

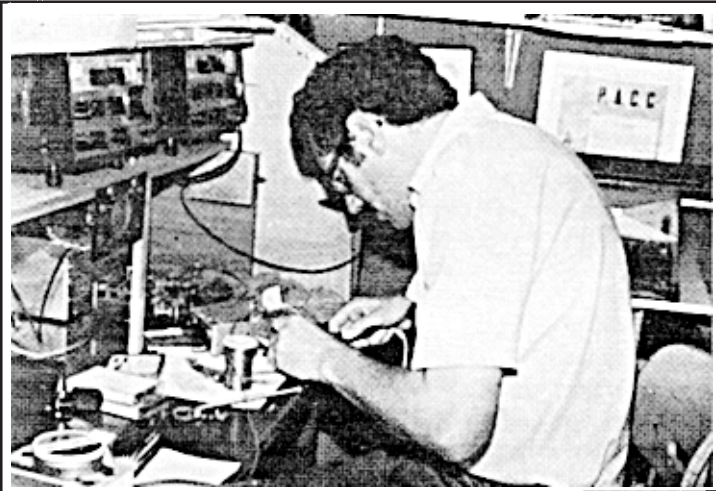
# SPRAT

THE JOURNAL OF THE G-QRP CLUB  
DEVOTED TO LOW-POWER COMMUNICATION

ISSUE NR. 41

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Winter 1984/5



Colin, G3VTT, [229] in his shack

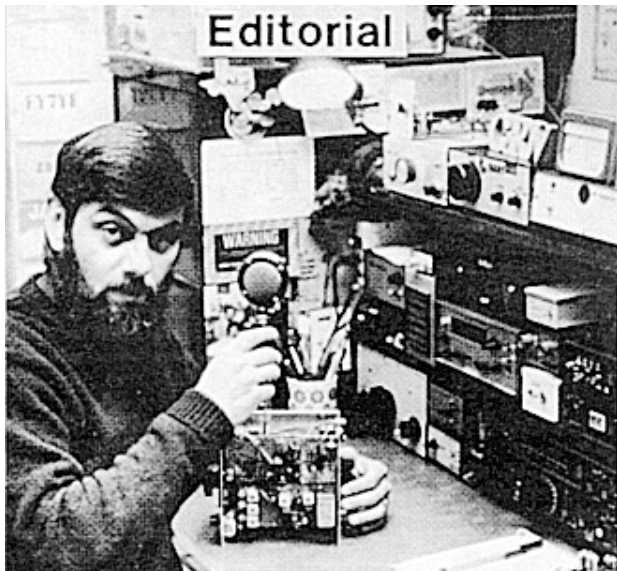
Backyard Broadside TS120V Modifications 3 Band CW TX  
RX Offset 2M J Pole Changeover Circuit Delta Loop

*QRP DIARY 1985*

QRP News Awards SSB VHF Members News

# 100TH YEAR

# JOURNAL OF THE G QRP CLUB



Editorial



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Rev. George Dobbs— G3RJV

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Dear Member,

This issue of SPRAT represents the TENTH ANNIVERSARY of The G QRP CLUB. What a long way we have come since the original 30 odd of us exchanged letters, and I produced an untidy little newsletter called SPRAT over the Christmas holidays of 1974. The Club has turned from a small minority group to a large respected movement within amateur radio in the U.K. What is more important is that QRP operation, once the pursuit of a cranky few, is now a widely recognised branch of our hobby. May I thank you all for the enjoyment I have derived from The G QRP CLUB over the last ten years, and invite you to share that enjoyment for another decade.

Where are all the QSL cards? Two complaints most frequently made to me by the active members of the Club is that not enough members appear on the bands, and many members are poor at QSLing. We do have a good system of awards which involve the working of other members, for which QSL verification is required. It can, and is, frustrating to work members and then not receive a QSL. It is easier for Club members than many other amateurs. If you send your QSLs to G4BUE (or me) they will be posted to the recipient with his next SPRAT. If you do not have a QSL card, simply sign the received card to confirm the QSO, and return it to the sender, this will be accepted as verification by our Awards Manager.

Hope CU on the bands, 73 fer now,

 G3RJV

## Subscriptions

Renewals (rates: £4.50 or \$10 US to Alan Lake, G4DVW, 7 Middleton Close, Nuthall, Nottingham, NG16 1BX. PLEASE QUOTE YOUR MEMBERSHIP NUMBER. G QRP CLUB. A reminder should appear in membership number sequence on the address label of SPRAT. Please ignore the reminder if you have already paid. Overseas members might like to pay by direct transfer from their bank to: National Westminster Bank plc, Town Hall Square, Rochdale, Lancs, OL16 1LL. Account: G QRP CLUB. No: 04109546. Please inform G4DVW whenever such a transfer has been made.

Cheques:



## G QRP CLUB 1985 ACTIVITY PERIODS

Spring QRP CW Activity Week-end	16th/17th March 1985
Late Summer QRP CW Activity Week-end	28/29 September 1985
1984 QRP Winter Sports (CW)	26 December 1985/1 January 1986 (daily)
Late Spring QRP SSB Activity Week-end	4/5 May 1985

The times (GMT) and frequencies for the above events are as follows:-

Time	CW QRG	SSB QRG
0900 - 1100	14060/21060/28060	14285/21285/28885
1100 - 1300	3560/7030	3690/7090
1300 - 1400	10106	-----
1400 - 1700	14060/21060/28060	14285/21285/28885
1700 - 1900	3560/7030	3690/7090
1900 - 2100	14060	14285
2100 - 2300	3560/7030	3690/7090

In addition to the above events members are invited to take party in a Weekly Activity Period on Sundays between 1100 and 1230, and from 1400 to 1500, on the International QRP Calling Frequencies (set out above), and on Wednesdays on 3560 from 2000 local time (for amateurs in the U.K. and Western Europe).

### QRP DIARY 1985

1.1.85	AGCW-DL Happy New Year CW Contest
19/20.1.85	AGCW-DL QRP Winter Contest
2.2.85	AGCW-DL Straight Key Party - Class for QRP
2/3.2.85	Marconi QRP Phone Contest
16/17.2.85	A.R.R.L. International DX CW Contest - Class for QRP
3/4.3.85	A.R.R.L. International SSB DX Contest -Class for QRP
16/17.3.85	G-QRP-CLUB Spring QRP CW Activity Week-end
30/31.3.85	C.Q. WPX SSB Contest -Class for QRP
21.4.85	R.S.G.B. Low Power Contest (3.5/7MHz)
20/21.4.85	A.R.C.I. QRP Spring QSO Party
1.5.85	AGCW-DL QRP/QRP CW Contest
4/5.5.85	G-QRP-CLUB Late Spring QRP SSB Activity Week-end
25/26.5.85	C.Q. WPX CW Contest - Class for QRP
15/16.7.85	AGCW-DL QRP Summer Contest
21.7.85	R.S.G.B. 3.5MHz Field Day
28/7/85	ZS QRP Contest
21/22.9.85	Scandinavian Contest - Class for QRP
28/19.9.85	G-QRP-CLUB Late Summer QRP CW Activity Week-end
5.10.85	AGCW-DL Straight Key Party - Class for QRP
12/13.10.85	A.R.C.I. Fall QSO QRP Party
20.10.85	R.S.G.B. 21MHz CW Contest - Class for QRP
26/27.10.85	C.Q. WW SSB Contest - Class for QRP
1/7.11.85	HA QRP CW contest
16/17.11.85	VK versus the World QRP Contest
23/24.11.85	C.Q. WW CW Contest - Class for QRP
7/8.12.85	TOPS 3.5MHZ CW Contest - Class for QRP
26.12.85 to 1.1.86 (daily)	G-QRP-CLUB CW Winter Sports

CLUB QSL EXCHANGE: G4BUE will distribute cards for other Club members via the mailings of SPRAT. Please add the Club number of the recipient of the card on the back top right hand corner. This service only applies for inter-Club QSOs.

The cards are sorted by Pam, G4BUE/2 and should be sent to her at "Alamosa", The Paddocks, Upper Beeding, Steyning, West Sussex, BN4 3JW

## A BROADSIDE IN THE BACKYARD

The End Fed Bruce Array for 14MHz by Gordon Bennett, G3DNF

For those who do not wish, or are unable to erect rotary beams and lattice towers in order to enhance their signals, the "back yard aerial" is a familiar solution to the problem. It may take many forms, but one of the commonest is a simple random length end-fed long wire. This has the advantage that by various means it can be made to radiate on all LF and HF bands. On the HF bands its' directional properties can be useful, but the directivity enhances radiation in directions other than right angles to the wire (the broadside direction).

On 14MHz, there is often a disadvantage in using an aerial of this kind, which occurs when, as more often than not, the wire has to be erected at a height of 20 to 25 feet by making use of supports attached to the wall of a house or a simple pole. At this height, the aerial is close to a quarter wavelength above ground. The result is that low angle radiation is minimised and DX prospects are thereby diminished.

The orientation of a fixed wire aerial in a backyard is usually determined by the position of available supporting points. Having erected the wire, one then exploits its' directional properties. Radiation in the broadside direction may not necessarily be needed, but if it is then it can be obtained by using aerials such as a horizontal colinear or extended Zeppelin. However, so long as the horizontal radiating elements remain at the quarter wavelengths height, much of the benefit is lost. This applies equally to high gain rotary beams with horizontal elements, when erected at this height.

Vertical radiating elements do not suffer from this disadvantage, and this property can be used to good effect when available height is limited.

The end-fed Bruce Array is an idealised form of the "bent long wire" in which the current carrying sections are arranged to be vertical and in phase for the broadside direction, while the voltage nodes are in the horizontal sections, and are mutually self-cancelling.

Fig.1 represents the theoretical, lengths and spacings of the various sections, and shows the current distribution in an example of the Bruce Array with four half wavelengths of wire. The advantage of the Bruce on 14MHz is that its' directional and low angle radiating properties are not lost when it is erected at the nominal "backyard height". It can, of course, be used for other bands, but for the present let us concentrate on 14MHz, the principal DX band, and the one which gives the most difficulty to the backyard wire user.

Any reasonable number of half wavelengths greater than two may be used in a practical realisation of the Bruce. The choice of an odd or even number may depend on whether the feed point is to be at ground floor, or first floor level, or even from a shack in the loft space. Generally, it is more convenient to feed at or near to a voltage node rather than to attempt to end feed at a current maximum (always a bit tricky with long wires and no easier with the Bruce).

In practice, the actual length of the main sections is not exactly a quarter of a wavelength, nor is the tail section exactly an eighth of a wavelength. The calculated lengths of sections in the Bruce Array are usually cited as  $246/f(\text{MHz})$  in feet for the principal sections, and  $110/f(\text{MHz})$  in feet for the tail section, (1). The formula for the principal section evidently takes no account of marginal effects due to the wire used. Contrarily, the formula for the tail section appears to have been derived empirically.

For the purposes of QRP, we do not need to use heavy guage wire, but if thin, insulated wire is used in any aerial, it has the effect of slightly increasing the resonant length. In most instances the exact length can only be determined by trial and error. With the Bruce it is important to get the length of each section right, because otherwise the errors accumulate and this reduces the effectiveness of the aerial.

Using the formula above, the "correct" lengths for 14.050MHz are 17ft 6in for the quarter wavelength and 7ft 10in for the tail section. In practice, when a particular type of 1mm stranded, PTFE insulaed wire was used, the actual lengths required were found to be 18ft 0in and 9ft 0in respectively. This had a useful side effect, as it increased the spacing of the vertical elements slightly and added a little to the theoretical gain available.

The method of construction can be varied to suit ones requirements. For the purposes of making up an experimental aerial suitable for use in contests and /A operation, a very simple and inexpensive form of construction can be used, which lends itself to quick erection, ease of adjustment and st7orage when not in use. Fig.2 illustrates the salient features.

Dotted lines represent lengths of polypropylene garden twine; those marked "Q" are 18ft long and keeps the aerial in correct shape. Those marked "S" are "strainers" of suitable lengths which can be anchored to garden cones or with bricks to provide sufficient tension to keep the aerial in a vertical plane. The wire used is the 1mm stranded insulated "hook up wire" described above. If you can get the PTFE insulated variety, so much the better, as it is easier to adjust and does not deteriorate so quickly as PVC.

The actual height of the lower horizontal sections above ground level will depend entirely on circumstances. The aerial will work if they are only a few inches above the ground, but this is not recommended; a gap of three or four feet at least is advisable.

There is no need to use insulators in this form of construction, except where the aerial is attached to its main supports. Even there a small piece of polythene with a couple of holes in it is all that is needed. The twine is attached to the wire by a simple half hitch in the wire (Fig.3). This enables the lengths of the sections to be quickly adjusted by loosening the hitch and working it along the wire.

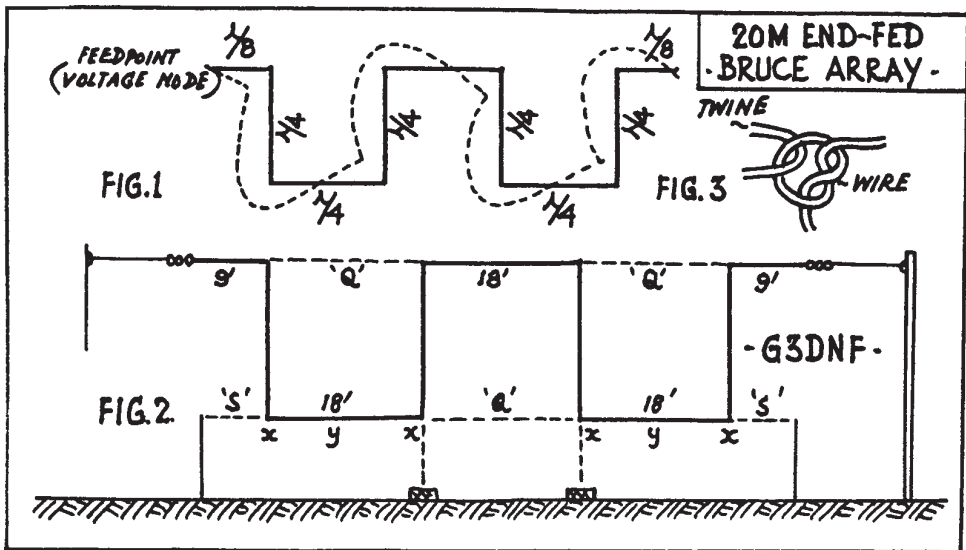
Having set up the aerial, some adjustments may be necessary to compensate for the properties of the wire used. The location of the voltage nodes at positions "Y" is critical, and this must be determined experimentally. Former QRO operators may recall (without nostalgia, we hope) the days when they did this by running a neon lamp along the wire to find the point of maximum glow when the aerial was radiating. With QRP, the detection can be done with a simple RF probe, while the transmitter is keyed intermittently by an auto-keyer or some other device. The point of maximum reading may not be very sharp and therefore difficult to locate. An additional test can be made with the probe at points "X". If the aerial is properly adjusted, the readings at these points should, as nearly as possible, be equal. In each instance, "X" is located about six inches from the hitching point. There is no need to cut the wire for adjustments, just ease the hitches along the wire as necessary, but remember that if one segment needs to be increased or decreased in length, then so do the rest. Keep a note of measurements as you go.

If the aerial is correctly set up and adjusted the receptoon of both DX and non DX signals will be considerably enhanced in the broadside direction, and there should be a deep null effect of several S points on signals from the end-on direction. Results on transmitting should bear this out.

If the only aerial used previously was the simple long wire, the Bruce will be a revelation, and will lead to a frustrating wish that it could be rotated. The "prototype" form of construction described is fine for the short term. If something more permanent is constructed, stronger materials will be needed. Views may differ as to the aesthetic properties of the Bruce. It may appear quite elegant, but it is not everyones idea of the perfect companion to the hollyhocks. A glance at GW3COI's cartoon (2) is a salutary prelude to embarking on a permanent installation.

Finally, a word about feeding the Bruce. Any arrangement for matching a random length of wire will do, but the perfectionist may prefer to go one better and feed it at a voltage node with open wire feeder, like a Zepp. The choice is yours.

References: (1) ARRL Antenna Book (various editions)  
(2) Short Wave Mqazine, August 1984, page 286.



### THE AGCW-DL HAPPY NEW YEAR CONTEST

This contest is again being held from 0900 to 1200 GMT on 1st January 1985 on CW only on 3530-3580/7010-7040/14010-14100 with the preferred frequencies of 3560, 7030 and 14060. Exchange RST, serial number and AGCW number if applicable. Score is 1 point per QSO, and the multiplier is the number of AGCW members worked. Total score is points multiplied by AGCW members. Stations maybe worked once on each band. Class I is QRO, Class II is 100 watts input/50 watts output and Class III is 10 watts input/5 watts output. Logs should be submitted by 31st January to DF5DD, Werner Hennig, Mastholter Strasse 16, D-4780 Lippstadt, West Germany.

### THE AGCW-DL QRP WINTER CONTEST

This contest will be held from 1500 GMT on 19th January to 1500 GMT on 20th January 1985 on CW only on all bands from 160 to 10 metres excluding the WARC bands. Class A is below 3.5 watts input, Class B below 10 watts, both single operator. Class C is below 10 watts multi-operator and Class D is QRO. Apart from Class C, operators must take a 9 hour break. Exchange RST and QSO number and power input, i.e. 579001/5. Score 1 point for QSOs with your own country, 2 for your own continent and 3 for DX QSOs. Multiplier is each DXCC country and each DX QSO. Band result is points multiplied by multiplier, and total score is the band results added together. If you are crystal controlled you double your points. Separate logs for each band which must be submitted within 6 weeks to DK9FN, Siefrid Hari, Spessartstrasse 80, D-6453 /seligenstadt, West German.

### AGCW-DL STRAIGHT KEY PARTY

This event will be held twice during 1985, on the 2nd February and the 5th October, CW only on 3530-3580 and 7010-7040. Class A is maximum of 3 watts output, Class B 10 watts and Class C 150 watts. Exchange RST, serial number, class, name and age (XYL=XX). ONLY STRAIGHT HAND KEYS MAY BE USED.

The scoring is rather complicated and is as follows:

Class A with Class A = 9 points	Class A with Class B = 7 points
Class A with Class C = 5 points	Class B with Class A = 7 points
Class B with Class B = 4 points	Class C with Class A = 5 points
Class C with Class B = 3 points	Class C with Class C = 2 points

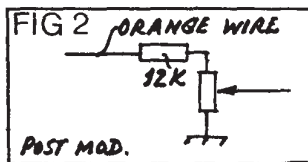
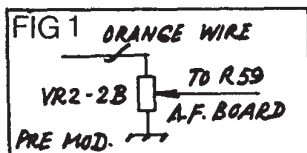
Logs, including a declaration that only a hand key was used, should be sent by 28th February or 31st October to DF1OY, Friedrich Fabri, Vor dem Steintor 3, D-3017 Pattensen 1, West Germany.

## MODIFICATIONS AND IMPROVEMENTS TO THE TS120V

By John Croxford, G3OIC

The TS120V Trio/Kenwood transceiver represents a very good buy for the QRP operator, and the following modifications further improve its operating performance. The TS120V service manual should be obtained before starting any modification, so that component layout and alignment procedures can be followed. The printed board layout is also to be found in the service manual.

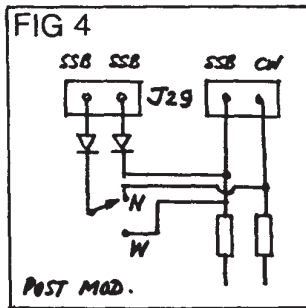
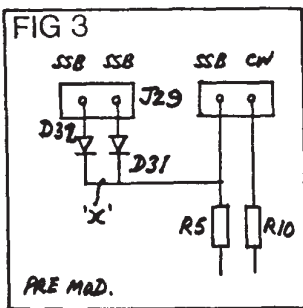
**CARRIER CONTROL** - the front panel carrier control potentiometer, VR2-2B, is extremely coarse in that from zero carrier to full carrier is achieved by rotating the control from position "0" to "2". When the mode switch is selected to "CW", a positive voltage is applied to the balance modulator, depending on the position of VR2-2B via R59, 18k ohms, on AF generator board X49-1110-00. Decreasing the value of voltage applied to VR2-2B, by the inclusion of a 12k resistor, produces a better control of carrier output.



The new resistor is soldered onto the carrier potentiometer. Remove the orange colour wire from VR2-2B, the potentiometer nearest to the front panel, and insert the new resistor in series with the wire to the potentiometer, (Fig.2).

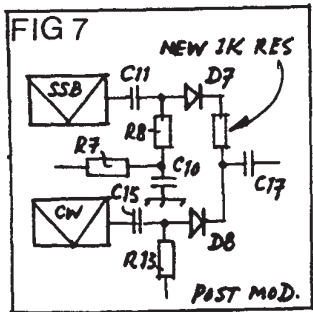
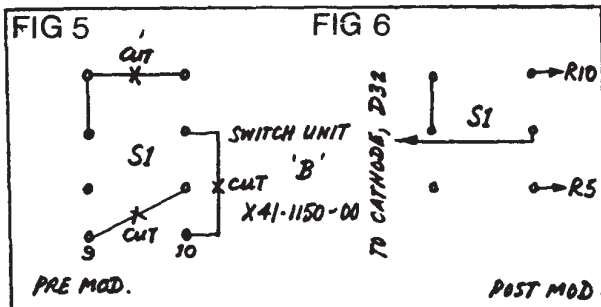
**CW SELECTIVITY WIDE/NARROW SELECTON** - with the YK88C CW crystal filter fitted, on narrow band CW is available. Whilst this is extremely good on the crowded 20 and 40 metre bands, a wide CW selection was required on the other bands. Installation of the YK88C in the TS120 is as per the instructions which come with the filter, plus the transfer of plug J29 from its SSB-SSB socket to the adjacent SSB-CW socket on the IF board, X48-1210-00. (X48-1210-01 on later mod state boards, see AGC mod.)

Remove the IF board, and locate junction D32 and D31, and with a model knife, carefully cut the printed circuit board track between the cathodes of D32 and D31, (point X in Fig. 3). Solder three thin flexible insulated wires, about



ten inches long, one to the cathode of D32, and one to resistor R5, and one to resistor R10. Refit the IF board. Then remove the two wires and pins from plug J29 and reverse them, and refit them back onto the plug. (The reason for this is that it is easier to isolate them back into the IF board.) Refit the plug J29 back into the SSB-SSB socket and not the SSB-CW socket. The decision on which front panel switch to use for wide/narrow CW selection is up to the modifier, but the procedure is similar for any switch chosen. In the author's case, the Fix/VFO switch was used. Remove the front panel assembly and switch unit board, X41-1150-00 (refer to the service manual for the panel and board removal instructions). With a model knife,

carefully cut the printed circuit board copper tracks as shown in the diagram, and solder the three wires from the IF board to the switch. Refit the switch board. The ident marks on the front panel can, with great care, be picked off without damage to the paint work. New white Electroset, the same size as the original markings, were used in the author's case to read "CW NAR" above the switch, and "WIDE" below it. Electroset laquer should be kept to a minimum as it can react with the original paint work.

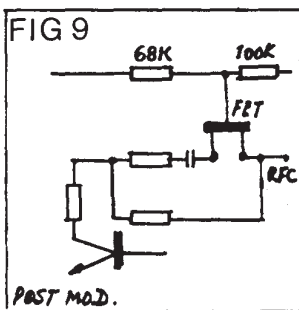
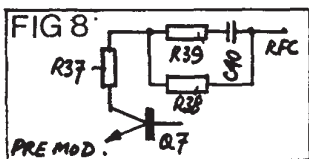


**BALANCED POWER OUTPUT** - with the narrow/wide CW modification incorporated, and with the carrier control turned down to run QRP power, operation of the narrow/wide CW switch varied the output power of the transmitter. This is due to the differences in the SSB-CW filter insertion loss. To balance the filters, a resistor is inserted in the output of the SSB filter.

Carefully remove the IF board, X48-1210-00, and locate diode D7, and unsolder its cathode from the board. Insert a post mod resistor into the IF board, and solder the cathode to the new resistor. The value of the resistor used in the author's case was 1K, but this value may be varied until operation of the narrow/wide filter switch results in no transmitter output change. Then refit the IF board. Following the fitting of the filter balance resistor, a check of the IF alignment was carried out, and the IF was found to be badly

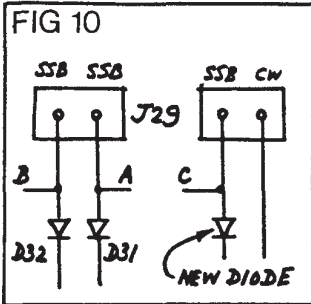
aligned. This was also found to be the case on a second TS120V, therefore alignment is included at this point. Reference should be made to the service manual for alignment, but the following was used successfully by the author.

1. Select 14.250MHz, CW narrow, calibrator on, dummy load fitted to antenna.
2. Tune for maximum S meter signal on the S meter.
3. Adjust T1 through to T7 on the IF board, X48-1210-00, for maximum S meter reading. An improvement of two S points was achieved on both sets.





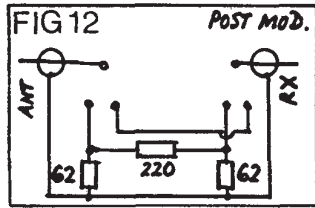
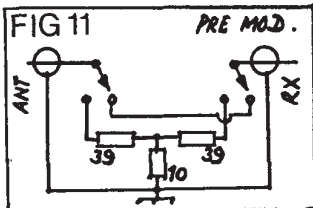
**SLOW FAST AGC** - The early models of the TS120V had an IF board part number X48-1210-00, which only had slow AGC designed for SSB operation, which was also used for CW. This is not the best for working weak QRP stations. Later models had a modified IF board, part number X48-1210-01, which incorporated fast and slow AGC, the selection being made by the mode switch. As the author's TS120 was an early model, it was decided to incorporate the fast AGC as a modification. The AGC circuit comprises Q6, Q7 and their associated components, and the AGC delay by the CR network, R38 2.2M, R39 10K and C40 1mf, on the IF board, (Fig.8).



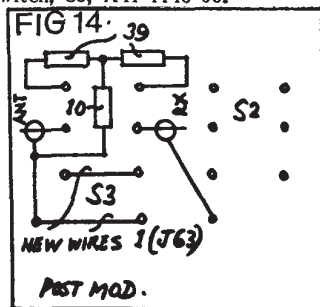
With the IF board removed, locate the printed circuit board track junction of C40 and R38, and with a model knife, carefully cut the track. A 2N3819, or any general purpose FET, is soldered across the cut track, and the 68K and 100K resistors to the gate. The three new components are held in position on the printed circuit board by a small touch of Araldite. The 100K resistor is connected to the -6v line, pin 1 or 2 or 3 on terminal strip J22 on the IF board. The 68K resistor is connected to the anode of the diode, D31, if the narrow/wide CW modification has been incorporated, (see Fig.9). If no CW filter has been fitted, the 68K resistor is connected to the anode of D32, and if the CW filter but not the narrow/wide modification has been done, then a diode (1N914) should be fitted between J29 SSB-CW socket SSB pin, and R5.

The 68K resistor is then connected to the anode of the new diode, (Fig.10).

**RECEIVER RF ATTENUATOR** - The fitting of a 20dB switchable attenuator in the receiver antenna circuit has proved to be very useful on the lower HF bands at night. The attenuator, maybe a PI or T network, and the values rounded to the nearest preferred, are shown to give approximately 20dBs at 50 ohms impedance, (Fig.11 and 12).



Again, the choice on which front panel switch to use, I leave up to the modifier. The simplest in this case would be the noise blanker switch, S3, X41-1140-00.



Remove the switch board as described in CW selectivity modification, and cut the track from pin 1 terminal strip J63, and also the earth strip track from S3. If it is decided to have the noise blanker permanently on, then earth pin 1 as shown in the post modification diagram, (Fig.14), (the cases of the switches are earthed when mounted in the transceiver). Fit the resistors around the switch, as shown, and connect two lengths of boot lace 50 ohms coax. Route the coax along the under side of the transceiver, adjacent to the IF board, and then through the chassis to the antenna connector on RF unit X44-1260-00. Then cut the coax from the filter unit to the antenna plug, and connect the attenuator in series.

## TWO BAND CW QRP TRANSMITTER WITH BREAK IN

By Drew Diamond, VK3XU  
(Re-printed from VK CW QRPp Club magazine)

This little transmitter was developed especially for The VK CW QRPp Club. The aim was to produce a simple rig capable of generating a good clean CW signal. These goals are not always compatible. However, I think this one comes close to satisfying both ideals. It has the following characteristics: 40 and 80 metre bands, at least 1.5 watts output, typically two watts into 50 ohms, full break in CW with 100% on/off ratio, no click, chirp or whoop, and an optional VXO.

The crystal oscillator is keyed in a shaped manner by TR2, and a broad band amplifier (TR3/TR4) raises the level to about two watts. Output is passed through an appropriate low-pass filter (LPF) to remove any harmonics. When the key is open, signals from the antenna pass to the receiver via C23. Back to back diodes, D2 and D3, protect the receiver input from excessive signals during transmissions.

All of the components are soldered onto the copper side of printed circuit board as shown on the full size drawing. Other forms of construction maybe used, provided that signal carrying conductors are kept reasonably short. Broadband transformers T1, T2 and T3 are made as follows:- place the ends of two 20cms lengths of 24 B&B enamelled wire in a vice. The other ends are fixed firmly in the chuck of a hand drill. The wires are then twisted to about three turns per cm. The drill is then tugged to set the twist. The twisted pair is then removed from the drill and looped 14 times through a Neosid 4327/2/F25 toroidal core. It is important that the end of one line is connected to the start of the other. Connections should be checked with a multi-meter.

If VXO operation is not required, the crystal is connected directly to ground common, and C1/C2 omitted. If two band operation is required, miniature 50 ohm coax (RG174) should be used to connect the LPFs to a DPDT toggle switch to the front panel. For single band operation, C22 is jumpered directly to the chosen LPF with a short length of insulated wire. Coax is used to connect the output of the LPF to a suitable connector for the antenna.

After checking that all components are correctly placed and orientated, a +12 to +13 volts may be applied with bias pot R14 set to minimum resistance. A dummy load/power meter must be connected to the output. With supply applied R14 is adjusted so that 150 to 200mA is drawn from the supply with key open. The current will rise to about 500mA when the key is closed, and the power meter should indicate two watts.

### COMPONENTS LIST

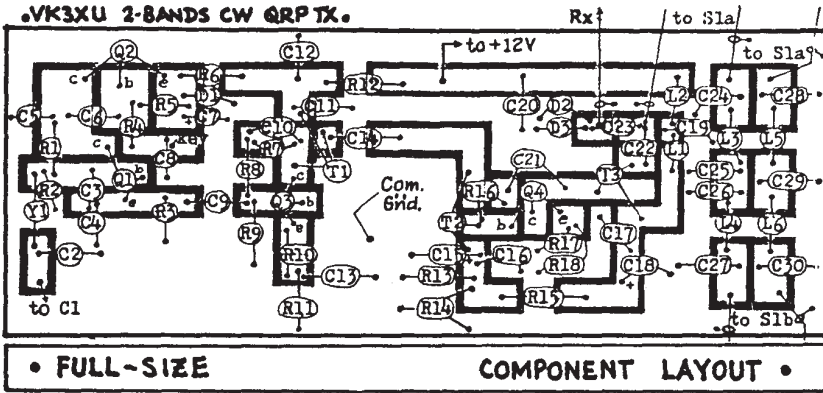
C1 200pF variable	C14 0.1mf disc.	C29 1800pF disc.	R12 10 ohms
C2 47pF NPO cer.	C15 10mf tant.	C30 1000pF disc.	R13 100 ohms
C3 220pF poly.	C16 0.1mf disc.	R1 10k	R14 100 ohms trimpot
C4 220pF poly.	C17 0.1mf disc.	R2 5.6k	R15 270 ohms
C5 0.047mf disc.	C18 22mf tant. 35v	R3 470 ohms	R16 470 ohms
C6 0.1mf disc.	C19 0.1mf disc.	R4 22k	R17 5.6 ohms
C7 227mf tant. 16v	C20 0.1mf disc.	R5 10k	R18 5.6 ohms
C8 0.047mf disc.	C21 1000pF disc.	R6 470 1/4 watt	D1 6.8v 400mW zener
C9 100pF NPO cer.	C22 0.1mf disc.	R7 1.8k	D2 1N914 or 1N4148
C10 0.01mf disc.	C23 100pF disc.	R8 2.2k	D3 1N914 or 1N4148
C11 0.1mf disc.	C24 220pF disc.	R9 1.0k	TR1 2N2222 or 2N3904
C12 0.1mf disc.	C27 220pF disc.	R10 2.7 ohms	TR2 2N3638 or 2N3645
C13 0.1mf disc.	C28 1000pF disc.	R11 68 ohms	TR3 2N3053 or 2N3866

TR4 Motorola MRF475

The above circuit gives a 800Hz TX/RX offset when used in conjunction with DC transceivers (i.e. JU6s). Use thick gauge wire from the trimmer to S1A (part of station TX/RX switch bank) and keep this wire clear of other components to keep stray capacitances low. If the lead has to be more than two inches long use a small reed relay for S1 remoted from the station TX/RX switch bank. Posh people will say you are changing the XTAL from parallel to series mode operation on each changeover.



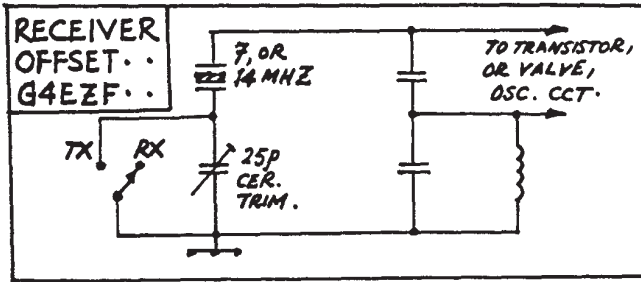
**•VK3XU 2-BANDS CW QRP TX.**



RECEIVER OFFSET

By Dave Logan, G4EZF

NOTE: Crystal started off with one leg at earth potential (originally) - not tried other oscillator circuits.



The above circuit gives a 800Hz TX/RX offset when used in conjunction with DC transceivers, (i.e. JU6s). Use thick gauge wire from the trimmer to S1a, (part of the station TX/RX switch bank), and keep this wire clear of other components to keep stray capacitances low. If the lead has to be more than two inches long, use a small reed relay for S1 remoted from the station TX/RX switch bank. Posh people will say you are changing the crystal from parallel to series mode operation on each changeover.

Personally, I don't like V XO transmitters because of reduced output power, waveform distortion and chirp, but DJ1ZB ruins this theory with FB signals on 10MHz. However, his circuits have too many components for my "quick brews", so buy some surplus 10X crystals and take up crystal etching (as per G3DNF's SPRAT article). I've etched 40 crystals, but its a little fresh in winter without plate-glass windows.

REPORT ON THE PARTY THAT I HELD FOR W0RSP - BOTH OF THEM..

By Chris Page, G4BUE



The party that wasn't (with Ade Weiss, W0RSP that is...) From left to right G4BUE, G3LDO, G3LDO/2, G4JCY/2, G4JCY, Gary and Steve in front, G4BUE/2, G3FXB, G3YHM, G4JFN, G4JFN/2, G3WBO, G4GIK, G4UYA, G4LJU, G3VT, G3WWS, G4JBL, G3FXB.

After one rehearsal at which the 'star' did not turn up, my party in honour of Ade Weiss, W0RSP, Ex K8EEG, finally went off over the week-end of 4/5 August. When Ade first telephoned me soon after his arrival in the U.K. we arranged for him to spend the week-end of 21/22 July at my QTH. The invites were sent out for a party on the Saturday, and the QRPers shown in the photoraph above came to meet Ade.

Unfortunately Ade did not arrive, but we went ahead with the party, and everyone had a good time, especially watching the cabaret provided by the horses in the field at the bottom of my garden.. Ade telephoned me during the week after, and realised that he had got his dates muddled. Anyway the good thing that came out of it was that we had a second party, so Ade really did us a favour, hi hi.



Ade setting up his 14MHz TCVR in the shack

Ade arrived on the Friday evening, and bought with him his 14MHz TCVR. It is built into a case 7 x 4 x 3/4 inches, and uses a CA3046 as a mixer, oscillator and buffer, the audio output drives a small loudspeaker, and the transmitter is a passive doubler from a 7MHz VFO into a MPS6514. The final amplifier is a 2N5913, which

gives just over two watts out with 13.6 volts. Everyone who tried it was very impressed with it, including me. I worked Club members GM4OSS and SM4FPF with it during the Saturday morning.

During the afternoon more members arrived. Bob, G3IQF drove down from Marlow and brought with him his 7MHz TTL transmitter, giving 300mW output. It uses a 7400 IC as the oscillator and a 7403 as the amplifier, (see SPRAT No.33). Bob had built the whole thing, including the batteries on a piece of veroboard.



Ted, G2HKU putting Ade's 14MHz TCVR through its paces

Peter, G3LDO brought his 10MHz transceiver, which he had modified for 14MHz, as he wanted to try it on my beam. The transceiver is built into a PCB case, and gives about four watts out from a 2N5990 in the final. The VFO contains a

rather novel coil, wound on an old B7G valve as a former, which is mounted into the top of a plastic screw cap from a bottle. The VFO had originally been used in Peter's 20/20 Competition entry rig, which was featured in SPRAT No.33.



Later in the evening we put Peter's rig on the air and worked LU8DQ on the third call. The Argentinian station was in The YO Contest and gave us the usual 599 report.

G3VTT seeing what he can do with 300mW on 7MHz with G3IQF's TTL TX. Judging from the smile on Colin's face, something is pleasing him.

Bob, G4JFN made a special journey to meet Ade, as he wanted to present him with his application for QRP DXCC personally. After checking the application, Ade announced that Bob



"What. No MD108's" Colin was heard to say as he examined his bag of goodies given out by Peter, G3LDO. Bob, G3IQF and Fred, G4HOM look as though they have found some the way they are holding up their bags in delight.



Ade presenting The G2NJ Trophy to Bob, G3IQF, watched by a group of smiling faces. (Actually they were wondering how long Ade and Bob were going to keep holding hands.)



Cedric, G4JBL sharing a Joke with Ade

would be issued with Trophy No.68 when he got back to the USA.



"Did you say 34ft of open wire feeder with a 102ft top, or was it 102ft feeder with a 34ft top?" Peter, G3LDO (right) checking with Louis, G5RV the dimensions of his famous G5RV multi-band antenna.

It was nice that Paul, G3KFE, Editor of Short Wave Magazine, and a very good friend to QRP over the years, was able to come and take part in the social side of QRP. He was able to meet Ted, G2HKU for the first time. Ted has been a regular contributor to Paul's CDXN feature in ShortWave Magazine.

As members read in the last edition of SPRAT, Bob G3IQF won The G2NJ Trophy for 1983, and as Norman, G4LQF and Fred, G4HOM had brought the trophy down from Birmingham with them, Ade was able to make the presentation to Bob. After posing for the formal group photographs, the party slowly began to wind up, but for Ade, G3VTT, G2HKU, G4HOM, G4LQF, G3KFE and G3IQF the party did not finish until 2am, as they were staying overnight.

There was much banter the following morning over the breakfast table and then we all went off to Amberley in West Sussex to visit The Vintage Wireless Museum. Ron Ham gave us a conducted tour, and we met Club member Jerry, G3WMU, who looks after the demonstration station, GB3CPM. The previous visit I had made to the museum had been with George, G3RJV and his family, when George and I put GB3CPM on the air with QRP. We worked Club members F6FZL and a very confused GM4JJG. Poor Ronnie couldn't understand why he was getting two Club membership numbers from a station using a GB call sign. All is revealed Ronnie.

Norman, Fred and Bob left us after the visit to the museum, but the others came back to Upper Beeding for lunch. During the Sunday evening, after everyone else had gone, Ade and I were left to reflect on the week-end. We came to the conclusion that QRPers are something really special, and when you get a group of them together there is an atmosphere that you cannot experience anywhere else. By breakfast time the following day, Ade and I had made plans to meet up at the big Dayton Convention in the U.S.A. next year. Colin, G3VTT is also coming, so here's to another week-end of QRP.



Colin asking Ade (who is a friend of all former students.) if he really is related to Abraham Lincoln. Notice the likeness?



"Have you heard the one about the Vicar and the Policeman.....?" Colin holding the attention of Pat G4UYA, Bob G4JFN, Bob G3IQF, Fred G4HOM and Norman G4LQF.



The party that was. From left to right - G4BUE, G4UYA, G4HOM, G4JFN, G4JFN/2, G8TOZ, G3YHM, G4JBL, G5RV, G3IQF, G3FXB, G3KFE, G2HKU, G4LJU, G4LQF, G3VTT, G5RV/2, G3FXB/2, G4BUE/2, sitting - Gary and Steve, G3LDO/2, G3LDO and W0RSP.



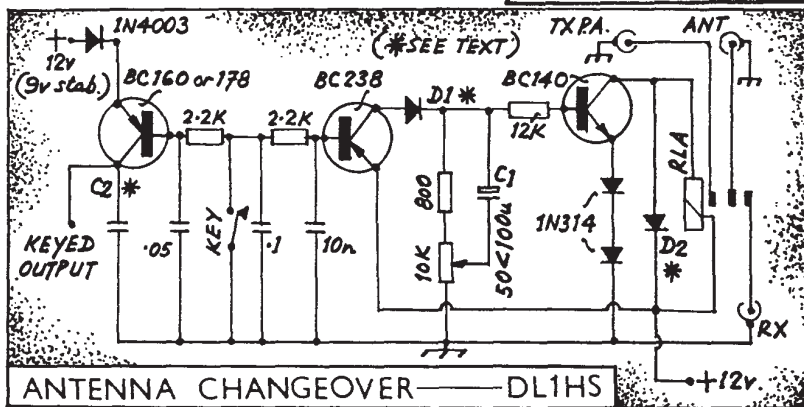
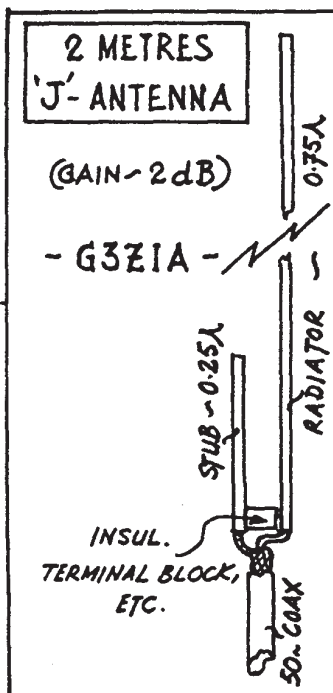
## 2 METRE J ANTENNA By G3ZLA

The elements can either be heavy gauge wire or alloy (1/2 to 1/4 inch diameter). The distance between the radiator and stub is 2 inches or less. Adjustments can be made to the length of the radiator and stub (or distance between the two) for minimum SWR. When fitted to a metal mast the base of the stub can be connected direct with an insulator to take the radiator at this point.

### TO CLEAN SILVER OR SILVER PLATE

1. Into a plastic bowl put enough hot water to cover the article(s) to be cleaned. Add a handful of aluminium milk bottle tops or a chunk of scrap aluminium from the shack, plus a handful of washing soda. Put in the silver. When clean, rinse and dry with a soft cloth. This method redeposits the "tarnish" as metallic silver.

2. Smooth articles may be rubbed gently with a pad of cotton wool dipped in a paste of Cream of Tartar (from the XYL.) wetted to a thin cream with water.



(From 'AGCW-DL' Magazine, translated by Gunter Dengler)

This is a simple antenna change over circuit. It has been successfully used in various QRP contests and has certain advantages:-

1. The keyed supply, 12 volts or whatever, is keyed with a keying transistor which prevents accidental short circuiting of the supply.
2. The waveform can be adjusted by varying R1 and C1 to prevent key clicks.
3. The antenna changeover is automatic when the key is first depressed.
4. P1 can be adjusted to control the drop out time of the relay and at its fastest setting can be used for semi-break in operation. C1 can be about 50-100pF. D1 and D2 may also be 2N314, etc.

Any relay can be used, for QRP operation at least, it must, however, be able to pull in at 10 or 12 volts, 30mA. Any silicon diode can be used. The keying transistor must be able to pass the keyed current.

# MULTI BAND DELTA LOOP (WITH NO TRAPS AND NO ATU)

By P. Swarbrick, G3ZGN

For the past five years I have used loops of various forms on all bands, and found them far superior to most wire antenna in working DX, the only problem being that each band needed its own loop.

Since the first antenna was raised, we have always looked for the arrangement that would give complete matching on all bands, one that could be fed to a rig and "forgotten". I think I have found such an antenna.

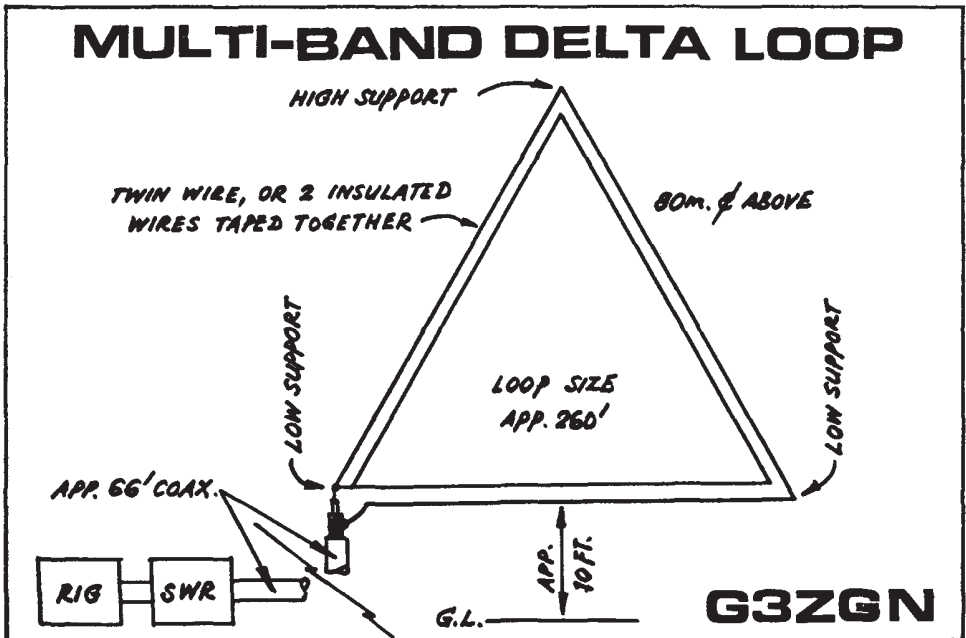
It is a known fact that odd multiples of half wave lengths do provide a low impedance when fed in the correct way, and even the new bands do multiply up from 80 metres. The problem was to find a method of broad banding 80 metres to obtain the desired effect. I broad banded 80 metres by the method shown, of completely forming a loop before feeding, and to obtain extra effect, join a second wire around the loop to the braiding of the coax. Matching is further developed by the correct length of coax between the rig and the antenna, as shown.

I use this antenna in its 160 metres form on all bands with an SWR of no more than 1.5:1, and that includes the new ones., and with no ATU. The only point to watch is 80 metres, as indicated on the diagram.

Much could be done to develop this antenna, i.e. will it work as a smaller version? I would welcome comments.

As shown with three wires on the inner and one wire on the braiding, the delta will resonate with low SWR on 3.8, 7, 10.1, 14, 18, 21, 24 and 30MHz. The SWR rises around 3.6MHz, so if the low end of 80 metres is desired, a longer length of coax will be required - approximately 70 feet, but this is a case of trial and error. A reasonable earth will be required, but in my case this is only a little buried metal.

For 160 metres, increase the delta to around 3/4 of a wavelength (400 feet). It will not alter the matching on all the other bands. Cheap type TV coax is used.



## YEovil AMATUER RADIO CLUB, 1ST QRP CONVENTION

By Tony Smith, G4FAI

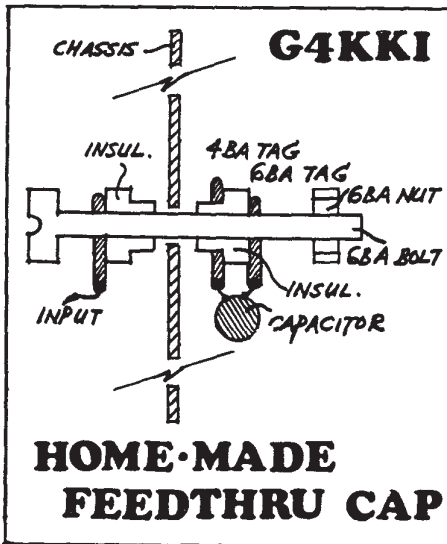
This event, held at Yeovil on Sunday 14th October 1984, was probably the first of its kind in Britain.

Lectures covered ionospheric propagation of QRP signals, aerial design for QRP operation, a QRPP transmitter (14mW output), and low power propagation at VHF. Lecturers were Rob Micklewright, G3MYM, the Club's "resident" RAE instructor, and Eric Godfrey, G3GC, the Club's Secretary, both of whom received warm approbation from their audience.

A display of home made QRP equipment, and other items of QRP interest, coupled with operation of two YARC stations, G3CMH and G8YEO, and first class refreshments, made for a most enjoyable and interesting day.

There was somewhere near a hundred participants, including a number of G QRP CLUB members, but there was room for more. If Yeovil repeat the convention next year, it would be well worth the support of G QRP CLUB members, including the opportunity to meet each other "in the flesh", as well as on the air.

With our support, it could become a well established and popular event in the amateur radio calender. I can offer three spare seats in my car next year, so that's a start. If others did the same there would be nothing like the Yeovil QRP Convention anywhere in the world.



Briefly, this is how to make up your own feed thru capacitor if none are available. Required are 1 x 6BA nut and bolt, 2 x 6BA solder tags, 1 x 4BA solder tag, two plastic insulators from a transistor insulation kit, and a 1000pF capacitor. Assemble as shown in the diagram alongside.

### SALVAGING PARTS FROM OLD PCBs

By Charlie Burke, WA2SLK

(Reprinted from "Hints and Kinks", QST July 1982)

I had about a dozen PC boards from some old TV sets. Removing the components was a chore that I never seemed to get around to. When it came time to clean out the basement, I decided to try and save some of the board mounted potentiometers. Even with a large soldering gun, I could not keep all the pins from one potentiometer hot enough at once.

Finally, I took out my propane torch. When I touched the flame to the board the pots fell right off. The biggest surprise was that the parts were cold. Some experimentation showed that it was possible to torch off everything from resistors to transistors with no damage to any of them. The trick is to mount the board in a vertical position and to start at the top. By working downward the rising heat does not damage components still on the board.

Don't try this on a board you plan to re-use, but it really is a fast, easy way to strip old PC boards.

# CLUB ITEMS FOR SALE

## PRINTED CIRCUIT BOARD AND BADGES:

Please note that the stockist for BADGES, as well as Club PCBs is Mick Hodges, G4OPE, 51 Carnford Road, Sheldon, Birmingham, B26 3AG.

### BADGES:

LAPEL BADGES (metal) 1 inch dia., Club logo in silver on black. 70p (\$1)  
CALL SIGN BADGES, as above but with call sign engraved on base bar.  
Please order with call sign clearly printed (slight delay). £1.50 (\$3)  
KEYFOBS, leather with metal insert of Club logo. 75p (\$1)  
BADGE INSERTS 1" plastic disc with Club logo in silver on black. 20p (2 for \$1)

Postage rates: add 20p for up to 3 items. Dollar price includes postage (surface)

### PRINTED CIRCUIT BOARDS:

The following are available with circuitry and layout drawings:

THE S.C.D. TRANSMITTER BOARD. £1.25  
A simple transmitter (xtal) for 80/40/20 from Short Wave Magazine by G3RJV.

THE S.T.X. TRANSMITTER. £1.00  
About the simplest possible HF xtal transmit board by GM3OXX from Sprat 35.

THE FOXX TRANSCEIVER BOARD £1.10  
Ultimate fun rig by GM3OXX, Sprat 35, on 2"x2" PCB.

WARC CONVERTER BOARD £2.25  
Receive converter for 10/18/24MHz (to 14 and 29MHz) by DJ1ZB, from Sprat 35.

\* \* \* \* \*

### QRP CW CALLING FREQUENCY CRYSTALS:

The following are available in HC25U mountings:  
3560 7030 14060 21060 28060KHz (up to 12MHz in fundamentals)

Other 14MHz CW frequencies: 14030 14040 14050KHz

All at members price of £3.50 each including postage and VAT, from:

P.R. GOLLEDGE ELECTRONICS, MERRIOTT, SOMERSET.

\* \* \* \* \*

### G QRP CLUB LOGO SETS IN WATER SLIDE TRANSFERS:

A very smart way to put the Club logo onto equipment. 20 Club logos in two sizes in gold on black. £1.25 inc. postage.

### RADIO LEGENDS IN WATER SLIDE TRANSFERS:

Add that finishing touch to equipment with scratch proof lettering. Most common amateur radio legends available on a A4 sheet. £1.25 inc. postage.

John Kaine, G4RKP, 74 Camden Mews, London, NW1 9BX (cheques to John Kaine).

\* \* \* \* \*

Cheques for all the above, except Golledge Crystals and Water Slide Transfers, should be made out to "G QRP CLUB".

## SMALL ADS

FOR SALE: Yaesu FRT7700 ATU, as new, £30. Ace SWR meter with 0-5w power meter, unused, £5. G2HKU, Tel:0795.873100.

INFORMATION WANTED: Homebrew CW on 70cms, all ideas, circuits, comments, etc. welcomed by Karen, G4WXU, 1A Featherstone Rd., Kings Heath, Birmingham, B14 6BA. Tel: 021.444.8492.

HOLIDAYS: Elaine's new shack (G0ATS) is 750 feet up, operational from January.....she hopes, and is equipped with a range of aerials with a 5KW. TAU Systems "Match Anything" transmatch ATU. There is a welcome waiting for anyone who wishes to call in. Why not combine the family holiday with EXploring Cornwall by day and DXing by night.....a good idea? Just drop her a line for details: Chylean Self-Catering Chalets, Tintagel, Cornwall, PL34 0HH. Tel: 0840.212262.

SHACK CLEARANCE: Bob Sayers, G81YK, may be moving QTH shortly, and is having a shack clearance. Send a SAE for his list of items for sale: 40 Royal Ok Drive, Leegomery, Telford, Shropshire, TF1 4SS.

FOR SALE: FT7 in mint condition, plus homebrew ATU/SWR and PSU if required. G4OYJ, Albrighton 2611.

INFORMATION WANTED: Chris Page, G4BUE and Ade Weiss, WORSP, are writing a book on history of QRP. They would be pleased to receive any information from members, particularly on QRPing in the 1920s. Material can be photocopied and returned and acknowledgement will of course be made. Contact Chris at the address shown in Members News or tel: 0903.814594.

WANTED: A cheap HF rig (or TCVR). I've got approx. £100 to spend and would consider anything to get me onto HF. Appearance no problem, so long as it works. David Perry, G4YVM, School House, Cedar Road, Dudley, West Midlands. Tel; 0384.55766.

CALLING LINCOLNSHIRE MEMBERS: Jim Armstrong, G4GBL, would like to meet some local QRPers and perhaps arrange for a meeting round at his QTH. Do you live within range of Grantham? Contact Jim at 9 Burns Close, Grantham,Lincs, NG31 9NJ

WANTED: Argonaut 515. Cyril Oliver, G4GVH, 13 North Road, Kings Worthy, Winchester, SO23 7NZ.

INFORMATION WANTED: or assistance in obtaining solar cells, suitable for a charging system for base station use. Addresses of suppliers/manufacturers. Any QRP operator interested in solar power supplies, etc., please phone or write to Vincent Lewis, G4DQP, 19 Cowley Crescent, Padiham, Lancs, BB12 8SX.

FOR SALE: Argonaut 509 with 208 CW filter, £250 o.n.o. Drake 2C receiver, with spare valves, converters for 1.8MHz, 4m and LF, £90. Colin Turner, G3VTT, "Hurley", Weaving Street, Maidstone, Kent. Tel: 0622.39936.

STOP PRESS - SMALL AD: For Sale - Hw8,PSU,Phones, £105. Black based Bencher Key, £24. 200 Character Memory Keyer, £45. Larry, G5DDF, Mildenhall 717419.

FOR SALE: Mizuho VFO-7 (7MHz VFO) instruction sheet, £6. 30 ferrites, FB43-2401 (for PAs - G4CIF etc), £3.50. G4CIF board for filter (XF-9B) 2 crystals, SBL-1 mixer, £10, all o.n.o. Grieveson, G4GXU, 30 Rozel Court, Beck Row, Bury St. Edmunds, Suffolk, IP28 8AX.

WANTED: G3RJV is still playing with old valve radios and is looking for: UY41, UL41, UBC41, UF41, 25Z4, 25A6, 6K7, 6K8, 6Q7 and ECL86.

CLUB TALKS: Each year G3RJV does about 15 Club talks and refuses requests from far flung clubs for talks on QRP. It would be useful to compile a list of members who would be willing to give talks on QRP to radio clubs. This could be supported by sets of slides from the Club stocks. Contact G3RJV.

# QRP News

## A NEW CLUB TROPHY

To mark the tenth year of the Club, we are introducing a new trophy. This award is intended for THE AVERAGE QRP OPERATOR. It will run every year from 1985, and the winner will hold a trophy kindly donated by Ian, G6BAL. The winner will also receive a small keepsake trophy. This is an award that anyone can enter using the average QRP station. Begin making your logs from New Years Day.

### CHELMSLEY TROPHY - RULES

1. DURATION: 1st January to 31st December each year.
2. BANDS: Contacts may be made on all authorised bands between 1.8 and 28MHz.
3. MODES: CW and/or SSB
4. POWER: CW - not exceeding 3.3 RF output (5 watts DC input)  
SSB - not exceeding 10 watts PEP output
5. ANTENNAS: (a) No antenna used shall exceed 35 feet (10 metres) in height above ground.  
(b) No antenna used shall exceed 132 feet in length.  
(c) Entrants may change the antennas in use during the year, but at any given time not more than one horizontal and one vertical antenna shall be used.  
(d) All antennas used shall consist of only of a radiating element without reflectors or director
6. LOGS: For each band used the log submitted will consist of:-

- (a) A list of all DXCC countries contacted, in alphabetical order of prefixes, with below it figures showing the total number of DXCC countries contacted.
- (b) A similar and separate list of all countries worked using two-way QRP.
- (c) A note drawing attention to any contacts which, by virtue of very low power used, rarity or other reason, the entrant considers to be outstanding.

In addition, a separate sheet shall be provided giving details of the transmitting, receiving and antenna equipment used during the year. Should any entrant consider that during the year he has done work of importance in the field of simple antenna design or propagation studies, a note outlining such work briefly should also be included.

7. SUBMISSION OF ENTRIES: Entries must reach the Communications Manager by 15th February of the year after the contest year. Entries received after that date will be disqualified.

AWARDS: At the discretion of the Club Committee, the entrant submitting the most outstanding log will be awarded The Chelmsley Trophy for one year. The two runners-up will receive certificates of merit.

9. DISPUTES: In the event of any dispute regarding these rules, the decision of the Club Committee will be final.

10. PROOF OF CONTACT: If they wish the Club Committee may ask for written proof of any contact.

A READOUT OF MEMBERS CALL SIGNS AGAINST NUMBERS (IN CALL SIGN ORDER)  
An excellent guide for working Club members. We have to charge to cover costs of duplication. This readout will be available for 75p from G3RJV. Please enclose a SASE capable of holding about 10 A4 sheets of paper.

TRY CALLING ON THE QRP FREQUENCIES: 3560, 7030, 14060, 21060 and 28060KHz.

## THE G QRP CLUB CW NOVICE AWARD

Following the success of the extension of this award, the Club is now to make it a permanent award sponsored and offered by The G QRP CLUB. The award has done much to encourage newly licenced operators to use CW.

### RULES

1. **ELIGIBILITY:** The award is open to stations during the first twelve months they are licensed.
2. **PERIOD OF AWARD:** All contacts claimed for the purpose of the award must be made during the first year. Contacts may be made on any amateur band for which the applicant is licensed; they must all be on CW.
3. **REQUIRED CONTACTS:** For the purpose of the award, the applicant must have contacted fifty (50) other amateur stations.
4. **CLASSES:** The award will be issued in two classes. For the Class A award all contacts must have been made when the applicant was using a DC power input not exceeding 5 watts or 3 watts RF output. For the Class B award any power not exceeding that for which the station is licenced maybe used.
5. **AWARD APPLICATION:** Applications shall consist of a list of the stations contacted, including date and band used. The list must be signed by the applicant and countersigned by one other licensed amateur who has seen the log entries. For Class A the applicant must also include a signed statement that his DC input did not exceed 5 watts, or 3 watts output, when making the contacts claimed.
6. **APPLICATION FEES:** UK applicants must send 50p in UK stamps with their application. Overseas applicants must send 3 IRCs.
7. **ADDRESS FOR APPLICATIONS:** Applications must be addressed to Communications Manager, G QRP CLUB, 37 Pickerill Road, Greasby, Merseyside, L49 3ND, England.

### SUBSCRIPTIONS

The Committee of The G QRP CLUB have agreed to raise the subscription rate from £3.50 to £4.50 (\$10 US) per year, to take effect from 1 January 1985. Although we regret this rise, due to increasing cost of SPRAT production and the rise in postal rates, may we point out that this is the first increase since 1980. This must represent remarkable stability in price.

Please use the new rate when paying your renewal of subscriptions. We are also rather concerned that our current, lenient, method of removing non-payers from the Club list often means that they may receive one or even two copies of SPRAT after they have ceased paying. Although this does help those whose subscriptions have accidentally lapsed, the high cost of postage now means we must speed up the deletions from our mailing list. Please help us, and yourself, by paying promptly and those wishing to leave the Club can help us by sending a note of resignation.

We regret to announce the death on August 13th of Bob Thompson, GW3ELM, a Club member, licensed since 1945.

WRITE UP THAT PROJECT YOU HAVE BUILT FOR SPRAT. NO NEED TO BE AN AUTHOR OR A DRAUGHTSMAN, ALL WE REQUIRE ARE CLEAR SKETCHES, WITH ALL VALUES MARKED AND BRIEF NOTES ON THE PROJECT. ITEMS TO G3RJV.

# V.H.F.

By John Beech, G8SEQ

After my recent visit to the Leicester Exhibition, my faith on VHF QRP has been renewed. In chatting to various members it is evident that there is a veritable dearth of suitable technical material for the average Class B licensee. From the recent correspondence and telephone calls I have had, both from home and abroad, it is clear that many ops are achieving quite good results from commercial equipment, often using home brewed antennas and ancillaries.

I was hoping to be able to produce a kit, but it looks as though it will have to wait a couple of months.

I am currently trying to collate material for a VHF Datapack, consisting of well tried designs/techniques for station equipment. At the moment, I have only my own designs plus one or two snippets from other members, and data from existing books. Some of you out there must have some of your own ideas and tips which could be useful to the newcomer. So let's 'ave 'em post haste.

STOP PRESS

Suggestion from G6WKK/P, International QRP Band Plan:-

144.125 (c.f. 144.130)	144.140	CW
144.140 (c.f. 144.150)	144.175	SSB

Other c.f.'s in use 144.240 SSB, 144.650 FM and 144.640 AFSK/FSK RTTY.  
Also power limit QRP RTTY - 5 watts RF, same as CW

P.S. Good QSO with G11IC last evening on RTTY. His 599 10 watts; mine 519 150mW.  
Hope to QSO next Sunday QRP both ways.

Class B's - think about RTTY - it's almost as good as CW on weak signals, but information exchange rate is a lot higher.

73, John, G8SEQ

---

# S.S.B.

By Ian Keyser, G3ROO  
("Rosemount", Church Whitfield, Dover, Kent)

Not a single letter to comment on this time, really is the "Summer blues". I only hope that there is a change during the Winter otherwise there is going to be pressure on me to give up the space in SPRAT to another contributor.

Things have been bad for SSB QRP operating with poor conditions on the HF bands, and that during the DX season as well. The sked has been unreceivable down here for the last three months due to very heavy European QRM, so I am unable to report on happenings there, I only hope that it is still in operation.

When I saw Colin, G3VTT, the other day, the news on the 21MHz calling frequency has not yet been resolved. The 28MHz frequency correspondence has not excited a reply from the VHF Manager, will have to remind him of the problem there.

That's out it for now, so please, for next SPRAT, give me the news in plenty of time, early in the new year would be best. 73's, Ian

STOP PRESS: Just received note of "The Chelmsley Contest". Please note this is CW and SSB.

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THE G QRP CLUB SSB NET: Each day on 3690KHz +-QRM at 7pm clocktime.

ADDENDUM: Argosy attenuator, Sprat Autumn 1984. The 150 ohm resistor shown should have been 15 ohms.



# Awards

By Angus Taylor, G8PG, 37 Pickerill Road,  
3ND.

Merseyside, L49

IAN JOINS THE MASTER.

Congratulations to Ian, GM4HBG, who becomes QRP Master No. 17. No wonder he was proudly wearing the kilt at NEC.

NEW AWARD HOLDERS

Our congratulations to the following\*

QRP WAC: HB9XX, DK6AO, K2RS.

WORKED G QRP CLUB AWARD: 280 GM3OXX, 160 G3DNF, 120 G4JFN, 100 ON5AG, 80 GM4ELV, GM4HBG, 40 HB9XX, 20 G4OJF.

QRP COUNTRIES: 100 G4JFN, 25 G4NBI, G4RKT, 7P8BT.

TWO-WAY QRP AWARD: 20 GM4HBG, 10 HB9XX.

CW NOVICE AWARD: Look to your laurels, lads. Those gals Mini and Sue (G4UKM/G4WGY) now both hold Class A and Class B CWN Awards. Rumour has it that they are now looking for new fields to conquer, so maybe "George the DX" and "Chris the Countries" are going to get some competition. And a point for you chaps north of the Border; how come that at the moment there are more CWN holders in Botswana than there are in Scotland?

WINTER SPORTS: (see elsewhere in SPRAT for times and frequencies), 26th December to 1st January. The big chance to up your Worked G QRP CLUB and Two-way QRP scores. If the scheduled band is not open to you, move down to the QRP frequency on the next lowest band which is open. Don't forget the QRP frequencies are plus or minus the QRM, so spread out a bit and make life more pleasant for yourself and others. Hope CU there.

WATCH 80 METRES: During the Autumn 80 metres has been open for QRP, and it is known that at least one member worked EA9 and UL7 when running one watt output.

DON'T FORGET.....

G QRP CLUB TENTH ANNIVERSARY WINTER SPORTS  
26th December 1984 to 1st January 1985 (inclusive)

This is not a contest, just an attempt to work as many other members as possible. Use the frequency list below as a guide to finding and working other members. If band conditions are bad, then move down, a band at a time, until a suitable frequency is found.

The G4DQP TROPHY will be presented to the station thought to have made the best contribution to the success of the event. Logs may be sent, or just notes about operating to G8PG, A.D.Taylor, 37 Pickerill Road, Greasby, Merseyside, L49 3ND. Call CQ QRP.

ANNIVERSARY SPECIAL: G3RJV will present a plaque to the member who works the most G QRP CLUB members during the event, plus certificates of merit for the non G European member who works the most UK members, and non European station who works the most UK members.

0900 - 1000	14060	1500 - 1730	21060/28060
1000 - 1100	21060/28060	1730 - 200	14060
1100 - 1200	7030	2000 - 2100	7030/10106
1200 - 1300	3560	2100 - 2200	3560
1300 - 1400	10106	2200 - 2300	14060
1400 - 1500	3560		



"Alamosa", The Paddocks, Upper Beeding,  
Steving, West Sussex, BN4 3JW

members. Let us hope for something better in the Winter Sports. On that subject 5N9GOM tells me he will be QRV, but on 14035 and 14050, as he is crystal controlled. Several members tell me they are looking forward to the event, so it should be well supported.

The social scene has been continued with The F.O.C. Dinner in London at the beginning of October. It was nice to meet up with Club members G3VTT, G3PDL, G2HKU, G3AM, and QRper Jules ON4WD. A couple of weeks ago I visited Roy, G3KJC and he invited members G3AHS Dawson, G4XYU Peter, G4MKF Malcolm and Mac G3FCK who does such a good job drawing the circuits and diagrams which appear in SPRAT. I have given club talks to The St. Dunstan Club for blind operators and The Medway Club. A visit from David A4XIJ/G4UQB has resulted in publicity for the Club in Oman, which it is anticipated will result in members from there. More recently I visited The Leicester Exhibition where G4HOM, G4LQF and G8SEQ put on a small Club stand which caused a great deal of interest. I stayed overnight with Norman during which the world of QRP was put to right.

OK1DKW whilst on holiday in Monrovia, stayed a few days with OK2BMA, and was then host to G4KKQ when he visited Prague. Dennis was using his OK8ADW call. Rod, G4MIJ was host to Per, SM0FSM when he visited the UK during the Summer and tells me that the two of them, with OK2BMA, have now racked up over 150 hours of QRP ragchewing on the bands. Leo, KC5EV was the organiser of a QRP presentation at this years Houston Convention. I now hear that W6SKQ, W1FMR, K7YHA, W0RSP, K5VOL are planning to attend the Dayton Convention in 1985 together with Les WB2IPX who is getting things together from the QRP point of view. Colin G3VTT and myself are now beginning to get fired up about the visit, and looking forward to meeting other USA Club members who intend going.

G4KLQ has been travelling the country by canal, hanging dipoles from canal banks, bridges, etc. EI0CF is now QRV on 1.8MHz with a 330ft long wire. Finbar tried it on 80 metres SSB and worked N2KK with 1 watt. G4RVW has been converting QROers to QRP on 80 metres. He persuaded G3JCS to reduce power from 100 watts right down to 1 watt in stages - another convert to QRP. CT4CH will be signing SM6YF/MM until the middle of January and G8IB recently checked into the SSB net and worked SM4MNT.

G4KKI worked W3GM on 7MHz with a homebrew 3 watts TCVR. Bill was using a 66ft centre fed with 300 ohm feeder and ATU, which tunes all bands. G4MEW, another SSBer, recently found 4U1TU on 28MHz with his 500mW. Charles is using a 110ft doublet with 600 ohm feeder and KW ATU. G4PUU mentions the 80 metre activity periods coming alive at the beginning of August, and G4HYU is now working QRP with a throttled back TR7. David is building the PW7 and hopes to complete it soon. 7X2CR, also on SSB, has had QSOs with G4SGG and G4PXD. He is a milliwatter and has worked OE at 50mW.

If you read SPRAT from page 1 onwards, by the time you reached this page I hope you will have noticed the consistent layout of the typeface. This is a further improvement which we are doing to try and make SPRAT even better. This edition has been compiled on a micro-computer with word processing facilities, which has been very kindly loaned to me by Peter, G3LDO. Please let me know what you think of it, as it makes life a great deal easier for those of us who prepare SPRAT.

The Late Summer Activity Week-end once again coincided with poor conditions. Despite this members were able to find each other on

the bands, but there was the absence of any really good DX QSOs. Willi, signing DK5RY/HBO was a welcomed QSO for several

K4BNI was using a 33ft wire strung across the room of his holiday home and with his 515 was surprised how quiet the bands were away from the City. At his home QTH he is using the new HW9, but he is another one who is not satisfied with the VFO. Sounds as though Heathkit may have a problem there. G3BFR queries the AGC operation of the 515. Frank finds he has to keep the RF gain well retarded and would appreciate assistance. DL2HCB is QRV with an Omni at reduced power to a W3DZZ. Bert says that DL1GBZ will soon be QRV with a 515. G4LQF has put up a new antenna, but is now plagued with TVI, and G4DQP has replaced his 509 with a TS130V.

However, Vince is now wishing he had kept the Argo. He has found a 22ft vertical with radials mounted on his garage roof, is two S points up on his 60ft Zeppelin. GM3OXX is now using a rhombic up at 100 feet for 20 metres and has been completely rebuilding his station.

An interesting note from Nor, GM3RKO tells me that 20 years ago he was signing VS1LJ with VS1LG and VS1LU, who he has just found out are Club members 9V1LG and ZL1BLJ. As he says "small world eh?" G8YJI is now G4YMV and David says he owes it to the Club's CW tapes which enabled him to pass the test in ten weeks. He has palled up with G4LQF who has been assisting him with his first rig, a FOXX. Did you hear about G8PG's DXing on 80 metres from his GW QTH? Gus put up a sloping wire, 110ft long and 60ft at one end, and worked three continents, EA9 and UL7 providing the QSOs in addition to Europe.

ZL1ABS is looking after the interests of the Club in New Zealand. At the recent Hamfest, organised by The North Shore Branch, Mike organised a QRP display and met Club members ZL1ST, ZL1BNY, ZL1BQ and ZL1HU. Stand by for some exciting news from W7ZOI. Wes tells me that he has been working on something new which he is sure will be of great interest to QRPers in the UK, knowing how keen we are on home brewing. ZS6PT tells of the growing interest of QRP in South Africa, so much so that a QRP contest on 7MHz has now been organised by SARRL, to be held three times a year.

Congratulations to Dave, GM4ELV who has again won The Marconi Phone Contest. I see that ZS6PT won the 10 metres class. G3IQF has copies of the latest call books, and has kindly offered to make them available to Club members. All Bob asks for is a SAE with your requests. W6SKQ tells me that in the latest edition of CQ, Dentron have announced a new QRP TCVR, the QRV-1. Bob says it is solid state, has a DC receiver and is 5 watts output, CW only with full break in. No mention of price though, but stand by for more information. W1FMR has found, (quite by accident he says), a matching circuit that makes a 40 metre loop band switching on all harmonic frequencies. Jim used two of them during the last contest and has promised to write up the details for SPRAT, after he has figured out how it works.

LA3BX has recently become QRV on QRP with a HW8, despite being a member for several years. Ted uses an inverted vee in the rafters of his house and has worked 17 countries on 7MHz with it. G3YCC has built a new TCVR with full QSK between giving talks to the Hull and Housen Clubs. K3TKS is trying to get an old PM3A to work and KH6CP/3 has modified his Argo to give forward power readings on 2 and 5 watts scales. Zack moved the stop on the meter switch by one position and chose a resistor from the junk box to give the desired reading. K5VOL has been using less than 1 watt recently and has been experimenting with loop antennas. G4OJF runs a complete homebrew QRP station on 7 and 10MHz with TCVRs based on the Ben. Jerry has worked UB5, UA3 and LZ on 7MHz with 1 watt to an inverted vee. G4HOM has built an OXO, but instead of using the usual BFY50, has used the driver transistor from an old CB rig. Fred now gets 3 watts out with 14 volts and 2 watts with 12 volts. He is also building the W7EL TCVR, as is PA3ALM. K7YHA, (ex G5CSU), is using a HF6V which he finds is working well, and W6SKQ, despite having a TH6DXX, has found the last few months very rough for DX. Bob is thinking of removing the balun as he feels it is robbing him of power.

Just enough space to wish you all a very Happy Christmas and good QRPing in 1985. Please keep your letters coming, and don't forget that you can include QSL cards for members at the same time. Without your letters this column cannot exist. Let me know how your Winter goes, by the 20th February please.

Best 73, Chris

# WPO COMMUNICATIONS



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