

# The SHORT WAVE Magazine

VOL. XXVII

DECEMBER, 1969

NUMBER 10

## HEATHKIT TRANSCEIVERS

IF YOU PURCHASE  
ANY ONE  
OF THESE  
MODELS



ECONOMY ALL BANDS  
80-10 METRE HW-100



DELUXE ALL BANDS  
80-10 METRE SB-101



HW 12A, 22A, 32A,  
SINGLE BANDERS

WITH THIS  
HP 23A  
POWER SUPPLY



YOU SAVE  
MONEY

HW 100	with HP 23A	£159 . 0 . 0	Carr. 22/-
SB 101	" " "	£222 . 0 . 0	Carr. 20/-
HW 12A	" " "	£83 . 10 . 0	Carr. 22/-
HW 22A/32A	" " "	£86 . 16 . 0	Carr. 22/-

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REQUEST.

FULL SPECIFICATION SHEETS  
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# DESIGNED FOR EXPORT

# NOW AVAILABLE IN UK

# THE KW ATLANTA



- High power SSB Transceiver
- Extremely good audio (crystal filters fitted)
- Mobile and fixed station
- Operation on all amateur bands from 10 to 80 metres

*Write for full technical specification*

#### Other KW Products

KW Antenna Switch  
(3 position) KW E-Z  
Antenna Match Unit, KW  
PEP Meter, KW Match  
SWR Indicator  
KW Low-pass Filters,  
KW Trap Dipoles, KW  
Balun, KW Dummy  
Load, KW Q Multipliers



Write for illustrated detailed specifications on other KW Equipment including the KW 2000B ; KW Vespa Mark II ; KW 201 ; KW 1000 and our list of KW Tested Trade-ins.

**K. W. ELECTRONICS LIMITED**  
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TEL.: DARTFORD 25574. CABLES: KAYDUBLEW DARTFORD

## Merry Xmas from R. T. & I.

EDDYSTONE 990R, 27-240 mc/s., AM/FM	£280 (30/-)
EDDYSTONE S640	£25 (25/-)
REDIFON R50M, 13.5-26 kc/s. and 95 kc/s.-32 mc/s.	£70 (50/-)
SOMMERKAMP FR-100-B (10-160 metres)	£90 (30/-)
SOMMERKAMP FT-DX 400/500 transceiver	£195 (60/-)
SOMMERKAMP FL-200B transmitter	£100 (40/-)
LAFAYETTE HA-680	£35 (20/-)
LAFAYETTE HE-80	£48 (25/-)
NATIONAL HRO-500	£450 (40/-)
KW VESPA Mk. II and A.C. p.s.u.	£115 (30/-)
EDDYSTONE EA12 amateur band receiver	£120 (30/-)
EDDYSTONE 770R, 19-165 mc/s., AM/FM	£105 (30/-)
EDDYSTONE 940	£85 (30/-)
EDDYSTONE 888A amateur band receiver	£50 (25/-)
EDDYSTONE 750	£48 (25/-)
EDDYSTONE 840C	£40 (20/-)
EDDYSTONE EC10	£35 (25/-)
EDDYSTONE 840A	£110 (30/-)
HALLICRAFTERS SX117	£12/10 (15/-)
LASKY Sky Rover Mk. II, 550 kc/s.-30 mc/s.	£65 (40/-)
RCA AR88D	£125 (40/-)
HAMMARLUND SP600-JX6	£125 (40/-)

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

**AVO METERS**, Model 7, Mk. 2, £27; Model 40, Mk. 2, £27; Model 8, Mk. 3, £30; Model 9, Mk. 2, £30; Multiminor, Mk. 4, £10/10/- (free).  
**S.G. BROWN'S HEADPHONES**, Type "E", 120 ohms, 2,000 ohms, 4,000 ohms, £37/6 (3/6). Earpads for same, 9/- per pair. Type 3C/1/100 noise excluding (with superb fitting), high quality, electro-dynamic, £6/6/- (3/6).

**KW EQUIPMENT**. KW Atlanta transceiver, £250. Vespa Mk. 2, transmitter with A.C. p.s.u., £135. KW-201 amateur band receiver, £111. Also Calibrator, £6; "Q" mult. £8/10/-; KW-2000-B Transceiver, with A.C. p.s.u., £232; D.C. p.s.u., £42. KW-1000 Linear, £135. KW-600 Linear, £115. KW E-Z match, £12/16/-; KW Match, £8/14/6. Antenna switch, £3/3/-.

**CODAR**, AT5, £16/19/6; 250/S, £8/10; T28, £15/17/6; PR30X, £7/19/6; CR70A, £21; 12/MS, £11/10/-; 12/R/C, £2/10/-, etc., etc.

**PARTRIDGE "Joystick," "Joymatch,"** etc. Lists and details on request.

**TRIO EQUIPMENT**—Transceiver, TS-510 (10/-), Receivers, JR310 bandspread, £77/10/- (20/-); JR-500-SE, bandspread, £68/- (10/-); 9R59DE, 540 kc/s.-30 mc/s., £42/10/- (10/-); 9R-59, 540 kc/s.-30 mc/s., £34/13/- (15/-). Loudspeaker, SP-5D "Speaker-mate" to match trio receiver, etc. £4/7/6 (7/6). Headset HS4, £5/19/6. Write for special offers.

Our latest list of over 50 receivers, and many other interesting items sent free upon receipt of your s.a.e. CARRIAGE for England, Scotland and Wales shown in brackets. TERMS: C.W.O., Approved Monthly Accounts, Hire Purchase and Part Exchange. Special facilities for export. Enquiries invited.

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830/7	275	0	Edometer ED902 Mk. 2	27	10	0
EA12	195	0	AC Mains Units 924	6	15	0
940	153	0	Receiving Aerial 731/i	4	16	0
EC10 Mk. 2	69	10	Plinth Speaker 906	4	5	0
EB35 Mk. 2	64	10	General Purpose			
			Speaker 935	3	7	6
EC10	59	10				

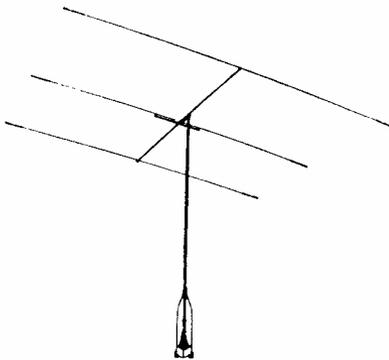
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 TA-33 Jr.  
 TA-32 Jr.  
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 V-3 Jr.  
 VTD-3 Jr.  
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 A-215  
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 A-210  
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 A-203-C Lancer Mobile  
 TA-36 A-92-S  
 TA-33 Snr. TD-2  
 TA-32 Snr. DI-10  
 V-4-6 R4-4RK

Rotators, Towers, Polythene cord and rope, Coax cable, Control cable, Twin feeder and many more Antenna accessories.

Send for **HANDBOOK/CATALOGUE** containing full details and prices of Antenna and technical information, 2/6 refundable on purchase of an Antenna.



V-3 Jr.

Provides outstanding performance on 10 and 15 metres, coupled with light weight (17 lb.). All Alloy and stainless steel construction, exceptional broad band tuning, exclusive trap design, single coax feed point. Power rating 300 watts AM/CW, 600 watts p.p.s. SSB input to final. Forward gain up to 8dB. Maximum element length 20ft. 3in. Boom length 12ft.

Regret increase in Antennae prices from November 1969. New price list on request.

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## AERIAL EQUIPMENT

**TWIN FEEDER.** 300 ohm twin ribbon feeder similar K25, 8d. per yard. 75 ohm twin feeder, 8d. per yard. Post on above feeders, 2/- any length.

**COPPER WIRE,** 14G, H/D, 140ft., 37/6 ; 70ft., 19/- . Post and packing 5/-. Lengths are approx. only, actually sold by weight.

**VARIABLE CONDENSERS.** "Raymart" 250 pF, 8/6 each, 2/- P. & P. **EDDYSTONE 817.** 240 pF .024 spacing, 24/6, P. & P. 2/6.

**AERIAL INSULATORS.** Ribbed ceramic, 2/6 each. Short stick, 1/- each. Egg, 6d. all plus postage.

**2 METRE BEAM, 5 ELEMENT W.S. YAGI.** Complete in box with 1" to 2 1/2" masthead bracket Price: £3 7s. Carriage 5/.

**SUPER AERAXIAL,** 70/80 ohm coax, 300 watt very low loss, 2/3 per yard. 50 ohm 300 watt, 2/6 per yard. P. & P. 2/6.

**TOUGH POLYTHENE LINE,** type ML1 (100lb.), 2d. per yd. or 12/6 per 100 yds. Type ML2 (220 lb.), 4d. per yd. or 25/- per 100 yds., ML4 (400 lb.), 6d. per yd. Ideal for Guys, L.W. Supports, Halyards, etc. Postage 1/6 on all line.

## "RAYMART" SUPER BANDCHECKER

This instrument is an adaptation of the simple Absorption type wavemeter and by utilising a diode and a sensitive meter its application is considerably widened.

In addition to the familiar use of checking output frequency the increased sensitivity enables it to be used for many other applications such as:

- Checking of Multiplier stages in Multi Stage transmitters.
- Neutralising R.F. Amplifiers.
- Standing waves on coax Cables.

- R.F. Pick up in wiring.
- R.F. Pick up in Microphone leads, etc.

Price £4.4.0 (35-35 Mc/s.) or, including 160 Metre Band £4.10.0. P. & P. 3/-



## "RAYMART" TRANSISTORISED SHORT WAVE RECEIVER KIT

- Uses plug-in coils.
- 5 ranges available.
- Kit supplied with Range 3 coil 1.6-5.3 mc/s.

Full instructions supplied.

Cost of kit £8 (less speaker and battery).

Extra coils 11/- per range.

P. & P. 4/6.



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# AMATEUR ELECTRONICS G3FIK

**TRIO COMMUNICATIONS EQUIPMENT.** We are now able to offer from stock the new TRIO JR-310 Amateur Band Receiver which has been introduced to supplement the existing range. The well-known 9R-59DE general coverage and JR-500SE Amateur Band receivers are, of course, in use in large numbers in this country and it would be perfectly true to say that at the present time there are no other receivers of British manufacture or otherwise which can compare from the point of view of value for money. Needless to say both of these will remain in the range but the object in the introduction of the JR-310 is to offer a receiver with extra facilities some of which are incorporated and some of which are available as optional extras. The coverage of the JR-310 embraces 10 through 80 metres, 10 being covered in three segments, and in addition to WWV there is provision on the bandswitch for an extra band, details of coils and extals for this being given in the handbook. Contrary to the impression formed by some customers, the 6 metre band is not included, this appearing only on the original version. Optional selectivity is also incorporated but for fuller details we shall be pleased to forward literature by return. As with all other TRIO equipment a twelve months guarantee is offered backed by a first class after-sales service.

	£	s.	d.
TRIO JR-310 AMATEUR BAND RECEIVER ... ..	77	10	0
TRIO JR-500 AMATEUR BAND RECEIVER ... ..	69	10	0
TRIO 9R-59DE GENERAL COVERAGE RECEIVER	42	10	0
TRIO HS-4 LIGHTWEIGHT HEADSET ... ..	5	19	6
TRIO SP-5D MATCHING SPEAKER UNIT ... ..	4	7	6
TRIO TS-310 TRANSCIVER ... ..	212	0	0
TRIO VFO-5D VFO UNIT ... ..	32	0	0

Please note: All the above prices are nett and do not include carriage. Excellent stocks are kept of all items in the TRIO range and we shall be pleased to demonstrate any item to the caller without obligation.

**MEDCO LOW PASS FILTERS.** We very much regret the inconvenience caused through our inability to meet orders for these, but as our advertisement appeared last month advertising these from stock Messrs. MEDCO ran into serious difficulty maintaining supplies of components, with the result that they in turn were unable to complete our orders. However, by the time this appears we hope that there will be an all round improvement in the position. Please note, however, that we are able to offer from stock the new MEDCO HIGH PASS FILTERS which are priced at 30/- carriage paid and which have a specification which should make them very effective in cases of TVI.

**G-WHIP MOBILE ANTENNAE.** All items in the range available from stock and literature by return on receipt of your S.A.E.

**TTC SWR BRIDGES C3005.** A first class and accurate bridge employing twin meters indicating simultaneous forward and reverse readings, £6 10 0

**TTC SWR BRIDGE C3042.** Single meter version of the above £4 12 6

**TTC B1016 DYNAMIC FIRST MICROPHONES.** PTT with 50K impedance. Superior in construction and performance to more expensive units currently sold ... .. £3 10 0

**TECH TE 15 TRANSISTORISED GDO.** 440 kc/s. to 280 mc/s. in six bands ... .. £11 12 6

**LESON TABLE STANDING MICROPHONES.** A high quality instrument incorporating transistorised pre-amplifier with gain control. Bar type PTT switch ... .. 8 5 0

**USED TRIO JR-500SE and 9R-59DE RECEIVERS.** At the time of going to press we have several of these coming in but at the moment are unable to provide prices. However these are expected to fall between two-thirds and three-quarters of the new price and all receivers offered will be in absolutely first class and near new condition. Further details upon request with pleasure.

**AR88 RECEIVERS.** We have a requirement for AR88D and AR88LF receivers in used or new condition and should be pleased to learn if you have a set for disposal. When writing be sure to indicate condition and the price required.

Unfortunately, space does not permit the listing of our current stock of used equipment this month but details of this gladly upon request.

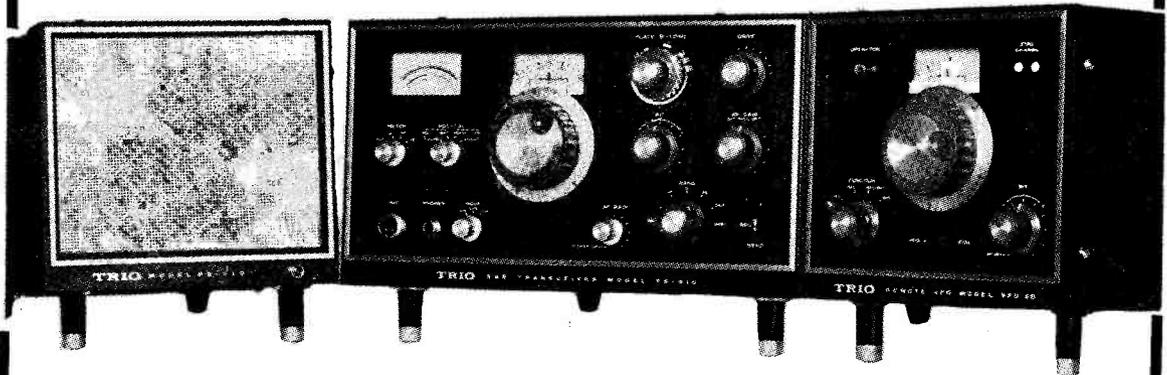
Adequate S.A.E.'s gentlemen please. Full Hire Purchase facilities. Excellent parking for the caller.

## AMATEUR ELECTRONICS

518-520 ALUM ROCK ROAD, ALUM ROCK, BIRMINGHAM 8.

Telephone: 021-327 1497

# Stand-by to receive

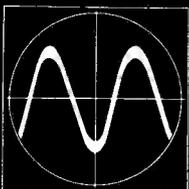


full information on the

# TRIO TS-510 + PS-510 + VFO-5D

Send for full technical information on this outstanding new SSB system — comprising the TS-510 SSB Transceiver together with PS-510 Power Supply/Speaker unit and VFO-5D variable frequency Oscillator.

Also ask for information on the new TRIO SSB Receiver, the JR-310 and all current models including JR-500 SE and 9R-59 DE Receivers, SP-5D speaker unit and HS-4 headphones.



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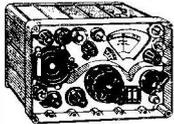
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**TRIO TS 510 AMATEUR TRANSCEIVER** with speaker and mains P.S.U., £212.  
**TRIO JR310 AMATEUR BAND 10-80 Metre Receiver**, £77/10/-.

**R209 Mk. II COMMUNICATION RECEIVER**

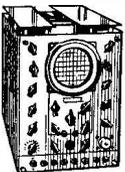


11 valve high grade communication receiver suitable for tropical use. 1-20 Mc/s. on 4 bands.

AM/CW/FM operation. Incorporates precision vernier drive, B.F.O. Aerial trimmer, internal speaker and 12v. D.C. internal power supply. Supplied in excellent condition, fully tested and checked. £15. Carr. 20/-.

**HAMGEAR PRESELECTORS**  
 Mains operated 1-5-30 Mc/s., £7/10/-, P. and P. 4/-.

**TYPE 13A DOUBLE BEAM OSCILLOSCOPES**

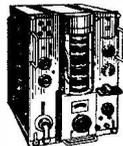


A high quality instrument offered at a fraction of original cost. Timebase 2 C/s.-750 Kc/s. Separate X1 and X2 amplifiers up to 5.5 Mc/s. Built-in calibrators at 100 Kc/s. and 1 Mc/s. Operation for 115/230 volts A.C.

Available in excellent condition, fully tested and checked and complete with leads and probe. £25. Carr. 30/-.

**AR88 MAINS TRANSFORMERS**  
 Brand new, boxed, 59/6. P.P. 5/-.

**ADMIRALTY B.40 RECEIVERS**

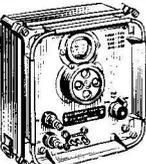


High quality 10 valve receiver manufactured by Murphy. Five bands 650 Kc/s.-30 Mc/s. 1/1F 500 Kc/s. Incorporates 2 R.F. and 3 I.F. stages, band-pass filter, noise limiter, crystal controlled B.F.O. calibrator, I.F. output, etc. Built-in speaker, output for phones. Operation 150/230 volt A.C. Size 19 1/2 in. x 13 1/2 in. x 16 in. Weight 14 lbs. Offered in good working condition, £22/10/-, Carr. 30/-.

Also available B41 L.F. version of above. 15 Kc/s.-700 Kc/s., £17/10/-, Carr. 30/-.

**DUMMY LOAD RESISTORS**  
 Carbon 30Ω 35w., 5/6. P.P. 1/6.

**CRYSTAL CALIBRATOR NO. 10**

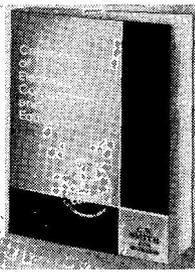


Small portable crystal controlled wavemeter. Size 7 x 7 x 4 in. Frequency range 500 Kc/s.-10 Mc/s. (up to 30 Mc/s. on harmonics). Calibrated dial. Power requirements 300v. DC. 15mA and 2v. DC 0.3A. Excellent condition, 89/6. Carr. 7/6.

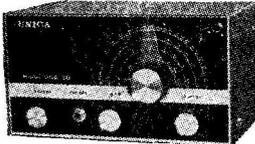
**JOYSTICK AERIALS**  
 Full range of Aerials and Tuners in stock.

# Latest Catalogue

The latest edition giving full details of a comprehensive range of H.F. EQUIPMENT, COMPONENTS, TEST EQUIPMENT and COMMUNICATIONS EQUIPMENT. Nearly 200 pages, fully illustrated and detailing thousands of items—many at bargain prices. FREE DISCOUNT COUPONS VALUE 10/-.



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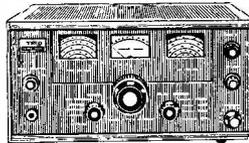


**UNR-30. 4 BAND COMMUNICATION RECEIVER**

Covering 550 Kc/s.-30 Mc/s. Incorporates variable BFO for CW/SSB reception. Built-in speaker and phone jack. Metal cabinet. Operation 220/240v. A.C., supplied brand new, guaranteed with instructions. £13/13/-, Carr. 7/6.

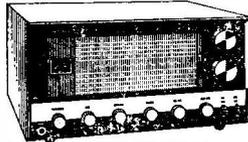
**TRIO 9R-59DE**

4 band covering 550 Kc/s. to 30 Mc/s. continuous and electrical bandspread on 10, 15, 20, 40, and 80 metres. 8 valve plus 7 diode circuit. 4/8 ohm output and phone jack. SSB-CW. ANL. Variable BFO. 5 Meter. Sep. bandspread dial. IF frequency 455 Kc/s. audio output 1.5w. Variable RF and AF gain controls 115/250v. A.C. Size: 7" x 15" x 10" with instruction manual. £42. Carr. paid.



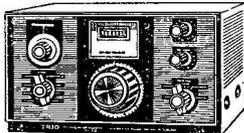
**TRIO COMMUNICATION TYPE HEADPHONES.** Normally £15/9/6, our price £13/15/- if purchased with receiver.

**NEW LAFAYETTE SOLID STATE HA600 RECEIVER**



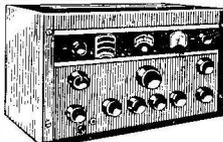
5 Band AM/CW/SSB amateur and short wave 50 Kc/s.-400 Kc/s. and 550 Kc/s.-30 Mc/s. F.E.T. front end. 2 Mechanical filters. Huge Dial. Product detector. Crystal calibrator. Variable BFO. Noise limiter, 5 Meter. 24 1/2" Bandspread. 230v. A.C./12v. D.C. Neg. earth operation. RF gain control. Size: 15" x 9 1/2" x 8 1/2". Wt. 18 lbs. Exceptional value. £45. Carr. 10/-.

**TRIO JR-5005E AMATEUR RECEIVER**



Covers all the amateur bands in 7 separate ranges between 3.5 and 29.7 Mc/s. 7 valves, 2 transistors and 5 diodes plus 8 crystals; output 8 and 500 ohm and 5000 ohm phone jack. Crystal controlled oscillator. Variable BFO. VFO. AVC. ANL. 5 meter. SSB-CW. Stand-by switch. special double gear dial drive with direct reading down to 1 kHz.

Remote control socket for connection to a transmitter. Audio output 1 watt. 115/250v. A.C. Mains. Superb modern styling. Size 7 x 13 x 10 in. with instruction manual and service data, £69/10/-, Carriage paid.



**RCA COMMUNICATIONS RECEIVERS AR88D**

Latest release by ministry BRAND NEW in original cases. 110-250v. A.C. operation. Frequency in 6 Bands 535 Kc/s.-32 Mc/s. continuous output impedance 2.5-600 ohms. Incorporating crystal filter, noise limiter, variable BFO, variable selectivity, etc. Price: £87/10/-, Carr. £2.

**CLEAR PLASTIC PANEL METERS**

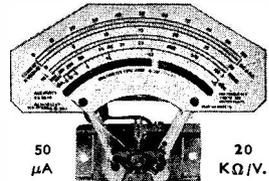


First grade quality. Moving Coil panel meters, available ex-stock. S.A.E. for illustrated leaflet. Discounts for quantity. Available as follows. Type MR. 38P. 1 21/32 in. square fronts.

1-0-1mA	27/6	150mA	27/6	750v DC	27/6
2mA	27/6	200mA	27/6	15v AC	27/6
5mA	27/6	300mA	27/6	50v AC	27/6
10mA	27/6	500mA	27/6	150v AC	27/6
750mA	27/6	3v DC	27/6	300v AC	27/6
1 amp	27/6	10v DC	27/6	500v AC	27/6
2 amp	27/6	20v DC	27/6	5 meter 1mA	
500-500μA	37/6	500-0-500μA	40/-	5 amp	27/6
100μA	37/6	150v DC	27/6	100v DC	27/6
100-0-100μA	27/6	50mA	27/6	300v DC	27/6
	35/-	1mA	27/6	500v DC	27/6

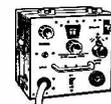
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**AVOMETER MOVEMENTS**



Spare movements for Model 8 or 9. (Fitted with Model 9 scale) or basis for any multiplier. Brand New and Boxed. 69/6. P.P. 3/6.

**CLASS D WAVEMETERS**



A crystal controlled heterodyne frequency meter covering 1.7-8 Mc/s. Operation on 6 volts D.C. Ideal for amateur use. Available in good used condition £5/19/6. Carr. 7/6.

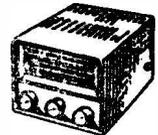
or brand new with accessories £7/19/6. Carr. 7/6.

**CLASS D WAVEMETERS No. 2**

Crystal controlled 1.2-19 Mc/s. Mains or 12v. D.C. operation. Complete with calibration charts. Excellent condition, £12/10/-, Carr. 30/-.

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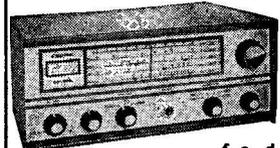
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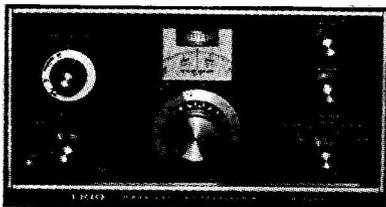


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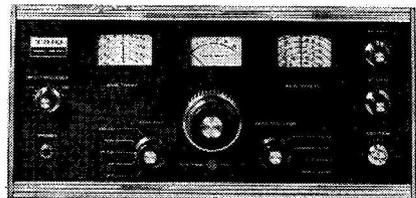
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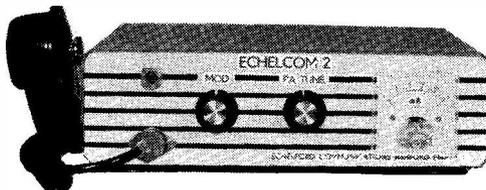
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(GB3SWM)

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DECEMBER, 1969

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★ CHRISTMAS ★

The writer of this piece offered his first Christmas message to readers of SHORT WAVE MAGAZINE in our issue for December 1938.

It is a long time since then, and much has happened — but the message remains the same:

*To all who may see these lines — at  
home or abroad — Happiness for Christmas  
and Prosperity in the New Year*

*from*

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# SIMPLE Tx FOR FOUR METRES

## CIRCUITRY AND CONSTRUCTIONAL DETAILS

T. HARRISON (GM3NHQ)

THE author's introduction to the VHF bands was during the 1966 VHF Field Day contest, during which a number of contacts were made on 4m. *via* aurora, using a B.44 Mk. III transmitter, a borrowed converter and AR88 receiver. In the flush of excitement that followed, an attempt was made to get going on 70 mc from the home station, but it was not until July 1969 that the first contact was made. This long interval was due to a number of circumstances, not least of which was the lack of 4m. activity in the area.

Many 70 mc operators appear to be using surplus equipment such as B.44's or "Pye portables," which may not be easy to come by in some districts, and it was felt that this was one possible reason for the scarcity of stations on the band. The transmitter described here was consequently designed to provide an easy way of getting on the band by "home-brewing," in the hope that it will induce a few "HF band" operators to venture on to 4 metres—otherwise pressure for frequency space may cause the authorities to withdraw the amateur allocation on 70 mc. The design follows conventional HF techniques and the low power level of 15 watts should give reasonable results for moderate cost. No special components are required, and the modulator requirements for a transmitter of this power are easily, and inexpensively, met.

### Circuit Description

A glance at the diagram below of the RF section, Fig. 1, will show that the transmitter is a simple three-stage unit, comprising a crystal-controlled oscillator

running at 35 mc, followed by a frequency doubler driving a 2E26 PA stage which can be run up to 25 watts input, depending on the power supply available. The crystal oscillator and frequency doubler are combined in one valve, an ECF80, which produces sufficient drive to the 2E26 for the power used here.

CW operation is by grid-block keying, with keying bias applied either to the doubler and PA stages only, or to all three stages for full break-in operation, depending on the operator's requirements. The various control circuits used by the author are shown in Fig. 2A, B.

Telephony operation is by AM, and the circuit for the modulator is shown in Fig. 3—although it goes without saying that any speech circuit capable of giving about 10 watts of audio could be used.

The simple crystal oscillator/doubler/PA combination was chosen because it is the easiest to get going and should produce a clean signal on the band. No attempt was made to provide variable frequency control since, with the present level of activity on 70 mc, it is hardly necessary to hunt around for a clear channel on which to transmit.

### Diagram of RF Unit

Referring to Fig. 1, the RF unit schematic diagram, V1a is the crystal-controlled overtone oscillator which is tuned to give 35 mc output from an 11.7 mc crystal. The oscillator can be keyed with the doubler and PA stages or run continuously while the remaining two stages only are keyed, depending on whether or not full break-in keying is required. The alternative control arrangements

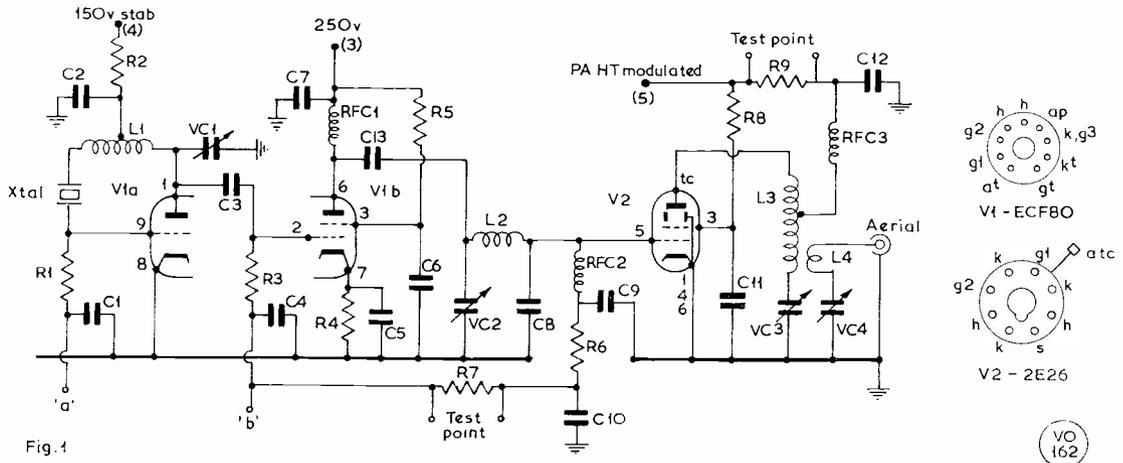


Fig. 1. Circuit of the RF section, four-metre transmitter.

are shown in Fig. 2, and it will be seen that only the ground return of the oscillator grid resistor R1 is altered for either system. The keying methods are discussed under the "adjustment and testing" section.

The 35 mc output from V1A anode is capacity-coupled to the doubler grid circuit via C3, the control grid resistor R3 being taken to the keying line. The doubler stage is tuned and coupled to the PA grid by pi-network. The advantages of this type of coupling are well recognised when applied to the transmitter output circuit, but its great advantage when used for inter-stage coupling is that it makes it unnecessary to neutralise the following PA stage, and is very effective in suppressing parasitic oscillation. In the circuit as given, there is ample drive available for 15 watts input to the PA stage. Only the pi-network input capacitor VC2 is made variable, the output loading capacitor C8 being fixed, the value chosen giving sufficient drive to the PA stage.

The PA valve control grid is returned to the keying line through RFC2 and de-coupling capacitor C9, the operating bias being developed by the rectified grid current passing through R6. Resistor R7 is fitted to provide a test shunt for grid current measurement.

The 2E26 PA anode circuit has a series tuning arrangement, which is not usual HF practice. This is because the 2E26 has a fairly high anode capacity, which would require only a small tank coil for resonance at 70 mc in the normal parallel arrangement. By using a series tuned circuit, the valve anode capacitance is effectively in series with the tuning capacitor VC3, across the tank coil L3, allowing the coil to have about 8 turns for resonance. Output to the aerial is via link coil L4, with VC4 acting as a loading capacitor. HT supply to the PA anode is through the RF choke RFC3 to the coil centre-tap, which is not de-coupled to earth. The resistor R9 is the HT supply line is simply a meter shunt for plate current measurement. The PA screen is supplied through the dropper resistor R8 from the common modulated HT supply line to give plate-and-screen control, in the usual way.

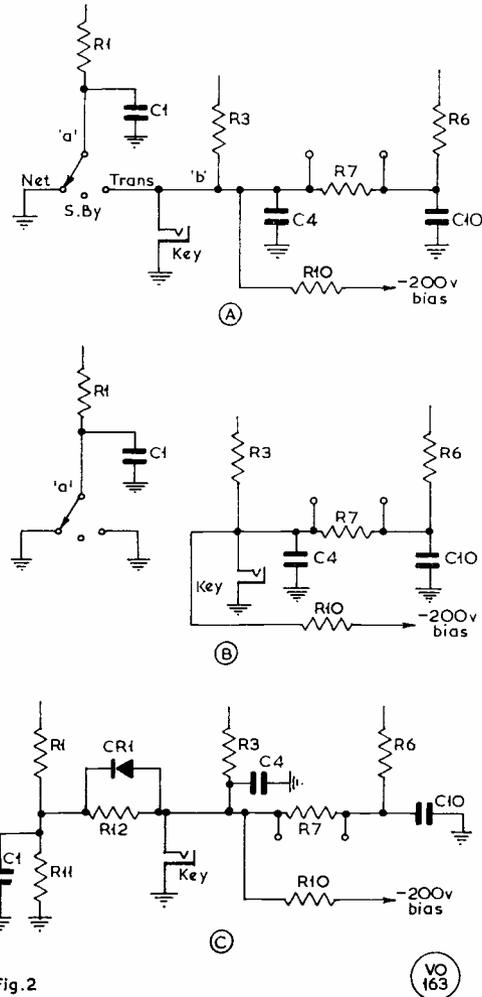


Fig. 2

VO 163

Fig. 2. Keying and control circuits.

Table of Values

Fig. 1. RF Unit, and (Fig. 2), Keying and Control Circuits

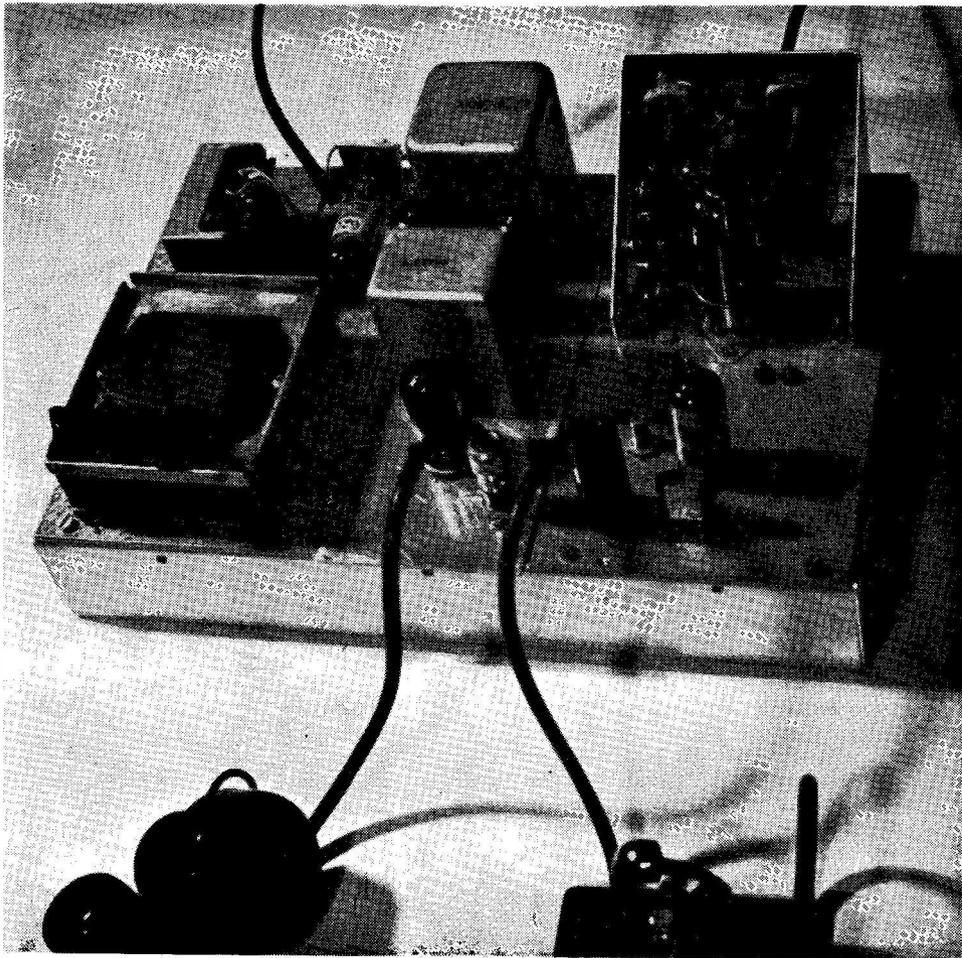
C1, C2,	R5 = 33,000 ohms
C4, C5,	R6 = 22,000 ohms
C6, C7,	R7 = 1,000 ohms
C9, C10,	R8 = 51,000 ohms
C11, C12 = .001 $\mu$ F, disc cer.	R9 = 33 ohms
C3 = 50 $\mu$ $\mu$ F, s/m	R10 = 100,000 ohms
C8 = 33 $\mu$ $\mu$ F, s/m	R11 = 330,000 ohms
C13 = .001 $\mu$ F, cer.	(see text)
VC1 = 35 $\mu$ $\mu$ F, trimmer	R12 = 3.3 megohm
VC2 = 25 $\mu$ $\mu$ F, min. var.	RFC1, = Min. RF chokes
VC3 = 25 $\mu$ $\mu$ F, var.	RFC2 = 2.5 mH choke
VC4 = 50 $\mu$ $\mu$ F, var.	RFC3 = BY-100, or similar
R1 = 47,000 ohms	V1 = ECF80
R2 = 5,600 ohms	V2 = 2E26
R3 = 22,000 ohms	
R4 = 100 ohms	

TABLE OF COIL DATA

- L1 — 20 turns 26g.,  $\frac{3}{8}$ in. dia. by  $1\frac{1}{2}$ in. long, tapped at 6th turn.
- L2 — 5 turns 26g.,  $\frac{3}{8}$ in. dia. by  $\frac{1}{2}$ in. long.
- L3 — 8 turns 20g., self-supporting, centre-tapped, each section  $\frac{3}{8}$ in. dia. by  $\frac{1}{2}$ in. long.
- L4 — 2 turns 20g., wound over L3 at centre position.

Modulator Circuit

Fig. 3 shows the schematic diagram of the modulator used by the author. This needs three valves only—a 12AT7 speech amplifier, which drives two 6BW6's in push-pull for the power amplifier. The driver and modulator transformers T1 and T2 are ex-SCR522 units, and are probably unobtainable at the present time. However, any small push-pull transformer of ratio 1 : 1.3 will do for the driver transformer T1, and the author has used a small mains transformer of ratio 250-0-250v. rated at about 40 mA for the modulation transformer T2 with equal success. The input circuit to V3A has been arranged to suit a carbon microphone, with V3A operating as a grounded-grid amplifier with cathode input. Energising voltage for the carbon microphone is obtained from the cathodes of V3A, B. The necessary modification for crystal microphone input is



*The Four-Metre Transmitter complete, as described by GM3NHQ.*

shown in Fig. 3A.

The push-pull power amplifier takes two 6BW6's with the common cathode resistor R17 and common screen dropper R18.

#### Construction and Layout

Construction and layout of the unit are quite straightforward and require no special comment, as each constructor will no doubt have his own ideas. In the author's case, the RF unit, modulator and power pack were each built on a separate sub-panel, these being mounted on an "upside-down" chassis which forms the base-plate and screen. This system has the advantage that each unit can be completely built and tested separately from the others, which makes experimental work much easier. However, there is no particular advantage in building the finished unit in this way. The photograph shows the author's unit, with the modulator using the two ex-

SCR522 transformers fitted.

#### Adjustment and Testing

The first stage to be set up is the oscillator. The ground end of R1 should be shorted to earth and a milli-ammeter inserted in the 150v. stabilised supply to give anode current indication. The oscillator tuning capacitor VC1 is adjusted to give a dip in plate current, indicating that the crystal is oscillating, the current dipping sharply with a reasonably active crystal. The final setting should be slightly towards the HF side of maximum dip for VC1 to give reliable starting, *i.e.* immediate response on switch-on.

The doubler stage is easily set up, using the PA grid current test point at R7 for indication. The plate and screen supplies should first be disconnected, the keying line earthed at point "B" and VC2 adjusted for maximum current through R7. About 1.5 mA will be ample grid

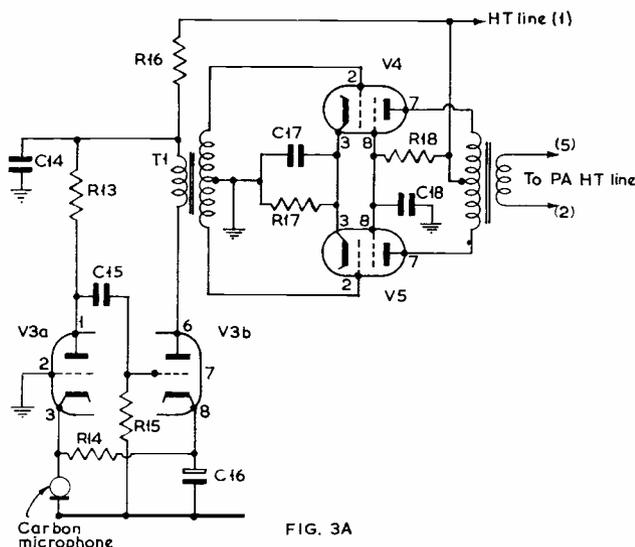


FIG. 3A

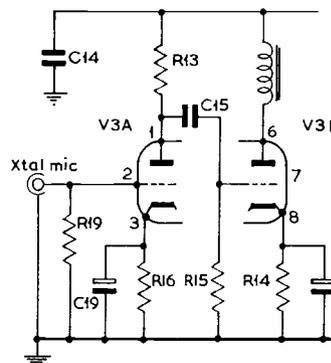


FIG. 3B

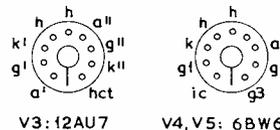


Fig. 3A. Modulator section, using carbon microphone.

Fig. 3B. Input circuit for crystal mic.

drive for the 2E26 for about 15 watts.

When adjusting the PA stage, it is preferable to have some sort of load (either lamp or resistor) connected to the Ae. output, with VC4, the loading capacitor, at about half-mesh. With HT applied to all stages, and a 100 mA meter across R9 for indication of PA anode current, the tuning capacitor VC3 is adjusted for maxi-

Table I

Operating Parameters

Oscillator plate voltage	150v., stab.
Oscillator plate current	Dips to 10 mA at resonance. VC1 set at 11 mA
Doubler plate voltage	250 volts. VC2 set for max. PA grid current
PA grid current	1 mA—1v. measured across R7
PA plate voltage	250v.
PA screen voltage	160v.
PA plate current	Dips to 15 mA—0.5v. measured across R9, with VC4 at min. cap. loads to 50 mA—1.6v. across R9. VC4 full mesh.
Modulator amp. plate voltage	250v.
Speech amp. V3B, plate voltage	200v.
Mic. amp., V3A, plate voltage	40v.

Table of Values

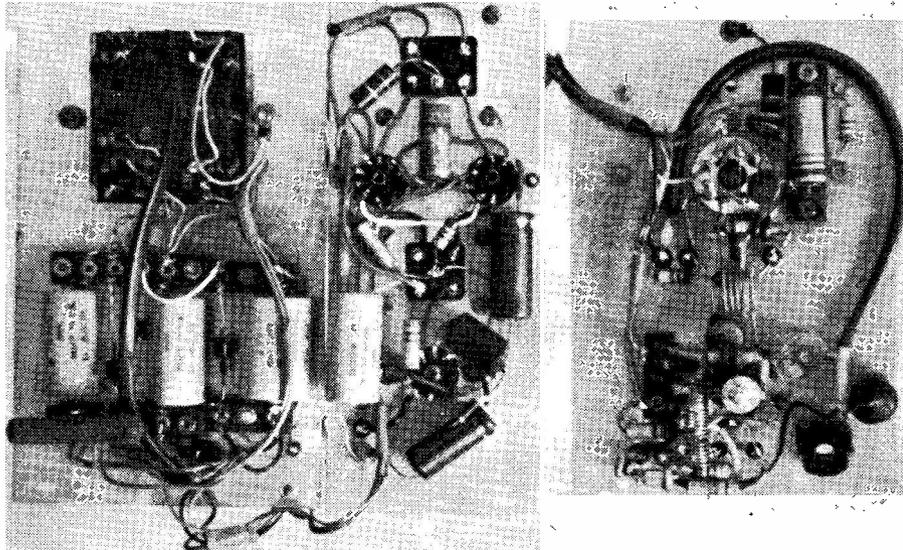
Fig. 3A, B. Modulator and input circuits

C14, C18 = 16 $\mu$ F, 500v. wkng., elect.	R15 = 470,000 ohms
C15 = .01 $\mu$ F, paper	R16 = 10,000 ohms, 2w.
C16 = 50 $\mu$ F, 50v. wkng., elect.	R17 = 270 ohms
C17 = 25 $\mu$ F, 50v. wkng., elect.	R18 = 10,000 ohms, 5w.
C19 = 10 $\mu$ F, 50v. wkng., elect.	R19 = 2 megohms
R13 = 47,000 ohms	R20 = 2,200 ohms
R14 = 470 ohms	T1, T2 = Mod. and driver transformers — see text
	V3 = 12AU7
	V4, V5 = 6BW6

imum dip in PA current. The current at dip should be about 15 mA, with a grid current of 1.5 mA or so. Once the PA is resonated, the load can be increased by advancing VC4 towards maximum capacity, till plate current is about 66 mA in the 2E26. The usual tests for parasitic oscillation should be made, but it is the author's experience that the use of *pi*-coupling into the PA grid avoids these and makes neutralisation unnecessary.

The various keying and control circuits shown in Fig. 2 may require some comment. In the initial design, full break-in keying was attempted, with oscillator, doubler and PA stages all being keyed, but it was found that the simple circuit shown in Fig. 2A gave an unacceptable chirp on the signal. This may have been due to a sluggish crystal, but it is more probably a characteristic of overtone oscillators operating at very high frequency. Whatever the reason, alternative circuits were devised to provide a chirp-free CW signal.

Fig. 2A shows the original arrangement in which S1a connects the oscillator grid to earth for "netting,"



General under-chassis arrangement of the Four-Metre Transmitter—RF section on right.

is open-circuit for "stand-by," and connects the oscillator grid resistor to the keying line for "transmit." A second section on S1 operates an antenna change-over relay in the "transmit" position. Using this system, the oscillator

is keyed with the doubler and PA stages, and as mentioned, with some crystals this may result in a chirpy signal. An easy modification to this circuit, with S1a returned to earth in the "transmit" position as shown in Fig. 2B, arranges for the oscillator to be on continuously during "transmit" and results in a chirp-free signal.

The arrangement shown in Fig. 2C was devised by the author to give full break-in chirp-free keying, with only the aerial being switched from "transmit" to "receive." The circuit shown allows the oscillator to run continuously at a very low level during "stand-by" periods—at about the level of a band marker—the power on the oscillator being reduced by applying a negative bias to the grid resistor R1, which almost cuts off the oscillator. This bias is derived from the 200v. negative supply through the voltage divider R11/R12. With the key open, full muting bias is applied to the doubler and PA stages, cutting them off completely, while the oscillator is allowed to run continuously at very much reduced power. When the key is closed, however, the doubler and PA grid resistors are connected directly to earth and these stages operate normally. The oscillator grid resistor R1 is connected to earth through the rectifier CR1, which in effect short-circuits both R11 and R12 to earth, thereby allowing the oscillator to run at full power. By means of this network the oscillator is not in fact switched on and off while the transmitter is being keyed, it is merely being reduced in power, and this removes the principal cause of chirp. The rectifier does not have to be any special type so long as it can stand the full negative bias supply voltage.

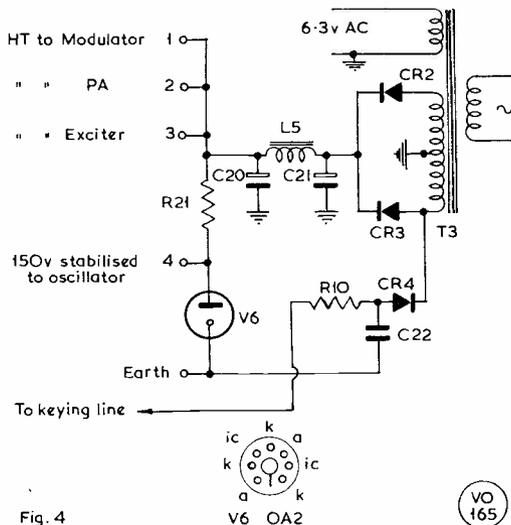


Fig. 4

Fig. 4. PSU for the 70 mc transmitter, for which values can be: C20, C21, 16  $\mu$ F, 500v. working; C22, 32  $\mu$ F, 500v. working; R21, 8K 5-watt, wirewound; CR2, CR3, CR4, BY-100; T3, 250-0-250v. 100 mA, 6.3v. 3 amp.; choke, 10 Hy 100 mA; V6, OA2.

The author used a BY100 which is the standard PSU rectifier at GM3NHQ. These control circuits are probably an extravagance since a simple two-pole, three-way switch will control the whole station including the antenna change-over. However, the writer's feeling is for all station switching to be key controlled, and hopes to develop a T/R switch which will avoid even aerial switching in future, and give complete break-in operation of the station equipment.

Table 1 shows the main operating parameters and the setting-up points for the various stages of the transmitter—see p.607.

Contacts made on 70 mc have indicated that the transmitter is operating satisfactorily, with a clean note on CW and reasonable modulation on phone, and it is hoped that the simple design shown here will inspire others to get going on the 4-metre band and raise the level of activity, at least in the GM area.

## LIGHT ACTIVATED CHANGE-OVER SYSTEM

BY FINGER CONTROL ON THE MICROPHONE

J. D. PARKINSON (G3XJB)

WITH the arrival of a new rig in the writer's shack, the once-neat changeover system became chaotic. A new system was obviously required and so the circuit of Fig. 1 was devised with two main objectives: (1) To have the minimum number of interconnecting wires possible, and (2) To plug in and operate any other transmitter without having to re-wire the system.

### Operation

The pick-up L1 is a two or three turn loop of wire wound round a three-quarter inch length of well-insulated aerial wire. This wire is soldered to the coax socket into which the transmitter output is connected. Diodes D1 and D2 rectify the RF and increase the forward bias on the base of the transistor. This switches the transistor on. RLA operates, muting the receiver and energising RLB which, in turn, switches the aerial from the receiver to the transmitter and earths the receiver input.

The miniature 12v. lamp is there for two purposes: (1) To regulate the relay power supply, and (2) To show the supply is operating. A 9v. transformer could be used with a voltage doubler, as in Fig. 2A, instead of T1, D4 and C3, or a 6.3v. transformer with a voltage tripler, Fig. 2B. The lamp is even more necessary for regulation with these circuits. VR1 is varied to obtain 12-15v. to supply the transistor and relay.

The relays have to operate rapidly when the transmitter comes on, but a pause before they go off is required with CW or SSB. The conventional method of drop-out

delay, by connecting a capacitor permanently in parallel with the relay coil, produced a switch-on that is slowed by the charging of the condenser. In the circuit given in Fig. 1 the relay operates immediately because the capacitor is ready charged. S2 switches in the different time-delay capacitors—40  $\mu$ F for AM (to give a silent return) and 1,000  $\mu$ F for CW or SSB, resulting in about two seconds' delay.

S1 is closed to allow the transmitter to be tuned up. TR1, D1, D2 and D3 were used because they were available, so it is probable that other similar components would work in the circuit just as well. A small heat-sink was fitted for Tr1, just to be on the safe side. [over

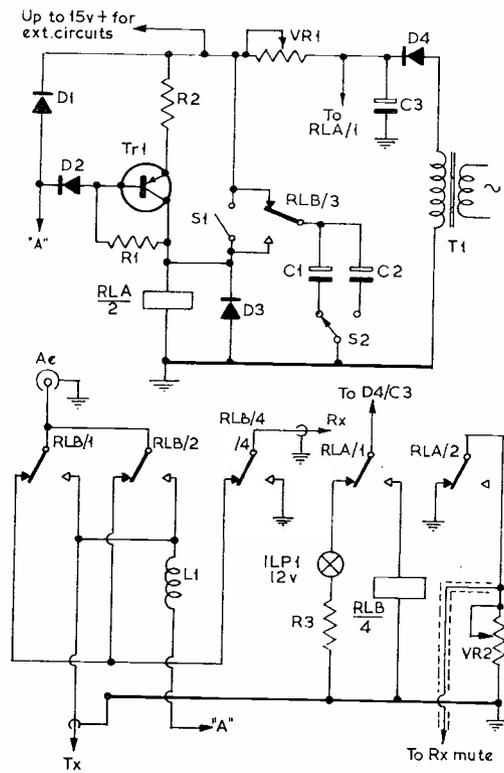


Fig.1

### Table of Values

Fig. 1. Receiver and Aerial Changeover

C1 = 40 $\mu$ F, 25v. wkng.	D3 = OA79
C2 = 1000 $\mu$ F, 25v. wkng.	D4 = Silicon rect., rated 16v. 1 amp. min.
C3 = 50 $\mu$ F, 25v. wkng.	L1 = see text
R1 = 470,000 ohms, $\frac{1}{2}$ w.	T1 = 15-volt, 1 amp.
R2 = 47 ohms, $\frac{1}{2}$ w.	RLA = Two-pole c/o, 700 ohms
R3 = 110 ohms, 1w.	RLB = Four-pole c/o
VR1 = 5,000 ohms	Tr1 = OC76, see text
VR2 = 25,000 ohms	
D1, D2 = OA81	

Fig. 1. Circuit of unit for receiver and aerial changeover, with transistor inverted to give negative earth.

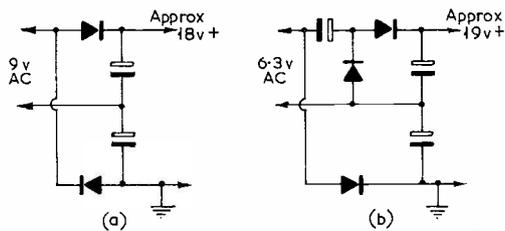


Fig. 2

Q  
425

Fig. 2. Voltage multiplier circuits. A, voltage doubler. B, voltage tripler. All capacitors 100  $\mu$ F, 25v. working. All diodes are silicon rectifiers, rated 16-volt 1 amp., minimum working.

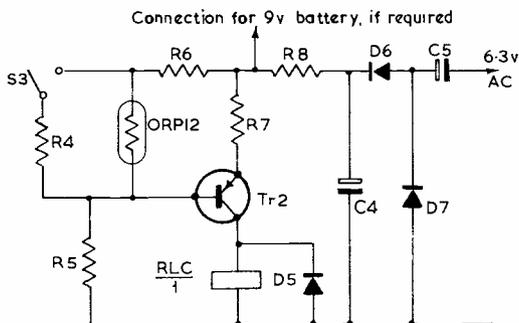


Fig. 3

Q  
426

Fig. 3. Transmitter changeover circuit, with transistor inverted to give negative earth.

## Table of Values

Fig. 3. Transmitter Changeover

C4, C5 = 50 $\mu$ F, elect., 16v. wkng.	D5 = OA79
R4 = 1.2 megohm	D6, D7 = Silicon rect., rated 16v. 100 mA min.
R5 = 56,000 ohms	Tr2 = OC78, OC81, etc.
R6 = 1,000 ohms	RLC = Single-pole make, see text
R7 = 47 ohms	LDR = ORP12
R8 = 220 ohms	

## Transmitter Switching

The circuit of Fig. 3 shows the switch which could be employed if the transmitter is operated by relays. It was used with the writer's first rig and found to be very sensitive—with it, the transmitter HT can be keyed at 12 w.p.m.!

## Operation

When light falls on the ORP12 its resistance becomes low, about 1K, and the transistor is biased off. When light is cut off by placing a finger or thumb over the cell, its resistance goes high, about 1M. This holds the transistor on and so operates the relay RLC. To save

interconnecting wires the transmitter 6.3v. heater line could be used to supply the transistor.

## Construction and Layout

For both units this is not critical. The circuit of Fig. 1 was built on a tag strip and put in a 6in. by 3in. by 2½in. chassis, leaving out only T1, D4 and C3. An RF by-pass capacitor should be connected across the supply lines at the point where they leave the chassis. The second circuit, including the CW/Tune up switch S3, was built on a tag board fitted to the side of the transmitter. The light-dependent resistor was first insulated and then taped to the side of the microphone that faced the window. It works successfully twelve feet away from the window in daylight and equally as well in artificial light.

## Operation

The system has been used with a 10 watt rig on 160 metres and with a 100-watt Tx on the HF bands. Unexpectedly, it was found that the TVI went down slightly when this new changeover system was installed! It should be noted that the system may not be fully reliable on Top Band—due, no doubt, to the combination of QRP and the lower frequency. It will work very well on 160 metres if the number of turns on L1 is increased to improve the pick-up—but then there is the danger of damaging the transistor due to the higher powers (and hence greater RF pick-up) on the HF bands. A way out of the difficulty, assuming Top Band is not often used, is that when on 160m. changeover be effected by using the CW/Tune switch, S3. It really depends upon comparative band usage.

## Notes on the Relays

RLA and RLC must be capable of operation with 9v. or under. RLB can be any resistance, but must operate with 18v. or under. A relay with a 150-ohm coil was used for RLC, but it is possible that a higher resistance might be better.

## NOTIFYING NEW CALLSIGNS

For some unaccountable reason—it has never been asked for, nor even suggested, by us—we have had a number of instances recently where readers issued with a new call sign and wishing for appearance in the "New QTH" page have sent in the actual Licence as verification. This is quite unnecessary and makes extra work in that the document has to be safeguarded and returned. We accept, and always have done for these many years, the simple statement that a Licence has been granted, with call sign, name and address. And please use block letters on that slip!

## JANUARY ISSUE—PUBLICATION DATE

To overcome the chaos of the Christmas period and the inevitable mail delays, January "Short Wave Magazine" is being published on Friday, January 2. Our issue for February will appear on January 30, the due date. We feel sure that, in the circumstances, readers will approve of this slight change in procedure.

## TOP BAND MOBILE TRANSCEIVER

### ALIGNMENT DETAILS — OPERATION AND RESULTS

#### Part II

J. V. HOBAN (G3EGC)

The author makes no apologies for going into the alignment in some detail. Many mechanically adept constructors fail abysmally to align correctly their newly-built equipment and then despairingly put their hands down to buy commercial products on the assumption that home-built gear can never be as good. The author guarantees that, all things being equal, compliance with these align-instructions will ensure successful operation.

IF alignment is done first. Injection at 460 kc is applied to the signal grid (pin 6) of V2 and a valve voltmeter or *high resistance* test meter (at least 20,000 o.p.v.) is connected to the AGC line. Starting with IFT1, each core is adjusted for maximum meter reading, at the same time backing off the RF gain as the readings increase. If the cores have two resonance points, tune them on the *outer* resonance. The primary of IFT4 is tuned for maximum reading but the secondary must be set for a *dip* in the meter reading. (Top core—primary; bottom core—secondary.) Repeat IF alignment to make sure it is "on the nose."

Now the receiver oscillator must be set correctly: The author has found that the easiest way to do this is to listen for the beat on the station receiver. A small

one or 2 turn, one inch diameter loop is connected *via* a suitable length of coax to the receiver and the loop is placed near the oscillator coil. The three-gang condenser is set to about half capacity, at the point where it would tune 1900 kc. The miniature trimmer on the oscillator coil is also set to roughly half capacity. (The trimmers on *Electroniques* "Stabcoils" are at minimum capacity when the silver D-shape is on the right-hand side with the grid tag at 12 o'clock.) Set the station receiver to about 2360 kc (1900 + 460) and carefully adjust the oscillator coil slug until the signal is heard. There should be no doubt about this because it will be very strong.

Now apply a signal of 1900 kc to the aerial socket. Set the trimmers on RF and mixer coils to half-capacity and adjust the slugs of these coils for maximum reading on the (still-connected) valve voltmeter or test meter. The RF circuits are now roughly in line and finer adjustment is required. By alternately feeding signals of 1800 and 2000 kc into the aerial socket, the bandspread of the oscillator can be checked. If the band is covered in too small a swing of the three-gang condenser, *increase* the capacity of the oscillator coil trimmer. If the band cannot be covered with the full swing of the condenser, *decrease*

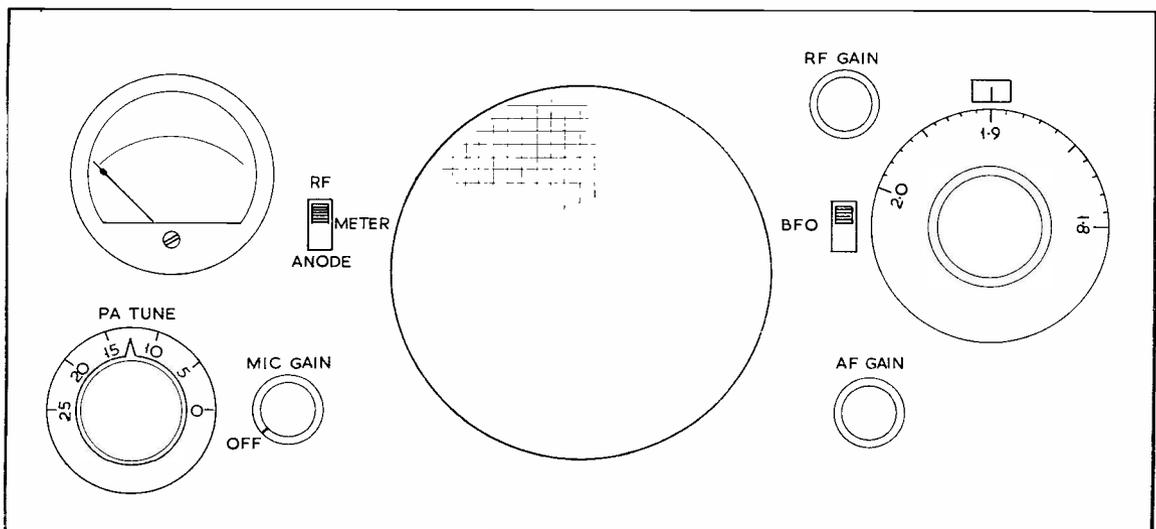


Fig. 3

HALF FULL SIZE

R  
545

Fig. 3. Suitable panel layout for the G3EGC 160m. mobile Transceiver.

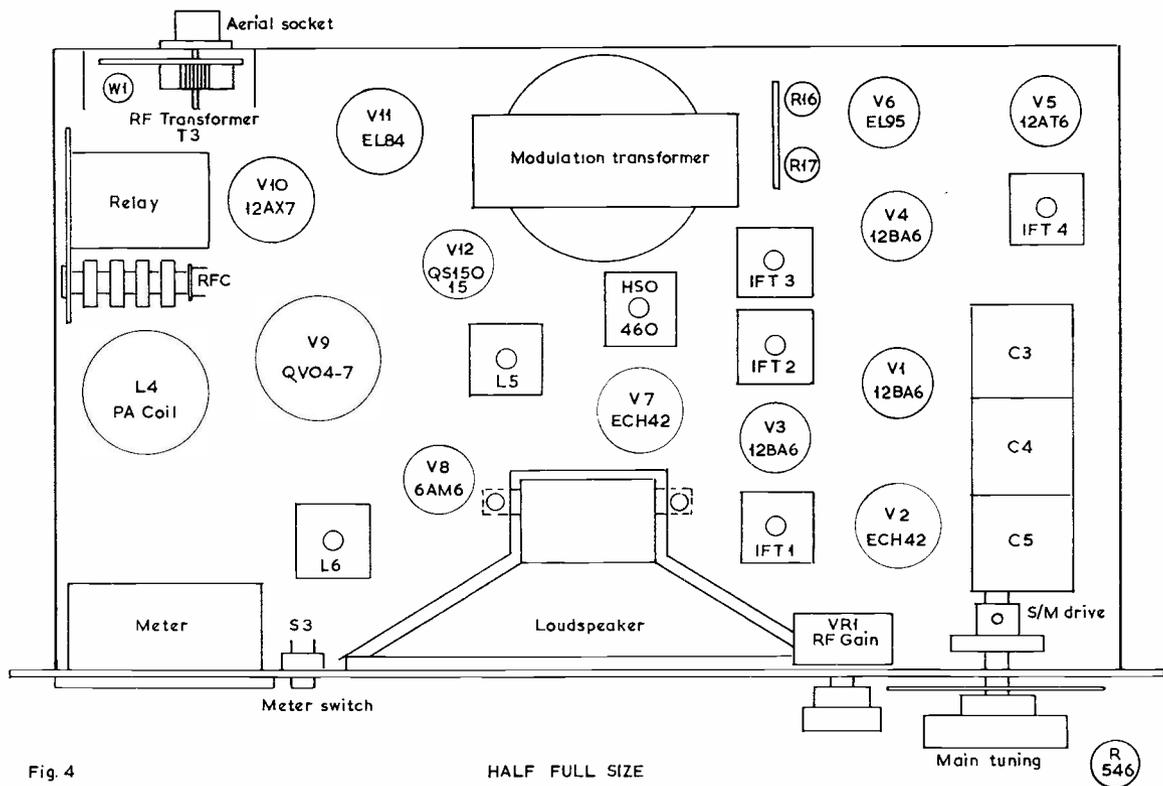


Fig. 4

HALF FULL SIZE

**Fig. 4. Upper chassis arrangement of parts.  
Mobile Transceiver.**

the value of the trimmer. Ideally, 1800 kc should tune as the rotors are just beginning to unmesh from the stators and 2000 kc just before complete unmesh occurs. By careful adjustment of the oscillator coil slug and trimmer, this condition can be achieved. Final setting up of the RF and mixer coils is by adjusting the slugs at 1850 kc and the trimmers at 1950 kc. With a suitable aerial connected, the receiver should be very lively and selective and Top Band signals should be easily received.

Alignment of the transmitter side can now be undertaken. The relay must be energised to switch HT to the transmitter circuits, with a 75-ohm dummy load connected to the aerial socket. The PA grid resistor is lifted from earth and a 5 mA meter temporarily joined into circuit, positive side to earth.

The HSO-460 is first put on frequency. This is done by adjusting the slug and listening for the signal on a BC-221 (or similar frequency meter) set to 460 kc. The pick-up loop from the station receiver is now placed near the anode lead of V7. Both station receiver and transceiver are tuned to 1900 kc until a beat is heard and L5 slug adjusted for maximum S-meter reading. The loop is transferred to the anode lead of V8, and L6 slug set for maximum meter reading. A grid current of

about 1.5 mA should now be showing on the 5 mA meter.

If the station receiver tuning is now swung either side of 1900 kc, it is more than likely that signals will be heard 460, 920 etc., kc away from the fundamental. This is because in the mixing process, not only is the wanted fundamental produced but also other products mathematically related to the mixing frequencies. These must be attenuated as much as possible and this is done by adjusting the level of injection into V7. It is inconvenient to make adjustments to injection from the receiver oscillator and it is easier to do this with the HSO-460 unit. The temporary 22K feed resistor to the HSO-460 is removed and a 50K potentiometer is temporarily wired in on leads. Check the station receiver tuning to confirm the 1900 kc fundamental and then tune either side to the first 460 kc spurious beat. Adjust the 50K potentiometer and a point will be found where a minimum S-meter deflection is obtained in the station Rx.

This is the point at which all spurious signals will be at their lowest level, the fundamental remaining unaffected. The potentiometer is now removed and its value measured. A fixed resistor of this measured value is soldered in place. The author found that in his case

The first part of this article appeared in the November issue, and should be read for continuity.

30K was required. Check again the tuning of L5 and L6 to obtain maximum grid current at 1900 kc. The spurious beats will still be there but they will be further attenuated by the *pi*-tank and also the high-Q resonance of the whip-aerial, so that no radiation will take place at these frequencies. (The author has never had reports of these spurious signals being heard.)

The response of the coils L5 and L6 is broadened by the 20K damping resistors but the 1.5 mA grid current at 1900 kc does drop to about 0.8 mA at the band edges. However, this has not been found to be a serious disadvantage since (i) Band edge operation is rarely carried out, and (ii) the QV04-7 requires only 0.5 mA grid drive anyway. No doubt the *Electroniques* wide-band coupler units would provide more even drive but their expense was considered to be unwarranted especially as L5 and L6 can be so easily wound at home.

It now only remains to make final adjustment to the HSO-460 to ensure that the transmitted and received frequencies are the same. The main tuning is set exactly to a signal of 1900 kc, from a frequency meter. The transceiver is put to "transmit" into a dummy load and tuned up and the signal is listened to on the BC-221,

or whatever. If there is a heterodyne, careful adjustment of the HSO-460 slug will pull the signal to zero beat. Repeat this procedure so that it can be absolutely ensured there is no discrepancy. The 5 mA meter can now be removed and the grid resistor re-soldered to earth.

Determination of C2 in the *pi*-tank is carried out in the car. A twin-gang 500  $\mu\mu\text{F}$  condenser is wired to form .001  $\mu\text{F}$  and temporarily connected on leads into the C2 position. With the whip feed on, the transceiver is put to "transmit" and loaded up in the usual way, with C1 and C2, for maximum RF current. The twin-gang condenser is then carefully removed and its capacity measured on a bridge. A fixed condenser of this value is then soldered in. In the author's installation, this came out at 850  $\mu\mu\text{F}$ . However, no two cars will be the same and each one will have to be "made to measure." The value found will be good for all frequencies and only C1 will require slight adjustment with frequency change.

**Control and Operation**

Operation is very simple, as transceiver owners will appreciate. Only two tuning motions are involved, i.e., (i) main frequency tuning and (ii) PA tuning. The

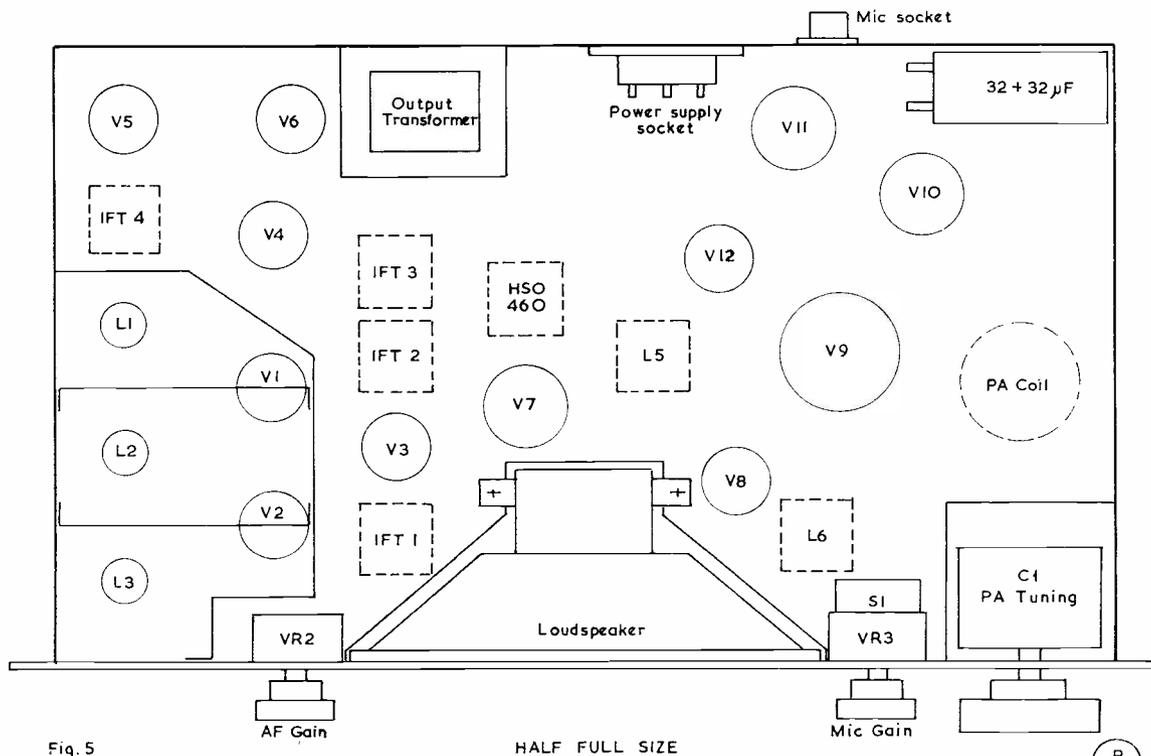


Fig. 5

HALF FULL SIZE

R 547

Fig. 5. Layout of parts, chassis underside, for the G3EGC Top Band Mobile Transceiver.



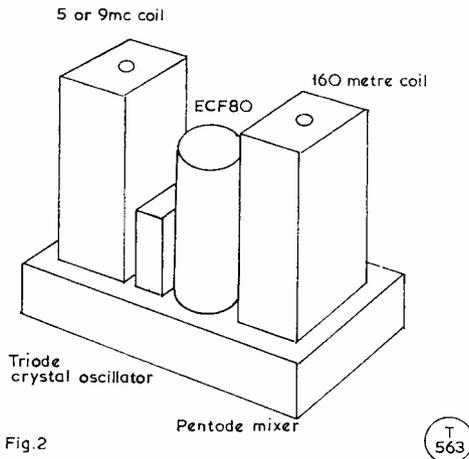


Fig. 2

Fig. 2. Sketch to show general appearance of the completed mixer/oscillator unit, as designed by G3SCJ for his K.W. Viceroy modification for Top Band.

crystal oscillator and the pentode as the mixer.

The anti-trip control to the left of the VFO knob is then removed and mounted at the rear of the transmitter between the two other Vox controls, and the variable capacitor of the mixer/oscillator unit fitted in its place on the front panel.

The 6CL6 driver stage must now be adapted for 160 metre operation. This is easily done by bolting a suitable coil, trimmed and adjusted by GDO, to the side of the driver compartment, disconnecting the 7 mc coil and connecting that for 160 metres in its place.

The 7 mc drive to the mixer/oscillator unit is obtained by taking a two-turn link from the 7 mc second mixer coil—the existing link to the driver being disconnected. The output from the mixer/oscillator unit then goes via a two-turn link from around the 160-metre coil of the mixer/oscillator to the 6CL6 driver—using the connections originally going to the 7 mc coil of the second mixer.

The final step is to extend the coverage of the pi-tank coil to operate on Top Band. This is accomplished by the addition of an extra self-supporting winding between the end of the original coil and the unused position on the PA band-switch. If some models do not have

**Table of Values**

Fig. 1. Circuit of the Mixer/Oscillator

C1, C3,	R4 = 680 ohms
C5 = .01 $\mu$ F	R5 = 75 ohms
C2 = 5-30 $\mu$ F	L1 = To resonate on
trimmer	5 mc with C2
C4 = 10 $\mu$ F	L2 = To resonate on
C6 = 75 $\mu$ F	1.9 mc with C6,
var.	C7
C7 = 100 $\mu$ F	Xtal = For 5.0 mc
R1, R3 = 47,000 ohms	V = ECF80
R2 = 10,000 ohms	

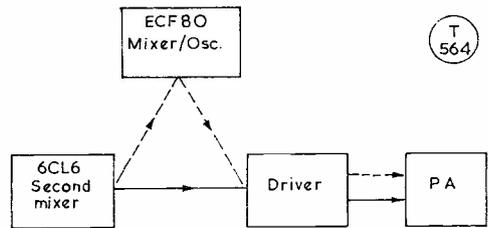


Fig. 3

Fig. 3. Block diagram to show the electrical position of the mixer/oscillator unit relative to the Viceroy. The solid line is the normal signal path, and that dotted is the signal path when the transmitter is used on 160 metres.

this extra switch position then a separate switch could easily be used.

The mixer/oscillator unit can be mounted vertically, i.e., with the valve and coils horizontal and pointing towards the front panel, fitting between the VFO fly-wheel and the old anti-trip control position. HT and heater volts can be obtained from the transmitter itself.

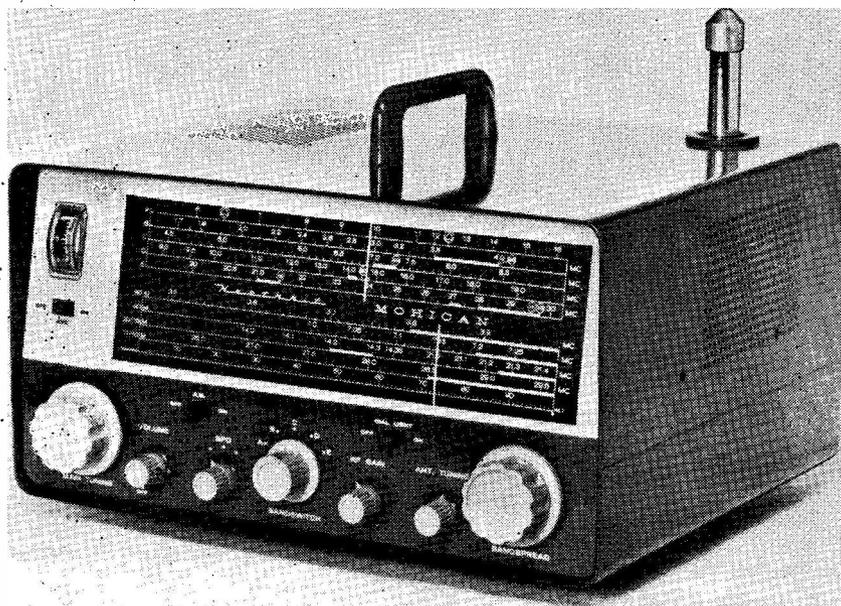
**Setting Up**

The Viceroy should now be tested for 160-metre operation: With the VFO switch set to 40m. and the PA switched to the new 160-metre position, the transmitter should now function correctly on 160 metres—the only difference being an extra peaking control for this band. It should be noted, however, that the transmitter must under no circumstances be allowed to deliver more than the legal limit of 26½ watts peak output; on the Mk. II this is easily achieved by dropping the PA anode volts from 750v. to the 250-volt position.

As described, the modification means, of course, that the transmitter can no longer be used on 40 metres as it stands. However, if the 7 mc band is wanted, then the spare switch positions on the band-change switch can be arranged to make this possible.

Although the modification is designed specifically for the Viceroy Mk. II it can easily be adapted for use with the Mk. III, and probably other makes of transmitter as well.

*Editorial Note:* A great many of these well designed and soundly engineered amateur-band transmitters are still in use all over the world—they remain among the attractive items occasionally offered in our Readers' Small Advertisement columns. The K.W. Viceroy transmitters have always been noteworthy for the quality of the CW/SSB signals they radiate. They are widely used as driver units by those who have translators for CW/SSB on VHF. The foregoing is an interesting built-in modification to enable the K.W. Viceroy to be operated as a CW/SSB transmitters on the 160-metre band.



*Finished appearance of a kit-built Mohican.*

## USING THE MOHICAN AS STATION RECEIVER

EXPERIENCES IN MALAWI — AND  
SOME MODIFICATIONS TO  
ACCOMPANY TRANSMISSION

P. HANCOCK, B.Sc., GC3WOW (ex-7Q7PH)

THE writer, posted to a bush-station having mains electricity for only a few hours of each evening, yet hoping to get his transmitting licence eventually, considered that an early step would be to acquire a battery driven receiver. A BFO was essential for SSB reception and good bandspread was particularly desirable for amateur work. With a £50 ceiling in mind, the choice was immediately very restricted. The fact that the Mohican fitted all requirements so far and, additionally, was available in kit form, clinched the matter.

Seven weeks of travelling by a variety of routes including the final 200 miles by bus along earth roads, resulted in no detectable external damage to the parcel or its contents. On unpacking, it was found that all items listed were present and some small items were there in excess.

### General Points

Building the receiver took about a week of spare time, soldering often being done with the aid of accumulators and an inverter. Mechanically, everything fitted together perfectly. The chassis layout and finish (as can be seen from the photographs) is to a very high standard. The front-end is pre-built and supposedly pre-aligned but in the author's experience the alignment was 'way out, possibly owing to the journey. In any case, at first switch-on the set was disappointing. After a lot of searching, which itself was an education, the major trouble was traced to a faulty feed-through condenser (C25) in the pre-built front end.

On powerful local stations, the built-in speaker seemed to be producing a lot of distortion. Ten days after a letter had been written to *Daystom*, an airmail package arrived containing a free replacement speaker and feed-through condenser, with compliments.

With the new speaker and feed-through condenser installed, the alignment and sensitivity were not good by comparison with the performance of the domestic S/W broadcast receiver. Some improvement was effected by aligning each band with the aid of broadcast stations. With any fading this approach is limited. Some accuracy of calibration was achieved by use of 5 mc and 10 mc standard-frequency stations. Further improvements were made when the local Post Office engineer obtained a good signal generator from headquarters for a few days.

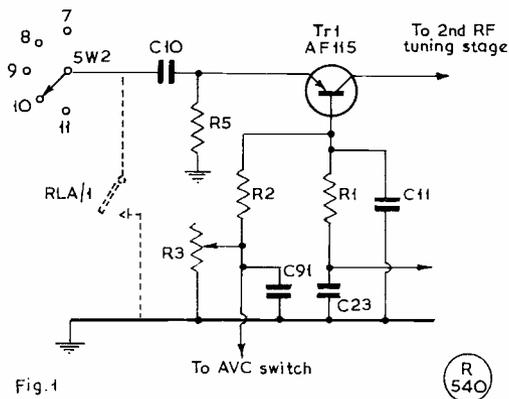


Fig. 1. A method of muting the RF amplifier in the Mohican, the modification being shown dotted.

But by the time the receiver was home again, the alignment was decidedly off. (It was discovered that on the journey in the heat, the ferrite slugs had settled down in their locking paste!)

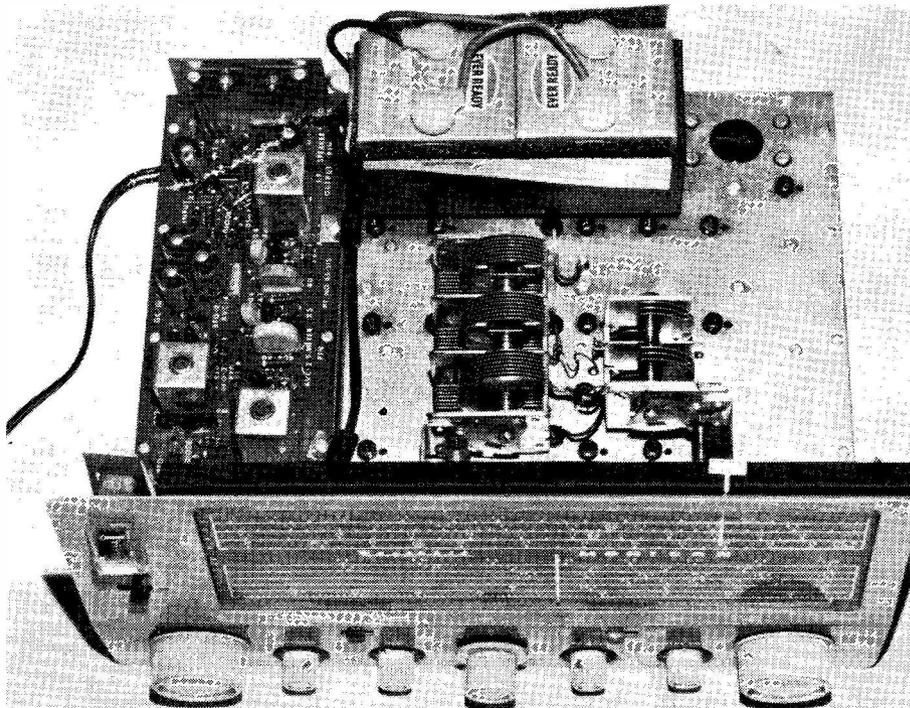
**Calibration Problems**

A Nombrex battery signal generator was bought by post. It was realised that its average  $\pm 1\%$  accuracy was not good enough for accurate calibration but since it could itself now be checked by comparison with the 5 and 10 mc standard-frequency broadcasts, and since it was rich in harmonics, this presented no problems. Ultimately, calibration accuracy of the order of  $\pm 10$  kc was achieved.

The author was learning a great deal through all this, and was beginning to appreciate subtler things. Accurate calibration being assured, sensitivity was next sought and after that, image rejection. Sensitivity was a matter of many happy hours of tracking and

**FREQUENCY COVERAGE**

BAND	Frequency mc	Amateur Bands included
A	.580 — 1.540	(MW BC only)
B	1.650 — 4.5	160m. and 80m.
C	4.5 — 8.8	40m.
D	8.5 — 20.0	20m.
E	20.0 — 30.0	15m. and 10m.



Looking into the interior of a Heathkit Mohican.

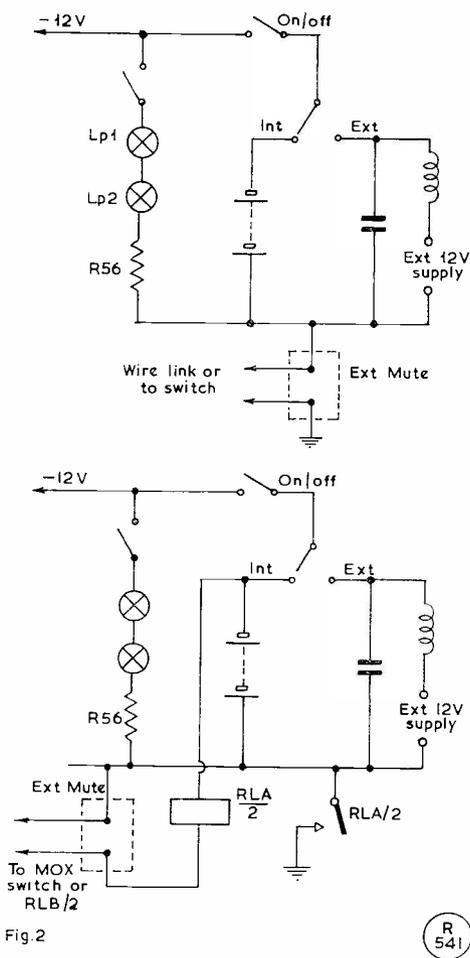


Fig. 2

Fig. 2. Muting of the Mohican power supply, before and after modification—see text.

trimming with the chassis kept horizontal and supported at eye level so that the slugs sank in their locking paste.

The bands were aligned at the nearest convenient whole mc points at their respective HF and LF ends. With an IF of 455 kc, image rejection becomes progressively less effective as one goes from Band A to Band E. In this respect Band E proved particularly troublesome and the best that could be achieved, adhering to the alignment instructions, was to get signal and image equal. Since the image could be made stronger than the signal, a little headscratching indicated that there was no harm in putting the local oscillator on the high side of the signal instead of the low side. Possibly there was insufficient adjustment latitude in the second RF stage of Band E. At all events, Band E eventually came up to specification with this rearrangement of the

oscillator frequency.

Distances being what they are in and from Africa and the state of SSB art being what it is, the original plan to operate the Mohican in conjunction with a low-power AM transmitter was scrapped. A KW-2000 became available locally at an attractive price. The Mohican continued in service during no-electricity hours and also provided some excellent duplex contacts with relatively local (less than 1000 miles) stations. This was particularly effective on "40m. transmit" and "80m. receive." In this method of working, the second receiver and the transmitter at each end are working continuously, producing a more natural conversational style of QSO! Under these conditions, with the Tx feeding a dipole and the Mohican on its internal telescopic aerial, no trouble was experienced. But one day the inevitable happened when the receiver was tuned to a frequency close to that of the transmitter—the RF transistor burned out.

Modifications

When a replacement was fitted, some thought was given to modifying the receiver so that not only would the battery supply be switched off (the normal in-built muting arrangement) but also the signal would not be allowed to reach the first transistor. Experiment with the transmitter barely radiating, showed that earthing either of the Rx antenna terminals only reduced the signal a few S-points. Obviously, the RF tuning stage was still picking up some stray RF. Shorting condenser C10 to earth as shown in Fig. 1 was found to be much more effective.

Accordingly, a small relay was installed at the rear underside of the chassis near the muting terminals, which were rewired as shown in Fig. 2. The muting terminals were connected to the Tx/Rx changeover switch as in Fig. 3 and were only disconnected at times of duplex working. Thus, the receiver was muted whenever the transmitter was radiating. Of course, the push-to-talk button on the microphone was not used and the KW-2000 was without Vox. The contacts on the changeover switchboard were arranged for feather touch operation using thin spring steel.

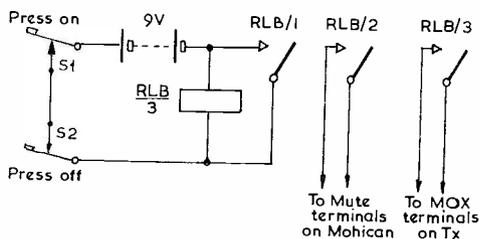
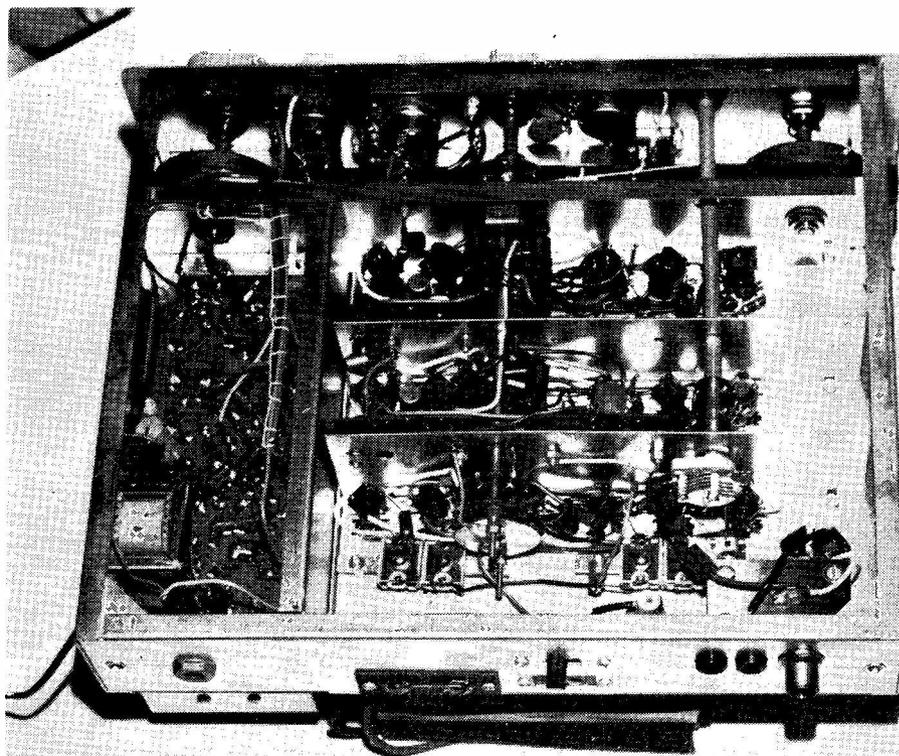


Fig. 3

Fig. 3. Send-receive changeover switch using self-latching relay circuit. Touch switches S1, S2 are made of small pieces of spring-steel and wood screws; they overhang the edge of a small wooden board on which the battery and RLB are also mounted. S1 and S2 only require the most delicate momentary touch for a changeover.



*Under-chassis layout, Mohican GC-1U.*

#### Points of Interest

This is not of course a review of the Mohican, but the writer would like to remark on a number of points. If the Mohican is assembled according to the instructions in the manual, and aligned patiently, one has a good-looking, highly versatile receiver with enough sensitivity and selectivity for ordinary amateur purposes. All the MW and S/W BC bands are available. The switchable AVC and ANL are very effective. The BFO is easily set for USB/LSB operation as well as CW. Antenna tuning and RF gain controls are useful, the former for final peaking up of signals, the latter for improving S/N ratio on stronger stations. It cannot be too strongly emphasised that *all* the many controls have to be used with discrimination to achieve optimum results for each mode and band. It was found that the switchable panel

lamp provided a fairly heavy drain on the battery. The option of telescopic aerial, high-Z or low-Z aerial connection is readily appreciated. Main tuning and band-spread tuning are through flywheels and are smooth as oiled silk. The amateur bands are clearly marked on both scales and it will be noted that all the amateur bands except 160m. and 15m. are at the HF end of each range.

This is a piece of equipment which any SWL or aspiring amateur can build, confident that the kit and instructions are more than adequate to meet the quoted specifications. The after-sales service is of a very high order. And there is much to be learned in the building of the Mohican GC-1U general coverage receiver. The free leaflet says much; the 60-page illustrated manual available separately at 10s. says a great deal more.

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*Will all readers please note that the January issue of "Short Wave Magazine" will appear on January 2, to avoid Christmas mail delays. The February issue will publish on January 30, the due date.*

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## G3WRO/M ON THE NORFOLK BROADS

ACCOUNT OF A PLEASANT  
HOLIDAY AFLOAT

K. L. HAYNES (G3WRO)

**A**FTER a visit to the London Boat Show in January this year, it was decided between G3WRO and G8CXR that a holiday spent in a cruiser on the Norfolk Broads with some radio operation thrown in would not be a bad idea. Immediately, initial plans were made, and a four-berth cruiser was booked, the rest of the crew consisting of SWL's Mike Oliver and Steve Pitt, both of Romford, Essex. The week chosen was September 6-13. Operation was planned for 160 metres, and the gear used was a Codar A.T.5 transmitter, Eddystone EC-10 receiver and the G3FIF mobile whip.

After arrival at Brundall, Norfolk on Saturday 6th, the boat was boarded and no difficulty at all was experienced in fitting the gear, ready for operation. Having got under way, Reedham down the River Yare was reached by nightfall, by which time (after a pint) all four were ready for a good night's sleep.

On Sunday morning contact was made with G3PRN/A, located in a caravan at Seapalling together with his wife G3YEB, and family. It was decided then that the two parties should meet sometime during the week. The goal for Sunday, however, was Great Yarmouth and this was reached by early afternoon, and the rest of the day was spent ashore.

An early start was made on Monday. The direction was northwards, the destination being Coltishall, a (comparatively long) run of about 31 miles. During all this time, a few contacts were being made although the

most operating time was used in regular skeds with G3PRN/G3YEB. Coltishall was reached by nightfall and with some friendly co-operation from a local farmer, a 300ft. long wire was strung out across his field and the key was put to good use although not a lot of DX was worked.

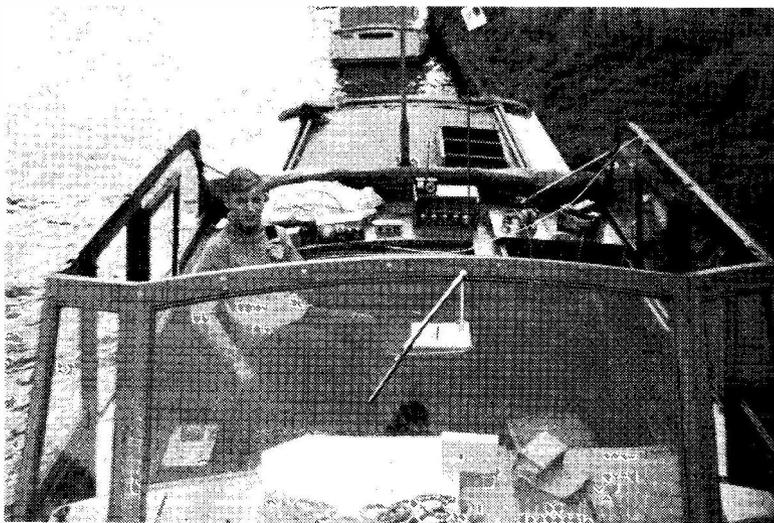
Back south was the direction on Tuesday, to South Walsham Broad, a massive expanse of water where one just meanders to the middle and drops anchor. (Here, for the first time, home-brew cooking by G8CXR was tasted, and the result was excellent.) By nightfall Horsey Mere, up the River Thurne, was reached and during the evening contact was established with G3PRN/M on his way home from a day in Yarmouth. The road on which G3PRN/M was passing was right next to where G3WRO/M was moored and so a personal QSO was finally possible. Hilda, G3YEB, very kindly took a note of provisions and food supplies urgently required and delivered them early on Wednesday morning. The destination for Wednesday was once again Great Yarmouth where the afternoon and evening were spent.

On Thursday sights were turned southwards and Oulton Broad was made by lunch-time with, of course, regular contacts with G3PRN/A. The mooring for Thursday night was Oulton Broad Harbour.

On Friday morning the cruise was continued, the next port of call being Beccles. A very interesting contact was made with G3XSK (Lowestoft) who mentioned the meeting of the Lowestoft Amateur Radio Club that evening and having been told that the Friday night mooring would be Cantley gave us train departure and arrival details between Cantley and Lowestoft—this resulted in a most enjoyable evening with the Lowestoft Club.

On Saturday, 13th, *Navigator IV* had to be back at Brundall by 10 a.m., which was managed comfortably, the last contact being with G3PRN/A whilst running between Cantley and Brundall.

During the week contact had been made with various interesting stations including the regular skeds with



Keith Haynes, G3WRO/M, with the gear in "Navigator IV," a 35ft. 4-berth diesel cruiser hired from the yard of C. J. Broom & Sons, Brundall, Norfolk. He and his crew had a fine week of it—see article.

G3PRN/A every day, and practically the whole of the Broads had been covered. It was unanimously decided that in 1970 a similar holiday would be arranged with possibly HF and/or VHF gear on board.

All members of the crew wish to thank C. J. Broom and Sons of Brundall for allowing them to install the radio station on board their cruiser—without this help the expedition would not have been possible.

## TACKLING RECEIVER

### ALIGNMENT

#### SOME PRACTICAL POINTS FOR THE NEWCOMER

E. JOHNSON (G2HR)

THE alignment of a receiver is not a task to be tackled lightly. If new, one can reasonably assume that the receiver can be left untouched, but a second-hand job can often be vastly improved. A manual is not always available, but anyone with reasonable knowledge can improve performance. If in doubt leave well alone, and call in someone experienced! Haphazard adjustment of trimmers, etc., out of logical sequence can land one deeply in the mire, and an expert is needed to untangle the mess. An oscilloscope-cum-wobbulator, signal generator and output meter are very necessary instruments, but much can be done by empirical methods.

#### IF Stages

Provided there is no crystal filter, and you are more interested in peaking each stage, cautious adjustment of cores or trimmers *can* be attempted for maximum noise. It is wise, in the case of cores, to make a pencil mark in line with the screw-cut, as if in doubt you can always return to the original setting. No empirical method, however, can possibly give the maker's response curve without an oscilloscope display. Nevertheless the final result may be acceptable. Always work from the last stage to the first, and after completion, run through again.

Even if you have a signal generator, unless it is a precision instrument you are unlikely to be able to line-up on precisely the IF. It may be within a few kc, but this is usually comparatively unimportant unless you have a crystal or mechanical filter. If either of the latter are incorporated with a nominal IF of, say 455 kc, a crystal may be marked "455.13 kc." In this instance it is of vital importance to align *precisely* on this frequency, and it is virtually impossible to do this without proper equipment.

The crystal holder in itself acts as a condenser with quartz as the dielectric, and unless this capacity is balanced out in the normal bridge circuit, the filter will be more or less useless. When this capacity is exactly cancelled by means of a phasing condenser, the crystal is in a series resonant mode, with a sharply peaked and symmetrical curve. Unbalancing with the phasing condenser places the crystal in parallel mode, giving a very useful rejection notch capable of markedly attenuating an interfering signal within the IF pass-band.

It will bear repetition to emphasise that unless you

have experience *leave the IF stages alone.*

#### Oscillator Stage

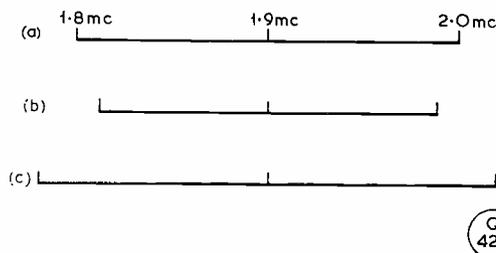
With the exception of receivers such as the HRO, the tuning scale will be directly calibrated, and it is a lot easier to achieve accurate tracking if amateur bands only are covered. With care, good tracking is fairly easy, and it should be possible to obtain "spot-on" accuracy at the band edges and their centres, with slight deviations in between. Reading of frequencies should be well within Post Office tolerances, although this does not relieve one of being equipped with an approved frequency meter to conform with Licence conditions.

Although some modern receivers are permeability tuned, this article is intended to help those with receivers where coils have trimmers and slugs, and are tuned with a variable condenser, the "swing" of which should cover the band concerned. The frequency sweep from LF to the HF end is determined by the expression

$$\sqrt{\frac{C \text{ max.}}{C \text{ min.}}}$$

The trimming condenser, which is adjusted for calibration at the HF end, will have a far greater effect here when the tuning condenser is at minimum, although inevitably it will also to a lesser degree affect the LF end. Bearing in mind the expression already quoted, if the scale appears compressed, the trimmer is set at too high a value. Conversely, if the scale is over-expanded, the trimmer is too low—which is shown in the diagram.

Hence, the *inductance*, adjusted by the slug, must be right, and is varied at the LF end. Clearly, as frequency is determined by the L/C ratio, adjustment of either component will be interdependent. Hence, the backward-and-forward slug/trimmer settings must be contained until calibration is correct at both extremes. Tracking



The regular tuning-dial calibration would be as (A). If the trimmer is set too high in capacity, the tuning range would be as (B). If the trimmer is too low, the tuning range could appear as (C). This is for illustration only, and it does not follow that the mid-band calibration would be correct—the coverage could appear to be moved either to right or left.

should then be substantially correct through the band.

### RF Stages

Once again alignment should be carried out from the last RF stage to the first, and if the latter has a panel condenser, this should be set at half-mesh. Failing any instruments, reasonable alignment can be achieved by adjusting for *maximum receiver noise*, remembering to adjust the trimmer at the HF end, and the slug at the LF end. When one is satisfied that the gain over the range is reasonable, response can be peaked at any point by means of the panel condenser.

*(Editorial Note:* In quiet locations, it is possible to carry this procedure through till a point is reached where the Rx produces only gentle background "sharsh" with the Ae. off and all circuits lined up. The noise-level should rise much higher when the aerial is plugged in, and the Ae. trimmer brought to resonance. By then, the sensitivity of the receiver will be limited only by *aerial noise*—meaning that any signal above that level should be audible and resolvable. When you have got that far in peaking up your Rx, you cannot limit what is brought in by the aerial unless you use an input

attenuator, to cope with over-loading of the front end and, possibly, severe cross-modulation—but by then you have got your Rx into a condition which is beyond the scope of this article!)

### The BFO Control

Usually, this a panel-controlled condenser, which should be set at half-mesh. Either the pre-set slug or capacitor associated with the BFO coil should be adjusted until zero beat is obtained with the signal tuned "on the nose."

Failing a signal, receiver noise ("sharsh") with BFO switched on, can be utilised, and adjustment to slug and condenser made until the noise "frequency"—very apparent if the receiver has a crystal filter—reaches a trough.

### Summing Up

These remarks are offered primarily to those without test instruments—but whilst receiver performance *can* be improved by the approach suggested, one cannot expect the best without the aid of a signal generator, oscilloscope-cum-wobbulator and output meter.

## NOTES ON THE EDDYSTONE 840A/840C RECEIVERS

### RECENT GENERAL-COVERAGE TYPES OF CONSIDERABLE INTEREST

F. G. Rayer, A.I.E.R.E. (G3OGR)

IN earlier articles details have been given of the Eddystone 640, 740, and 750 receivers. The 640 is a RF/FC/2IF (1.6 mc)/DDT/Output design with xtal filter and three ranges (SHORT WAVE MAGAZINE, January 1966, April 1968). The 740 is a four-band RF/FC/IF (450 kc)/DDT/Output receiver, and the 750 is four-band double-conversion with 1.6 mc and 85 kc IF's (both discussed in the May 1969 issue). The later 840A and 840C are quite regularly available second-hand, and it is felt that details of them would be of interest to anyone thinking of buying such equipment, or not familiar with these models.

### 840A Stages

The 840A has a UAF42 RF amplifier, UCH42 frequency changer, UAF42 IF amplifier, UAF42 as diode detector and pentode AF stage, followed by UL41 output stage. A diode in the UAF42 IF stage provides AVC. A further UAF42 acts as beat frequency oscillator, for reception of CW (and SSB). The rectifier is a UY41. The noise limiter is a semiconductor diode.

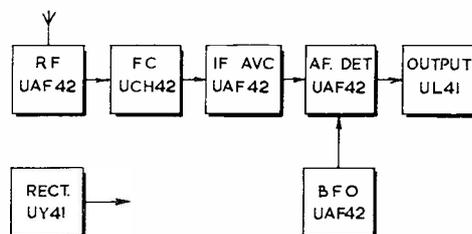
The diagram shows these stages. Heaters are in series for 200/240v. or similar mains operation, or 110v., AC or DC. The pilot lamp is 6.3v. 0.3A. There is a thermistor to prevent switch-on surge and a selector for voltages.

The receiver is completely enclosed, with internal speaker. Construction is so arranged that the metal cabinet can be earthed in the same way as with a receiver having transformer supplies. The actual chassis and internal metalwork is common to one mains supply circuit, in the usual manner with AC/DC equipment. However, the circuit provides for complete isolation of aerial and headphone circuits, or of an external speaker, which may be plugged into sockets on the rear chassis drop.

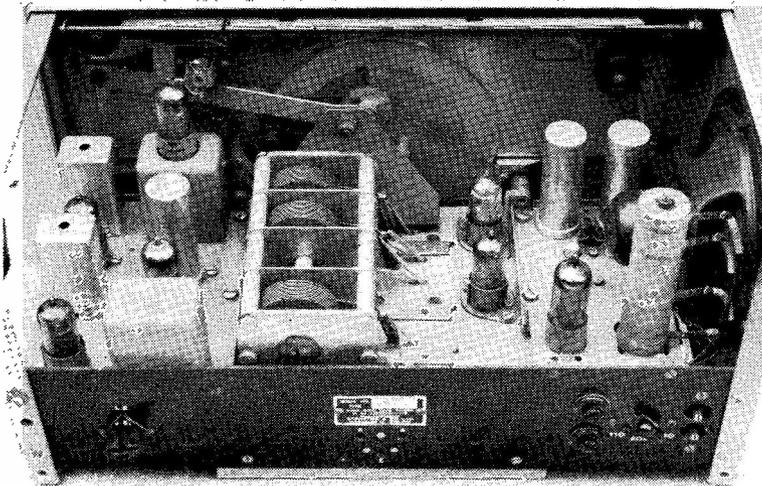
### 840A Coverage

The receiver has four bands: 30-10.5, 10-6-3.7, 3-8-1.37 (all in mc) and 1400 to 480 kc on the LF side. Actual models vary slightly in appearance. Scales are calibrated directly in frequencies.

The tuning mechanism is the usual Eddystone geared drive, of highly effective type, and a rotating scale marked 0-100 appears in the central window. This is read against the bottom logging scale of the horizontal dial, giving 0-2500 divisions, and is very useful for exact re-setting, or noting a transmitting frequency. The approximate number of divisions for the amateur bands is about as follows: 28-29.7—90; 21-21.45—30; 14-14.35—60; 7-7.1—30; 3.5-3.8—140; 1.8-2.0—250.



Stages of the 840A receiver



Rear view of the 840A. To the left are the IF, BFO and audio stages. RF and FC stages are to the right of the ganged capacitor assembly. The internal speaker is on the right side of the chassis, with line resistor and rectifier.

### External Connections

Sockets on the rear insulated panel take plugs for the internal speaker, or for an external speaker. Other sockets are for an end-connected or twin-feeder aerial, and earth. With an end-connected wire, one aerial terminal is earthed in the usual way. With a coax or twin feeder, one conductor goes to each aerial socket.

The rear chassis drop also carries fuses, voltage adjuster, and pins to engage the mains lead connector. Phones can be plugged into the front jack.

The current-supplying conductors at AC mains voltages normally have "neutral" and "live" circuits, the latter being at high potential relative to earth. It is thus usual to arrange the polarity of connection so that the neutral goes to the receiver chassis, as this is normally safest, and least likely to cause troubles such as modulation hum, etc. The mains flexible cord should be connected and plugged in to achieve this.

Nominal input impedance of the Eddystone 840A at the aerial is about 400 ohms, and in general good average results are obtained on all frequencies with an end-connected aerial. However, as with any other receiver, an aerial tuner or matching device will bring up weak signals on those frequencies where the aerial impedance is a bad match. Dipoles, doublets, and other aeri-als can only give good results on the band for which they are designed, or those frequencies to which they can be tuned.

### Results with the 840A

As usual, checks were made as occasioned offered and personal interest suggested. Band calibration was looked at with a crystal marker, and sensitivity with a

laboratory signal generator. The practical effect of the selectivity available was tested from time to time against another receiver and the signal generator, and by having an aerial change-over switch to allow the 840A or the test receiver to be selected at will.

With this arrangement, and with a highly selective second receiver (a rather costly item) it is only fair to say that it is quite difficult deliberately to seek out a transmission which can be copied on the larger receiver, yet cannot be heard on the 840A. Naturally, the better selectivity of the more comprehensive receiver is useful from time to time, but against it the performance of the 840A was still quite good.

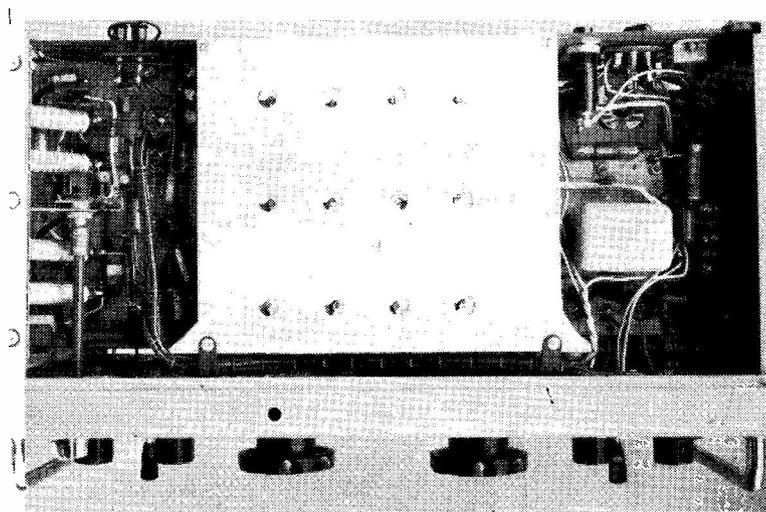
The 840A noise limiter is effective with static crashes and similar types of electrical interference. The internal speaker does well for all normal usage.

The IF is 450 kc. Quoted alignment points are 28 /12 mc, 9/4 mc, 3·2/1·5 mc and 1200/550 kc, trimmers being adjusted at the higher frequency for a band, and cores at the lower frequency, in the usual way. With the receiver tested, scale readings were very accurate.

CW is received with the BFO on, in the usual way. For SSB, the method is that normally adopted in receivers not having product detectors—that is, keep AF gain at or near maximum, reduce RF gain so that the proportion of SSB to BFO carrier is not too great, and adjust the BFO pitch to resolve the signal.

Switching on the BFO automatically puts the AVC out of action. The stand-by switch puts extra bias on RF and IF stages, leaving the oscillator and other stages running. The tone control is a top-cut device, sometimes helpful with certain types of interference.

[over



Underside, Eddystone 840A. To the left are IF and audio stages, and limiter switch on extension shaft. To the right are fuses, smoothing choke and speaker. The coil assembly and bandswitch are built into a sectionalised box, with individual trimmers for each range.

### The 840C

There are some differences in styling and other features, compared with the 840A. The valve line-up is as already given. There is an addition in the form of a tuning indicator, operated from the steady carrier level voltage of the diode detector. The indicator is a DM70, which has a 1.4v. 0.025A. filament. It is placed between the chassis and heater chain, with an 8-ohm three-watt resistor in parallel with the filament, and occupies the position of the 840A lamp.

Aerial input impedance is nominally 75 ohms, and a dipole is suitable for any particular band. Other aerials, such as end-connected and similar, with or without tuners, can be expected to give good average results, in the normal way. There is no diode noise limiter.

Coverage of the 840C is in five ranges, these being 12.4-30, 5.2-12.9, 2.5-6.1, 1.12-2.58 mc, and 480-1150 kc LF. There is a modified form of capacitor compensation, which tends to give a more nearly linear frequency marking on the scale and, in terms of horizontal movement of the pointer, opens out the HF ends of the ranges.

Quoted sensitivity is better than  $10 \mu\text{V}$  for a 15 dB signal-to-noise ratio, with selectivity 30 dB down at 10 kc, and image rejection better than 15 dB at 30 mc. As with all receivers having a single RF stage and 450 kc or similar IF, the response to strong signals on the 2nd channel (images) can become noticeable at high frequencies. This improves rapidly at lower frequencies. On the 28 and 21 megacycle amateur bands, lack of good image-frequency rejection is not as important as might be thought—because few, if any, transmissions

900 kc higher, and thus likely to produce images, will be present.

Weight is 28 pounds, and size  $16\frac{1}{2} \times 8\frac{3}{8}$  in. The frequencies at which to adjust trimmers and cores, if necessary, are as follows: 28/14 mc; 12/5.8 mc; 5.6/2.7 mc; 2.4/1.25 mc, and 1060 kc and 520 kc for the lowest frequency band.

### Other Points

Assuming that alignment is correct, and the valves in proper condition, these Eddystone receivers are capable of good general results. Though DX reception is possible with almost any aerial, a properly planned system, with a tuner to get the best results—meaning an ATU between aerial and Rx input—will naturally be worth while. Suitable ATU's have been discussed and explained in recent issues.

Due to the AC/DC circuit configuration and line voltage dropper, a fair amount of heat is generated in the cabinet, but construction and ventilation are arranged to take care of this. Should one wish to avoid the heat dissipated by the internal voltage dropper, the receiver voltage selector could be set to 110v. and feeding the receiver from a step-down transformer.

There is no back socket for an external S-meter (as with the Eddystone 640, 740, 750 and other models) and the use of external accessories, which would have to be connected electrically to internal circuits, is of course not recommended. As the receiver is AC/DC with chassis and other circuits common to the mains, any improper external circuit could be dangerous, and should not be contemplated.

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***Our regular Book Lists include all titles of general Amateur Radio interest and cover the whole field for specialised texts.***

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# COMMUNICATION and DX NEWS

*E. P. Essery, G3KFE*

ALL the text-books tell us how conditions vary and why, and normally every month just goes to demonstrate that "theory is bunk" when confronted by the Law of The Cussedness of Inanimate Objects—but by that self-same Law, there just had to be a month when everything went according to expectations. Thus it was this month, and many people have had lots of fun, what with contests, DX ragchewing, finding new DX and whatever—but let us hope that this sort of thing does not happen *too* often—we have become used to taking "conditions" as being something that *only* obeys Murphy's Law!

## The Silly Season

It seems to hit Amateur Radio, as well as the press, at certain times of the year. This time, G3SYD writes in to mention that he has a pest radiating his call on 7-28 mc—the real one only uses 144 mc QRP and, occasionally, SSB on Top Band. Sydney would appreciate any information—*QTHR*.

## Contests

Two which loom large for the U.K. interest are for mention this month, the first one being the *CQ WW 160 Contest*, which is to run from 0001z on January 24 through to 1500z on Sunday, January 25. Rules are the same as last year: Exchange RST *plus* a serial number starting at 001. W/VE/VO stations will indicate their State or Province. CW only, no cross-band QSO's. Score two points per contact for stations in the same country; 5 per QSO with another country; 10 points for each W/VE/VO hooked. Multiplier of one for each State, Province (W/VE/VO) and foreign country worked. Hawaii and Alaska to count as "foreign countries" in this context. Log sheets go to W2EQS, Charles O'Brien, 48 Prospect Avenue, Westwood, N.J. U.S.A., 07675, and are to be mailed before February 28.

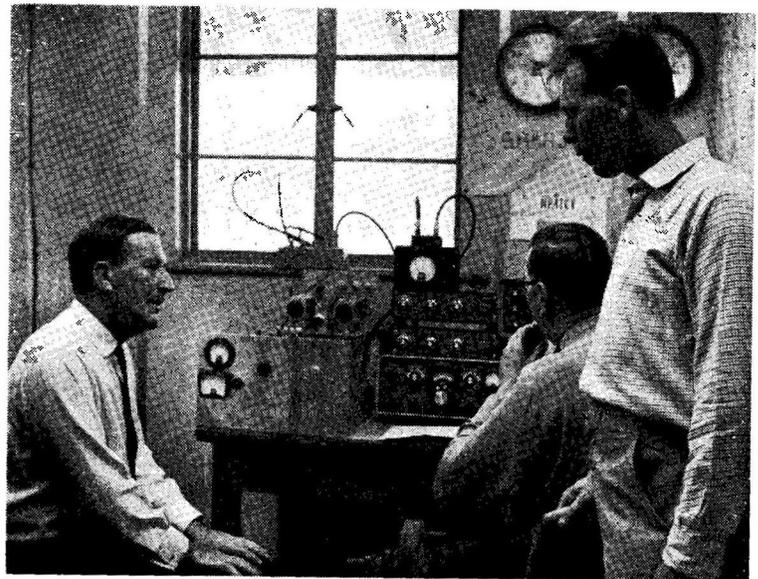
The French boys, REF, have

passed on the details about their 1970 Contest. This one coincides with the HB, LX, ON, 9Q, 9U, and 9X parties, and QSO's with these will also be "good" in the REF context. The dates are: CW, 1400 January 31 to 2200z February 1; Phone, 1400 February 28 to 2200z March 1, 1970. However, only 24 hours of operation are permitted in each event, the eight remaining hours being divided up into one, two, or three "rest periods," the times of which are to be clearly stated in the log. Exchange RS(T) *plus* the QSO number; score three points for each QSO with F or DUF stations; take a multiplier of one for each Department (two digits) and DUF country. Send the log to REF, Boulevard Bercy 60-75, Paris-12, France. Unfortunately, the information put out by REF on this Contest gives no date for sending them in, nor is it

particularly clear in some other respects (due possibly to the translation) so any doubts are best resolved by writing to the address quoted.

## Fifteen Metres

It is quite a long time since last this piece led off with a look at 21 mc; and to start the ball rolling what better than the letter from G3GIQ (Ealing), who appeared to your scribe to be one of those erstwhile correspondents who sink without trace and are never heard of again—but in this case a new beam has gone up to fifty feet with the help of willing hands, resulting in Henry joining in the pile-ups with renewed confidence. To date, much of his time has been spent dealing with Ten, but just to prove the beam performs as desired CEØAE was raised on Fifteen. [over



MP4TAF, Sharjah, Trucial Oman State, was put on the air again early this year by G3RKN (standing, right) who first activated the station during his last tour in Trucial Oman, some ten years ago. Operating is MP4TDA/G3EKL, and the photograph (taken in June this year) was on the occasion of the official visit of Lt. Gen. Sir Victor Balfour (seated left). He was shown a Racal RA-117 Rx, Collins 32S-1 Tx, Heathkit linear, and an antennae system consisting of dipoles for 40-80-160m., a Quad and a Mosley TA-33Jr. for 10-15-20m. G3EKL has now taken over operation of MP4TAF, and is on 21380 kc around 1300z daily, looking for U.K. contacts; he hopes also to give 80/160m. a run this winter. Derek Leese, G3RKN, says that any QSL's outstanding for MP4TAF can be obtained by sending an s.a.e. to him at 4 Harefield, Harlow, Essex.

The recent activities of G2DC (Ringwood) have been less in the direction of operating than of preventive maintenance in the shack and to the aerials. Jack found a bad patch during mid-October, with things rapidly recovering afterwards—the tally on CW was CO2BB, OA4NA, LU4FG, PY1-7, VU0VZ, VS6AA, VS9MB, XW8BP, YV5AHN, all W call areas, VE1-8 and VK2, 3, 4, and 8.

Another absentee returns to the fold in G3XAP (Stowmarket), who has changed his previous rig for a KW-2000A. This he feeds into a young aerial farm—there is a 180-foot “best bent wire” which is made to do duty on 1.8, 14 and 21 mc; dipoles with the centre at 47 feet for 3.5 and 7 mc—the latter being also fired up on 21 mc as occasion serves—and a vertical dipole for Ten. Not a lot of time on Fifteen, and only MP4TCZ and OD5BZ booked in—but both new countries to add to the tally.

GM3JDR (Golspie) next, and as a specialist on the 15-metre band, he has every reason for a goodly list: CW forms the meat of it, including HB0XFW, 6Y5RA, HP9FC3MM, VK5KO, VP9GK, VK2BKM, KR6FT, JR1ARK, KH6COB, VK5DS, UW0AP, UW9OL, EA6BD, 6W8GE, CR6AI, VK3MJ, VU0OLK, VK5NO, UA0EH, VK2VN, PY7OS, 9Y4AA, UA9MX/9, UV0AC, XE1BN, ZL3GQ, VS6AA, VS6FK, VS6BC, UW9PV, HL9UZ, ZM1AJW, VP7NQ, VK4FJ, VS6FX, CR6KV, ZB2BS, UA0AJ, UA0KAR, UW9YH, KL7AKE, ZD9BM, VQ9MK, all JA call areas, shoals of the “rarer” W call areas, VE's and ZS5HN.

For relief, Don looked at SSB and putting in his nose, extracted HB0XFY, UA0SU, JW3XK, UI8CD, PJ0DX, UA9FU, 9Y4AA, CW0AA, all JA call areas and all W call areas.

Even the Top Boys sometimes have the pleasure of working a new one—indeed G3DO (Four Oaks) put his 21 mc total up by two last month, the QSO's being with UI8CD and UP2NV.

That old thief of pleasure-time, work, combined forces with TVI to ensure that G3NOF (Yeovil) had little or no time for 15 metres. Don had his usual morning check

but found few openings to VK/ZL, with the band closing in the evenings too early for any time to be spent usefully there. As a result, the log shows a few W's, C31CQ, JA's, and PZ1DB—all SSB.

#### Ten-Metre Clip

G3KMA (Woking) opens the scoring, with four new ones booked in on Ten, in the shape of CT2AS, CP1GN, YS1XEE and VP2VP, all SSB. Others worked included VK9XI (Christmas Is.), VK2WX/9 and VK9RY, both in Papua; but XT2AA evaded being hooked, and escapes the net so carefully laid out for him.

G3VPS (Wartling) chose SSB to QSO with 4X4, OD5, UD6, ZC4 and a 5B4, but tried the alternative (CW) to raise a JA/MM in the Persian Gulf, UW9, 9H1 and XW8. Incidentally, Peter has never made much of his abilities in the DX-chasing line, but it is of interest—

and a matter for us to offer congratulations—to note that he is now up to the 101 mark in Countries confirmed.

As already mentioned, Henry of G3GIQ has given his new beam plenty of 28 mc exercise, which resulted in contacts with CE, CR6, CR7, EA8GK, ET3, EP2, HC1RF, HK4DF, HL9UU, HM1BB, KG6AQY, KR6's, OA4PF, PJ0DX, UAO, UD6, UI8, UL7, VP2VP, VP9BU, VP8KD, VP8KO, VS6AL, VU0DK, VU0KV, XW8BP, 9Q7RM, 8P6CA and 9X5AA—*phew!* However, G3GIQ bewails the sad fact that none of this little lot represent new scalps—'twas ever thus!

On the other hand, Murphy's Law ensures that the next one on the pile mentions *only* new ones, either overall or for the band. G3XAP used SSB for OD5BZ, 5Z4LS, ET3REL, 5B4ES, ZS6ACK, 9J2DT, 7Q7RM, 5N2AAF, VP8KD,

#### SIX-BAND DX TABLE

(All-Time Post War)

Station	Countries	28 mc	21 mc	14 mc	7 mc	3.5 mc	1.8 mc
W6AM	348	131	140	347	116	54	7
G3DO	337	202	242	330	90	83	9
G2DC	336	172	308	328	166	113	20
G3NOF	316	184	218	299	35	41	2
G3LZQ	259	140	156	208	72	38	8
G3KMA	249	191	178	187	122	54	11
G3IAR	221	126	161	193	91	73	12
G3IGW	205	127	156	168	125	97	42
G3RJB	164	64	50	150	59	37	8
9H1BL	163	95	95	123	56	48	—
G3PQF	161	105	47	98	84	56	13
G3XBY	161	104	113	97	69	56	6
G3VDL	145	59	105	101	53	31	—
G3SED	136	31	26	66	43	40	39
G3VPS	133	43	42	113	52	38	14
G3MDW	116	47	66	88	20	15	7
G3WPO	101	35	20	63	49	29	21
G3XAP	87	44	46	42	21	23	12
G3WJS	66	—	8	55	41	45	14

Note: Placings this month are based on the “Countries” Column.

CX2CN, KP4DCR, KZ5KN, ZE1CY, EP2BQ, DJ6QT/CT3, 5H3LV and 4X4HF, then CW for ZE1DI, PY2DN, SV1CH and HK3AVK.

G2DC found Ten in fine shape, by and large, opening around 0700 to the Far East, to VK from 1030-1230, and to the West and South from 1300z onwards. HB00FW was a new one for the band, and others booked in included CN8BB, JA1KRU, JA1UOC, UL, UM, UI, UH, UF, VK2RA, VK3MJ, VK8HA, VK6RU, VU00LB, VS6AA, VS6FK, XW8BP, 4S7DA, all W call areas, all VE areas other than 7, and ZS1-4. Not bad—but that is how it can be when Ten is giving.

At G3XTJ, that ten-metre indoor inverted-Vee seems to have come into its own again, helping him to take the score for the band up to 90. Last month's pickings included CR6, CR7, ET3, FS7, HK, IT, JA, JW, KR6, KZ5, MP4, OA, OD5, PY, TF, UA0, UI8, UJ8, VE6, VE7, VE8, XE, XW8, YS, VP8, VP9, 5N2, 5Z4, 7Q7, 9I5, 9J2 and 9M2.

G3DO mentions contacts with HM4FA and VP2VP as being a little out of the ordinary, but nothing else. However, G3NOF, as ever, had a study of the band generally. He found that the *CQ WW Contest* saw things quite lively from 0730 till as late as 2030, although towards deadline time conditions took rather a turn for the worse and the band was closing as early as 1800z. Good short-path openings occurred around 1000 to VK/ZL, JA and KR6, with the W's coming up during the afternoon. In terms of SSB QSO's registered it came to DJ6QT/CT3, EP2BQ, FG7TI/FS7, HC1RF, HL9UU, KP4DCR, KR6VX, KV4FZ, KZ5AT, KZ5KN, OA1BT, OA4PF, OA6BW, OH0AM, PJ1AA, PJ0DX, VE6ADX, VE7DG, VE7YM, VK6US, VP2VP, W5, W6, W7RM, W7SFA, W7SGN, W8GKB/Q (South Dakota) XE1WS, XW8CR, YN1HSM, YS1XEE, ZE8JD, 4X4HF, 4X4JU, 5Z4LS, 9I5EJ.

#### QSL Comments

G3DO gives HM4FA as QSL to W2MBU; VR10 (Gilbert and Ellice Is.) as G3NRA; and VP2VP via VE3ACD. G3NOF adds HB00XFY,



Home station of Mike Matthews, G3JFF, 32 Briar Close, Cowplain, Hants., a founder-member of the Royal Navy A.R.S., and also the holder of such exotic call signs as VS1HU, 9M2MA, VR1M, VR2EA, YJ1MA and ZB2AM—all of which he has activated at one time or another during his periods of R.N. service overseas. He is at present operating as G3JFF/MM from the Far East Fleet flagship H.M.S. "London," mainly on 14025, 14260 and 21025 kc, and will be in those parts for the next 15 months or so.

to DL8RH; HL9UU to W2SRQ, or via bureau; KC4AD to his home call KR6RFK, or direct via USARP, Byrd Long Wire, APO San Francisco, Calif. 96692; MP4BDA to G8CCV; DJ6QT/CT3 to DOTM; TA2SC to K4EPI; 4M1A to DOTM; 8R1U to VE3DLC; FK8BH to P.O. Box 857, Noumea; and 9N1MM to HV3SJ. As a correction, Don mentions that the address for C31AP mentioned last month did not ring the bell, the card coming back marked "unknown" (!), but as he is ex-PX1PA cards could be routed through the *Call Book* address, which is given as Artur Pelelja, Bartolome, Andorra La Vella and good luck to all concerned!

A note from G3VDO mentions that he is going to sea again, this time in the m.v. *London Citizen* (which he will by now have joined at New York) and hopes to have his /MM ticket transferred to her. All the cards for the last trip have now been cleared, and for the coming one cards should again be sent to the G3VDO home QTH. Ian will be using Sommerkamp tackle into a vertical aerial. The ship, we gather, will be doing a regular run from New York to Japan and back. And very nice, too, for a keen radio man who can also get on the amateur

bands.

#### Eighty and Forty

Quite a few reports this time for these bands—perhaps more people are beginning to use them for DX working, realising that they do at least have *some* purpose other than a sink into which much of the QRM and Clottery is poured.

G31GW (Halifax) returns to the fray after quite a long silence, to report on his operations in the *CQ WW Phone Contest* which produced CT2AD, DJ6QT/CT3, EP2BQ, HC0BY/HR1, JW1CI, JW3XK, KV4FZ, M1I, PJ1AA, PJ0DX, TI2HP, UA9KAX, UO5KNO, ZL4LM, 4M1A, 9Y4AA and the commoner fry such as CN8, 4X4, LX, TF, VO, VE1-3, W1-4 and W8. Some of the natterers and pundits on Eighty, laying down the law about what can or cannot be done, could well pause and think that this little lot represents a week-end of activity by one operator—and, at that, not a big Phone man in the real sense either, because Mike is a CW man first, last, and all the time; perhaps they *might* just realise that if they were better operators they *might* be able to do a bit as well!

G2HKU (Sheppey) offers a ray of hope to this poor old scribe.—

G3KFE has at least *one* reader—UP2OX, who in QSO recognised the G2HKU callsign from his regular reading of this column! OD5LX also fell into the log, both 40 CW around 2200z. SSB yielded OD5EJ for a new one on the band, DJ6QT/CT3 similarly, and 4U1ITU, all on 3.5 mc.

G2NJ (Peterborough) is still looking out for the /MM calls on 7 mc CW, and this month raised YO4ASG/MM, YO4AJE/MM, and G3RSP/MM.

The high QRM level at the CW end of Forty and Eighty has made G2DC consider "ways and means" of coping with it. Jack has come up

with a method whereby he continues to use the 265-footer for transmitting, but on receive has the choice of the same aerial or switching the receiver to the 14 mc Quad, which seems to be more effective when the going gets rough in the evenings. Thus Eighty produced CN8DW, VP8GT, ZL1MS, ZL3FZ, ZL3GQ, ZL4IE, all W call areas other than the Sixes and Sevens, and VE1-3. Forty gave EA6AR, PY7SR, PY7AWD, VU2DK, VE1-3, VO1AW, VK2-4, W1-5 and W8-Ø.

Although the aerial farm at G3XAP covers Forty, no mention of the band appears in Phil's report; but Eighty was given a going-over, producing SSB QSO's with VO1FX, HBØXFY, HB9AGC, CT1ED, CT3AW and K2VOE; CW came up with LX1JT and LZ2KSK.

G3VPS spent little time on both 3.5 mc or 7 mc, and what there he got was "pay-dirt"; Forty came up with UR2 for a new country on that band, plus UA9's, VE1, 2, 3, 7; W1, 2, 3, 4, 8 and Ø, while the 3.5 mc SSB slice produced two more new ones for that band in 4U1ITU and a CT2.

Of course, the CQ Contest, as ever, threw up more than usual DX activity, which benefited G3KMA by way of VP2DAN, VP2VP, 4U1ITU, also PØDX, 9Y4AA, TI2HP, KZ5RF, HPIJC, 4M1A, VP9EP, ET3USA, UA9 and a couple of PY's, all worked on SSB during the Phone leg.

Down in the West Country, G2AYQ (St. Agnes) emulates the early-bird and consistently catches the worm of his choice. Ted prefers 0630 to 0715z (*Brrr!*) and found ZL4KE, ZL4LM, ZL4GA, ZL4CR, ZM3RJ, VE3EMO and CT3AW—not bad for breakfast, at that!

Rather than disturb the earnest discussions at the Phone end of Eighty, G3LXD slid down the band a way and was rewarded with a most unusual response to his CQ—DK1RU using 100 milliwatts on Two, from Siegen, relayed from neighbour DK2CU on 3.5 mc SSB. Quite an interesting contact, albeit somewhat of a tax on John's rather

rusty German.

### Here and There

Comments on the note last time about VP2ME seem to indicate that the operator in fact sends out a card on which no QSO details are written; he considers the satisfaction of working him is enough, and no QSL card as such is necessary.

G3YMH (Staines) jumps to the defence of the Table, which he says is the only yardstick against which he can measure his performance, and so puts in another entry—however, more on the Tables elsewhere. Ron has been licensed for five months, and has AM/CW only as yet, the receiver being a much-modified BC-348. Gear for SSB is being home-brewed, and should be coming up early in the New Year. As far as the "over-the-water" type of Top Band DX is concerned, it is, as yet, a matter of hearings rather than getting a contact—but by having a listen to size up the form before diving in is an exercise which should bring its own reward.

It is quite interesting to notice how many of the regular correspondents to this piece set themselves up in direct competition with someone else. For instance 9H1BL and G3VPS, who conduct quite a war of words through their letters to G3KFE. And now the same sort of thing starts with G3LXD and G3PQF. The latter comments that he can understand G3LXD laying down this challenge, but the G3LXD score ought to be in the Table—surely he has worked *one* country? On the other hand G3LXD, with malice aforethought, has only mentions of Top Band and Eighty in his letter; he clearly awaits the start of the next round. . .

Rather a coincidence, says G3MKR (Macclesfield), and this is the way of it: A couple of years ago, G3MKR had a QSO with K2MKR/MM, in the s.s. *Expo Delta*, at that time somewhere in the Mediterranean. Autumn being the way it is, weather-wise, in 1969 G3MKR decides to have a cruise in that same area—lucky chap! During

# Reporting the HF Bands

## TOP BAND COUNTIES LADDER

Station	Confirmed	Worked
<i>Phone and CW</i>		
G2NJ	98	98
G3HDO	98	98
G3NPB	98	98
GM3OXX	98	98
G2HKU	96	96
G3WPO	94	94
G3SED	93	96
G13WSS	89	92
G3VLX	80	96
G3XDY	79	91
G8HX	76	83
G3XTJ	63	88
G3XTL	62	78
G3WJS	60	86
G3KFE	48	66
G3XGD	42	55
G3LXD	32	65
<i>Phone only</i>		
G2NJ	98	98
G3TSL	94	97
G3SED	91	92
G3WPO	88	89
G3VGB	84	95
G3PQF	71	86
G3XDY	39	67
G13WSS	38	58
G3NPB	17	62

(Failure to report for three months entails removal from the Table. Claims may be made at any time. Six months of "Nil" reports will also result in deletion.)

the cruise, his ship puts in at Tunis, and ties up alongside the s.s. *Hope*, on which is visible a TA-33 at about 100ft. above waterline. Out of curiosity, G3MKR walks over to find out who is at the other end of the feeder—and who should it be but the same K2MKR/MM, who, having come out in her as radio operator for the outward trip (the ship is to remain till Spring 1970 as a floating hospital) has remained as a crewman, ostensibly to keep an eye on the 125 nurses aboard! (Well, that's what we are told! But what a coincidence.)

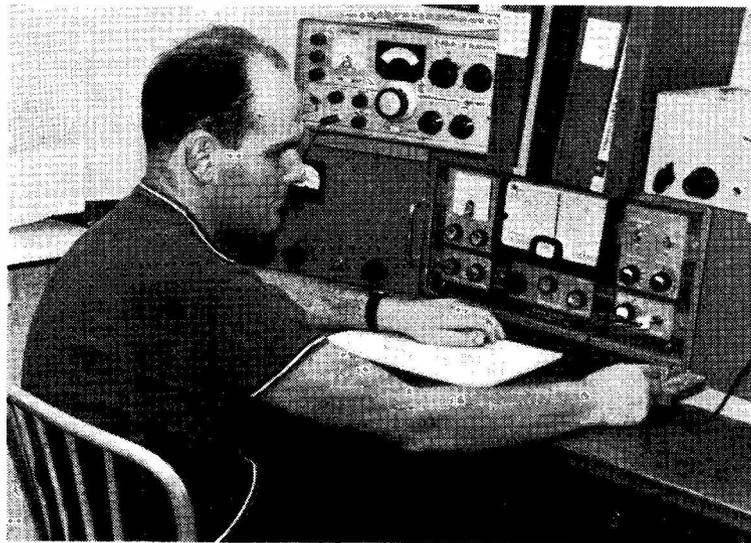
### Twenty Metres

As ever, the band on which most of our business is conducted. The *CQ WW Phone Contest* up-ended things a little, with the odd plaintive bleat from here-and-there from some poor soul who could not understand what it was all about—these mysterious number things, and contacts completed by swapping reports, which *everyone* knows is only the preliminary formality before the monologue commences. On the other hand, it has to be agreed that *some* weekends in the year could be set aside to be clear of contests, even at the risk of more clashes of date—after all, it is all but impossible to avoid clashes now.

However, *revenons à nos moutons*, as the F's would say—we are at the moment supposed to be discussing the 14 mc band!

G2AYQ had a contact with VK7LM/P/VK2, which was memorable, in that he was our old friend G6XN, who was working G2AYQ and G3DDN, with VK2YU standing by if the going was a little rough. What made it memorable was the fact that the VK7LM/P/VK2 signal was a solid RS55, using 1 watt of SSB, and being received at G2AYQ on a half-sized "5RV." By the time this note appears in print, it is likely that G6XN will be in ZL.

It is many, many moons since last we heard from G3LZQ (Brough) who has been working away and, on the rare occasions when he has been home at civilised hours, has just not felt inclined to bother. However, John did come on for the *CQ Contest*, with only the beam, lowered to 33 feet, for an aerial, and put in a one-band entry. Operating for 26 hours yielded exactly 100



SM5CAK, Lars Bohm, Stora Engesby, Motala, runs about 500 watts into a home-built Quad and is one of the most active of the Swedish DX gang.

Countries in 38 Zones, including TG8IA, KR6's, VP8KF, VP8KV, KC4USA, DU1FH, XE1WS, UA9VH/JT1, VS6DR and VS6AL, VE8's, KL7EGO, VP2VP, VP2DAO, 9Y4AA, KZ5's, CO2, 5L8H, CP1GD, CR4BC, VK9LB (Norfolk), 5VZDB, XT2AA, TR8DG, KH6's, W0VRN/KS6, XW8CS, AP5HQ, 5H3KJ, VK2BKM (Lord Howe), YN1HSM, 6W8DY, hordes of JA (all call areas, both long path and short) ZL's, all the VK areas, and the usual crop of small fry who become useful only at contest time!

A new booking for G3DO this month was VR10 in Gilbert and Ellice Is, worked on 14 mc SSB. For G3NOF the study this month has been the impact of the changing season on the band, with the light closing in, noting how Twenty opens up a little later each day, and closing a bit earlier, with less of the morning VK/ZL, not a lot from the Pacific, and so on. Three that got-away were VK9LB, WA2IKP/KS6 and FK8BH—but Don rang the bell at DJ6QT/CT3, FG7TI/FS7, HB0XFY, JA's, KC4AAD, KP4AST, KV4FZ, MI1, VK's, VP2VP, 4M1A and 4U1TU.

Twenty for G3VPS meant quite a pleasant QSO with 3V8AL, who surprised Peter by saying "I know Wartling"—seems the usual response is along the line of "Never

'eard of it!" Other SSB ones were with 9H1M on Gozo, JA's, TF, UA9, UA0, SU1, EI6BL and ZS, while CW played its aprt in hooking UW0, UI8, 9H1, VU0, TA and 9V1.

The 20-metre list from G3XAP mentions ZM2QK, TI2FCD and KC4AAD. Peter has plans involving a Triband Quad on a fifty-foot stick as a means of improving his fortunes.

Nothing new, but conditions quite good, says G2DC, who found AP5HQ, HL9KQ, KL7MB, VS6AA, VS6DL, VS6FZ, VS9MB, XW8BP, YV5AHN, all W and VE call areas, plus VK's in the second, third, fourth and eighth sections. On most days, he found all continents easily workable.

The early-morning period is favoured by G2HKU for his forays on 14 mc, with SSB the mode. ZL3SE, ZL2KP, ZL3JQ and PY1NBA were all worked around 0700z, albeit Ted says he has not looked too hard for DX as he has been taking part in Dutch nets and trying to learn the language, as well as joining in on the Royal Signals and WAB nets.

### Top Band Comment

Last this month, but by no means least. As usual many of our correspondents report on this band, and its behaviour, and most seem to have



If you heard or worked IT1SEZ, Ustica Is., Tirreno Sea, north of Sicily, at any time during August 8 to September 26, here is an impression of the comfortable figure of Silvano operating the gear—he had a Drake TR4, with a ground-plane for 10-15m., and dipoles for the other HF bands.

indulged themselves in the pleasure of getting up early. However, it looks rather as though the advent of the colour TV staff may have altered the picture a little, by shifting emphasis to the HF bands, at least in the London area. This is none too soon, for of late Top Band has got to the pitch where it has been almost impossible after dark to find a channel clear enough to support a GDX QSO which is not liable to become stillborn due to the emergence in mid-contact of unexpected funny noises. In addition, there is ever the threat that, should an operator do something spectacular to, say, his earthing system and hence improve equally spectacularly the signal he lays down around the U.K., he will immediately be accused of using QRO.

However, this is not to say the band does not have its enchantments—it does, and G2DC proves it by remarking that he has built a converter for his SB-301 so as to get back on 160 metres. Jack worked all U.K. countries, also EI, OE, OK, and heard W's in the course of proving it out.

The aerial at G3XTJ (Palmer's Green) has been operated on, and the far end is now rather higher—

but not high enough to get over the Pond as yet, though he has raised HB0AK, HB0NL, OE5KE, OH1RG, OH5SM, OH2AM, and OH2BH/0, adding a couple of new countries to the pile in the process.

For G2HKU, the favoured time was about 2200z, when Ted comes on and works OK's and OL's, with G1JXS as a change and, on SSB, PA0PN.

The crop picked by G3XAP showed CW QSO's with PD3PN, DL1CF and EI9BG, also OH5SM, OH1RG, PA0HBO, OK1MP and DL1CF accounted for on SSB. Incidentally, Phil has hopes of being able to have another shot at the full-sized ground-plane this winter—but first he has to find and deal with the industrial equipment which made a mess of the project last time round.

As far as your scribe was concerned, there was little of note on Top Band during the month under review, other than contacts with GM3YCB and GM3YRT, one evening, and a batch of cards in from the Bureau one morning, plus the news that his missing GC cards were not forgotten but merely the victims of some quite hilarious circumstances—so G3FKE, along with most

everyone who worked GC this year, will be getting his card in due course.

G3PQF had QSO's with Radnor, Montgomery, Ayr, East Lothian, Elgin and Perth, all needed before the magic "98" can be chalked up.

G3VLX mentions GW3XJF/A in Caerwys, Flints—a county for which a card is yet to be secured, also GM3TNT, who is back in business in Argyll after his move.

At G3LXD the surprise of the month was not so much the raising of HB0NL, as the realisation that in the process a new country has been worked!

That elusive Cumberland contact has been achieved by G3XDY, who got in with GB3CUS. The new vertical aerial has now been put up, and the first CQ with it raised OE5KE with a report of 579, a stack of 599 following from OK/OL. On a more prosaic note, G3XDY gave your scribe the pleasure of a Lincolnshire QSO, and a very prompt QSL card.

The first *Bulletin* of the season from W1BB turned up just too late for the deadline last time. The indications are that this season should be considerably better than last, and already it is noticeable that random contacts are coming up more frequently. On a different tack, it will be recalled that some months ago, when Stew was after his 100th country, he ran into trouble with water in the feeders, due to a fault in the coax.

### The Tabular Matter

Here, we have a problem. The Six-Band Table will be continued into 1970, as will the Top Band Counties Ladder, though there may be detail changes to the latter, and certainly the rules will be applied more rigorously than in the past. The other two are very definitely "in the melting-pot" and during the next month we shall be deciding what to suggest in the way of Tables for 1970.

### Conclusion

This piece is the last to appear before Christmas, and it therefore remains for us to wish all the readers of this column, and in particular those who have supported it so loyally through the year, a Very Happy Christmas, and all the very best wishes for Health and Prosperity—not to mention DX—in the Coming Year. 73.

# VHF BANDS

A. H. DORMER, G3DAH

WELL, October certainly produced some very nice DX on both two metres and 70 cm. The 10/11th saw the start of it, with the EU's coming in very well all over the country on both bands. Best DX for most operators was OE2ML in Salzburg, but G15ALP in Londonderry and GM3NPO/P in Argyll and Wigtown were also very good signals on SSB on two metres in the South. As far as can be ascertained, there were no other GM stations audible south of the Midlands. After a few ups-and-downs, the good propagation recurred in fine style on the 18th, when four GM stations on Two, and GD2HDZ on 70 cm, were logged at G3DAH—all on phone.

Activity in the U.K. was at a low ebb on the 19th, although that day produced some of the best DX. G3LTF (Chelmsford, Essex) worked seven SM, five OH (yes, five) and one LA on CW between 9 p.m. and midnight, giving him 28 countries on two metres, and he followed this with OE2OML on 70 cm on the 27th, for his 19th country on that band.

Ducting was very much in evidence again, and was an outstanding feature of these openings. From the Wash northwards, conditions were very much better than they were at any time, and at any place, south of that latitude. But that is fair enough, since the southerners certainly get more, and better, openings as a rule, and it was a pleasant change to hear the GM's

working all that lovely DX. Propagation was characterised by deep QSB for most of the time, paths over the 20-mile mark being particularly unstable. Pressure patterns were very complicated, and there was a pronounced humidity range.

By November 3, propagation was back to normal for the two-metre SSB contest, with little DX over 200 miles to be worked until more than half way through the event. G3GZJ in Cornwall, and GW3FSP in Glamorgan were inaudible at the start, but by 9 p.m. both had built up to very nice 5 & 9 signals. Activity appeared average, the best score heard to date being that of G8BBB in Cambridge, who had 45 contacts under his belt.

The abrupt change in the weather since then has introduced typical winter VHF conditions. DX and activity are very poor at present, and one supposes that they will remain so until next year, if previous experience is anything to go by.

Now that it is unlikely that there will be many further extended tropo. openings this year, a comparison between 1969 and 1968—in terms of days on which contacts of more than 350 miles were possible on two metres—shows that, contrary to general opinion, this year has proved to be no worse than last. During 1968, there were 21 days when such contacts were made, with peaks of four in January, four in June and five in August. This year the figure was 24, peaking to six in June, four in July, six in September and four in October. The better weather in the Summer and Autumn this year was probably responsible for this improvement. It was noticeable that although the openings were there, conditions generally were very much more unstable in 1969, with heavy QSB making many of the contacts difficult. G2JF, who has kept a record of these openings going back to 1954, finds that there is a two-yearly cycle in propagation conditions which indicates that the odd years are more likely to yield good two-metre DX than the even years. So 1970 may not be too good in this respect.

## VHFCC Awards

Two Awards have been made this month, both for operations on two metres.

## VHFCC AWARDS

to

December, 1969

### TWO METRES

Callsign	Cert. No.	Date
G3DAH	1	April 1968
G8AAZ	2	October 1968
G3JFO	3	October 1968
G3AGN	4	October 1968
G3VPI	5	October 1968
G3LAS	6	November 1968
G3IMV	7	November 1968
G3ILO	8	November 1968
G3OZP	9	November 1968
G3FVC	10	December 1968
G3NLR	11	December 1968
G3UIK	12	December 1968
G3EJA	13	December 1968
G2CDX	14	December 1968
G8ATK	15	January 1969
G8AZU	16	January 1969
G3UUT	17	February 1969
G3FNM	18	February 1969
G3SBV	19	February 1969
G8AYF	20	March 1969
G8AYN	21	April 1969
G3WRD	22	April 1969
G8BGR	23	April 1969
G8API	24	April 1969
G8APZ	25	April 1969
G8BQH	26	April 1969
G8BQX	27	April 1969
G3EHM	28	June 1969
G8BJK	29	June 1969
F1VP	30	June 1969
G8BZQ	31	June 1969
G3PLB	32	July 1969
G8AUN	33	July 1969
G3WHK	34	July 1969
G8BKR	35	November 1969
G3OHC	36	November 1969
G8CEA	37	November 1969
G3WQG	38	November 1969
G8CJU	39	November 1969
G8BTB	40	December 1969
G8ABA	41	December 1969

## VHFCC AWARDS

to

1st October, 1969

### FOUR METRES

Callsign	Cert. No.	Date
G3IMV	1	April 1968
G3EKP	2	November 1968
G3UUT	3	February 1969

### 70 CENTIMETRES

Callsign	Cert. No.	Date
G3DAH	1	April 1968
G8AAZ	2	October 1968
G8AEJ	3	November 1968
G8AWO	4	January 1969
G8AUE	5	January 1969
G8ARM	6	April 1969
G8AYN	7	November 1969
G3MCS	8	November 1969

Joe Kasser, G8BTB, is in London, N.W.4 and runs 10 watts to a QV03-10 modulated by a pair of EL84's in a hybrid modulator. On the receiving side, a home-built converter with two BF180 RF

stages and a 2N3819 mixer feeds 1.8 mc to 3.8 mc into a Trio 9R-59. The antenna is a four element J-Beam. The site is poor, and the best DX to date is with a station in Rutland. Joe has been experimenting with a small 90 mW portable radio telephone, and has managed to get it all into a case 8½ in. by 5½ in., which holds the twelve transistors and the PP3 battery! Best DX with this rig is 22 miles. As G8BTB will be QSY to Detroit shortly, this is an opportunity to wish him *bon voyage*.

G8ABA, Chris Haywood, operates from Coalville in Leicestershire and also runs a QV03-10 in the final, although this time with 15 watts input. In fact he is using his mobile gear while the main Tx is being rebuilt to accommodate SSB and NBFM. The receiver is an HRO fed from a home-built converter using TIS88a RF and mixer stages. The antenna is a ten-element job at 30ft., and the QTH is 580ft. a.s.l.

Just a reminder that DM may now be counted as a separate country for VHFCC, and that the London Postal Area scores as a county.

As claims are continuing to come in, the publication of a revised Table of "Firsts" will be held over for another month.

#### Scottish VHF Convention, 1969

The Scottish VHF Convention was held this year on October 26 at the Carlton Hotel, Edinburgh, and was organised by the Lothians Radio Society. It was a most enjoyable affair, a view which seemed to be shared by the 90 or so amateurs who attended the afternoon session and the forty who stayed for the dinner.

Speakers at the afternoon lecture session were G3BA, who outlined techniques for the seventies by advocating greater use of the VFO, flexibility in operating modes by the use of SSB, NBFM and AM through the one transmitter, and the prolific use of filters to produce a really clean transmission, and to assist in the avoidance of TVI. He was followed by GM8CFL who gave an interesting demonstration of inverter power supplies for mobile and static use, and by G3FZL who outlined the proposals for TRIDENT, the U.K. constructed satellite, on which so much of the preparatory

work has already been done by the South Coast Group. Equipment made by the members of the Lothians Radio Society was on view, and this included the Droitwich-locked frequency standard, which won GM3TFY, David Guest, the Horace Freeman Trophy at the recent Exhibition.

After dinner came the presentation of awards, which included the Trophy for the Scottish NFD, which this year went to the Radio Club of Scotland team from Glasgow, and the Jock Kyle Award for meritorious work on VHF gained by GM3BCD, Tom Simpson, who has done so much to train and encourage the younger element among the licensed amateurs in the Edinburgh area. Little did your scribe know, when he mentioned last month the excellence of the operating up there, that it was to Tom that credit was largely due.

During discussion on matters of general VHF interest, the point was made that visitors to GM with mobile or portable gear, who wished to operate from there in contests, were more than welcome, and all possible assistance will be given them in the selection of suitable sites—but please check first that the sites are not scheduled for use by the GM's themselves! A line to GM3OWU, QTHR, will ensure that there is no overlapping. It is only courtesy, isn't it?

Next year's event should be sponsored by the Glasgow Group, and details will be announced when they become available.

#### From GM

The October 18/19 openings were certainly good for the GM stations. For example, GM3TFY in Edinburgh worked seven SM and one OZ during the period, and GM8BRM in Aberdeen worked *sixty* EU between noon and midnight on the 18th! These included three SM, nine OZ, seven PAØ and forty-one DJ/DL/DM. The Tx runs twenty watts, and the antenna is a six-over-six J-Beam. He also had quite a number of G contacts, and when G3DAH worked him late in the evening he was sounding fairly hoarse, having been at it continuously, without a break for meals, since midday! (He paid a tribute to his understanding wife who had

kept him fed and watered in the shack all that time.) Other good signals in the South on that day came from GM5YK/A in Cruden Bay, and GM8BDX in Duns, Berwickshire.

An RTTY net is being set up in Edinburgh with transmissions already going out on 145.8 mc from GM8BJF. Other stations active are GM8BCD and GM8BPL. GM8BJF and GM8BCD also have equipment for 23 cm. for those who would like to try a GM contact. Work is going ahead on the antenna and feeder systems at 'BJF at the present time, but Brian would be pleased to hear from anyone who would like to try a sked. The local terrain must make life very tedious on that band! Your scribe asked a few months ago where all the GM's were. He now knows. The activity in the south of the country is high, but would someone kindly move the Braid and Pentland Hills about three hundred miles to the West!

Still in GM, Geoff Dean, G3NPO of Leeds, had a most successful foray there recently, as many who worked him on two metres will know. He took a Swan transmitter and a transverter with him, and in all had 64 contacts, with the best DX as yours-truly. From Fifeshire, AM with the anchor men in Yorkshire was barely possible, although CW and SSB worked well. The same conditions applied in Peterhead, but the site in Braemar had a good take-off to the south and gave AM contacts into Yorkshire and SSB down as far as Ipswich. From the west coast of Kintyre, at approximately five feet a.s.l., SSB contacts with G15ALP in Londonderry and G3CCH in Scunthorpe were no problem at all. The tropo. lift on Friday, October 10, was most opportune and from a 400ft. a.s.l. site in Kintyre many good DX QSO's were made. The following two evenings' operations from Gallo-way produced some interesting if spasmodic contacts, since the lift had by then disappeared, but Geoff again noted a most consistent signal from G3CCH. Results from Loch Gare in Dumbartonshire were disappointing. GW2HIY was heard on CW, and several AM carriers, but no contacts were made; even the check skeds with G8AWN and G3KKP fell through.

**THREE-BAND ANNUAL VHF TABLE**  
*January to December, 1969*

It is Geoff's opinion, and this Column agrees with it, that with 100 watts or so of SSB, just above-average conditions and a certain amount of prior publicity, the rarer Scottish countries can all be worked from well down into England. Banff, Kinross, Moray, Nair and even Ross and Cromarty should all be "on." A fine effort, Geoff, and thanks from those of us to whom you gave the chance of working some of the more difficult ones.

**From GI/EI**

GI5ALP in Londonderry had a disappointing time during the November two-metre SSB contest. Conditions were very poor, and of the three stations worked, one did not know his QRA Locator, so then there were two! However, Jack points out that there was some RF directed in the general direction of England for the whole of the three hours. The high winds recently have played havoc with the collinear, and plans are now in hand to revert to the ten-element Yagi for the winter, the stacked arrays going back up next spring.

As noticed last month, the first EI/G RTTY contact on two metres was completed between EI5BH and G6CW. 5BH now advises that he runs skeds with G6CW every Wednesday evening at 2100 and every Saturday evening at 2300, clock time. QRG is 145.3 mc and breakers will be welcome.

Many British stations will have heard EI4AL on two metres recently. The night of October 27 produced some excellent reception of his signals. He worked F9FT, G3JXN, G6RH, G3CXM, G3COJ, G6NB, G3CYY and HB9MY, all on CW. The HB9/EI contact looks like a "First" unless there are other claimants. He gives an address other than that shown in the last *Call-book*, so for QSL direct, write to: Mike Burke, Bealnamulla, Athlone, Co. Roscommon, Eire.

**From GW**

GW8CTI, Bert Buss, is probably the only station regularly operating on two metres from Carmarthen-shire. He runs an 829B with 50 watts DC input to an eight-element J-Beam, and receives on a Nuvistor converter and a B.40. The QTH is 150ft. a.s.l. He is on every evening

Station	FOUR METRES		TWO METRES		70 CENTIMETRES		TOTAL pts.
	Counties	Countries	Counties	Countries	Counties	Countries	
G3DAH	22	3	70	16	19	6	136
G3COJ	15	2	60	13	28	7	125
G2JF	—	—	60	14	29	7	110
EI6AS	29	7	55	12	—	—	103
G8AUE	—	—	44	5	39	8	96
G3EHM	—	—	56	11	23	4	94
G8BMD	—	—	51	9	29	4	93
G3LAS	26	2	48	8	8	1	93
G3EKP	34	6	24	6	11	3	84
G8APZ	—	—	47	8	20	5	80
GD2HDZ	—	—	50	7	17	4	78
GI5ALP	14	6	43	10	—	—	73
G8BYV	—	—	28	9	22	8	67
G8BWW	—	—	54	10	—	—	64
G8AYN	—	—	32	6	19	6	63
G8ADP/A	—	—	36	5	16	3	60
G2AXI	15	2	32	5	4	1	59
G8AUN	—	—	43	11	—	—	54
G8CEZ	—	—	45	8	—	—	53
G8ABA	—	—	41	7	—	—	48
G8BJK	—	—	39	6	—	—	45
GW5NF	—	—	37	8	—	—	45
G8APJ	—	—	26	6	8	2	42
G8ASR/A	—	—	35	6	—	—	41
G3TDH	35	5	—	—	—	—	40
G3AHB	—	—	24	4	8	1	37
G8BDJ	—	—	23	6	4	2	35
G8BJC	—	—	28	5	—	—	33
G8BKR	—	—	16	2	10	2	30
G3KMI	12	1	14	3	—	—	30
GW3GN	—	—	26	4	—	—	30
G8ARM	—	—	—	—	23	5	28
GC8AAZ/P	—	—	22	4	—	—	26
G8CZD	—	—	17	3	—	—	20

**TWENTY-THREE CENTIMETRES**

STATION	COUNTIES	COUNTRIES	TOTAL
G8AUE	14	2	16 (Also 1 + 1 on 13 cm)
G8ARM	7	1	8
G8ADP/A	3	2	5
G8BAV	3	1	4
G8AYN	1	1	2

The THREE BAND ANNUAL TABLES show total claims to date from the year commencing January 1st, 1969. Claims should be sent as hereto-fore: VHF Bands, SHORT WAVE MAGAZINE, BUCKINGHAM. Summaries by bands will be published at suitable intervals.

and Sunday mornings, and although screened to the north, is OK to the east and is looking for G contacts. He will QSL direct from 106, Corporation Avenue, Llanelli, Carmarthenshire, if requested.

Another comparatively rare county is Cardiganshire, but this is well represented by GW5NF, late of Farnham, Surrey. He is active most evenings on Two for regular contacts with G2UN in Worcestershire and GW3LJP in Radnorshire. His address for QSL for those who have not the latest *Callbook* is:—Ynys-y-Bont, Swyddffynnon, Ystrad-Meurig, Cardiganshire, and if you can pronounce that lot, with only six vowels in thirty-six letters, congratulations!

#### From GD

Arthur Breese, GD2HDZ, who has been very active on two metres recently, is now on 70 cm. It seems that he was a little premature in complaining about lack of activity and contacts on that band, since October 10/11 produced some very nice DX for him, including PAØ and ON for two "Firsts." The Dutch station, PAØCRA, was located near Utrecht, and he passed RS4 and 3/5 and received RS55. Input was 25 watts to a 14-element Yagi, and shortly after the GD contact he was in QSO with our old friend GW8AWS/P, so he, at least, had a good evening on 70 cm. Arthur says that there really is no peace for a GD on VHF! No sooner had he come on to 70 cm, than he was besieged with queries about getting on 23 cm!! The answer to that one is that it will be some time yet, as he will have to start building from scratch. His address is not in the new *Callbook*, so for those who want it: White Cottage, Pinfold Hill, Laxey, I.o.M.

#### From Overseas

VR3AIO of Montreal is anxious to arrange 50/70 mc skeds with British stations. He runs a kilowatt and has been working consistently into the West Coast of the United States, about the same distance from his QTH to the U.K. The address is:—G. Fabi, R.R.2, Port Colborne, Montreal, or contact G3KPO, QTHR, who is in regular touch with him.

On 432-164 mc, OE2OML runs 500 watts input to a 4X150A with a

72-element beam. The site is at 1100 metres a.s.l.! For those who wish to QSL direct, the address is Mike Ortner, 5020 Salzburg, General Keyes Strasse 18, Austria. QRA Locator is GH16c.

Joost Berder, G3RND, is now on two-metre SSB from Ventnor in the Isle of Wight. He runs about 50 watts p.e.p. at the present time, but the QTH is not too good for VHF. However, he has worked into Yorkshire, and knows all about SSB activity nights on Mondays, so how about turning the beam south and having a look for him?

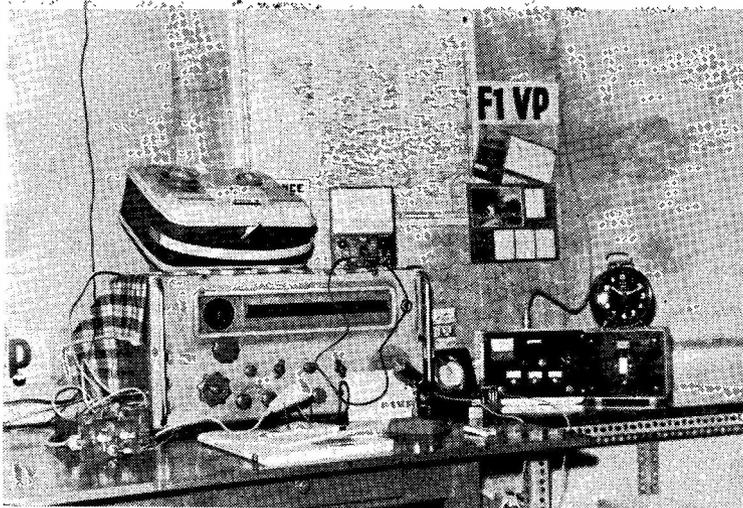
G8CCV is now in Bahrain for a short time, but can be contacted via the Club station there, MP4BBA, on the HF bands. In just under a year of operating on two metres from the Didcot, Berkshire, QTH, he had worked thirty-one countries and three countries, fourteen of them with a halo in the loft. When he returns to England, he will have an 8-element Yagi at 30ft. on a site 250ft. a.s.l. The Tx will run about 50 watts to a QV06-40A and the dual gate Mosfet converter will feed a Heathkit RA-1, so that should improve matters somewhat.

Although perhaps not strictly overseas, it might be appropriate here to say a further word on the *Australis Oscar*. The latest information is that the launch should take place from Cape Kennedy on December 3 or 10, dates subject to other opera-

tional factors. The satellite itself is *go* and approval in principle for its inclusion in the launch programme has been given by NASA. Special QSL cards in confirmation of reception reports are being prepared by the authorities in Melbourne and will be despatched by G2AOX, Bill Browning, the U.K. co-ordinator for the project, to whom all reports should be addressed. Postal expenses are mounting up alarmingly at G2AOX, and he requests that all further correspondence requiring a reply should be accompanied by an s.a.e. and a 9-by-4 envelope if data sheets are to be sent. He has just sent off 180 envelopes of all shapes and sizes. Some correspondents have sent stamps but no envelopes, some envelopes but no stamps, and two ginks, believe it or not, had sent envelopes gummed down and with Sellotape across the flaps!!

#### Club and Group News

The next meeting of the South-East UHF/VHF Group takes place on December 5 at 7.30 p.m. in Keynes College, University of Kent, Canterbury. All interested amateurs are welcome. The speaker on this occasion will be G3JHM, Don Hayter, who will be talking about operation on four metres. Details of future meetings may be obtained from the Hon. Sec., G3DAH, QTHR.



Paul Reynes, F1VP, 112 Rue de la Renaissance, 86, Châtellerault—holder of our VHFCC Certificate No. 30—runs a home-built 12w. Tx and a 9-element Yagi, the Rx being a transistor converter into a surplus (French) Army receiver Type RU-93.

The South Bucks. VHF Club have an extraordinary general meeting, followed by a film show, at 7.45 p.m. on December 2 at Bassetbury Manor, High Wycombe. The Hon. Sec. is R. Idiens, 77 Amersham Road, High Wycombe, Bucks.

The Coventry and Birmingham VHF Group had a successful meeting at Meriden recently. They have these get-togethers every two months or so, and use the occasion to swap yarns and gear in very pleasant surroundings. Details from G8AHW, *QTHR*.

The 1969 RTTY Contest, organised by the British Amateur Radio Teleprinter Group, was won by DJ8BT who scored 452 points for three contacts in two countries. Operation was on two metres, and best DX was 310 km. The leading G station was G8BNW of Horn-castle. As this was the first contest of its kind, the number of entries was small, but it is hoped that, with the increasing interest in this mode of operation on VHF, the event scheduled for next year will receive increased support. Readers interested in these contests should contact Ted Double, G8CDW, *QTHR*.

### General

G8APZ spent 4½ hours during the recent openings to the north trying to work Northumberland, Durham and GM5YK/A, and is now convinced that a VFO is the answer. For stations running low power, this is almost certainly so. A quick QSY to within a kc or so of the station working the DX and a "three-plus-three" call should do the trick. We seem to be so far behind the Continentals in this respect. A CQ call with the beam east, and the announcement "tuning this frequency and then the band" will usually bring replies if conditions are right.

Doing it the hard way! G8UAN, Hove, Sussex, has a small one-watt transistor Tx and superregen receiver which he uses portable with a hand-held dipole. He went /P on Devils Dyke recently, which meant a walk of some two hours and two and a half miles across rough country, to arrive there just as it was getting dark. Nothing daunted, he sat down on the grass, got out the briefcase in which the gear is carried, and called



Three well-known VHF personalities, left to right: Geoff Stone, G3FZL; Jim Foster, G2JF; and Bert Allen, G2UJ. They were together at a recent meeting of the South-East VHF Group.

CQ. First contact was with G8CUX in Tadworth, Surrey at five-and-nine, followed by a station in Haslemere at five-and-eight. By this time Robert had icicles on the end of his nose and decided to call it a day. Returning home, he proceeded to work G8COK while in his bath. Signals were a bit watery! G8UAN is up at Sussex University, and advises that there are several resident students who hold licences, and that an Electronics Society has been started. Local amateurs please note.

G8AUN of Norwich reports an interesting case of an echo on two metres. He was working G2CDX about a mile away at 2000 BST on the night of October 19, when he noticed an echo on the transmissions with a delay of between one quarter and half a second, and which persisted for about ten minutes. Did anyone else observe this?

G8AJC (Canterbury, Kent) was one of the lucky ones who worked OE2OML on 70 cm. on the night of October 28. The OE was running his 500 watts of SSB at the time, and after a two-metre contact, both stations went over to the higher band and exchanged 5 & 9 reports. G3MCS (Lacey Green, Bucks.) also made it on 70 cm, in company with several others. G3COJ (High Wycombe) missed the OE but made it with ON, PAØ and DL on the

night of October 9. Later in the month, on the 18th, he had a two-metre QSO with SM7BZX for some very nice DX, and also raised GD2HDZ on 70 cm. Brian found the evening of the 27th to be outstanding, although it seemed that stations to the west were doing even better than he was. G3GZJ (Redruth, Cornwall) was heard working two OK and one OE (not OE2OML) on two-metre CW, and the GW's seemed to be having a real ball. 'COJ made it with EI4AL in Athlone and with HB9MY that night, both on CW. Better polish up those keys!

G8AUE, up in Derbyshire, seems to be romping away with the 23 cm. score. His list of counties worked includes Montgomery, Sussex and Surrey. How about some more claims?

GW8AWS/P continues to put out a fine 70 cm. signal from Flint, and even from near the home QTH in Ellesmere Port, Cheshire, whence he and G3DAH had a solid contact on a dead band on the night of October 20. The EU stations were calling and working him avidly on the nights of the 18/19th, and rumour has it that it was 3 a.m. when he finally called it a day.

G8AWZ, Norwich, also got a couple of the SM's on that night. He had been alerted to the opening by G8AUN, who put him on to an

OZ, so he made a quick QSY to the water's edge where he erected his 28ft. mast, and promptly worked SM7AED and SM6CZY/7. Another example of the very selective nature of this opening, which hardly extended to the South Coast.

G8BQX, John Ridd, of St. Leonards-on-Sea, has analysed his first year of operation on two-metres and details are published here for general information, and for those who may wish to make a comparison with their own results. Best DX was F9NL at 880 km. Countries eight, counties forty-two. Total number of different stations 850, of which 332 are confirmed by QSL. John does not run high power, the Tx being a QQV06-40A with 25 watts input to a Parabeam at 30ft. The QTH is good for the south, but only average in other directions.

John Haydon, G3BLP, is off to ZL until January next year. G8AMD of Sutton Coldfield expects to have video shortly. G3IMV, Bletchley, heard HG7KLG on Two at 0618

BST on the morning of October 19. The signal was audible just long enough for John to identify the callsign, and then disappeared altogether. M/S? He also reports that he worked YO7VS/P at 0950z on the great day, July 4, 1945, and thinks that this may be a "First." Any other takers? Racal Electronics Amateur Radio Club now use the call G8DDG as well as G3RAC. Wonder who the operator there was during the recent MCC Top Band Contest? If you want to know how to conduct contest operations take a listen to him next time. It's worth it! G8AKE in Melton Mowbray is now QRV on 23 cm. G3SLJ (Chelmsford) is now on two-metre SSB with one watt output, but seems to be getting out well even with that low power. He will be stepping it up shortly.

Licensed in September, was David Palmer, G8CZD (Fareham, Hants.), who is on two metres; he runs a Pye Ranger with about ten watts input to the QQV03-10 feeding a ten-

element beam at 20ft., and the QTH is about 130ft. a.s.l. The main receiver is a Denco DCR-19. David has an FET converter for 70 cm., and a nine-element beam, but no transmission facilities yet, although these should be available shortly.

GM8APX, QTHR, is looking for skeds with British stations on two metres as follows: *Glasgow*, December 23/26; *Wigtown*, December 27/28; *Morecambe, Lancs.*, December 29 to January 1; *Oxford*, January 2/6, and *Newcastle-on-Tyne*, January 7/9.

December 7 is the date for the next 70 mc Contest—time from 0900 to 1500z.

### Deadline

Deadline for the next issue is **December 6**, earlier this time to take account of the Christmas mail chaos. The address for claims, news and comments is "VHF Bands," *SHORT WAVE MAGAZINE*, BUCKINGHAM. Cheers for now, Season's Greetings, and 73 *de G3DAH*.

### BOOKS FOR CHRISTMAS

It has often been said that the best present you can give for Christmas is a book. This must certainly be true where the recipient is to be a radio amateur—whether active on the air or just interested in the technicalities.

Our book lists, scattered through the advertising pages in this issue, make a great many suggestions and, as on p.598, are listed under headings to help you sort out what you want.

All prices quoted are post free and—this is important—because we hold stocks of all titles listed, we aim to despatch on the day of your order—or, at the very latest, the day after. Books, and any other publications ordered by post from us, are packed in protective sleeving to prevent damage in transit, and should reach you in perfect condition. Orders, with remittance, to: Publications Dept., Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

### "AC BRIDGE FOR MEASUREMENT OF R, L AND C"

Further to this article, in our November issue, the circuit diagram Fig. 1 on p.545 should have shown—in the upper left arm—the following resistor values across points 1—1 to 5—5: 10 ohms, 100 ohms, 1K, 10K and 100K.

### RECIPROCAL LICENSING, HB/G

We are informed by the Post Office—oh, well, the Ministry of Posts & Telecommunications—that henceforth fixed, portable and mobile short-period licences will be issued to British visitors to Switzerland. Application forms can be obtained from: The Director-General, Direction Generale des Postes Telegraphes, Berne, Switzerland. Applications should reach the Swiss authorities at least one month before the licence is required, and be accompanied by a photostat copy of the applicant's U.K. licence. The issue fee is 35 Swiss francs, and callsigns will be in the HB9X-- series. So, if you're going over for the season's winter sports, you know what to do.

### HOLD YOUR BREATH—AND COUNT!

The new address for our Licensing Dept. is:

Ministry of Posts & Telecommunications,  
Telecommunications & Radio Regulatory Dept.  
Amateur Radio Section,  
Waterloo Bridge House,  
Waterloo Road,  
London, S.E.1.  
(Tel: 01-928 7878)

Oh, well. all this stream-lining must make for progress.

## Report — Twelfth

### Jamboree-On-The-Air

October 18-19, 1969

**O**RIGINATED and inspired by Leslie Mitchell, G3BHK, the annual J-O-T-A has become an Amateur Radio event of international significance—not only for Scouts but for large numbers of AT-station operators over the world. For it is largely by the co-operation of local amateurs that this radio-wise Jamboree is possible at all—the reason being that comparatively few Scout groups have Amateur Radio facilities of their own.

Judging by the reports we have already had, this year's J-O-T-A was again an unqualified success. There were stations on for it in all parts of the world. It is not possible in the space we have available to cover all these reports in detail. However, all that we received in time are mentioned, either in the text or the picture captions.

**GB3RSS:** Represented the Scouts of the Brighouse District, West Yorkshire, where G3JWN is the local district commissioner and the regional organiser for the Jamboree. Running all bands 10-160m., with four sets of K.W. equipment, contacts made totalled 512, of which 162 were with Scout stations—117 in the U.K. and 45 overseas, including TF2WKI/P (Lava Scouts), ZC4BP (Famagusta Scouts on Mt. Olympus) and VK5GQ

(Adelaide Scouts). The G3RSS group has taken part in J-O-T-A ever since its inception in 1957. They have 12 operators available, of whom six are directly connected with the Scout movement.

**G3XNM:** This was the 1st Barnston (Wirral, Ches.) Scout Amateur Radio Club, who had 24 Scout/Guide visitors to the station over the weekend. Of the four operators, three were Scouts. Using only 2-10-80m., with a Tiger Tx and AR88LF Rx, they worked 17 U.K. Scout stations, their outstanding DX contact being with VE3FJJ (4th Picton Scouts, Ontario).

**G3YEP/A:** Operated for the Portishead (North Somerset) Venture Scouts, running CW/Phone on 40-80m. and CW on 20m., they logged 60 contacts, 12 with Scout stations in the U.K. and Eire. One of their more amusing QSO's was with the telephone-answering machine at a nearby dentist's—who found miles of his tape used up, recording all the G3YEP/A transmissions!

**GB3HBS:** Activated as usual by Geoff Barnes, G3AOS, assisted by G3WWX. They kept at it for 40 hours out the 48, from the local Scout Hq., with a large attendance of Scouts, Cubs, Guides, parents and friends. Running

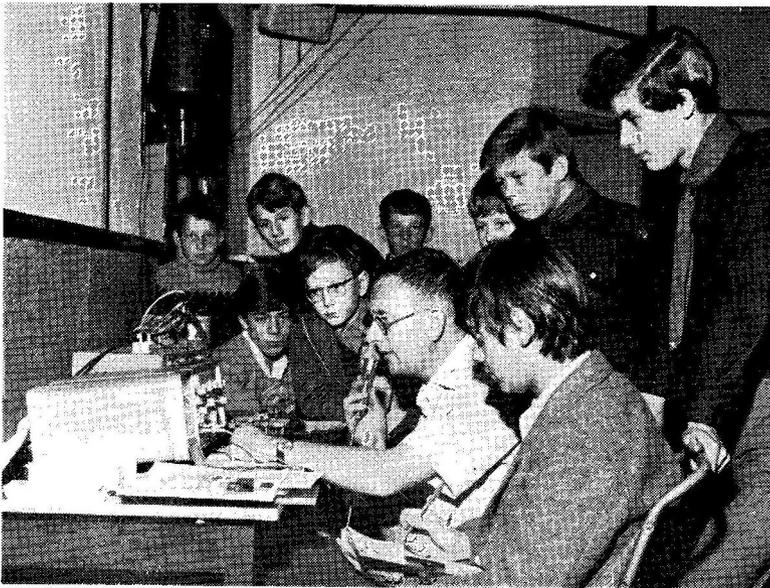
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The 7th Tipton Scout Troop (W. Bromwich, Staffs.) had G3UGE to operate for them over the J-O-T-A weekend. The 15 Scouts brought all their camping equipment, and they and the station were accommodated on the premises of Lee Howl & Co., Ltd. Scout stations were worked throughout the U.K., Europe and America. The boys joined wholeheartedly in the operation and the event was regarded as a great success.

Picture courtesy "West Bromwich News."

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A lot of people seeing this would never guess that the operator is none other than Arnold Mynett, G3HBW (so well known in the VHF field) doing his stint on the Radio Society of Harrow's HF-band station GB3RSH, for the 1st/3rd Ruislip Scout Group, from their own Hq. Though nothing exotic in the way of DX was worked, many interesting contacts were made.

full power on 10-15-20m., with a KW-2000A for 80m. only, some 280 contacts were made in 60 countries, including many Scout stations at home and overseas.

**OI3SUF:** This is the special callsign of the Scout Union of Finland, and was operated from Samoilija, in the OH3 area. Those in charge were OH3NY and OH3QA, running all bands 10-80m., CW and SSB. They logged no less than 550 contacts in all continents and some 60 countries—and, in case it may be said that “this was just getting DX under an exotic callsign,” they worked 27 J-O-T-A entrants in the U.K., and had 38 more with Jamboree stations in DX locations. (Congratulations on an excellent result—and not least for getting the report in on time!—*Editor.*)

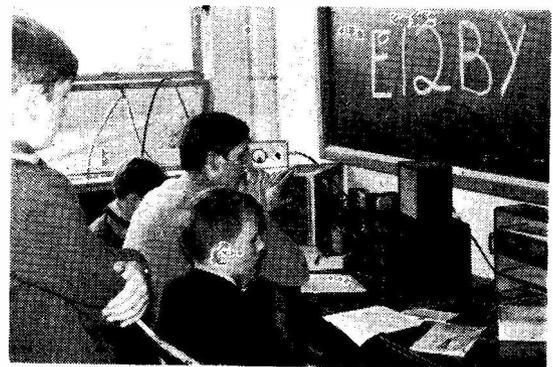
**EI2BY:** Operated by EI's '5A, '7AF, '7BV and '7BZ for the 81st Terenure College Scouts, they used all bands 10-80m., AM/CW/SSB, and made 123 contacts, of which 62 were with Scout stations. Their most interesting DX was ZS5KS (6th Pietermaritzburg Scouts). Their equipment included K.W. Tx and Rx items, a Sphinx, a home-built CW transmitter, three HRO's, a Hammarlund HQ-160, and a variety of antennae, two of them being ZL-Specials—probably the most gainy mono-bander ever devised.

**G3UQA:** Representing 2nd Don and Dearn Scout Group, operated for the full 48 hours with equipment provided by licensed members of Mexborough Tech. Coll. Amateur Radio Society, they made 195 contacts throughout Europe, Asia, Africa, the States and USSR. As well as a wide variety of Tx/Rx equipment covering all bands down to 2m. and 70 cm., they had a balloon-supported aerial raised to 300ft., complete with neon warning and flashing lights—which resulted in a Police call about “a UFO having been seen over the town”! The balloons were lost twice, but the aerial was put up again each time using a cluster of party-balloons—the extra-

ordinary things that do happen on these occasions! Part of the entertainment for the Scouts, who were accommodated in the College for the weekend, was A/TV on 70 cm. In turn, they provided help with aerial rigging (!), visitor control, QSL design and printing, and excellent food for the whole period. Well, it seems to have been quite a party!

**G4BP/A:** Arranged by the Scarborough Amateur Radio Society for the 1st Scarborough Scouts in their Hq., J-O-T-A stations were worked all over Europe and the U.K., also the Iceland group under TF2WKI/P. Bands operated were 15-20-80m., using K.W. equipment into dipoles. A noteworthy QSO for them was with VE3DLC in Scarborough, Ontario.

**GB3BES:** For Bradford East Scouts, over the 48-hour period, on 10-80m., using two HW-100's and an SB-200,



EI2BY, Dublin, Eire, was on for J-O-T-A, operating from the Terenure Coll. A.R.S. station. They had 62 Scout contacts, in the U.S., Canada and South Africa.

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G3UQA, Mexborough (Yorks.) entertained the 2nd Don & Dearne Scout Group for J-O-T-A and the station was on the air for the full 48 hours—this was another very successful operation (see report).

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Station GB3RSS was on the air for J-O-T-A, the Scout group represented being the Brighouse, W. Yorks.—see report, p.637. They have a fine array of K.W. gear for G3RSS, originally the station of the 1st Rastrick Senior Scouts.

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into an 8KW trap dipole and a 100ft. end-on wire. Operators were G3WGO, G3WIX, G3XUE and G3YFP. More than fifty J-O-T-A Scout/Guide stations were worked, including SKØXAB, several LA Scout groups, DJ6CB/P (Scout camp near Hanover), I1LAG (15th Milan Scouts) and OHØNI (Aaland Sea Scouts). Contacts totalled 165, in 30 countries outside the U.K. They had 56 Scout and Guide visitors to the station, and everyone enjoyed themselves thoroughly.

**GB3BPH:** This is, of course, the Hq. station of the Scout Movement in the U.K., operated from spacious accommodation in London, S.W.7. They had three sets of equipment going, covering 2-10-15-20-40-80m., and operation was entirely by Scouts holding amateur licences, with G3FXC as station organiser. For them, a QSO of special interest was with 4UIITU, the World

Scout Bureau station in Geneva, asking that GB3BPH should open the event officially. Over the 48 hours, 116 Scout stations were worked in 21 countries—including VU2MAH on 10 metres, due to the urging of VU2RES, who happened to be visiting at the time. Another visitor was Princess Alexandra, who popped in for a few minutes and (as all our Royals do) asked some penetrating questions about J-O-T-A, and what was going on. The GB3BPH summing up is: "A very exciting, tiring but enjoyable weekend." *Jolly good!*

**GB3CUS:** Laid on by Carlisle amateurs, from The Vicarage, Upperby, for the 8th Carlisle Scouts, three complete stations were installed, with appropriate antennae. This being the first time that a J-O-T-A entry had been undertaken, very properly they had a serious dummy run before the start—when everything worked



One of the Scottish stations on for the Jamboree was GM3POK/A (West Lothian), operated for the 21st West Lothian Scout Troop. They ran a Swan 350, dipoles for 40-80m., and a 2-ele beam on 15 metres. Contacts were made all round the world during the J-O-T-A weekend.

perfectly. Going into action on the Saturday, practically everything went wrong! About eight hours of hard work, heavy breathing and bad language had to be used

up to discover an intermittent short in one of the (unbelievably large) number of coax feeder leads—and then their TA-33Jr. beam refused to load, behaving like a bedstead that couldn't be brought to resonance. However, in the end some 150 QSO's were made—and much experience gained, which (says the report) "will prove invaluable for the next time." That's the spirit! The Carlisle boys were able to muster 10 operators, sustained by Scout Leader Bob Burrows and his wife, who provided ample refreshment and kind words to help the chaps on while sorting out their technical annoyances.

A J-O-T-A station was also put on by the Cornish Radio Amateur Club, operating from Boscawen Park, Truro—but no callsign is given! However, it seems that they worked 160 stations in 20 countries, sixty of them being J-O-T-A, on the 15-20-40-80-160m. bands, and about 100 visitors were entertained.

\* \* \*

Altogether, a most successful Twelfth Jamboree-on-the-Air, which will be very pleasing to G3BHK, the U.K. organiser. And from this desk, we would like to thank all who sent in reports soon enough to catch this feature. Of course, all pictures used to illustrate it have been paid for in the usual way.

Station GB3KSG was put on by the Northern Heights A.R.S. for the 3rd/11th Keighley Scout Group, on the air from Cullingworth, a good location. They worked all bands 10-160m., also having G8BM's 2m. equipment at the other end of the marquee in which they were housed. Sixteen Scout stations were raised, including ZS5KS. The number of local Scouts always at the station varied from six to 20.

*Picture courtesy "Keighley News,"*



*Other reports and pictures of interest in the context of the Twelfth Jamboree-on-the-Air have been received since the foregoing was written. They will be used in the "Clubs" section as opportunity offers.*

# THE MONTH WITH THE CLUBS

By "Club Secretary"

(Deadline for February issue: January 9)

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

THIS is being written just as the turmoil of MCC had died down for another year. So far as one can judge at this early stage, it was again a first-class Contest, producing as high a level of activity as ever, under reasonably good GDX conditions, with Top Band noticeably free, during both sessions, of all but legitimate noises—meaning that there was not the heavy "sharsh" background that often afflicts 160 metres, to drown out altogether the weaker signals. At any rate, we were hearing them about four layers down!

The full report on this year's MCC will appear in the January issue—due out on **January 2**, be it noted. Hence, there will be no regular "Month with The Clubs" in that issue, this space being given over to the MCC Report, as in previous years.

Hon. secretaries and others concerned should note that, as usual at this time of year, the "Clubs" feature will be resumed in the normal way in the February issue of SHORT WAVE MAGAZINE, publishing on January 30.

It has now to be said that small R.A.E. classes are officially declared non-economic (twelve or fewer students) simply because the money for running them has not been forthcoming from Central Government. Thus, classes such as this are having to be closed down in order to keep higher-level courses going on the reduced money, and all sorts of unsporting "fiddles" have to be taken at local colleges in order to keep things on the go. One knows of a case where a Practical Electronics course is even being run by amalgamating it—on paper—with a Practical Machine-Shop course!

What it boils down to is simply that the present policy at Government level of reducing the amount spent on higher education is hitting at Amateur Radio right under the belt. Ours is the *only* hobby wherein the licensed practitioner in the arts *has* to pass a test, and so it is more or less the only one which is being hit *directly*. Thus, it behoves every Club to keep in constant

touch with the local situation, and to find ways-and-means of bringing in the potential R.A.E. candidates who are *not* members, so that enough support can be obtained at least to run a local class under Club if not Education Authority auspices.

## New Clubs

Three come into this classification this month, the first one being **Barnstaple**, where an inaugural meeting is to be held on Tuesday, December 9, starting at 7.30, the venue being Crinnis, High Wall, Sticklepath, Barnstaple, North Devon; anyone with an interest in radio will be most welcome, whether licensed amateur or SWL.

Consideration is being given to starting a group in the **Newcastle-upon-Tyne** area, and indications of potential support are wanted by the sponsors so that they can make arrangements for a first get-together. For details, contact Charles Morgan, at the address shown in our Secretaries Panel, on p.643.

The **Shirehampton**, Bristol, area project is rather more advanced, in that there was a first meeting, which went off well, and they are, at the time of writing, assembling on Friday evenings, between 7.30 and 9.45, at Twyford House, Shirehampton. It is pleasing to notice that it is a declared objective of the group to bring SWL members forward to the point of getting a "ticket."

In the category of "new Clubs" should come one that has changed its name: The erstwhile Wolverton & District Radio Club is now known as the **North Buckinghamshire** Amateur Radio Society, and has already made a start as such. Membership stands at about 35, and anyone in the area interested in radio or electronics is invited to get in touch with G8CXT (*see* Panel). Meetings are held fortnightly, and the aim is to cover all topics of interest to radio amateurs.

## National and International

Top of the pile here is Radio Society of **East Africa**, whose 5Z4JH edits one of the best newsletters to come our way, with a complete absence of pretentiousness, which is a pleasant change after some of the efforts which crop up each month. As he is moving in the New Year, the lads are looking for a new editor—a pity. However, on the domestic front, it is gathered that a shack in Nairobi is on the cards, and various other goings-on are being considered.

The **Royal Navy** crowd held their AGM on the

### NEXT "MONTH WITH THE CLUBS"

Will all secretaries and scribes please note that the next appearance of this feature will be in our February issue, due out on January 30. The forthcoming issue (January, publishing on January 2) will carry the MCC Report and Results.

Saturday of the Show, and a right lively affair it was, if the record in the current issue of the *Newsletter* is anything to go by! A very good sign, this, and a very good group as well—one of the few that seems to be able to produce good committee members, secretaries, and other officers “out of a hat.”

R.A.I.B.C. have their *Radial* and it is pleasing to note that so many of the members were able to get up to the Show and “make their number” at the stand—which just proves how many licensed amateurs are prepared to help disabled and blind members of the fraternity to enjoy Amateur Radio to the full. Which is not to say they could not do with more supporters—they most definitely could—nor could they achieve half as much without the devoted work of the hon. sec., G3LWY who deserves a medal.

The **British Railways** committee seem to be mildly “in the wars” with the membership, to judge by the tenor of the current *Newsletter*, albeit one has also to add a rider that a bit of controversy is all to the good, and anyway the committee have been labouring for long now under considerable difficulties. Let us hope everything turns out for the best.

**Royal Signals** are obviously on a recruiting drive, with the hon. sec. putting out a good plug on this topic. Members come in three sorts—Ordinary, covering the Signals Corps folk, serving, retired and T & AVR; then Associate Membership, which covers the rest of the Army, serving or retired, civilians serving with a Signals Unit, members of a Commonwealth Signals Unit, and various other cases; and finally there is the Affiliated Society, which covers those clubs which have the basic qualification. There is *Mercury* to read every so often, various supplies at competitive rates, nets which are quite world-wide, with the members all keeping in touch—and there is enough in all this to hold something like 600 members.

Any SWL with keen ears who can spare the time to report on the **Civil Service Club** station, G3CSR, on 3625 kc from 1830 clock, will be doing the gang a good turn, as this net is their way of keeping in touch with the “country” members. Fridays from December 5, all being well, for this net. The big event of the year is on December 16, and is the Christmas dinner.

Then we have **A.R.M.S.** (Amateur Radio Mobile Society) working hard on the /M theme—and we notice in their current *Mobile News* a strong suggestion that it is high time the whole *raison d’être* of Mobile Rallies (their objectives, organisation and usefulness) should have some re-thinking. Well, it is for A.R.M.S. to do it, and come out with the new ideas.

### Wales and The West

**University College, Swansea** normally get together every other week, but only one date is down for December, due to the Christmas vacation; this is on the 9th, when they would welcome visitors to their Christmas Social, at the Coffee Lounge, College House, University College of Swansea, Singleton Park. In particular, they would like to entertain any organised groups in South Wales. Anyone thinking of taking them up is asked to contact GW3TSH, at the address in the Panel, preferably by December 5.

It is interesting to note that two letters from Bristol bear the same signature—one we have already mentioned under “New Clubs” and now a reference to **Bristol ARC**, for whom the same keen G3SXY is back in the saddle as Secretary. Here the lads get together every Monday evening and Thursday evening at 41 Ducie Road, except for the one Monday in each month when they would otherwise clash with the local RSGB group.

At **Reading**, the lads have had quite a stimulating autumn programme from all accounts, and so will be ready on December 2 for the AGM, which will be followed up by a Grand Wine-and-Pickle Party on December 16. Details from the hon. sec.—see Panel, opposite.

County Control, Civil Defence Hq., Gaol Street, is the base for the **Hereford** crew, who have recently changed over, by popular request, to a scheme of weekly meetings. As to the programme, it is understood that there have been various minor problems here, which will, no doubt, have been ironed out by the time this sees print.

For the **Cornish** group, the territory to be covered is, to express things mildly, vast—indeed there are some who say Cornwall should be independent!—and so the group has quite a collection of offshoots as well as a “main” do each month. The main affair for December is on the 4th, at the **SWEB Clubroom**, Poole, Camborne, with Martin Harvey doing a potted talk on Tape-heads, followed, after a break for refreshment, by a talk and film on **SWEB Engineering** problems, with G3OCB and G3XFL to make it authentic. Newquay have December 10 and 24 at **Treviglas School**, Newquay, albeit we do not know what is in mind for those two dates. There are also VHF and Falmouth sections. Further details from G3UCQ, as Panel.

Bulk buying to reduce costs has been a feature of the **Chippenham Club** project, a 70 mc FET converter. Tuesday evenings it is again during December, but with the exception that on December 23 they have no booking for obvious reasons; venue is the Boys High School, Hardenhuish Lane.

**Swindon** report a change of Secretary, and various things seem to be being set in motion to step up the pace a little. They have bookings for alternate Wednesdays at **Penhill Evening Centre**, Alton Close, Penhill, Swindon.

Not long ago we mentioned **Swansea Telephone Area** as a new group. Seems they have made quite an impact on things, from their Hq. at the Telephone Engineering Centre, Gors Road, Townhill, Swansea; they are *not* a “closed club,” but welcome anyone. They have had Tuesdays, but from December 5 change over to Friday evenings, plus a Sunday-morning session for the keen types.

Another change of Secretary is noted, this time at **Taunton**, where they have just had their first AGM. The main interests here are in equipping their caravan, taking part with other bodies in a County Emergency Voluntary Organisation, and running R.A.E. classes—although your scribe is prepared to bet his best boots this is by no means all they do!

December 13 is the evening to set aside for **Torbay’s** meeting—the Annual Christmas Event, which will take place at Hq., Bath Lane, rear of 94 Belgrave Road,

Torquay; for details contact the Secretary.

Plymouth's *QUA* carries a lot of detail on recent meetings, technical articles, and whatever, but, alas, nothing on the December doings, nor any indication of an Hq. address. So—we have to refer you to the hon. sec., address as in Panel.

No such error on the part of *Saltash*, where December 12 is shown for a Christmas Draw, followed by a talk by G3VVP on Semiconductors, at Burraton Toc H Hall. And that is it for the month; operations start again after the break, on January 9 at the same place.

YMCA, St. David's Hill, Exeter is the place to look for if you want to meet the Exeter crowd on December 2, and listen to Ernie Hayman, G3ABU, talking on and demonstrating Video Tape-Recording. This group had a recent special-event activity when they put GB3ESE on at a Scouts' Exhibition in Exeter, raising 280 stations

in 32 countries—good!

### Midlands, North and Scotland

Starting here with the Scottish ones, we have a note from the Ardeer Secretary, advising that this is the successor to the old Auchenharvie gang—actually, we already know of this change, and the reasoning that went into it. When it happened the then hon. sec. sent in a write-up on the Ardeer ICI Sports and Social Club and mentioned some of the magnificent facilities they now enjoy. It is pleasant to be able to report the change has added to the enjoyment of the members of a thriving and healthy club.

Justifiably from all accounts, Lothians are resting on their laurels a trifle after the recent VHF Convention in Edinburgh; however, they still have December 11 booked at the YMCA, St. Andrews Street, Edinburgh,

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

- ARDEER: J. F. McCreight, GM3DJS, 40 Auchenharvie Street, Saltcoats, Ayrshire.  
 A.R.M.S.: N. A. S. Fitch, G3FPK, 40 Eskdale Gardens, Purley, Surrey, CR2-1EZ.  
 BARNSTAPLE: H. G. Hughes, G4CG, Crinnis, High Wall, Sticklepath, Barnstaple, Devon.  
 BISHOPS STORTFORD: A. Stanley, G3WUR, 43 Havers Lane, Bishops Stortford (S7251), Herts.  
 BRADFORD: R. J. Cockerham, G3WTF, 56 Brantwood Road, Bradford 9, Yorks.  
 BRISTOL: E. J. Davies, G35XY, 72 North View, Westbury Park, Bristol (33284), BS6-7PZ.  
 BRISTOL (Shirehampton): R. Jones, G3YIQ, 84 Springfield Avenue, Shirehampton, Bristol.  
 BRITISH RAILWAYS: H. A. J. Gray, Eleven, Swanton Drive, East Dereham, Norfolk.  
 CHESTERFIELD: R. Nelson, 52 Hucknall Avenue, Chesterfield (78330), Derbys.  
 CHILTERN: R. A. Fowler, G3IQF, 85 Oxford Road, Marlow (6421), Bucks.  
 CHIPPENHAM: P. Strand, G3UTO, 8 Brookwell Close, Chippenham (3723), Wilts.  
 CIVIL SERVICE: J. Luxton, 8 Twyford Crescent, West Acton, London, W.3.  
 COLCHESTER: R. C. Greenleaf, G3VAG, 27 Ernest Road, Wivenhoe, Essex.  
 CORNISH: J. Farrar, G3UCQ, Elm Cottage, Ventonleague, Hayle, Cornwall.  
 COVENTRY: C. Jaynes, 20 Belgrave Road, Wyken, Coventry VC2-5AY.  
 CRAY VALLEY: D. Buckley, G3VLX, 234 Halfway Street, Sidcup, Kent. (01-850 6945)  
 CRYSTAL PALACE: G. M. C. Stone, G3FZL, 11 Liphook Crescent, London, S.E.23. (01-699 6940.)  
 DERBY (Nunfield House): N. Gregory, G3LCV, 21 Back Lane, Chellaston (3516), Derby.  
 DORKING: R. Greenwood, G3LBA, 8 Deacon Close, Downside, Cobham, Surrey.  
 EAST WORCS.: R. J. Mutton, G3EVT, Summerhayes, Mill Lane, Alcester (2041), Worcs.  
 ECHOLFORD: M. Clift, G3UNV, 45 Fordbridge Road, Ashford (59628), Middx.  
 EDGWARE: E. H. Godfrey, G3GC, 15 Oxenpark Avenue, Preston Road, Wembley, Middx.  
 EXETER: G. Wheatcroft, 27 Lower Wear Road, Countess Wear, Exeter.  
 FAREHAM: J. A. Rampton, G3VFI, 23 Oxford Close, Fareham, Hants.  
 GUILDFORD: A. G. Coker, G3WHM, 48 Charlock Way, Burpham, Guildford, Surrey.  
 HEREFORD: S. Jesson, 181 Kings Acre Road, Hereford (3237).  
 IPSWICH: D. W. Thomas, G8BVE, 9 Burlington Road, Ipswich.  
 KINGSTON: M. Diprose, 36 Tiverton Way, Chessington, Surrey.  
 LINCOLN: G. O'Connor, 61 Steep Hill, Lincoln (24113).  
 LOTHIAN: W. Marshall, GM8BPL, 15 Craigleith Hill, Edinburgh EH4-2EF.  
 MELTON MOWBRAY: R. Winters, G3NVK, 32 Redwood Avenue, Melton Mowbray (3369), Leics.  
 MIDLAND: H. L. Bate, G8AMD, 88 Darnick Road, Sutton Coldfield.  
 MID-SUSSEX: E. J. Letts, G3RXJ, 87 Meadow Lane, Burgess Hill (3552), Sussex.  
 NEWCASTLE-ON-TYNE: C. J. A. Morgan, 4 Park Villas, The Green, Wallsend, Northumberland.  
 NORTH BUCKINGHAMSHIRE: D. Coxhill, G8CXT, 2 Blenheim Avenue, Stony Stratford, Wolverton, Bucks.  
 NORTHERN HEIGHTS: A. Robinson, G3MDW, Candy Cabin, Ogden, Halifax (44329).  
 NORTH LEEDS: G. Brown, 2 Fearnville Close, Dib Lane, Leeds, 8.  
 NORTH KENT: A. Watt, G3WZJ, 67 Glenhurst Avenue, Bexley.  
 NUNEATON: J. Roughton, 42 Severn Road, Bulkington, nr. Nuneaton, Warwickshire.  
 PETERBOROUGH: D. Byrne, G3KPO, Jersey House, Eye (351), Peterborough.  
 PLYMOUTH: J. H. Peters, G3YDU, Treetops, 43 Holtwood Road, Plymouth (77878).  
 PRESTON: G. Windsor, 26 St. Gregory's Road, Preston (55913), Lancs. PR1-6YB.  
 READING: G. R. J. Addis, G3TEB, 13 Keats Close, Woodley, Reading.  
 RADIO SOCIETY OF EAST AFRICA: Hon. Sec., P.O. Box 5681, Nairobi, Kenya.  
 R.A.I.B.C.: Mrs. F. Woolley, G3LWY, 331 Wigan Lane, Wigan.  
 ROYAL NAVY: C/RS K. Randall, G3RFH, H.M.S. Mercury, Leydene, Petersfield, Hants.  
 ROYAL SIGNALS: W01 J. Cooper, G3DPS, 15 Valley Road, Blandford Camp, Blandford Forum, Dorset.  
 SALOP: K. S. Linney, G3UDA, Sunny Bank, Oak Lane, Bicton Heath, Shrewsbury (51733), Shropshire.  
 SALTASH: J. A. Ennis, G3XWA, 19 Coombe Road, Saltash.  
 SILVERTHORN: R. J. Lock, 9 Forest Road, Woodford Green, Essex. (01-505 2336.)  
 SOLIHULL: J. Lester, G3VXV, 173 Damson Lane, Solihull. (021-705 3060.)  
 SPEN VALLEY: N. Pride, G8BSC, 100 Raikes Lane, Birstall, nr. Leeds. (Batley 3925.)  
 SURREY: R. Morrison, G3KGA, 33 Sefton Road, Croydon CR0-7HS. (01-654 5987.)  
 SWANSEA (Telephone Area): M. D. Connor, 54 Talley Road, Swansea SA5-7EU.  
 SWANSEA (University College): R. Wilcox, GW3TSH, Room 520, Neuaad Gilbertson, University College, Singleton Park, Swansea SA2-8PS.  
 SWINDON: D. R. Durham, G3SIR, 3 Dobbin Close, Covingham, Swindon, Wilts.  
 TAUNTON: P. Jones, G3WPJ, 20 Chiltern Street, Bridgwater, Somerset.  
 THORNTON CLEVELYS: F. Hill, G3YWH, 11 Goodwood Avenue, Blackpool FY2-OTT, Lancs.  
 TORBAY: Mrs. G. L. Western, G3NQD, 110 Truro Avenue, Heli, Torquay.  
 VERULAM: W. C. Dennis, G3NCK, 129 Colney Heath Lane, St. Albans, Herts.  
 WIMBLEDON: W. Hardcastle, G3XQX, 13 Carwell Street, London, S.W.17.  
 WIRRAL (DX Association): J. A. Share, G3OKA, Trelawney, 21 Curlender Close, Bidston, Birkenhead, Cheshire, L41-7BN.  
 WORTHING: P. J. Robinson, G6KFH/T, 46 Hillview Road, Worthing, Sussex.

for GM3OWU to give a talk on Hi-Fi.

**Lincoln** have holed up in No. 2 Guardroom, Sobraon Barracks, Breedon Drive, off Burton Road, Lincoln, where they are ready to welcome any visitors—not, it is to be hoped, by turning out the guard! Every Tuesday it is, from 7.30. Incidentally, a change to the name and address of Secretary is noted in our Panel.

**Midland's** president, G3KPT, advises us of yet another new hon. sec.—see Panel. And, at that, we can set him straight off to work, as we do not, at the time of writing, have the essential information on what goes on in December at the Midland Institute.

A limited-number visit forms the **Melton Mowbray** December offering, a Shack Visit to G3VDN, on December 19. If you are interested in joining this, it would be advisable to contact G3NVK—see Panel—immediately.

The publicity secretary for **Nuneaton** lads has come up with rather a good idea for making sure all the relevant information goes out to enquirers: G2HAO has had prepared some duplicated sheets with the Club name, location and officers at the masthead, followed by spaces so that he can insert the essential details of the current month's meetings. This ensures that whoever gets a copy has not only the programme, but also the other data to enable him to make contact. From the current one, we note a change of venue, to The Grange, Caldecote, Nuneaton, where December 4 is set aside for demonstration of members' home-brew gear, and December 18 for operating the Club call, G3XJU, for which they have excellent aerial and shack facilities.

Not far away is **Redditch** where the East Worcs. crowd use the Old People's centre in Park Road. On December 11, R. Noland, G3KWK is to give a talk on "Electronic Design by Computer."

**Peterborough** next, where the lads have just about recovered from the success of their Mobile Rally—so they will be in their "Rose and Crown" clubroom on December 5 for a Junk Sale.

At **Northern Heights** they are well aware of what goes on in the rest of the world, at least as far as Top Band goes with their ever-popular W1BB tape-and-slide lecture; but on December 3 they will be seeing the U.S. picture from another point of view when G3MDW will be showing some of the slides from his trip over there earlier on this year; this is to be followed on the 10th by the annual dinner, and on the 17th by a ragchew-evening. Venue is the Sportsman Inn, Ogden, Halifax.

**Preston** (Lancs.) have their meetings on the second and fourth Thursdays each month at the "Windsor Castle," Preston. Beginners are specially welcome here. They have recently run a most successful Mobile Rally, their second in this context. G3LWY was the official opener—thus, they did honour to a lady who for years has worked hard for R.A.I.B.C.

No. 10 Southbrook Terrace, Great Horton Road is the venue for the **Bradford** meetings, according to their letter-heading; and we gather they have December 2 down for G3TDZ, who will be talking about Amateur Transistor Circuits. December 16 sees them indulging in the pleasures of a Film Show and Social Evening.

**Solihull** have a get-together on December 16, at the Old Manor House, 126 High Street, Solihull, for that most popular event, a Junk Sale.

The weekly sessions for **Coventry** are on the 5th, 12th, and 19th December; for the 26th, says their hon. sec., they wish themselves a Merry Christmas and *no* meeting! The first of these dates is devoted to a demonstration of Test Equipment, the second to a session on the Club transmitter, and the third is the red-letter one—the annual dinner.

**Chesterfield** write in to remind us of their existence, saying they have not been in touch for some time—an understatement, this, as the writer does not recall hearing from them in the years since *he* became "Club Secretary." For all that, they are going well, and have recently changed their Hq. to Hunloke Adult Education Centre, Church Street, Chesterfield, where they have facilities for a shack, Morse classes and constructional work. Visitors are cordially welcomed on any Wednesdays; the usual pattern of activity is a formal on second and fourth ones, construction and Morse on the others.

Again a change of Secretary—this time **Salop**, now losing G3WNI, who has done the job so well for years, on his departure to Basingstoke; G3UDA takes over the chore and his address appears in the Panel.

**North Leeds** have not been going very long, but are in full swing every Tuesday evening in Hq. at an Amateur Radio shop in Leeds. For details, contact the secretary—see Panel, p.643.

Thursday evenings at Heckmondwike Grammar School is the story at **Spen Valley**, although the letter we have on file unfortunately does not give the December programmes; under the circumstances a call to G8BSC seems indicated—see Panel.

This is, of course, the ideal season for annual dinners, and Wirral DX Association are only one of several who are having such an event this month—but your scribe envies them their spot at the "River Room" on Liverpool's Pier Head—ideal if the speeches are less than perfect, to be able to find relief in merely looking out of a window. December 10 is the date for this, with the AGM to follow in January at chez-G3OKA.

Since your scribe has been doing this piece each month, he has seen two groups active in the **Blackpool** district, and now we hear of the formation of yet another—this one was formed several months ago, under the title **Thornton Clevelys** Amateur Radio Society, and has Hq. in the St. John Ambulance Society Hall, Thornton, where they are to be found every other Wednesday—December 10 is down, it is noted, for a junk sale.

An introduction to the oscilloscope is the theme on December 5 for **Nunsfield House, Derby**, the talk being by G3OZ, the chairman. A retrospect on the last year of activity in film and slide forms the matter of the evening on December 12, and on the 19th there is a lecture, technical in content but subject not yet finalised. On Boxing Day they have an Open Evening so as to let all the members get over the Christmas excess of food and drink!

#### London and Southern England

**Bishops Stortford** have their communal being in the British Legion Club at the top of Windhill—the road leading out of the centre of the town towards Ware. Here they have adequate parking space, and a room up aloft, next door to "Radio Stortford" which supplies music and commentaries to local hospitals over landline.



General view of the crowd round the—well, junk stall—on the occasion of the Preston Amateur Radio Society's Mobile Rally, back in August. For them, it was a very successful day with a large attendance.

Last month they heard the W1BB Mark II tape-and-slide talk, on Top Band DX, and on December 15, G3VTR will come along and discuss the use of the oscilloscope in Amateur Radio.

Chiltern seem to be, to judge from what can be gleaned from their *Newsletter*, on the rise; they still have the last Thursday each month booked up at the British Legion, High Wycombe—which puts them smack on to Christmas Day! This is obviously wrong and so we would suggest a contact with G3IQF—see Panel, or drop in on the nets: Sunday at 1200 clock, 1945 kc, or Wednesday evenings, 2000 clock, around 1920 kc.

At Wimbledon, they have been keeping fairly quiet of late—but they are, we are assured, still going well, and on December 19 will be foregathering at the St. John Ambulance Hall, 124 Kingston Road, South Wimbledon.

A day later than this, on December 20, the Crystal Palace lads will be having a Junk Sale. Again, here is a Club that does not shout much—but if it can attract six new members in one evening there can't be a lot wrong! For details of the venue, contact G3FZL at the address in the Panel.

The Surrey group get together at the "Swan and Sugarloaf" in South Croydon, although the *Newsletter* which is to hand does not give details of date or programme for December; so we have to refer enquiries to the hon. sec., G3KGA.

Guildford have one of their normal bookings on Boxing Day, which therefore suffers cancellation; the other date is December 12, at the Model Engineering Hq., Stoke Park, Guildford, when visitors will be welcome; however, at the time of writing the programme had not been finalised, pending the result of enquiries which were still in progress.

It is some time since last we heard from Kingston but that is no indication of inactivity, we are assured.

A surplus-equipment sale is down for the December session, on the 10th, further details of which are obtainable from the hon. secretary.

Over at North Kent the hon. sec. seems a little cross because your conductor commented in September that it was a pity that the venue was not mentioned in their report. It must be emphasised that with something like fifty or more Clubs reporting each month, it is not possible to remember all the details of all the Hq. locations—there are about *three hundred* club secretaries in the file! Nor for that matter can we be expected to retain programme details for several months ahead—there just is not the room in the files! Please, therefore, all honorary secretaries, give all the essential data *each and every time* you report and stress any changes since the last time, so that at this end the news is as accurate and up-to-date as we can make it. To revert to North Kent, where they have the second and fourth Thursdays in each month booked at the Congregational Church Hall, adjacent to the Clock Tower, Bexleyheath, December 11 is set aside for G8CKH to talk about the fascination of DX/TV. The other December date falls on Christmas Day, which means it goes by the board for this once.

Echelford have ever put out one of the best *Newsletters* to be seen here, albeit for some time the weakness has been the method of reproduction. Now, they have changed that, and it really is first-class. The

#### NEXT "MONTH WITH THE CLUBS"

Will all secretaries and scribes please note that the next appearance of this feature will be in our February issue, due out on January 30. The forthcoming issue (January, publishing on January 2) will carry the MCC Report and Results.

chaps meet at the Hall, St. Martins Court, Kingston Crescent, Ashford, Middx. on December 8 for a Natter Nite, sub-titled "What I Want for Christmas . . ." December 22, being so near to the holiday, is moved to the Links Hotel, where they are to have what they call a "Highball QSO"—and we don't have to guess what that means!

**Colchester** next; they have a weekly (Wednesday) booking of Room 40 at the North-East Essex Technical in Colchester, although at the time of writing the autumn and winter programme was yet to be settled finally.

Only the 9th and 15th appear in the **Dorking** calendar for December, the former being the usual monthly informal at the "Wheatsheaf," while the latter is at the "Stephen Langton" in Friday Street, for the Christmas dinner.

A change from the date usually arranged for **Verulam**—St. Albans Council want their Chamber again!—puts them on to December 10 for the AGM and film show. The Council Chamber is, not unreasonably, in the Town Hall, which is in St. Peter's Street, St. Albans, which makes it simple to find. Incidentally, it is a fair proposition that Verulam will have a good turnout for this AGM; quite apart from the film show, it is understood the refreshments are of a "seasonable" nature.

**Edgware** have some sort of record to claim for their recent JOTA activity as GB3FEC—they had a complaint of TVI from a householder who did not possess either TV or radio! Last-minute Presents is the theme on December 22—a Junk Sale. This one, as ever, takes place at St. George's Hall, 51 Flower Lane, Mill Hill.

If you are in **Worthing** the place you are looking for is the Rose Wilmot Youth Centre, Littlehampton Road; December 2 should be rather interesting, the topic being Police Communications, and on December 9, the entertainment is, one gathers, of a nature appropriate to the time of year.

**Fareham** have been flogging away at the clearing out of the Club shack, fitting up a console for the station, and, hopefully, will be on the air by the time this issue comes out. Then "normal service will be resumed" on December 9, when G8BLW talks about Colour Television; December 14, when the lads will be on the air; and on the 21st a discussion from which the secretary can make up his plot for the coming year. No meeting on December 28.

All games are at home for **Mid-Sussex** in December; entertaining Brighton Technical College to a Quiz on December 4, and a Film Show on the 18th. Home, in this context, means Marle Place, Leylands Road, Burgess Hill.

A new slate of officers takes over at **Silverthorn**—see Panel—and it is understood they are having a Christmas Party at Hq., Friday Hill House, Simmons Lane, Chingford, E.4, on December 19, so as to make the year go out with a swing. Not surprisingly, they expect a 100% turnout!

**Cray Valley** have December 4 for David Bean, G3TJQ, to talk about Modifying the Pye Reporter, while December 18 will be the usual natter-nite. January 1 is going to be worth going a long way to hear—G2MI talking about his recent trip to Bermuda. All these are at the Congregational Church Hall, Court Road, Eltham, S.E.9.

October 26 saw the last Mobile Rally of the season, which was a joint first venture by **Ipswich** and **Colchester**, which they called, logically enough, the East Anglian Rally. Your scribe had intended to be there himself, but in the event could not make it—though he has heard several glowing reports on the enterprise of the organisers. Now we hear from Ipswich that already they have had requests for space among the trade stands for *next* year—not to mention an enormous attendance, from as far afield as Scarborough and London. A good show all round, by two fine Clubs; Colchester we have already mentioned elsewhere, and it only remains to add that the address of the Ipswich contact is in our Panel, for all the details of venue, programme and so forth.

### Greetings, and Sign-Off

This offering is the last for 1969; hence it remains only to wish all readers, Club members and their hard-working officers a Happy Christmas and a prosperous and successful New Year.

As has already been indicated there will be no "Clubs" feature in the January issue, the space being taken up, as always in January, by the report on MCC and the results. Thus, the next regular deadline is **Friday, January 9** with your news of the activities planned for **February** addressed to "Club Secretary," **SHORT WAVE MAGAZINE, BUCKINGHAM.**

### AMATEUR RADIO FUND—CHESHIRE HOMES

With reference to the note on p.363 of the August issue of **SHORT WAVE MAGAZINE**, we are informed that since then some £165 has been donated. This has enabled receivers to be supplied to Cheshire homes at Llanhennock and Green Hill House, nr. Banbury. Three more Homes were to have been fitted up during October, and at two others demonstrations had been arranged. Two Homes have each a patient very keen to become fully licensed—as this involves a Tx as well, there is an immediate financial problem. In the meantime, the organisers (who are working in an entirely voluntary capacity) have had requests for literature likely to assist aspirants for a licence—we suggest that anyone having a now-unwanted copy of the *Guide to Amateur Radio* or the *Radio Amateur Examination Manual* should send it to the Appeal Organiser.

In all, seven Cheshire Homes have been equipped with amateur-band receivers, entirely from donated funds. In many other cases, the nearest local Amateur Radio Club is being most helpful. A great deal of hard behind-the-scenes work is involved to make this effort a success—and reports from Cheshire Homes already on the air indicate how much it is appreciated.

Donations, and also any unwanted Rx/Tx equipment in reasonable working order—but, *please*, no junk—offered "to await collection," should be sent to: Cheshire Homes Amateur Radio Network Fund, W. M. Clarke, G3VUC, Fillace Park, Horrabridge, Yelverton, Devon. Remittances should be made payable to **CHARN Fund** and (to keep expenses down) receipts will not be issued unless requested.

This appeal has the official approval of the Cheshire Foundation.

# NEW QTH's

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

- G3FME**, J. C. Scott, 39 Russell Road, Lee-on-Solent, Hants. PO13 9HR. (Tel. Lee-on-Solent 79909.) (Re-issue.)
- G3YHM**, R. A. Harvey, 71 Berriedale Drive, Sompting, Lancing, Sussex. (Tel. Lancing 5142.)
- G3YHX**, R. G. Kimpton, 261 Broadway North, Walsall, Staffs. (Tel. Walsall 27719.)
- G3YIK**, J. C. Morgan, 21 Quineys Road, Shotton, Stratford-upon-Avon, Warks.
- G3YKR**, J. Rush, 53 Valley Drive, Brighton, Sussex. BN1 5FD.
- G3YNV**, K. A. Thompson, 120 Woodfield Cottages, Heybridge, Maldon, Essex.
- G3YPP**, M. E. Costelo, 73 Rosslyn Crescent, Luton, Beds.
- G3YRE**, H. A. Scott, Camperdown Farm, Darlingscott, Shipston-on-Stour, Warks.
- G3YRH**, B. Dodds, 1 Croft View, Killingworth, Newcastle-upon-Tyne. NE12 0BT.
- G3YRQ**, I. J. Parkinson, 207 Hurst Street, Leigh, Lancs.
- G3YRX**, I. C. Elston (ex-G8BHN), 59 Exwick Road, Exeter, Devon. (Tel. 0392 75277.)
- G3YSQ**, A. P. Pratt, 7 The Croft, West Hanney, Wantage, Berks.
- G3YSS**, A. Dodsworth, 7 Kendal Rise, Broadstairs, Kent.
- G3YSV**, D. Heaton (ex-G8CHT), 1 Jer Lane, Gt. Horton, Bradford 7, Yorkshire. (Tel. Bradford 71128.)
- G3YTO**, T. M. Roberts, Tinkers Green, Hockens Lane, Polruan-by-Fowey, Cornwall. (Tel. Polruan 271.)
- G3YTS**, R. W. Ferguson, 11 Moor-gate Road, Kippax, Leeds. LS25 7ET.
- G3YTT**, W. R. Taylor, 18 Church Lane, Weddington, Nuneaton, Warks.
- G3YTW**, G. H. Clarke, 117 Bermuda Village, Nuneaton, Warks.
- G3YUA**, B. A. Pickers, B.Sc. (ex-G8CJU), 8 Croftway, Markfield, Leics.
- G3YUN**, J. C. Eastaugh, 13 Dale View, Headley, Epsom, Surrey.
- G3YUV**, G. F. Gray, 5 Church Close, Peterlee, Co. Durham. (Tel. Peterlee 9843.)
- G6AES/T**, C. J. Rees (G3TUX), 17 Colburn Avenue, Hatch End, Pinner, Middlesex. HA5 4PQ.
- G8BVL**, J. P. Porter, 73 Stockton Lane, York.
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SMALL ADVERTISEMENTS, READERS—continued

**WANTED:** For portable work, Eddystone EC-10 in good condition. Would EXCHANGE either for Trio 9R5-9DE; or commercial TX studio-type 17in. video monitor (these cost £375); or for Hudson base-station Rx and Tx modified for 4m., in very smart table-top cabinet and in daily use; or for two-metre fully transistorised Tx/Rx, very compact, comprising TW.2 receiver and one-watt RF output transmitter with 100% modulation, running off 12v., works FB.—Jones, G5ZT, 3 Bircham View, Austin Crescent, Eggbuckland, Plymouth (76552.)

**SELLING:** Marconi TF-801/A signal generator, coverage 10 to 300 mc, as new, complete with manual, leads, etc., £22. Aerial Equipment: CDR-AR22 rotator, little used, in perfect condition, with 50ft. control cable, £18; five-element wide-spaced Yagi, brand new and boxed, 50s.; complete mast rotator system, craftsman-built and extremely robust, with thrust bearings, brackets, cowl-gill motor, etc., brand new, ready for use, requires 24v. AC supply, £16. Two 20ft. dural scaffold poles, complete with coupler, £4. Manuals: SX-28A, 50s.; SX-115, 45s.; Collins 51J-3, 95s.; TS-174B/U, 75s.; TS-186D/UP, 75s.; TS-239, 75s.; TS-413A/U, 65s.; TS-497B/URR, 55s.; USM-24C, 85s.; USM-32, 85s.; USM-50, 75s. Also U.S. Navy 7 x 50 Bausch & Lomb binoculars, brand new and unissued, in leather case, £24. All items plus carriage, or collect Lincs. area. **WANTED:** High-grade valve-voltmeter and oscilloscope; also AN/URM32 frequency meter. Part exchanges considered.—Box No. 4857, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**WANTED:** Pye Radiotelephones Type AM10B, AB10D and AM25T, also small quantity QQV03-10 valves.—Austen, 28 Valebridge Road, Burgess Hill (3409), Sussex.

**FOR SALE:** Complete Aerial System, comprising 32ft. mast by Francis & Lewis, RT.32, in mild steel, galvanised; CDE-AR22R rotor and control box; MP-33 three-element beam for 10-15-20m., rated 2kW—package deal at £65 or near offer, or would consider selling separately. Also an HRO Rx, with nine GC coil packs and PSU, in working order, £15.—de Beneducci, G3XWW, Westwood, Sandy Lane, Cobham, Surrey. (Tel. Oxshott 2783.)

**SELLING:** VHF transistorised converter, with battery, £4. MW/LW transistor portable, £7. Complete Avometer with its case, £8. Gyroscope motor, 18s. 6d. VHF Rx, coverage 100-180 mc, with PSU and speaker, £20. Wide-range Marconi valve voltmeter, £15. All carriage extra, s.a.e. with enquiries. Manuals: For R.208 and VHF Calibrator Type 18, 20s.; Rebecca TS-31, 40s.; VHF Calibrator Type 120, 30s. Circuits: R.31 (BC-1000) Rx, 5s.; Rebecca Tester Type 102, 20s. Postage and packing extra.—Hayward, Sunnyfields, Lighthouse Road, St. Margaret's Bay, Nr. Dover, Kent.

**DISPOSING:** Hammarlund SP-600JX receiver, in excellent condition, £80. Taylor Oscilloscope Type 32A, as new, £20. Circuit Analyser, £8. Cabinet for Hallicrafters SX-28, £5. **WANTED:** Hallicrafters SX-100. SX-42, medium-wave Command Rx, Eddystone S.750.—Wise, 9 St. Quintin's Close, Cowbridge (3371), Glamorgan, South Wales.

**BUILD** a 400w. p.e.p. output linear—six new PL505's (two for spare), with series droppers and thermistor, bases, etc., 250v. 1 amp. isolation transformer, two .002 mF variables, 8v. zener diode for grounded-grid bias, plus 12-volt rotary relay, also eight 120 mF 350v. electrolytics. The Lot for £14 only.—Hamer, G3LMQ, 7 Arundel Road, Cheylesmore, Coventry, CV3-5JT.

**THANKS** to all my friends who kindly wrote, phoned or visited me during my recent stay in Hospital, also to Western Electrics, Swindon, for their help with their excellent towers. Merry Christmas and Happy New Year to all.—Harold, G5ZT, Plymouth.

SMALL ADVERTISEMENTS, READERS—continued

**FOR SALE:** Full-lattice xtal filter, using 4/FT-243 crystals, mounted in die-cast box, two carrier xtals, also 5837 kc; barely used and is a fine filter, price £14.—Catchesides, Barnwell Hall, Patchway, Bristol, BS12-5DF.

**WANTED:** Details of worth-while modifications to R.209 Mk. II receiver; can furnish info for an inexpensive PSU for AC mains operation.—Porter, 37 Pothouse Lane, Darwen, Lancs.

**WANTED:** Valves type QQ06-40A and QQV03-20A, also 250 kc crystal and 620-0-620v. mains transformer. Details and price, pse.—Wadsworth, G3NPF, 130 Ashington Road, Rochford, Essex. (Tel. Southend 544096.)

**WANTED:** Urgently, compact Mobile rig, Tx/Rx/PSU, for 10-15-20m., or a monobander for any of these bands. Home-built or commercial with matching Rx/PSU, e.g. Gonset G.77, would suit.—Giddings, G3XLB, The Meads, Park Road, Stoke Poges, Bucks. (Tel. Slough 30873.)

**FOR SALE:** Heathkit RA-1 receiver, with crystal calibrator, immaculate condition, £32 or near offer.—Kronquist, Trees, Rogate Road, Hill Brow, Liss, Hants.

**SALE:** Tiger 60X Transmitter, 70w. five-band table top job, with TT21 PA, in excellent condition, £25 or near offer. Also a BC-221 with original charts, £10 or offer. Could deliver to 60 miles, or buyer collects.—Woolford, G2ASW, Smugglers Steps, Queens Avenue, Herne Bay (4421), Kent.

**SELLING:** Trio JR-500SE amateur-band receiver, purchased November, 1968, in perfect condition and little used. Price £50. (Midlands).—Box No. 4858, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**MANUALS:** RA.17A, R.137A, CX-1400, at 45s. each. B.40, 339, 35s. Plus postage. Many others.—Brooks, 5 Farrant House, Winstanley Road, London, S.W.11.

**FOR SALE:** B.40 Type C receiver, with its handbook and in good working order, price £15.—Debney, 111 Penn Lea Road, Bath, Somerset.

**WANTED:** ZC1 Tx/Rx covering 160 or 80m., or both, with mains or battery PSU. (West Country).—Box No. 4859, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**SALE:** G.E.C. BRT-400E, in good condition, £52. Two-metre 10-element J-Beam, as new, £5. Buyers collect.—Arnold, G3RHI, 2 Summerfield Drive, Prestwich Manchester. (Tel. 773 2964.)

**WANTED:** R.216 receiver, in good order. Have for sale a 52 Set, with mains PSU, in good condition, price £10 plus carriage.—Clift, 32 Knowle Avenue, Ainsdale, Southport (78727), Lancs.

**SURPLUS Receivers For Sale:** R.107, coverage 1-2 to 18-0 mc. £15. R.109 (6v. version), for 1-8 to 8-5 mc. £7. R.209 (6v.), covering 1-0 to 20-0 mc. £12. PCR-2, with LW/MW and 6-0 to 22 mc coverage, fitted internal mains PSU, speaker and BFO. £12. An unmodified PCR-2, without PSU, £8. For the R.209 and the PCR's, add 20s. deposit for returnable crate. All carriage paid.—Golledge, G3EDW, Glen Tor, Torrington (2411), North Devon.

**WANTED:** All-band 100w. CW transmitter, though coverage 10-15-20m. would be acceptable: commercial or home-built, latter preferred if a good job, with or without PSU: an AM/CW type of transmitter considered. As this would be an export project, pse. state weight, size and shipping cost as well as the Tx details.—Rees, BICC Box 101, Ras-alkhaima, Trucial States, Arabian Gulf.

**FOR SALE:** Goldring GL58 Transcription Unit, Armstrong Stereo-Amplifier and two Wharfedale speakers in separate oak cabinets, altogether £49. Also a Heathkit GR-64 receiver, factory built, £19. All these items in perfect working order, buyers to collect, Middlesex.—Box No. 4859, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

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### SMALL ADVERTISEMENTS, READERS—continued

**OFFERING:** Lafayette KT-340 Rx, in as-new condition, price £17. Hallcrafters HT-40 Tx, coverage 10 to 80m., runs 75w. AM/CW, at £16. Also a Lafayette KT-320 Rx, requires re-alignment, appearance immaculate, £10. All items "or near offer".—Glenn, G3YCU, Meadfoot, Pembroke Road, Woking (4292), Surrey.

**SELLING:** Codar CR-70A, little used, at £14. Also Codar A.T.5 with AC/PSU, £17. Also E.M.I. 10X6's, pair at 30s. Hi-Fi 8w. mono amplifier, in good condition, £5. Midland VHF aircraft band converter, never used, 60s. Converter for 2m., 20s. Complete AM/CW transmitter, running 25w. on 20-40-80m., £8. **WANTED:** Marconi CR-100 or B.40 Rx, also good two-metre converter.—Noquet, 4 Heybridge Road, Ingatstone, Essex.

**SALE:** BC-221 frequency meter, with original charts, stab. PSU and headphones, £17. Also HA-350 Rx, for 240v. AC, coverage 10 to 160 metres, with xtal calibrator and handbook, price £40.—Handy, 105 Humber Avenue, Coventry, CV1-2AU, Warwickshire.

**WANTED:** Codar preselector and Q-multiplier. For **SALE:** E.M.I. scope Type Q/D 101, in good condition and with manual, £8. Would Exchange.—Arnold. G8AHE, 24 Albert Road, Stechford, Birmingham, 33.

**WANTED:** In good condition, a Minimitter converter for the 10 to 80m. bands.—Hutcheson, 7 Westcroft Road, Dundee, Scotland.

**SELLING:** De-luxe "Joystick" with Type 4RF Tuner, £5. Trio 9R-59DE receiver, with crystal calibrator, voltage regulator, fitted speaker and HS-4 headphones. £28. All items in excellent condition; would prefer buyers to inspect and collect, or could deliver to 25 miles.—Watts. G3XFH, QTHR, or ring OBR53 2290 (Whitchurch, Bristol) after 6.0 p.m.

**FOR SALE:** An Eddystone 770U/1 receiver, the professional VHF job designed to cover 150 to 500 megacycles, in excellent condition and with its manual giving all technical details, price £85, or near offer.—Hollings, G3GNN, 21 Brompton Road, Sprotborough, Doncaster (S2207), Yorkshire.

**SALE:** Eddystone EC-10 Rx, in brand new and unused condition, £38. Also a two-metre 40w. Pye Tx, with modulator and PSU, £10. Can deliver in Cambridge area.—Box No. 4856, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**SELLING:** An Eddystone 888A receiver (amateur bands spread) with matching S-meter and speaker. £65 or near offer.—Durham, 17 The Towers, Netley, Nr. Southampton, Hants. (Tel. Hamble 2330.)

**FOR SALE:** R.186 receiver, coverage 13.5 kc to 8.0 mc in eight ranges, incorporating all controls plus metering to 12 stages, with s/m drive, back-lighted scales, 10 kc xtal filter, five selectable band widths, in mint condition, with PSU and built-in speaker, complete with manufacturer's handbook, price £35, plus carriage. Also BFO No. 8-FHL (ZD.00187) 0.20 kc in two ranges, with 50-cycle check, calibrated output meter with adjustable output, altogether seven valves with PSU, in good working order. £6, plus post and packing.—Ring Jones, Coventry 72227.

**UNWANTED:** Trio 9R-59DE receiver, brand new and unused, going at £30. Also a Class-D Mk. I Wave-meter, modified for 240v. AC, as new, £5. Buyers to collect.—Culling, 25 Kingsand Road, London, S.E.12 (or ring 01-857 2593, evenings or weekends).

**OFFERING:** Hammarlund HQ-180A general-coverage receiver with time-switch and matching Hammarlund speaker, will accept £130 or near offer. (South London.)—Box No. 4855, Short Wave Magazine, Ltd., 55 Victoria Street, London, S.W.1.

**FOR SALE:** Gonsett G.76 Transceiver, covering six bands and running 100 watts, with mobile PSU and accessories. Ideal for desk or mobile operation, bargain at £35.—Boyce, 63 Church Road, West Kirby, Wirral, Cheshire. (Tel. 051-625 8945.)

SMALL ADVERTISEMENTS, READERS—continued

**SALE:** HW-17 transceiver, with DC/PSU, needs attention, price £45. Eddystone EC-10 receiver, very reliable, £30. Green CTR-70, £15. Green 70 cm. transistor converter, IF 2.0 to 4.0 mc, £14. Green 2MZO transmitter (burnt-out HT transformer, one spare), otherwise very reliable, £25. Six-element J-Beam, 20s. And a halo at 5s. Will deliver to 200 miles.—Cummings, G8ANA, QTHR.

**FOR SALE:** First 50 issues "Practical Electronics"—offers? Also a TMK T.P.-5S Multimeter, as new, 60s.—Bassford, 13 Beechfield Drive, Lichfield, Staffs.

**OFFERING:** An R.107 Rx, in good condition. Also an R.1475, poor, with PSU. Both must be sold so every offer considered!—Hyoe, 8 Highgate Drive, Walsall, Staffs.

**WANTED:** Vols. I and III "Surplus Radio Conversion Manual," edited by William Orr, W6SAI.—Garrett, 24 Tibberton Close, Wolverhampton, Staffs.

**SELLING:** In good condition, Elan Beam for 10-15m., at £12; also a Hy-Gain 203BA, 20 metres, £19.—Walker, G3AZT, Woodcote, Tubney, Nr. Abingdon, Berks.

**SALE:** Marconi CR-150/3 receiver, coverage 2.0 to 60 mc, with mains PSU, new spare valves (including expensive STV 280/40), bought 1968 and little used since. Price £45, could deliver to 70 miles.—Curtis, 29 Northfield Road, Milford, Lymington, Hants. (Tel. 0590-69 3325.)

**SELLING:** Eddystone EC-10 receiver, with PSU; one year old, very slight marking to paintwork on top of bezel, otherwise excellent in every way, price £40.—Breame, 92 Blunden Road, Cove, Farnborough, Hants.

**SALE:** Hammarlund SP-600 Communications Receiver, giving continuous HF coverage, at £80. Also a KW-77 amateur band Rx, £55. Both these are in excellent condition.—Williams, GW3NKZ, 71 Station Road, Llanishen, Cardiff (753743), South Wales.

**WANTED:** Trio JR-60U Rx in good condition; full details and information, pse.—Johnson, 22 The Grove, Totley, Sheffield, Yorkshire.

**SALE:** AR88D receivers—two of these, surplus to requirements, very clean, at £35 each.—Roebuck, G3VTZ, QTHR (or ring Princes Risborough 4481).

**FOR SALE:** Panda Cub Tx, with improved VFO and PSU, at £20 or near offer.—Wetherill, G2TK, 43A Newborough, Scarborough, Yorkshire.

**SELLING:** An original PSU for the HRO; also three HF-band GC coil packs, and handbook—the lot at £4.—Vest, 45 Edge Court, Durham.

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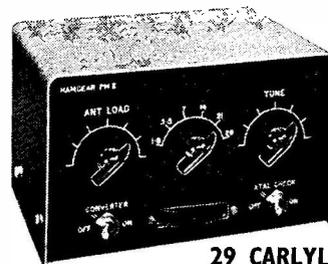
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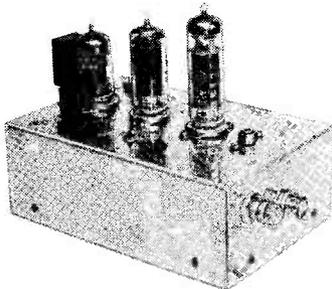
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