G8HX (Mansfield) pops up to tell of his adventures with the latest, multi-band, aerial he has been able to twist into his garden shape. Nothing much was worked on Eighty apart from VE1ZZ, and then two hours' solid operating coming from a single CQ, from which no less than nine QSO's resulted. On a more technical aspect, the old DX-100 has had its drift cut down quite considerably by fitting semi-conductors in place of the valve diodes in the low-voltage power supply—the next stage is to repeat the dose on the HV PA line.

Only one contact comes to be mentioned by G3DCS (Ipswich), in the shape of an RTTY clash with PA90CD. Similar situation at G2HKU, Ted's only one being SSB with 911BX.

Eighty for ZS6ZE (Pretoria) meant no U.K. contacts on CW, although VK6HD was worked; on SSB there were Europeans, including G3DDK, KC6SK and ZD9GC on Gough Is. A glance at a globe, or a great-circle map, will show that these are some of those who did not come to Amateur Radio till his late fifties. He took the R.A.E. via Fleetwood Nautical College and then learnt Morse with the assistance of a local all without having had any previous experience of radio. He has a nice station, running K.W. gear with a Hy-Gain 18-AVT outside.

Frank Coldwell, G4ATM, 103 Harrington Avenue, Blackpool, Lancs., FY1 1QD is a professional man and another of those who did not come to Amateur Radio. For ZS6ZE, all was SSB, VE1ZZ, and then two hours' solid operating coming from a single CQ, from which no less than nine QSO's resulted. On a more technical aspect, the old DX-100 has had its drift cut down quite considerably by fitting semi-conductors in place of the valve diodes in the low-voltage power supply—the next stage is to repeat the dose on the HV PA line.

Only one contact comes to be mentioned by G3DCS (Ipswich), in the shape of an RTTY clash with PA90CD. Similar situation at G2HKU, Ted's only one being SSB with 911BX.

Eighty for ZS6ZE (Pretoria) meant no U.K. contacts on CW, although VK6HD was worked; on SSB there were Europeans, including G3DDK, KC6SK and ZD9GC on Gough Is. A glance at a globe, or a great-circle map, will show that these are some of those who did not come to Amateur Radio till his late fifties. He took the R.A.E. via Fleetwood Nautical College and then learnt Morse with the assistance of a local all without having had any previous experience of radio. He has a nice station, running K.W. gear with a Hy-Gain 18-AVT outside.

G8KU, who used it to work FC0AHY, KP4JEC, KZ5BB, EA9EWE, U8LAC and UC6AW. On SSB, one contact worthy of note was with UI8LAG, at 59 plus and with excellent English.

G8HX has been spreading his wings somewhat since he replaced his 7 MHz aerial with the multi-band array, but he still worked CW with KZ5, and built up his total of DOK's and SPPA districts nicely.

A new correspondent is G4BVS, who divides his report into two parts, from his Aneresham home QTH and secondly from Beddigert in North Wales over the Spring Bank Holiday. The home 14-AVQ gave QRP (five watts to a Ten-Tec PM34) contacts with DA2SO, DL1TA, DL8YU, EA2EY, F6CBM, HB8ANW and YU4ETO, while the /P ground-plane unearthed F66AK and GI3ZAD. It is interesting to note that G4BVS, who is ex-G8GHY, finds himself fascinated by CW operation and with more of the VHF phone-only fanatics would try it and so expand their interests.

Another holiday-maker was PA5VRZ, who was worked by G2NJ—the PA gave his camp location as Jutberg. G2NJ also found F6WW/M, motorising not far from Caen, Normandy.

Comments on This and That

G3DCS says that he has partly offset the difficulty caused by the lack of selectivity of his RTTY filters by separating them from 170 cycles to nearer 400, the object being to reduce the "mark" signal on the space frequency and vice-versa, due to the low selectivity in his filters. On a different tack, Enver reckons 850 Hz shifts are a dead duck in amateur practice, he having only ever encountered a couple on the DX bands; the majority are on 170 Hz shift.

G3ZPF (Dudley) takes issue with your conductor over the latter's comments, last time round, on how to register a protest—David is sincerely, if misguidedly, a believer that protest marches do more good than letters to the Times, adding as evidence the IARU and ITU, the Interamner Watch and, on the other side, all the "things" which wander around our bands. One ha
BRIEF DX DATA

A51PN Try 14085 kHz around 1700. QSL address: H. N. Pradhan, Wireless Communications, Dechentsi, Thimphu, Sikkim.

K5LTH Is now on Kure Is., where he will sign KH6HDB /Kure for a period of about one year.

OH0AM Aland. June 28-July 3, Martin will be on as OJ9AM from Market Reef. Going mainly to install a Tempo-One rig and beam aerial for OH0MA, who is keeper of the Market Reef lighthouse.

ZKITA Tongareva. Operation begins June 29, lasting about 7 days. Look for their SSB on 7083, 7087, 14195, 21295, 28595 kHz and for their CW on any band 10 kHz up from the band-edge.

VE3RCMP Royal Canadian Mounted Police centenary. QSL address is Telecommunications Branch, Commissioner RCMP, 1200 Alta Vista Drive, Ottawa, Ontario. Station will be active till the end of August.

C2... JA1MCU will be going to Nauru Is., South Pacific before this comes to print. Operation mainly on 40, 80, 160 metres.

CR8AG, CR8AL Now the only active stations left in CR8. QSL's for either should go via PY7YS, P.O. Box 34, 6000 Fortaleza, Ceara, Brazil.

JT... Look around 14225-14230 kHz for JT9AE, QSL via OK1AA. Understood UA9VH/JT1 will soon be active on all bands. QSL's to UA9VB. Vic may be able to help with QSL's from other JT's.

FO9DF Tsuamoto Archipelago. Try 14144 kHz around 0515Z. QSL to B.P. 1825, Papeete, Society Islands, South Pacific.

to be a bit careful over this, since most of this interference comes from countries who for one reason or another have effectively refused to accept international law as binding on them. Many of the "intruders" are in fact spurious signals in the particular receiver/aerial set-up hearing them, and a lot of the genuine ones are stations who have lawfully registered objection to the "exclusive" allocation of a particular band to amateurs and have informed the authorities they will be on these frequencies. However, for the pirate BC station, sitting on someone else's channel, with no reference to anyone, no condemnation is too great. To revert to G3KFE's original comment, one knows from experience that the reaction to seeing a gang of demonstrators is to ring up the Police and just ask for them to be removed—about the only people who read their banners are the policemen or the TV viewer. But a letter to the Times, or in this case the IARU News, is written by responsible people knowing their case will be considered by other responsible people among the readers, who will take the trouble to read right through the argument.

That bit about a longest QSO last time was sure to cause a comment. As your aged scribe thought, 24 hours non-stop for a QSO is a mere bagetelle. G31DG quotes QST for June 1963, reporting WA2WIR and WA2VFW having a marathon of 99 hours!

SWL Yeoman (Peterborough) writes to say he has a card from 9M2BH, who said he had changed his address. The new one is Lim Phang Choo, 187 Julian 68, Kepong Baru, Selangor, Malaysia.

G31DG again, this time on the question of stations in close proximity quotes G3CWZ and G3EYN, who had separate stations in the same room, five feet apart. Why not try something different, like the smallest or largest QSL cards, at the present held by CN8BV and K2SST respectively?

The American National Scout Jamboree, at its two locations, Farragut Park, Idaho, and Moraine State Park, Pennsylvania, will be on the air in August—KJ7BSA, July 28-August 9 from Idaho, and July 30-August 11 from KJ3BSA in Pennsylvania. Look for them five kHz above the lower limit of the General and Novice sub-hands.

Ten Metres

Even though we are well into the trough of the sunspot cycle, and in summer conditions, still there comes the odd mention of the band. G3RFC (Henlow) for instance tried Ten often and on the key raised DL7QU, F6KDE, H8KUX, I0ROA, 0E5, RB5, UK2, UK3, UF6, UYS, SM4FHK, SP5AD and YU5HJ (not DX but interesting) with heard-ones in the shape of CR6AI, CR7FM, various LU's, PY, YY and 7Q7's, all of which were at levels between S7 and S9. However, far more interesting is the "beacon watch" which Stan has been keeping. He takes log for the date and time, and on each occasion has looked for ZC4CY, DL1GIG and 3B8MS, noted their presence and strength, and then scanned the band for other signals. There is a break from May 4 to May 10 and May 12 and 13, but signals were found on all other days, either beacon or other signals, or both. The interesting thing is that "when the beacons are audible" seems to bring little relationship to the presence of other signals, either long-range European (which can be accounted for only by non-VHF type propagation) or true DX. The segment of the band checked was in each case 28-0 and 28-2 MHz. Another point is that no cases occurred of propagation beyond what one would assume to be single-hop distances, in an East-West direction (with the possible exception of UA9). However there were quite a few instances of PY, YY and African stations there even when the beacons were not audible! No question of significant effects of the aerial arises, because the ground-plane is essentially all-round in its pattern and appears to conform with theory. (Anyone interested in propagation at 29 MHz could think a lot about these findings. Editor.)

ZS62ZE worked a few on the key during NF-D weekend, notably DL5's, PAO, G3CAR/P, G0LX/P, G3HRB/P, G3LMF/P, G3VC/P, G3MPG and G4ALE/P, while SSB came up during the month with K6GSK, RL7PCV and a gagle of JA's.

As for GW4BLE, Stephen offers
Frank Bewley, G8HX, 116 Westfield Lane, Mansfield, Notts., is of course an OT, having been licensed before Hitler's War. His interests are CW on 3.5-21 MHz inclusive, and the aerial is a 136-footer, 35 ft. high, centred into a garden 60 ft. long.

Numerous first-hop Europeans, plus the longer hauls into 5B4ES and 5X5NK on Sideband.

**Fifteen Metres**

Nothing like so much in the doldrums as the general level of conditions and the propagation forecasts would lead one to believe.

In the main, G3DNF (Leeds), stuck to his 1/2 watts on 21 MHz, and got 4Z4KF, W3WJD and WN4ZVF — the last-named coming up with the fastest-ever QSL card. Short-skip gave the little rig the chance to work loads of Europeans as well. The big rig was not completely neglected, and the bit of extra "steam" came in handy for JY9FOC.

The most pessimistic note is from G8HX, who must have picked the wrong times for he found little of interest audible on the band, let alone workable.

Fifteen for G2NJ (Peterborough) was largely a question of the /MM stations, although Nick did pick off YU2RMS/X - the /X apparently meaning that the station is being driven by the second op., the first op. being father. (Could be a good pointer to a way of teaching the youngsters how to operate properly, to make 'em spend a probationary period as second op., to a practised OT). Back to the sea, and G2NJ came across JR3KLC/MM, Y04WO/MM, JA7HX/MM and ELO9/MM.

G3DCS eschewed his RTTY in favour of the good old pump-handle, and by this means was enabled to make contact with JA3HL, UA9TH, UA9CAL, UK9AAZ, UA0YTI and UF6DX.

For G3ZPF (Dudley) the CW worked sundry Europeans and G3KPT (of QRP fame) whose two watts made the idea of running 150 watts seem a bit silly. However David reacted by going on SSB and in this manner managed to make his presence known with CR7FR, CP6EB, LU7FAG, 9J2DT VS9DX, EA6BZ, EA6BP, 9J2WR, ER3USF, 5H3AP, VP2VAM, VQ9DC, ET3USC, 9Y4EH and ZP5AN.

Only a couple of interesting ones are mentioned by GW4BLE, who offers 3B6CF and 7P8AZ on SSB, both being new countries to him.

ZS6ZE managed to work an assortment of Europeans on both CW and SSB, but also raised KC6SK, KC6JC, KH6DQ, 9X5VA, HS3AIG, ZD9GC, VS6EN, VS6DM, KV4AD and EP2NH on SSB, plus and odd AM contact (the first this column has noted for some long time now) to 5U7BA.

G3RFG as usual stuck to the basic mode, CW, using the FT-DX500 as the prime mover, with the trap vertical. This combination hooked JA1JBB, JA2FDX, JA7XG, JR1MYZ, K3JH, K4GSS, K7DSZ, KG6AAY, PJ9BN (Bonaire Is.), PY2FFW, SY2GGF, UK9SAY, W1TW, WA2DMK, W3KWH, WB3DMF, W9SNF, W5MSC (Johnson Space Centre, Houston) and ZS6DE, with the vital element of frustration provided by getaways CR6OY, HS4AGN, WP4DQL, 9M2CN, and KP4NY.

The Workhorse

Yes, we did say workhorse, not workhouse, even though some of the "communications" are a bit on the weird side. This is, as for so
many years, the band on which to
snag that essential new country,
even if you later find them on one
or other of the remaining DX
allocations. The band? Twenty,
of course!

Let's first look at what our
"specialists" have to say. G3UZ
(Goring-by-Sea) had a moment's
chuckle when he worked G3TZL
/MM, in the South Pacific, he having
"specialists" have to say.

Tony the taste for blood.

That flea-power rig at G4BVS
enabled Sean to pound brass with
a lot of Europeans from home,
including EA4DX, HA0KLM,
1Y2B, IS9FPH, OH0MA, SP5,
U9AAD, U9BNM, U9O5BE,
UP2PAW, UW6DW and YU1ACN.
At the holiday site /P, using the
same rig to a vertical, took in mostly
the same sort of stuff, but with the
addition of F, LA, ON, OK, UA4,
and Y03RT. Hardened DX'ers
may remark that there is nothing
wonderful in these results, but the
more thoughtul will think of the
invaluable addition of F, LA, ON, OK, UA4,
the same sort of stuff, but with the
same rig to a vertical, took in mostly

Second, John offers
the QRP lads

Hardened DX'ers
may remark that there is nothing
wonderful in these results, but the
more thoughtul will think of the
invaluable addition of F, LA, ON, OK, UA4,
the same sort of stuff, but with the
same rig to a vertical, took in mostly

Incidentally, G3DCS pleads
that one's QRP lads

with the QRP lads that he has
succeeded to the urge and just

Membership of the party recently operat-
ing SY1MA from Mt. Athos, Greece. Left
to right, standing, SY1GA, SY1DB,
SY1ER, SY1GX, DK5OS, DL1CU,
DL5ME, DL6SI and DL8FT. The
arrangements were handled by DL1CU.
complete an HW-7 for himself. With it, and an input of just the 2.5 watts, Nick managed a solid contact with WA1CGX (Boston), just to show he can do it as well as the others.

Odd how certain relatively common countries seem to elude one's grasp. G8HX worked W1, W6, W7, VK2, VK7, VK8, UK7, UK9, UMS, UA9, VE6, and XE1. The XE was the first station in Mexico to be booked into the log—and Frank has been working the DX bands since 1936!

G3DNF used his collinear for 21 MHz as the skywire with which to try out his latest QRP 14 MHz rig. However, this aerial, used on Twenty, displays a strong directional effect towards Asia, which resulted in UA9SAA being his only DX contact with the fleapower. Gordon raises a few queries about the DL QRP contest mentioned last month, in p.215. The contest call is “QRP Test.” The rule about doubling one's points score, for a QSO where either end is using less than three watts seems to mean that both stations double their QSO points for that contact—at least, that's how G3KFE reads the sheet! (We get many demands/requests to print rules for this-or-that contest. Some of them are totally incomprehensible. These we ignore—or refer readers to the originators. Editor).

Other Matters

Contests, Awards, Experiments:

First, the experiment to be run by ST5AD and ST5CJ, on June 30, operating ST5SOL as a beacon station during the period 0930-1130z when the eclipse of the sun is occurring, the totality being scheduled for about 1030. You are asked to listen to the beacon, sending ST5SOL followed by a dash, every 20 seconds, on 14050 and 21050 kHz and send in reports to us, which will be forwarded to F8SII who is acting as the anchorman for the reception side of the exercise. The object, of course, is to find out what happens to propagation from an area subject to a total eclipse.

An Award now: The “Shamrock Award” is being sponsored by the Dundalk Club, rather on the lines of WAB but using the squares of the Irish grid. Details on this one can be obtained from GM3MTH, G3KVD, or G81R. Frequencies of operation, in general, around 3650-3750, nominally 3710 kHz or 7070 kHz on Forty plus-or-minus QRM.

The expedition being mounted in the second week of August by GW6GW the Blackwood Club (as mentioned last month) will be taking some HF gear to be operated in the WAB squares on 80 and 40 metres.

Contests now: This is an advance warning of the VK/ZL/Oceania contest which has its Phone leg from 1000z October 6 to 1000z on the 7th and CW from 1000z October 13 to 1000z October 14. Exchange the usual six-digit combination of RST plus a serial number the latter starting anywhere between 1 and 100 and rising by one for each successive contact. Score two points for each VK or ZL QSO, or one point for an Oceania contact. Total score will be all QSO points multiplied by the sum of the VK/ZL call areas worked on all bands. Logs to show, in this order: Date, time GMT, call of station worked, band, serial number sent, serial number received, points claimed. Each new VK/ZL call area worked for the first time should be underlined in the log. All entries to go to Federal Contest Committee, W.I.A., Box N1002, G.P.O. Perth, Western Australia, 6001. Entries from outside VK/ZL are to arrive by January 22, 1974.

The CW section of the EDXC (this is an EU event) comes up on August 11-12, and the Phone leg on September 8-9. Start is 0001 Saturday to 2359 on Sunday, all times GMT. Out of the 48 hours you use 36 hours for operating,
the rest period being taken in not
more than three sessions. European
stations work the world, the world
works EU's. Usual five or six-
digit exchange of RS(T) + serial
number. Score one point per QSO,
and use ARRL country list for the
multiplier, save that call areas of
JA, PY, VE/VO, VK, W/K, ZL, ZS,
UA9 and UA0 count as countries.
In addition, the multiplier earned
on Eighty may be multiplied by
four, the multiplier on Forty by
three, and on 14/21/28 MHz by two.
Total score is QSO points times
sum total multiplier for all hands
worked. Note that non-EU stations
may send back a list of up to ten
stations previously worked, to score
a point each for a QTC, so be ready
for this to happen. (Presumably,
that means if you are told about the
Contest by a DL, you make a note
of it.) Logs to be in DARC form,
preferably, and to be sent to DARC
WAE Contest Committee, D-895
Kaufbeuren, Box 262, West
Germany, to arrive by September 15
for CW, and October 15 for Phone.
Incidentally, if you use your own
log sheets, make them go forty
contacts to the page. On the other
hand, if you are really interested,
write to the QTH, with an
IRC, and ask for the rules and a
supply of log sheets.

TVI & BCI
A write-up in the Cray Valley
"Newsletter," QUA, discusses a
lecture by G3OHX and G3VUQ,
at which these two enthusiasts
bombarded the meeting with practical
ways of tackling TVI and BCI,
guaranteeing that any case of TVI is
curable, however bad the effects on
the social side may be. Some
staggering figures are produced—
for instance, that 400 watts p.e.p.
could produce as much as one
amp of unwanted RF on a neigh-
bour's TV aerial feeder! They make
a valid point when they say: "Don't
moan among yourselves about poor
TV set design, but write to the
manufacturers' organisation,
BREMA, who have an Interference
Committee who should be snowed
under with our written complaints."
Incidentally, BREMA is the
British Radio Equipment Manu-
facturers Association, and
their address is 31 Soho Square,

This whole business of TVI, as
your scribe has so often said in these
pages, is almost always accepted
and not dealt with; and this must
have had a lot to do with the
ridiculous situation that every TV
set made for the U.K. market and
operated from mains has a live
chassis, which prevents earth-
ing the chassis—that importers of
foreign TV sets are refusing the anti-
interference screens which the law
calls for—that TV set dealers, while
quite happy in many cases to sell
walkie-talkies to the wrong people,
are also quite happy to blame
amateurs whenever their own people
meet a case of interference—and that
in some areas, even some G.P.O.
staff on the Interference side are
prepared to say "TVI is incurable."
This is not at all the case and should
not be accepted as such.

Now QRU
That's enough this time from your
old conductor. For next month
the deadline is to arrive by first
post on July 10, the address as
always being "CDXN," SHORT
WAVE MAGAZINE, BUCKINGHAM,
MK18 1RQ. Meantime, may your
grass remain short!

COURSES FOR THE R.A.E.

Starting in the August issue, we will as usual begin
listing those centres at which courses are to be started
for the Radio Amateurs' Examination, Subject No. 765
in the City & Guilds of London Institute examination
syllabus.

Those responsible for organising such courses are
asked to let us have the necessary details (on a separate
sheet, please) as soon as possible, addressed: "R.A.E."
SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ.

"TRANSCEIVER FOR EIGHTY METRES"

In this article by G3TAG, in our June issue, values
for VR1 (5K log.) and VR2 (5K linear) were omitted
from the table on p.223. And R2 should be 30K.

AMATEUR LICENCE FIGURES

There are now well over 18,000 U.K. licences in
issue, about 22% of which are Class-B (VHF only).
Of the total, some 3,800 are licensed for mobile,
the proportion of B-licensees in this category being some-
what higher at about 24-5%. This is reflected in the greatly
increased mobile activity on two metres. For the first
time, we are this year getting reports of more /M's
worked on Two than on Top Band, hitherto by far the
band most used by mobiles.

RECIPROCAL LICENSING

We are informed by the Ministry that for what they
call the "alien licence", U.K. licensees will in future be
allowed to use RTTY and "any recognised spoken
language", i.e., English is no longer insisted upon as the
only language to be used over the air by foreign amateurs
licensed in the U.K.

MORSE AT MABLETHORPE

Under the guidance of a professional operator, it is
intended to organise a class in Morse tuition at Tenny-
son School, Mablethorpe, Lines., as part of the winter
evening educational programme. For details, contact
P. J. Bradshaw, G8AWX, 46 Camelot Gardens, Sutton-
on-Sea, Mablethorpe, Lines., LN12 2HP, enclosing
an s.a.e.

ENSIGN ELECTRONICS, QUORN, LEICS.

Due to the untimely death in a motor accident of the
proprietor of this firm, all business outstanding is being
dealt with by his father, Mr. P. R. Twells, 18 Chaveney
Road, Quorn, Nr. Loughborough, Leics., to whom
applications should be made with reference to completion
of orders or refunds of cash paid.
CONCLUDING POINTS

We now go on from p.230 of the June issue, on the subject of IF alignment.

With crystals in use, the procedure is the same, except that the IFT's have to be centred between the crystal frequencies. This is most easily done by shorting VC1, and injecting from a signal generator at 2 of V1, swinging the generator from about 464 to 466 kHz, as necessary to find the crystal peaks. Then set the generator between these, and adjust the IFT cores as mentioned. With patience, a similar result can be achieved by tuning in a stable BBC signal, and adjusting the IFT cores. With correct adjustment, selectivity should be quite a notable feature.

Band Coverage

Band coverage at the LF ends of the bands can be altered by moving the cores L5, L6, L7 and L8, as required. At the HF ends of the bands, adjust T5, T6, T7 or T8, as necessary.

Aerial Alignment

If necessary, adjust L1, L2, L3 or L4 at the LF end of the band, for best results. If required, adjust the appropriate aerial trimmers T1, T2, T3 and T4 near the HF end of the bands.

Aerial

For general use, any end-connected wire can be used. But a properly erected aerial, designed for all bands, or operated in conjunction with a tuner, will greatly improve results. A very long aerial, of no specified or known characteristic, will add considerably to 2nd channel whistles. A shorter aerial is much less liable to this trouble. Placing a pre-set capacitor in the aerial connection at A will improve results. Best results of all will be with a resonant tuner, which can be operated in conjunction with an end-connected aerial, or tuned couplant, or other tuned system, in the usual manner.

To Repeat

It ought to be noted again that this circuit was used with the aim of producing an essentially simple receiver, based on a home-made coil-pack, which is put in as a ready-made and approximately aligned unit. The limitations imposed by lack of pre-mixer selectivity have been described. But, as also noted, there are various quite expensive receivers on the market with a 470 kHz IF and no extra 2nd channel rejection than has this receiver.

As regards adjacent channel selectivity, that exhibited by this circuit is of course much better than that of the type of commercial receiver with which it is being compared. In fact, if the crystal filter is omitted, this receiver will have about the same adjacent channel selectivity as a very large number of commercial receivers, including certain models which are in much general use for amateur and all-band coverage.
BOOK REVIEW — 1973 ARRL HANDBOOK

BEFORE settling down to review the 1973 (50th) edition of the ARRL Radio Amateur's Handbook, your reviewer compared it with some of the earlier editions on his shelf, dating back to 1939. About the only thing in common with these earlier editions is the page size and the soft cover. Compared even with so recent an issue as the 1971 Handbook, this new one is very largely rewritten. Emphasis has been laid on the modern developments, so that, for instance, Fig. 8-8, covering "detectors," shows types using a valve, a bipolar transistor, a FET, a diode, or an IC. Similarly with the drawing of various types of mixer. A section now deals with digital IC's, and another shows some of the many ways of using the operational amplifier type of IC. When one looks at VHF pre-amplifiers, there is not a valve to be seen.

Chapters are not in their accustomed order, neither are the titles of the chapters the same—and the advertisement section has disappeared altogether. A sign of the times is a list of American companies willing to accept small-number orders from amateurs for components—it seems that problem is not only confined to Britain!

Of course, many buyers of the ARRL Handbook (as it is usually known) are professionals, who find it a worthwhile volume of information to have on desk or lab. bench at work; for them also, the 1973 Edition out-dates all the earlier ones because of its extensive modernisation, and indeed since your reviewer took his to work for a lunchtime read, three people in a lab. of twelve, all non-amateurs, have asked him to get a copy for them for reference, after borrowing it for long enough to get a good "feel" for the contents.

Perhaps the most interesting thing for most people is to note that the chapter on Interference now carries notes, not only on BCI and TVI, but also interference to Hi-Fi equipment and electronic organs. However, for your reviewer, the most interesting item by far is the RF Impedance Bridge, giving indication of both resistive and reactive components to a degree adequate for use with a Smith Chart—this can revolutionise our amateur ideas on Aerials and their measurements.

To sum up: Speaking as a professional as well as an amateur, your reviewer is torn between keeping his copy in the shack, or on his desk at work.

The ARRL Radio Amateur's Handbook, 50th edition, 1973, of nearly 700 pages, covering design, construction and operation of amateur-band equipment of every type, fully illustrated in line and half-tone, indexed, price £2.85 in limp cover (or £3.65 hard back) post free, from stock, of the Publications Dept., Short Wave Magazine Ltd., 55 Victoria Street, London, SW1H OIF.

AS IT WAS IN THE BEGINNING

NOTE OF NOSTALGIA

J. W. PADDON, G2IS

COMMUNICATION was first carried out (by the writer) by what can be properly described as a pulse train having constant amplitude and varying lengths. That was half a century and five years ago. The propagation medium was two strands of a barbed-wire fence running through the Ontario bush from my back door to that of a friend on the other side of the hill. QSO's were solid—no QRM, no QRN and no QSB. The power supply was half a dozen dry cell batteries. A key and a telegraph sounder at each end completed the system. We learned Morse from the operator at the local railway station who was bored, underworked and liked children.

When my friend moved away the urge to communicate was in no way abated. To fill the gap attention was turned to wireless (who ever heard of "radio" then?) That word came into being many years later). There was little technical literature available. Gear was nearly non-existent and what there was priced far beyond the resources of a youngster.

Things really got going when an amiable Aunt returned from a visit to England with a present in the form of a pair of headphones—excellent ones from a manufacturer who, happily, still flourishes. About the same time an article on how to build a receiver appeared.

In those days it was overwhelmingly L and precious little C. What C there was came from the antenna/earth capacity except for the capacitor across the headphones. Fine DCC wire was readily available as was galena crystal. With a little more trouble some square brass rod and sliding contacts to run on it were found. A large, cylindrical cardboard box (which originally contained oatmeal) was heavily painted with orange shellac and baked in a low oven. Turn by turn the winding was put on—hundreds of turns. Two square pieces of wood made the end supports for the coil. A couple of careful passes with a red-hot poker burned away the insulation and provided a path for the sliding contact. Thus was produced the "tuner," to load the antenna. A similar device but with two sliders on completed the great hunk of inductance. A by-pass condenser for the headphones was dug out from a Model "T" Ford sparking coil salvaged from the local garage junk heap.

The final problem was the aerial. In those days they were heroic affairs made up of six parallel wires on twenty foot spreaders. That meant 12 insulators. These looked like baked mud cricket balls with a screw eye on each side. The cash to buy these was raised by picking innumerable boxes of strawberries at 2d. each. The contraption filled the hundred and fifty foot space between the peak of the barn and a big fir outside the shack window. Earth was the casing of a deep well and probably a good one for the pipe went straight down sixty feet.
Putting It Together

Soldering up the connections was an interesting job. The bit of the iron was a one pound lump of copper and was heated in the fire box of a wood-burning kitchen stove. Soldering paste had never been heard of. Flux was made by dissolving slips of zinc in muriatic acid which made a good joint but flew sizzling in all corrosive directions when the hot iron was applied. Solder came in great hefty bars meant for plumbers.

The great moment finally came. Connections were checked and the shiny new headphones clamped over the ears. Total silence until a few pokes with the cat's whisker found a sensitive spot on the crystal. There were thunderstorms about so above the background hiss there were reassuring crashes of static—and nothing else. After dark and much patient juggling with the sliders a Morse signal finally emerged. Faint it was but going steadily along at an easy pace. Utter frustration set in for not one scrap of sense could be made of it—not surprising for this was international Morse and not the familiar continental. It took some time to find out that this code even existed but a chance meeting with a fellow who worked for Marconi somewhere up the St. Lawrence solved the riddle and provided a copy of the "wireless" code.

Results!

The tedious business of learning this new code began. There was no one who knew the code for hundreds of miles so the instructors were: FL, the Eiffel Tower; POZ, Nauen in Germany; and NAA, the U.S. Navy station at Arlington, Virginia. The signals they put out were actually machine made, generated by Alexanderson or Goldschmidt alternators. These were towering contraptions which, by the use of high rotational speed and an enormous number of field coils produced at VLF, AC current which could be made to radiate. Keying was achieved by exciting the field coils and the hysteresis of the iron in the system held the code speed down to a low enough figure to enable a patient and persistent youngster slowly to learn it. The highest frequency they could achieve was 200 kHz but in practice they worked on a far lower frequency. The wave form was so full of overtones and other anomalies that it ceased to be pure CW and could be copied without a BFO.

It is an interesting historical fact that after Pearl Harbour the U.S. Navy dug out an alternator left over from the Kaiser's War. This was on the Island of Hilo. After shovelling away the accumulated rubbish of years the machine was cleaned up and the windings dried out. It fired up on the first twist and provided solid VLF all over the Pacific until the end of hostilities with Japan.

That was the way a career in Amateur Radio began. Perhaps there was more satisfaction in it than there is today. It developed an amateur population without passengers. Those who wanted it the easy way soon dropped out. The few who stuck it out were a close-knit band of enthusiasts. Unlimited help was poured out upon anyone who asked for it. While QSO's were very few and far between each one was an event and an achievement far beyond a two-hour, ten-station round-table on SSB.

REDIFON TELECOMMUNICATIONS EXHIBITION

London, June 5-8

Although Redifon products are beyond the financial resources of most amateurs, the Redifon '73 Exhibition had much of interest for the electronically minded. Attracting a great deal of attention were the new, solid-state, broadband, HF amplifiers rated at 400 watts and 1 kW. The latter has no less than 48 transistors.
in the output stage arranged round the periphery of a drum, a layout which not only gives even cooling, but is also electrically convenient. The problems of matching and balancing are obviously formidable, but the modular construction eases the servicing problem. Full protection against short-circuited and open-circuited antenna additional catastrophic misuse.

A new marine transmitter, designated the RMT-1500S, runs up to 1.5 kW on all marine radiotelegraph and radiotelephone bands with a frequency stability of 1 part in $10^7$—or about 2.5 Hz at 30 MHz—more than adequate for selective calling and RTTY working. The frequency is selected in 100 Hz steps from a synthesiser so designed as to permit the setting up of a working channel as well as a calling channel, the former becoming available, once communication has been established, merely by pressing a button. Modes available from the synthesiser, which is a standard piece of equipment producing 100 mW of output and capable of driving a number of transmitters of varying output powers, are A1, A3A (SSB with pilot carrier), A3H (SSB with equal carrier for DSB), A3J, and A2H (one sideband with equal carrier for MCW transmission).

Other new Redifon products were a mobile, all solid-state, 400-watt HF transmitter covering the usual range of HF communication frequencies, an automatic alarm receiver operating on the international distress frequency and, with the addition of NBFM, can be used to produce all the usual modes on various amateur bands by appropriate mixing and linear amplifier techniques.

A surprise announcement came from the Managing Director of the company, Mr. J. R. Brinkley, that Redifon are going into the mobile and fixed station VHF/UHF market—quite a departure from previous policy, but one which is in line with Mr. Brinkley's previous interests. Although some £100,000 per annum is being invested in this project, it will obviously be some time before the ubiquitous Rangers and Cambrides, so popular for amateur mobile working, are supplanted.

A.H.D.

SPECIALY ON THE AIR

Quite a number of new entries under this heading, all in connection with events at which the public will be present in large numbers. In some cases, the exhibition station is put on with the intention of attracting mobile operators, i.e., talk-in facilities are offered for possible "M"s. In fact, some of these events could assume the proportions of a Mobile Rally, though probably without the trade stands of radio amateur interest now associated with Rallies. In each case, the name/QTH given is the address for QSL's.

GB3HCW, June 30-July 7: Operating all bands Top to two metres, with three stations on the air. This event is in conjunction with the Hanworth Carnival Week.—V. W. Higgs, G3VWJ, 205 Commercial Road, Staines, Middlesex, TW18 2QT.

GB3MKB, June 30-July 7: At Ballycastle, Co. Antrim, to commemorate the 75th anniversary of the Marconi link to Rathlin ls., operating all bands 10-80m., with a special QSL card. (This station should be worked for the "G16YM Golden Jubilee Award"). —J. Beattie, G13NQH, 170 Lower Braniel Road, Belfast Northern Ireland.

GB2DTS, July 7-8: Put on by Barking Radio & Electronics Society for the Dagenham Town Show, running all bands 2m-160m. inclusive, with talk-in for mobiles on 145 MHz.—R. E. Clark, G8BXC, 62 Waltham Road, Woodford Bridge, Essex.

GB3SFG, July 12-14: Finchley Carnival at Victoria Park, Ballards Lane, London, N.3, operated by the Southgate Radio Club, all bands 2-160m.—A. C.
Edwards, G3MBL, 244 Ballards Lane, London, N12 OEP.

GB2FS, July 14: Organised by Farnborough & District Radio Society for Frogmore School Fete, to work on 80m. and the HF bands.—D. Underwood, G3MBK, QTHR.

GB2RHR, July 14-15: For the Robin Hood Vintage Car Rally, Wilford Lane Sports Ground, Nottingham, with SSB 10-80m. and AM on two metres. All contacts will be QSL’d by special card. -A. Veitch, GBFRB, QTHR.

GB2YEO, during August: From the Yeovil Technical College, running 10-80m., for the 27th annual Wycombe licence operators and SWL assistance, with logging of contacts will be QSL’d by special card. -A. Veitch, with SSB 10-80m. and AM on two metres. G3MBK, QM R.

GB3RAF, August 10-27: In conjunction with the R.A.F. Exhibition, Billesley Common, Birmingham, operating on HF and VHF from the exhibition site, 10 a.m. till 8 p.m. daily. Operators will be R.A.F. personnel.—Hon. Secretary, R.A.F. Amateur Radio Society, R.A.F. Station Locking, Weston-super-Mare, Somerset. (Call GB4CES may also be used).

GB3SCW, July 19-21: Put on by the Stowmarket District Amateur Radio Society for the local carnival week, running 20-160m. and 2m./70cm., CW and phone, from the Recreation Ground, Stowmarket, Suffolk, IP14 1JX.

GB8BEX, from mid-July: In connection with the “Bristol 600” charter celebrations, organised by the Shirhampton Radio Club, working all bands, contacts to be QSL’d by a special card.—A. H. Kelle, G4AYB, 48 Station Road, Shirhampton, Bristol, BS11 9TX.

GB3HSI, July 28-August 4: Operating from Brownsea Island, Poole Harbour, Dorset, running 10-80m. SSB and AM/FM on 2m./4m.—P. Duffield, G3OBD, 16 Talbot Drive, Poole, Dorset.

GB2SCW, July 28-August 4: For the Welsh Scout Jamboree at Penryn Castle Park, Bangor, North Wales, for which a large number of Scout campers is expected. A CW/SSB station will be put on by the Chiltern Amateur Radio Club, to operate CW/SSB on all bands 10-80m. RTTY skeds would also be welcomed. QSL by a card minted for the occasion.—A. C. Butcher, G3FSN, 70 Hughenden Avenue, High Wycombe, Bucks.

Any further notices that are wished for under this heading should be in the form shown here. -In particular, we must have the name/QTH of whoever is to be responsible for handling enquiries and the QSL card business. We cannot accept notices that do not include this information. Address to: “Specially on The Air,” SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ.

WHAT SOME READERS SAY

“Thank you for all you have done for me; I knew nothing about Amateur Radio till I picked up a copy of your Magazine on a station book-stall. Now I have my own callsign . . .”

“I am professionally interested in radio but I like your amateur Magazine because it is written in English . . .”

“While I have learnt a lot from SWM, I think you should pay more attention to beginners . . .”

“I am getting tired of your Magazine because you devote so much space to the SWL Interest . . .”

“Thanks to your SWL feature, my son and I now have a joint station for logging DX on the amateur bands . . .”

“Because my main interest is VHF, I am not renewing my subscription . . .”

“I think you devote far too much space to VHF, which is surely not the main activity of DX-minded amateurs . . .”

“I would like to ask you to cut out the Clubs article, and who works what on the HF bands. This is surely old stuff. I would like to see more technical articles . . .”

“Your articles are far too technical for me . . .”

“The first thing I turn to is your DX commentary; it tells me just what I want to know about what is happening on the bands . . .”

“You should pay less attention to valves and more to transistors . . .”

“You publish a lot of articles using transistors but seem to forget that many ordinary radio amateurs still understand valves, of which they have hundreds in their junk boxes . . .”

“It is easy to talk about anti-TV1 measures but a great deal more difficult to deal with neighbours who complain if you have planning permission for a beam in your garden . . .”
You should devote more attention to BCI/TVI. I live on a housing estate and just don't know how to cope with the problem . . . .

The local Post Office engineers have been most helpful and co-operative in dealing with my TVI difficulties . . . .

—I have to thank you for opening up an entirely new field of interest in my enforced retirement . . . .

—You should not worry about criticism. You do a good job for Amateur Radio and I have been a reader for more than 20 years . . . .

(As we have on occasion remarked, we cannot hope to please everyone all the time, but we do try to catch the interest of most of our readers for at least some of the time. The foregoing comments are verbatim extracts from letters received over the last three months or so—and we have many more such! Editor).

QRO LINEAR FOR TWO METRES

CHOICE OF CIRCUITRY AND DESIGN FOR PAIR 4CX250B

Part I

J. D. V. LUDLOW (GW3ZTH) and C. J. DUNBAR (GW8E1K)

Some detail drawings and illustration will follow in Part II—Editor.

As a result of observation made over a considerable period on two metres it became apparent that certain stations over two hundred miles away could always be heard even under normal conditions; very often these stations could not be raised using 200 w. p.e.p. input. Subsequently it was determined that these stations were over two hundred miles away could always be heard even under normal conditions; very often these stations, the problem usually being overload of the TV Rx. front end and/or breakthrough.

The high probability of overloading the mixers of poorly designed local two-metre receiver/converter set up with the resulting complaints of "excessive power," "bad signals," "spurious products," etc., causing strained relations between oneself and the locals.

The incidence of TVI does appear to affect those stations who consistently run higher powers to a greater extent than other stations, the problem usually being overload of the TV Rx. front end and/or breakthrough.

The cost of constructing, maintaining and even running such an amplifier must be considered as a disadvantage.

With the above in mind the project was undertaken in the winter of 1972. There are few articles available on 2m. linear amplifiers and only two were referred to, these being in the VHF/UHF Manual, and the other in the A.R.R.L. Radio Amateur's VHF manual. Both of these complement each other but omit some salient points. These the authors hope to make without omitting any of the others.

(i) The cost of constructing, maintaining and even running such an amplifier must be considered as a disadvantage.

(ii) The high probability of overloading the mixers of poorly designed local two-metre receiver/converter set up with the resulting complaints of "excessive power," "bad signals," "spurious products," etc., causing strained relations between oneself and the locals.

(iii) The cost of constructing, maintaining and even running such an amplifier must be considered as a disadvantage.

(iv) The element of danger involved during the alignment of the amplifier and in the general lay-out of the station supplies which are potentially lethal is yet another disadvantage.

With the above in mind the project was undertaken in the winter of 1972. There are few articles available on 2m. linear amplifiers and only two were referred to, these being in the VHF/UHF Manual, and the other in the A.R.R.L. Radio Amateur's VHF manual. Both of these complement each other but omit some salient points. These the authors hope to make without omitting any of the others.

Table of Values

Fig. 1. Circuit of the QRO Linear

<table>
<thead>
<tr>
<th>Components</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1-C15,</td>
<td>0.001 μF 500v. disc ceramics</td>
</tr>
<tr>
<td>C12, C13,</td>
<td>0.001 μF 500v. bolttin feed-thru</td>
</tr>
<tr>
<td>VC1, VC2,</td>
<td>15 ± 15 μF, 8 kV wkg. disc</td>
</tr>
<tr>
<td>VC3, VC4,</td>
<td>to be described</td>
</tr>
<tr>
<td>R1, R2, R3, R4,</td>
<td>150-ohm 2 ohm carbon</td>
</tr>
<tr>
<td>L1, L2, L3, L4</td>
<td>2 turns 16g. fin. dia.</td>
</tr>
<tr>
<td>C1, C2, C3, C4,</td>
<td>0.3-6 μF ceramic tabular</td>
</tr>
<tr>
<td>C1, C2, C3</td>
<td>1.4x4F, 500v.</td>
</tr>
<tr>
<td>R5</td>
<td>25 ohm tapped at 11 (see text)</td>
</tr>
<tr>
<td>L1, L2,</td>
<td>to be described</td>
</tr>
<tr>
<td>V1, V2</td>
<td>4CX250B, with bias and chimney</td>
</tr>
</tbody>
</table>

NOTES: Screen decoupling capacitors C in diagram Fig. 1 are built into SX1010 value holders for C5X250B. Shunts MS1-MS5 should be carbon, valued to suit meters used. Capacitors C12, C13, rated 8 kV, can be Radio Spares "disc-ionisation free" items. Drawings for inductances L4, L5, will be given in Part II. Coils L1, L2 are also covered above. R5 is in effect an RF choke.
The basic design was initially determined by two factors—one being the type of anode lines and the other the space available in the shack.

Any amplifier of this type has to be made physically large, as not only is there a heat problem but also one of high RF fields. As the effect of high RF currents appearing in the metal box can be disastrous the amplifier was built into a box of 17 x 10 x 4\frac{1}{2} inches, with a front panel of 19 x 8\frac{1}{2} inches, these being manufactured professionally. The amplifier is mounted in the box, open side uppermost, with the 4CX 250B air system sockets mounted on a vertical 4\frac{1}{4}in. high partition having its edges folded over and drawn in tight to the amplifier box side walls to form an effective air seal.

The box top plate was split into two, the blower being mounted on the one above the grid compartment leaving the only path for the air flow through the 4CX250B air system sockets and the valve anode coolers; this cover
was air sealed with the normal household self-adhesive draught excluder which was obtained from a local D.I.Y. centre for a few pence.

Large anode lines were used because it was felt that they would aid in removing the heat dissipated by the valves. The anode lines were therefore made of copper pipe with a nominal 1½in. bore. This material was obtained from a local central heating firm.
mounted through the lines. The finished product was then cleaned up and the anode ends of the lines were flushed to take the anode coolers of the 4CX250B's, these being clamped in place by Jubilee clips.

The lines were to have been held in place by means of a tufnol plate across the width of the box, but this was dropped because of the difficulty in getting the lines out for valve changing. The present arrangement consists of two tufnol plates supporting the ends of the line.

Because the lines were slightly too long in the authors' case a copper shorting strap of one-inch flushing was made up, and works well. However, this needs to be a good fit and high grade copper is necessary. Should lines with different dimensions to those specified be used then a simple check will show if an alteration is required. Assemble the anode lines (without soldering the end plate in place) in the box with valves and supporting brackets and check the resonant frequency with a GDO. No supply voltages are needed for this check, but since the top cover and Pawsey stub effect the resonant frequency allowance must be made for them.

Initially, a coupling loop was made out of 3⁄8 in. dia. copper tube (pyrotenax cable) but this was later abandoned in favour of the Pawsey stub as the latter was found to be more efficient in getting all the RF out from the tank circuit. It is interesting to note that others have also found the ARRL arrangement inadequate.

The Pawsey stub was also made out 3⁄8 in. dia. copper tube (pyrotenax cable) which was suspended from the underside of the lid of the anode compartment. Care must be exercised to prevent accidental shorting to the lines when the lid is in place.

No attempt was made to balance the lines with individual capacitors as it was not needed. A suitable choke (R5) and careful adjustment of TC1 and TC2 practically eliminate the effect of any slight unbalance providing of course that R5 is not decoupled at its hot RF end.

The grid circuit is a coiled up half-wave line, being only slightly less efficient than its straight out counterpart and it occupies far less space. It is formed by winding a 6-turn coil of 16g. copper on a 3⁄8 in. mandrel with 3⁄8 in. spacing of turns and long tails. The coil is then cut in half so forming two separate windings. These are mounted so that the grids of the 4CX250B's are connected to their outer ends and VC1 the split-stator tuning capacitor, to the inner ones. The correct point of connection of the bias feed resistors R1 and R2 should be determined by monitoring the grid current whilst touching a lead pencil along the grid coils, the correct point of connection being where no reaction of the grid current is observed. The use of carbon resistors here and for feeding the screens is a "must" if parasitic instability is to be avoided. The input coupling loop L1 is a two-turn link and is adjusted for maximum grid current during the initial testing.

The grid circuit is balanced by two small tubular Mullard trimmers TC1 and TC2 instead of the more usual differential trimmer—this arrangement gives excellent results and no problem has been experienced in balancing the grid circuit. It should be pointed out that both the rotor of VC1 and VC3 are left ungrounded, as grounding them may severely unbalance the circuit.
PROPAGATION affects our activities from Top Band down to Ten. On these bands, as we know, it is possible, by selection of band and time, to hear stations on the far side of the Earth. How is this achieved?

Our globe is encircled by layers of ionised air at different heights above ground—layers which are ionised by the action of the sun. The layers of interest to us are designated D, E, and F layers, with the latter sometimes splitting into upper and lower levels, the former being the F2 layer and the latter F1 when this occurs. All the layers are affected by daylight, the lower ones indeed almost disappearing by night.

Now, the lower, D and E layers, are primarily absorbers of radio signals, the absorbent effect increasing at the lower frequencies; this results in the well-known effect whereby Top Band and Eighty will only support propagation to distant parts normally at night. At the higher frequencies the absorbent effect is least and the DX is there by day. The actual reflection, or, rather, refraction (the wave is bent round rather than abruptly reflected) occurs at night in the F layer, and by day in the upper, F2 layer when F1 and F2 layers are in existence together. Thus, the higher bands are less absorbed and can reach the F or F2 layer by day to be refracted, while lower frequencies can only reach the F layer and be bent back by night.

The ionised layers are collectively called the ionosphere, and are subject to several factors. The prime one is the effect of the sun's rays. Additionally, there is an effect directly connected with the presence of sunspots, ionisation being greater when more sunspots are present, and there are monthly and seasonal changes as well.

Broadly speaking, we prefer on the lower-frequency bands to have an all-darkness path, and on the higher an all-daylight path. Depending on the degree of sunspot effect, Forty and Twenty may support communication by day or by night and so fall midway between the two extremes. Furthermore, at times when the sunspots are few (at the trough of the 11-year sunspot cycle) the ionisation may not be enough to support any long-distance communication on Ten, or even Fifteen. As more sunspots appear, Ten will open up North-South for an hour round noon, while Fifteen may be good all round. At the peak, Ten will still be a daylight band, but Fifteen may be open well after dark, while Forty will take on something approaching the characteristic of Eighty. An additional effect is that dawn or dusk at one or both ends of a path will often produce a peak in propagation effect.

Summing up, the SWL can see that a change in listening hours will very likely produce a change in the type of DX heard—and that there are best times for switching on the receiver if one wishes to hear a particular part of the world.

Some Newcomers

Odd are the ways in which people come to Amateur Radio. W. Baker (Bosporus Regis) was in hospital and made friends with a couple of other chaps; they all had had an interest in the idea of Amateur Radio but had not done anything about it. On their release, the three decided to “have a go”—and may we hope to hear more of them.

M. Wickstead (Taplow) has returned to the fold after some years' absence, and is mainly interested in Mobile and RTTY operation. Maurice has a Trio 9R-59DS, whose potential is as yet only partly plumbed: but he knows what to look for as he is professionally occupied in the communications field.

Another newcomer is H. Houghton (Worcester), who has a National 100X general-coverage receiver and, more recently a Trio 9R-59DS. On the VHF side, there is a DL6SW converter on 144 MHz with crossed dipoles in the loft.

C. M. Little (Croydon) has at least one “phoney” in his list, in the shape of “AC4RF” whose real-life existence was way back in the late Forties; Bob Ford, AC4RF, was captured by the Chinese and later wrote a book about his experiences, both in Tibet and in Chinese hands.

A Unica UNR-30 with a 14 MHz folded dipole is used by P. Davies (Stoke-on-Trent) who has been a listener for two years now.

We mentioned M. Smith (Matamata, New Zealand) last time, as far as his rig goes; this time he has sent in a list of Prefixes of which several are queried, all being OK, saving “VK9R” who we reckon is more likely VQ9R. On the aerial front there is a twenty-foot pole which is to be adorned with a TH3 beam; then there is a "cats cradle" to which is added a 14 MHz dipole.

A Unica UNR-30 with a 14 MHz folded dipole is used by P. Davies (Stoke-on-Trent) who has been a listener for two years now.

Back in November 1971 was when P. Eaton (Folkestone) made a start with listening. Paul uses a home-brew transistor receiver in conjunction with a 14 MHz inverted-Vee and a 66ft. end-fed aerial to choice, the operation being mainly on Twenty, but a little on 7 and 3·5 MHz.
Miss K. Ramsay (London S.E.12) has a CR-100 receiver used in conjunction with a DL6SW converter and halo aerial, or alone to a sixty-foot wire. Karen says she has had much help from the local VHF licensees, and is going to R.A.E. classes and Cray Valley Club meetings — she says her repayment is to make coffee and provide moral support when contests do not go so well for the local lads!

What is the reason for the use of the DT prefix, wonders M. Whitfield (Stroud) in the covering letter with his Table entry of 467 prefixes. Easy, Malcolm, this is a "special" used by stations in the German Democratic Republic (East Germany), to commemorate 20 years of Amateur Radio activity.

Other Reports

A goodly collection of DX in any language has been garnered by A. Judge (Bishops Stortford). Tony raised a smile when he suggested that maybe the IT5? prefix from Sicily might have some connection with a well-known baked-bean firm!

People get their prefixes in some odd ways. M. Kitcener (Hitchin) had been pretty inactive for a period, but was asked by a local G8 to demonstrate his new casette tape-recorder. To do so, Mick recorded some SSB from 21 MHz and the Trio receiver. When they played it back, it occurred to Mick that this was an odd signal — sure enough, on looking it up he found he had a new prefix to count!

Like so many others, P. L. King (Ensworth) has found DX conditions pretty poor — a combination of solar activity and the low summer MUF's account for most of our problems and will continue to do so for a while — and has also suffered from lack of time. However, the enthusiasm is still there, and good conditions will find Pat ready to take advantage of them.

Sad to say, E. Parker (Hove) has had ill-health creep up on him, and worse, put paid to his R.A.E. studies. Ernie has some pointed remarks about people who QRM net operations by WAB, or whatever; it seems to him that twenty stations patiently waiting on one frequency can only reduce the QRM over the situation that would arise if they split up and took up twenty rag-chew channels. A good point — and an even better one when he says that most of the rag he hears being chewed on Eighty is only fit for the bonfire!

Like so many others, P. Barrett (Welwyn) has been inactive, R.A.E. revision taking priority, although he did find time to comb through old logs to find a few more prefixes. Talking of R.A.E., your old J.C. had a look at his Table entry of 467 prefixes... 

The letter from O. Cross (Bexleyheath) says he has bought a Yaesu FR-DX400S receiver, relegating the old 840A to the position of reserve. The new box seems to be finding plenty of new countries to add to the score, which now comes to 221 countries, 703 prefixes.

The short list from M. Williams (Skeaford) is mainly due to the absence of a receiver. That sound a reasonable conclusion to draw! Apparently, Maurice has persuaded one of the lads at the club to take on the overhaul of his AR88 — yet another demonstration of the advantages of being a member of the local group.

On to D. Noakes (Cranbrook) who has been comparing the performance of his two-metre halo against the six-over-six, the halo being by five feet the higher. Looking at the locals, on some signals there is little in it, and as far as DX goes, there are loggings of PA0 and F stations in one direction, and G's as far distant as Gloucestershire the other way. As Sam says, when one can get a converter so cheaply and get decent results from a halo, why should anyone be deterred from making a start with VHF?

Reverting to our comments last time round on the way to drive a receiver for SSB, H. Alford (Burnham-on-Sea) finds after four years of practice with his EA-12, he can obtain best results by careful manipulation of RF, IF and AF gain controls. True, when one has them — but with a simple receiver having a combined RF/IF gain control, the method advocated of using full AF and the RF/IF gain as a main control is at least basically correct — one can, with practice, find a more delicate balance of controls, but at least the method suggested last time will enable skill to be based on a sound basic technique.

W. J. Smith (Benfleet) heard a station giving its loggings, right up to two metres: for the latter, he has now an eight-element beam arranged for rotation by hand.

To do so, Mick recorded some signal — sure enough, on looking it up he found he had a new prefix to count!
callsign as “Kilowatt Denmark (figure missed) Table Mountain” and wonders what it could have been. In letters it would be KD?TM, which suggests it may have been some sort of special-activity station if indeed it were genuine. Has anyone else any details?

It seems we got things a bit wrong about the aerials owned by N. Henbrey (Northiam)—we turned his TA31 into a TA33. Norman’s photographs—alas, not quite good enough to reproduce—show he has the eight-over-eight skeleton slot beam on Two, the TA-31 also rotatable with electrical rotation at the masthead, plus an 18-AVQ to cover 3·5—30 MHz—quite an aerial farm.

M. Cornwall (Harefield) uses his letter to “grind an axe.” As he so rightly says, Amateur Radio is not advertised enough, with the result that there are probably people about who would enjoy the hobby but don’t know it even exists. True enough in a way; but one tends to feel that the sort of mind which has never heard of Amateur Radio is unlikely to make a good recruit. After all, it has been mentioned even in the women’s magazines, let alone the odd reports in daily or local papers.

L. A. S. Poole (London N 21) has managed to find one of the numerous sources of interference, that due to a new gas central heating system installed next door. It seems that the makers have now, after tests by the GPO, installed a new control unit which has reduced the QRM to an occasional burp. However, he still has the electric lawn-mowers, washing-machines, TV timebases and other electrical noises to contend with. As he is moving in the early part of next year, L.A.S.P. is holding fire for the moment on the question of installing his 14-AVQ vertical. In any case, he would like to know how one is meant to fit the 80m. loading coil—can anyone help him out?

Having a comb-out of the listings is always a good thing to do, and it nearly always reveals one or two prefixes as yet unclaimed, as the Bingham family from Carrickfergus have found.

Our suggestion that the drift in the receiver could be a function of the ventilation proved correct, says W. McFaul (Londonderry). Once the current crop of examinations are over, therefore, time will be taken to introduce some ventilation holes. We could add a comment that there should be a few holes in the chassis, too, to make sure that hot air is not trapped underneath even though there is provision for getting it away from the upper side.

There was a hiccup in the recording system at the shack of E. W. Robinson (Bury St. Edmunds) which knocked his total down by ten last time; however, a new method being used should avoid such problems in the future.

The loss of CW and SSB reception mentioned last time by J. H. Sparkes (Trowbridge) turned out to be caused by a dud 6BE6 valve which has now been replaced, thanks to the help of G6ACY/T. SWL Sparkes mentioned a joker on April 1, heard on Twenty signing “APRIL” and taking in a fair number of stations. (This happens every year.—Editor.)

A spell in hospital with a chest ailment has rather limited the activity of A. Glass (Plymouth), but Bert still managed to add a few more prefixes to his CW list.

H. Londesborough (Swanland) has a bumper crop of prefixes to offer on Phone, and says he will shortly be sending in a first entry to the CW table—good.

Where is UA9WT, enquires H. M. Graham (Harefield). A look at the list published by Geoff Watts in his DX News Sheet some time ago suggests that he is in Bashkir oblast (county), in Zone 16. Maurice remarks on the number of FR-50B receivers about these days among the SWL fraternity, and says he likes the one he uses.

R. H. McVey (Weston-super-Mare) asks about the method of callsign allocation for reciprocal licensees. Broadly, there are two methods in use. The first one is to allocate a callsign in the normal run to the chap, such as for example giving an American a U.K. call—for example W4WFL holds G5AYL in this country. A variation on this is to make no distinction in the series and just to allocate as though the chap were a local native. The other system involves using his own callsign followed by a suffix consisting of the prefix letters of the country he is in, as for instance W4WFL/4X, who would be W4WFL operating in Israel, or G3KFE/W4 who would be operating a station in W4-land.

At D. Rodgers (Harwood) the object of the exercise, at least for the moment, is to keep up the Morse speed while waiting for the R.A.E. results—this should be fairly easy, as Dennis is up to “twenties” already.

P. L. Newman (Thame) is another of the hopeful band who wait for the R.A.E. results—he sent in his letter before the day of the exam. in case it demoralised him too much! On the aerial front there are beams for 144 and 432 MHz driven by the “handraulic” principle by judicious use of cable-and-pulleys. On a different tack, Paul wants to know if anyone has any idea about a suitable NBFM discriminator for 1·6 MHz 1F. One possibility appears in the fourth edition of Amateur Radio Techniques on page 73; and there is another device worth looking into in the 1973 ARRL Handbook among the several shown on pages 430-434.

Although not taking the exam. this time, T. Rootsey (Iford) has been preparing for the great day by getting together the needful bits and pieces, particularly in view of the onset of VAT. As a result he now listens on a KW-2000B, after taking the chance to try all the common sets at his local dealer—for whom, incidentally, Terry has nothing but praise. At a different point, we made a bit of a mess of his HPX score—how it happens escapes us—and unwittingly docked him a couple of hundred hard-won prefixes. However, unless the Law of Murphy strikes yet again, things should now be put to rights.

One of those who try to put in his hobby more than he takes out is R. Carter (Blackburn) who tries to keep up correspondence, by letter or tape, with people interested in radio but are unable to get out and about. Indeed, Ben’s wife recognises most of the WAMRA...
crowd on the air before she even hears the callsign! On a different tack, in the year ending March 31, Ben heard 15,997 stations in 223 countries; 4008 of these were G’s, of whom only 32 could be counted towards the HPX total. They say it’s tough at the top! Just to add insult to injury, the Carter letter mentions a couple of oddities which are mostly surely N.B.G.

R. Andrews (Barry) sends a brief note in which he asks which part of Italy the IV prefix belongs to. The answer is that, to the best of your scribe’s knowledge, the Italian IP and I prefixes are on the mainland, while IA5, IB0, IC8, ID9, IE9, IF9, IG9, IH9, IL7, IM0, IS0, IT9, are all Italian offshore islands or groups, leaving the idea in mind that the IV prefix is a “special.”

Before we close our discussion of the mail, we should mention a letter from G8GI, first licensed back in 1935, who points out that he does not consider the holding of a G8 a “staging post,” a phrase we used in this piece on p.162 of the May issue. G8GI is of course quite right; what we were referring to was the G8-plus-three letter (G8:3) call series, one of which Chris Lancaster holds until he can spare time from school examinations to take the Morse test. A moment’s loose thinking, and poor old J.C. gets a clout over the ear!

Home-Construction

In the years since your J.C. took over this piece regularly, there has been a progressive reduction in the amount of home-construction done by SWL’s, at least among those who report. One would think the time has come to question very seriously the wisdom of this attitude, with the present crop of amplifying devices now on the market.

Look at it this way: A few years ago, one could say that to build a receiver of the G2DAF or similar standard one could occupy one’s spare time, between thinking, designing, building, testing and setting-up, for a year or more, maybe afterward finding a cheaper commercial receiver that would outrun the home-built job. The situation has changed radically over the past couple of years. Integrated circuits suitable for receiver building are sold by firms such as Biflex, National Semiconductor, RCA, and American General Electric which all but make, with the availability of commercial crystal and mechanical filters, building a good receiver a couple of evenings’ job.

The lines on which one can think are of a single-band receiver acting as tunable IF of a double-conversion set-up, based on a single IC for RF/IF/Detector/AGC/First AF, and another to provide the audio. On the front-end design, we see a crystal-controlled converter using a ring of FET’s as a mixer—balanced, of course without an RF stage, so the bandswitch has only to switch the mixer coil and the crystals. Output at low level would be taken straight to the tunable IF strip already mentioned, to give the best in reject of cross-modulation and blocking effects. In addition, an attenuator fitted between the front-end and the aerial would help keep the performance up to 1973 requirements. As for the addition of a crystal calibrator, one could use an op-amp as the oscillator, and a couple of decade divider TTL IC’s to give pips at as small as 10 kHz increments. By beating a sample of the first oscillator frequency, the
tunable oscillator frequency and the BFO frequency, in the manner already done by one of the Heathkit accessories, one could obtain digital readout of the receiver frequency, using normal TTL for all save the first decade, which would need an HSTTL device, the mixing required being done in a couple of op-amps. There would be no need for a tuning capacitor, as the tunable oscillator could be handled by a varicap diode controlled by a potentiometer on the front panel. Controls could therefore be on the panel in the best ergonomic positions, with the digital readout so placed as to be easily visible at the operating position. The whole bag-o'-tricks would fit nicely in to a printed-circuit board, which could be etched easily enough at home by laying out the board and painting the parts to be retained with the XYL's nail-varnish, before etching in the conventional way. Thinking time and drawing time would not be impossible, but building time, and, most of all, metalworking time, could be reduced virtually to nothing.

How about someone thinking a bit harder along these lines—after all, between the FET's and IC's now on the market, it ought to be possible to build a receiver which can at least match, and probably better, the best of the current valve or transistor receivers, at all points, and at a economic price.

The main difficulty that is brought up is the problem of getting the bits. This is greatly exaggerated. Quite a lot of firms, throughout the country, can and will supply the home-constructor market. Your scribe has bought one-off items, in the last few months, from various firms, never having to go more than a few miles either by post or in person.

Wind-up

This is where we mention the chaps who have only sent in score entries, perhaps covered by a brief note. Among these are: P. Barker, Sunderland; A West, Herne Hill, G. G. Proud and S. J. Proud, Letterston; R. Smye, Shrewsbury; R. Shilvock, Lye; S. Scott, Stockport; M. Hartley, Preston; T. Gravell, Burry Port; C. Henderson, Beckenham; G. W. Ravon, London, S.E.13; M. Cuckoo, Herne Bay; B. F. Hughes, Worcester; W. B. Taunton, Meopham; M. J. Quintin, Wotton-under-Edge; and K. Williams, Swinton.

Conclusion

Now we have reached the other end of another pile of letters; all have yielded your scribe much satisfaction in reading, with their problems, their chuckles and whatever. For next time, the deadline is July 26 latest, addressed to "SWL," SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ.
We are told that the Northern Mobile Rally, Leeds, also taking place on May 20, was well attended, with good trade support.

A change of venue has had to be made for the Wessex Mobile Rally on July 29. It will be at the School of Signals, Blandford, Dorset—other details as before.

THE RALLY CALENDAR

July 1: South Shields Mobile Rally, Redwell School, Prince Edward Road, A1300, South Shields, the same as last year. There will be talk-in on Top Band and 145.8 MHz, trade stands, competitions, prize draw and refreshments on site, which is only half-a-mile from the coast.

July 7-8: At Letchett Matravers, near Poole, Dorset, in conjunction with the Steam Rally & Fair, with talk-in on 145.00 (AM), 144.48 (FM) and 70.26 MHz (AM and FM).--A. G. Emery, G3YWG, 7 Brunel Drive, Preston, Weymouth, Dorset.

July 8: Worcester & District Amateur Radio Club annual Mobile Rally at Hill Secondary School, Upton-on-Severn, will include family attractions as well as trade stands, a model aircraft display and a stall for the disposal of unwanted gear. Talk-in will be by G8J/C/A on 1910 kHz, and G3GJL/A on 145 MHz (AM and FM) also 145-41 MHz for SSB.—B. A. Jones, G8ASO, QTHR, or ring Worcester 0905 29208.

July 8: Cornish Mobile Rally at Treviglas School, Newquay, Cornwall, with trade stands, prize draw and various other attractions with the family in mind, also refreshments on site.—R. G. Tremelling, G3FWG, Finmartmore, Oakland Park, Falmouth, Cornwall.

July 15: Annual Mobile Rally organised by the Scarborough Amateur Radio Society at Burniston Road Barracks, Scarborough, as in previous years. Details: P. B. Briscombe, G8KU, Roseacre, Irton, Scarborough, Yorkshire, Y012 4RL.

July 29: To be put on by the Wessex Amateur Radio Group at Royal School of Signals, Blandford Camp, Blandford, Dorset, with talk-in on 160/80/4/2 metres. Trade stands and refreshments.—A. G. Emery, G3YWG, 7 Brunel Drive, Preston (3177), Weymouth, Dorset.

August 5: RSGB Mobile Rally at Woburn Abbey, near Luton, Beds., as in previous years. Talk-in by GB3RS on 1910 and 3700 kHz, and by G3VHF on 70.26, 144.48 (FM), 145.00 (AM) and 145-41 MHz (SSB). There is a flat-rate charge of 50p for vehicles entering the Park, the bring-and-buy stall will charge 10% commission on sales, and the site is just off the A50. There will be local sign-posting.—G. P. Shirville, G3VZV, 2 Orchard Close, Toddington, Dunstable, Beds.

August 12: Torbay annual Mobile Rally at Newton Abbot Rugby Club ground, with talk-in on 1867 kHz and two metres, the usual stands and com,
August 26: Stratford-on-Avon Radio Club Mobile Rally at the Town & Country Festival, National Agricultural Centre, Stoneleigh, Kenilworth, Warwickshire (on the A.444) one of the finest sites in England for an event of this sort, with attractions and activities too numerous to cover in this space. A consortium of Midlands radio amateur societies will organise an exhibition station and SWL display, and there will be a radio trade section, including GB3TCF to work visiting mobiles on Top Band or Two Metres. Information, including pamphlets and layout map, from: I. A. Cobbold, G3RPJ, 184 Loxley Road, Stratford-on-Avon, Warwickshire.

September 23: The annual Harlow & District Amateur Radio Society Rally will take place at Nettleswell School, Harlow, Essex, with ample indoor space available. There will be trade stands and the usual attractions at this regular event. Correspondence and trade enquiries to: V. Heard, 106 Vicarage Road, Harlow, Essex, CM20 3HQ.

September 30: Mobile Rally, opening at 11.0 a.m., at Walton School, Mountstephen Avenue, Walton being about four miles north of Peterborough city centre. Talk-in on Top Band and two metres by G3DQW, callsign of the Peterborough Radio & Electronics Society.—J. Chapman, 10 Betties Close, Peterborough, Huntingdonshire.

We would be glad to have reports on these events, with photographs, from the organisers responsible. Address to: "Mobile Scene," SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ.

MULLARD POWER TRANSISTORS

Mullard, Ltd. have produced a very interesting booklet bringing together a lot of information on the applications of their power transistors, with particular reference to SSB linear amplifiers. Five general designs are offered, ranging from a Class-A driver rated at 6w. p.e.p. to a 300w. Class-AB broad-banded RF amplifier, all these linear being intended for the range 1-6-30 MHz. The transistors used are the 2N3632, BLX13, 8108LY/A, BLX14 and, for the 300-watt amplifier, a pair of BLX15’s, an n.p.n. silicon-planar type operating at 50v. on the line. The design data are very complete and useful notes on construction are also included.

Transistors for Single-Sideband Linear Amplifiers, TP1337, Mullard, Ltd., Mullard House, Torrington Place, London, WC1E 7HD.

To keep in touch with the world of Amateur Radio, read "SHORT WAVE MAGAZINE" regularly —

Independent, Unsubsidised and now in its 31st volume.
Airborne Transponders

THE two French transponders launched on May 20 and May 31 respectively were a considerable success. The first, with the callsign Mirabelle, reached a height of 25,000 metres after the launch from Nancy, and was finally retrieved at Silly-sur-Nied (Moselle) from the top of a high tree. Contacts were made with OE, DL, ON, HB, G and PA. (F9FT had a total of 77 QSO’s via the transponder!). G8CH (Basingstoke) first heard the beacon on two metres at 1510z and the last signals were received at about 1700z. He logged 17 DL, eight F, two PA and one each OE (OE20ML) and G (G3LQR). Most signals were at 5 & 9 and all on SSB with the exception of F3YM/P, which was on AM. Heard, but not identified, were SSB TV burbles at 1552z. Fading was negligible, and Andrew reckons this must be just about the easiest way of working six countries on 70 cm. that he has come across. GRCFZ reports good reception of the beacons on 145-2 MHz and 145-8 MHz although he only made two contacts due to his poor antenna heading.

Details of the flight times of the second transponder, Anjou 3, are not yet to hand, but this also seems to have been a most successful happening. Launch was from Angers (ZH48h) with a beacon on 145-9 MHz and transmission between 145-45 MHz and 145-75 MHz and reception between 432-35 MHz and 432-65 MHz. Transmit power was 1-5 watts. G8CH again reports logging many French and German stations, mostly on SSB, and gives arrival as 0850z and loss at 1031z. G8CFZ found conditions a little better on this occasion and had a total of 18 French contacts. G3COJ was unable to be on for the whole flight, but sent in an impressive list of stations worked, with the best DX as F8CH/P in Toulouse. He comments, also, on the preponderance of SSB signals, although most of his contacts were on AM.

The reports from Mike Walters, G3JVL, are very comprehensive. Unfortunately, space does not permit inclusion here in their entirety, but the following extracts give an idea of the performance as logged in Hayling Island. Mirabelle: The beacon on 145-2 MHz was first heard at 5 & 7 at 1458z, rising to 9 by 1510z. Some 30 different stations were heard, including OE3UXA, although Mike was unable to get in due to his very low power at the time. He notes that the best signals were very much stronger than those from Oscar VI, and that the use of excess power reduced signal strengths in a similar manner to that experienced with the satellite. Anjou: The beacon signal on 145-9 MHz was first logged at 0844z at 5 & 7, and the first station heard was F2RP calling CQ at 0848z, RST 579, followed by F9FT at RST 599. At this time, Mike was copying his own translated signal (one watt RF to an 8-ele Parabeam) which finally faded out at 1020z, although the beacon was still audible until 1040z.

Future launches are scheduled for July 4, July 29, August 26 and September 23 (or October 22) and we shall endeavour to give you plenty of advance warning with more detail nearer the time.

Beacons & Repeaters

It is reported from GM that the 2m. beacon GB3ANG is operating at reduced strength, and that the fall in c.r.p. coincided with the thunderstorms of May 27, the two events possibly being connected. GB3SX appeared again for about an hour on June 2, but without any keying. It signed off on CW at 2345z. The signal was very variable in strength throughout the transmission. Signal strength from GB3VHF has also been variable recently—even at close range. ZB2VHF is in the news again, and several reports of reception have come to hand. G3ZRH in Brentwood copied the signal first on May 10 and G5DF (Reading) and G3DOR (Staines) both heard it on May 27. According to G3ZRH the frequency is 70-264 MHz. G3OHH (Mow Cop) received it at 599/579 between 1810z and 1820z on May 29 and noted that there were no breaks between callsigns. G8FY (Nottingham) was getting an S9 signal from 1730z to 1815z on May 30 and G3SMU (Manchester) noted that the keying was faulty and the noise carry at 1800z on June 1. There was some difficulty in catching a bearing on it—not uncommon with Sporadic-E. G4BDW (Oxon) copied the beacon at 589 on May 24. 27 and 29 and using a Pye Vanguard with a 4-wave whip! He reports that the beacon keeper is now ZB2BL, who would like to have reports via PO Box 292, Gibraltar.

An Austrian translator has been set up near Salzburg with the callsign OE2NSQ. Input frequency is 432-0 MHz and output 145-6 MHz. Radiated power is 20 watts, so this could be from the U.K. during an opening.

Several Swiss translators are now in operation: HB9Z (Vetliberg), HB9B (Basle), HB9AA (Pilatus), HB9FG (Chamouret), all operating with input on 431-05 MHz and output on 438-65 MHz, also HB9CC (Saturn) and HB9BA (Weissenstein) with input on 431-2 and output on 438-8 MHz. Other repeaters are in operation on channel R74, i.e. 431-15 MHz input and 438-75 MHz output.

News has just arrived that G3ZRH (Brentwood, Essex) worked ZB2VHF at 1345z on June 9. He is the first station to have made contact with Gibraltar this year—on 4m. that is. Gear at ZB2 is an FT-101 with a two-element horizontal antenna. Operation is automatic on weekdays and manual at weekends.

ZC4VHF is now operating on 50-6 MHz beaming towards the U.K. and has been heard by G4BEG (Walton-on-Thames) on a four-metre beam.

Oscar VI

Oscar continues to survive in spite of the power, temperature and
switching problems. The latest reports from AMSAT give the following parameters: Orbital time 114,9946 minutes; Orbital shift 28-7484°W. Reports on the behaviour of the Oscar signal during the solar eclipse on June 30 will be of particular interest—see p.237, June. Although the eclipse will not be much over this country, the partial effect should be visible in the South from 1102z till 1128z, maximum shadowing occurring at a sun altitude of 61° and azimuth of 158° at 1119z. No Oscar pass within range of the UK occurs between these times, but, as the Table shows, Pass No. 3228 crosses 52' N just after the event and should be worth watching.

Reports on Oscar: Bob Holmes, G3JVL, has worked 570 contacts of which 400 were trans-Atlantic, a pretty impressive result. He is still using the inverted dipole for 10m. reception, and has just completed a solid-state Rx using IC's to go with it.

G3NHE (Sheffield) has made it with 42 prefixes and a total number of 502 QSO's, while Dewi Davies, GW3FSP (Bridgend) has now had 1,000 contacts of which 104 have been trans-Atlantic, a pretty impressive result. He is still using the inverted dipole for 10m. reception, and has just completed a solid-state Rx using IC's to go with it.

First award this month, No. 188, goes to Geoff Spencer, GW8FOL, Anglesey, and we are very pleased to welcome another GW aboard—we don't have many GW claims, possibly because the terrain is often pretty difficult for VHF/UHF. Most of the contacts in this claim were on CW, just over a quarter on SSB and the remainder a mixture of the two modes.

VHFCC Awards

Regular observers will certainly know the callsign F9FT. Working with Marc the other evening he reported that he had by then had 3,462 QSO's with 450 different stations in 41 countries, of which 233 were trans-Atlantic—including W5! He has worked K2GUG, another regular, no less than 40 times.

From AMSAT reports of the analysis of the first six weeks of operation of Oscar VI, it is noted that about two-thirds of the contacts were on CW, just over a quarter on SSB and the remainder a mixture of the two modes.

The Caledonian Vista

Graham Knight, GM8FFX, found conditions good for the 2m. Portable Contest on May 26. He was on
from Kincardineshire and had 83 contacts, with best DX as G8AGU/P in Devon. Others active at this time were GM3ZBE from Aberdeenshire and GM8AOB in Banffshire, to say nothing of a visitor, GM3AB/P, in Wigtown. Incidentally, GM8AOB is now two-metre working in Burghead, Morayshire, and will be active on SSB from there and from Banffshire, both places much sought after by the county-chasers. Also out for the day, were GM3OWU, GM3KJF, GM3ZVB, GM3SAN and GM3BQA (who was putting out a very nice signal to the South from the Lammermuir Hills). A newcomer in the North-East is GM3GHV (Dyce). GM3FFX will be portable in the Isle of Man again for the 2m. SSB contest on August 19 and will shortly have higher 70 cm. power.

2m. SSB contest on August 19 and will shortly have higher 70 cm. power.

GM3TNT in Argyllshire reports reception of the ZB2VHF Gibraltar beacon on 4m., at S9 on occasions; that's a fair old haul! GM8GEL is a comparative newcomer to 2m. and runs a mere 80 milliwatts to a 3-ele. indoor Yagi, but nevertheless got an S9 report from a portable on the summit of Ben Nevis, which is not a bad beginning! GM8HEY, following the Dunfermline tradition, is putting out an excellent 2m. signal these days.

GM8OJ had many good wishes for his survival after the note last month that he had now reached the three-score-and-ten-mark, but in an endeavour to ensure it, he reports that he has had to change the halo on the car for a whip after having been nearly pranged on three occasions by drivers whose attention was fixed more on the aerial than on the road!

GM3BQA is now running a Parabeam at 70ft, and an 8/8 slot on the road! This set-up, with a transverter and the FT-101, helps to explain the ease with which he seems to be able to make G contacts.

DX-Peditions

The North Bucks. group will be coming up as GD4APN/P during the 432 MHz contest on July 22, and will stay on in the Island until August 3. They will have SSB, AM and NBFM on 2m. and AM and NBFM on 70 cm. SKeds via G8FIK, QTHR (with s.a.e. pse.) and further details from G8AAT, QTHR.

The Blackwood Club trip to some of the rare Welsh counties during the second week in August was mentioned in May "VHF Bands," and further details are now to hand. Two-metre equipment will give 30 watts of AM/CW and it is anticipated that 200 watts of SSB will also be available. They will have a low-power SSB rig for anyone interested in the WAB Award, and a "black box" with all the usual FM channels. The antenna is an 8-ele. Yagi. Participants are GW3WTZ, GW4BLE, GW8FXM and SWL Rees, and the callsign will be GW6CW/P. Counties to be visited are still to be announced.

G3ZUL and G8ACB will be operating from Wales as follows: July 17, Montgomery; 18, Cardigan; 19, Pembroke; 20, Carmarthen; 21, Monmouth and 22, Brecon. Frequencies are 432-36 MHz and 145-6 MHz—AM and CW on 70 cm. and AM and SSB on two metres. They hope to have 23 cm. gear with them, and if this materialises that QRG will be 1297-08 MHz. Callsign is GW3ZUL/P on 70 cm. and 23 cm. and GW8ACB/P on 2m. Operating times 1700z to 2100+2, band according to conditions. Requests for skeds, stating mode, frequency and power output to G3ZUL, QTHR.

Contests

Results: We congratulate G3VIZ/A and G3MOT as winner and runner-up respectively of the March 144 MHz fixed station contest. In parallel with this event was the 144/432 MHz Open, won by
THE SHORT WAVE MAGAZINE

July, 1973

THREE BAND ANNUAL VHF TABLE

January to December, 1973

<table>
<thead>
<tr>
<th>Station</th>
<th>FOUR METRES</th>
<th>TWO METRES</th>
<th>70 CENTIMETRES</th>
<th>TOTAL POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Countries</td>
<td>Countries</td>
<td>Countries</td>
<td>Points</td>
</tr>
<tr>
<td>G32HDHZ</td>
<td>19</td>
<td>3</td>
<td>60</td>
<td>17</td>
</tr>
<tr>
<td>G4BEL</td>
<td>8</td>
<td>2</td>
<td>54</td>
<td>11</td>
</tr>
<tr>
<td>G3MNHE</td>
<td>13</td>
<td>3</td>
<td>51</td>
<td>11</td>
</tr>
<tr>
<td>G3OHK</td>
<td>45</td>
<td>6</td>
<td>37</td>
<td>5</td>
</tr>
<tr>
<td>G3FJJ</td>
<td>27</td>
<td>3</td>
<td>38</td>
<td>6</td>
</tr>
<tr>
<td>G8FUI</td>
<td></td>
<td></td>
<td>59</td>
<td>9</td>
</tr>
<tr>
<td>G8FOP</td>
<td></td>
<td></td>
<td>40</td>
<td>8</td>
</tr>
<tr>
<td>G2DAH</td>
<td>28</td>
<td>1</td>
<td>40</td>
<td>8</td>
</tr>
<tr>
<td>GW8FOL</td>
<td></td>
<td></td>
<td>62</td>
<td>8</td>
</tr>
<tr>
<td>G8DNK</td>
<td></td>
<td></td>
<td>59</td>
<td>10</td>
</tr>
<tr>
<td>G2AXI</td>
<td>20</td>
<td>2</td>
<td>33</td>
<td>3</td>
</tr>
<tr>
<td>G8FMR</td>
<td></td>
<td></td>
<td>38</td>
<td>2</td>
</tr>
<tr>
<td>G8BNX</td>
<td></td>
<td></td>
<td>40</td>
<td>7</td>
</tr>
<tr>
<td>GW82TH</td>
<td></td>
<td></td>
<td>53</td>
<td>9</td>
</tr>
<tr>
<td>G8GNE</td>
<td></td>
<td></td>
<td>42</td>
<td>5</td>
</tr>
<tr>
<td>G48MM</td>
<td>7</td>
<td>1</td>
<td>34</td>
<td>5</td>
</tr>
<tr>
<td>G8CKZ</td>
<td></td>
<td></td>
<td>45</td>
<td>9</td>
</tr>
<tr>
<td>G832VB</td>
<td>1</td>
<td>1</td>
<td>42</td>
<td>8</td>
</tr>
<tr>
<td>G3DXY</td>
<td></td>
<td></td>
<td>44</td>
<td>8</td>
</tr>
<tr>
<td>GW8FKR</td>
<td></td>
<td></td>
<td>45</td>
<td>7</td>
</tr>
<tr>
<td>G8FQU</td>
<td></td>
<td></td>
<td>45</td>
<td>7</td>
</tr>
<tr>
<td>G3BWK</td>
<td></td>
<td></td>
<td>43</td>
<td>8</td>
</tr>
<tr>
<td>G44SR</td>
<td></td>
<td></td>
<td>47</td>
<td>2</td>
</tr>
<tr>
<td>G44KG</td>
<td></td>
<td></td>
<td>40</td>
<td>7</td>
</tr>
<tr>
<td>G3SJU</td>
<td>12</td>
<td>3</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>G832VL</td>
<td></td>
<td></td>
<td>34</td>
<td>7</td>
</tr>
<tr>
<td>GW8DUP</td>
<td></td>
<td></td>
<td>38</td>
<td>7</td>
</tr>
<tr>
<td>G4AFQ</td>
<td></td>
<td></td>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td>G8CBU</td>
<td></td>
<td></td>
<td>32</td>
<td>3</td>
</tr>
<tr>
<td>G44JE</td>
<td></td>
<td></td>
<td>32</td>
<td>6</td>
</tr>
<tr>
<td>G8DGR</td>
<td></td>
<td></td>
<td>32</td>
<td>2</td>
</tr>
<tr>
<td>G8BRK</td>
<td></td>
<td></td>
<td>30</td>
<td>3</td>
</tr>
<tr>
<td>GW8EHK</td>
<td>28</td>
<td>7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>G8GPR</td>
<td></td>
<td></td>
<td>30</td>
<td>4</td>
</tr>
<tr>
<td>G8FWM</td>
<td></td>
<td></td>
<td>26</td>
<td>5</td>
</tr>
<tr>
<td>G8GNC</td>
<td></td>
<td></td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td>G8DOT</td>
<td></td>
<td></td>
<td>25</td>
<td>5</td>
</tr>
<tr>
<td>G8CGG</td>
<td></td>
<td></td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>G8EMS</td>
<td></td>
<td></td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>G8GBV</td>
<td></td>
<td></td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>G8GBJ</td>
<td></td>
<td></td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>G4AEZ</td>
<td></td>
<td></td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>G8ECU</td>
<td></td>
<td></td>
<td>19</td>
<td>2</td>
</tr>
<tr>
<td>G3EKX</td>
<td>8</td>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>G3JHK</td>
<td></td>
<td></td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>G8FL</td>
<td>18</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>G8GW</td>
<td></td>
<td></td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>GW8CMX</td>
<td></td>
<td></td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>G3CBY</td>
<td>11</td>
<td>5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>G8GNE</td>
<td></td>
<td></td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>GW8CGH</td>
<td></td>
<td></td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

The Table shows claims to date from January 1, 1973 and runs through to December 31st, 1973. Your claims should be sent to: "VHF Bands," Short Wave Magazine, Buckingham, MK18 1RQ each month.
For the Northern Mobile Rally at Leeds on May 20, the two-metre talk-in was provided by G8AWN/A with this neat set-up.

nevertheless he made it with GM3BA/P and GM3BHT/P. G18EWM in Co. Antrim made it with plenty of Northern G, GW and Southern GM stations, but could not raise anyone in the Midlands although he was hearing G3OSS in London at 5 & 4. He expects to be operating from one of the rarer GI counties during the July 7/8 contest and should have some fairly high power SSB available in addition to the AM. Procedures were good, although operators on this band have far to go to match 2m. for co-channel and VFO/VXO working.

Forthcoming Events: Ainsdale Radio Club are organising the Region 1 VHF contest again this year. Date is Sunday, August 5 from 0900z to 1800z on 4m., 2m. and 70 cm. Entries from operators outside the Region are welcome, and a special “Outside Section” has been set up for them. Further data and completed logs from and to Norman Horrocks, G2CUZ, QTHR.

July 7/8 for the RSGB Jubilee VHF/UHF event and July 22 for the 432 MHz portable.

News Items

Four Metres: A newcomer on 4m. who is putting out a good signal is G4BGZ in Leicester. He runs a QQVO3-10 PA into a 4-ele. at 30ft. and although he enthuses about the activity on the band at weekends, he is disappointed by the lack of it during the week. Aren’t we all?

Mike Gibbings, G3FDW(Retford, Notts.) has raised his all-time 4m. score to 73 counties and has worked 16 of them on 2-way SSB. As he says, it has only taken him 10 years to get that far! Incidentally, what a good signal he was during the last 4m. contest while operating /P from Co. Durham.

Two Metres: The TVI troubles at GD2HDZ have been cleared with the help of the local P.O. engineer and Arthur is back in full operation again. G8EOP reports that G3YRM in Northumbeland is QRV with SSB, as is G3ZJY in Co. Durham. The G8EOP / G8DNK / G8BCL /DC9KU skeds on 145.350 MHz at 2100z daily have resulted in 100% success to date. Breakers with good manners are welcome to join in! G4BKJ (Tunbridge Wells) is now active on SSB with a “Liner 2”.

G3WW reports an SS/TV 2-way QSO on 2m. when he exchanged video with G8DXC over a 10-mile path on the morning of May 21 last. He hopes that this may encourage others to try this mode on 144 MHz.

Seventy Cm: G8GBV draws attention to a new form of the TVI menace which is likely to become more troublesome. He has found that his 70 cm. signals can get into the front end of some of the newer UHF TV sets which are varicap tuned, there they are rectified, and the resultant DC alters the varicap bias and hence the tuning of the Rx. Nasty, but the usual filter remedies should get rid of it.

G3DAH hopes to be back on 70 cm. for the next contest.

General

G4ASR is now operating on 4m., 2m. and 70 cm. from a new QTH near North Weald. The site is 364 ft. a.s.l., which may partly account for his big signal. He
runs 22 watts out to a 4-ele. Yagi on 4m., 25 watts to a 12/12 on 2m. and either 10 watts input or 70 watts output (from a 4CX250B) on 70 cm.

G8CTW, commenting further about the note last month on the long-distance mobile contact between G8EYO/M and G3NHE, reports another which involved himself out portable in Epsom, Surrey, and G8EYO/M again. This time, the contact was maintained from Pontefract, Yorks. to Epsom, Surrey, a distance of about 180 miles with signal strengths ranging from 5 dB to 20 dB above noise. EYO had a "Liner 2" with a pre-amp and a 4-ele. beam about 4 ft. above the top of his van, and CIW was running a Braun SE600 and 10-ele. beam at 20 ft. A notable feature of this solid QSO was the absence of annoying mobile flutter—another advantage of this mode for mobile operation. The disadvantage is, of course, that mobile-to-mobile contacts will be few until more SSB equipment is fitted to vehicles.

G8CBU and G3YVI impressed Sir William Gladstone, the Chief Scout, when they set up a 2m. station at Amphil Park during the latter's visit. They worked 75 stations all told with a Pye Cambridge and a 6/6 slot, and had some 300 visitors to the shack.

G3KDL made the round trip from Wembley to take in both the Belgian VHF/UHF Convention in Brussels and the RAIBC picnic at Romsey. Although he was not there for the latter event, your scribe has attended the former, and can recommend the trip, although a wary eye must be kept open, as the hospitality of the ON amateurs can be quite staggering in every sense of the word.

The new Burns Electronics components catalogue is now available, and lists many "goodies" at reasonable prices. With components becoming more and more difficult to obtain, this publication is a very useful addition to the library.

Deadline

Deadline for the next issue is July 6. The address for news, views and comment is:- "VHF Bands," SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ.

Cheers for now and 73 de G3DAH!!

MONITORING I.C. PIN VOLTAGES

OFTEN the hardest part of getting IC equipment to work is when it comes to trying either to measure the voltage on a particular pin or to fix an oscilloscope probe to a pin of a dual in-line package.

Trying to use crocodile clips or test probes usually results in them either shorting adjacent pins or falling off completely (and dropping on to some other part of the circuit where they usually wreak some form of havoc).

After a number of IC's had met their end in this way it was decided that some simple tool should be made up to solve the problem.

The device was made by taking a DIL holder and giving each pin a 90° twist with a pair of pliers so that it can then be plugged into another DIL holder (the one containing the IC under test). An insulated wire is then carefully soldered to each pin as near to the holder as possible and using as fine a wire as is practicable. These wires are then brought out to a small plastic box with 14 or 16 sockets on its lid which are numbered to correspond to the pins of the holder.

When the device is in use the IC to be tested is simply removed from its holder, plugged into the test holder which is in turn inserted into the IC normal holder. Pins can then be monitored without the danger of shorting anything out.

Since building this little device it has not only proved useful for the purpose for which it was originally designed but also for cut-and-try work, enabling a component to be tried in place without the inconvenience of soldering.

K.C.W.

NAME AND ADDRESS, PSE!

We are anxious to get in touch with the holder of G3AUS, name and address unknown and not listed in any call-book. If he will make himself known to us, he will "hear of something to his advantage," as the saying is.

NAME AND ADDRESS, PSE!

For this month's Small Advertisements, see pp.309-312
THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for August issue: July 5)

(Please address all reports for this feature to "Club Secretary", SHORT WAVE MAGAZINE, Buckingham.)

At this time of the year, when Test cricket, the garden, holidays, summer weather, all are competing with the attractions offered at a Club meeting, the programme should have something special to offer if attendances are to be maintained. Just what "that something" should be depends largely on the nature of the group—some go for competitive activities such as Field Day, or portable expeditions, whereas other Clubs are utterly non-competitive and would stay right away from outdoor portable activities. For the latter, a visit to somewhere of interest, such as a mobile rally, or an "extra-special" lecture may be the prescription. Of course, another way of dealing with the problem is accepted by many groups, and that is just to have no meetings during August while holidays are depleting the usual attendance.

Now we must get on with the mail, taking it as usual in a "territorial" fashion and looking first at the national organisations.

First on this clip is the Royal Navy who get together by way of nets on the one hand, and their consistently good Newsletter on the other, containing news of members in all parts of the world, articles, jokes, and all sorts of interesting items.

A.R.M.S. is the crowd to be with if you have an interest in the mobile facet of Amateur Radio, whatever band you operate from Top Band to UHF, as transmitter or as SWL. The group organises a Mobile Rally, has a monthly newsletter, Mobile News, and offers some very useful services to members.

The full members of R.A.I.B.C. are all either invalids or blind, while the objects of the Club are in the main sustained for by the "supporter" members. The latter function could include anything from helping to get an aerial up for someone, through technical help, to just being ready to transport the odd item for somebody in the group in the course of one's normal running around in the car. All the details can be obtained by writing to G3LWY, address as in the Panel p.304.

The Midlands

Might loosely be defined as the frontier area between the North and the South.

Our first port of call is Kettering, where the old group that used to exist prior to 1939 has been reformed, interestingly enough with the same Secretary (SWL) as took the duty in those distant days, and with another member of the pre-War group taking office as chairman. As to the pattern of events, it is not possible at this time to be specific about talks, but it is known that the lads foregather on the second Wednesday of each month at the Youth Centre, School Lane, Kettering. If you are intending to visit them, or to join, we suggest you first get in touch with the Secretary (as Panel), as they are very actively pursuing the goal of a place of their own where a shack can contain the gear for their own old G5KN call.

The dates for July at Slade are Fridays 13th and 27th, and their Hq. is at the Committee Room, Church House, High Street, Erdington.

Not far away is Wolverhampton, where there is a full programme: Morse classes appear each week, on July 6, 13, 20, and 27, at Hq. Then on July 2 there is a tape lecture—"An Anthology of Radio Signals"—and Natter sessions on July 9 and 30. July 23 is a committee meeting, and on July 16 comes the Junk Sale, with, as usual, a 10% "cut" for Club funds. The venue is Neachealls Cottage, Stockwell End, Tettenhall, Wolverhampton.

South Manchester are another lot of busy bees; the VHF element get together at Greeba, Shady Lane, Manchester 23, every Monday, while the main event is on Fridays at Sale Moor Community Centre, Norris Road, Sale. July 6 sees them off on a visit, while July 13 is set aside for G4BJT to talk about and experiment with an RF Noise Bridge, showing its value in Aerial investigation work. July 20 is also an "away," this time at the Manchester Flower Show, Platt Fields, Manchester, where they are to have a station set up. Finally, July 27, and the competitive types will be giving keen ear to G8DMJ, when he talks about the preparations and operation in VHF Contests.

For Midland the attraction on July 17 is a talk by Bob Palmer, G5PP, on "Chassis-Bashing"—at the usual venue, namely the Midland Institute in Margaret Street,
Birmingham, 3. Incidentally, secretary G8BHE writes that he thoroughly enjoyed the North Midlands Mobile Rally, which was a joint venture by the Stoke and Midland groups.

Coventry will keep things simple during July; on 6th, 20th and 27th, they will be at Baden-Powell House, St. Nicholas Street, Radford Road, with the Club rig fired up on the bands. As for July 20, on that date the gents get out their gear for a visit to Coventry Swimming baths!.

The Swan Hotel, Bird Street, is the Hq. of the Lichfield gents, who get together there on July 1 and July 17, at 8.15 p.m. The first date is down for G3WPB to talk about “Test Instruments and their Uses around the Shack,” and on the 17th there is a Junk Sale. As an extra diversion on Sunday, July 1, there is a D/F competition.

Wirral are still at their temporary Hq. at the Community Centre, Carr Bridge Road, Woodchurch, the entrance to which is through the large doors on the left side of the building. July 4 is “to be arranged,” while on July 18, G3YGL will be talking about Servicing Tricks. In between, over the weekend July 7-8, there will be a weekend DX-pedition, for which one hopes the weather will be kinder than it was last time!

Northwards

Here our first port of call is at Derby, where the venue is normally 119 Green Lane, Derby. Additions and alterations to the advertised programme are put out on Sunday mornings on G2RS, and also mentioned by Radio Derby on 96-5 MHz, not counting any detail given out at meetings or stuck up on the Club notice board. No one has any excuse for missing out on anything! In general, Mondays are “Project Nights” when the lads make-do and mend the Club equipment and

**Names and Addresses of Club Secretaries reporting in this issue:**

**ACTON, BRENTFORD & CHELSEA:** W. G. Dyer, G3GEH, 185 Gunners Avenue, Acton, London, W3-3LB.

**A.R.M.S.: N. A. S. Fitch, G3FPK, 40 Eskdale Gardens, Purley, Surrey, CR3-1ZE.**

**BASINGSTOKE:** R. Oakley, G8FKT, 81 Camrose Way. Basingstoke.

**BEDFORD:** R. Bennett, G3PWA, 47 Ibbetts Close, Kempston (32427), Bedford.

**BISHOPS STORTFORD:** E. P. Farrow, G3KFE, 2nd Ascot Close, Parsonage Lane, Bishops Stortford (02791), CM23-3RR.

**BOLTON:** S. MacDonald, G4AQB, 8 Archer Avenue, Bolton (02065). BL2-3UJ.

**CHILTERN:** F. Rose, G2DRT, 84 Cock Lane, High Wycombe, Bucks. (Penn 42420).

**COVENTRY:** G. A. Weatherhead, G3TFP, Laverstoke, 33 Chapel Street, Bishop's Stortford, Herts.

**CRAY VALLEY:** P. F. Vella, G1JWP, 78 Hurst Road, Sidcup, Kent.

**CRYSTAL PALACE:** M. g. C. Stone, G3FEL, 11 Lipbrook Crescent, London, SE-23-3BN. (01-629 6940).

**DERBY:** P. C. Ward, G2CVY, 5 Uplands Lane. Littleover, Derby (32132), DE1-3TE.

**DERBY (Nunfield): I. Case, G3GBV, 25 Petersham Drive, Alvaston, Derby, DE2-0UJ.

**DUNLOCH:** D. M. Jones, GUKYD, 6 Mulhull Place, Linnymar, Co. Derry, N. Ireland.

**DUNSTABLE:** D. G. Power, G8BPK, 1 Wenwell Road, Buckland Heath, Buckhead, Cheston, Milton Keynes (83/6000).

**ECHEL FORD:** V. W. Higgo, G3JWV, 205 Commercial Road, Derby.

**EDGWARE:** A. Mason, G3JSP, 62 Coldharbour Lane, Bushy WD2-3NY (021-559 6237), Herts.

**FAIR NOUTH:** A. M. Stratton, G3FWE, 10 Sardinia Road, Camb/sites (22887), Surrey, GU15-3AW.

**HAYLING:** J. H. Hobday, G3SKV, 31 Macken Crescent, Harold Wood, Romford, RM3-0EJ, Essex.

**HORSHAM:** T. Wadsworth, G3NPF, 20 Church Road, Broadbridge Heath, Horsham (66290), Sussex.

**KETTERING:** R. F. Holmes, 8 Hall Lane, Kettering (37677), Northants.

**KINGSTON:** R. B. Bubb, G3GJV, 28 Grove Lane, Kingston-on-Thames 01-346 2001, Surrey.

**LICHFIELD:** R. Smethers, G3NLY, 46 Church Road, Burnwood, Walsall, WS7-0EA, Staffs.

**LINCOLN:** P. Birkenhead, Chester, Maps Avenue, Cherry Willingham, Lincoln (51098), LN3-41X.

**LOTHIANs:** B. Howie, GMSDJ, 3 Liberton Brae, Edinburgh, EH16-6A0.

**MAIDENHEAD:** A. K. Chennell, 10 Lower Cippenham Lane, Slough (027417), SL1-3DF.

**MEDWAY:** E. Willa, 111 Labour Road, Strood, Kent, ME2-2UE. (Medway 76895.)

**MIDLANDS:** N. Gutteridge, G8BHE, 68 Max Road, Quinton, Birmingham 32. (021-422 3977.)

**NEWBURY:** D. J. Williams, G8FNS, Damar, Cold Ash Hill, Cold Ash, Newbury, Berks.

**NIGERIAN:** E. A. Lomax, SN2ABG, P.O. Box 68, Kaduna, Nigeria.

**NORTH BUCKS:** R. J. Pye, G3AAAT, 7 Meadow View, Potterspury, Towcester. (Yardley Gobion 6603.)

**NORTH DEVON:** H. G. Hughes, G4CG, Exford, High Wexham, Barnstaple, Devon.

**NOTTINGHAM:** S. F. Glanwright, 49 Fernleigh Avenue, Westdale Lane, Nottingham, NG9-5RJ.

**PLYMOUTH:** C. Mitchell, G3UKS, Kehill, Rumah, Green Lane, Yeovil, Devon, PI20-0BW.

**ROYAL NAVY:** A. G. Walker, Radio Everton Gardens, Lovecote, PO449ZP.

**SHEFFIELD:** S. J. Illman, G6VE, 134 Baslow Road, Toley, Sheffield, S17-4DR.

**SLADE:** J. E. Drukeley, G8GRC, 186 Conway Road, Chelmsley Wood, Birmingham, 37.

**SOUTH BIRMINGHAM:** R. J. Thompson, G3RDGZ, 23 Fox Hill, Selly Oak, Birmingham, 29. (021-472 033.)

**SOUTH MANCHESTER:** R. Nettleton, G3YED, 129 Stainbeck Lane, Withington, M22-3LH.

**SOUTH BIRDS:** R. J. Thompson, G3RDGZ, 23 Fox Hill, Selly Oak, Birmingham, 29. (021-472 033.)

**STOCKPORT:** R. A. B. Clowes, G1JCL, 199 Wood Road, Stockport, Cheshire.

**TONBRIDGE:** D. L. McLean, G3NOF, 9 Cedar Grove, Yeovil, Somerset (01-657 3258.)

**Torbay:** M. Yates, U3UIQ, Top Flat, 23 Waverley Road, Torquay.

**THAMES VALLEY:** R. A. B. Clowes, G1JCL, Head of the River, Marlow, Berks.

**THORNTON:** B. A. Jones, G3ASO, 12 Woodside Road, Larkhall, West Lothian.

**WOLVERHAMPTON:** J. P. H. Burden, Ci3UBX, 28 Coalway Road, Wolverhampton, WV1-3LX.

**WORTHING:** R. A. B. Clowes, G1JCL, 23 Waverley Road, Worthing.

**YEOVIL:** D. J. Meanan, G3NFO, 9 Cedar Grove, Yeovil, Somerset.
A fine Club photograph of many years ago—it was taken in 1938 on the occasion of the annual dinner of the Rhondda Radio Society. Unfortunately, at this distance of time, few call signs can be identified. Support was drawn from a large area of South Wales. It is noteworthy that for this more or less formal occasion everybody wore a collar-and-tie, with his hair cut and neatly brushed—also that the distaff side is conspicuous by its absence. Other times—other manners!

shack. Wednesdays are the main meetings, and the July programme runs something like this: July 4, a Surplus Auction; July 11, a talk on Mobile Operation by Tom Darn, G3FGY; July 18, a D/F event; and on July 25, a tape-and-slide lecture by VK4KS, on the DX-pedition to Mellish Reef.

There is a regular pattern to the weekly Wednesday meetings of the Star club in Leeds. The first one is a tape-and-slide talk, the second is a Constructional session, the third a Communications night with the Club rig on the air, and the last Wednesday is a Bingo evening, the prizes of course being radio items. On a different line, they want to hear from ten or fifteen stations on Two who would take part in a relayed contact between the Star lads and a station either in North Scotland or down on the South Coast.

Up in Scotland now, to Lothians, who write to advise that there will be no more meetings until September. Furthermore, they will reconvene in a new Hq., the old place at Hanover Street being due to be demolished. Details from GM8DIJ—see Panel, opposite.

Now to Leeds and the White Rose group. They have Hq. at 83 Town Street, Armley, and meet every Wednesday evening. A highlight in July will be on the 11th, when Neil Glover, G3AAV, is coming along to talk about Two-metre Sideband.

If you are a member of the Bolton formation you probably join in the regular weekly nets, on Tuesdays, on 145.73 MHz at 1900z. However, on the third Tuesday in each month, you can go one better and put in an appearance at the get-together at the White Lion, Moor Lane, which constitutes the formal meeting of the Club.

Sheffield seem to have their Hq. at the Sheaf House Hotel, Bramall Lane; but for details of the current goings-on we have to refer you to G6VF, address as in the Panel.

Going West

Very westerly for a start, right to Dundalk, where a Club exists which is sponsoring a series of awards, rather like our WAB but based on the Irish Grid, details of which are given in our "Communications and DX News" feature. GI3KVD, up in Limavady, Co. Derry, is one of the people concerned, and in the absence of any other detail on the Club, we have, for the moment, put him in the appropriate column of the Secretaries' Panel, opposite.

Cornish serves a wide-flung area, having not only a main meeting at the SWEB Clubroom, Pool, Camborne, but also subsidiary groups at Newquay and Penzance. On July 5, after some discussion on the forthcoming Mobile Rally and a Question-and-Answer session, they will hear a talk by Gordon Nicholas, G3XTE, about Fluid Logic.

At Torbay it sounds as though Tuesday evenings are mainly devoted to the problems of R.A.E. and Morse, but there are also Saturday sessions, and the one on July 28 will cover the vital question of "What went wrong on NFD." The Hq. is at Bath Lane, rear of 94 Belgrave Road, Torquay.

Reading give no details of what goes on at their meetings on July 3, 17, and 31, but they do say all are welcome. The place to head for is the White Horse public house, Kidmore End Road, Emmer Green.

Nice to hear again from North Devon, who have their Hq. at Crinnis, High Wall, Sticklepath, Barnstaple. The dates are July 11, for a talk about sea-going radio operators and their work, and July 25 for a Ragchew.
Perhaps the most important item is the proposal to hold an R.A.E. class at North Devon College during the 1973/74 season—anyone interested please get in touch with the Secretary, G4CG, immediately.

The AGM has just been taken at Yeovil, where G3NOF returns for yet another year as hon. secretary—the lads obviously know they have a good one and don't mean to let him off the hook! Meet them by going to the Youth Centre, 31 The Park, Yeovil, on any Thursday.

A long letter from the new Secretary at Plymouth tells us more about the group than we could ever use in this space, but at the same time gives your conductor a good picture of the activity. At the Hq., Virginia House, Bretonside, they are planning to have two shacks, one for SWL's and one for the transmitting types. Lectures and film shows are being lined up for the autumn season, and plans made for a Picnic on August 5 in Yeovilton Down where refreshments will be laid on, and there is hoped to be a display of radio-controlled model flying; talk-in of course, on Top Band and Two.

South-East

A big clip this, as one would expect. At the top we find Verulam who will be hearing G3AAZ on July 18, talking about Systems Engineering, the venue being the Market Hall, St. Albans, at 7.30 for an 8.0 p.m. start.

South of the Thames now, to the Thames Valley Club which is now fifty years old, and has had many names in the industry among its members. They have recently changed their Hq. address, and now get together on the first Wednesday of each month, at the King George Hall in Esher, next to the fire station. (Incidentally, the hon. secretary's callsign was given wrongly in the photo-caption on p.241 of our last—it should be G3ATF).

Havering and District use the British Legion Hq., Western Road, Romford, as their home, getting together on alternate Wednesdays, which gives July 11 and 25. The first of these is a Top Band D/F evening, while the latter date is probably a visit to North Weald radio station, but may be a business meeting if necessary—no doubt G3SKV would give the latest details—see Panel.

Chiltern seems to be an active crew, based on the Ernest Turner factory in Totteridge Avenue, High Wycombe. We seem to be talking a little ahead of the organised programme, but we can tell you the dates are July 10, for the Informal, and July 25 for the “main” event of the month.

As usual there are two dates in July for Cray Valley; July 5 sees G300U and G3FZL combining forces to give a talk on Semiconductors and Stabilised Power supplies, and the 19th is purely an informal, both being at the United Reformed Church Hall, Court Road, Eltham, London, S.E.9.

If you are in Reigate on July 17, head for the St. Mark's Church Hall in Alma Road, and you will hear G3JMJ talking about Top Band topics, mainly for the benefit of the newcomer. July 3 is an informal, in the Marquis of Granby, Hooley Lane, Redhill.

The usual weekly arrangements apply at Dunstable Downs; the gatherings are at Chews House, 77 High Street South, Dunstable, as follows: July 6 is set aside for the final arrangements for their participation in the VHF/UHF contest, while July 13 is what they like to call a “between week.” July 20 is given over to a demonstration of amateur TV, and July 27 to the erection of the marquee on the Down, and final preparations for the exhibition station that is to be mounted inside it, over the following weekend July 28-29.

The Medway chaps have a regular Friday booking at the Aurora Hotel in Gillingham, where the formal meeting starts at 2000, in order that R.A.E. students may have the previous hour for their classes.

A change in the slate of officers of some magnitude occurred at the recent AGM of the Sutton and Cheam crowd, due mainly to the departure of G3HQC to the Winchester area to live. However, it does not for the moment affect the venue, still to remain at the “Harrow” in Cheam, on July 17, when G3HSP gives his follow-up talk on Marine radio operation.

A long time since last we heard from Newbury, who are still using the South Berks College of Further Education as their Hq. July 2 is the next date booked, for a talk on a VHF subject from 7.30 to 9.30 p.m.
Nothing like a change, says the Kingston chaps; they have had a talk or something laid on at every meeting for the past couple of years, so there should be plenty of nattering done at the July 11 session for which nothing has been arranged. They now meet at the Scout Hq., Stirling Walk, Raeburn Avenue, Surbiton, at the rear of the Lagoon. Incidentally one of the useful Club activities is the Morse class, held every week on Wednesday evenings.

For Bishops Stortford the date is always the third Monday in the month, at the Royal British Legion Club at the top of Windhill. July 16’s programme is, at the time of writing, not finalised completely, but something will be happening for certain, says the Secretary.

July in Echelford gives two dates. The first one, July 9, is still not settled at the time of writing, but on July 26, G3HSP will be talking about Marine operation. The meetings are both at St. Martins Court, Kingston Crescent, Ashford, Middlesex.

Pessimists they are at West Kent where they are not committing themselves as to what will happen on July 13. As for July 27, the evening will be in two parts, the first being planning for VHF NFD, the second in the form of an “Any Questions” session about VHF topics.

July 17 is the date the Surrey lads have booked, at the “Swan and Sugarloaf” in South Croydon, when G3YJC will be talking about the design and construction of Digital Frequency Counters, to lead, possibly to a Club Project in the foreseeable future.

Their new secretary writes in from Maidenhead, to let us know how they are getting along. The chaps still have their Hq. at the Victory Hall, Cox Green, Maidenhead, and on July 2 will be listening to G4CDZ talking and demonstrating RTTY on VHF. As for July 17, this is the Grand Junk Sale—an opportunity to change the scenery in the shack!

Sign-Off

We seem to have dealt with all the current crop of reports. Your next ones, covering your club programme for August should be posted to arrive with us by July 5, addressed “Club Secretary,” SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ.

Editorial Note: Reports too late for taking into this piece were received from the following Clubs: Mid-Sussex, BARTG, Southgate, York and Stevenage. As frequently explained, our production schedule is so tight that we cannot write-in reports received after the deadline.

"Short Wave Magazine" covers the whole field of Amateur Radio

and should be obtainable to order through any newsagent.
GM3WKM, K. G. Melton, 23 Tuzo Close, Balivanich, Isle of Benbecula, Outer Hebrides.

G4BLW, E. Evans, The Rambles, 55 Church Lane, Holton-Le-Clay, Grimsby, Lincs. (Tel. Grimsby 822596.)

G4BYV, J. Tye (ex-G8BYV), Inter-

G4BXU, G. W. Butler, 

G4BWP, F. 

G4BVY, T. R. Dixon, 8 Kingsway, Dover, Kent, CT16 1DR. (Tel. 0304 201 460.)


G8GYA, J. T. Hilton, 4 High Street, Wrexham, Denbighshire. (Tel. Southport 87279.)

THE SHORT WAVE MAGAZINE

G4CEC, P. V. Knight, 7 St. Marks Close, Rushden, Northants. NN10 9QS.

G4CCF, Royal Signals Amateur Radio Society (Cadet Forces Section), School of Signals, Blandford Forum, Blandford, Dorset.

G4CEP, G. E. Coward, 41 Bakers Road, Harlow, Essex, CM18 7LG.


G8AP, M. C. Osment, 194 Fernhill, Harlow, Essex, CM18 7LG.

G8BDA, P. J. Harvey, 8 Walnut Drive, Witham, Essex.

G8GTM, H. McIlroy, 28 Curran's Brae, Moy, Co. Tyrone.

G8GW, R. H. Young, 22-A Lambourn Road, Clapham Northside, London, S.W.4.

G8GY, J. T. Hilton, 4 High Street, Dover, Kent, CT16 1DR. (Tel. 0304 206 460.)

G8GYG, P. Allan, 2 Park View, Queensbury, Bradford, Yorkshire, BD13 1PL. (Tel. Bradford 882354.)

G8GYM, R. D. Chardige, 124 Perpendevon Road, West Croydon, Surrey, CR0 3QP.

G8HDS, P. W. Mackkinm, 47 Chalturn Square, Castleton, Rochdale, Lancs, OL11 2YF.

G8HEP, B. R. Hughes, 46 Leinster Close, Swanton Morley, Dereham, Norfolk.

G8HFF, T. E. Hall, 23 Burcott Gardens, Addlestone, Weybridge, Surrey, KT15 2DE. (Tel. Wokingham 882472.)

G8HIM, A. G. Falla, Flat 3, Lamcoat House, Radcliffe-on-Trent, Notts.

G8HJO, A. D. Lincoln, 62 Chapel Street, Halton, Leeds, Yorkshire, LS15 7RQ. (Tel. Leeds 647120.)

G8HJE, M. A. Holder, Carlton, 23 Woodhill Avenue, Portshead, Bristol, BS20 9EX.

G8HKI, E. F. Treecay, 53 Holly Grove Road, Hanham, Bristol, BS15 3RN. (Tel. 0145 671409.)

G8HKO, M. J. Beecham, 22 Liquorpond Street, Boston, Lancs., PE21 8UF. (Tel. Boston 12747.)

GM3ITN, L. Hamilton, Hallisdale, Hardgate, Clydebank.

G3JK, J. M. Matthews, 111 Milton Road, Dartford, Kent, DA1 2DF. (Tel. Dartford 1205.)

G3JFF, M. J. Wilcox, (ex-GW3JFF), 23 Woodhill Avenue, Portishead, Bristol, BS20 9EX. (Tel. Bristol 82269.)

G3JVP, P. V. Pimblott, 52 Park Edge Close, Lees, 8, Yorkshire.

G4AHO, K. M. Jones (ex-ZC4KJ), 31 Brookfield Road, Haversham, Wolverton, Bucks.

G4BOW, R. A. Royall, The Rectory, 63 Coborn End, London, E3 2DB. (Tel. 01-580 2074.)

G4BY, E. T. Carter, Bass Point Bungalow, The Lizard, Helston, Cornwall, TR12 7AP.

G4JLF, B. Fairlie, 22 Hillhead Park, Brixham, Devon.

G8AP, M. E. Kirk, Pet Store, 8 Broad Street, Spalding, Lines.

G8BDA, P. J. Harvey, 8 Walnut Drive, Witham, Essex.

G8BDA, P. J. Harvey, 8 Walnut Drive, Witham, Essex.

G3PHN, S. B. Lord, 14 Dorset Drive, Moira, Burton-on-Trent, Staffs.

G3PXV, R. E. Wiseman, 3 Squires Close, Somersham, Huntingdonshire, PE17 3HT. (Tel. Somersham 489.)

G3RGF, R. D. V. Young, Ranelagh, 138 Main Road, Dunbury, Chelmsford, Essex, CM3 4DT.

G3RQR, N. L. Kirtley, 14 Byron Avenue, Winchester, Hants. (Tel. Winchester 68565.)

G3GSSZP, R. Paton, 61 Waterside Road, Kirkhillbrough, Glasgow, G66 3QW. (Tel. (0141) 776 6650.)

G3TSH, R. J. Wilcox (ex-GW3TSH), 8 Jane Street, Chadderton, Oldham, Lancs, OL9 8QP. (Tel. 061-654 7667.)

G3UUZ, H. Bluer (ex-GW3UUZ), Anvill Point Lighthouse, Swanage, Dorset.

G3VFX, D. N. Davison, 75 Shalfesbury Avenue, South Harrow, Middlesex. (Tel. 01-864 3629.)


G3XDD, S. C. Crampton, 11 Pineavenue Avenue, Brookhouse, Lancaster, Lancs., LA2 9NU. (Tel. 01524 820730.)

G3XUZ, H. Bluer (ex-GW3UUZ), Anvill Point Lighthouse, Swanage, Dorset.

G3VFX, D. N. Davison, 75 Shalfesbury Avenue, South Harrow, Middlesex. (Tel. 01-864 3629.)


This space is available for the publication of the addresses of all holders of new U.K. callsigns, as issued or changes of address of transmitters already licensed. All addresses published here will be reprinted in the U.K. section of the "RADIO AMATEUR CALL BOOK" in preparation. QTH's are inserted as they are received, up to the limit of the space allowance each month. Please write clearly and address on a separate slip to QTH Section.
SMALL ADVERTISEMENTS

"SITUATIONS" and "TRADE")

6p per word, minimum charge £1.00. No series discount. All charges payable with order. Insertions of radio interest only accepted. Add 50% for Bold Face (Heavy Type). Box Numbers 15p extra. No responsibility accepted for transcription errors. Replies to Box Numbers should be addressed to The Short Wave Magazine, 55 Victoria Street, London, SW1H-0HF.

TRADE

AT LAST, an Independent QSL Bureau. Let us handle your out-going QSL's. For details send s.a.e. to: A.B. QSL Bureau, Box No. 5154, Short Wave Magazine Ltd., 55 Victoria Street, London, SW1H-OHF.

IR-310 super de luxe, 160m., calibration unit, 29.5 to 30-1 MHz, £3-30.--Leeming, G3LLL, Hold-ings, 39/41 Mincing Lane, Blackburn, Lanes., BB2 9SL. (Tel: 01-237 9784).---Holburn, G3XZP, QTHR.

MOSFET CONVERTERS

for 2 metres

* 28-30 MHz IF.
* Isolated, stabilised supply—operates from 9 to 15v.
* Anodised housing—4 x 2 x 1 inches.
* Price: £9-95 inc. postage. S.A.E. enquiries please.

READERS ADVERTISEMENTS

3p per word, minimum charge 50p payable with order. Add 25% for Bold Face (Heavy Type). Please write clearly, using full punctuation and recognised abbreviations. No responsibility accepted for transcription errors. Replies to Box Numbers 15p extra. Replies to Box Numbers should be addressed to The Short Wave Magazine, 55 Victoria Street, London, SW1H-0HF.

READERS

SALE: SB-102 transceiver, brand new, professionally wired, with AC power supply, £230 or near offer. Ring Menzies, 041-639 2172 between 6 and 7 p.m. (Glasgow).—Box No. 5151, Short Wave Magazine Ltd., 55 Victoria Street, London, SW1H-OHF.

SELLING: Three Sinclair 250’s, two brand new at £45 each, and one almost new at £4; P.36 PSU, almost new, £6-80; Sanken ST-1045A 25-watt audio amp, IC, with data, as new, £5. (Manchester).—Box No. 5152, Short Wave Magazine Ltd., 55 Victoria Street, London, SW1H-OHF.

OFFERING: National HRO-800 receiver and LF pre-selector, 5 kHz to 30 MHz, sensible offers please. All letters answered.—Wilberforce, G4AXS, Little Yaffles, Womensold, Canterbury, Kent. (Tel: Barham 302).

WANTED: Cathodeon 1-4 MHz filter type USB1 (will exchange LSB1 for this if required); also crystal carrier for above, and High Band AM Band-tam.—Holburn, G3XZP, QTHR.

SELLING: K.W. Atlanta, brand new, excellent buy, £150; FT-75 with two power supplies and external VFO, £120; K.W. SWR bridge, £5.—Ring Goodbody, G2YQE, 01-592 7800.


FOR SALE: Trio JR-310 communications receiver + matching SP-5DS speaker, both in excellent condition, £65; Unica UR-1A receiver, £18.—Darby, 52 Lenville Way, Rotherhithe, London, SE16 3HJ. (Tel: 01-237 9784).

READERS

FOR SALE: R-216 receiver, coverage 19-156 MHz, with AC/PSU and circuit diagram, £75; Windsor 6SC signal generator, 100 kHz to 160 MHz, 6 bands, circuit diagram, needs alignment, £6; Signal generator Type 106, 5-5 MHz, £4; Hallcrafters S-27 Rx, coverage 27-144 MHz, needs alignment, £15; Taylor 45C valve tester, £7-50; WANTED: Sentinel X dual gate Mosfet 2-metre converter, will part-exchange any of above.—Hughes, Rock House, Flint Mountain, Flint CH6 5QG. (Tel: Northop 279).

FOR SALE: Eddystone EC-10 Mk. II, new, £26.—Ring Walsmley, Nottingham 269109.

SELLING: K.W. 2000A complete with AC/PSU, Shure 201 mic. and manual, £150; Heathkit SB-296 linear amplifier with manual (new mid-72), £110. All in excellent condition.—Axford, G4AQZ, QTHR (Tel: Thrope-le-Soken 632).

OFFERING: “G2DAF”-type Mk. II Rx and “G2DAF”-type Mk. II Tx with 4×250B in output stage and separate power unit. Both in good condition, will sell separately if necessary, inspection invited. Examine before offer. Pye Vanguard AM-25B, complete with xtals on 145-8 MHz, £18; Heathkit OS-1, sell.—Axford, G4AQZ, QTHR

OFFERING: Vespa Mk. II, with AC/PSU and extra 21 MHz crystal, spare PA valves. Shure mic. and other items, as new, Buyer arranges transport.—Mildren, G3FVD, QTHR. (Tel: Bodmin 2497).

WANTED: Codar Q-multiplier, must be in good condition. Details and price please.—Dowling, Ballylurgical, Borris, Co. Carlow, Ireland.

SALE: Beltex 5400 2-metre transceiver, new boxed. Complete station, £86 (shop price £75 plus VAT), will deliver reasonable distance.—Osborn, 32 Bushymill Crescent, Watford (29984), Herts.

OFFERING: Vespa Mk. II, with AC/PSU and extra 21 MHz crystal, spare PA valves. Shure mic. and other items, as new, Buyer arranges transport.—Mildren, G3FVD, QTHR. (Tel: Bodmin 2497).

WANTED: Codar Q-multiplier, must be in good condition. Details and price please.—Dowling, Ballylurgical, Borris, Co. Carlow, Ireland.

SALE: Beltex 5400 2-metre transceiver, new, boxed, complete station, £86 (shop price £75 plus VAT), will deliver reasonable distance.—Osborn, 32 Bushymill Crescent, Watford (29984), Herts.

WANTED: Codar Q-multiplier, must be in good condition. Details and price please.—Dowling, Ballylurgical, Borris, Co. Carlow, Ireland.

SALE: Beltex 5400 2-metre transceiver, new boxed. Complete station, £86 (shop price £75 plus VAT), will deliver reasonable distance.—Osborn, 32 Bushymill Crescent, Watford (29984), Herts.

OFFERING: Vespa Mk. II, with AC/PSU and extra 21 MHz crystal, spare PA valves. Shure mic. and other items, as new, Buyer arranges transport.—Mildren, G3FVD, QTHR. (Tel: Bodmin 2497).

WANTED: Codar Q-multiplier, must be in good condition. Details and price please.—Dowling, Ballylurgical, Borris, Co. Carlow, Ireland.

SALE: Beltex 5400 2-metre transceiver, new boxed. Complete station, £86 (shop price £75 plus VAT), will deliver reasonable distance.—Osborn, 32 Bushymill Crescent, Watford (29984), Herts.

WANTED: Codar Q-multiplier, must be in good condition. Details and price please.—Dowling, Ballylurgical, Borris, Co. Carlow, Ireland.

SALE: Beltex 5400 2-metre transceiver, new boxed. Complete station, £86 (shop price £75 plus VAT), will deliver reasonable distance.—Osborn, 32 Bushymill Crescent, Watford (29984), Herts.

WANTED: Codar Q-multiplier, must be in good condition. Details and price please.—Dowling, Ballylurgical, Borris, Co. Carlow, Ireland.
FOR SALE: Viceroy Mk. III, £85; two CR-150's, £20; Heathkit 1X-100U, £25; Pandora PR-120V Tx, £20; HRO's, £20-£30.—de la Bertauche, G3RHO, QTHR. (Tel: Seaton 20106).

SELLING: T.W. 2m. transceiver with ten crystals and preamplifier etc. Also new Heath GA-DO, unused Skybeam aerial; Books like "Basic Electronics." Please write for list.—Burnett, G8GFV, 4 Dale Road, Norton, Stourbridge, Worcs.

FOR SALE: Viceroy Mk. III, £65; two CR-150’s, £20; Eddystone 730/4 receiver, £65, 75S/4 good condition, £65.—Fletcher, 62 Moorbridge Lane, Stapleford, Nottingham. (Tel: Sandiacre 3446).

FOR SALE: AR88 with fitted S-meter, excellent condition, £30; Heathkit EC-10, £20; BC-221 with calibration chart, £12-50; Philbrick V25C recorder with mains unit, £3-50; NEV CC/TV complete 1-in. Dallmeyer, £35; Perdio portable TV with two Cossor 19-in. TV's, £10; Ferrograph 4AN, £35; KB 21-in. TV, £10; KB 23-in. TV, £22. For collection only.—Webb, 28 Pearce Avenue, Parkstone, Poole, Dorset. (Tel: 0202 741597).

FOR SALE: Eddystone EC-10 Mk. II receiver, little used, £60 or near offer.—Smith, G3IJKS, QTHR. (Tel: Doncaster 841786).

SELLING: Viceroy Mk. III, £65; Eddystone 750 double conversion general coverage receiver, with circuit and instructions, bargain £30.—Burgis, G6FB, and G3AYA, 10 Millers Lane, Stanstead Abbotts, Ware, Herts. (Tel: 01-788 8208).

FOR SALE: Collins 515-1 and 55G-1, mint condition, as new, kept as standby gear and very little used, with manual, etc. Collins equipment: PM-2 portable power supply for KWM-2; MP-1 mobile supply for KWM-2; 351D-2 mobile mount; 445B-1 power cable (new) for KWM-12. WANTED: Optional filters for 75S8-B and 312B-5. (Worcs.)—Box No. 5156, Short Wave Magazine Ltd., 55 Victoria Street, London. SW1H-0HF.

FOR SALE: AR88 with fitted S-meter, excellent condition, £30; Heathkit EC-10, £20; BC-221 with calibration chart, £12-50; Philbrick V25C recorder with mains unit, £3-50; NEV CC/TV complete 1-in. Dallmeyer, £35; Perdio portable TV with two Cossor 19-in. TV's, £10; Ferrograph 4AN, £35; KB 21-in. TV, £10; KB 23-in. TV, £22. For collection only.—Webb, 28 Pearce Avenue, Parkstone, Poole, Dorset. (Tel: 0202 741597).

FOR SALE: Eddystone EC-10 Mk. II receiver, little used, £60 or near offer.—Smith, G3IJKS, QTHR. (Tel: Doncaster 841786).

FOR SALE: Eddystone EC-10 Mk. II receiver, little used, £60 or near offer.—Smith, G3IJKS, QTHR. (Tel: Doncaster 841786).

FOR SALE: Viceroy Mk. III, £65; Eddystone 750 double conversion general coverage receiver, with circuit and instructions, bargain £30.—Burgis, G6FB, and G3AYA, 10 Millers Lane, Stanstead Abbotts, Ware, Herts. (Tel: 01-788 8208).

FOR SALE: Collins 515-1 and 55G-1, mint condition, as new, kept as standby gear and very little used, with manual, etc. Collins equipment: PM-2 portable power supply for KWM-2; MP-1 mobile supply for KWM-2; 351D-2 mobile mount; 445B-1 power cable (new) for KWM-12. WANTED: Optional filters for 75S8-B and 312B-5. (Worcs.)—Box No. 5156, Short Wave Magazine Ltd., 55 Victoria Street, London. SW1H-0HF.


FOR SALE: Furzehill Oscilloscope, first class, £10. Variable voltage stabilised PSU, 500v. 200 mA. £10. Crystal controlled frequency meter, coverage 15 to 100 MHz (W.D. research equipment), offers?—Rawlinson, G8BJR, QTHR, or ring Charing (Kent) 2158.

SALE: Trio 9R-59DS, fitted 1 MHz calibrator and 150v. stabiliser, £50. Williams, G3RSJ. QTHR or ring Pakenham (Suffolk) 30675.

DISPOSING: Complete station in fine condition—Hallerstcrafters SX-96 with crystal calibrator. K.W. Valiant Tx and factory PSU, with all accessories and spares. Reasonable offer accepted.—Warrington-Strong, ex-G2AG, May Cottage, Ripple, Tewkesbury. Glos. (Tel: Upton-on-Severn 2831).

FOR SALE: Heath Mohican Rx, with manual; little used since service by factory. Canadian Marconi 52 Set with manuals and lots of spare valves, £12. plus AC/DC PSU £5, or £15 the two. Buyers to collect.—Sharpe, G3UXU. Hemel Hempstead 54143.

WANTED: Trio 9R-59, Eddystone EC-10 or similar Receiver; details, please.—Embrey, G3KNG, QTHR, or ring Codsall (Staffs) 3134.

SALE: K.W. Vicerey Tx, with extra half-lattice filter, £85. Also Kw-77 receiver, £80. Both items good condition and excellent appearance. WANTED: HW-32A.—Crossan, 8A Beckenham Road, West Wickham. Kent. (01-777 6645).

WANTED: 4X500 without base. Also Eddystone dial.—McHenry, 2A Park Town, Oxford (0965 56321).

OFFERING: Drake solid-state SPR-4 communications receiver, virtually unused and in maker’s packing, complete with crystal calibrator, noise blanker, 24 crystals, D.C. cord and speaker. Current value £120, offers around £350 invited.—Fletcher, 62 Moorbridge Lane, Stapleford, Nottingham. (Tel: Sandiacre 5448).

The last few copies of a limited number of these titles specially imported from the States and not to be repeated.

BUILDING YOUR AMATEUR RADIO NOVICE STATION

This book is the first "completely detailed" construction manual for building an amateur novice radio station. Nothing is overlooked in building the station from scratch to the actual on-the-air operation. The transmitter and receiver are distinctly professional in performance quality and appearance.

The book is primarily directed to the novice radio ham, it contains many novel and valuable construction hints and tips for amateurs in any licence class. As a finished touch to the projects a complete "rollaway" ham shack for hams with limited space (apartment dwellers, etc.) is featured and fully described.

By W7OE

£1.90

HAM ANTENNA CONSTRUCTION PROJECTS

Besides full details on many useful and interesting types of aerials, Ham Antenna Construction Projects includes complete information on long-lasting construction methods, as well as how to position your antennas to achieve maximum distance with a given radiation pattern. In addition, much easy-to-understand technical information on tuning antennas and the use of test equipment is presented.

£2.10

TRANSISTOR FUNDAMENTS,—Vol. III

Covers circuits used in radio, audio and television equipment. It also introduces you to logical troubleshooting procedures used in locating defective parts or faulty adjustments in these circuits. This book will help you learn to repair many transistor circuits used in audio amplifiers, radio and television receivers.

£1.40

RADIO CIRCUITS

By Thomas M. Adams

This volume goes into great detail in explaining the action of the various circuits used in radio receivers—also voltage analysis and signal substitution methods for servicing typical valve and transistor receivers.

£1.80

The above prices include postage and packing

Available from

SHORT WAVE MAGAZINE

Publication Dept.,
55 Victoria St., London SW1H 0HF
Telephone 01-222 5341

(Counter Service 9.30-5.15 Monday to Friday)
(Nearest Station: St. James’s Park)
GIRO A/C. No. 547 6151

DON’T BUY A DIGITAL CLOCK

UNTIL YOU HAVE SEEN OUR LEAFLET AND SPECIAL DISCOUNT PRICE LIST FOR RADIO AMATEURS AND S.W. LISTENERS. (s.a.e. please), WE ARE YOUR SPECIALISTS, HAVE THE MOST COMPREHENSIVE AND LARGEST STOCKS. CHECK EVERY INDIVIDUAL CLOCK, AND ALWAYS DESPATCH BY RETURN.

Aero & General Supplies
NANAIMO HOUSE, 2 RINGWOOD AVENUE,
LEEDS LS14 1AJ.
TEL. 658568

July, 1973
We are looking for good condition modern transmitters and receivers
Trio TSISO and p.s.u.
OF receiver 61044
G Whip base mount
RCA COS/MOS
Trio TX599 transmitter £160.00
Trio JR310 Rx
6 BA nuts
3", speaker 8 ohm
2y" speaker 8 ohm
0-20, D.C. p.s.u. A stab.
C60 cassettes
2000, ohm headset
3 /6 /7.5 /9, D.C. p.s.u.
425.00
2 way intercom...
Sentinel170cm. converter
Sentinel 2m. converter
5 band RF meter
TEI5 GDO
Transistor Rx. with 2M
Yaesu FT 101
Yaesu FT 200 and p.s.u.
Yaesu FR400Dx
Yaesu FRSOB
KW A15 switch
KW 101 swr bridge
KW EZ match
KW 107 AE match unit
KW 1035 swr /power unit...
Volume XXI
MAIL ORDER TO
SOp for stock parcel (post 6p).
A good chance to stock up with top grade disc ceramic capacitors.
RCA Hobbies manual
"S" Dec
Mini test meter
Double meter swr
Hanson swr bridge
Unica URIA Rx
KW Atlanta VFO
KW Atlanta "RF" meter
Mixed relays
Order from
MEMBER OF THE AMATEUR RADIO RETAILERS ASSOCIATION
RADIO COMMUNICATION
PUBLICATIONS DEPT.
SHORT WAVE MAGAZINE LTD.
55, VICTORIA STREET, LONDON, SW1 0HF

REG. WARD & CO LTD.
(020-759)
WE ARE OFFICIALLY APPOINTED K.W. AGENTS FOR THE SOUTH WEST (Somerset, Dorset, Devon, Cornwall)
Antenna Wire and Ribbed insulators.
Model 444, 455.00 ; Model 201, 45.70.
spkr. (10 days use only), £44.10 ;
Eddystone 640, 454.55 ; Eddystone 1340C £39.60 ; Trio 9R59DS and
Atlantic TV and A.C. p.s.u. £161.00 ; KW2020CLV780, 2LW2000 TV, £128.70 ;
Yaesu FTSOB
FR400DX Rx. (with 160 and 2m.)
KW 101 420C transceivers...
FrSky radio controls...
K.fi.24 hour Digital Clocks
FR78 200w. transmitter, with mic, spk. and hi-level
A.C./D.C. p.s.u.
FHq + Cod. WWV
FT200 Transmitter
PF900 A.C. p.s.u.
RF005DX Rx. (with 160 and 2m.)
สายสาย Antenna Switches (for coax)
TAESU
FR508 Amateur Band Receivers
FT58 30w. transmitter, with mic, spk. and hi-level
A.C./D.C. p.s.u.
FHq + Cod. WWV
FT200 Transmitter
PF900 A.C. p.s.u.
RF005DX Rx. (with 160 and 2m.)
สายสาย Antenna Switches (for coax)
TAESU
FR508 Amateur Band Receivers
FT58 30w. transmitter, with mic, spk. and hi-level
A.C./D.C. p.s.u.
FHq + Cod. WWV
FT200 Transmitter
PF900 A.C. p.s.u.
RF005DX Rx. (with 160 and 2m.)
สายสาย Antenna Switches (for coax)
TAESU
FR508 Amateur Band Receivers
FT58 30w. transmitter, with mic, spk. and hi-level
A.C./D.C. p.s.u.
FHq + Cod. WWV
FT200 Transmitter
PF900 A.C. p.s.u.
RF005DX Rx. (with 160 and 2m.)
สายสาย Antenna Switches (for coax)
TAESU
FR508 Amateur Band Receivers
FT58 30w. transmitter, with mic, spk. and hi-level
A.C./D.C. p.s.u.
FHq + Cod. WWV
FT200 Transmitter
PF900 A.C. p.s.u.
RF005DX Rx. (with 160 and 2m.)
สายสาย Antenna Switches (for coax)
TAESU
FR508 Amateur Band Receivers
FT58 30w. transmitter, with mic, spk. and hi-level
A.C./D.C. p.s.u.
FHq + Cod. WWV
FT200 Transmitter
PF900 A.C. p.s.u.
RF005DX Rx. (with 160 and 2m.)
สายสาย Antenna Switches (for coax)
TAESU
FR508 Amateur Band Receivers
FT58 30w. transmitter, with mic, spk. and hi-level
A.C./D.C. p.s.u.
FHq + Cod. WWV
FT200 Transmitter
PF900 A.C. p.s.u.
RF005DX Rx. (with 160 and 2m.)
สายสาย Antenna Switches (for coax)
TAESU
FR508 Amateur Band Receivers
FT58 30w. transmitter, with mic, spk. and hi-level
A.C./D.C. p.s.u.
FHq + Cod. WWV
FT200 Transmitter
PF900 A.C. p.s.u.
Jim Roche has been Imhofs Eddystone light-housekeeper for a good few years now - so who better than he to guide you into the right channel, for an Eddystone communications receiver:

**Model 1001 - general-purpose receiver with reception facilities for CW, MCW, AM and SSB**

Provision for crystal control on 10 channels.

EC10 Mk II still 'Top of the Pops' in the modest price range of communication receivers. Embodies features usually only found in the more expensive designs.

**VISIT LONDON'S LIGHTHOUSE**

our lighthouse keeper wants to meet you!

Jim Roche has been Imhofs Eddystone lighthouse keeper for a good few years now - so who better than he to guide you into the right channel, for an Eddystone communications receiver:

**EC10 Mk II still 'Top of the Pops' in the modest price range of communication receivers. Embodies features usually only found in the more expensive designs.**
THE SENATOR CRYSTAL BANK

G3UGY

CRYSALT FROM STOCK AT KEEN PRICES

SENATOR CRYSTALS: the first place to contact when you need good crystals quickly.

Here are just a few of the popular frequencies actually in STOCK now:

<table>
<thead>
<tr>
<th>KHz</th>
<th>Mhz</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 in HC6/U</td>
<td>2.50</td>
</tr>
<tr>
<td>456 in HC6/U</td>
<td>11.75</td>
</tr>
<tr>
<td>500 in HC6/U</td>
<td>16.00</td>
</tr>
<tr>
<td>2000 in HC6/U</td>
<td>67.50</td>
</tr>
<tr>
<td>9000 in HC6/U</td>
<td>270.00</td>
</tr>
</tbody>
</table>

* Also in HC5/U

NEW FREQUENCIES FOR POPULAR CHANNELS:

48.53933 MHz in HC6/U for RX x 3 = 110.7 MHz
45.01667 MHz in HC6/U for RX x 3 = 107 MHz
50.00 kHz in HC1/U for TX x 18 = 280.000 MHz for RAEN £1.50
60.00 kHz in HC1/U for TX x 18 = 360.000 MHz for RAEN £1.75
70.00 kHz in HC1/U for TX x 18 = 420.000 MHz for RAEN £1.75
80.00 kHz in HC1/U for TX x 18 = 480.000 MHz for RAEN £1.75

NEW FREQUENCIES now available:

1 6072 MHz and 1 6184 MHz in HC6/U (spacing 1 kHz) at £1 each
3 6666 MHz in HC6/U
41.00 MHz in HC1/U
42.00 MHz in HC1/U
43.00 MHz in HC1/U
44.00 MHz in HC1/U
45.00 MHz in HC1/U
46.00 MHz in HC1/U
47.00 MHz in HC1/U
48.00 MHz in HC1/U
49.00 MHz in HC1/U
50.00 MHz in HC1/U
51.00 MHz in HC1/U
52.00 MHz in HC1/U
53.00 MHz in HC1/U
54.00 MHz in HC1/U
55.00 MHz in HC1/U
56.00 MHz in HC1/U
57.00 MHz in HC1/U
58.00 MHz in HC1/U
59.00 MHz in HC1/U
60.00 MHz in HC1/U
61.00 MHz in HC1/U
62.00 MHz in HC1/U
63.00 MHz in HC1/U
64.00 MHz in HC1/U
65.00 MHz in HC1/U
66.00 MHz in HC1/U
67.00 MHz in HC1/U
68.00 MHz in HC1/U
69.00 MHz in HC1/U
70.00 MHz in HC1/U
71.00 MHz in HC1/U
72.00 MHz in HC1/U
73.00 MHz in HC1/U
74.00 MHz in HC1/U
75.00 MHz in HC1/U
76.00 MHz in HC1/U
77.00 MHz in HC1/U
78.00 MHz in HC1/U
79.00 MHz in HC1/U
80.00 MHz in HC1/U
81.00 MHz in HC1/U
82.00 MHz in HC1/U
83.00 MHz in HC1/U
84.00 MHz in HC1/U
85.00 MHz in HC1/U
86.00 MHz in HC1/U
87.00 MHz in HC1/U
88.00 MHz in HC1/U
89.00 MHz in HC1/U
90.00 MHz in HC1/U
91.00 MHz in HC1/U
92.00 MHz in HC1/U
93.00 MHz in HC1/U
94.00 MHz in HC1/U
95.00 MHz in HC1/U
96.00 MHz in HC1/U
97.00 MHz in HC1/U
98.00 MHz in HC1/U
99.00 MHz in HC1/U
100 MHz in HC1/U

Prices for specially manufactured SENATOR Crystals are as follows (made to Ministry of Defense Standards):

50 1.45 kHz in HC1/U
100 2.9 kHz in HC1/U
150 4.4 kHz in HC1/U
200 6.9 kHz in HC1/U
300 10.3 kHz in HC1/U
400 13.7 kHz in HC1/U
500 17.1 kHz in HC1/U
1000 34.3 kHz in HC1/U
1500 51.6 kHz in HC1/U
2000 68.9 kHz in HC1/U
3000 103.2 kHz in HC1/U
4000 137.6 kHz in HC1/U
5000 171.6 kHz in HC1/U
6000 205.8 kHz in HC1/U
7000 240.1 kHz in HC1/U
8000 274.4 kHz in HC1/U
9000 308.6 kHz in HC1/U
10000 342.8 kHz in HC1/U
15000 513.5 kHz in HC1/U
20000 685.0 kHz in HC1/U
30000 1035 kHz in HC1/U
40000 1376 kHz in HC1/U
50000 1716 kHz in HC1/U
60000 2056 kHz in HC1/U
70000 2406 kHz in HC1/U
80000 2746 kHz in HC1/U
90000 3086 kHz in HC1/U
100000 3426 kHz in HC1/U

V.A.T. ADD 10% TO ALL PRICES.

Mail Order SENATOR CRYSTALS Dept. S.W., 36 Valleyfield Road, SW16 2HR

PORTABLE PETROL ELECTRIC GENERATORS

HONDA

Keen Prices to readers of Short Wave Magazine

ALL MODELS, FROM THE INCREDIBLY QUIET HONDA E800E WHICH GENERATES 300 WATTS A.C. PLUS 12V.D.C. ANODES MEASURES ONLY 13" X 12" X 9" TO THE HONDA E4000E, 4 KW DIESEL SET.

For brochure & full details, call, write or phone GODALMING 23279
ASHLEY DUKES
FARNCOMBE STREET, FARNCOMBE, GODALMING, SURREY.

WALKIE-TALKIE: No. 88 ex-W.D. 14-valve four channel transmitter/receiver unit, £5.50 plus post/packing 60p. No. 19 ex-W.D. used transceiver, valved unit only, £5.50. No. 17 unit, used valved transceiver, 2x/120v., £3.00 post 60p.

No. 38 Sets, 12v, dirty cases but complete, ex-W.D., £5.50, post/packing 75p. Salvage telemeeter unit, multi-valve receiver, speaker and tape unit, in sealed cartons, cost vast amount, £4.15, carriage £2.80. Speech recorders, new Remington AC mains valved unit, cost vast money, £5.50, carriage £2.80.

Chart Boards, E1.60 A.M.T. type, for air speed, wind speed, distance, vernier, calibrations, cost vast amount, £2.50, post/packing £1.50.

W.D. tank aerials, three each set, £2.80. American ex-W.D. feathery-weight low-resistance headphones, new, £1.65, post £1.50.

New No. 19 microphone and headphone sets, boxed, £2.75, post £2.50. Callers welcome.

SOUTHERN SURPLUS MERCHANTS, LTD.
66 London Road, Kingston-upon-Thames, Surrey
(Tel. 01-946 8263)
“LISTEN TO THE WORLD WITH EDDYSTONE”

Your local Eddystone dealer is:

CHESHIRE
The Transistor Centre (Winslow) Ltd
Green Lane
Winslow 4786

CORNWALL
R. V. Heming Ltd
Cliff Road, Newquay

DEVON
Devoran 862575

DERBYSHIRE
B. E. Smith
F. E. Smith
Holdings Photo Audio Centre
Enniskillen 2955

ENGLAND
North West Electrics
Leverhead, 19

Lancashire
Ashville Road

Leicestershire
Seeley

North West Electrics

Yorkshire
North West Electrics

REPUBLIC OF IRELAND
J. D. Smith, C.S.C.

SOUTH AFRICA
S. S. B. Products

Your local Eddystone dealer is:

IS:

CHESHIRE
The Transistor Centre (Winslow) Ltd
Green Lane
Winslow 4786

CORNWALL
R. V. Heming Ltd
Cliff Road, Newquay

DEVON
Devoran 862575

DORSET
B. E. Smith
F. E. Smith
Holdings Photo Audio Centre
Enniskillen 2955

ENGLAND
North West Electrics
Leverhead, 19

Lancashire
Ashville Road

Leicestershire
Seeley

North West Electrics

Yorkshire
North West Electrics

REPUBLIC OF IRELAND
J. D. Smith, C.S.C.

SOUTH AFRICA
S. S. B. Products

TRANSCEIVERS. Due to warehouse clearance we have
for disposal, few only Transceivers No. 62 Mk. 2, made by
for disposal, few only Trans-
warehouse clearance we have

TERMS, CASH OR UNCROSSED P.O.

as same will be returned if out of stock.

JOHNS RADIO

424 BRADFORD ROAD,
BATLEY, YORKS.
Phone: BATLEY 7732

SOLID-STATE RTTY CONVERTER-KEYER SRD-1

- CIPES 850/400/170 MHZ SHIFTS
- BUILT-IN SINGLE AND DOUBLE CURRENT PSU
- F.S. KEYER FOR TX (AND OPTIONAL AFK)

Complete and ready-to-go for send-receive RTTY with TX, RX
and teleprinter.

- Advanced circuitry, 6 ICs, 25 semi-conductors. Input matches
receiver outputs 3-8 or 300-600 ohms. 3-pole Butterworth
input bandpass filter. 600 MHz AM/AM, Commercial shifts.
- 2-pole low-pass filter. Tuning meter.

- Monitor scope outputs. Mark Hold and Normal/Reverse
shifts switch. Built-in loop PSU. 

- Switched 850/400/170 MHZ

- Two-tone pwc-coated case, 9" x 3" x 1/4". Weight: 7 lbs

SOLID-STATE RTTY CONVERTER-KEYER Model TTU. £132.
- ST-5 PCBs and devices, £4.50.
- TORIODS 88 mH. 25p per pair. ST-5
- PCBs and devices. £9.25. ST-4 KIT complete less case, with
devices. £7.50.

- SAMSON CRM-1, £120. 332B TV.

- JUNGER Precision hand key. £10-72. BAUER keying
levers, £4.10. SSB 90 "AUDIO PHASE SHIFT NETWORKS,
£2.24, PRINTSET R0-3.

ALL PRICES INCLUDE V.A.T

J. BIRKETT 22 THE STRAIT, LINCOLN,
LN2 1JF. Telephone: 20767

SOLAR F12 PRINTING PAPER 500 SHEETS £5.18.

- 10% VAT. S.A.E. all enquiries.

- Terms, Cash or Uncrossed P.O.

Annual Holiday - We shall be closed AUGUST 1st - July 22nd

SPACEMARK LTD.
THORNFIELD HOUSE, DELLERAM ROAD,
ALTRINCHAM, CHESHIRE.
(Tel. 061-928 8485)
CALL BOOKS

INTERNATIONAL:
- RADIO AMATEUR CALL BOOKS (1973) £2.95
- "DX Listings" £3.75
- "U.S. Listings" £3.75
- "G's" only 1973 70p

MAPS

- AMATEUR RADIO MAP OF WORLD
- DX ZONE MAP (GREAT CIRCLE)
  In colour with Country/Prefix Supplement Revised to January 1972 85p
- RADIO AMATEUR MAP OF THE U.S.A. AND NORTH AMERICA
  State boundaries and prefixes, size 24" by 30", paper 60p
- RADIO AMATEUR'S WORLD ATLAS
  In booklet form, Mercator projection, for desk use. Gives Zones and Prefixes (New Edition) £1.10

LOG BOOKS

- Standard Log (New Glossy Cover) 55p
- Receiving Station Log 45p
- Minilog 25p

(The above prices include postage and packing).

MORSE COURSES

G3HSC Rhythm Method of Morse Tuition
- Complete Course with three 3 speed L.P. records with books £4.50
- Beginner's Course with two 3 speed L.P. records with book £3.30
- Single 12" L.P. Beginner's with book £2.75
- Single, 12" L.P. Advanced with book £2.75
- Three speed simulated GPO test. 7" d.s. E.P. record 85p

Prices include postage, packing and insurance in U.K. only *Overseas orders + £1.00.

Available from
SHORT WAVE MAGAZINE
Publications Dept., 55 Victoria Street, London, SW1H OHF 01-222 5341
(Counter Service, 9.30-5.15, Mon. to Fri.)
(Nearest Station: St. James's Park)
(GIRO A/C No. 547 8151)

RTTY TERMINAL UNIT

P. C. Boards for the Irvin Hoff ST-6 RTTY Demodulator (Ham Radio Jan./Feb. 1971, Wireless World Feb. 1973). Complete set of 8 boards in fibreglass, with 0-156" pitch gold-plated edge-connectors, covering 170 and 850 Hz shift, with layout diagrams. These are high quality, professional standard boards at only £9.20 per set (post paid). Why pay more?

G3OUV,
"LOAKES HOUSE, LOAKES PARK,
HIGH WYCOMBE, BUCKS. HP11 2JU"

G8CKN

BASE AND MOBILE ANTENNAS
4dB 2m. 5/8 whip ... ... £4.00 inc. V.A.T.
4dB 2m. 1/2 Ground plane ... £7.75 inc. V.A.T.

ANTEC
74 Upper Sherbourne Road, Basingstoke, Hants.
Tel. Basingstoke 27527
C.W.O.—P. & P. 50p—S.A.E. for catalogue

TRIO
For reliability & value

Short Wave and Hi-Fi

We have always thought it worth paying that little extra for the reliability that has been the characteristic of TRIO Hi-Fi and Short Wave equipment.

Now you don't pay any extra. Whilst competitors' prices soar, TRIO have managed to keep theirs down.

JR.599. A really beautiful mains or 12 volt battery ham band receiver. AM/FM/SSB/CW filters, 160 metre-2 metres ham band coverage, £175 inc. VAT. (Matching transmitter available at same price).

TS.515/PS.515 Transceiver—try it out for sensitivity on receive on 10 and 15 metres, or for selectivity on 40 metres. Out-performs most receivers. Uses real TX (not TV) valves, plus blower on P.A. Very conservatively rated at 180 watts P.E.P., £231 inc. VAT.

JR.310. Standard version at £82.50 inc. VAT or our super de luxe with top band plus many extra features at £93.50 both fantastic value. Free RSGB Test Report on request.

9R-590S at £54.45 inc. VAT. This is not just a toy but an ideal beginners general coverage receiver. Delivery £3.30 via Securicor (our risk), 10 via Rail (your risk).

ACCESS — SEND YOUR CARD NUMBER — WE SEND THE GOODS

HOLDINGS PHOTO AUDIO CENTRE
29/41 MINCING LANE, BLACKBURN, BB2 2AF
Telephone : 59595/6
# Technical Books and Manuals

## AERIAL INFORMATION

<table>
<thead>
<tr>
<th>Title</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC of Antennas</td>
<td>£0.90</td>
</tr>
<tr>
<td>Aerials (by D. Sjobbema)</td>
<td>£0.86</td>
</tr>
<tr>
<td>Aerial Handbook (Briggs)</td>
<td>£0.87</td>
</tr>
<tr>
<td>Amateur Radio Antennas (Hooton)</td>
<td>£1.87</td>
</tr>
<tr>
<td>Antenna Handbook, Volume 1</td>
<td>£1.77</td>
</tr>
<tr>
<td>Antenna Round-Up, Volume 1</td>
<td>£1.47</td>
</tr>
<tr>
<td>Antenna Round-Up, Volume 2</td>
<td>£1.77</td>
</tr>
<tr>
<td>Antenna Handbook, 12th Edition (ARRL)</td>
<td>£1.48</td>
</tr>
<tr>
<td>Quad Antennas, 2nd Edition</td>
<td>£1.80</td>
</tr>
<tr>
<td>Simple Low Cost Wire Antennas</td>
<td>£2.72</td>
</tr>
<tr>
<td>73 Vertical, Beam and Triangle Antennas</td>
<td>£2.40</td>
</tr>
<tr>
<td>73 Dipole and Long-Wire Antennas (by E.M.Noll)</td>
<td>£2.20</td>
</tr>
</tbody>
</table>

## BOOKS FOR THE BEGINNER

<table>
<thead>
<tr>
<th>Title</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amateur Radio (Rayor)</td>
<td>£0.60</td>
</tr>
<tr>
<td>Beginners Guide to Electronics (N.E.)</td>
<td>O/P</td>
</tr>
<tr>
<td>Beginners Guide to Transistors</td>
<td>£1.12</td>
</tr>
<tr>
<td>Beginners Guide to Colour TV</td>
<td>£1.00</td>
</tr>
<tr>
<td>Better Short Wave Reception, 2nd Edition</td>
<td>£1.00</td>
</tr>
<tr>
<td>Course in Radio Fundamentals (N.E.)</td>
<td>£1.15</td>
</tr>
<tr>
<td>Foundations of Wireless and Electronics</td>
<td>£2.02</td>
</tr>
<tr>
<td>Guide to Amateur Radio (N.E.)</td>
<td>£2.19</td>
</tr>
<tr>
<td>Ham Radio (A beginner's guide) by R.H. Waring</td>
<td>£1.72</td>
</tr>
<tr>
<td>How to Become a Radio Amateur</td>
<td>£1.50</td>
</tr>
<tr>
<td>Learning the RT Code</td>
<td>£1.50</td>
</tr>
<tr>
<td>Morse Code for the Radio Amateur</td>
<td>£1.50</td>
</tr>
<tr>
<td>Radio, by D. Gibson</td>
<td>£1.50</td>
</tr>
<tr>
<td>Radio Amateur Examination Manual (N.E.)</td>
<td>£1.89</td>
</tr>
<tr>
<td>Simple Short Wave Receivers (Data)</td>
<td>£1.69</td>
</tr>
<tr>
<td>Understanding Amateur Radio</td>
<td>£1.47</td>
</tr>
</tbody>
</table>

## GENERAL

<table>
<thead>
<tr>
<th>Title</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC of Electronics (by Earl J. Waters)</td>
<td>£1.20</td>
</tr>
<tr>
<td>ABC of FET's</td>
<td>£1.35</td>
</tr>
<tr>
<td>ARRCLculator, Type A</td>
<td>£2.12</td>
</tr>
<tr>
<td>Easibinder (to hold 12 copies of Short Wave Magazine together), available end of August</td>
<td>£1.05</td>
</tr>
<tr>
<td>FET Principles, Experiments and Projects</td>
<td>£2.55</td>
</tr>
<tr>
<td>Guide to Broadcasting Stations (16th Edition)</td>
<td>£1.50</td>
</tr>
<tr>
<td>Having Fun with Transistors</td>
<td>£1.50</td>
</tr>
<tr>
<td>How to Listen to the World—7th Edition</td>
<td>£1.50</td>
</tr>
<tr>
<td>Know Your Oscilloscope (by Paul C. Smith)</td>
<td>£1.00</td>
</tr>
<tr>
<td>Microphones</td>
<td>£0.65</td>
</tr>
<tr>
<td>Practical Integrated Circuits (Newnes-Butterworth)</td>
<td>£1.01</td>
</tr>
<tr>
<td>Practical Transistor Theory</td>
<td>£1.10</td>
</tr>
<tr>
<td>Practical Wireless Circuits</td>
<td>£1.34</td>
</tr>
<tr>
<td>Prefix List of Countries</td>
<td>£1.00</td>
</tr>
<tr>
<td>Radio Engineers Pocket Book (Newnes) (N.E.)</td>
<td>£1.26</td>
</tr>
<tr>
<td>RCA Designer's Handbook (Solid State Power Circuits)</td>
<td>£3.50</td>
</tr>
<tr>
<td>RCA Receving Tubes Manual</td>
<td>£1.77</td>
</tr>
<tr>
<td>RCA Transistor Thyristor and Diode Manual</td>
<td>£1.75</td>
</tr>
<tr>
<td>RCA Transmitting Tubes</td>
<td>£1.75</td>
</tr>
<tr>
<td>Shop and Shack Shortcuts</td>
<td>£1.75</td>
</tr>
<tr>
<td>Single Sideband: Theory &amp; Practice (by H.D. Hooton)</td>
<td>£3.47</td>
</tr>
<tr>
<td>99 Ways to IMPROVE YOUR SHORT WAVE LISTENING</td>
<td>£2.05</td>
</tr>
<tr>
<td>Telecommunications Pocket Book (T.L. Squires)</td>
<td>£1.32</td>
</tr>
</tbody>
</table>

## HANDBOOKS AND MANUALS

<table>
<thead>
<tr>
<th>Title</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amateur Radio DX Handbook</td>
<td>£2.17</td>
</tr>
<tr>
<td>Electronic Circuit Handbook, Vol. 1</td>
<td>£1.42</td>
</tr>
<tr>
<td>Electronic Circuit Handbook, Vol. 2</td>
<td>£1.42</td>
</tr>
<tr>
<td>New RTTY Handbook</td>
<td>£1.90</td>
</tr>
<tr>
<td>Radio Amateur Handbook 1973 (ARRL)</td>
<td>£2.85</td>
</tr>
<tr>
<td>Radio Amateur Handbook 1973 (ARRL) (Hard Cover)</td>
<td>£3.95</td>
</tr>
<tr>
<td>Radio &amp; Electronic Handbook</td>
<td>£1.32</td>
</tr>
<tr>
<td>Radio Communication Handbook (RSGB)</td>
<td>£4.10</td>
</tr>
<tr>
<td>Rly A-Z (CQ Tech. Series)</td>
<td>£2.25</td>
</tr>
<tr>
<td>Radio Handbook (W. I. Orr) 19th Ed.</td>
<td>£1.75</td>
</tr>
<tr>
<td>Surplus Conversion Handbook</td>
<td>£1.50</td>
</tr>
<tr>
<td>Television Interference Manual (G3/GO)</td>
<td>£0.90</td>
</tr>
<tr>
<td>Transistor Substitution Handbook No. 10</td>
<td>£1.12</td>
</tr>
</tbody>
</table>

## USEFUL REFERENCE BOOKS

<table>
<thead>
<tr>
<th>Title</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amateur Radio SSB Guide</td>
<td>£1.59</td>
</tr>
<tr>
<td>Amateur Radio Techniques—4th Edition</td>
<td>£1.00</td>
</tr>
<tr>
<td>Care &amp; Feeding of Power Grid Tubes</td>
<td>£0.50</td>
</tr>
<tr>
<td>(Elmac Division of Varian)</td>
<td>£0.50</td>
</tr>
<tr>
<td>Engineers' Pocket Book—6th Edition</td>
<td>£0.48</td>
</tr>
<tr>
<td>Guide to Amateur Radio</td>
<td>£0.50</td>
</tr>
<tr>
<td>'G' Call Book 1973</td>
<td>£1.50</td>
</tr>
<tr>
<td>Hams' Interpreter</td>
<td>£1.50</td>
</tr>
<tr>
<td>Hints and Kinks, Vol. 8 (ARRL)</td>
<td>£0.62</td>
</tr>
<tr>
<td>Operating an Amateur Radio Stat.</td>
<td>O/P</td>
</tr>
<tr>
<td>Radio Amateur Examination Manual (N.E.)</td>
<td>£0.89</td>
</tr>
<tr>
<td>Radio Data Reference Book (3rd Edition)</td>
<td>£1.00</td>
</tr>
<tr>
<td>Radio, Valve and Transistor Data (Ilfie), 9th Edition</td>
<td>£0.89</td>
</tr>
<tr>
<td>Service Valve and Semiconductors Equivalents</td>
<td>£0.35</td>
</tr>
<tr>
<td>Single Sideband for the Radio Amateur (ARRL)</td>
<td>£1.67</td>
</tr>
<tr>
<td>6th Edition</td>
<td>£1.47</td>
</tr>
<tr>
<td>Sun, Earth and Radio by J. A. Ratcliffe</td>
<td>£1.90</td>
</tr>
<tr>
<td>Surplus Schematics (CQ)</td>
<td>£1.22</td>
</tr>
<tr>
<td>Transistor Pocket Book</td>
<td>£1.57</td>
</tr>
</tbody>
</table>

## TRANSISTOR MANUALS

<table>
<thead>
<tr>
<th>Title</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC of Transistors</td>
<td>£1.33</td>
</tr>
<tr>
<td>Field Effect Transistors (Mullard)</td>
<td>£1.95</td>
</tr>
<tr>
<td>Having Fun with Transistors</td>
<td>£1.59</td>
</tr>
<tr>
<td>Handbook of Transistor Circuits</td>
<td>£2.35</td>
</tr>
<tr>
<td>Transistor Audio &amp; Radio Circuits (Mullard)</td>
<td>£1.98</td>
</tr>
<tr>
<td>Transistor Fundamentals: Basic Semi-Conductor and Circuit Principles, Vol. 1</td>
<td>£1.92</td>
</tr>
<tr>
<td>Transistor Fundamentals: Basic Transistor Circuits, Vol. 2</td>
<td>£1.92</td>
</tr>
<tr>
<td>Transistor Substitution Handbook, No. 12</td>
<td>£1.50</td>
</tr>
</tbody>
</table>

## VHF PUBLICATIONS

<table>
<thead>
<tr>
<th>Title</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>VHF Handbook, Wm. I. Orr.</td>
<td>£1.79</td>
</tr>
<tr>
<td>VHF Manual (ARRL)</td>
<td>£1.37</td>
</tr>
<tr>
<td>VHF/UHF Manual (RSGB) (N.E.)</td>
<td>£1.90</td>
</tr>
</tbody>
</table>

O/P (out of print) The above prices include postage and packing. Many of these titles are American in origin.

Available from SHORT WAVE MAGAZINE

Publication Dept., 55 Victoria St., London SW1H 0HF 01-222 5341 (Nearest Station: St. James's Park)

(Counterservice, 9.30-15. Mon. to Fri.)

(GIRO A/C, No. 547 6151)
become a RADIO-AMATEUR!

learn how to become a radio-amateur in contact with the whole world. We give skilled preparation for the G.P.O. licence free!

Brochure, without obligation to.

BRITISH NATIONAL RADIO & ELECTRONICS SCHOOL PO BOX 156, JERSEY, CHANNEL ISLANDS

NAME: ____________________________

ADDRESS: ____________________________

BLOCK CAPS please

T.M.P. (Electronic Supplies)

Exclusive agent in U.K. for Unadilla Radiation Products manufacturers of W2AU baluns and Quad hardware.

Excelsior Springs Electronic Laboratories suppliers of toroid cores and kits, also

Electro-Voice communications range of microphones.

For further details write for illustrated leaflets and lists on other items, enclosing s.a.e. to admin address:

3 Bryn Clyd, Leeswood, Mold.

Flintshire. CH7 4RU.
SOME TITLES FROM FOULSHAM-SAMS

ABC's of ANTENNAS
The introductory chapters cover the fundamentals of radio-wave propagation and basic antenna characteristics. The remainder of the book is devoted to discussions of various types of antennas and their use. Antennas for radio, television and two-way communications are included. Business radio, amateur, mobile and fixed-ITU operation, are covered. The final chapter should be particularly appealing to those interested in microwave use and radio-navigation systems. A perusal of this book will provide any student with an excellent foundation for more advanced study in antenna design.
89p

AMATEUR RADIO SSB GUIDE
Single-sideband receivers, transmitters, and transceivers are now available to amateurs, and this book will provide any student with a useful guide to the practical application of the technique, which will be of interest to all who wish to understand the how and why of radio, whether it be for a hobby or a profession.
By W8YIM
£1.05

BEGINNER'S GUIDE TO RADIO
For many years "Beginner's Guide to Radio" has been extremely popular as an introduction to the subject of radio and how it works. The many advances made in recent times have rendered a new edition necessary.
This seventh edition has been completely rewritten and brought up-to-date to take account of the latest developments and includes an outline of what is actually happening in electronic circuits. The book is very clearly written and is suitable for use by experienced and inexperienced readers alike. It covers every aspect of the modern radio scene, while including the important information necessary for the newcomer to the subject. The reader is guided from the principles of electricity and magnetism, through radio waves, modulation and radio components, including valves and transistors, to the principles of tuning and antenna design, and ending with full reproductions of the basic circuit to a very sophisticated 10-transistor communications Rx.
The purpose of this Handbook is to provide the all the information which the operator of a radio station may need about such matters as Country Prefixes, Call Sign Areas, Frequency Allocations, Standard Frequency Transmissions, Time Factors, Distance Tables, and so on. For the newcomer this manual enables him to find the basic answers he needs and to obtain the maximum pleasure from his hobby.
53p

TRANSISTOR FUNDAMENTALS Vol. 1
This book is carefully planned and programmed introduction to semiconductors and the basic electrical circuits. It begins with a brief description of the electronic theory of semiconductors and later chapters are an extensive and systematic exploration of transistor principles. Sandwiched between these chapters are discussions of amplification and the important Ohm's Law and Kirchhoff's laws. The book also looks at the more sophisticated topics of inductance, capacitance, and resistance in AC circuits.
£1.02

TRANSISTOR FUNDAMENTALS Vol. 2
This volume discusses transistors and how they are used in semiconductor circuits. It is aimed at those who are already familiar with the basic principles involved, and the more complicated circuits found in amplifiers and oscillators help to show how the basic operations are applied. Later, recent semiconductor developments are discussed. Detailed descriptions of new transistor devices are given and how they are being used.
£1.02

KNOW YOUR OSCILLOSCOPE
By W8YIM
The oscilloscope provides you with a "third eye" which lets you see what is actually happening in electronic circuits. But you must know something of the nature of this valuable instrument, and how to use it, before you can get the best results from it. This book will provide complete information on the circuits, functions, and applications of the oscilloscope in easy-to-understand language. Worthwhile reading for anyone who uses an oscilloscope ... a "must" for service technicians and students.
£1.80

PRACTICAL INTEGRATED CIRCUITS
This is the first British book to be published on micro-electronics for the amateur experimenter. With circuit diagrams, layouts and easy instructions, it shows how the various types of electronic devices using integrated circuits (lC's) which are now available at low cost from many component manufacturers. The book is aimed at the beginner and advanced student alike, and will be of interest to those who wish to understand the how and why of radio, whether it be for a hobby or a profession.
By A. J. L. Lytel
£1.05

HANDBOOK OF TRANSISTOR CIRCUITS
This is the latest edition of the popular book which has been completely rewritten and brought up-to-date to take account of the latest techniques and methods, and includes an outline of what is actually happening in electronic circuits. The book will be of interest to all who wish to understand the how and why of radio, whether it be for a hobby or a profession.
By A. J. L. Lytel
£1.05

PRACTICAL WIRELESS CIRCUITS
There are more than 50 different circuits detailed in this book. Transistor receivers, 22 in all, are from the simplest one-transistor circuit to a very sophisticated 10-transistor communications Rx. Valve receivers cover MW, SW and LW bands, and include preamplifiers, PA and Stereo. There is a chapter on transmitters and transceivers, and another on transmitter and receiver circuits for Model Control. Circuits for an array of receiver ranges of 250 kHz, from SSB receivers to a Comprehensive Multimeter, including a Portable Signal Meter (RF, AF and HF) also Fm Square-Wave Noise Generators. Among the special circuits are a recording level meter for tape recorders, an electronic photographic timer and a solar cell receiver. The first few simple circuits are accompanied by step-by-step instructions to enable the absolute beginner to gain enough experience with circuitry building to tackle the more complicated work.
£1.34

EASY TRANSISTOR PROJECTS
This book is for the electronic experimenter who is interested in developing projects that can be as simple as useful. Each project is provided with a carefully planned and easy-to-follow guide which tells you how to make the project. Many of the parts are salvaged from old radio and television chassis.
£1.01

SEMICONDUCTOR PROJECTS
Due to the rapid advances in semiconductor technology, many engineers and certainly most amateurs have found it impossible to keep track of the new devices that become available because of lack of readable information. This book introduces the reader to such outstandingly useful new devices as the field-effect transistor, unijunction transistors, silicon controlled-rectifiers, silicon planar transistors and integrated circuits, giving their properties and methods of application, with full constructional details of many exceptionally useful circuits.
£1.01

DELIVERY IS FROM STOCK.
Radio and Electronic HandBook

by G. R. Wilding

Technicians and service engineers in the radio and electronics industry require a considerable amount of data which is spread over many books. It is often difficult and time consuming to locate in a hurry. Students, however, who may have to study a whole series of subjects will find a condensation of such information, which gets down to the essentials, extremely useful. Radio & Electronic Handbook has been designed on this principle, on the one hand, as a reference book, and, on the other, a revision guide.

The intention has been to summarise basic electronics into four separate, easily assimilated sections, which will provide rapid reference to important principles, formulae and applications. These four main sections are: Direct current theory; Alternating current theory; Valve theory and applications; and Transistor and circuit theory and applications. Practical worked examples and circuits diagrams have also been utilised whenever necessary.

The concise presentation, which covers all the relevant ground, makes for easy learning and the book should prove invaluable for both practical and examination requirements. 149 pages including 84 diagrams.

QUESTIONS AND ANSWERS ON RADIO AND TV

3rd Edition

By H. Page

Curiosity is the keystone of learning. The man who “wants to know” has a far better chance of digesting and retaining information than the one who passes through a set subject simply because it has been put before him.

Hence the “Question and Answer” form of this little book. Wherever possible the questions have been arranged to follow the growth pattern of information. Questions arise from the previous answers. Thus it is evident that the book differs from a standard textbook in that subjects are not connected neatly into place; except that main chapter headings give a guide to the line of questioning. Moreover, the reader can treat these pages as bedside or benchside reading. The concise explanations of the terms in use should prove valuable to engineers, students, technicians, and to all whose work or interest requires them to understand modern telecommunication terminology.

The wide range of definitions, including many reproduced from, or based on, British Standards recommendations, is supplemented by appendices including units and abbreviations, wavelengths and frequency bands, and signal reporting codes.

The concise explanations of the terms in use should prove valuable to engineers, students, technicians, and to all whose work or interest requires them to understand modern telecommunication terminology.

The wide range of definitions, including many reproduced from, or based on, British Standards recommendations, is supplemented by appendices including units and abbreviations, wavelengths and frequency bands, and signal reporting codes.

The concise explanations of the terms in use should prove valuable to engineers, students, technicians, and to all whose work or interest requires them to understand modern telecommunication terminology.

The concise explanations of the terms in use should prove valuable to engineers, students, technicians, and to all whose work or interest requires them to understand modern telecommunication terminology.
WORLD RADIO/TV HANDBOOK 1973

The World's only complete reference guide to International Radio & Television Broadcasting Stations. It includes: Frequencies, time schedules, announcements, personnel, slogans, interval signals and much more besides of value to the listener.

Lists all International short-wave stations, including frequencies, for each country; foreign broadcasts, long and medium wave stations (AM broadcast Band), TV stations and domestic programmes. Long recognised as the established authority by broadcasters and listeners. It is only the publication that enables you to identify BC stations quickly and easily. Enables you to fill more pages in your log book on the SW BC bands and helps you add more BC-station QSL cards to your collection.

£3.00

(The above price includes postage and packing).

from:
SHORT WAVE MAGAZINE
55 Victoria Street, London, SWIH OHF

CALLBOOK

(1973)

The "Call Book" proper is now published only once a year, in December, in two parts, "U.S." and "DX Listings." Supplements to both editions appear at quarterly intervals, obtainable by prior order direct from the publishers.

We supply the "Call Book" as an annual publication, as required at any time during the year. We shall not be handling the quarterly supplements. These will be available only direct from the publishers.

This comprehensive reference lists about 300,000 licensed radio amateurs in the United States Directory and 160,000 or more in the rest of the world (contained in the "DX Section"). In the U.S. Section, license classifications are shown with revised listings of new licences, names and addresses. The CALLBOOK also includes much incidental DX information._Every amateur operator and SWL needs the CALLBOOK to get the most out of Amateur Radio.

DX Listings £2.95 U.S. Listings £3.75

The above prices include postage and packing.

Your order to:
Publications Dept.,
SHORT WAVE MAGAZINE
55 Victoria Street, London, SWIH OHF
01-222 5341