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SHORT WAVE MAGAZINE

(GB3SWM)

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

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The SHORT-WAVE Magazine

EDITORIAL

READ THE SMALL PRINT!

Readers will have noticed that in this and recent issues the type-face used for various features is a "size down". This presentation has been adopted for two good reasons: First, to save space and secondly, by saving space to save paper (now a scarce and expensive commodity in the quality in which we use it). In terms of space-economy, the saving is about one-third. This means that we are able to present more in the way of material without having to increase the number of pages.

Thirty-seven years ago, when SHORT WAVE MAGAZINE was first launched in the Amateur Radio field—and even in the years after Hitler's War—the cost of paper was hardly a consideration. Now, things are totally different. We must save space to conserve paper, while still giving proper coverage to all that interests our readers.

WELSH CONVENTION—SEPTEMBER

We are asked to announce an Amateur Radio convention to happen on September 22, at the Community College, Oakdale, nr. Blackwood, Glam., South Wales, offering a programme of considerable interest to the radio amateur—covering lectures on current topics, a film show, trade exhibition, a DX contest operating GW6GW, a raffle, and SS/TV-CC/TV displays. Blackwood is about 10 miles north from Newport or Cardiff, off the M.4 motorway. Programme details are available from GW3KYA or GW4BLE, *QTHR* both. Incidentally, the late Harold Gwillim, G6GW (Tredegar, Mon.), as a memorial to whom the Blackwood Amateur Radio Society holds the callsign, was one of the finest CW operators to be heard on the air—he could send either backwards (reverse reading) or literally with his left foot better than most could with their right hand, at any speed up to 30's. His death was greatly lamented in South Wales—he was electrocuted off his own gear.

OBITUARY—G2YL and G5LC

With deep regret we have to record the passing of two distinguished Old Timers, who between them made a significant contribution to Amateur Radio. Nellie Corry, G2YL, of Tadworth, Surrey, was licensed in the early 1930's (the second or third of her sex to be so) and for many years was well known and respected in the Amateur Radio field. She was a great traveller and her *forte* was giving illustrated talks to Clubs on her journeyings.

Leslie Cooper, G5LC, East Molesey, Surrey, also travelled a lot on business, holding reciprocal licences in New Zealand and South Africa. Active in Club affairs, he was president of the Thames Valley Amateur Radio Transmitters Society and was regularly on the air, at home and abroad. He was stricken by a heart attack, at the age of 63.

AMATEUR /M IN *DRIVE*

The summer edition of the AA members' magazine *Drive* includes a somewhat glamorised account of mobile operation on the amateur bands, tending to stress the DX aspect and touching upon, of all things, mobile SS/TV! While being generally palatable to anyone on "our side of the fence"—meaning the reader who knows about Amateur Radio in general and /M in particular—the treatment suffers by reason of the fact that (as in the case of many such pieces produced for public edification) not a single callsign is mentioned, the licensing procedure is somewhat glossed over, and the potential of the gear for mobile DX is, by implication, measured by its cost. The author of the article is not credited with a callsign and is unknown to us—on the other hand, we have been able to attribute callsigns to most of the amateurs named.

Austin Forsyth G6FO

COMMUNICATION and DX NEWS

E. P. Essery, G3KFE

PERHAPS the most important event during the month under review was the Kingman Reef/Palmyra DX-pedition, which ended with 5000 QSO's from Kingman and maybe 10,000 from Palmyra! They even had an assistance from Murphy and his Law this time, insofar as the sunspot count ensured conditions were well above average while they were at Kingman—although he took his pound of flesh when it came to the matter of getting off the Reef again, so that while they managed to evacuate the gear, Murphy was left with a card table and a stool to gloat over! The QSL address for their whole operation—VR3AG/KP6PA/KP6KR were the calls—go to the Northern California DX Association, Box 717, Oakland, California 94604, U.S.A., who already are hard at work writing the cards out. A good effort by all concerned, and one for which the top dogs of DX will be thankful indeed.

However, to mis-quote a phrase, one DX-pedition does not make a summer, so we had better look around and see whatever else was happening around the bands. Conditions have been, in the main, pretty much as one would expect, with the sunspot count, apart from the period of the Kingman Reef affair at or near the normal level, maybe on occasion below par. Add to this the usual troubles of summer; static levels, gardening and paint-pot QRM, and all the other interruptions which go up to block us from the DX, and you have a fair idea of what went on. Let us, therefore, make a start by looking first at Top Band.

One-Sixty Metres

G4BNH was just in time to miss the deadline for last month, Frank having word of the activities of VP8NP. Ian is now operational on Top Band, transmitting on 1805 kHz, and listening in the DX-window area in which U.K. stations chasing Top Band DX transmit; his time is from 2300z, and his aerial a 130-foot vertical, propped up by a weather balloon, tuned against an adequacy of radials tied down; already he has worked OK1ATP and PAØHIP to show the way. Incidentally, VP8NP and VP8NS are both on from Stotterton Is.; VP8NP's shack shows a fine collection of Racal gear which seems to constitute the main station, plus a Heath rig and an Eddystone receiver, apparently an 888A. As VP8NP is in regular contact with G4BNH, no doubt the latter would be pleased to arrange any skeds.

Turning to the recent past, the writer notes that K5QHS, during his operations from FMØAYZ, K5QHS/VP2D, and FØAYZ/FG, over the period June 28-July 6, intended to concentrate on the LF Bands, during the first ten minutes of every hour, around 1805 kHz. One wonders if anyone from this side managed to raise him, in view of his expressed intent to listen, as well as transmit, in the 1805 kHz area.

As always at this time of the year, bewails G2HKU (Sheppey), the gardening and painting take their toll. Nonetheless, Ted did get a look in, and found time to keep his regular SSB sked with PAØPN, and CW with GM3OLK, GM3PFQ and PAØCFW, even though, by and large, conditions were pretty poor.

You may have noticed that picture of the Top Band talk-in station at the White Rose Rally, signing G4CPD, and being operated by Connie, G4CUY. She writes in, sportingly, to tell us that it was a bit unfair to G4CPD, taking the photograph at about the only moment when G4CPD was away for a five-minute break, he having done all the work. However, spies in the White Rose area say they are rather proud of Connie, who has no relations in the Amateur Radio fraternity but found an interest, picked up by a copy of SHORT WAVE MAGAZINE—from which she found the White Rose Club, went to its next meeting and started asking the questions, was encouraged to tackle R.A.E. and given a task within the Club organisation to make sure she stuck it out. And now she can operate Top Band, Eighty and Two, with Twenty CW an awaited pleasure when some problems inside the KW-2000 box are ironed out. Most YL operators seem to have some existing connection with Amateur Radio, so G4CUY is to be applauded the more for getting her ticket—long may she enjoy it.

Just as we were closing this section of the piece, a letter came in from G3ORP (Maidstone) who has found the paint-pots a bit of a hindrance to DX-chasing, and also that NFD partly at least sated his appetite for the chase. During the month, therefore, his activity was mainly local netting, apart from SSB contacts, on 1833 kHz with DK2QL and DJ5PN, reports both ways to both stations being at S9 + 20 dB, while CW netted contacts, around 0210z, with W1BB and W1HGT; KZ5AA and KV4FZ have been heard for short periods but not raised, signals being well below that of the W's. In addition, the KZ5AA operation appeared to be transceive, which did not help toward contacts with Europe. In addition to all this, there were the usual crop of OK/OL, GM, and GW stations booked in, both on CW and SSB.

TVI Matters

G3JGO (Slough) wrote after reading the comments on TVI in the June issue. Barry, of course, has done much over the years in the way of spreading the gospel that TVI *is* curable. As he says, some modern rigs have only bikini-style screening and long leads that are useless for decoupling at 45 MHz, the assumption being that harmonic-style TVI is a thing of the past, and the owners are often quite certain, erroneously, that the rig itself is not causing their troubles. G3KFE's own experience with his rig, admittedly, has been that K.W. stuff is satisfactory from the screening point of view, but even with a Class-AB1 PA stage, the normal Ch.1 low-pass filter is not in itself enough to keep the harmonics down to an acceptable level, while still passing 29·7 MHz unattenuated. One needs in addition a quarter-wave stub; and with a CW Class-C PA, one would almost certainly need *two* low-pass filters of any commercially-available design, used in series, to hold the level down acceptably. All of which is not to say that TVI cannot be cured—it can, given only that the operator works along the lines suggested in the *Radio Communication Handbook* TVI-solving chart, Fig. 18-12, with the additional proviso that a high-pass filter should be used in conjunction with a braid-breaker such as a ferrite-ring filter, and that *more than one* of any type of filter, low-pass on the Tx, high-pass on the receiver, or braid-breaker, may be needed in a particular case in Channel One TV areas. Indeed, your conductor is of the opinion that much TVI attributed to non-linear elements is in fact due to the need for more than one filter on a particular installation.

G3ORP had his Rediffusion TVI dealt with pretty promptly, by way of a couple of five-foot earth stakes and a screened lead from them to the set; the cause, for the record, appeared to be a GPO telephone line clipped down the wall, parallel to the TV feeder, which apparently acted as a FB long-wire aerial to put the signal on to the coaxial cable outer!

Eighty

G2NJ (Peterborough) continues his investigations into the /MM activities of the world; during a contact with G3XID the latter mentioned G4CNU/MM, operating from the *Maernk Captain*, between Europe and Vancouver, on Twenty mainly, with Forty in use on occasion during the return voyage. Mobile CW stations, which are normally rare birds have also been worked, around noon, notably G2CAS/M, RST 589 from Grange-over-Sands, and DK7EJ/M, at Monheim near the Rhine to whom Nick gave 579.

G2HKU has three power levels, one, two, or 75 watts, depending on whether he is on the QRP rig and the state of its batteries, or using the QRO gear. With the tiddler he keyed with DL6KK, DM4QHO, GM4ABO, GM3HXF, GW4XHJ, SMØCBC, SP1DA, receiving reports varying from 459 to 589, while the big rig sent its signal over the water, CW again, to K4BA and W4AX.

To try to foster some more interest and activity in RAOTA, the Old-Timers' Club, it is intended to run a net on 3740 kHz or thereabouts, 1100 clock, on the first Thursday of each month, with G2DX as net control; informal contacts between members would be made on the same frequency on the other Thursdays as well.

G3WW (Wimblington) indicates that there still seems confusion about where to look for and make one's first contacts with slow-scan TV signals on Eighty. There is a regular net on Saturday mornings, nominally 0815z but often starting earlier on 3640 kHz. Basically, one needs a cassette tape-recorder and the rig either to record signals off-air, or, given a pre-made tape, to plug into the mike socket for a first essay in SS/TV; such a received tape can then be taken to someone with a monitor to resolve the picture.

Forty Metres

If you're good at winkle-picking, this is the band for you, all the fun of the fair, and twice as much noise—although your conductor has to admit he prefers the noise of the fair to some of the broadcast-signal noises within our so-called "exclusive" territory. However, the DX is there if you look for it, and indeed it is, if anything, a more consistent yielder of the stuff than Twenty—only the QRM and noise puts one off it.

GM3JDR (Wick) tried both SSB and CW; Don notes many

evenings when hordes of PY's were working each other and not listening for any DX signals, other nights when ZS gave the only interesting signals to be had, and other occasions again when YU was about all there was. Nonetheless, CW accounted for UA9CAV, UA9LU, UD6DHX, A9XU, PY7CGV, PY2CC, PY1EHN, PY1MB, ZS5LB, ZS6SM, ZS6ZE, 9X5PT, M1C, VK3MR, CR7IZ, CR7JO, OX3LW, 9L1JT, 3D6AW, VQ9M, VQ9GP and LU8ADK, while SSB made the path to ZS1KJ, 9J2EP, VK7GK and UK9AAN. *All* these were worked between 2030 and 2130z—a very reasonable sort of time for being in the shack without XYL disapproval.

Ten Metres

Now and again, even at this bottom of the sunspot cycle and the summer doldrums, 28 MHz opens into life, as our reports on the band have shown over the months. G3USF (Keele University) has been, for various good reasons, probably more consistently able to monitor the band than anyone else in the country, with a pen-recorder continually looking at signals from 5B4CY; this has shown the path to be open as early as 0440z, and right round the clock to 0030—whether there have been any openings between these times, at night, G3USF leaves to the insomniacs to advise! As for the Mauritius beacon, it has been heard as early as 0615, and as late as 1945z, although one of the less amusing aspects of beaconry is the number of lemons who try to call and work the beacon stations! Looking at all this in terms of results, Martin notes the grand opening to Eastern U.S.A. on the evening of June 21, covering the area from Massachusetts right down into Florida, with W5GZR in New Mexico as the highlight; the opening appeared to have some element of sporadic-E but to be largely genuine F-layer propagation. *Every* day between April 28 and July 4 there were ionospheric openings, the sequence only being interrupted by an ionospheric storm. Stations worth snapping up by way of rarer Europeans have been such as HV3SJ, ONØNJ, LX1RF, EA6CN and the Corsican group, FC6ABP, FCØAMD and PØAHY/FC, who spent lots of CW and SSB time on the band. Stations heard, but not worked due to the gear tied up with a propagation investigation, included CE4EM, EA8IY, EL2AK, K5LWL/YV5, JY5TAS, LU4ACJ, LU7FAZ, LU8AJG, PY1MB, PY2HY, PY3CKL, PY4AEX, PY4SA, UA6HCZ (CW), UA6XAL(CW), RA9AEV, UK9ACT, UH8HAI, VQ9BP, YV7DJ, ZS3AW, TR8CQ, HH2WF, 5T5FP, 6W8DX, 9L1JM and 9Y4MH, plus G3ZGC/MM running 15 watts to an FT-75 just north of Portuguese Guinea and working northwards.

So never neglect Ten!

Twenty Metres

G3UZ (Goring-by-Sea) puts the ball into play, with the opinion that this last month the band has been *awful*. Even when the DX has come up, it has usually been instantly submerged beneath the hordes of Mittel-Europa stations calling it without a thought for a listen. On the other hand there are consolations—VE1AVN said that George, with his dipole at 17ft., was the loudest signal on the band. That seventeen feet, incidentally is not height above ground, but above sea-level! All in all, it added up to CW contacts with 5Z4JO, VU2JE, VU2DX, VP2GFA, VP2VPU, LU2CAP, UAØYAD, UM8FI, YV1JA, YV5ANE, JA6OP, OY7Q, LU5DON, PY4ALE, 9J2BO, UI8IAC, 4Z4NR, VK5FM, EA8FJ, 9H1DV, VE6AMJ, W6HGJ, WB6RUA and W7OK.

The letter from G2BJY (Wallsall), enclosed a delightful QSL card from listener HE9HXW, on the front of which is a picture of an enormous cat-fight over a 14 MHz receiver dial. Slightly to one side is a little mouse, labelled DX, creeping out of the melée and looking back at it, the while walking straight into the slavering jaws of the biggest cat of 'em all, just HF of the pile-up. Whoever dreamed that design up had listened to many a DX-chasing *fracas*! In the way of DX, G2BJY offers EA8JH, KH6IJ, KL7HMO, UA9JH (Tymen), UA9YAR (Altai), UK9FEA (Berezniki), UK9AAN (Ural), UAØYAD (Kyzyl), UAØOAA (Ulanude), UL7JAM, UK8AAK (Tashkent, YL operator), UF6DD, UZ3ER (Orel, a rare prefix among the U's) WA6IVV, K6QX, K7UKS and W7UQU, plus lots of assorted UA9's and UAØ's from more common oblasts, Geoff being somewhat occupied in chasing after the R-100-0 award. A second letter describes vividly the listening to DX stations around the band one day, and the DX reaction to the lunatic antics of the callers—a pity it is too long to give in full here.

G4AFJ (Nottingham) has his main interest in trying to work his buddy VP8NO and has the news from VP8 at his fingertips. VP8KF is back in the U.K. after his tour round various South American countries, and soon gets back to the grindstone in a job at Slough—his home call is G3VPW. On the DX front, G4AFJ offers SSB with SMØDZH, VP8FL, PY1MEB, VP8LP and more QSO's with VP8FL.

G4CTR (Poole) has added to his aerial farm—he now has the end-fed eighty-metre half-wave used for that and Top Band, a 14 MHz dipole, and also a 21 MHz dipole. On Twenty, odd conditions were noted on June 17, when short-skip conditions of the real sort prevailed. His collection includes SSB with W2KFG, 5V1HS/I4 (a sheep in wolf's clothing?) PY1NBA, F9ZS, F8HE, SMØENO, G3KKF, G4CUT/A, GW4ACO, W1QCO and some European

For the Humberside Mobile Rally on June 23, the Top Band talk-in station signed G4CQG and when this picture was taken G3AGX was the operator.

Russian stations. The gear for all this was the trusty FT-101.

G2NJ does not usually entangle himself with the doings on Twenty, but one interesting result of letting fly with a couple of watts of CW was a contact with UT5MD, which also netted an SWL report from a UB5 SWL, who reported him 599 in Kremenchug Ukraine.

All CW on Twenty was the G2HKU outlook on life this month, he having used that mode to work HC1XG, KH6IJ (the famed aerial designer), UK7NAA in UL7-land and YV1AD.

One was a little startled, to put it mildly, to read the heading "14 MHz CW" at the head of one of the paragraphs of the GM3JDR letter, he not being much in the habit of doing things the hard way—however, Don proved he can cope with the QRM, by winkling out YV1AD, EP2EA, UPOL/22, FP8AA, KH6HJV, KH6IEG, KH6HFJ, KH6IGC, KH6DV, UAØABV, UKØOAE, CR6XI, PY7ASV, 9M2RG, UK8MAA, UA9's, UL7's and smaller fry; he reckoned conditions on the band were between poor and variable.

Fifteen Metres

GM3JDR spent some time doing his thing on Fifteen with good effect. His CW found its way, despite the poor conditions generally, to SV2RM, W5FGO/MM near TY, UK8BAJ, UI8AAS, UK8AAI, UKØBAD, UH8BY, UA9's, UL7's, 5B4AU, LU3EX, OA4AHA, HK3CTJ, JA1SFQ and VS6GM.

Quite a lot of operating on 21 MHz appears in the G4AFJ log this time—clearly a fugitive from Twenty! SSB raised VP8FL umpteen times, also CX6AM, LU1HDC, CX6AM twice, PY7GAT, HV3SJ, ZE2JC, VQ9HCS, 5Z4NH, CR6WW and yet more VP8FL contacts. Interestingly enough, VQ9HCS was using five watts to a TA-33Jr beam, and was readability 4 to 5 at G4AFJ.

G4CTR encountered UK2FAA, CT1DR, PY1NBA, LU2BA, LU6HGX and quite a string of U.K. stations during short-skip conditions.

G2NJ has put his rig on to other bands on occasion; when he tried Fifteen CW, his CQ was answered by LA8ON who was 599 with his two-watt Tx—who needs QRO?

Strictly a midnight operation was the G2HKU plan of campaign on the band this time, and it seems to have paid off, by way of CW contacts with VE3DYJ, VA4GV, W1TW, W4AX and WB9JUL. This goes to prove that even though you expect a band to be dead at the time, it is always worthwhile just to flip over it and see if it is in fact alive in some direction or other—often these sort of openings occur 'way outside normal opening hours.

Odd Items

G2BJY's views, expressed last month, on the desirability of home-brewing all one's gear brought, as we knew it would, a reply. G3YRR (Grimsby) has two businesses to run, not to mention his radio—broadcast, that is, as against amateur—activities, and he barely finds time to get in any operating hours, let alone time to build his own gear; Charles got quite hot under the collar about this, and reckons G2BJY's ideas, if adopted, would put him, and others like him, off the air. There was some more in like vein, but it was burning a hole in the paper it was written on!

G2HKU doesn't see how G3YJS can claim DX is harder on SSB than CW. Ted agrees that it was tough years ago when phone operators had to use AM and the phone end of the band during an open period was just a mass of heterodyne whistles, but reckons that nowadays the SSB addict is at an advantage by virtue of the sad fact that most "DX stations in residence" as against DX-peditions, are on SSB almost all of their operating time—a point one is inclined to agree with.

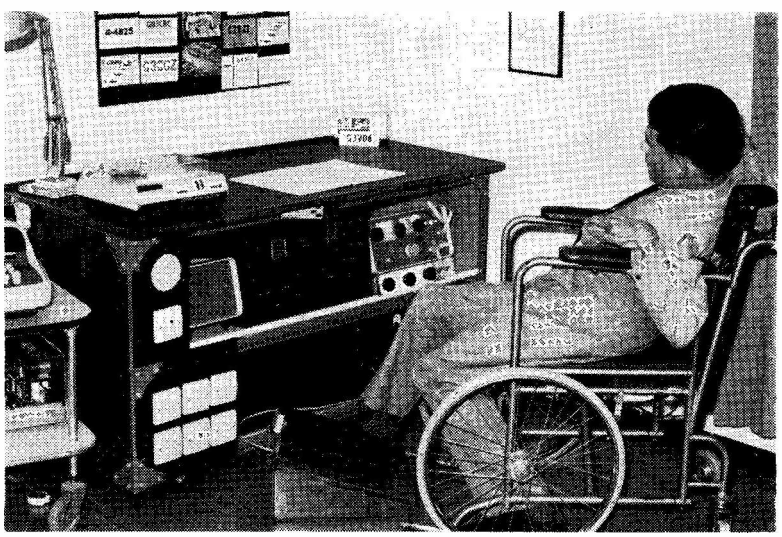
G3ORP is busy with loaded verticals for Top Band, the plan being to try using arrays to be "steerable," which is a practical arrangement in a reasonable space, and much more practicable than any fixed horizontal beam for the band. However, one major snag has been noted which is that TV timebases are audible all over the band, on occasion at S9 or more.

BARTG write in with some notes on their recent RTTY contest. The number of logs was up by 79% over last year, which seems to indicate that they have a good formula, and conditions were kind during the contest period. No less than 29 stations managed to show entries with all six continents represented, including a very rare one in the RTTY sense in UA9PP. A total of 103 stations took part, world-wide, of which only eight were G's. G3MWI was the top U.K. operator, in tenth place overall, followed by G3YDR 28th and G6JF 30th. Overall winner was SM4CMG. However, a sad note in the story indicates that none of the African stations sent in either contest or check logs, so no-one will be able to be nominated for the RTTY WAC award.

On the contest front we have results from the 1973 CQ WW CONTEST. In the single-operator all-band category, G3LNS was 7th, overall, with a score of 2,145,287 points. G3HCT showed the world how to do it by being cock o' the walk on 21 MHz, while GM3YCB and GW3UCB were both placed in the Top Band section. Back to the single-operator all band category and we notice our old friend ZS6ZE/G3LZQ managed to make top score in Africa to take the W6RR plaque. Congratulations to all of these on their efforts.

The European DX Contest is due along now, the CW LEG being August 10-12, and the PHONE September 14-15, starting in each case at 0001 on the Saturday, and ending 2359 Sunday, GMT of course. Use only 36 of the 48 hours, taking the twelve-hour rest period in

Reporting the HF Bands



Dick Boydell, G3VOA, is at the Oakwood Centre, Kelvedon, Colchester, Essex. His disablement is such that he operates entirely by "foot control," much relay circuitry being involved, with levers on the gear worked by his toe—and he can transmit CW using his right foot. For logging, QSO's are taped, then transcribed by typewriter and stapled into the log book. There is much else of great interest that we could say about G3VOA, but this will be enough to prove that even such severe disabilities can be overcome. By the way, G3VOA is CW-only because he has a speech defect, so he prefers to receive on phone. Let those who can operate normally offer up a silent prayer.

not more than three lumps. Exchange RST plus serial number starting at 001. Europeans use the ARRL country list plus call areas in JA, PY, VE/VO, VK, W/K, ZL, ZS, UA9, UAØ as the base for the multiplier. In addition the multiplier on Eighty may be multiplied by four, on Forty by three, and on 14/21/28 MHz by two. Non-Europeans base their multiplier on European countries worked. Final score is the sum of QSO points, plus *QTC* points times the *sum* total multiplier on all bands. Now this QTC business: Additional points can be gained by QTC, which consists in reporting one's European contacts back to another station later in the contest, giving time, call and QSO number, *e.g.* 1300 DK2BI 134. Each QSO may be reported back only once, and not back to the originating station, up to ten QTC's being permissible in a series. Keep a record of the series and number of QTC's in each series, *e.g.* QTC 3/7, indicating the third series and that seven QSO's are being reported on. Each QTC counts a point and can be to the same station, but only the first contact with the station to whom the QTC was sent is valid for QSO points. Suggested you use the official DARC log sheets, or rule your own at forty contacts to the page.

And if you can sort all *that* out, mail logs by September 15 (*CW*) or October 15 (*Phone*) addressed to WAEDC Contest Committee, D-895 Kaufburen, P.O. Box 262, West Germany. Well, we've done, our best for them.

G4BJM writes to say that he and WB2EZG are planning a trip to Monaco, 3A2, active from August 25 to September 2; although they know the call will be issued, they will not get it until they are there. Aerials are also organised and the rig will be TS-520. QSL *via* WB2EZG, either bureaux or direct, *QTHR*, enclosing adequate return postage.

DX Pointers

Plans by the VQ9 gang to activate Desroches, September 3 to 17, seem to be settling nicely, with VQ9BP, VQ9D and VQ9DM in on the game, each signing his own call /Desroches, and each looking at a particular band; QSL's will go to VQ9BP, Box 220, Mahé, Seychelles.

The Mount Athos expedition now seems to be firm for August 18, and they intend to thump the bands pretty hard—but the current Near East situation may foil this.

If anyone was misguided enough to work "FO8CI," claiming to be on Clipperton and giving an F9 as the QSL manager, then they *deserve* to be disappointed—this was one of the more blatant manifestations of Fred Phoney. His blood brother was also on, claiming to be "ZA3ZP"—we thought it was a long time since ZA had been pirated!

VK9YV is still being mentioned on Cocos-Keeling, but there doesn't seem to be much in the way of firm information as to his operating schedules and frequencies, but a look at 14285 kHz from 0500z onwards *might* be worth while.

Once in a while, apart from naming becalmed reefs as countries, a genuine country gets created; this now seems to be the case with Transkei (South-East Africa), for which the constitution is being drawn up.

The absence of 9N1MM (Nepal) of late is now indicated to be not so much a matter of the coup as of bureaucracy—a change at the Communications Ministry for one who doesn't either know about or want to know about Amateur Radio.

If you nip into the shack a bit smartly when you get the *Magazine* this time, you might be able to work Nauru, as JA10CA is down for August 2-6, all bands, all the time.

Looking back into history, and the Don Miller saga of DX-peditions, we hear that WØBN has the logs for all the W9WNV DX-peditions, so anyone outstanding a QSL card can try dropping WØBN a line.

Should you run across a station signing with the prefix SQ in the next few months, it will be an SP; they have the new prefix from mid-July until May 1975 as a commemoration of 30 years of the Polish People's Republic.

If you are looking for Cook Is., keep an ear open for ZK1CL around 14185 kHz at 0640 plus/minus an hour or so; his QSL address is c/o Radio Station, Aitutaki, Cook Is. ZK1CY is *ex* ZK1MA, active as ever and taking his QSL's *via* W6KNH.

If you want to work a real TA, try looking, up till August 7, for TA2BK, who is DJØUJ at home; he may also sign TA2BK/1. It would be a good thing to search for this one around 3790-3800 kHz, 7080-7095 kHz, or 14190-14210 kHz.

Wind-Up

That, dear readers, is that, for another month. Your reporting deadline for next time will be August 13 arrival, addressed to CDXN, SHORT WAVE MAGAZINE, BUCKINGHAM, MK18-1RQ. Next date *September* 10, latest. Till then, good hunting and no TVI.

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* * * THE MOBILE SCENE * * *

SOME PICTURES, AND EVENTS TO COME

OF the 20 or so Rally events arranged for this Season, 14 have now been played off with, in general, good attendances and satisfactory results on the trade side.

Mobile Rallies have become more and more social occasions, to which people go to "see and be seen." The old idea of having organised competitions (in the radio amateur sense) has long since been discarded, though most Rally organisers realise that something has to be arranged for the non-radio visitors, particularly to keep the children amused. The most important of the laid-on features for any Rally are the trade stands, the raffle and the entertainments, these latter becoming more ambitious each year.

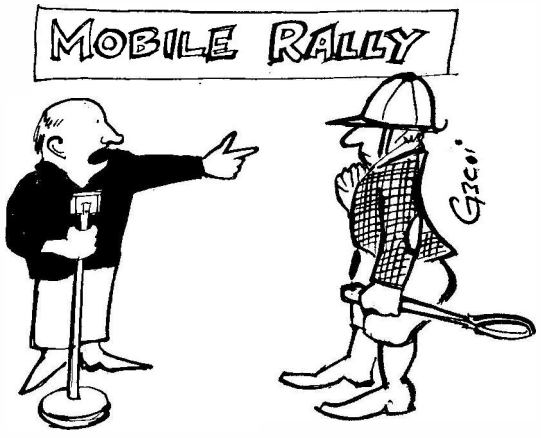
With more sophisticated equipment available for mobile working, the /M installations to be seen nowadays are a good deal neater and tidier than they were even ten years ago, when it used to be worth running a competition on site for the "best mobile rig," this generally meaning in the home-constructed sense. When it was a matter of valve-type construction, with very little commercial gear available, some very good installations were to be seen, in most cases tailored to the vehicle. Antennae, too, have become less obtrusive and nowadays along the road generally you can only recognise a /M by the unusual length or mounting of the whip, or the shape of the aerial if he is VHF.

As well as long-distance contacts within the U.K., some remarkable DX is being worked by /M's—sometimes with mobile installations used static from a favourable location—even VK/ZL QSO's being reported.

The following is about all there is left in the way of Mobile Rallies for this season. We hope that they all have decent weather, for a good day out.

August 4: RSGB Rally at Woburn Abbey, Beds.

August 11: Claimed to be the "No. 1 amateur rally event," the 17th in the long series of Derby Rallies will, as usual, be at Rykneld Schools, Bedford Street, just off the Derby outer ring road. Open at noon, with free admission and ample parking, there will be numerous trade stands (no further trade space now available, and



" . . . now for the winner of the most original mobile rig . . . "

Typical scene round the trade stands at recent Mobile Rallies, when there is a crowd of eager buyers looking for bargains. This picture was actually taken on the White Rose occasion at Leeds.

waiting list for possible cancellations), static displays, a brass band contest, tombola and the famous monster sale, with something for everyone. Refreshments on site and talk-in on 160m. (G3ERD) and two metres (G2DJ/A)—T. Darn, G3FGY, *QTHR*. (*Tel.: Ripley* 2972).

August 11: Torbay Amateur Radio Society annual Mobile Rally at Newton Abbot Rugby Club ground, with talk-in by G3NJA/A on 1862 kHz and G8IUI on 145·0 MHz. There will be displays by Army Signals, also trade stands, refreshments and bar from noon.—Details from L. H. Webber, G3GDW, *QTHR*.

August 18: Preston Amateur Radio Society Mobile Rally at Deepdale County School, St. Stephen's Road, Preston, 11.0 a.m. till 5.0 p.m., with talk-in on 2/160m. Trade stands, bring-and-buy stall, and refreshments.—G. W. Earnshaw, G3ZXC, *QTHR*.

August 18: Bromsgrove Mobile Picnic, Avoncroft Museum, Bromsgrove—J. Dufrane, 44 Hazelton Road, Bromsgrove, Worcs.

September 22: Harlow & District Amateur Radio Society annual event, at Netteswell School, Harlow, as last year, with talk-in on Top Band, 80m. and 145·00 MHz, signing G6UT/A. Attractions will include trade stands, bring-and-buy stall and a grand raffle. Free admission and parking, refreshments available on site.—B. G. Capper, G4BDC, 36 Woodhill, Harlow, Essex. CM18 7JT, *or* B. W. Nappey, G3YDI, *QTHR*.

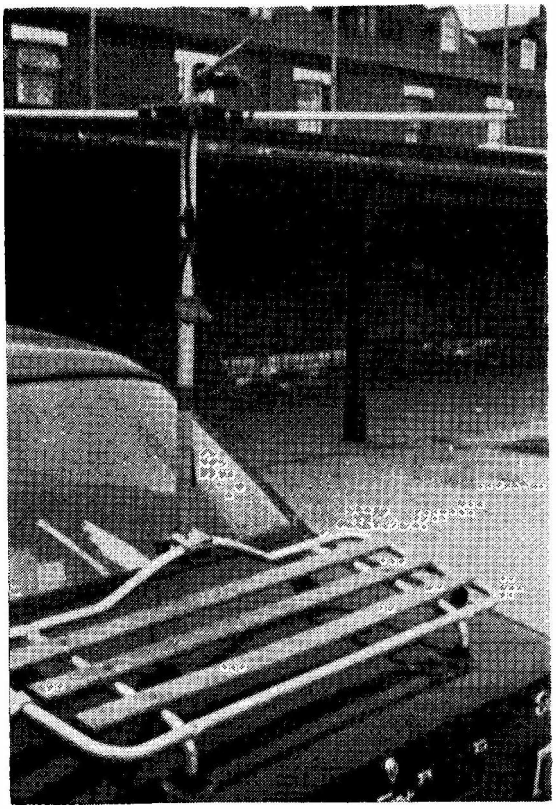
September 29: Organised by Peterborough Radio & Electronics Society, at Walton School, Mountsteven Avenue, off Lincoln Road, about four miles north of Peterboro' city centre. Talk-in

One of the trade stands at the Humberside Rally on June 23 was that of G.M.B. Electronics, Scunthorpe, showing a range of components and equipment for the radio amateur.

Among the traders supporting the Northern Mobile Rally was the well-known firm of Birkett, Lincoln, suppliers of a wide range of items in the Amateur Radio field.

2m./160m. from about 10.0 a.m. for the 11.0 a.m. opening. There will be trade stands, a raffle and refreshments available on site.—A. Jackson, G8GNV, *QTHR*. (Tel.: *Castor* 353).

We shall be glad to have reports and photographs covering these events, as soon as possible after they take place, addressed: "Mobile Scene," SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ.



Neat mounting for a J-Beam two-metre crossed dipole array, shown by G8ERX/M at the Humberside Rally. It is fitted to the luggage rack of his Ford Escort and the whole assembly can be dismounted without leaving any scars.

WENT MOBILE THIS SPRING

NOTES AND EXPERIENCES

M. N. SALMON (G2CKM/M-DJØGI)

THERE are those who are experts in mobile operation both for VHF work and for DX on the HF bands, and those who have never tried it.

Until early this year the writer was in the latter category. As business commitments demanded trips to Germany very regularly, involving weekends away, it was decided to take out a German alternate licence and go mobile. The call DJØGI was issued and used during the Spring this year.

The facts for the less expert, like the writer, are as follows: The rig is an FT-200 with a DC inverter; the antenna is a G-Whip tribander mounted on the roof, above the position of the rear-view mirror; and *no* extra precautions have yet been taken to suppress the electrical system of the Triumph 2000!

The fitting of the mobile equipment demanded that no mechanical changes should be made to the car. So a G-whip base was inserted instead of the broadcast receiver aerial feed-through base. (The broadcast aerial can be screwed on when the car is in normal use).

The coaxial lead from the feed-through base is carried between the rubber and the windscreen down the front of the door post, passenger side, and is invisible except for 6 inches before it goes under the floor carpet.

The very first contact in U.K. to test the rig was with VQ9R, the report being 5 & 7 on 14,292 kHz. Ten minutes later a normal schedule was kept on 3710 kHz with only slightly less than usual signal reports of 57 to 59 throughout U.K. and 56 in ON4.

During the first mobile trip to Germany, between March 10 and 22,9H1, VE3 and LA were worked on 14 MHz, and ZB2, ZC4, ZE1 and WØ (at S9+5dB) on 21 MHz.

These were in addition to most Continental EU's and regular contacts back into the U.K.

Some More Results

With this first taste, the second trip was taken a little more seriously and the result was a mobile WAC and some marathon QSO's while travelling on the auto-

bahns across Germany.

Of 135 contacts made during the period April 29-May 10, 35 countries were worked including the following: *On 80m.*, ZL4, LA, SM, DK, G, GD, GM, GI, GW, EI, OZ, ON4, F. *On 20m.*, VU2, 9H5, IT9, SVØ, I, JR1, W, 5B4, OY7, CT1 (*mobile*), 4Z4,PAØ, EP2, LZ1, ISØ, PY2, EA3, YO9, YU, OH, SP, HV3, 3A2. *On 15m.*, 5Z4, JH2, OY, LA, W, YO. *Ten metres*, 5B4, PY1.

Many countries were worked on 80m. as well as 20 metres. Two unusual QSO's of considerable duration were with WA9EZV/AM at 33,000 feet above the Southern Mediterranean which developed into a three-way with CT1DVA mobile near Lisbon. This lasted for one hour.

The second contact was with SVØWXX on the Levkos Is., 59 both ways for three-hours while travelling from Hanover to Frankfurt on the Autobahn. A 30-minute tape recording of much of this QSO is a permanent record.

If one can fully suppress the car, use a boom mike and Vox. The driving procedure then remains unaltered.

/M Licence Procedure

With regard to obtaining a mobile licence, the U.K. authorities grant one to a licensed amateur on payment of the £1·50 extra fee. On the Continent, procedures vary. Whereas the writer now has an annual licence for Germany (which took several weeks to obtain through the main post office of the local district in Germany) the visitor can obtain a 3-month temporary licence through the DARC, the Amateur Radio organisation for Germany.

Some General Points

The writer's experience of locations is at variance with normal antenna siting practice. It was found that contacts could be continued while travelling through cities and between buildings, as evidenced by a continuous QSO with 9H5D while driving nearly an hour right through the middle of Hamburg while working on 14,309 kHz. Uninterrupted horizons must be advantageous but do not seem essential. It is usually pointless to call CQ, but a little judicious listening for the end of a QSO and a brief and polite break-in with a mobile callsign is all that is required.

Keeping one's log is the most difficult procedure and frequent stops in lay-bys become necessary. Perhaps that is the advantage of longer QSO's—less record keeping!

A standing-wave meter in the antenna lead readily visible from the driving position is essential. Generally, retuning of the aerial is not as necessary on the HF bands as on 80 metres, where the range of operation is limited to a maximum 15 kHz either side of the resonant frequency of the whip. With a little care, the whip extension can be marked with a frequency scale for 80 metres. In the case of G2CKM/M 10 kHz per centimetre of aerial length was typical.

The VSWR was normally better than 1·8 : 1 on all bands and often as low as 1·1 : 1 at the resonant frequency of the band in use.

The foregoing is offered in the hope that some others, less expert like the writer, can feel encouraged to put the rig in the car with a minimum of "performance" to achieve the installation and go mobile for a new interest and without fear of TVI.

G2CKM/M has a G-Whip mounted on his Triumph-2000 and when out mobile can work all bands 10-80m. His German callsign is DJØGI. He has had many interesting QSO's, including DX on 14/21 MHz—see text.

CONVERTED CONVERTER FOR FOUR METRES

SIMPLIFIED APPROACH USING STANDARD VHF/FM TUNER UNIT

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

THIS converter is probably not going to contribute much to the DX worked on Four but it does provide a very easy and inexpensive way of finding what is happening on this band. In conjunction with the usual communications receiver, it is probably the easiest method of receiving signals on 4 metres, short of buying a ready-made 4m. converter. The idea is not a new one, and consists of modifying a standard tuner head intended for approximately 88-108 MHz, so that the 70 MHz band can be covered.

First, a few notes on advantages and disadvantages: Probably the great points in favour of the modification are the simplicity and low cost. As the tuner or converter will have been designed for 88-108 MHz, only quite a small shift in coverage in the LF direction is needed, so difficulties in trying to use the transistors at a higher frequency than originally intended cannot arise. The output of the tuner will be 10·7 MHz, and would normally go to the AM/FM or FM receiver IF stages. Instead, this will go to the communications Rx input which will be tuned to around the 10·7 MHz frequency required.

In the case of the unit illustrated, the cost was a little less than that of a crystal only, for a crystal controlled converter. Remembering that the present converter will not be crystal controlled explains what is probably its greatest disadvantage. It will not have crystal-controlled stability, and will not allow frequencies in the 70 MHz band to be read off the communications receiver band-scale in terms of tunable IF, as with a crystal controlled converter. There is no easy means of overcoming this, with a tunable converter. However, it need not be too much of a drawback for anyone wanting to find what is happening on 70 MHz. An incidental advantage of the tuning of the converter is that breakthrough on the receiver forming the IF is less important, and can be dodged by tuning the converter.

Sensitivity is likely to be reasonable—most tuner heads of this kind should allow the receiver to give at least a 5/7 signal with 2-5 μV at the worst. The overall sensitivity of the system is going to depend somewhat on the main receiver. The unit actually employed gave readable signals at 1 μV, with an Eddystone 730/4. Assuming that this is a first step to get on 4 metres so that only a dipole will be employed, this is going to cover quite a reasonable local area. With a dipole only, at 10ft. high, signals have been consistently read at 50 miles.

The Tuner

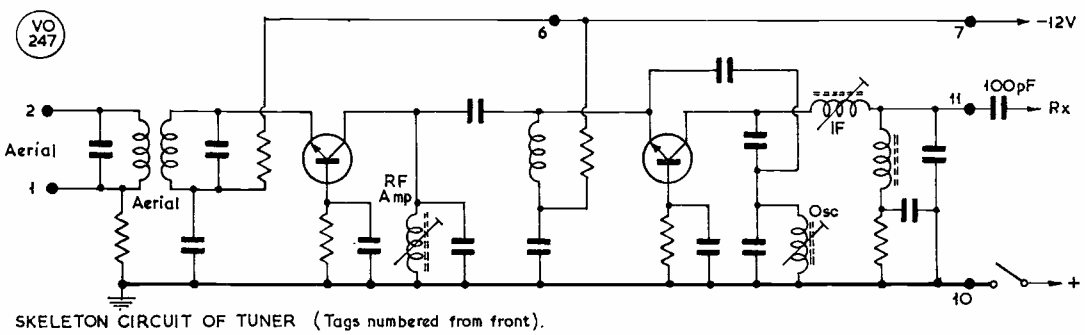
As it is no doubt possible to use tuner heads of VHF converter units other than that illustrated, a few points might be noted. The diagram shows a typical skeleton circuit. There is one RF stage, with broad-banded coupling for a dipole, followed by the self-oscillating mixer. Coverage is normally about 88-108 MHz, and output is usually at near 10·7 MHz. Tuners of somewhat better type will have a separate oscillator. Silicon planar or FET transistors are likely to be involved, depending on the design.

The tuner employed has a robust 2-gang capacitor, double-sectioned for FM and AM tuning (latter sections not used here). Very many tuning heads are of this general type.

Whatever the source of the tuner, it is necessary either to have data showing external connections, or to sort these out by reference to the circuit. Some heads have provision for working straight through as relatively inefficient short-wave band amplifiers. This is not required, and connections for this are ignored if present. Feedback for AFC will also not be needed.

Though it might be possible to use those tuners which employ variable capacitance diodes for tuning, it is felt better to avoid this type for the present purpose.

What is wanted, then, is a straightforward commercial VHF tuner head, basically similar to that shown in the diagram, soundly designed, with known connections for external circuits. *(over*



Circuit of a typical VHF/FM Tuner Head

Testing

It is wise to check the working of the whole set-up before making any modifications at all to the tuner. This will assure that connections are in order, and the tuner is working.

Reception facilities will be those available on the communications receiver, which will not normally include the FM detector present in a VHF/FM receiver. However, various AM signals are usually available from time to time on the 88-108 MHz band. In addition, the communications receiver can probably give reasonable slope detection of FM. Try all the degrees of selectivity available. Acceptable reception of speech should be quite possible, but do not expect hi-fi! With an external aerial the set-up should prove lively and sensitive.

Frequency Shifting

The frequency can be lowered by increasing the inductance of the appropriate circuits, or by shunting additional capacitance across them. The tuner illustrated had brass cores for RF amplifier and oscillator circuits. Replacing these by VHF ferrite cores of the same thread gave enough shift to bring in 70 MHz.

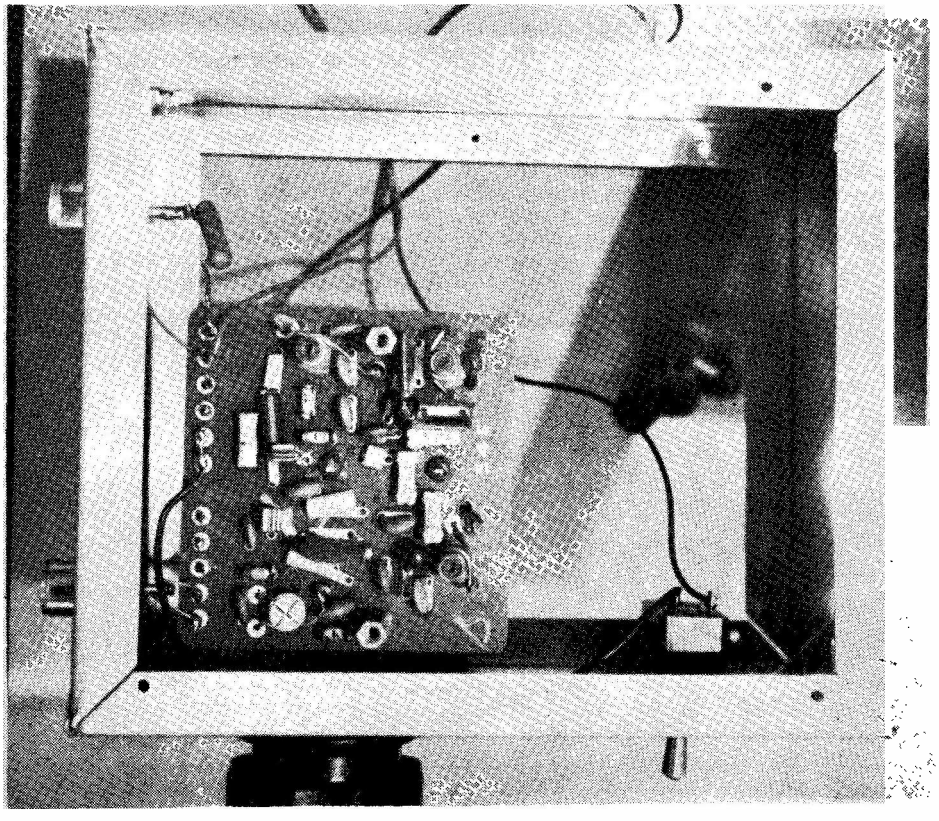
The aerial was tuned by parallel capacitors, and these values have to be increased sufficiently to shift the frequency, using small pre-sets. An alternative solution is to cut the inductors at one end and add about 2 turns to the windings, or to re-wind completely, or to put small air-spaced trimmers across all the inductors, if space permits.

While these changes are being made it is necessary to have available a signal generator or other means of finding what the working frequency is. If the generator only goes up to 35 MHz or so, a harmonic can be taken, provided an initial check over 88-108 MHz or some comparable means is used to make sure the order of the harmonic is known. It would also be possible to use 70 MHz transmitter, shifting tuner circuits LF until the signal can be tuned in correctly.

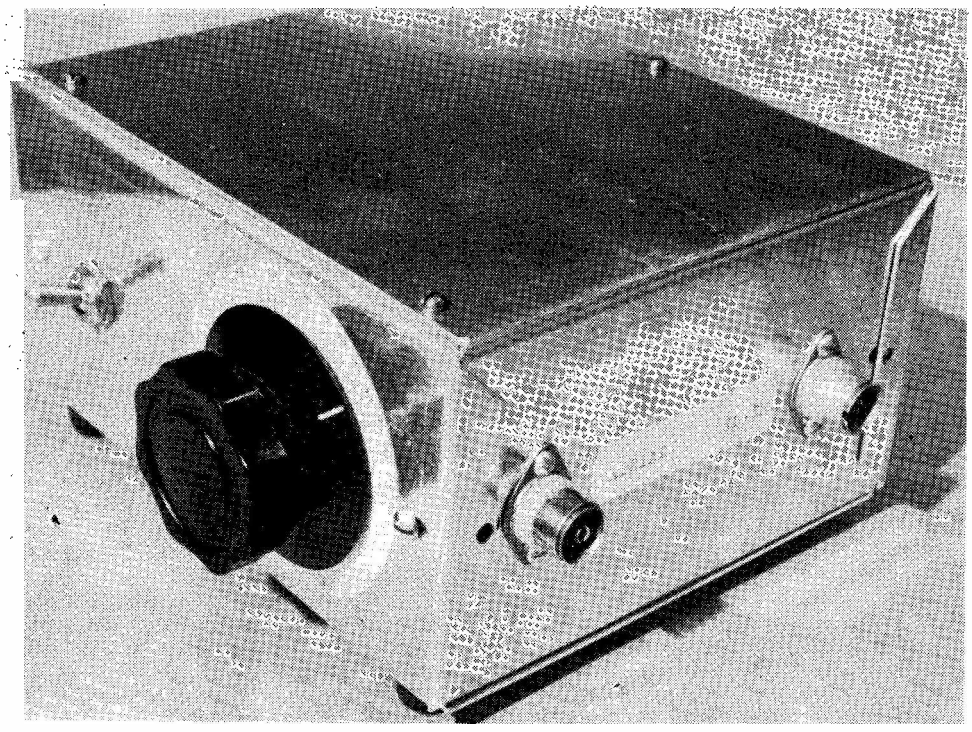
When the band has been located, the aerial and RF amplifier circuits can be peaked up on it. Or these can be aligned in the usual way for a wider band, if signals on other adjacent frequencies are also wanted. The 70 MHz band will only occupy a small part of the full tuning range. The aerial circuit is likely to tune very flatly indeed.

Receiver Coupling

The tuner head employed capacity coupling to the IF which normally followed it. After trying various



Inside the converted converter, with battery space



Converter as completed, with coax input-output sockets

circuits, it was found that simple capacity coupling *via* 100 $\mu\mu$F was perfectly satisfactory. The IF coil in the tuner is peaked up after construction is complete, at about 10·7 MHz.

Construction

This is not going to be too critical. A screened box is preferable to avoid unnecessary break-through of signals at the main-receiver frequency. One co-axial socket is for the aerial feeder. Another socket takes a co-axial cable for the output to the Rx aerial socket. It was found that having this unnecessarily long reduced signal strength, and changes to this cable may make necessary slight adjustment of the IF coil in the tuner.

It is handy to have the batteries in the case. (Do not forget to operate the "off" switch as well as that in the receiver!) If the tuner is intended for 12v. as can well be so with mains and some other receivers, do not expect it to work from a 9v. battery. You should, in fact, provide the working voltage intended by the original designer.

A knob with dial was found convenient for "setting the band" but in common with many capacitors of this type, a geared drive is present, so it is necessary to note how many times round the knob goes, from one extreme position. (This was to accommodate a cord drive with small drum.) The tuner had a rigid circuit board and was not found to be susceptible to normal vibration or movement, but has not been used in a vehicle where this could be important.

Aerial

Assuming the whole thing is to be finished in a few hours, the aerial can be a dipole 79½in. long. A wire dipole of this type has been used with success, but one constructed from alloy tubing is probably easier and better. Two tubes, about ¼in. to ½in. in diameter, can be mounted with their inner ends about ½in. apart in an electrical junction box. The twin feeder or co-axial cable is attached to the screws holding the inner ends. Put a lid on the box, or seal a co-axial cable against rain.

This aerial is easily raised on a light pole, and no means of turning it will be needed as it is not very directive. In some cases it might be possible to connect an

ITEMS REQUIRED

Standard FM Tuner Head. Chassis about 5 x 6 x 3in., lid 6 x 5in. One 100 $\mu\mu$F capacitor. Two small 30 $\mu\mu$F trimmers (if necessary, *see text*). Two VHF ferrite cores, if needed for coil adjustment (*see text*). Main tuning knob or dial. Rubber mounting feet for chassis. Two PP1 6v. batteries and connectors.

existing TV aerial, to find what happens, but its suitability will depend on the channel for which it is intended.

If this is a first excursion on Four it should be remembered that activity can well be at a very low level at some times, while at others (as during a contest) many signals are likely to be heard. The same aerial will in any case give reception of other signals, found from time to time on near-by frequencies.

The items listed are for the construction of the converter as shown. The case size could be reduced if smaller batteries are fitted, or if the batteries are external. The scale was drawn on card, and the control knob is positioned so that the 70 MHz band falls on the scale. (Otherwise a 360° dial, or knob with two markings, is required.) The actual ganged capacitor is 10·5 $\mu\mu$F and the drive approximately 7 : 1. Tuning in of signals is possible at the converter, leaving the main receiver on a clear channel near 10·7 MHz.

RF UNIT FOR FOUR METRES

SIMPLE TEN-WATT JOB

THIS unit is the RF section of a 4-metre transmitter, and is intended for use with a separate power-supply/modulator, to be described later. The two units form a 10-watt 70 MHz crystal controlled transmitter for AM operation. As on two metres, this power input can be useful, and lower power than this has often been run. Maximum input to the QQVO3-10 PA is listed as 76 mA at 300v., which would be over double this power, but the power pack and modulator mentioned is not capable of this, while a doubling of power would not give a very significant increase in signal strength at the receiver—about half an S-point, at 6 dB per S-point.

While realising the advantages of having a VFO, the 4m band is one usually having plenty of clear frequencies, so the use of a crystal or two is practical, and greatly simplifies the construction.

It should be noted that an almost identical circuit can be used for two metres, this requiring only changes to the crystal oscillator, and to the driver anode, and PA grid and anode coils. Details for this will be given later.

Oscillator

This is V1 in Fig. 1. It is a type of oscillator which provides an output at a harmonic of the crystal frequency. In this particular case, crystals with a frequency in the vicinity of 8·8 MHz are used. L1 is tuned to the 4th harmonic, or 35·2 MHz. The following stage doubles to 70·4 MHz, or whatever the chosen frequency is to be.

To find the expected transmitter frequency, the crystal frequency is multiplied by eight. This should prove to be quite accurate, though a little "pulling" in frequency can arise from adjusting T1.

This type of circuit seems trouble-free and easy to get working. In some similar circuits, a 22 pF fixed capacitor will be seen instead of T1. However, the latter does allow some adjustment of frequency.

Operation is correct when L1 is tuned to ×4 the crystal frequency, and V2 is doubling. This is repeated because incorrect setting of these circuits is about the one fault which may arise. If L1 is wrongly adjusted to

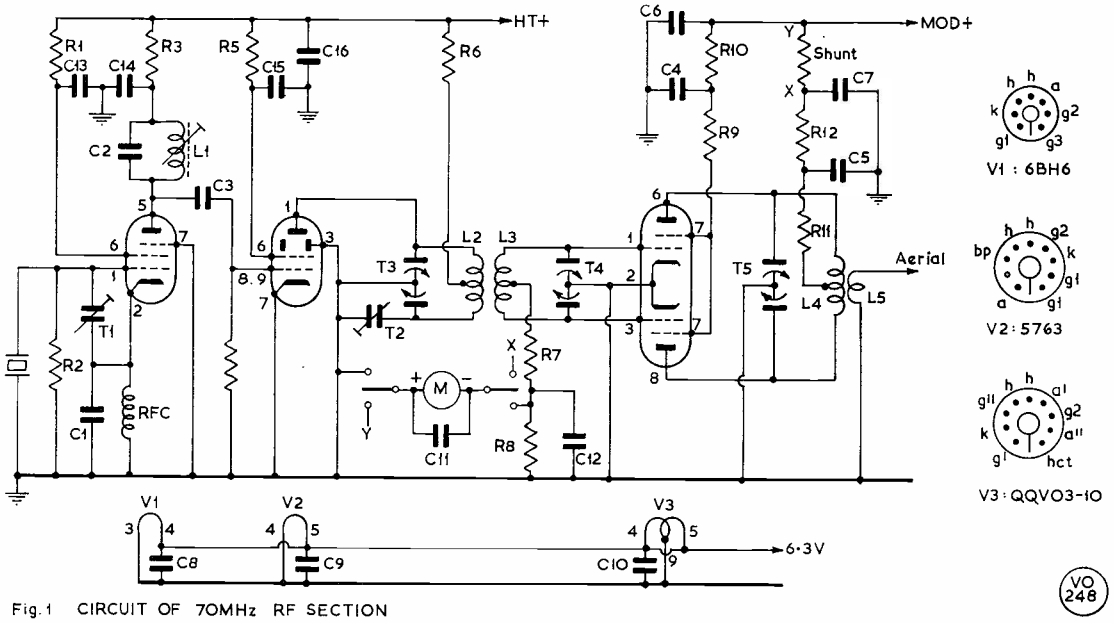
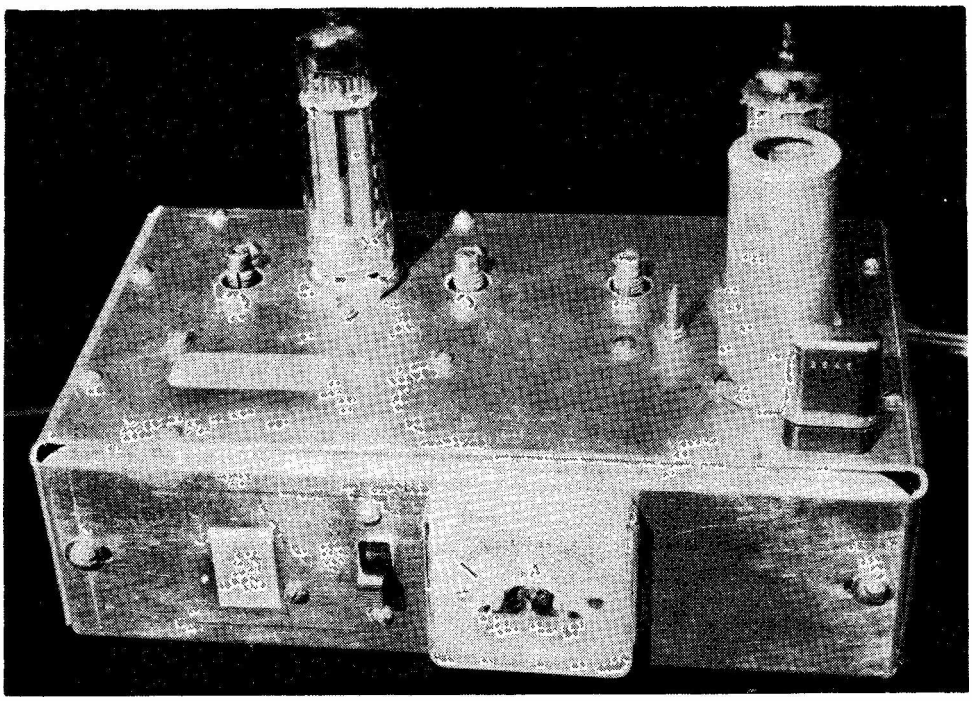


Fig. 1 CIRCUIT OF 70MHz RF SECTION

VO 248



General appearance of the Four-Metre RF Unit. Meter is switched to read grid or anode current.

the 3rd harmonic, it will be tuned to 26·4 MHz (with the 8·8 MHz crystal), and this could be followed by incorrectly tuning V2 to triple. This would give a final frequency of 79·2 MHz, which can fall within the tuning range of the PA coils. It need not be said that this frequency must not be used. This trouble can be avoided by tuning L1 with a wavemeter, or by checking with a receiver that tuning is not at 26·4. (The usual receiver will not go up to 35·2 MHz.) The output of the transmitter can also be checked by absorption wavemeter, a converter and receiver to ensure that it lies in the band.

Table of Values

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

C1	= 100 $\mu\mu$F*	R1	= 27,000 ohms, 1w.
C2	= 12 $\mu\mu$F*	R2	= 100,000 ohms, ½w.
C3	= 22 $\mu\mu$F*	R3	= 2,200 ohms, ½w.
C4, C5,		R4	= 82,000 ohms, ½w.
C6, C7	= ·002 μF, 600v.	R5	= 33,000 ohms, 1w.
C8, C9,		R6	= 270 ohms, ½w.
C10, C11,		R7	= 22,000 ohms, ½w.
C12	= ·01 μF, 25v.	R8	= 1,000 ohms, ½w.
C13, C14,		R9	= 47 ohms, ½w.
C15, C16	= ·01 μF, 500v.	R10	= 39,000 ohms, 1w.
T1	= 20 $\mu\mu$F, preset	R11	= 47 ohms, ½w.
T2	= 10 $\mu\mu$F, tub. trimmer	R12	= 10 ohms, ½w.
		Xtal	= 8·8 MHz, *see text*
T3, T4	= 25 $\mu\mu$F, butterfly	V1	= 6BH6
T5	= 20 $\mu\mu$F, wide spaced butterfly	V2	= 5,763
		V3	= QQVO3-10

Notes: Capacitors marked * should be silver mica. All other fixed capacities disc ceramic. RFC 2·5 mH. Meter scaled 0–5 mA, shunted. Chassis 7 × 4 × 2 ins. "universal" type, with 4 × 2 in. flange side. V1 to have can with skirted holder; V2, V3 non-skirted.

Doubler

The 5763 was found to give easily enough drive, so it is run at well under maximum ratings. It has a balanced anode coil L2, tuned to the 70 MHz band. T2 is to balance the anode capacitance, and its setting is not very important.

Any switching provided in the power supply should be arranged so that HT can be applied to V1 and V2 only, for tuning up purposes. This will be so with the power unit to be described.

Power Amplifier

The QQVO3-10 is docile and efficient on two metres, and does not of course need any neutralising or tricky adjustment here. Grid current through R7 is shown by M1, and is set at roughly 2 mA, for 44v. bias. R8 merely completes this circuit.

The same meter is switched to read anode current, and a 50 mA range was adopted, the shunt being arranged for this. If higher power is to be run, the range needs shunting to 100 mA.

L2, L3 and L4 are all tuned to the operating frequency. Some circuits leave L3 untuned, but tuning peaks up grid current and is likely to help suppress unwanted frequencies. L5 couples the feeder.

(*over*

Chassis

No panel is used, and the chassis is 7 × 4 × 2in. A screen is provided across the holder for V3, as shown in Fig. 2. If a "universal chassis" is used this screen can be an extra 4 × 2in. flanged side.

First drill and punch the required holes. Place the holder for V3 so that tags 1, 2 and 3 are to the left of the screen, as in Fig. 2. Cut the screen so that it will just clear the holder and tags 4 and 5 (heater). It can then be bolted in place.

The front runner is punched for the meter, and a slot is cut for the slide switch. Insulated pillars or tag strips are bolted in place to support C5, L5, meter shunt, HT positive, modulated HT and heater connections.

Wiring

Heater leads are run against the chassis. All connections in the RF circuits are as short and direct as possible. This will be particularly important if the layout is to be used for 144 MHz, as described later. By-pass capacitors such as C13 and C15 should be right at the appropriate points, with negligible leads. R9 is directly adjacent to pin 7. Stout chassis returns are provided for T4 and T5.

Use a suitable length of 4-core flex, or make this up by twisting individual coloured leads together. This lead has a plug to match the multi-way outlet of the power-supply/modulator.

Meter

The switch is actually fixed to the front runner, but is wired as in Fig. 2. With the switch up, grid current is read on the 5 mA meter, R8 remaining in circuit at all times. With the switch down, the shunt is across the meter, to read anode current.

A little 30g. or any similar resistance wire is suitable for the shunt. A test-meter is clipped from R12 to Mod.HT, with a 2K or similar potentiometer and 9v. battery in series. The full potentiometer resistance should be in circuit initially. Solder a few inches of resistance wire on for the shunt, and turn the potentiometer, meanwhile watching both meters. If the transmitter meter does not have the correct range, as is likely, disconnect the battery, unsolder one end of the shunt, change the length of wire, and re-solder. Test again. In this way it should prove quite easy to obtain the wanted 0-50 mA range. (As mentioned, this can be 0-100 mA if more power is to be run.) Take care not to pass a heavy current through the meter by having the potentiometer at a low value with the shunt not connected.

Inductors

L1 is 11 turns of 32g. enamelled wire, side-by-side on a 5mm former with VHF ferrite core. Wind these turns at the extreme upper end of the former, and secure the ends with a touch of adhesive. The coil can be mounted in a hole for top adjustment, or can be cemented to the chassis.

Both L2 and L3 are wound on a form which will result in an inside diameter of about $\frac{3}{8}$in. Both are of 22g. tinned copper wire. L2 has 8 turns, and is 9/16th in. long. L3 has 10 turns, and is 1in. long.

Shape the ends so that they can be soldered as in Fig. 2, with about $\frac{1}{8}$in. between coils. Solder R6 right against the centre tap of L2, and R7 immediately at the tap on L3.

L4 has 9 turns of 18g. wire, and is about 9/16th in. inside diameter and $\frac{3}{4}$in. long. L5 is two turns of well insulated wire, placed so that its turns are interleaved with the windings of the anode coil L4.

The co-axial aerial cable may be temporarily taken to a 15v. 6 watt lamp or similar load.

Adjustments

V3 should be inserted, but no HT is applied to this valve. It is as well to use a reduced HT voltage for V1/V2 initially, to safeguard V2 in the event of no drive being present to provide bias.

T1 will probably need to be fairly well closed. L1 is tuned to the wanted harmonic, as already described, and a check should be made that the correct harmonic has been picked out. As L1 is tuned, current drawn by V2

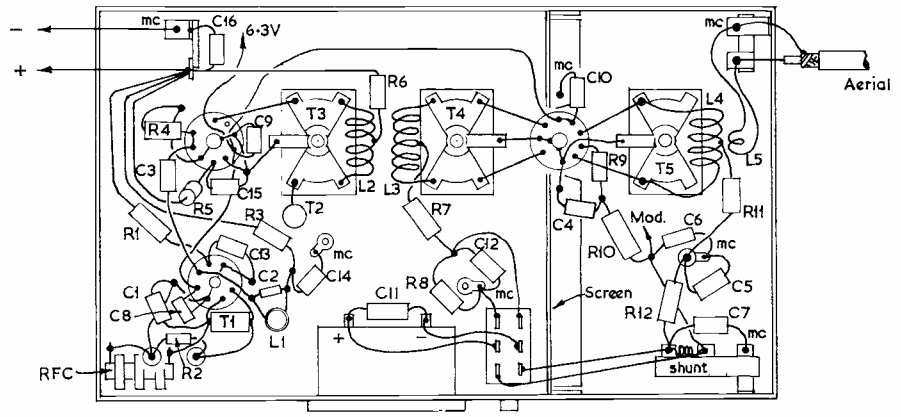
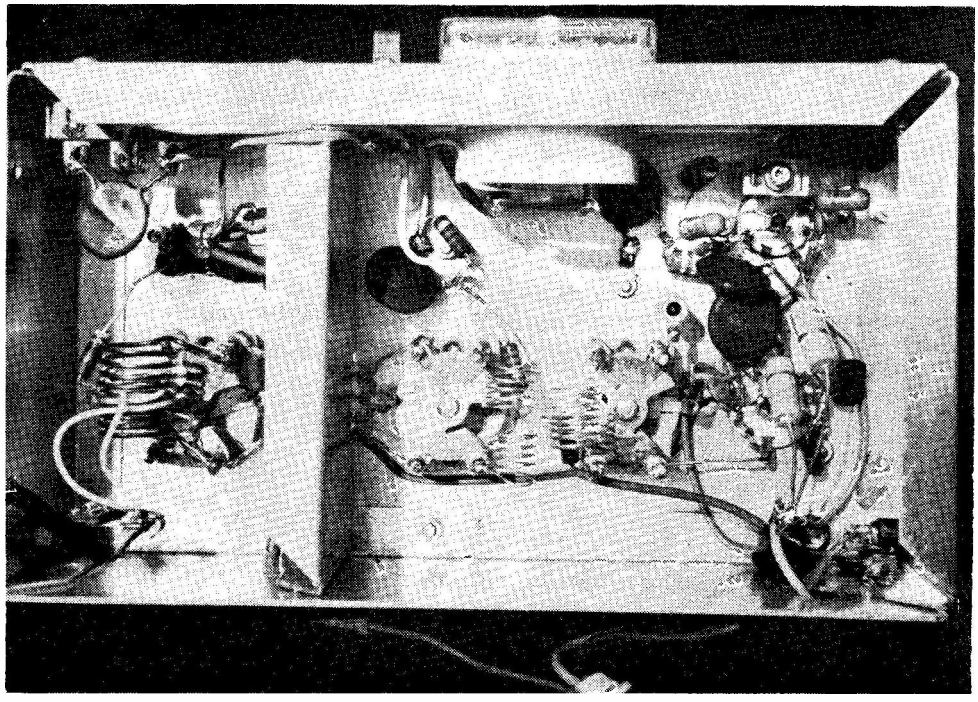


Fig. 2 UNDER CHASSIS LAYOUT AND WIRING

VO 249



Showing under-chassis arrangement and layout

will fall, and can be checked with a meter in the HT circuit.

When it is assured that L1 is tuned to approximately 35 MHz, T3 and T4 can be rotated to obtain grid current, the meter switch being in the appropriate position. Altering the setting of one of these capacitors will call for a slight re-adjustment of the other. L2 and L3 can be bent to alter coupling, but should not need to be very near each other. Should there be any chance of L2 or L3 touching, one at least should be of insulated wire.

With a grid current reading obtained, T1, L1, and T3 and T4 can be adjusted for maximum, which should easily exceed 2 mA. T2 may be left at about one-half capacitance—or T2 can be slowly moved, meanwhile simultaneously slightly re-adjusting T3 for highest grid current.

HT can now be applied to V3, and T5 can be adjusted for a dip in anode current, and maximum lamp brilliance. The full HT can then be used, and all circuits can be checked through.

Should T3, T4 or T5 be fully open, the appropriate coil should be slightly stretched. On the other hand, if these trimmers are fully closed, compress the coil or coils slightly.

With the aerial in use, loading can be adjusted by moving the link L5 slightly in or out of L4. Needless to say, this is done with an insulated tool, or with HT switched off. When the circuits are set up, little or no further adjustment should be necessary when making some frequency change by substituting crystals. The transmitter is controlled by the switching provided for this purpose on the power supply. V1 has a screening can, but cans should not be used on V2 or V3.

It should be noted that it is essential that the meter switch has a central off-position. Some miniature switches, as intended for use in transistor receivers, do not break before making. These cannot be used as operation would cause a momentary short to the HT supply. The appropriate type of non-miniature slide switch, or a toggle switch, or a 2-pole 3-way rotary should be used.

SIMPLE LINEAR RF AMPLIFIER

USING PARALLELED PL509 TV LINE-OUTPUT VALVES—NOTES AND CIRCUITRY

I. G. WEST (G3SZC)

THE linear amplifier discussed here—using the cheap and easily obtainable PL509 TV line-output valves—has been in use at G3SZC for some 3½ years without any problems arising—moreover, several others have been built under the cognomen "The G3SZC Linear."

As regards the circuit, there is no requirement for awkward power supplies, the only variation from the norm being that the PL509 has a 40v. heater, at 300 mA—hence, the heaters are wired in series to make the voltage 120v., obtained by means of a silicon diode (BY100 or similar) in series with the 240v. AC mains, using a thermistor, R6, to prevent any excessive current surge. The switch S1 by-passes R6 to reduce voltage loss when the valves have been run up. (A time-delay device could, of course, be used here, but would only add cost and complication). The heater chain is not connected to chassis but is by-passed to RF, capacitors C5-C10.

Other Circuit Points

Resistor R1 produces extra bias when the drive comes on. The harder the amplifier is driven the higher the bias will be, thus, in a sense, giving a partial ALC effect, kept fairly smooth by C1. Note that if R1 is not incorporated, it is very easy to drive the PL509's to 1 amp. total plate current—which, at 1300v., is 1·3 kW!

The pie-wound RF choke RFC1 is as normally used in this position for QRO Tx purposes. The 5-ohm

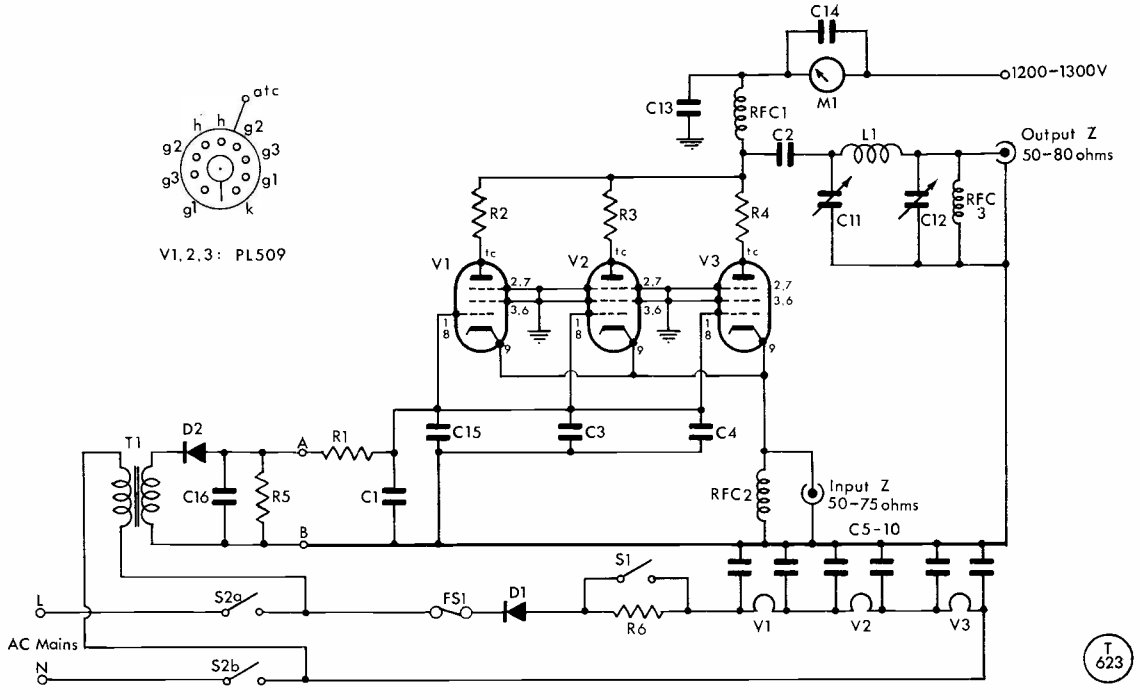
Table of Values

Circuit of the G3SZC RF Amplifier

C1	= 0·22 μF	R4	= 5-ohm, 5w.
C2, C13	= ·01 μF, 5 kV	R5	= 470 ohms, 1w.
C3, C4, C5, C6, C7, C8, C9, C10		R6	= Thermistor (*see text*)
		D1, D2	= BY100, or similar
		F	= 500 mA fuse
C15	= ·001 μF, 500v. disc cer.	M1	= 1 amp. FSD
		RFC1	= RF choke, pie-wound, Tx
C11	= 200 μμF, Tx type	RFC2	= 2·5 mH, heavy duty
C12	= ·0015 μF, BC type	S1	= SPST (*see text*)
C14	= ·01 μF	V1, V2, V3	= PL509 (*see text*)
C16	= ·001 μF, 250v.		
R1	= 4,700 ohms		
R2, R3,			

TABLE OF COIL DATA

80m.: = Twelve turns 14g. spaced wire thickness, to 2in. diameter.
40m.: = Eight turns, as above.
20m.: = 4½-turns, 14g., 2in. long by 2in. dia.
15m.: = 3½-turns, as above.
10m.: = Three-quarter turn 14g., 2in. dia.



Circuit of the G3SZC Linear

resistors R2, R3, R4 are not essential but were included on the prototype to discourage parasitics. The capacitor C11 in the PA tank must be a transmitting type, *i.e.*, wide-spaced vanes, and is of the sort to be found in the old "Command" series of surplus transmitters. C12 is a normal good-quality BC-gang giving ·001 or ·0015 μF total capacity. As the Table of Values indicates, separate coils are used for each band. Though this may seem clumsy, in fact it makes for far greater efficiency in the tank circuit.

Power Supply

The PA as shown is run with a normal 1200v. PSU, as designed for linear amplifier operation—reasonably steady DC volts with plenty of current capacity for the upward swings. The PL509's are quite happy with 1300v. on the plate and the insulation will, in fact, stand 1500v. with no fear of breakdown. With a plate-current swing up to about 600 mA, the RF output on 20 metres will show 3 amps. into a 50-ohm load.

While fan cooling has not been found necessary, good ventilation *is* required—so the "cabinet" is of "meat-safe mesh" with 3in. diameter holes over the valves.

Operating Points

For the amplifier at G3SZC, 40 watts of drive will produce 400 watts quite easily and more drive will actuate the ALC, thus putting more audio into the envelope. The signal has been looked at pretty closely locally on a spectrum analyser and pronounced "very clean."

The amplifier is in use almost daily, mainly on 15 and 20 metres. While the writer has not himself tried it on ten metres—supposing the internal capacity of the three PL509's would be too high for a reasonable L/C ratio—a neighbour, G3MDT, has produced coil data for that band and finds that the amplifier will work quite well on 28 MHz, even with such a small winding.

ATU FOR ALL BANDS

PRACTICAL CIRCUIT DESIGN

D. A. Newman (G3DUX)

TO begin with, the writer can claim no particular originality for the ATU circuit shown here, having first seen it some years ago when operating as 9V1OT. A version of it was then used for 10/15/20m. working and found to be very successful. It was later included in the (1972) *ARRL Handbook*.

The circuit is as in the diagram herewith and is by no means complicated. As can be seen, it consists basically of two variable capacitors and one roller-coaster type of coil. At G3DUX, an SWR bridge and dummy load have been included, but only to keep the number of boxes on the operating table to a minimum. There is no reason why the ATU cannot be built without the extras and an existing SWR bridge and dummy load used. That in use here is from a design which has been published in SHORT WAVE MAGAZINE.

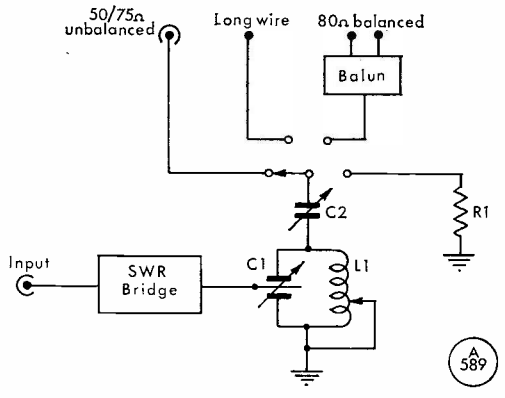
Aerial at G3DUX is a full-size "5RV" type and the Tx a modified FL-DX400 run at 10 watts only on the 3·5-28 MHz bands, with a transverter for Top Band. The PA valve in the FL-DX400 is a 6146 with 300v. on the plate—and before anyone queries this, let is be said that the writer runs low power for preference, because it is more fun and a challenge. (Getting an FL-400 throttled back to ten watts is in itself quite a challenge!).

Some Design Points

In the ATU, both capacitors are of the transmitting type and the roller-coaster coil L1 is that to be found in the well-known Wilcox-Gay VFO units, now regarded as "obsolete-surplus." (There are other surplus sources for this item). Since it would not be reasonably possible to fabricate such a component as a home-built project, it can be said that what it amounts to is a coil of 34 turns of 16g. on a 2in. dia. former, spaced over 8in., arranged so that the sliding contact does not short the turns. A multi-tap coil could be a (fairly) effective substitute, though not giving the inductance variation possible with the roller-coaster. The selector switch shown in the circuit was made by paralleling two single-pole 4-way ceramic wafers. The dummy load consists of two 5-watt 100-ohm carbon resistors in parallel, these last two items being chosen with the RF power involved in mind. However, with the power used at most U.K. amateur stations —with or without an FL-DX400—the switch and the dummy load would have to be much more generously rated

Similarly, in the writer's case, ordinary Rx-type components were used for C1, C2 and connections made in light copper strip—for more normal powers, these capacitors would have to be Tx-rated, and the wiring in 14g. at least.

Actual construction can be left to individual require-



Basic values for this ATU can be, for all-band coverage: C1, 300-0-300 $\mu\mu$F split stator; C2, 425 $\mu\mu$F; R1 for dummy load, carbon types to make up to 50 ohms and dissipate the power required, in this case 10 watts, so that two 5-watt 100-ohm resistors would do. For coil details see text.

ments and will rather depend upon whether, as in the writer's case, an SWR indicator and balun are to be included, when the whole thing will fit comfortably into a metal box 6½ x 9½ x 11in.

Operation

In use, the ATU is adjusted for minimum reflected power. With no turns-counter available for the roller-coaster, the two variable capacitors are set at some value that looks reasonable and the coil then adjusted for minimum SWR, thereafter re-setting capacitors and coil until the lowest possible SWR is obtained. When this has been done for the bands used, it is simply a matter of noting the readings for quick band-changing, or making up a calibration chart.

At G3DUX, the meter in the SWR bridge is scaled 0-200 μA f.s.d., and the ATU can get this down to less than 5 μA on all bands when switched to the "reflected" position. When switched to "forward," maximum deflection is obtained even on Top Band—but, remember, G3DUX is a QRP station in the literal sense.

On-the-air results have been better than expected, considering the aerial and the low power used. W's have been worked on 7 MHz, PY1 on 20m., W's again on 21 MHz CW, and 9J2 and ZS6 on 10-metre SSB. This may not be much in the way of DX by some people's standards, but to the writer at least is very satisfying on the 10-watt input and a "plain" aerial.

COURSES FOR THE R.A.E.

First List

TO quality for a U.K. amateur transmitting licence, it is necessary to pass the Radio Amateur's Examination, held in December and May each year. It is Subject No. 765 in the syllabus of the City & Guilds of London Institute, 76 Portland Place, London, W1N 4AA, from whom can be obtained a set of question papers for the May exams. in 1972-'73-'74, at 30p post free, with the current syllabus.

Also available for those who want to know is an official pamphlet entitled *How to Become a Radio Amateur*, free on application to: Home Office, Radio Regulatory Division, Amateur Licensing Dept., Waterloo Bridge House, Waterloo Road, London, SE1 8UA. This gives essential basic information.

For the Subject No. 765 examination itself, courses are offered at various centres all over the country, mainly on a part-time evening-class basis and usually at nominal fees, these courses coming under the Local Education Authority. Some are, however, organised by local Clubs and other such interested bodies. They all have the same objective: To prepare, from scratch, candidates who wish to qualify for a licence.

Some courses give instruction in both Theory and Morse, for those going for a full licence. Passing the R.A.E. without the Morse qualifies only for the Class-B licence, confined to VHF operation, with G8/3 callsign, *e.g.*, G8XYZ, Full licences are now in the G4/3 sequence, *i.e.*, G4ZZZ.

Following is the First List of Courses as notified to us in time for this issue:

Barnstaple: At the North Devon College, commencing September 16, enrolment September 10-11, evenings, at the College. For information, apply G. Hughes, G4CG, *QTHR*.

Birmingham: At the Central Institute of Further Education, Lea Mason Technical College, Bell Barn Road, B15, enrolment during week commencing September 16, with J. Broomhead, G3NCX, and G. Farrance, G3KPT, as instructors.

Brighton: Apply Technical College, Pelham Street, Brighton (*68597I*) asking for Course No. 15, Richmond Terrace, for details and fees.

Cannock Chase: At the Technical College, enrolment September 2-4, first class on September 19, 7.0-9.0 p.m.

Crawley: On Mondays, 7.0-9.0 p.m., starting on September 23, enrolment evening Wednesday 18th, at Ifield Evening Centre. Further information from R. Scrivens, G3LNM, *QTHR* (Tel.: *Crawley 22540*).

Harlow: At the Technical College, College Gate, The High, on Fridays, 7.0-9.0 p.m. Details from E. P. Essery, G3KFE, 17 Ascot Close, Parsonage Lane, Bishops Stortford (*52501*).

Heckmondwike (Yorks.): At the Further Education Centre, Grammar School, High Street, with E. Wilby, G3RZX, as instructor. Further information from the Head of the Centre, *Tel.: 405616*.

Hemel Hempstead: At Dacorum College of Further Education, Marlowes, on Tuesday and Thursday evenings, 7.0-9.0 p.m. Course organiser, C. Burke, G3VOZ, *Tel.: Hemel Hempstead 833300*.

Hockley (Birmingham): At the Holte Education Centre, for Morse tuition on Wednesday and R.A.E. Theory on Thursday, evenings starting at 7.30 p.m. Further details from K. Frettsome, G4ABV, *QTHR, Tel.: 704 9131*.

London (Chingford): At the Adult Education Centre, Simmons Lane, classes commencing September 23, 7.30-9.30 p.m., fee £2·80 for 28-week course. Apply by post, with remittance to The Registrar, Waltham Forest Adult Education Service, 192 Vicarage Road, Leyton, E10 5DX.

London (Eltham): At the Art Centre, Haimo Road, on Tuesday evenings, 7.30-9.30 p.m., starting on September 24, enrolment during previous week, or by post before August 31—J. M. Tripp, G3YWO, *QTHR*.

London (Hounslow): At Brentford Centre for Adult Education, Clifden Road, enrolment September 12, 16-17. Course will include Morse tuition where required.

For the Second List to appear in the September issue, those responsible are asked to let us have their notices—set out in the form shown here—as soon as possible, addressed: "R.A.E.," SHORT WAVE MAGAZINEm, BUCKINGHAM, MK18 1RQ.

The Radio Amateur's Handbook, 51st Edition

For a great many years now—since 1926, in fact—the *ARRL Handbook*, as it is usually called, has been, and remains, the "amateur's bible." This 1974 edition is the 51st and has been revised and up-dated through many of its chapters—though, of course, much of the information it gives remains "basic." However, many *Handbook* descriptions of solid-state devices, portable and emergency equipment have been modified to bring in the latest techniques used in the field.

In general, the *ARRL Handbook* reflects an essentially practical approach to the whole art and practice of Amateur Radio. Its format has made it not only a very popular class-room text but also a reference guide for radio engineers, as well as a reliable and authoritative manual for the amateur, written in an easy no-nonsense style.

Among the revised sections are those covering HF-band transmitters, test equipment and the use of measuring gear, VHF converters, auto-keying circuits and miniature antenna designs. Some 75 new drawings and charts have been included in the explanatory material. One of the new constructional projects is a conduction-cooled kilowatt amplifier and there are two mini-beam design, as well as the regular aerial treatment.

Of 700 pages, fully indexed, and produced under the authority of the American Radio Relay League (ARRL), *The Radio Amateur's Handbook* costs, in limp cover, £2·94 (or "library edition," hard cover, £3·74), inclusive of post and packing, and is obtainable from stock, of the Publications Dept., Short WaveMagazine, Ltd., 55 Victoria Street, London, SW1H OHF, despatched on receipt of order.

BEGINNER'S EXPERIENCE

A PERSONAL ACCOUNTING

A. BEDFORD (G4BMS)

HAVING been interested in Amateur Radio since the age of thirteen and having acquired my licence by my fourteenth birthday, I feel that the information given here may be of help to the younger reader. At the time of writing a 20-watt CW rig on one band is in use and though no great DX has been worked, it has given much enjoyment during the few months of operating.

Advice for Beginners

The account given here is the course of events which helped me in obtaining my licence. The first and most important thing is to get in contact with the local Club. In my case this was Horsham Amateur Club. As the formation of this Club was very recent the committee had arranged a number of practical lectures explaining the functions of various electronic components and facilities were provided to help members in obtaining the R.A.E. certificates.

To make the grade one must pass a test in Morse at twelve words per minute, and also pass an examination in radio technology and theory (Subject No. 765, City and Guilds). The reasons for this are simple: The issue of a licence only after an examination has been passed ensures that those who have become licensed have acquired a basic standard of knowledge and can go on to become good operators. The knowledge for this examination can be learned from text books, but attending a night-school class proved to be more useful in my case.

The second test is that of learning Morse. Again this can be learned at home by using special records, but if an instructer can be found the latter method is to be commended. With the generous help provided by a local amateur it took me just over a year to reach the required test speed and on the second visit to London I managed to pass this test.

At first all this may seem formidable to the beginner but by joining a local Club one will find an overwhelming amount of help in acquiring this licence. Once this qualification has been obtained the active interest begins.

Equipment Necessary

The basic equipment needed is a receiver, a transmitter, a frequency standard and a good aerial and earth system. If bought new the price of the station's equipment can cost well over the £200 mark. However, if a little thought is put in the cost can be considerably reduced.

In my case the receiver was a Hallicrafters "Sky Champion" (a very old American design) costing only five pounds; the transmitter was home built, with a member of the Club greatly assisting in the construction and the cost a mere sixty *pence*, due to the generosity of this amateur.

The only piece of gear left to build was the transmitter power supply and although the simplest piece of equipment in the station it proved to be the most difficult—three attempts were made, the third of which actually worked and now it was possible to put the station on the air.

With a frequency meter, a log book, also required to operate the station legally, the cost complete was under ten pounds and reasonable results have been obtained. The aerial will vary in accordance with the space available. Here, it is 80ft. end-fed, tied to a large oak tree opposite

At right, G4BMS, A Redford, 27 Ryecroft Meadow, Mannings Heath, Horsham, Sussex, who qualified for his full licence at the age of 15. To mark this, he was presented with a copy of the "Radio Communications Handbook" from the Horsham Amateur Radio Club, as the first member to have gained a licence from scratch with the aid of Club members.

the house; with a suitable earth.

The First Contact

This must surely be the greatest moment of any amateur's operating career. With the transmitter and receiver connected up, all seemed ready for some interesting contacts—but of course that would have been much too easy! Many stations were called but with no success.

Eventually a contact was made with a station only five miles away. G3NPF in Horsham was called, and he came back with a report of 599. The shock was too great for me with the result that when it was my turn to transmit the QTH, name and report I became flustered and it was only by the good operating of G3NPF that the contact was completed. It took some minutes for my pulse rate to drop to normal, but eventually a search was made for the next station. Three fresh victims were found that night and these contacts were successfully completed.

Much fun was had the following day and several Welsh stations were worked. In the weeks that followed, contacts were made with eight countries, all on 80-metre CW, with 20 watts input. As regards QSL cards, I make do with postcards typed on one side. All the contacts made so far have been on CW but a modulator is in the process of being built and it is hoped that speech can soon be used though to start with it will only be AM.

Tailpiece

Amateur Radio has turned out to be a most absorbing interest and many new friends have already been made.

It cannot be over-emphasised for the newcomer that he should join his local Club where further advice on how to start, and continue on the right lines, can be obtained.

If any home construction is going to be attempted, safety should be the first priority, *as the voltage from the mains can kill.*

Acknowledgements

I would like to record thanks to several Club members who have helped me in obtaining my licence and getting me on the air; they include Gordon Willey, who greatly helped in preparing me for my Morse test and giving me invaluable help on the subject of Amateur Radio. Colin McEwen and Eric Eamer for their help in preparing me for the written paper. John Matthews for building the transmitter and helping in the construction and layout of other station equipment. Les Allwood for the loan of equipment and a very valuable slow CW sked. My brother Michael, for letting me turn our bedroom into a station and workshop, leaving only enough room for him to sleep at night.

And lastly to my parents, without whose help and encouragement G4BMS would never have been possible.

ADAPTING MEDIUM-WAVE RECEIVERS FOR TOP BAND

MAKING THE ADJUSTMENTS

C. SHARRATT (G4CJ)

IN adjusting a medium-wave receiver for 160-metre reception, it is always preferable to make the adjustments in daylight to avoid pick-up of strong Continental stations.

In the case of small Japanese pocket radios it is only necessary to remove the back to gain access to the trimmers and the coil cores. With other types of radio further dismantling will be necessary.

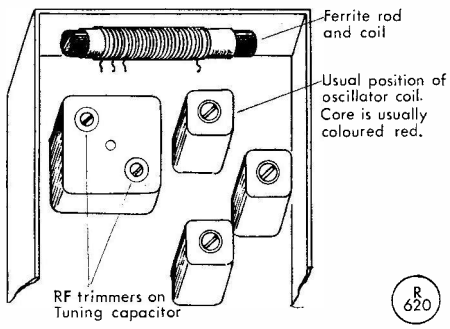
First, tune a recognisable station around 200 metres (1·5 MHz) at the HF end of the tuning scale. Next, locate the oscillator coil which will be one of several square cans with adjustable cores. To find the correct one without disturbing the others hold a small magnet near to each core in turn. When held near to the oscillator coil the station which has been tuned will move off tune, returning as the magnet is taken away. It may be necessary to unseal the core before adjusting, and this should be done by applying a heated screwdriver until the waxy sealant is softened. Carefully unscrew the core (anti-clockwise) a little at a time which will move the station in the required direction, *i.e.*, towards the middle of the tuning scale on the dial. Re-tune the dial each time the oscillator core is adjusted to maintain the station on tune. When the station is near the 300-metre mark on the dial (or when the core will unscrew no further) it will be found that the volume has decreased. It is now necessary to adjust the ferrite rod coil to bring back the volume.

This coil may also need unsealing, so carefully soften the wax with a heated soldering iron and slide the coil along the ferrite rod towards the end of the rod. If the set has more than one waveband it is only the medium-wave coil which should be adjusted—this is usually a single-layer coil (sometimes with a coupled winding over it at one end) whilst the long-wave coil is usually pile wound.

Having loosened the MW coil tune in a station at the LF end of the band 500 metres (600 kHz) and adjust the coil along the ferrite rod for maximum volume using a non-metallic trimming tool or a plastic knitting needle. If the fingers are used the tuning will alter when the hand is removed, making it very difficult to find the correct position.

Next, tune the dial to the HF end and find a 160-metre station. It may assist at this stage if the set is held near to an aerial or pipe. If an aerial is used connect it to earth and hold the radio with ferrite rod at right angles to the aerial so that the aerial wire and the ferrite rod form a cross. This allows only magnetic coupling which reduces the reception of spurious signals (which is a common occurence when aerials are attached to these simple radios).

When a station is heard which is known to be in the 160-metre band remove the radio from the proximity of the aerial wire until the station can only just be heard and adjust the RF trimmer, which is usually on or near the main tuning capacitor. There are two trimmers one of which will move the tuning point of the tuned station



Interior layout of typical Japanese-type MW Rx

on the dial. The other trimmer is the one needing to be adjusted for maximum volume. After adjusting the RF trimmer for maximum output, re-adjust the ferrite rod coil slightly for a further increase.

It may well be that the RF trimmer is at either minimum or maximum capacity with the circuit still not at resonance. In this case the aerial coil on the ferrite rod has to be altered. If the coil extends beyond the end of the ferrite rod, turns will have to be removed by about six or seven each time till the whole of the coil is on the ferrite rod. The turns should be removed from the end of the coil where there is only a single winding.

Strictly speaking, the coil should be re-adjusted at the other end of the tuning dial, 500 metres, but usually the signals there are sufficiently strong for normal listening and the main consideration is for the weaker stations on the 160-metre band. After a further touch up of the RF trimmer all coils should be resealed with wax to prevent further movement.

Of course, the markings on the tuning dial will not now be accurate and it will probably not be possible to tune some hitherto obtainable stations at the LF end.

SPECIALLY ON THE AIR

By the time this appears, many of the special-event stations listed on p.257 of the July issue of SHORT WAVE MAGAZINE will have been and gone—but very few will have turned in a report as to what went on and how they fared. We are always interested in results obtained on these occasions, and the subject does come under either "Communication & DX News" or "VHF Bands," if in the latter context.

As in the case of Mobile Rallies, some member of the Club or group should be asked to be responsible for putting in a report on results, covering not only bands worked and DX achieved, but the public reaction to the effort. There can never be the appearance of an Amateur Radio station on the air without *some* public reaction—even if it is only someone saying "Can't think why they're wasting their time," or "Couldn't make what he was saying through all that racket."

In fact, to put on a Good Show does involve a good deal more than the mere working of QSO's. A good, loud semi-local with a signal strong enough to suppress the background noise is a lot more interesting (to the casually-interested public) than a scratchy, QRM-ridden down-in-the-noise signal, even if it is from VK or W6.

And, when playing to the public on these occasions, there should be somebody on hand who can explain what is going on, and ready to answer questions as to what it is all about. Too often, the chaps doing the operating have their backs to the onlooker, whose only impression is of a lot of equipment with strangulated noises coming out of a speaker somewhere.

GB3NBS, till July 28: For the Northampton Borough Show, Abington Park, working 10-160m. SSB and two-metre AM/FM/SSB.—S. J. Purser, G8GHZ, *QTHR.*

GB3PK, till August 3: For the Scout/Guide Camp at Chatsworth Park, Derbyshire operating on 10-80m. This is expected to be a big Scout occasion, with many overseas visitors. Very special card for all contacts.—D. F. Reynolds, G4BPW, *QTHR.*

GB2BRC, August 3: For the Bromsgrove Gala Day, on 80m. and the HF bands.—J. Dufrane, G3VGG, *QTHR.*

GB3RN, August 10-17: Activity week on board *H.M.S. Belfast*, London, with the ship open for public inspection.—Hon. Secretary, Royal Naval A.R.S., *H.M.S. Mercury*, Leydene, Petersfield, Hants.

G4BEM/A, August 18: For Stoke-on-Trent Sea Cadets, Hanley, working all bands 10-80m., CW/SSB and two-metre FM/SSB. QSL to: P. Bradbury, G4BEM, *QTHR.*

GB3SRC, August 23-26: Silverthorn Radio Club annual Summer Camp at Mission Field, Lambourne End, Essex, running on the HF and VHF bands.—C. Hoare, G4AJA, *QTHR.*

GB3RN, August 24-26: Operating from Portsmouth Naval Base on the occasion of Navy Days.—QSL as GB3RN above.

G3CAR, September 7: For the 28th annual Wycombe Show, The Rye, High Wycombe, Bucks, organised by Chiltern Amateur Radio Club, operating all bands 10-80m., CW/SSB. Skeds offered, and all contacts to be QSL'd by special card. Visitors welcomed.—A. C. Butcher, G3FSN, 70 Hughenden Avenue, High Wycombe, Bucks. (*Tel.: 494 24835*).

GB3HFA, September 20-22: Put on for the "Hobbies For All" event, by Grimsby Amateur Radio Society, working all bands, including two-metre SSB on 144·23 MHz. Special QSL card for the new county of Humberside.—D. Johnson, G8HAE, 3 Ethelstone Road, Grimsby, Lincolnshire, DN34 4EF.

Notices for this feature should be sent in set out as shown here, giving the assential information, as called for on p.257 of the July issue. The QSL procedure for GB stations was discussed on p.201, June.

The Teleprinter Handbook

At £5+ this is a comparatively expensive book—on the other hand, it does deal very fully with the subject of Amateur Radio teleprinter (RTTY) working in all its ramifications, covering the associated techniques, equipment to use and in use and, in general, the detail of T/P operation on the amateur bands.

Of some 350 pages, with appendices and index, the book is very well produced and illustrated, bound in hard covers, with numerous diagrams, photographs and pull-out circuit schematics. It covers a number of T/P machines, including the Creed in various types, some of the different marques of Teletype and the Siemens. There are also chapters on PSU's, RTTY demodulators and auxiliary equipment, methods of T/P keying, test equipment, filters, control systems and operating procedures in the amateur-band context—also, particularly useful, two pages identifying briefly a number T/P equipment items, with type designations.

Apart from its amateur RTTY interest, by its nature it contains a great deal of information that would be useful to the professional engaged in the working of teleprinters. Authors are Goacher, G3LLZ and Denny, G3NTT, with the assistance of many collaborators, both amateur and professional. Price £5·27, inclusive post and packing, from stock, of the Publications Dept., Short Wave Magazine, Ltd., 55 Victoria Street, London, SW1H OHF.

VHF BANDS

A. H. DORMER—G3DAH

THIS has been quite an eventful last couple of weeks on the VHF bands. A welcome appearance on four metres was ZB2VHF, who was working G stations between June 23—30. Quite a good spell of Sporadic-E propagation yielded contacts at RST 579 for long periods. European and North African broadcast stations at times masked the ZB2 signal entirely! This opening was not confined to Gibraltar, as G4CZP (Carnforth, Lancs.) was copied in Malta on June 23 at 1319z by 9H1CD at 5 & 7 while he (G4CZP) was working a PAØ. Unfortunately, no QSO resulted as the Maltese station was only running one watt of NBFM, and could not attract Richard's attention. (The report was confirmed on 14 MHz, by G4BYK). 'CZP runs 120w. p.e.p. output to a 10-ele. Yagi at 30ft., and he is zero feet a.s.l.! On the same day, G3DAO (Chichester) worked LZ2FA in QRA ND40g (Tolbuhin), this on 2m. CW. G8GYB (Tunbridge Wells) copied LZ1BW at 5 & 6 on 2m. on June 23, but could not complete the QSO.

Skipping a few days, there was a phenomonal Sporadic-E opening on July 9, apparently better for the North than in the South of the country. Four metres was absolutely solid with broadcast stations, all European as far as your scribe's linguistic abilities could determine. The opening started just before 0800z on this band, and by 0900z had spread to two metres also. Prefixes logged in Herne Bay, mostly around the 5 & 7 mark but at times over S9, were HG5, HA5, OE, YO, DM, DJ7 (Berlin), OK1 and OK3. By 1400z., 2m. was quiet again although Four was still exhibiting the same congestion. The Essex Group expedition to GM were on the Isle of Arran and just packing up to come home when they heard YU2CDS calling and worked him at 5 & 9 both ways on a *halo* from the G8FXB car! QRA XP45g to JF53g (2100+ km.) must be getting near the U.K. record. G3NSM (Oxford) also worked the YU. Driving through London, G8BCL heard HG5AIR on the mobile rig and exchanged 5 & 7 reports with him. G3BHW and G4CXL worked YO6MA in Brasov. That gives you an idea of how good the opening was.

Solar disturbances were probably responsible for this phenomenon as solar noise was very high from July 5 onwards and exceptionally active sunspots had been recorded. In addition, the Observatory in Colorado reported the largest X-ray solar flare ever observed by scientists there. This solar activity must also have been responsible for the two aurorae noted on Saturday, July 6.

The first of these occurred early in the morning, around 0730z according to some reports, and lasted for about one hour. There appeared to be no second phase after the usual interval of a few hours, but the second aurora manifested itself late in the afternoon, just before the start of the Jubilee Contest. It is possible that the solar flare mentioned above was the cause of this one, and once again there was no second phase. The effects disappeared too abruptly significantly to affect the contest, although stations in the far North were able to latch on to the end of it. HF communications were badly interrupted before and during both these events, the Dellinger black-out extending as far down as 80m., and all this at a time when we are told that we are in a "Quiet Sun" period!! More reports next month.

Twenty-Three Centimetres

We are glad to welcome four newcomers to the All-Time Table for this band.

A new Table leader has emerged in the form of G4BEL, operating from near Ely, Cambs. Many readers will recall his outstanding contact recently with OE2OML. His other countries worked on 23 cm. are:—G, GW, F, ON, PA and OZ. Roger runs a 3CX100A5 mixer (144/1152 MHz) and a pair of 3CX100A5's in the PA. The antenna is a 4ft. dish at 35ft. fed with 1·5 dB worth of FHJ2 co-ax. The converter is a conventional trough-line job using a hot carrier diode mixer and preceded by a pre-amp with a HP35821E in the front end followed by a BFR90. He will take a bit o catching!

G4BYV in Norfolk comes up among the leaders with G, PA, OZ, ON and F worked. He runs a transistor VFO and QQV03-10 at 2m., triples to 432 MHz in a QQV03-20A followed by another '320A amplifier which drives the BAY96 on 1296 MHz (yes, they do work in the GHz range, and so will the BAY66) and this combination gives him 10 watts of AM. The converter has a BFR92 front end and a MA17 mixer which produces 28-30 MHz into the AR88. The aerial is a home-built 4ft. dish, dipole fed, with aluminium ribs and ½in. wire mesh reflector. Most contacts were made with the dish at 40ft., but now that he has got his tower up, the height a.g.l. is 65ft. He also uses the FHJ2 co-ax for the feed.

G3JXN operates from West London, and although a bit short on countries has a nice county score. The '320A on 432 MHz drives a 2C39A tripler in a strip-line configuration to 20 watts input and yields about 6 watts output. For reception, his converter is a three, trough-line job based on the W6GGV design. The mixer is a CS2A and the injection frequency comes from a valve oscillator chain starting on 57·6 MHz and finishing up on 1152 MHz *via* a 1N914. The IF of 144 MHz feeds into a "DL6SW" converter producing 28-40 MHz for the Eddystone 888A. The antenna is to the G8AZM design fed with UR67 coax at 45ft. John makes the point, a very valid one too, that the upsurge of activity on 23 cm. (and this is probably true for the higher frequencies also) is due in the main to the publication of reproducible designs for antennae.

G8FJG in Rainham has 1 watt out from an STC VJC77J, co-axial type varactor. The converter uses HP hot carrier diodes in a ring mixer producing 144 MHz for the station 2m. converter, which has an IF of 28 MHz. UR67 co-ax (with 4 dB loss) feeds a 4ft. dish at 35ft. a.g.l. A 5ft. dish and a 2C39/3CX100A5 combination are under construction. His best DX to date is with G8AEL/P in Berkshire, just over 100 km.

* * * *

G4ALN (Romford, Essex) added PA and ON to his country total during the recent Microwave contest. He reports that PAØSSB was at 5 & 9 both ways and that the Dutchman has a 20ft. dish on an EL-AZ mount, circular feed with RH thread and 600 watts input! Ken's best DX is with G3OBD in Poole, Dorset at 170 km.

G3DAH also managed to push his score up a bit during the good propagation conditions at the end of June, contacts with ON4HN and PAØSSB increasing the country score and a QSO with G3KAC (Bristol University) at 260 km providing the best DX to date.

* * * *

It appears that both sections of the 432/1296 MHz contest in May were won by the G3JQA/P team, rapidly making a name for themselves in contest events. They claim 1,540 points from 18 contacts on 23 cm. and 149 points from 33 contacts on 432 MHz. They used *Microwave Modules* gear. Congrats!

The GB3DD beacon on 1296·045 MHz continues to be well received up into the Midlands and is proving to be a reliable and stable indicator of propagation conditions and frequency. The London Beacon at Shooters Hill is back in operation on 1297·945 MHz, quite a bit below the published figure but none the less welcome for that. The 5-ele. Yagis fire NW and W respectively and the power output is reported to be 5-10 watts. A site near Wrotham, Kent is being investigated with the object of providing wider coverage.

Contests

Results: The April 70 MHz Open, Fixed Station section was won by Martin ("Who Else") Dann, G3NHE of Sheffield, and the portable section by Willy McClintock (G3VPK) and GI8AYZ operating as GI3FFF/P in Co. Antrim. Since the equivalent event last year was a portable contest only, it is a little difficult to make comparisons, but it may be noted that (*a*) The highest score of 713 points in the /P section compares with 591 points last year, that (*b*) The largest number of stations-worked figure this year is 83 compared with 85 last year, that (*c*) The total entry of 52 compares with only 25 in 1973, and that (*d*) The entries in the portable section in 1973 and 1974 respectively were 25 and 22. Since the figures foregoing in (*b*) and (*d*) are comparable, and those in (*c*) cannot be directly equated because of the differing nature of the two events, it is interesting to look at (*a*) a little further. There were 15 contacts over the 400 km mark this year compared with three last year. The ratio in (*c*) is roughly 2 : 1, so if we use this to scale down the proportion of DX contacts, we arrive at the fact that there were nearly twice as many good DX contacts made this year compared with last. Now, propagation conditions for the two events were comparable, *i.e.*, they were about average, and the number of stations worked was about the same for the two years, so we are left with

the conclusion that either the equipment has been improved, and/or techniques are better, or that a keener set of operators went in for the contest this year. The last factor, it is suggested, may be ignored, so we are left with the first two, and these, it is again suggested, do *not*, in our book at least, add up to "apathy, outmoded technical equipment and operational procedures"(!!).

The March 144 MHz Open attracted a fair number of entrants with the laurels going to GW3UCB/P in the Portable section and to G8FOT in the Fixed. The list of "Best DX" indicates that there was more EU/DX available than might have been expected from the poorish Wx.

Reports: Conditions on the lower VHF bands for the Jubilee Contest on July 6/7 were good without being exceptional. The nearer Continental countries were being worked on 2m. without much difficulty, even by the GW portables, and GW and GM were both available on 4m. and 70cm. in the South. Seventycems held promise, but the real DX was difficult to winkle out and activity seemed low, which was surprising in view of the fact that there was a multiplier of five for this band and that it is often used for setting up contacts on 23 cm. and higher bands. On 1296 MHz propagation was not nearly so good as for the Microwave contest in June, and the QSO between G3JVL (ZK16f) and G3JQA/P (ZN61f) must be applauded. Operating practices on 4m., 70 cm. and 23 cm. merit no particular mention, but in too many cases on two metres were appalling, and this applies particularly to the SSB side. Not only were several transmitters being heavily overdriven, in some cases so badly as to be almost unintelligible because of frequency shifts and distortion products, but there was quite unwarranted QRM on the *calling* channel and a failure to check *operating* channels for occupancy before launching a CQ call. The SSB allocation in the band plan extends upwards from 144·15 MHz with no defined upper limit and yet little use was made of frequencies above 144·25 MHz where congestion was less and the DX could be copied the more easily. With the rapid spread of SSB on 2m. it is questionable whether a calling channel is in fact still required, but we have it, and to clutter it up with traffic, which should be carried on other channels anyway, when even the simplest of equipment for this mode, be it home-built or purchased, can be VFO controlled, indicates a selfishness, or ignorance, which are more popularly associated with the HF bands. Some portable stations, and operators whose calls are not yet in the *Call Book*, were risking losing contacts by not announcing locations when calling CQ.

Several scores over the 250 mark on 2m. Gere noted, among the best being that of wM3ZSX/P who had 315 contacts with best DX as OZ5QF, and G3DY who had 291 by mid-afternoon. **Future Events:** August 18—144 MHz QRP, and VHF/NFD on September 7/8.

Repeaters and Transponders

The Bristol Channel, GB3BC, repeater is now in full operation. For those who missed the previous gen on this subject, we say again:—Channel R6, *In* on 145·15 MHz and *Out* on 145·75 MHz. Access tone 1750 Hz. The site is at 1600ft. a.s.l., about 8 km NW of Newport, Mon., and signals are reported readable in Southampton, Glamorgan, Worcester, Gloucester, Somerset

THREE BAND ANNUAL VHF TABLE

January to December 1974

Station	FOUR METRES		TWO METRES		70 CENTIMETRES		TOTAL
	Counties	Countries	Counties	Countries	Counties	Countries	Points
G3NHE	35	5	62	16	48	11	177
G3DAH	38	7	60	18	31	7	161
G5DF	32	4	56	13	30	5	140
GD2HDZ	23	5	62	11	24	6	131
G4AGE	8	1	47	9	35	8	108
G3FIJ	29	4	39	13	12	3	100
G3XDY	6	1	62	11	11	7	98
G3OHH	32	5	27	6	11	2	83
G4AEZ	11	2	46	11	11	2	83
G8EOP	—	—	41	7	25	8	81
G4CZP	—	—	71	9	—	—	80
G8GNE	—	—	40	10	23	3	76
G2AXI	21	3	32	8	9	1	74
G8GHZ	—	—	53	10	7	1	71
GW8FOL	—	—	55	12	—	—	67
G3FHY	3	1	26	5	22	5	62
G3AHB	—	—	45	9	7	1	62
G8ECO	—	—	42	7	10	2	61
GW3KGD	—	—	49	12	—	—	61
GW8VXQ	—	—	47	11	1	1	60
G8FWB	—	—	49	10	—	—	59
G8DGR	—	—	47	9	2	1	59
G8HAE	—	—	49	9	—	—	58
GW8FKB	—	—	44	7	1	1	53
GM4CXP	—	—	41	10	—	—	51
G8FUI	—	—	35	8	5	2	50
G8CBU	—	—	42	5	—	—	47
G8HHI	—	—	39	7	—	—	46
G8EKP	20	7	14	3	—	—	44
GM3ZBE	1	1	26	5	4	6	43
G8BBP	—	—	37	5	—	—	42
GI8EWM	—	—	30	9	—	—	39
G8HQA	—	—	33	4	—	—	37
G8GXE	—	—	29	5	1	1	36
G8HQQ	—	—	27	3	5	1	36
G8FMK	—	—	—	—	31	3	34
GW8HVP	—	—	30	4	—	—	34
G3FPK	—	—	29	2	—	—	31
G8HYH	—	—	27	4	—	—	31
G8BPJ	—	—	23	2	1	2	28
G3SXK	—	—	21	6	—	—	27
GW4BXE	—	—	17	10	—	—	27
G8GGP	—	—	20	5	—	—	25
GW3XJQ	—	—	16	7	—	—	23

Notes:

1. Claims should be on the basis of the *old* county boundaries until January 1, 1975.

2. The Table shows claims to date from January 1, 1974 and will close on December 31, 1974.

3. Claims should be sent to "VHF Bands," SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ at monthly intervals.

and Herne Bay, so coverage is pretty good.

The London Group repeater has been undergoing trials at the QTH of G8AAI in Epsom, Surrey, and these appear to have been successful. When ready for operation, the repeater will be installed at Crystal Palace and will operate on Channel R7, *In* on 145·175 MHz and *Out* on 145·775 MHz. Tone access will be 1750 Hz and callsign GB3LO.

GB3PI is back in service from Barkway with modifications to introduce the "K-bleep" facility. The output deviation has been increased to ±3·5 kHz and it is reported that there is some non-reciprocity with the antennae on the new metal mast. It seems more difficult to access it even when the output is at 5 & 9.

From the U.K. FM Group (Southern) *Newsletter* (a very well produced piece of work, if one may say so) it is learned that their repeater proposals have been accepted by the Home Office, the callsign GB3SN allocated, and the licence received. When ready to go, the equipment will be located at Four Marks, near Alton, Hants, at 715ft. a.s.l. Channel R5 is the one to look for, *In* on 145·125 MHz and *Out* on 145·725 MHz with tone access on 1750 Hz. The antenna is a collinear vertical giving 7 dB gain and output power is 25 watts. Some fairly sophisticated circuitry has been built into the repeater. For example, if you are off-channel with your call, or over deviating, the device will so indicate by returning signals on 1750 Hz, whereas, if all is well, the callsign comes back on 875 Hz. It has also been arranged that the long-winded natterer will be cut off 51 seconds after his initial call. Presumably, all members of the Group will have copies of this *Newsletter* (No. 10) and will, therefore, have read the very complete explanation of the operating procedures to be used as described by G8HDL. For those who are not members, but who wish to know more about the repeater, 50p to the secretary, G8BIH, *QTHR*, puts you on the postal membership list and you can obtain a copy of the *Newsletter* that way.

While we are on about repeaters, an old idea which has been tried successfully in the past but seems to have faded out now, if that is the right word for it, is the *passive* repeater, which lends itself particularly to microwave use. This comment was prompted by the news that GTE International, who have been awarded a contract for four microwave systems in the Pyrenées, are proposing to use such devices at the more remote and inaccessible sites, where the alternative is to fly a crew in by helicopter at, presumably, great expense.

The 59th *Artob* balloon was launched on May 19 and seems to have had considerable success. DL3YBA, known to many British 2m. operators for his unflagging efforts on this band, reports that 80 different stations were logged, the best DX being our old friend G3LQR. From his QTH in Suffolk, Simon can work through the *Artob* once it has reached a height of 23 km and this means that he has about 52 minutes of flight time available in which to make QSO's. The QRB from G3LQR to the transponder would be about 700 km at this time!

The Germans report that they hope to launch an *Artob* every fine Sunday at about 0900z, which means that we should start hearing it around 1000z. At the present time, the transponder carries a linear translator 432·00-432·25 MHz *In* and 145·31-145·56 MHz *Out*. The planned 1296 MHz/144 MHz translator is not yet ready for flight.

Now in operation is a German repeater with the callsign DLØVU, exact location not at present known. The input frequency is 432·6 MHz and the output on 145·41 MHz. Listen on 145·2 MHz for the associated beacon.

Club and Group

The British Amateur Television Club have organised an international TV contest for September 14/15 which is open to both receiving and transmitting amateurs. Details from G3ZUL (G6AGT/T), *QTHR*, with s.a.e. please.

Meetings of the U.K. FM Group (Southern) are now held on the first Wednesday of each month at Chineham House, Popley, Basingstoke, Hants. at 8 p.m. Further details from the secretary, G8BIH, *QTHR*. Visitors are welcome.

The East Kent Radio Society Rally was held at Canterbury on June 16 and attracted some 450+ visitors, including two from Somerset and one from Manchester. The 2m., talk-in station was kept very busy and made some 80 contacts, including one with a mobile in Rotterdam! The trade was well represented and included displays by *Burns Electronics* and *Birketts*, and a newcomer to the business, *Thanet Electronics*, who now have the sole import agency for *Inoue* equipment. Incidentally, they supplied the IC-210 for the talk-in station, a very nice, fully tunable 2m. FM transceiver with a repeater facility.

The Grimsby Amateur Radio Society will be running 200 watts of SSB on 144·23 MHz using the call GB3HFA during the local Hobbies Exhibition there on September 20-22, so if you are looking for South Humberside, here's your chance. They are sending out special QSL cards for QSO's during the event.

News Items

Four Metres: GD2HDZ is now fully operational on this band running 18 watts of SSB. G3XDY (Grimsby) has his SSB going—50 watts p.e.p. output to a 3-ele. Quad antenna. He also has 15 watts of SSB on 70 cm. and says that if anyone wants a sked with Humberside on either band he is *QTHR*. G3OHT can also offer SSB from the area—he operates from Patrington just on the other side of the Humber. With the increased activity from new AM/FM stations in that district, it looks like a good bet for a contact if you turn the beam that way. Down in Haverfordwest (Pembroke) GW8HVP promises some 4m. SSB as soon as he has got the CW out of the way.

GB3SU may be re-sited near Buxton, Derbyshire. A possible location up at 1400ft. has been investigated already by G3RKL,the beacon keeper, and it looks as if this will provide greater coverage generally, although it will not be much of an improvement to the South-east.

Reference has already been made to the advent of ZB2VHF on 4m. in June. G3OUF worked him on June 21, and this could be the first contact this season. G4AIR (Macclesfield) heard him on the 21st and worked him on the 23rd. On the 23rd it was reported that he was at good signal strength right up into the Midlands, but had a carrier fault in the automatic mode. GM3WOJ, G3XSN/P (Liverpool), G3XIM (Southport), G3OHH (Mow Cop), G4AIR and G3RLK (Sheffield) all completed QSO's with ZB2VHF. An interesting conjecture might be to ask what the position is for an entrant in the Region I VHF Contest, which was going on on that day, who worked the ZB2 and therefore got himself a 2000 km/point contact! The beacon was still audible on June 30.

Two Metres: GM8FFX, given the slightest lift in propagation conditions, tends to put out a massive signal to the South. He was doing just this on June 24 from his new QTH between Aberdeen and Stonehaven. It was with some scepticism, in view of his 5 & 9 signals, that your scribe heard that he was using only an 8-ele. beam in the loft at the time, until it was learned that he had a 6N2 linear on the end! He should have little trouble working G stations under almost any conditions. GM3ZBE (Aberdeen) was also a 5 & 9 signal that evening and it was encouraging to hear that he now has high power on 70 cm. and that he also runs 4m. The GM8APX trip to Blair Atholl to investigate reception and propagation from there showed that it was a pretty good site and would be very suitable for portable working. GM4CXP in Roxburghshire reports what appears to be a fairly localised opening to Scandinavia over June 24/25. The band was wide open to OZ and SM to him, although GM3ZBE, some 100 miles or so to the North of him, and on the coast to boot, heard little or nothing from that direction but was working into France and the Netherlands without any difficulty. Perhaps another example of ducting.

Down in Haverfordwest GW3KGD is now equipped for SSB operations with a Liner and a 40 watt p.e.p. linear amplifier. The 6-ele. beam is at 210ft. a.s.l. The activity from South-West Wales is really perking up! G8HAE (by the time this appears probably G4DHF) found the Pennines no sort of barrier on June 1 when his signals from Grimsby found their way successfully across to Cumberland and Westmorland. (OK, then—*Cumbria*). He followed this up a little later with a string of French and Belgian stations concentrated in the Lille, Ghent and Cambrai areas. Another duct? He has now upped the output on 2m. by the addition of the 200-watt p.e.p.

TWENTY-THREE CENTIMETRES

ALL-TIME TABLE

Station	Counties	Countries	Total
G4BEL	24	7	31
G8ARM	20	2	22
G4BYV	15	5	20
G3JVL	16	4	20
G3COJ	15	3	18
G3JXN	17	1	18
G4ALN	14	3	17
G3EHM	14	2	16
G3DAH	11	3	14
G8AOD	11	1	12
G5DF	10	1	11
G8FMK	7	1	8
G8FJG	7	1	8
G8EOP	1	1	2

GB2BEX, on the air for the "Bristol 600" anniversary, was operated by members of the Shirehampton Radio Club. They had a great success, the all-band total of stations worked, world-wide, being more than 1600. Left to right are G4BWB, G4BOC, G4AYB.

amplifier for his Liner which should make him a reasonably accessible target from the South.

GW8DUP (Swansea) has been experimenting with antenna polarisation. He has two, crossed, 10-ele. Yagis and has arranged matters so that he can switch between horizontal, vertical and circular polarisation. To date, he has not found any evidence of significant polarisation twist when receiving horizontally polarised signals in the circular mode. (There is a built-in theoretical loss of 3 dB, of course). When working mobiles with vertical antennas he finds that circular polarisation gives improved results, in spite of the 3 dB loss, in that motion flutter is almost eliminated. Not all of us can go to the palaver of installing such an antenna system to work mobiles, so perhaps we should try to encourage them to scrap the ¼-wave whip and go for a simple, circularly polarised arrangement! To digress for a moment, the argument about whether one should use horizontal or vertical aerials when mobile never seems to be completely resolved. The proponents of either configuration can, and often (boringly) do, produce arguments which satisfy themselves, if nobody else, of the superiority of their own particular choice. One would have thought that the answer was pretty simple. If your interest lies in working through repeaters, or working other mobiles direct, the antenna should obviously be a vertical of some sort. If you are more interested in working fixed stations while *en route*, getting a steer into a particular QTH or trying for a spot of DX from the car, then, since nearly all fixed stations are using horizontal aerials, a halo or whatever is called for to give the best results. One simply cannot generalise without knowing the aim of the user. G8AIB seems to know what he wants to do. He has a 4-ele. rotatable Yagi on his Ford Transit!

G3JHM will be operating from Normandy as FØAKD at the end of this month. He will have 2m. and 70 cm. and the QRA Locator will be ZI16g. When passing this information he also drew attention to the proposal to site a 3 cm. beacon, hopefully with the call GB3IOW, on the southernmost point of the Isle of Wight. Little doubt but that Alan Williams, G3KSU, will be much concerned with this project. He is getting some nice results on 10 GHz and has worked G3JHM, G3VPF/P, G3EGV/P, G3OBD and G3WDG among others.

G8FEP wandered up to the G3OHH site on Mow Cop the other day and with a Liner and 2-ele. beam promptly worked F2YT. From the results that Roger gets, and from personal observation, this site has to be good, but this must have been a bit of an eye-opener for 'FEP. G3SNU (Manchester) now has a pretty large antenna for 2m. up at 50ft. and this, with the 4m. and 70 cm. radiators puts him at "Go" on the three bands. He had a fine contact on 70 cm. with GM3JFG/P in Kincardine using this set-up.

Seventy: G8AGU has some interesting comments to make about his recent trip to GM with GM3JFG. He found conditions pretty good, but activity low. He made it with G3JVL in Hayling Island every evening with one exception, in Berwick, when they could only get half the aerial up due to the high winds. They could copy him weakly but the QSO could not be completed. Paul noticed a fairly sharp drop in 70 cm. signals south of the Midlands when conditions were average and only the better equipped stations were coming through at all. In Angus, conditions dropped markedly after 8 p.m., but the 70 cm. band held up better than 2m. The advantage of co-channel working was highlighted throughout the trip since it was quite a time-consuming job trying to identify weak signals off channel when tuning such a large frequency spectrum, and they were easily missed. Some meteor scatter was observed during the skeds with G3JVL and G3OBD, and in fact G3JVL was contacted on this mode!

G3NHE (Sheffield) reports good conditions on June 21 when he worked ON, F and DC9KK in Bonn. Propagation must have been pretty good also for inter-G working, since G6NB was putting a good signal into Sheffield with his 30 mW of SSB! G3EKP in Belthorn, Lancs,. is now QRV on the band, and GI8EWM in Co. Antrim expects to be QRV shortly.

* * * *

We regret to have to report the death, after a short illness, of Dick Gale, G8FWN of Newport, I.o.W. Dick was licensed as both G3GPA and ZB1AX in his time and on his return to this country took an enthusiastic interest in VHF and SHF portable activities.

Deadline

Deadline for the next issue is August **9.** For the issue following it will be *September 6.* Please send your news, views, claims and comment to: "VHF Bands," SHORT WAVE MAGAZINE, BUCKINGHAM, MK18 1RQ. Cheers for now and *73 de G3DAH.* (Several late reports on recent openings are being held over for our next).

For this month's Reader Small Advertisements, see pp. 329-333

THE MONTH WITH THE CLUBS

By *"Club Secretary"*

(Deadline for September issue: August 9)

ELSEWHERE in this piece you will read the startling news that a YL licensed amateur holding a G4 call lifted a home-construction trophy from under the noses of the male members of her Club. More power to her elbow, we say, and may she inspire some, no, many, of her sisters to try and share life with their men instead of sharing their men reluctantly with life.

The Mail

As usual at this time of year, numbers are a bit down, so we will run through them simply divided into two geographical groups, plus one for the nationals.

First out of the bag is **South Manchester** who have Hq. at Sale Moor Community Centre, Norris Road, Sale, and a club shack, devoted to VHF matters, at Greeba, Shady Lane, Manchester 23, where they can be found on Mondays. Reverting to the Hq., meetings they are on Fridays at 2000, programme being as follows: August 2, G2JT talking about Coaxial Cables, Waveguides and Fibre Optics; August 9, Final Radio Theory; and August 16 a Mystery Lecture. Then on August 23 a note of nostalgia creeps in, with a talk about the History of Radio *up* to 1922. August 30 is the last date to be noted, and because of its closeness to the Bank Holiday thing, they content themselves with reviewing the Club activities in the past.

It seems to be the first Thursday in each month for the **Cheltenham** RSGB group in the Royal Crescent Hotel, Clarence Street. As for the goings-on, at the time of writing we have no firm details, but have no doubt from past knowledge that something *will* happen.

In the Wirral they foregather at the Sports Centre, Grange Road West, Birkenhead on the first and third Wednesdays in each month; again we have no current detail on the goings-on, so we must refer you to G3YGL—*see* Panel—for everything you want to know.

No mistake at **Coventry**: Baden-Powell House, St. Nicholas Street, Radford Road, it is, for Fridays, August 2, a D/F Practice event; August 9, for a Night-on-the-Air, repeated on August 23. August 16 is "Open" and August 30 is devoted to a treasure hunt which is planned to end at a "suitable public house."

We have a couple of issues of the **Midland** *Newsletter*, and from them we get it that the date to reserve is August 13, at the Midland Institute; however, the group were still fixing up the details of the entertainment at the time of their later issue.

Every Friday evening, observant eyes will notice a stream of radio amateurs and SWL's heading for Gaol Street, **Hereford**, and turning into the Civil Defence Hq., in which they share, temporarily, a room with the traffic wardens, until alterations are complete, when they again become masters of their own room. They seem to find something to do on most evenings, but also notice that the occasional natter session often results in a bumper attendance! A later report from Hereford includes a copy of their comprehensive one-sheet *Newsletter*, with a page of members' news. With varied activities, HF and VHF, indoor and outdoor, they can claim to have a live and active membership.

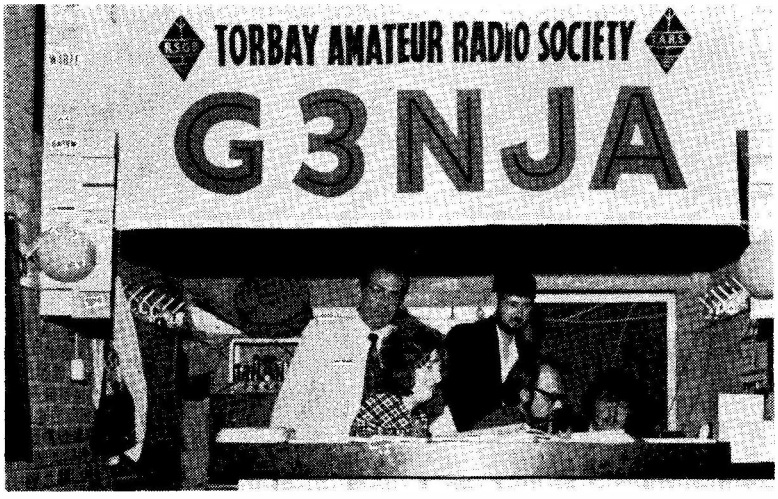
Heading rather more to the North now, we come to **Nottingham**, where recently they arranged a "Bring your own VHF gear" night, which was interrupted by a call-out drill for the RAEN members—and of course gave the remainder a very good chance to listen-in to the goings-on, with interest; as the Secretary remarks, at least it well filled an otherwise less-than-inspired evening! During August, the usual gatherings at Sherwood Community Centre, Woodthorpe House, Mansfield Road, Nottingham, each week continue, although the organisation has been left, deliberately, pretty loose as there are so many members away on holiday.

Every Wednesday evening the Star members get together, their Hq. being the New Inn Hotel, Bramley Town Street, Bramley, Leeds 13, where they have a 14 MHz SSB station operational, plus a 144 MHz AM set-up. August 21 is an interesting one, when they have a tape-and-slide lecture on the Club's recent trip to North Wales. On Saturdays, they go out to Otley Chevin, 1100 feet up, where from 8.0 p.m. till midnight they can get in some peaceful operating time on VHF.

At **Sunderland** a new Secretary takes over, as will be noted from the Panel. They have a summer recess here, which they will break

Names and Addresses of Club Secretaries reporting in this issue:

A.R.M.S.: N. A. S. Fitch, G3FPK, 40 Eskdale Gardens, Purley, Surrey, CR2-1EZ.
BATH: J. Noden, G8IOK, Flat 4, 30 The Paragon, Bath (*60990*), Avon.
BISHOPS STORTFORD: C. Harlow, G8BTK, Thorn Cottage, Old Mead Lane, Henham, Elsenham, Bishops Stortford, Herts.
BURY & ROSSENDALE: C. Kirby, G8HQW, 2 St. Peters Place, Haslingden, Rossendale (*4915*), Lancs.
CHELTENHAM: G. D. Lively, G3KII, 131 Mandaring Way, Wymans Brook, Cheltenham (*34785*), Glos.
CHILTERN: F. S. G. Rose, G2DRT, 84 Cock Lane, High Wycombe, Bucks. (*Penn 4240*).
CORNISH: H. Webster, G3XTF, Crandale, Gillyfields, Redruth (*6905*), Cornwall.
COVENTRY: G. A. Whenham, G3TFA, Lavernock, 33 Chapel Street, Bishops Itchington, Warwickshire.
CRAY VALLEY: P. F. Vella, G3WVP, 78 Hurst Road, Sidcup, Kent.
DUNSTABLE DOWNS: R. J. Sayers, G8IJS, 5 The Laurels, Bletchley, Milton Keynes (*75786*), Bucks.
EAST LANCS.: W. E. Baxendale, G8FDG, 28 Westland Avenue, Darwen, Lancs.
ECHELFORD: A. J. M. Wenham, G3ZXA, 28 Pinewood Sunbury-on-Thames (*86440*), Middx., TW18-6SG.
HAVERING: S. J. Hobday, G3SKV, 31 Sackville Crescent, Harold Wood, Romford, RM3-0EJ, Essex.
GLENROTHES: A. Givens, GM3YOR, 41 Veronica Crescent, Kirkcaldy, Fife, KY1 2LH.
GRIMSBY: D. Johnson, G4DHF, 3 Ethelstone Road, Grimsby, Lincs., DN34 4EF.
HEREFORD: S. Jesson, G4CNY, 181 Kings Acre Road, Hereford (*3237*).
MAIDENHEAD: E. C. Palmer, G3FVC, 37 Headington Road, Maidenhead (*20107*), Berks., SL6-5LA.
MIDLAND: A. L. Walton, G3ZKQ, 243 Barnes Hill, Birmingham, B29-54J.
MID-SUSSEX: J. Brooker, G3JMB, 20 Farnham Avenue, Hassocks, Sussex.
NORTHERN HEIGHTS: A. Robinson, G3MDW, Candy Cabin, Ogden, Halifax (*44329*), Yorkshire.
NORTH KENT: R. Wells, G4ARQ, 12 Bullbank Road, Belvedere, Kent.
NOTTINGHAM: S. F. Claringburn, G8HLD, 49 Fernleigh Avenue, Westdale Lane, Nottingham NG3-6FN.
PLYMOUTH: S. E. Croft, 2 Crozier Road, Mutley, Plymouth.
PURLEY: N. A. Marshall, 122 Goodenougn Way, Old Coulsdon, Surrey, CR3-1DZ.
R.A.I.B.C.: S. R. Boakes, G3HXN, Cambridge Villa, Bristol Road, Cambridge, Gloucester, GL2-7BQ.
SILVERTHORN: C. J. Hoare, G4AJA, 41 Lynton Road, South Chingford, London, E4-9EA. (*01-922 2282.*)
SOUTHGATE: B. Oughton, G4AEZ, 48 Morley Hill, Enfield, Middx. (*01-366 7166.*)
SOUTH MANCHESTER: D. Holland, G3WFT, 7 Alcester Road, Sale, Cheshire, M33-3GW.
STAR: T. Leeman, G4BUU, 115 Asket Drive, Seacroft, Leeds, LS14-1HX.
STEVENAGE: G4BGP, 473 Canterbury Way, Stevenage, Herts., SG1-4EQ.
SUNDERLAND: P. Barker, 15 Buttermere Street, Grangetown, Sunderland, Tyne and Wear, SR2-9NJ.
SURREY: S. A. Morley, G3FWR, 22 Old Farleigh Road, Selsdon, South Croydon, CR2-8PB, Surrey. (*01-657 3258.*)
TORBAY: M. Yates, G3UIQ, Top Flat, 23 Waverley Road, Newton Abbot (*3025*), Devon.
WARRINGTON: R. Davies, Poplars Avenue, Penkett, Warrington, Lancs.
WEST KENT: M. Stanton, G4CCQ, Sweetbourne Cottage, Hastings Road, Lamberhurst, Kent, TN3-8JG.
WIRRAL: F. Smith, G3YGL, 72 Church Road, Bebington, Merseyside.



GB2NTF, put on by Torbay Amateur Radio Society for the Newton Trades Fair, June 14-17, when they worked some 200 stations under the public eye. Among members taking part were G3FUT, G3GDW, G3PQU, G3UIQ, G3XNX, G8CGS, with SWL support.

on September 3 by a first meeting of the new session and then fortnightly at Sunderland Polytechnic, the start being a bit earlier than most, at 1900 clock.

No mention is made in the letter from **East Lancs.** of any of their Club activities or their Hq. address, for all of which we can only refer you to G8FDG, *see* Panel. However, what they do say is that they have decided to institute the "Pennine Award" to encourage activity on both Top Band and Two; four grades are available, and it is open also to the SWL brigade—get the details from G8IAT, B. Smith, at 58 Blackburn Road, Rishton, Lancs.

Bury and Rossendale get together on the second Tuesday of each month for the formal session, and on every other Tuesday evening for an informal natter. On these latter occasions they usually have something going in the way of Morse and R.A.E. tuition for those wanting such assistance; maybe this helps to account for much of the activity in the contests, both VHF, and HF, Phone and CW, carried on by members individually and collectively. Good for them!

* * * *

Glenrothes were among the many Clubs in on Field Day this year, working all bands with reasonable results, conditions not being too good for GM3YOR. They ran two stations, with K.W., Heathkit and Collins gear, and had a two-element Quad for 21 MHz. Total score was 2396 points.

Arthur Robinson, G3MDW, is now in his 15th year as hon. secretary for **Northern Heights** (Halifax) and presents a programme running into July 1975! Meetings are on Wednesdays, at Pitts Inn, Ogden, 7.45 p.m., and next dates are August 14, 21, 28 and September 11, 25. G3MDW remarks that it gets more difficult to find visiting speakers and reminds us that the popular W1BB tape-lectures are available for borrowing by any Club—they cover mainly Top Band activity.

Warrington meet on Tuesday evenings, 8.0 p.m., at the Thames Board Club, Manchester Road, and on September 1 have what they call a "mini-Rally" with other local Clubs, at the Peninsular Barracks, Warrington. The programme for August-September covers Amateur TV, Tx Topics, Learner sessions, Aerial Design and such, with a Club trip to Calder Hall Power Station on September 12.

At **Grimsby**, they report a keen interest in both HF and VHF contests, also D/F working and social events. Meetings are in Room 3, The Community Centre, Duncombe Street, every second Thursday. For August 1 they have G2CVV visiting for a talk and during September 20-22 they will have GB3HFA on the air for a local Hobbies Exhibition.

Nationals

Here we must first take into account **R.A.I.B.C.**, whose new Secretary is now XYL/G3HXN, at the address in the Panel, G3LWY after many years having decided she must retire, although she still maintains contact in that she handles the QSL card sales for them.

The current issue of the **A.R.M.S.** *Mobile News* has much information on the repeater scene, the second part of a piece about his trip to HBO-land, by G3BID, and much besides; if you are a mobile operator, on any band, you should know more about this group.

Southerlies

No details at all appear, either of the meetings or of the venue for the **Southgate** gatherings, in the issue of their *Newsletter* which is currently to hand. This being the case, we must refer you to the hon. secretary, name and address as in the Panel.

Stevenage are in recess during August but will return to the normal routine of things in September, the venue being at Hawker Siddeley Dynamics, Gunnels Wood Road, Stevenage. In addition to the club meetings there, the lads run a two-metre net from 1930 on Mondays, nominally 144·77 MHz, but in practice, according to the hon. secretary, appearing to be "a bit spread out."

Purley have a new Secretary wrestling for the first time with a recalcitrant typewriter, to tell us they are at Lansdowne, Lansdowne Road, on the first and third Fridays of each month. This gives August 2, when there will be a lecture-demonstration of Amateur TV, and August 16, with talk and slides to remind them all of the Club expedition to GD-land.

The **Mid-Sussex** *Newsletter* sports a new front cover this time, with a quite admirable drawing of the Hq. at Marle Place, Leylands Road, Burgess Hill—you can't miss the big beam aerial, surmounted by another for VHF. Alternate Thursday evenings are normally the dates for them, but in August they are, during the recess, getting together at members' homes; this being so, it would seem right to phone or write to G3JMB if you wish to attend on August 8, 15, or 29.

The second Monday and the *last* Thursday of each month give an agreeable spread to the **Echelford** activity at St. Martins Court, Kingston Crescent, Ashford, Middx. They have nothing specifically organised, at the time of writing, for any of the dates in August.

The Hq. of the **Silverthorn** chaps at Friday Hill House, Simmons Lane, Chingford is to be known from August 1 as "Chingford Adult Education Centre" and with the new status the Club hopes they will be able to have an R.A.E. examination centre there. We know they get together every week at the Hq. mentioned, but have no idea at the time of writing as to what plans are being made for August evenings.

Surrey recently held a home-construction contest, for which one prize was taken by G3YRB, with a Frequency Meter, while the other was taken by Prim Fagg, G4CCY, with her VFO—and we bet she is already planning her entry for the 1975 contest! The crowd can be found at the Ship Inn, 47 High Street, Croydon, on the third Tuesday of each month.

Cray Valley seem to have the knack of getting their members through the Morse, four having done the trick lately. They get together on the first and third Thursday each month, at the Eltham United Reformed Church Hall, 1 Court Road, Eltham, London, S.E.9.

Alternate Fridays it is for **West Kent** at the Adult Education Centre, Monson Road, Tunbridge Wells, and the hon. secretary tells us that at the time of his letter he was organising the programme—for information, get in touch with him at the address in the Secretaries

Party of Limerick Radio Club members who put EI0A on the air early in June from Clare Is., Clew Bay, Mayo, activity being mainly on 20/80m., with some contacts also on 40/160m. Gear included a KW-2000A, and Drake TR-3, with inverted-Vee and dipole antennae—and, they say, a "reliable 3 kW generator" Of the 17 EI's who made the trip, twelve are in the picture. The site was an excellent one with a clear take-off over the Atlantic, and several hundred stations were worked.

Panel, page 322.

Bishops Stortford listened, we hope, to G3KFE on the subject of Receivers in July, and so for August they have a rest from formalities with a good old ragchew for all those members who are not away on holiday or occupied in the garden. The date is August 20, and the place the British Legion Club in Windhill.

Each year the Chiltern Club tries to meet the public, on neutral ground as it were, at some new function and this year they are going in August to the Booker Show, Booker Common, and later, on September 7 to the Wycombe Show, the first-named being on August 26. As for the normal activities, these are on August 13, Informal, and August 28, when they are preparing for the Wycombe Show. All "home" dates are at the Ernest Turner works canteen, Totteridge Avenue, and are informal until September sees the regular programme recommence.

On August 1, Maidenhead have a talk on Power Transistors by Tony Hilling of RCA, and then on the 20th they get seriously down to making the arrangements for VHF NFD. Notice that the first date is a Thursday and the second a Tuesday. In addition, it is hoped to have a trip round the Air Traffic Control Centre at Hounslow one Saturday, yet to be settled, during the month of August. Normal meetings are at the British Red Cross Hall, The Crescent, Maidenhead.

North Kent are at the United Reformed Churches Hall, at Bexleyheath Clock Tower, the entrance being in Chapel Road; here they are booked in on the second and fourth Thursday of each month, although for once we can't tell you what they are up to as our details cover only to the end of July.

At Havering the local lads made sure that the disappearance of Rutland for ever from the county scene was duly marked, so they put on HF and VHF stations signing respectively GB2RUT and GB3RUT. Seems they liked the local beer so much that they had a QSL with a picture of the White Lion, Whissendine, the place from which the HF crew operated. For details of the current goings-on, we must refer you to G3SKV—*see* Panel.

A new Secretary takes over at Dunstable Downs, and "makes his number" for the first time. He tells us that on August 1 they will be discussing the purchase of some new equipment, and on August 14 G3WLM will talk about a "Beginners Approach to RTTY," while on August 28 G3USB and G3VEH will be discussing their Mark II GB3PI repeater, and the use and abuse of repeaters in general. In between these dates fall August 7 and 21, appropriately enough called "Between Weeks" by the lads. It seems that on these occasions they have something in the nature of an informal discussion evening.

Our journey turns in the general direction of westerly now, and first we come to Torbay, where the Club has Hq. at Bath Lane, 94 Belgrave Road, Torquay. Much time is being taken up with summer-time activities, and of course they have had visitors, from both the London area and the Midlands. For more details we suggest you get in touch with the Secretary—*see* Panel.

Cornish have August 1 booked at the SWEB clubroom, Pool, Camborne, for a talk on RTTY by G3CZZ; looking a bit further forward, we also see September 5 as the date for a talk on Basic Radar by G4CUH.

At Bath they have a new Hon. Sec., and a change of Hq. address to notify. They now get together on Monday evenings at 2030, at the Crypt, Church of the Ascension, Coronation Avenue, Bath For more details, get in touch with G8IOK, as Panel.

The details of the Plymouth programme are slipped in on the back page of the *Newsletter*, and from it we see that they are "at home" on August 6 and August 20, both dates being "open" at the time of writing. The Hq. address is Virginia House Settlement, which is located at the rear of the Breton Arms, Buckwell Street, near the St. Andrews, roundabout.

Signing

And so we come to the end of a seasonally short clip, while Club secretaries all sun themselves on the beach, or wherever. For next time we want your news on the events you have planned for September, with dates, venues and the name/QTH of the current secretary for the Panel and our card-index. Deadline will be first post Friday, August 9, addressed as always to "Club Secretary," SHORT WAVE MAGAZINE, BUCKINGHAM, MK18-1RQ. Closing date for the issue following will be September 2.

" . . . did you say clipping? Don't believe in it 'ere . . . "

SMALL ADVERTISEMENTS

("SITUATIONS" AND "TRADE")

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QSL CARDS and G.P.O. approved Logs (hard back), prompt delivery. Send 5p s.a.e. for samples.—**Elmtree Press, Looe, Cornwall, PL 13-1JT.**

SEPTEMBER Issue: Due to appear August 30. Single copies at 34p post free will be sent by first-class mail for orders received by August 28, subject to supplies being available. — Circulation Dept., Short Wave Magazine Ltd., 55 Victoria Street, London, SW1H-0HF.

READERS ADVERTISEMENTS

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READERS

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FOR SALE: Eddystone EC-10 Mk II receiver, AC/Battery, excellent condition, as new. — Tel: Stephens, 01-674 4087, or Box No. 5344, Short Wave Magazine Ltd., 55 Victoria Street, London, SW1H-0HF.

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FOR SALE: Trio 9R-59DS, with speaker and two headphones, as new, also valves, speakers and boxes of bits, £35. — Hook, 73 Northlands Avenue, Orpington, Kent. (Tel: 66 51785).

SALE: HW-100 with modified dial drive and home-built PSU, £130 or near offer; dummy load and SWR bridge for same, £2. K.W. E-Zee match, £14. Bush 14-in. TV Rx, modified for DX reception, £7·50. STR-18 Tx, £3. Yashica Umatic standard-8 ciné camera, with case, £15. — Sparrow, G3JKN, QTHR (Tel: Denham 2229).

EXCHANGE: My Koyo 11-band receiver (£60), professional model in mint condition, has M/L, marine, four short and four VHF bands, with BFO, fine tuning, two aerials and squelch control, world-wide reception FOR AR88D or AR88LF receiver.—Page, 20 Allen Street, Maidstone, Kent, ME14 5AG.

OFFERING: R.216 HF/VHF receiver, coverage 19 to 157 MHz in five switched bands, film-strip tuning, with PSU and manual, offers?—Oliver, 336 Bocking Church Street, Braintree, Essex.

SALE or EXCHANGE: Hustler 4-BTV trap vertical antenna, suitable 10 to 80m., perfect, £18. Copy of Labgear LG.300 Tx, with modulator and heavy-duty PSU, £10. EK9X electronic keyer, as new, £6. K.W. antenna switch, unused, £4. Imperial "Safari" typewriter, in case, etc., unused, £30. Would consider Exchanges. — Kellaway, GW3CBA, QTHR, or ring Barry 77793.

EXCHANGE or SELL: Trio 9R-59DS receiver with SP-5D speaker, OA2 fitted, mint, £35 or near offer. Heathkit Q-multiplier, 455 kHz, £5. Two-metre converter, "G8AEV" type, IF 28 to 30 MHz, £7. Or Exchange lot for good AR88.—Ring Handy, Coventry 22201.

WANTED: Absorption wavemeter, Burns TC.101 preferred.—Smye, Windlemarsh, Manorial Road, Parkgate, Wirral, Cheshire, L64 6QW. (Tel: 051-336 2386).

FOR SALE: Plessey PR-155 receiver, £500. Collins 75S-3B receiver, £300. Collins 32S-3 transmitter, £350. Collins 75S-3C receiver, £425. Eddystone 990R VHF receiver, £300. Solartron DVM LM.1240, £40. Racal 9520 Counter, £55. Solid-state VHF/FM PA, 10 watts in 100w. out, £45. Waters Antenna switch, £7·50. I.T.T. UHF Starphones, £60 each. I.T.T. FM-10 low-band mobile transceiver, £60. I.T.T. M5 UHF mobile transceivers, £80 each. I.T.T. FM10 high-band mobile transceivers, £90 each. I.T.T. FR5 UHF transceiver, remote control, £200. Pye UHF On-Frequency Repeater, £50. — Yu, 8 Basing Street, London, W.11 or ring 01-229 1229.

WANTED: Heath Monitorscope SB-610. Also RF ammeter to 0·5 amp full scale. And BC-221 or W.1191 Wavemeter. — Parker, G3KH, 133 Station Road, Cropston, Leicester, LE7 7HH.

WANTED: Eddystone 770R VHF receiver. Top price paid for mint condition only. (Eire). — Box No. 5330, Short Wave Magazine Ltd., 55 Victoria Street, London, SW1H-0HF.

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SELLING: Double-beam oscilloscope, working, £25. Four-metre Tx, 25 watts, needs controls and a modulator, £5. Buyers collect.—Ring Mollatt, 07825-35316 after 7 p.m.

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WANTED: Ex-R.A.F. box kite, any condition—or source of supply. Your price paid. — James, G3NXJ, 2 Sheepscombe Drive, Worcester.

WANTED: By beginner, AR88D or B.40, with manuals and xtal calibrator. Details and price please.—Fyffe, Tarvit Gardens, Cupar, Fife.

SALE: Pye Westminster W.15FM, FM, 3-channel, 15 watts, 12v., dash mounting, £65. Pye Vanguard, FM, 6-channel, 12v., boot mounting, with control box and cables. — Noakes, 10 Ambleside Close, Mytchett, Camberley, Surrey GU16 6DG.

WANTED: Pye Westminster W.15AM dash-mounted, or Motafone. Details and price please. —Green, G3TRL, QTHR. (Tel: 051-355 2017).

WANTED: HW-32A, HW-101 or similar transceiver in good working condition. Details and price please.—Vassilev, LZ1SB, 98 Hallmead, Letchworth, Herts.

SALE: Trio JR-310 with 10.AZ filter, excellent condition, £58. — Stevens, 4 Heathlands, Westfield, Sussex.

FOR SALE, due to sudden death of G4BQP: K.W. Atlanta with PSU, handbook, as new, £160. Hy-Gain 18AVT/WB, £30. Shure 444 mic., £11. Joymatch triple ATU, £5. All items bought within last two years.—Plant, 13 Highfield, Elton, Chester. (Tel: Thornton-le-Moors 433).

SELLING: **FT-75 transceiver** with mobile DC-75 PSU and FV-50C VFO, excellent condition, £135 or near offer. Echelcome-2 **Two-metre transmitter** with American dynamotor PSU (excellent test reports), £30.—Ring O'Brien, G4BCR, Bloxwich 76832.

FOR SALE: LR-3 General Radio heterodyne wavemeter, up to 60 MHz, large but beautiful, brand new, £15. Another Creed 7B teleprinter with silence cover, dual speed, modern motor supply, £15. Collins miniature mechanical filters, 500 kHz by 3·1 kHz, upper and lower sideband, £15. Collins mechanical filter, 250 kHz by 4 kHz, £7·50. TRR-2 regenerative repeater, £7·50. An antenna rotator for the largest beam, £25. Drake MS-4 speaker, new, £9. Dawe valve voltmeter Type 613B, £7·50. CT-212 signal generator and companion unit, 85 kHz to 8 MHz, excellent and with all leads, £30. 75R silence cover, £5. WANTED: Constant voltage transformer 240v. output, Type CV or CVN; TDMS-70 and TSG-10, good price paid for mint equipment; TF-144H signal generator; TF-1041C valve voltmeter. Crystal filters, 100 kHz with 1 kHz and 3 kHz band-width. Pre-war "QST's." Details and price please.—Fletcher, 62 Moorbridge Lane, Stapleford, Nottingham NG9 8GU. (Tel: 0602 397446).

SELLING: Storno Viscount 2m. Tx/Rx, FM, working on 145·5 MHz, with control unit, mic., cables and Bantex ⅝-whip aerial, £25. J-Beam 8-over-8 slot-fed, for two metres, £5. Carriage paid.—Denman, G3MEW, 24 Ascot Road, Copnor, Portsmouth (20315), Hants.

WANTED: Collins 51S-1 receiver. Details and price please.—Box No. 5342, Short Wave Magazine Ltd., 55 Victoria Street, London, SW1H-0HF.

SALE: HW-32A with PSU and transverter, ideal for 2m. or 20m. SSB, switchable, complete with manual and all connecting leads, £98. Osker SWR-200 block power meter, FB condition, with calibration chart, £15. — Forse, G8HOX, Penlan, St Stephens, Saltash, Cornwall.

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WANTED: Pye Model PE-80 International mains SW radio, or Pye Model 1112 (Seafarer) SW radio.—Whiteley, 25 Pine Road, Newton Green, Todmorden (2169), Lancs. OL14 8EE.

WANTED: One mains transformer for Eddystone 640 Rx, in good condition.—Ball, 46 Garnsgate Road, Long Sutton, Lincolnshire.

FOR SALE: K.W. Vanguard, coverage 10-160m., clean condition, working order, £20. At this price, please collect.—Parker, 92 Pamfield Road, Abbey Wood, London, SE2 9DE. (Tel: 01-310 4079 after 8 p.m. weekdays, or at weekends.).

SELLING: **Eddystone 940** receiver, AM/SSB, coverage 480 kHz to 30 MHz, serviced by Eddystone, with speaker and manual, excellent condition, £105 or near offer. **Trio 9R-59DS** receiver complete with speaker and manual, mint condition, £40 or near offer.—House, 10 Leagh Close, Kenilworth, Warks.

WANTED: AR88D receiver for new Club just starting: must have the Rx by September. Details and price please. Will arrange to view and collect.—Price, 76 Chesterfield Road, St. Andrews, Bristol.

WANTED: Pye Bantam, any band but must be working. Details and price please.—Harmer, 54 Nicholls Lane, Winterbourne, Bristol, BS17 1NE.

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EXCHANGE: TA-33Jr. for KW-77, any condition considered but must be complete. Details please. —Harrison, G4ADF, 1 Cherry Tree Walk, Petworth, Sussex.

SALE: Heath SB-310, AM/SSB filters, with SB-600 speaker, good condition, £80. Avo signal generator, 50 kHz-80 MHz continuous, £15. Racal RA-17 VFO-2 with new manual, £7.—Jones, 7 Merganser Close, Rest Bay, Porthcawl (5500), Glam., South Wales.

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EXCHANGE or SELL: FR-400SDX Rx, £160; Collins TCS Tx, £15; Home-built Tx, £15; Pye 2m. base station, £15; Two-metre Yagi, £2·50; 2m. preamp, £5; Four-metre FM base station, £8·50; Burns FM unit, £15. Or will EXCHANGE all the above for a transceiver.—Ring Atkinson, G4CWX (ex-G8HHF, QTHR), 01-688 8045.

SALE: JR-310 with Top Band filter, calibrator and speaker, mint, £65 or near offer.—Ring Butler, Leatherhead 73906.

SPACE NEEDED: B.40C, complete with manual, original connectors, mounting tray etc., immaculate, £35. National HRO, octal valve model, complete with all coils, power pack, etc., mint condition throughout, £30. No. 12/2 signal generator (identical to CT-218), range 35 kHz to 18 MHz, AM/FM, with xtal calibrator, etc., manual, connectors, and transit case, mint condition, £40. All carriage extra. (Lancs.).—Box No. 5346, Short Wave Magazine Ltd., 55 Victoria Street, London, SW1H-0HF.

FOR SALE: Liner-2 with pre-amp. and AC/PSU, excellent condition, £125; Garex two-metre transceiver, AM/FM, £85; 5th whip, £5; 2m. LPF, £4.—Ring Kermode, G8ESK, Bradford 45611.

WANTED: SSB filter, mechanical or xtal, any type; also XF30A SSB filter for FT-101. Versatower or similar, at least 50-ft. 20m. Monoband or Gem Quad. Cheap KW-2000, condition immaterial. FR-400SDX and SB-220, or FL-2100 and FV-101. EXCHANGE or SELL: AM-25B, working on 2m. Colour TV, recent model; also non-working colour TV. Storno base station.—Ring Price, GW4CQT. Cwmbran 67124 (Gwent).

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SELLING: Eddystone 940 general coverage Rx with plinth speaker and Joymatch ATU, mint condition, £85.—Hyland, 10 Marlow Close, Anerley, London, S.E.20. (Tel: 01-654 0094, evenings).

EXCHANGE Or SELL: FR-50B Rx for Barlow-Wadley Rx, or small quality general-coverage receiver; or sell for £50.—Stampton, 88 Wilberforce Way, Gravesend (63284), Kent.

FOR SALE: Heathkit GR-64 receiver, excellent condition, £28. Two-metre valve converter, complete with PSU and xtal, £8. Buyers collect. — Bird, 45 Charlemont Avenue, West Bromwich. (Tel: 021-588 2332).

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WANTED: Urgently, a good, cheap receiver covering 20 to 160m., with SSB facility, for disabled SWL.—Roberts, 108 Middle Acre Road, Birmingham, B32 3AS.

WANTED: Transceiver, KW-2000, Heathkit or similar.—Jennings, G3PWV, 10 Boultbee Road, Sutton Coldfield, Warks. B72 1DW. (Tel: 021-373 2956).

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