

JULY
1975

THIRTY PENCE

Vol. XXXIII
No. 5

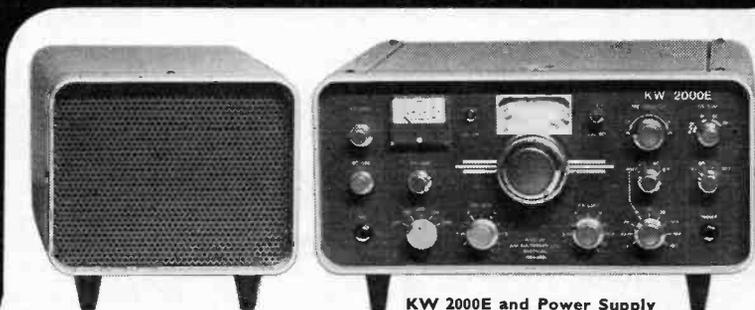
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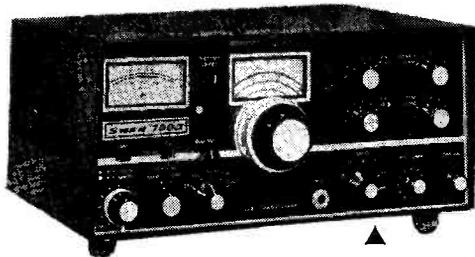
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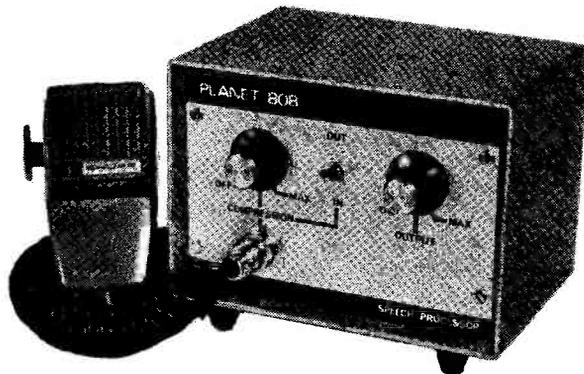
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70/1/2 70 MHz 1/2 wave £3.00	BGA, 144 MHz, 1/2 wave £6.60	Magnetic mount £7.80
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12AVQ, 10-20m. vert. £25.00	TH6DX, 10-20m. 6 ele.	Hy-Quad, 10-20m. 2 ele.	103BA, 10m. 3 ele. beam
14AVT, 10-40m. vert. £36.00	beam £119.00	DB80-15 10-15m. 3 ele....	LAJ Lightning arrester
18AVT, 10-80m. vert. £52.00	TH3MK3, 10-20m. 3 ele.	204BA, 20m. 4 ele. beam	LA2 Lightning arrester
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RM10 10m. Resonator £5.00	RM80 80m. Resonator £8.00	QD1 Quick dis-connect	£6.50		
RM15 15m. Resonator £5.55	C32 Ball mount £2.00				

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 (b) We are the only YAESU APPOINTED DISTRIBUTOR with an elaborately equipped Service Department of our own, which includes a Hewlett Packard 85 Series Spectrum Analyser (to check your SB and carrier suppression, harmonics up to 1300 MHz, and spuri, etc.). Deviation Meter (to set the deviation of all FM equipments prior to sale), Marconi calibrated signal generator (down to 0.1 microvolt) to check that your receiver is up to standard. If you have purchased your equipment elsewhere, we can collect by Securicor, and service it for you at our normal service rates.
 (c) We were first in the field with the YAESU brand name (see August 1970 ad.), so have the experience and,
 (d) We have a fine staff with vast experience in servicing; no "long haired lads" will be allowed loose on your equipment down here!

We are pleased to announce that we have A NEW ADDITION TO THE TEAM AT WESTERN:

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CATALOGUE. We will be pleased to send you a copy of our COMMUNICATIONS EQUIPMENT catalogue (25p) or TOWERS, ANTENNAS and ROTORS catalogue (25p). No SAE required.

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MAGNUM TWO AND FOUR METRE TRANSVERTERS

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All power requirements are taken from the accessory sockets of the HF transceiver as in the YAESU MUSEN or SOMMERKAMP range, or with very simple modifications to most other gear, either transceivers or separates. If any details on modifications are required please do not hesitate to contact us.

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It has been our experience in industrial electronics that printed circuits, when used in valve circuitry, prove to be unreliable in many cases and because of this we have chosen to "Hand wire" the RF section of the transverter. In doing this, we are confident that it improves the stability and reliability factor of our product.

SPECIFICATION

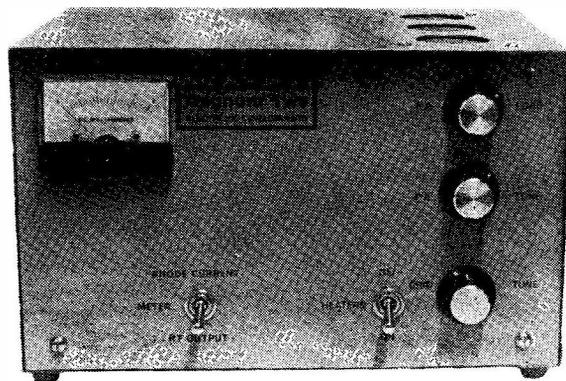
Modes : CW, SSB, AM and FM.
 Input Drive : Typically $\frac{1}{2}$ Watt RMS.
 Output Power : Minimum of 50% efficiency.
 Typically when used with FT 200, 90–100 Watts SSB output.

SIZE

10" x 6" x 7".

No special cooling required.

Our transverters are constructed for good mechanical stability, while providing adequate ventilation.



AGENTS

STEPHEN-JAMES — LIVERPOOL

S.M.C. — SOUTHAMPTON

CRAYFORD ELECTRONICS — KENT

PRICE

£87.96 Plus VAT

Including all valves, relays and power lead to transceiver. If you already have an M.M. converter in good condition we are prepared to give a generous allowance and use it in the Transverter.

GUARANTEE

12 MONTH UNCONDITIONAL GUARANTEE, but we exclude from this the PA valve, which is covered by the manufacturers own guarantee for 3 months.

For users of the LINER TWO, TRIO, or in fact any low power 2m. TRANSCEIVER, we are now producing a Linear Amplifier/Receiver Preamp.

This unit is entirely self-contained, operating off AC mains and provides a stabilised low voltage supply to operate the transceiver.

SPECIFICATIONS

Up to 100 Watts SSB output.
 Self-contained power supply.
 Microwave Modules receive PREAMP.
 Full input and output relay switching.
 PRICE : £82.97 Plus VAT

70 Cm. LINEAR

Compatible with the M.M. Transverter
 Drive required—Up to 5 watts Rms.
 Output 50 Watts.
 PRICE : £36.57 Plus VAT. Complete with valve and power lead.

ELECTRONIC DEVELOPMENTS

22 BARNMEADOW ROAD, GATEACRE, LIVERPOOL, L25 4UG

Telephone: 051-428 5916

LOWE ELECTRONICS

THE LATEST GO ANYWHERE H.F. BAND TRANSCEIVER — THE
TRIO TS520



OBTAINABLE
ONLY FROM

**LOWE
ELECTRONICS**

The TS520—latest in the new TRIO line of superior amateur radio equipment. Its styling and finish put all the other rigs in the shade; and it's not just pretty—the front panel is a die casting giving unheard of strength and stability.

All semiconductor except for drive and PA, the TS520 is at home mobile, portable or fixed station thanks to built-in AC power supply and 12v. inverter. Blower cooled 6146's for long long life and exceptional linearity.

*TRIO exclusive. Built-in speech compression for that extra DX punch—without distortion, due to amplified ALC system.

See it soon, or drop us a line for details.

AND A FEW OF THE REASONS WHY YOU WILL WANT TO OWN IT :—

- Built-in AC power supply
- Built-in 12 volt DC power supply
- Built-in VOX with adjustable gain, delay and anti VOX
- 1 kHz dial readout
- Ultra stable FET linear VFO
- Built-in noise blanker
- Built-in RIT circuit and RIT indicator light.
- 8 pole crystal filter
- Built-in 25 kHz crystal calibrator
- Provisions for optional CW filter
- Break-in CW with sidetone
- Completely solid state except final section.
- Compact, low current, reliable, with heater switch for mobile receive-only operation
- Built-in cooling fan
- Accessory external VFO and accessory external speaker
- Built-in speaker

- Modern styling and functional design .
- Modular construction
- Amplified ALC
- TUNE position increases tube life
- Maximum TVI protection
- Built-in fixed channel operation (4 channels) with indicator light
- Provisions for use with a VHF transverter
- Full metering
- Selectable SSB
- Selectable AGC operation for different modes
- VFO indicator light
- Built-in selectable ALC action for speech processing
- Carrying handle
- Rugged 6146 type final tubes
- Internal cross-channel operation
- Push button WWV reception

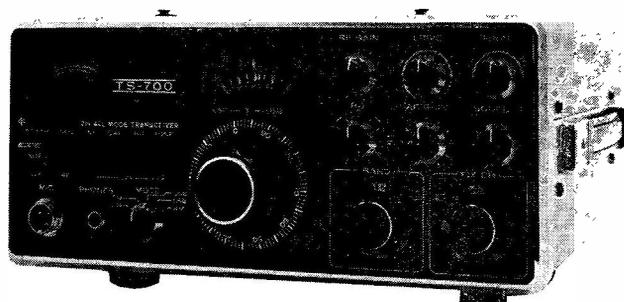
PRICE **£290** (VAT exc.)

MATCHING 2M. TRANSVERTER TV502 **£100** (VAT exc.)

SEE YOU ALL AT LONGLEAT, WOBURN AND DERBY RALLIES

LOWE ELECTRONICS

COMMAND THE BAND — ANY FREQUENCY — ANY MODE WITH THE
TRIO TS 700



OBTAINABLE
ONLY FROM

**LOWE
ELECTRONICS**

BRIEF SPECIFICATION

FULL VFO COVERAGE OF 2 METRES. 144–146 MHz

ALL MODE OPERATION AM, FM, USB, LSB, CW

POWER OUTPUT 10w. MINIMUM

DUAL POWER SUPPLY 240/120v. AC 50/60Hz AND 12–16v. DC

It is obvious from the basic specification that the TRIO TS700 is a totally new concept in 2 metre amateur gear. What is not obvious are the reasons why the TS700 is the finest 2 metre transceiver available today. For example:—

- (1) The AM transmission (and the TS700 is the only medium priced rig to offer AM) is true double sideband, and *not* SSB with re-inserted carrier.
- (2) The PA and driver transistors have been chosen for optimum linearity in all modes. Both driver and PA run from a 20v. supply to set a new standard in low intermodulation distortion for semiconductors. The 20v. is derived from a TRIO patented DC inverter which runs even when using the 12v. DC input.
- (3) No more drifting repeater access tones. The TS700 employs a miniature tuning fork oscillator which is incredibly stable. Another TRIO exclusive feature.
- (4) Automatic repeater shift (600 kHz) built in as standard—no accessory crystals to buy. Repeater shift is operational in either VFO or crystal control modes.
- (5) Dual ratio gearbox giving 25 kHz/TURN *and* 100 kHz/TURN means rapid tuning across the band together with superb bandspread for those weak SSB signals.
- (6) Front panel one knob tuning of all 2 metre tuned circuits for transmitter *and* receiver gives optimum gain and low spurious outputs. No broadband compromises in TRIO equipment.

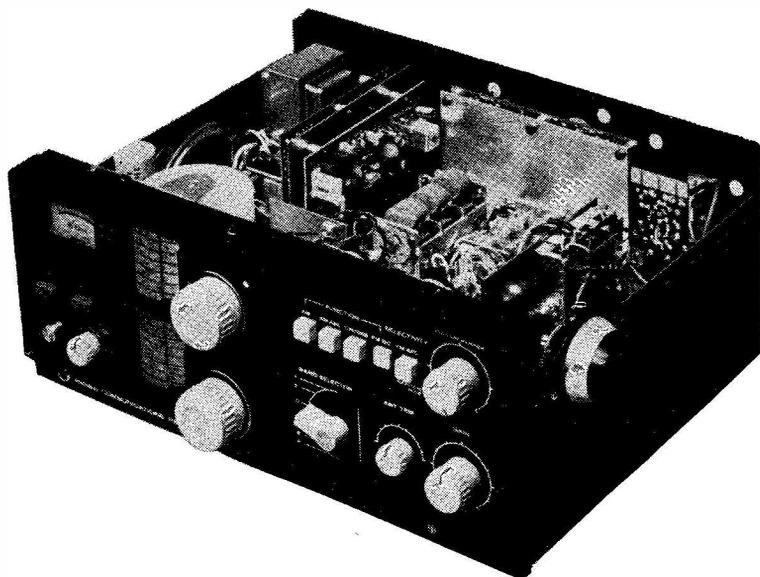
There is so much more to say about the TS700—why not call us if you want more detail. We will be happy to send a complete specification on request.

Remember, you *must* see and try out the TS700 before considering any other 2 metre transceiver. There is really no comparison.

PRICE **£300** (VAT exc.)

ALL PRODUCTS PREVIOUSLY ADVERTISED ARE STILL AVAILABLE
SEND 20p FOR POSTAGE AND RECEIVE FULL CATALOGUES

LOWE ELECTRONICS



QR666

QR666 SPECIFICATION

FREQUENCY COVERAGE...	...	...	...	...	170—410 kHz	3 — 7.5 MHz
					525—1250 kHz	7.5—18 MHz
					1.25—3.0 MHz	18 —30 MHz (Dual Conversion)
BANDSPREAD	...	...	...	...	3.5— 4 MHz	21—21.5 MHz } Dual Conversion
					7 —7.5 MHz	28—30 MHz }
					14—14.6 MHz	
MODES	...	...	...	...	AM, USB, LSB, CW	
SELECTIVITY	...	...	...	...	Selectable 2.5 kHz/5 kHz at 6 dB	
ANTENNA IMPEDANCE	...	...	...	...	50—100Ω	
SENSITIVITY	...	...	...	...	1μV for 10dB S/N ratio (SSB/CW)	
AF OUTPUT	...	...	...	...	Greater than 1.5W. into 8Ω. Internal speaker fitted	
POWER SUPPLY	...	...	...	...	100/117/220/240v. A.C. 50/60 Hz.	
					External 12v. negative ground	
					Internal 12v. batteries	
					Automatic change-over to internal supply if external supply fails	
DIMENSIONS (mm)	...	...	...	...	362 wide x 163 high x 322 deep	
WEIGHT	...	...	...	...	7.3 kg (16.09 lbs.)	

PRICE : £130 (VAT exc.)

NATTER NET

Following the announcement of yet another "new" band plan, we can all clearly see the need for flexibility in operating on the VHF bands. The ultimate flexibility will be guaranteed by following the all new Matlock Elastic Band Plan and we list here some of the basic requirements for SSB operation under this plan.

All SSB transceivers must be used with the R.I.T. control switched on and offset by 2.5 kHz. This will ensure that operators will chase each other up and down the band thus giving the impression that activity is high. This system will also remove the need for a calling channel since all one has to do is wait on any convenient frequency and before long a QSO will hop by and can be latched on to.

The existing calling channel will thus be freed for use as a contest frequency. The contest will take the form of seeing how many simultaneous QSO's can be carried out on the same frequency. G3PCY and G3ZCY are currently leading the table with their totals of 57 stations all talking at the same time!

This achievement will be printed in the 1976 Guinness book of records and will take some beating.

As well as the legal requirement to give one's call sign at regular intervals, a new regulation calls for each net to change frequency by 20 kHz every two minutes. This will mean that the meandering monologist will find that after his twenty minute non stop chat, he will have been talking to himself for eighteen and the rest of the party will be on some other frequency.

All CQ calls must be continued for 15—20 minutes non stop and will contain no reference to either location or beam heading. This will lend a touch of excitement to the listener's life and add to his DF experience. It will also guarantee a rapid turnover in rotator spares due to premature wearing out of bearings, etc.

Use of a disguised voice, either by using an incorrect regional accent or, better still, a combination of speech processing and a touch of overdriving will make the QRA hunt even more difficult.

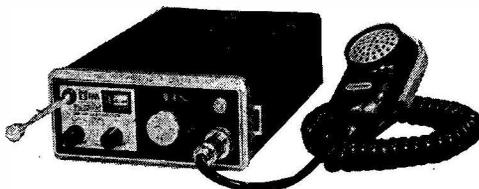
More details will follow in due course unless:

- I'm arrested or
- I'm set upon by rabid band planners.

LOWE ELECTRONICS



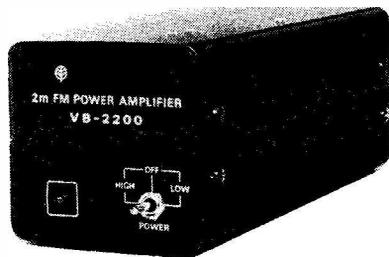
TR2200G



This little powerhouse is now the world's fastest selling two metre FM transceiver. Unbeatable at any price, its combination of rugged reliability and high sensitivity give it universal appeal. Now that more and more repeaters are opening, the TR2200G allows the operator to work over long distances with ease—we can often work GB3PI from Matlock using the whip antenna on the TR2200G.

The rig comes complete with carrying case, shoulder strap, microphone, Nicad charger, two battery carriers and fitted with three channels (S20, S22 and R7 normally but alternatives supplied to your choice). Facilities for 12 channels and incorporating Trio's unique tuning fork repeater access tone generator.

If you hanker after mobile working from your car, the VB2200 amplifier is a marvellous addition. This superb amplifier comes complete with a carrying cradle for the TR2200G and boosts the power output from 1W to 10W. The amplifier is automatically switched by a RF VOX system and also supplies regulated D.C. for the TR2200G.



Together, the TR2200G and VB2200 give you portable *and* mobile operation but the real bonus comes when you add together the prices and come out with **£109.00** (VAT excl.). This is cheaper than any normal FM transceiver and is the finest value on the market today.

VB2200 £29 (VAT exc.)

TR2200G £80 (VAT exc.)

HEAD OFFICE

119 Cavendish Road, Matlock, Derbyshire. Tel. 2817 or 2430 (9 a.m.-9 p.m.)
Telex 377482 (any time)

BRANCH OFFICES

Goring Road, Steyning, Sussex. Tel. Steyning 814466
Soho House, 362-4 Soho Road, Handsworth, Birmingham. Tel. 021-554 0708

AGENTS

Alan GW3YSA, 35 Pen-Y-Waun, Efail Isaf, Nr. Pontypridd. Tel. Newton Llantwit 3809
John G3JYG, 16 Harvard Road, Ringmer, Lewes, Sussex. Tel. Ringmer 812071
Sim GM3SAN, 19 Ellismuir Road, Baillieston, Nr. Glasgow. Tel. 041-771 0364

OPEN 9.00 — 5.30 TUESDAY TO SATURDAY INCLUSIVE

THANET ELECTRONICS

PAUL
G3VJF

DAVE
G8ELP



IC-22A

An old friend in a new box . . . but with 5 or 8 channels fitted !

The very popular IC-22 has had a face lift to smarten it up a bit. The dial knob has been moved to the left and re-designed to give clearer channel indication, and the knobs, switches and S-meter have been re-positioned and re-shaped to give a modern smart appearance. The important bit of the set, i.e. the works, have hardly been changed at all. The only main alterations being a change in the front end transistor and a re-designed squelch circuit. Thus the 22A will be in every way as good as the old faithful IC-22 and have the same excellent speech clipping for optimum readability both direct and via repeaters. The same highly sensitive receiver with slight improvements in the squelch circuit will give excellent results ensuring that you have the best chance of hearing stations that can hear you. We supply free of charge an automatic tone burst which operates only on repeater channels. Channels fitted are 145, S20, S21, S22 and S23 for £115 + VAT plus the option of three repeater channels or two repeater channels and S24 for £125 + VAT. You will have noticed that this works out cheaper than a similar number of channels fitted in an IC-22. This is our bit towards helping to soften the Chancellor's blow! Extra channels up to the full complement of 22 can be supplied for a further £4.00 + VAT per channel.

IC-22A BRIEF SPECIFICATION

Frequency coverage : 144-146 MHz 22 channel capacity.
Power requirements : 13.8v. DC \pm 15% neg. ground.
Consumption : Transmit 2.1A, Receive 180mA.
Size : 2 9/32" x 6 1/2" x 8 1/2" (58 x 156 x 216mm.)

Receiver

Sensitivity : 0.4uV for 20 dB quieting.
IFs : 10.7 MHz and 455 kHz.
Bandwidth : \pm 8 kHz (-6 dB) \pm 15 kHz (-50 dB)
Spurious response : -60 dB or less.
Crystal frequency : 14 MHz.

Accessories supplied :

Microphone
DC Power cord
Versatile mobile mounting harness
Spare fuse, etc.

Transmitter

Power output : $\frac{1}{2}$ or 10 watts switchable.
Modulation : Variable reactance phase mod with clipping.
Deviation : Adjustable 3-16 kHz (we set to 4.5 kHz).
Spurious output : 60dB or less.
Crystal frequency : 18 MHz.

OTHER LINES FROM THANET

- IC-3PA DC PSU and speaker. Fitted with Automatic overload protection. Mounting harness to hold IC-22, IC-22A, IC-225 or IC-20, £35.00 + VAT.
PL-VI External VFO for the IC-210 or IC-225, £42.00 + VAT.
21-VFO External receiver VFO for the IC-21, IC-21A, IC-22 or IC-22A, £42 + VAT.
Crystals for IC-20, IC-22, IC-22A, IC-2F, IC-320 or IC-31, £4 + VAT per pair.
Crystals for IC-225 or IC-210—reverse repeater or special channels, £3 + VAT.
FT-501 Digital HF Transceiver bargain at £415 INCLUDING VAT AND PSU.
IC-225 80 channel Mobile transceiver—fitted 80 channels, £195 + VAT.
IC-210 FM main station. Fully VFO (see previous adverts), £200 + VAT.
IC-21A Updated version of the IC-21—takes the DV-21 direct, £178 + VAT.
DV-21 Digital frequency synthesiser VFO for IC-21A, IC-21, IC-22, IC-22A (the last three rigs need modification), £172 + VAT.
IC-320 UHF MOBILE TRANSCEIVER. 12 channel capability, fitted with 4 channels including 433.2 MHz. 10 watts out. Ideal for UHF repeaters, £169 + VAT.
IC-31 Base station version of the IC-320, £220 + VAT.



THANET ELECTRONICS



Note our temporary change of address during alterations

34 CLIFF AVENUE, HERNE BAY, KENT (02273) 63846

AGENTS

(by appointment evenings and weekends only)

NORTH

PETER AVILL, G3TPX,
7 Moorland Crescent,
Mapplewell, BARNSELY, Yorks.
Telephone : DARTON (022 678) 2517

LONDON

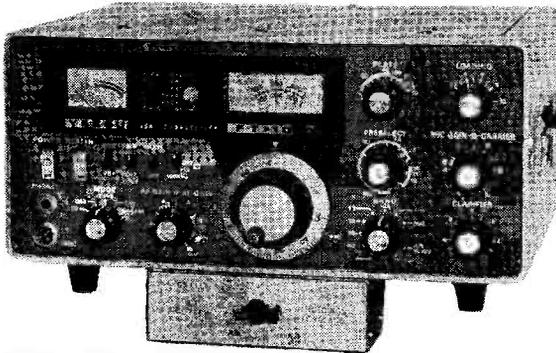
TERRY BARNETT, G8BAM,
7 Cochrane Court,
Leyton Grange,
LONDON E10. Telephone : 01-556 9366



South Midlands Communications Ltd.



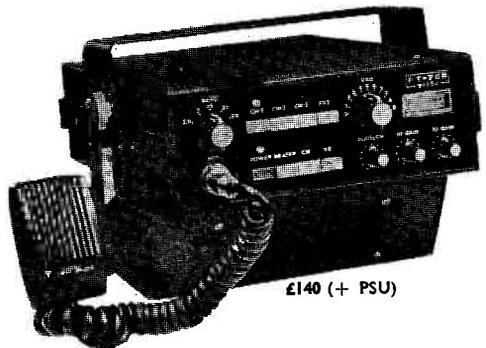
THE FT101B



This de-luxe wireless is the descendant of the world famous FT-101 transceiver. Except for the drive and final amplifier stage, the FT-101B features all Solid State circuitry built on reliable and serviceable "computer type" plug in modules. The 101B is contained in a compact 30lb. package designed to go anywhere. All that is needed for instant "on the air" operation from 160 through to 10m. is either 12v. DC or 100-234v. AC and of course an antenna.

FT101B £330 RF CLIPPER £45

The FT75B is a higher power replacement (120W P.I.P.) of the FT75 the unit which along with the 101 has been responsible for the upsurge in HF mobile operation around the world. On bands 80 through to 10 there are 3 VXO controlled crystal channels as well as provision for external VFO operation. The FT75B is all solid state except the final and driver stages. Included is an excellent noise blanker and squelch circuit for quiet channel monitoring. Accessories include the FV50C VFO at £35-00, the VC75 microphone compressor and VOX at £18 and the FT75B AC power supply at £35, and the DC75B at £40 illustrated right.



£140 (+ PSU)



The FT224 is an advanced Solid State transceiver featuring 10W output with a 23 channel flexibility (excluding priority channel) all on one complete package. The FT224 includes a built-in tone burst for repeater actuation. Automatic high VSWR protection of the final transistor and reverse power line polarity protection are included. The wireless comes complete with built-in speaker, mobile mounting brackets and dynamic microphone. S.M.C. models come fitted with 145-00, 145-50 and 145-55 MHz as standard.

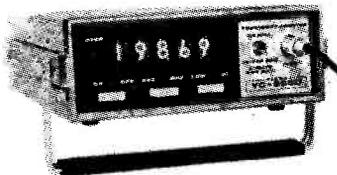
FT2AUTO

The FT2AUTO is a unique concept in 2 metres FM transceiver. The "Auto scan" circuit monitors in turn each of the 8 channels every third of a second and automatically locks upon receipt of a signal. Push buttons enable elimination of undesired or occupied channels, on Auto-mode, or selection of that frequency on manual mode. A priority circuit may be activated to check your local net or RAEN frequency every two seconds. To transmit on a channel being received a momentary pressing of the P.T.T. locks the transmitter to the receiver. Separate TX and RX crystals allows duplex operation, switchable tone burst, squelch, built-in mains and 12v. P.S.U. and microphone provided.



FT2AUTO A
FT2AUTO B

YC355D



YC355 £104
YC355D £125

The YC355 series counters are available in two models. The base counts to 35 MHz and the "D" to 200 or over. The YC355D outlines the advanced IC techniques and the dual range system provides an accurate 8 digit readout using only 5 tubes but of course minimum cost with maximum performance. Built-in AC and DC power supplies enable complete portability and double sided epoxy circuit boards ensures reliable operation for years to come.

SOUTH MIDLANDS COMMUNICATIONS LTD.

SMC — A MEMBER OF THE ARRA
OSBORNE ROAD, TOTTON,
SOUTHAMPTON, SO4 4DN.

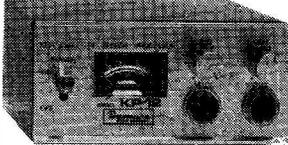
Hours of Business: 9-5.30, 9-12.30 Saturday
Telex: Chamcom 47388 Aerial SMC
Cable: "Aerial Southampton"
Telephone: (04216) 4930 or 2785

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Droitwich (09057) 4310
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HOWARTH JONES, GW3TMP
Pontybodkin (033 287) 046
PETER AVILL, G3TPX
Darton (022 678) 2517



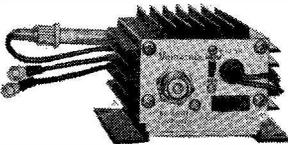
SOUTH MIDLANDS

RF SPEECH PROCESSOR KP12



£44 Ex Stock
Audio to audio, via 10.07 MHz mains powered, illuminated meter, FT-101, FT2 plugs suitable all phone modes (superb on FM).

144 MHz LINEARS RFL



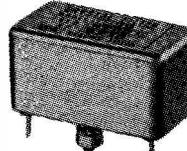
144 MHz LINEARS RFL NEW MODELS
RF sensing, switchable drop out time, SSB, AM, FM, CW, 12v. DC 10W drive.
Available mid June
RFA-10-100-HBX (801) **£75.00**
RFA-10-150-HBX (901) **£95.00**

READOUT UNIT FOR FT-101, etc. DDI



£110 Digital readout to ± 100 Hz for your FT-101(B), FT40(B), etc. 21 IC's 76 diodes provide a most worthwhile accessory.

9MHz SSB FILTERS YF90/F/S



(P. and P. 37p) Ex Stock
2.4 kHz, 6 pole, each individually supplied with ± 6 dB, 25 dB, 60dB bandwidths, ripple factor and insertion loss. Carrier crystals in HC18/U. Filter **£11.00**. Crystals **£1.50** ea.

CRYSTALS Low prices from stock (insured p. and p. 37p) + VAT

FT2F (52 MHz Rx 6 MHz Tx) £3.50 pair, £2.00 each
144 (-15, -25, -36, -40, -48T, -60R, -70T)
145 (-00R, -05T, -08, -09, -10R, -125T, -40, -425, -65R, -68R, -75T, -80)
S20T, S21R, S22T, S23, S24, R3, R4, R5, R6, R7
FT2FB (14 MHz Rx 18 MHz Tx) £3.50 pair £2.00 each
144 (-15R, -20R, -30, -36, -40R, -60)
145 (-05, -09, -125R, -20R, -32, -40, -44T, -51, -84, -90)
S20, S21, S22, S23, S24, R3, R4, R5, R6, R7.
CR26MB/CI46A (All £3.50 pair £2.00 each)
144-2R, S20, S21, S22T, S23, S24.
FT220 Channel crystals £2.20 each
8 (00, -125, -15, -175, -225, -25, -275, -50, -575)
Multi 7/8 Trio 2200 (3.50 pair, £2.00 each)
R6

C430 (£3.50 pair £2.00 each)
433 (-10, -15, -20)
12 MHz HC6/U and HC25/U
144-58, S0, S18, S20, S21, S22, S23
8 MHz HC25/U
144-48, S20, S21, S22, S23, S24
PYE CAMBRIDGE, etc. (52 MHz, HC6/U)
R6 and R7 req.
SPECIAL OFFER (for MORSEMENT)
144-125T, 12 MHz HC25/U only **£1.00**.
SUB STANDARDS
100 kHz HC13/U 1 MHz HC6/U

CRYSTALS TO ORDER 6/8 WEEKS DELIVERY
Telephone: 04216 4930 for best prices.

THE HANDHELD — THE KP202

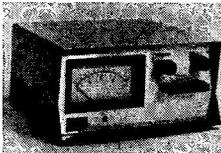
Supplied with six of the most useful channels (S0, S20 and S21, S22, R5, R6 and R7), (save £25). Two watts of RF, and $\frac{1}{2}$ watt of audio make this, with its immunity to image problems, and IF breakthrough, undoubtedly the best buy today, **£75.00 + VAT 25%**.
The KP202 is supplied complete with telescopic whip, leather handle/whip case, and "H" type coax connector.
Accessories include internal tone burst unit (**£5.50**), flexible stubby helical antenna (**£4.25**), leather case (**£3.75**), spare F connectors (**25p**), spare telescopic whips (**£1.70**), F to UHF adaptors (**95p**), set of 10 ni cads (**£8.50**), battery charger (base master), (**£8.80**), spare battery hods, etc., etc. All + VAT.

No FM Group member should be seen at a meeting without one

MAGNUM TWO TRANSVERTER (Electronic Developments)
Uses H.P. Transceivers P.S.U. and $\frac{1}{2}$ watt on 28 MHz for up to 100w. output. Supplied complete with relays and 1-1 pin plug for instant operation. Microwave Modules receiver converter

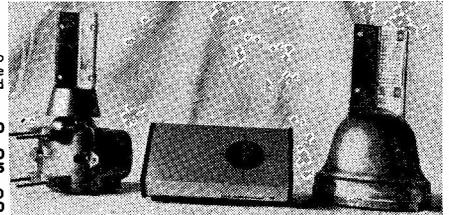
BELCOM LINER TWO, 12v. DC for 10W P.E.P. on Two. Coverage of 240 kHz in 24, 10 kHz. VXO channels. Preamp for Liner II, £3.75 (+ 25%) **£145.00**

CDE ROTATORS EX STOCK (IN TOTTON) FOR FAST DELIVERY



Carriage (B.R.S.) free Securicor delivery 60p extra. All rotators supplied complete with appropriate control box and instructions.

AR30 for Stereo and small VHF beams ... £25.00
AR40 for Medium VHF Small HF beams ... £30.00
AR33 de luxe version of AR40 ... £36.75
CD44 for large VHF, medium HF band ... £60.00
Ham II for large arrays ... £90.00
Control Cable:
5 core for AR30/40 at 18p/m.
8 core for CD44/HII at 26p/m.



THE NEW SILENT CONTROL WITH AN AR30 and AR40

THE NEW CONTROL UNIT FOR THE CD44 AND HAM 2

MICROWAVE MODULES (all 28-30 MHz I.F. others to order) (P. and P. 37p) + 8%

70 MHz Converter ... **£15.20** 144 MHz Converter ... **£15.20** 144 MHz Pre Amp 2 outs **£9.00** 432 MHz Transverter **£62.00**
70 MHz Conv'r + LO **£16.30** 144 MHz Conv'r + LO **£16.30** 432 MHz Converter ... **£18.10** 1296 MHz Converter ... **£24.00**

SECOND HAND/SHOP SOILED LIST (Telephone: 04216 4930 for latest)

EDDYSTONE EC10 M.k1 I (AC and DC) ... £80.00	YAESU FT501 and FP501 ... £335.00 FL50B ... £60.00 FR50B ... £75.00 FT101 Mk. I ... £210.00	2000E ... £295.00 KV105 ... £40.00	TRIO 9R5PDS ... £42.50 Carriage by Securicor £1.30 for any item under £40.00 . Weight permitting. Warranty guarantee for 3 months. VAT 25% extra
HEATHKIT SB102 ... £250.00 DX35 + VFO (as seen) ... £15.00	KW 2000B ... £180.00	CODAR AT5 (AC and DC) ... £25.00	INOUE VFO for IC21 ... tba

PLEASE NOTE — THESE PRICES DO NOT INCLUDE VAT 25% or 8%

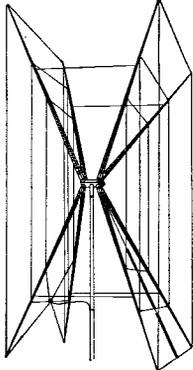
Terms:—Cash with order or credit card holders just 'phone in for, if possible, same day despatch. Immediate H.P. available for card owners for amounts up to £150.00. Holders of current U.K. callsigns (where references have been provided) can be speedily cleared, or normal H.P. at competitive rates is available.



COMMUNICATIONS LTD.



ANTENNAS, TOWERS, MASTS, COAX, Etc.



GEM QUAD

for 10, 15 & 20m.

- ★ Weighs only 21 lbs.
- ★ Withstands 100 mph winds.
- ★ Forward gain up to 8 dB
- ★ Balun included.
- ★ Converts to 3 or 4 ele. quad.
- ★ Fibreglass tri-rectic spreaders.
- ★ Front/back radio 25dB.
- ★ Low angle radiation.

(Carriage extra)

HAMTOWERS (Carriage extra)

Galvanised lattice 10ft. sections 30ft. height with climbing steps on one face. From : £105-90

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Galvanised steel Telescopic 10ft. section with or without rigging:
 30ft.—£15-00 40ft.—£20-00 50ft.—£25-00
 With rigging kits :
 30ft.—£29-00 40ft.—£39-00 50ft.—£49-00
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VAT ON ALL MASTS 8%

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18V 10-80m. Loaded Vertical	£18-00	TH3 Jnr. 10-20m. 3 element	£74-00	DB24B 20m. 3 ele. 40m. 2 ele.	£142-00
12AVO 10-20m. Trapped Vertical	£25-00	TH3MK III 10-20m. 3 element	£99-90	402BA 40m. 2 element	£121-00
14AVO 10-40m. Trapped Vertical	£36-00	TH6DX 10-20m. 6 ele. total	£109-00	204BA 20m. 4 element	£96-00
18AVT 10-80m. Trapped Vertical	£52-00	Hy Quad 10-20m. 3 element	£99-60	203BA 20m. 3 element	£80-00
BN86 1 : 1 Balun	£9-50	LA1 Lightning arrester	£17-50	153BA 15m. 3 element	£44-00
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Trapped dipole standard 10-80m. (S) £16-85 High Power version of S (HP) £18-75 Portable version of S (P) £19-50

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FOUR METRES	4Y/4M 4 element ... £6-80	TWO METRES	5Y/2YM 5 ele. crossed £8-20	TWO METRES	5Y/2M 5 ele. Yagi ... £4-30	PBM18/70 18 ele. Para-1 beam ... £10-50	
PMH2/4 2 way harness	£5-30	8XY/2M 8 ele. crossed	£10-20	8Y/2M 8 ele. Yagi ...	£5-60	MBM46/70 46 ele. Multi-beam ... £12-10	
BEARINGS	RZ100 Alignment bearing	10XY/2M 10 ele. crossed	£14-10	10Y/2M 10 ele. long Yagi	£11-00	MBM68/70 68 ele. Multi-beam ... £16-10	
COUPLERS	JBL15/59 24 Jointing sleeve	DS/2M 5 over 5 slot ...	£7-92	14Y/2M 14 ele. long Yagi	£14-20	PMH2/70 2 way harness	£3-30
	£1-85	DB/2M 8 over 8 slot ...	£10-50	PHM2/2M 2 way harness	£3-95	PMH4/70 4 way harness	£3-85
		PBM14/2M 14 ele. Para-beam	£16-90	PMH/2C Circular phasing	£2-85		
				70 CENTIMETRES	DB/70 8 over 8 slot ...		
					£9-00		

MOSLEY TRI BAND (10-15-20m.) BEAMS (Carriage £1-75) + VAT 25%
 TA33 Jnr. E 3 ele. 200W RMS £53-00
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 75 ohm UR57 ... 33p/m. 75 ohm Economy ... 10p/m. 300 ohm Ribbon ... 6p/m. 50 ohm UR43/UR76 ... 15p/m.

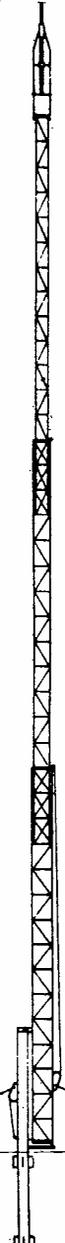
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FR101D 160-2m. tc. 240v./12v.	£330.00	(n/c)
SP101 matching speaker	£13.00	(£1.00)
FV101 remote vfo	£48.00	(£1.00)
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SP401 matching speaker	...	(£1.00)
FT200 80-10m. transceiver	£170.00	(n/c)
FP200 matching spkr./AC supply	£45.00	(£1.00)
FT220 2m. SSB/FM tcvr. 240/12v.	£264.00	(n/c)
FT224 2m. FM tcvr. 24ch. cone-burst	...	(n/c)
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5Y/2m. 5 element yagi	£5.38	(75p)
8Y/2m. 8 element yagi	£7.00	(75p)
10Y/2m. 10 element yagi	£13.75	(£1.00)
PBM14/2m. parabeam	£21.12	(£1.25)
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D8/2m. slot fed yagi	£13.12	(£1.00)
5XV/2m. 5 el. crossed yagi	£10.25	(£1.00)
8XV/2m. 8 element crossed yagi	£12.75	(£1.00)
10XY/2m. 10 el. crossed yagi	£17.63	(£1.50)
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PBM18/70cm. parabeam	£13.12	(£1.00)
MBM46/70cm. 46 el. yagi	£13.12	(£1.25)
MBM68/70cm. 68 el. yagi	£20.12	(£1.50)
12XY/70cm. 12 el. crossed yagi	£20.88	(£1.00)

Full range of phasing harnesses and brackets in stock. S.A.E. for catalogue.

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C4 vertical 10-15-20	£

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14AVQ 10-40m. vertical	£45.00	(£1.00)
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TH3 inr. 60W. 3 element beam	£92.50	(£1.50)
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2 METRE SSB (inc. VAT)

Liner-2 2m. ssb transceiver	£181.25	(n/c)
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QR666 receiver 160-10m. plus general coverage 230v./12v.	£162.50	(n/c)
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2m. FM 6 channel receiver complete with all channels fitted	£36.19	(50p)
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KEN KP202 handi-talki 2 metre fm transceiver, 6 channels with 145 and 145.5 fitted. Over 2 watts output. Highest powered model on the market with very good audio	£93.75	(50p)
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Tone burst option available plus leather case, helical whip, nic-ads and base charger.

ONE BURST MODULES

Dual 1700 and 1750 Hz o/p.	£4.60	(25p)
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Ham H	£112.50	(£1.50)
Stolle 2010	£40.62	(£1.00)
Stolle 2030	£45.95	(£1.00)
5 core control cable	yd.	18p

AERIAL FEEDERS

50 ohm UR43	yd.	18p	(1p)
50 ohm UR67/RG8U	yd.	36p	(2p)
75 ohm standard	yd.	10p	(1p)
75 ohm UHF low loss	yd.	14p	(1p)
300 ohm feeder	yd.	8p	(1p)

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NEW 1 70 cm. transverter	£75.55	(50p)
2m. converters 2-4/4-6/28-30	£19.00	(25p)
4m. converters 28-28.7	£19.00	(25p)
70cm. converters 28-30/144-146	£22.63	(25p)
2m. dual o/p pre amp.	£11.25	(25p)
1296 MHz converters 28-20	£29.99	(25p)
2m. converter 28-30/116 osc. o/p	£17.60	(25p)

SOLID STATE MODULES

2m. or 4m. Europa B	£101.85	(£1.00)
As above less valves	£85.65	(£1.00)
Matching power supply	£39.35	(£1.00)
2m. converter 2-4/4-6/28-30	£18.75	(25p)
70 cm. converter 144-146	£18.75	(25p)
2m. pre amp.	£8.52	(25p)
PA3 compact pre amp	£8.88	(25p)
70 cm. pre amp	£11.25	(25p)

It seems the word has got round that our recently introduced TECHNICAL ASSOCIATES speech processor is not just another "black box." Many of you were sceptical that a unit half the price of its competitors could be so effective and distortion-free. Well I'll let you into the story behind it.

Some while ago we decided to produce our own speech processor that would be superior to those currently available. I said to the designer "Look, I want you to design me a speech processor; I want the distortion to be kept below 1%; I want the gain to be similar to that from a linear; I want to completely eliminate those horrible compression techniques used by other processors and the end product has got to be cheaper than anybody else's!" Poor lad, you should have seen his face. Anyway, to cut the story short, he returned a few weeks later. He said, "Pete, we've done it. We've employed the latest studio compression techniques with a very rapid decay time that is variable, and we've included a noise gate to suppress room noise. The circuit uses 14 discrete transistors and is dc coupled to keep distortion low. And I've managed to keep the price down to £26.25 including VAT plus 50p postage." At that price they proved to be unbeatable and we were swamped with orders. Production was accordingly stepped up and we can now generally supply from stock. How long we can keep the price at its present level I don't know but with our money back guarantee you shouldn't miss the chance to get one of the best buys in amateur radio today.

73's Peter, G3OJV
 P.S. We still have a few Shure 444 mics in stock at the old price of £13.95 plus 25% VAT and 50p postage. Drop Jeff or I a line or phone in your credit card number for instant despatch.

MICROPHONES

Shure 201	£6.95	(30p)
Shure 444	£16.25	(50p)
Yaesu YD844	£18.66	(50p)

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CWF-2BX boxed cv audio filter	£6.18	(30p)
SBF-2BX boxed sb audio filter	£18.23	(30p)
CWF-2 unboxed cv filter	£10.42	(30p)
CWF-3 unboxed cv filter	£6.25	(30p)
100BX 100/50/25 kHz boxed	£13.30	(30p)
xtal calibrator	...	...
MFJ-100 calibrator unboxed	£10.82	(30p)
MFJ 100 calibrator less xtal	£7.35	(30p)
CMOS Electronic keyer with monitor	£24.38	(50p)

SPECIAL SIGNAL PUNCHING PACKAGE

Technical Associates Advanced speech compressor with variable compression, decay time and noise gate provides the most economical way of increasing talk power WITHOUT ANY DISTORTION. Still offered at £22.68 (30p) it's a bargain with the famous Shure 444 mic at £35 the two units, it's unbeatable! Order yours now and save money.

STATION ACCESSORIES, etc. as per last month's advertisement.
WANTED—Clean Second-hand Transceivers, Receivers, etc.

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TECHNICAL ASSOCIATES
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 1 watt o/p drives loudspeaker

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EUROPA B

NOW IN USE IN OVER 50 DIFFERENT COUNTRIES!

2 metre, 4 metre or 6 metre receive and transmit converters to 28-30MHz

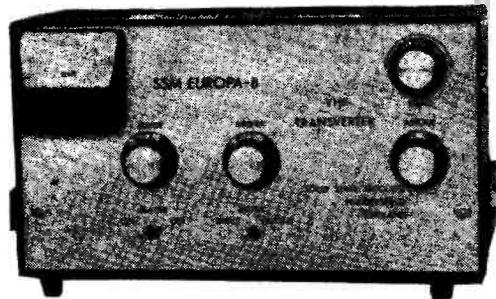
Exotic calls like A2, C3I, 5W1, 9H1, 5BC, 2D8, KV7, KH6, TF YB, VP8, VE8, etc.

Many of these people never use the receive converter—they have no local VHF activity and use their Europas exclusively for OSCAR work.

The Europa can be used with any normal HF equipment ★ Europa B features:

- ★ An aerial change over relay and SO239 antenna socket.
- ★ Adequate power for OSCAR work.
- ★ High transmit power. Up to 200W input, 50% efficiency.
- ★ Highest receiver sensitivity available—2dB N.F.
- ★ 28-30 MHz I.F. standard.
- ★ Cleanest output spectrum.
- ★ Extremely stable circuitry.
- ★ Well established and reliable design.
- ★ Additional crystals can be switched for extended frequency coverage.
- ★ Size: 9" x 4½" front panel, 4½" deep.
- ★ Low price, £88.00 complete to plug into Yaesu/Sommerkamp equipment. Ex stock.
- ★ £74.00 less valves (2 off QQVO3/10 and 1 off QQVO3/40A required). Ex stock.

For use with 6-3v. Yaesu equipment (FL400, FT401 etc.) you feed in 12-6v. AC at 2 amp into the control socket. A suitable transformer is £3.24 or in a case to match the Europa, £6.37. All from stock.



NEW! We now have in stock a complete AC PSU for the Europa, Type CSP 10. This supplies all the voltages to power the Europa or Europa B. It also contains a 50 ohm adjustable dummy load power attenuator and change over relay to reduce the 10 metre output power to a suitable level for driving the Europa.

This makes the Europa B compatible with HF equipment without transmitter output sockets with NO modifications.

Size: Same as the Europa B.

Price: £38.50. Ex stock.

EUROPA 70—70cm. TRANSMIT CONVERTER

Designed like our Europa to provide sufficient power for Oscar working—70W input hybrid design valve for transmit—transistors for oscillator amplification. Size: 6" x 6" front panel, 12" deep. Price £43.20.

All the prices include British Isles delivery. We export goods daily, so this is no problem. We can give same day C.O.D. service (£50 limit). All our products carry a 12 month guarantee. HP a pleasure. If you have any doubts, ring or write for assistance. Please do not hesitate to contact us if you think we can help. Paul, G3MXG.

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OUR OWN TESTS CARRIED OUT ON LABORATORY TEST EQUIPMENT, AND INDEPENDENT TESTS, HAVE SHOWN THAT THESE UNITS PROVIDE THE HIGHEST PERFORMANCE YOU CAN BUY ON THE AMATEUR MARKET.

CONVERTERS 2 metres, 4 metres, 70 cm., Satellite Band (136-138 MHz), Marine Band from stock. Other frequencies to order.

SENTINEL DUAL GATE MOSFET 2 METRE OR 4 METRE CONVERTERS

- ★ N.F., 2dB. Gain 30dB. ★ Dual gate MOSFETS in RF and MIXER stages.
- ★ No oscillator frequency multiplication.
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- ★ Size: 2½" x 3" x 1½" except 2-4 MHz and 4-6 MHz being double conversion are 4" long. ★ Price only £16.20. Ex stock.

SENTINEL X DUAL GATE MOSFET 2 METRE CONVERTER. A de-luxe version of our Sentinel converter, containing a mains power supply or external battery operation. It has front panel RF gain control. Technical data is the same as the Sentinel. Size: 5" x 1½" front panel, 4" deep. Stock IFs: 2-4 MHz, 4-6 MHz, 28-30 MHz. Price: £21.06. Ex stock.

THE SENTINEL 2 METRE CONVERTER KIT, 28-30 MHz—Ex-stock. The kit is supplied with printed circuit board drilled and all coils mounted to make assembly so simple. All components, metalwork, nuts and bolts etc. are supplied. Performance data is the same as our Sentinel converters. Price: £11.00. If it doesn't work, send it back with £2.00 and we will fix it for you.

THE SENTINEL MF DUAL GATE MOSFET 2 METRE TO MEDIUM WAVE CONVERTER. Receives 2 metres on a conventional MW BC receiver, very good used with a car radio. IF output of 0.5 MHz-1.5 MHz for 144-5 and 145-6 MHz in two switched bands. Size: 5" x 1½" front panel, 4" deep. Price: £20.25.

SM 70 FET CONVERTER

- ★ IF output 144-146 MHz. Noise figure 3-5dB. Gain 30dB.
- ★ Size: 2½" x 3" x 1½".
- ★ By using the SM70 with your 2 metre receiver you get excellent 70 cms. receiving performance for only £16.20. Ex stock.

EUROPA 70CM FET RECEIVE CONVERTER. Can be used as a receive converter on its own or in conjunction with our Europa transmit converter for transmit operation as well.

- ★ IF output 28-30 MHz. Noise figure 3-5 dB. Gain 30dB.
- ★ Two FET RF amplifiers and FET mixer.
- ★ Oscillator chain uses a 101 MHz crystal with oscillator output socket to drive the Europa 70 transmit converter. ★ Size: 2½" x 4" x 1½".
- ★ Price of this extremely high performance unit, £20.52. Ex stock.

PRE-AMPLIFIERS. 2 metres, 10 metres (Oscar), 70 cms, Satellite (136-138 MHz) from stock. Other frequencies to order.

SENTINEL LOW NOISE FET PRE-AMPLIFIER—Ex Stock. If you want the ultimate in 2 metre sensitivity and selectivity:

- ★ Built in a box which matches our converters.
- ★ Isolated supply lines make it compatible with any existing polarity.
- ★ Low noise figure—1dB. Gain 18dB.
- ★ High selectivity tuned circuits. ★ Price: £7.36.

THE PA3 DUAL GATE MOSFET PRE-AMPLIFIERS—Ex stock.

- ★ Small (about one cubic inch) printed circuit board pre-amplifier developed to fit inside transceivers where it can be wired into the receiver aerial lead after the c/o relay.
- ★ Low noise figure—2dB. Gain—18dB. Price: £5.94. Supplied with fitting data.

SM 71 70CM PRE-AMPLIFIER. Ex stock. A selected 2 stage FET pre-amplifier.

- ★ Noise figure 3-5dB. Gain 18dB. ★ Size: 2½" x 4" x 1½". Price: £9.72.

THESE PRICES INCLUDE VAT

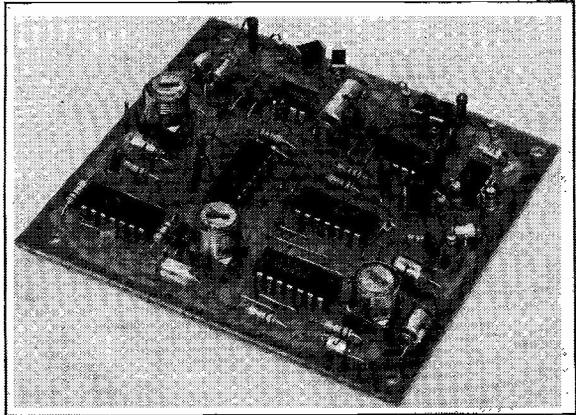
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NEW! R.F. Speech Clipper Module

DATONG R.F. SPEECH CLIPPER PERFORMANCE AT AN AUDIO PROCESSOR PRICE

- ★ For those who like to build at least part of their equipment themselves we now offer the "works" of the widely acclaimed **Datong r.f. speech clipper** in the form of a fully aligned and tested printed circuit module identical to that used in the ready-to-operate clippers.
- ★ By building the module into your own case (using the mounting hardware supplied) and adding your own level controls and input/output connectors you can obtain all of the advanced features of the standard **Datong r.f. clippers** at a total cost comparable to that of a mere audio processor. In addition you get the satisfaction of having done part of the construction yourself.
- ★ The module is a complete audio in/audio out r.f. speech processor which first converts the audio signal direct from the microphone to a single sideband signal at 60 kHz. This SSB is then amplified, clipped, demodulated back to audio and filtered before appearing at the output as a compressed audio signal.
- ★ The benefits of this approach to increased talk-power are currently being amply demonstrated by the large number of **Datong r.f. clippers** in worldwide use by both amateurs and professionals.



Price, including mounting hardware, full instructions, and delivery by first class letter post, only **£19.50 plus VAT**. Terms: cash with order.

Write or phone for a free copy of the detailed instruction sheet supplied with the module.

Please see our previous advertisement for details of the standard range of ready-to-operate Datong r.f. clippers.

All units are normally available from stock, and full details are available on request.

VAT RATE PROVISIONALLY 8% ON ALL MODELS

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DIABOLICAL LIBERTIES! With an antenna just 230 cm long!!—Only the WORLD RECORD PARTRIDGE VFA gets away with it—it works better in the clear ————— HONESTLY!!!

ZLIASY worked GC3EML on the 20m. band with *JOYSTICK lying ON FLOOR OF SHACK! ”
 G2BAH (ex G4CJN), Kendal, reports: “I happened to be listening on 80m. and heard someone in Manchester testing. We established a strength 8 qso each way. He had a *VFA laying on his kitchen table and was making tests to see if it would load up, etc. An old timer, a G2 and 2 letters, so he knew what he was doing.”

G3ZDR worked a W3 on 20m. using a *VFA with 2 watts.
 G3VFA worked WITW on 20m. using a *VFA and 750mW.

W6TYP worked WA6JPR over hundreds of miles on 40m. using *VFA and microwatts “equivalent to ONE MILLION!!! miles per watt of input power” (So says his WORLD RECORD achievement certificate).

*These are VFA USERS claims, and remember, SWL's, A GOOD TRANSMITTING AERIAL IS AN EQUALLY GOOD Receiving AERIAL—You sure can't work 'em if you can't hear 'em!

Here is YOUR Complete WORLD RECORD AERIAL SYSTEM for 160, 80, 40, 20, 15 and 10m. plus all SW BC bands and everything between FOR ANY LOCATION—

SYSTEM “A,” for modern communications RX's and QRP xcvr's.	£32.76
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SYSTEM “J” for TX's and XCVR's up to 500w. PEP 160 thru 10m.	£40.72

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G3CED G3VFA



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SHORT WAVE MAGAZINE

(GB3SWM)

Vol. XXXIII

JULY, 1975

No. 381

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Managing Editor: AUSTIN FORSYTH, O.B.E. (G6FO/G3SWM)

Advertising: Charles Forsyth

Published at 55 Victoria Street, London, SW1H-0HF, on the last Friday of the month, dated the month following. Telephone: 01-222 5341 & 5342

Annual Subscription: Home: £4.20, 12 issues, post paid
Overseas: £4.20 (\$10.00 U.S.), post free surface mail

Editorial Address: Short Wave Magazine, BUCKINGHAM, MK18 1RQ, England

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

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

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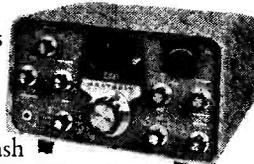
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The SHORT WAVE Magazine

EDITORIAL

THE MAY R.A.E.

It seems to be generally agreed that the Paper for the Radio Amateur Examination last May was not only pretty straightforward—as indeed it should be for an Exam. of this nature—but distinguished by the fact that not one of the questions involved formulae or calculation, though probably the mathematical types would have preferred to answer Q.6(a) by the well-known formulae. In general, the Paper relied upon diagrams, block or otherwise, for many of the answers, and these if drawn correctly would have shown the Examiner that the candidate understood the question. Only one (alternate) question involved transistory. As in previous years, we shall be dealing with the Paper in detail in either the January or February issue.

* * *

FOR POSSIBLE PUBLICATION

We always want to see articles of radio amateur interest—in particular practical, well illustrated constructional material dealing with any aspect of Amateur Radio, e.g., on the sort of work many amateurs will have done in building something of their own design. (If you have worked it out yourself, and got it going to your satisfaction, you are the best person to describe it). All articles that we can use are paid for, at good rates related to the work involved in preparation, immediately on publication. Material should be presented and set out strictly in accordance with the guidance given under "Authors' Mss." on the Contents page of any issue of SHORT WAVE MAGAZINE. While there is no guarantee as to when an article will appear, it can be taken for granted that material considered to be of immediate reader-interest will be published as quickly as possible.

Also always needed are good photographs relating to the radio amateur scene—stations, personalities, equipment, Club groups and such—for general illustration. The preferred size is "post-card, black-and-white."

While any good picture can be processed to the size we want for printing, in general we are not interested in colour prints, negatives or film-strip. Photographs should be lightly identified on the back, in pencil, with the details on a separate sheet.

All material offered for publication should be addressed to: Editorial Dept., SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ.

* * *

NO DSB TRANSMISSION

Following the article "Simple Sideband for Top Band" in our February issue, we have had correspondence with the Home Office (Radio Regulatory Dept.) from which it emerges that DSB transmission is not permitted on the amateur bands. Since this is in accordance with Note B on the Schedule to the Amateur Licence, of course we accept it, and publish this correction accordingly—though why DSB should ever have been prohibited in the amateur context eludes us. The first discussions about DSB appeared in this Magazine years ago, long before the SSB modes were written into the Licence.

* * *

LOW-DEFINITION A/TV

You have heard of SS/TV. There is now a move to look at, in the Amateur Radio context, the much more sophisticated idea of A/TV on the HF bands, using a refined and up-dated version of the original Baird system of 40 years ago, to give moving pictures as well as sound. The argument is that modern techniques—tape-recording, stereo, transistory, opto-electronics and the availability of IC's to simplify construction—make the idea of LD/TV much more feasible than it was in the time of Baird, back in the 1930's. An association has been formed to foster this interest and the address to write to is: D. B. Pitt, 1 Burnwood Drive, Wollaton, Nottingham.

*Austin Forsyth
G6FO*

COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

PERHAPS the highlight of the past month as far as this writer is concerned has been the events outside the "operating" side of the DX game. For example, reading about KYIITU activity in a letter and following it up a few days later by spending a pleasant evening in the company of the operator of KYIITU; or, a week later, spending time with the same operator—W4WFL/1—looking at NFD operations by two Clubs and comparing them with things Field-Day as the Americans do it. Incidentally, if you read *QSI* you may well have noticed the regular appearance of Murphy's Marauders in or near the top spot in contests—but W4WFL was able to assure us the name of the group was derived from that same Murphy whose Law of Cussedness of Inanimate Objects also strikes in this country!

And, even if the stations we looked at were all scratching a bit for contacts, and conditions did not seem to be too good, it has to be admitted that NFD, particularly in weather such as we had this year, is still the Greatest, with a magic not even the big DX Contests can quite match; and *much* better than gardening!

Forthcoming

Culled, of course, from various places, notably Geoff Watts' *DX News Sheet*, West Coast DX Bulletin, and a copy of the South California *DX Club Bulletin* sent on by W6AM.

Mount Athos first, and an operation seems to be definitely on the cards, with the likely dates the period of good conditions (well, a bit better than lousy!) slated for around July 20; five operators, led by SV1GA, would appear to be the total.

PY7YS hopes to set up an operation for Fernando da Noronha, (PUØYS), Atol das Rocas (PRØYS), and St. Peter and St. Paul Rocks (PSØYS). There are hopes that PRØYS will count as a new "Country." The programme calls for a week on Fernando da Noronha, with a couple of days on each of the other two.

At the time of writing, activity from Serrana Bank, HKØAA, is scheduled for June 17-21, which obviously is before this piece reaches readers; however, there is still time for a slippage in the programme, and if so, the July 20 area will be tried, all bands Top to Ten, plus two-metre activity through a repeater in TG9! Looking forward a while, W7PHZ and his merry men are dreaming of Malpeo in 1976—doubtless an indication of desire by the suffering DX clan will assist them to harden their dreams into plans.

History

One hesitates to harken back to that unsavoury caper in Cocos mentioned last time; but one of the DJ operators on the trip wrote to West Coast *DX Bulletin* with their side of the case. It seems there are two, rival, clubs in TI-Land. Somebody demanded of the HB9 crew a cool five thousand dollars plus a dollar a QSL, to permit them to operate *without reference to the Ministries*; which, to this old scribe means to let them be pirates. Naturally, the HB9 gang wouldn't play, so the next move was to persuade the captain of the boat to increase the fee to \$150 a day with a minimum of twenty days' charter. This was the last straw which caused the chaps to go, under the direction of TI2FAG, on another ship, the *Dona Dina*. Frankly, all this sounds to be plain blackmail; and it might be added that the letter from the Costa Rican authorities, dated May 2, which was addressed to "Whom it may Concern" sounded to the writer to be very much the work of a reluctant official having his arm twisted. And, to cap it all, HP1JC, who attended a meeting on May 2 of Costa Rican DX'ers, moved, after hearing it all, that TI2FAG contacts be OK but all others be regarded as null and void. The opinion of the man on the spot!

Vale

With regret we have to announce the death, on May 4, of Jack Davis, 4X4CZ, at the early age of 58. For the past five years he had been president of the Israel Radio Club. Born in England, he went to Palestine at the time of the British Mandate, and held the call ZC6AB, later changing it to one of the first issued 4X4 calls. In 1953 he worked in England for the Ferguson Company, and later lived in U.S.A. where he was licensed as K3KCS. He was an associate member of the I.E.R.E.

Ten Metres

A first letter from G4DWO (Horbury), who started as G8HZA, but now runs a Swan 700CX, temporarily to a long-wire, until erection of the sixty-foot tower and TA32 is completed. Bill has quite an interest in Ten and records contacts with Europeans aplenty,

including 12RR, DK8GT, 12SRR, YZ3CNO, 14BJ, HG5KKN, 8SM3GII, OE7BL, DL9XN, 11BJB, EA3EF, ISKKW, DK2LM, EA3OJ and I2PET during the period May 13-25; although G4DWO calls it short-skip, one wonders whether in fact much of this is not genuine first-hop propagation? Bill notes putting out a call on CW at 1946z on a "dead" band and getting a reply from PY1NEW at a rate of sending which was rather fast for G4DWO; but after an agonised "Pse QRS" Pete slowed down a bit and the contact ended at the 18-20 w.p.m. rate, quite enough for a chap who only passed his Morse test back in February. But, clearly, G4DWO does not subscribe to the fashionable idea that an ex-G8/3 on getting his G4 call should promptly forget all that CW—and lose part of the fun of the game in the process.

G3NOF (Yeovil) reckons conditions have been as bad as he has known them for a long time—and that is firm words from a chap who has been through two full sunspot cycles and more, first as a top-ranking SWL and later as a DX'er in the upper echelons. As for Ten, Don heard no DX and had no QSO's!

Next we have another new reporter in G4BHE, who runs an HW-100 into a Dexbeam at 28 feet, rotated by the "Armstrong or Handraulic system"—dash into the garden and crank it round, arriving back in the shack to find the DX is buried under a great horde who *also* heard him! Nonetheless, between that and the short-skip, CR4BC, PY4AEX and 9J2WR were worked, and CE3RC, YV4YC, 5U7BA and 6W8AAD heard, plus a large assortment of Europeans. All this from Basingstoke.

GM3YOR (Kirkcaldy) has been a bit limited, partly by the shift working and partly by the preparations for NFD and their Isle of May DX-pedition, and what time there has been largely spent on Ten. Here Drew found the beacons DLØIGI, GB3SX and 5B4CY on almost every time he listened; the first-mentioned seemd to appear some time before any other signals showed up. On SSB GM3YOR connected with DF3SI, DF4GC, DM3DEO, HA5KFL, HA5KFN, HG5KKN and 14NAE, while the brasspounding sessions yielded IITLA, LA2GH, LA7SP, UK2BAS and YZ3TRI. Most of the operation was on GM3JOLK's loaned KWM-2, his own FT-101 having been removed for modification to make it suitable for NFD.

G4CXM (Paignton) missed the bus last time round owing to a late posting, so we have two lots of news to consider. For the earlier letter, the ten-metre report simply says "infrequent openings to anywhere!" but the latest letter indicates that some DX and a lot of Europeans were heard, albeit only the Europeans were raised.

Fifteen Metres

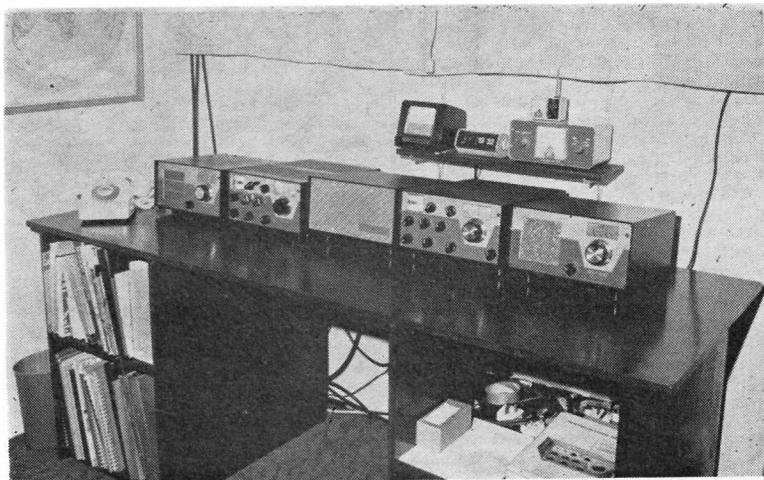
If Ten has been "giving" a little, how about 21 MHz? Here the tale again is largely one of short-skip openings, also like Ten quite late into the evenings on occasion.

G6AH (Burnham, Essex) refers to his earlier letter and points out that the watch figures included Europeans, and that the list of DX prefixes heard on Fifteen included interesting ones logged at other times also—but that doesn't invalidate the general conclusions.



"Am thinking of changing to a long-tailed pair"

Neat amateur-band station of G3YBO, owned and operated by Roger Bains, 11 Dale Cerscent, New Tupton, Chesterfield, Derbys. The layout makes for comfort, convenience and easy operating.



G4CXM found only North-South openings the previous month, and weak signals even at that, but his later letter indicates rather better things, including SSB to C5AR, CT2BP, CT3AD, CT3AR, EA8LD, EI2CI (genuine short-skip, this last!), LU8FT, PY1MCC, SV1GP, UK9AAN, VP8NK, ZD7SD, ZD8RD, 5B4BS and 9H4L.

In G3NOF'S book, Fifteen has also been pretty patchy, with no QSO's, although a few South Americans have been heard in the evenings and on one, W4's were audible at 2300.

G4BHE worked SSB to C5AR, CE2EN, CR7IZ, LU1HDC, LU5EIO, PT2GSB, PY1MCC, VP8NK, ZS3BK, ZS4MZ, ZD7SD, 4U1TU and 9G1JD; many were below RS56 incoming, but on the principle that if you can hear 'em you have a chance of raising them, he tried and got the QSO.

Good Old Twenty

It seems quite a while since we last heard from Harold of G2HLU (Reading); but he has gone a further stage in his modernisation programme by disposing of his Vespa and KW-77 in favour of a TS-520 transceiver with which he is very pleased. Odd, that, in a way, as this old conductor sold off a Vespa and KW-77 some years ago and hasn't stopped regretting the change to transceiver operation yet! Harold, it will be recalled, decided a few months ago to buy a microphone after a lifetime of CW-only; he is still finding interest in the odd SSB contact, though of course CW will go on forming the majority of his log entries. He mentions CW QSO's with UA9CAD,

UH8BAU, UJ8AQ, UL7HD, UL7PBI, VP5AH, VS5MC, VU2MCX and VU2YK, plus a few W's—although on some evenings things have been so "iffy" that even East Coast W's were not QSO-able at all solidly.

The first letter from Ray, G4CXM says that that month's doing on Twenty started quite well, with signals coming in from such as FK8, VR3, KS6, KM6, KH6 and so on, but none were worked as the pile-ups were enormous and Ray didn't reckon much on his chance. In addition, at the same time there were some cracking signals coming in from Central and South America, but Africans were few and far between. In his second letter, G4CXM says he rather neglected the band in favour of "other places" but he found things tolerable apart from a shortage of VK and Pacific signals. SSB was used for CN8HD, G3BHT/HB0/M, GD3HQR, LX1AD, UK8BAP and YS1GMV.

G3NOF was not impressed with things, he being a severe judge of conditions, recalling previous *maxima*; in the mornings not much in the VK line around 0630 and nothing at all from the Pacific. Africans have also been poor, but late in the evenings, say, 2100 to 0100, East Coast W's and VE's have been heard, and even the odd W6/W7. Among all this, the short-skip stuff has also been quite prominent, with such as G-GD-GM-GI-EI all noted. QSO's were made with EI0Y/P (Blasket Is.), FG7XL, IM0DMK (Maddalena Is.), K0ZCM, W0HFXN, W0LBP (all from Colorado), KP4EDP, KP4FS, OJ0MA, W6CCP, ZS6AKG, ZS6CY, ZS6DN, plus the usual East Coast W's, and lots of those "ITU" calls, including a QSO with Morgan, W4WFL/1.

Because his beam is at the moment only 28 feet up, G4BHE is rather neglecting his chances of DX on Twenty; frankly, one would have thought that even as low as it is, there would still have been quite a lot of interesting stuff to work on the band—but with the move of QTH likely to be completed by the time the next CDXN report comes due, who cares? What's the betting the aerial-erecting party won't get a look-in till the decorating and the gardening are completed?

G3FWE (Lancing) writes to enclose a copy of the rules for the "Calgary Award," in the form of direct copy from his RTTY QSO with VE6AVO. The certificate is free, and the thing is to work, if you are in Alberta but outside Calgary, 30—the rest of W/VE except KH6, 20—and the remainder of the world, ten. These to be CY6 contacts during the year 1975, only one contact with a particular CY6 station being allowable; but QSO's with Club stations CY6NO/P and CY6AO/P count as two contacts, and any with CY6 *via* Oscars score as four contacts. A copy of the log entries showing date, time, station worked, operator's name, QTH, frequency, and signal report exchanges should be sent to Century Calgary Award, P.O. Box 592, Calgary, Alberta, Canada T2P 2J2. And we might add that this RTTY copy is completely free of any evidence of error in typing or of error due to QRM, which says a lot for the VE6AVO—G3FWE set-ups, and the solidity of the link at the time the QSO was made.

GM3YOR, as already indicated, has had his attention—and his rig—elsewhere for most of the period, but he did manage three CW QSO's, with KE1ITU, KP4DRT and W1CLF.

G2HKU (Sheppey) has always an amusing comment on something to make your old scribe chuckle; in this time he remarks that his XYL, to indicate a certain garden requirement, mildly suggested that she

TOP BAND COUNTIES

October — September

Callsign	AM	CW	SSB	Total
G2BJY	24	138	65	227
GM3YOR	39	126	48	218
GD4BEG	15	138	40	193
G4CBQ (Home)	56	46	55	157
G4AKY	—	94	24	118
G4BOH	9	68	30	107
G4CBQ (Univ.)	105	2	—	107
G4BWP	27	70	—	97
G4AYS (QRP)	—	76	—	76
G5BHR	3	32	—	35

Each county may be worked once in each mode. AM contacts score three points, CW two points, and SSB one point. AM contacts made by changing over to AM from SSB are not allowed, neither are cross-mode contacts, saving that AM/SSB contacts will be allowed as two points for the mode the station was using, i.e. the SSB end will claim his two points under the SSB heading and the AM end his under the AM heading. New U.K. County designations apply, as listed on p.97, April. Starting date October 1, 1974, closing September 1975.

had been Sabu on his elephant passing through the grass! That message could be said to have been received RS59, with a vengeance. As to Twenty—when the gardening was done, no doubt—there were contacts on SSB with M1D and CW to FG7XJ, HP1AC and VE6KY, of whom the last-mentioned was born in Croydon.

Having got through some minor arrival hiccups, like his G5AYL ticket being sent to your scribe on the day he should have been landing in U.K., which meant W4WFL/1 had to make a trip back to Heathrow to recover the rig after picking up his licence; and finding his hotel had a room for him for only one night, Morgan, W4WFL/1, soon sorted himself out. A trip to the Joystick Man, G3CED/G3VFA in Broadstairs, resulted in a very fine sight-seeing afternoon, and Morgan's return to London with a Joystick system, which was rapidly fired up from Half Moon Street, in the West End of London, and forthwith resulted in a contact with a DJ, straight back to his first CQ. And, as an afterthought, a check below showed no TVI on the hotel goggle-box. By the time this comes to be read, chances are that G5AYL will be settled in a place of his own, indications at the time of writing being that it will be somewhere in Streatham.

Having just mentioned G3CED, the very next thing we turn to is the latter's log for this month. In three pages, a couple of QRO contacts at two watts are noted, the rest being at 750 milliwatts input to the Joystick. On Twenty, the WITW QSO at this low power mentioned last month brought forth a quick QSL, and this time, we note contacts with LZ1MG, IS0XBL, YZ2RTW, UA6ADO, IV0KGM, three successive 599 contacts with LZ's, HA's, 8SM7FSV, SM7GPP and so on; it is quite interesting to look at George's log, in which he manages to squeeze details of the chap's name, QTH, weather, rig (and power input) and aerial, from which one notes Yugoslav stations on with Japanese gear, and QSO's where the reports were the same both ways when 750 milliwatts in Broadstairs was matched against, say a couple of hundred watts and a Quad! Another interesting thing is to notice the number of Europeans using the "W3DZZ" wire aerial—it must be one of the most popular ones ever!

Top Band

Here the majority of the 'chasers are doubtless holding off writing until they have done something in the Trans-Equatorial Tests during June. Your conductor was fully intending to have a little sniff round for the Trans-Equatorials, but on his return from holiday it was found that although the 28g. half-wave was still up, the vital lead-in bit had parted right at the insulator up top, and some kind soul had coiled it up at a height just enough to be clear of the local junior-ops. This was by way of a disaster, as it requires quite an effort to recover the home end of the span without dropping the lot in order to effect repairs—and dropping the lot means chatting-up the neighbours anyway. But we'll be back soon.

G2HKU always seems to manage the odd one on Top Band, and this time there were Phone QSO's with PA0PN, and CW with DJ2TI and GD4BEG.

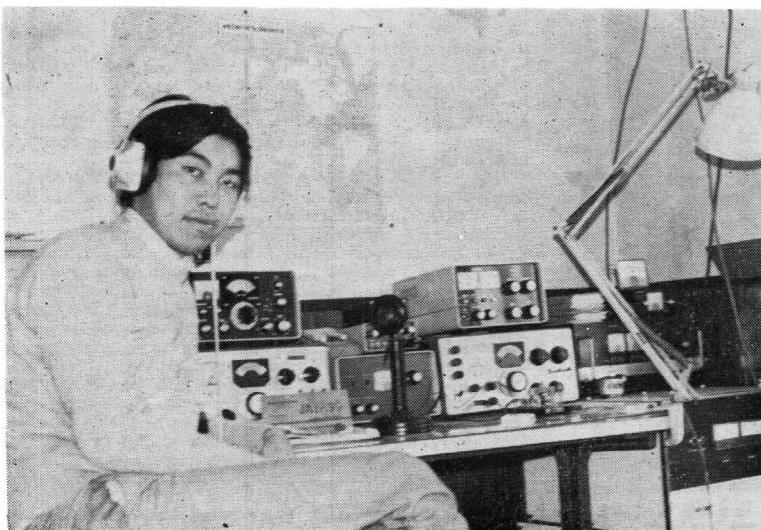
The absence of a rig for the band for most of the time did not help the scoring at GM3YOR, but a slight change to the score is noted in the Ladder. For the present month, chances don't look too good either, partly from shortage of time, partly from NFD efforts; but no doubt once the home station is, as it were, reconstituted then doubtless the chase will be resumed.

G2NJ (Peterborough) has been operating the band in the middle of the day, and been quite surprised by the distances worked. For example, there was a solid 579 both ways to GD4BEG, and as early as 1045z a contact was made with G3ZEE in Selsey, both being good long hauls by daylight.

G2BJY (Walsall) comes in at this point, and, having enjoyed the Table very much so far, is beginning to worry a bit. The reason is the number of times he has worked a station and claimed it, but on looking through the *Cull Book* has seen the station under a different address there. This worries Geoff to the point where he sends off an s.a.e. and QSL just to satisfy himself he is in the right in claiming. One wouldn't feel this worrying is necessary; after all, the claim put in by anyone is in good faith, and many people write and correct their scores if an error is in fact found. One feels the question here is simply one of good faith—no casual contact on the band is going to go to the bother of giving a phoney location just to bump up someone else's score! And after all, the guy who does it to improve his own "attractiveness" as a QSO is going to think up something better than, say, a shift from Glamorgan into Gwent! Perhaps the real thing that is worrying Geoff is that with his tiny aerial system he is sitting on top of the heap—but having stayed there so far, he is determined to stay there, and with his contacts all in good standing. And we reckon he will do just that, worries or none, and in the doing of it he will be an enormous encouragement to other chaps with tiny gardens and aeriels, who, with possibly better facilities, are accepting that they just *can't* get out more than a few miles.

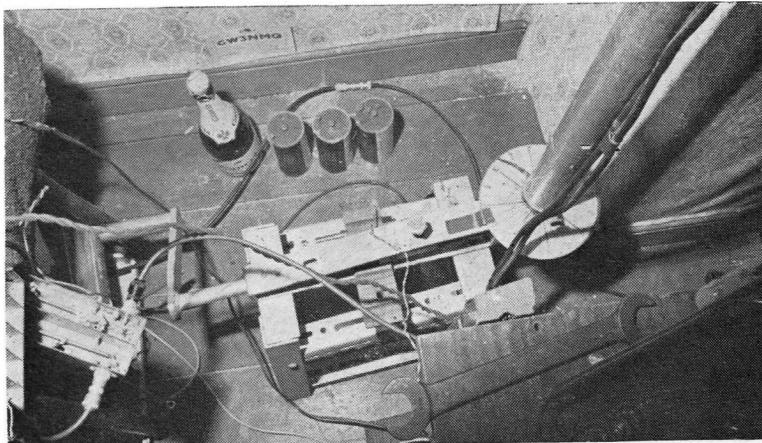
Eighty & Forty

Put together they just about make a paragraph of reports! But, before we look at the DX lists, we must refer to a letter from G2CAS (Harrogate) about the decline in operating standards, and in particular on Eighty. John is referring to the louts—and some very senior louts who ought to know better, who are plonking their phone signals down into the CW end of the band, disregarding the bandplan agreed not just locally but virtually worldwide. These menaces are bad enough, but then along come the righteous souls who, instead of complaining to the right quarters sit on top with bug keys and swishing VFO's—the poor bloke who was there before the Phone started is thus now several layers down and even a sharp crystal filter and an MFJ unit together often cannot save his QSO. As he says, if all would observe the bandplan, he would be able to have the odd QSO on QRP, the jammers could retire to their nurseries, and the sale of tranquillisers would go down! Having quoted G2CAS, it is perhaps necessary for us to comment. As far as this scribe is concerned, he would be far happier were people who are wiped up in



All Japanese, operator and equipment. JA1KSO, Nobuyasu Itch, P.O. Box 7, Aobadai, Yokohama, 227, is a prominent member of the Japan DX Association, JDXA.

On p.201 of the June issue we showed the station of G3NVE, Goole. Here is his home-designed and built beam turning mechanism, involving simple gearing, a car starting handle for rotation and a direction-indicating device.



this manner to (a) Name the offenders, by callsign and any other details, and (b) To make recordings of the interference straight off the receiver; and then (c) Write to this column, giving the details.

However, we must revert to reportage. G4CXM seems to have crept to the top of the pile this time, and we notice from his first letter that on Eighty, the QRM is a bit daunting when hunting for those nice African and S. American signals. But, of course, PA0GMW and his two-element delta-loop outrun most Europeans in such a chase. Turning to Forty, Ray offers *lots* of hearings of VK but *no* contacts as yet, and as worked C3IX, CT2BP, CO5DM, K1GMW, PY7ADL, PY7AES, UL7NAR, U18ABQ, UM8MBA, UA9AAG, W1PIV, W4LKQ, YV1BI, 9J2WR, all on CW, and one solitary SSB contact with C3IX.

G2HLU has of course been playing with his new toy, mainly on CW, although he did take part in both WAB Phone and CW contests. In addition he has been having a fine old time working the QRP clan and finds himself quite amazed at the signals these "little chaps" can brew up and radiate.

G2NJ is also still on the hunt for QRP stations to work, and one day found G4DJX, St. Albans, running 2½ watts, and had a nice QSO; as he finished G3CEL up in Hyde came on frequency for a contact—the latter is a remarkably consistent signal.

G2BJY amused the writer with his tale of how he didn't seem to be getting out too well—he was getting RS22 from Somerset, for example, and the same from G2AOF; so he came downstairs to see what was up, and found the aerial was connected to the downstairs box of tricks, leaving the rig upstairs minus an aerial. Fair enough as far as it goes—but even to be heard in Somerset from Walsall without an aerial is quite amazing. But of course, there is probably quite a bit of stray capacity somewhere which will transfer at least a whiff of RF to the aerial proper. Geoff is now finding it tough going, with all the gardening as well, so has sensibly decided to stick on Top Band until September, to take things more easily.

Only Forty from G2HKU, who offers OJ0MA on SSB and 9Y4TR on CW as his contribution.

Having rung up 421 contacts on the QRP trail, all bands, G3CED is getting statistically-minded. The average signal strength of the stations worked came out at S745, and of his own reports S626; this is next going to be related to average power used both ways, which should be a revealing exercise on how accurately people give signal strength reports! However, and even allowing for the fact that G3CED is a good CW operator in any language, is the fact that with a watt or less with a Joystick as the aerial, no less than 81% of his contacts returned him a report of R5. One doubts if many QRO stations on Eighty could better that. However, let us look at the log—there are literally dozens of eighty-metre CW contacts, all over U.K. and most of the European countries, a liberal plastering of S9 reports, from both near and distant stations, and, on top of that, one notes quite a high average of CQ's which raised distant stations—not by any means a normal tactic for a QRP operator.

Here & There

We hear that AMSAT-UK are developing an HF-type *Oscar*, which would have 21.2-21.3 MHz as the up-link and 29.4 to 29.5 as the down—details from G3IOR, to whom also could go donations to help defray the cost. This one could be a great idea for creating

activity on a dead band—but one shudders to think of it being used when the bands are wide open at a weekend, or in the middle of a big contest! However, G3IOR and his party are wise in the ways of the world as well as on the technical side and of course there is no doubt about the value of the idea in the way of learning a bit more about propagation on the HF's.

If you hear YN9JMP you will have an interesting one. Jacques was born in Holland in 1898 and was a missionary in China from 1924, when his callsign was XU2JM. He left China and went to Boaco, Nicaragua, in 1952 where he continued his missionary work. On his retirement in 1973 he was presented with a rig, and after 36 years out of practice he is again pounding brass. Long may he be able to enjoy it.

We notice that in Washington, Congressman Charles Vanik of Ohio is introducing legislation to give FCC the right to regulate the manufacture of home entertainment devices to reduce their susceptibility to radiations outside their bands of operation, rather as is already done with, for example, aircraft test equipment. Isn't it about time we in this country started lobbying for a similar bill?

The latest copy of WCDXB to arrive here, on the morning on which this should hit the letterbox on its way out, brings us a bit more up to date. The Serrana Bank, HK0AA, effort looks as though it will be all over by the time you read this. Likewise, the Easter Island effort by W9NTP, Don Miller—this is the SS/TV Don Miller, not the W9WNV one of a few years back. However, you can look for the Dodecanese as it is understood that SV0WZ has opened up shop for a two-year tour. Finally, the Rodrigues trip by Roddy, 3B8DL, which was set for June has now slipped back to early July; but he will be there for twenty days, so don't fret if you don't hook him first time. CW operation is certain, SSB operation *may* take place; and QSL's to WASZWC.

Please don't send QSL's for anywhere else to the VQ9 QSL Bureau; they are drowning in a sea of VQ2, VQ8, VQ5, VR2, VR6, VS6 and YS1 cards arriving over the past couple of months! They are only a small show, and this sort of thing puts a heavy burden on them.

Back to contest results, and at this last moment we have a note from W1WY on the CW Leg of the 1974 CQ WW contest. The overall winner was CR6IK in the single-operator, single band listing, with G3HCT second, both on Twenty. However it is very noticeable how scores dropped with the fall in the sunspot count. The only other G place-men were on Top Band, where GM4AGG was second, GD4BEG fourth and GM3YOR sixth.

If you have faith in rumours, then this one is for you. It is rumoured, and apparently the rumours *may* have some truth, that in the coming autumn, there is just a possibility that China may have some radio amateurs on the air. There is, it is said from the same source, already an active Club/SWL movement going, presumably preparing for such activity. Let us hope it could be true.

Deadline

Once again we seem to have drunk the well dry of news. So, it remains just to pass on the deadline for the next issue, which will be July 8, or in other words, the usual 17 days before publication date, the last Friday in the month. Address "CDXN." *SHORT WAVE MAGAZINE*, BUCKINGHAM, MK18 1RQ. Till then, good DX, and may your garden not need too much working on!



At the Hull & District A.R.S. Rally at Bishop Burton, Yorkshire, on May 25, G3VBS, G3VZE and G3VBI (right) had a picnic lunch in the car park, with the distaff side.

* * * **THE MOBILE SCENE** * * *

MORE REPORTS AND PICTURES

This feature ought more properly to be titled "The Rally Scene & Sales Bonanza"—because the bigger Mobile Rallies have in fact developed into large social gatherings combined with a one-day market, the actual *mobile* aspect having become of secondary importance. Numbers of people appear who have no interest in /M working as such and are there mainly for the party and a good day out—also, of course, for a browse around the Trade stands. Nowadays, a large volume of solid business (even in the high-priced items) is done at these one-day marts, which are becoming ever more popular with the Trade, provided the organisers can ensure a good turn-out.

Even if such events do now tend to obliterate the fundamental concept of a Mobile Rally—chaps with vehicles fitted /M to get

together to talk "mobile"—there can be no objection to this from the Amateur Radio point of view, because (a) It brings radio amateurs together in a way not otherwise possible, (b) Enables potential buyers to see the sort of equipment they have in prospect, and (c) Helps to keep the distaff side within the general *ambience* of Amateur Radio.

The recent North Midlands Rally is a good example of the trend. Though the "real" Amateur Radio attendance here is somewhat blanketed by the fact that Trentham Gardens—being a show-place in its own right and open to the general public, many of whom make up the numbers round the stands without being even potential buyers—the Rally also draws a huge radio amateur crowd and the traders' cash registers jingle accordingly. As somebody said "There's supposed to be a shortage of cash but you could have fooled us."

However, a small cloud on the horizon for the organisers of one recent successful Rally in another part of the country was the appearance of the local Customs & Excise boys, to levy VAT not only on the

Neville Grassby, G4CPY (Leicester) receives the prize for "the longest distance travelled" to the R.N.A.R.S. Rally held at Petersfield (H.M.S. "Mercury") from Mrs. O'Reilly, wife of the C.O. of the Signals School, Capt. D. A. O'Reilly, R.N.



entrance takings but also on the modest operations of their bring-and-buy stall! This is, of course, a matter of the interpretation of the law which, no doubt, Customs & Excise will be glad to explain in specific instances.

* * * *

Though we have no direct reportage on the Hull Amateur Radio Society's Rally at Bishop Burton on May 25, they had a well-organised and carefully-timed programme of events to occupy the hours between noon and 5.0 p.m., with talk-in on VHF and Top Band. This is an attractive venue, in the grounds of the East Riding College of Agriculture, and they even had first-aid facilities, with a doctor on call.

* * * *

Once again, the organisers of the Maidstone Rally on May 25 were lucky with the Wx, a good crowd of radio amateurs and their friends finding the way to the congenial surroundings of the Y-Centre sports arena. The talk-in stations, including Top Band, were kept busy, in spite of the efficient local sign-posting. A check during the afternoon gave a count of 70 /M's having been given guidance, most of them on two metres—another example of the "black box" popularity. A look along the car park confirmed this, and it was significant that the halo is giving way to the 5/8th whip—perhaps by reason of the proliferation of repeaters as much as from the aesthetic point of view.

The number of Trade stands at this year's "Maidstone" was a bit down on 1974. Discussion with traders confirmed that the paralysing effect of the imposition of 25% VAT was beginning to wear off—not only were many firm enquiries made but also actual sales were perking up.

An innovation at this Rally was the demonstration put on by the Kent Repeater Group, showing some of the equipment to form part of their installation, which should be in operation by the end of the year.

All QSL's for GB3YSC, the Rally talk-in station, should go to G3ORP, QTHR—and, finally, the committee of the Maidstone YMCA Amateur Radio Society is to be congratulated on another very successful event.

* * * *

The Royal Naval Amateur Radio Society Rally at the Signa School, H.M.S. *Mercury*, Petersfield, Hants. on June 1 had fine Wx and turned out to be their best event yet, with 192 cars on the ground, of which 56 were fitted /M, and a total recorded attendance of 702. Of the mobiles, 25 were for two metres, eight on 4m., 19 on Eighty and four on Top Band. Twelve firms put on stands for the Trade show and one of the demonstrations was that by the GPO with their "dreaded TV detector van" and RF interference-suppression display. It is worth mentioning that the prize for the best non-commercial mobile rig went to G3RJF, from Maidstone.

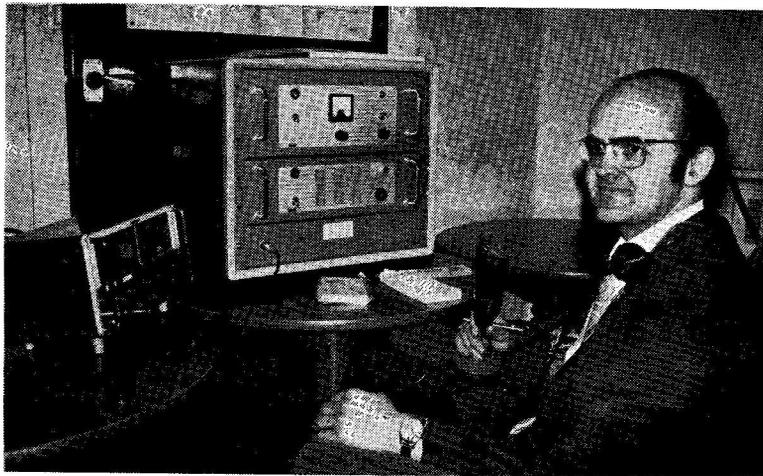
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Organisers of forthcoming Rally events are reminded that we shall be glad to have reports (on the lines of the foregoing) as soon as possible after the day, for notice in this feature. Needless to say, good photographs are also wanted, any that we can use being paid



Unusual sight at any Rally—above, a London taxi, fitted /M and probably privately owned, and a rare and beautiful old Lagonda, both seen at the Maidstone Rally.

At left, a general view of the Victoria Hall for the Northern Mobile Rally at Keighley, Yorks., on May 18.



The two-metre talk-in station for the Rally at Keighley on May 18 was operated by G8AWN, who was kept pretty busy on this smart rig.

for on publication. Address all such material to: "The Mobile Scene," *SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ.*

THE RALLY CALENDAR

- June 29:** For the 18th West of England Rally at Longleat House, Warminster, Wilts., the under-cover accommodation will be spacious marquees, with trade stands, a raffle, bring-and-buy stall (no rubbish, *please*), refreshments available on site and talk-in by G6YB/P (1920 kHz), G3JMY/P (3775 kHz) and G3TAD/P on 145.5 MHz/VFO. There is something for everyone here, including the House itself and the magnificent wild-life park, overnight camping (from 6.0 p.m. on the Saturday) and plenty of space for parking and to picnic. There is an admission charge, as this is one of the "stately home" sites.
- July 6:** Worcester & District Amateur Radio Club Rally at Hill High School, Tunnel Hill, Upton-on-Severn, on the A.4104. Talk-in by G8JC on 3750 kHz and G3GJL on 144-22/145.50 MHz. Sports events and displays (it is hoped) of model trains and aircraft, with trade stands and a stall for the disposal of unwanted gear. Information: B. A. Jones, G8ASO, *QTHR.* (Tel.: Worcester 351565).
- July 20:** Cornish Radio Amateur Club 12th Annual Rally at the Technical College, Redruth, Cornwall, with talk-in on Top Band, 80m. and two metres, from 10.0 a.m. There will be trade stands, a raffle with radio and non-radio prizes, and refreshments arranged at the College. Details: W. Locke, G3NKE, *QTHR.*
- July 20:** Anglian Mobile Rally at Stanway School, Colchester, Essex (exit A.604 off A.12), with ample car parking, trade stands (usual and unusual), family attractions, undercover accommodation, bring-and-buy stall, refreshments and talk-in on 2m./80m. by GB3AMR.—T. Mills, G3YAI, *QTHR.*
- July 20:** Polegate Steam Rally at Milton Gate, on the A.27 Polegate-Lewes, Sussex, with talk-in on 2m./4m. by GB3SS, and GB2SS also on the air. Enquiries: R. T. Holder, G8CFZ, *QTHR.*
- August 3:** Mobile Rally in the Coach Park, Woburn Abbey Estate, near Luton, Beds., with all the attractions of this well-known stately home. Details: N. Miller, G3MNV, *QTHR.*
- August 10:** Mobile Picnic at Avoncroft Buildings Museum, Stoke Heath, Bromsgrove, Worcs., B.4091/A.4024, admission payable, free parking and picnic site (bring your own sustenance), bring-and-buy stand and talk-in 2/80/160m. Information: J. K. Harvey, 22 Elm Grove, Bromsgrove, Worcs., B61 0EH.
- August 17:** Derby & District Radio Society annual event at Rykneld School, Bedford Street, Derby, as in previous years. Details

later. Information from T. Darn, G3FGY, 1 Sandham Lane, Ripley (2972), Derby.

August 24: Torbay Amateur Radio Society Rally at Newton Abbot Rugby Club ground, as in previous years.—L. H. Webber, G3GDW, *QTHR.*

August 31: Preston Amateur Radio Society Mobile Rally at Walton-le-Dale Secondary School, Brindle Road, Bamber Bridge (off M.6 at Junc. 29) with talk-in on two metres and Top Band. Trade stands, bring-and-buy stall, refreshments and ample parking. Details: G. W. Earnshaw, G3ZXC, *QTHR.*

September 21: Peterborough Mobile Rally at Walton School, Mount-steven Avenue, Peterborough, Cambs. Information from: A. H. Jackson, G8GNV, *QTHR.*

September 28: Harlow & District A.R.S. event at Netteswell School, Harlow, with bring-and-buy and Trade stands, refreshments, free admission and parking. Details: C. West-Bulford, G8JXU, hon. secretary, Harlow Amateur Radio Society, Mark Hall Barn, Harlow, Essex.



".... Chap here say's we're splattering"

Correction: Please note that the subscription rate given on p. 298 should read £4.20

SWR INDICATOR FOR LOW-POWER WORKING

CONSTRUCTING A USEFUL TEST INSTRUMENT

G. C. DOBBS (G3RJV)

THE increase in Q.R.P. activity on the amateur bands has brought in its wake the need for some specialised test and auxiliary gear. Much of that designed for QRO transmission can, of course, be used with low power equipment, but there is a requirement for special QRP test gear. One of the problems of low-power operation is to get as much of the RF power as possible into the aerial. If little power is being used, it is obviously important not to waste what is available.

An additional problem with QRP is the actual tuning of the PA stage for maximum efficiency. In higher power transmitters, it is usual to meter the current to the PA and to tune for dips in this current, whereas QRP transmitters are best tuned for actual RF output from the PA stage. This may be done with a simple "relative power indicator," an RF voltage indicating device coupled to the output of the transmitter. When an ATU is being used, it is possible for a simple relative power meter to give quite misleading results.

The ideal instrument would be a calibrated SWR Meter, but most of the commercial models available are too insensitive for QRP work. It is, however, easy enough to make up a monitor capable of indicating forward and reflected current flow in a feeder line to an aerial. This will not give a *calibrated* SWR reading, but will indicate *relative* forward and reverse RF current flow. Such instruments are common in amateur practice and are often called "Reflectometers," although most of the available circuits are not designed for sensitivity at low power.

The Basic Circuit

The heart of a standing-wave ratio indicator is the bridge arrangement used to sample the forward and

reflected RF current in the feeder line to the aerial. When faced with matching an HW-7 QRP transceiver into various aeriels, it was found that the simple relative power meter included in the transmitter could give misleading readings. The first SWR indicator tried is shown in Fig. 1. This circuit comprises a simple form of RF bridge used by many amateurs for SWR indication.

The bridge is based upon a length of heavy duty *air-spaced* coaxial cable. The ends are bared as shown in Fig. 2 and a length of 22 or 24g. copper wire is pushed down one of the air-spacing holes. The piece of coax cable in the prototype was 18 inches long. How does one get the wire down the whole length of the coax insulator hole? With great patience! The inserted wire samples the RF between the conductor and the shield and a switching arrangement enables the current to be measured from either end. The two wires and the braiding at either end must be insulated from each other, using p.v.c. tape.

The current is measured through a DC amplifier Tr1 enabling an inexpensive 0-1 mA meter to be used. By simply adding a 10K variable resistance at the emitter, a sensitivity control is provided. This enables the indicator to be used with a range of RF powers and provides for an increase in sensitivity to measure the, hopefully, low reverse current. The transistor used for Tr1 can be any high gain n.p.n. type, and the BC108 may be replaced by a BC109 or most of the "unbranded" n.p.n. types. An n.p.n. transistor is used because the low leakage current should have little effect on the meter with no input to the DC amplifier. Though p.n.p. transistors could be used, a backing-off circuit would be required to zero the meter.

The SWR indicator in Fig. 1 is set up using a dummy load, a non-inductive resistance equal to the impedance of the aerial. This is connected to the output, or Aerial end of the indicator and a few watts of RF are fed into the Transmitter end. Switch on the indicator and adjust RV2 to give the maximum reading with the switch in the "forward" position. With an ideal non-inductive load, the reverse reading should be almost *nil*. If it is not re-adjust RV2 for a low reading, then repeat the adjustments for high "forward" and low "reflected" readings.

The SWR Indicator, as built by G3RJV, is shown here on the right of his Heathkit HW-7 miniature low-power transceiver, giving U.S. contacts with two watts and an indoor dipole.



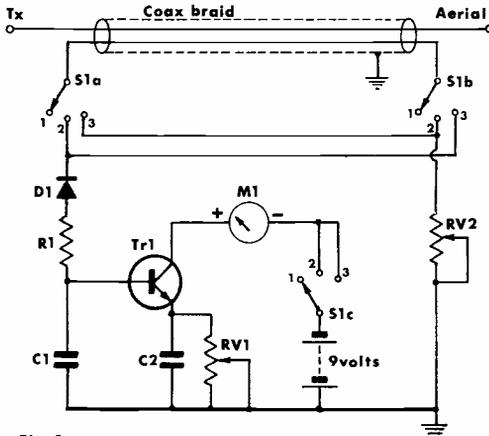


Fig. 1

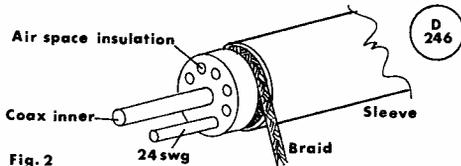


Fig. 2

Fig. 1. Circuit of the basic Bridge for QRP working, as discussed by G3RJV in the text.

The simple circuit of Fig. 1 can provide a useful instrument for loading QRP transmitters, but in use it was found to be frequency conscious. This is probably related to the length of coax used to make the bridge, although variations of coax cable length have not been tried to investigate the problem. Many modern commercial SWR meters use an RF bridge based upon a toroid transformer. In the basic QRO RF bridges, a coaxial or similar screened cable passes through the centre of a toroid former, which has an RF pick-up winding around its entire length. This method of coupling would not pick up enough current in the toroid winding when using low RF power, so a more direct method of coupling is required.

Toroid RF Bridge

The basic construction of the toroid RF transformer is shown in Fig. 4. The pick-up winding is 55 turns of 28g. enamelled wound around the whole circumference of the T-68-2 toroid former. The RF input is provided by a couple of turns of 24g. insulated wire wound over the centre of the main winding. This was found to give full-scale readings with transistor PA stages with as little as 1 watt DC input. If even lower powers are being used, the main winding could be decreased to 50 or even 45 turns of 28g. wire. An extra turn on the RF winding could also be tried. The windings are arranged as shown in Fig. 4, the rigidity of the wire being enough to hold them in place.

Table of Values

Fig. 1. Circuit of the Prototype

C1, C2 = .001 μ F, disc	SA/B/C = 3-pole, 3-way wafer
R1 = 10,000 ohms	M1 = 0-1 mA, m/c
RV1 = 10K linear	Tr1 = BC108, or similar
RV2 = 100-ohm lin., carbon	

The RF bridge circuit, with the DC amplifier, is shown in Fig. 3. The bridge circuit was built up on a piece of 2 $\frac{3}{4}$ x 1 $\frac{1}{4}$ in. perforated board (2mm. spacings between holes). The unit could well be constructed on a similar plain piece of paxolin, with holes drilled to accept the component leads. Two 18g. copper wire bus bars were mounted as shown. The lower one is the "chassis line" and the upper one the connection between R1 and R2, marked as X-Y on the circuit diagram in Fig. 3. The layout is shown in Fig. 5.

Mounting The Components

The whole unit was built into an aluminium wrap-round box measuring some 4 $\frac{1}{2}$ x 4 x 4in. This size happened to match the dimensions of the meter. RV1 and SA/B the unit could be smaller. The RF bridge circuit board was mounted on to the bottom of the case with a thick blob of *Bluetack*, the putty-like adhesive agent. The input and output sockets were placed on the

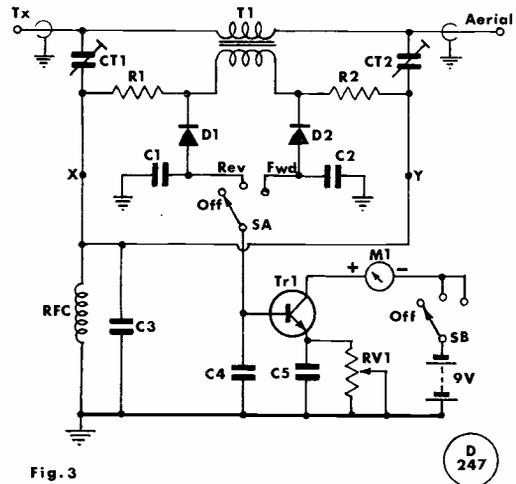


Fig. 3

Fig. 3. The SWR Indicator for QRP working complete.

Table of Values

Fig. 3. Circuit complete of Indicator

C1, C2, C4, C5 = .001 μ F, disc	RV1 = 10K linear
C3 = 500 μ F, s/m	D1, D2 = 1N34A, or similar
CT1, CT2 = 20 μ F cer. trimmers	SA/B = 2-pole, 3-way
R1, R2 = 100 ohms	RFC = 1.5 mH RF choke
	Tr1 = BC108, or similar

Notes: For winding T1, see text and Fig. 4—toroid former T-68-2 obtainable from T.M.P. Electronics, Ltd. and all other parts from J. Birkett.

back of the case with RV1 and SA/B brought to the front panel as knob controls.

The DC amplifier was built on a small tag strip, as shown in Fig. 6. The mounting hole at one end of the tag strip was bolted to the meter+ screw to hold it in place and enable a short connection to be made from Tr1 collector lead. A stiff-wire earthing bus bar was connected between one meter/front panel screw and the chassis connection screw on the output socket. C4, C5, RV1 and the battery+lead were connected to this wire. The battery used was a PP3. The current drawn from the battery is low, in the order of 1 mA for full-scale reading on the "forward" position with 5 watts DC input to the transmitter. The leads between the sockets and CT1 and CT2 should be kept as short as possible; the prototype used screened leads just over one inch long, the outer braid being connected to X-Y of Fig. 3.

Setting Up The Bridge

Before the instrument is used the bridge should be "nulled" using CT1 and CT2. This setting up can be done on any of the higher frequency bands. The indicator has been used on the 10-metre band, but the prototype was set up at the CW end of 20 metres, the band mainly used by the author. The setting-up is done by using a non-inductive dummy load of 50 ohms (or 75 ohms) and a suitable RF input. The dummy load is first plugged into the Aerial socket and about 2 to 5 watts (DC input) power is fed to the Tx socket. Set the switch to the "Forward" position and adjust RV1 for a full-scale reading. Switch to "Reverse" and adjust CT1 for a minimum meter reading. Now reverse the transmitter and dummy load positions to the opposite sockets. As the bridge is now operating in reverse, adjust CT2 for the lowest meter reading with the switch in the "Forward" position. This setting-up routine may be repeated two or three times for the best compromise result. Now check the Indicator with RF inputs on other bands. It should be possible to accommodate the variation in "Forward" readings with a small adjustment of RV1.

Simple SWR Calibration

Although the Indicator is basically a reflectometer, to give relative forward and reverse current readings, it is possible to make a basic calibration of VSWR readings. The readings on the instrument are not an accurate indication of RF voltage over the entire range of meter readings because of the non-linearity of the diodes and the DC amplifier and the frequency-conscious nature of the bridge.

A simple calibration is possible using various values of non-inductive load. Such a calibration only applies to frequencies close to that used in the actual calibration operation, and is therefore best made on the band most frequently used.

The ratio of a load resistance to the bridge's designed resistance (50 ohms) gives the standing-wave ratio. A 250-ohm load with the 50-ohm bridge gives a ratio of 250 : 50, or 5 : 1; 15 ohms gives 50 : 15 or 3.3 : 1, and naturally the 50-ohm load gives 50 : 50 or 1 : 1. Beginning with the 50-ohm load and using the same power input and the same sensitivity (RV1) setting, meter readings corresponding to several loads can be plotted

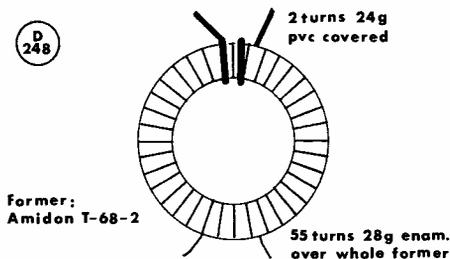


Fig. 4 Coil Winding details

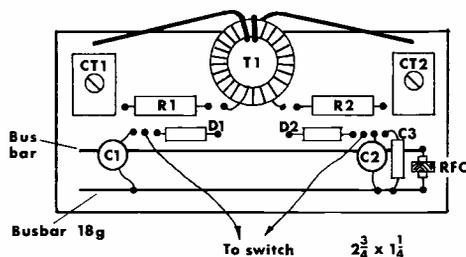


Fig. 5 Layout of Bridge circuit

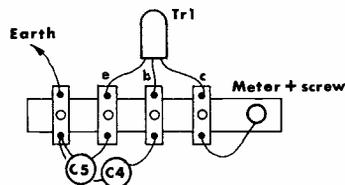


Fig. 6 Layout of DC Amplifier tag strip

to give a meter reading/SWR graph. RV1 must not be altered during this calibration as the DC amplifier is not linear, nor should the power input be changed. This simple type of calibration can only represent a rough indication of the actual SWR and even then the readings only really apply to the actual calibration frequency. Even without this calibration, the Indicator is very useful for relative forward and reverse readings when loading into various aerials using an ATU.

Using The Indicator

When the Indicator is used with an ATU it should be placed between the transmitter and the tuner. The connections to and from the unit should be made with coax cables and correct plug/socket arrangements. The ATU is best adjusted for the lowest reverse reading and then the transmitter PA can be retuned for maximum forward power. Because of the nature of tuning up a QRP PA stage, the indicator can give useful readings when tuning up aerials without an ATU. When first built, the Indicator was used to load up an HW-7 into an indoor 20-metre dipole. It suggested that a few inches

should be cut from each end of the aerial. It was after that the first of several W's were worked using two watts and the indoor dipole on 20 metres. The Indicator has been tried with power inputs of up to 10 watts, but

it is not recommended to use an actual RF power input of more than about 20 watts to the bridge circuit of Fig. 3. The indicator has been tried on all bands 160-10 metres with good results.

STARTER FOR TWO

SIMPLE THREE-STAGE TRANSMITTER FOR THE 144 MHz BAND

F. G. RAYER, T.Eng. (CEI)
A.I.E.R.E. (G3OGR)

THIS is the third RF unit for use with a standard power supply/modulator (to be described) and in conjunction with this up to about 10 watts of AM can be run on the 144 MHz band. Somewhat similar power packs would of course be equally suitable.

A dipole with an overall length of about 38½ in. is very easily made, and if moderately high and in the clear can give good general all-round coverage and reasonable range. Such an aerial need only be two alloy tubes, mounted at a junction box where the feeder is also attached. The latter can be 75 ohm co-ax, and be of any length. Such an aerial is very light, and can be fixed to the top of a pole or post.

A more elaborate aerial, if available, will of course have advantages in terms of increased signal strength and range, but will need some means of rotation for all-round working.

Construction of the transmitter is very similar to that of the 4-metre unit described in the August issue of *SHORT WAVE MAGAZINE* and the layout of the latter is followed except for the crystal oscillator, and a few other minor changes.

Circuit

This is shown in Fig. 1, and has only three stages—oscillator, doubler and PA.

Oscillator: Triode V1 is an overtone oscillator, working on 72 MHz. This simplifies the equipment as only a double is required before the PA. L1 is tuned to about 72 MHz by trimmer T1. Feedback to the crystal circuit and grid of V1 is by the coupling winding L2. L1 and L2 have to be in the "sense" shown, to secure oscillation. It was found of advantage to have a separate feedback winding, rather than using a tapped coil, as the amount of feedback can be easily adjusted by moving L2 in relationship to L1. This is simpler than moving the position of a coil tapping.

With this overtone oscillator, the lowest frequency produced is 72 MHz, unlike oscillators where a lower frequency is developed but a second, third or other harmonic is taken from the anode.

This stage must be tested by placing a meter at the HT end of R2, using a 20 mA or similar range. When

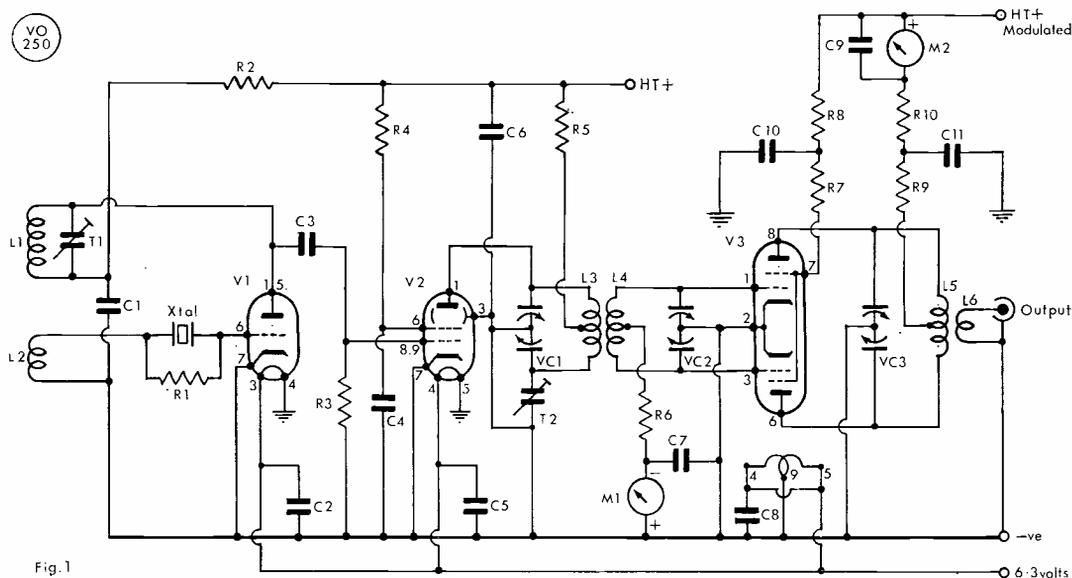
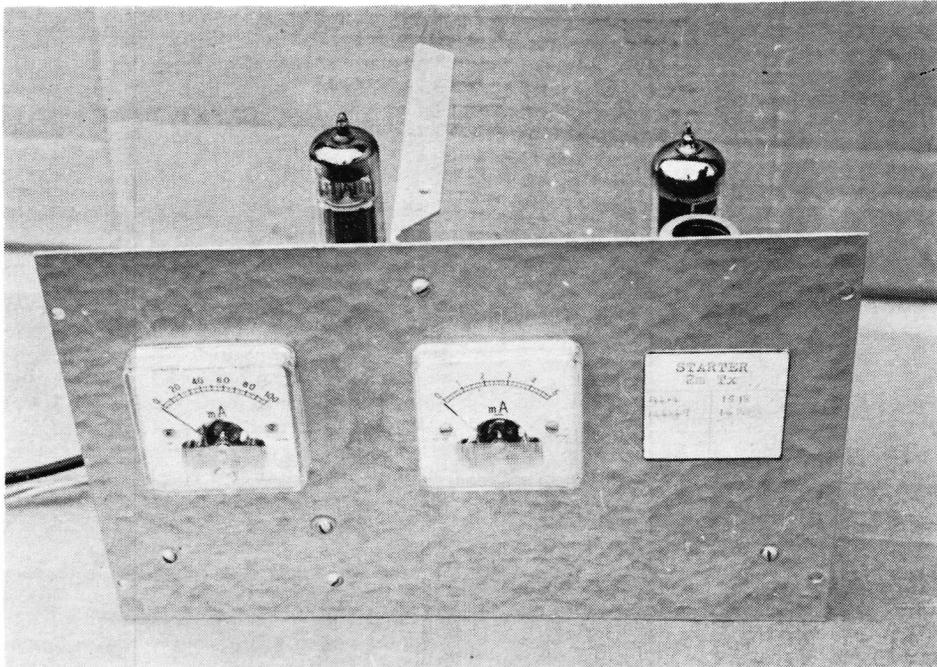


Fig. 1

Fig. 1. Circuit of the Two-Metre RF Unit



Upper chassis layout for the Two-Metre RF Unit

feedback from L1 to L2 is suitably adjusted, rotating T1 will produce a dip in anode current, in a similar manner to that noted with other crystal oscillators. In addition, when the Tx is tuned up and the signal is checked with a converter and receiver or similar means, there is only a very slight change in frequency due to T1, from pulling of the crystal frequency. In these circumstances, the oscillator is crystal controlled and tuning L1 much off frequency will stop oscillation.

Should feedback be insufficient, so that no oscillation can arise, there will be no dip in anode current, and no adjustment of T1 will give any RF from the stage. This is cured by moving L2 a little nearer to L1.

Alternatively, if coupling and feedback are too great,

the stage will not be crystal controlled, and will oscillate and produce RF at almost any frequency to which it is tuned. Rotating T1 will move the signal several MHz up and down the band. This must of course be avoided by moving L2 away from L1. Some care is necessary to obtain the best output from V1, without losing control by the crystal.

The crystal used is a 5th overtone 72 MHz type. Such a crystal can easily be excited at its 3rd overtone if L1 is tuned to the vicinity of this. However, this frequency is far removed from that wanted, and there should not be any trouble from this cause. If necessary, a check with a wavemeter will confirm that the circuit is operating as it should.

A very small re-adjustment will probably be needed after V2 is in position and operating. A check should be made that the oscillator starts when the equipment is switched on, and this usually makes it necessary to set T1 just *off* the point which gives maximum output. When subsequent stages are working, adjustments to the oscillator can be directed towards obtaining a suitable grid current for the PA, as shown by the grid meter.

Doubler: V2 receives drive at 72 MHz, and L3 is tuned to 144 MHz, as are all subsequent circuits. T2 is to compensate for the stray capacitance of V2.

L4 is tuned by VC2, and grid current is shown by M1. Split-stator or butterfly capacitors are essential for VC1, VC2 and VC3. If surplus items are to hand, there is no need to use the exact values given.

If a GDO is available, it is helpful to set L3 and L4 with this, before applying power. Failing this, and with V1 working correctly, adjust VC1 and VC2 until some

Table of Values

Fig. 1. Circuit of Two-Metre RF Unit

C1, C2,	R3 = 82,000 ohms, $\frac{1}{2}$ w.
C4, C5,	R4 = 27,000 ohms, 1w.
C6, C7,	R5 = 270 ohms, $\frac{1}{2}$ w.
C8, C9 = .01 μ F disc cer.	R6 = 22,000 ohms, $\frac{1}{2}$ w.
C3 = 10 μ F	R7, R9 = 47 ohms, $\frac{1}{2}$ w.
C10, C11 = .002 μ F, 600v.	R8 = 39,000 ohms, 1w.
	R10 = 10 ohms, $\frac{1}{2}$ w.
T1 = 30 μ F trimmer	L1, L2,
T2 = 10 μ F tub,	L3, L4,
trimmer	L5, L6 = see text
VC1,	M1 = 0.5 mA
VC2 = 25 μ F, var.	M2 = 0.100 mA
VC3 = 12 μ F, var.	V1 = 6C4, or EC90
	V2 = 5763, or
R1 = 10,000 ohms, $\frac{1}{2}$ w.	QVO3-12
R2 = 2,700 ohms, 1w.	V3 = QQVO3-10

Notes: V1 should be in B7G holder, with can. V2, V3 should be in B9A ceramic holders. Chassis can be 4 x 7 x 2in., with screens 4 x 2in. and 4 x 3in. Cabinet and panel can be to choice.

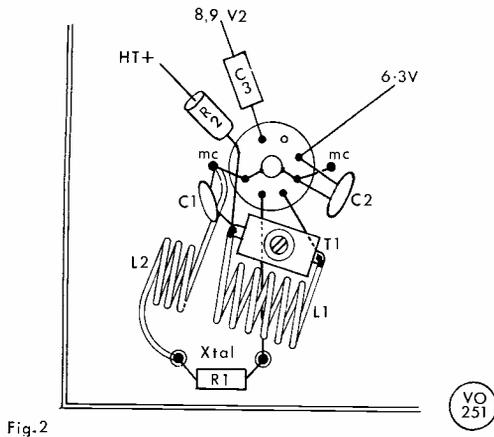


Fig. 2

Fig. 2. Wiring layout for oscillator stage

grid current is shown by M1. HT must not be applied to point 4. VC1 and VC2 can then be peaked up for maximum grid current, and their settings interact slightly. Should either capacitor prove to be fully open, stretch the coil a little to correct this. On the other hand, if either capacitor is fully closed, the coil must be compressed. The coils described should prove to be suitable without adjustment in this way.

The setting of T2 is not very important. If T2 is slowly screwed down from minimum, VC1 meanwhile being re-adjusted very slightly as required, a setting should be found which gives a slight rise in grid current. Otherwise leave T2 at about 5pF or so. (With the power pack to be described, there is provision for reducing the HT voltage for these adjustments). L3 and L4 need to be quite closely coupled, this being adjusted by bending one or both coils to change the separation, to secure best grid drive, as shown by M1. VC1 and VC2 should be checked afterwards.

PA Stage: HT should not be applied until 2 mA or so if grid current is obtained. A 12v. 6-watt lamp or other load can be temporarily plugged into the output socket of L6. VC3 is rotated for maximum brilliance. This may not agree exactly with the usual dip on M2. Final adjustments to all trimmers should be made, while watching the lamp and M2.

For first adjustments, reduced HT voltage can be used. L6 will probably need to be a little way out of L5, to avoid excess loading. PA input is of course anode voltage \times anode current. As example, with a 300v. supply and the meter showing 30 mA = 300 \times 0.03 = 9 watts. When a large supply is available, up to 20 watts may be used.

Inductors

L1 has six turns of 20g. wire, and is 7/16th in. outside diameter and 3/8in. long. L2 is three turns of insulated wire, of the same diameter as L1.

L3 is wound with 20g. insulated wire and has five turns, separated to make the winding 3/8in. long. It is

centre tapped for R5, and 3/8in. in outside diameter.

L4 is also 20g. wire, six turns centre tapped, 7/8in. long, and the same diameter as L3.

L5 is of 16-gauge wire, four turns centre tapped, 9/16th in. o.d. and 1/2in. long, with one turn of insulated wire centrally placed for L6.

Constructional Points

Except for the oscillator, details are virtually the same as for the 4-metre transmitter already described (August issue) as can be seen from the chassis layout for that unit, as well as from the under-chassis view.

A screen runs across under the PA valveholder, and a screen is also fitted on top of the chassis. Instead of the single meter and switching of the 4m. unit, two meters are used, permanently wired for PA grid and anode current. These are on a panel above the chassis. The screens and chassis can be made from ready formed "universal chassis" members as for the 4m. unit, or can be fabricated to suit. (A suitable case is available from *Home Radio* and other sources). The actual dimensions of the chassis will not be too important, provided leads can be short in the RF circuits, without cramping.

Chassis returns and other RF leads should be as short and direct as can be arranged. The QQVO3-10 should then be found to be perfectly stable. No difficulty will arise with the 5763, as this valve is functioning as a doubler.

Wiring around the oscillator stage is shown in Fig. 2. As mentioned, care is necessary here to obtain proper crystal control. This is the price paid for the avoidance of a low frequency crystal, possibly around 8 MHz, which would involve additional multipliers.

Relay

The power supply described has provision for controlling a relay in addition to the HT circuits, and this item is connected as in Fig. 3. The relay is a 12v. aerial type, and was found to operate reliably from the 8-9v. DC available for this purpose.

Some transistorised converters will need protective diodes adding, to avoid damage from RF leaking into the converter. When the relay is not energised the aerial circuit is to the receiver side.

Tune-Up Indicator

The resistors and diode allow a high-resistance voltmeter to be clipped on for RF tune-up purposes when the

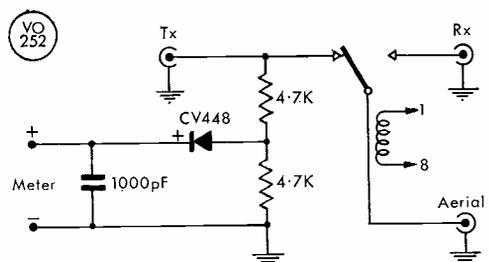
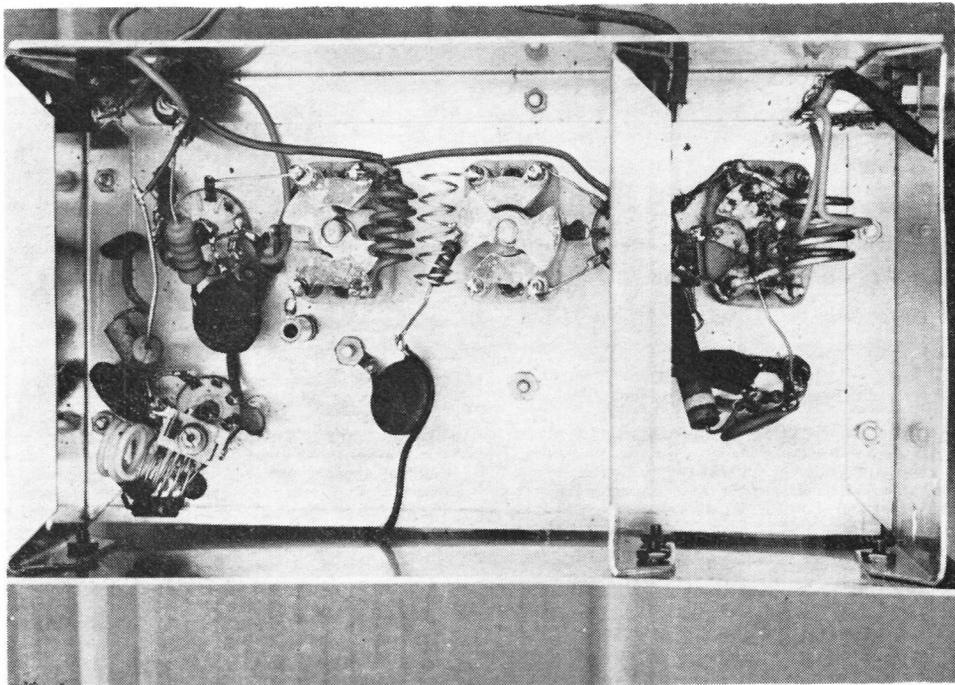


Fig. 3. Change-over relay and RF tune-up circuit



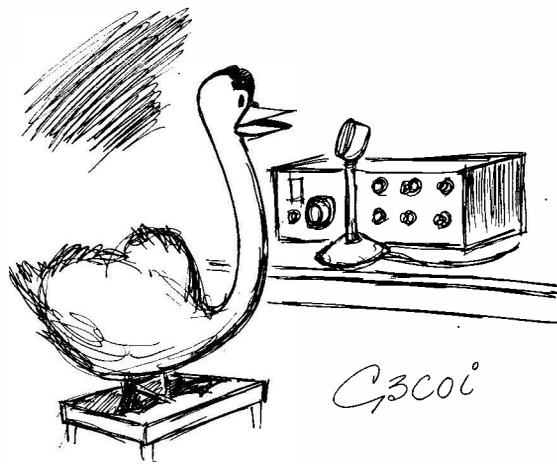
Under-chassis construction, showing screening

aerial is connected. A reading of a few volts DC will be obtained, and adjustments are directed towards securing the best meter indication. If the aerial or other parts of the installation are not changed, the meter can then be removed. A slight re-adjustment of tuning from the spot found best with a lamp or resistor load will probably be needed.

Crystals

Output is $\times 2$ the crystal frequency. With a crystal controlled converter and accurately calibrated receiver, frequencies can be read in terms of tunable IF on the receiver. The signal should come up at very nearly the expected point, though it may not be *exactly* in agreement with the receiver scale.

Operation is very straight forward, once the equipment has been tuned up, and the switch on the power supply/modulator gives complete control. Because of the modulator limitations, there is little advantage in running over about 10 watts. Doing so it likely to bring reports of under-modulation. A somewhat similar effect can be produced by inadequate grid drive. Grid drive was adequate with the value given for R4, but this resistor can be reduced to boost gain in this stage, provided the 5763 anode dissipation is not exceeded (12 watts). Cans are not used on this stage, or on the PA.



..... *decided to go Swan here*

• • • SWL • • •

SHORT WAVE LISTENER FEATURE

By Justin Cooper

SOME INTERESTING TECHNICAL POINTS — MORE ON PRESELECTORS, FILTERS AND AERIALS — RTTY FOR THE SWL — TUNING SSB ON OLDER RECEIVERS — NOTES, NEWS AND COMMENT — THE TABULAR MATTER

QUITE a crop of letters again this time, and one would think most of them—at least from the chaps who have been around for some years—would comment on the fallaway of conditions on the bands as compared, say, with two or three years ago. However, the sunspot cycle has its advantages; although nothing can be done to enable DX to be heard on a dead band, the poor conditions are often manifested by way of openings with poor, watery signals, which by their very nature tend to make the SWL or amateur look to his equipment with a view to any improvements which can be made. And, often, this will lead the chap who thought himself “non-technical” into the fascinating paths of home-construction and so into a whole new facet of Amateur Radio.

Technical Matters

After reading your conductor's reportage of the preselector question, *Hangear Electronics* wrote in to present their own (opposite) view. To summarise what they say, taking their own preselectors as the example: The gain of the preselector, which itself has a noise figure quite good enough for use on the HF bands, is of the order of 32 dB. They go on to say that their recommendation for use (and we certainly cannot cavil at this) is that the preselector be run at full gain with the receiver RF gain turned right down. This, it is argued, means that the signal reaching the mixer is no more hefty than it would have been before, except that the noise figure of the receiver has been swapped for the noise figure of the preselector which is generally better; and that this contention can very easily be demonstrated on a receiver simply by disconnecting the pre-selector when the receiver proper will become for all practical purposes silent. They go on to say that even quality receivers can benefit.

This, it must be admitted, is a very attractive argument. However, one feels it is spoiled by the invocation of a totally irrelevant demonstration, even though there can be no argument that the method recommended is the best way of handling any preselector, in the absence of any definite indications to the contrary. What is not offered is any real proof that the method will give the improved reception of DX signals which is the reason for building or buying. The first part of the ideal receiver system is an Aerial Tuning Unit to get the maximum possible signal extraction from the aerial and this in fact is the first part of the *Hangear* unit. Then we have the “gain block” out of which we feed a resistive signal at suitably low impedance to the Rx. Without the gain block, the ATU and matching alone would effect some considerable improvement (up to as much as three S-points in some cases) partly by way of the matching of the resistive components and partly by the elimination of detuning caused by the reactive component in the aerial, which otherwise would drive the receiver RF tuned circuit out of line. Now we must look at the gain block; here, the preselector noise figure will probably be as good as the aerial can stand, and maybe better than the receiver RF stage gives. It also produces noise—that's the reason for it having a “noise figure” obviously. The receiver itself has a noise figure, which gets worse as the RF gain control is reduced. Hence turning the gain on the RF Stage down and running the gain of the preselector flat out won't make any improvement to the noise factor. If, as so often happens, the “RF gain” control turns out to be in fact a combination RF/IF gain control, with the mixer isolated from the control to avoid pulling, then the situation is even worse.

However, the average amateur or SWL is, as this old scribe knows from long experience, quite obsessed with gain as the criterion of goodness, and is quite happy to believe his receiver is lively when the “sharsh” coming out of the speaker is deafening while the gains are all up and no signal is coming in. Indeed, once old J.C. was guilty of deluding an SWL by tacking his home-built Noise Bridge

to the receiver instead of the aerial, pulling out the RF stage valve, and shorting the aerial input straight to the mixer grid. The chap thought the result “fantastic” . . . one supposes it could be regarded as fantastic, but not in the way he meant the word!

P. J. Brent (*Helensburgh*) has some interesting points on aerials; he feels that the correct thing to do is to cut them to size for a particular band, pad them to other bands with C or L as necessary, and then feed them through a pi-tank as an aerial coupler, in and out in coaxial to the receiver, when, he asserts, no problems should be noted. The philosophy is largely correct, insofar as a known type of aerial with dimensions suitably adjusted is more likely to work than a “gash length” without benefit of ATU, simply because the amateur has no measuring gear for his aerial works and cannot build any. However, one thing should be noted about the pi-coupler used as an ATU and that is that sometimes it will not match effectively; the condition occurs when the square of the reactance of the inductor is greater than the product of the input impedance and the output impedance; the solution, clearly, is to either reduce the inductance in the pi-tank or to increase the feed impedance on either the input or output or both, so as to get their product up high enough.

H. A. Londesborough (*Swanland*), asks about the worth of the MFJ filter, his problem being that he finds it hard to notch out those S9 Italians on his FR-400SDX without losing the wanted signal. A fair question to which one would think the answer would be “yes”—always given that the problem is not due to cross-modulation earlier in the receiver. Personally, for his CW listening, J.C. uses both an MFJ CW filter and an attenuator put between the aerial and the receiver; the MFJ box is most definitely better than any audio-selective device found in thirty years of SWL and licensed operation.

M. Rivers (*Whyteleaf*) is also on the aerials kick. He is indeed a great one for putting aerials up and ripping them down again. This is fair enough, but it should be stressed that if the aerial erected is of a known type, or at least is designed in accordance with the laws of physics, rather than being of the “hope and grope” persuasion, then it should be given a trial over several months and results compared against some sort of standard, lest one be fooled by conditions or a receiver fault into ripping down a good 'un.

Sad to relate, M. Barton (*Market Deeping*) is QRT due to his HA-600 receiver being kaput, and no circuit diagram available. He doesn't say what the symptoms are, but does enquire where one can get parts; all the electrical ones should be available with the local radio/TV shop. If any reader has a circuit they could send direct to 81 Godsey Crescent, Market Deeping, Peterborough. As for the mechanical parts, these are often unique to a particular receiver and so to its maker; replacement of such items after the maker has run out his service stock is often a matter of skilled bodging with whatever may be at hand, usually sacrificing a little styling in favour of continued operation.

What's all this RTTY stuff about? enquires L. Craven (*Avechurch*). Simply, it is the use of a teleprinter on radio link. The printer, whether on line or radio, works by sorting out a code comprising a sequence of five pips of tone of two frequencies called, respectively, *mark* and *space*. In addition, a “space” is sent at the beginning of each letter to act as a start-pulse, and a “mark” at the end to act as a stop. The reason for these is that since the receiving and sending printers must run at the same speed, by starting the machine and stopping it on each letter the accumulation of speed errors is reduced. In the amateur shack, to receive a RTTY signal requires an ordinary stable communications receiver/aerial system, plus additional gear in the form of a teleprinter (with its own PSU most likely) and a thing called a Terminal Unit which in effect turns the signals out of the receiver into a form capable of driving the printer. Turning to the RF side, the mark and space are transmitted as two different frequencies spaced apart by either 850 Hz, or, particularly on HF, 170 Hz; this is done by shifting the carrier frequency itself on the HF bands, or by using two audio tones, (the standards are 2125 Hz for mark and 2975 Hz for the space signal) on a fixed carrier frequency, this latter technique being more often met on VHF.

So, firstly you require a teleprinter, preferably a “page-printer” type, which as usually will require to be worked over to get it into tip-top condition mechanically, motor speed set up by means of a strobe, lubricated, and so on. Unless you have an isolated shack at

ANNUAL HPX LADDER

(Starting date January 1, 1975)

SWL	PREFIXES	SWL	PREFIXES
A. C. Darragh (Wetherby)	425	M. Barton	
L. Gibson		(Market Deeping)	306
(Barrow-in-Furness)	424	D. Taylor (Birmingham 17)	303
R. A. Elliott (Brentwood)	386	R. Staples (Lymm)	206
J. Aspinall (Leeds)	369	M. Kelly	
G. Ridgeway (Kettering)	328	(Lisburn, Co. Antrim)	205
M. Law (Chesterfield)	316		

Starting score 200, in accordance with the HPX Rules, All Prefixes in this list to have been heard in 1975. When a score of 500 is reached transfer to the All-Time Table will following, at which time prefixes heard outside the period of this table may be added to the score. HPX Rules, see p. 492, November 1974 issue.

metre operators, such indeed as Gareth himself, are lumbered with a collection of chaps who have to be taught just about everything concerning operating. Also, we must point out that there was a sentence following which made quite clear JC's own humble attitude to the eighty-metre bad operators.

Next, to E. Parker (Hove) who started the hare in the first place—Ernie also didn't read the whole of the sentence! However, although he has much to say in his letter, space presses hard and we must just extract his special point, and that is his irritation with the Home Office people for not enforcing the conditions of the ticket—*hear!*, *hear!* Just to jump on a couple of the worst and most blatant offenders hard and to say (for publication) just why they did so would cause an immediate improvement, we are certain.

J. D. Porter (Baslow) is another who is low on prefixes this time thanks to the work done on R.A.E., for which he now awaits the result anxiously.

J. Bell (Hampstead) has a problem—his filing system! Seems he happily ditched the old one before he got the new one organised properly—hard luck. On a different line, John wonders about correspondence courses for R.A.E. and their practicability. One would feel this is very much a matter of the individual's personal temperament, provided the said person can cope with the very simple maths involved.

And that brings us to a cry for help; old G3KFE was sampling the pubs on the Oxford Canal just recently and he met the publican of the "Great Western" at Aynho, who, as 'KFE entered the bar was bemoaning his inability to get an R.A.E. course off the ground at Banbury Tech, for want of numbers to make a start. Is there anyone who could help this lad achieve his long-held ambition?—if so, drop him a line direct to his home address: D. E. Nicholls, 27 St. Johns Way, Hempton, Nr. Deddington, Oxon., to tee up a convenient time to go and have a talk about it.

The question of a special commemorative U.K. prefix is raised by R. H. McVey (Weston-super-Mare). It would be interesting, certainly, but the administrative work from the Home Office point of view would be quite considerable for the amount of gain there would be. On a different tack, McVey père is G3GMC and he will QSL SWL reports 100%, from anywhere on any band, replying direct if an IRC is enclosed. It must be galling, with such a policy, for G3GMC to have to work about 150 countries in order to get a card in from 100 so as to be able to forward his DXCC claim, but there it is.

W. H. Smyth (Hartlepool) couldn't write in last time, his hand being in plaster after a fracture—hard luck. However Bill managed to continue logging, using the left hand for both pencil and receiver, and seems to have heard most of the goings-on around the bands. His queries include "UR5GZ" and "UA60HAR" on the same band, but while we are reluctant to damn them as pirates it can only be said that these two calls are way out of the known run of things, and so, unless someone comes back to us with some other details, or one of our Russian readers can enlighten us, we must reluctantly scrape them off the list.

P. Rooney, writing from Worcester College, Oxford, comments that he has wondered why people were beeping so much about conditions, as when he arrived home his first session at the receiver showed 20 and 15 metres as wide open to DX. But he soon realised when his next few listening sessions produced either dead bands or a day of I, UA-Europe and OK signals with nothing else!

E. W. Robinson (Bury St. Edmunds) is getting more time to play with the wireless now, he having retired from work—lucky chap! Perhaps the best of a very good bunch was JF1NZM/MM, operator Ken, on a 254,000 ton tanker about twelve hours sailing-time from Singapore and headed for the Persian Gulf, who was heard well at

1654z and still was coming in strongly an hour later.

Our sympathies go out to R. Carter (Blackburn) who was stricken with total deafness on April 18 for four days—it must have been pretty terrifying, particularly for one with an interest in Amateur Radio.

There is nothing like an algebraic approach to problems, says M. Pein (Liverpool). His personal equation is expressed as: Bad conditions plus flat batteries plus schoolwork plus fallen-down aeriels equals low HPX score! We know the feeling—indeed one of the J.C. aeriels has obeyed the force of gravity since this offering was commenced.

L. Gibson (Barrow-in-Furness) wonders if all the funny prefixes about nowadays count for HPX. Indeed they do, provided only that they are heard direct and not by way of *Oscars*, and in addition that are genuine amateur callsigns. On a different tack, Les has shifted the 14 MHz dipole outside in an effort to reduce the TV timebase noises; it has improved reception quite a bit but done no good to the volume of the TV timebase harmonics—oh, well, you can't win 'em all!

G. Lucas (Kennoway) has a long letter this time, about this-and-that; he signs it GM8JKT, on which our congratulations are in order and is at the moment pegging out at Morse. However, he has been turfed out of his warm corner of the XYL's bedroom out into the coal-cellar; but he is philosophical about as it lets him listen on a bit later at night without complaints from the distaff side. Come to think about it we have a snap here of old Any, G3UUZ, in his coal-cellar shack at the Anvil Point lighthouse and it looks a mighty fine sort of place for the rig. In addition, of course, there is the matter of NFD still to be tackled (at the time of his letter, that is) which will keep him well occupied.

M. Quintin (Wotton-under-Edge) was a bit worried at hearing a W discussing the next frequency-allocation conference in a few years time and making the dismal prediction that we shall lose all our bands to the commercial interests. We could comment that it's a long way ahead yet anyway; but it would be less than realistic if we claimed that no losses of our bands could possibly occur. The problem basically is not one of "commercial interest" but rather one of "developing nations." Each country which sends a delegate has one vote only. Thus, Russia, U.S.A., and U.K. muster three votes, while emergent African countries which have no knowledge of, or are actively against, Amateur Radio probably number thirty-three; thirty-three countries equals thirty-three votes against. Hence the importance of promoting a good image of Amateur Radio at the conference and before, so that as many as possible votes are cast in favour of resolutions to retain or even increase amateur allocations.

It's nice to have a reserve receiver around the place, as A. F. Roberts (Kidderminster) realised when his 840A packed up; he was then able to continue listening with the old standby R.107 and collect a few more for his CW list.

A few interesting comments on the R.A.E. paper from R. C. Woolley (Ashbourne) who found it somewhat different from what he had expected, no calculations and hence all descriptive—it has to be admitted that in that way it was, as it were, a bit of a "turn-up for the book." On the other hand, Richard doubts his own ability at describing things and is therefore somewhat pessimistic. Thus, he is spending his time brushing-up from the *Examination Manual* and practising Morse. However, if he writes answers from the right facts as clearly as he writes a letter, it should be a pass for him—most people lose far more marks than one would expect of him by way of self-contradiction and woolly phraseology.

A. C. Roberts has various points to make from *Shepshed*, among which we notice he was lucky enough to log 3C1AGD during that station's one day of operation on Fernando Po; and he also managed to hear UA9VH/JT1 after a long time trying, as the pick of his rather nice crop of DX callsigns.

H. M. Graham (Harefield) continues his steady way up the HPX ladder, and in the process picked-up a couple of all-time new countries in YB0ABV and VSSMC, the latter heard no less than three times at strengths varying from S1 to S5, always around tea-time of course, and on Twenty.

Finally, another New Boy—N. A. Phelps (Devizes) comes into the CW HPX list at 778 prefixes claimed, of which only one is disallowed, namely the claimed "KY9ITU" who was in fact KY1ITU, with whom your conductor and G3KFE spent a merry evening on May 31 over pints of ale.

Now The Sign-Off

Deadline for the next appearance of "SWL," in the September issue (due out on August 29) will be July 24, addressed "SWL," *SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ.* Till then, all the best from J.C.—and keep the wheels turning.

VHF BANDS

A. H. DORMER (G3DAH)

THE recent improvement in the weather brought some good opportunities on all the VHF bands right down to 23cm. Most remarkable, probably, was the Sporadic-E opening to Italy on May 21 which extended up to Lancashire and into Northern Ireland. G13JLA in Co. Tyrone first heard I0SVS on 144.20 MHz SSB at 1820z at 5 & 8, but could not raise him. However, he moved up a few kHz and worked in succession at 1822z I4EAT at 5 & 9 plus both ways, I4PWL at 1824z at the same signal level and in the same QRA, and I2CZE at 1826z, also at 5 & 9+. The QRB was 1640 km. This may be a "First," and even if it isn't, both ends of the contact must have been very pleased about it. This has all the appearance of ducting, of course.

The opening was not confined to Sporadic-E propagation. There was extended tropo. around also, which was evident over most of the country instead of being confined, as it so often is, to a smallish area, and which peaked on the evening of May 28. To quote from two reports: G8HHI (Yately, Hants.) worked a couple of OZ's and a string of PA's and DL's while G8GLG in Preston, Lancs. (around the same time) got into OZ, DL, PA, ON and raised GM4DCV/A, operating from the station of GM8FFX in Aberdeen. He also reports hearing two stations (callsigns not given) in QRA ZY12b and ZY33e, which puts them in SE Spain and sounds more like a recurrence of Sporadic-E than extended tropo.

This brings us to the great mystery of where all the 70 cm. and 23 cm. operators get to when conditions are as good as this. The beacons on both bands were 20-30 dB up on normal for days on end, but the activity was minimal, except for a few regulars. They must be there, somewhere, because they appear during contests, and not as portables either, and one is forced to the conclusion that not enough monitoring is done as would be profitable. There is no doubt at all that beacons are the best indication of propagation—they always beam the same way with the same output power and so provide a most reliable and accurate guide to conditions. GB3GEC on 432.1 MHz, in particular, is covering a large service area in spite of the fact that the installation is not yet in its final form. Some who took advantage of 70 cm. during the general opening at the end of May were G4AHH (Towcester) and G8GFQ (Stoke) who were working into PA0, and G5UM (Leicester) who was heard calling ON6. On the other bands, G3POI (Sevenoaks) worked six countries in one night on 2m. SSB and was reported at 5 & 9 in the North Midlands, GW8ASZ worked DJ7YF, and G3SUK in Bury St.

Edmunds was also getting into DL well. On 4m., G4API (Hitchin) put his new SSB rig to good use and worked several stations well to the North—he probably has had plenty of practice on the band since he was one of the operators at G3KMI, the Southampton University Society.

On a more general note, G2AXI (Basingstoke) has added two more countries, DL and PA, to his 70 cm. score and now has SSB available on that band, in addition to 4m. and 2m., and GW8GLG in Dyfed should now be on 70 cm. with 70 watts of SSB. He says that he will be QRV on the 70 cm. calling channel most evenings during 1830—1900 BST and around 144.20 MHz between 1900—2100 BST if anyone wants to fix a sked with that county. G3BW in Cumbria had a good 70 cm. contact over a difficult path with GM3ZBE in Aberdeen on the night of June 9.

G4BYP (Liverpool) reports that the 4m. activity nights in the NW have not been very successful to date and notes that GI and GM have not been raised on that band so far this year from Merseyside, although G4AIR (Macclesfield) has been heard working GM on the key. That is still one of the best ways to get the real DX!

Three Centimetres

There seems little doubt that interest in this band is on the increase. Every month brings reports of new stations coming on the band or of new records being established. Apart from the exploits of GM3OXX, of which more later, G4ALN and G8FJG, both in Essex, are now equipped for the band and would welcome skeds. Both are running 10 mW from a Gunn diode and 'ALN uses a 20in. dustbin lid yielding 32 dB of gain and 'FJG a horn with 22 dB gain. The equipment could hardly be simpler. Listen to this from GM3DXJ. Tx—Gunn oscillator using a CXY11 frequency modulated by speech or tone, deviation 250 kHz. Rx—superhet using microwave diode mixer, Gunn local oscillator and IF of 10.7 MHz. Antenna—paraboloid 2ft. diameter or small horn for local contacts. Waveguide—standard WG16 (still available as surplus). And this set-up is producing 3 cm. records!

Now to GM3OXX and the microwave group in Scotland. We mentioned briefly last month that GM3OXX, operating from Ben Ime, to the NW of Ben Lomond, established an all-GM record path between that location and GM3DXJ and GM8BKE at Cocklaw, to the SE of Dunbar, a path of 151 km. In spite of a clearance of only 100ft. or so over the summit of the North ridge of Ben Lomond, the severe QSB due to grazing incidence and the temperature dependent atmospheric instability over the mountain top, signal strengths were RS59, the quality with the 250 kHz deviation being described as superb. It was estimated that there was some 30-40 dB in hand over this distance! The operators concerned, while stressing that this is no jaunt for tyro mountain climbers, and that unless the equipment (particularly that required for a talk-back channel) is really portable will make advice and information readily available to future expeditionaries. While this contact was being set up at Cocklaw, an old microwave enthusiast turned up in the form of GM3FYB of Dunfermline, who, possibly stimulated by the achievement, said that he hoped to resume his microwave activities in the near future.

On Sunday, May 11, GM8BKE, GM3DXJ, GM3HEY and GM3OXX assembled at Benane Head, Ayrshire, to attempt a 3 cm. QSO with G18AYZ, located at Torr Head, Co. Antrim—over an all-sea path of some 70 km. Good strength signals were received from GI, but, unfortunately, a fault developed in the receiver at the Antrim end which could not be cleared *in situ* and two-way contact was not established on this occasion. A further attempt to prove this path was made from the hills behind Culzean Bay on May 18, but again, due to Rx trouble at the GI end, two-way contact was not achieved.

Following this session, GM3OXX, GM8HEY and GM3DXJ made tracks for Auchennalga Bay (NGR NX-236517) leaving GM8BKE to continue with the GI tests. They arrived 30 minutes late for the skeds with GW4BRS/P, the Barry Radio Society Microwave Group located at St. Davids Head, but all established contact at the first attempt with signal strengths at RS59 both ways. Indeed, it was estimated at the GM end of the link that they had about 40 dB in hand. No talk-back link was required. One cannot but admire the expertise which made this achievement possible over a non-optical path, the propagation medium being super-refraction. Members of the Barry Group concerned were GW4AMV, GW3PPF and G8FGD. Their equipment consisted of a Gunn diode running at 10 mW through a circulator to an SIM2 mixer and a 40673 mosfet pre-amp into a broadcast receiver tuned to the IF of 106 MHz. The antenna was a 30in. dish. Very fine!

Hold on! there is more to come! The weekend of May 31/June 1 saw the long-awaited GM3OXX trip to GD under way.

VHF CENTURY CLUB MEMBERS

70 Centimetres

Cert. No.	Station	Date Issued
1	G3DAH Herne Bay, Kent	15/4/68
2	G8AAZ London, SW19	16/8/68
3	G8AEJ London, SE20	8/11/68
4	G8AWO Welwyn Garden City	14/1/69
5	G8AUE Ambergate, Derby	14/1/69
6	G8ARM London, SE3	13/4/69
7	G8AYM Dartford, Kent	1/10/69
8	G3MCS Aylesbury, Bucks.	13/10/69
9	G8ART Leamington Spa	20/3/70
10	G8BYV Dereham, Norfolk	19/10/70
11	G8APZ Hounslow, Middx.	7/7/71
12	G3UBX Wolverhampton	10/11/71
13	G8ABP Paignton, Devon	31/12/71
14	G8CKX Ambergate, Derby	31/12/71
15	G8CIT Hampton, Middx.	6/11/72
16	G8EOP Dewsbury, Yorks.	1/2/73

Four Metres

Cert. No.	Station	Date Issued
1	G3IMV Bletchley, Bucks.	6/11/68
2	G3EKP Blackburn, Lancs.	6/11/68
3	G3UUT Acomb, Yorks.	7/2/69
4	G3FDW Retford, Notts.	30/12/69
5	G3GSA Manchester, Lancs.	9/11/70
6	G3OBM Gurnsey, C.I.	7/10/71
7	G3HBG Godstone, Surrey	30/10/71
8	G13HXV Finaghy, Belfast	3/3/75

Operating from Snaefell at 2031ft. a.s.l., GD30XX and GD8HEY made two-way contacts with G3DXJ and G5MBF (PA0KAA) located at Lank Rigg on the West coast of Cumbria (950ft. a.s.l.) over a 74 km. path, with GW4ALN and GW8FJG located at 1843ft. a.s.l. near Llangollen, over a 156 km. path; with G18EYZ near Larne, a 110 km stretch; and with GM8BKE near Portpatrick, distance being 71 km. One-way contacts were made with GM8GEC South of Dumfries and with G18AYZ and G18DMX at a site near Newtonards. Profiting by the occasion, GM8BKE had one-way QSO's with G18AYZ and G18DMX at the Newtonards site, G3DXJ worked GW4ALN and GW8FJG at Cryn-y-brain and GM8GEC had a one-way with G3DXJ.

Altogether a most memorable day for all concerned and a great boost to amateur operation on the Gigahertz frequencies. Heartiest congratulations to all concerned.

Twenty-Three

What looks like a new record has been set up on this band by GM3WDG/P who, on May 28, worked PA0VV (who had G8GNZ in the shack with him) PA0DDQ and PA0MDK. Signal strengths varied from S5 to S1. He was also heard working DL, but details are not available at the time of writing.

Martin Dann, G3NHE in Sheffield, found the whole of the last week of May to be excellent for 23 cm. propagation. He worked six new counties and two new countries to bring his All-Time score for the Table to 21+5. The G3WDG/G5HD expedition brought him Powys, Cumbria, Wigton, Roxburgh, Durham and Clwyd and his countries worked on 23 cm. are now G, GM, GW, PA and DC. Very nice going!

John Iye, G4BYV in Norfolk, also worked GM3WDG/P on May 28 and thus got his first GM contact. He now has 15 different letter QRA's and has worked 51 different stations on this band. He is much occupied at present in building for the higher frequencies but is pressing on with the SSB gear for 23 cm. and at the moment has the 2C39A working on FM and CW with 70 watts input from a BAY96 driver.

G3LQR (Woodbridge, Suffolk) worked into Berlin on 23 cm. during the opening on the evening of May 28 and also heard the DJ2LF beacon. On the same night, GD2HDZ copied PA0MJK, PA0VV, GM3WDG/P and G4BEL on 23 cm. He is going to be very popular when he gets his 23 cm. Tx operational!

Conditions have been better on 23 cm. than on 70 cm. on several occasions during the last few weeks. On June 10, for example, G4ALN in Essex found this to be true when he worked G3DY in Peterborough and G3NHE in Sheffield for two new counties on 1296 MHz.

Contests

Results: In spite of poor weather and propagation conditions, there was a goodly entry for the 4m. Open in April. In the Fixed Station section, the leader was GD2HDZ, whose best DX was with G4BOX/P, at 420 km., followed by G3XDY as runner-up. The Portable section was headed by GW4ABR, whose 530 km. contact with GM3EOJ was the best recorded in the event, and he was followed by GW3WAS. One cannot escape the conclusion that there is some deep-rooted, and secret, objection among Welsh-based opera-

tors to using their own mountain sites for contests! Time and time again we have to report that events have been won by visiting teams, an exception being GW3UCB based in Bangor, and indeed, in this particular contest the three GW portables who figured in the first five placed were all from outside the country. What gives?

The March 144 MHz Open attracted a

large entry and the DX worked belied the reports received at the time that "conditions were poor over most of the country." Several contacts of over 700 km. were made and the list of "Best DX" included DC, ON, PA and F—not all from good portable locations either. The Portable section was won fairly easily by GW3UCB followed by G8BQX, operating in Hastings, of whom a

THREE BAND ANNUAL VHF TABLE

January to December, 1975

Station	FOUR METRES		TWO METRES		70 CENTIMETRES		TOTAL Points
	Counties	Countries	Counties	Countries	Counties	Countries	
G3DAH	31	3	47	8	32	7	128
G3ZMD	23	2	54	12	28	7	126
GD2HDZ	29	4	48	10	29	6	126
G4BWW	30	3	55	11	—	—	99
GM8FFX	—	—	74	14	2	1	91
G3FIJ	33	2	38	8	6	3	90
G4BYP	27	3	49	10	—	—	89
G3BW	—	—	52	11	21	4	88
GM4CXP	14	4	49	13	4	2	86
G2AXI	27	2	32	7	13	5	86
G8EOP	—	—	40	12	20	4	76
G4CZP	—	—	62	14	—	—	76
G3BHW	—	—	38	9	19	7	73
G5DF	34	4	—	—	26	3	67
G8IAT	—	—	55	11	—	—	66
G8BKR	—	—	51	7	5	2	65
G18HXY	—	—	53	6	3	2	64
G8GLS	—	—	54	10	—	—	64
G4AJE	—	—	35	8	15	3	61
G3FPK	—	—	51	10	—	—	61
G8INL	—	—	51	9	—	—	60
G8FMK	—	—	26	2	25	4	57
G8GII/P	—	—	46	10	—	—	56
G4AEZ	5	1	20	9	1	5	56
G8ABH	—	—	29	4	17	5	55
G8FWB	—	—	47	8	—	—	55
G4DNJ	—	—	45	8	—	—	53
G8GHZ	—	—	42	6	3	1	52
GW8HVP	—	—	45	7	—	—	52
G4AIR	29	4	2	1	—	—	36
GI3JLA	1	1	26	8	—	—	36
GW8GLG	—	—	30	3	—	—	33
G3EKP	7	3	15	5	1	1	32
G4AGE	—	—	10	4	5	1	20
G4BKY	—	—	8	2	—	—	10

The Table shows claims to date from January 1, 1975 and will close on December 31, 1975. All claims should be sent to: "VHF Bands", SHORT WAVE MAGAZINE, Buckingham, MK18 1RQ as soon as possible after the start of a new month.

lot more is likely to be heard in the contest milieu now that he has high power SSB available and a very clean signal to boot. The March & District Club, operating G3PMH/A, led the field in the Fixed station section, followed by ON8IW.

Reports: Activity and propagation were both good for the 2m. Portable event over May 31/June 1 with several scores approaching the 500-mark. A fair amount of Continental DX was available and this fact, with the absence of GM and GI contacts in the South suggests that the major axis for extended tropo. working was to the South and the East, and this would fit the pressure pattern prevailing at the time. Best score heard was that of GW3WAS/P from near Oswestry (the Lichfield Group—and yet another visitor to GW!) who were passing 485 just before the end, and GW3UCB/P who had amassed 362 contacts by early morning on Sunday. There were a few dreadful signals to be heard from both portable and fixed stations and there was the usual QRM on the calling channel and close to it. Perhaps the fact that the upper limit for SSB is now 144.50 MHz has not yet got through to all operators. It was noticeable that those who did work higher up the band were not having to waste time calling "CQ" since, being in the clear, one call sufficed and stations were lining up to work them. Once again, although this was an Open contest, there was little CW activity, and the two FM stations logged in Herne Bay were both on the SSB calling channel! **Forthcoming events:** July 5/6, *Jubilee Contest*. July 27, *Two-Metre QRP*. August 10, *70 MHz Portable*.

DX-Peditions

Some of the Essex University members have planned a Continental trip for 14 days starting; August 2. They will visit Belgium, France, Luxembourg, Switzerland and Liechtenstein using a variety of callsigns. They will have an FT-101 with transverters for 2m. and 70 cm. and all modes available. The 2m. gear will be QRO with a pair of 4CX250B's feeding a 14-element Parabeam, the 70 cm. antenna being a 46-ele. Their itinerary is a bit flexible and so they do not wish to make skeds, but will be looking towards England for contacts. Those taking part are G4DML, G4CDN, G8FUF and G8GUO. They will also have HF-band gear.

G3COP will be operating as GC3COP in Guernsey for the last two weeks of August. He will have AM on 144.17 MHz, 144.25 MHz, 144.38 MHz and 144.675 MHz from an 8 watt Tx and a 3-ele. quad antenna.

Peter Lennard, G3VPS, sends his regrets to those who were looking for him on 4m. during his recent strip round the "Milk Run" circuit. A combination of car and radio unserviceabilities meant that his schedule had to be much modified, and many of the operating periods either curtailed or cancelled. This rarely happens to such an experienced expeditionary, but there will certainly be other opportunities to work Peter during the summer months.

G8HDR will be operating in ON, LX and DL from July 13 to August 3 using his own callsign plus the appropriate country suffix. He will have SSB to an 8-ele. Yagi and skeds can be arranged QTHR.

OSCAR News

The trouble with *OSCAR VI* persists, and many of the scheduled "ON" orbits have been missed due to ground command station problems. However, it is hoped to have the situation under control again in the near future.

OSCAR VII continues to perform with very little trouble but it is becoming difficult to find new prefixes now—particularly on Mode "B". The scheme of tuning around the 70 cm. up-link after a pass does not seem to have caught on to any great extent, although one can still get the odd, unexpected QSO this way, and it is an indicator of propagation.

The AMSAT-UK organisation is now well under way and the British command system is functioning, although at the moment, more cash, design and construction time are required to put it on a fully automatic basis. G3IOR and G3WPO are to be congratulated on their initiative in this respect and also on the production of *OSCAR News* which is full of useful information about the two satellites. At £3 per annum this is a good buy.

Here are a couple of Orbital predictions for *OSCAR VII*:-

July 1 Orbit No. 2856—Equator crossing 1348z—bearing 257°W—Mode "B."

July 2 Orbit No. 2943—Equator crossing 1424z—bearing 265°W—Mode "A."

The method for calculating other orbits was explained fully in the February, 1975 issue of *SHORT WAVE MAGAZINE*.

VHFCC Awards

The only 2m. Award this month goes to Bob Harry, G3NRT of Billericay, Essex, with Certificate No. 241. He was first licensed in 1960 with the callsign GW3NRT/T which subsequently became G8AKH. When he took the Morse test last year he was able to get his old call letters back. A variety of transmitters has been in use, none of which had a higher output power than 15 watts, and the addition of a VFO was found to produce more contacts than would have been likely with an increase in power. Bob comments on the fact that the advent of the "Black Box" era has produced a considerable fall in the number of operators who are now able to discuss technical problems associated with the construction of home-built gear, which he considers to be one of the more interesting aspects of Amateur Radio. He is shortly to move from Essex to Harpenden, Herts. where he expects to have 4m., 2m., 70 cm. and 3 cm. going.

The tremendous increase in activity on 2m. has made the job of obtaining the requisite number of contacts, and QSL cards, for the Award on this band a relatively simple matter. The Tables herewith show the Awards made for 43m. and 70 cm. only since the re-start of the scheme in 1968, and we should welcome more claims for these

bands since, although not to the same extent, the advent of more and more SSB has increased the chances of meeting the *criteria* for membership of the VHF Century Club. Suffice it to say that more than 240 VHFCC Certificates have now been issued for Two Metres.

General

Magnetic Devices Ltd., Exning Road, Newmarket, Suffolk have confirmed, in response to an enquiry, that their co-axial relay Type 951 is now available again with a six-week delivery date (as opposed to the eight months quoted to your scribble last year!). This is good news since these relays are useful up to 500 MHz and will carry, although not switch, 100 watts or so of RF at that frequency. The design has been improved somewhat, and the price has risen, but at £5.24 (including VAT) for one-off they are excellent value. Orders for quantities bring the price down considerably and this looks like a good case for Club buying which should then pay off. Impedance is 50 ohms and the terminations are suitable for UR43 cable. SWR is 1:1 : 1, cross-talk —39 dB and coil voltages go up to 100 volts.

Trisagion Ltd., of Dall, Rannoch Station, Perth, PH17 2QH, with which company our old friend Bill Jarvis, GM8APX is associated, have produced an *OSCAR* Wall Calculator. The device consists of two rotatable discs which, when set against a reference orbit for a particular day, enable the time and bearing of equator crossing for succeeding orbits to be read off. By choosing appropriate settings, it can be used for both *OSCAR VI* afternoon and evening passes, and for *OSCAR VII* orbits with some interpolation. What it doesn't show is the satellite track, which must be known to get beam headings right during a pass, but at 65p it is a handy thing to have in the shack, and performs the functions of a sort of perpetual calendar.

We much regret to have to report the death, after a long illness, at the early age of 43, of Peter Rich, GW3KGD of Haverfordwest, for many years a regular correspondent for "VHF Bands." After his return from Singapore, where he held the call VS1HZ, he put Pembrokeshire well and truly on the map with his fine SSB signals on 2m. and was a founder member of both the Pembroke and Haverfordwest Radio Clubs. He will be greatly missed both on and off the air. GW8HVP will handle any outstanding QSL cards for Peter.

We are pleased to report that GD3UMW is now out of hospital and back on the air again. He was associated with GM3OXX during the 3 cm. operations from the Isle of Man reported elsewhere in this piece.

Deadline

And that's the lot for this month. Please send in your news, views and claims by July 5 to the usual address:—"VHF Bands," *SHORT WAVE MAGAZINE*, BUCKINGHAM, MK18 1RQ. If you are off on holiday—have fun, if you are not, then good DX and vy 73 de G3DAH.

"Short Wave Magazine" covers the whole field of Amateur Radio and should be obtainable to order through any newsagent.

MORE ABOUT SPEECH CLIPPING

REVIEWING THE DATONG UNIT

THIS review deals with another of those "clip-ons" which are intended to improve the effectiveness of the station in one way or another. This time we are dealing, not with a device to improve reception of CW, but transmission of Phone, namely the *Datong RF Clipper*. Much of the technicalities have already been covered in the October 1974 issue of *SHORT WAVE MAGAZINE*. It remains for your reviewer to discuss a production unit, tacked on to the station KW-2000B and associated linear.

The clipper arrived well packed and in perfect condition. Attention to detail was such that when the cover was removed in order to fit the recommended PP9 battery, the connector was held down for transit by a strip of sticky tape, and, also inside and taped in, the six screws with which the cover would be secured after fitting the battery. No risk here of odd bits bouncing around in transit. The PP9 was as firmly fixed inside the case as the PCB itself once the lid was fitted properly. One could use this bit of gear in a mobile rig without any fear of it coming to bits or doing itself an internal injury.

At the writer's request, a lead was supplied to mate the Clipper to the KW2000B; and here we hit a snag which was not really the fault of Datong engineering at all. Simply, it was that the connections to the "tip" and "ring" of the KW2000B were reversed during the run of production, as and from S/N 1854. Murphy's well-known Law ensured that the Datong people made the KW-2000B matching lead up to suit the later models, while your reviewer has the earlier series model transceiver. The result was quite fascinating in that rotation of the Clipper gain control would pull the change-over relay in the rig in and out. Turning up the gain to go to "receive" didn't seem to be right, somehow, so a certain amount of lead-tracing inside the Clipper and the rig had to be gone through before the penny dropped. All this tomfoolery had no effect on the workings of the Clipper itself, needless to say.

Read The Book!

There is an old saying which is that "If all else fails, read the instructions!" An initial trial on the air didn't seem to indicate the desired improvement in *oomph* positively, although it did indicate that there was no noticeable deterioration in speech quality with the Clipper in circuit, either in local or at DX. Eventually it was realised that the reason for this was that the mike gain control on the 2000B was set so far up that the ALC was really hammering—which is exactly what the instructions warned against!

The second try was made by following the Datong instructions to the letter, both as recommended when an oscilloscope is available and when one is not to hand. The settings which resulted were very closely matched and it was evident that the Clipper could be set up to quite a reasonable degree of accuracy without the need

for an oscilloscope. It would be still easier were the KW transceivers fitted with a meter switch to enable one to monitor the ALC, as is done in some other rigs.

Once the settings had been found using the oscilloscope, a series of tests were made with the Clipper switched in, and with it out—the latter position is achieved merely by switching the unit to "out" which puts the mike and press-to-talk straight through and also switches off the internal battery.

Air Tests

In this condition it was tried out on all bands which were open during the period of the review; in each case the received signal came up with a bump, and likewise the distant signal, whether near or far, did not notice any degradation of received quality or of readability in QRM conditions. In other words, the Datong Clipper lives up to the maker's claims 100% operationally. The other claim, that it could be tacked on to the end of virtually any transmitter, was checked as far as could be, by hanging it on to the end (mike socket) of all the gear around the shack; this means that the Clipper was observed to yield the same effect on AM rigs as was noted over the air on the SSB Tx.

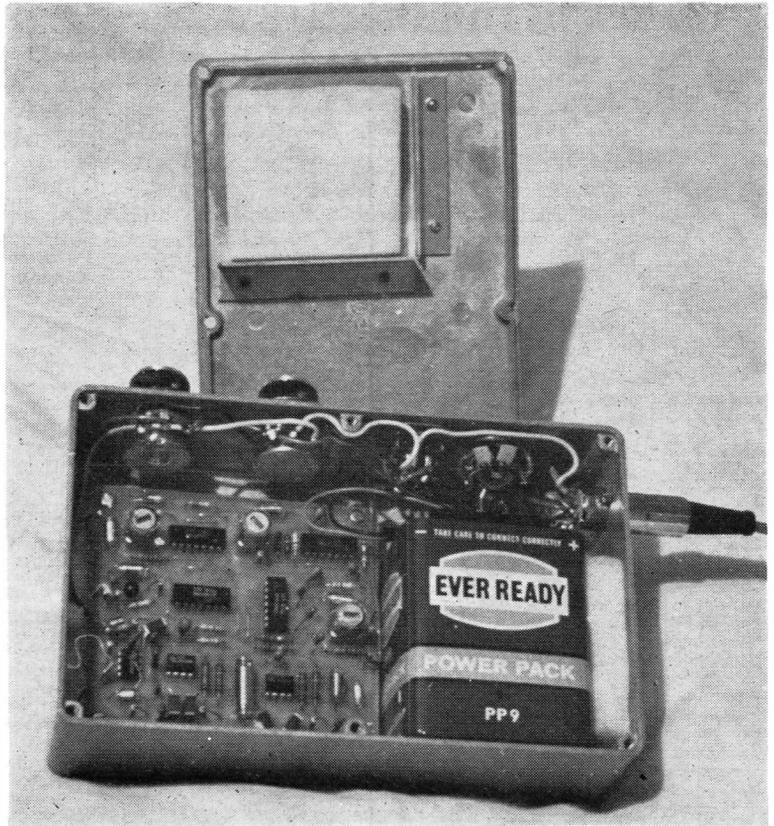
Circuitry

Circuitry is largely CMOS integrated, plus a few discretes on the printed board. Datong, and here we are in full agreement, are of the belief that the average amateur is not really able to service gear built around MOS technology—not for want of know-how, so much as the sheer lack of adequate grounding facilities for himself, his bench and his iron. This being so, they offer a servicing facility to all Datong users, at reasonable rates or free of charge as may seem to be appropriate. It was not possible to prove out this part of the service as such, but we did lose the data sheet and phone for a new one, which turned up as fast as the posts could have sent it, so there is every expectation that service would be good.

Snags? Nothing is perfect in this imperfect world, and the Clipper supplied for review lost some of its pristine beauty when part of the front-panel labelling peeled off. Datong were tackled about this, after your reviewer had examined the damage under a low-power microscope device; it looked as though the area under the offending bit of white had been inadequately cleaned by whoever was contracted to point and line-out the box. The Datong opinion was that the suppliers of the printwork had been finding that the specified cleaner had been taking off the ground slightly when used over-exuberantly—so instead of reporting this they had cut the cleaning process right down to a mere wipe-over. However, Datong "jumped up and down" a little, so no more trouble of this sort need be expected by other buyers.

Another snag (and this may be personal to your reviewer) is that the output connector comes out on the side of the box; this could be a bit of a nuisance when space at the operating-table is at a premium. It was intended to fit the Datong Clipper between the outboard VFO and the main rig here, but this meant that if the plug were uppermost the letters on the front panel of the Datong unit were wrong way round and the output

Inside the Datong RF Clipper, showing general layout. All items are held firmly in place and the Unit is quite suitable for mobile operation.



cord rose in the air above the rig; t'other way up needed a hole in the bench? In the end, the Clipper was placed at the front of the rig, where the log should sit, and the slight inconvenience thereby tolerated for the sake of the benefit obtainable on the air. But alternative output lead positioning, to special order and for an extra fee, would be of assistance to many potential users.

Comparisons

Finally, perhaps one should try to make some comparison between the normal variety of AF clipping used on an SSB rig and the RF clipping exemplified by the Datong box. To do this, a well-filtered AF clipper was set up on the oscilloscope in the same manner as had the Datong. The rig was run into a dummy load, and a separate receiver used to monitor the quality of the output signal from the KW-2000B. Care was taken to ensure that, as far as possible, the signals both from the Datong and from the AF clipper were at the right levels for the transceiver. Outputs were taken on a tape recorder. In addition, some noise from the amateur bands was recorded and mixed on to the final tape, to simulate QRM conditions. Basically, one could say that both systems made a bigger noise when they were connected, and on a clear channel the bigger signal sounded more potent. However, the AF clipper quite definitely degraded the speech quality, and in heavy QRM—the DX-pile-up situation!—the actual *read-*

ability of the audio clipper seemed to fall a bit. But the Datong device did not degrade the readability in the same way, so that switching the Datong RF clipper *out* under these conditions showed a loss in readability.

This seems to bear out your scribe's long-held view that often the addition of an audio clipper to a DX rig is of negative advantage; but he has to admit that the Datong device makes an improvement to the *audibility* at the receiving end of the pile-up, or in the sort of conditions one finds so often on Twenty or Top Band when QRM pops up from nowhere.

Conclusions are basically that this box is built in the Rolls-Royce style rather than that of the Beach-Buggy; that it *works* as the maker claims; that it will stand mobile conditions and can be used on any Phone rig; and that it is good value for money. A final-final might well be to remark that all the DX-minded chaps in your reviewer's home area have now got a Datong RF Clipper included in their rigs, and in use.

PA Valve Temperatures

This, strictly, is not part of a review of a Speech Clipper. However, it should be understood that "filling the signal with modulation," which the Datong Clipper does so well, must result in the temperatures of the PA valves rising somewhat as a result of the increased average signal and anode dissipation.

THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for August issue: July 3)

ONCE more our pile of Club reports mounts up, and the time comes to attack it—with the added incentive this time of getting it through in time for at least a brief spell operating for the local Club in Field Day.

Our usual routine of separating into geographical groups applies this time, and we can make a start by going straight to the clip in which the majority of the reports lie.

Southern Area

Whether the chaps down South are more "clubbable" than the northern and Scots types one would not know; but it is very noticeable how little one hears about any group much north of Birmingham, with a few honourable exceptions.

At Bishops Stortford it does look as though the hiatus in programming might have been overcome at last, with G8JUQ doing the honours in June, G3KFE on something-or-other in July, and a ragchew for August. All are the third Monday in the month, at the British Legion Club, which is located at the top of Windhill.

The committee at Verulam (and, we suspect, many other groups), are looking very seriously at the cost of keeping their newsletter going—and who can blame them? They have a "main" meeting, at the Market Hall in St. Albans each month, at which there is always something of interest presented, and in addition an informal session is held monthly at Salisbury Hall, London Colney. July sees a club picnic added to the activity, on 20th. For all the details, contact the G3YHY, at the address shown in the Panel.

Now to Sutton & Cheam where we notice they are running a regular net with the towns with which Sutton is "twinning," namely Apeldoorn in Holland and Minden in Germany. On the matter of their getting together locally, the venue is The Library subject to be announced.

It looks like the first and third Thursdays at Cray Valley, although unfortunately the issue of their Newsletter does not look as far forward as July. Both dates will be, so far as we know, taken at Hq., which is Eltham United Reformed Church Hall, 1 Couter Road, London S.E.9—the formal is the first date and the latter the last date in each month—and for more data you can always get in touch with the hon. secretary, as Panel.

Not far away is North Kent, assembling as they do in St. Mary's Institute, 2 North Cray Road, Bexley. The dates here are the second and fourth Thursdays in each month, so North Kent and Cray Valley dovetail in nicely.

On July 15, the Surrey lads (and lasses) will be at the Ship Inn, Croydon, when they will be hearing about the IARU Warsaw meeting—a serious subject but of great importance in the Amateur Radio context.

A sad note now; we have a letter from the South Bucks. VHF Club, to say that at an Extra Ordinary meeting it was agreed to dissolve the organisation, because of the decline in attendances, the difficulty of getting officials, and the problems of organising events because of the small numbers attending. Remaining funds were divided equally between RAJBC and Wycombe General Hospital Broadcasting Association. Of course, we have no details of the recent past history, but this scribe would say that the last reason would certainly never have stopped him accepting an invitation to speak, and he does not know of anyone on the circuit who would refuse, if only he was told initially that he would be speaking to a small nucleus and this was because the Club was "down" but trying to pick up numbers again. What niggles is not turning up to face only four members, but not being told in the first place that there are only a few people to talk to, and why therefore the speaker is wanted.

On to Crystal Palace where they serenely press on through the years—with G3FZL as Secretary, a job he has held down for almost as long as we can remember—the third Saturday in every month being their regular date, at Emmanuel Church Hall, Barry Road,

London S.E.22. Only July 19, they have Slow Scan Television as the attraction.

Another "regular customer" for this space every since your old "Club Secretary" started doing this piece ten years ago is Acton Brentford & Chiswick; on July 15, G3IGM will be showing them his newly-acquired FT-101B, at the Trades and Social Club, 66 High Road, Chiswick.

Very coy about their goings-on are the chaps at Silverthorn. Although they tell us about their Hq. at Friday Hill House, Simmons Lane, Chingford, they don't say on which evening each week they assemble; no problem though, as Secretary G4AJA would welcome a phone call for details of his group—see Panel for his QTH.

One of the more noticeable things about the Club scene in recent years is the increase in the number of YL/XYLs taking an active part in the goings-on; for instance Echelford, where there are two licensed ladies contributing actively to the committee and—maybe as important—to the Newsletter. Echelford assemble at St. Martins Court, Kingston Crescent, Ashford, Middx., on the second Monday and the last Thursday of every month.

If you are a connoisseur in the way of pub names, visit Newbury on July 14, or August 18, when they will be found in the "Spotted Dog" at Cold Ash, near Newbury.

Every Wednesday evening the Cheshunt types head for Rosedale Sports Club, Andrews Lane (off Goffs Lane), Cheshunt, and the July programme looks like this: 2nd, Field Day preparations followed by the Field Day itself on July 6; 9th, betting going on the IC-210, by G8IFC; 16th, home-brew aeriols for two metres, by G8JXU; G4DCP has a talk on a subject of his own choice on the 23rd; and on the 30th, G3GBL talks about "Drake's Progress" with the help of the secretary's TR4C.

Details were not finalised at the time of writing by G3MGL of Crawley, but we can tell you the date is July 23, at the United Reformed Church Hall, Ifield.

The big event at Barking in July is the Dagenham Town Show on July 12-13, when the group will be showing two stations under the callsign GB2DTS, plus an exhibition of radio and electronic equipment; they would be only too pleased to see any visitors in their marquee.

A new compiler takes over the Mid-Sussex newsletter, and a mighty fine job he seems to be making of it, too, particularly as he has to follow the years of good work by his predecessor G3WPO as a standard. On July 3, they have a talk by G3PEQ, titled "Introduction to Logic." Looking on a bit, on July 20, they intend to be at the Polegate Steam Traction Engine Rally where another local club, Southdown, have a stand and a couple of stations signing GB2SS and G3BSS running.

Knowing how popular July is as a holiday month, the Maidstone YMCA crew have not arranged anything special; nevertheless the normal Friday evening sessions will carry on. Additionally, on June 28 they will be putting on an exhibition station at the YMCA Regional Rendezvous held at Crittenden House, Matfield, near Tonbridge in Kent.

A second letter was needed for Maidenhead to bring us up to date with their activities. We now have it that on July 3, G3RYV will be talking about and demonstrating the Drake Line equipment, and on July 15 G8IXB does the talking and demonstrating, this time about a Home-Brew Rotator. Notice the first date is a Thursday and the second a Tuesday; and both are at the British Red Cross Hall, The Crescent, Maidenhead.

Stevenage still have their Hq. in the canteen of Hawker Siddeley Dynamics, in Gunnels Wood Road, on the first and third Thursdays in the month; nothing was planned for July, although there is a possibility of a talk on Solid-State RF design at one of them.

Western Reaches

First-off in this section are Yeovil who have every Thursday at the Youth Centre, 31 The Park; July 17 is the selected evening for the playing-over of a Mullard tape-and-slide lecture entitled "Introduction

PLEASE NOTE!

Closing dates for this feature for the next few months will be: July 3, August 7, and September 4. These are final dates after which material cannot be taken in but will be held over for the month following.

to Electronics." Another one is noted for August 14, again by Mullard, but this time it is "Electron Tubes."

The current issue of *Tamar Pegasus* from the Saltash lads is a very good bit of work, and has the additional advantage from the writer's point of view that it gives all the desired information clearly. From it we learn that they are to be found at the Burraton Toc-H Hall, Warraton Road, Saltash, Cornwall, on the first and third Fridays in each month. On July 4 they have G2MI's tape lecture "An Anthology of Radio Signals," and on the 11th a boat trip to Calstock is planned. After the party, the return to routine—back at Hq. on July 18, and nothing arranged at the time of the printing of their newsletter.

No details of the programme are given by the Newquay Secretary, save that they have fortnightly get-togethers, occurring on July 23, August 6 and 20 at Treviglas School. He would prefer to tell prospective visitors or members about it all himself, from the address and telephone number appearing in the Panel.

The big event in July at Cornish is their Mobile Rally, which is to be held at Cornwall Technical College, Pool, Redruth on July 20. However, before that there is the usual monthly session, which comes on July 3, at the SWEB Clubroom, Pool, Camborne, when the subject will be RAEN, to be dealt with by G3XC.

Along the coast is Devon, and here we must stop over at Torbay, with Hq. at Bath Lane, 94 Belgrave Road, Torquay. Here they will be found on July 26, for an activity which was still being settled at the time of the report. Reverting to that note on their intention to try and help anyone in RAIBC in the area, they make it clear that any request for aid should go in the first instance to the RAIBC hon. secretary who will then pass it on as necessary.

One supposes Hereford is a bit of a border-line case; but we hope we haven't upset any sensibilities in putting them in the Westerly clip. The venue for their activities is the Civil Defence Hq., Gaol Street, Hereford, on the first and third Fridays. As the front door of this place is kept shut, there is a bell located just above the Civil Defence sign to be used by anyone desiring to get into the clubroom.

The Midlands Area

One chap who does a lot of running about for his lads is the secretary at Solihull—he was running this time to catch the postman and so to meet the deadline with his news. Their regular routine is to assemble at the Manor House, High Street, Solihull on the third Tuesday in July. The cause of the running just mentioned was that G4AEJ had been doing a bit of arm-twisting to get G4AXW to address the July gathering on the subject of "Electronic Control of Traction."

Now the Association of Sheffield Amateur Radio Clubs, whose common *Newsletter* gives all the information. Naturally, the University and Polytechnic groups will be closed through the summer, starting again with the new term in September. However, *Workshop* assemble every Thursday, and details can be obtained from G4CRE—see Panel. Then there is the Sheffield group itself, where on July 21 they have a home-brew night—gear, we are assured, not ale! This is at the Sheaf House Hotel, Bramall Lane, Sheffield.

"Oscar, Past, Present and Future" sounds to be an interesting title for a talk; and it is the Cheltenham (RSGB) group who have this one set up, the speaker being G4BBR, and the date July 3.

Baden-Powell House (Boy Scouts Hq., one guesses) is home for the Coventry chaps; and they will be noted as being "in residence" each Friday evening, starting around eight o'clock. It is interesting to note that the Club provides Morse tuition free of charge to *anyone*, in the hopes that this will cause people taking advantage of the offer to join up after a few weeks.

We have the first and third Wednesdays in each month as the dates for the Wirral get-togethers, and the venue as the Sports Centre, Grange Road West, Birkenhead. The details were not settled at the time of printing the *Newsletter*, but no doubt something will have been fixed up in good time.

They certainly believe in variety at Nunsfield House, Boulton Lane, Derby; we note on July 4, a Judo lecture by A. Barker and P. Wilson, a Film Show on July 11, a Quiz on July 18, and a talk about Teleprinter Technology—and a bit further on in the year there is a lecture on Central Heating as well!

A change of Secretary at South Manchester was immediately noted, that old familiar "fist" being replaced by a typewritten job. It seems our old friend has now been promoted to chairman—congratulations! This active group have Fridays at Sale Moor Community Centre, Norris Road, Sale as their main activity, but in addition the VHF and D/F types have an informal evening each Monday at the Club shack, Greeba, Shady Lane, Manchester 23. In either case visitors are welcomed.

It's a long time since last we heard from Norfolk, who now have

their Hq. at Crome Community Centre, Telegraph Lane East, Norwich. On July 2 there is an informal evening with Morse practice for those who want it; July 9 is a talk on "DX from the Other End" and July 16 another informal. Then G8BNE is let loose, on July 23, leaving July 30 to round off the month when OE2JG/G5BDF will be talking about his home-brew two-metre foxhunting receiver.

Worcester have such a crowded list of coming events in their newsletter that one finds it hard to sort out the actual club dates; but it looks like Monday, July 7, and Saturday, July 19, both at the Old Pheasant Inn, New Street, Worcester.

Derby have some bad news for their members in the current *Newsletter*, where they are told the rent of the Hq. rooms at 119 Green Lane, Derby has gone up to *treble*, and the cost of hiring Rykneld School for the Mobile Rally has been multiplied by *six* times! However, they seem pretty confident about their ability to cope, luckily. On each Wednesday, they can be found at the Hq. address, where they rent the upper part; July 2 is a Surplus Sale, July 9 a Surprise Night. On July 16 there is a D/F practice, followed by a discussion on technical topics on July 23; then on July 30, G3VGV is to talk about Outside Broadcasting, he being on *Radio Derby*.

Peterborough we don't hear from very often, but this time they have sent us a copy of their *Newsletter*, from which we can gather that they get together on the third Friday in every month, at the Scout Hut, Occupation Road, Peterborough. Any more details will have to be obtained from G8GNV, as Panel.

Up North

Northern Heights have revived their *Newsletter* after a year's lapse, and from it we gather that the new syllabus of lectures and activities is in the process of being made up; however, a call, letter or ring to the secretary—see Panel—will no doubt bring you all the latest information. Hq. is at the Peat Pits Inn, Ogdon.

Just to forestall any arguments, we drew the line that put Bury & Rossendale into this clip as just north of Manchester. Look for them every Tuesday evening at the Mosses Community Centre, Cecil Street, Bury, the second Friday being the main one each month and the rest informals. This time the talk is on RTTY, to be given by G8DVR.

A recent move of Hq. has taken Bolton back to their old place in the Recreation Club, Kensington Place, St. Georges Road, Bolton, where they assemble on the third Wednesday in each month; for July it is understood the talk will be on Amateur TV, by G3ZPL.

[Over



“. . . . Now trying the No. 3 microphone”

Every Monday evening the Harrogate & Knaresborough locals gather at the Further Education Centre, Church Lane, Harrogate, where a varied programme is being fixed up by the new committee elected at the AGM.

If you live in the Glasgow area, you will be in the catchment-zone of West of Scotland. If so, we suggest that before making visit plans, you contact GM3RHR at the Panel address before you set off, as the venue is, by the look of it, still in doubt.

While many groups allow visitors in free, there will always be the odd characters who will try to *continue* in the grade of visitors and so avoid paying a sub! This is unfair, particularly in these days of rising prices, and it is difficult to know how to stop it. One way, adopted in the Club to which your conductor belongs, is to say up to three visits, then become a member, with the committee to have power to vary this, as for example for the chap who attends regularly but only once or twice a year when he is on holiday in the district. The White Rose group suffer from this sort of thing more than most as they have a library, shack, workshop, lounge and canteen at Hq., 83 Town Street, Armley, Leeds 12; they are "open for business" each

Wednesday evening and in addition on the first Sunday in the month, this last from 10.30 to 1.00.

Others

First comes the G-QRP lot, with their newsletter *Sprat* devoted to the arts of low-powered operating—not to mention contests, and homebrew circuits for transmitters, receivers and the like, modifications to popular QRP rigs for improved performance and so on. If you are interested in low-power operating or are an SWL, for that matter, you should write to G3RJV for details of membership.

Then of course we have A.R.M.S. dealing with the /M interest, mainly through *Mobile News*. G3FPK is the secretary.

Next Month

For this, the deadline will be July 3—a tight one indeed!—to arrive, addressed as ever to "Club Secretary," *SHORT WAVE MAGAZINE*, BUCKINGHAM, MK 18 1RQ. Keep the flag flying.

Names and addresses of Club Secretaries reporting in this issue:

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WORCESTER: B. A. Jones, G8ASO, 12 Woodside Road, Larkhill, Worcester (351565).

WORKSOP: D. L. Rush, G4CRE, 87 Rydal Drive, Worksop, Notts.

YEOVIL: D. L. McLean, G3NOF, 9 Cedar Grove, Yeovil, Somerset.

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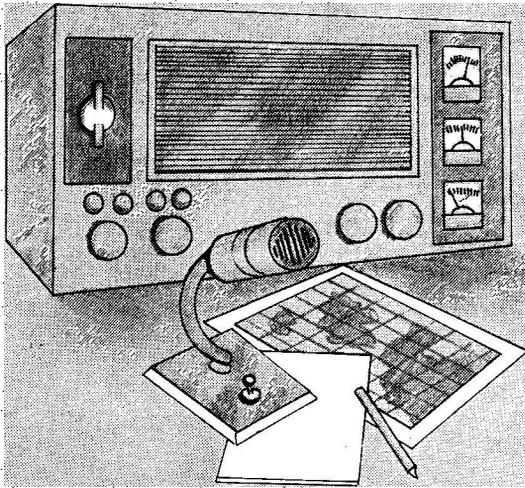
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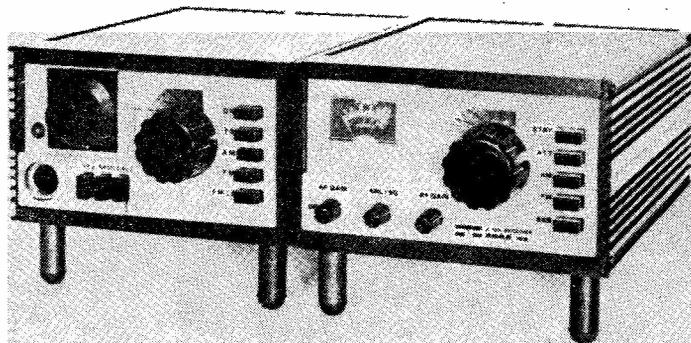
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Wanted: "Electroniques" front-end unit, QP.166 or similar — valve, transistor, amateur band or general-coverage acceptable. Also "Electroniques" 1.6 MHz amplifier unit. — Fry, G3TZV, 3 Geneva Road, Bramhall, Stockport, Cheshire, SK7 3HT. (Tel: 061-439 6174).

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Wanted: Mosley Commando-11 Transmitter, state price and condition.—Edwards, G3MBL, 244 Ballard Lane, London, N12 0EP. (Tel: 01-445 4321).

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Selling: FT-75 with £40 worth extra crystals, AC/DC PSU's, in mint condition, £150. — Barry, G3UFU, QTHR, or ring 01-994 6931 (London).

August Issue: To appear July 25, single copies at 40p post free will be despatched first class mail on receipt from printers. Orders by July 23, with remittance to: Circulation Dept., Short Wave Magazine, Ltd., 55 Victoria Street, London, SW1H 0HF.

For sale: Yaesu FT-101B, brand new in maker's sealed carton, price £358, no offers. — Sheedy, G8EWO, 24 Thornwood Road, London, SE13 5RG.

Selling: Trio 9R-59DS receiver, coverage 550 kHz to 30 MHz, with phones and matching speaker, in new condition and boxed, one hour's use only, genuine sale, £40. — Ring Hunter, High Wycombe 36505.

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For sale: Trio JR-500S receiver, coverage amateur bands only, in superb condition, with manual and original packing, price £43 or near offer. — Ring Davies, 0782 (Stoke-on-Trent) 535287.

Selling: Racal RA-117E, with manual, buying house, so must sell at £275 or very near offer. — Ring Stanton, G8GOY, 0803 (Totnes, S. Devon) 864026.

For sale: Trio Q.666 Rx with VHF coverage, with headphones, Joymatch Mk.IIIB ATU, artificial earth and manual, all as new, cost £185, going at £125, buyer to collect. — Skilton, 160 Rochester Avenue (side door betting shop), Rochester, Kent, ME1 2DS.

Exchange or Sell: National HRO-MX receiver, in very good condition, with coil packs, speaker and manual, price £20, or **Wanted** R.209, must be in good condition. — Ring Thorne, Romford 49260.

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Selling: Heath RA-1 receiver, with calibrator and speaker, £20. Also AM-10D "Cambridge", with helipot-tuned receiver and crystal, £25. **Wanted:** KW-2000A transceiver. — Ward, 11 Victoria Street, Hucknall, Notts.

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For sale: Yaesu FR-50B receiver, in mint condition, with 100 Hz calibration crystal, price £50. Buyer to inspect and collect, if possible. — Ring Toseland, Amesbury (Wilts.) 3062, evenings.

Wanted: Pye "Bantam" A/C or high-band, in working order, please state price and other details. — Holmes, 36 Corn Gastons, Malmesbury, Wilts.

Wanted: In good condition, BC-221 Frequency Meter, with PSU and charts complete. **For sale:** Eddystone S.640 receiver, coverage 1.8 to 30 MHz, with bandspread, BFO and self-powered, £22 or near offer, or Exchange for a BC-221. — Ring Saunders, 0635-21 (Chieveley, Berks.) 620, evenings.

Bargain of the month: AM/CW/SSB station, coverage 10 to 80 metres, comprising Hallicrafters HT-32 Tx with 2/6146's, two crystal filters, Vox/Mox and selectable Sidebands, also Hallicrafters SX.101A receiver, 10-80m., input socket for two-metre converter, covering 144-146 MHz on 9 1/2-in. main dial. Both in very good condition, at £70 each or near offer, buyer to arrange collection. **Wanted:** K.W. Atlanta, Mk.II, with AC/PSU and manual, must be perfect. — Lewis, G2BTY, QTHR, or ring Devoran (Truro) 863198.

Exchange or Sell: Eddystone EC-10 Mk.II, with mains PSU, £60 or Exchange for Eddystone 730/4, or good AR88D or oscilloscope. Eddystone 840C fitted 2 kHz mechanical filter, £70 or Exchange as foregoing. — Ring Stevenson, 021-558 0563 (Warley, Worcs.) any time.

Sale: Hallicrafters SX.117 receiver, covering 3.5 to 29.5 MHz, with notch frequency selectivity, calibrator, clean and in very good condition, £75. AR22R rotator, with 4-core cable and control box, nearly new, £25. Decade uF condenser box, coverage 0.1 to .001 uF in three ranges, also resistance box one ohm to 10,000 ohms in four ranges, not home built, £4 each, or £7 together. EK9X electronic keyer with small speaker, £8. Thermal noise generator, Type CT82, AC mains operation, £8. Telescopic "Telomast", to 30 ft., with wire guys, thimbles and base-plate, etc., £25. All equipment in working order, prices subject to near offer. Prefer buyers inspect and collect. — Hewitt, G3SGH, QTHR, Tel: Ashford (Kent) 21158.

For sale: An unused Type P.40 "Versatower", offers? — McAlister, G3YFK, QTHR, Tel: Ness-cliffe (Salop) 230.

AM Looking for a nice HF Transceiver, cash waiting, good opportunity for someone contemplating a change. — Box No. 5426, Short Wave Magazine, Ltd., 55 Victoria Street, London, SW1 0HF.

Wanted: G.E.C. Lancon Tx/Rx for two metres, also Top Band R.1155 or BC.342/312 Rx. **For sale:** Industrial grade, transistorised and stabilised bench power supply, output variable 4.5 to 14.5v. DC at 500 mA, small and compact, ideal transistor work, price £8. — Box No. 5424, Short Wave Magazine, Ltd., 55 Victoria Street, London, SW1 0HF.

Selling: "Magnum Two" two-metre transverter, five months old and unused, give-away price at £75 (owner going all-VHF). — Phipps, 47 Dean Road, Hinckley (36811), Leics.

Sale: "Atlas 180" with "Atlas" 230v. mains PSU and mobile mounting, £250. Set complete G-Whips, covering 10 to 160m., with mount, £10. Hy-Gain 18AVT/WB antenna, £25. Heathkit SB-610 signal monitor, 110v., £35. All items with manuals. The Lot for £310. — Climax, G3NYH, QTHR, or ring 0703 (Southampton) 551258.

For sale: KW-202 Rx, in perfect condition, with instruction manual, £120. K.W. E-Z ATU, 10-80m., £12. K.W. coax switch for three different aeriols, £5. K.W. speaker, £8. All in mint condition, and The Lot for £140. — Devereux-Colebourne, Riverside, East Garston, Newbury, Berks.

Wanted: KW-600 Linear Amplifier. — Longmire, G3TKL, QTHR, or ring Cleveleys (Lancs.) 74363.

Wanted: FT-200/250 and PSU, or FT-101 series, in good condition, all letters answered. — Box No. 5427, Short Wave Magazine, Ltd., 55 Victoria Street, London, SW1H 0HF.

Wanted: Receivers Airmec C.864, Marconi "Argo" marine, Eddystone 850, also back-numbers "Ham Radio" magazine pre-1972. — Passfield, 30 Greenleaf Close, Tulse Hill, London, SW2. (Tel: 01-674 5825). **For sale:** KW-202 Rx with matching speaker, £130. Callers preferred. Reason for sale, going transceiver when Morse passed. — Poole, 50 Warren Road, St. Ives, Huntingdon, Cambs. (Tel: 0480 65308).

Wanted: PSU for National HRO receiver. **For sale:** Radiospares standard auto-transformer, 100-watt, £4. Osmabet heater xformer, 6.3v. at 1.5 amp, £1.40. Aveley PSU for 12v. DC in, 250v. DC out at 45-75 watts (smoothed), in 3 x 2 x 2½ ins. cabinet, with data sheet, £5. All items include postage. — Lawrence, 3 Portway Close, Sydenham, Leamington Spa, Warwick, CV31 1RZ.

Wanted: Yaesu FL-50 Tx in as-new condition, also a good ATU. **Delivery/inspection convenient for London Airport.** — Box No. 5429, Short Wave Magazine, Ltd., 55 Victoria Street, London, SW1H 0HF.

Sale: Telford TC-7 tunable IF for 28.30 MHz, band searcher and squelch fitted, with G8AEV converter, price £50. — Gregory, G3LCV, QTHR, or ring Derby 701516.

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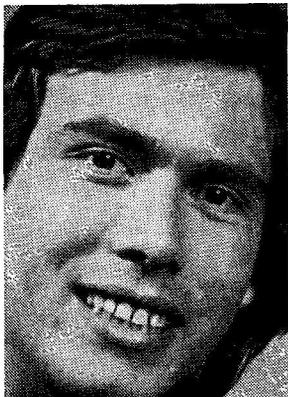
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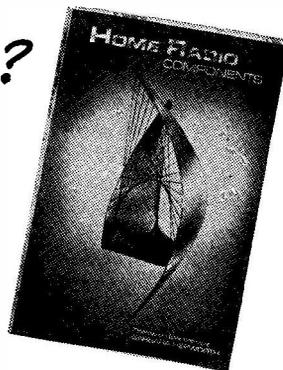
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