

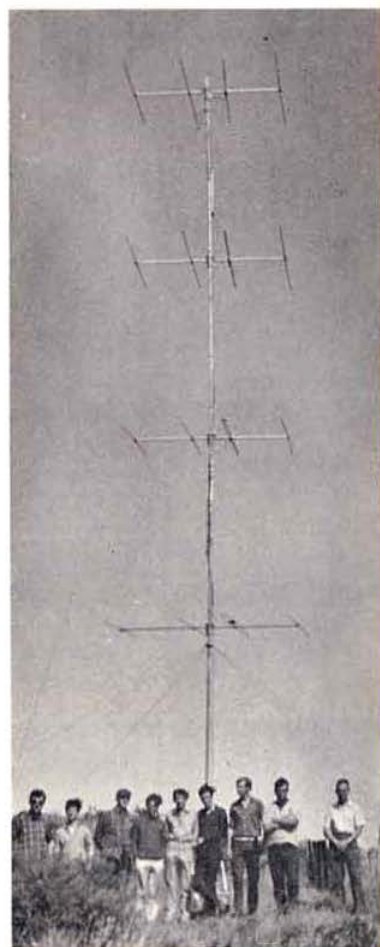
R S G B



BULLETIN

DECEMBER 1967

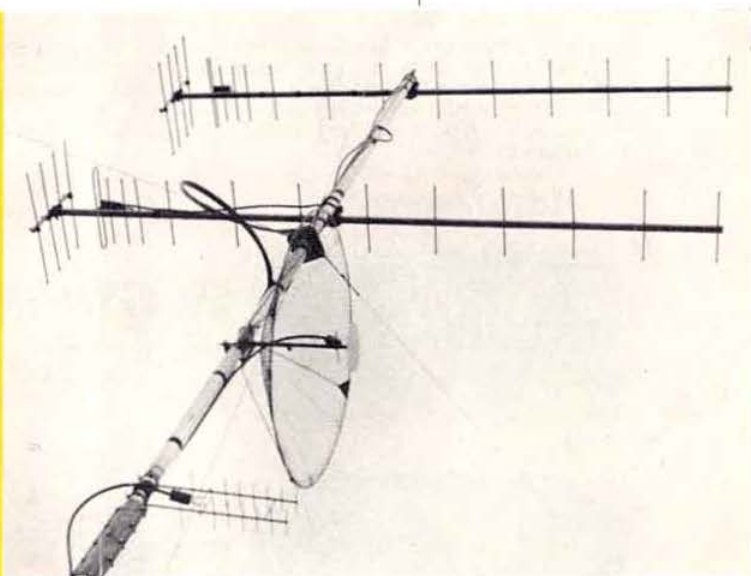
VOL 43, No. 12



V.H.F.
N.F.D.
RESULTS

1967

see page
809



Also in this issue

An FET Receiver for the
V.H.F. Bands 796

Simple Converter for
144 Mc/s 807

Annual Report of the
Society's Activities 826

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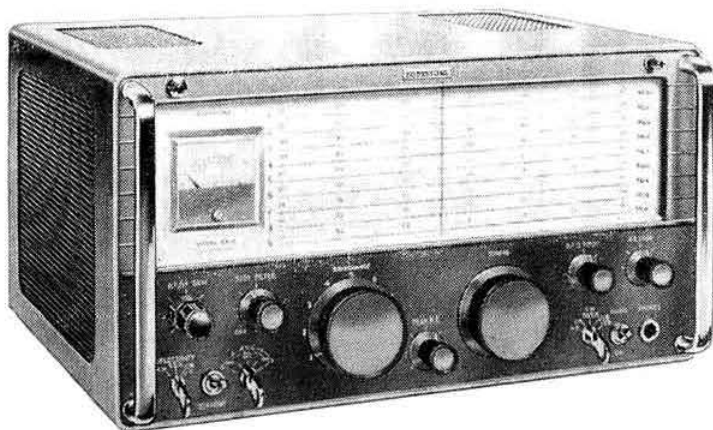
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Eddystone

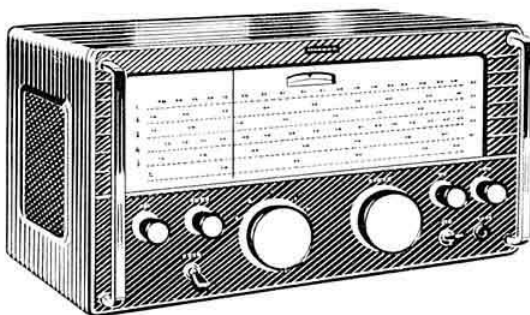
Amateur communications receivers



EA12

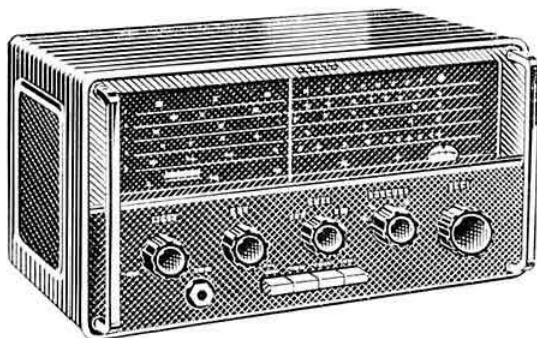
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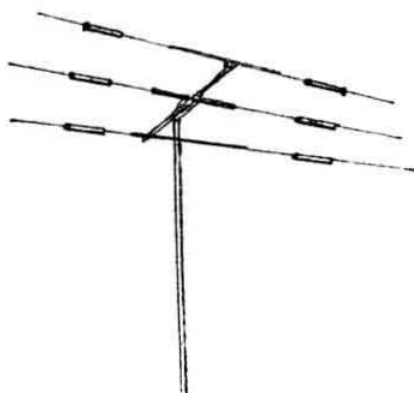
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BY THE RADIO SOCIETY
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CLOSING DATES

FEBRUARY

12 JANUARY

MARCH

9 FEBRUARY

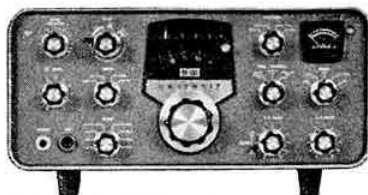
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- 809 RESULTS OF V.H.F. NFD 1967
- 813 CRYSTAL CALIBRATION AT V.H.F.
B. Priestley, G3JGO
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**DECEMBER 1967
VOLUME 43 No. 12**

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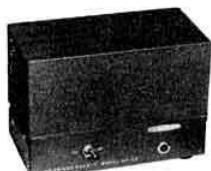


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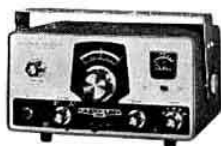
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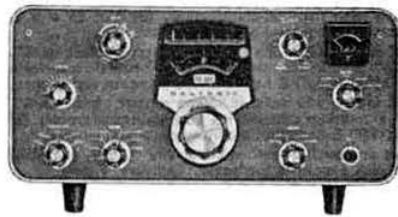
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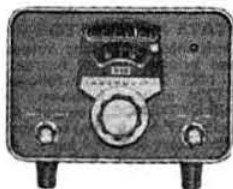
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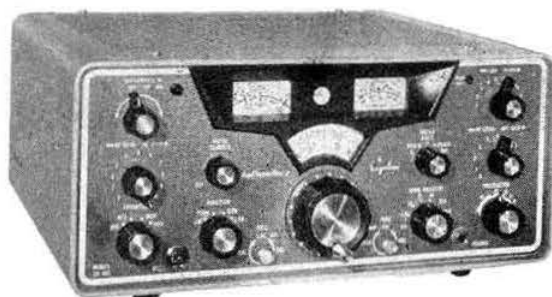
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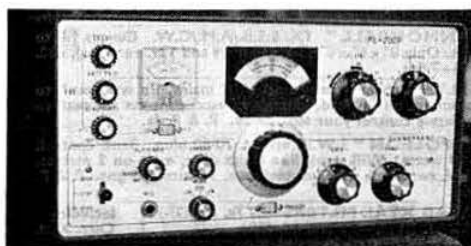
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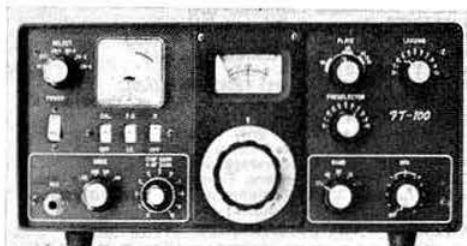
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VE8DP/G3UBO

God rest ye Merry Gentlemen

Once again it is time to wish you all the very best of everything for Christmas and the New Year. May all your signals be 5 and 9. Seems only a short time ago I was writing last Christmas's advertising. Been a good year for me—lots of you lads parting with your hard earned bread to the great joy and acclamation of the Bandit. Nothing I like better than a fat wallet—either yours to be thinned down, or mine to be made even fatter! However, you might as well spend your bread here as fritter it away on something silly like the wife's coat, bedroom suite or food. Christmas—I'll bet you're all filthy with the folding stuff. Christmas bonus, club sweepstake or maybe a fiver from rich old uncle Fred. I can visualise your bulging wallet and your hot eager eyes darting hither and thither, ferring out something to blow it on. Lads, look no further—I will

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Christmas Message from The President

This year 1967, now drawing to an end, is one I shall always remember with gratitude for the honour of being President of your Society. It has certainly been eventful and I must take this opportunity to thank all those in Headquarters and outside who did so much to carry the Society over the difficult period in the middle of the year.

With the purchase of new headquarters our staff can look forward to 1968 with the prospect of better surroundings and more room to move and you, our members, to a building of which you can be proud. A special word of thanks to all who have contributed to the HQ Building Fund or have purchased Debentures. We look forward to a large number of members participating in this project so please do not be shy about contributing!

To all the old friends I have met during my travels as your President in 1967, to the many new friends I have made and to you all—

A very Happy Christmas and Prosperous New Year.

A. D. Patterson, G13KYP,
EI4BC.



ST2AR/G4AR joins Headquarters Staff

On 20 November, Arthur Eric Dowdeswell joined Headquarters staff as General Manager. Now aged 49, he found an interest in radio early in life and obtained an "artificial aerial" licence back in 1936 as 2ADC. In 1939, a full licence with the call G4AR was granted, which gave him some operating time before the outbreak of the war, his best achievement being WAC on 10 watts input with a dipole.

From 1939 until 1946 he saw war service with REME, and after a spell at the Royal Military College of Science he was posted to the Middle East mainly in radio workshops in Egypt and Palestine. In 1943 came a posting, in "civvies," to Istanbul, Turkey, to No. 2 Special Instructional Staff.

He returned home, together with wife Christine, in 1946, to go back again into electronics, employed on the production of wideband amplifiers, timebases and oscilloscopes. In the Amateur Radio field he concentrated mainly on DX on c.w. and collected many certificates including DXCC.

In 1952 he obtained a Flight Radio Officer's Licence and joined Sudan Airways in Khartoum. As senior radio officer he managed to put in some 10,000 hours flying time in Africa, Middle East and Europe, but the advent of pilot operated h.f. equipment heralded the redundancy of airborne operators and Eric turned to the administrative side of the airline, handling its many day-to-day operational problems. As ST2AR he operated on all bands 3.5 to 28 Mc/s on c.w. and s.s.b. For a long time he was the only active ST2 and in consequence was in great demand at all times. A keen contest operator ST2AR was fourth in the world lists on all-band c.w. in the CQ contest of 1960, and first in Africa on c.w. in the first Asian DX contest of that year. He holds the CHC Top Honours plaque for over 200 certificates and diplomas amassed in the process of collecting some 270 countries on c.w. and over 200 on s.s.b. Club membership includes FOC, A1 Ops., and Ex-G club.

All equipment has been home constructed, including



150 watt input transmitting equipment. Eric is now contemplating commercial equipment as he is sure he will not have time to spare for constructional work in the future. He expects to be active on all h.f. bands and v.h.f. on c.w. and s.s.b. and looks forward to renewing many old acquaintances and making many new ones.

If Eric can be said to have any pet topic it is probably the future of the amateur bands. He is quite insistent that unless the Amateur Radio movement can unite and speak with one voice the wholesale transference of our bands to commercial and government services will be inevitable.



The G3HBW v.h.f. receiver with the trophy it won at the 1967 RSGB Exhibition

An FET Receiver for the V.H.F. Bands

By A. L. Mynett, B.Sc., G3HBW *

PART 1

A COMPLETE receiver for the v.h.f. amateur bands is to be the subject of this third article by G3HBW on field-effect transistor equipment. It incorporates the three FET converters covered previously†, and a suitable space has been left in this receiver for fitting a projected 23 centimetre converter.

The receiver tunable-i.f. covers two separate ranges, 2 to 4 and 2 to 2.7 Mc/s, with slight extensions at the ends of both ranges. The tuner, like the converters, features a low level of distortion and very good strong-signal handling capacity.

The receiver "back-end" comprises a fixed-frequency i.f. amplifier, operating at 455 kc/s, with an optional variable-bandwidth filter, "two-speed" a.g.c., b.f.o., a.n.l., S-meter, variable gain-muting on transmit and, of course, a.f. stages. An internal loudspeaker was not fitted to the prototype.

The main emphasis in design has been on simplicity of construction and relatively low cost, combined with ease in setting-up but without unduly sacrificing performance in any respect. For instance, the wide use of Brush-Clevite transistors in the fixed i.f. amplifier obviates the need for a long i.f. "peaking-up" process. In the receiver as a whole, any significant variations in device characteristics to be expected have been "engineered-out."

As the design of the v.h.f. converters has been covered already, this article will concern itself only with the tuner and "back end."

Tuner Circuit Details

The input stages of the tuner comprise a single i.f. stage, mixer and local oscillator (Fig. 1). Four tuned circuits in all are used ahead of the mixer. They are arranged in pairs, coupled together by mutual inductance. The tuner covers two frequency ranges, namely 2.0 to 4.0 Mc/s and 2.0 to 2.7 Mc/s, with slight extensions at both ends of the ranges. Separate tuning capacitor sections are used for each range, so as to attain reasonable scale linearity over both ranges and therefore, with the local oscillator, 10 capacitor sections are required in all. A five-gang, two-section capacitor would be rather long and make the receiver too deep and so separate three-gang and two-gang Jackson type L.E.A.F. Bandspread Capacitors are used, mounted one above the other and mechanically coupled by means of standard drive-cord and drums.

An i.f. tuner such as this, which covers an octave band with capacitance variation alone, tends to show rather an excessive rise in gain at the h.f. end of the range. This is due mainly to the fact that as the unloaded Q of the tuned circuits used does not change much over the tuning range (92 at 2.0 Mc/s and 118 at 4.0 Mc/s were measured for the coils specified), the reactance of L or C alone is doubled at the h.f. end compared with the l.f. end. As the tuned circuit shunt impedance is the product of Q and the reactance of L or C, this impedance, per tuned circuit, is almost doubled at the h.f. as compared with the l.f. end. This gives rise to large variations in gain unless steps are taken to prevent it. In general, the larger the number of tuned circuits in use, the worse are the gain variations. The most direct cure

* 10, Prior Grove, Chesham, Bucks.

† Two Metres and 4 Metres: November, 1966; 70 centimetres: February, 1967 issues.

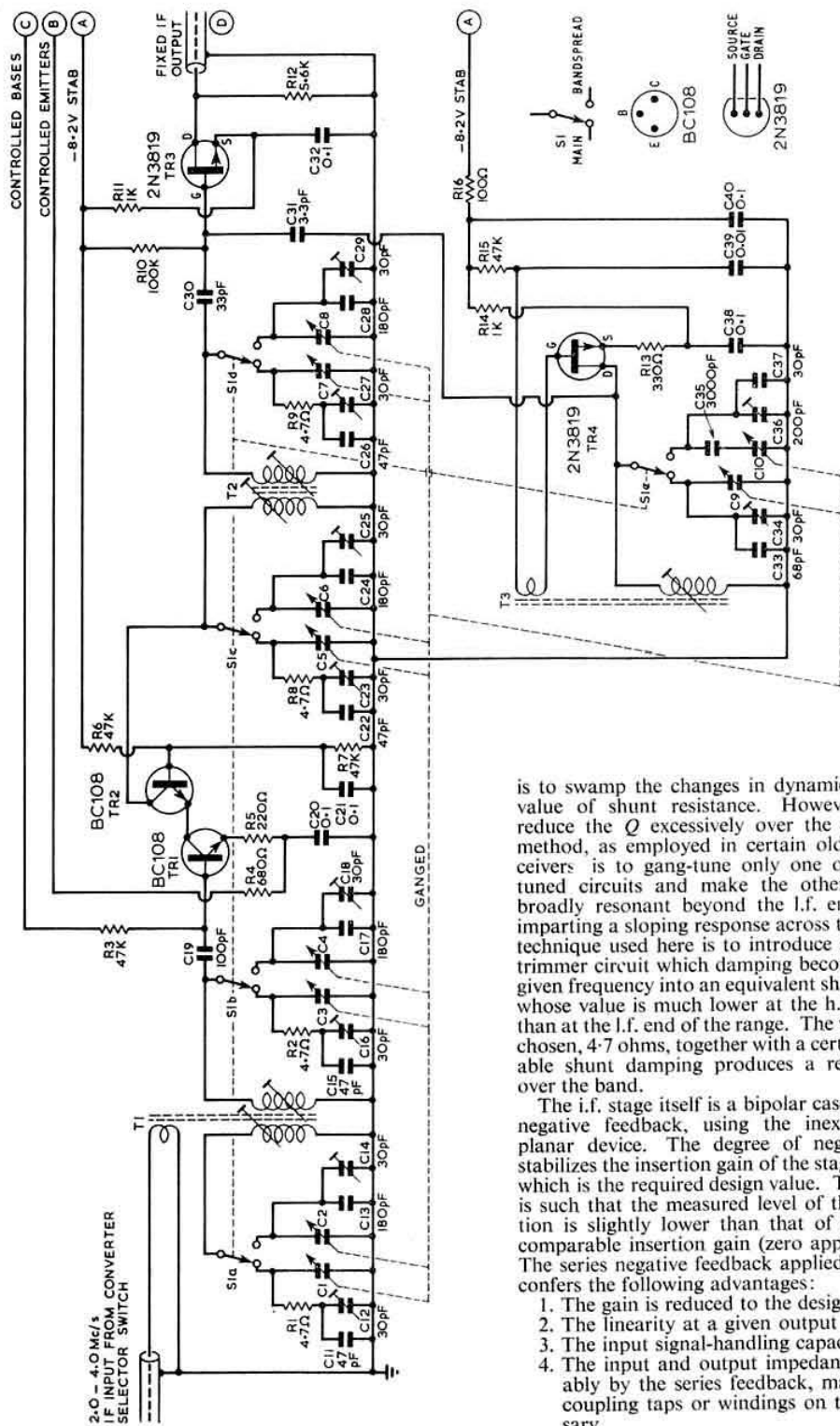
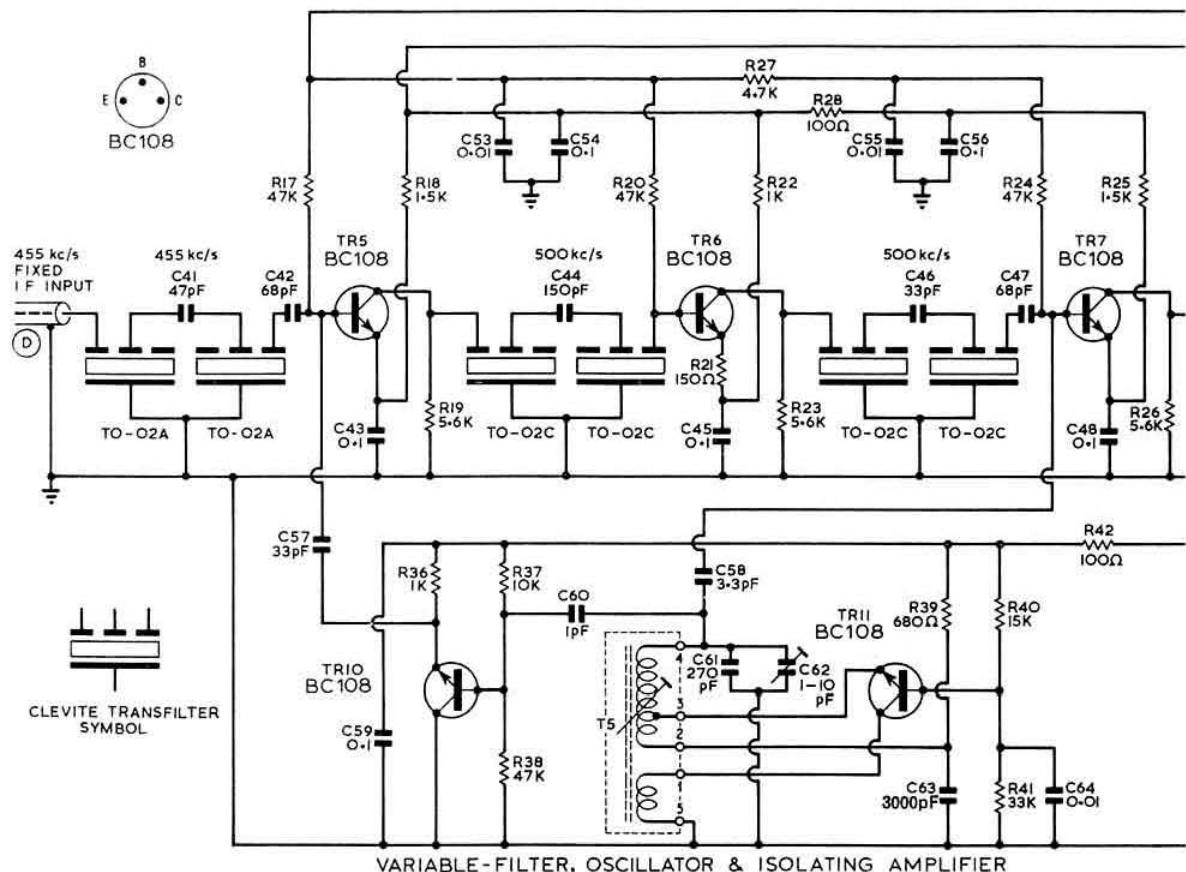


Fig. 1. The tuner circuit diagram. This unit immediately follows the v.h.f. converters described previously.

is to swamp the changes in dynamic resistance with a low value of shunt resistance. However, this will probably reduce the Q excessively over the whole range. Another method, as employed in certain older communications receivers is to gang-tune only one of the pairs of coupled tuned circuits and make the other member of the pair broadly resonant beyond the i.f. end of the tuned range, imparting a sloping response across the band. However, the technique used here is to introduce series damping into the trimmer circuit which damping becomes transformed at any given frequency into an equivalent shunt damping resistance, whose value is much lower at the h.f. end (worse damping) than at the l.f. end of the range. The value of series resistance chosen, 4.7 ohms, together with a certain amount of unavoidable shunt damping produces a reasonably flat response over the band.

The i.f. stage itself is a bipolar cascode with applied series negative feedback, using the inexpensive BC108 silicon planar device. The degree of negative feedback chosen stabilizes the insertion gain of the stage in the region of 26dB, which is the required design value. The linearity of the stage is such that the measured level of third-order intermodulation is slightly lower than that of a two-FET cascode of comparable insertion gain (zero applied negative feedback). The series negative feedback applied to the bipolar cascode confers the following advantages:

1. The gain is reduced to the design value; 26dB.
2. The linearity at a given output level is improved.
3. The input signal-handling capacity is increased.
4. The input and output impedances are raised considerably by the series feedback, making input and output coupling taps or windings on the tuned coils unnecessary.



5. The performance characteristics of the stage are stabilized.

The mixer is a single-ended arrangement with one 2N3819 FET in common-source, the oscillator injection being by the "capacitance potentiometer" method. The FET is well known to be a very good "square-law" device, which helps greatly in reducing intermodulation and cross-modulation in the mixer stage, normally a very serious problem in transistorized tuners. However, the characteristics of the mixer FET do not help in reducing the other serious form of trouble, namely "i.f. difference" interference, which occurs when two strong signals spaced in frequency by the fixed i.f. of the receiver beat together, as this is obviously a second-order effect. A double-ended or push-pull mixer could help in this respect but would require careful balancing of the device characteristics to achieve its full effectiveness. Instead, in the present design, sufficient front-end selectivity has been provided to protect against this effect to a reasonable degree. This is the main justification for the use of four tuned circuits ahead of the mixer.

The local oscillator also employs a 2N3819 FET in a common-source tuned-drain circuit arrangement. The small degree of negative feedback contributed by a partly unbypassed source resistor raises the FET output impedance, amongst other effects, thus reducing the loading on the tuned circuit, stabilizes the operation to a certain extent and improves the waveform, discouraging any tendency to squeg.

Back-End Circuits

The 455 kc/s fixed-frequency i.f. amplifier consists of four stages using BC108s, the last being a cascode, and the inter-stage coupling elements being pairs of Clevite Transfilters, coupled together back-to-back with top capacitance. (Fig. 2). The transfilters are three-terminal piezo-electric resonators with effective Q s in the region of 500 and so assist greatly in obtaining good i.f. skirt selectivity. The piezo-electric disc of the transfilter is metallized all over on one side, which forms the common electrode, while the other side has a metallized circular patch in the centre, known as the Dot, with a metallized annulus surrounding it, called the Ring. These form the two active terminals of the device. In common with most electro-mechanical resonators, the significant impedance elements in the equivalent circuit are well isolated from the input and output terminals and so the resonant frequencies are not greatly affected by source or load impedance variations (Fig. 4). Thus no tuning-up adjustments are required to obtain a properly shaped response.

Alternate pairs of transfilters are undercoupled and overcoupled with top capacitance, the overcoupling leading to the usual double-humped transfer characteristic. The combination of the responses of the pairs of over and undercoupled devices is made to give a reasonably square, flat-topped response, about 4.5 kc/s wide.

In addition, the fixed i.f. amplifier may be arranged to provide a variable-selectivity characteristic, which is achieved in the following way. The first and third stages

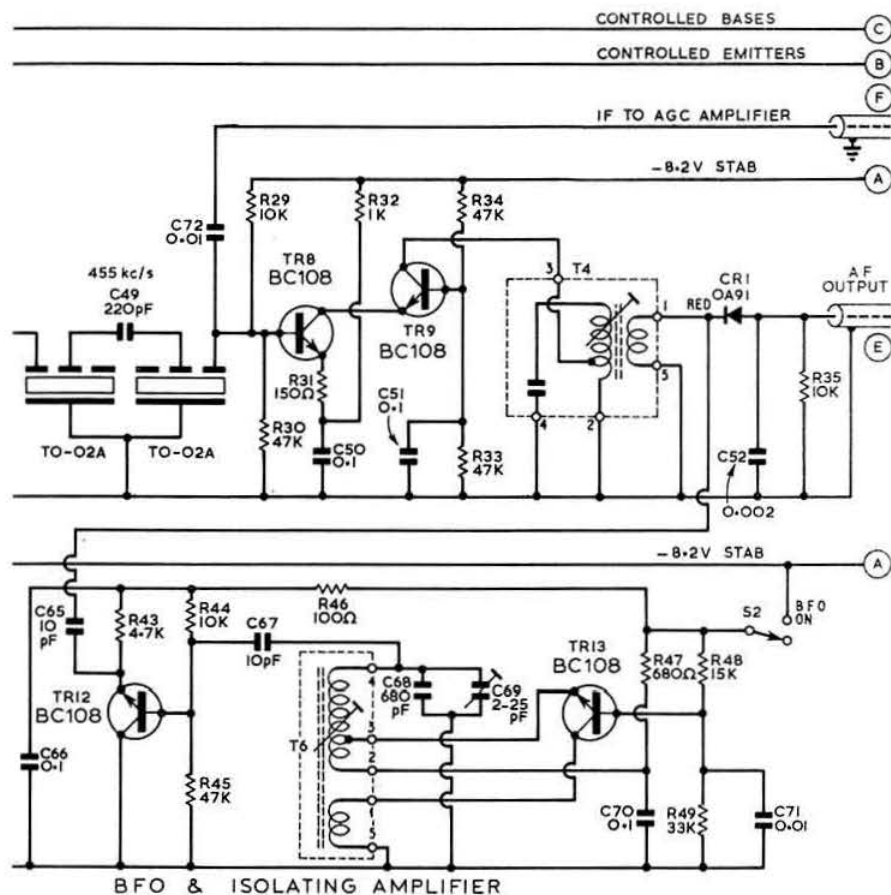


Fig. 2. Circuit diagram of the i.f. amplifier, variable bandwidth filter, signal detector and b.f.o.

in the four-stage i.f. chain are utilized as mixers, while the first and fourth pairs of coupled transfilters operate at 455 kc/s and the second and third pairs are centred on 500 kc/s (Fig. 2). The two mixers are fed from a tunable oscillator and an isolating amplifier respectively, operating in the region of the sum of the i.f.s., i.e., 955 kc/s. With the oscillator tuned precisely to 955 kc/s the responses of the 455 and 500 kc/s filter combinations are effectively superimposed. When, however, the oscillator is tuned away from 955 kc/s in either direction, the overall selectivity curve is continuously reduced in width, one side remaining fixed, until, with the oscillator tuned to either $(955 - 4.5)$ kc/s or $(955 + 4.5)$ kc/s, there is no overlap of selectivity characteristics and transmission through the i.f. amplifier becomes very small.

The circuit diagram (Fig. 2) shows the i.f. amplifier arranged in this manner for exhibiting variable selectivity. If this is not required, the following circuit changes must be made:

1. Change second and third pairs of transfilters to 455 kc/s.
2. Change C44 to 220 pF and C46 to 47 pF.
3. Omit C42 and C47.
4. Omit C57 and C58 and all the circuitry associated with TR10 and TR11.
5. Add 150 ohm unbypassed resistors in series with the emitters of TR5 and TR7 (as for TR6 and TR8).

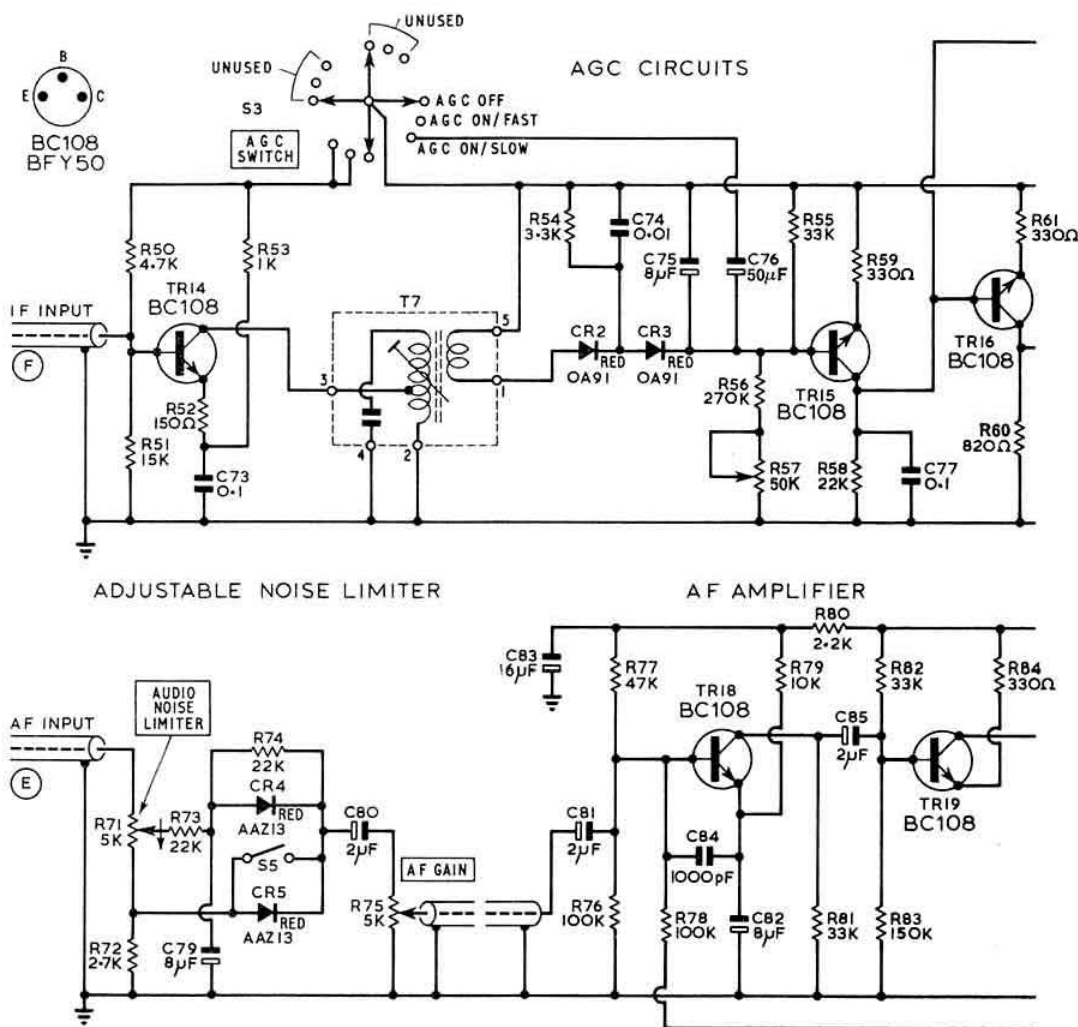
If the variable selectivity facility is not desired, some sort of additional selective filter, such as a Q -multiplier or a phased,

single-crystal filter could be incorporated. No suggestions are included here for accomplishing this.

The i.f. section also contains a b.f.o. and isolating amplifier signal detector (single OA91) and a.g.c. i.f. and d.c. amplifiers. The use of balanced or "product" detectors has not been found in practice to give any appreciable improvement in performance for c.w. or s.s.b. reception over that given by a single diode with high-level b.f.o. injection. This latter system is accordingly used and, of course, the diode serves also as a conventional envelope detector when the b.f.o. is switched off.

The take-off point for the a.g.c. i.f. amplifier (one BC108 stage) is at the base input of TR8. It is desirable that the a.g.c. detector should not be blocked when the b.f.o. is switched on, in order that a.g.c. may be used on s.s.b. and c.w. R.f. energy from the b.f.o. is fed back through TR9 and TR8 (reverse transmission) and through TR14 (forward transmission) into the a.g.c. detector. The overall attenuation of this path must be large, at least 30dB. This is the reason for using the cascode circuit for the last signal i.f. stage.

The a.g.c. circuitry is completed by the usual diode detector, diode timing gate and d.c. amplifier to provide the i.f. base-biasing rail (Fig. 3). Note that, with n-p-n transistors and a positive earth, the d.c. output of the a.g.c. detector (positive-going) is added to the stabilized $-8.2V$ rail and not to ground. Conventional i.f. transformers, rather than



transfilters, are used to feed the two detectors, mainly because of the difficulty in producing the correct relationship between a.c. and d.c. diode loads when the detector is fed from a high-resistance d.c. source.

The output from the signal detector is taken into a conventional two-diode noise limiter and then into the a.f. amplifier, which gives about 500 mW output to the speaker. A simple 8.2V Zener stabilizer supplies all the critical stages of the tuner. The "back-end" is completed with an S-meter bridge, a gain-muting-on-transmit circuit and series diode polarity protection (Fig. 3).

The gain-muting circuit employs a single BC108 transistor (TR17) which is normally forward-biased into bottoming by R70. Thus the variable R68, in parallel with the collector-emitter of TR17, has little effect on the gain. When -12V is applied to the muting terminal, TR17 is cut off and R68 becomes an additional r.f. gain pot. in series with the negative rail return of the normal r.f. gain control R66. If gain-muting is not required, connect the slider of R66 to the -8.2V rail and omit TR17, R68, R69 and R70.

Construction

The receiver is constructed in the form of a front panel with two vertical plates fixed to the back of it, one accommodating the tuned i.f. portion and the other the "back-end," most of the latter being built into the larger size of Eddystone die-cast box. There is no "chassis" in the accepted sense of the word although a small horizontal platform supports the converters themselves, two of them being above it and one, the 4m converter, below. A generous space remains for the future incorporation of a 23cm converter, at present under development. The converters are so arranged that most of their pre-set components can be adjusted in the presence of the other units but it may sometimes be desirable to remove one converter to facilitate getting at a particular adjustment. This can be done easily and quickly, though.

Most of the main controls are grouped on the left-hand side of the front panel, with the tuning dial in the centre, which is usually the best arrangement for right-handed operators (Fig. 5 and photo). The panel space below the S-meter is available for fitting crystal selector switches which

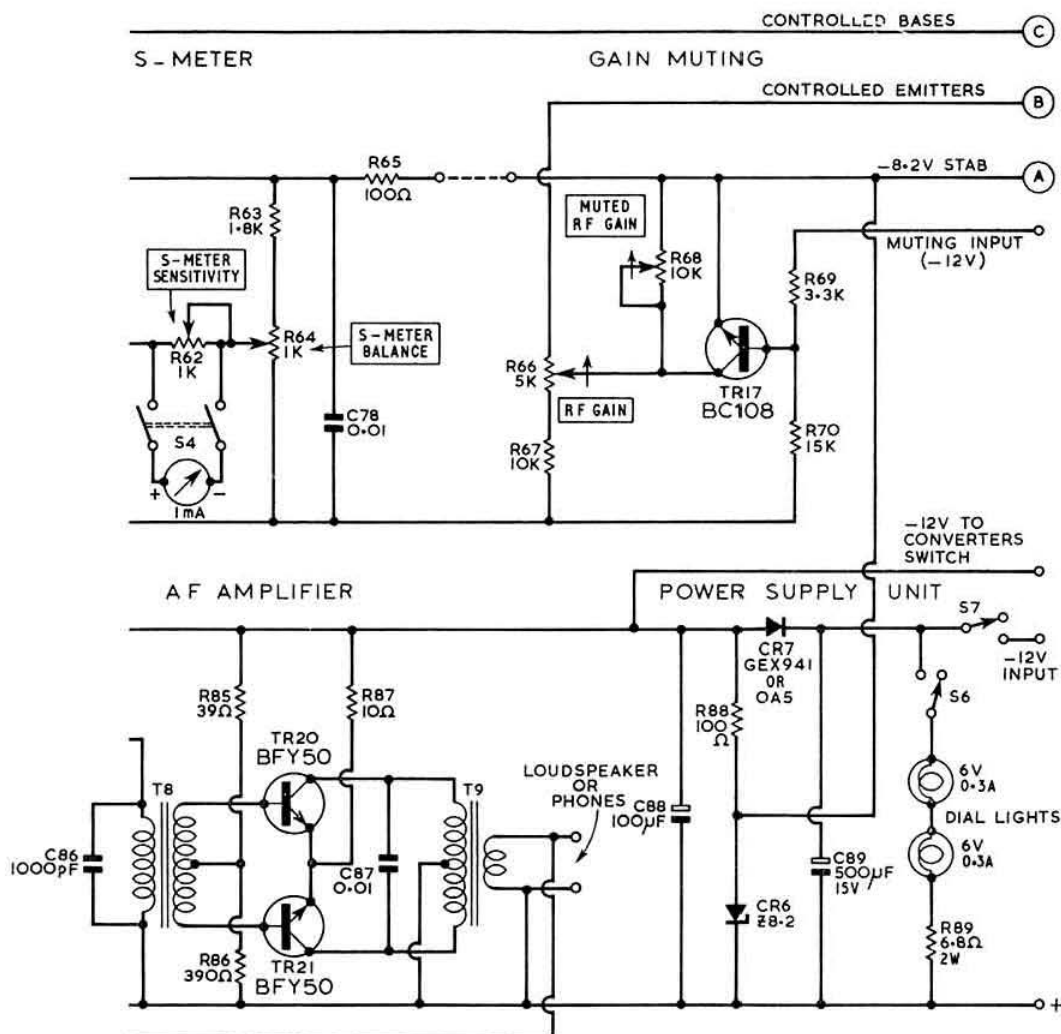


Fig. 3 (left and above). Circuit of the a.g.c. system, S-meter bridge, a.n.l., a.f. amplifier and power supply.

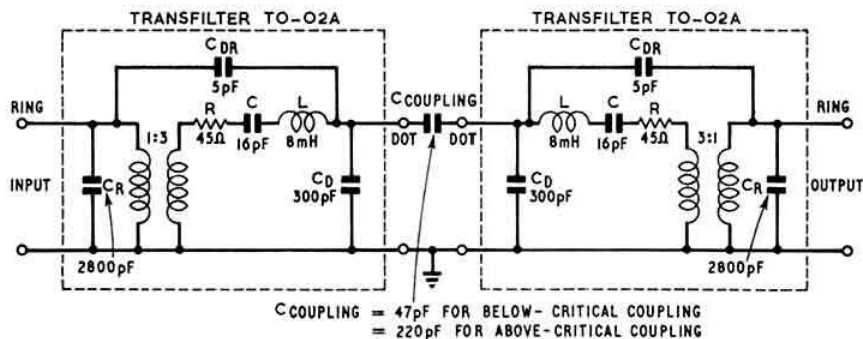


Fig. 4 (right). Equivalent circuit of coupled transformers.

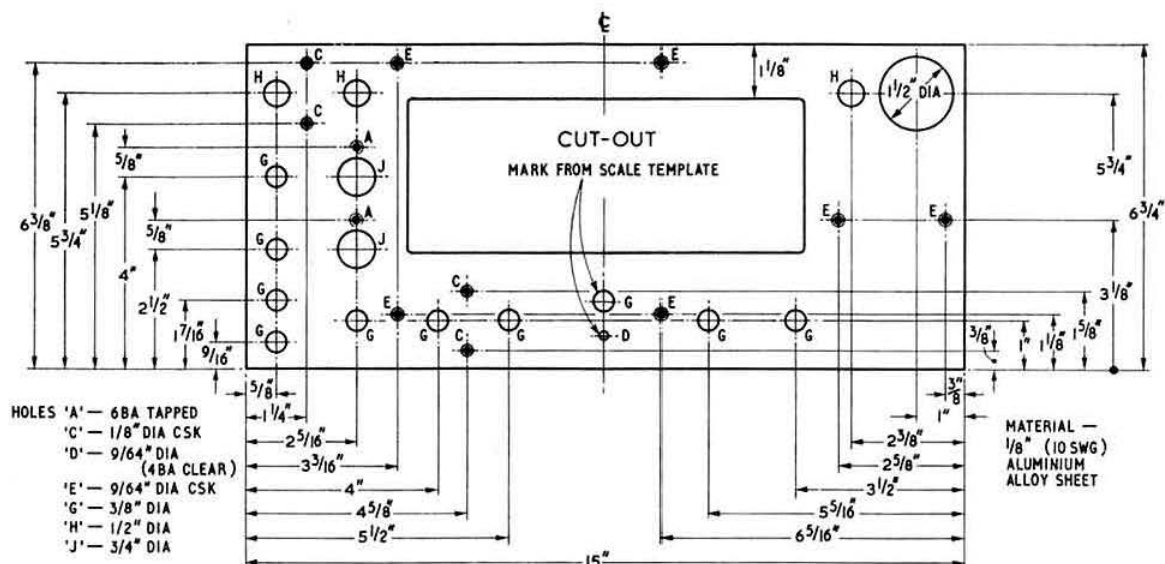
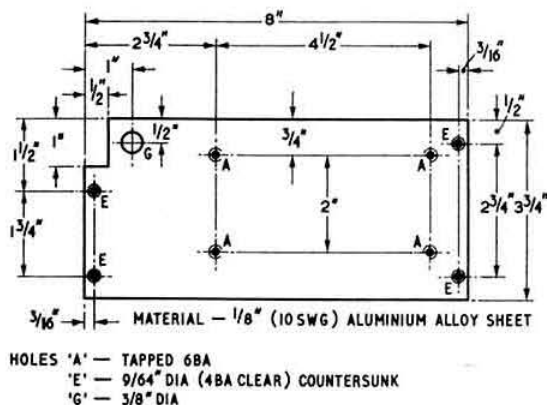


Fig. 5. Front panel drilling diagram: Aluminium sheet, 1/8 in. thick is recommended.

Fig. 6. Converters' support plate drilling diagram.



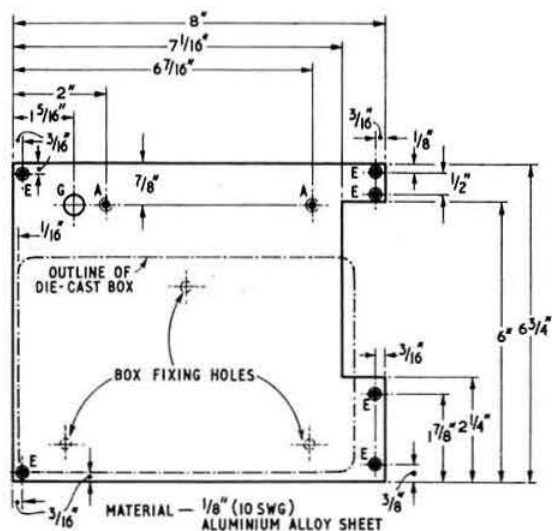
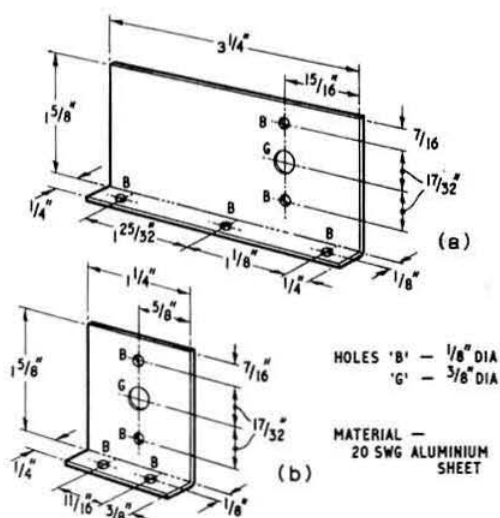
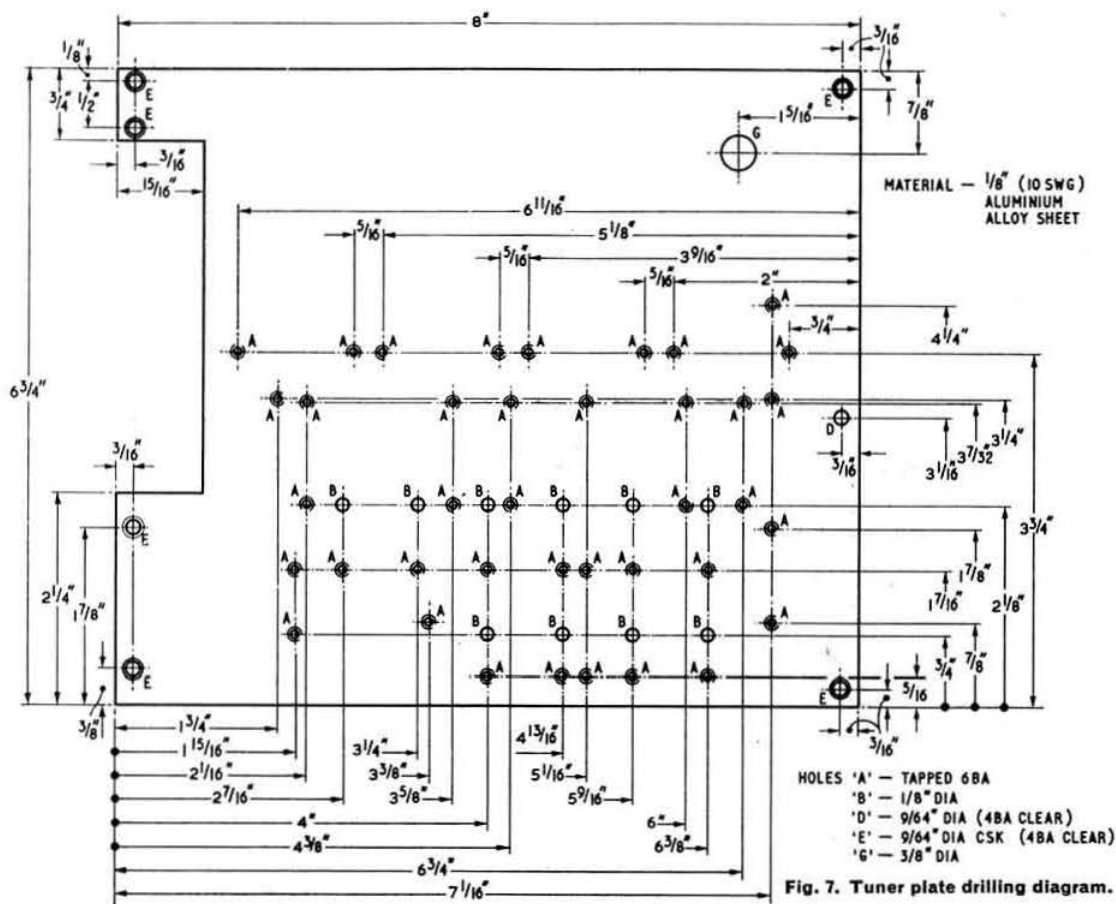
can be a useful addition to the 70cm and the projected 23cm converters.

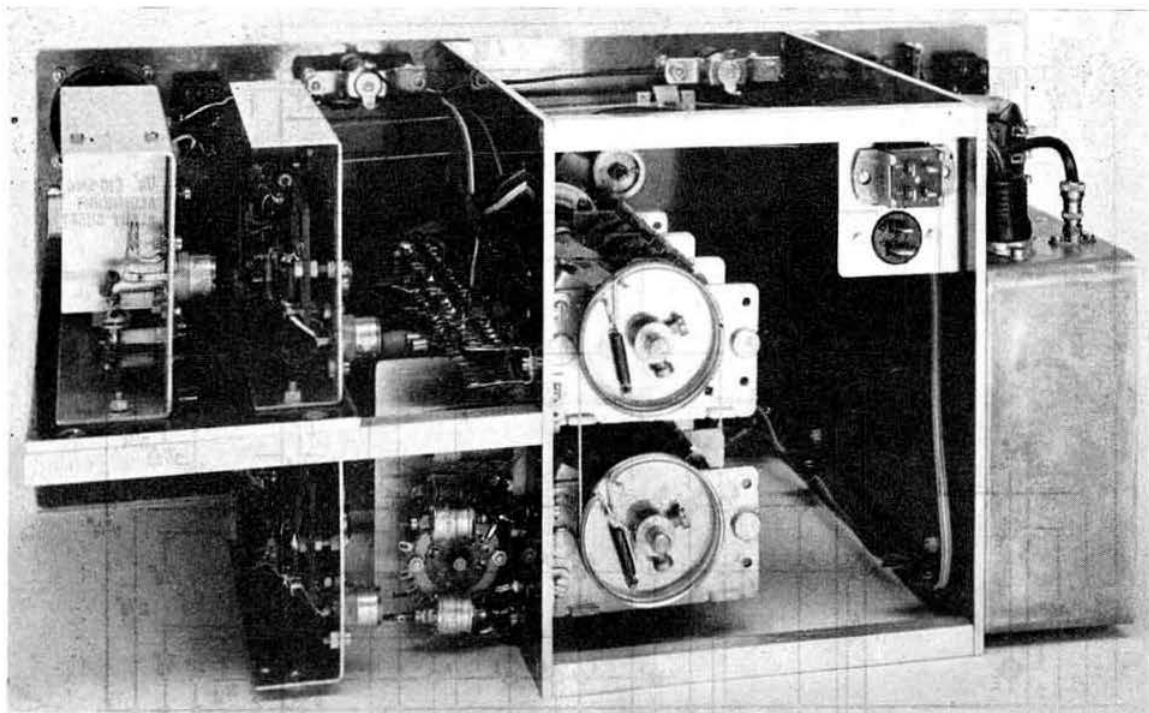
The recommended material for making the front panel and the supporting plates is 1/8 in. thick (or 10 s.w.g.) aluminium alloy sheet, with lengths of 3/8 in. square bar of a similar material being used to fix them together rigidly. It is quite possible to construct the receiver in a more conventional manner, from 16 s.w.g. aluminium sheet, using angle or bent flanges to make joints, but the suggested stouter materials will provide a very worthwhile improvement in rigidity without unduly increasing constructional difficulties or weight. No cabinet has been specified in the design as this is perhaps best left to personal choice. A simple wrap-around case may quite easily be made and fitted.

A large, rectangular cut-out must be made in the front panel to accommodate the Eddystone 898 Dial and Drive (Fig. 5). This should be positioned using the marking template supplied with the dial, in conjunction with a sheet of carbon paper. For cutting, an Abrafile or a coping saw should be used and the Abrafile will also be found suitable for producing the 1 1/2 in. diam. meter hole. The 3/4 in. diam. holes required for the b.f.o. and passband width control

ball-drives may be enlarged from a smaller diameter using one of the larger sizes of "Repairman's Reamer." Rectangular cut-out's are required to be made in each of the two vertical support plates to clear the drive mechanism. Here again, an Abrafile or coping saw may be used. The three 4BA clearance holes for mounting the die-cast box on its supporting plate are positioned by placing the already-drilled box in the correct position on the plate and marking through (Fig. 9). There are several 6BA tapped holes to be produced in both support plates and much care should be taken when tapping these. Incidentally, paraffin is a good lubricant to use when working in aluminium or its alloys.

The two vertical plates and the converter support plate are mounted on the front panel using short lengths of 3/8 in. square dural bar. Drawings are not provided for these as the fixing holes in them are marked out directly through the front panel and the plates themselves. All fixing holes in the bars are drilled and tapped 4BA. For mounting each vertical plate, two bars are required, one 2 1/4 in. and one 3/4 in. long. The converter support plate is also mounted on two lengths of 3/8 in. square bar, one 5 7/8 in. and the other 2 3/4 in. long. The longer piece has a 4BA tapped hole in one end to facilitate





Rear view of the receiver with converters in position.

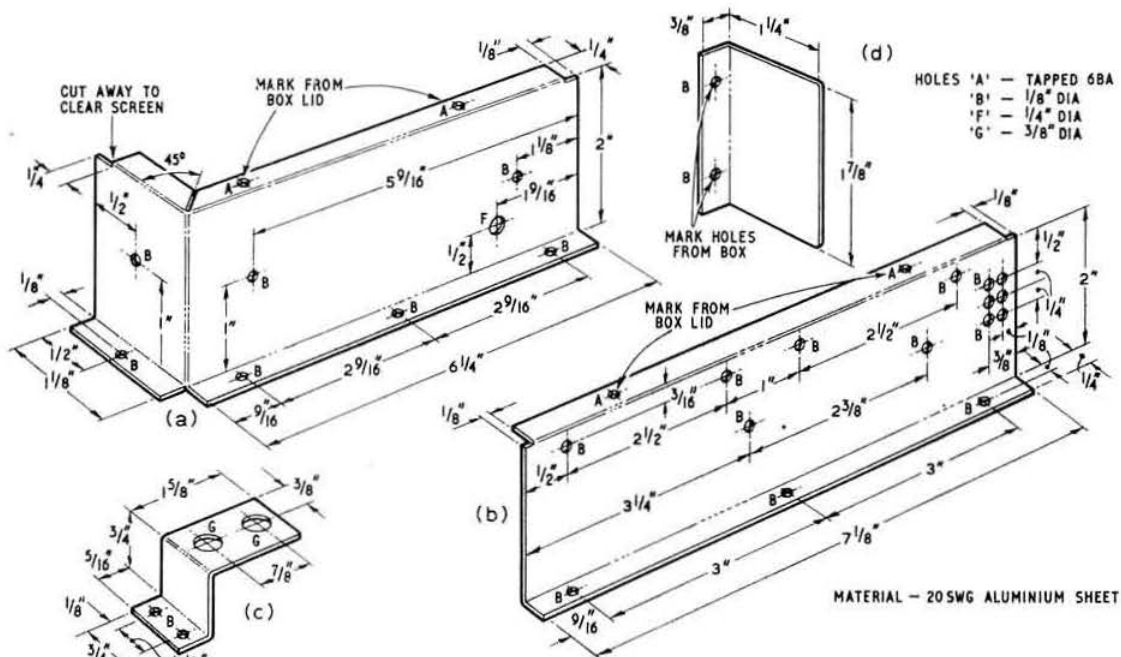
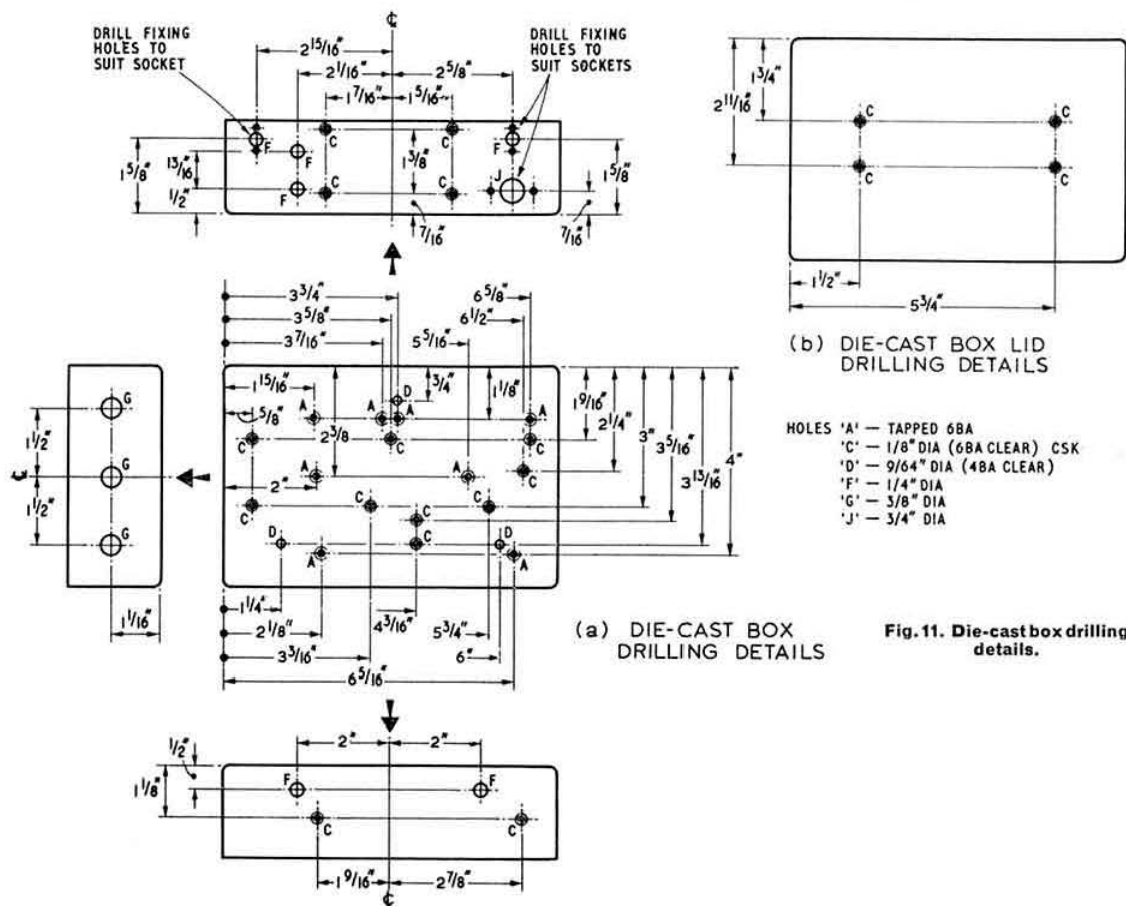


Fig. 10. Screens and brackets which are mounted inside the die-cast box.



bolting it to the tuner support plate (see rear photo). This also shows the mounting positions of the other fixing bars). Finally, two lengths of $\frac{3}{8}$ in. square bar, each $5\frac{5}{16}$ in. long and with 4BA tapped holes in both ends, are needed to join together the rear edges of the two vertical support plates, making the whole into a rigid framework.

The Lektrokit wiring board carrying the a.f. amplifier section is secured to the mounting plate by means of two $\frac{3}{8}$ in. long, 6BA cheese-head cadmium-plated steel screws, screwed into the tapped holes provided in the plate. Two locking nuts on each screw hold the screw and board in position. A similar technique is used to fix the wiring boards to the screens in the die-cast box. The four tapped holes in the upper flanges of the screens are marked through on to the screens from the holes in the box lid. The two variable capacitors are mounted in the box with fixing nuts on either side of the box wall, so positioned that only $\frac{1}{8}$ in. of the capacitor bush protrudes through the box. The spindles are cut off so that only $\frac{1}{16}$ in. remains. The spindles of the two S-meter pots. are also shortened to leave $\frac{3}{8}$ in. and a screw-driver slot is cut in the end of each spindle.

The slow-motion drives are mounted on the front panel in the following manner. Part of the slotted lug is sawn off to leave $\frac{5}{16}$ in. A $\frac{1}{2}$ in. long, 6BA cheese-head screw with one nut is screwed into the tapped hole provided above the

clearance hole for the drive, until the top surface of the screw-head is $\frac{3}{16}$ in. above the front panel, the screwdriver slot running vertically up the panel. The nut is then tightened and the short length of screw protruding behind the panel is used, together with a 6BA nut and washer, to clamp the drive lug. Previously, the drive spindles will have been shortened to $\frac{1}{16}$ in. The two $1\frac{1}{16}$ in. diam. dials required may be made from $\frac{1}{16}$ in. thick white plastic sheet or thin white card, with one $\frac{3}{32}$ in. diam. hole in the centre and two appropriate 8BA clearance fixing holes.

The procedures for making the front panel require little explanation (Fig. 5). The four countersunk screws at the top of the panel are used to fix the two dial lamp brackets (there are two 6.3 V dial lamps and a 6.8 ohm resistor in series across the 12V supply). The positions of the holes for these screws have not been marked on the front panel drilling diagram (Fig. 5) as the lamp brackets available from stockists seem to vary in design somewhat.

The tuner support plate (Fig. 7 and photo) is also straightforward. The photograph (next month) was taken prior to wiring up the converter selector switch and also with the converters and their support plate removed, to provide a clear view of the tuner section. The range-change switch wafers are supported by two brackets-cum-screens (Fig. 8). The transistors and most of the small components are

Components List

Coil Table

Qty.	Item	Source
1	Eddystone Cat. No. 898 dial and drive.	Home Radio of Mitcham.
1	Eddystone diecast box, E.845, $7\frac{1}{2}$ in. \times $4\frac{1}{4}$ in. \times $2\frac{1}{2}$ in.	Home Radio.
1	3-gang L.E.A.F. Bandspread Capacitor, 312 and 177 pF swings, complete with extension spindle for ganging and standard mounting feet. Order of sections from front plate: 312 + 177 + 177 + 312 + 177 + 312 pF.	Jackson Bros. (London) Ltd., Kingsway, Waddon, Surrey.
1	2-gang as above. Order of sections from front plate: 312 + 177 + 177 + 312 pF.	Jackson Bros. (use all the quoted details when ordering).
2	DL50A ball-drives with flange.	Jackson Bros.
2	Drive drums, Cat. No. 4028 BIL, $1\frac{1}{2}$ in. dia.	Jackson Bros.
2	Cord tensioning springs.	Jackson Bros.
1	S-Meter (1 mA f.s.d.), (Japanese).	Henry's of Edgware Road.
3	Single pole toggle switches.	Henry's.
1	2-pole 6-way Yaxley Switch (Band-change).	Henry's.
1	4-pole 3-way Yaxley Switch (S3).	Henry's.

Maka-Switch Parts

1	long shaft assembly ($6\frac{1}{2}$ in. spindle).	Home Radio.
3	3-pole 4-way wafers (b.b.m.).	Home Radio.
12	1 in. long spacers (cut down to suit).	Home Radio.
2	1 K ohms linear carbon pots. ($\frac{3}{8}$ in. dia. max.) (R62, 64).	Henry's.
1	5 K ohms linear carbon pots. ($\frac{3}{8}$ in. dia. max.) (R66).	Henry's.
1	10 K ohms linear carbon pots. ($\frac{3}{8}$ in. dia. max.) (R68).	Henry's.
1	33 K ohms skeleton pre-set pot. (R57).	Henry's.
1	5 K ohms log. carbon pot with switch (R75).	Henry's.
1	5 K ohms log. carbon pot. with c/o switch (R71).	AB Metal Products Type 37S (see text).
1	10 pF trimmer, Type C.804, with spindle (C62).	Henry's.
1	50 pF trimmer Type C.804, with spindle (reduce to 25 pF) (C69).	Henry's.
10	3 to 30 pF Mullard concentric trimmers	Home Radio.
5	0.4 in. dia. Aladdin polystyrene formers.	Home Radio.
5	dust slugs for same.	Home Radio.
2	I.F.T.s, detector, Repanco Type XT27.	Henry's.
2	Oscillator Coils, M.W., Repanco Type X08.	Henry's.
1	1W A.F. output trans. Colne 06034 (or Ardenite D.3027).	Henry's.
1	A.F. driver trans. Type LT44 (or Ardenite D.3026).	Henry's.
4	Brush Clevite Transfilters, Type TO-02A, 455 kc/s	Henry's.
4	Brush Clevite Transfilters, Type TO-02C, 500 kc/s	(see text)
3	Lektrokit SRBP Chassis Plates No. 4	Home Radio
200	Soldering Pins for same (type with shoulder preferred)	Home Radio
2	Min. Belling Lee coaxial plugs, L1465/FP	Home Radio
2	Min. Belling Lee coaxial sockets, L1465/CS	Home Radio
2	Standard Jack sockets	Henry's
10	AEI 5-way tagstrips. TSC 602	Electroniques
10	Oxley Barb Type p.t.f.e. feedthrough insulators	Oxley's
2	Lampholder brackets, M.E.S.	Oxley's
2	2N3819 FETs	Henry's
17	BC108s	Henry's
2	BF150s	Henry's
3	OA91s	Henry's
1	Z82, 8.2 V Zener diode	Henry's
1	GEX941 (or OA5), gold-bonded diode	Henry's
2	AAZ13 gold-bonded diodes	Henry's
	$\frac{1}{16}$ in. thick aluminium alloy sheet, as required	
	$\frac{1}{8}$ in. square aluminium alloy bar, as required	

T1	Input coupling winding: 3 turns, 32 s.w.g. enam., overwound at cold end of primary. Primary: 50 turns, 32 s.w.g. enam., c.w. on 0.4 in. dia. Aladdin former. Secondary: 50 turns, 32 s.w.g. enam., c.w. on 0.4 in. dia. Aladdin former, placed near to primary call former.
T2	Primary: as secondary of T1. Secondary, as secondary of T1, placed near to T2 primary coil former.
T3	Primary: 40 turns, 32 s.w.g. enam., c.w. on 0.4 in. dia. Aladdin former. Feedback: 13 turns, 32 s.w.g. enam., overwound at cold end of primary.

Capacitor and Resistor List

C1 to C10	all $\frac{1}{4}$ W carbon except R89 ganged tuning capacitor 312 and 177 pF swings
C11, 15, 22, 26, 41	47 pF polystyrene
C12, 14, 16, 18, 23, 25, 27, 29, 34, 37	3 to 30 pF Mullard concentric trimmers
C13, 17, 24, 28	180 pF polystyrene
C19	100 pF polystyrene
C20, 21, 32, 38, 40, 43, 45, 48, 50, 54, 56, 59, 63, 66, 70, 73, 77	0.1 μ F, 30 V disc ceramic
C30, 46, 57	33 pF polystyrene
C31, 58	3.3 pF tubular ceramic
C33, 42, 47	68 pF polystyrene
C35, 63	3000 pF polystyrene
C36	200 pF polystyrene
C39, 53, 55, 64, 71, 74, 78, 87	0.01 μ F disc ceramic
C44	150 pF polystyrene
C49	220 pF polystyrene
C82	0.002 μ F paper
C60	1.0 pF tub. ceramic
C61	270 pF polystyrene
C62	1 to 10 pF trimmer
C65, 67	10 pF polystyrene
C68	680 pF polystyrene
C69	3 to 30 pF trimmer
C75, 79, 82	8 μ F 30 V electrolytic
C76	50 μ F 5 V electrolytic
C80, 81, 85	2 μ F 30 V electrolytic
C83	16 μ F 30 V electrolytic
C84, 86	1000 pF disc ceramic
C88	100 μ F 15 V electrolytic
C89 (optional) (see text)	500 μ F 15 V electrolytic
R1, 2, 8, 9	4.7 ohms
R3, 6, 7, 15, 17, 20, 24, 30, 33, 34, 38, 45, 77	47 k ohms
R4, 39, 47	680 ohms
R5	220 ohms
R10, 76, 78	100 k ohms
R11, 14, 22, 32, 36, 53	1 k ohms
R12, 19, 23, 26	5.6 k ohms
R13, 59, 61, 84	330 ohms
R16, 28, 42, 46, 65, 88	100 ohms
R18, 25	1.5 k ohms
R21, 31, 52	150 ohms
R27, 43, 50	4.7 k ohms
R29, 35, 37, 44, 67, 79	10 k ohms
R40, 48, 51, 70	15 k ohms
R41, 49, 55, 61, 82	33 k ohms
R54, 69	3.3 k ohms
R56	270 k ohms
R58, 73, 74	22 k ohms
R60	820 ohms
R63	1.8 k ohms
R72	2.7 k ohms
R80	2.2 k ohms
R83	150 k ohms
R85	39 ohms
R86	390 ohms
R87	10 ohms
R89	6.8 ohms, 2 W, w.w.

mounted on four pairs of tagstrips. The $\frac{3}{8}$ in. diam. hole in the plate carrying the lead-out wires should have all burrs removed carefully; the material is rather too thick to accommodate a rubber grommet although a plastic bush could be fitted.

The two-gang capacitors are mounted on the rear of the tuner support plate, with a 2BA nut as a packing piece between each capacitor mounting foot and the plate. The three-gang capacitor is above the two-gang one. The capacitor vanes should close as the dial is rotated anti-clockwise. The dial-driven spindle of the three-gang capacitor must be cut off leaving only $\frac{1}{8}$ in. to fit the flexible coupler. The two capacitors are coupled together at the rear by means of two standard drive cord drums, as shown in the rear view photograph. A length of cord must be taken completely round

both drums once before being fed through the holes in the rims and tied to the tensioning springs.

The four 6BA tapped holes in the converter mounting plate are deliberately made undersized, by using a taper tap and not inserting it fully (Fig. 6). Then four $\frac{3}{8}$ in. long pieces of 6BA studding are inserted into the holes so that an equal length of studding protrudes on either side of the plate. The studding should fit tightly in the tapped holes; if this is not the case, a few "pops" on the plate near the studding, with a centre punch should do the trick. Two holes are drilled suitably in one flange of each converter, the lower flange in the case of the 2m and 70cm units and the upper flange of the 4m one. The converters may then be fitted over the studding and fixed in place with nuts.

Part 2 next month

A Simple Converter for 144 Mc/s

By G. R. JESSOP, G6JP*

THE original intention was to build a complete transmitter-receiver as a single project, but owing to a change of plans, only the receiver converter was finished, and it was decided to use this separately until the original project could be resumed. In view of its simplicity, and yet perfectly adequate performance, an article on the individual unit was felt to be justified.

The converter consists of a grounded grid r.f. amplifier stage, feeding into a double triode operated as a mixer-i.f. cathode follower with a 25 Mc/s i.f. output, and another double triode as a crystal oscillator-multiplier using a 10 Mc/s or 30 Mc/s crystal. The circuit is shown in Fig. 1.

The input is fed into the input tuning circuit through an isolating capacitor to a tap on the inductor, and the input to the cathode of the r.f. amplifier valve V1, a 6CW4, is similarly connected to the input circuit. The tapplings should be adjusted for the best sensitivity and noise performance, and

in making such adjustments it should be remembered that there will be some difference between the tapping point for the aerial for maximum signal strength and that required for lowest noise factor.

Isolation between the input and anode circuits of the r.f. stage is provided by a screen fitted across the valve socket.

The anode circuit is series tuned and the h.t. feed taken to a tap on the coil. Decoupling is provided by the resistor and the feedthrough capacitor. Drive to the mixer is achieved by inductive coupling between the anode coil and grid coil of the mixer.

The bandwidth of these circuits is provided by the spacing between the two coils. The anode circuit should be tuned to the centre of the band.

As can be seen from the layout drawing, Fig. 2, the oscillator coil is mounted in line with the two coils and so provides the required inductive injection.

* 32 North View, Eastcote, Pinner, Middlesex.

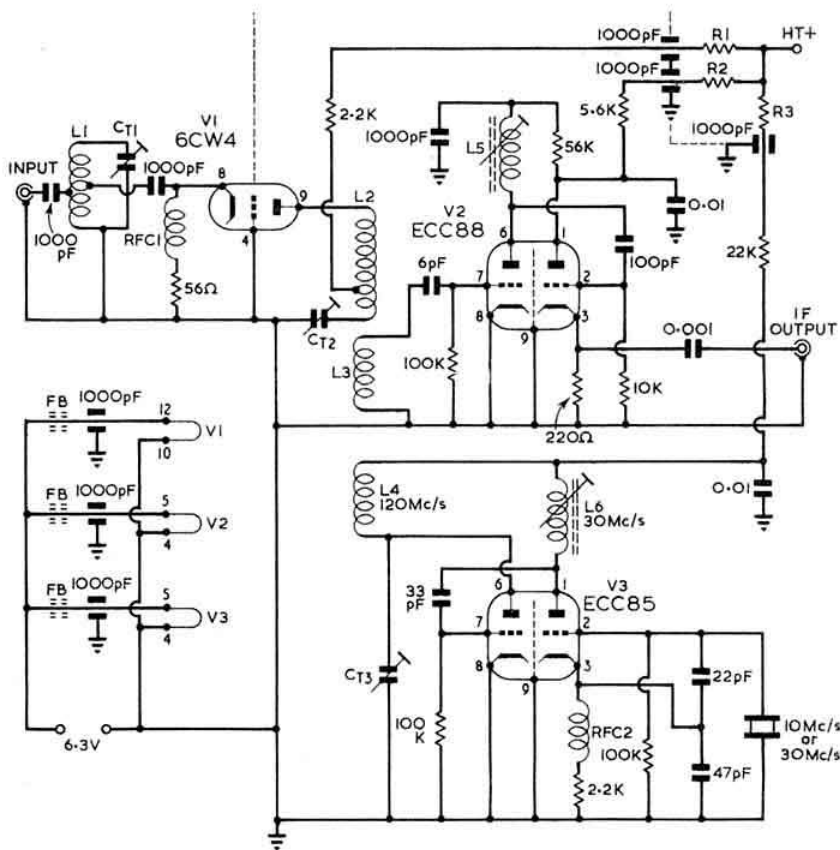


Fig. 1. The 2m grounded-grid converter circuit. CT1, 2, 3, 12pF swing trimmers (Mullard C004EA/12E); 1000 pF feedthrough capacitors; FB, ferrite beads; R1, 2, 3, values depend on h.t.—with 150V, R2 and R3 are 1 Kohm, and R1 is selected to provide 100 volts on the anode of V1; RFC1, 23 in., 26 s.w.g. on $\frac{1}{4}$ in. former; RFC2, 1 mH; V1, 6CW4; V2, ECC88; V3, ECC85.

The second triode of V2 is operated as a cathode follower feeding the output socket; this arrangement has previously been used in earlier converters and is considered to be preferable to the inclusion of an i.f. amplifier stage which is not needed when the converter is used with a communications receiver. In addition, for the extra i.f. amplifier to be effective, a.g.c. should be applied to it from the main receiver, which is an additional complication.

When the tuned circuits are properly adjusted the gain of the r.f. stage is sufficient to overcome the mixer noise. An ECC88 was chosen for the mixer/cathode follower because it has a reasonably good noise factor and is easier to drive than the ECC85.

The local oscillator is also a double triode. An ECC85 has been used here, but if preferred another ECC88 could be used to avoid having three different types of valve. The first triode is operated as a standard harmonic type oscillator with a 10 Mc/s crystal and the anode circuit tuned to the third harmonic, 30 Mc/s. The second triode is tuned to 120 Mc/s. Other crystal frequencies and different multiplication may be used to suit other i.f. frequencies.

In the prototype, 25 Mc/s was used, as has been used by the writer for all the previous converters, and although a general coverage receiver is used with limited "band spread" this has not been found to be any real disadvantage, but certainly no i.f. breakthrough has ever been encountered using either an AR88 or BRT400 as the main receiver (the latter is not so well screened as the AR88).

Construction

As shown in the layout drawings, Fig. 2, the whole converter is built into a medium size Eddystone diecast box. With this size box some care is needed to fit the various components into their proper positions.

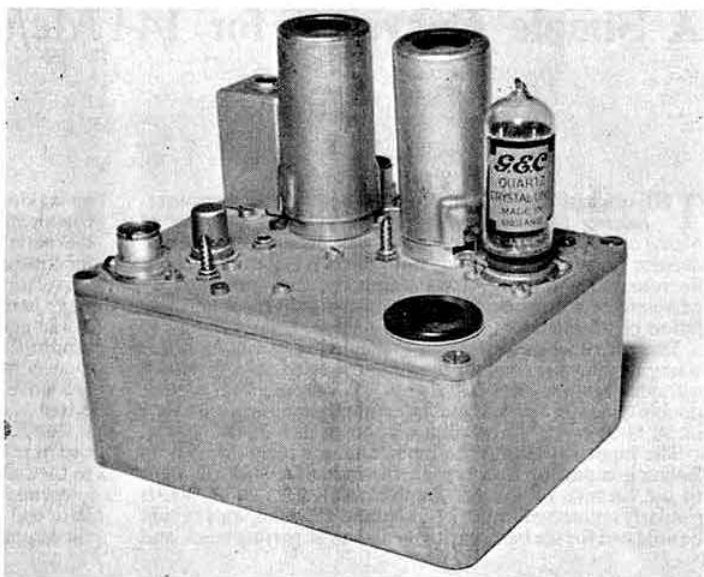
Under the lid of the box on which all the components are fixed is mounted a screen to provide isolation for the power input. Attached to this is the screen mounted across the r.f. stage valve socket. These screens provide a suitable mounting for the feedthrough capacitors used in the heater and anode leads to each valve. R.f. chokes often used in heater circuits have been replaced by ferrite beads slipped directly on the feedthrough capacitor leads. An HC-6/u crystal socket is shown in the layout diagram, which is more commonly used than the B7G type used in the prototype.

Power Supply

Any small power supply that will give 150 volts (or more) at 30 mA and 6.3V at 1 A is suitable; the design shown in the October 1963 issue of the BULLETIN is ideal, in fact.

Coil Table

	Turns	Wire	Diam.	Length	Tap.
L1	6	18 s.w.g.	$\frac{1}{16}$ in.	$\frac{1}{8}$ in.	3T for aerial, 4T for cathode
L2	10	18 s.w.g.	$\frac{1}{16}$ in.	$\frac{1}{8}$ in.	$6\frac{1}{2}$ T from anode end
L3	$5\frac{1}{2}$	18 s.w.g.	$\frac{1}{16}$ in.	$\frac{1}{8}$ in.	
L4	$5\frac{1}{2}$	18 s.w.g.	$\frac{1}{16}$ in.	$\frac{1}{8}$ in.	
L5	26	26 s.w.g.	7.5 mm	closewound	dust iron core
L6	16	20 s.w.g.	$\frac{3}{8}$ in.	closewound	dust iron core



The completed prototype converter constructed by G6JP.

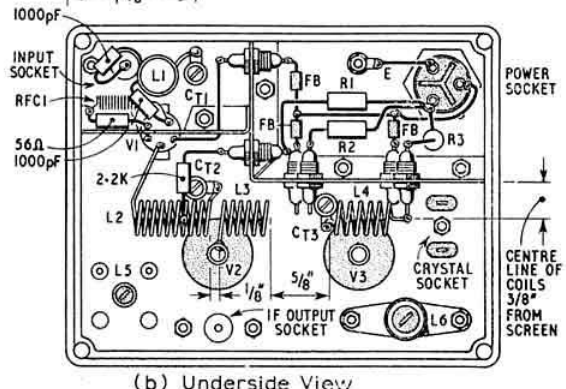
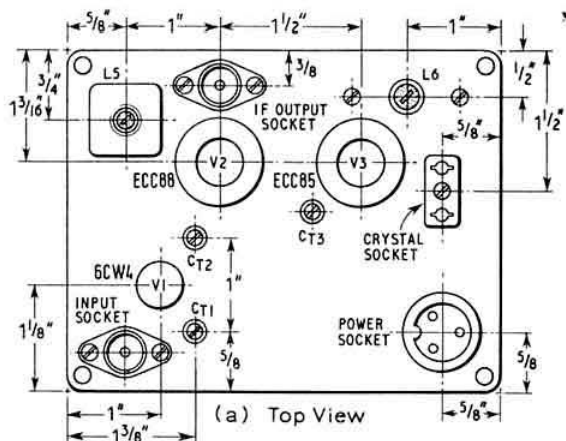


Fig. 2. Layout of components above and below the "lid" of the diecast box.

V. H. F. National Field Day, 1967

By The V.H.F. Contests Committee

For the third year in succession the small windswept island of Alderney in the Channel Islands provided the winner of V.H.F. NFD. Alderney is well placed strategically for this contest with its 80 mile sea path to the South coast of England. But this is not the only factor which has contributed to the success of the GB2GC group. Good organization, well designed equipment, high gain aerials and good operating by a team of keen v.h.f. operators have all contributed to this third win. It is worth noting that each year the score from the GB2GC group has increased, mainly because of the improvements brought about in their u.h.f. equipment. The group have certainly opened up the Channel Islands on the 70 and 23 cm. bands, providing a new country for a large number of u.h.f. operators. The V.H.F. Contests Committee extends its congratulations to the GB2GC group on their third win and feels that they have proven their mastery of this contest from Alderney.

Congratulations are also extended to all the other winning groups, particularly to the Reigate Amateur Transmitting Society as runners up and leading G group. Table 2 gives the names of all the award winners. It is interesting to note that only one award for country leader has gone to a group resident in the country concerned. The awards for the leading GM, GD, GC and GW groups have all gone to visiting groups, who have no doubt put considerable efforts into their entries. But this surely offers a challenge to resident groups and with the rule saying that smaller groups can combine their scores to form one entry, it can only be hoped that there will be more competition from local groups in these countries in the future. Visiting groups have shown in the past what is possible from outlying areas!

Comparison of Entries

Bands	Mc/s	Entries	
		1966	1967
70		51	55
144		52	60
432		37	51
1296		14	17
2300		Nil	2

That Well Known Law

Propagation was only average on all bands apart from two slight openings towards the beginning of the contest favouring the continent on 2m. The well known law which seems to

control all NFD weather was in much evidence with most of the British Isles at some stage experiencing high winds and rain. A number of groups report tents and aerials being blown down. Here are some comments: As for the weather, typically Irish (Mid-Essex); Worst conditions ever encountered, force 10 gale and torrential rain (East Lancs); It happened again, the weather forced our 70cm station off the air early Sunday (Crawley); Gales started at 20.20 hours Saturday, two metre aerial blown down (Southampton); Aerial lost in gale late Saturday night (RAF Sealand); Weather terrible, force 7/8 winds, torrential rain, bitterly cold, hail storm on Sunday (Plymouth); Who said last year's storms would not be repeated (Reigate), etc.

A large number of groups suggested that the date of V.H.F. NFD should be changed to July. This would mean that it would not coincide with the Region 1 IARU contest, however a possible change will be considered by the committee.

Results Tables

Table 1 gives the overall placings and call-signs used by the groups on the various bands, while Table 3 gives the band placings in order, plus other operating and equipment details.

2300 Mc/s

Special mention must be made of a contact made on the 13cm band between the Ealing and District Amateur Radio Society and the Radio Society of Harrow. To the committee's knowledge this is the first contact recorded on the band during this contest and reflects quite an effort on the part of the operators. The distance between the stations was 50 km. At the Harrow Club end near Brill in Buckinghamshire, Dane Evans, G3RPE, provided all the equipment which was operated under the call of G3PSH/P. A special feature of G3RPE's equipment is his crystal controlled converter, which should be of interest to those attempting to get operational on the band. Details of this converter will appear in the next edition of the RSGB Handbook. At the Ealing Club located on Telegraph Hill, Hertfordshire, Brian Greenaway, G3THQ, operated on his own station, a rather bulky device, intended for home station use and mounted in a 4 ft. high rack system. Both G3RPE and G3THQ are members of the G5FK (GEC Wembley) group that provided such an interesting lecture on 13cm gear at the last London V.H.F./U.H.F. convention. The lecturer on that occasion, Heath Rees, G3HWR, was manning the G5FK station during the contest. Signals from G5FK were copied at Brill at RST 538 over a 72 km path, but no signals were heard in the reverse direction. No signals were copied between G5FK and G3THQ/P. The three operators feel that no contacts were made with G5FK because of the receiver in use at the Wembley end; an SEO with a wide band i.f. Details of equipment used by Harrow and Ealing appear in Table 3.

QRA Locators

This is still quite a controversial point. There is no doubt however that a good QRA map is required. Here are some comments: The accuracy of the QRA system is just not good enough for 70 and 23cm use (Newbury/Basingstoke); Very pleased to note that QRA's are nearly universal now (Mid-Essex); Usual moan about the QRA locator as a means of locating stations (City University); QRA locators useful when calculating distances (Maidenhead); The value of the QRA locator system around the UK is doubtful, however it can prove useful when working Continentals (Wolverhampton); Let's have a good detailed map of the British Isles overprinted with the QRA locator grid (Midland); We are not in favour of the QRA locator, but if it must be used confine it to contacts with the continent (East Lancs); Suggest something be done to the QRA system, it seems rather illogical (Boston and Skegness); A decent QRA map for the British Isles would help get the answers right (Midland); We feel that the QRA locator system should not be compulsory for any contest until the RSGB can supply



The site from which Cardiff RSGB Group, GW5BI, operated on 144 Mc/s. They came 41st operating only on this one band. Photo by GW3VBP

V.H.F. National Field Day 1967

Overall Results

TABLE 1

Posn.	Group	70	144	432	1296	Total Score
1	GB2GC Group	GC3POI	GC3WMS	GC3VXK	GC3VXK	112200
2	Reigate ATS	G3REI	G3PNA	G3RIN	G3RIN	69947
3	Surrey Radio Contact Club	G8TB	G3ODY	G3KGA	G3KGA	62959
4	Midland ARS	GW3UWK	GW4LU	G3MAR	G3MAR	62608
5	Mid-Essex VHF/UHF Contest Group	G3VPK	G3ORL	G3LTF	G3LTF	62018
6	Crawley ARC	G3PHG	G3FRV	G3WSC	G3WSC	60907
7	Wolverhampton, Microdynamics and Severn Valley ARC	G3OAD	GW3KMT	G3SVR	G3SVR	60636
8	Albright & Wilson ARS	GW3VDM	GW3OXD	GW3NZS	GW3NZS	57860
9	Bournemouth & Poole VHF Group	G3VOB	G6XM	G3OBD	G3OBD	54516
10	Dorking & District ARS	G3TVW	G3LBA	G3CZU		42257
11	Bristol VHF Group	G3TWT	G3ULU	G3TND	G3TND	39224
12	Grimsby ARS	G4GX	G3RSD	G3NLF		38146
13	Newbury & District ARS and Basingstoke ARC	G3CBU	G3WOI	G8AKM	G8AKM	37702
14	Mid-Herts ARS	G3AAZ	G3PKV	G3WGC	G3WGC	36774
15	Radio Society of Harrow	†G3PSH	G3EFX	G3HBW	G3HBW	36709
16	Southampton Group	G3MRA	G3MDH	G3MRA		34570
17	Cumberland & Westmorland VHF Group	G3WIN	G3RHE	G3WIN		33444
18	Worthing & District ARC	G3WOR	G2DSP	G3JHM		33413
19	Stean Group	G8NF	G3MFJ	G3KKP		32227
20	South Dorset RS	G3EAT	G3SDS	G3RZG	G3RZG	32114
21	North-West VHF Group	G3SLL	G3MAX	G3UHF		32017
22	Ealing & District ARS	†G3THQ	G3OUF	G8ART		31242
23	AERE Harwell ARC	G3PIA	G2HIF	G3NNG*	G3NNG*	31119
24	Plymouth RC		G3PRC	G8ADP		28151
25	Derby & District ARS	G2BZF	G3ERD	G2DJ		26815
26	East Chiem Wireless Society	G3OJE	G6SC	G8AVN		26442
27	Loughborough ARS	G3BNL	G3RAL	G3BNL	G3BNL	24796
28	RAF Sealand ARC	GW3LAI	GW3ITZ	GW8AAP	GW8AAP	24769
29	Norwich & District Group	G2YU	G2YU	G2YU		23512
30	Verulam Group	G3STA	G3VER	G3JFP		22053
31	Worcester VHF Group	G3OCB	G3XC	G2BHW		21745
32	Worcester VHF Group	G3STQD	G3NUE			21142
33	Clifton ARS	GW3OYU	GW3GHN	GW8ARN		20063
34	City University ARS		GW3VFD	GW3WKL		19844
35	Wirral ARS	GW2AMV	GW3NWR			19170
36	West Kent ARS	G2UJ	G3WKS			17644
37	Sheffield Group	G8NN	G3JRL	G8AAC		16999
38	Burnham Beeches Group	G3WIR	G3AHB	G8AIJ		16490
39	Blackpool & Fylde ARS	G3UCA	G3UIT	G3UIT		16000
40	Southgate RC and Cheshunt & District RC	G3TDM	G3SFG	G3FD		15670
41	Cardiff RSGB Group		GW5BI			15566
42	East Lancashire ARC	G3PUO	G3EKP	G3VRW		15483
43	Northern Heights ARS	G3UGF	G3UBI	G2SU		12977
44	North Kent ARS	G3TAA		G8ARM		11900
45	The Warren Group		G3REL	G8APQ		11380
46	Oxford & District ARS	G3UJO	G3PMI			11061
47	Rhyl			GW8ACG		10988
48	Pontypool ARC	GW3CDH	GW2HIN	GW3RNH		10903
49	Chingford RSGB Group		G3FEW			10065
50	Rochdale & District VHF Group	G3M3RIK				10052
51	South Huntingdonshire UHF Group			G8AKT		9651
52	Yeovil ARC			G8AFA		8709
53	Luton & District ARC			G8ADC		8126
54	Purley & District ARS	G3TWJ	G3VKI	G3GKF	G3GKF	8051
55	Crystal Palace and District ARS	G3VCP				7937
56	Maidenhead & District ARS	G3WKK	G3WKK			7859
57	Preston ARS	G3KUE				7248
58	Barnsley & District ARS		G4JJ*	G8AKQ		6896
59	Fareham & District ARC	G3VEF	G3TDM			5789
60	Loughton & District ARS		G8AB			5719
61	Mid-Warwickshire ARS	G3EHA		G3UOD		3632
62	Hampshire		G3BPM			3314
63	North-West Durham Group	G3SKN*	G3UVU			2599
64	Boston & Skegness District Group		G3MMS			2181
65	Moray Firth ARS			G8BAGU		1840
66	Stoke on Trent ARS	G3JWZ*	G3GBU*	G8BCP		586
	Gulldford & District ARS	G3TLM*	G3HTP*	G8ACJ*		
	Leyton & District RS	G3VUE*	G3WHY*	G8ALM*		
	Reading RSGB Group	G3LFM*	G5HZ*			

* Disqualified.

† Also operated on 2300 Mc/s band.

AWARDS—TABLE 2

Group	Award
Overall winner	GB2GC Expedition group
Overall runner up and leading G group	Reigate Amateur Transmitting Society
Winner 70 Mc/s	GB2GC Expedition Group
Winner 144 Mc/s	GB2GC Expedition Group
Winner 432 Mc/s	GB2GC Expedition Group
Winner 1296 Mc/s	Mid-Essex VHF/UHF Contest Group
Winners 2300 Mc/s	Ealing and District ARS and Radio Society of Harrow
Leading GM Group	Rochdale & District VHF Group

Group	Award
Leading GD Group	Worcester VHF group
Leading GC group	GB2GC Expedition group
Leading GW group	Albright and Wilson ARC

TABLE 3—Details of 2300 Mc/s equipment

	Harrow—G3PSH/P (G3RPE)	Ealing—G3THQ/P
Transmitter	S.E.O.—p.a. DET22—IP 9W.	S.E.O.—p.a. DET22—IP 10W.
Receiver	Crystal controlled SIM5 diode mixer	S.E.O. controlled—CV2154 mixer—
	E88CC cascade i.f. amp at 25 Mc/s.	Wide band i.f. at 30 Mc/s.
Aerial	4 ft dish at 27 ft.	1.5 ft dish at 26 ft.

70 Mc/s

Posn.	Call-sign	Score	No. of QSOs	No. of Ops	Best QSO Km.	Aerial	27	GW3OYU	7750	57	1	370	6/6 Slot
1	GC3POI	26705	107	2	539	4/4/4/4	28	G3KUE	7248	59	4	375	3 ele
2	GW3VDM	18874	106	3	320	4 ele	29	G3TWT	7239	49	3	343	7 ele
3	G3REI	18815	129	3	650	4/4	30	G3CBU	7178	57	2	358	4 ele
4	G3VPK	17239	145	3	585	6/6	31	G3UCA	6440	55	4	428	6 ele
5	G4GX	15363	83	4	455	4/4	32	G3AAZ	6416	56	6	283	4 ele
6	G3PHG	15215	137	3	407	6 ele	33	G3EAT	6409	51	7	264	4 ele
7	G3WIN	15032	76	2	507	4 ele	34	G8NN	6338	51	3	404	4 ele
8	G3VOB	13493	92	3	381	6/6	35	G3WIR	6242	63	2	320	3 ele
9	G3WOR	13026	119	8	442	4 ele	36	G3OJE	6166	62	3	323	4 ele
10	G3SLL	12818	90	1	388	4 ele	37	GW3LAI	6047	66	2	337	4 ele
11	G3THQ	12520	100	6	510	6/6	38	G3TDM	5976	60	4	268	4 ele
12	G3PIA	11863	96	2	518	4/4	39	G3TAA	5682	75	2	266	4 ele
13	G3TB	11457	120	3	385	4/4	40	G2YU	5237	27	5	384	5 ele
14	G3MRA	11403	192	2	408	4 ele	41	G3VEF	5131	45	4	358	4 ele
15	GW3BUWK	11186	73	2	400	3 ele	42	G3WXX	4540	67	6	242	3 ele
16	G3OAD	11007	73	3	378	4/4	43	G3UGF	4504	45	3	360	3 ele
17	G3PSH	11004	91	2	509	4/4	44	G2UJ	4411	48	2	400	4 ele
18	G8NF	10625	68	2	475	4 ele	45	G3TWJ	3773	63	4	244	6 ele
19	GD3TQD	10272	59	3	436	4/4	46	G3BNL	3370	24	2	331	5 ele
20	GM3RIK	10052	39	3	650	4/4	47	G3UJO	3333	32	2	232	3 ele
21	G3TVVW	9963	55	3	363	4 ele	48	GW3CDH	2372	21	1	225	2 ele
22	G2BZF	9583	66	4	357	4 ele	49	G3PUO	2194	16	1	275	4 ele
23	G3STA	8369	86	7	468	4/4	50	G3EHA	1418	35	1	175	4 ele
24	GW2AMV	8062	62	4	367	4 ele	Disqualified:						
25	G3VCP	7937	92	4	360	3 ele	G3JWZ		Rule 12	G3SKN		Rule 10	
26	G3OCB	7779	39	4	400	4/4	G3TLM		"	G3VUE		"	
							G3LFM		"				

144 Mc/s

Posn.	Call-sign	Score	No. of QSO's	No. of Ops.	Best QSO Km.	Aerial	29	G3OUF	11138	53	3	452	10/10
1	GC3WMS	55432	171	3	705	10/10	31	GW3NWR	11108	71	1	600	6/6
2	G3FRV	37028	175	3	693	10/10	31	G03NUE	10870	51	2	500	10/10, 10 ele & 6 ele
3	G3PNA	34654	154	3	583	10/10	32	G3W3TZ	10864	81	4	385	4/4
4	GW4LU	31239	135	4	780	10 ele	33	G3FEV	10065	101	7	548	4/4 Slot
5	G3ODY	29901	153	4	584	6/6Slot	34	GW3VFD	10024	57	3	534	6/6
6	GW3OXD	26981	137	3	600	10 ele	35	G3PKV	9670	82	6	559	10 ele
7	GW3KMT	26524	142	3	686	2 x 6 ele	36	G3WOI	9147	86	3	355	4 ele
8	G3LBA	26180	124	3	980	6/6 Slot	37	G3VER	8932	81	6	640	8/8 & 4 ele
9	G6XM	24589	133	2	635	10 ele	38	G3JRL	8403	74	2	305	7 ele
10	G3ORL	23985	117	2	615	10 ele	39	G3UIT	8240	57	5	428	10 ele
11	G3PRC	21555	91	5	840	6 ele	40	G3REL	8184	82	2	329	8 ele
12	G3RSD	19731	97	5	666	6/6 Slot	41	G3PMI	7728	59	2	483	2/2 Slot
13	G2HIF	19256	128	4	593	6/6	42	G3UBI	7418	53	3	525	8 ele
14	G3ULU	17379	70	2	738	6/6 - 6/6	43	G3EKP	7325	66	2	354	8 ele
15	G3SDS	16401	91	8	736	6/6 Yagi	44	GW3GHN	6427	51	2	370	8 ele
16	G3MAX	16047	106	6	800	6/6 & 8 ele	45	G3AHB	6288	69	2	333	6/6 Slot
17	G3W5BI	15566	90	3	568	4/4 Slot	46	G3SFG	6176	64	6	365	8 ele
18	G3RHE	14638	74	2	507	6/6 Slot	47	GW2HIN	5803	49	1	336	6 ele
19	G3EFX	14291	108	4	397	8/8 slot	48	G8AB	5719	64	4	336	6/6
20	G2DSP	14291	93	4	442	8/8 Yagi	49	G3VKK	3319	37	5	248	8/8 slot
21	G3WKS	12333	96	5	496	4/4	50	G3BPM	3314	44	1	195	5 ele
22	G3ERD	13114	94	4	462	16 ele Stack	51	G3UVU	2599	27	4	240	6/6
23	G3XC	12586	49	2	615	6/6	52	G3MMS	2181	20	2	412	6/6
24	G3MDH	12333	74	3	645	6/6 Slot	53	G3VKI	1684	36	3	107	6/6
25	G2YU	11955	68	5	459	5 ele	54	G3CMH	811	10	4	160	8/8
26	G3RAL	11542	86	3	505	8 ele	55	G3TZM	658	6	1	230	4 ele
27	G6SC	11364	102	4	473	6/6 Yagi	Disqualified:						
28	G3MFJ	11352	70	4	475	8/8	G4JJ	Rule 12	G3HTP	Rule 12	G3WHY	Rule 10	
							GSHZ		G3GBU				

432 Mc/s

Posn.	Call-sign	Score	QSOs	No. of OPs	Best QSO (Km)	Aerial	27	G8ADP	6596	20	1	288	8/8 slot
							28 <td>G2YU<td>6320<th>18</th><th>5</th><th>384</th><th>18 ele</th></td></td>	G2YU <td>6320<th>18</th><th>5</th><th>384</th><th>18 ele</th></td>	6320 <th>18</th> <th>5</th> <th>384</th> <th>18 ele</th>	18	5	384	18 ele
							29 <td>G8ARM<td>6218<th>37</th><th>5</th><th>220</th><th>18 ele</th></td></td>	G8ARM <td>6218<th>37</th><th>5</th><th>220</th><th>18 ele</th></td>	6218 <th>37</th> <th>5</th> <th>220</th> <th>18 ele</th>	37	5	220	18 ele
1	GC3VXK	26023	56	2	528	10/10/10/10	30	G3JHM*	6218	35	7	290	18 ele
2	G3SVR	15273	70	4	275	64 ele stack	31	G3CZU	6114	28	3	240	10 ele
3	G3RIN	14590	51	3	318	14/14	32	G3VRW	5964	44	1	240	8/8 slot
4	G8AKM	13801	70	2	293	32 ele stack	33	GW8ARN	5986	79	2	225	18 ele
5	G3KGA†	13790	58	2	330	8/8 slot	34	G3UFP	5192	4	3	255	24 ele
6	G3WCG	13302	57	8	301	14 ele	35	G2DJ	4118	29	4	245	18 ele
7	G3MAR	13123	67	4	285	14/14	36	G8AIJ	3960	29	2	135	6/6 slot
8	G3LTF	12410	64	3	387	24 ele stack	37	G3WIN	3774	15	2	142	9/9 slot
9	GW3NZS	11045	39	2	318	17 ele	38	G3UHF	3352	25	1	141	16 ele stack
10	GW8ACG	10988	47	1	358	6/6 slot	39	G8APQ	3196	22	2	158	6/6 slot
11	G3MRA	10834	52	3	322	14/14	40	G3NJF	3052	14	3	172	48 ele stock
12	G3KKP	9910	31	3	475	18/18	42	GW3RNH	2728	19	1	137	8/8 slot
13	GW3WKL	9820	40	2	338	18/18	43	G8AAC	2258	17	2	126	18 ele
14	G3OBD	9682	47	3	192	18/18	44	G3UOD	2114	28	1	280	11 ele
15	G8AKT	9651	49	2	312	16 ele	45	G3GKF	1994	21	2	107	8/8 slot
16	G3TND	9254	40	4	288	48 ele stack	46	G8MAGU	1840	5	1	192	8/8 slot
17	G8AVN	8912	57	2	251	18 ele	47	G2BHW	1380	3	1	215	16 ele
18	G8ADC	8126	52	2	232	10/10	48	G3UIT	1352	16	4	100	24 ele
19	G8AFA	7896	31	2	287	24 ele	49	G8ACJ	1258	22	1	88	—
20	GW8AAP	7858	44	1	278	8/8 ele	50	G2SU	1055	7	1	370	8/8 slot
21	G3WSC	7584	40	1	320	18 ele	51	G8BCP	686	12	1	100	8/8/8/slots
22	G3BNL	7556	37	1	326	14 ele							
23	G3HBW	7550	44	2	248	8/8/8/slots							
24	G8ART	7180	22	4	335	8/8 slot							
25	G8AKG	6896	38	1	218	8/8 slot							
26	G3RZG	6696	31	8	224	14/14							

Disqualified: G3NNG Rule 10 G8ACJ Rule 12
G8ALM "

† Please note band multiplier next time
* Note correct band multiplier.

1296 Mc/s

Posn	Call-sign	Score	No. of QSOs	Output stage	Best QSO Km	Aerial
1	G3LTF	8384	11	Varactor	165	4 ft. Dish
2	G3SVR	7832	9	DET 24	142	Corner Reflector
3	G3WGC	7656	11	2C39A	142	4 ft. Dish
4	G8AKM	7576	11	2C39AB	139	3 ft. Dish
5	G3KGA	7504	10	TD1-100	140	3 ft. Dish
6	G3MAR	7060	9	DET 24	145	Corner Reflector
7	G3OBD	6752	10	2C39A	140	4 ft. Dish

8	G3TND	5352	9	2C39A	136	4 ft. Dish
9	GC3VXX	5040	4	DET 24	233	4.5 ft. Dish
10	G3HBW	3464	7	DET 24	101	4 ft. Dish
11	G3RZG	2608	4	2C39A	116	3 ft. Dish
12	G3BNL	2328	3		112	
13	G3RIN	1888	3	2C39A	130	3 ft. Dish & 8/8 slot
14	G3WSC	1080	2	2C39A	80	6 ft. Dish
15	GW3NZS	960	2	DET 24	80	5 ft. Dish
16	G3GKF	600	2	2C39	65	3 ft. Dish

Disqualified: G3NNG Rule 10

the maps.* (Moray Firth); What's this funny QRA thing (North Kent)—where have you been for the past few years (V.H.F. Contests Committee); Being responsible for the calculation of the scores, I agree absolutely with the requirement for the exchange of QRA locators, which makes life very much easier when it comes to the paper work (Stean); Sorry for sending the wrong QRA locator, I am not really trying to mess up the system (Peter of Mid-Essex).

Several groups are still under the impression that if a fixed station does not know his QRA that the contact is not valid. This is certainly not correct, and it follows that one does not have to extract a QTH from a continental operator if both QRA and QTH are asked for in the rules. It is up to entrants to send the information requested in the rules.

Three Stations

There were no adverse comments on the introduction of three separate stations in the contest. Here are some comments: The new rules are a great improvement and worked well (Bristol); The inclusion of a third station is most welcome despite the increased organization which it entails (Stean); Our group is in full agreement with the rules at present. The addition of a third station was a great help to overcome some of our earlier difficulties (Bournemouth and Poole); Three stations rule a great improvement (Sheffield).

General Comments

We should have a scoring system reflecting operating ability and station efficiency rather than distance travelled (Crawley); The BBC was using our site for an outside broadcast with i.f.s at 70 Mc/s, 8 Mc/s wide (Southgate)—who got there first? (V.H.F. CC) and in a similar vein: We propose that stations be limited to operating within 30 miles of the club HQ or within their own county whichever is smaller (Worthing); We consider groups that are operational from their contest location some days or even weeks before the contest have a considerable advantage over others, and suggest the rules be amended (Reigate); Suggest the contest could commence earlier giving 24 hours operating, but the earlier close down was appreciated (Surrey RCC); Please ban PE generators for future events, as this would encourage our group to think again about power supplies—our generator is now becoming more unreliable with each contest! (Burnham Beeches); Please, please write in a rule that CQ callers state which way they intend to tune (Clifton); and finally the GB2GC group heard on the 70cm band one G8 tell another, "There is a lot of fading on your signal OM, it must be the QSB doing it!"

The vast majority of groups are satisfied with the rules as they are at present. Only one group made the suggestion that the rule on power input be revised. Entries for V.H.F. NFD have now been received from all G countries in the British Isles, as this year an entry was received from the Isle of Man, for the first time. In fact this year all British countries were represented with the exception of GI.

It is planned to keep the rules for the 1968 event very similar to this year's contest, certainly the use of three separate stations will be retained. It is however intended that the actual scoring system be altered, in as much as the present accurate distance measuring will be cut out. This will mean that next year's V.H.F. NFD will be somewhat less of a strain on the poor chap who has to sit down for an evening or so with all the maps to make the measurements.

Any comments or suggestions for the modification of the rules for the next year's event are always welcome and as always the V.H.F. Contests Committee thanks all those who took part in the contest.

* QRA Locators are now available from RSGB HQ, priced 5s. 6d. folded or 7s. in postal tube.



Norman Fisher, G8ATO, assisted by Stephen Bonniwell, operating Verulam's 70cm station, G3UFP. They came 34th on this band.

(Photo by Paul Flecher)



Coming this year ninth in the overall results table were the Bournemouth and Poole V.H.F. Group.

Crystal Calibration at V.H.F.

By B. PRIESTLEY, BSc., G3JGO

After the publication of my article in the June 1967 Bulletin I received some criticisms from the Technical Committee. The following note is an attempt to remove the Committee's objections.

THE self excited oscillator is modulated with a rectangular waveform derived from the crystal source. The term "overmodulation" was meant to indicate the complete stoppage of oscillation before the end of the off half cycle, and was deliberately used to emphasise the need for sufficient 100 kc/s drive to reach this condition, which is similar to the effect of too much modulation power on an A3 transmitter. See Fig. 1.

This was simply a way of explaining how to get the circuit to work in practice; a detailed analysis of the circuit proceeds on different lines:

The output consists of a pulse or burst of oscillations at, say, 29.07 Mc/s, which repeats exactly every 10 μ seconds (the period of the 100 kc/s oscillation). It can be shown that such a waveform contains harmonics of 100 kc/s only. Also it seems reasonable that these harmonics are of maximum amplitude near 29.07 Mc/s. By a laborious Fourier analysis these results can be proved, but the results are hardly worth the effort.

However, Fourier analysis does demonstrate that with the s.e.o. accurately tuned to one particular harmonic and with the longest possible ON to OFF ratio, this particular harmonic may be produced up to 40dB stronger than are others. This seems an attractive way of using otherwise

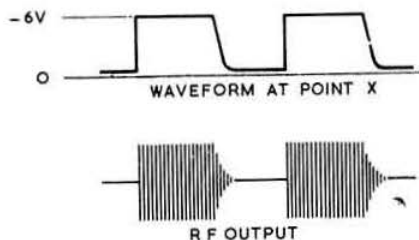


Fig. 1. Hahnel oscillator waveforms.

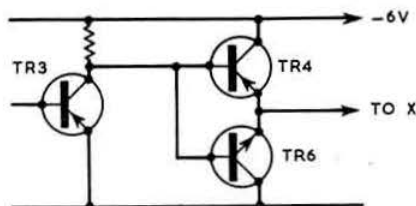


Fig. 2. A modification for higher crystal frequencies. TR6 can be a 2N1302, 2N1304, 2N1306, 2N1308, OC139, OC140 or OC141.

useless crystals for the v.h.f. bands, say the 17th harmonic of 8.5 Mc/s. Enterprising amateurs would do well to read Hahnel's article "Multichannel crystal control of V.H.F. and U.H.F. Oscillators" in *Proc. IRE* Jan. 1953 p. 79.

Experiments have shown that the charge stored in C4 is sufficient to keep the oscillator running through the off period if 500 kc/s markers are required, but the addition of a complementary transistor to the emitter follower discharges this rapidly and gives reliable results at the higher frequency. See Fig. 2.

Scottish Mobile Rally and Region 14 ORM

Although reasonably far north and effectively nearer winter than the rest of the United Kingdom, the decision to hold the combined Scottish Mobile Rally and Region 14 ORM late in September paid off reasonably well with a mid-summer's day on the Saturday and a warm but very wet day on the Sunday. The total turnout for the two days' event was just under the 2000 mark, and this resulted in the National Trust for Scotland benefiting by nearly £300 which will go towards the Culzean Castle Restoration Fund.

The ORM which took place on the Saturday afternoon had Mr J. C. Graham, G3TR, Executive Vice-President of the RSGB and Mr J. F. Shepherd, GM3EGW, Zone G Representative, as official guests from the Radio Society of Great Britain.

During the ORM the ladies were treated to a beauty demonstration by consultants for the Beauty Council of Great Britain, and the children enjoyed themselves at a film show in the castle.

Much interest was shown by young and old in the great assortment of radio equipment which was on show at the Trade Exhibition, and in particular the Special Exhibition Prize—the new ten metre beam aerial, the "Miniten," which was presented by Minitenna Products for this special occasion. The Mobile Rally prizes went to Tom Hughes, GM3EDZ, who was judged to have the best mobile installa-

tion, and to Sam Nutt, G3OCR, who was the farthest travelled "mobileer"—all the way from Brighton. A further fifty prizes donated by the various manufacturers were distributed during the course of a social evening on the Saturday.

The Exhibition Station, GB3CC, which was run by the Lowland Royal Signals Amateur Radio Club, found itself in very much demand especially by the W's and K's when they realized that Culzean Castle was "Ike" Eisenhower's Scottish home.

Although there were several last minute cancellations by groups who had intended exhibiting and displaying at side-shows the abundance of natural facilities together with the organized ones, more than ensured a reasonably exciting and enjoyable time for all who attended, and it is to be hoped that this new event in the Amateur calendar will go from strength to strength and prove to be just as popular in the years to come.

CE1HL

Michael Humphries, G3LRQ, of Maldon, Essex, recently had a surprise visit from Jorge Navarro, CE1HL, of Chuquimata, Chile, while Jorge and his wife were staying with their daughter and brother-in-law, who live in Maldon.

Jorge, who has now returned to Chile, is hoping to make contact with amateurs in the Maldon area on 20m s.s.b.

THE MONTH ON THE AIR

By JOHN ALLAWAY G3FKM

YOUR scribe was very sorry recently to find that the experiences of a friend who has recently returned to the air after a year's inactivity confirm his fears that the general standard of operating behaviour is falling off quite alarmingly. All too frequently the frequencies of DX stations are occupied by numbers of stations calling them long after they have established contact with someone else, presumably following the theory that if they make their own call-signs heard often enough they will be rewarded with the next place in the list. Unfortunately this is all too often just what does happen; only a few days ago a well-known Far Eastern station was heard telling callers that he would not contact anyone calling him out of turn and then on each and every occasion on finishing a contact going straight into QSO with a station who had called during his previous contact! All of us are guilty from time to time of making errors of judgement in calling, but it does seem a pity that newcomers to the hobby should hear their elders behaving so badly and profiting from it. The strange thing is that very few of the individuals who attempt to break into a conversation between two other people when they are on the air would entertain doing such a thing if they saw two strangers standing talking in the street! Comment along similar lines is made in the November issue of the FOC's Circular Letter which points out the very large number of UK phone stations which have recently been heard operating in those portions of the bands allocated exclusively for c.w. use in the European Band Plan.

Although most readers will be reading this rather a long time before the event the writer would like to take this opportunity to wish everyone a very happy Christmas, and to thank them most sincerely for all the help (and tolerance) extended to him during 1967. Special season's greetings are extended to all exiled Britons who will be far away from family and friends during the festive season. Readers may like to be reminded that the Ex-G Radio Club meets every Sunday at 14,346 kc/s at 19.00, and that interest in this round table by stations in the UK is greatly appreciated. There is a similar get together on 14,065 kc/s c.w. at the same time every Saturday.

Keen DX enthusiasts who are interested in up-to-date information on expeditions, currently active stations, forthcoming contests, and items of general interest would be well advised to take the DX News Sheet. This is a weekly sheet, produced by Geoff Watts, 62 Belmore Road, Norwich, Norfolk, NOR.72.T, from whom full details may be obtained.

It is proposed to print a short paragraph of requests from transmitting stations for listener reports in forthcoming issues. Would interested parties please send details of areas from which reports are required to G3FKM? It is hoped that anyone taking advantage of this section will QSL all reports received.

Ray Wakeman, DL5XG, who is at present in Germany reports that he is receiving QSLs and reports for his G3UNK/P call which he has never used yet.

Top Band News

News has been received from JA3AA that he will be very active on 160m this winter. He hopes to be on the band every Saturday, Sunday and Monday at the following times: during November from 21.00 to 21.30, during December from 21.30 to 22.00, during January from 21.45 to 22.15, and in February between 21.30 and 22.00 GMT. These times correspond with the times of sunrise in Osaka. JA3AA's frequency will be 1908 kc/s and he will be listening between 1825 and 1828 kc/s for callers. As a matter of interest Sima had already had two contacts with VK5KO this autumn.

VK5KO reports being heard by KA9AK in Japan on several occasions during June but no QSOs were had with JA until late September when JA3AA and JA1BHG were contacted. According to John JA7NI has heard KL7FRY and W7DOI, and he says that the biggest thrill of his 160m life was the contact with VQ8CCR (Rodriguez Is.) at 18.00 on 11 September. This gave him his 160m WBE—G3PEU, ZL3OX, VSILP, VE2UQ, and VQ8CCR, certainly the first known one by an Australian station; our congratulations on a very fine performance.

It seems that there has been some illicit activity by a station signing "VP8JD" on the band. At the time of writing there had been no operation whatsoever by VP8JD on 160m.

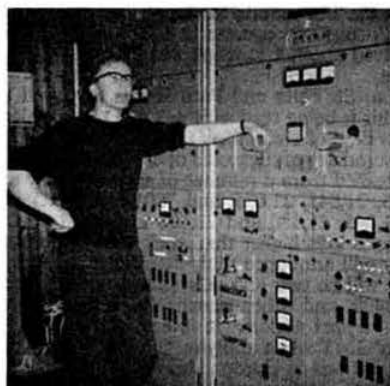
During a contact with your scribe VQ9JW said that he has heard, but not so far contacted W1BB.

A reminder of the forthcoming Transatlantic Tests. The first of the season will already have taken place. During 17 December "First Timers" morning G3PQA will stand by to assist, on 7 January VO1FB, on 4 February G3SED, and on 4 March W2EQS. Your scribe would very much appreciate reports on this winter's test achievements. Full details of the tests are as follows: they will take place on Sundays 17, 31 December, 14 January, 4 and 18 February, between 05.00 and 07.30. W/VE stations call during first five minutes of the hour and alternate five-minute spells, while European stations call CQ during the second and other even five-minute periods of the hour. On the "First Timers" mornings (7 January and 4 March) European stations are asked to look out for weak W/VE signals, and on 17 December and 4 February W/VE stations will listen for weak European/African signals. Stations who have already had transatlantic QSOs are asked to stay off during the First Timers morning applicable to their side of the Atlantic, in order to give the others a better chance. Frequencies suggested for European stations are 1825-1830 kc/s, and for the E. Coast W/VE's 1800-1825 kc/s. W. Coast W/VE signals are to be found between 1975 and 2000 kc/s.

Earlier information concerning ZB2AY given in August MOTA was apparently incorrect. Roger has written to say that he will be on for four weeks from 15 December, both c.w. and s.s.b. He hopes to have a third of a mile of wire for an aerial, and will keep a daily sked with G3LYW on 1858 kc/s. He will be looking for c.w. DX into the early morning hours around 1802 kc/s. Skeds may be arranged on 14 Mc/s. Please note that the Callbook QTH of ZB2AY is incorrect—the new one will be found in QTH Corner.

DL9KRA has evidently arrived in Senegal as 6W8CW and has been heard and worked on the band. Unfortunately

* 10 Knightlow Road, Birmingham 17. Please send items for the February issue to arrive by 17 January, for the March issue by 14 February, and for April by 13 March.



Three more operators currently active from the Falklands Islands area. Seen here from left to right John VP8CW, Geoff VP8JM, and Andy VP8FL.

a number of stations persisted in calling him on his own frequency and caused a great deal of unnecessary interference.

A report received from G3JVJ says that he believes that 5N2AAF will not be on 160m this winter as his special permit has not been renewed.

News from Overseas

Jacques Spencer-Chapman, who was formerly 5N2AAH, and who has recently been G3WUK, has now departed for Nairobi and has been issued with the call-sign 5Z4LF. His address will be found in *QTH Corner*. The October issue of NARS News reports that Angus, ex-5N2AMS/HZ2AMS, etc., is leaving his present surroundings in Lancashire and is believed to be returning to West Africa, probably Ghana. The editorial in this issue also makes reference to the subject referred to in the opening paragraph in *MOTA*. It seems that the 5N2s are badly plagued by persistent callers and measures to deal with them suggested are (1) keep a black list and refuse to work offenders, (2) announce this fact, (3) change frequency frequently announcing the new frequency whilst the callers are still calling, and (4) in the worst cases where the calling will just not stop work the offender and do not QSL or (5) close down and have a cuppa! 5N2AAF concludes by saying that the majority of stations are well behaved, especially those in the USA, Scandinavia, and the UK.

During the *Queen Mary's* last cruise from Southampton to Long Beach, which was scheduled to last from 31 October to December 9, there will be activity from an amateur station aboard. The call-sign is GB5QM and likely frequencies to be used 7000, 7075, 14,180, 14,230, 21,290, and 29,000 kc/s. QSLs should be sent to the address in *QTH Corner*.

VK5KO says that he has been receiving a number of requests for skeds on 3.5 Mc/s from the UK. In order to help interested stations he will be on either 3501 or 3507 kc/s between 19.15 and 20.15 daily during December, the frequency depending on the amount of interference. Normally a lot of contacts with Europe are made at this time.

As mentioned in a previous *MOTA*, Ron Skelton, ex-9M8RS is now in Jamaica and he has written to say that his new call-sign is 6Y5SR. His gear has unfortunately been held up en route from Sarawak, apparently having been unloaded in Germany instead of in London! In view of this it is unlikely that 6Y5SR will be heard on the air before Christmas. Ron offers to deal with any outstanding 9M8RS QSL requests if QSO details and s.a.e. plus an IRC are sent to him at the address in *QTH Corner*.

K6CYG wishes it to be known that from 31 December he will no longer act as QSL manager for CT3AR, KS6BH, KZ5AY or 3A0DX.

G5FH reports that GC2JZ is at present in the British Virgin Is. and has the call-sign VP2VM. He will be there until March 1968, and QSLs for him should be sent via G5FH. Len also says that G3DJQ will be arriving in the VK3 area around Christmas and hopes to be able to get on the air during his two month stay. No call-sign is yet known.

In a letter to your scribe, Arch, VK5XK, who recently operated from Lord Howe Island, describes some of the difficulties of operating in that part of the world. He says that he was on 3.5, 7 and 14 Mc/s with 25 watts input and worked quite a large number of Europeans on the long path between 05.00 and 08.00 on 14 Mc/s. Static was never less than S8 on 3.5 Mc/s and usually S5/6 on 7 Mc/s. The interference from commercial stations on the latter band was simply dreadful and the only section even remotely clear was 7006 to 7018 kc/s. Arch says that he knows of an American visitor who had to use a frequency meter to find the 7 Mc/s band! The geography of the island does not assist radiation to the south as there are two 2000 ft. hills at the southern end. Anyone still needing a QSL from Arch is promised one direct by airmail in exchange for a s.a.e. plus four IRCs (or 5 CRCs).

G3DO informs us that W3DWG/VR6 (Pitcairn Is.) has now returned to the US. Doug has received logs containing QSO information up to 27 August, and understands the logs for the remaining period 27 August to 25 October are being sent off on the next boat from Pitcairn; it will obviously be some time before these are received so patience is requested from those needing cards for these late QSOs. All cards received to date have been answered, and G3DO is able to confirm all contacts outside the USA.

Dennis, KG6FAE, may be reached at the address given in *QTH Corner*, or via his home QTH—Dennis Haarsager, RFD 3, Beresford, S. Dakota, 57004, USA.

DXpeditions

A four-page summary of the recent activities of Don Miller in the Indian Ocean area has been received. This says that due to financial difficulties, unless more income is received soon the expedition will terminate and Don will return to the US. It was the expedition's original intention to operate from Rodrigues Is. first, but due to damage to the *Edward Bear's* sails en route they turned towards St. Brandon where 5,500 contacts were made. After returning to Mauritius, Steve (VQ8CC), Larry (WB2DHF) and Don departed on the MV *Mauritius* for Rodriguez Is. Here they



Herb, W1DEO, who made the first W/5H3 160m QSO this year, has a 265ft. semi-vertical aerial supported by a 325ft. high TV tower!
Photo by W1BB.

were permitted to operate from the Cable and Wireless station, where four 100 ft. towers with platforms were placed at their disposal! This fine set up realized over 6,000 contacts on all bands 160 to 10m. The expedition together with the Long Island DX Association has donated a Swan transceiver to the custody of VQ8AD, for possible use by future expeditioners in the Indian Ocean area. If Don continues with his plans he may visit five more places in the Indian Ocean, and four on the way back to the US. No names are mentioned, but he thinks that two are definitely in the "new country" category and that another four are in the "top ten" of the wanted list. At the time of writing W9WNV was back in VK6 after a successful stay on Cocos Keeling Is. using the VK2ADY/9 call-sign.

During a QSO between G3FKM and 5V1KG, Lloyd Colvin said that Iris and he would be going on from Togo to Dahomey (TY) and then Nigeria (5N2) before returning home for Christmas. The total number of contacts they have had during their marathon expedition now exceeds 100,000 and they have operated from over 20 different countries. Lloyd also said that they may not continue on their travels at quite such a pace after their return to the US.

The anticipated trip by VK8AV to Portuguese Timor had



Harold North, VP7NA, is located at Nassau, Providence Island, from where a 2 element beam on a 50 ft. tower radiates a potent signal on 14 Mc/s. Harold may frequently be heard chasing DX on the low end of that band.
Photo by: G3KZI

to be cancelled at the last minute in the absence of written permission from Portugal to operate in CR8. In the event of this being received another attempt will be made to visit there in the spring.

The expedition to St. Peter and Paul Rocks may well be over by the time this is being read as it was due to take place during the first few days of December. However, readers may be interested in a summary of suggested operating frequencies which has been gleaned from a number of sources. They are as follows: 14,045, 21,045, 21,035, and 7001 kc/s (c.w.) and 14,105, 14,185, 21,245, 21,350 and 28,600 kc/s (s.s.b.). On c.w. they will listen 5 kc/s higher than their own frequency, and on s.s.b. they will announce their listening frequencies. Equipment in use will be two KWM2s with external v.f.o.s, an SR150, an SB400, and other transmitters and receivers plus dipoles and vertical aerials. It is essential that QSO times are stated in GMT when applying for QSLs. If direct cards are desired stations in Europe should send s.a.e. plus four IRCs to Box 842, Pernambuco, Brazil.

Another island "country" which is in the extremely elusive category is due to be activated during the period 14-18 December. This is Juan Fernandez Is. (CE0Z) in the South Pacific Ocean. WB6GOV and CE3ZN hope to be there during this period using the call-signs CE0PK and CE0ZN (or CE3ZN/0) respectively. The only frequency mentioned is 14,105 kc/s, but possible 21 and 28 Mc/s operation is hinted at.

It was expected that a group of Russian amateurs would be on the air from Armenia (UG6) during the CQ WW DX Contest using the call-sign 4J7B. QSLs should be sent via Box 88 in the usual way.

Contests

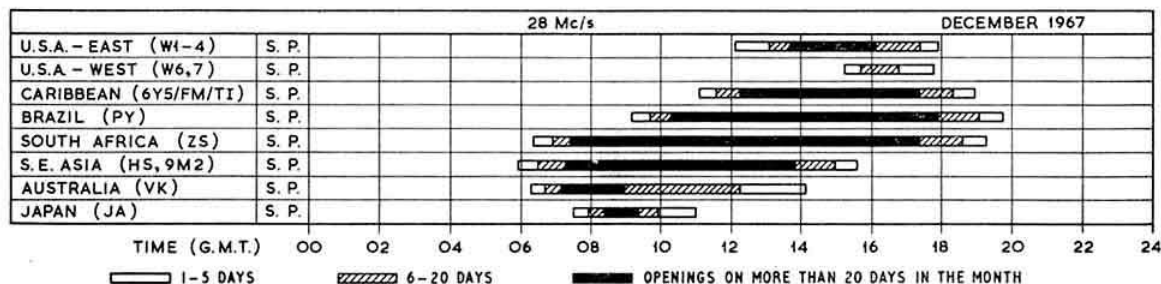
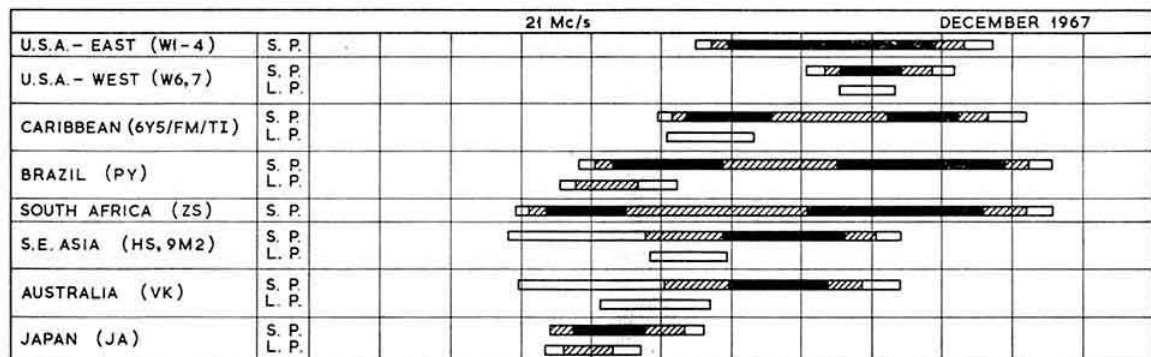
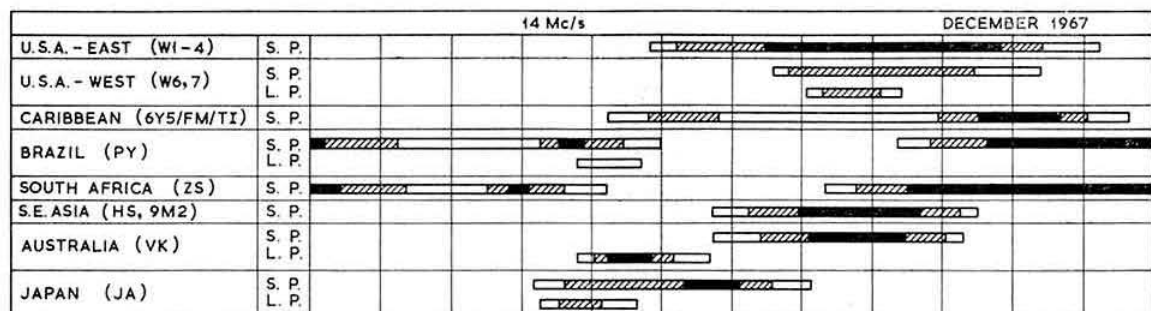
The results of the 1966 Long Island DX Contest are as follows: Worldwide winner JA4BJO (223 countries confirmed), USA W6PQT (218), Asia 4X4JU (171), Europe G3ESF (113), Oceania ZL1KG (129), and S. America CX9CO (133). Congratulations to all, and especially to G3ESF for heading the European list.

Results of the SAC Contest (1966) including the following UK scores: G3LHJ (2,760 points), G2DC (2,460 points), G3IAR (2,336 points), G3PJW (1,776 points), G3PSY (1,683 points). In the logs so far received for the 1967 event G3LHJ again leads with 4,972 points, but checking is not yet complete.

The 1967 REF Contest attracted over 1,300 entrants. In the phone section G3HDA was top G score with 1,716 points. The c.w. section was led by G3ESF with 19,575 points, other UK scores being G2WQ (17,199), G3RHA (6,042), G3PUW (5,940), G3OCA (3,663), and G3NSY (3,078). The 1968 event will be held between 14.00 27 January and 21.00 28 January (c.w. section), and 14.00 24 February and 21.00 25 February (phone section). Participants exchange the usual RS(T) plus serial number of contact. Each QSO is worth three points, and the total of these is multiplied by a multiplier which is derived by totalling the number of different French departments, Belgian provinces, Swiss cantons, DUF countries, and 9Q5/9U5/9X5 worked. Logs should be sent to: REF, BP 42-01, 75 Paris RP, France. Note that contacts in this contest may be used for up to two years as credits towards the DPF, DDFM, DUF, and DTA Awards.

Scores in the 1967 CHC Annual QSO Party show G3PJW to be top G in the CHC section with 14,920 points, followed by GB2FF (B) with 13,255, G3MWP with 8,189, G5GH with 6,964, and G3WP with 912 points. GD3AIM was top GD with 5,964 points. In the HTH section G3TIF was highest G with 8,484 points (this was also 4th highest in Europe), followed by G3UCW (1,406) and G3JPY (832 points). The SWL section was won by A4886. G3MWP won the trophy as top European FHC member.

PROPAGATION PREDICTIONS



In December propagation conditions are usually worse than in the preceding months. Although higher F2 m.u.f.'s are reached during the daylight hours, the days are so short in the northern hemisphere that the h.f. bands close early in the evening. On undisturbed days 28 Mc/s will be open to all directions, but to Western USA on favourable days only, i.e. those with above average F2 m.u.f.'s. Possibilities for working Western North America will be better in Southern Europe than in places further north. On 21 Mc/s all Continents should be workable with certainty. The midwinter conditions will also enable contacts to be made with various zones via the long path, especially with South America and East Asia. Contacts via the long path are most favourable when the signal path approximately coincides with the twilight zone. Because of the long winter nights and consequently low F2 m.u.f.'s at night, 14 Mc/s will cease to be a DX band during the night, especially in the latter half. No noticeable improvements in this respect will take place before the end of February or the beginning of March. As on 21 Mc/s various DX zones should be workable via the long path. 7 Mc/s will take over from 14 Mc/s as the main DX band at night especially in the latter half. Basically DX will be possible on this band whenever the greater part of the signal path lies in darkness. During daytime 7 Mc/s will be ideal for local and European contacts without interruption by the dead zone. The seasonally depressed atmospheric noise level favours DX traffic on 7 and 3.5 Mc/s, especially the latter. On disturbed occasions local traffic on 3.5 Mc/s at night may be interrupted by the dead zone, especially in the period before sunrise.

The provisional sunspot number for October 1967 was 86.5 with the period of greatest activity occurring during the last week of the month. The predicted smoothed sunspot numbers for February, March and April are 105, 107 and 109 respectively.

Awards

The Malta Radio Amateur Society announces the issue of the "9H1 Award". This award is designed to encourage multi-band operation and is awarded on a "points" system. To obtain it 50 points are required if only one band is represented on the QSLs submitted, but only 40 points are required for two, 30 points for three, and 20 for four band working. The points value per QSO is 5 on 1.8 Mc/s, 3 on 3.5, 2 on 7, 1 on 14, 3 on 21 and 5 on 28 Mc/s. SWL cards from Malta (provided that the SWL has received a reply) may be substituted in lieu of contacts on any band up to a maximum of two. QSLs or certified list with 6s. or 10 IRCs should be sent to Awards Manager, Malta Radio Amateur Society, Malta. Contacts should be since 21 September, 1964. This sheepskin is also available to SWLs, the same scoring system applying.

The Radio Society of Zambia obtained permission for Zambian stations to use the prefix 9I3 to commemorate the third anniversary of Zambia's independence. In connection with the "Worked Zambia Award" contacts with these stations count for double points. The award itself is obtained by accumulating 10 points, contacts on 7, 14, 21, and 28 Mc/s counts 1 point, on 1.8 and 3.5 Mc/s 2 points. Prefixes other than 9I2 count double. A certified list of QSLs held and QSO details plus 3s. 6d. or seven IRCs should be sent to RSZ Awards Manager, Box 332, Kitwe, Zambia. There are separate classes for c.w., a.m., s.s.b., or mixed contacts. Like the previous certificate this is also available to SWLs.

REF are issuing the "Diplome Olympique de Grenoble" to any amateur or SWL who can prove that he has contacted five different stations in Department 38 (Isere) at least one of which was in Grenoble city. These contacts must have been made between 00.00 1 December and 24.00 29 February, on any mode or band. Copies of log entries, together with 14 IRCs(!) should be posted before 31 March to: Diplome Olympique REF, BP 139, 38 Grenoble, France.

This month's table is in order of 1.8 plus 3.5 Mc/s totals. In view of correspondence received concerning the proposed change in the 1968 table it has been decided to continue with the present type of listing.

DX Briefs

There is now a station on the air from Bear Island (part of Svalbard for DXCC purposes). This is JW2BH who is at present using an NC200 transceiver and a vertical aerial. Note that Bear Is. counts as a country when working for the WAE Award. QSLs may be a little delayed—the next mail out is in May 1968!

Those who contacted KX6EN recently will be interested to know that this was W1MV who, according to the *DXers Magazine* was operating from Rio Namur Island in the Marshall Group. It is expected that Ian, ex-ZL1ABZ, will be on the air from Antarctica soon from the New Zealand base station ZL5AA.

HS4AK, who already puts in a fine signal into Europe, has now received some new gear, including a Henry 2K linear. During the last year he has had over 8,000 contacts in 270 countries. Aerials in use are quads for 14, 21 and 28 Mc/s and a dipole for 7 Mc/s.

7G1A, Guinea, has now returned home to Czechoslovakia, and may be found using the call OK1PD. Stations still needing a contact with Marion Island might benefit from the knowledge that ZS2MI skeds ZS6BFW daily at 17.00 on 14,250 or 14,320 kc/s, it should be remembered that his transmissions are a.m.

Vlad. UA1CK, is now home after his prolonged business trip to Mongolia. He managed over 3,000 QSOs from UA1CK/JT and is now busily filling in QSL cards. His equipment consisted of a 200 watt transmitter and ground

QTH Corner

AP2MR	via VE3ACD, M. Wolfson, 305 Rosemary Rd., Toronto 10, Ontario, Canada.
CE0PK	Luis Garretin, 6364 Marita St., Long Beach, Calif., 90815, USA.
ET3REL	via W6LEF, W. E. Petty, 3107 Morningside Drive, N.E., Albuquerque, NM, USA.
GB5QM	Association of Radio Amateurs of Long Beach, Box 7493, Long Beach, Calif., 90807.
JW2BH	Bear Island Radio, Bjornoya, Tromsø, Norway., (also WA0KKR/KG6), CMR Box 53, APO San Francisco, Calif., 96334, USA.
KG6FAE	via W7PHO, 18549 Normandy, Seattle 66, Wash. USA.
KG6SB	via K4DSN, 6563 Sapphire Drive, Jacksonville, Fla., 32208, USA.
K4IIF/KV4	via W1MV, Leo Wilber, 74 Bedford Street, Bridge-water, Mass. USA.
KX6EN	K0GZN, PO Box 186, Harper, Kansas, 67058, USA.
PJ5BC/BD	Box 566, Paramaribo, Surinam.
PZ0AA	via W2MUM, 41 Silversmith Lane, Levittown, NY, USA.
TF5TP	PO Box 177, Libreville, Gabon.
TR8AI	K0TCF, 423 Marian Street, Kirkwood, Mo., USA, 63122.
VK2ADY/9	via G5FH, L. H. Lee, 17 Knotshall Lane, Langley, Warrley, Worcs.
VP2VM	11 Old Naval Hospital, Gibraltar.
ZB2AY	via W2CTN, 159 Ketcham Av., Amityville, N.Y., 11701, USA.
ZF1DX	via VE4XN, Dave Snyder, 25 Queens Crescent, Brant- ton, Manitoba, Canada.
ZFIGC	PO Box 45, Francistown, Botswana.
ZS9Q	H89KV, Schermenweg, 127, Ostermundigen Be., Switzerland.
4W1KV	YASME Foundation, P.O. Box 2025, Castro Valley, Calif., 94546, USA.
5V1KG	J. Spencer-Chapman, Box 30579, Nairobi, Kenya.
5Z4LF	Ron Skelton, PO Box 21, Kingston 5, Jamaica.
6Y5SR	via W4HEG, Willard Brown, 1606 May Av. SE, Atlanta 16, Ga, USA.
7Z3AB	via YASME (see 5V1KG).
9G1KG	via W6REH, Jesse Davis, 5401 Verdura Av., Lake- wood, Calif., USA.
9J2AB	via K2QJM, 146 E. Chester St., Valley Stream, NY, USA.
9M8MS	PO Box 420, Kigali, Rwanda.
9X5PB	RSGB QSL Bureau, G2MI, Bromley, Kent.

1967 Countries Table

	1.8	3.5	7	14	21	28	Total
	Mc/s	Mc/s	Mc/s	Mc/s	Mc/s	Mc/s	
G3IAR	10	56	57	164	125	81	493
G3VOK	14	36	6	38	1	7	102
G3MSVK	19	22	51	157	122	60	431
G3JVJ	16	19	12	23	6	21	97
G3PQF	3	27	44	38	26	58	196
SM2BYD	—	28	59	—	77	—	164
G8DI	—	25	38	102	81	30	276
G3KSH	3	22	48	53	47	39	212
G8VG	1	19	27	50	72	70	239
G3ING	7	13	21	32	26	26	125
G3TBK	4	10	20	25	34	3	96
G3VWC	5	5	22	21	26	5	84
9V1LK	1	5	22	98	62	46	234
G3VJG	—	3	13	22	28	72	138
G3OJV	1	1	22	21	16	20	81
G8JM	1	—	12	196	136	104	449
7Q7LZ	—	—	7	91	80	49	227
9J2BC	—	—	2	29	16	43	89
A3942	13	51	59	127	100	79	429
BR525429	5	58	74	174	136	124	566
A5004	4	54	29	112	41	48	288
A5273	5	48	42	93	71	52	311
A4568	9	42	39	165	138	107	500
A4886	10	35	54	241	127	81	548
BR528198	1	42	42	133	71	59	348
A4162	3	29	25	69	56	48	230
A5105	2	27	38	110	65	42	264
A5135	3	26	41	87	78	30	265
BR527806	3	23	40	116	121	103	406
A5126	4	21	30	73	69	30	227
A5110	4	16	13	47	—	—	81
A4038	7	12	16	114	190	132	471
A5153	2	17	12	57	31	8	127
A5459	1	4	9	52	36	4	106
A4552/VK	—	1	2	80	10	2	96

The President, Council and
Headquarters Staff extend
sincere wishes for an enjoyable
Christmas to all Members of
the Society

plane aeriels, conditions were found to be somewhat disappointing.

A station calling himself "FO8CL" and claiming to be on Clipperton Is. has been reported in the US. An indication of his status is given by K2DQ, who is being given by FO8CL as his QSL manager—he has never heard of him!

A UA1 station with a difference is UAIKFT, who is reported by DXpress to be in Nova Zemlya. Other UA1s of particular interest are UA1KED (Franz Josef Land) and UAIKAE (Antarctica).

VR1L is now on the air from Ocean Is. and has been reported around 14.190 kc/s between 06.30 and 07.30 on Thursdays and Fridays. ZL3AAD is alleged to act as M/C during these sessions.

Band Reports

Many thanks to the following contributors who provided the information from which this section has been compiled: G2BOZ, G2HKU, G2LB, G3AAE, GW3AX, GM3CSM, G3DO, G3HCT, G3HDA, GM3ITN, G3JVJ, G3KSH, G3OIT, G3POF, G3SML, GM3SVK, G3URX, G3VLT, G4MJ, G8JM, G8VG, SM2BYD, BRS25429, BRS28198, A5105, A5126, A5135, A5224, A5459, and A5610. As in last month's paragraph stations listed in italics are c.w., the rest s.s.b. Due to the upsurge of activity accompanying the various contests all bands have been interesting. Top Band, 160m, looks as though it may be much better this winter than was expected at this stage of the cycle. Besides the assorted pirate stations with exotic call-signs the star attraction has been 6W8CW (23.15). Quite a number of Ws have been heard and worked including K1BPW, W1BB1, K2ANR, W2IU, K3EKO, K4UCQ, W8ANO and W8EMJ (all between 02.30 and 04.00). Listening even earlier may be rewarding. Two excellent s.s.b. signals have been noted from ZB2AP (21.45) and 9H1AM (22.10). Reports of 80m suggest that it is rather a slow starter in the evenings, but good in the early mornings when many Ws and some ZLs (including ZL2BCG and ZL3ABJ, around 06.00) may be heard. Other interesting calls heard include WA6DCA/P/LX (23.30), PZ1CF (21.30), TF5TP (21.00), VK2ADY/9 (Cocos Keeling Is. 22.00). The contest periods have certainly livened up 40m, several correspondents mentioning that during the CQ phone contest it was easier to work Ws on this band than on 15m! CR6s HI, IV, (21.00, CX3BH (05.48), EP2BQ (22.25), JA6YB (20.00), OA4VF (07.40), VK6XX (19.19), VS9ARS (21.30), W6s and W7s (07.30-08.30) XE11CB, etc. (06.57), ZS1XR (21.45), 4L7A (21.27), 4M5A (02.05), 4W1I (20.31), and VU2GW (00.40) and ZL4BO (06.35), were all good signals.

The change to winter time is becoming noticeable on 20m

The Society's 41st ANNUAL GENERAL MEETING

will be held on

FRIDAY, 8 DECEMBER, 1967

at 6.30. p.m. at the

Royal Society of Arts, John Adam Street, Adelphi,
London, WC2.

INSTALLATION OF PRESIDENT 1968

Mr. J. C. Graham, G3TR, will be installed as President of the Society during a General Meeting and Social Evening on

FRIDAY, 12 JANUARY, 1968

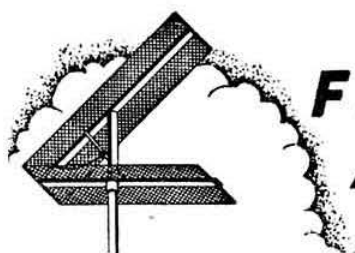
at the Kingsley Hotel, London, WC1.
details next month.

which is sometimes fading out before 22.00. However a great deal of DX has been on the band including the following: FC2CD (09.30, Corsica), FK8BG (07.45), FO8BS (08.30), HR6EB (22.39), JW2BH (Bear Is. 22.16), KL7BJC (19.50), KM6BI (07.00), KS6BX (07.15), TAIAM (15.50), TJ1QQ (07.33), UAIKAE (Antarctica, 10.40), VK4HG (Willis Is. 06.50-08.00), VK0CR (Macquarie Is., 07.50), VP8NP (20.51), VP8JD (now asking for QSLs via G2RF, 19.35), VR1L (08.15), VR2CC (07.05), YJ8BW (07.05), and 4W2AA (16.25).

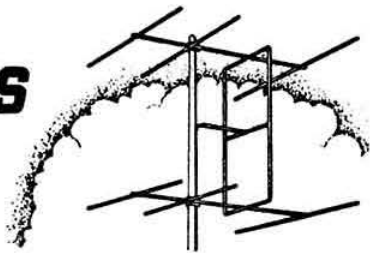
An interesting phenomenon is reported by G3SML on 15m. He was in contact with ZL4LZ during a total eclipse of the moon (visible in New Zealand), during the period of totality the signals faded out both ways and returned to their original strength when the eclipse was complete. Both stations were beaming over the long path. Much DX has been reported on the band although some disappointment is being expressed that the band is not as good as many had hoped. CE3ZK (18.40), HV3SJ (16.57), KH6CHC (17.01), KX6EN (10.30), TAIAC (08.40), TG8HR (19.30), VKs (09.00-13.30), VQ8CC (19.00), VQ9TC (16.35), VR1M (08.20), VS9MB (16.00), ZD7GS (19.00), G3RTU/4X (07.40), 6Y5JB (12.09), and 913BC (19.16), were a few of the stations of interest available.

Finally 10m which is now going off a little and will return early in the new year. There have been some very fine openings to the West Coast of the US, and a CQ call on an apparently dead band has been liable to produce the odd VK9. . . . Amongst the best of the calls heard are: CT2AC (10.03), DU1FH (08.40), ET3FMA (QSL via W7WLL, 13.30), HL9s KA, KQ (07.50), HS1AF (08.12), KG6SA/SB (08.30), KH6s BZF, EEM (08.20), KH6GDR (06.52), K4HIF/KV4 (11.59), TG8IA (14.10), UA0EH (Zone 19, 07.28), VK2ADY/9 (11.32, 13.30), VK9OM (T.N.G. 07.45), VK9WD (10.28), VP2VM (17.23), VQ9JW (11.10), VR2DK (09.07), W6s and 7s (around 16.00), YA4AR (09.50), ZS9L (16.14), ZL4LZ (09.01), 5R8AS (10.28), 5V1KG (09.00), 8R1G (19.10), and 9N1MM (11.40).

Thanks are expressed to all contributors and to the following publications from which information has been extracted in the compilation of this issue of MOTA: *The West Gulf DX Bulletin* (WA5LES), *Florida DX Report* (W4BRB), *CQ DX* (ARI), *On The Air* (ON4AD), *DXpress* (PA0FX), *NARS News* (5N2AAF), the *L.I.D.X.A. Bulletin* (WB2EPG), *The DX'er* (W6PFF), *DX News Sheet* (Geoff Watts), *The Ex-G Radio Club Bulletin* (W3HQO), *OUAX* (SM4DXL), and the *DX'ers Magazine* (W4BPD). Please send all items for the February issue to reach G3FKM no later than 17 January, for the March issue by 14 February, and for the April issue no later than 13 March.



FOUR METRES AND DOWN



By JACK HUM, G5UM*

The Year

ONLY another nineteen modulating days to Christmas, or twenty five to midnight on the last day of the year and the friendly get-together on "Two" as the minutes tick out.

No need for retrospective reminiscing on the condition of (and conditions on) v.h.f.'s during the now dying year: it has been a very *living* year so far as the very highs and the ultra highs have been concerned, chronicled by the members themselves through this page. But of all those who have helped to advance the state of the art during '67 there is one small group especially deserving of a unanimous thank-you from all of us: *the beacon keepers*. As has been remarked here before, the beacon chain, broadcasting 24 hours a day, is one of the most valuable yet least expensive scientific services which the Society offers to its members, and it wouldn't be that without the beacon keepers. May their Christmas dinners remain undisturbed by any technical hitches.

* * *

Of all the exciting and fascinating—and at times frustrating—developments that occurred on the ultrahighs during 1967, none has captured the imagination of members more than the opening up of the 13cm band during the weekend of V.H.F. National Field Day in September. To meet the many requests for further information G3RPE has given "Four Metres and Down" an amplified report of what happened on that day when the UK record on the 2300 Mc/s band was hoisted to 31 miles with G3THQ/P and G3PSH/P exchanging signals from two hilltops in the northern Chilterns—the culmination of the combined effort of many enthusiasts, in just the manner described by G3KPT last month in respect of the opening of 23cm some years earlier.

Says G3RPE: "For the combined 13cm test/V.H.F. National Field Day operation G3THQ was with the Ealing Club (of which he is a member) on Telegraph Hill, G3RPE with the Harrow Club at Brill, Bucks., using the call-sign G3PSH/P, and G3HWR operated the GEC Club Station G5FK at Wembley. The equipment used was rather a mixture of narrow band crystal controlled and broadband, dictated by availability rather than technical efficiency, and was as follows:

"G3THQ/P: S.e.o. transmitter using DET22 giving 300mW output. Broadband receiver comprising a CV2154 mixer, 35 Mc/s i.f. 1 Mc/s wide, and a DET 22 tunable local oscillator. Power supply: mains type petrol generator. Aerial: 18-in. dish 27 ft. above ground."

Thirty-one miles and three counties to the westward was G3RPE at the microphone of G3PSH/P operating into a similar transmitter but with a crystal controlled converter and a 4-ft. dish 30 ft. above ground. Reports exchanged were RS59.

What is particularly significant about the whole exercise though, is that the G5FK crystal controlled transmiss

from Wembley were logged at RST539 on the G3RPE crystal controlled converter at Brill at a QRB of something like 40 miles; the broadband transmitter at the Brill hill was not heard at Wembley, which prompts G3RPE to observe that "this fairly long non-optical path could be worked both ways with crystal controlled equipment of the one-third watt output order used in the tests."

It might be added that the G3RPE converter is under construction at many Home Counties u.h.f. stations, and that almost three dozen copies of the information about it have been distributed. In many other areas, too, interest in "Thirteen" is burgeoning, notably in the south west, whence comes a direct invitation from G2WS for "offers of co-operation from any stations interested in this band... they may be addressed to G2WS, and would be most welcome." Bill Scarr's QTH is 2 Fairway Close, Worlebury, Weston-super-Mare, Somerset.

One might add that this determination to tackle 2300 Mc/s is characteristic of the progressively minded group down in the South West where 70cm is the everyday band and 23cm coming along apace with G2WS, G3MPS, G3TND and G8AH activating it several evenings a week. Some excitement was caused recently by the appearance of G3FNQ on both 70cm and 23cm in turn while he was briefly staying in South Wales. Operating as GW3FNQ/M he gave contacts to G2WS on both bands across the Bristol Channel. Yes, portable-mobile on "Twenty-three."

Common Dish for 13 and 23?

Something to which 13cm operators may need to give attention is the question of the preferred aerial polarization to use. Colin Whittingham, G3GWL, of Bletchley, makes the point that polarization on 2304 Mc/s should be standardized as vertical "to allow a common dish to be used for 23 and 13cm, which is much better than festooning the mast with parabolic reflectors."

As an output stage on 13cm Colin puts forward the claims of the ML8533. He is designing a transmitter in which one of these devices will be ingeniously persuaded to deliver on 2304 Mc/s by accepting drive from a balanced mixer presented with 1299 Mc/s from the existing 23cm rig and 1005 Mc/s.

As for "Twenty-three" itself, G3GWL has designed a new cylindrical cavity around the ML8533 (which incidentally is similar to the 3CX100A) and in the process has realised an extra 3dB of power out—and that counts for something on 23cm.

A word here in praise of the consistent manner in which G3GWL and G5DT in Surrey have kept their 1299 Mc/s schedule practically every night since July of 1965. They are two of the pioneers of the Bucks-Surrey axis which has been such a potent factor in opening up the band for regular contacts. Over the 55 mile path G3GWL-to-G5DT consistent S8 signals both ways are now commonplace.

On "23" in VE2

More 23cm news is to hand from George Elliott, once

* Houghton on the Hill, Leicester LE7 9JJ. Send reports for the February issue by 12th January.

G5LI, now VE2LI of Montreal these last 16 years. As will be remembered from an earlier reference, he is well equipped for 1296 Mc/s. Already moves are afoot to replace the 3CX100A5 flat plate line circuit with the G2RD cavity tripler as described in the BULLETIN to try to realise more than the present 8 watts of output.

The aerial is a helix feeding a 4 ft. dish or a corner reflector on a tiltable 50 ft. tower. The 2m and 70cm arrays on the same tower are a long Yagi and four 24-element Yagis respectively, power output being 500 watts at 144 and 600 watts at 432 Mc/s—and all equipment is home constructed.

George is hoping to stimulate more activity on 1296 Mc/s. His regular is VE2HW at 10 miles, but there are expectations of signals from Ottawa at 90 miles, and Albany, NY, at 150 miles, where there is a 23cm equipped operator sited at 730 ft. a.s.l. plus a 170 ft. tower.

Not wholly satisfied with developments in respect of 23cm front-ends, VE2LI asks: "As so many G operators appear to use the K6AXN converter, is it possible to find out if any improvements have been made to it? I read that some members have transistorised the multiplier stages. More information would be most useful."

Letters on this subject may be sent either direct to George Elliott at 4665, Connaught Avenue, Montreal 28, Quebec, or as contributions to "Four Metres and Down" Tech Corner, not only for VE2LI to see but for the many other folk interested in 1296 Mc/s but still at present faced with front-end receiver problems.

Ratifications

An important point was made last month by G3KPT in his comment that new records or "breakthroughs" on any of the v.h.f. or u.h.f. bands ought to receive official ratification. The thought was prompted, it will be recalled, by the news of the above-mentioned 31 mile contact on 13cm during V.H.F./NFD weekend by G3THQ/P and G3PSH/P.

This was not the first two-way to be established on 2304 Mc/s, but so far as is known it is the UK record at the present time. Probably it will never be possible to ascertain where and when the first contact on 13cm took place, which makes all the more important the prompt recording in print of such events when they occur.

In practical terms there are two things which can be done. One is to publish in "Four Metres and Down" a list of "firsts" as and when these are established—and this could also mean the claiming of new distance records on any band. Secondly, the Society can register with the IARU a request that such claims be officially and internationally ratified.

But none of this can happen unless the members involved in the making of new records report them promptly to "Four Metres and Down." No false modesty need stand in the way here. Nor will there be any prizes (unless the Council decides to allocate one of the Society's trophies in recognition of a particularly meritorious example of v.h.f. history-making, as it has done often in the past).

Apart from the 13cm feat, there are at least two others that should appear in "Ratifications": the Gibraltar-to-UK "first" on 4m and the Gibraltar-to-UK distance record on "Four", both of which happened this year. Will the participants turn in details of dates, times and other information considered relevant so that the "Ratifications" panel may get off to a good start?

Beaconry

To say that the Malta 4m beacon has not yet been heard in the UK is to lay oneself open to the danger of being thoroughly out of date before these words appear: although the main autumnal period of sporadic-E has passed it could happen at any time.

Well sited 900 ft. up, the 9H1MB aerial is fed with 30 watts of r.f. on 70-1 Mc/s—and incidentally is now putting

V.H.F./U.H.F. BEACON STATIONS

Call-sign	Location	Nominal Emis- Aerial Frequency sion Direction
GB3ANG	Craigowl Hill, Dundee*	145-985 Mc/s A1
GB3CTC	Redruth, Cornwall*	144-10 Mc/s A1 North-East
GB3GI	Strabane, N.I.	145-990 Mc/s A1 N/SE
GB3GW	Swansea	144-250 Mc/s A1 E.N.E.
GB3GM	Thurso*	145-995 Mc/s A1 S
GB3GM	Thurso*	70-305 Mc/s A1 N/S
GB3GM	Thurso*	29-005 Mc/s A1 N/S
GB3GEC	W.London*	434-00 Mc/s North
GB3VHF	Wrotham, Kent	144-50 Mc/s F1 North-West

* Not operational.

RSGB V.H.F. BEACON STATION GB3VHF

The frequency of the Society's v.h.f. beacon transmitter at Wrotham, Kent, when measured by the BBC Frequency Checking Station, was as follows (nominal frequency 144-50 Mc/s):

Date	Time	Error
31 October ...	12.45 GMT	90 c/s high
7 November ...	15.58 GMT	154 c/s high
16 November ...	11.35 GMT	100 c/s high
21 November ...	10.20 GMT	17 c/s high

out the call-sign every 15 seconds to correspond with the ZB2VHF cycle.

By any reckoning Malta is DX on "Four": the path distance to the south coast of England is 1260 miles.

Six hundred miles north of the same coastline GB3GM at Dounreay may well have become radioactive (sorry!) by the time this BULLETIN reaches home. Replacing GB3LER on "Two"—which had to happen when Ray Flavell, GM3LTP, was posted away from Lerwick by the Met Office—GB3GM will occupy the same frequency of 145-995 Mc/s.

Another 2m beacon, DX to most people, GB3CTC at the Camborne Technical College, has been off the air for major adjustments. As will be known, there was at one time the possibility that a 70cm beacon would be established at the same site. It seems likely, G3OCB of Truro tells us, that if a positive requirement from the membership stated that either or both the Cornish beacon projects were of value to them this might speed up the development of the service. In other words, if you want them say so, either to G3OCB or "Four Metres and Down."

Propagation Point

A correspondent who wishes to remain anonymous contributes a thoughtful comment on recent v.h.f. propagation phenomena and in particular the sporadic-E manifestations which have been fairly frequent during 1967. He writes:

"As one most particularly interested in sporadic-E, I have been intrigued by the number of occasions in the last year or so when 'Four Metres and Down' or SWM have reported auroral openings and mentioned simultaneously somewhat exceptional reception of signals which did not bear auroral traces (e.g. GB3LER heard non-auroral, while GB3VHF was auroral, etc.). I tend to think this was not just a matter of people listening unusually carefully when they knew an aurora was about, but that there may be some association with the radio aurora itself—possibly they derive from the same ionospheric storm and this could be auroral-Es."

"But a lot remains to be looked at before one can advance that as even a working hypothesis, though Charlie Newton, G3FKZ, the noted authority on radio weather, agrees with me that there is 'something' to this. So I hope 'Four Metres and Down' will keep a watch out for this sort of report when people write in about auroral openings, and see whether similar situations are recorded (I understand



that QST has also speculated about this recently, but I've not seen what they said, and have been thinking quite independently.)"

The Video Scene

Although by no means all the G6 "Stroke T" stations listed in the RSGB Callbook are actively radiating television transmissions, a considerable amount of video is nevertheless being put out above 434 Mc/s by stations around Greater London and in East Anglia (the famous Fenland Net), while in the Midlands G6MUR/T (also known as G8ABD) is known to have a considerable following of "viewers."

New to the London area is G6ACU/T (also known as G3PYB) who, recently at the Sutton Coldfield station of the BBC, has now moved to the Crystal Palace one—and to a fine location on the South London heights. During his first week on 436 Mc/s video, he worked several of the London

Mancunian man Stewart Revill, G3PMJ, is a noted exponent of 4m mobile. He even coincided his summer holiday in Essex with V.H.F. NFD so that he could give out some points from the car-borne rig and the collapsible 3-element Yagi-and-mast. Heading for home after a recent foray he dropped in at Mow Cop for a threesome with G3TEY and G3OHH (picture). Everyone on "Four" must have heard G3OHH at some time or another—now they know what the man behind the call looks like.

amateur TV stations in 2-way link-ups. Recognising that there must be many video equipped operators who do not transmit, he makes an offer to radiate test signals to assist them in the setting up of their receivers. All who would like to take up this generous offer should write direct to G6ACU/T, P. Blakeborough, 14A, Weston Street, London SE19.

Aside from amateur TV transmission, the activity on the DX/TV receiving front continues to grow, and what is more, to offer to the local press opportunities for news stories potentially more fascinating—and more capable of dramatization—than the more straightforward non-video aspects of amateur communication (at any rate this is how they seem to regard it).

Two very active DX/TV men down on Tamar-side, Doug Bowers and Reg Roper, found themselves the centre of a big story in the *Western Evening Herald*. Discounting the pop headline ("Saltash TV Hams Have Choice of 17 Stations"), the story was a good one, capable of drawing sensible attention to the movement. We guess that Doug and Reg had seen to it that the facts were accurately copied down during the interview—which is of over-riding importance when it comes to briefing the lay press on specialist matters. You cannot expect to see a copy of the story before it goes into print—the press are jealous of their right to print news as they see it, uninfluenced by external agency—so the thing to do is to make quite sure that no misconceptions are picked up by reporters in the first place. This goes for all aspects of Amateur Radio.

One way and another DX-TV has been much in the news in this column during the past year, but the reception of amateur television rather less. Are many BRS men engaged in this particular and specialised line of activity, and what is their "score" of stations identified in the video section of the 70cm band?

Although the chance of reception of "Stroke T" stations is in the nature of things more likely in the London and Midlands areas, where they are thicker on the ground, we are glad to be able to report, thanks to a note from G2WS, that amateur video is now available in the south west. Bill Scarr writes:

"G3MPS under his new call of G6ADC/T is putting out excellent pictures from his home QTH ten miles east of Bridgwater. Dave has built all his own equipment on the video side and is regularly 'seen' by GW6OAJ/T at Blackwood, Mon., GW8ASA of Barry, GW8AUY of Newport, G2WS of Weston super Mare and G5DW of Ashcott, Somerset. Several stations on the Welsh side of the Bristol Channel are busy constructing video gear, and visual QSOs across the water may be expected soon."

Many a promising site is nullified for "Stroke P" operations by the existence of a television transmitter. That this need not necessarily be a disadvantage was proved by the members of the Southampton University Amateur Radio Club when they operated EI3SU on 4m at the Kippure site 2,500 ft. up, where Telefís Éireann has its station. The Club's E88CC converter successfully kept out any birds from "the big stick" a few yards away. During the expedition 46 contacts were made on "Four," down as far as the Sussex coast. Operators were GW3NJW, G3SAK, G3SQX, G3TVW, G3WEA (he is the club secretary) and G3WFN.

The V.H.F./U.H.F. Groups

It doesn't do to imagine that beginners on v.h.f. are non-transmitting men. There must be scores of licensed amateurs with years of experience of h.f. band operating behind them who want to essay higher frequencies but don't quite know, in spite of all the published material, how best to go about it. One answer is "Join your regional v.h.f./u.h.f. group if there is one."

These thoughts are prompted by a note from Clive Bowden, G3OCB, who makes a special point, apropos the activities of the Cornish Group, that "beginners will be specially welcomed." So, Cornishmen, whether you are a newcomer or an old timer keen to find out what makes v.h.f. go, then get into touch with G3OCB at "Tregwyn," Stithians, Truro, and he will take you along to the next monthly meeting of the Group.

The West Midlands, heavily populated on "Two" and 70cm, is fortunate to have in its midst the V.H.F./U.H.F. Group that alternates its meetings between Birmingham and Coventry and lays on a low priced but very adequate buffet supper for all who go. Keep in touch with G8ABP for current news of the Group's activities. Exchange visits with the new Leicestershire V.H.F./U.H.F. Group are planned, and indeed several West Midlands men went to the microwave lecture at Leicester last month.

Friday Nights at Ten

At least half a dozen EI operators are regularly active on "Two," and there must be a considerable number in G1 as well, even though in the north "Four" seems to have the edge in popularity by some accounts. Some dampening of their enthusiasm for All Ireland Night on Two at 22.00 GMT Fridays must be expected if only a poor response is forthcoming from east of the Irish Sea.

G3USF of Staffordshire wonders whether the dampening may not have already set in: "I have come on for several All Ireland Night Sessions but apart from EI6AS on c.w./s.s.b., I haven't heard a single thing and I've worked nothing. Yet I easily worked EI2AX/P and G13BHT/P at the six locations where I was able to call them." (It will be remembered that it was the experience of working easily across the Irish Sea that prompted Tom Douglas, one of the members of the All Ireland 2m Expedition, to propose that this be attempted regularly by means of an All-Ireland Activity Night on "Two" on Fridays).

G3USF likes the idea of the Friday night sessions "... if the G1/EI boys want it: but are they also calling over there and sharing the frustration over here? In other words, is anyone really listening?" Martin adds that it would be useful to have call-signs and frequencies of regulars on 2m on Fridays.

These might emerge anyway (and literally) if we all of us paid special attention to 144 to 144.1 Mc/s for c.w. and 145.41 Mc/s for sideband every Friday at ten.

Tech Corner

From G6ACU/T: G3PYB (P. Blakeborough, London, SE19):

New arrivals to the u.h.f. bands are often put off by what seems to them the awkward plumbing required at 432 Mc/s. The following details may be of interest to people who already have v.h.f. transmitters, and would like to use them as a means to get going on 70cm.

Fig. 1 shows double tuned input and output circuits on a QQV06-40A tripler to realise adequate power output while keeping the 2m content to a very low level. With 5 watts

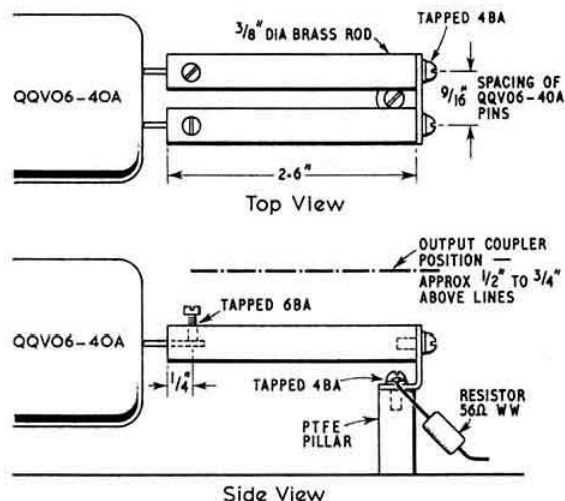
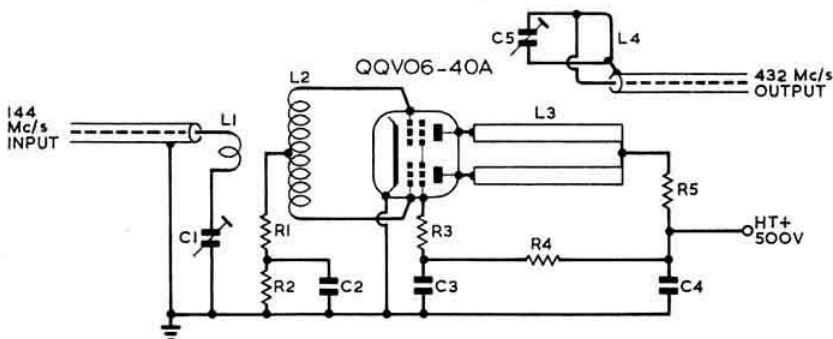


Fig. 2. Details of the quarter-wave anode lines recommended by G3PYB for a QQV06-40A used on 432 Mc/s.

drive at 144 Mc/s, and a d.c. input of 40 watts, this arrangement will deliver 12 watts into load.

Tuning the anode lines can be accomplished either by means of a 1/2 in. band of aluminium clipped round the QQV06-40A or by the insertion of dielectric between the lines, or simply by adjusting the line length. The importance of adequately grounding the cathode, preferably with a short length of copper braid (perhaps from a co-ax outer), cannot

Fig. 1. Values used in the G3PYB tripler are: L1, one turn, 1/2 in. diameter; L2, four turns, 1/2 in. diameter, 1/2 in. long; L3, L4, see Figs. 2 and 3. C1, 30pF Philips; C2, C3, 1000pF mica; C4, 2000pF mica; C5, 3-11 pF Wingrove and Rogers variable; R1, 33k ohms; R2, 820 ohms; R3, 100 ohms wirewound; R4, 8.2k ohms; R5, 56 ohms wirewound.



be too strongly stressed. The output coupling illustrated has been successfully applied for some time on a tripler and more recently on a vision transmitter p.a. running 100 watts input.

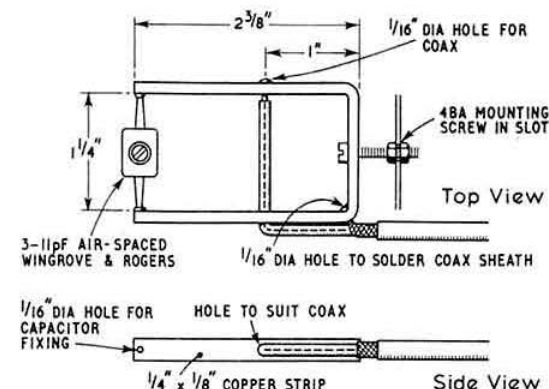


Fig. 3. Details of the aerial output loop for use with the lines shown in Fig. 2. Spacing between anode and aerial lines should be adjusted for maximum indicated output in the aerial feeder

From G5UM (Jack Hum of Leicester):

When describing some of his transistorized u.h.f. equipment at the local V.H.F./U.H.F. Group meeting, G3BNL made a passing reference to a frequency marker employing a single AF186 and an 8.00 Mc/s crystal that gave him band edge delineation facilities as high as 1296 Mc/s.

This seemed to the writer to be a very useful tool to have in the radio room and a prototype was therefore assembled around a crystal socket for an initial evaluation. Results were so promising that a finished job was constructed to the circuit shown in Fig. 4, slightly extending the G3BNL idea by including the station's 1 Mc/s and 10 Mc/s crystals as well

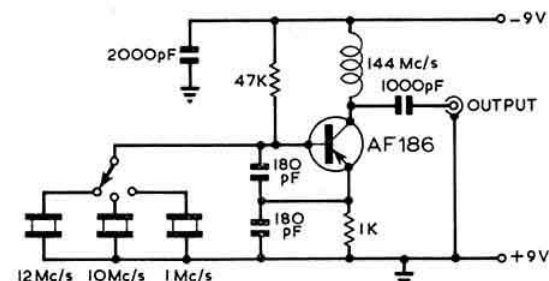


Fig. 4. The transistor calibrator described by G5UM.

as a 12 Mc/s one, switched in as required, the whole on a printed circuit panel $2\frac{1}{2} \times 5$ in.

The collector output inductor covers the 140 to 150 Mc/s region, producing powerful harmonics from either the 10 Mc/s or the 12 Mc/s crystal. This inductor's slug can be adjusted through the top of the panel to resonate it in the 2m band. The band edge marker signal from the 12 Mc/s crystal can by this means be brought up to S9 on 144.000 Mc/s and S7 on 432 Mc/s.

From G3COJ (Brian Bower, High Wycombe):

Having recently come on to 70cm with 100 watts to a 4CX250B (to the design in the November 1962 BULLETIN),

my eyes were opened to the difficulties of forced air cooling by W6SAI's article in *QST* for September, 1967. It is not generally realised that the average small blower with a $2\frac{1}{2}$ in. diameter rotor is quite inadequate for cooling a valve such as the 4CX250B except at very low levels. It is well worth making up a U-tube containing water to find out what the pressure really is.

At full dissipation (unlikely to be met in practice except perhaps with s.s.b.) a pressure of 1.12 inches of water is required. This compares with the 0.3 in. from a certain small commercial blower which was initially used in the G3COJ equipment for 70cm (with fingers crossed!).

Another one from G3COJ:

One would think from some of the statements made about field effect transistors that they gave low noise and freedom from cross modulation. I have been doing a series of tests at 90 Mc/s and find that in general one can have one property or the other, but not both.

For example, the 2N3819 in grounded source will give a noise factor in the 3 to 4dB region, with occasional specimens returning 2dB, but it is not very good on cross modulation. In grounded gate it is excellent on cross modulation but the noise factor rises to 5-6dB.

As an r.f. stage the 2N3819 is hardly better than the AFZ12. Note that this is at 90 Mc/s; results at 144 Mc/s might be slightly different. However, I have more measurements to make so conclusions may change.

From VE2LI (George Elliott of Montreal):

Recent comments in Tech Corner about new transistor types for u.h.f. prompt me to report the following:

The Texas Instruments TIS88 recently announced looks good with a claimed power gain of 10dB at 400 Mc/s and a noise factor of 4dB. At 100 Mc/s the noise figure is quoted as 2dB. Another device popular among many u.h.f. operators here is the Union Carbide 2N4416, for which also a noise factor of 4dB at 432 Mc/s is claimed. The cheap epoxy version is UC734. I understand that the same supplier is putting out what is claimed to be "an improved 2N3819": it is type-numbered UC714.

With transmitting semiconductors I have been interested in the reports from your correspondents who have been using varactors as triplers to 432 or 1296 Mc/s. I find these devices to be efficient but still requiring a lot of drive, and careful suppression of unwanted frequencies. A promising device is the MA4950 by Microwave Associates, said to give 12 watts out in the 1000-2000 Mc/s region.

From G8ARV (David Taylor, Dudley, Wores.):

The suggestion in the September BULLETIN (page 575) to write for the Mullard application reports on v.h.f. transistor transmitters has resulted in a lot of very useful information becoming available. I have built up the low power driver unit and a p.a. stage both of which, although designed for 170 Mc/s, work equally well on 144 Mc/s.

The low power unit at G8ARV uses a 48 Mc/s crystal oscillator, BF115, and TO-18 multiplier and two BSX19 amplifiers, making a total of four transistors. The output is 400mW and the total cost of transistors and Zener diode was 27s. 8d.

The p.a. stage uses a BLY33 (46s. 4d.) and will deliver about 2 watts of output for about 0.4 watt drive. Under these conditions it can be nearly 100 per cent modulated with low modulation distortion, and it exhibits an efficiency of 75 per cent, that is, it needs about 2.7 watts in. If the stage is set up for maximum output under unmodulated conditions then the full 100 per cent modulation will not be obtainable.

My method of overcoming this is to use the circuit shown at Fig. 5.

In this arrangement the two output trimmers are adjusted for the maximum undistorted sine wave output as seen on the scope.

I would endorse what others have said: make sure the power that is warming your dummy load or lighting your bulb is 432 or 144 Mc/s or what have you. I have found the Mullard circuits to be particularly trouble free in this respect.

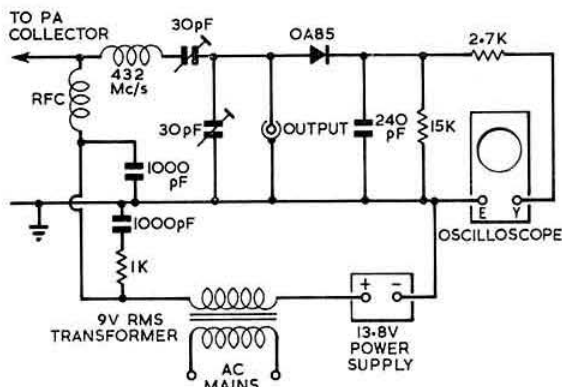


Fig. 5. How to set up a transistor p.a. stage to realise optimum modulation percentage by sampling the output from the collector and applying it to an oscilloscope (G8ARV).

From G3RPE (Dr Dain Evans, Hemel Hempstead):

On the subject of "standard" frequencies for use in the 13cm band, G3SHK has suggested that for broad-band or pulse work the preferred centre frequency should be 2376 Mc/s. This frequency is not only approximately mid-band, and in the part available for pulse operation, but has an important advantage with respect to calibration.

Using a 36 Mc/s i.f. strip, which is standard TV practice, a broad-band receiver can be constructed with a local oscillator 2340 Mc/s, that is, the preferred frequency for crystal controlled equipment. The latter may therefore be used to calibrate the local oscillator accurately on 2340 Mc/s, and in turn a transmitter on 2376 Mc/s.

From G8ANQ (Bill Burton, of Whitby):

It would be interesting to have 70cm operators' views on preferred (and economical) methods of getting going on single sideband on 433.4 Mc/s. To start the ball rolling here are brief details of an s.s.b. project at G8ANQ:

The set-up comprises a phasing exciter at 10 Mc/s together with a v.f.o. at 3.1 to 4 Mc/s mixed with its output in a 6BE6. The resultant 14 Mc/s is fed into a QV03-10 balanced mixer together with a 60 Mc/s crystal derived component to produce 73.1 to 74 Mc/s. This in turn is fed to another balanced mixer together with a 360 Mc/s component derived from a 120 Mc/s crystal. We have now arrived at a tuning range of 433.1 to 434 Mc/s in the anode circuit of a QV02-6.

Following this comes a further QV02-6 linear amplifier which feeds a GL6283 in AB1 at the legal maximum.

Skeds Wanted

One of the several men helping to put Southampton University on the v.h.f. map is G8AYN, now in his first year there, and active from his lodgings. He seeks schedules any evening: "... all letters will be replied to." Write Roger

Whitbread at 99 Bellemoor Road, Shirley, Southampton, which is a well-elevated spot to help the G8AYN 5 watt transmitter on 70cm to a good take-off. There's an 8-over-8 at 20 ft.

Here and There

The youngest Class B licensee? Noel Evans of Castle-dawson in Co. Derry is now G18BDR at the age of 15. The transmitter (two 6AF4 in push pull) was ready to go when the ticket came in October but not the converter: no 35 Mc/s crystal ("Reason: hard up schoolboy!" says Noel).

"... thanks for publishing that excellent G8AMK 23cm varactor design (BULLETIN, October, page 680). Both G8ARS and myself should be equipped for 23cm before long using that transmitter and a G8AEV converter"—G8ARV.

"I wish more 2m operators would state the frequency of the other station when changing over ... it's a great help to others who may be listening"—G5VU.

"Looking forward to next year's Contest Calendar when you can expect to see GW3ITZ/P figuring in the lists. After all, someone has to fill the space vacated by '3RUF'—GW8AAP, officer i/c RAF Sealand Amateur Radio Club (now building for maximum input on 4, 2, 70cm and with 23cm coming along ... fine new QSL in colour showing six famous fighters from "Hurricane" to "Lightning" now on the way to all who have been patiently awaiting their Flintshire verification).

"Little news this month except that my two 18-element Parabeams at 55 ft. came down in the gales. Not too much damage: mainly a few roof tiles and a 2m 5-element Yagi"—G8AQA.

Fortunate G3RTJ of Stevenage: not only has he just enjoyed a business trip to Los Angeles, but while there he had a chance to examine the latest OSCAR—on the ground.

"In u.h.f. contests such as those on 23cm should not stations show height above sea level in the tables, in order that results may be assessed fairly?"—G3GWL.

"As my blowtorch letter was the start of the portables-power controversy I feel I might point out that listeners are considered to be on the same footing as the transmitting section ... competitions are for the V.H.F. Listeners' Championships ..."—BRS26234, Ewen Macduff ("One of the Sussex men").

"... must go downstairs to get something to drink ... you are my 28th British station worked on 70cm this afternoon"—ON4HN (18 November).

"... had a marvellous day ... worked six countries and 35 stations ... Sue brought my tea and supper into the radio room"—G8AWO (18 November).

"... worked 17 new British stations on 70cm last night ... the activity from your country on 'Seventy' is terrific ... and all those G8 stations!"—F9NJ (19 November).

"... an opening like this makes one wish that there was more activity on 'Four' at about 450 miles from the London area so that the DX potential of the band could be really tested"—G3WBQ (19 November).

The Council's Annual Report on the Society's Activities

THE Council has pleasure in reporting on some of the more important events which occurred during the year 1 July, 1966 to 30 June, 1967.

Installation of President

For the first time in the history of the Society, a member from Northern Ireland, Mr A. D. Patterson, G13KYP, was installed as the Society's thirty-third President at a ceremony held at the Kingsley Hotel, London, on 17 January, 1967. The ceremony was performed in the presence of nearly a hundred members and guests by the retiring President, Mr R. F. Stevens, G2BVN. A report was published on page 139 of the March 1967 issue of the BULLETIN.

General Manager

It was with deep regret Council heard of the sudden death of John Rouse, G2AHL, the General Manager, Secretary of the Society and Editor of the RSGB BULLETIN, on Friday, 26 May. An obituary appeared on page 371 of the June BULLETIN, with a fuller tribute the following month. Many letters and messages of condolence were received from all parts of the world.

Licensing Matters

In March this year the Wireless Telegraphy Bill was published and this attracted immediate attention by virtue of certain sections of Part 2. The Society took immediate action to endeavour to have a clause exempting radio amateurs written into the Bill before it reached the Statute Book.

A "Current Comment" on the subject was published in the April 1967 edition of the BULLETIN, with the result that the Post Office and the PMG were assailed from all sides by members who were concerned with the impact on Amateur Radio that the Bill, if it became an act in its original form, would have on the use of the many different types of apparatus now in normal use.

The action of the Society resulted in a statement by the PMG in the House of Commons on 13 June, indicating that the views of the Society had received consideration from both sides of the House. The relevant statements, which appear in Parliamentary records, have brought about a satisfaction to all amateurs in the UK.

In October 1966 the Post Office agreed to dispense with the double barrelled call-signs used for reciprocal licences in the G5 series.

The number of UK licences is still increasing with the position at 30 June, 1967 as follows:

Sound A 12,308. Sound B 590. Mobile A 2303. Mobile B 15. Television 183.

There is regular contact between the Society and the GPO on many matters affecting the amateur service and the cordial relationship which has existed for a number of years continues. However the Council is perturbed by the apparent procedure adopted by some of the regional inspectors who are involved in the investigation of television interference, and is seeking to have the procedure standardised.

New Headquarters Building

The present accommodation at 28 Little Russell Street has been occupied by the Society since 1943 and it has been long felt by the Council that the offices were inadequate. After many years of searching for a Headquarters your Council was pleased to report that suitable freehold premises

at 35 Doughty Street, London WC1 became available. Negotiations were started and in August the purchase was completed in the name of Lambda Investment Co. Ltd., the wholly owned subsidiary of the Society.

Membership

This is the first full year in which the benefit from the increased subscription rates has been felt.

However, there are still a number of members who are in arrears and whose Banker's order has not been changed despite repeated requests from Headquarters.

The membership is as follows:

Grade	30 June 1965	30 June 1966	30 June 1967	Gain or Loss compared with 1966
Corporate members				
Licensed	7781	7872	7945	+73
Not Licensed	4180	4121	4170	+49
Associates	1453	1293	1286	-7
Total	13,414	13,286	13,401	+115

Council is very perturbed at the wastage caused by members either resigning or allowing their subscriptions to lapse, and urges every member to do his utmost in bringing these people back into the Society. It is the duty of every amateur to support his National Society. Non-members get the benefit of the privileges obtained and protected by the Society without paying and are thus subsidized by those members who do subscribe.

Committees of the Council

Again this year many hundreds of hours work were put in by voluntary members on the Society's various committees, without whose untiring efforts the Society could not function efficiently and many of its activities would cease. The Council places on record the Society's thanks to all those members who give up their spare time so generously.

During the year the following Committees were set up:

Chairman	
H.F. Contests	Mr J. C. Graham, G3TR
V.H.F. Contests	Mr J. C. Foster, G2JF
Education	Mr R. J. Hughes, G3GVV
Exhibition	Mr E. W. Yeomanson, G3IIR
GPO Liaison and TVI	Mr L. E. Newnham, G6NZ
Membership and Representation	Mr J. C. Graham, G3TR
Mobile	Mr N. O. Miller, G3MVV
RAEN	Mr P. Balestrini, G3BPT
Scientific Studies	Mr G. M. C. Stone, G3FZL
Technical	Mr R. F. Stevens, G2BVN
V.H.F.	Mr G. M. C. Stone, G3FZL
Finance and Staff	Mr J. C. Graham, G3TR
IARU Working Group	Mr R. F. Stevens, G2BVN

Both Contest Committees continued to organize a number of successful contests and judging from the number of participants these are proving exceedingly popular.

The Education Committee was again responsible for supplying the Exhibition stand with a good display of home constructed equipment, for the equipment and the introduction of the Novisets. A new Tape/Slide lecture was pre-

Council Members	Council	H.F. V.H.F. Con- tests	H.F. V.H.F. Educa- tion	Exhib.	Finance & Staff	GPO Liaison & TVI	Member- ship & Rep.	Mobile	RAEN	Scien- tific Studies	Technical	V.H.F.
B. Armstrong*	5/6										3/3	
N. Caws	8/12				6/7		1/2					5/7
J. Etherington	12/12					1/2		4/6				
J. C. Foster	9/12	10/11										2/4
L. N. Goldsbrough	1/12						0/2					
J. C. Graham	9/12	8/10		1/6	6/7		3/4					
E. G. Ingram	10/12											
H. E. McNally†	4/4						1/1					
L. E. Newnham	12/12		7/7	9/11	7/7	4/4		6/7				
F. K. Parker	2/6											
A. D. Patterson	12/12				7/7	2/2	4/4					
W. A. Roberts‡	1/6											
J. F. Shepherd	10/12				5/7		3/4					
R. F. Stevens	12/12	3/5		11/11	7/7	4/4				7/7	6/6	2/3
G. M. C. Stone	10/12		1/4			4/4				7/7	3/6	7/7
J. W. Swinnerton	10/12		7/7			4/4						
G. Twist	10/12											
L. Varney‡	0/6											
E. W. Yeomanson	12/12			10/11	4/7	4/4		7/12	7/7			

The figures in each column indicate the number of meetings actually attended and the number of meetings held during the member's period of Office.

* Co-opted 1.1.67.

† Co-opted 1.3.67.

‡ Retired 31.12.66.

pared and the Committee were also responsible for the holding of the two Radio Amateurs' Examinations at the London centre.

The Exhibition Committee was again responsible for the Society's exhibits in the International Radio Communications Exhibition held at the Seymour Hall, which was opened by H.R.H. The Prince Philip, Duke of Edinburgh. A full report was published in the December 1966 BULLETIN.

The Finance and Staff Committee continued to administer a watching brief over the Society's finances. When the offer of premises in Doughty Street became known the Committee had the responsibility of providing the necessary purchasing details to enable Council to make a decision.

The GPO Liaison and TVI Committee continued to deal with numerous cases of interference problems. Liaison between the Society and the Post Office is constantly maintained with the result that help can be given to members in particularly difficult cases. The Committee was in favour of the formation of local TVI groups and arrangements were in hand.

The Intruder Watch Network under the organization of Colin Thomas, GW3PSM, has been responsible for monitoring of unauthorized transmissions in the amateur bands with regular reports being sent to the Post Office.

The Membership and Representation Committee continued to pay close attention to the interests of members. The Committee is concerned with membership drive as it is felt that the number of members leaving the Society is too large. During the year the Committee approached the Affiliated Societies to seek their aid in this respect.

The Mobile Committee was again responsible for the organization of a number of successful rallies around the country.

The RAEN Committee has effected close liaison between the Society and the various groups throughout the United Kingdom.

A major portion of the Scientific Studies Committee's activities were concerned with the evaluation of data gathered in the IQSY. Plans for new and existing beacons were considered in relation to the programme of propagation research.

The Technical Committee was concerned with the reviews of commercial equipment which has continued to appear

in the BULLETIN. Work on the Society's technical publications has continued and a new range of manuals is to be introduced. Members of the Committee continue to review articles submitted for the BULLETIN.

The V.H.F. Committee organized a very successful Thirteenth International V.H.F./U.H.F. Convention at a new venue, Whitton, near Twickenham, in May, which was well attended. The question of adequate beacon coverage and the installation of additional beacons were also considered by the Committee.

A Four Metre Band Plan was formulated by the Committee and commenced in March for a six month trial period.

Radio Amateurs' Examination

Mr L. E. Newnham, G6NZ, and Mr J. W. Swinnerton, G2YS, continued to represent the Society on the City and Guilds of London Institute's RAE Advisory Committee under the Chairmanship of Mr W. A. Scarr, G2WS.

During the year, the Society noted with regret the reluctance of provincial centres to accept candidates for the RAE who have not studied for the examination at that centre. Consequently some candidates have to travel long distances to the RSGB Centre in London in order to take the examination.

Affiliated Societies and Clubs

There is a continuing upward trend in the number of local societies and clubs becoming affiliated to the RSGB. At the end of June 1967 clubs affiliated to the Society totalled 321.

RSGB Certificates Manager

Mr C. R. Emary, G5GH, the Honorary Certificates Manager, continued to deal with an ever increasing number of requests for certificates and Council records its sincere thanks to him for dealing so well with this onerous task.

QSL Bureau

Mr Arthur O. Milne, G2MI, together with his willing team of sub-managers have dealt with over 2½ million QSL cards during the past year. The Council is pleased to place

on record its gratitude to Mr Milne and the sub-managers for their help in maintaining this important service which is of great value to the membership.

RSGB Recorded Lecture Library

Mr G. S. Milne, G3UMI, as curator of the Tape/Slide Library continues to provide Clubs and Societies with material to enable them to provide interesting lectures and meetings. The Council feels that the intake of new members into the Society is often by way of club and group meetings and these can often be made more interesting with the help of Tape/Slide lectures. The Council express its thanks to Mr G. S. Milne.

RSGB Film Library

Mr R. A. Cathles, G3NDF, who took over the job of curator of the RSGB Film Library has put an enormous amount of work into the reorganization of the Library. Council records its thanks to Mr Cathles for his efforts.

RSGB Slow Morse Practice Transmissions

The list of stations taking part in the transmission of Slow Morse for practice continues to grow under the organization of Mr M. A. C. McBrayne, G3KGU. Page 405 of the June 1967 BULLETIN gives a schedule of stations who were providing this service for those wishing to learn the Morse code, in order to obtain their Class A Licence.

The thanks of Council to Mr McBrayne and all those who provide this service are recorded.

RSGB News Bulletin Service

The regular Sunday morning News Bulletin was transmitted throughout the year. Reports on this service continue to be received by the news readers and Headquarters indicating that it is appreciated.

Council thank all those who take part in its production and transmission.

RSGB Publications

The number of pages of the RSGB BULLETIN is now maintaining a high level, and during the year July 1966 to June 1967, a total of 852 was achieved. Production suffered a severe setback with the sudden illness of John Rouse in January, but every effort was made to ensure that members received copies without delay.

The Council wishes to record its appreciation of the invaluable work of the BULLETIN's regular contributors: Dr John Allaway, G3FKM (The Month on the Air), Messrs B. Armstrong, G3EDD and P. Simpson, G3GGK (Equipment Reviews), Mr P. Hawker, G3VA (Technical Topics), Mr J. Hum, G5UM (Four Metres and Down), Mr S. W. Law, G3PAZ (RAEN News), Mrs Sylvia Margolis, for her reports written in her capacity as RSGB Public Relations Officer, Mr E. Arnold Matthews, G3FZW (Mobile Column), Mr Ken Smith, G3JIX (QUA Associates), Mr R. F. Stevens, G2BVN (Region 1 IARU calling) and Mr G. R. B. Thornley, G2DAF (Single Sideband). During the year the BULLETIN was able to publish, for the first time, detailed analyses of three commercially-manufactured pieces of equipment and it is hoped that this service will assist members in establishing the suitability of commercial products for their own requirements.

Until his death, John Rouse had expended considerable effort in producing the fourth edition of the Amateur Radio Handbook, and the work was well advanced. The demand for the new edition was growing steadily. Work was in progress for a new publication, "World At Their Fingertips," a history of the Society and Amateur Radio in the United

Kingdom, and revised editions of the Radio Data Reference Book and Amateur Radio Circuits Book.

Valuable additional material was included in a new edition of Service Valve and Semiconductor Equivalents, the opportunity also being taken to extend the title in accordance with the inclusion of equivalents for Service Transistors and Diodes. Council places on record its thanks to the compiler of this book, Mr G. R. Jessop, G6JP.

The range of Log Books published by the Society was extended and revised where necessary.

IARU

The Society continues in close contact with the Member Societies of the IARU, particularly those of the Region 1 Division. There is satisfactory liaison in such matters as band planning contests, QSL Bureau and the retention and expansion of the amateur bands is a subject on which there is a continual effort.

Lectures and Meetings

Amongst the many meetings which took place during the year were a Region 12 ORM at Elgin on 20 August, Region 9 ORM at Weymouth on 2 October and Region 3 ORM on 30 April. The attendance at these ORMs can only be described as fair and Council feels that members should make more effort to support these meetings, which involve a lot of hard work in their organization.

Council was officially represented at the Northern Radio Societies Association's second convention at Belle Vue, Manchester, on 3/4 September, 1966, followed by the International Amateur Convention at Knokke on 16/18 September, the IRTS-RSGB Convention at Dundalk, Eire, on 25 September, the Midlands V.H.F./U.H.F. Convention and Dinner on 29 April, 1967, and the Scottish V.H.F. Convention on 6 May.

A Regional Representatives Conference was held in London on 8 October, at which RRs from all the regions were present. The opportunity was taken to discuss many items of Society Policy.

National Mobile Rallies were held at Woburn Abbey on 11 September and at Longleat on 25 June.

Two London Lecture Meetings were held, with a talk by Brian Armstrong, G3EDD, on V.H.F. Mobile Radio, on 22 February and on 29 March "Dud" Charman, G6CJ, gave his famous lecture and demonstration on Aerials.

Mr N. Caws and Mr R. F. Stevens

Council expresses particular thanks to Mr N. Caws, G3BVG, and Mr R. F. Stevens, G2BVN, for the considerable volume of extra work undertaken on behalf of the Society. This has involved many hours of their own time each week and deserves special credit.

European Band Plan

This has been adopted by IARU Societies in Region 1.

Frequency Band	Types of Emission
3.5 - 3.6 Mc/s	C.w. only
3.6 - 3.8 Mc/s	C.w. and phone
7.0 - 7.04 Mc/s	C.w. only
7.04 - 7.1 Mc/s	C.w. and phone
14.0 - 14.1 Mc/s	C.w. only
14.090 Mc/s	RTTY
14.1 - 14.35 Mc/s	C.w. and phone
21.0 - 21.15 Mc/s	C.w. only
21.15 - 21.45 Mc/s	C.w. and phone
28.0 - 28.2 Mc/s	C.w. only
28.2 - 29.7 Mc/s	C.w. and phone

IARU

Region 1 calling

INTERNATIONAL AMATEUR RADIO UNION

Germany

The membership of the DARC is now reported at 18,120 members of whom 9240 hold a transmitting licence. With effect from 1 March, 1967 a new type of licence, the Class C licence, was introduced in the German Federal Republic. To obtain this licence it is not necessary to take a Morse test and operation is allowed with a maximum of 10 watts anode dissipation on A3, A3J and F3 in the bands 144-146 and 430-440 Mc/s.

Slow Scan Television

It is understood that proposals for s.s.t. to be allowed in the following frequency bands have been made to the FCC in the USA: 3-8-3-9, 7-2-7-25, 14-2-14-275, 21-25-21-35 Mc/s together with allocations in the 28, 50 and 144 Mc/s bands.

Region 1 Executive Committee

A meeting of the Committee was held in Krefeld, West Germany during the period 27 to 30 October. Members of the Committee who attended were: SM5ZD, PA0DD, DL3NE, YU1AA, G6CL and G2BVN. A large number of questions were referred by the 1966 Opatija Conference to the Committee and in addition a complete review of the finances of the Division was made. There are now 27 subscribing members of the Division and further applications are known to be in hand.

Satellite Projects

The *Euroscar* satellite constructed by DJ4ZC has now arrived back in the USA after some minor modifications have been carried out by the builder. The *Australis* satellite is now undergoing environmental tests and it is hoped that a launch of one of these packages will take place in the near future. The question of orbit predictions is in hand and the VFDB Club in Germany is known to be making preparations so that these may be available from computerized information. The predictions prepared by G2AOX will again be available and these will be discussed on the SSC net on 3780 kc/s.

Amateur Day in Holland

The annual convention of VERON, the Dutch National Society, was held in Utrecht on 4 November and was attended by some 200 members, a large proportion of the total membership of the Society. The Convention is an all day affair with separate and simultaneous meetings devoted to the h.f. bands, v.h.f. bands and listeners. It was attended by representatives of UBA (ON4AK), DARC (DL1QK) and RSGB/IARU.

PA0AA

VERON, the Dutch National Society, has received many enquiries about the schedule of their Headquarters station

PA0AA and details of current activity is given below. Transmissions take place each Friday, times are GMT.

- 19.00-19.15 News (in Dutch) for the amateur.
- 19.15-19.30 News (in English) for the amateur.
- 19.30-20.00 Slow Morse for beginners.
- 20.00-20.30 Slow Morse for advanced listeners.
- 20.30-21.00 RTTY Bulletin, 45 bauds.
- 21.00-21.15 Repeat of news in Dutch.
- 21.15-21.30 Repeat of news in English.

On the last Friday of each month this schedule will be followed by a code proficiency run from 21.30 to 22.15. On other Fridays the station will be available for normal QSOs.

The Morse classes are run in series of eleven weeks and the advanced series follows that of the beginners so that the total time available will be 22 weeks. The classes are based on the requirements of a test at 12 w.p.m. (the English and Dutch standard) and VERON suggest that the transmissions be recorded for use within club groups on other nights of the week. The Code Proficiency run consists of text sent for five minutes at each of the following speeds: 15, 20, 25, 30, 35 and 40 w.p.m. on frequencies of 3600, 7040 and 145.140 Mc/s simultaneously. One minute of correct copy in original handwriting should be sent to the Traffic Bureau, VERON, PO Box 9, Amsterdam, who will then issue a certificate, free of charge, for the appropriate speed (it is suggested that IRCs should be sent to cover return postage).

The emissions from PA0AA use the following modes: News bulletins A3; RTTY: h.f. bands F1, v.h.f. a.f.s.k., both with 850 cycles shift. Slow Morse: A2. Code Proficiency run: h.f. bands A1, v.h.f. A2.

Canadian Licensing

An amendment has been made to the General Radio Regulations, Part 1 section 17A, under the heading "Non-resident Amateur Radio Operators." Summarized, the alteration means that if a UK amateur holds a Class A licence then he will be given operating facilities in Canada without further formality. Hitherto this has not always been the case. Our thanks to VE3CJ for this information. Those wishing to operate whilst in Canada would do well to obtain a copy of the *Canadian Radio Amateur Licensing Handbook* by J. Kitchin, VE7KN. This mine of information is available for \$2.50 from R. Mack and Co. Ltd., 1485 S.W. Marine Drive, Vancouver, 14, British Columbia. The licensing regulations are combined with a listing of all Canadian radio amateurs.

Faeroe Islands

It should be noted that the correct call of the beacon station is OY7VHF and not as shown in the list on page 598 of the September BULLETIN. The Faroese Amateur Radio Society, who are now members of the Region 1 Division of the IARU, have been very active in connection with an experiment carried on the satellite Aerial 3. Just Sivertsen, OY7J, is carrying out work for the University of Sheffield who have sponsored one of the projects associated with the satellite. G2BVN

Can You Help?

- A. W. Barry, 1 Great Parks Road, Paignton, Devon who requires information on the Jackson Dynamic Valve Tester Model 636?
- A. W. Bunn, 2 Somers Square, North Mimms, Nr. Hatfield, Herts who requires conversion information on the AM transmitter/receiver Type TR5043, RAF No. 110D/145?
- Gnr D. Inns, 24094780, Drone Troop, 57 Battery R.A., 94 Locating Regt. R.A., B.F.P.O. 23, who is trying to purchase 88MHV Toroid Telephone Loading coils?

News from Headquarters

Devaluation

With immediate effect the cost of subscriptions to the US Magazines, *QST*, *CQ* and *73* will be raised by approximately 14 per cent. The precise amount payable in the future is given below. Existing stocks of US publications will be sold at pre-devaluation prices whilst they last. Any new publications will be sold at prices comparable with the new rates of exchange now applying.

<i>QST</i> (ARRL)	57s. 6d.
<i>QST</i> Society Subscriptions	65s. 6d.
<i>CQ</i> (Cowan)	50s. 6d.
<i>73</i>	42s. 6d.

M.F., L.F. and V.L.F. Radio Propagation Conference

This Conference which was held between 8 and 10 November at the IEE, Savoy Place, London, was opened by Mr J. A. Ratcliffe, C.B., C.B.E., F.R.S., the immediate Past President of the IEE. Delegates from 14 countries heard some 43 papers presented by the leading authorities from Canada, France, Germany, Norway, USA and the UK. A considerable amount of pure scientific information formed the background to some papers but the development of navigational systems using the M.F., H.F. and V.L.F. bands is an immediate practical application with the development of supersonic airliners. A paper presented by the University of Sheffield dealt with the preliminary results of observations of GBR (Rugby) transmissions by the satellite Ariel 3. The Conference was sponsored jointly by the IEE Electronics Division and the Institution of Electronics and Radio Engineers.

Colour Television

The London Lecture Meeting on 8 November, 1967 was held at the Institution of Electrical Engineers, Savoy Place, when a lecture on Colour Television was given by Mr Graham Roe, B.Sc.(Eng), A.C.G.I., of the Design Department of the BBC. The lecture was illustrated by many colour slides and the audience of more than 80 members listened to a clear and lucid description of the principles of colour television. A hearty vote of thanks to the lecturer, who is a member of the Society's Technical Committee and is licensed with the call G3NGS, was proposed by Mr J. Mathews, G6LL.

RSGB Dinner Club

The meeting of the Club on 20 October was attended by 35 members and guests and the overseas visitors included ST2AR, VP7NS, VK3QV and W1RF. Mr A. O. Milne, G2MI, who had recently returned from a holiday in North America spoke of the tremendous hospitality that he had received. Amongst his hosts had been W1RF! The next meeting of the Dinner Club will be held on Friday, 26 January, 1968 at the Kingsley Hotel, Bloomsbury Way, London, WC1, at 7.30 for 8 p.m.

Returned Thanks

Mr Peter Maynard, son of the late Fred Maynard, G4OU, of Sheerness, Kent, writing on behalf of his mother, wishes to thank members of the Society who wrote to express their sympathy at the time of his father's death.

Surplus Manuals

The Society's manuals of war surplus equipment are now in the hands of J. P. Ceresole, 58 Neven Square, London, SW5, to whom all enquiries should be addressed. Mr Ceresole can also be reached by telephone after 6 p.m. at FRE 5209.

Silent Keys

We record with sorrow the passing of the following Amateurs:

J. P. Martell, GM3VON of Basingstoke, Hants.
A. Giddy, G3EQP, of Muswell Hill, London N10.
Phyllis Lonsdale, G3VXL, of Streatham, S. London.

Obituaries

G. A. Harris, G3EWF

It will come as a shock to many of his friends to learn that Gerald Harris, G3EWF, of Bristol passed away on 20 August after a serious illness which overtook him at Easter.

"Gee" Harris spent the early years of his career as a sea-going operator and it was this which gave him a real enthusiasm and skill with the key. After coming ashore he was for many years sales manager for a national domestic electronics manufacturer, and became well known throughout the South West of England. He had a lively and ready wit and although not as active as he would have wished, owing to heavy business commitments, he maintained a great interest in the activities of the Bristol RSGB Group. To his charming widow Norah and his sons go our sympathies at their loss.

R. C. H.

A. Thomson, GM3RCI

It is with deepest regret that we report the death of Andrew Thomson' GM3RCI. He was one of the victims of the fire which swept through the Michael Colliery in East Fife.

"Andy" as he was known to all his many friends was of a cheerful and generous nature and nothing was too much for him to do to further the interests of Amateur Radio and his home in Leven had an ever open door to his fellow amateurs.

His pleasant and distinctive voice will be sadly missed on the Amateur bands.

I am sure that everyone will join me in offering their sincere sympathies to his widow and three daughters in their moment of sadness.

The funeral took place at the Crematorium in Kirkcaldy and the following Amateurs attended to pay their last respects: GM3AEY, NVF, JOL, GFO, UNJ, TCW, HLQ, GCA, JDN.

J. W. B.

L. G. Stoodley, G8DM

It is with regret that we report the passing on 2 August of L. G. Stoodley, G8DM. In the early days, the 30s, Leonard was a leading figure in the Southampton group of amateurs; in the postwar period—the late 40s—he was in the Cheltenham area and finally he was associated with the Oxford section. Of late years he was too busy with his own very specialized research to take an active part in the movement, but I am sure very many "hams" will remember him with affection, for he always retained a keen interest in radio and was always ready to assist with advice on technical problems.

M. Woodcock, G3UGW

It is with regret that we report the passing of M. Woodcock, G3UGW—ex 5N2SMW—on 28 August. Mac had made the Army his career, serving in the Royal Signals, and in his last appointment served for almost seven years in Lagos, training the Royal Nigerian Army. It was from Lagos that his Nigerian Call, 5N2SMW, became so well known during the early 1960s. Only very shortly after his return to England, nearly four years ago, he was stricken with the illness which was to prove fatal and although he took out a "G" call, he was soon too ill to use it.

To his widow, Rose, and to his young son Stephen, we extend our deep sympathy.

G. R. M. G.

Society Affairs

A Brief Report on the October, 1967 Meeting of The Council

THE meeting was held on Saturday, 14 October, 1967, and was attended by Messrs A. D. Patterson, President (in the Chair), B. Armstrong, N. Caws, J. Etherington, J. C. Graham, E. G. Ingram, H. E. McNally, L. E. Newnham, J. F. Shepherd, R. F. Stevens, G. M. C. Stone, J. W. Swinerton, G. Twist, E. W. Yeomanson (Members of the Council), D. W. Robinson (General Manager), C. P. Pope and T. R. Preece (Headquarters staff).

No apologies for absence were received.

Membership and Affiliation

The Council approved the election of 374 members (295 Corporate and 79 Associate) and accepted 10 transfers from Associate to Corporate Membership.

Affiliation was granted to:

- (1) Leyland Hundred Amateur Radio Group.
- (2) 18th Jersey Scout Group.

Resignation of General Manager

Mr D. W. Robinson, G3FMT, announced his resignation as General Manager of the Society as from 18 November, 1967. Mr Robinson informed Council that he had received an attractive offer of employment as a Purchasing Officer, which he had accepted. The President, on behalf of Council, wished him success in his new position.

Presidential Installation 1968

It was agreed that the installation of Mr J. C. Graham, G3TR, as President, would take place at the Kingsley Hotel on Friday, 12 January, 1968, at 7.30 p.m.

Conventions

The President reported on his attendance at the IARC Convention at Geneva and the Knokke Convention.

Mr Stevens reported on a visit to the International Telecommunication Union.

QRA Locator System

The Council considered a paper dealing with this system presented by the Chairman of the V.H.F. Contests Committee, Mr A. H. Dormer, G3DAH.

It was noted that the subject of grid locator systems would be considered at the Region 1 IARU Executive Committee Meeting to be held on 27 October, 1967.

Annual Accounts

The Audited Accounts of the Society for the year ending 30 June, 1967, were tabled at the meeting and after discussion and examination, they were accepted by Council (the Accounts appeared on pages 743 to 747 of the November 1967 issue of the BULLETIN).

Lambda Investment Co Ltd

The Honorary Treasurer reported on the response to the Debenture Issues. It was to be brought to the attention of members that debentures were still available.

1968 Council

The nominations that had been received for 1968 Council were reported. (A ballot paper was enclosed with the November issue of the BULLETIN.)

Region 9 Representative

Council approved the nomination of Mr J. Thorn, G3PQE, for the vacant office of Region 9 Representative.

Region 15 Representative

Council approved the nomination of Mr J. Thompson, G13ILV, for the vacant office of Region 15 Representative.

Committee Meetings

Minutes of the following Committee Meetings were accepted as reports:

Exhibition Committee (29.8.67). This was concerned with preparations for the 1967 Exhibition.

Mobile Committee (5.9.67). This was mainly concerned with preparations for the Woburn Abbey National Mobile Rally.

V.H.F. Contests Committee (5.9.67). Mr A. H. Dormer, G3DAH, was elected as Chairman for the remainder of the current year. The matter of grid locator systems was discussed and Recommendations to Council were made in respect of Awards for the following Contests: (1) First 432 Mc/s (Open) Contest. (2) Second 432 Mc/s (Open) Contest. (3) 144 Mc/s S.S.B. Contest. (4) 70 Mc/s (Portable). Arrangements were made for the adjudication of a number of current contests.

H.F. Contests Committee (7.9.67). Recommendations were made to Council in respect of Awards for the Summer Top Band Contest and the "General Rules for H.F. Contests 1968" were discussed.

G.P.O. Liaison and TVI Committee (7.9.67). The difficulty of obtaining suitable harmonic detection equipment for use by the Society was further considered. The Agenda for the meeting with the GPO was agreed. Particulars of current cases of television interference were reviewed.

Education Committee (9.9.67). Arrangements for the exhibit at the forthcoming Exhibition were discussed. Details of a projected lecture to be held at the Science Museum were agreed.

Technical Committee (13.9.67). Consideration was given to the types of equipment to be reviewed in forthcoming issues of the BULLETIN. A report was made on the articles awaiting publication. Progress on the Fourth Edition of the *Radio Communication Handbook* was reported. Arrangements for the new range of Manuals to be produced were discussed.

V.H.F. Committee (20.9.67). The 4 metre band plan was extensively discussed, there being attendance by members outside the Committee. A review of Beacon Stations was made and the Committee ratified a number of applications for operating awards.

IARU Working Group (9.9.67). A review of the action arising from the Recommendations of the 1966 Opatija Conference was made. The forthcoming Conferences at Geneva and Knokke were discussed, together with matters concerning the 1969 Region I Conference. Matters for consideration by the Region I Executive Committee at their meeting on 28 October, 1967, were tabled.

The Council was in session for 4 hours.

Radio Amateur Emergency Network News

By S. W. LAW, G3PAZ*

WITH the approach of the Festive Season it is opportune to thank those who write in to this column, no matter what the burthen of the contents. Please accept our thanks and very good wishes. We are glad to be able to report a steady flow of applications for membership, and heartily welcome the newcomers. It is still felt, however, that we are not fully doing our duty to those who, catching sight of our humble words, pause and ponder on the job we try to do, then set pen to paper to ask "How do we join?" Let us hasten to assure those who wonder at the things recounted in this column that RAEN is no esoteric clan of mysterious beings. Far from it—we are just Radio Amateurs (and that includes short wave listeners) who realize that our skill and apparatus can be put to good use in times of emergency provided that we are ready to ensure that we are as efficient as our amateur status allows. To this end we form ourselves into groups, each under a Controller, and practice continually to improve our ability in the art of rapid and accurate passing of messages. Those who listened to our last RAEN Contest were no doubt a little astonished at the "test phrases" which passed to and fro, and wondered why on earth we should bother to transmit such extraordinary mixtures of letters and figures. The reason is not hard to find if we imagine the chaos that a civil disaster can bring in its train, and the extreme difficulty of passing an accurate message under conditions of stress (and probably in terrible weather conditions at that!). One has only to scan the daily papers to continually find cases where Nature has laughed at Man's puny arrangements for keeping in contact with his fellows. A few million gallons of water in the wrong place or a few thousand tons of soil shifting a few yards and a whole village or even a small town can be hopelessly isolated for many hours. This sort of thing is only one case where radio, any radio, but preferably *organized* radio can be of invaluable assistance in getting help to the right place quickly. True, there may be nothing heroic about sitting in discomfort in an unpleasant place operating a temporary radio station—in fact a number of amateurs do just this on Field Days and on DXpeditions! It is only one step further to ensure that a controlled and reliable network can be set up at short notice in a given area and be relied upon by the User Services (Police, Red Cross or St John Ambulance Service) to pass urgent messages with expediency and accuracy irrespective of the message content.

This then is the aim of the Radio Amateur Emergency Network. We claim no kudos as heroes, we make no claim for air-space (except as commonsense and courtesy dictate), in fact on 4m we confine our activity to a few kilocycles bandwidth; and membership is open to all who feel that they can use their radio skills to help out when normal channels of communication break down in disaster conditions.

How to Join

Application forms are obtainable from RSGB Headquarters or from any RAEN member, who will see that you get one. When completed the form should be sent to the Hon. Registrations Secretary, G2ABC, whose address is: R. A. Ledgerton, 1 Latchingon Gardens, Woodford Bridge, Essex. On the back of the application form you will find a condensed résumé of the history of the formation of the Radio Amateur Emergency Network and its structure. Further information is to be obtained from the Hon. Secretary of the RAEN Headquarters Committee, whose address is: E. R. L. Bassett, 57 Upper St Helens Road, Hedge End, Southampton.

Lectures

For those Radio Clubs whose members might wish to learn more of RAEN, lectures may be arranged at reasonable notice by application to the Hon. Secretary (address as above). It must be appreciated, however, that all RAEN work is entirely voluntary, and due consideration should be paid to this point (which is often not appreciated!). There are also sound tapes available to bona fide Clubs, and the Hon. Secretary will be pleased to send details on receipt of a s.a.e.

RAEN Committee

The RAEN Committee met for the bi-monthly meeting on 21 October at RSGB Headquarters. Late holidays accounted for a few apologies for absence, but well over the quorum resulted in some animated discussion on one or two somewhat controversial points.

Duty—And Pleasure

With mixed feelings we learnt that the energetic Norfolk Group Western Area had an 8-hour night exercise right in the middle of the RAEN Contest on 7-8 October in conjunction with the Red Cross User Service. We wonder how much sleep these chaps managed to get—and when? This Group always has a pretty full programme thanks to the able leadership of their CC, G3HRK. Latest, but not least from the organizing angle, was the RAEN Dinner at Norwich on 1 December. A notable point which caused some hilarity was that certain members managed to have a really carefree time with no worries about the journey home—there are no Breathalyzer Tests (as yet!) for private Broad cruisers! (We're only joking, Doug!)

More Integration?

We saw a badge recently which gave us furiously to think. If one sees a "ton-up boy" at speed, one is apt to forget that he may be a member of the Volunteer Emergency Service delivering some much-needed blood plasma to an urgent case at a distant hospital. How many County Controllers have the addresses of all the various voluntary services in their area? Moreover, should anyone require the CC's address, is it on record at the Public Library? Most libraries carry a list of local services and activities, and there appears to be no reason for the local RAEN Group to be absent from the list. It might save valuable time in certain circumstances. True, neither the Salvation Army nor even the Citizens' Advice Bureaux are as yet User Services, but they might be very glad to be aware of our existence and the service we offer within the framework of our licence.

Weakest Link?

Now that we have recovered from the recent RAEN Contest, and whilst we await the results, what thoughts passed through the minds of those older RAEN members who remember, the Western Trunk Route of some years ago? The Group policy has worked out admirably for the "local" type of civil disaster for which we are normally (and rightly) geared. There may still be some, however, who feel that our set-up does not go far enough, and that a greater degree of liaison between counties might be a desirable thing. This is the sort of thing the RAEN Committee would like to hear about, but let us not forget the age-old adage about the chain! Is your County set-up as good as you would wish? And what are you doing about it?

The Old Wish

Happy Christmas—and no call-outs.

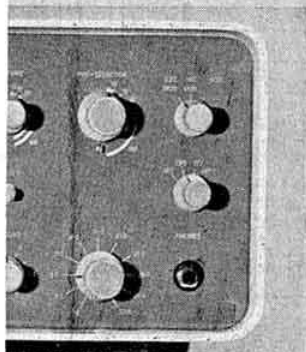
* 11 Chisholm Road, Croydon, Surrey. CRO 6UQ.

WORLD AT THEIR FINGERTIPS

By J. CLARRICOATS
OBE, G6CL

WORLD AT THEIR FINGERTIPS

JOHN CLARRICOATS G6CL



"AND SO WE HAVE HERE A STORY THAT SPREADS OVER A PERIOD OF MORE THAN 50 YEARS. SOME OF THE ORIGINAL MEMBERS OF THE WIRELESS SOCIETY OF LONDON ARE STILL LIVING; AND IN ONE WAY OR ANOTHER HAVE MAINTAINED THEIR INTEREST IN THIS HOBBY, WHICH AT PRESENT ATTRACTS LARGE NUMBERS OF AMATEURS IN MANY COUNTRIES OF THE WORLD. THIS VOLUME WILL COMMEND ITSELF TO ALL WHO ARE INTERESTED IN THE HISTORY OF RADIO; AND PARTICULARLY TO THOSE WHO WISH TO GAIN A DIRECT APPRECIATION OF THE PART WHICH THE BRITISH AMATEUR HAS PLAYED IN THE DEVELOPMENT OF THIS ABSORBING HOBBY."

Dr R. L. Smith-Rose's concluding remarks in the foreword to "World at their Fingertips."

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- Cheques and postal orders should be made payable to the Society
- Book tokens and stamps cannot be accepted

From: RADIO SOCIETY OF GREAT BRITAIN,
28 LITTLE RUSSELL STREET, LONDON, WC1

CONTEST NEWS REPORTS—RULES

Affiliated Societies' Contest 1968

The rules for the Affiliated Societies' Contest to be held on 13-14 January, 1968, are set out below. The attention of contestants is drawn to changes in Rules (1) and (5). Non-contestants are reminded that they should not send "AFS," as it is reserved for the identification of Affiliated Society stations.

Rules

1. The contest is open to all Societies in fully paid-up affiliation with the RSGB at the time of the contest. Societies may enter more than one station provided that different call-signs are used. As the contest is to encourage club activity, it is not in the spirit of the contest that a Society station should be operated by only one member for all or nearly all of the time, and entries which indicate this method of operation may be disallowed. Entries will only be accepted from club stations operating within a 10 mile radius of the normal meeting place or HQ of the Society.

2. The General Rules to be published in the January, 1968 issue of *Radio Communication* relating to RSGB Contests will apply except as superseded by the rules of this contest. For the purpose of this contest all entries are classed as multi-operator stations.

3. The contest will be in two periods:

19.00 to 23.00 GMT, 13 January, 1968, and
19.00 to 23.00 GMT, 14 January, 1968.

4. Entrants must operate in the 1-8 Mc/s band on c.w. only, and operate in such a way as to minimize interference with other band users. Contacts with telephony stations are not permitted.

5. Fifteen points will be scored for all contacts with Affiliated Society stations, and one point for all other contacts. Contacts may be made once only with a station during each operating period. The contest score will be the sum of the points obtained in each period, and the combined log must be prefaced by a cover sheet made out in accordance with RSGB General Rule 4.

6. Affiliated Society stations only must send AFS to identify themselves as contestants, after the report-serial number groups, e.g. 579001 AFS. Serial numbers will advance throughout the entire contest.

7. Call-signs which have been issued to Societies must be used, but their use at an alternative address is not debarred. If no Society call-sign is held the call-sign of a member may be used. More than one entry will be accepted from a Society or club provided that where a club call-sign has been issued, that call-

sign is used for the "A" station. Additional entries must use members' call-signs.

8. Entries must be postmarked not later than Monday, 29 January, 1968, must be submitted on RSGB Contest Log Sheets (available from RSGB Headquarters on request), and must be set out in the following form:

Date/ Time GMT	Call-sign of station worked	Our report on his signals and serial no. sent	His report on our signals and serial no. received	Enter AFS if received	Call-sign of Operator	Points claimed
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9. The declaration must be signed by an officer of the Affiliated Society, who will be held responsible for the conduct of the station(s).

10. At the discretion of the Council of the RSGB, the Edgware Trophy will be awarded to the Affiliated Society submitting the highest total checked score.

144 Mc/s S.S.B. Contests

There was a very good response to the 144 Mc/s s.s.b. contest questionnaire. It is very clear that repeat contacts should be allowed, but not in the manner that they were previously allowed. Thus the rules will be modified. The day, timing and duration of the contest are all popular and will therefore not be changed. The next 144 Mc/s s.s.b. contest will be held on Monday evening, 8 January, the full rules to be published in the January issue of *Radio Communication*.

Bristol D/F Hunt

Bristol Amateur Radio Club held its fourth Direction Finding contest in glorious weather on 20 August, the winner being an SWL, Roger Fry, who reached the hidden location one hour after the first call was transmitted. It was most encouraging to have nine members of the Chippenham Amateur Radio Club turn up having taken part in the contest and some winning points. In all 55 members and friends reached the site at Bannerdown Bath. Condolences were extended to one mobile member who finished up in the opposite direction at Severn Beach. The next D/F Hunt was held on 17 September at 2 p.m. that being the fifth and final of the series.

LETTERS TO THE EDITOR

Neither the Editor nor the Council of the Radio Society of Great Britain can accept responsibility for views expressed by correspondents. Letters for inclusion in this feature should be concise and preferably not more than 200 words in length.

New Looks

Another Exhibition is over.

The latest venue is a better one, although a friend likened it to holding the affair in Liverpool Street Station. My own reaction was to think what tall flowers they must show there!

I hope it is not futile, though, to ask that our Amateur Radio Exhibition be called, once again, The Amateur Radio Exhibition. That, after all, is what it still is (yet I noticed that the advertisements in the popular press made no mention of Amateur Radio whatever).

And, in the same vein, our dear old BULLETIN is getting a new name—presumably in the interests of "Progress." I'll bet, though, that it will still be "The Bull" to a great many members, despite what appears on the cover.

Finally, hearty thanks to G6CL for his "World At Their Finger-Tips," a well-produced and interestingly written volume which will fill a long-standing gap on the shelves of those who care about what happened before yesterday.

F. ALLAN HERRIDGE, G3IDG.
(Life Member)

Basingstoke, Hants.

Field Day Continued

The implication made by the East Worcestershire Amateur Radio Group that their measure of success was due to merely increasing their power above that permitted by the rules is both illogical and slanted, as it further implies that stations with better or similar scores must also have been employing excessive power input.

By increasing one's input from the permitted ten to the utilized 30 to 35 watts would produce an increase of less than five decibels, a gain that is easily exceeded by employing aerials such as large rhombics, which can give gains of some 16dB even at logical size, well above quads and three element beams.

They have also ignored the tremendous advantage of those groups who have had over 10 years of constant improvement in score by carefully studying propagation, time and motion techniques, personal capabilities, band-planing, logging methods, etc.* Even a change to an apparently similar site can result in a 28dB improvement in signals!

While agreeing with many of the points made in G3KWK's interesting letter our small group feel that we must refute the inference that any station with a similar or better score must have abused the rules of the contest.

PATRICK J. A. GOWEN, G3IOR,
on behalf of the Norfolk Amateur Radio Club NFD Group
G3IOR/P

* "Facts and Figures on Field Day" by G3IOR, RSGB BULLETIN, March, 1966, p. 163.

(More letters on page 843)

CLUBROOM

A Monthly Survey of Club and Group Activities

For further information on membership or the activities of a particular club, application should be made to the person whose call-sign is indicated at the end of the item. Full addresses may be obtained from the RSGB Amateur Radio Call Book.

Aberdeen Amateur Radio Society is holding its Annual Dinner and Dance on 15 December at the Hazlehead Restaurant. Tickets can be obtained from F. Baxter, GM3VEY at Aberdeen 22852.

Barry College of Further Education RS held its AGM on 19 October when the following officers were elected: Chairman, Dr Alan Pritchard, GW3WLN, Secretary, D. H. Adams, GW3VBP, Treasurer, J. Wells and Officers, B. Voddan, GW3WBU, R. Hillard, GW3VBP.

South Birmingham RS is yet another club to hold its AGM. Later in November an Inter Club quiz was held between SBRS and Bromsgrove Radio Club. Members are now looking forward to the Christmas Party and Surplus sale to be held on 20 December. G3OHM.

Bishop's Stortford and District ARC met on 16 October when the WIBB tape and slide lecture was shown. Congratulations to the two newly licensed members, G3WUR and G3WYD. G3VWC.

Bristol RSGB Group. Over 50 members attended at the new venue, Becket Hall, St Thomas Street, Bristol on 16 October, to listen to a talk and demonstration of Heathkit Amateur Radio Equipment by Sid Boakes, G3HXN. During the November meeting John Clarricoats, OBE, G6CL, addressed the meeting on Amateur Radio, Past, Present and Future. G3PFD.

Bromsgrove and District ARC hold "make it or break it" evenings on Thursday's when members are able to use the facilities of the club workshop. For the less constructive, the club station is now installed and all is prepared for contest working. Next year's project will be a 14 Mc/s.s.b. exciter and G2CLN and G3NOY are at present preparing the work schedule. G3VGG.

Cambridge ARC, with 54 paid up members, is re-decorating the clubroom and improving heating arrangements. The winter session has so far included a Junk Sale, Can You Help? evening, a talk on h.f. aerials and Know How for Beginners. Two younger members who arranged this most instructive and entertaining evening won deserved praise from everyone present. G5BQ.

Cheltenham RSGB Group. D. G. Martin, G3IER once again produced his projector and showed two excellent films, one showing the history of the Ferranti family and associated inventions, the other, a colour feature, demonstrating the development of signals communication from the Great War up to the latest orbiting space craft. G3CGD.

Civil Service RS had a disappointing turn out for one of its best lectures of the year. Only a dozen or so members saw Ralph West assisted by Peter Clifford talk on Hi-Fi, General Sound Work and Loudspeakers. This programme was certainly worthy of more support. G3KGM.

Cornish RAC met in November when 45 members heard G3XC give a potted talk, prior to the main event, on Mobile Aerials. This was followed by G2JL/MM describing his maritime mobile equipment together with its aerial. This, a 7 Mc/s inverted vee, was attached to one end to the bow and at the other to a towed buoy! G3NKE.

Crawley ARC is pleased to find its Chairman, John Graham, G3TR, President-elect of RSGB for 1968. Recent meetings have included lectures on Lasers and v.h.f. equipment. A special meeting, third in a series aimed at the newcomers to Amateur Radio, was also held, when Ron Vaughan, G3FRV, lectured on transmitters. Arrangements are now being made for the club's seventh Annual Dinner, due on 23 February, 1968. G3FRV.

Cray Valley RS recently arranged a visit to BBC Tatsfield where, amongst many other details, members were enthusiastically told of an American who telephoned from Los Angeles, California to report receiving at 7 a.m. BST the Scottish Home Service on 809 kc/s. G3VLA.

Derby and District ARS exhibited at two local exhibitions last month. A Constructional Project group has been formed under the leadership of G. P. Miles, G3TOV and J. Smith, G3SMV. Anyone interested is invited to contact either of these

members. Recent visitors to club meetings have included W6QWX, W4DFX and VP7NS. Arrangements for the Society's Annual Dinner and Dance, to be held on 17 February at the Derbyshire Yeomen are well in hand and tickets will shortly be available. G2CVV.

Douai School RS report an error in last month's BULLETIN, Antony Shave was elected to the committee and not Antony Slave as published. G3WIP.

Edgware and District RS were lectured by T. Sloan, G3ONS on the art of stable v.f.o.'s at its recent meeting. Unfortunately attendance was down owing to extremely bad weather. G3FKI.

Grafton RS met each Friday during October. On the 6th, the 22nd AGM was held, followed on the 13th by a Practical Evening and on the 20th by a very well attended and successful Junk Sale. A surprisingly large number of people braved the severe thunder storms, torrential rain and even flooding to be present on the 27 October and their efforts were well rewarded by G2MI's extremely interesting illustrated talk on his visit to the Island of Malta. G3SIL.

During the past month or so the Radio Society of Harrow enjoyed a lecture on stereo disc recording and reproduction, with a demonstration given by G3JVM. A "Technical Forum" was also held where members were able to put forward some of their problems to a panel of experts. The club has taken over another room for Practical evenings so that "Lectures" can be given. G3JVM.

Hemel Hempstead and District ARS is settling down to meetings on the first and third Friday of the month at Rucklers Lane Hall, at Kings Langley. On 3 November, G3TXP lectured on transistors and associate circuits and on the 17th G3UFP talked on his v.h.f. rig. An RAE course is currently running at the local Dacorum College and new members are always welcome and may join at any time.

Hereford ARS reports a steady increase in membership and hopes to reach the half century mark soon. At the October meeting, a Mullard Film Show was presented and this was enthusiastically received. On 21-22 October the scheduled trip to neighbouring county Radnor took place, signing GW3HVX/P. G3RJB.

Hull and District ARS will meet on 15 December for a lecture on Field Effect Transistors by G3FCY followed on 29 December by a Constructional Competition. G3NOP.

Isle of Man RS at its AGM held on 4 October, agreed that future meetings should be held on the first and third Monday of each month until May 1968. It was also agreed that any member could in future officiate on a committee in order to form a quorum. G3FBS.

Manchester and District ARS will meet on 13 December for its AGM and all members are asked to attend this meeting. On the following Wednesday, Bill Mackie will talk on v.h.f. f.m. radio. The Hon. Sec's comment "If the attendance is as good as that for Bill's last lecture, we shall have to start looking for larger premises!" G3TJX.

Manchester University ARS held its first annual expedition, to the Island of Saint Agnes in Scilly, at the end of last term where they were fortunate enough to have as their QTH, a disused lighthouse. This assisted them in rigging up a top-band inverted Vee, a G5RV, a Mosley MP-33 h.f. three element beam and a six over six for 2m. Equipment loaned to them comprised a KW2000A, FT100, HW-32 and a TW Communicator; for these they are very grateful to the respective manufacturers and distributors. In all some 600 stations in over 60 countries were worked and plans are in hand for a further expedition next Easter. The Group would also like to contact other University Radio Societies, to discuss firstly their financial relationships with their Unions and secondly the formation of University Net. The Society welcomes anyone interested whether members of the University or not and a visit to the first floor shack on most Monday evenings will no doubt cue you in on what's happening. G3VUM.

Mansfield ARS continues to function but during the winter

months will only meet on the first Friday of the month instead of the first and third. The meeting place remains the same, The New Inn, Westgate, Mansfield from 7.45 p.m. **G8HX**.

Medway ARS held an aerial test weekend on Cooling Marshes which proved very successful! Later in the month a visit was paid to Maidstone Police HQ, a trip which the 20 members found interesting. Twenty members returned! The latter meeting in the month found Brian Watling, G3RNL, giving members a preview of the findings during the aerial testing on Cooling Marshes. **G3UXH**.

Midland ARS heard Bob Palmer, G5PP deliver his famous lecture on mobile operating at its October meeting held on the 17th. The demonstration included the use of test instruments such as the g.d.o., f.s.m. and s.w.r. meter which he had designed. The November meeting was held on the 21st when the postponed television lecture was given. **G6CC**.

While thumbing through the **North Kent RS** October Newsletter, the following Chairman's remarks were noticed and it is felt that his views should be more widely viewed.

"One thing which pleased me about the recent Communications Exhibition was the fact that, although there was a lot of interest displayed in the various exotic pieces of commercial finery, by far the most popular stands were those displaying components. In fact, if one managed to get to the second row of the mingling mass in front of the stands, then one could qualify for a sense of achievement. There has been a fear in Amateur Radio circles for many years now that the hobby is becoming one of buying commercial equipment and just plugging in, whilst constructing one's own equipment is developing into a lost art. This is not true, for although there is a far wider range of commercial equipment than ever before, a high proportion of Radio Amateurs are still constructing their own equipment, even if only in part. One reason for this, of course, is that a lot of commercially built equipment is out of the range of most people's pockets. It is felt important that members build as much of their own equipment as possible, so that their knowledge and experience of the subject does not deteriorate, and they keep abreast of such subjects as curing TVI, etc. In this way, our image with the rest of the public will improve." **G3PUI**.

Northern Heights ARS. Owing to illness, a couple of scheduled lectures had to be postponed. In their place a talk on Electronic Devices was presented by a Mr Craven. A meeting for members to look forward to is the Annual Dinner to be held on 20 December. **G3MDW**.

University College of North Wales ARS have a fully booked up programme of lectures for this concluding Autumn and the forthcoming Spring term. The more immediate programme continues on 7 December with "FET's put to use by Amateurs" by Bob Anger, GW3JGA. **GW8BDT**.

Oxford University RS visited the Radio and Space Research Station, Slough on 21 November, following a talk by the Director, Dr John A. Saxton, on 1 November. It is hoped to find a permanent home by the end of the term for the club station G3OUR for although meetings are regularly held during term time, access is of course limited. **G3SY5**.

Peterborough and District ARS held its AGM at Peterborough Technical College on 3 November when it was decided to hold its winter lectures at this college on the first Friday of the month. **G3KPO**.

Purley and District RC have found that its attendances are becoming too large for its present Hall, so that with effect from last October the Natter Nite on the first Friday will be held in the old Hall and for meetings on the third Friday of the month the more spacious Hall adjoining will be used. At the Junk Sale held on 20 October an attendance of 70 members was recorded, fully justifying this move. **G3FTQ**.

Reigate ARS heard Charlie Newton, G2FKZ, talk on Meteorology and v.h.f. during its October meeting. This proved to be one of the most popular lectures of the year with an attendance of 28. Members are also given notice of the Ninth Annual Dinner and Dance coming up on 2 February 1968, when the RSGB President will be guest of honour. **G3NKS**.

Southampton University ARC (yet another one!) have successfully recovered from its trip to Ireland early this year and came sixth in a subsequent 4m portable contest. With the new term commencing a new shack was luckily provided and a suitable budget provided by the union with which it was possible to purchase new v.h.f. equipment and install a permanent aerial system. It is hoped that the beginning of the year enthusiasm will not be dimmed by other distractions and that some constructional work will be carried out despite lack of facilities. **G3WEA**.

Torbay ARS met on 28 October to hear John Claricoats,



Our photograph shows Verulam Radio Club member George Eddowes, G3NOH, who is active on all h.f. bands from Mount Vernon Hospital, Northwood, Middx. George suffered a serious road accident in July of this year and is receiving long and complicated treatment for a leg injury. Meanwhile he is making good use of a KW2000A, loaned to him by Phil Connolly, G3OFH, and is pulling in the VKs and JAs on the Joy-stick Antenna and Tuning Unit kindly provided for him by Partridge Electronics. Skin grafting operations have "tied up" George's left arm for long periods but this does not, of course, prevent him handling the KW2000A on s.s.b. nor, for that matter, keeping up his already high standard of c.w. operating! (Photo by Paul Fletcher)

OBE, G6CL talk on 50 years of Amateur Radio, from the inception in 1913 of the London Wireless Society to the present RSGB. This talk was very well received by attending members. Recently on 25 November a Junk Sale went off in usual style while the forthcoming meeting on 16 December will be the Christmas Draw and Annual Quiz Contest with the Plymouth RC as guests. **G3LKI**.

The popularity of Verulam ARC meetings continues to be shown by recent attendances at their now twice-monthly get-together at The Cavalier Hall, Watford Road, St. Albans. On Wednesday, 18 October, over 50 members and friends saw a showing of the well-known Mullard film *Mirror in the Sky* and a most interesting and colourful movie *Ship to Shore*. The evening was also notable for the attendance of G3HVA and G3KAA from Luton, who brought along vast quantities of surplus valves of current types and sold them off at really giveaway prices.

At the so-called "informal" meeting held a fortnight previously (now attracting almost as many members as the regular meetings) a "guess-the-resonant-frequency" contest was held. Ten widely assorted coil and capacitor combinations were laid out for inspection by members who had to judge the parallel resonant frequencies involved. After everyone had had a chance to write down their estimates, G2AIA, acting as judge, measured each circuit with his g.d.o. and announced the result. Members who had brought along their own g.d.o.s were also given the chance to "dip" the coils. The arguments are still continuing! **G3GJX**.

Mid-Warwickshire ARS has had to vacate its HQ at 7 Regent Grove and this has resulted in an early part of the autumn programme being cancelled. Fortunately the Leamington Corporation found new premises and meetings should by now have recommenced at 28 Hamilton Terrace, nearly opposite the old QTH. Meetings will be held on Monday evenings at 7.45 p.m. **G3UOD**.

Wolverhampton ARS met on 16 October for its annual Junk Sale when £9 7s and 10 Pence was raised to boost club funds. On 16 November, W. J. Anderson, presented a fascinating talk on various aspects of Radio and TV servicing. A D/F event was held in torrential rain on a Saturday but luckily the equipment was dried out in the sun which came out as the last entrant finished! **G3UBX**.

(Continued on page 842)

Forthcoming Events

REGION 1

Ainsdale (ARS).—13, 27 December, 8 p.m., 77 Clifton Road, Southport.

Allerton (Liverpool) (SRHS).—Thursdays, 8 p.m., 3rd Allerton Scout Group Headquarters, Church Road, Woolton, Liverpool.

Ashton-under-Lyne (AUL & DARS).—Fridays, 7.30 p.m., 6 Stamford Street, Stalybridge.

Blackburn (ELARC).—7 December, (AGM and Discussion Night), 4 January, YMCA, Limbrick, Blackburn.

Blackpool (B & FARS).—Mondays, 8 p.m., Pontins Holiday Camp, Squires Gate. Morse tuition from 7.30 p.m.

Bury (B & RRS).—12 December, (AGM). Club nets Tuesdays, 8 p.m., Sundays 11 a.m., please note new address, The George Hotel, Market Street, Bury, 8 p.m.

Chester (C & DARS).—Tuesdays, 8 p.m., YMCA.

Crew & District.—1 January, 8 p.m., 80 Albert Street.

Eccles (E & DRC).—Tuesdays, 8 p.m., Patricroft Congregational Schools, Shakespeare Crescent, Patricroft. Every Thursday Club Top Band net 20.30 hours.

Liverpool (L & DARS).—Tuesdays, 8 p.m. Conservative Association Rooms, Church Road, Wavertree.

(NLRC).—8, 22 December, 5 January, 8 p.m., Landsbury House, 13 Crosby Road South, Liverpool 22.

Macclesfield (M & DRS).—19 December, 2 January, 8 p.m., The George Hotel, Jordanvale.

Manchester (M & DARS).—Wednesdays, 7.30 p.m., 203 Droylsden Road, Newton Heath, Manchester 10.

(SMRC).—Fridays, 7.45 p.m., Rackhouse Community Centre, Daine Avenue, Northenden.

Morecambe.—6 December, 3 January, 125 Regent Road.

North West V.H.F. Group.—Tuesdays, 8 p.m., Club Headquarters, Chapelton Street, Manchester 4.

Preston (PARS).—14, 28 December, 11 January, 7.30 p.m., "Windsor Castle" (Private room), St. Paul's Square.

St. Helens (SES).—12 December, 7.30 p.m., IVS Centre, 55 George Street.

Southport (SRS).—Wednesdays, 8 p.m., Sundays 2.30 p.m., The Esplanade.

(73 S.S.B. Society).—Tuesdays, 8 p.m. (all commencing with a talk on part of the RAE Syllabus), 73 Avondale Road North, Southport.

Stockport.—13, 27 December, 10 January, Royal Oak Hotel, Castle Street, Edgeley.

Warrington-Culcheth (CARC).—Fridays, 7.30 p.m., The Harrow Inn, Culcheth.

Westmorland.—15 December, 5 January, 7 p.m., The Allen Technical College, Sandes Avenue, Kendal.

Wirral (WARS).—6, 20 December, 3 January, 8 p.m., Harding House, Park Road West, Cloughton, Birkenhead.

REGION 2

Barnsley (B & DARC).—Second and Fourth Friday in the month, 7.30 p.m., King George Hotel, Peel Street, Barnsley.

Bradford (BRS).—12 December (Visit to International Harvester GB Co. Ltd., Idle), 19 December (Quiz Night), 7.30 p.m., Bradford Technical College, Great Horton Road, Bradford.

Northern Heights.—20 December (Ragchew), 3 January ("Radio on Stamps" by Mrs Mary I. Shaw, G3OMM), 7.45 p.m., Sportsman Inn, Ogden, Halifax.

Scarborough (SARS).—Thursdays, 7.30 p.m., rear of 3 Trinity Road, Scarborough.

South Shields (SS & DARS).—Fridays, 7.30 p.m., Trinity House Social Centre, Laygate, South Shields.

REGION 3

Birmingham (Bournville).—Fridays, 8 p.m.

(MARS).—7 December, (Annual Christmas Party), Savoy Hotel. Third Tuesday in the month, 7.45 p.m., Midland Institute.

(South).—20 December. Christmas Party and Surplus Sale, The Scouts Hut, Pershore Road, Selly Park.

Bromsgrove (B & DARC).—Second Friday in the month, 8 p.m., Co-op Hall.

Cannock (CCARS).—First Thursday in the month, Bridgton Social Club, Walsall Road, Cannock.

Dudley (DARC).—15 December, 29 December. Art Gallery, Dudley.

Hereford (HARS).—First Friday in the month, 7.30 p.m., Mortimer Hall, Mortimer Road.

Mid-Warwickshire (MWARS).—11 December (Surplus Equipment Sale), 7, Regents Grove, Leamington Spa.

Details for inclusion in this feature should be sent to the appropriate Regional Representatives by the first of the month preceding publication. A.R.s and club secretaries are reminded that the information submitted must include the date, time and venue of the meeting and, whenever possible, details of the lecture or other event being arranged. Standing instructions cannot be accepted.

Salop (SARS).—6 December (Mullard Lecture "Colour TV," 7.45 p.m., Technical College, 14 December ("Radio Interference" by Mr J. Stamp of GPO), 19 December ("Club Project," by G3UDA), 28 December (Club Station Operation and Natter, Morse), Old Post Office Hotel, Milk Street, Shrewsbury.

Stourbridge (STARS).—First Tuesday in the month, 7.45 p.m., The Library, Longland School.

Stratford (S-u-A & DARC).—15 December. Hall's Croft, Old Town, Stratford.

Sutton Coldfield (SCRS).—11 December, 27 December. The Fox, Wamley.

REGION 4

Burton on Trent (BRS).—13 December ("Logic" by Messrs. Hopton and Jardine), 7.30 p.m., Stapenhill Institute, Stapenhill, Burton on Trent.

Derby (D & DARS).—6 December (Surplus Sale), 10 December (GSYF Trophy Contest), 13 December (Founder Members' Trophy Contest—Constructors), 17 December (President's Trophy Contest), 20 December (Annual Christmas Party), 27 December (The Year in Retrospect—Members' Slides), 7.30 p.m., Room No. 4, 119 Green Lane, Derby.

Leicester (LRS).—Mondays, 7.30 p.m., Sundays, 10.30 a.m., Club Room, Gilroes Estate Cottage, Groby Road, Leicester.

Melton Mowbray (MMARS).—14 December (Shack visit to G3DF—Topic of the evening an illustrated talk by Arthur Wyche, G3VDN on his visit to Canada), 7.30 p.m.

Newark (NSWC).—Mondays, Thursdays, 7.30 p.m., The Guildhall, Guildhall Street, Newark.

Nottingham (ARNC).—Tuesdays, Thursdays, 7.30 p.m., Room No. 3, Sherwood Community Centre, Woodthorpe House, Mansfield Road, Sherwood, Nottingham.

Peterborough (P & DARS).—First Friday of the month, 7.30 p.m., Peterborough Technical College, Eastfield Road, Peterborough.

Workshop (NNARS).—Thursdays (Lecture Night), 7.30 p.m., Club Room, 13 Gateford Road, Workshop.

REGION 5

Bedford (BARC).—7 December (The Swan Transceiver), 14 December (Club Dinner). Headquarters, "The Dolphin Inn," The Broadway, Bedford.

Cambridge (C & DARC).—1 December (Film Show), 8 December (Informal), 15 December ("Those were the Days"—Reminiscence Night by Old Timers), 22 December (Christmas Fare), Fridays 7.30 p.m., Club Headquarters, Corporation Yard, Victoria Road, Cambridge.

Luton (L & DARC).—Tuesdays at 8 p.m., at New Headquarters. Details from G3VES, 1 Cade's Lane, Farley Hill Estate, Luton.

March (M & DARS).—Tuesdays, 7.30 p.m., Old Police Headquarters, High Street, March, Cambs.

Royston (R & DARC).—Wednesdays, 8 p.m., Manor House Social Club, Melbourn Street, Royston, Herts.

Shefford (S & DARC).—Thursdays 7.45 p.m. (Morse Classes), Meetings 8 p.m., Church Hall, High Street, Shefford, Beds.

REGION 6

Cheltenham RSGB Group.—First Thursday each month, 8 p.m., Great Western Hotel, Clarence Street, Cheltenham.

Gloucester (GRC).—Second and fourth Thursday each month, 7.30 p.m., with Morse practice, Lamb Inn, Market Parade, Gloucester.

REGION 7

Acton, Brentford and Chiswick (ABCRC).—19 December, (The CR 100 by G3PZK) 7.30 p.m., Chiswick Trades and Social Club, 66 High Road, Chiswick.

Addiscombe (AARC).—12 and 26 December, 7.30 p.m., 158 Lower Addiscombe Road (Toch H Hall).

Ashford (Middlesex) Echford (ARS).—14, 28 December, 7.30 p.m., St. Martin's Court, Kingston Crescent, Ashford.

Bexleyheath (NKRS).—14 December (Radio Amateur Emergency Network) 28 December ("Aerials for DX" by G2CCD), 8 p.m., Congregational Church Hall, Chapel Road, Bexleyheath.

Chingford Group.—15 December, Royal Forest Hotel, Chingford.

Chingford (SRC).—Fridays, except first in month, 8 p.m., Friday Hill House, Simmons Lane, Chingford, E4.

Croydon (SRCC).—19 December, 7.30 p.m., Blue Anchor, South End.

Dorking (DR & DRS).—12 December, 8 p.m., Wheat-sheaf.

Ealing (E & DARS).—Tuesdays, 7.30 p.m., Northfields Community Centre, Northfields Road, W13.

East Ham.—First and Third Tuesdays, 7.30 p.m., 12 Leigh High Road, East Ham.

East London.—17 December (Annual General Meeting and Bring and Buy Sale), 2.30 p.m., Wanstead House, The Green, Wanstead, London, E11.

East Molesey (TVARTS).—3 January (AGM), 7.30 p.m., Cardinal Wolsey, Hampton Court.

Edgware & Hendon (EADRS).—11 December. (Junk Sale and "Ham Fisted Radio" by G3RAA), 8 p.m., John Keble Hall, Church Close, Deans Lane, Edgware.

Gravesend (GRS).—Third Wednesday, 8 p.m., RAFTA Club, Overcliff Road.

Guildford (G & DRS).—Guildford Engineering Society in Stoke Park, 8 December (Talk by G3HVR, 23cms and up or Construction Contest), 22 December (Natter Night), 8 p.m.

Harlow (ORS).—Tuesdays and Thursdays, 7.30 p.m., Mark Hall Barn, First Avenue.

Harrow (RSH).—8 December (Practical), 15 December (Annual Christmas Party), 22 December (No meeting), 29 December (Junk Sale), 5 January (AGM), 8 p.m., Roxeth Manor School, Eastcote Lane.

Haslemere (H & DARC).—13, 27 December, Romford.

Holloway (GRS).—Mondays, 7 p.m. (RAE), Wednesdays 7.30 (Morse), Fridays 7.30 p.m. (Club), Monton School, Hornsey Road.

Hounslow (HADRS).—11 December, 7.30 p.m., Canteen Mogden Main Drainage Department, Mogden Works, Isleworth.

Ilford.—Thursdays, 8 p.m., 103 Heath Road, Chadwell Heath.

Kingston (K & DARS).—Second Wednesday each month, 8 p.m., YMCA, Eden Street.

Leyton and Walthamstow.—Tuesdays, 7.30 p.m., Leyton Senior Institute, Essex Road, London, E10.

London UHF Group.—("Transistors" by L. S. T. Components, G3LST). White Hall Hotel, Bloomsbury Square, Holborn.

Loughton.—15, 29 December, 7.30 p.m., Loughton Hall (nr. Deben Station).

Maidenhead (N & DARC).—19 December, 7.30 p.m., Victoria Hall, Cox Green, Maidenhead.

New Cross.—Wednesdays and Fridays, 8 p.m., 225 New Cross Road, London, SE14.

Norwood & South London (CP & DRS).—16 December (Junk Sale and Christmas Party), CD Centre, Woodway's Road, SW12.

Paddington (P & DARS).—Wednesdays, 7.30 p.m., Beauchamp Lodge, 2a Warwick Crescent, W2.

Purley (P & DRC).—First and Third Fridays, 8 p.m., Railwayman's Hall, Side Entrance, 58 Whytecliff Road, Purley.

Reigate (RATS).—13 December (Frank Garrett, G3MYZ exhibiting and talking on his s.s.b. transceiver), 7.30 p.m., George & Dragon, Cromwell Road, Redhill.

Romford (R & DRS).—Tuesdays, 8.15 p.m., RAFTA House, 18 Carlton Road.

Science Museum (CSRS).—20 December (Informal Meeting. Committee invite members to partake Xmas hospitality), 6 p.m., 2 January ("Malta Holiday" by A. O. Milne, G2MI). Science Museum, South Kensington.

Scouts ARS.—21 December, 7.30 p.m., Baden Powell House, Queensgate, South Kensington, SW7.

Sidcup (CVRS).—7 December (Joint meeting with South London Mobile Club) 8 p.m., Congregational Church Hall, Court Road, Eltham SE9. 21 December (Natter Night) 8 p.m., All Saints Church Hall, Bereta Road, New Eltham.

Slough (SDR Club).—First Wednesday every month. United Services Club, Wellington Street.

South London Mobile Club.—16 December (Constructional Contest) 7.30 p.m., Clapham Manor Baths, SW4.

Southgate & District.—14 December, 7.30 p.m., Parkwood Girls School (behind Wood Green Town Hall).

St. Albans (Varulam ARC).—8 December (Communications secret) 7.30 p.m., 20 December (AGM) Fun Quiz and Seasonal Refreshments, Cavalier Hall, Watford Road, St. Albans.

Sutton & Cheam (SCRS).—19 December, 7.30 p.m. The Harrow Inn, High Street, Cheam.
Welwyn (Mid-Herts ARS).—14 December ("Frequency Measurements" by G3CCM) 8 p.m. Welwyn Civic Centre, Welwyn.
Wimbledon (W & FRS).—8 December, 7.30 p.m. St. George's Road, Wimbledon, SW19.
Wembley (GECARS).—Thursdays, 7 p.m. This Club is now open to non-GEC Employees by invitation. Telephone ARNold 1262 first. Sports Club, St. Augustin Avenue, North Wembley.

REGION 8

Mid-Sussex (M-SARS).—6 December ("Codar Equipment" by Reg Ireland, G3IRE) 20 December (Informal). For further details contact G3RXJ.
Medway (MARTS).—8 December (Evening out to Canterbury for SE U.H.F./V.H.F. meeting), 19 December (Club call G2FJA Airborne). Experimentally for the first six weeks in 1968 Club meetings will be held every Monday evening. Further details from G3UXH.
Worthing (W & DARC).—12 December (Simple Transistor Circuits) Tuesdays, 8 p.m., "Rose Wilmot Youth Centre," Littlehampton Road.
Canterbury (EKRIS).—8 December (Visit to lecture of the SE U.H.F./V.H.F. group at Rutherford College UKC). Further details of meetings from Hon Sec G3MDO.
Crawley (CARC).—13 December (AGM), 8 p.m., Trinity Congregational Church Hall, Ifield.

REGION 9

Bristol RSGB Group.—9 December (Annual Dinner) 7.30 p.m., Old Bristol Restaurant, King Street. 11 December (AGM and Talk by G3JMY) 7.30 p.m., Becket Hall, St. Thomas Street, Bristol 1.
Bristol (ARC).—Mondays and Thursdays, 7.30 p.m. University Settlement, 43 Ducie Road, Barton Hill, Bristol 5.
Burnham on Sea (B-o-S ARS).—Second Tuesday in each month, 8 p.m., Crown Hotel, Oxford Street, Burnham-on-Sea.
Cornwall (CRAC).—First Thursday in each month, 7.30 p.m., Staff Recreation Hall, SWEB Headquarters, Pool, Near Camborne.

(V.H.F. Group).—Third Thursday in each month, 7.30 p.m., The Coach and Horses, Pydor Street, Truro.
Exeter.—First Tuesday in each month, 7.30 p.m., George and Dragon Inn, Blackboy Road, Exeter.
Plymouth. (PRC).—Every Tuesday, 7.30 p.m., Virginia House, Bretonside, Plymouth.
Saltash (S & DRAC).—Alternate Fridays, 7.30 p.m. 15, 29 December. Burraton Tote H Hall, Warraton Road, Saltash.
South Dorset (SDRS).—First Friday in each month, 7.30 p.m., Labour Rooms, West Walk, Dorchester.
Taunton.—Alternate Thursdays, 7.30 p.m., Lecture Theatre, Taunton Technical College.
Torquay (TARS).—Last Saturday in each month, 7.30 p.m., Club Headquarters, Belgrave Road, Torquay.
Wells (WARS).—Mondays, 8 p.m., EMIE (Wells) Sports and Social Club, Chamberlain Street, Wells, Somerset.
Weston Super Mare.—First Friday in each month, 7.30 p.m., Main Engineering Block, W-s-M Technical College.
Yeovil (YARC).—Wednesdays, 7.30 p.m., Park Lodge, The Park, Yeovil.

REGION 10

Blackwood (ARC).—Fridays 7.30 p.m. Lectures and practical programmes. Section devoted to R.A.E. Blanche Cottage, off High St., Blackwood, Mon.
Cardiff (RSGB Group).—Monday, 11 December (Christmas informal meeting) 7.30 p.m., TA Centre, Park St., Cardiff.
Pembroke (ARC).—Last Friday of Month. 7.30 p.m., Defensible Barracks, Pembroke Dock.
Pontypool (ARC).—Tuesdays 7 p.m., Educational Settlement, Rockhill Road, Pontypool, Mon.

REGION 11

Bangor (UCNARS).—7 December ("A Solid State Communications Receiver," by P. Skirrow, G3UJP, and "A 70cm Amateur Station," by C. F. Bell, G8AKC), 5.30 p.m., Thursday, Small Lecture Theatre, Department of Physics, University College of North Wales, Bangor.

REGION 13

Edinburgh (LRS).—14 December (S.S.B. Transmitter

Construction "by E. J. Kelly, GM3POK), 28 December ("Radar" by A. R. McWalter, GM3TSZ) 7.30 p.m., YMCA, 14 South St. Andrew Street, Edinburgh 2.

REGION 14

Ayrshire (AARG).—Information on new meeting place and dates to be given via GB2RS.
Auchenharvie (A & DARS).—7, 12, 14, 19, 21, 26, 28 December, 7.30 p.m., Auchenharvie Community Centre, Stevenston.
Glasgow University (GURC).—8 December (Junk Sale), 22 December, 7.30 p.m., Engineering North Building, University of Glasgow.
Lowland Royal Signals (ARC).—Tuesdays, 7.30 p.m., 21 Jardine Street, Glasgow.
Greenock (G & DARC).—15, 29 December, 7.30 p.m., Art's Guild, Campbell Street, Greenock.
Mid-Lanark RSGB Group.—15 December (Quiz), 7.30 p.m., YMCA Brandon Street, Motherwell.

REGION 15

Belfast and District RSGB Group.—Third Wednesday in each month 8 p.m., War Memorial Building, Waring Street, Belfast.

REGION 16

Chelmsford (CARC).—Tuesday, 2 January, ("Radio Control of Models," by G. N. S. Taylor of Marconi Wireless Telegraph Co. Ltd.), 7.30 p.m., Marconi College, Arbour Lane, Chelmsford.

REGION 17

Basingstoke (BARC).—Third Saturday in the month, 7 p.m., Immanuel Hall, Wote Street.
Harwell AERE (ARC).—Third Tuesday in the month, 7.30 p.m., Social Club, AERE Harwell.
Maldenhead (MDARC).—First Monday in the month (Formal), Third Tuesday in the month (Informal), 7.30 p.m., Victory Hall, Con Green.
Portsmouth (P & DRS).—Wednesday, 7.30 p.m., Room 5, Twyford Avenue Community Centre, Portsmouth.
Southampton (RSGB Group).—Second Saturday in the month, 7 p.m., Engineering Lecture Theatre, Lanchester Building, The University, Southampton.

THE DEVELOPMENT OF A U.H.F. TELEVISION SERVICE

LONDON LECTURE MEETING 31 JANUARY, 1968

Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, WC2.

Buffet tea 6 p.m. Lecture 6.30 p.m. Tickets are available from RSGB on request.

AN ILLUSTRATED LECTURE BY

R. C. HILLS, B.Sc.(Eng.), C.Eng., M.I.E.E., M.I.E.R.E., G3HRH

HEAD OF MAST AND AERIAL SECTION,
INDEPENDENT TELEVISION AUTHORITY

A brief introduction covering the sequence of events up to the Government decision to authorise a television service in the u.h.f. bands is followed by a review of some of the technical problems associated with the engineering of the service. Illustrated descriptions will be given of some of the transmitting stations in service and under construction with emphasis on the new designs required specifically for transmission at such frequencies.

CONTESTS DIARY

8 January	—First 144 Mc/s (S.S.B.) Contest	24 June	—Fifth 144 Mc/s (S.S.B.) Contest
13-14 January	—Affiliated Societies' Contest (see page 835)	6-7 July	—Summer Top Band Contest
28 January	—Second 144 Mc/s (C.W. Open) Contest	21 July	—Third 70 Mc/s (Portable) Contest
11 February	—First 70 Mc/s (Open) Contest	3-4 August	—Sixth 144 Mc/s (Open) Contest
17-18 February	—First 1.8 Mc/s Contest	7-8 September	—V.H.F. National Field Day (provisional date)
2-3 March	—BARTG Spring RTTY Contest	14 September	—80m Field Day
3-4 March	—Third 144 Mc/s (Open) Contest	5-6 October	—Third 432 Mc/s (Open) Contest
9-10 March	—BERU	12-13 October	—21-28 Mc/s Contest
31 March	—Low Power Contest (3.5 Mc/s)	12-13 October	—Second 1296 Mc/s (Open) Contest
16-17 April	—Second 70 Mc/s (Open) Contest	26-27 October	—7 Mc/s Phone Contest
4-5 May	—First 1296/432 Mc/s (Open) Contest	7-10 November	—7 Mc/s C.W. Contest
19 May	—Fourth 144 Mc/s (Portable) Contest	11 November	—Seventh 144 Mc/s (S.S.B.) Contest
8-9 June	—National Field Day	16-17 November	—Second 1.8 Mc/s Contest
23 June	—Second 432 Mc/s (Portable) Contest	1 December	—Fourth 70 Mc/s (C.W.) Contest

MEMBERS' ADS

These advertisements are published free of charge for the benefit of the Society's Members. The number of words is limited to 30 (not including the address). It is essential that we receive the advertisement at RSGB Headquarters by the first of the month for the following issue, typed or written on a standard post card and posted in an envelope with your last Bulletin wrapper. The address on the wrapper must, of course, agree with that in the advertisement. We cannot accept any responsibility for mistakes.

No trade announcements can be included here, but these can be submitted in the usual way for Classified Advertisements.

FOR SALE

Honda, 220V, 300W portable generator, with instruction book and shop manual, purchased July 1967. Required, multiband vertical and co-ax. Offers please. C. Corson, G3WQJ, Flat 7, 182 Holland Road, London, W14. (01-603 4442).

Geloso 212 transmitter—all bands 160 to 10m, £37 10s. o.n.o. Would consider exchange for Valiant transmitter or any compact h.f. mobile rig. D. B. Dunn, G3SCD, The Poplars, Scamblesby, Louth.

Wavemeter type G93 range approx. 900-1200 Mc/s, £3. Oscillator type G210, range u.h.f., £2. Wanted, good HRO. J. C. Foster, G2JF, Wye College, University of London, Nr. Ashford, Kent.

AR88LF, £25 o.n.o. Geloso v.f.o. 4/102V complete £6. B & W audio phaseshift network £1. McCoy silver sentinel 9 Mc/s filter with carrier crystals £12. Electroniques g.c. tuner less i.f.t. £3. A. F. Davidson, GM3FAO, Monymusk, Doodholm Road, Alloway, Ayr.

KW Vanguard, 160-10m, excellent condition, l.p.f., will haggle around £35. W. F. M. Hahn, G3UOL, 11 St Patricks Road, Coventry, Warks.

160-10m TX, 10/50W, Geloso v.f.o., built in Mod., relay control p.s.u., £15. R208 receiver, needs aligning £4. Mullard 'scope, £7. W. F. Bishop, 69 Gayville Road, Battersea, London, SW11.

Vertical aerial Mk 1, 32 ft., plus whip, £3. Carriage paid. W3DZZ Trap, £3. H. Tonks, G3JFL, 11 St Edwards Road, Bournbrook, Birmingham 29, Warks.

Complete s.s.b. station. Sommerkamp F Line, consisting FL200B, TX 80-10m, FL1000 linear and FR100B RX, 160-10m. All 1967 and used only few hours. £250. Will split. E. Rowland, The Elms Bungalow, Whitefield, Lancs.

B2 TX/RX/p.s.u. FB rig with coils and two XTALs, also RQ10X, offers to R. E. Kemp, G3VWL, 10 Pears Avenue, Grange Farm, Upper Halliford Road, Shepperton, Middx.

TV, 15in, ideal for TVI experiments, BBC 1/ITV, fairly good, 90s., buyer collects. P. Ryder, 17 Abbey Road, London, NW8. (01-624 2938).

Complete RAE Correspondence course with Morse record, cost £18 selling for £8 10s. Also Codar CR45 all band receiver, 150 kc/s to 30 Mc/s, £5. G. Toth, 10 Alexandra Road, Mablethorpe, Lincs.

AR88 RX, 540 kc/s-32 Mc/s, £35, insured and carriage paid, exchange for Eddystone 750 or w.h.y. H. Jones, Burnbank, Goosewell Hill, Egguckland, Nr Plymouth, Devon.

U.h.f. RX, R10, 420-470 Mc/s. Signal Generators, No 7, 1100-1300 Mc/s, G210, 1250-1300 Mc/s. Wavemeter G93, 920-1100 Mc/s. Oscillator/Triplers RF116 600-900 Mc/s, RF105-106 70cm. Offers over £1. Demonstrated working. Buyers collect. M. D. Bass, G3OJE, 42 Clevedon Road, London, SE20.

Books. Suit school or club. "Maths for Radio Students," "Radio Engineering Formulae," "Radio Lab. Handbook," "Royal Sigs. Line Handbook," Vol. 1, Radio and TV servicing (Norman Price). £7 o.n.o. G. C. Reid, G3OUX, 11 Coombe Close, Langley Green, Crawley, Sussex.

Collins 32S1/2 516F-2 p.s.u., manual, cables, extra XTALs for 10m, £180. Tiger TR60X, 100W c.w. 75W a.m., TVI proof, £40. R. C. Ray, G2TA, Winton End, Springfield, Bushey Heath, Herts. (01-950 1762).

QST 1937-1947 odd issues, 1958 complete. SWM 1953 1960, 1962 odd issues, 1961 complete, 6d. each. S.a.e. for list. J. W. Russell, G2ZR, 45 Shakespeare Avenue, Bath, Som.

KW Viceroy Mk IIIA, extra $\frac{1}{2}$ lattice filter, 6146B's, re-aligned by KW's 3 months ago, unmarked, mint condition, £90. KW77 a.m./s.s.b./c.w. triple conversion RX, also mint condition £60. Will deliver both 100 miles radius. A. J. Martin, G3UDR, Rew Cottage, Abinger Common, Dorking, Surrey.

FT241 XTALs as follows: Ch 53, 3 x Ch 337, 2 x Ch 339, 2 x Ch 350, 3 x Ch 353, 4 x Ch 351. J. A. Lush, 55 Edgcombe Road, St Austell, Cornwall.

Compact table top TX, professional appearance, 80-10m, 100W a.m., 120W, c.w. High level Mod., p.s.u., £27 10s. Mint 52 set. RX, £8 10s. Mint 36 TX, £12 10s., 4X150, 17s. 6d. Solar Bridge £10 10s. All o.n.o. D. Byrne, G3KPO, Jersey House, Eye, Peterborough, Northants.

Muirhead 0-180, $\frac{1}{2}$ in dia. 48 : 1 slow motion dials. Mullard DP7-6 2 $\frac{1}{2}$ in c.r.t. and base in original carton, full data. Carpenter "bistable" relays. All £1 each. post free. M. Mann, G8ABR, Flat 71, Queens Road, Tewkesbury, Glos.

RTTY gear, Creed 7B, 24V, £13. Creed 8B, 24V (will take keyboard) £8. Creed 7 reper, mains a.c./d.c. 160V, £7 10s. Terminal Unit W2JAV, £6. Offers considered. S.a.e. other gear. J. M. Copson, G3TUL, 51 Eilers Drive, Bessacarr, Doncaster, Yorks.

P.s.u., input 200/250V a.c. rectifies to 12V d.c. 1A. v.g.c.—in hampered metal case and rubber feet. Screw terminals. 25s plus 5s p & p. I. P. Hazelton 7 Dorset Road, Burnham on Crouch, Essex.

KW Vanguard, 160-10m, HRO RX with nine coils, spare set of valves, Model D wave meter, in perfect condition as new, £50. Complete station with all manuals. Buyer collects. W. C. Spence, G2BCA, 9 Walton Street, Enfield, Middx.

Heathkit "Twoer" as new with crystals, offers to J. Bazley, G3HCT, Brooklands, Ullenhall, Solihull, Warks.

LG300 RF £15, UM3, £2, Reg p.s.u. 90V, 60V d.c. with bias l.t.'s collect either, spares TE 149 wavemeter, £3, full set of Electroniques for G2DAF RX Mk 1, £7. LG switched w.b. coupler £5. XTALs, transformers, capacitors, etc. F. J. Finn, G6UF, "Raffeen," Wath upon Dearne, Nr Rotherham, Yorks.

2880-0-2880V at 320 mA, 2400-0-2400V at 475 mA, 235V primary, potted, £6. Eight 12 μ F at 1500V (48 μ F at 3000V) new boxed, paper, £5. Films and Equipment 5 way 4 bank HV switch, unused, £1 10s. T. R. Preece, G3TRP, 28 Stoneyfield Road, Old Coulsdon, Surrey. Phone 71 52138.

Top-Band BC453 with 12V vibrator unit £4. BC454 with a.c./d.c. p.s.u. plus m.w. coil £2. Top Band 18 Set RX with mains pack £1 10s. Crystal Calibrator 1000/100/10 kc/s, 240V, £3. R. A. Bastow, G3BAC, 57 London Road, Ramsgate, Kent.

Geloso G209R Amateur Bands RX, double conversion, XTAL controlled front end, as new, recently overhauled by KW Ltd. Will sell to first sensible offer. Also R1155, £3 10s. B. E. King, G8ARA, 17 Windermere Avenue, Eastcote, Ruislip, Middx.

Heathkit SB300 and SB400, £230. HO 10 scope £25, Linear 4 x 811A £40, Creed 7B teleprinter, terminal unit, p.s.u. £20. Complete station £300. L. S. Margolis, G3UML, 95 Collinwood Gardens, Clayhall, Ilford Essex.

100ft of TV Camera cable, TF 390 Sig-Gen. Mounts for mobile gear (new) 5s. each. Parts galore. M. C. Osment, 116 Parsonage Leys, Harlow, Essex.

Solartron stabilized p.s.u. 250V or 300V, 50mA, requires case, £3. TY2-125 and base, £1. "Echo" HS-606 lightweight headphones, unused 30s. 1 Mc/s XTAL, 5s. A. R. Williams, GM3KUS, 35 Howard Place, Edinburgh 3.

Pye Reporter 4m, £3, both complete with microphone, handbook, TX XTAL and modified for RX variable tuning, 80m mains commercial TX, £5. Sectional Paxolin mast, 30s. Buyers collect. V. J. Flowers G8QM, 9 Laburnum Grove, Sunnisside, Newcastle upon Tyne.

EKCO TP308 for TVI monitor, £3. Woden UM3 with driver £3. AR88 gear drive new £1. AVO Test Bridge, £2. AVO 8, not working for parts only, £2. A. V. Spray, G2AVR, 90 Darvel Down, Netherfield, Battle, Sussex.

G3AAK moving QTH. 150W, TVI proof, all band, phone/c.w. table top TX with p.s.u. Mod., and relay control, £10. 813s with bases, 15s. Numerous other bargains, callers only. G3AAK, Coombe Martin, Badgers Mount, Sevenoaks, Kent (Badgers Mount 285).

El Bug, Model DA1 new and unused, will exchange for LM frequency meter in unmodified A1 condition with charts. H. Collins, G3COL, 148 Greenway Road, Runcorn, Cheshire.

Brand new, Eagle Star SR550, dual conversion RX, 1.8-30 Mc/s a.m./c.w./s.s.b. Frequency calibrator. Cost £75, March '67, selling at £60. L. Tarr, 11 Oakwood Avenue, Wilmslow, Cheshire.

R206 Mk II RX in excellent condition, covers all bands 1.8-30 Mc/s. B.f.o., noise limiter, audio filter, three band pass filters, p.s.u., stabilized local oscillator, band spread, a.v.c., etc., £30. M. Kidman, G3SDK, 232 Marsh Road, Leagrave, Luton, Beds.

G2DAF type RX £26 cash. R. C. Whelan, G3PJT, 504 City Road, Birmingham 17, (021-232 2289).

Collins mechanical filter, 455 kc/s 2.7 kc/s bandwidth and STC 455 kc/s XTAL unused £15 o.n.o. Marlison transistor test oscillator 1 and 1.8 kc/s unused £1. W. H. Allen, G2UJ, 24 Arundel Road, Tunbridge Wells, Kent.

Heathkit Mohican GC-1U transistor RX, aligned by Daystrom Ltd. Excellent condition with manual £25 o.n.o. Will deliver London area. Also Eddystone Bug Key £1 10s. Rev. H. Roger Davis, G3IUZ, 84 Tomswood Hill, Hainault, Ilford, Essex.

V.h.f. RX's, Pye 703 + Clarke and Smith. Freq. 70-100 Mc/s. Fair condition, mostly complete, either type £2. Panadaptor plus hand-book £20. V.h.f. co-ax relays £1 each. All plus carriage. A. J. Parker, G3SYK, 19 Alderside Crescent, Lanchester, Durham.

36ft x 2in light steel sectional mast, £3, extra 6ft section 12s. 6d. each no fittings. 45ft light steel cigar mast, top accepts scaffold tube, some fittings, £5. 100ft wire rope guys 12s. 6d. Can deliver. G. W. Tibbets, G3NUE, 25 Greenford Gardens, Martley Road, Worcester.

R206 with p.s.u. good condition, offers, also sale of components for s.s.b. TX including XF-9B XTAL filter, Electronics coils, Eddystone 898 dial and other components, s.a.e. for list. D. Latimer, 36 Fife Street, Barrow in Furness, Lancs.

Mobile Estate car. Peugeot 403 plus National NCX5. Have worked 130 countries including two VK mobiles. Reluctant to split this unique combination, 5th on the World Mobile Ladder. Outlay over £1500, accept £485. D. R. H. Jolly, G3TJY, Little Russel, Lytchett Minster, Nr Poole, Dorset. (0201-22142).

AR88D—unmodified—£30, KW Vanguard Mk II, 160-10m, £30. Both good condition and working order, buyer inspects and collects. J. C. Outon, G3VGU, 31 Carlton Road, Woodside Estate, Grays, Essex.

Burgess Solder Gun Kit, Acc., extension, etc. Almost new list £4, sell £3 plus post. Possibly exchange for Heathkit g.d.o. A. Wilkinson G3TRA, 25 St Helens Drive, Leicester, LE4 09S.

J-Beam, 2m, 6-over-6, 50s. TW mini halo 2m, 30s. G. C. Badger, G3OHC, 23 Aulton Road, Four Oaks, Sutton Coldfield, Warks.

Electronics Hambands transistor Qoilpack £12 10s. IFA/455/SSB and IFA/1.6/SSB i.f. modules £7 10s. each. THSO 2.1 Mc/s module 17s. 6d. All used but in perfect working condition. L. H. Bower, G3BKV, 57 Broughton Crescent, Wyke Regis, Weymouth, Dorset.

Prop Pitch Motor, also several p.s.u. 1000V at 150mA. Some minus valves (866's) and capacitors. One pack 750/500V. All standard rack. The lot £10. Space wanted. J. A. Caley, G2FSS, 37 Mardon Road, Sheldon, Birmingham 26.

AR88D with Handbook £35. Unmarked condition. Call evenings or write J. W. Heavyside, 38 Dartmouth Park Hill, London, NW5.

WANTED

Cheap mobile 12V transceiver, any amateur band for non technical amateur. R. C. Pine, G3RRP, 29 Sunningdale Gardens, Mill Hill, London, NW7.

Books on Cryptography, old or new, English or French. State Condition, Edition and Price. T. P. Allen, G16YW, 62 Balmoral Avenue, Belfast, N. Ireland.

Details on loan of the correct alignment and tracking procedure for the Minimiliter MR44 Mk II RX. G. H. Kaye, G3VFG, 29 Bambridge Road, Headingley, Leeds 6.

Newnes "Radio/TV Servicing" volumes before 1964/5 and an Oscilloscope Camera. C. F. Cole, GW3GEN, 18 Parklands View, Derwen Fawr, Swansea, Glam.

New G3 wishes to purchase suitable equipment for setting up an Amateur Station. AR88D, all band TX, frequency meter, w.h.y. All letters answered. H. C. Pryse, 36 Hart Road, Byfleet, Weybridge, Surrey.

Amateur Radio (VK), Oct '38, May, July, Aug '39, Aug., Sept '42. Break-In (ZL) Jan '28 to Jan '32, Feb to Nov '38, April '40, Dec '40 to Jan '44. F. A. Herridge, 96 George Street, Basingstoke, Hants.

Top Band TX—Codar/Labgear?—also Vanguard TX, good RX—CR100, AR88D, etc., required for School Radio Club. Must be sound condition and sensibly priced. Will inspect and collect reasonable distance. A. J. Goodwin, "Chestnuts," Holmer Green Road, Hazlemere, High Wycombe, Bucks.

Class D Wavemeter. Any condition, but must be complete. Your price paid. Also circuit diagram and notes for R1155. M. Goodrum, "Kia-Mona," Chapel Street, Barford, Norwich, Norfolk. NOR 38X.

FT243 6 Mc/s XTAL's, exact frequency, price and postage please to F. J. Crisp, G3GZT, Carnmenellis House, Carnmenellis, Redruth, Cornwall.

Handbooks for the Cossor Ganging Oscillator Model 343, Cossor Oscilloscope Model 339 and Cossor Oscilloscope Model 1039M. R. W. L. Jones, G3PIX, 24 Forest Avenue, Forest Hall, Newcastle on Tyne, Northumberland.

Class D wavemeter or similar. Details to R. A. Adair, 16 Demesne Park, Holywood, Co. Down, N. Ireland.

FT243 XTALs from 9750 kc/s to 9950 kc/s inclusive. G. T. Barnar, "Lulworth," Rushmoor Avenue, Hazlemere, High Wycombe, Bucks.

Copy of the RSGB Amateur Radio Handbook. Also circuit of a Top Band Transistor TX. J. J. Lemon, 12E Lewis Trust, Warner Road, Camberwell, London, SE5.

Urgently required. Labgear wideband multiplier unit type E5026. Also circuit diagram for transmitter p.a. using two 807's. C. Curgenven, Beech House, Uffculme, Nr Cullompton, Devon.

RF105 unit or similar. Data on the ASB8 and a 2m TX and RX. All for cash. M. C. Osment, G8AIP, 116 Parsonage Leys, Harlow, Essex.

FT241 XTALs, two off Ch 43 or two off Ch 45. 7s. 6d. each or will haggle. I. A. Cobbold, G3RPJ, 5 Avenue Road, Stratford on Avon, Warks.

"Amateur Radio" by F. G. Rayer urgently required for RAE study. Will buy or hire as book is temporarily out of print. O. W. A. Wade, 1 Lomond Crescent, Cyncoed, Cardiff.

Marconi alignment oscilloscope, type TF852, Cossor ganging oscillator, Cossor oscilloscope, Marconi special d.c. amplifier D2A/403, signal generator 465 kc/s variable. ± 8 kc/s, 60 kc/s to 30 Mc/s with a.m./f.m. internal Mod-Good condition. M. R. Giddings, 6 Midlothian Drive, Blundellsands, Liverpool 23, Lancs.

HE30/KT340 RX in good condition. Also aerials for 4m and 2m preferably Yagi's. Please state condition. J. Thomas, 24 Bethania Road, Upper Tumble, Llanelli, Carmar, S. Wales.

Three or four 7R7 valves. Pair of Amateur Band transistorized Walkie-Talkies capable of working half mile in built up area. Price including postage to J. S. Owen, GW3QN, "Brunswick," Plas Road, Llandudno, N. Wales.

Viceroy Mk II or III. I. Buffham, Rugby College of Engineering Technology, Amateur Radio Society, Rugby, Warks.

Class D Wavemeter in good condition. State price and any mods. D. G. Powell, 18 Abinger Avenue, Cheam, Surrey.

A Handbook for the ex Admiralty B40 RX or the address from which one may be obtained. M. R. Robinson, "Melita," Dunton Road, Laindon, Basildon, Essex.

RSGB Slow Morse Practice Transmissions

The following Slow Morse Practice transmissions are sponsored by the RSGB. Alterations and additions to this list should be sent to the Honorary Organizer, M. McBrayne, G3KGU, 25 Purdie Way, Theydon Bois, Essex.

Clock Time	Call-sign	Mc/s	Town	Clock Time	Call-sign	Mc/s	Town
Sundays				Wednesdays			
09.30	† G3KZZ	1-920	South Shields, Co. Durham	17.30	G3TNF	1-920	Gateshead
09.30	G3TNF	1-920	Gateshead	18.30	G2FXA	1-900	Stockton-on-Tees
09.30	G3H2L	1-940	Isleworth, Middlesex	19.00	G3NNW	433-060	Rochdale, Lancs.
09.30	G3TYB	28-400	Ashford, Kent	19.30	G3HBY	1-832	Glasgow
09.45	G3USK	1-975	Mablethorpe, Lincs.	19.30	G3WGU	433-900	Bispham, Lancs.
10.00	G2FXA	437-400	Stockton-on-Tees				
			to North				to South-East
10.00	G3TTK	1-860	Coalville, Leices.	19.30	G3UJD	1-825	Farnborough, Hants.
10.15	G3CGD	1-875	Cheltenham	20.00	G8QU	1-970	London, N22
10.30	G2FXA	437-400	Stockton-on-Tees	20.30	G3H2L	1-845	Isleworth, Middx.
			to South	20.30	G3KGU	1-915	Theydon Bois, Essex
10.30	G3SFO	1-850	Doncaster, Yorks.	20.30	G3SJE	1-870	Harrow, Middlesex
10.30	G3NPB	1-875	St. Ives, Cornwall	20.45	G3IFF	1-992	Havant, Hants.
11.00	G3PFZ	1-915	Liverpool	21.00	G3HVI	1-890	Stoke-on-Trent
11.00	G2FXA	1-900	Stockton-on-Tees	21.00	G3RIS	1-980	Cromer, Norfolk
11.00	G3PFZ	1-915	Liverpool	21.00	G3LQI	1-990	Lancing, Sussex
12.00	G3VNC	1-825	Hertford	Thursdays			
12.00	G3HBY	1-832	Glasgow	17.30	G3TNF	1-920	Gateshead
12.00	G3SVD	1-870	Reading, Berks.	18.00	G3SWR	1-980	Middlesbro', Yorks.
12.00	G3HVI	1-890	Stoke-on-Trent	18.30	G3RXH	1-910	Skipton, Yorks.
12.00	G3GNS	1-910	Weston-super-Mare	18.30	G3VBP	3-590	Barry, Glam.
12.00	G3TLH	1-960	Wakefield, Yorks.	18.30	G3UJB	1-880	Colwyn Bay
14.30	G3UGF	1-844	Halifax, Yorks.	18.30	G3NC	1-968	Swindon
17.30	G3TNF	1-920	Gateshead	19.00	G3LKG	434-326	Ilkeston, Derbys.
20.30	G3WFC	1-915	Brentwood, Essex				to South-West
20.30	G3EPU	1-980	Wimbledon, SW London	19.00	G3WGU	1-880	Bispham, Lancs.
20.45	G3IFF	1-992	Havant, Hants.	19.30	G3GNS	1-910	Weston-super-Mare
Mondays				19.45	G3LKG	434-326	Ilkeston, Derbys.
17.30	G3TNF	1-920	Gateshead				to South-East
18.30	G3UJB	1-880	Colwyn Bay	20.00	G4RS	1-865	Blandford, Dorset
18.30	G3SWR	1-980	Middlesbro', Yorks.	20.00	G3JEX	1-860	Belfast
18.30	G3NCZ	1-920	Blackburn, Lancs.	20.30	G3LKG	434-326	Ilkeston, Derbys.
18.30	G3RXH	1-910	Skipton, Yorks.				to North-West
19.00	G3WGU	1-880	Bispham, Lancs.	20.45	G3IFF	1-992	Havant, Hants.
19.00	† G4LI	3-600	Jersey, C.I.	21.00	† G3ROE	1-915	Harlow, Essex
19.00	G3NNW	433-060	Rochdale, Lancs.	21.00	† G3TIQ	1-820	Stockport, Cheshire
19.30	G3CZA	1-970	Ely, Cambs.				
19.30	G3NBU	1-837	Basingstoke, Hants.	Fridays			
20.00	G3USK	1-975	Mablethorpe, Lincs.	17.30	G3TNF	1-920	Gateshead
20.00	G3KAN	1-990	Northampton	18.30	G3NCZ	1-920	Blackburn, Lancs.
20.00	G3IBJ	1-910	Southampton, Hants.	19.00	G3NPB	1-875	St. Ives, Cornwall
20.00	G3JEX	1-860	Belfast	19.30	G3PQF	1-825	Farnborough, Hants.
20.15	G3SAZ	1-845	Ashford, Middx.	20.00	G3WKV	1-915	Ilford
20.30	G3TOF	1-915	Harlow, Essex	20.15	G3SAZ	1-845	Ashford, Middx.
20.45	G3IFF	1-992	Havant, Hants.	20.45	G3IFF	1-992	Havant, Hants.
21.30	G3SVD	1-870	Reading, Berks.	21.00	G3RIS	1-980	Cromer, Norfolk
Tuesdays				21.00	† G3UCZ	1-915	Pudsey, Yorks.
17.30	G3TNF	1-920	Gateshead	21.30	† G3SUU		Bradford, Yorks.
19.00	G3UPA	1-850	Sutton Coldfield, Warks.	21.30	G3JCS	144-525	Caversham, Berks.
19.00	G3PXX	1-875	Neston, Wirral	Saturdays			
19.30	G3SWP	1-850	Doncaster, Yorks.	08.30	G3WCS	1-980	Liverpool
19.30	G3WGU	433-500	Bispham, Lancs.	10.00	G3TTK	1-860	Coalville, Leices.
			to South-east	10.00	G3PLE	1-820	Stourbridge, Worcs.
20.00	G4RS	1-865	Blandford, Dorset	12.30	G3WCS	1-980	Liverpool
20.00	G3FVW	1-880	Burnham-on-Sea, Soms.	13.00	G2FXA	1-900	Stockton-on-Tees
20.00	G3TPV	1-910	Hythe, Hants.				to Jersey, C.I.
20.00	G3UWUX	3-590	Bishopston, Renfrewshire	14.00	† G4LI	3-600	Jersey, C.I.
20.15	G3UIJ	1-845	Whitton Middx.	17.30	G3TNF	1-920	Gateshead
20.30	G2ABC	1-915	Woodford, Essex	17.30	G3EFS	1-913	Bromley, Kent
20.45	G3IFF	1-992	Havant, Hants.	20.00	G3KPO	1-980	Peterborough
21.00	G5PX	1-850	Ashton-under-Lyne, Lancs.	20.30	† G3TLJ	1-925	Roydon, Essex
21.30	G2ABC	144-060	Woodford, Essex				
22.00	G8H2M	1-925	Manchester	20.45	† G3UXI	1-925	Harlow, Essex
					† G3IFF	1-992	Havant, Hants.

† Alternately

Channel Islands, Northern Ireland, Scotland and Wales are inadequately covered by this service to the SWL. The Honorary Organizer would be pleased to hear from any member in these areas or any other part of the British Isles, who would be willing to make regular Slow Morse Practice Transmissions.

Clubroom

(continued from page 837)

Worthing and District ARC is attracting large attendances at its Winter meetings at the Rose Wilmot Youth Centre. Meetings are held every Tuesday and it is on these evenings, that the new club call G3WOR can be heard. *G6KFFH/T*.

Yeovil ARC enjoyed the Daytime lecture on 27 October, who in turn no doubt appreciated the 80 members of surrounding clubs who turned up for the occasion. It is hoped to arrange similar meetings in the not too distant future.

Newsletters were also gratefully received from British Rail RS, Crystal Palace and District RC, FOC, Guildford and District RS, Plymouth RC, RAF RS, Saltash and District ARC, Southgate RC, Surrey RCC, Southampton Group, and Wolverhampton ARS.

It would assist the compiler of "Clubroom" if reports could be typed double spaced and concise in content. Although it may seem obvious, don't forget to include the name of your club—we received quite a lengthy, well typed contribution describing activities of an anonymous v.h.f. group this month! If you use long hand, please print unusual words. Deadline for the February issue of *Radio Communication* is 12 January.

MORE LETTERS TO THE EDITOR

Band Planning

After reading Messrs. Bowden, Cole and Ross on the subject of Band Planning (September letters) it prompts me to put forward certain observations.

For each 3 kc/s taken up by an s.s.b. QSO there could be 30 c.w. QSOs. If an a.m. station had a signal which conformed to the GPOs recommendation, (6 kc/s) then 60 QSOs on c.w. could replace him. My following suggestion is, therefore, based on the assumption (probably false, yet serving to illustrate the point) that for every a.m. station there are two s.s.b. stations and four c.w. stations. My suggestion is that the band plan on 80m (with a similar change on other bands) should be c.w. 3500 to 3510, a.m. 3510 to 3655 and s.s.b. 3655 to 3800.

This plan, assuming that the band was clear of commercial stations, would allow 100 c.w. QSOs, 24 a.m. QSOs and 48 s.s.b. QSOs at any one time. This is far more reasonable than the present arrangement where there could be 1000 c.w. QSOs, only 15 a.m. QSOs and 33 on s.s.b.

The only way that this plan could be used to its full advantage is if stations had equipment which suited their mode of transmission. Half of the trouble, I think, of complaints concerning sideband stations spluttering onto a.m. QSOs is because the listeners to the a.m. station have receiver bandwidths much greater than the 6 kc/s required for a.m. Complaints like this do not often come from s.s.b. stations purely and simply because, more often than not, their receivers have an i.f. passband designed for s.s.b. reception. This means not only a maximum of 3 kc/s bandwidth, but sides of the passband, which are steep, providing an out of passband and rejection of better than 50db.

Not only must receiver passbands be suitable for the type of reception desired, but the transmitter must be free from out of passband signals. With s.s.b. the difficulties are small. A sharp filter for unwanted sideband rejection is the basis. Providing the rest of the rig is running in a linear manner very little out of passband signals result. On c.w. the problems are also quite simple. One has only to stop chirps and suppress "clicks" and "thumps" to produce the required signal. On a.m. it is still quite simple, but one wonders how many stations tailor their audio response to cut off at 3 kc/s. I doubt whether it is 1 per cent.

One final point that could be cleared up now is phone operation in the "c.w." section of 160, and s.s.b. operation in the "a.m." section of 80. Certain countries only allow restricted operation on these bands. One, therefore, hears s.s.b. QSOs below 3650 kc/s with Soviet Union stations. A.m. stations are more tolerant on 80m than some of the c.w. boys on 160, when they hear s.s.b. QSOs between 1830 kc/s and 1840 kc/s. It is only in this segment that some of the European stations are allowed to operate on s.s.b. Perhaps if the c.w. stations, who apparently cause deliberate QRM on these QSOs, realise this, and also realize that there is room for 300 c.w. stations below 1830 kc/s, then less antagonism may result.

BRIAN A. WATLING, G3RNL.

Chatham, Kent.

Third Party Traffic

Referring to the letter from Mr Godsmark of Post Office justifying refusal of traffic facilities to British Antarctic Survey Stations (VP8) from G stations I would like to point out that in my opinion this does not give a realistic view of the situation.

I spent a period in Antarctica a few years ago and received the so called radio letters. Unless things have altered these are posted in UK, travel via air mail to Montevideo where they await the sailing of the Falkland Island Companies Steamer which makes about ten return journeys per year. At certain times of year when the steamer is making round voyages of the Falklands collecting wool from the farms there can be two months between mails. The letters on reaching the Falkland Islands are sent via radio to the men in the antarctic perhaps two or three days later. As you will appreciate the return radio letter will go back via the same route by the next sailing of the steamer which will be some six weeks later. Thus ten or more weeks elapse before getting a reply to any questions that might have been asked. This to a man cut off in the antarctic winter can be an eternity wondering what is happening or not happening at home. One of our boys had a radio letter to say his mother was unwell, it was not mentioned in the next letter and then by the time

question and answer had sorted out there was really nothing to worry about, some four months had gone by.

The cost of cables is very probably at near 2/- per word and prohibitive—especially for the people at the home end and thus Amateur Radio could provide a very valuable service and greatly reduce an unnecessary strain on the man in the antarctic, they expect and get hardship but worry about things at home can be one of the hardest things to live with and amateur radio could help to reduce this by providing comparatively quick answers to questions.

Any loss of revenue to the Post Office would be comparatively small and of no consequence compared with the well being and happiness of the men of the British Antarctic Survey.

M. J. FAULKNER, VP8AZ, G3IZJ

Farnborough,
Hants.

Drinking Canada Dry

The October issue of the BULLETIN contained some very interesting articles of technical and general interest. However, it was surprising to see in what purports to be the Journal of a Learned Society an article in excess of three pages in length of which over half consisted of utter rubbish of no conceivable interest to most RSGB Members, and which would have been more suitable, both in content and style, for inclusion in the gossip column of a woman's magazine.

Whilst there may have been some news content in this article worthy of inclusion in the BULLETIN, an unnecessarily large amount of space was devoted to it, no doubt at the expense of other technical material more worthy of inclusion.

The BULLETIN as a whole is an excellent Magazine, but please let us keep it for its rightful purpose of disseminating technical information and news of direct interest to Society Members.

K. F. EASTY, G3LVP; H. BUCKENHAM, G3PGN; W. F. JEFFREY, G3FKJ; R. F. MCLACHLAN, G3OQT; I. F. WHITE, G3SEK; K. P. JILLINGS, G3OIT

Romford, Essex.

May I congratulate you on publishing, and Sylvia Margolis in writing, the extremely readable and interesting account of the 1967 ARRL National Convention held in Montreal earlier this year. I for one, enjoy reading this type of article in which a glimpse of the wider field of amateur radio, than just its technicalities, is given.

It would seem that the Society's representatives at the Convention, worked a Brain Drain in both directions. It was good to read of the build-up they were able to give the RSGB in particular, and this country in general, in North America; and it was equally pleasurable to read their experiences of the amateur radio scene at this important convention.

Amateur Radio seems to be going through a difficult period at the moment, both organisationally and within the rank and file. The type of approach revealed in this article speaks very well, I consider, for the outlook of our Society's Public Relations Officer. She has brought a breath of fresh air into our oftentimes pompous deliberations.

ARTHUR C. GEE

Oulton Broad,
Suffolk.

Pirates

My call G3AME is being pirated by an individual who offers to QSL and even gives my address. Surely a needless refinement to a pretty dirty practice.

Although I am at present QRT I hope to be active again shortly but I only operate s.s.b. and the pirate is, I believe, confined to a.m. using surplus equipment. I hope this letter might explain why I am unable to send QSL cards for the bogus contacts.

There really is no excuse nowadays for pirate operation when anyone of reasonable intelligence can easily obtain his own licence.

I personally object to being impersonated, an offence which in other circumstances could warrant severe penalties. I suggest that pirates would be greatly discouraged if on conviction they were precluded by the GPO from ever holding a licence.

P. LANDOR, G3AME

Reigate,
Surrey.

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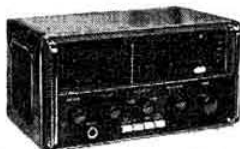
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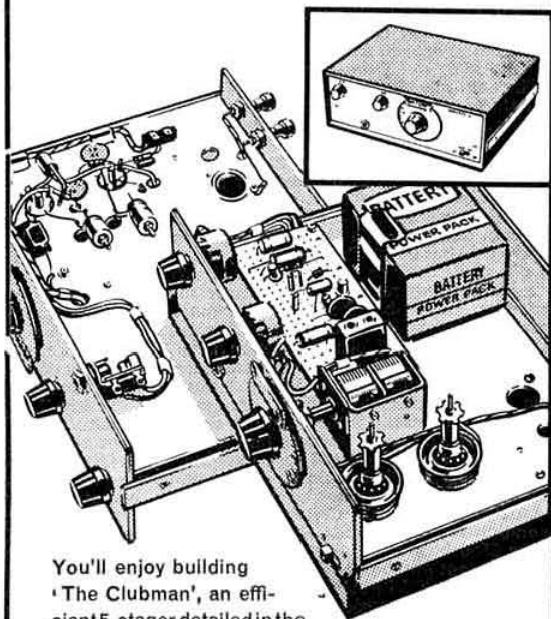
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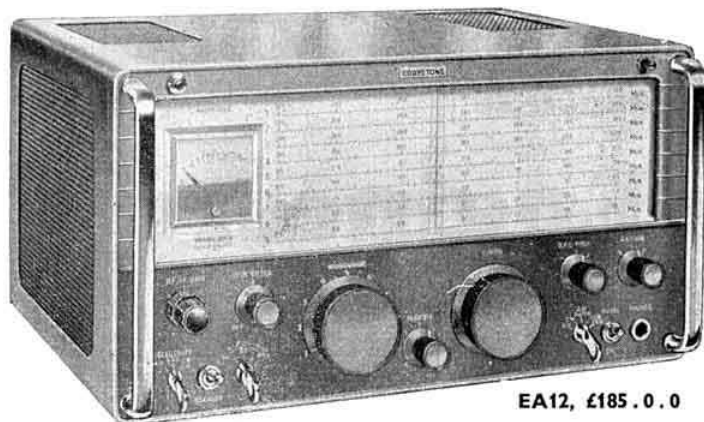
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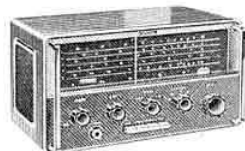
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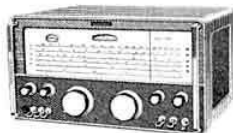


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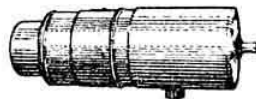
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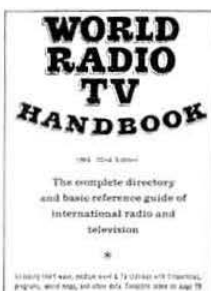
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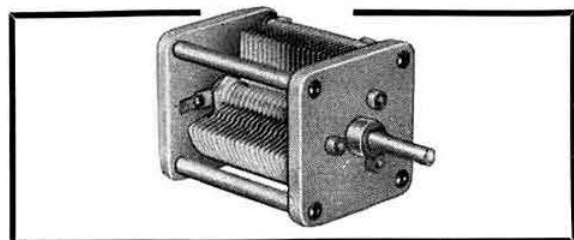
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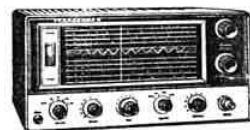
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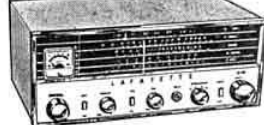
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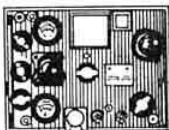
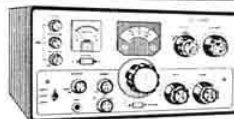
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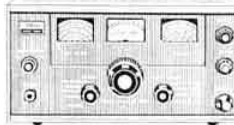


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