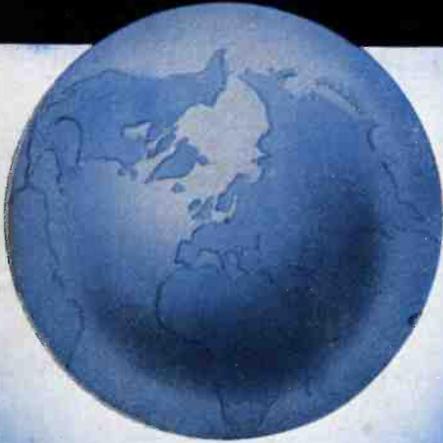


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The
SHORTWAVE

Magazine



**EXCLUSIVELY FOR THE
SHORT WAVE LISTENER
EXPERIMENTER AND
TRANSMITTING AMATEUR**

VOL. IV No. 7 SEPTEMBER 1946

SOME INTERESTING COMPONENTS from the NEW ILLUSTRATED

EDDYSTONE

CATALOGUE

This is a selection only of the EDDYSTONE range of specialised components. The EDDYSTONE Catalogue includes full descriptions and electrical details of slow motion dials, tuning condensers for reception and transmission, metal cabinets, racks, etc. Supplies of the Catalogue are not unlimited, but early requests with 2½d. stamp will receive a copy.

1. Lead-through high voltage insulator. Ceramic cones. No. 1018. Price 2/6

2. Insulated valve top connectors. The larger type covers transmitting valves such as 866, T 240, etc. No. 562 (9 mm.) 1/3
No. 563 (1 1/8") 1/3

3. Low-loss Aerial Lead In. Length of tube behind insulator is 5 1/2". No. 946. 3/3

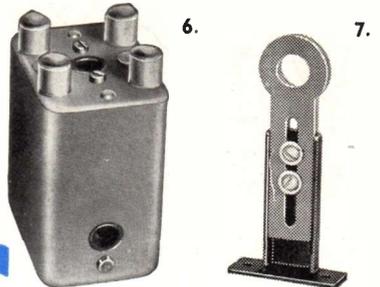
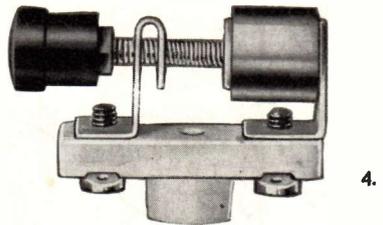
4. Neutralising Condenser. Capacity 1.5-4 mmfd Flash over 2,000 v.R.M.S. Size as illustration. No. 481. 3/6

5. High Frequency Chokes. Minimum self capacity, small external fields. Both types approximately 5/180 metres. No. 1010 (50 m/a) 2/6
No. 1022 (250 m/a) 3/-

6. Screened I.F. Transformers for 450 Kc/s in sealed case. No. 645. 17/6

7. Adjustable insulated bracket. Universal application for component mounting. Height of mounting centre adjustable from 2 1/2" to 3 1/2". No. 1007. 2/6

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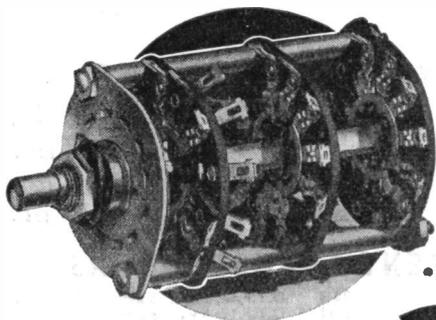


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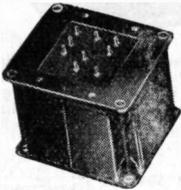




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6½"	P6Q	3.0	¾"	8,500	26,000	4 W
6½"	P6T	3.0	¾"	10,500	32,000	4 W
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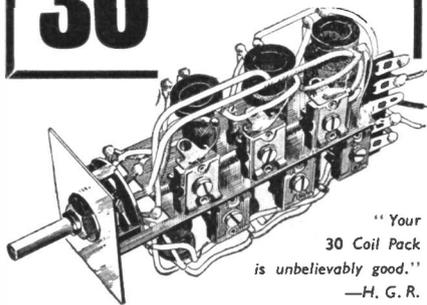
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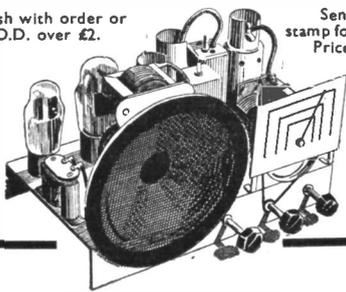
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SHORT WAVE MAGAZINE

FOR THE RADIO AMATEUR AND AMATEUR RADIO

Vol. IV.

SEPTEMBER 1946

No. 7

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Editor: AUSTIN FORSYTH, O.B.E. (G6FO). **Advertisement Manager:** P.H. FALKNER

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AUTHORS' MSS.

Articles submitted for Editorial consideration must be typed double-spaced with wide margins, on one side only of quarto sheets, with diagrams shown separately. Photographs should be clearly identified on the back. Payment is made for all material used, and a figure quoted in the letter of acceptance. A large stamped addressed envelope should be enclosed for the return of MSS. not found suitable for publication.

E.M.I.

AND THE RADIO AMATEUR



Recognising the achievements of the radio amateur in peace and war, it is the intention of E.M.I. to make available from time to time items of specialised equipment of particular value to the radio amateur at home and overseas. Detailed information will appear in due course in the Short Wave Magazine and other amateur periodicals.

ELECTRIC & MUSICAL INDUSTRIES LTD.

HAYES, MIDDLESEX

EDITORIAL

Announcement

In the middle of October, we shall be publishing the first issue of a new 32-page radio amateur's monthly—*The Short Wave Listener*—which will be complementary to this *Magazine* and an addition to it and the other publications of The Short Wave Magazine, Ltd.

This step is in pursuance of our general policy to make available, as circumstances allow, the utmost in the way of useful literature for all interested in Amateur Radio. The immediate reason for it is that we wish to be able to provide more space in the *Magazine* itself for technical material and at the same time fully to cover the needs and interests of the SWL section of our readership—a section which hitherto has not had the attention which its importance merits.

But without enlarging it by at least half its present size, or by cutting out many established features, it is just not possible to provide, within the *Magazine* itself, the space required to run the additional material. And this in spite of the fact that we already average 46 pages of text each month, exclusive of advertising.

Due to the subtleties and intricacies of the present regulations defining the consumption of paper, we are absolutely precluded from increasing either the size of the *Magazine* or its circulation. But within prescribed limitations, we *are* permitted to bring out an additional and separate publication.

If there should be an increase in the paper quota, readers will agree with us that the right course would be to use it to widen *Magazine* circulation, at present artificially restricted by paper shortage.

Naturally, we should much prefer, rather than by venturing upon a new journal, to obtain the extra space required by increasing the size of the *Magazine*. Since, for the reasons explained, this is not possible, and because the need to fill the gap still remains, it

EDITORIAL

has been decided to launch *The Short Wave Listener* as an additional undertaking.

The Short Wave Listener will be devoted entirely to the SWL side of short wave radio, including all aspects of BC and amateur band reception, receiver construction, and the elements of Amateur Radio working.

A secondary, but none the less important, result will be that we shall be able to free a certain amount of space in the *Magazine* itself for new material and additional technical and constructional information of a kind which will be of particular interest to the more advanced amateur transmitter. Thus, our service will be further improved in an essential respect.

The general character of the *Magazine* will, of course, remain unchanged, but with the two publications considered together allowing us an average each month of some 72 pages of text, exclusive of covers and advertising, there will be space to cover much of the ground that hitherto it has not been possible to touch.

In its own sphere, *The Short Wave Listener* will be essentially practical in character, and will come from the same press as this *Magazine*. It will, therefore, be a quality production, selling at 1s. 3d. (the lowest price economically justified on the circulation obtainable with the quantity of paper allowed) and SWLs may be assured that month by month they will find in *The Short Wave Listener* all they want to know about their hobby. The paper will be conducted by the staff of *The Short Wave Magazine*, aided by regular contributors with a vast practical knowledge of their subjects.

Elsewhere in this issue will be found a statement of policy and further details as to the scope and character of *The Short Wave Listener* vis-à-vis *The Short Wave Magazine*.

Arthur S. G. L. L. L.

Five Metres

New Inter-G Contacts—Some Foreign Notes—Third Activity List

By A. J. DEVON

GENERALLY speaking, conditions have been disappointing during the last month so far as European DX is concerned, with sporadic-E openings fewer than had been expected. When the band was open—August 1, 1400-1900; August 6, 1830-1900, and August 17, 2030-2100—there was very little activity to take advantage of it.

Undoubtedly, the evening of July 23 last was one of the best inter-G DX periods yet experienced, as many reports testify. Numerous stations made new contacts over 100-mile *plus* distances, and so great was the activity that some of the regular workers were experiencing QRM conditions on 58 mc, for the first time in recorded history! Be it said that a little more QRM on five metres would be welcomed by most people, as what we still want is regular operation by more stations. There is plenty of room, and the ideal would be something like 250 stations, scattered over the whole country, and coming on every day.

Identification

On this point, many correspondents mention the old trouble of weak and unresolvable 'phone carriers. This is, of course, particularly noticeable during spells of good conditions, but, in fact, it obtains whenever anything is to be heard on the band. Sometimes, however, a "weak and unresolvable carrier" is the stray radiation off a beam-aerial looking the other way, but even this is no reason why a 'phone QSO should not be broken by an occasional identification on CW.

Another point—if you come on and find the band apparently dead, do not let it deter you from putting out a few CQ calls on CW!

Inter-G Working

The G5BY/G8UZ combination, holders of the present inter-G record at 256 miles, had a third contact on August 4 at 2245, with RST-449 both ways. During the month, G5BY has also worked G2AK, G2ZV, G5DZ, G6KB and G6SL for new DX QSO's, and has had a further twenty contacts with G6LK! Also worked again were G2MR, G2MV, G2XC, G5MA, G5MQ, G6CW and G8RS—some of them several times.

All this is spread over the period July 20-August 17, and though it includes that particular evening of July 23, when conditions were so good (as briefly reported in the "flash" here in the last issue), it is noteworthy that since July 23 G5BY has had 29 G DX QSO's, showing that the band has been reasonably consistent and reliable for this kind of work during the month.

G6SL (Birmingham) did well on July 23, when 14 stations were heard and seven worked, five of them over 100 miles. He also found the evening of July 24 good, but peculiar, with temperature inversion effects and sporadic-E occurring simultaneously. Two S/E French 'phones were heard at 2200, talking at such speed that identification was impossible, and IIDA was also received, in QSO with G6VX at 2220. Then at 2225 I1DX came up calling CQ on 'phone, but by 2240 the band was dead.

G5BD and G5LL of Mablethorpe have been on all the month, but have found little DX to brighten it for them. F3JB was heard on July 24, and on August 3 at 1325, a harmonic of HB9CD. On August 9, G5BD achieved his best inter-G DX so far by working G6YQ (136 miles); another

contact G5BD/G6YQ followed on August 13. G5BD and G8JV (Nottingham, 62 miles) are now on a regular link, and G5LL has had reports from HB9GU, HB9J and four Italians.

G8VN (Rugby) writes us for the first time. He also was in on the DX on July 23 and has been working G6YU (Coventry, 12 miles) with less than one watt input.

G2XC (Portsmouth) maintains a 100 per cent. schedule with G6KB (Henley), and has been co-operating in the G2MV/G6DH morning tests; he is receiving G6DH (116 miles) quite consistently. Ducting at heights up to 3000ft., caused by temperature inversion during the period August 3 to 5, produced good QSO's with G2MV,

58 mc, and has also had new over-100-mile contacts with G3PD (Oldham), G4OS (Chester), G5LJ (Sutton Coldfield), G6SL (Birmingham) and G8UZ (Sutton-in-Ashfield). G5MA's total of different stations worked on five metres is now 85.

European News

PA0AD mentions that there is a good deal of 58 mc activity in the neighbourhood of The Hague, and that the PA's are on the watch for us.

In Czechoslovakia, OK1FF has heard F3JB, and OK1AA has been received over here, as reported last month. The OK's active are 1AA, 1AK, 1AW, 1JM, 1KA, 1LI, 1LX, 1MP, 1WY, 1ZV, 2MA, 2MV, and 2OA.



OK1AWX. Mestec, in action with a portable receiver on five metres.

G2MR, G6DH and G6KB on the morning of the 5th, and remarkably strong signals from G3OO, G8SK and G8KZ. G2XC worked 35 and heard eight stations between July 22 and August 19, most of them being DX G's.

On July 24, G5MA (Ashted) worked 11DA for his first foreign QSO on

Best inter-OK DX is OK1AA/-OK2MA over 195 miles, followed by OK1AA/OK1AW over 175 miles. Input is limited to 50 watts maximum on the band, but in most cases is far less than this. Incidentally, OK's when working portable use the suffix "X," as for example OK1AWX.

In Switzerland, the HB VHF contest on July 14 (mentioned here last month) resulted in a win for HB1BJ with 300 points, followed by HB1J with 270; sixteen transmitting stations and six listeners took part.

This is being written and will be at press before August 25, so it may not be possible to include more than a brief "stop press" notice on the results (if any) obtained during the Swiss 58 mc tests on that day.

American Note

The issue of *QST* for August carries a panel announcement which suggests that W6OJV may have heard G5BY on July 1. This is not so, since W6OJV's report does not check in any way with G5BY's log; the Americans have been cabled to this effect.

BAND OPENS AUGUST 22

During that evening, G5BY worked F8RSN, HB9BZ, HB9CE, HB9J, I1FA, I1IRA, I1KS, I1MH and I1TH. The Swiss QSO's are the first G/HB contacts on 58 mc. G2BMZ, G2MR, G2XC, G5BD, G5MA, and G8JV also made a number of similar contacts. G2MR heard OK2MV.

Activity List

Herewith our Third 58 mc Activity List; it is probably not complete, as new stations are coming on (if only for brief periods to try out the band) practically every week. But it does include all those call signs and locations of which we have knowledge and which did not appear in the Activity Lists published here in our April and May issues.

We shall be grateful if readers would let us have reports not only of their own activities, but also a note of the call signs and locations of other stations known to be on in the neighbourhood.

Reports

Please write or wire A. J. Devon, c/o *The Short Wave Magazine*, 49 Victoria Street, London, S.W.1 (ABBey 2384) not later than September 16 with material for the October issue.

THIRD 58 mc ACTIVITY LIST

Call	Location
G2AAN	Newbury, Berks.
G2BMZ	Torquay, S. Devon.
G2DN	Coulsdon, Surrey.
G2DZT	Portsmouth, Hants.
GM2KP	Glasgow, Scotland.
G2LC	Ruislip, Middlesex.
G2QY	Pinner, Middlesex.
G2VG	Stoke-on-Trent, Staffs.
G2ZV	Honiley, Warks.
G3FD	Highgate, London.
G3IS	Rugby, Warks.
G3KP	Croxley Green, Herts.
G3LV	Southsea, Hants.
G3OO	Southgate, London.
G3PO	King's Norton, Birmingham.
G3PW	Maidenhead, Berks.
G3SU	Petworth, Sussex.
G3WS	Gidea Park, Essex.
G4AP	Swindon, Wilts.
G4IG	Beckenham, Kent.
G4NT	High Wycombe, Bucks.
G5BD	Mablethorpe, Lincs.
G5CM	Bognor Regis, Sussex.
G5DZ	Salisbury, Wilts.
GW5FU	Rhyl, N. Wales.
G5KJ	St. John's Wood, London.
G5LI	Highgate, London.
G5LL	Mablethorpe, Lincs.
G5OO	Harrow, Middlesex.
G5TX	Newport, Isle of Wight.
G5VB	Ewell, Surrey.
G5WP	Woking, Surrey.
GW5YB	Bangor, N. Wales.
G6JI	Walthamstow, London.
G6KB	Henley-on-Thames, Oxon.
G6SL	West Heath, Birmingham.
G16TK	Belfast, Northern Ireland.
G6TL	Manchester.
G6UH	Hayes, Kent.
G6YU	Coventry, Warks.
G8BD	Portsmouth, Hants.
G8CK	Watford, Herts.
G8DT	Cheltenham, Glos.
G8GX	Northwood, Middlesex.
G8IG	Bromley, Kent.
G8JB	Havant, Hants.
G8JR	Theydon Bois, Essex.
G8KZ	Kensington, London.
G8OS	Pulborough, Sussex.
G8QW/A	Eastleigh, Hants.
G8QY	Sheldon, Birmingham.
G8RC	Brentwood, Essex.
G8UB	Oswestry, Shropshire.
G8UZ	Sutton-in-Ashfield, Notts.
G8VN	Rugby, Warks.
G8WC	Portsmouth, Hants.

Total listings to date, 130 stations.
(The First and Second Lists appeared in our April and May issues.)

CW/'Phone Remote Control

Practical and Effective System

Devised by J. INGRAM MYERS, B.Sc. (G4HM)

BY the system suggested here it is possible, by remote control, to switch HT to all stages, key the transmitter, change over from CW to 'phone, and modulate. The same aerial is used for both transmitting and receiving. Since many switching circuits are required to control even a modest transmitter, the use of relays is a big advantage, even when the transmitter is near the operating position. High voltages are effectively isolated from key and other controls and the need for working a number of switches in a correct sequence is avoided.

This article is intended more to stimulate thought along these lines than to advance hard and fast ideas ; no doubt many readers will have notions of their own on the subject. At G4HM the circuits to be described are used in conjunction with the PA-Modulator discussed in the July issue of the *Magazine*, pp. 302-307. The control unit and receiver are built into the same case and are normally used near the transmitter. On occasion, however, the transmitter has been controlled from distances up to 30 yards, without it being possible to detect any difference in transmitter or receiver performance.

Application

The system involves the use of two main elements, the control unit and the relay unit. The modulator valve in the (PA-Modulator) transmitter (see circuit, p. 304, July) is driven by an L63 triode mounted in the control unit at the receiving position.

The units (see Fig. 1) are connected by two wires only ; 5 amp. twin cored cab-tyre serves admirably. One side of this control line is connected

to the common earth at the transmitter end and to the HT negative at the control unit. The other side is taken from the anode of the control valve V to two relays A and B in the relay unit. A and B have their windings in series and are energised from some suitable 350 volt HT supply (independent of the control system) *via* the control valve V. The heater current of the latter may be supplied from the receiver or from a 6 volt bell transformer. Relay A functions at a lower current than relay B, and also controls the delayed opening relay D, which switches on the HT and isolates the receiver from the aerial. Relay A is also used for keying. When a higher current is passed through A and B, both relays close, and then the modulator controlled by B comes into action. The current through A and B is governed by the value of the cathode bias resistor for the control valve V. This resistor is high for CW and low for 'phone. Keying is also carried out in the cathode circuit of the control valve ; on CW its grid is earthed, and on 'phone a microphone circuit is introduced.

Rx Change-over

With this type of remote control, some means must be found whereby the two control wires can carry the input from the aerial to the receiver. It is desirable that complicated and expensive aerial change-over relays should be avoided and other forms of switching reduced to a minimum. Since one side of the control line must always be at a high DC potential in relation to the other, the conventional forms of matching cannot be used. In the simplified diagram it will be seen that two leads are taken from the

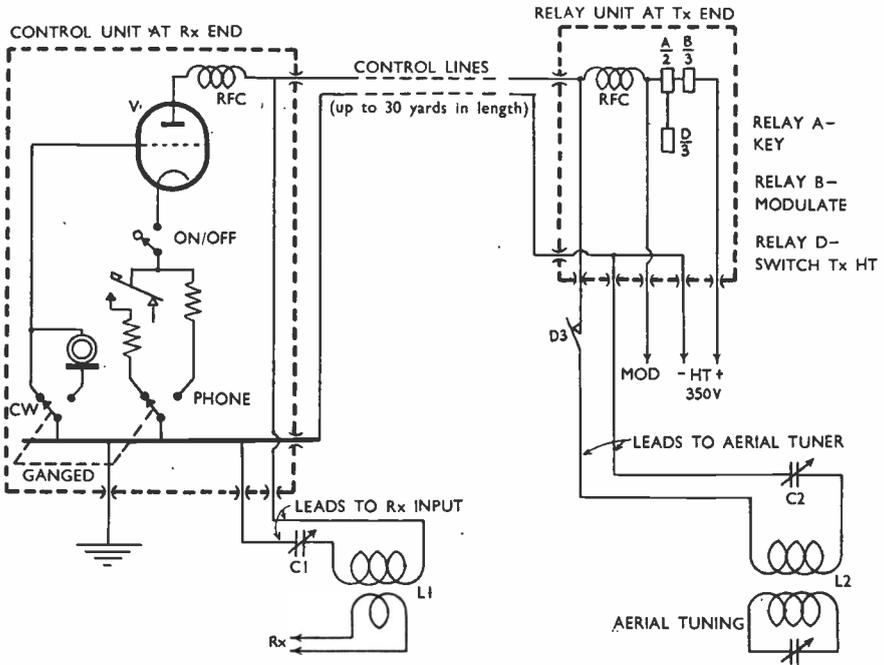


Fig. 1. The essentials of G4HM's system for CW/Phone remote control, using only a single-pair control line. This line provides not only for remote actuation of the necessary relays, but also carries the audio input to the modulator, the keying impulses and the Rx aerial lead, all controlled from the receiver end. Such an arrangement allows complete freedom in the selection of an operating position.

control unit (Rx end) to a series-tuned circuit which is coupled to the input of the receiver. From the relay unit (Tx side) two leads are also taken to a similar series-tuned circuit inductively coupled to the aerial tuning coil. It is assumed that the surge impedance of the control line is approximately 72 ohms. Since we may regard the line as being a resistance of 72 ohms, we can consider the circuit in terms of the equivalent diagram (see Fig. 2), which is two parallel tuned circuits having a common resistive impedance R of 72 ohms.

For correct matching the series impedance of each tuned circuit on resonance should be 72 ohms. The impedance of a series-tuned circuit on resonance is almost equal to the ohmic resistance of the inductance, which should be very small. Consequently,

for best matching the tuned circuits terminating either end of the line are adjusted to an optimum point off resonance, where a happy compromise between theory and practice will be found. The two RF chokes provide a straight and narrow path for the RF, which follows the broad and easy path of the series-tuned circuits.

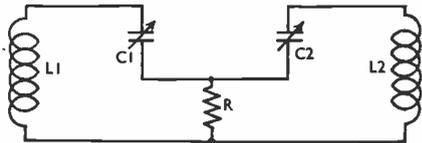


Fig. 2. Equivalent diagram of the circuit C1/L1, C2/L2 in Fig. 1. Since the line coupling these circuits is of the relatively low surge-impedance of 72 ohms, and on the RF side coupling between aerial and receiver only is called for, the line can be as much as 100 ft. long without introducing complications.

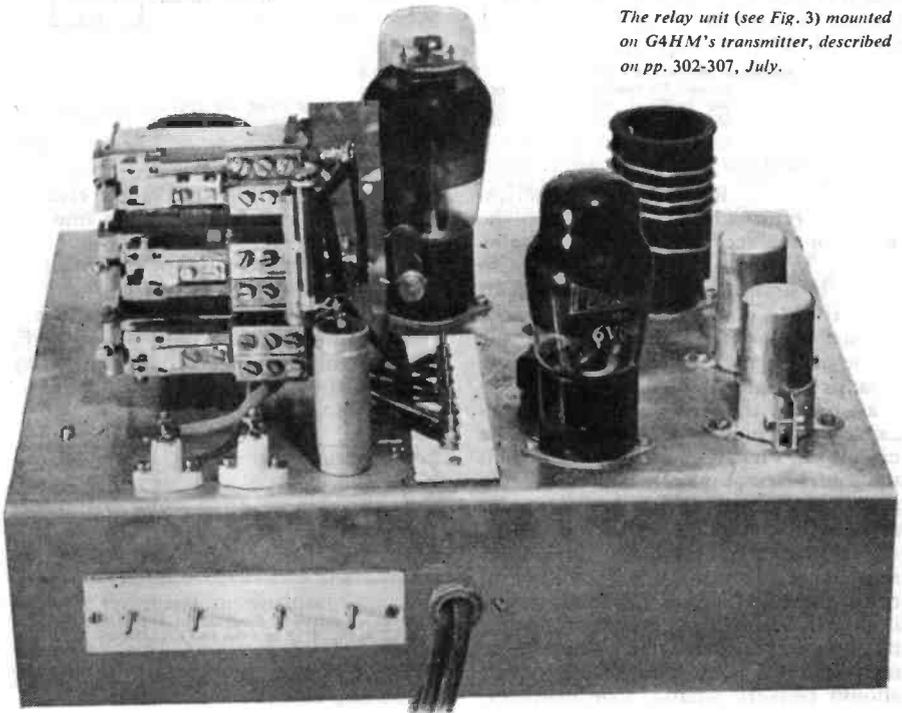
The aerial tuning side C2/L2 is permanently coupled to the tank circuit of the PA. It has been found that the PA absorbs very little power from the aerial when the latter is used for receiving, but HT must be removed from the PA or the latter will damp the aerial. When transmitting, contact D3 is open and the tuned circuit C2/L2 cannot resonate and consequently does not absorb any power from the aerial tuning circuit.

Circuit Details

The relay unit contains three GPO relays, A, B and D; use of letter C for relays has been avoided to prevent confusion with capacities. Exact details of these will be found in the table on page 412. When the transmitter is to be switched on, the on-off switch in the control unit causes a current to be passed through the windings of A and B. If the selector switch in the control unit is in the CW

position, then only A will be energised. If the selector switch in the control unit is in the 'phone position, then the current will be sufficient to operate both A and B. When A operates, the HT relay D is closed, voltage is applied to the RF stages of the transmitter and the receiver is isolated from the aerial. Relay A also keys the CO, either in the cathode lead or by over-biasing the CO control grid. Thus, when A is energised, the transmitter radiates a CW signal. When the transmitter is being keyed, A will follow. D, however, must remain closed during the intervals of keying and should not open until the key has been up for 0.5 to 2 seconds. This condition is obtained by D switching a 50 μ F 50-volt working electrolytic condenser C4 across its own windings when it closes. This condenser is charged to a voltage equal to that across D (when the latter is energised) by a potential divider R2,R3 during the periods when D is open.

The relay unit (see Fig. 3) mounted on G4HM's transmitter, described on pp. 302-307, July.



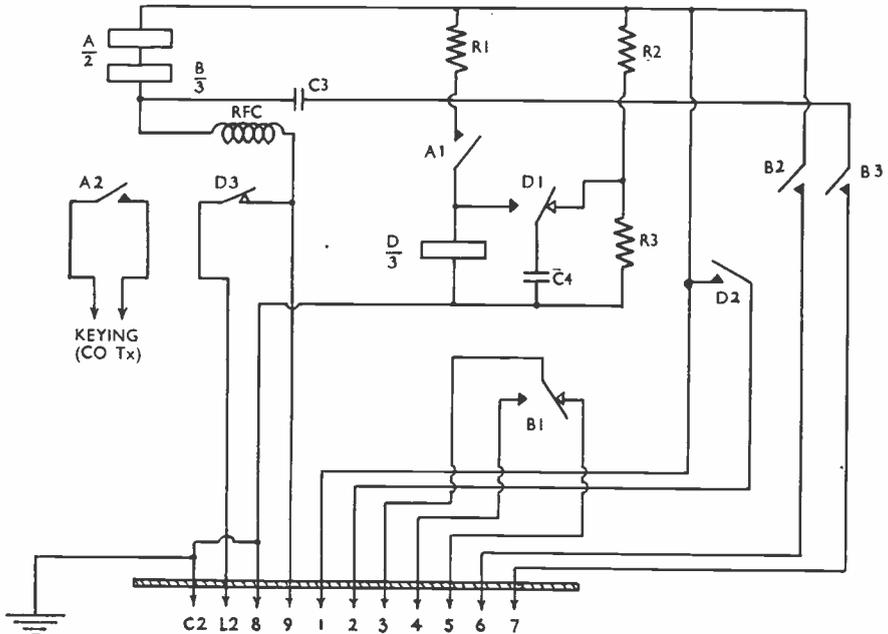


Fig. 3. Detached circuit diagram of the relay unit at the transmitter end. Black arrow-heads A1, B2, etc., indicate that contact is made at these points when the appropriate relay is energised. Similarly, white arrow-heads at B1, D1 and D3 show that contact is broken, or change-over action takes place, when relays B and D are energised. Terminations 1-7 correspond to the circuit diagram on p. 304, July; 8-9 are for connection of the control-line pair; C2-L2 are connected as shown in Fig. 1.

The values of R2 and R3 must be chosen in such a way that R2 does not pass sufficient current to work the relay D. It is held closed via R1 by current derived from the 350 volt supply to the transmitter while the key is closed and by the charge on C4 while the key is up. If C4 is not charged by a potential divider but is merely switched across the windings of D, then the latter is liable to chatter when closing. This method of obtaining delayed action has much to commend it in that any time interval may be set and can be varied within limits by a resistance in series with C4. The time interval is increased by increasing the capacity of C4.

'Phone Working

When the switch in the control unit is in the 'phone position and the transmitter is switched on from the

control unit, both A and B are energised. The modulator control relay B switches HT to the modulator valve, reduces the voltage on the auxiliary grid of the PA and connects the grid circuit of the modulator to that end of the A and B relay windings furthest from the HT source; the windings of A and B then serve as the anode LF load for V when the transmitter is being modulated. If the audio coupling condenser C3 (Fig. 3) is not switched in this way, the keying relay does not work clearly and is liable to chatter.

The wiring of the D contacts as given here is intended to switch HT to the CO and PA valves of the original PA-Modulator unit. This relay may, however, be used to control any HT supply system, provided care is taken to employ relays provided with suitably heavy contacts. If it is desired to control the HT of, say, a 150-watt PA, then this must be done

in the primary of the HT transformer and a separate rectifier filament transformer used. Any attempt to switch DC voltages over 350 or currents higher than 100 mA will result in severe arcing, sooting up of contacts and general unreliability.

Control Unit

The control unit has three controls, transmit/receive, 'phone/CW and LF gain. Two sockets are provided for the microphone and the key. The combined modulator driver and control valve used in the control unit is an L63. The two alternative cathode resistances R4 and R5 are selected by one half of the 'phone/CW switch. The higher resistance R5 is used on CW, where a low current is required to operate A only. Keying is carried out by inserting the key in series with R5. The other half of the same switch changes the grid of V from the relay current control R5 to the LF gain control R6. One half of the transmit/receive switch is used to interrupt the receiver HT. If a delayed relay working on the same principle as D, to govern the receiver HT, is built into the control unit, then "listening through" may be effected. This offers a very interesting subject for experiment. Under these conditions, in listening through it would merely be necessary to press the key to cut out the receiver and start the transmitter; if the key were left up for a pre-determined time, then HT would be switched off the transmitter and the receiver would come into operation.

Constructional Data

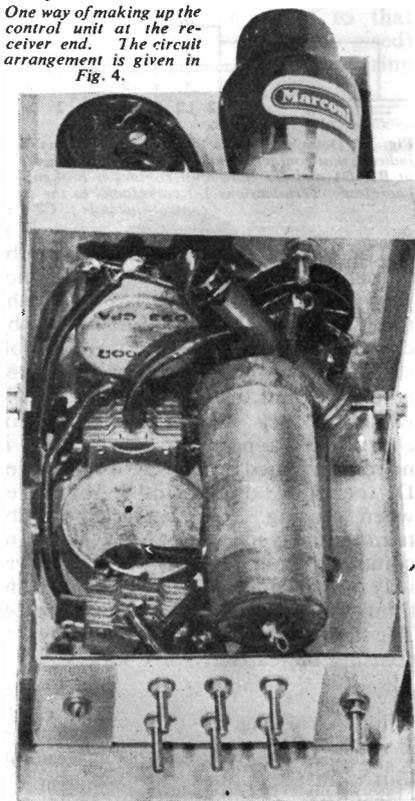
The chassis of the control unit consists of a sheet of 20-gauge tinned steel $9\frac{1}{2}$ in. long and $5\frac{1}{2}$ in. wide. This is bent to form two $\frac{3}{4}$ in. flanges on the longer sides. On this chassis, two DPDT toggle switches, the LF gain control potentiometer sockets R6, and the microphone and key sockets are mounted. The relay adjusting control R5 and the valve holder are carried on a small sub-chassis which is held at right angles

to the centre of the main chassis. The sub-chassis is made from 20-gauge tinned steel $5\frac{1}{2}$ in. by $4\frac{1}{2}$ in. bent so as to form $\frac{3}{4}$ in. flanges along the two shorter and one of the longer sides.

It has been found very economical to use standard 2-amp two-pin plugs and sockets for key and microphone leads. A neat finish can be obtained by mounting the sockets behind the panel and drilling holes in the panel to correspond with the sockets. The metal contact sockets are reversed top to bottom and the plug connecting wires are taken through the holes in the insulated cover intended for the plug pins.

In the design as used at G4HM, the relay unit is built up on the clear space at the rear of the PA-Modulator. The relays are mounted on a bracket

One way of making up the control unit at the receiver end. The circuit arrangement is given in Fig. 4.



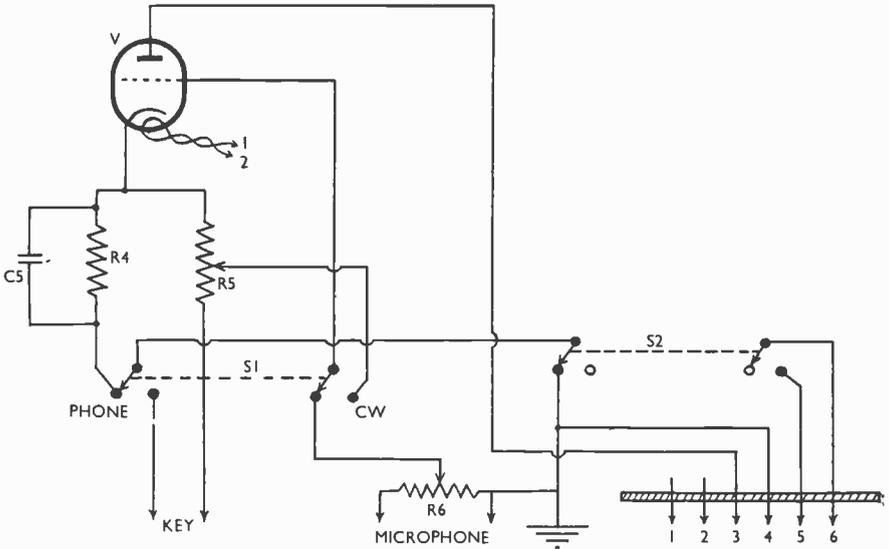


Fig. 4. Wiring of the control unit (Rx end). Terminations 1-2 are heater for V, 3-4 control line, 5-6 Rx HT S1 is a double-pole double-throw switch, shown in the "Phone" position; S2, also DPDT, is at "transmit."

made from 14-gauge steel. The electrolytic condenser is carried on the main chassis, while small components are suspended in the wiring. Two terminals are provided for connecting up the control lines, but connection to the keying contacts is made direct to the relay tags.

The tuned circuit C2/L2 is arranged on the same former as the PA tank coil, and at its earthy end C2 is a mica dielectric preset mounted at the bottom of the former and inside it. Good results will be obtained if L2 is pile wound. This arrangement facilitates band changing. A home-made communications receiver is used at G4HM and C1/L1 is mounted in the main tuning coil assembly. It covers (as does C2/L2) the 10-, 20- and 40-metre bands. Low L/C ratios are most suitable and the values are tabulated herewith.

Building and Testing

It is strongly recommended that stage-by-stage construction is adopted, with appropriate tests at each stage. The relays should be mounted in

position first and the windings of A and B wired to the control line terminals and HT positive. The main components of the control unit should also be mounted and all wired except R4. Tests should then be made to ensure that by adjusting R5 a position is found where the keying relay A opens and closes cleanly with B not affected when the selector switch is in the CW position. When the selector switch is in the 'phone position, both relays should close when the second switch is in the "transmit" position. R4 should be adjusted until B just closes properly. Next, the values of R1, R2 and R3 should be found by trial and error until D functions correctly. Lastly, the remaining relay tags should be wired to the appropriate terminals on the terminal strip 1-7 of the PA-Modulator, the aerial tuner and the CO. The entire circuit may now be tested for modulation and keying. C1 and C2 should be adjusted with the Rx on, and a signal generator connected to the aerial tuner. A strong signal on the band required will serve equally well. Resonance

will be found to be fairly flat.

If this circuit is used in conjunction with an auxiliary grid modulated transmitter, it is very easy to produce overmodulation. It is therefore de-

sirable that continuous visual monitoring be used when employing this or any other form of modulation. A simple CRO will give a very reliable indication of 100 per cent. modulation.

RELAY DATA

Relay	Resistance of Windings	Working Current	Number of Contacts
A	10,000 ohms.	3 mA	2
B	5,000 ohms.	8 mA	2
D	10,000 ohms.	5 mA	3

Table of Values

R1	80,000 ohms, 2-watt.	C1	175 $\mu\mu\text{F}$ mica preset.
R2	500,000 ohms, 2-watt.	C2	175 $\mu\mu\text{F}$ mica preset.
R3	57,000 ohms, 1-watt.	C3	1 μF paper.
R4	670 ohms, 1-watt.	C4	50 μF electrolytic 50V.
R5	50,000 ohms potentiometer.	C5	50 μF electrolytic 25V
R6	250,000 ohms potentiometer.	RFC	RF chokes, any good make.

L1L2	{	28 mc. 2T 1½ in. dia.	} 22-gauge double	
		14 mc. 5T 1½ in. dia.		} silk covered,
		7 mc. 9T 1½ in. dia.		

SWISS FIELD DAY

During the 24-hour period commencing at 1800 GMT on September 7, the HB's will be running a National Field Day, covering operation on all bands. It will be a contest, in that individual scores will count towards the regional group totals for "le prix challenge NFD."

Stations must be completely portable, operated not less than 100 yards from the nearest building, and mains charging is prohibited. Stations are in three categories; the first two are determined by the weight of the equipment with batteries, and in the third category are those portable stations which, while limited to a maximum input of 50 watts, can be transported complete "avec une auto 4/5 places." Scoring ranges from one point for a contact with a fixed HB station, to 10 points for a QSO with a portable out-

side Europe. All stations participating will be using calls prefixed HB1.

AMERICAN 'PHONE AREAS

An important ruling has been obtained in America respecting the use of 7 and 14 mc. Until the whole band has been reopened, no 'phone may be used in the 7150-7300 kc range; it is proposed that when the band is again fully open, 'phone should be restricted to 7200-7300 kc.

On 14 mc, 'phone is to be used only on 14200-14300 kc, extended later to 14400 kc when the whole band is returned. CW may be used without restriction throughout the entire band, but in the nature of things, CW stations will tend to avoid the 'phone areas.

On ten metres, the 'phone area is 28.5 to 29.7 mc, leaving 28.0-28.5 mc for CW only.

If it is News it's in the Short Wave Magazine

Meeting the QRM

Selective Aerials—Top Cut Telephony —Single Side-Band Working

Discussion by O. J. RUSSELL, B.Sc., A.Inst.P.

AS is only too apparent from the warnings and intimations published in many articles in this *Magazine*, the twin factors of a great increase in the number of transmitting amateurs, coupled with the excellent DX conditions likely to prevail and increase for the next three years, will result in the greatest congestion that the amateur bands have ever known. Already upon occasions a foretaste of things to come has been the congestion upon 28 mc, when USA 'phones have jammed the band to such an extent that other stations were as difficult to disentangle as DX on 7 mc in the middle of a Sunday afternoon. It is obvious that to minimise this interference the amateur must be prepared to exploit every possible trick and dodge that is technically feasible. Indeed, it is possible that at the peak of conditions the utmost technical and operating efficiency will be necessary for a bare minimum existence on the air.

It is essential, then, that we utilise the frequencies allotted in the most efficient manner, so that no part of these narrow bands is wasted. This means in effect that each transmitter must occupy only as much band-width as is necessary for communication. Similarly, the receiver must be capable of accepting only the transmitted band-width. These are, of course, ideal aims, but ones which *can* be closely approached in practice. There are also a number of practical features concerned with attaining this ideal that must be examined carefully.

Selective Aerials

Before examining the technical aspects of the transmitting and receiv-

ing equipment from the standpoint of coping with band congestion, it is as well to consider the aerial system. The use of directional aerial systems offers us some considerable hope. While we cannot cut down the number of stations operating, a directional aerial system for reception can assist us by eliminating or diminishing signals arriving from other directions. As our American confrères, prolific both in numbers and kilowatts, are going to provide some good signals when conditions are right, we shall need the aid of directional aerials to disentangle weaker and more elusive DX from other localities.

A directional aerial system is thus likely to prove an invaluable asset. In view of the discrimination that a directional system of the close-spaced element type can afford against signals arriving from off the line-of-shoot, it is as well to emphasise this feature of a directional array of the reflector-director type, rather than to regard it as a device for increasing signal strengths in the forward direction.

While such arrays are certainly effective as "signal squinters," it should be remembered that while the gain in the forward direction is not greatly affected by element lengths or spacing, the discrimination against signals from the opposite direction is very critically dependent upon these dimensions. Adjustment with the aid of some form of field-strength indicating device is essential for correct operation.

While the use of reflector-director type assemblies is thus the ideal, the erection of a half-wave rotary beam for 14 mc is no easy matter for the average amateur.

Loaded Elements

There are a number of ways out, however. First of all, the end portions of the elements of an array can be bent downwards, so that the system takes up less horizontal room. Another suggestion, that has been employed very successfully, is to inductance-load the centre of the elements of these arrays, so that the mid-section is comprised of the loading coils, the radiating portions being greatly shortened extensions to the coils.

There is also the possibility of using a loop aerial for reception; or, again, the Reinartz aerial, which was once very popular for 58 mc operation, could be used on the lower frequencies.

So much for a brief consideration of the aerial systems that may afford us some help in overcoming congestion.

Receiver Considerations

The receiver is perhaps the next item. Here we are mainly concerned with improving selectivity. The usual type of crystal gate would appear to offer just about the maximum limit of selectivity possibly. This is not quite true, however, as even with the normal crystal gate in operation it is possible to obtain quite reasonable reception of telephony signals. Obviously, the attenuation of signals outside the hundred or so *cycles* band-width that is adequate for CW reception could be improved, as a selectivity of this order would imply that 'phone signals would be completely unintelligible.

The introduction of the modern band-pass crystal filter, which employs two crystals, represents a considerable improvement upon the conventional single crystal gate type.

First, the rejection outside the pass-band (which is commonly about 150 cycles wide for CW reception) is considerably greater than with the single crystal gate. Secondly, the modern pass-band crystal filter—a British development—utilises vacuum mounting of the crystals in its most advanced form, and this vacuum mounting results in greater efficiency over the old crystal holders, as air damping is removed, and the effective

"Q" of the crystals is considerably increased. There is a further advantage, in that over the band-width that is passed, the gain is substantially uniform. The old single crystal gate has a response that is sharply peaked, and in consequence the slightest shift with a really efficient crystal gate resulted in a drop in signal strength. The modern band-pass type, on the other hand, will hold a signal steady despite the slight frequency shifts that are in any case inevitable upon the high frequencies. The fact that with some of the old crystal gates this sharp peaking effect is not very noticeable, is a further indication that the maximum effect of the crystal gate was not being obtained, due to their inherent inefficiency.

'PHONE/CW AREAS

Help rationalise the use of the 7 and 14 mc bands by keeping 'phone in the 7,200-7,300 kc and 14,200-14,300 kc areas. New 3-letter G's and CW operators, please choose your crystals to give working points in the 7,150-7,200 kc and 14,100-14,200 kc areas.

'Phone Reception

For 'phone reception, we certainly cannot tolerate the phenomenal selectivity of a really effective CW filter. Furthermore, the more selective we make our receiver, the lower the fidelity of the reproduced telephony, as the higher modulation frequencies are removed. However, as the higher modulation frequencies in any case represent an undue spread of the 'phone signal, it is obvious that we must concentrate for amateur purposes upon a 'phone signal that is adequate for communication purposes, rather than for high fidelity speech. We must therefore transmit only that range of frequencies necessary for intelligible speech, attenuating all higher frequencies as drastically as possible, in order to reduce QRM. In any case the receiver band-width under congested conditions will probably be so reduced that even if these frequencies are radiated, they will not be accepted by the receiver, and hence serve no useful purpose.

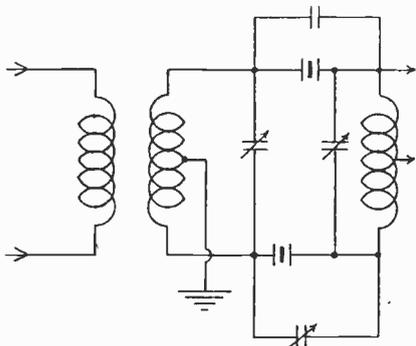


Fig. 1. Schematic of band-pass arrangement using two crystals. This is a standard circuit

Top Cutting

Taking our cue from the commercial communications systems, we certainly need not transmit modulation frequencies higher than 3,000 cycles for fully intelligible, and reasonably realistic and natural, speech. We may, in fact, be forced at the receiving end to employ only part of this range of frequencies. However, if we take 3,000 cycles as about the upper limit for our transmitter, we need only accept this range of modulation frequencies in our receiver.

It is as well to point out here that restriction of the frequency range of the modulating equipment helps greatly in reducing the effects of harmonic distortion, while allowing certain economies in components to be effected. This is particularly valuable when considering Class B modulator stages, as restriction of the frequency range is helpful in reducing the likelihood of parasitic oscillations, to which these stages are prone.

The minimum band-width of the receiver will thus be determined solely by the minimum band-width necessary for speech, while for CW some form of crystal gate is in any case almost universal at the moment. The minimum speech band-width can be as low as 2,000 cycles in an extremity, implying a pass-band for both side-bands of about 4,000 cycles. It is feasible to use a wide-band band-pass crystal filter for telephony purposes, with some im-

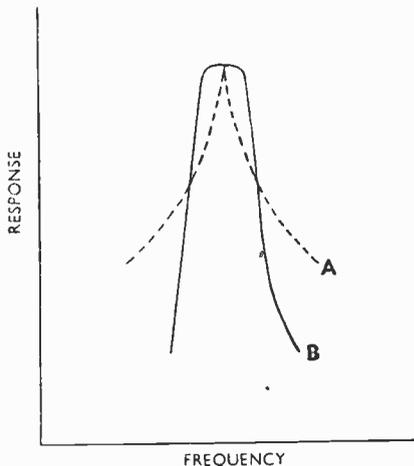


Fig. 2. Diagrammatic representation of the response curves of the conventional crystal filter (dotted line A) compared with the modern band-pass crystal filter (full curve B)

provement over normal IF characteristics. An advanced solution of the selectivity problem would thus be to incorporate a filter employing say three crystals, one pair providing the narrow CW pass-band, while for 'phone reception one crystal could be switched out and another one providing a band-width just adequate for telephony could be switched in. For conditions not requiring a bare minimum band-width, the normal IF selectivity could be employed without any crystal filter in circuit.

This is no occasion to add more fuel to the fire of the 'Phone v. CW controversy, but it must be admitted that the band requirements of a few hundred cycles for CW contrast favourably with the frequency requirements of even a "communication" quality telephony system. Already there is a move to rationalise this situation by restricting portions of the bands to CW only, a state of affairs that has long held in America, where band congestion is greater than in this country due to the greater powers permitted and the greater number of amateurs operating. However, as we are considering any possibility that will enable us to

utilise our limited band-space more fully, why not some form of single-side-band operation for telephony?

Single-side-band Working

It is admittedly a matter of some complexity to arrange for single-side-band transmission, and it is possible that this system is hardly feasible for the amateur. However, springing from the congestion of the amateur bands in America, comes a system which is actually single-side-band reception.

The diagram (Fig. 3) gives a schematic layout of the receiver system employed to enable the carrier and only one selected side-band to be utilised, according to the degree of interference in each. The front portion of the receiver is the usual super-heterodyne arrangement, and the IF employed in the initial stages is, in the system described, the normal one of 455 kc. The amplified IF output is then fed to a second frequency-changer stage, for conversion to an IF of only 50 kc. Adequate selectivity can be obtained fairly readily at such a low frequency, thus permitting passing of the carrier and one side-band.

Then, by the selection of either of two crystal controlled oscillators, one operating on 505 kc and the other on 405 kc, one or other of the side-bands together with the intermediate frequency carrier can be selected. Obviously, such a system requires very careful adjustment, both in initial setting up, and in tuning. A highly selective amplifier, having an attenuation of 60 dB at 2 kc off resonance, is used to operate a tuning meter. Considerable accuracy in tuning is necessary for the system, as otherwise part of the unwanted side-bands would also pass through into the IF amplifier.

This ambitious receiving system is undoubtedly of interest, especially as it represents the use of advanced technical design for the solution of what is normally a purely amateur problem. To realise the value of the system, it should be noted that where interference is from a single station, this can be completely eliminated. When several stations are interfering, very considerable relief can be obtained. Thus, when there are three stations interfering with a wanted station, there are

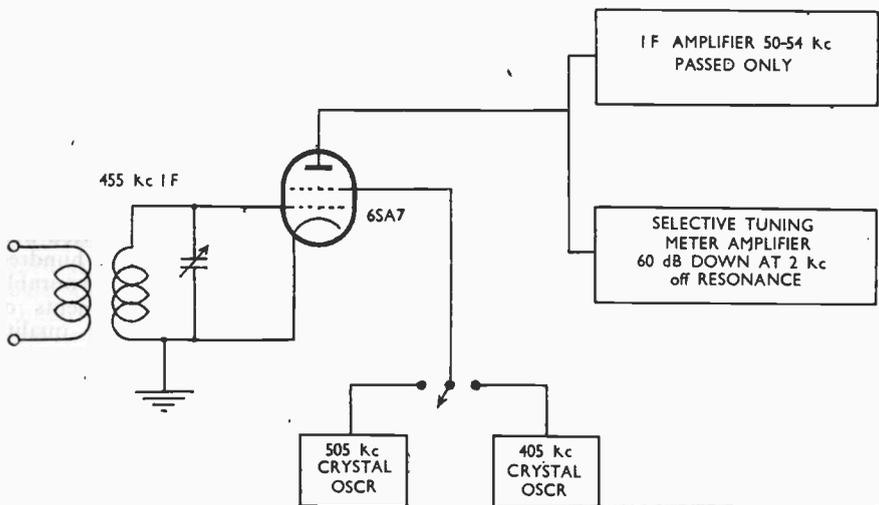


Fig. 3. Block layout of a single-side-band receiver. The highly selective tuning meter amplifier resonates at 50 kc and permits the selection of one side-band and carrier only. The 50 kc 2nd IF passes only the IF carrier plus about 4 kc of one side-band. This is selected by using one or other of the two crystal oscillators on 505 or 405 kc to generate the 50 kc IF.

in general no fewer than six beat notes produced, owing to mutual interaction of all four signals. Hence, interference increases very rapidly as more interfering signals appear. In the case of three interfering signals on a wanted station, normally there will be six beat notes. If we are fortunate, and all signals are on one side of the carrier, the single-side-band receiver will be able to select the interference-free side-band. In the worst case, with three interfering stations, one side-

band will only have one station interfering with it, and this can be selected on the single-side-band equipment.

The foregoing deals only briefly with the problem of meeting band congestion. The details of the problem, and the various alternative methods that may be adopted to obtain individual solutions, require a vast amount of working out. It is hoped that these matters will receive close attention in the near future, in the interests of all concerned.

TRF RECEIVER TIPS

by J. HUM (G5UM)

Users of straight receivers on 28 mc are often heard to complain about the hum which modulates practically every signal they receive—particularly when their sets are operating in an oscillatory condition. They are puzzled by the fact that on lower frequencies the effect is not experienced.

An investigation of several such complaints revealed that the trouble arose only where heaters were connected with one side to chassis. In some cases examined individual heaters were connected separately to the nearest point on the chassis. In other instances, twisted leads were used to wire one heater to the next with the end of the chain connected down to chassis. Great care had been taken to keep the heater wiring away from RF leads, and tucked well into the corners of the chassis, but with no appreciable diminution of hum on 10 metres.

Either way a state of unbalance existed in the heater wiring and the obvious remedy was to balance the heaters directly to ground. This is simply done by connecting a 100-ohm variable resistor across them and taking its centre-tap to chassis. The exact centre of the potentiometer track is not necessarily the point for minimum hum, and the tapping should be moved about until the minimum position is found; this will probably be quite sharp, and may be easily passed over unless the potentiometer arm is rotated slowly.

As a refinement two $\cdot 001 \mu\text{F}$ fixed condensers can be connected across the potentiometer, with their centres commoned to ground. Preferably, however, such condensers should be connected across heaters right at the valve socket, particularly in the case of RF and detector stages.

Broadcast Break-Through on 1·8 mc

In areas close to BBC stations the break-through that frequently occurs on non-superheterodyne receivers may easily spoil reception on the 1·8 mc amateur band. This is more evident to-day than it was before the war, since most Regional stations are using considerably more power now than they were then. And the position is aggravated by the fact that the long-wire aerials that work so efficiently on 1·8 mc are equally good at picking up plenty of microvolts (almost millivolts) from offending broadcast stations.

Those who have unsuccessfully tried various remedies, such as inserting a small series condenser in the aerial lead (thus sacrificing most of their gain), may like to know that the answer to their troubles is nothing more nor less than a simple wavetrap.

In Amateur Radio wavetraps are normally regarded as something to use in your neighbour's aerial to prevent your activities from interfering with his radio entertainment. By the same token you can, by inserting a wavetrap in the aerial lead to your receiver, prevent *his* radio entertainment from spoiling your activities!

The writer's station is 3 miles from Brookman's Park. With the 130 ft. aerial coupled direct to the aperiodic winding on the receiver the BBC programmes break through on 1·8 mc at "phones on table" strength. The interference is completely eliminated by inserting in the aerial lead a coil of 100 turns on a $1\frac{1}{4}$ in. former, tuned by a $50 \mu\text{F}$ trimmer to the wavelength of the offending station. No drop in gain on 1·8 mc occurs when this wavetrap is used.

Voice-Controlled Carrier

An Automatic Speech-Control System

By H. L. OVERTON (G4CW)

The system described here is now in use at G4CW with considerable success and was devised with a view to the elimination of QRM by using single-channel operation, and the speeding up of a QSO. Its advantages are numerous and should help to clear our much-occupied frequencies.

Action of the Circuit

Looking at the circuit diagram, the method of operation is as follows: The control valve V1 and its associated supply cause a standing current to energise the relay RL. When this relay, which is of the open-circuit or break type, is energised the contacts are opened, thus switching off the main relay which actuates the transmitter and mutes the receiver.

Audio voltage is taken from the plate of the modulator valve *via* a condenser C1, through the transformer and condenser C2, to the grid of the control valve. On speaking into the microphone a blocking bias voltage is imposed on the control valve grid, which immediately drops the standing relay current to zero. The armature then trips out and the

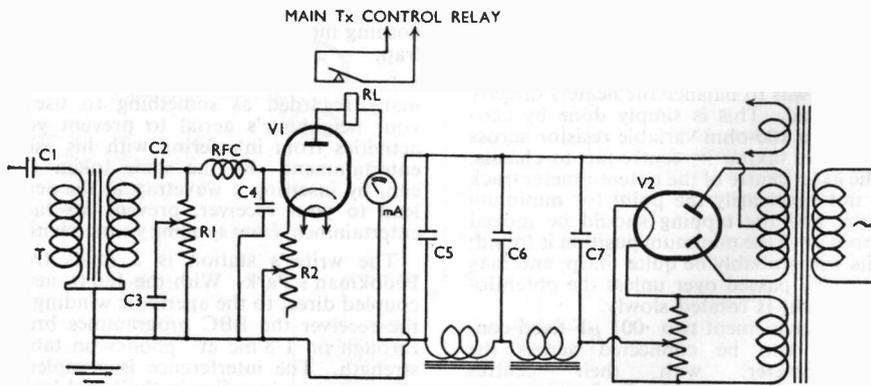
transmitter is switched on, the relay current remaining approximately at zero during speech.

Adjustment

The potentiometer R1 with the reservoir condenser C3 give complete control over the time lag required between the end of speech and the switching off of the transmitter.

Control of the standing current is by adjustment of the variable cathode bias resistance R2; this should be set so that the standing current is greater than the actuating current of the relay.

There are certain precautions to be taken with the design and operation of this system. A perfectly stable modulator is essential or it will be found that the relay will trigger when it reaches the "cut-out" position. The choice of relay is important and it should be so arranged that the armature is pulled towards the pole piece under slight spring tension, so that the "switching on" action—that is, when the armature leaves the pole piece—is as snappy as possible, for on this depends the amount of phrase loss on the first word spoken.



Circuit of G4CW's voice-operated carrier control system, on-position. The basis of this method is that a standing current in the control valve V1 actuates a break- or open-circuit (close on de-energising) relay RL, which in turn operates the main Tx control relay. Thus, in the no-speech condition, RL is open and the Tx off. On speaking, the relay closes and switches on the transmitter. The device is operated by taking audio voltage off the modulator *via* C1, which should be mounted at the plate of the modulator valve.

The relay, used in this case is the GPO knife edge multi-contact type of 2,000 ohms resistance. The centre contacts are re-arranged to *open* when energised and to obtain the required tension on the armature, two of the spare spring contact blades are fitted, one on each side of the centre contacts, and bent to rest on the armature, so that quick action is obtained when it leaves the pole piece.

The condensers used in the delay network must have high insulation, preferably infinity, to assure good operation; electrolytics should *not* be used, except where specified. Provision has been made in the circuit to deal with any stray RF by including the RFC and grid by-pass condenser.

The inclusion of an 0-10 mA meter is a refinement which gives visual indication of the current movement in the relay circuit and also gives warning when the "cut-out" position is about to be reached. Once the control unit has been adjusted, however, it is not essential and can be dispensed with, the meter terminals being bridged.

Table of Values

C1	.0001 to .01 μ F mica.
C2	0.1 μ F 1000 V tubular.
C3	2 μ F 600 V, high insulation.
C4	.0003 μ F mica.
C5, 6, 7,	8 μ F 500V electrolytic.
R1	2 megohm potentiometer.
R2	1000 ohm wire-wound variable resistance.
T	3-1 Transformer.
V1	MH4, or any medium impedance triode.
V2	Rectifier.
RL	GPO type knife edge relay.

Construction

Though many parts for this unit can be found in the junk box, care should be taken to have good smoothing in the power supply and it is advisable to use a ceramic or frequentite valve holder for V1 to eliminate any possibility of grid leakage. Condenser C1 is placed directly at the plate of the modulator valve so that the feed line from modulator to voice-control unit only carries audio voltage.

Setting Up

Standing current is adjusted to approximately 8 mA and the relay is set to operate at from 6 to 7 mA; this gives a good swing range from zero to actuating current for any current fluctuations encountered under speech conditions.

If it is intended to use a loud-speaker for reception of the incoming signal it will be necessary to place the speaker at a distance from the microphone to avoid the possibility of the incoming signal operating the control unit and switching on the transmitter.

When working voice control with another station with similar equipment, R2 should be adjusted to give a short delay, so that when there is a slight pause in speech the transmitter will go off and the other station can break in immediately, as in normal conversation.

It is possible with the aid of a VFO unit for several stations to QSY to a common frequency and a multiple QSO can take place using only one channel.



TO INTENDING CONTRIBUTORS

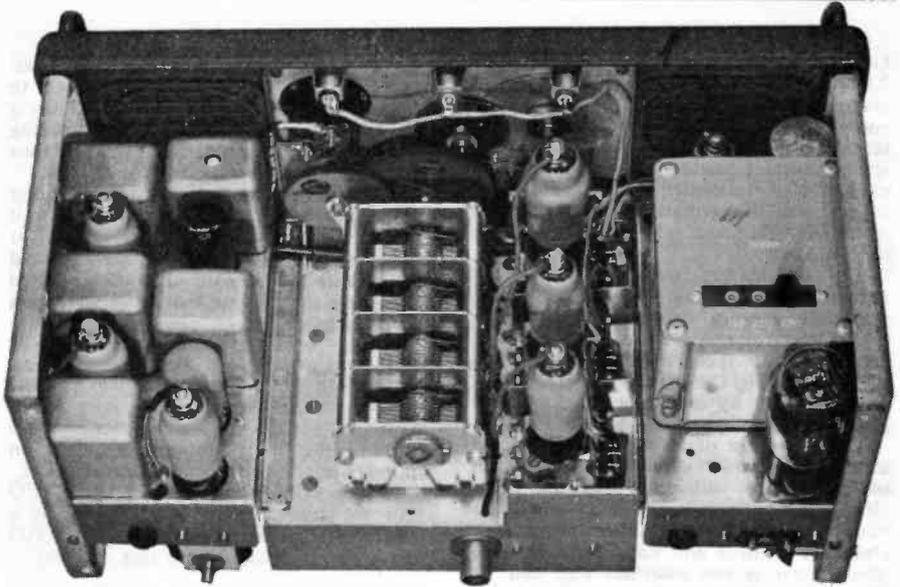
We are always glad to see articles on subjects of Amateur Radio interest. All material accepted is paid for at good rates and a note on how to submit articles appears every month on the Contents page.

Contributors can best help themselves, and us, by preparing their material in the form in which they would expect to see it in print. This involves a close study of the *Magazine*, and careful attention to such points as permitted abbreviations, the use of sub-headings, the setting out of tables, and sequence in laying out an article.

Particular care should be given to drawings and diagrams, which *must* be accurate in every detail and conform as nearly as possible to *Magazine* conventions; they need not be copper-plate, as all diagrams are re-drawn by our draughtsman.

The Editor is always pleased to consider ideas for articles, but as a general rule is not prepared to suggest subjects to aspiring contributors unless they have already appeared in the *Magazine* or are otherwise known as writers in the field of Amateur Radio.

The Short Wave Magazine circulates in more than Twenty Countries



The Eddystone 504

Magazine Test Report

Over a period of some weeks, we have been able to run comprehensive tests on the new 9-valve Eddystone Type 504 Receiver. The notes which follow cover our experiences and the results obtained.

Circuit

The circuit arrangement is two RF stages followed by a triode-hexode frequency changer preceding two IF stages which feed the second detector-first audio-AVC stage, into a pentode output amplifier. A BFO and a noise-limiter circuit using a separate valve function at the LF end. A double-crystal switched band-pass filter is provided in the first IF stage, and an S-meter is incorporated which is permanently in circuit.

Valves used include Mullard EF39 in the RF and IF stages, ECH35 frequency changer and a 6V6 in the output.

Wave Range and Tuning

The tuning range is 580 kc to 30.5 mc, in five switched bands with a slight overlap from band to band. All five ranges are calibrated on separate scales.

Using the watch-face analogy, the tuning pointers are "hour hand" and

"second hand." The hour hand has a ratio of 140 : 1 to the "minute hand" (the main control knob) and the second hand—which is a fine tuning scale concentric with the hour hand pointer—gives a further ratio of 20 : 1 against the latter. It is thus possible to regain a setting on any band with a high degree of accuracy by having noted the hour and second hand readings. This is mechanical band-spread at its best.

Construction

The photographs herewith give a good idea of the general mechanical design. The set is extremely well and very ruggedly constructed. The tuning pack forms a separate unit with respect to the rest of the chassis; the coil assembly is contained in a heavy cast aluminium shell, over which are mounted the four-gang main tuning condenser and the valves on the input side.

The panel layout is sensible and pleasing, the finish overall being grey with black knobs and chromed lifting grips.

Figures

The claimed performance is indicated by the following figures: Selectivity,

crystal out, 30 dB down at 5 kc off resonance; crystal in, 30 dB down at 500 cycles off tune and 50 dB down at 2 kc off.

The image ratio is given as 35 dB down at 20 mc and 75 dB down at 2 mc.

Sensitivity is in the ratio of 2 microvolts input for 50 milliwatts output. The obtainable audio frequency output is in excess of 3,000 milliwatts.

Performance

So far as we were concerned, the receiver was tested mainly on the amateur bands 1.8 to 28 mc.

On all bands, the tuning was found to be smooth and accurate, and dial calibration good enough for a noted frequency to be refound with certainty. The actual calibration was good, though in the set we had it was a little high on 28 mc, as checked against a 100 kc multivibrator.

It is not possible to give any satisfactory measure of the spread on the various bands, since this depends entirely upon practice in the reading of the two tuning scales. Though rather sharp on 28 mc, the tuning of the weakest audible signal with the crystal in was quite easy.

The sensitivity and selectivity obtained on test agreed very closely with the figures given above, and second-channel interference was virtually negligible.

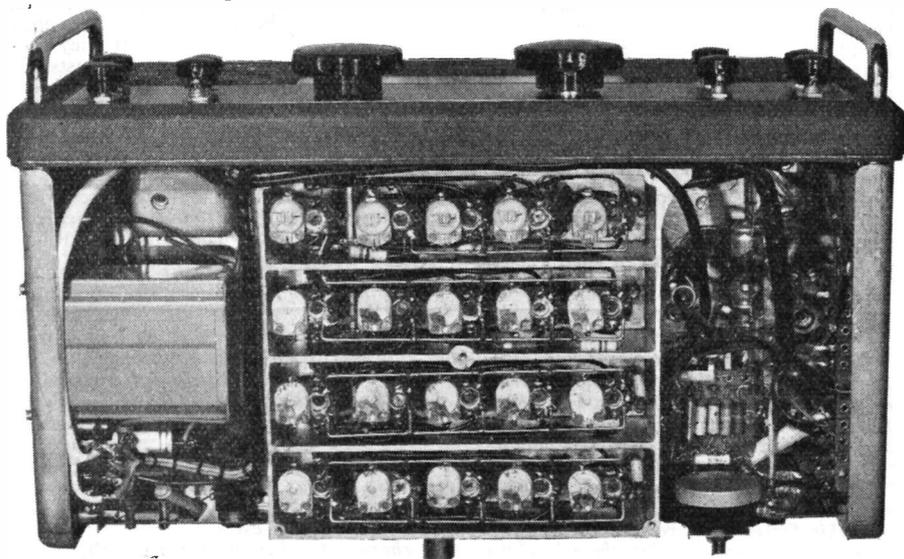
All controls were quiet and smooth and

the S-meter provided an accurate visual tuning indication for telephony reception. Operated in the usual manner for amateur band reception—RF gain right up and audio gain down—the receiver was reasonably quiet having regard to its sensitivity and the noise-limiter dealt successfully with static peaks, car ignition interference and the like.

Headphone reception was accompanied by only the faintest background hum, though most of our reception was done on the neat external speaker provided, which matches the receiver in appearance.

We used the set on several aerials, by far the best results being obtained on 14 mc with a doublet cut for the band. But like all modern high-gain superhets, the 504 also worked well with a few feet of wire lying on the floor, with which many 14 mc DX 'phones could be brought up to good speaker strength—though this is not to say that the set need not be provided with a good aerial if the best results are to be obtained.

Reception of broadcast stations, which we did not attempt to log or classify, seemed uniformly good throughout the whole tuning range. The AVC action maintained level output over wide carrier variations and it was possible to bring an SI broadcaster up to readable strength on the speaker.



In the sub-space, showing the assembly of the tuning unit, which is built into a cast aluminium chassis

DX COMMENTARY

ON CALLS HEARD, WORKED & QSL'd

As 14 mc is bearing the major load of amateur signals at the present time, this month's Commentary will deal largely with operation on it. We do urge that you spread yourselves over the band a bit at week-ends and at least carry out transmitter testing on 1.8, 7 and 28 mc. The going must be very hard at times for the 10-25 watt man with no beams!

We would like to emphasise most strongly that no 'phone operation at all should be attempted between 14,100-14,150 kc. Apart from any other consideration, you will only be greatly troubled by masses of CW, and from the key man's point of view you will be an abomination. Therefore, we repeat last month's advice. If you want to work W/VE on 'phone, choose a frequency between 14,150-14,200; otherwise, move into the 14,200-14,300 kc area, but *not* when the W's are coming through. There are many evenings when only Central and South Americans are heard. Experience has shown that they will receive you well if you work in the American 'phone portion, as they also will probably not be able to hear W's when the latter are inaudible over here. Similarly, with Asians and VK's. Experience will show the best times to work between 14,200-14,300 kc.

But please do not use 'phone in the first 50 kc on the LF side of the band. This is for CW *only*. When the band expands, the W's propose to fill from 14,200 to 14,400 kc with their 'phones. We suggest that G 'phones then operate in 14,100-14,200 kc, leaving a slice 100 kc

By H. A. M. WHYTE (G6WY)

wide (14,000-14,100) absolutely free for CW operation. We are confident that if this simple plan is followed it will be possible for everyone to obtain the maximum use of the band.

Off Frequency Operation

Now a word about human weaknesses! It was to be expected that the VFO boys would fall into temptation and just slip out of the band for "a short call" when attractive DX was consistently outside our limits. Not much notice would have been taken if the straying had been confined to a few kc, because most amateurs cannot measure frequency to within 2 kc or so at 14 mc. But this off frequency racket is not a 5 kc business, but a 50 kc deliberate infringement. The number and quantity of well-known and lesser-known G's heard operating between 14,050-14,100 kc is alarming, to say the least. The only way to stop it is to ask the GPO to check a few off frequency offenders and warn them that they will be in trouble if the practice persists. It is really a matter of fair play and support for the authorities, as things are at the moment.

DX Century

There is no doubt that it is very fascinating to see how many countries one can work or hear. The American Radio Relay League instituted the "DX Cen-

(Readers will share our profound regret that this is G6WY's last contribution to the Magazine. Ham Whyte is shortly leaving the country to settle in Canada with his family; he hopes to be on the air from Toronto with a VE3 call, and will be looking for us on the DX bands. We know that all readers of this column will join us in wishing him happiness and good fortune in his new surroundings.)

We are glad to be able to announce that L. H. Thomas, M.B.E. (G6QB) will take over "DX Commentary," starting with our next issue. He has had many years' practical experience of Amateur Radio in general and DX working in particular, so we are sure that this feature will remain as interesting and stimulating as ever.

With the change of pilot, there is also a slight change of policy in regard to "DX Commentary." This is explained in the panel appearing in the body of the article.—Ed.)

ture Club" before the war, open to an amateur who could furnish written confirmation of having held two-way communication with 100 countries. This proved very popular, but the ARRL produced a country counting list without seeking advice from the rest of the world. This was a pity, because there were a number of anomalies, such as making Baluchistan a separate country from India, while Newfoundland and Labrador counted as one instead of two. In all reasonableness, if Australia and Tasmania count separately, then surely the mainland part of Labrador should be separate from the island of Newfoundland, which has an independent political constitution. At least, that is how we view it!

The competition for the "100 Worked" is strong, and it appears that G6BW (Churchill, Som.) must be leading with

Between 1030 and 1205 GMT he worked VU2WP, VQ4MNS, VK5NR, W2KNQ, PY2QK and G's. G500 (Kenton, Mddx.) heard on the same day the following 28 mc DX: YI2CA, ZS's, VQ2PL, OQ5AE, 5BL, SU1RD, ZB2A, PY2AJ, XZ2DN and many Europeans, including OK1AW and SP1HY. LU and VQ4 were heard the day before. By the time this is in print we expect there will be much greater activity on 28 mc. N.A. Phelps (London, N.10) has started something, with his HAC in 3 minutes on July 18 between 1942-1945. These were the ones he heard—OQ5LL, VE1OK, VK5WA, OA4U, UA3CA, VU2AA—all on 14 mc. Do you remember that before the war we used to see how many we could hear in one day?

L. N. Goldsbrough (Wirral) raises a number of interesting points. He reports hearing OX1A, EL4A, ZD8A, PZ1GB

ON THE AMATEUR BANDS

96 worked on 'phone by the end of July. We know G2PL (Wallington) has a full 92, while your present contributor has reached a humble 75; G6QB (Bexhill) is around the 80 mark.

This is all very interesting, but will the confirmations be forthcoming? The necessity for the DX to QSL in order to prove the contacts has always been the essential factor.

14 mc DX

G6BW has added ZP8AC, VS1BA, VS9AP (Aden) and EP1C. He suggests, very sensibly, that 'phone operators should give their own calls frequently when calling another station. This obviates the difficulty so frequently experienced of the call sign of the calling station being lost if only signed right at the end. He recommends further that we always listen carefully around our own frequency before calling CQ. G6BW uses 150 watts and a 4-element rotary beam.

G2VV (Hampton) is also busy on the DX bands; he had a real thrill when he hooked OB4SV, Benham Guta, 5, Sarawak, on 14,300 kc, who is only on the air till September 12. G2VV uses 60 watts to a single 807 and an end-on 66-ft. aerial for 14 and 28 mc.

WAC and HAC

SUIKE surprised himself by making WAC 'phone on 28 mc on July 31!

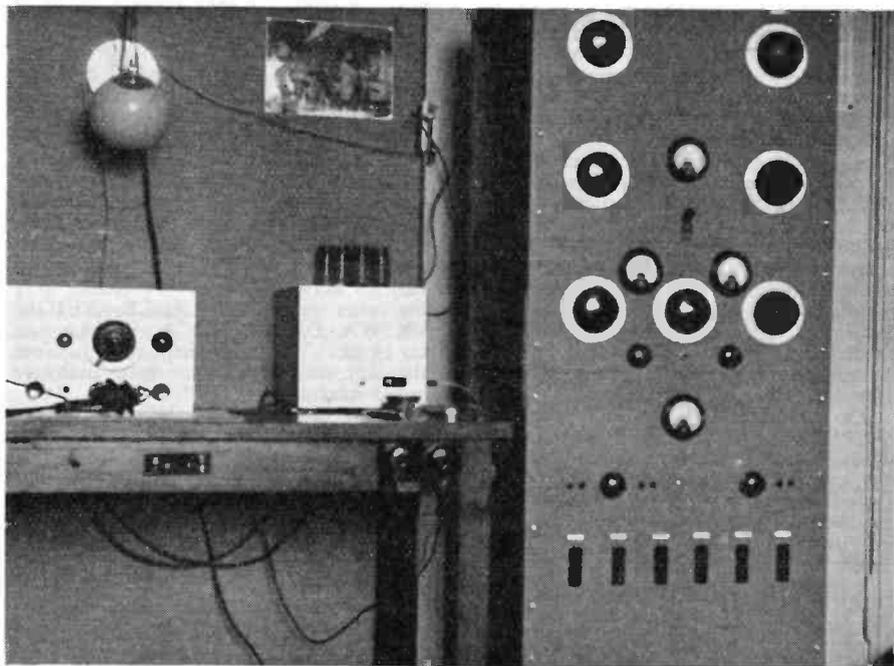
PZ1A, CE1BM (Box 200, Iquique), VS1BD (S/Ldr Dormer, Sigs. Branch, HQ Air Command, Singapore), and VU8GA (Technical High School, Calcutta). He uses an R.1155 receiver, which produces G's on 6.2 mc. We hope they are images! On one of his other points, the answer is that the ARRL Country List gives Leeward and Windward Island groups as two separate countries. The individual islands of Antigua, St. Kitts and Monserrat form part of the Island groups. We think this is fair.

Overseas News

G. Denby, out in Palestine, reports the following G's on 14 mc: G2BJW, 2FQH, 2HD, 2HFO, 2XN, 4HJ, 4IN, 4OI, 5BY, 5DV, 5FF, 5FK, 5HB, 5RV, 6BF, 6NB, 6OS, 8DL, 8KP, 8VG, all on CW, and G2PU on 'phone. He is listening on 1.8 mc; reports from Asia on 1.8 would be most interesting.

BSWL-2649 (Tafo, Gold Coast) sends in two very well compiled logs and has also been listening on 7 mc, on which band he has received VE3, W1, 2, 5, 6, 8, 9, XE, as well as G3HK and G8PQ.

VU2AD in Mhow writes to say that the following VUs are known to be active: VU2LR (RAF Palam, near New Delhi), VU2WP (New Delhi—QSL to Kirkland Farm, Denny, Stirlingshire, Scotland), VU2BC (Delhi), and VU2WM.



General view of OZ7HL, Copenhagen

QSLs for VU2AD should go to 3 Betchworth Av., Erleigh, nr, Reading, and for VU2AB to L/Sgt K. Mather, Signal Training Centre (British), Mhow, India Command. AC4YN is now active on both 'phone and CW in Lhasa, Tibet. BRS-10621, in camp in Kangra Valley, Punjab, gives some Asian QRA's: XZ2CN, Burma Ground Signals, Tx Sect., Rangoon, SEAC.; VS1BF, Major Finlay, ALF Sigs., Singapore, SEAC; VS1BV, Singapore Air Traffic Centre Signals, RAF, SEAC Air Forces; G2AJ and G5BJ were heard from England.

ZB2A belongs to S/Ldr Butterworth (ex-G8BI), but there are five operators. Some of these hope to receive their own individual call signs to increase the activity on the Rock. ZB2A expects to be very active on 14 mc and asks for SWL reports.

At Sea

Lt. D. Aldwell, on board HMS *Colossus*, listens on an Admiralty B28 Rx. He was on 1.8 mc through terrific QRN when at Gibraltar on July 17, and heard G2SA, G5MU, G6AG, G2BJY (or 2BPY) and

G2CVY (or 2CVX). Lt. Aldwell asks if ZD8A is authentic. He was before the war, and if it is the same operator, he is quite genuine. PK6TC is in Dutch New Guinea and his QRA was published last month. We know nothing of VU9RM heard on 7 mc but VU2AD tells us that VU5AG sounds very 'phony! ZC1AR is apparently with the British Army on the Palestine-Transjordan frontier. He has to make all his own QSL cards. No wonder we have not yet obtained his full QTH! Lt. Aldwell also logged VS9AP in Aden, and HZ1AA on 14 mc CW believed to be genuine in Hedjaz.

QRA or QTH?

Last month it was mentioned that we could not decide which was preferable—QRA or QTH. We are reminded by G4PR (Croydon Airport) that QRA means "What is the name of your station?" in the sense of callsign, whereas QTH stands for "What is the position of your station in longitude or latitude?" in the sense of exact location. Though among amateurs QRA has become hallowed by usage for location and

address, we agree that it appears far more logical to use QTH. It was only in 1938 that, in the field of Amateur Radio, QTH began to be used for location.

More QTH's

Does anyone know if ZD7AD, giving his QTH as Gildona, St. Helena, is genuine? We heard VU2PR working him, but could not get the ZD7. Details of PK1RW and PK5LK will also be welcomed. Here are some addresses: ET3Y, Box 1191, Addis Ababa; VU2AK, Box 54, PCH GHQ, New Delhi; VS1BZ, TRE, No. 2 BS & RU, SEAC Air Forces, Singapore; W6VKV/16, US Army Station, Asmara, Eritrea; SV5EC (operated by SV1EC on the Island of Rhodes for two days, August 10-11), IICA, Radio Pola, Pola, Istria; XAEF, RAF Augusta, Sicily (QSL to APO S.497, CMF); ZP8AC, W. H. Chippendale, Casilla de Correo 404, Asuncion, Paraguay; VS7ES, 5 Elibank Rd., Havelock Town, Colombo; VS7JX, c/o GPO, Colombo; EL4A, APO 605, c/o PM, Miami, Fla., or direct to Robertsport, Liberia; EQ4DC, QSL via W9RRT, 3149, N. 26 St., Milwaukee, Wis.; ZC4NX, Cyprus, QSL to Box 360, Cairo; YI2CA, RAF Habbaniya, Iraq; OQ5BR, Counotte, Telecom., Leopoldville; VO6G, c/o Postmaster,

Y' KIND ATTENTION, PLEASE!

As noted at the head of this article, G6QB becomes the new contributor of "DX Commentary," starting with the October number.

Elsewhere in this issue we announce our new companion publication, "The Short Wave Listener," which is to edge into view on October 17. It is proposed that the SWL reports discussing DX on the amateur bands be covered by the DX Scribe (of pre-war Magazine fame) in his "Have You Heard . . ." in the new paper. All those SWL readers who have for so long supported "DX Commentary" here are asked to address their future correspondence and calls heard lists to the DX Scribe, who will be able to give them more space in the "Short Wave Listener." Mail for his first "Have You Heard . . ." article should reach him by September 30, addressed The DX Scribe, c/o "The Short Wave Listener," 49 Victoria Street, London, S.W.1.

As to "DX Commentary" in the Magazine, it is intended that it should continue in its present form, but covering amateur band DX working from the point of view only of the holder of a full call sign. No SWL reports will in future be included in "DX Commentary."

Transmitting readers are asked to send items for this column to L. H. Thomas, G6QB, c/o "The Short Wave Magazine," 49 Victoria Street, London, S.W.1, to reach him as early as possible in the month.

DX FORECAST FOR SEPTEMBER 1946 (All times GMT)

	7 mc	14 mc	28 mc
NORTH AMERICA:			
Eastern and Central USA, Canada Newfoundland, etc. . .	2100-0700	1800-0800	1300-2000
Western States, USA, Canada	0500-0700	1700-1900	1700-1900
CENTRAL & SOUTH AMERICA	2200-0700	0300-0800 2000-0800	0900-2000
AFRICA:			
North of Cancer	1400-0900	All day	0800-1800
South of Cancer	1900-0600	1700-2100	0700-1900
ASIA:			
West of 75°E.	1800-0400	All day	0700-1800
East of 75°E.	1900-0600	1500-1900	0700-1500
OCEANIA:			
VK, ZL	0500-0800	0600-0900 1700-1900	0800-1200
PK, KA, KG, VK6 and Pacific Islands	2100-0800	1500-2000	0700-1300

NOTE.—The times given above are the most likely periods during which signals may be expected from the parts of the world indicated. Under unusual conditions, signals may be heard outside these times.

Goose Bay, Labrador; VP9F, Richard Fox, St. David's Island, Bermuda. In reply to BRS-7594 (Yeovil), we await details of QTH of OX1AA (known to be on American Airlines Base) and OX2MJ. C1PL and C1MP give P.O. Box 409, Shanghai; RN1SX is believed to operate on board HMS *Sussex*, at least BSWL-1915 (Huddersfield) thinks so; G6CL (London) had an interesting contact with VE8MJ in Baffin Land. Only one mail a year is received, so don't be in a hurry for your QSL!

Set Listening Periods—September

September 14, 1700-2000 BST—14 mc.

September 15, 1400-1800 BST—28 mc.

Will readers please note that, in accordance with the announcement on p. 425, logs sent in for these SLP's will be considered for publication in the first issue of our new publication *The Short Wave Listener*, due out on October 17. They should therefore be addressed to the DX Scribe, at our offices, 49 Victoria Street,

London, S.W.1, to reach him not later than September 21.

The logs for the August SLP's are being held over this month due to the fact that the bulk of them were received too late for a fair selection to be made. This is partly because we had to clear for press one day earlier for this month's issue.

Acknowledgments to: BSWL-804 (Yeovil), BSWL-1662 (Rotherham), O. Mason (Southend-on-Sea), A. E. Hardman (Manchester), W. A. Sparks (Warrington), BSWL-1206 (Leeds), G. H. Tagg (Stoke-on-Trent) for their logs and letters.

Farewell Note

This is my last regular contribution to the *Magazine*, as I hope shortly to be on the air as VE3WY, for which call application is being made. I shall look forward to reading "DX Commentary" every month, and will always be on the look out for QSO's with G's. 73 es DX G6WY SK GB.

WITHOUT COMMENT

We were a little surprised to have a letter from Messrs. Heaviside, Layer Radio and Motor Part Equipment Co., Ltd. ("Builders of anything from a Pro-Cathedral to a Pre-Fab") offering spares for G9BF's receiver, described in the last issue. It seems that they can still do .001 μ F variable condensers (with solid ebonite end-plates) and slab-wound coils for the Eiffel Tower concerts on 2,000 metres.

NEWS FROM HOLLAND

The PA's are recovering slowly from the loss of their equipment under the German occupation, and are active on all the bands, except 1.8 mc, for which we are licensed. Compensation is to be paid for impounded apparatus, though this does not of itself produce parts, which are still almost unobtainable. As a result of the recent examinations, a number of new PA's have been licensed. According to PAØAD, all Dutch amateurs receive "an extra ration of electricity."

OBTAINING YOUR COPY

Due to current difficulties of supply and distribution, which apply equally to all publications while paper remains closely controlled, our wholesalers cannot guarantee even and regular supplies of the *Magazine* throughout the country. We only retain sufficient copies for posting to the direct subscribers, with a very small margin for counter-sales.

The point of all this is that our general correspondence makes it abundantly clear that many potential regular readers are unable to get news-stand copies because we cannot meet all trade orders in full. Most have to be cut considerably.

As we are anxious that the *Magazine* should reach everyone to whom it is of value and interest, the solution is to place a direct subscription order with us. This costs you twenty shillings and will bring a copy by post each month for twelve months, starting with the October issue; direct subscribers' copies are posted *en bloc* on the day of publication. Write the Circulation Manager, *Short Wave Magazine*, 49 Victoria Street, London, S.W.1.

Mention the Magazine when Writing to Advertisers—It Helps You, Helps Them and Helps Us

CALLS HEARD

Please arrange all logs strictly in the form given here, in numerical and alphabetical order and on separate sheets under appropriate band headings, with call sign or SWL number and address on each sheet.

OVERSEAS—GENERAL

14 mc 'Phone

Lieut. R. S. Craig, 10 Gurkha Rifles, Alhilar Camp, Kangra Valley, Punjab, India Command.

AC4YN, D2KN, 2KW, 2VB, 4ABJ, 4AKQ, 4ANR, 400U, F8MX, 8ZN, G2IG, 2MI, 2PU, 2ZB, 3HJ, 3MK, 3ZI, 4KG, 5KF, 5NO, 5PW, 6XR, 8AX, 8LP, HB9ET, 11EP, 1FR, 1LW, 1NQ, J9AAR, PA0DR, OKB, SM5ZK, VS1BD, 1BV, 1BZ, 2BA, 2BF, 4JH, 7PW, VU2AD, 2AJ, 2AW, W1LY/KAW4HAN, W5BKA/KH6, W6COA/J3, W9GIG/J, W9VIP/J2, W9WBM/J, XADC, ADP, ADV, XUIYY, 1YO. All heard 1330-2200 GMT August 5.

14 mc CW and 'Phone

BSWL-2649, West African Cacao Research Institute, P.O. Box 8 Tafo, Gold Coast Colony.

G2ADL (32), 2AK (54), 2AKY (44), 2AMG (44), 2BC (44), 2BCX (55), 2BJY (44), 2BY (43), 2CLL (33), 2CXQ (43), 2DU (55), 2FXQ (43), 2IQ (55), 2MD (54), 2OU (448), 2PT (347), 2QO (55), 2TA (33), 2TT (44), 2VD (558), 2VV (43), 3BU (227, 338), 3DO (33), 3MZ (44), 3SU (558), 3VA (43), 4AR (44), 4IN (42), 5BJ (56), 5GX (55), 5HB (558), 5HG (547), 5IK- (56), 5IW (54), 5LI (55), 5LP (558), 5ND (56), 5OB (54), 5PR (43), 5QA (43), 5RY (43), 5UI (45), 5VH (45), 5VM (44), 5YV (54), 6AG (45), 6BF (327), 6BK (45), 6CJ (54), 6CL (55), 6CW (447, 449), 6FG (45), 6GB (43), 6GM (44), 6HF (43), 6KS (564, 449), 6MC (568), 6NB (53), 6OS (54), 6RC (43), 6RS (33), 6VX (44), 6WX (33), 6WY (55), 6XT (558), 6ZQ (44), 8AB/XACP (56), 8DD (44), 8DN (448), 8FF (54), 8GG (43), 8GO (32), 8IP (54), 8KP (448), 8LV (44), 8ON (44), 8PB (54), 8RL (438), 8RN (35), 8TC (55), 8VB (43), 8WL (45), 8M5BA (34), GWSVX (45).

[RS values in brackets; July 8-July 31.]

OK1AW, Alois Weirauch, Mestek Kralove, 9, Czechoslovakia.

July 7 to 30

14 mc CW

CE3AD, 3AJ, CN8MZ, EL4A, FA8KW, HCIFG, HK4AF, K4DUZ, KA1SS, KF6SJJ, KP4KD, LU1EK, 8AK, OA4AO, 4AX, OQ4AW, OZ3I, PY1ABS, 1AJ, 1BW, 1GI, 2KT, 2OE, 6AG, SV1EC, UA1AA, 3AW, VE1PO, VK2VN, 3KX, 4ACX, VO1O, YSAJH, 7EA, W1AQT, 1FH, 1KSC, 1LA, 2CYN, 2DNW, 2EL, 3AOJ, 4HBT, 5DQD, 6GRL, 6KWT, 8ADG, 9PK, 0NVG/KG6, XUI1P, ZC5P, ZL2GO, 4AO, 4BB.

14 mc 'Phone

CO2MA, D4DK, EA1D, EPIC, F8QD, FT4AC, G2PU, 4KY, 8IG, HB9FI, IICA, LU6AJ, PY2HV, TI2OA, W1IOY, 3EO, ZC1AR.

28 mc CW

EI9J, F8EX, 8JT, 8K, 8OB, FM4AC, G2HCL, 2LU, 2Y, 3ADN, 3CK, 3WL, 4AU, 4GH, 4CR, 5BD, 5LB, 5OQ, 5PF, 5VU, 6TD, 6VS, 8PB, GC8NO, G1SUR, 8LF, GM2BCM, 2CTG, 3UM, 1IKL, LU9EV, PY2HV, SV1EC, TF4A, VQ2FR, W5EP, YR5A, ZS1CX, 5CD, 5DE, 6EJ, 6ID, 6CZ.

28 mc 'Phone

F3MN, G2FOS, 3BR, SUIKE.

1.8 mc CW

D2QP, D4ALG, G2HIL, 2YU, 2CX, 2NM, 3GX, 5UM, 6TR, G13JP, GM3VB, OZ1W.

It is regretted that for the reason given on page 426, August SLP logs do not appear this month. We apologise to those readers who may be disappointed, but most of the logs arrived too late for printing.

FIVE METRES

G6SL, Eddystone Works, Alvechurch Road, West Heath, Birmingham, 31.

G2AK, 2BMZ*, 2MR, 2XC*, 2ZV, 3IS, 5BY*, 5LJ, 5TX*, 5VM, 6CW, 6LK*, 8UZ. Heard or worked, July 23; over 100 miles.*

G8VN, 7 Lawrence Road, Eastlands, Rugby, Warwickshire.

G2ZV, 3IX, 5MA, 5TX, 6LK, 6SL, 6YQ. Heard 2300-2359 July 23.

G5BY, Resthaven Hotel, Thurlestone, Nr. Kingsbridge, S. Devon.

G2AK, 2MV, 2XC, 2ZV, 3CQ, 5DZ, 5MA, 5MQ, 6CW, 6KB, 6LK, 6SL, 8RS, 8UZ, F3JB, F8BC, F8RSN. All DX worked July 26-August 17.

GENERAL

14 mc CW

N. A. Phelps, Fortis Green, London, N.10.

K6CGK, 1QN, W7EGN/KL7, VE6LX, 7AEC, 7AEV, 7GI, 7LU, 7ZO, 8MK, W6AO, 6AOW, 6BXL, 6ITA, 6KIP, 6KRL, 6KWA, 6LHN, 6MJB, 6QYU, 6RBO, 6RDR, 6SA, 6SAI, 6SC, 6TEA, 6TT, 6VKY, 6EBC/7, 7ABB, 7ALB, 7ALX, 7AOO, 7DYQ, 7FHE, 7GGE, 7OL, 7VY, VK2CX, 2ADE, 2AHX, 2AJX, 2HZ, 2MI, 2QG, 2RA, 2TR, 3AMP, 3BC, 3CP, 3HG, 3JA, 3JE, 3KX, 3MC, 3NC, 3NK, 3OG, 3TD, 3TM, 3UH, 3VU, 3WL, 3YL, 4DX, 4HR, 4JO, 5BC, 5JD, 5JU, 5WA, 7CW, 7LJ, ZLIDI, 1JC, 2BU, 2FA, 2FF, 2GL, 2GO, 2QM, 3AB, 3GU, 3IS, 3JD, 4A O, 4AR, 4BN, 4BQ, 4FK, 4GS.

BSWL-538, 38 Bridport Road, Dorchester, Dorset.

CE3AJ, 3CT, CM2HP, CN8L, CX3BL, 4CZ, EA9AI, EL4A, HCIFG, HH5PA, K6CGK, 6IQN, 6SDM, KP4AZ, LU1CA, 6DJK, OQ6AV, 5BD, 5DA, 5LL, TF5Z, VE3AAZ, 3BCO, 4RO, 7ZM, 8MG, VK2ADE, 2AM, 2DI, 2JX, 2NP, 2TR, 2VD, 2WE, 3HG, 3MC, 3VJ, 4EL, 5BC, VP4TR, VS1BU, 1QB, VU2LR, W4BVX, 4ITR, 5CUH, 5LP, 6ANN, 6ENV, 6ERX, 6GRL, 6KIP, 6MAW, 6PFD, 6VBV, 7DZL, 7FD, 7GGE, 8YPH, 9RMY, XE1CO, ZC1AR, ZD8A, ZL1MR, 3IS, 4BB. All July 14 to August 14 on O-V-1 Rx.

THE SHORT WAVE LISTENER

Statement of Policy

THE Editorial announcement in this issue sets out the reasons for the decision to publish a new monthly magazine—*The Short Wave Listener*.

As explained there and as its name implies, *The Short Wave Listener* will be the companion journal to this *Magazine* and will cater primarily for the large body of enthusiasts who—for the moment, at any rate—are mainly interested in the receiving side of short wave radio and yet have no medium concerned solely with their needs.

This is not to imply that the *Magazine* itself will cease to be of interest to the SWL. What it does mean is that the SWL will now have a publication biased on his side, in the same way that the *Magazine* is of direct interest primarily to the holder of a transmitting licence—the latter also will benefit by the advent of the new publication by reason of the fact that the *Magazine* will have a certain amount of extra space for additional technical and constructional articles.

The first issue of *The Short Wave Listener* is due to appear on October 17, and thereafter on the third Thursday of each month.

Short Wave Listener Features

The principal regular articles in *The Short Wave Listener* will be "Have You Heard . . . ?" by The DX Scribe (of pre-war *Magazine* fame) and "DX Broadcast," by R. H. Greenland.

Before the War, "Have You Heard . . . ?" was our particular feature for the broadcast listener. It will now be used as the title for the monthly DX article on *amateur* band reception only, and will be contributed by a writer of great experience in these matters.

On the other hand, R. H. Greenland's "DX Broadcast" will cover long-distance listening on the short wave broadcasters all over the world, with accurate and up-to-date information as to frequencies, schedules and identification characteristics—all on the general lines of the late F. A. Beane's excellent contributions to the pre-war *Short Wave Magazine*.

The next feature of general interest will be a greatly enlarged "Calls Heard" department, covering all amateur bands (except 58 mc) and incorporating a special section to record the logging prowess of the SW BCL's. "Calls Heard," in the *Magazine* itself will be cut to include only 58 mc, 1.8 mc logs of exceptional interest, and overseas readers' logs of G calls heard on any band, as considered suitable for publication. Similarly, SLP activities will be transferred from "DX Commentary" in the *Magazine* to "Have You Heard . . . ?" in *The Short Wave Listener*. The monthly DX forecast will appear in both features.

The net effect will be, therefore, that "DX Commentary" will become of interest primarily to transmitters keen on working DX, and "Have You Heard . . . ?" to SWLs whose interest is, of course, mainly DX reception. Moreover, it will be possible to devote a good deal more space in *The Short Wave Listener* to SWL DX doings than it has been in the *Magazine's* "DX Commentary," which will be shortened to a maximum of four pages, as against the present five and sometimes six.

Constructional articles in the new paper will at first be concerned entirely with short wave reception. Later, it is planned to run a series of articles dealing with the approach to Amateur Radio in the wider sense. Other articles will discuss such matters as QSL'ing, the use of codes, learning Morse, and, in fact, all those subjects upon which the keen SWL requires information in order to get the most out of his hobby.

G9BF will perform remain in the *Magazine*, but it seems he has a young brother, MLCCBI-001, who is an ardent card collector and apparently the only member of a society calling itself the "League of Card Collectors of the British Isles"—so we may be afflicted with him in *The Short Wave Listener*.

More serious (and useful) contributions on subjects of SWL interest will be welcomed by the Editorial staff of *The Short Wave Listener*. The closing date for copy for the first (October) issue is September 30. Good rates will be paid for material accepted as suitable for publication.

The subscription to *The Short Wave Listener* is 16s. post free, and subscribers will have their copies sent them direct on publishing day (the third Thursday in the month) starting on October 17.

Driving on the Cathode

Short Note on a Useful Circuit

By K. W. LAWSON (G3AHJ)

In the construction of economical and efficient VHF equipment, it is always essential to keep losses to a minimum.

One arrangement which is well worth more attention is the cathode-drive or inverted triode arrangement. It will work well with most triodes, either directly or indirectly-heated, and RF output can be obtained at frequencies at least as high as 150 mc.

Fig. 1 shows the basic circuit, and Fig. 2 a practical derivative of it. The input capacity of the valve, which is normally between grid and cathode, is now between cathode and earth, though still effectively cathode-grid but without the feedback due to anode-grid capacity. RF chokes are included in the filament (or heater) leads in order to minimise input losses caused by the capacity between the LT supply leads and earth.

No neutralisation is necessary, which is an important advantage, and with proper attention to layout, improved RF output can be obtained in comparison with the conventional arrangements.

Those working on 28, and particularly 58 mc, are urged to do a little experimental work along the lines suggested. They will find themselves amply repaid by the results.

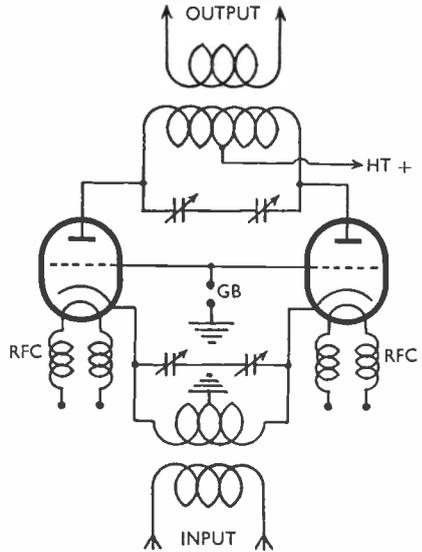


Fig. 1. Basic circuit for cathode drive RF amplifier

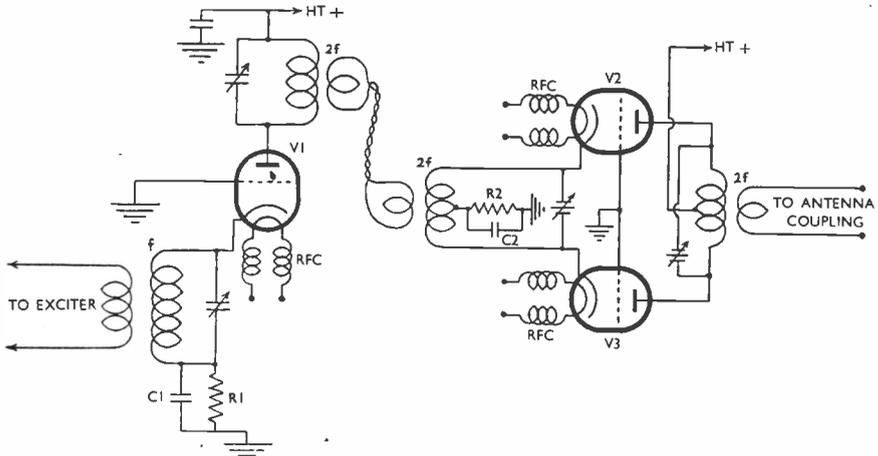


Fig. 2. A practical cathode-drive circuit using two stages. V1 is the doubler—say, from 29 to 58 mc—and V2, V3, comprise a push-pull amplifier, using TZ05-20's or a single DET-19. R1, R2 are the self-bias resistors and C1, C2, the bias resistor-by-pass condensers.

NEW QRA's

Only those which have changed since the appearance of the September, 1939, issue of the Call Book or were not included in it for fully licensed operation, or are now licensed for the first time, can be published here. All that do appear in this column will automatically be included in the next Call Book, now in preparation. The number of QRAs we can print each month depends upon space available. QRAs are inserted as they are received, up to the limit of the space allowance. Please write clearly and address to QRA Section.

- | | | | |
|--------|---|--------|---|
| G2AWT | R. H. Groome, BM/1154, London, W.C.1. (Station at Welwyn Garden City, Heris.) | G3ADW | G. W. Howes, 14 Sinhurst Road, Camberley, Surrey. |
| G2BHR | P. L. Stiles, 20 Temple Sheen Road, East Sheen, London, S.W.14. | G3AEM | E. C. Wellington, 118 Pilton Street, Barnstaple, N. Devon. |
| G2CJL | J. R. Lane, Station Road, Cheddar, Somerset. | G3AEN | A. G. Witham, 15 Inglewood Road, Barnehurst, Bexleyheath, Kent. |
| G2CSV | S. Parker, 5 Coast Road, Redcar, Yorks. | G3AEQ | R. H. M. Peach, 38 Cascade Avenue, Muswell Hill, London, N.10. (Tel.: TUDor 5267.) |
| G2DAN | S. E. Whiteley, Dalbrae, Beacon Hill, Rolleston, Nr. Burton-on-Trent, Staffs. | G3AEZ | J. Greenwell, 7 Sondes Place Drive, Dorking, Surrey. |
| G2FBA | J. A. Hayward, 25 Walsingham Road, St. Paul's Cray, Kent. | G3AFL | W. Baker, Home Guard Signals, 4 Devon Terrace, Berwick-on-Tweed. (Tel.: Berwick 6267.) |
| G2FCC | W. Warburton, 21 Fern Terrace, Haslingden, Rossendale, Lancs. | G3AFP | L. W. Carlin, 17 Beauchief Abbey Terrace, Alfreton, Derbyshire. |
| G2FVD | K. C. F. Caton, 8, Strathmore Road, Wimbledon Park, London, S.W.19. | G3AFR | H. Bates, The Harlequin, Radcliffe-on-Trent, Nottingham. |
| G2GK | F. J. Wadman, 106 Warbro' Road, Torquay, S. Devon. | GM3AFU | R. A. Bottomley, 68 Barassie Street, Troon, Ayrshire, Scotland. |
| G2GZ | L. H. Shersby, 155 Grand Drive, Raynes Park, London, S.W.20. | GW3VB | P. W. Gammon, Carnau, Llanthony, Abergavenny, Mon. (QTH Brecs.) |
| G2HLT | N. H. Lowden, 98 King's Road, Belfast, Northern Ireland. | GM4HZ | E. Beale, Ministry of Civil Aviation, Air Traffic Control Station, Dyce Airfield, Aberdeen. |
| G2HOX | F. J. T. Tuckfield, 12 Quaves Road, Slough, Bucks. | G4OQ | G. C. Lidstone, The Frigate, Sea Avenue, Rustington, Sussex. |
| G2HPF | H. Lowe, 29 Molrams Lane, Great Baddow, Essex. | G4OY | G. Beaumont, 43 Upper Albert Road, Sheffield, 8, Yorks. (Tel.: Sheffield 51435.) |
| G2HX | L. O. Rogers, Bradford House, Six Ways, Barnards Green, Malvern, Worcs. (Correction). | G5GG | L. G. Young, 25 Fossdale Road, Sheffield, 7. (Tel.: Sheffield 51897.) |
| G2IW | G. R. Marsh, Bathwick Grange, Bath, Somerset. (Tel.: Bath 3830.) | G5NH | D. E. Pasfield, Hazelmere, St. John's Square, Daventry, Northants. |
| G3AAU | R. C. Kenny, 30 Churchbury Road, Enfield, Middlesex. (Station at Chippenham, Wilts.) | G5RN | G. E. Prance, Newburn, Mid Warberry Road, Torquay, S. Devon. (Tel.: Torquay 4154.) |
| G3ABD | G. R. Milestone, 16 Eightlands Lane, Bramley, Leeds, Yorks. | G6PN | C. A. A. Smith, 61 Overbury Road, Upper Hellesdon, Norwich, Norfolk. |
| G3ABG | C. J. Morris, D.F.M., 66 Allport Road, Cannock, Staffs. | G8AR | E. Ellis, 27 Dent Street, Folwell, Sunderland, Co. Durham. |
| G3ABJ | E. R. Coleman, 8 Cavendish Road, Brincliffe, Sheffield, 11. (Tel.: Sheffield 51832.) | G8DI | H. W. Simpson, B.Sc., 1 Meadow Lane, Liverpool, 12. |
| G3ACG | D. Hamnett, 9 Anchorsholme Lane East, Cleveleys, Blackpool, Lancs. | G8JC | J. Morris Casey, Brookhill Farm, Ladywood, Droitwich, Worcs. (Tel.: Fernhill Heath 15.) |
| G3ACK | J. W. Hogarth, 4 Fenwick Avenue, Blyth, Northumberland. (Tel.: Blyth 517.) | G8LL | H. W. Simpson, B.Sc., Rose Lane, County Secondary Schools, Liverpool, 18. |
| G3ACR | H. C. Harrison, 38 Baker Street, Stapenhill, Burton-on-Trent, Staffs. | G8PG | A. D. Taylor, 8 Grange Road, West Kirby, Cheshire. (Tel.: Haylake 174.) |
| GI3ACV | R. Gabbey, 24 Clandeboye Road, Bangor, Northern Ireland. | G8QA | Tele-Radio (1943), Ltd., 177 Edgware Road, London, W.2. (Tel.: PADDington 6166.) |
| G3ADL | E. K. Freestone, 25 Whitbread Road, Brockley, London, S.E.4. | G8TS | J. S. F. Ruddock, 1 Woodland Grove, Farnborough, Hants. |
| G3ADR | R. L. Threadingham, 223 Highland Road, Portsmouth, Hants. | | |
| G3ADV | P/O P. Jackson, 6 Granville Gardens, East Cliff, Ramsgate, Kent. | | |

100 Years of Amateur Radio

G2SU, G6NP and G8OK Make a Century

With this note appears a group photograph of three real old timers, who between them have been in, or at, Amateur Radio for a total of one hundred years.

W. Gill, G6NP, Heckmondwike, Yorks, is on the left; P. Denison, G8OK (ex-DHX, ex-G2KD), Birstall, Leeds, in the middle; and M. Eskdale, G2SU, Bradford, on the right.

The "senior member," G8OK, started in 1908. G2SU came on the air in 1911, and G6NP, the youngster on the left, in 1919. All three have been, and are still, continuously active and have between them made a large contribution to the art of Amateur Radio.

G8OK

He sat in on the first demonstrations by such pioneers of radio as Marconi himself, Duddell, Round, Lee de Forest and Poulsen, and also heard the earliest Telefunken telephony experiments in 1908.

Then, as DHX, he designed the receiver with which was achieved, in 1919, the first trans-Atlantic 200-metre reception, when American amateur 2QR was heard by one George Benzie. This was hardly credited at the time, owing to the phenomenally short wavelength employed, and led to the visit—officially sponsored by the American Radio Relay League—of an American amateur who brought his own receiver and repeated the feat from a location in Scotland. It is, incidentally, this latter reception which is widely claimed as the first short wave amateur trans-Atlantic contact; in fact, Benzie's reception on DHX's receiver preceded it by two months. The Americans, however, dispute the claim on the grounds that the reception was not verified.

In his travels about the globe as a ship's operator, G8OK has met many personalities in the world of radio, including such keen amateurs as the late Prince of Monaco and the ex-King of Siam, who, at Bangkok, came on board *incognito* for the sole purpose of talking radio with G8OK.

At present, G8OK spends most of his time on 1.8 mc, with a Franklin VFO. He is, however, equipped for all bands—7, 14, and 28 mc—but preferring experimental work, DX as such has lost much of its taste for him.

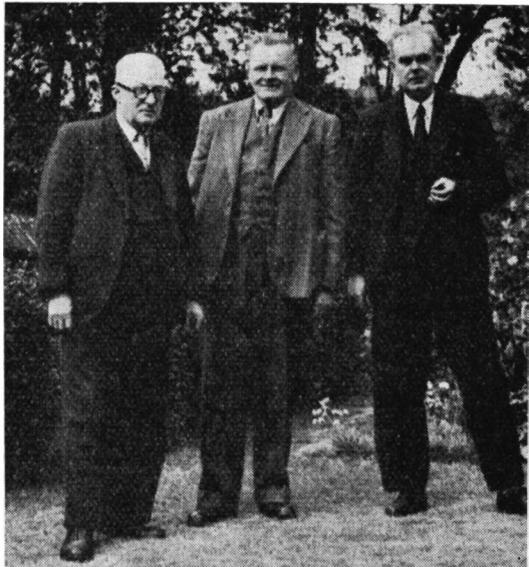
G2SU

Starting in 1911, with a spark transmitter, G2SU has been operated from the same QRA ever since. As the years went on, so he—in the manner of all the pioneers of Amateur Radio—moved from 1,000 metres to 440, then down to 160 and 80 metres.

The present outfit operates on all bands 160 to 5 metres, with a Sky Champion, Super Sky Rider, Hammarlund Super Pro and HRO available on the receiving side. A lot of his time, too, is spent on 1.8 mc.

G2SU is well known in the north of England as a teacher of aeronautical engineering; when in charge of the Rolls-Royce aero-engine training school in Derby during the 1914-18 War, he had the honour of being congratulated personally by H.M. King George V on his part in passing 1,100 officers and men into the flying services. In his time, G2SU was flown in practically everything that could take off, including the airship R100.

He is interested in many branches of science and engineering, and his other hobby is railway locomotives, many of the biggest of which he has driven. G2SU is now the very active President of this Bradford Short Wave Club, and still remains what he has for so long been—an amateur who has never lost his early enthusiasm for the great game of Amateur Radio.



READERS' half-guinea IDEAS

Side-Swiper Key—Protecting the Iron—Mounting Coil Trimmers—Vernier Shift Control

(In the June issue, p. 238, we mentioned that we should like to see any practical or constructional ideas which readers might think to be original. Here are the first selections. We hope they will prompt many more. All we require is a drawing or photograph, with a short explanation in your own words. We write up the material; you get the half-guinea.—Ed.)

COMPONENTS

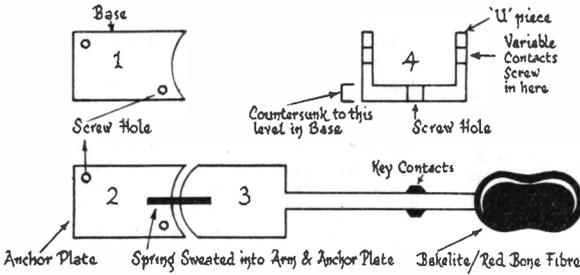
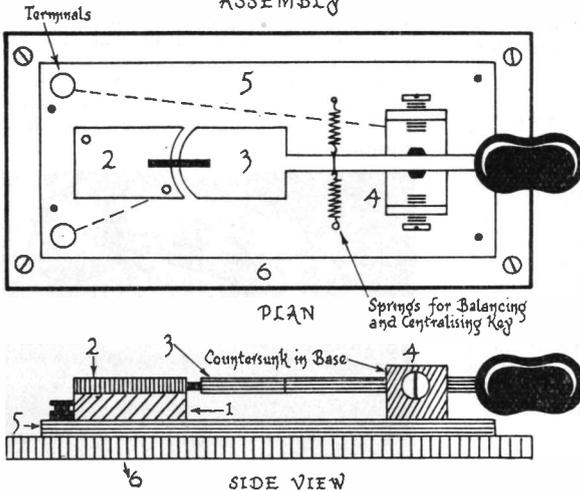


Fig. 1. A reader's home-made side-swiper key. The keying circuit is completed across the anchor plate and "U" piece. The action on a key of this kind is quite different from that of the usual lever type, and considerable practice is needed before clean, fast sending can be acquired.

ASSEMBLY



Side-Swiper Key

The drawing (Fig. 1) here-with illustrates quite clearly the design and construction of a home-made key of the "side-swiper" variety.

The action on a key of this kind is quite different from that of the usual straight key, nor is it the same as sending with a "bug," where the dots are made by a trembler pro-

jecting at the back of the key and the dots by a second pair of contacts at the paddle end.

Considerable practice is necessary to achieve, good formation on a "bug" or "side-swiper," but once the action has been acquired speed sending (for those who want it) is much easier than on a straight key.—From K. G. Redmond, 2a Chalcot Gardens, Belsize Park, London, N.W.3.

Protecting the Iron

When doing a job requiring the frequent use of a soldering iron, one is continually bothered by having to avoid overheating and the danger of burning out the iron. This device (Fig. 2) was conceived with the idea of overcoming the trouble.

The equipment required can, in most cases, be found in the junk box. The parts are mounted on a 3-way rectangular wooden switch-block, and consist of a single-pole 5-amp. switch, a batten lamp-holder, and a 5-amp. 2-pin

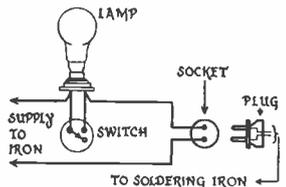
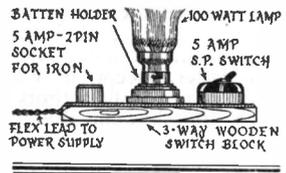


Fig. 2. Preventing the iron from over-heating. The 100-watt lamp is switched in when working temperature is reached, thus limiting current to the iron while keeping it hot. Details are self-explanatory.

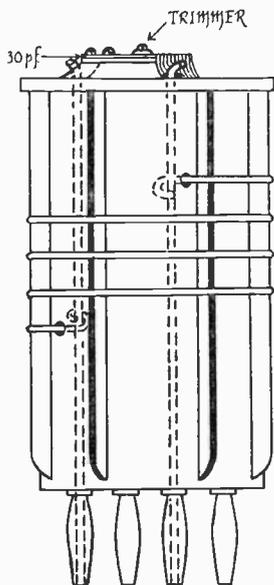


Fig. 3. BRS-7605's idea in diagrammatic form. The supporting wires are 16 SWG.

socket, wired up as shown in the diagram.

The switch is in parallel with the lampholder and both are in series with one of the leads to the socket. One side of the supply is taken direct to the socket and the other to the switch.

Insert a suitable lamp in the holder (a 100-watt lamp has been found right for a 65-watt iron), close the switch, and allow the iron to heat up in the usual way. When working temperature has been attained, open the switch and if the lamp has been correctly chosen, the iron will be maintained indefinitely at the required temperature without over-heating. When it is required for use, close the switch, do the soldering, and open the switch again while getting the next joint ready.

A further advantage of this device is that it also saves power in that when the lamp is in circuit during the standby periods the load on the mains is reduced.—From B. Randell, Holmestower, Wellwood Drive, Dinas Powis, Glam.

Mounting Coil Trimmers

To obtain maximum efficiency, especially with superhets having plug-in coils, it is an advantage to have a trimmer on all tuned windings, to maintain each set in alignment.

First solder lengths of 16 SWG tinned copper wire to the two pins arranged for the tuned winding—pointing the ends with a file to ensure a good joint at the pin tips—and cut the length to leave about $\frac{1}{16}$ in. protruding from the top of the former. Then solder the winding ends inside the former to the stiff 16 SWG wire; when the coil is complete, attach the trimmer at the top after bending out the lugs to fill the inside diameter of the former, as shown in Fig. 3.—From B. J. Blount, BRS-7605, 5 Priory Crescent, Cheam, Surrey.

Vernier Shift Control

In order to avoid interference it is often desirable to be able to shift a CW signal very slightly on the receiver in order to get him in the clear or to give pitch discrimination against the interfering signal.

If the incoming signal is

very weak—as we are told the interesting DX nearly always is!—movement of the tuning control itself may result in the signal being lost. The idea illustrated here (Fig. 4) overcomes the difficulty while meeting the requirement in a very simple way.

By arranging for the earthed metal strip to be moved through the field of the main or band-spread tuning condenser ("proximity tuning") a very fine vernier adjustment can be provided. The degree of frequency shift can be varied merely by altering the length either of the arm or of the cross-piece.

The sketch at Fig. 4 is almost self-explanatory. In fitting the vernier shift knob, secure it such that the reading is mid-scale with the cross-piece free to move in either direction through the field of the main tuning condenser. Now adjust the length of the arm or cross-piece—or the arc of movement relative to the main condenser—until a weak signal can just be shifted through audibility; it can then be moved without being lost.—From H. Owen, B.Sc., P.O. Box 8, Tafo, Gold Coast Colony, British West Africa.

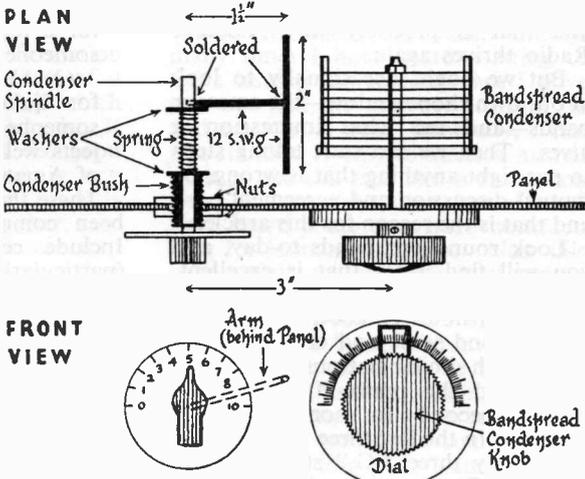


Fig. 4. The left hand contro sweeps an arm, carrying a meta cross piece, through the field of the main or band spread tuning condenser. By choosing dimensions correctly, the effect—somewhat similar to permeability tuning—can be made such that the signal on tune appears to be shifted slightly in frequency

Keep It Clean !

“ Old Timer ” Discusses What Should Not be Heard on the Bands

[While we do not wish to over-emphasise the failings of the few, nor to moralise unduly, we nevertheless feel that this article may help to improve operating behaviour, to the ultimate benefit of all concerned.—Ed.]

NOW that Amateur Radio is once more a very flourishing concern, it is advisable to have a shareholders' meeting occasionally, and to review our assets and liabilities. We cannot pursue this metaphor too far, because we really have no board of directors, no executive committee, and no body that can take disciplinary action. In short, although transgressors against the law can be dealt with, transgressors against morals or ethics are subject only to their own consciences and to the feelings of fellow-members of the company.

This is as it should be ; the last thing we want is an Amateur Radio Policing Body. We have rid the world of Gestapo technique, we hope, for ever ; and that is precisely why Amateur Radio thrives again.

But we ought occasionally to look at our own shop window—the amateur bands—and see what impression it gives. Then we can start taking steps to put right anything that is wrong, by mutual discussion and agreement . . . and that is the reason for this article.

Look round our bands to-day, and you will find a lot that is excellent. You will find well-operated stations with clean notes or good modulation, talking good sense and enjoying good QSO's with similar stations. And those who wield the prefix “ G ”, are as always, second to none in these respects. In the last three weeks I have heard only three “ G ” stations committing offences—one with a nearly raw AC note (no doubt an accident), one hopelessly over-modulated and “ splattered,” and one off-frequency. These three incidents probably repre-

sent about 0.3 per cent. of the total number of QSO's heard.

Moral Offences

These, however, are offences against the law. Include some of the lesser offences against good behaviour and common sense, and you would find quite a few cases that might well be up before a jury of amateurs at a local meeting. I mean this sort of thing :

(1) Use of the LF end of the 14 mc band for local 'phone contacts at a time when it is full of DX CW ;

(2) Use of interminable CQ calls when everyone else on the band seems to be doing the same ; under such conditions it is perfectly easy to make a good DX contact by listening for a few minutes and then calling someone.

(3) Use of the 7 and 14 mc bands for quite senseless chit-chat with someone in the same town on subjects well removed from the sphere of Amateur Radio.

These three, I regret to say, have all been committed by British stations. Include certain European countries (particularly Italy) and you may add three more old enemies of the cause :

(4) Use of the worst kind of “ spitch ”—over-modulated 'phone with a high percentage of frequency-modulation, resulting in “ splatter ” over 100 kc or more, and at times reaching into the realms of complete unintelligibility ;

(5) Really bad notes, with AC modulation, chirps and instability, coupled with frightful sending and general lack of sense ;

(6) Tuning-up operations, obvi-

ously on high power, which go on for 30 minutes to an hour and make a large part of the band almost unusable.

Now it is obviously easy to put our own house in order. If a British amateur does silly things, tell him so. After all, we all meet at various gatherings, and there is no need to carry politeness *too* far! If you are introduced to someone that you remember as the owner of a terrible signal, or as a local-'phone menace, tell him so! Nine times out of ten it is ignorance that is responsible.

When operating break-in, single-channel, we suggest the use of "BKS" as the procedure signal. If this is sent while calling, other operators will know that the station concerned can not only work break-in, but is listening on his own frequency for replies.

But what of the foreigners? Well, the obvious way to deal with them is to boycott them. Call them the first time and tell them what you think is wrong; after that, leave them severely alone. If they never make a QSO they will soon get tired of it all, or realise that there is something the matter.

International F.O.C.

Another possibility is the formation of an organisation on the lines of a "First-Class Operators' Club," which must be on an international basis. It should then be possible for the good and knowledgeable operators in any country to do something towards cleaning up their own local ether.

Returning to our own house and offences (1), (2) and (3), we may deal with them in a little more detail. Sin No. 1 is probably the most common, and it springs from having too much to say and not doing enough listening. I always think the offenders are the type who monopolise any conversation with their own pet sayings and never try to improve their minds by listening to other people's opinions. They switch on the receiver and transmitter, put out a 'phone CQ, and thereupon work three or four stations in a row. These are possibly all Europeans, and

they simply do not know that the DX-men are hard at work underneath it all. DX-men, perhaps, are freaks of a peculiar kind, but they are entitled to their existence, and they should have an equal share of the band with the others.

It is, of course, true that our own GPO has not divided up the bands for 'phone and CW, but "rationalising" divisions of the bands have been suggested in these pages, and unless all amateurs help them along, chaos will reign. We cannot say "Don't use 'phone on 14100-14200 kc," but we *can* say "Please don't." At any rate, leave, say, 14100-14160 for CW and keep the 'phone above that. Then, a reasonable little band would be available just outside the American 'phone territory. The state of the 28 mc band, when it comes back to life, is a little uncertain; but during last spring, although the recognised CW band occupied only the bottom 100 kc of a 2 mc band, 'phone stations were frequently heard within it! I suppose it is largely a matter of crystals when one gets down to it—but why not use those ECO's and other types of VFO?

Dripping CQ's

Now for these CQ calls. Many, many times I have heard a string of CQ's issuing for so long that I have just not had the patience to hold on and see who it was. Generally, I can just stand it, if only to make a mental note of the call-sign and a resolution never to work the station, but of late I have heard some that have been too long for human endurance. Now this is one of the major methods of annoyance, because it is just pure band-hogging. All those CQ's are merely occupying the band without telling a single listener anything at all. If a station does this sort of thing and the whole call occupies, say, three minutes, that station would be much better employed sending "CQ" and his call-sign alternately in groups of three; it would be even better to do the latter for about one or two minutes only, and then to try again if nothing happened. But this business of simply *dripping*

the letters "CQ" until anyone listening wants to scream is pure foolishness and complete waste of a slice of an all too narrow band. Again, there is nothing in the licence now about "three-times-three," so it is not a legal crime; but none the less it is an offence against common sense and good behaviour.

The meaningless chatter that goes on in some quarters is becoming rather serious. It is significant that the stations indulging in it are generally badly operated in other ways. Listen to some telephony stations and you will hear a QSO lasting for, perhaps, twenty minutes or half an hour, every minute of which is interesting by virtue of a discussion about the gear used, about conditions or general goings-on on the bands. On the other hand, tune-in to someone else and you will hear a rapid sort of exchange of pleasantries, vague boasts about the high efficiency of the "rig," talk about DX records which your experience rather leads you to doubt, and (almost invariably) a very sloppy exchange of call-signs at the end.

Helping Hand

These fellows are not criminals; they are not even intentional annoyances; they just don't know better. They want teaching—and if they belong to a local society or club they can be taught. That is one of the chief benefits of clubs (although I confess I often long for a club of the other sort). The point is that every amateur can do his valuable bit towards cleaning up the bands, for if his own behaviour is above reproach, he is the kind of amateur who is needed to help some of the others along. By saying his piece at local meetings, and by tactfully drawing attention to some of the anti-social behaviour that goes on, he can exert a powerful influence.

Goodness knows our bands are narrow enough, even if we are comport ourselves perfectly; if we are going to have all sorts of badly-behaved hoodlums sharing them with us, we might as well pack up now. So let us do everything we can, by the printed or

THE AMATEUR BANDS

Following are the bands now open for amateur operation:

1715-2000 kc	10 watts (A) and (B)	
3500-3635 kc	25 watts (A),	
3685-3800 kc	150 watts (B).	
7150-7300 kc	25 watts (A),	150
	watts (B)	
14100-14300 kc	25 watts (A),	150
	watts (B)	
28000-30000 kc	25 watts (A),	150
	watts (B)	
58500-60000 kc	25 watts (A) and (B)	

Note that the two sections of the 7 and 14 mc bands allotted are not in harmonic relation. It is proposed that telephony operation on these bands be confined to the areas 7200-7300 and 14200-14300 kc. "A" licences are all three-letter calls issued post-war, and are for CW operation only; licensees in this category are not normally allowed the use of telephony and full power till they have had twelve months' experience. Class "B" licensees are holders of reissued pre-war two-letter call signs, and are allowed the unrestricted use of CW, MCW and Phone with power as given above.

spoken word, to improve things. Incidentally, don't try to improve other people's behaviour until you know that your own is above reproach! That would not exactly be the height of tact, and would neither enhance your own reputation nor have much effect upon the other man.

(As I write these last words, the phones, on the bench, are giving forth a fearful kind of Donald Duck noise which, upon investigation, turns out to be a "telephony" station about 200 per cent. modulated, fully 50 kc away from the point to which the receiver is tuned. Unfortunately, he is a "G." I am now going to write a very polite post-card!)



AMATEUR RADIO AT BIKINI

The electronic control ship for the Atom Bomb tests at Bikini was the U.S.S. "Avery Island." Among her complement, responsible for many of the radar and communications aspects of these tests, there were no less than 27 holders of American amateur call signs. The electronic party was under the command of Capt. C. L. Engleman. U.S.N., W6UQR; he was 7QQ as long ago as 1920. (Acknowledgments August QST.)



The photograph gives a good impression of the very fine new transmitter at G3AD, A. N. Simmons, 69 Chester Terrace, Chester Square, Westminster, London, S.W.1. He began its construction in November last and has spared neither time nor effort in producing really up-to-date equipment.

The top panel carries the output stage, using P/P 35T's with swinging link coupling, below which is the exciter panel with a 1614 CO driving an 807 as FD/BA; keying is in the latter stage, either cathode or back bias.

The third panel down carries a self-contained VFO with a Muirhead vernier control; a 6F6 as ECO is coupled to a 6L6 as double-isolater, and the unit gives output on 3.5, 7 and 14 mc as required. Next below is the speech amplifier-modulator, using 6L7-6J5-KT66-P/P 809, and arranged so that three input channels (for an RCA ribbon, Astatic crystal or D104 microphone) can

The other man's station

G3AD

be selected. The remaining three panels carry the power supply units, with their associated controls.

As will be seen from the photograph, extensive metering is provided and all variables in each unit are brought out to panel controls. The meters in the upper units have illuminated scales; the transmitter is housed in a black wrinkle steel cabinet, with rear hinged door for ease of access to the various chassis units.

On the receiving side, G3AD has an SX-28 with a DM-36 frequency expander unit; the present rig made its first appearance in March last, using only the exciter portion as a low-power transmitter.

G3AD is of vintage 1937, and has worked most of the world on CW and 'phone. He has maintained from the very beginning a card index showing every station worked, with a cross-reference to the log. The index gives details of some two thousand contacts. G3AD's interests in Amateur Radio are the achieving of good quality telephony, frequent use of CW and the operation of his station with the idea of making friends; he prefers to leave DX-chasing to those who like it.

Incidentally, G3AD QSL's with one of the best cards we have ever seen; it combines good taste with excellent printing and a striking subject.

Here and There

Radio Amateurs' Examination—November

On p. 372, August, we noticed briefly the results of the first Examination, held on May 8 last, when 182 candidates sat; of these, only 37, or 22 per cent., failed.

The next is to be held on November 15, in the interests of those who for various reasons may not have been able to take the previous one. After this sitting in November, the Examination will be held annually in May only.

As before, the City and Guilds of London Institute, the authority responsible for the R.A.E., has arranged that for the convenience of candidates, the November examination will be held at various centres throughout the country. Intending entrants can apply to their *local Technical College* for particulars; the fee is 10s., with a small charge for accommodation in some cases. Applications for entry should be made as soon as possible and in any case must be in not later than October 8. All enquiries regarding the Examination should be addressed to: The Superintendent, Department of Technology, City and Guilds of London Institute, 31 Brechin Place, London, S.W.7.

Matters regarding the issue of a transmitting licence are dealt with by the Engineer-in-Chief's Department, Radio Branch (W5/5), General Post Office, London, E.C.1.

R.A.E.—Course of Study

Arising from the foregoing, readers in the London area will be interested to know that a course covering the syllabus of the Radio Amateurs' Examination will be held during the 1946-47 session at the Brentford Evening Institute.

Classes commence in the week beginning September 23, but the enrolment week begins on September 16, when, from Monday to Friday, 7 to 8.30 p.m., the Head of the Institute and his staff will be present to advise and enrol intending students.

A copy of the prospectus may be obtained on application to J. M. R. Sutton, B.Sc., G2NG, Winterbourne, Gipsy Lane, S.W.15.

TOP BAND WIDENED

We are informed that the 1.8 mc band is now open for the whole range 1715-2000 kc. Input is still limited to 10 watts. So we are back to normal again with 1.7 mc.

Do You Know That

A standard "Eddystone" 18 $\mu\mu\text{F}$ variable condenser (type 1094), if cut down to leave only two fixed and two moving plates, will spread the 58.5-60 mc band over nearly 50 degrees of an 0-100 degree dial? This amount of bandspread is just right for accurate tuning and reasonably quick searching.

Summer DX on Ten

It paid to watch 28 mc during July and August, even though the band is supposed to fade out in the summer. In accordance with predictions, the MUF (maximum usable frequency) has often been much higher this year than is usual during the summer period, with the result that 28 mc was frequently open for real DX. The level of activity has, however, been relatively low.

80 METRES OPEN AGAIN!

3500-3635 kc, 3685-3800 kc. Class A, 25 watts; Class B, 150 watts.

Note the dead area of 50 kc in the middle of the band. In the general interest we recommend that CW be confined to the LF area 3500-3635 kc.

Fixing the Frequencies

In preparation for the World Telecommunications Conference to be held next year, a preliminary Five-Power technical meeting, to settle the agenda, is to take place in Moscow about the end of this month. The world-wide allocation of frequencies is, of course, the most important matter upon which agreement has to be reached.



G9BF Calling

(It gets worse instead of better.—Ed.)

Many letters from readers (also usual foreign postcard) congratulating me excellence equipment at KZ7LX. This of course is me G9BF. Most readers say no wonder you do not bother with YL skeds if gear so reliable; do not quite understand this, but assume it is compliment, as usual.

Like all good ideas, my DX procedure simple but needs plenty practice to perfect. No use going on air with short "three-times-three" CQ and expecting replies from super DX like BU1EGG, worked by me recently after 5-minute CQ call on about 14440 kc. Recommend always call CQ DX at least 25 times, then sign once (twice for super-DX); this ensures DX station will have time tune you in—point overlooked by certain contributors this *Magazine* always talking about "make it snappy."

When QSO, essential give excellent report like "Ur sigs RST-579 vy vy FB FB om wot u using pse." Back he comes with long description gear while you pop out for quick drink. Then you reply "RRR solid om tnx vy interesting dope ere QRT so cheers." He will reply "Tnx om FB sure psed to have worked u pse QTH? es QSL?". You answer "Hr QRA

aircraft near Greenland sure QSL tnx." This starts him writing *Magazine* to report QSO asking if KZ7LX genuine. This puts KZ7LX on map.

For best DX recommend careful choice of frequency near edge band to avoid QRM from G's using phoney callsigns. About 7400 and 14350 good for this, and if callsign sufficiently rare, QSO certain. No use having straight call and expecting raise stations wanting rare DX. Have selection special callsigns for this, hence my success. GPO also foxed.

Also good tip when working 'phone to have VFO and while putting out rare callsign swing VFO *very slowly* through whole band. This attracts plenty attention bringing many stations QRX on your frequency. Then say hi-hi.

For real super DX, essential to have DX note. Many ways obtaining this but easiest is well-known method taking HT straight off rectifier valve; this also eliminates bother with expensive smoothing chokes and condensers. Old pal MOIFFI always reports KZ7LX "RST-599 es fine business" so can recommend method with confidence.

(And that's about enough.—Ed.)

ON THE MARKET

NEWS from the Trade and NOTES on Equipment

(Due to pressure on space, this feature was held over from the last three issues. Only items of immediate interest have been selected from the material which has been accumulating in the meantime.—Ed.)

Among several suggested "wants" proposed for mention in this column, we have selected some items from the list sent in by a reader in Northern Ireland. First and foremost, he asks for a reasonably-priced test oscillator; secondly, he wants straight-line-frequency condensers with 270-degree rotation; and thirdly, crystal band-pass filters, with choice of two or three band-widths, for use with IF's of 1.6, 3 and 10 mc.

As regards the third point, it happens that many other readers have made suggestions which amount to the same thing. Such a unit would be an important component in a good home-built communications superhet. From what has been said on that subject in the Correspondence columns it is quite evident that many amateurs are quite prepared to undertake the construction of such receivers.

Another request has been for more informative catalogues and price lists; we agree with this one. Too often one has to enter into protracted and long-delayed correspondence with a firm in order to obtain essential data on a piece of equipment. On the other hand, compilers of catalogues have something of a problem in deciding just how much information is really necessary. Nevertheless, in general it is true that the more complete and detailed the data given, the greater the confidence inspired in the firm's products and ultimately the better the sales figures. Certain American manufacturers (but by no means all) are very good at this, and produce really excellent catalogues.

British Mechanical Productions.—All orders and enquiries regarding "Clix" radio components should in future be addressed to the London Sales Office, 21 Bruton Street, W.1 (Tel.: MAYfair 5543). Their lists are worth having.

Sydney S. Bird.—Well known to all the old-timers in Amateur Radio, "Cylton" condensers are again available, in the familiar patterns. When we first started out with a transmitter, way back in 1926, a "Cylton" .0005 μ F variable—which could be taken to pieces and double-spaced to tune the plate side of the 45-metre TPTG oscillator—was regarded as just about the ultimate in transmitting condensers. The modern types have all the good features of those older models, which did us so well and lasted so long—rugged construction, clean finish, ample bearing surface and ceramic insulation. They can be had in a wide range of capacities and in several different designs for either transmitting or receiving duty. They are in square law, SLF, SLC and logarithmic law plate shapes, and in single section, split stator and differential construction—whichever you prefer! One of the nicest models is the 14-30 μ μ F split-stator transmitting type, with .082 in. air-gap and ceramic insulation; the vanes are of polished aluminium, with rounded edges.

A.B. Metal Products.—They offer a wide variety of rotating, lever, miniature and push-button switches, for every conceivable radio purposes on the receiving side. In the wafer type, rotor contacts are silver alloy, with heavily silver-plated special spring brass for the stator. They can be supplied to switch circuits requiring anything from one pole and 12 positions, to 6 poles and two positions. Ganging is allowed for, on an assembly which ensures rigidity and certainty of action. The designs available are in rotary, semi-rotary and lever movement. Other types are a QMB single-pole on-off in the 5 amp. 250 volt rating, and a miniaturised wave-change switch known as the "Minibank."

Dubilier.—Fixed condensers of many different kinds and for all applications are listed in the latest catalogue. Not all of these are readily available through

normal trade channels since, like other large component manufacturers, Dubiliers produce, for set makers, quantities of what would be regarded by the small buyer as special types. We have selected a number of designs which are not in this "special" category, and they will appear from time to time in our constructional articles.

Londex.—Considerable interest is being shown in the matter of relay-operated change-over and control systems in amateur stations. The idea is, of course, to press a button and let the relays do all the work of muting the receiver, changing over the aerial, switching on the transmitter and bringing in the microphone key. The Londex aerial relay switch has been specifically designed for its function. The contacts are very heavy, of pure silver, polystyrene insulated, and the solenoid can be supplied to operate off any normal AC or DC voltage to suit customers' requirements. Other relays in the Londex range include a multiple-contact, double-action multiple-contact and a mercury tip-switch, all solenoid operated.

British Tungstram.—Unfortunately, for those who are familiar with the excellent APP4G RF pentode which was a feature of the Tungstram range before the war, they are not at present in a position to manufacture transmitting valves. We understand, however, that information is available concerning the pre-war types.

Berry's Short Wave.—Now available is the "Q-Max" slow-motion dial, which gives 9-1 reduction to a pointer travelling across 6 semi-circular scales contained in a rectangle 6½ in. by 3½ in. The outer of these six scales, which is 9½ in. long, is calibrated 0-180 degrees; the five inner scales, the fastest or innermost one of which is 4 in. long, are not figured, the idea being that they should be marked in accordance with individual requirements. The drive is positive, the action smooth, and the mounting simple. A rectangular escutcheon and glass screen are provided, and control is by means of a sensible 2½ in. diameter fluted knob. The only criticism we have to offer of an otherwise excellent component is that the pointer is a little too thick. It could with advantage be shaped to a knife-edge from the inner scale outwards. At 15s. 6d. complete, this new slow-motion control should meet a large demand.

Radio-Aid.—From a range of useful test equipment, we notice their model S/1 cathode-ray oscilloscope. Using a 1½ in. tube, this instrument incorporates a four-speed time-base (2 cycles to 25 kilocycles per second total coverage) and the sensitivity of the tube, without amplifier, is 0.3 millimetre per volt. Controls, eight in all, include sweep speed, Y gain, synchronising and X-Y shift. The price of this oscilloscope, complete with incorporated power supply and all valves, is £27.

Wireless Supplies Unlimited.—If anyone wants No. 8 tinned copper wire (for winding PA inductances, for instance), they have it in 25 ft. coils at 3s. 9d.

Sound Sales.—A comprehensive range of steel rack and panel assemblies is offered, finished "BBC grey," with bolted racks in 2 in. by ½ in. steel, tapped to take the 12 SWG steel panels in any of the standard depths—12½, 8½, 7 and 5½ in. by 19 in. wide. Panels of this size can also be supplied in ½ in. aluminium. Trays are in 16 SWG steel, to the standard lengths of 16½ in., with 1 in. flanges or sub-spaces; they are available in widths of 4, 6, 8 and 10 in., with brackets to match. The 6 ft. rack with double-sided support costs £3, panels vary from 6s. 6d. to 12s. each according to depth, and trays are from 3s. 10d. to 6s. Brackets, foot castors, termination blocks, nuts and bolts and bus bars can also be supplied. Complete assemblies can be undertaken, with panels drilled, tapped and punched out to order.

Salford.—We have recently tested two G.E.C.-Salford crystal units, designated the Type 2 low temperature coefficient plates, and priced at 30s. complete. Mounted in an enclosed and sealed holder of rectangular section, with standard (¾ in.) pin spacings, they give high output and are completely stable by the best standards. These crystals were tested in several oscillators of the usual types, both fundamental and harmonic; they never failed to start, and there was no sign of over-heating or erratic behaviour. They are available in the ranges 3.5-3.75 and 7.0-7.5 mc, and can be supplied for specified frequencies for 36s.

Due to pressure on space, we are holding over "Some Letters to the Editor" until next month.

THE MONTH WITH THE CLUBS

FROM REPORTS

We hope that readers interested in this section will like its new setting, the object of which is to give us more space for the increasing number of reports we anticipate during the coming winter season.

The new layout will, in effect, enable us to allow yet more room for Club news, while at the same time conserving precious pages in the *Magazine* as a whole. There is an urgent need for this in the interests of all readers, and since we are concerned not only with saving space but also in maintaining *Magazine* standards of production, we have been at pains to try to design a layout which meets both requirements.

Inter-Club Contest ?

This gives us room for one more comment—are Clubs interested in an inter-club transmitting contest on, say, 1.8 mc? This would be open only to Clubs possessing their own call signs and would be worked on a "points per QSO" basis, with zonal multipliers. If secretaries interested would consult their members and, by October 10, give us a firm undertaking to participate, we should be glad to undertake the necessary arrangements; these can then be announced in the November issue of the *Magazine*. The period we have in mind for this contest is the first week in December, so that entries can reach us soon enough for the result to be announced in the January issue.

It all sounds a long time ahead, but in fact secretaries only have four weeks, from the time they see this, to discuss the matter at meetings, and let us know what they think about the idea. To make the contest worth while, we feel that not less than six Clubs should participate.

Following are the reports for the month, with secretaries' names and addresses in the panel at the end of column, as usual.

Bradford Short Wave Club.—They are busy getting their new premises at 1374 Leeds Road ready for the winter session. The club transmitter will be fitted up in the radio room as soon as the licence arrives from the GPO—they hope to recommence operation under the old call, G3NN. G2QM is to give some further advice on aeri-als and an interesting and instructive winter programme is being arranged. Prospective members are asked to get in touch with the secretary, or to call on the club any Monday evening.

Practical Amateur Radio Constructors' Club (Dublin).—Their first meeting was held on July 5, and have taken place regularly on Fridays each week ever since. Membership is increasing and the activities of the club have an Amateur Radio bias, with a club station in view. Morse classes are being started, a club-room is being sought and a good library is already available to members. A useful lecture programme has been arranged and the P.A.R. C.C. would like to hear from prospectives in the Dublin area.

Grafton Radio Society.—They recommence activities this month with meetings on Mondays, Wednesdays and Fridays at 7.30 p.m. Morse practice takes place on each of these evenings, and commencing in the middle of September there is to be a weekly series of lectures covering the syllabus of the Radio Amateurs' Examination.

Two transmitters are now in operation (G2AHB and G8DF) and more are under construction so that all bands 1.8 to 58 mc can be covered. For the practical section, some £60 worth of gear has been purchased in preparation for an extensive building programme during the winter session. A cost-price canteen is also functioning. We cannot do better than advise readers who can reach the Grafton L.C.C. School, Eburne Road, Holloway, N.7, to join this enterprising and very popular club.

Medway Amateur Transmitters' Society.—Some 30 members were present at the last meeting, when G2HAU discussed power supplies. The club equipment is now approaching completion and the programme for the next few weeks will include the installation and operation of the transmitter and receiver; negotiations are on foot for the erection of an aerial. G6MU runs the Morse class, and special arrangements have been made for learners. M.A.T.S. meet every Monday at 7.30 p.m. at 207 Luton Road, Chatham, and those in the district interested in Amateur Radio are invited to make contact.

Oswestry & District Radio Society.—Most encouraging support was given to the first meeting of the society on July 31. An active programme is being prepared for the future. Membership is in two classes, senior and junior; visitors to the district will be welcome at the meetings and it is hoped to gain the fullest local support for what is a new venture in the Oswestry area.

Coventry Amateur Radio Society.—The next meetings are on September 14 (visit to BBC, Daventry) and September 30, which will be a quiz night with teams selected from transmitting and receiving members. There are now nearly 30 active transmitters in Coventry and C.A.R.S. meetings are well attended. G2YS has recently succeeded to the secretaryship, *vice* G2ZT.

Radio Society of Northern Ireland.—Their annual meeting takes place on September 27, when it is hoped that there will be a good attendance; the turn-out has been falling off recently, but it is hoped that this will improve again as the winter season sets in.

Kingston & District Amateur Radio Society.—A move is in hand to re-form this society and all interested in the area are asked to get in touch with the acting secretary, address as given in the appropriate space.

Stoke-on-Trent & District Amateur Radio Society.—This society is the successor of a club that was formed in the district as long ago as 1921, of which the well-remembered G2VG and G2WN were members. The present organisation was started officially on May 20 last, but it is only recently that the membership has commenced to increase, with new ones coming in at evening meeting. These are held every Thursday at 7.30 p.m., when it is hoped to see many more amateurs from the district.

Whitefield & District Radio Society.—All amateurs, of whatever grade or standing, in the Manchester, Whitefield, Prestwich and Bury areas, are invited to the weekly meetings on Monday evenings at the Stand Grammar School, Higher Lane, Whitefield. Groups are being formed to cover transmission, reception, Morse instruction, VHF working and television, with a separate section to cater for the absolute beginner.

Doncaster & District Amateur Radio Society.—Activities cover the field of Amateur Radio and there is some interest in 58 mc working. Visits are being arranged to local RAF stations, and a useful series of lectures will be given during the winter session. One of the recent talks, on the oscilloscope, was by a member who demonstrated a home-built instrument; it drew an attendance of 24 to the meeting.

Swindon & District Short Wave Society.—A technical film show was a feature of one of the recent meetings, which are held fortnightly on Saturdays. It is hoped to attract more support locally, especially from returning Service personnel; those who may be stationed in the district are also welcome.

Hi-Q Club, Giffnock.—They thank the many readers who, in response to the note here in the July issue, forwarded details of the RAF 1154 transmitter. During the winter meetings one member each week will be required to give a talk which can lead to a discussion. Most members have built or are building frequency-meters and signal generators, and one has constructed an extremely good resistance-capacity AC bridge. GM2KP is coming up on 58 mc, GM3AR found to his surprise that he can work Europeans on the feeders of his 14 mc aerial, and GM3AEC is a newly licensed club member. A matter of interest at the moment, upon which correspondence is invited from readers, is ignition suppression on 28 mc.

West Hartlepool & District Radio Club.—With a membership of 25, they have been active since January, and have five transmitters on the roll, with four new calls coming along. Meetings are held regularly each fortnight, with lectures, discussions and displays of equipment. They welcome visitors and also hope to see an increased membership from the Hartlepool district.

Bournemouth & District Amateur Radio Club.—G2DBF's report is full of news, proving that Amateur Radio interest in general and Club activity in particular are at a high level. Early in November, they are running a dance at the Town Hall (admission ticket only) and look forward to the support of amateurs from neighbouring towns; details will appear in this space in good time. They have been promised £150 for the purchase and equipping of an Army hut for use as a club-room, and the local Chamber of Commerce has made a large gesture by supplying every amateur in the Bournemouth area with free QSL and report cards, producing a quality job in the style that only a go-ahead seaside town would do it. As if this was not enough, a Bournemouth electrical firm has presented the Club with a shield for competition.

Fourteen club members are active on the air, including G3XP with what is known locally as a Chinese rhombic; nevertheless, it works. G3BM with his 80 ft. lattice tower still has DX queuing up for him, and G2NS is said to have more relays rattling than the D4's have watts. By the way, Bournemouth welcome visiting amateurs on holiday to their meetings, and have already seen several, including Reading's secretary.

Reading & District Radio Club.—At a recent meeting, BRS-12070 lectured on receiver noise in some detail, and started a useful discussion on a subject of considerable interest at the present time. The next meetings are on September 14 and 28; the latter is the annual general meeting, at which new officers will be elected.

Liverpool & District Short Wave Club.—In addition to some useful and interesting talks, recent events have included a visit to the Liverpool Police Radio Station, under the guidance of Inspector Menzies, G5MQ, of 58 mc fame. The details of the working of the police radio network were explained and discussed, and members came

away with the firm impression that in Liverpool at least, crime ought not to pay! The next visit will be to GLV, the well-known GPO 600-metre coast station at Seaforth.

Liverpool have had their Club transmitting licence application approved by the Post Office, and will probably have a callsign by the time this is in print. The DX competition has been shelved for the present owing to current difficulties and delays in obtaining the necessary conformity QSLs.

Surrey Radio Contact Club.—The August meeting drew 43 members to hear G2WS discuss 58 mc portable working; his talk was illustrated with a demonstration and led to a useful and interesting discussion. The next meeting will be on September 10, when G2MV will lecture on VHF aerials.

West Middlesex Radio Club.—The inaugural meeting on August 14, brought an attendance of 36 from the Southall, Hayes and Uxbridge districts and a useful and interesting programme was planned. This is to include transmission, reception, television and sound recording, also classes for Morse instruction and a beginners' section. The Club can rightly claim that it is setting out to cater for all radio interests, and should be assured of good support. It is proposed to hold meetings twice a month. The first chairman is G6WK, and all amateurs in the district are invited to get in touch with the Club.

Altrincham & District Radio Club.—Attempts are being made to revive this society, and those interested locally are asked to get in touch with the acting secretary, whose name appears in the panel.

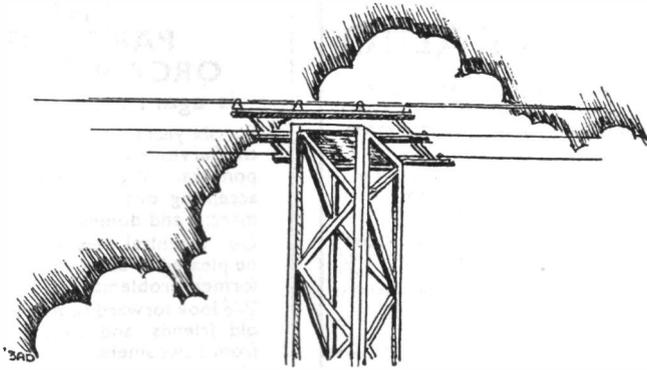
Midland Amateur Radio Society.—At the meeting on July 16, an attendance of 58 members heard G2AK lecture and demonstrate on the design and manufacture of transformers. After the lecture, the President, G5BJ, discussed the future of the Society. The annual general meeting on September 24 is to be preceded by a dinner at the Imperial Hotel, Temple Street, Birmingham, the proceedings commencing at 6.45 p.m.

North West of Ireland Amateur Radio Society.—The first meeting was held on July 20, in Londonderry, when the society was successfully inaugurated; the guests included several Ws who are serving with the U.S. Navy detachment in the port. G12DHB is the chairman, and plans are in hand for an active programme.

Following are the names and addresses of the secretaries of the clubs mentioned this month. They will be pleased to give every assistance to prospective members.

ALTRINCHAM. J. G. Barnes, BRS-6253, 4 Victoria Road, Hale, Cheshire.
BOURNEMOUTH. J. F. Squires, M.B.E., G2DBF, 80 Victoria Road, Bournemouth.
BRADFORD. V. W. Sowen, G2BYC, 6 West View, Eldwick, Bingley, Yorks.
COVENTRY. J. W. Swinnerton, G2YS, 118 Moor Street, Coventry.
DONCASTER. H. Flintham, BRS-193, 50 Burton Avenue, Balby, Doncaster.
DUBLIN. T. Keogh, 8 New Ireland Road, Rialto, Dublin, Eire.
GRAFTON. W. H. Jennings, G2AHB, 82 Craven Park Road, London, N.15. (Tel.: Stamford Hill 3891.)
HI-Q CLUB. J. D. Gillies, GM2FZT, 3 Berridale Avenue, Glasgow, S.4. (Tel.: Merrylee 4060.)
KINGSTON. J. Hughes, 12 Hillingdon Avenue, Ashford, Middlesex.
LIVERPOOL. T. W. Carney, G4QC, 9 Gladeville Road, Aigburth, Liverpool, 17.
M.A.R.S. W. J. Vincent, 342 Warwick Road, Solihull, Warks. (Tel.: Solihull 0413).
M.A.T.S. S. J. Coombe, Stanvic, Longhill Road, Chatham.
NORTHERN IRELAND. A. Kennedy, G13KN, 49 Kansas Avenue, Belfast, Northern Ireland.
NORTH WEST IRELAND. S. H. Foster, 1 Nicholson Square, Londonderry, Northern Ireland.
OSWESTRY. G. H. Banner, 6 Coppice Drive, Oswestry, Salop.
READING. R. J. Nash, BRS-4573, 9 Holybrook Road, Reading.
STOKE-ON-TRENT. D. Poole, 13 Oldfield Avenue, Norton-le-Moors, Stoke-on-Trent, Staffs.
SURREY. L. Blanchard, BRS-3003, 122 St. Andrews Road, Coulsdon, Surrey. (Tel.: Uplands 3765).
SWINDON. P. Greenwood, G2BUJ, 49 Western Street, Swindon.
WEST HARTLEPOOL. A. R. Donald, G3TO, 186 Stockton Road, West Hartlepool.
WEST MIDDLESEX. N. Priest, 7 Grange Road, Hayes, Middlesex.
WHITEFIELD. E. Fearn, 4 Partington Street, Newton Heath, Manchester, 10.

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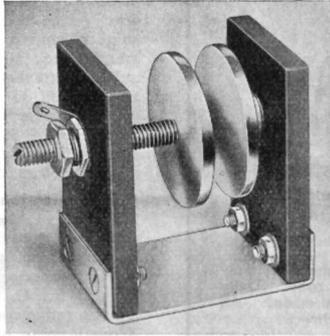
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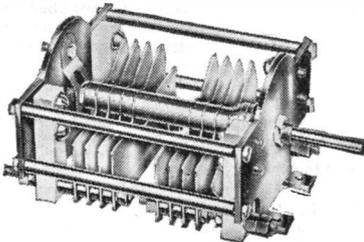
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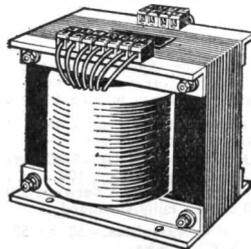


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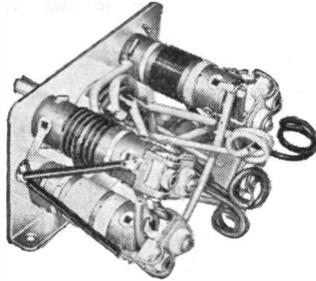
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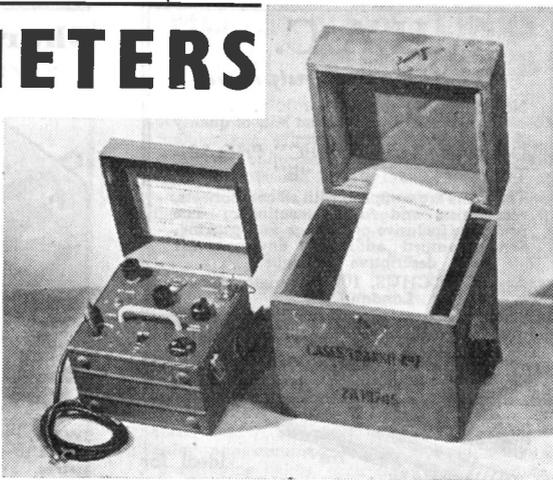
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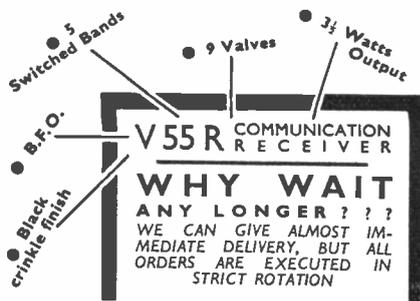
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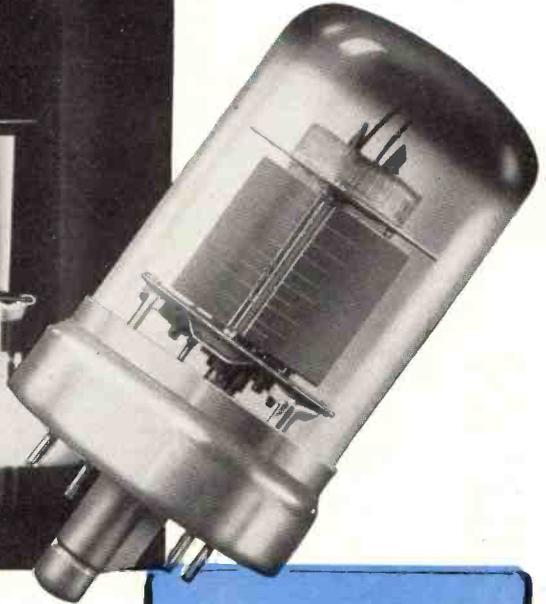
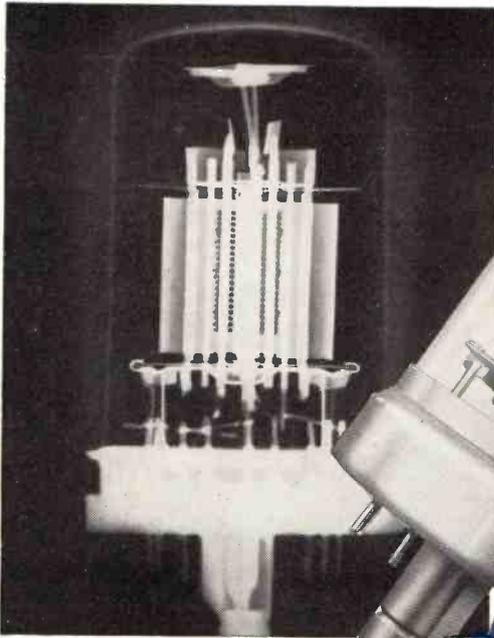
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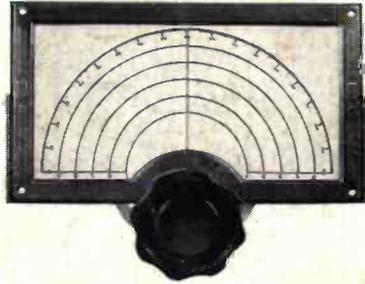


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