PRINTED RATE.

REV.G.C.DOBBS (G3RJV) "WILLOWDENE" CENTRAL AVE. STAPLEFORD. NOTTINGHAM. NG9 8PU.

Devoted to Low Power Radio Communication

SPRAT

WINTER 1978/79 ISSUE 17.

****

Photo: Emil Tenland with his Silver Tern Receiver, SPRAT no. 15. A complete, simple S.W.L. Station.

Rev.G.C.Dobbs (G3RJV)"Willowdene" Central Ave, Stapleford. Nottingham. NG9 8PU

Dear Members,

A very full SPRAT, so little space for my ramblings this time. Just space to promote our two main articles in SPRAT - the G3IVF TTX, I've heard on the air with a nice clean signal - The G3ROO RX, I've had on bench test at this QTH and found it very good indeed. So two projects that are well worth building. Hope CU QRP. BEST 73 FER 79. George G3RJV.

SUBS Subscriptions are due before March 1979 for members number 178-200, 254-270 and 351-392 and 0-90. If your number is between 155-177, 233-253 or 326-350 and have not paid in 1978, you are overdue. Please ignore SUBS DUE stamp if you have paid. Subs to Alan Lake, G4DVW, 7 Middleton Close, Nuthall, Nottingham. Cheques to G.C.DOBBS RE: QRP CLUB (pse quote number)

S.P.R.A.T. EDITOR: Rev. G.C.Dobbs (G3RJV)
TEXT TYPING: MR.A.D.Taylor (G8PG) and G3RJV.
ART WORK: Mr. A.W.McNeill (G3FCK) and G3RJV.
ADDRESS LABELS: Connie Wade (G4CUY)

CLUB DATASHEETS

Complete List

Available for S.A.E. (Large) to G3RJV.
(On behalf of the club, I would once again like to thank Gwyn G4FKH for his preparation of the large range of Club Data Sheets)

Still in Stock:

TUCKER TIN MK II. A simple SSB transmitter, with suggested G2CKM P.C.B.
G3IGU 80m Transistor Transceiver, Award winning SPRAT project.
MINITUNER. A simple 80/40m direct conversion receiver.
MFJ FILTER, Circuit and instructions for popular audio filter.
S.S.T.1. 40m xtal controlled Transceiver.
ULTRAMOUNTAINEER. 40m xtal cont. transceiver for portable use.
MINIMITE. All band TTX - VFO.
HW7 Club mods from SPRAT (few simple ideas)
HW7 QST Mods. (New front end + Audio filter)
HW7 New Front End (ambitious modifications)
HW7 S METER (simple circuit with existing meter)
HW7 DJ1ZB Mods (excellent articles from SPRAT)
HW8 K8EEG mod s part 2 only.
HW8 SWR METER and curing zener noise. (NEW SHHET)
HW7/8 ATU from SPRAT.
G8EPE 2 metre 3 watt AM TTX from SPRAT
1 VALVE TRANSCEIVER. very simple xtal circuit.
TRANSISTOR ONE. G3YUQs simple 160/80 xtal TTX.
FOUR WATT WIDE BAND LINEAR.

NEW SHEETS:

7 Watt WIDE BAND LINEAR. simple'Milliwatt'Circuit with band filters.
SIMPLE QRP TRANSMITTER. 7MHz xtal TTX
QRP TRANSMITTER AND WAVEMETER. 21MHz Xtal TTX.
15M GOOBER WHISTLE. 10w VFO TTX.
SWING TO QRP. Article, with some circuits, for beginners.
ARGONAUT MODIFICATIONS. 73 article of simple mods.
ADDING A CW-3 FILTER TO THE ARGONAUT. Milliwatt's circuit for the MFJ filt

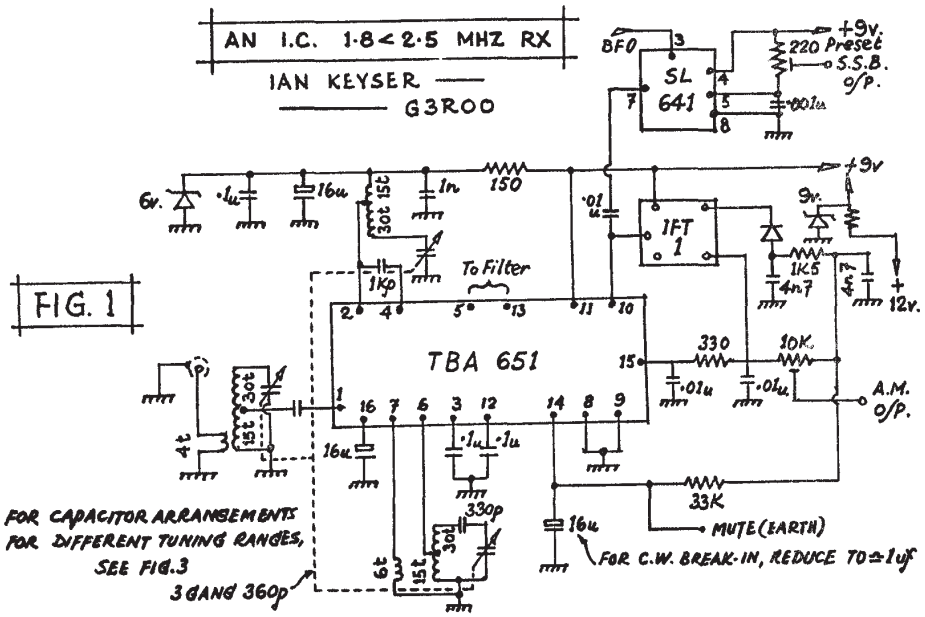
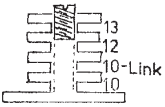


FIG. 1

CIRCUIT NOTES:
a) IFT.1. Toko 3rd IFT from old transistor radio.
b) Coils are wound on Toko 10K Coil Formers (Ambit)
c) Osc winding connected by leads to PCB - correct way round for feedback.



TOKO 10K FORMER

This small receiver was built to evaluate the TBA 651 I.C. which it did with success.

The circuit board was mounted on top of an aluminium box with the tuning capacitor alongside. Two small screened cables were taken through the box, from pins 5 and 13 to a switch which selects the filters. For A.M. two IFTs with 20pF top coupling (or a CFU 050D would be fine - For CW/SSB an MFL or Kokusai MF455/10K (15K) For cheapness one of the Ambit 455 ceramic filters could be used for CW/SSB.

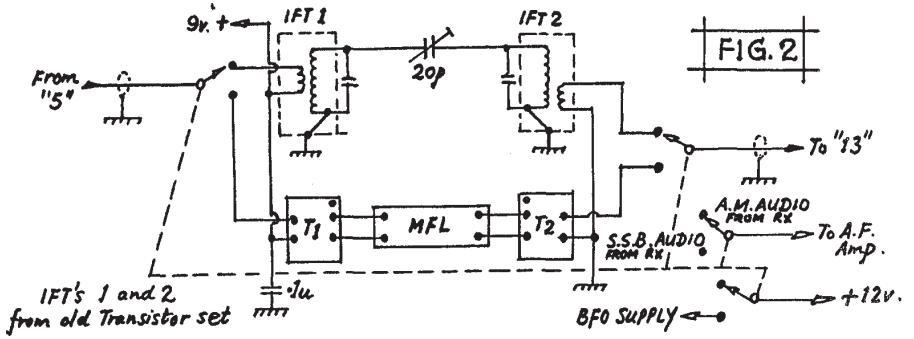
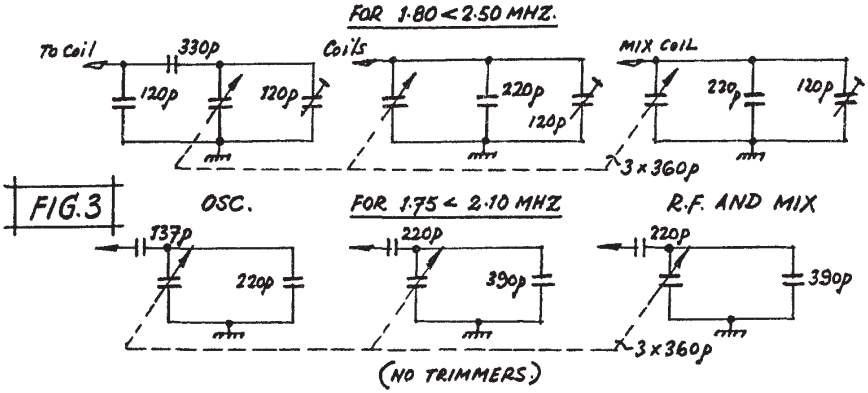
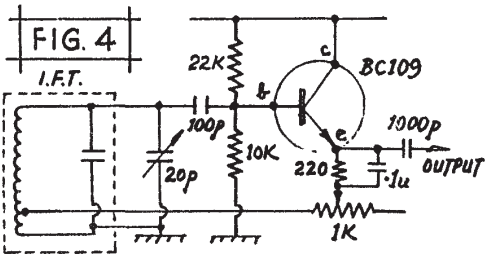


FIG. 2



The SSB and AM output tabs have to be decoupled for DC, a .1uF to feed the AF amp will be sufficient. An LM380 was used, but there are better (lower idling current I.C.s) so no AF amp circuit is given. The two presets are to balance the audio output to the levels suited for the AF amp. The switch used to select the filters could also be used to select the audio output for the AF amp and also switch the BFO.

The ganged tuning capacitors can be arranged, as in Fig.3. for the required coverage. Rember the series capacitor goverms the range and the trimmer the lowest frequency covered.



The BFO is simple, using an IFT. This will not be as stable as a well designed coil, but since it is tunable, it is adequate until other coils are tried. The 1K preset is adjusted so that reliable oscillation is just achieved.

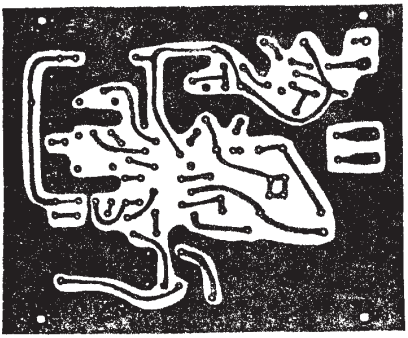
Overall Impressions

The R_X was used within 500 yds of a 100w TX (that hummy trans mission on 1992) and no cross mod was noticed until very close in tuning (20-30KHz). The stablity of the internal oscillator was fantastic, a finger can be placed on the IC with no audible change of frequency. A slight frequecny jump of about 50Hz occured, but I am sure this was a failure of internal components rather than the IC.

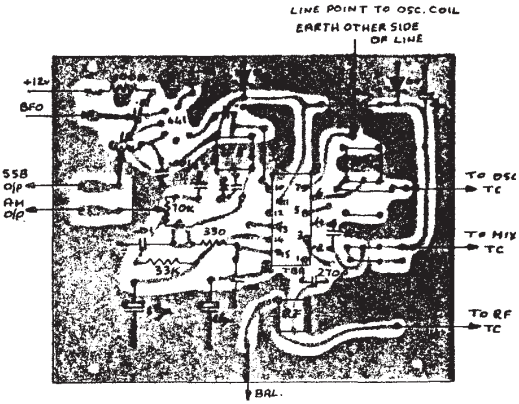
With ICs and small commercial coils (Ambit) available, an all band RX could be built on the kitchen table by a novice constructor.

Using a Dalo (33) pen, the making of a PCB presents little problem the layout is given. In fact drilling is the most difficult job. I will look at the possibility of getting PCBs made, if there is sufficient interest. If interested please write (with SAE) to Ian Keyser, G3ROO, Rosemount, Church Whitfield, Dover. (Dover 821588)

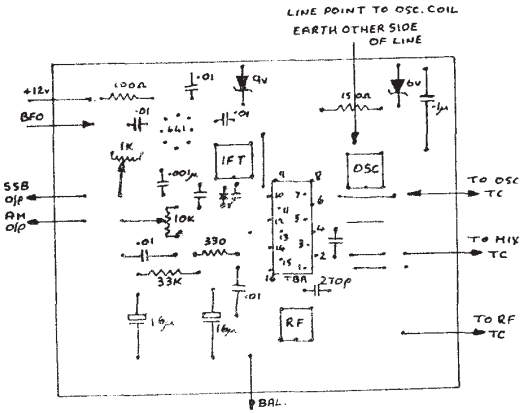
Main Board Layout



P.C.B. Foil Side

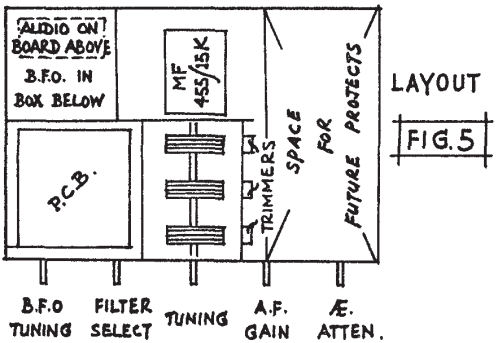


With Underlay



Without Underlay

Component Layout



LAYOUT FIG. 5

HINTS ON THE MAKING OF PRINTED CIRCUIT BOARDS

G3ROO

Two methods can be used for making printed circuit boards (pcbs) at home, namely photography and hand drawing.

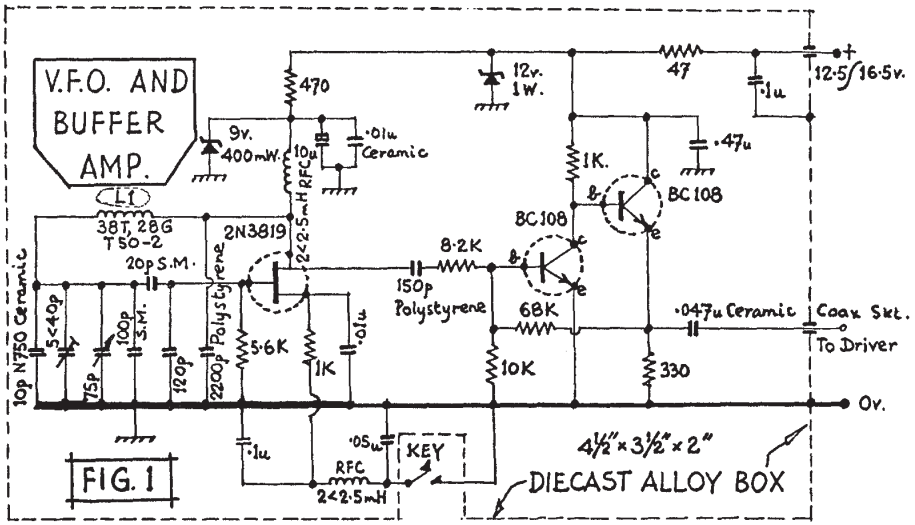
In photography, the pcb track layout is first drawn on transparent sheet, using a pen with a high density point, and the sheet is then used to make a contact print on photo-sensitive circuit board with the aid of ultra-violet light. The photo-sensitive board can either be bought ready for use or prepared at home by spraying ordinary board with a special spray. Home mananufacture is difficult however, as it is not easy to get an even coat of spray onto the board surface. The translucent can be used many times, but the photo-sensitive board is difficult to store and cut. The method could be useful for a mass production job such as a local club repetitive project, however, as it would allow a common layout to be used.

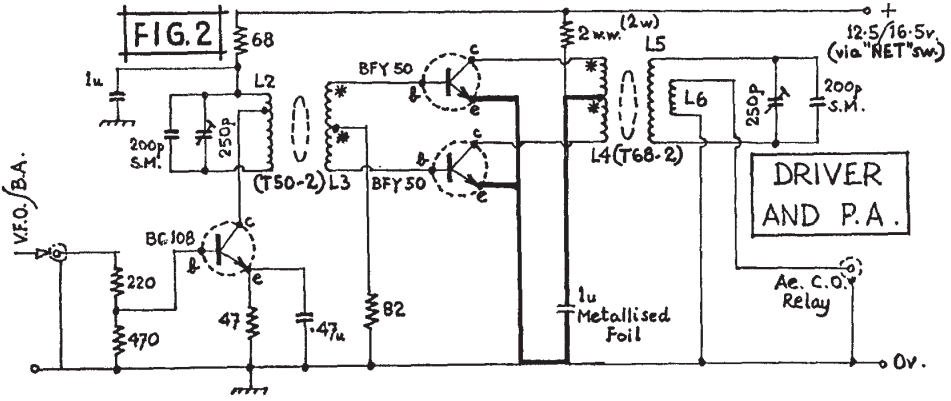
For the ordinary constructor requiring "one off" boards hand drawing is a very convenient method. It is carried out by drawing the circuit tracks directly onto the copper-covered surface of the pec with a special pen, then etching away the surplus copper with a ferric chloride solution. To extend the life of the pen large areas of copper such as ground planes can have their edges only drawn with the special ink, the remaining area being filled in with nail varnish. A recommended pen is the "Dalomark 33". Before the final drawing can commence it is usually necessary to plan the track layout. This is done as follows. Fig 1 shows a typical multivibrator circuit. In the theoretical diagram wires cross each other, but obviously this cannot happen to the tracks of a single-sided pcb. Components can be mounted across tracks, however, provided sufficient clearance is left, and Fig 2 shows how the circuit has been relaid out to take these points into account, and in particular to accommodate the rather difficult connection from the collector of TR2 to the base of TR1. The first layout, as represented by Fig 2, should be drawn larger than the final version, as this makes the layout easier. In Fig 3 the layout of Fig 2 has been reduced to final size, it being assumed that miniature capacitors and eighth watt resistors will be used. Having prepared the layout, manufacture of the actual board is carried out as follows.

CAUTION Take great care to keep the ferric chloride solution away from the eyes. Also, do not use domestic towels to wipe articles covered with the solution - use clean rags instead. Take care not to drip the solution onto table cloths , carpets or similar XYL-esteemed articles! THE BROWN STAIN APPEARS AFTER A TIME DELAY - YOU HAVE BEEN WARNED!

Clean the board by dipping it into the ferric chloride solution for about 5 seconds. Check that all the surface has been cleaned. Wash the board in running water, then dry with a clean rag. Place the track drawing over the board and prick the component mounting hole positions onto the surface of the board with a Brad or similar tool. If the board is double sided drill any through connecting holes and carefully clean off any swarf. Using the pen, copy the track drawing onto the board. Draw the tracks fully and outline the groundplanes, then fill in the groundplanes with nail varnish (or if you have not yet started using nail varnish use the pen for the lot! Ed). Allow 30 minutes for the drawing to dry properly.If nail varnish has been used,paint over the joints between ink and varnish with the pen, to seal any cracks.Allow a further 30 minutes for the ink to dry . If preparing a double sided board repeat for the other side. During the 30 minutes prepare a cradle, made from pvc covered wire, which will be used to suspend the pcb in the etching bath. After the 30 minutes is up put the board in the cradle and suspend it vertically in the ferric chloride solution. Inspect at intervals. After approximately 15 minutes all the exposed copper should have been etched away. Remove the board from the solution (watch those drips!), wash it in running water then clean it with spirit. Using a "Scotch" pan cleaner, clean all the ink and nail varnish off the tracks and earth planes so that they are ready for soldering. Drill the component mounting holes out, then proceed with the mounting and soldering of the components. With experience one can often draw a layout directly onto the board and carry on with etching, and there are really no mysteries or exotic techniques about board preparation! (Except that nail varnish! Ed).

THE G3LVF ONE-KNOB 80M. TTX





L2 - 35t., 28 swg, tap at 9t. from HT end, all on T50-2 Toroid.
L3 - 6+6 t, 28 swg, bifilar-wound over centre of L2.
L4 - 4+4 t, 28 swg, bifilar-wound over centre of L5.
L5 - 35t, 22 swg, wound to fill T68-2 Toroid.
L6 - 5t, 22 swg, wound over top of L4
Tune L2,3 for max. output at 3·53 Mhz; L4,5,6 for max. o/p at 3·57 Mhz.

Notes - BC 108 and both BFY 50's fitted with clip-type heat sinks
* Start of windings shown by asterisks *

R.F.-POWERED Æ. CHANGE-OVER SYSTEM

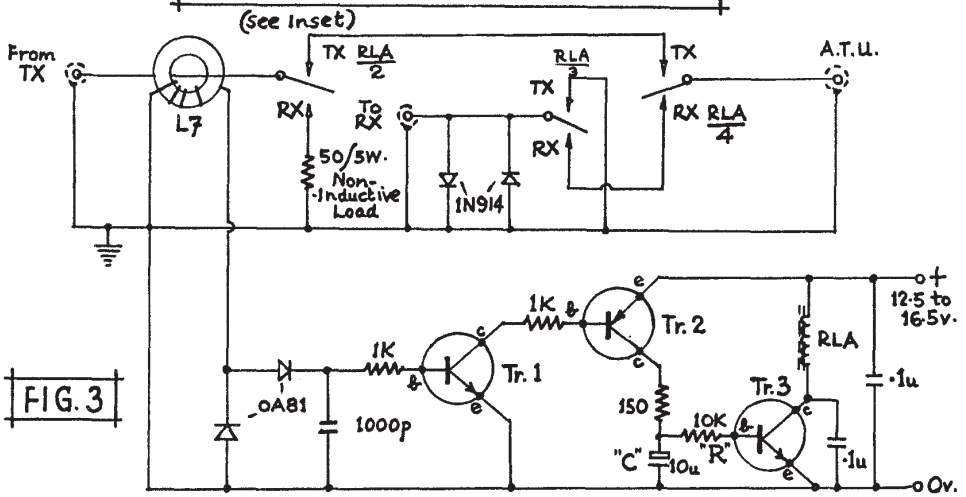
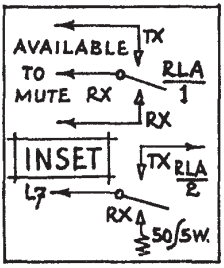


FIG. 3



RLA = 12v. 4p. C.O. Relay
Tr1,3 = Any silicon NPN transistors
Tr2 = ——|—— PNP ——|——
L7 = 8t. on any small toroidal core, then slipped over coaxial inner.
"C"/"R" = Values given allow system to revert to Receive, between words, at 15 < 20 w.p.m. Drop-out time can be changed by varying the time-constant of "C" and "R".

INTER-UNITS WIRING

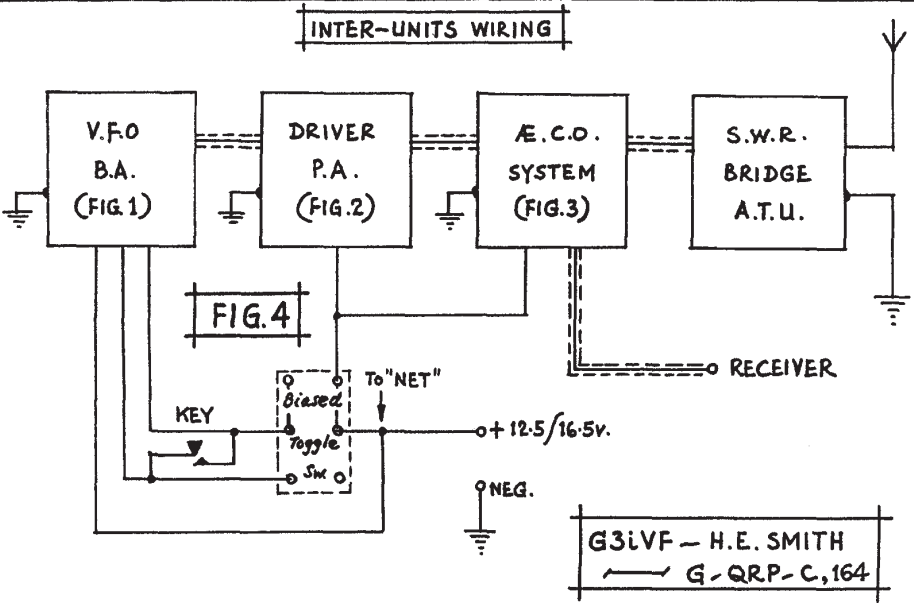


FIG. 4

G3iVF — H.E. SMITH
G-QRP-C, 164

THE G3IVF ONE-KNOB 80M TTX

G3IVF

In 1976 G3IVF was bitten by the QRP bug , and at the same time decided to get away from the "black box brigade" who were invading the vhf bands. Previous 80m operation was immediately after being licenced, some 25 years ago. In those days the first 12 months on the air had to be spent on cw with 25W maximum input - and at that time G3IVF did not like cw! So during this period success was minimal,the best distance worked being DL and OZ. The challenge was thus, could what had not been done 25 years ago with 25W of cw now be achieved using QRP cw?

The first QRP tx was xtl controlled at about 450mW. Its first QSO was with G2HLL in Leeds, which rather helped the G3IVF ego! The input was upped to one watt and QSOs over greater distances resulted, but by this time it was becoming very obvious that xtl control and QRP do not mix - not for G3IVF at least! (Or for the rest of us! Ed.)

Rig No3 was then constructed, using a VFO/BA/driver/ PP PA circuit. Things immediately began to happen, good reports being received from as far away as DM when using a 90ft aerial about 10 ft high, even though operating time was very limited.

Further improvements to the VFO were indicated, and they were achieved by using the Tesla (Vackar) circuit with the correct ratio of series capacitor to swamp capacitor (Fig 1). The results have been outstanding: the VFO is so stable that it sounds like a crystal, and it keys well. Many of the stations contacted have asked for details.

Modifications were then made to the aerial and earth systems.The aerial length was increased to 150 ft, and the height at one end to 25 ft (the other end is still at 10ft). Taking a tip from G8PG,all the local barbed wire was bonded together and connected to the earth system. The new radiator is used with a 3W PP PA (Fig 2) which is broad-banded over the range 3.5-3.6 MHz, and has an efficiency of around 66%. To provide automatic changeover from send to receive a system described in the Wireless World was tried, but it proved to be a transistor "zapper". It was then modified to the circuit shown in Fig 3, which works perfectly. The final set-up is now as shown in Fig 4. Whether it has fully met the challenge outlined above G3IVF does not know, but he has enjoyed every minute of the project, has greatly increased his morse proficiency, and has worked 21 countries on 80m with QRP - none of which can be bad! His next project is a direct conversion receiver. (SPRAT article,please. Ed).

Constructional Notes on Fig. 1, 2 and 3.

1. Mount the VFO frequency determining components very rigidly.
2. Build the VFO in a dyecast box with a lid and decouple the key and dc leads.
3. Use single point earthing for the VFO components - it is really significant.
4. RF drive to the driver can be varied by changing the ratio of the 220/470 Ω potential divider in the base-emitter circuit. If the resistors are replaced with a 1K pot it can be used as a variable power reduction facility.
5. Earth the PA transistor emitters and the output coil center tap capacitor to the same point via short leads.
6. Use good quality silver mica, polystyrene and metalised foil capacitors where indicated on the diagrams. All other capacitors can be ceramic.
7. The VFO/BA circuit was built on a printed circuit board. The other circuits were built on Lektrokit (equivalent to plain veroboard).
8. The power supply can be either a suitable 12V rechargeable battery, or a stabilised mains power unit. When the key is pressed PA current is up to 250 mA.

WHAT WILL HAPPEN (I HOPE!)

G8PG

Rising sunspot numbers indicate that the QRP enthusiast should be looking at 21 and 28 MHz if he wishes to increase his DX country score. These bands should be open for long periods and they should give good results, both because working as near to the MUF as possible provides minimum signal attenuation, and because effective aerial height at the average amater station is better, thus giving lower angle radiation. Radiation angle is very important in DX work. A low radiation angle allows the signal to reach the distant receiver with a minimum number of hops, thus greatly reducing attentuation, which is in the order of 10 dB per hop. Taking a 4000 mile path as an example, an aerial which radiates most of its energy at a vertical angle of 20 degrees will require four hops for the path. A second aerial radiating most of its energy at a vertical angle of 5 degrees will only require two hops, thus considerably reducing path attentuation This is why QRP stations with high horizontal aerials or vertical aerials with good ground planes and no local screening get such good results. Note that while beam aerials improve the signal by concentrating energy in the horizontal plane they also depend upon height (horizontal beam) or a good ground plane (vertical beam) for good low angle radiation. Looking at the conditions likely for the period January to April, 1979, one can sum them up for UK stations as follows. All the times quoted are GMT.

January and February,1979

28 MHZ		21 MHZ	
Southern Africa	0900-1700	Southern Africa	0700-2000
South America	1000-1800	South America	0800-2000
Asia (JA etc)	0900-1200	Far East (JA etc)	0700-1300
North America	1300-1800	North America	1200-1900

March and April, 1979

28 MHZ		21 MHZ	
Southern Africa	0800-1800	Southern Africa	0900-1900
South America	1000-2000	South America	1000-2400
Far East (JA etc)	0800-1500	Far East (JA etc)	0600-1800
North America	1500-2000	North America	1200-2100

The paths will of course be open in both directions, so the figures are also of use to overseas operators. Openings to Oceania will probably occur early in the Far East periods. The times given can only be average - on 10 or more days per month the bands may be open for longer than the periods indicated. Experience shows that good QRP DX contacts are often made when a band is opening or closing to a particular area, so monitoring at or before that time is worth while, The reason for the good results is that at these times the maximum usable frequency (MUF) is near to the amateur band concerned , so there is minimum loss in the reflecting layers. (During the day the MUF goes much higher-possibly as high as 40+ MHz in January- then drops again before the band closes). Increasing sunspot activity means that there will be considerable variation in conditions, with fade-outs on some days and above-average conditions on other days. Fade-outs usually affect the North American path most seriously. UK members will find monthly forecasts for a number of paths in the Radio Communications feature called "Month On The Air". Finally, remember that this is a forecast, made months ahead, so parts of it could be wrong!

DL AGCW QRP CONTEST SUMMER 78.

AN OK RESULT!

Once again the DL AGCW QRP Contest has been won by one of our members,Petr Doudera, OK1DKW, who clocked up the terrific score of 63,403 points in the Summer 78 Contest. We congratulate Petr on this outstanding success which was achieved with powers of between 1 and 5 watts. Other high scores by members were 31,005 by Gordon, G3DNF for 8th place and 24,339 by Chris, G4BUE for 9th place. A couple of years back either of these scores could have won the contest, which shows how the efficiency of QRP operators increases each year.

New Contest Manager

Our old friend and fellow member Hal, DJ7ST, has retired from the post of Contest Manager for DL AGCW. We thank Hal for his magnificent work over the years, and for the pleasure that his efforts have given us. The new Manager is:-

Siegfried Hari, DK9FN,
Spessartstrasse 8Q,
D-5433 Seligenstadt,
West Germany.

We wish Siegfried a long and happy term of office. Future entries should be sent either to him or (UK only) to G8PG.

Rule changes

The following changes will apply to all future contests.

NEW RULES. READ THEM FULLY!

QRP-CONTESTS

1979

21/22 JANUARY.

22/23 JULY.

QRP WINTER & SUMMER CONTESTS, organised by AGCW-DL, are held each year in the third complete weekend in january and july, Saturday 1500 GMT to Sunday 1500 GMT, for following classes:

Class A:	Below 3,5 watts input, single operator
Class B:	Below 10 watts input, single operator
Class C:	Below 10 watts input, multi-operator
Class D:	QRO stations, over 10 watts input (to contact QRP stations only)
Class E:	SWLs

Bands: 160 - 10m. Mode: 2-way CW. Class C stns may operate fulltime 24 hours. Stations in classes A, B, D & E must take a 9 hours break. Call CQ QRP TEST.

Exchange RST and QSO-number and input, for example 579001/5 for QRP station (adding x if crystal controlled). QRO station: 339002/QRO

Operation on any one band must be in one class. Operation on any one band may be crystal-controlled or VFO, but not both. In the case of crystal-controlled stations, not more than three crystals may be used in any one band. Stations may be *contacted only once on each band.*

Points: For QSO with own country . . . . . 1 point
For QSO with own continent . . . . . 2 points
For QSO with DX (outside own continent). . 3 points

(In accord with latest DXCC List, but call areas in JA, PY, VE, VK, W and ZS count seperately)

Multipliers: For each country 1
For each DX QSO 1

Band result: Points x multipliers
Total result: Sum of bands results
For crystal-controlled stations, result points are doubled.

Certificates are awarded for the first three places for each class and band. For special log-sheets, send 2 IRCs to the Contest Manager. Separate log must be Submitted for each band. Logs and points claims to be submitted to the Contest Manager to reach him not later than 6 weeks after date of *Contest.* For results showing winners in each class and band, send 1 IRC to Contest Manager, Siegfried Hari, DK9FN, Spessartstrasse 8Q, D-6453 Seligenstadt, Fed.Rep. of Germany

CLUB NEWS

George Burt, GM3OXX, marches on in QRP work! George now has well over the 100 countries confirmed and has claimed the first 100 score award from the club. He has also claimed the 'Milliwatt' QRP DXCC. This will be the first ever claim not made by an Argonaut user with a beam. George uses home built equipment and dipoles. It would also appear that George will be the first ever claimant for the DXCC MILLI WATT award. This is for 100 countries worked with an output power of 1 watt or less. George had a lab check made on his output, which proved to be about 750 Milli Watts ! The awrds are made through Ade Weiss in his QRP column in the 'CQ' and I look forward to seeing the news that George has been the first person to be awarded the DXCC MILLIWATT.

Just after George made his 100 confirmed claim, I heard that Chris Page, G4BUE also now has 100 confirmed. Once again a consistant DX operator shows what can be done with QRP.

May I offer to congratulations of the club to both George and Chris. The only remaining question is : What next?
The Club QRP Masters Award has yet to be claimed for the first time.

ALTERNATIVE TECHNOLOGY.

George Wood (SMØIIN and KA6BIN) takes up several points on alternative power supplies etc. and suggests to us the names of various interested groups.

Cop (VE1BFL) writes a "New Directions Radio" column in the American magazine 'Mother Earth News' (Box 70, Hendersonville, NC 28739, USA) In issue 49 Jan/Feb 1978 (single copies $2.50) he descibes his set up with an HW8 and 100mA trickle charge solar panel.

George also mentions a book by Ed Noll (hon. club member) 'Wind and Solar Energy' Howard W. Sams and Co. Indianapolis, IN 46268, USA. describing all one needs to know about simple set-ups.

Club members might be interested in the New Directions Roundtables in North America. Every week stations get together to discuss alternative technology (many are QRP) Most are experimenting with solar energy. The 'New Directions Roundtable Newsletter' is published by Randy Brink, WDØHNF, Star Rte, 2280 Space 54, Woodland Park, Colo 80863, USA.

George invites anyone interested in such topics to get in touch with him (Kungshamra 31/107, 171 70 Solna. Sweden.) He plans to be on the air (QRO) from the club station SKØAC on Tues and Thurs, monitoring 21 332 kHz. He will try to be frequency at 1400, 1500 and 1600 GMT. To do it QRP, write to set a sked with SMØIIN, the home Argonaut station.

THE GIFT OF TONGUES.

Phil (GW8WJ) writes to warn of the problems he has had when using a little of a language. Phil has been trying it in German, but finds that the other fellow often assumes a greater knowledge of the language. So watch out if you are using Gus' Russian Guide! In the same post! I Had notes for French CW operation from G3FCK which will appear in [illegible].

A CLUB OFFER:

I have quite a stock of IRCs sent at various times to the club. The GPO exchange rate gets worse, so I have decided to sell some to members. The current price of an IRC from the Post Office is 25 pence. I will offer some to members at 15p each - any cheques sent made out to G.C.Dobbs RE: QRP Club. Please send a SAE with requests. I have about 50 spares in stock.

MEMBERS ADS

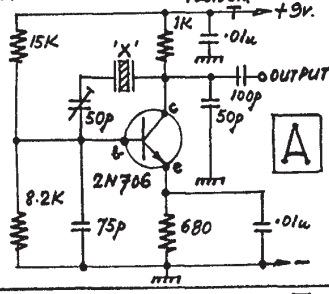
Sentinal Top Band Converter (1.8 to 14MHz), genuinely as new, hardly used. Works well with HW8. Cost £20.25. Straight swop for MFJ filter or W.H.Y. cash adjust if ness. £12 cash as last resort.

G4 GIE as listed or tel; 037977669.

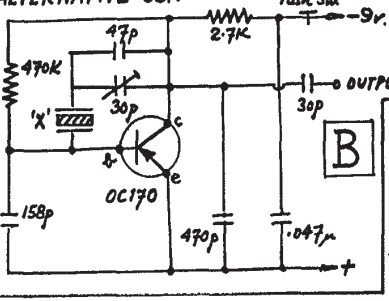
"MAX BOX"

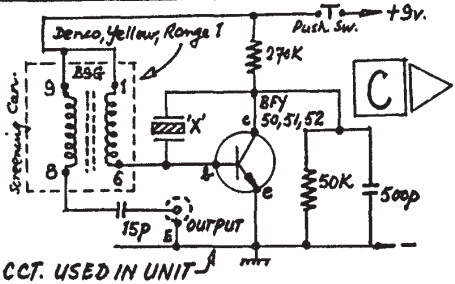
SURPLUS XTALS CHECKER

ALTERNATIVE CCT.

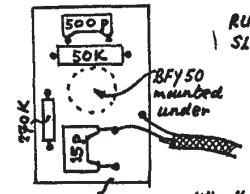


ALTERNATIVE CCT.

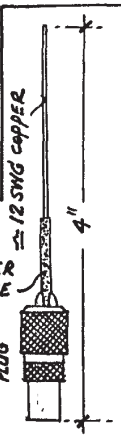




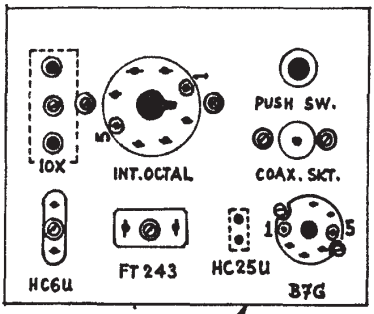
CCT. USED IN UNIT



Plain Veroboard, app. 1½" x 1"

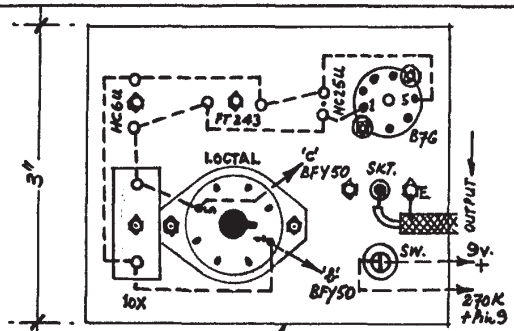


MINI ANTENNA



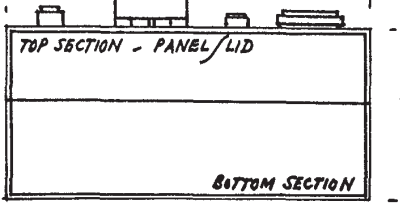
PANEL

3¾"



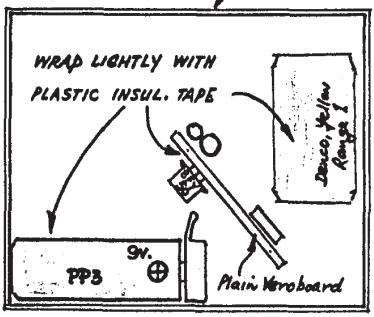
UNDERSIDE OF PANEL

3"



1¾"

BOTTOM SECTION



A.W.MCNEILL ~ G3FCK
~ G-QRP-C, NO.20 ~

MAX BOX - Surplus Crystal Checker. By G3FCK.

There must be many others, like the writer, who have aquired a large collection of surplus crystals, some from suppliers, but most from 'junk sales'.

To cope with the wide variety of bases encountered, this small unit was constructed, using a standard circuit (ref.C). The circuit is not critical and can be wired on plain veroboard, with flying leads to xtal holders,switch and coax socket. Any type of box can hold the unit, the writers being a small fibre jewel box with snap on lid.

A 'mini antenna' was constructed as shown, and this should suffice for kost purposes,such as receiver calibration checks. Where output is required to other equipment, the antenna is removed and coax cable used between the checker and other equipment. Two alternative circuits are shown for those with suitable junk boxes (see also SPRAT 15 - G3RJVs 'Rock Crusher')

Zeroing of xtals, to coincide with frequency standards is achieved by means of trimmer caps in circuits A and B and with the coil core in circuit C.

Other bases in stock, or later acquired, can be added, such as 10XJ, HC13U, HC17U etc. Wire ended xtals are best tested by using in the HC25U socket. If a 10X holder is not available two wander sockets spaced at $\frac{3}{4}$" can be used.

NB. The use of a push type switch ensures longer battery life!

PARTS REQUIRED: Xtal holders (various) S.P. Push Switch Biased off. TV coax socket, coax cable, Plastic box aprox:$3\frac{3}{4}$"x3"x$1\frac{3}{4}$" deep or sim. COMPONENTS (for circuit C) BFY50 (or 51 or 52) Veroboard,plain $1\frac{1}{2}$"x1", Denco Coil Transistor Range 1. B9A coil holder, 500p cer,cap. 15p silver mica caps, 50K,270K $\frac{1}{4}$ watt resistors, PP3 bettery + connector TV coax plug, 12 swg wire and rubber sleeve.

* * * * * * * * * * * * * * * * * *

After a lot of earnest effort, Skip Westrich, WB8OWM, has obtained his WAS - QRPp. Skip uses an HW7 and is 100% QRP.

Well done Skip!

The splendid certificate is shown on the left.

We also have Skip to thank for many of the club datasheet circuits which come from US magazines.

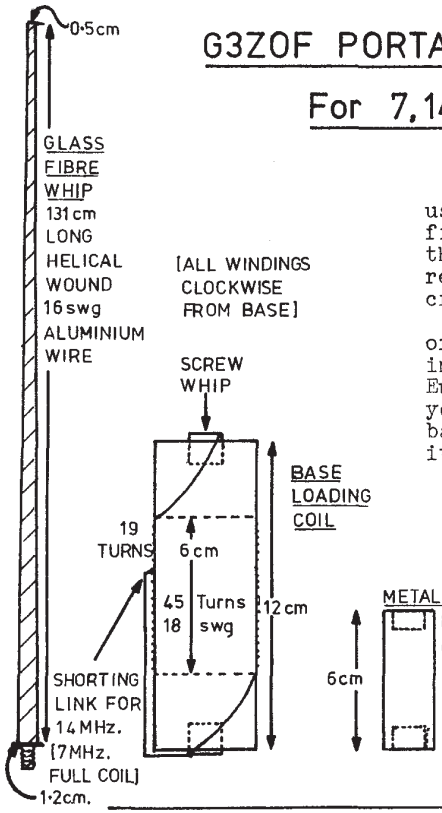
I hope that Skip's result will encourage other US members to continue their own 'state hunting'.

MEMBERS ADS.

G3SGY (A.Nesbitt,43 Oak Tree Close, Middleton St.George,Darlington) has Three HRO Seniors and One HRO Junior for sale. Any, with general coverage coils at £15 each. He will also sell one of the HROs with a set of Band Spread coils for £25.

G3ZOF PORTABLE WHIP ANTENNA

For 7, 14 & 21 MHz.



This mobile whip was built by G3ZOF using the top section of a glass fibre fis hing rod. The whole coil tunes 7m Hz the tap is for 14mHz on 21 a metal bush replaces the coil. The feeder length is critical.

With an HW7 and the whip mounted atop of a Viva Van, G3ZOF has had CW reports in the S 4 to 8 range from most of Europe on 14 and 21. Results have not yet been obtained on 7mHz because of band condx when the unit was used, but it does load on the band.

NOTE

TOTAL LENGTH OF ALUMIN. WIRE = 146cm on whip.
LENGTH OF COAX FROM RIG TO BASE MOUNTING [Critical] = 366 cm

ANOTHER HW8 MOD.

JOHN SPINKS G4GIE.

On receive the HW8 incorporates a quite efficient two stage active audio filter centred on a nominal 750Hz. On transmit the VFO frequency is shifted downwards by a nominal 750Hz by C55 being switched into circuit by D11 to achieve correct netting. The value of C55 in the circuit is 5pF, whereas the manual calls for 6pF - this being supplied.

When the G4GIE HW8 was completed, it was found that the transmit receiv offset was differing from the filter by several hundred Hz and various junk box capacitors were tried to bring it spot on, a 3.3pF being found too low and 5pF too high, the answer apparently being some type of trimmer

Because of the close packing there is no room on the componet side of the board and there was insuffient space between the foil and the bottom shell. The answer was found to be a pair of twisted wires. Two pieces of tin PVC covered 'hook-up' wire twisted tightly together for a length of approx 3½ inches were soldered in place of C55 and this did the trick. It is suggested that a starting length of, say, 5" is tried, this length being shortened to achieve correct capacitance.

The transmit/receive offset can be checked against the filter centre frequency using another receiver and a stable frequency source such as a crystal oscillator. Because of the mixing process used by the HW8, the offset is the same on all bands.

****

MEMBERS ADS

Alex (G3LGX) wants to buy a 12-15v stab. PSU. (abt 1 amp) Please contact Alex. with price. QTHR.

LESSER-KNOWN AERIALS No1- THE W3EDP

G8PG

Developed by W3EDP around 1936, this aerial was very popular before the last war. It still has its adherents, and in post-war years it has provided outstanding QRP contacts for some of the stations using it. The system consists of an aerial 84 feet long, parallel tuned against counterpoises, except on 1.8 MHz where it is tuned against ground if possible (although the 17 ft counterpoise can be used with some loss of efficiency). For all other bands except 14 MHz the aerial is tuned against a 17 foot long counterpoise, and on 14 MHz a separate 6½ foot long counterpoise is employed. The counterpoises must be well insulated, and kept clear of walls etc. If possible they should be erected at rightangles to the aerial. Fig 1 shows the arrangement, including an aerial coupling unit suitable for use with modern, low impedance output transmitters. In this coupler C2/l1 must resonate at the operating frequency. Coil L2 should be close wound over L1, using two thirds the number of turns in L1. The value of C1 will vary between around 900 pf for 1.8 Mhz to around 50 pf for 28 MHz. If an all band coupler is required a twin gang 500 pf variable capacitor with the two sections in parallel can be used for C1. C1 is used to match the system, and C2 to tune it to resonance, the tuning procedure being similar to that used with a pi tank output circuit.

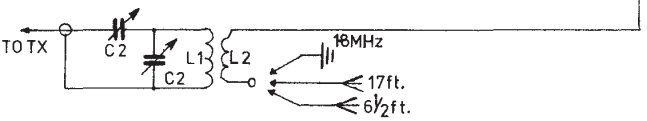
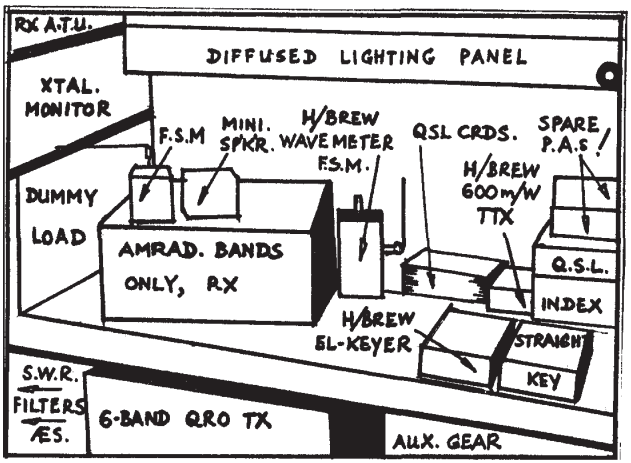
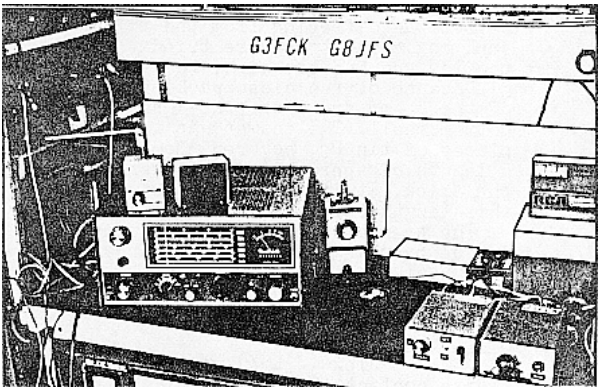


FIG.1.



A CLUB MEMBERS STATION

The joint station of A.W.McNeill (Mac) G3FCK and his son G8JFS. Mac does most of the Art Work for SPRAT.



G-QRP-CLUB: New Members since Autumn issue 1978.

445	I7NFE	Nicola Ferrara, Via Taramto 25 70031 ANDRIA (BA). Italy.	General QRP
446	I7SVY	Remo Svaldi, Via Piave 58, 70031 ANDRIA (BA) Italy.	General QRP
447	G4GKC	C.G. Willoughby, 79 Liskeard Rd. Walsall, West Midlands. WS5 3ES.	Home brew CW
448	ZE3Jo	Mal Geddes, PO Box 2462. Salisbury Rhodesia	Homebrew (ex G2SO, 2D6JO etc.)
449	G3LDO	Peter Dodd, 25 Wood Rd. Spondon Derby.	Homebrew SSB
450	G2CVV	Fred Ward, 5 Uplands Ave, Littleover, Derby. DE3 7GE	General
451		Aidan Ascroft, 7 Back Lane, Derby DE6 5GT.	SWL
452	G4GSA	Pete Milsom, 477 Chickerell Rd Weymouth, Dorset. DT3 4DQ	HF,VHF,UHF QRP
453	GM4GIF	Barry Lyons, 2 Lorne St. Helensburgh. Dunbartonshire. G84 8TT.	General HF QRP
454	G4HNI	Alex Sladin, 2 Tewkesbury Dr. Lytham. Lancs. FY8 4LN.	Homebrew QRP
455	G4HPQ	D.A.Cooknell, 8 Burke Ave, Moseley. Birmingham. B13 9XB.	Homebrew QRP
456	G2CAV	J.M.(Mac) George, 126 Weston Hill, Olney. Bucks MK46 5BH.	Construction HF & VHF QRP
457	G4GCU	Zyg Kowalczyk, 20 Chapel St. Lazenby, Middlesborough. Cleveland.	HF Bands, Homebrew
458	G4CLD	Gerald Beaver, 95 Brunel Rd. Reading. RG3 3JJ.	HW7
459	SM5CCT	Bengt Eriksson, Kampevagen 33, S-151 54 Sodertalje, Sweden.	HW7
460	G4BSS	Brian Spence, Kent House, 13 Riseholme Rd. Lincoln. LN1 3SN	HB. CW/SSB
461	DK9TZ	Ulrich Eberhardt, Uhlandshoehe 9/1 D-7260 Calw, W. GERMANY.	QRP-DX, homebrew QRP highspeed
462	G4HKD	James Rankin Three Gates. South Ings Lane, North Cave, Brough, North Humberside. HU152PA.	Constructional
463	G3LYK	W. (Bill) McLardy, 7 Langton Court, Ponteland, Newcastle-upon Tyne. NE209AT.	Home Construction
464	G3BOK	W.G. (Bill) Rennison, "Neasden", Bucklesham Road, Kirton, Nr. Ipswich Suffolk, IP10 OPA.	Home Construction
465	ZE1CQ	Peter McCall, P.O.Box CR 93, Cranborne, Salisbury, Rhodesia.	Homebrew SSB.
466	G4GYM	S.A.Thompson, 5 Wigton Way, Harold Hill, Romford, Essex, RM3 GHA.	General QRP

G_QRP-CLUB MEMBERSHIP CHANGES:

NEW QTH:

083 Christopher Claydon, 22 Peascliffe Der, Manthorpe Fields, Grantham. Lincs.

121 G8IGZ, D.H.Rycroft, 4 Lanherne Ave, St Magan, Newquay. Cornwall.

168 G3EDW, Golledge Electronics, Merriott, Somerset.

254 3B8BJ, Jean Lagesse, General Hall St, Casernes, Curepipe, Mauritius.

290 G4GOY, John Hague, Foxglove cottage, Moor Lane, Bishopthorpe. York.

342 SM5ENX, Lennart Svensson, Svardsliljeg 7B, S-722 27 Vasteras, Sweden.

CHANGES IN THE MEMBERSHIP CALLSIGN LIST:

G3FvD is not G3FYD. (438)
G3PVQ is missing.
G4BJZ is not G4BJ$
G4BJF is missing.
G4FAI is number 288.
G4GBR is out of sequence (below G4EZF)
WA1TRY is missing.
K7BWE is listed twice.

NEW CALLS GAINED BY MEMBERS:

082 Charles Claydon is now GM4GNB.
107 Frank Harrop is now G3DVL (re-issue)
434 Sam Parker is now G4HQH.
435 Dr. A.R. Bryant is now G4HQV.
409 Ray Fox is now G8PWJ.

MAY I CONGRATULATE ALL OF THE NEW LICENCEES.

NOTE: WILL MEMBERS PLEASE QUOTE THEIR NUMBER IN ALL LETTERSAND WHEN PAYING SUBSCRIPTIONS.

J.BIRKETT: 80m Crystals in stock - HC6U type: 3502, 3534, 3551, 3561.75, 3574.5, 35988. Other Crystals in stock. S.A.E. for list. All at 60p each.