



# SPRAT

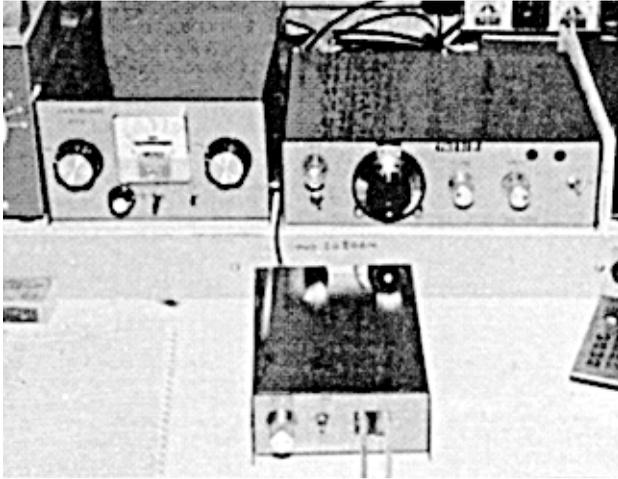
THE JOURNAL OF THE G-QRP CLUB

DEVOTED TO LOW-POWER COMMUNICATION

ISSUE NR. 47

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SUMMER 1986



A SMART QRP STATION BUILT BY DERRICK (G3LHJ)  
A TRANSMITTER BASED UPON THE "TENE" CIRCUIT  
FROM PRACTICAL WIRELESS, WITH HOMEBUILT ATU  
AND SWR TO THE LEFT, HOMEMADE KEYS IN FRONT

CQC RECEIVER - G2PS TRANSCIEVER FOR 7/14/21 MHz

30 M. DELTA LOOP ANTENNA - AUTOMATIC VFO SWITCH

POWER MEASUREMENT - THE POCKET RECEIVER + PCB

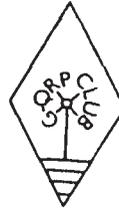
ARGOSY RF GAIN CONTROL - 10 M J POLE ANTENNA

REVIEW OF CTX80 KIT - CONSTRUCTION CONTEST

POWER INDICATOR FOR VHF - 3 BAND ANTENNA

CLUB NEWS - PROPAGATION - SSB NEWS - MEMBERS NEWS

# JOURNAL OF THE G QRP CLUB



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*St. Aidan's Vicarage,  
498 Manchester Rd  
ROCHDALE,  
Lancs,  
OL11 3HE.  
Rochdale [0706] 31812*

Dear Member,

Two reminders:

Watch out for information on the MSGB HF Convention in September. The club will be there with a stand. Unfortunately I am unable to attend but it should be a good social gathering for club members.

Next year brings us the 50th Issue of SPRAT. We hope to make this a rather special issue and towards that end a construction contest is announced in this issue.

I look forward to meeting club members at radio rallies in the north of England this summer. Wear your club badge at rallies wherever they may be and look out for other members.

73 fer nw.

G3RDV

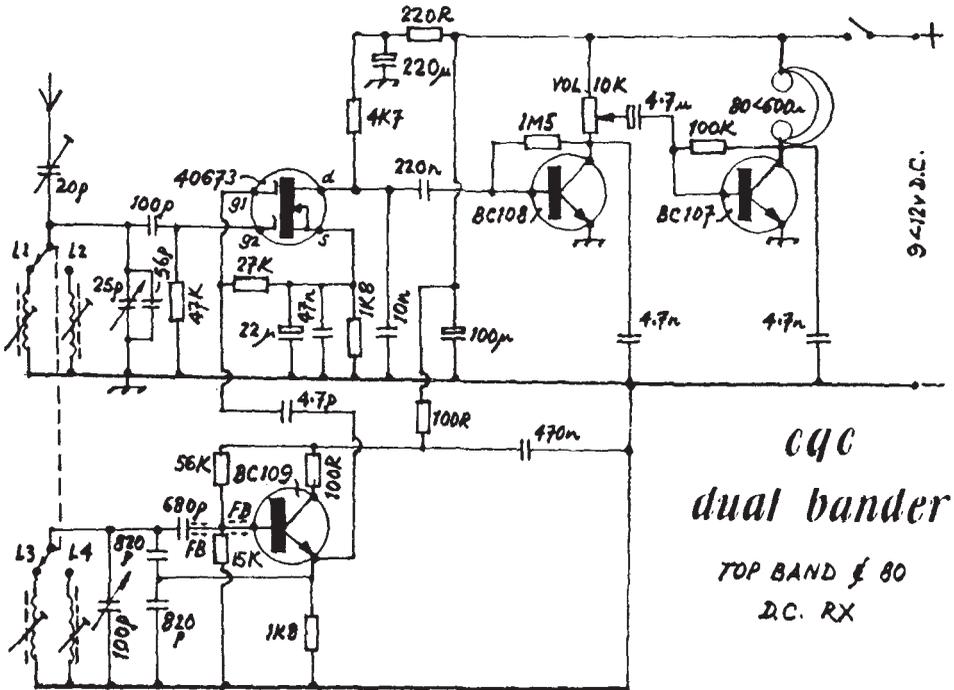
## Subscriptions

Renewals (rates: £4.50 or \$10 US to Alan Lake, G4DVG, 7 Middleton Close, Nuthall, Nottingham, NG16 1BX. PLEASE QUOTE YOUR MEMBERSHIP NUMBER. Cheques: 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 G4DVG whenever such a transfer has been made.

**A TOP BAND AND EIGHTY DC RECEIVER - COC DUAL BANDER**

**Components**

**Resistors:** 1 x 15K; 3 x 1K8; 1 x 220R; 1 x 27K; 1 x 4.7K; 1 x 5.6K; 2 x 100R; 1 x 100K **Polystyrene Caps:** 1 x 56pF; 1 x 100pF; 1 x 680pF; 2 x 820pF **Ceramic Caps:** 2 x 4.7nF; 1 x 10nF; 1 x 47nF **Polystyrene Radial Caps:** 1 x 22nF; 1 x 220nF; 1 x 470nF **Electrolytics:** 1 x 4.7uF; 1 x 220uF; 1 x 100uF **Silvered Mica Cap:** 1 x 4.7pF **Trim cap:** 1 x 2 - 20pF **Transistors:** 1 x BC107; 1 x BC108; 1 x BC109 **Coil formers:** 4 x 7m OD **Ferrite Bead:** 2 x 3 x 3mm **Potentiometer:** 1 x 10K log **Switch:** 1 x SPST **Wafer switch:** 1 x 2P6W **Jack:** 2 x 3.5mm TV socket x 1



All components listed above, circuit and copper wire £7.30 inc. post. Excludes tuning caps, vero board, connecting wire, solder and box. Available from Cambridge QRP Components, 340 Rookery Close, St. Ives, Cambs, PE17 4FX

**WHY NOT SEND CIRCUITS OF YOUR LATEST PROJECT TO G3RJV FOR INCLUSION IN SPRAT ?**

## G2PS TRANSCEIVER FOR 7/14/21MHz

By Arthur Parsons G2PS

Having spent several years QRT between the early 60's and the later 70's, I came back to an age of black boxes with my knowledge of radio construction very much outdated. However, I adapted fairly quickly to newer techniques, but became more and more frustrated at not being able to "see what was going on" so to speak, and so when a local amateur friend, G4AXO, introduced me to The G-QRP-CLUB and SPRAT Magazine, I saw right away an opportunity once more to make my own rig.

So, in spite of being a "left over" from the age of valves and being quite strange to solid state technique, I embarked upon the JU6 transceiver, which I now call my Mark 1, and which, with only one watt output, soon gave me a RST 569 report from a W2 station on 14MHz.

Before long I was well on the way with the Mark 2 rig, which I present herewith, but I would not part with the little JU6 which I can now recommend to anyone as a good starter. I hesitate to place a name of my own to this Mark 2 rig as it is made up of several excellent articles and ideas, mainly from SPRAT and the QRP Circuit Handbook, and also from Solid State Design for the Radio Amateur. These books have given me hours of pleasure and have taught me quite a lot.

For the transmitter I owe much to DJ1ZB, whose Lagos QRPeter gave me the basic idea, starting off with the VXO, but later adding a Colpitts VFO and amplifier as described in Solid State Design for the Radio Amateur, page 38.

I usually drive the 2N3866 PA to 2/3 watts output, adjustable by means of the variable resistor in the 12v supply to the keyed 2N2222.

The receiver is a mixture of ideas, many of them from SPRAT and the Circuit Handbook, and here I am grateful to G3IGU (audio stages), G3IVF (audio peak filter) and to G3WNS for his article in SPRAT which gave me the idea of the three band switched RX front end which works so well. I did modify his common gate circuit to common source to try for more gain, but ran into instability problems which I eventually cured by placing a .001 capacitor and a 10K resistor in series between the gate and drain of the MPF102 RF amplifier (not shown in my diagram).

The usual troubles with hum and audio howl, etc. were a great problem at first, and I must confess to a great deal of "cut and try" in attempts to suppress this. One great step forward was made by reducing the value of coupling capacitors between the filter and its pre-amp and between the filter and the first BC184L audio stage. These I made 0.1mfd in place of 5mfd electrolytic. The audio gain is not affected and audio instability completely cured. Hum was also dramatically reduced and finally completely cured by bonding together my separate earth of buried copper wires in the garden with the mains earth, the shack radiator and the case of the 13.8v power supply with the case of the electronic keyer with thick wire. I also found it necessary to use a relatively high value of de-coupling capacitor (220mfd) in the 12v supply to the MPF102 pre-amp to the audio filter.

I am amazed at what can be done with a simple DC receiver such as this, and when you get used to having both sidebands to cope with it feels as "hot" as many expensive black box jobs. Care in trimming the front end circuits will help in greatly reducing, or eliminating, AM interference from broadcast stations. Scores of contacts have been made on 40, 20 and 15 metres, including W land, and I'm hoping for more DX when conditions improve.

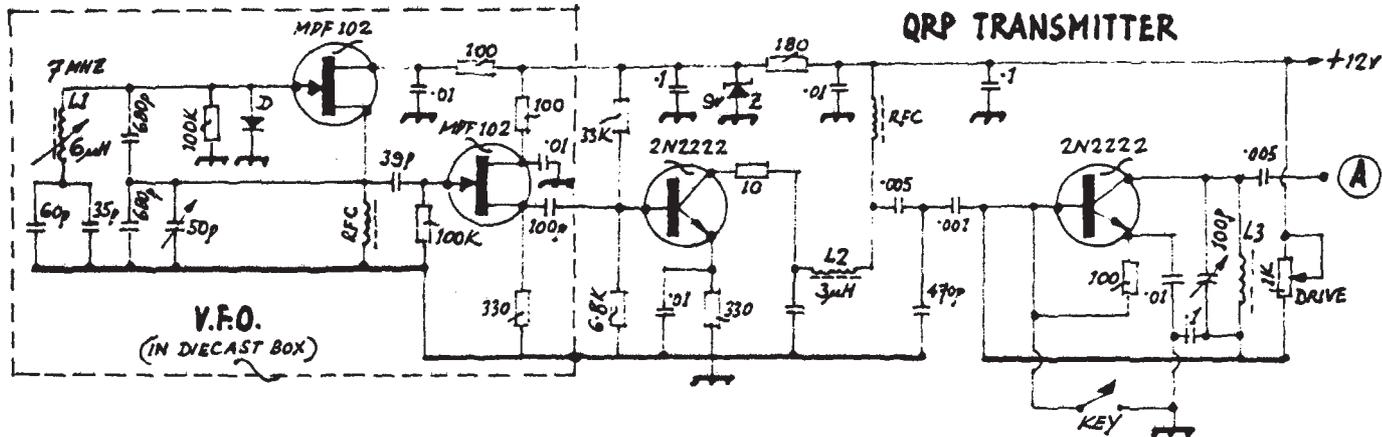
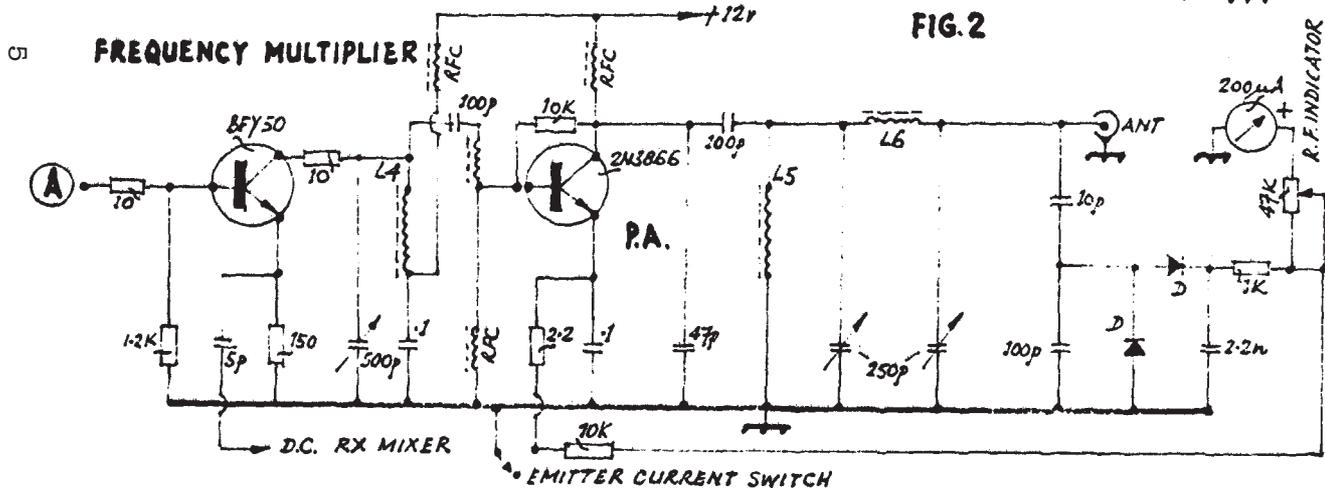


FIG. 2



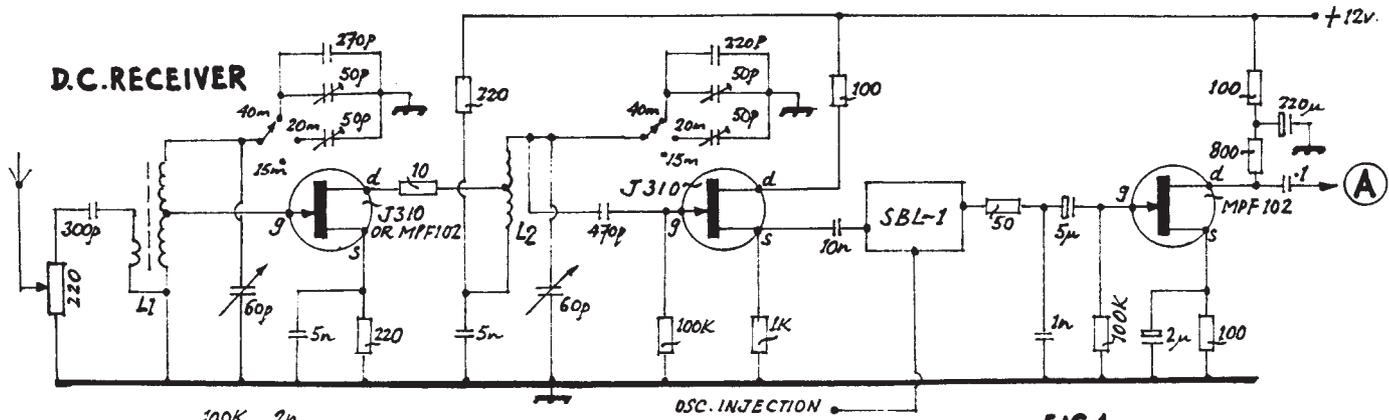
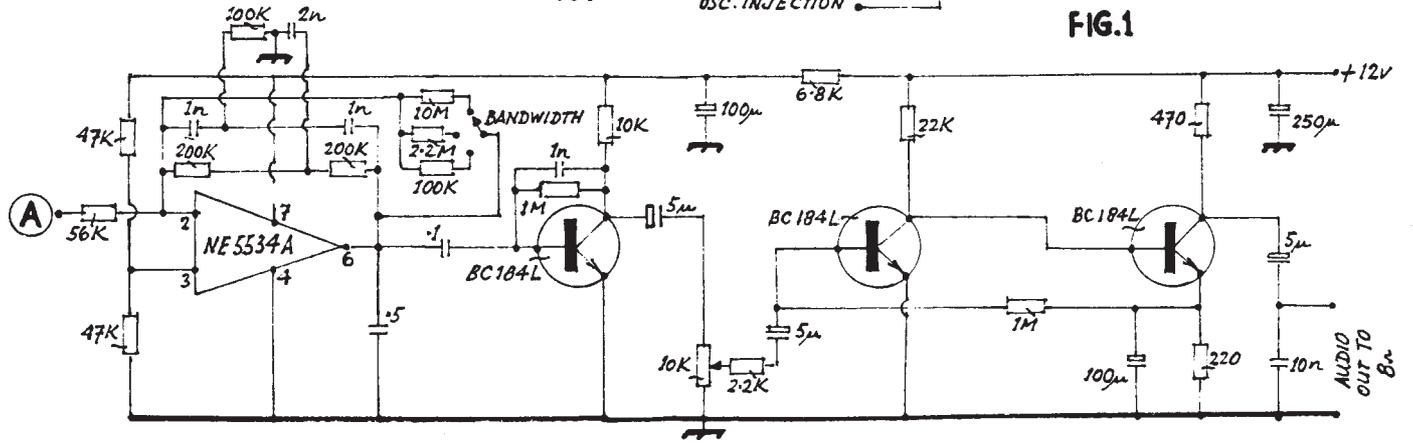


FIG.1



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At present the transmitter uses plug-in coils, but I am working on a layout to use complete band-switching in the near future. Antennas used are a 40 metre Delta Loop tuned with a 600 ohm line for all bands, and a 100 feet random wire which I use mainly on 40 metres. The whole transceiver is housed in an aluminium box, size 10 x 6 x 3 inches. This rig is purely experimental and I hope it will prove of interest and encouragement to other QRP operators who may wish to make their own variations and improvements.

- L1 21 turns 24SWG on T50-6 core, tap 7 turns from ground with 2 turn link
- L2 Same as L1, but tap 5 turns from switch end

- L1, L2 Toko miniature screened inductors (Ambit/Cirkit)
- L3 30 turns 26SWG on T50-2 core
- L4, L5, L6 Plug in coils for 7, 17 and 21MHz as described by DJ1ZB, page 41 of G-QRP-CLUB Circuit Handbook. I use DIN plugs and sockets, the plugs being stripped of their metal cladding. Coils wound on T50-6 cores
- S1 Press to break switch to indicate PA emitter current when driver tuned to resonance (PA inoperative)

The TX/RX switching is not shown but is done with a 4 pole 3 way rotary switch which changes the antenna from TX to RX, and short the keying lead and disconnects the 12v supply from the PA on RX. The BFY50 stage must remain in operation on RX, as it acts as a buffer, doubler or tripler and therefore provides the correct oscillator injection frequency for the RX.

#### MAKING A SMALL PCB

By Ronnie Marshall GM4JJG

1. Get a piece of polystyrene ceiling tile and some good quality tracing paper, and collect your components.
2. Tape the paper to the tile, (which is to be smooth one). Decide where you want the components and stab the leads through the paper into the tile. They go in perfectly easily and the tile holds them firmly. Now pull them out again, inking the connecting leads on the paper as you remove the components one at a time. Then take off the paper.
3. Tape it, ink side down, on the copper surface of your board, and mark all the holes through with a sharp punch. Remove and mark in the "wiring" with a Dalo pen, just copying the layout on the tracing paper. Then drill, etch and/or engrave.

#### WINTER ACTIVITY POSTSCRIPT

India to UK on an OXO: 80 CQ brings back a VK3!!

Since the Winter Sports report was written further exciting news has come to hand. Firstly Andy, WB2RZU, worked across the pond to GM3OXX/A, G3VXJ, G4MQC, G4SXE and I7CCF during the Winter Sports. Secondly, on 14060 at 1502z, 28th December, GM4HBG/A (3w) began a solid QSO with VU2TTC, Madras, who was using an OXO. This has been confirmed by QSL. It is known that the OXO was sent out to VU2TTC from the UK. Which of our members sent it, please? Back at his home QTH, at 1950 on 23rd January, GM4HBG called CQ DX on 3505KHz and back came VK3NC! During the next hour and 40 minutes, HBG also worked VE1BNN and K2RR/1 on the same frequency. Well done all concerned!

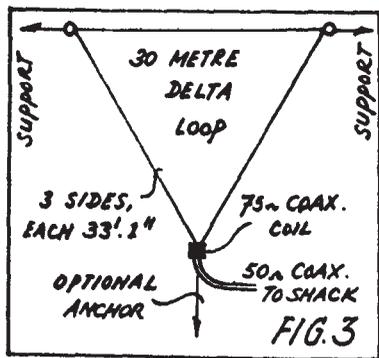
# SHHH... QUIET 30M ANTENNA

By Ed Lappi WD4LOO

(Reprinted from QRP ARCI Quarterly)

Ever since 30 metres was opened up for general amateur use, I have been looking for an appropriate antenna for this band. I had long ago determined that vertical antennas were out of the question for my QTH because of high voltage power lines which passed within a couple of hundred feet of the property line, and their subsequent high noise levels. I needed a horizontally polarised antenna with as much man made noise rejection as possible.

The antenna about to be described appeared in the October 1983 edition of 73 Magazine by K9AZG, and therefore I cannot claim any originality for its design. However, it is one good 30 metre antenna, is cheap to build, and as it is fed from the bottom, it is horizontally polarised.

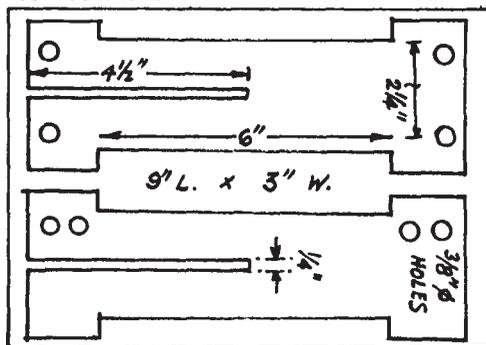


Essentially the antenna is a traditional delta loop, with the delta pointed towards the ground, and the flat top as high as possible between two supports or trees. The main difference in this delta loop is that at the bottom there is an impedance transforming system for balanced to unbalanced conversion so that the delta loop can be fed with coax and still retain a balanced radiation pattern and the highest possible efficiency.

The impedance transforming system consists of a quarter wave length of 75 ohm RG-59/U coaxial cable, wound onto a coil on a home made former, (see diagram), serving also as the feed point insulators and anchor for the feeder.

The construction details are as follows. The coil former can be made from masonite, waterproof plywood or plexiglass of quarter of an inch thick. If it is made from plywood or masonite it can be further weather proofed by spraying or brushing on a coat of polyurethane before assembly. Cut to the dimension shown in the diagram and assemble by sliding one half of the former onto the slot on the other half of the former to form an "X" shaped coil former. Then cut the quarter wave impedance matching transformer to length using the formula  $234/f \times 0.75$ . For my antenna this worked out to  $234/10.125 \times 0.75 = 17\text{ft } 4\text{ins.}$

Weave one end of this RG-59/U into one top hole of the former and out again through the hole directly below. Leave about three inches sticking out for connections. Now close wind the coax onto the former keeping it tight.



You will find that the coax just fits on the former with the dimensions shown, with enough left over for weaving through the bottom pair of holes.

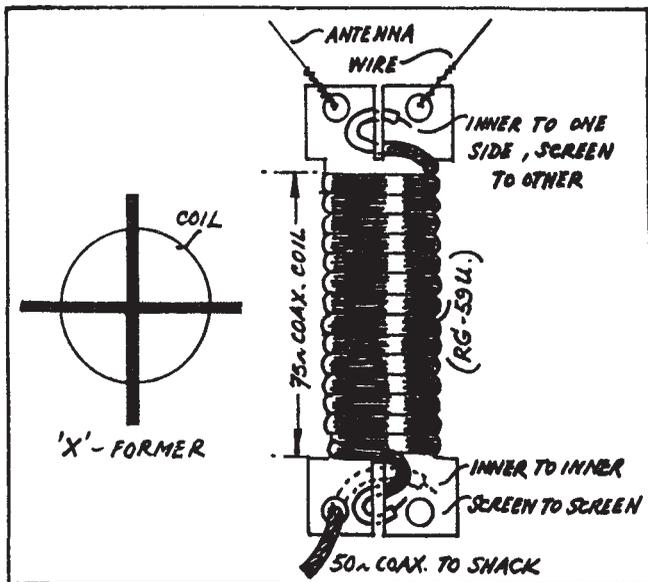
The choice of the antenna wire is left to you. K9AZG used No.14 (U.S.A.) house wire, and I used No.18 copper coated steel wire. Cut the wire to length using  $1005/10.125 = 99\text{ft } 3\text{ins.}$  Fix two insulators onto this wire, one at 33ft lin. and the other at 66ft 2ins. These insulators allow suspending the flat top from two trees or other supports.

Finish your antenna by feeding the apex end wires of the delta loop into the corner holes at one end of the former. Twist each wire around itself to anchor it, strip back 3/4 inch of insulation and solder one wire to the centre conductor of the coax coil and the other wire to the shield.

Lastly, push one end of your 50 ohm feed line, (any length to reach the shack), into one of the corner holes at the bottom end of the coil former. Then through the other hole, pull it tight to anchor it leaving enough to make a connection. Solder the centre wire of the coil and shield to shield. Now tape or cover all the connections with sealer to weatherproof the antenna connections.

Like any other antenna, the higher the better rule applies to this one also, so raise your flat top as high as you possibly can. If you do not like the coil swinging in the breeze, you may tie a small nylon cord to the coil former and the other end to a brick on the ground or to a stake driven into the ground.

Conclusions: As stated by K9AZG in his original article, this antenna has a SWR of 1:1 across the 30 metre band, and I am able to hear many stations that are lost in the noise when trying to use a vertical. For the money invested it has turned out to be an excellent antenna for this exciting band.



TOM, G2BOM : 234

We regret to announce the death of G2BOM, one of the early members of the G QRP Club on April 24th. Tom will be missed by his many radio amateur friends and especially members of the Sutton Coldfield Club. I met Tom several times - he was a *real* radio amateur.

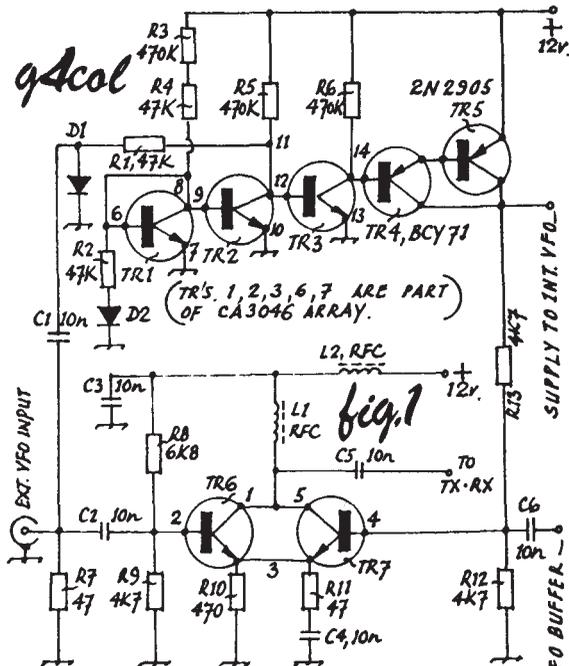
G3RJV

AN AUTOMATIC INTERNAL/EXTERNAL VFO SWITCH

By Ian Braithwaite G4COL

Many small QRP rigs are based on crystal oscillators or VXOs. There are a number of advantages in this approach. Good stability is relatively easy to obtain without undue care in construction. A restricted frequency range means that a large reduction dial is unnecessary, while still allowing coverage of quite a few CW "channels". Since the main frequency determining element is the crystal itself, in most cases, the oscillator winds up on tune straight away without the need for much, if any, test gear. Closely related to stability, microphony and power supply rejection are generally much better than for a non crystal VFO, which can be quite important for portable operation. On the other hand, of course, the narrow coverage can be quite limiting, and one is always curious about what is happening just a bit further along the band.

The circuit to be described allows a rig to be switched between two oscillators, for example from the internal VXO to the external station VFO, which could extend the usefulness of the small QRP rig. The switching is done automatically, that is, the internal VXO is on and buffered by the circuits amplifier until an external signal of sufficient amplitude is applied. The internal oscillator is then switched off, and the buffer amplifier feeds the external signal to the rest of the rig. The circuitry can be fitted on a small board and saves the use of either a front panel switch carrying RF, or the use of a relay and DC switch.



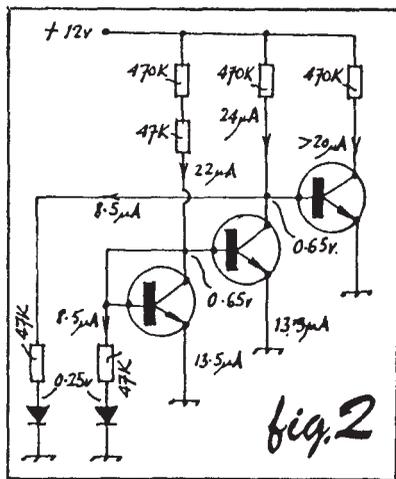
Auto. Int.—Ext.   
 V.F.O. Switch

The unit is built around a 3046 transistor array, and all five matched transistors are used, (TR1,2,3,6 & 7). The circuitry around TR1,2 & 3 is modelled on the input stage of an LM3900 current differencing op-amp. TR1 acts as a diode. R3 and R4 feed this with about 22uA from the 12V supply, of which around 8uA provides forward bias for diode D2. TR2 acts as a current mirror, and its collector current equals that in TR1, (here's where the close matching of the transistors come in). The current supplied by R5 is around 24uA, which is split between TR2 collector, bias for D1, (the actual detector diode), and TR3 base. Fig. 2 gives an approximate idea of where the various currents are flowing, and shows that with no RF applied to the external VFO input, there is a small current available to the base of TR3, which therefore has a correspondingly larger collector current due to its current gain hFE. This collector current is large enough to turn on TR4 & 5, which supply bias to TR7 and current for the internal VXO or VFO. When RF is applied from the external VFO, detector diode D1 conducts on the positive half-cycles. The negative half-cycles cause current to flow through R1, robbing TR3 of its small base current. TR3,4 & 5 all turn off if the RF signal is sufficient. TR7 is now deprived of bias and turns off, ceasing to act as a buffer amplifier for the internal signal. TR6, which had been held off by TR7, now receives proper bias and buffers the externally applied signal, which is fed to the rest of the TX/RX circuitry from the common collector connection of TR6 & 7.

The sensitivity of the detector circuit is determined by a number of factors; the match between D1 and D2, the relative current in R3, R4 and R5, and the transistor current gains. Sensitivity can be adjusted by altering the value of R4. With the values shown the circuitry should switch over with about 200mV RMS at the input. If you try to make the circuit too sensitive you will run the risk of false switching if the temperature changes if the two diodes are not well matched.

The gain of the buffer stages, TR6 and 7, can be changed by adjusting R11. The actual value of gain depends on the load which the transceiver circuitry presents to this stage.

R7 provides a good match to 50 ohms cable supplying the external VFO signal, and should be changed to 75 ohms if this value of cable impedance is preferred.



The circuitry can be built on a board less than 1.25 inches square. I used a small piece of board cut from a "colander" ground plane board, obtainable from Verospeed, (Stansted Rd, Boyatt Wood, Eastleigh, Hants, SO5 4ZY. Tel: 0703.644555). Connections between the pads can be made using thin strands of tinned copper wire extracted from multi stranded PVC covered connecting wire. If insulated connections are required, these can be made using a wiring pen. The use of a ground plane and short leads is generally beneficial when constructing RF circuitry. Decoupling capacitors can be connected to the ground with the minimum of inductance at any point in the circuit, and results are more repeatable when, say, veroboard is used, especially at the higher HF frequencies. I have not tested the circuits frequency response, but I would expect it to be useable up to 30Mhz. An alternative construction would be to build the unit in "ugly" fashion, with all the components above a piece of copper clad board. Those with facilities and enthusiasm can build the circuit on a homebrew PCB. I would recommend keeping a ground plane of copper on one side with the leads taken through clearance holes to pads on the underside.

I hope some of you will construct this, or a similar unit, and that it will help you to make more of that small, simple QRP rig. Best of luck!

**Component List** - the values of the resistors and capacitors are shown in the circuit diagrams.

L1 approx 4uH made by threading 24SWG through FX1898 ferrite beads (6 holes)  
L2 four turns of 24SWG through FX1115 ferrite bead (1 hole)  
TR1,2,3,6 & 7 all part of CA3046 transistor array, (observe pin connections)  
TR4 BCY71 or general purpose PNP transistor  
TR5 2N2905  
D1 & D2 BAR28 Schottky diodes

#### MEMBERS ADS

**FOR SALE** In superb condition, buyer collect. Ten Tec Argonaut 515 with PSU and mike, £175. G3SZW, Bracknell 428475

**AN INVITATION** to Chris and Pam's Summer QRP Party at "Alamosa", Upper Beeding on Saturday 26 July. Everyone is invited from 2.30pm onwards. See page 3 of Sprat 46 for further information, but please let Pam or Chris know on 0903.814594 that you intend going.

**FOR SALE** Telford TC10 MkII 2m TX, AM/FM/SSB/CW, 10w input, vgc, £40. Class D wavemeter, vgc, £7. Home made top band base loaded whip, works well, £5. 70 Cms multi beam, commercial model, £5. Homebrew 160 metres Xtal phasing rig SSB TX, works well, small valve, £10. Codar AT5 TX 160/80, AM/CW, homebrew lash up PSU, works well, £15. All items collected or postage. G4GDR, 39 Barra Close, Highwo0rth, Swindon, Wilts.

**WANTED** Argonaut 515. Dave - G4GLC, 0509.212583.

**FOR SALE** The "BUE" Membership List is still available. A complete listing in call sign order of all members showing Club number and many christian names. Provision is made for a QSO and QSL record to be kept. Price £1.50 (inc. post) or \$3 (airmail) from Chris Page, G4BUE, "Alamosa". The Paddocks, Upper Beeding, Steyning, West Sussex, BN4 3JW.

**WANTED:** PYE WESTMINSTER for conversion onto 2m/70cm. Pref. in Manchester area. Dave Bracken, G1LCX, 50 Central Rd. Withington. Manchester. M20 9ZD.

### THREE WATTS RF OUTPUT

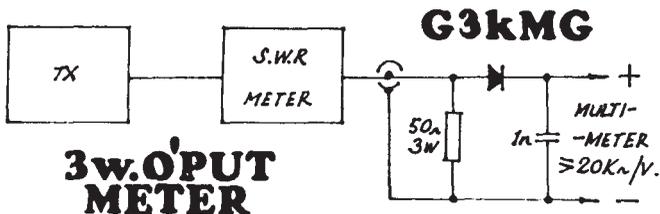
By D. Plumridge G3KMG

The arrival of the summer issue of SPRAT containing George's reminder that in future we must measure power output, coincided with the delivery to the works QTH of a Hewlett Packhard 435B precision power meter. This meter could well have been designed for the keen QRPer, as it measures RF power from 30uW to 3 watts maximum at an accuracy of 1%. (Unfortunately, he would have to be a well heeled QRPer to lay out the necessary flill....!! All this made me wonder just how accurate my amateur radio methods of power measurement are. Now I could find out.

The method I use to calibrate my reflectometer for forward power is to use a simple peak detector circuit feeding a high resistance voltmeter, (20Kohm/volt).

Assuming the transmitter is producing a sine wave, as any properly filtered rig should, then the power in the 50 ohm dummy load is simply  $E^2/100$ . To check the accuracy of this procedure, the transmitter was fed to the Hewlett Packhard power meter with the peak detector bridged across its input. Even though the test frequency was 3.5MHz, RF connections to the detector were kept as short as possible. Removing the detector produced negligible change to the power meter reading, showing it was not loading the circuit.

The results were quite cheering! With a variety of diodes - germanium (GEX54), silicon (1N4148) and hot-carrier (HP2800), the worst power calculated for the 3 watts on the power meter was 2.89 watts. Accuracy figures of between 2% and 4%! Not bad for such a cheap and cheerful method. However, it should be pointed out that the dummy load was a precision device, being part of the power meter, and the old Eagle meter was surprisingly accurate on the 25V range used - it agreed spot on with a professional DVM. But, even with the usual inaccuracies inherent in cheap test meters and home brew dummy loads, an accuracy of 10% should be achievable by the average QRPer, which is quite acceptable. I'm sure the QRP authorities would agree.



#### LATH NOTES ON THE FISHIN' BOX RIG (SPRAT 46)

- 1) The resistor between the intermediate buffer and the second buffer is 4.7K (omitted)
- 2) Increasing the gate resistor in the receiver detector to 2M improves the sensitivitiy by about 6dB.
- 3) A new and better transistor in the final amp. results in 3 to 5 watts output (the 4427 specified should give greater than 1 watt)
- 4) Lifting the gate lead off the tap (receiver det.) and onto the hot end of the tuned circuit also improves signal strength.

Rock, W9SCH.

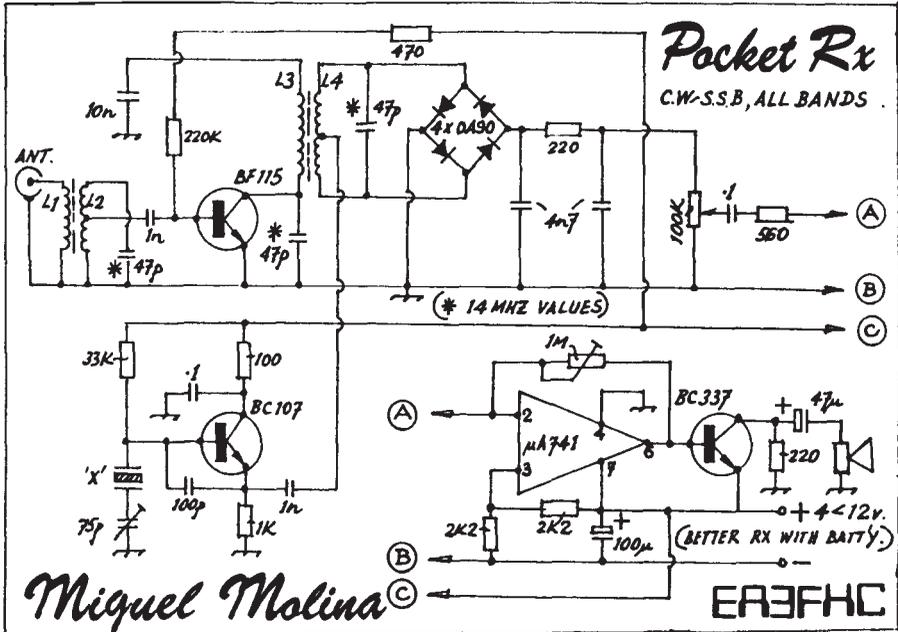
## THE POCKET RECEIVER

By Mike Molina EA3FHC

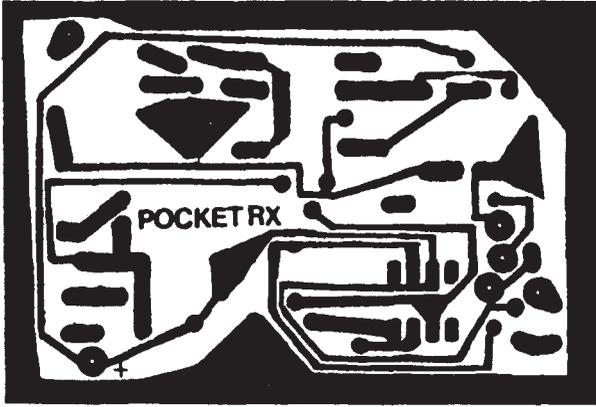
Having built the OXO transmitter, and others, I decided to add a receiver to it to convert it into a transceiver, so this little receiver was born. I used it in company with the OXO, so you will see that the VXO oscillator is the same as the OXO uses. However, you may use a VFO or other little oscillators.

I built the receiver in less than an hour, and have heard all of Europe, including some members with it. The main advantage is that you can use it with little batteries, so it may be part of an interesting transceiver for field day. I built it just for 14MHz, but I have included the values of the resonance circuits for other bands.

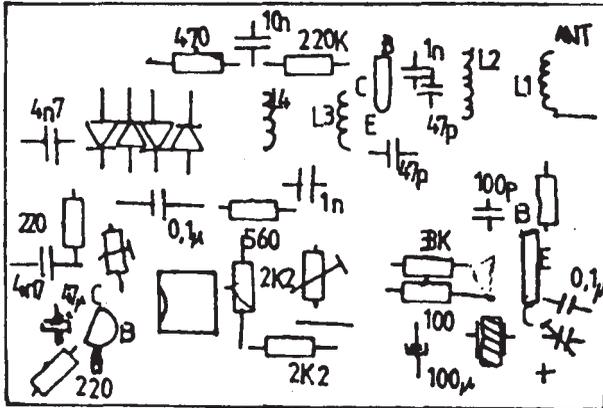
	3.5MHz	7MHz	10Hz	14MHz	21MHz	
*Cap.	150pF	100pF	100pF	47pF	33pF	
L1	11	6	4	3	2	turns 22SWG
L2/L3/L4	60	35	24	17	11	on T50-2



PRINTED CIRCUIT BOARD:



COMPONENT LAYOUT (TOP):



## THE ORIGIN OF QRM ?

Arthur, G4HLJ recently came across the following extract from a story written about 1916, (from the first publication, so it may well have been written prior to that).

"I am told there is a unique secret by means of which a wireless message from the British Navy can be transmitted to the Admiralty Office without risk of interception. At the Admiralty, a superlatively sensitive and superlatively secret instrument is most carefully attuned to the instrument of the battleship from which the message is expected. Then, when all is ready, every wireless operator in the Grand Fleet pulls out all the stops and bangs on all the keys of his instrument, and the inevitable result is the creation of a din that is almost deafening to all listeners a ordinary receivers. But through the crash and the tumult the specially delicate instrument at the Admiralty Office can distinctly hear its mate, and the priceless syllables penetrate the thunder of senseless sound without the slightest loss or leakage."

Arthur wonders whether he has stumbled across the origins of QRM! How about that phrase....the priceless syllables penetrate the thunder of senseless sound.....? Before we get letters from the "Anti-Contest Brigade", we ought to point out that we accept that the writer's description could refer to 0001GMT on the Friday/Saturday of the last week-end in October and November, when the CQ WW SSB and CW Contests start!!

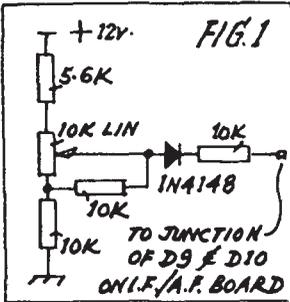


COMING DEAR, JUST A LAST CQ!

# RF GAIN CONTROL FOR THE ARGOSY

By Jim Lyon VE2KN

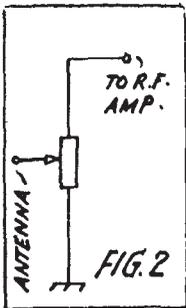
An RF gain control is a useful addition to the Ten-Tec Argosy, especially for 40 metres. The following circuit is a modification of one suggested by Ten-Tec. Some experimenting may be necessary to get a smooth control of gain.



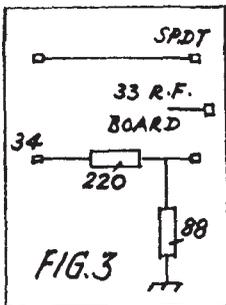
The variable control is a twin RF/AF gain control with concentric shafts, and there is room to fit it in place of the existing AF control. It would be wise to experiment with the circuit in a "breadboard" fashion before making a permanent installation as the values of the fixed resistors are critical and may vary from one installation to another.

1. Remove the top cover.
2. Attach the circuit shown using jumpers. The 12 volts can be taken from the dial lamp socket and ground attached to any point on the chassis. Connection to the junction of D9 and D10 on the IF/AF board is best made with a small clip, such as the Radio Shack, (Tandy), number 270-370.
3. Adjust the values of all the fixed resistors to get the smoothest gain. This will be found to be at a point where there is about half an 'S' point reduction in gain when the variable resistor is at its maximum gain position. Slight adjustment of the resistor values can be obtained by placing a larger value fixed resistor in parallel - experiment.
4. Be sure to check the action on all the bands. The best combination of resistors is a compromise and seems to depend on the band and on the supply voltage.
5. If you find a satisfactory arrangement and decide to fit it permanently, be careful when fitting the control underneath the chassis, so as not to short the connection to the "drive" control which is adjacent. The fixed resistors can be mounted "in line" on the connecting leads between the control and the dial light socket, or the junction of D9 and D10.

An alternative form of "RF gain" is the variable attenuator as used on the HW8. On the whole I think this is a better approach.



Yet another possibility for reducing gain in the presence of strong signals is the installation of an attenuator. The circuit shown was supplied by Ten-Tec, and I installed it successfully in the rear panel of my Argosy, just above the "Hi/Lo" power switch. I use a Radio Shack, (Tandy), switch number 275-625, and mounted it so that the lever movement was horizontal. It is just below the level of the top cover and easy to find when I place my hand over the rear right hand corner of the Argosy. On my set, the coaxial cable that went from connector 34 to connector 33 was just long enough, so I could cut it and connect the switch. The small quarter watt resistors were mounted on the switch.



While we are talking about the Argosy, let me mention a bit from the "Hints and Kinks" column in the November 1983 edition of QST. Reducing the value of the 33mF capacitor in the base of Q4 on the IF/AF board decreases the AGC recovery time and improves QSK. The new value can be 5mF or 10mF, depending on how fast you want the recovery to be. I have fitted a 10mF capacitor and I find it good for CW, but perhaps a shade fast for SSB. Perhaps Ten-Tec didn't do too bad a job on the compromise. With 10mF, it is possible to catch a break-in between dots at 20 w.p.m. If one uses CW exclusively, I think that 5mF would be even better, but it would definitely be much too short for SSB.

## A REPORT ON THE HOWES CTX80 KIT

By Colin Turner G3VTT

I recently had the chance to build up the Howes 80m QRP transmitter kit, which had recently joined the Howes kit range. Up until now Howes have not included the transmitter in their kit range, only receivers, a speech processor and a range of test equipment items.

The kit, priced at £12.95 plus 60p post and packing, is a small transistor transmitter with an output of around 5 or 6 watts. It comes supplied with a crystal on the frequency of 3.579KHz which is used on many clocks, and is the U.S. sub-carrier frequency. This particular channel is clear during the daylight hours, but very busy with RTTY traffic at night. Howes have fitted three crystal positions which allow for two other channels to be fitted. The crystal type is HC180, and I would recommend 3.560 and another lower frequency are fitted.

The transmitter is an improvement from the circuit standpoint over the normal run of the mill transmitters we see for QRP operation with crystal control. The circuit is an oscillator feeding a buffer stage, then a driver with an adjustable control for drive, and then the PA which is a BD135.

RF output, checked on a Marconi wattmeter, was 6 watts output with the series PA protection resistor shorted, and a supply rail of 13.8 volts. The series resistor can be shorted to give high RF output, but this is not recommended by Howes due to PA transistor heating.

With a lower supply rail the output was 3.75 watts, this rail was 12 volts, with a 10 volt supply rail the output was 2 watts. All these power outputs could be reduced to zero by the adjustment of the drive control, a 470 ohm pot in the emitter of the buffer transistor.

VXO operation could be tried by fitting a capacitor in series with the crystal switch leads, but I think VXO range would be reduced due to the extra lead capacity.

The components supplied with the kit are of good quality, as is the PCB. The instructions, although not in sequence, gave enough information to complete the kit without any trouble. The instructions are "chatty" and give an interesting method of winding the oscillator coil on its former. Components are put into their respective places on the PCB after finding the correct values on the chart.

It is recommended by Howes that the coils are assembled first. I would agree with this, although it is not necessary to remove the insulation from the enamelled wire with a sharp knife as suggested in the kit instructions, the wire is self fluxing and enough heat with normal solder will tin it well.

After completion the kit was tried on a dummy load to give the power figures shown above. The keying is excellent, although it will not be possible to install any form of breakin 'QSK' keying, as the keying point is the emitter of the driver stage. When the key is 'up', a note can still be heard in the receiver.

As a normal crystal controlled transmitter this is an excellent kit, and I would suggest it is a very good way to start out with QRP, particularly if you already have a good receiver.

With an RF output of up to 5 watts or so there will be plenty of contacts, particularly if you get extra crystals on the more useful and popular channels.

The kit is available from C.M. Howes Communications of 139 Highview, Vigo, Meopham, Kent, DA13 0UT at £12.95, plus 60p post and packing.

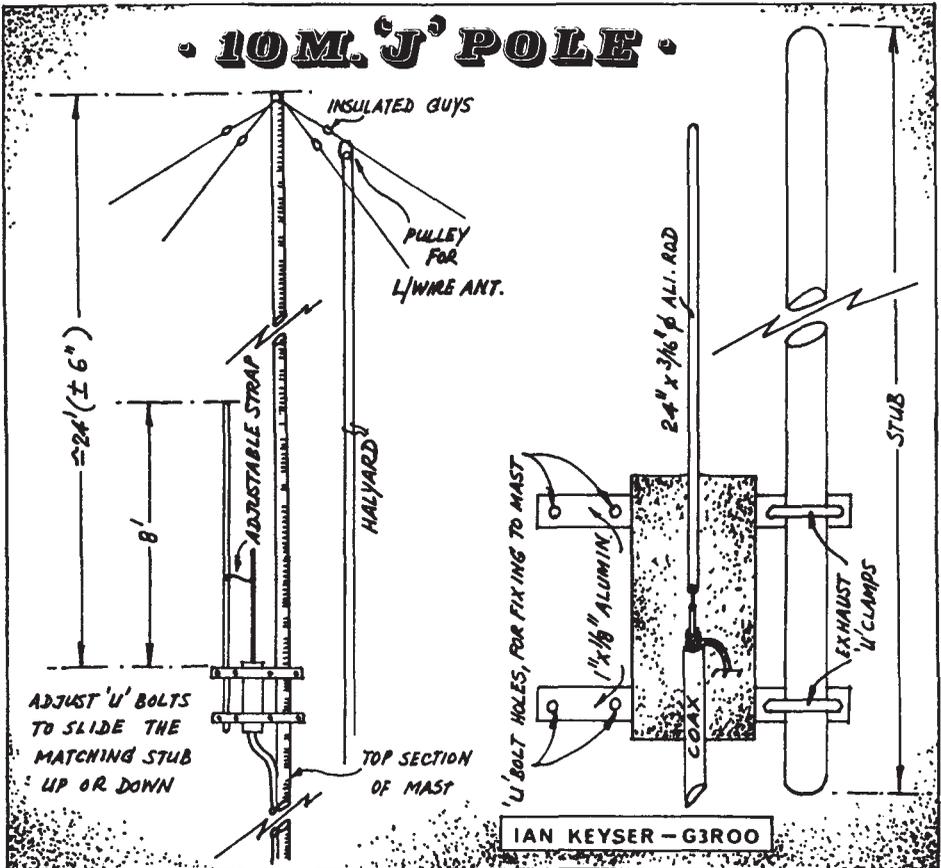
10 METRE J POLE  
IAN KEYSER G3ROO

Having seen G3ZIA's J Pole in SPRAT No. 41, I thought that my J Pole for 10 metres FM might be of interest. It is built on the top section of the 40 feet mast holding up the long wire aerial, and the only complication is that the guy wires must be insulated using egg insulators.

For those who have not worked out the principle of the J pole, there is no mystery about it. The top half wavelength of the main pole acts as a half wave radiator, and the bottom quarter wavelength acts, with the other parallel quarter wavelength, as a quarter wave transmission line. This is used to transform the low impedance of the coax to the high impedance feedpoint of the radiator. The thin rod up the centre taps onto the transmission line to provide matching.

An alternative system, and better in fact, is to use a 4:1 coax balun, and tap this up both sides of the transmission line.

It is really surprising how much better signals from mobile stations are on the simple aerial against the station beam.



## G QRP CLUB CONSTRUCTION CONTEST

### A COMPETITION FOR CLUB MEMBERS FOR THE 50th ISSUE OF SPRAT

Next year will bring the 50th issue of our club journal SPRAT. Over the years SPRAT has come to be known for the quality of its articles on home construction of amateur radio equipment.

To herald the 50th issue, the club is inviting members to enter an **OPBN CONSTRUCTION CONTEST**. Like most of our ventures, the approach is informal - there are few rules:

- 1) Submit articles for constructional projects suitable to the nature of the G QRP Club.
- 2) The items should be complete projects, not just circuit hints and ideas, but the projects can be large or small, sophisticated or simple.
- 3) The work should be "original" in that it must not be a pure copy of another article, although ideas from other sources may be incorporated.

You do not have to be a technical author, all we require are circuits diagram, clearly marked with component values and notes about the project - a full component list also helps.

SEND YOUR ENTRIES AS SOON AS POSSIBLE TO G3RJV.

TWO PRIZES WILL BE AWARDED IN THE FORM OF **KEEPSAKE TROPHIES**, FOR:

- 1) The Best Overall Entry published in SPRAT.
- 2) The Best Entry from a member without previously published material in SPRAT.

\*\*\*\*\*  
WHY NOT ENTER A 50MHZ PROJECT FOR SPRAT 50 ?  
\*\*\*\*\*

### COMPETITION WINNERS

#### THE G QRP CLUB SUITCASE RIG COMPETITION

produced several interesting designs which have been published in SPRAT.

We are pleased to announce the winners as follows;

Class 1 (Transceiver) THE TSC Mk1, Mike Michaels, W3TS SPRAT 42

Class 1 (Receiver) THE FAG BOXO, Chris Page, G4BUE SPRAT 45

Both winner will receive a keepsake plaque - WELL DONE

### THE ONER PROJECT

The Little ONER transmitter has been a great success, two large batches of kits have been sold and plenty of ONER signals are appearing on the air. It is the ideal project for the complete beginner to QRP

construction. This role for the ONER was spotted by member Ty Nicholson who has kindly donated to the club the money to produce 50 ONER Kits for us to give away. The kits are...

To promote and/or introduce QRP operations to new stations or stations previously engaging in QRO working.

Ty has funded the kits and the club is to fund the postage to send free ONER kits to radio amateurs nominated by club members. Members are invited to submit nominations to G3RJV of the following classes:

- 1) Radio Amateurs overseas who may have an interest in QRP or have difficulties in obtaining components for homebuilt projects.
- 2) Radio Amateurs in the UK who may have a possible interest in QRP and the club which the ONER kit would encourage.

REMEMBER: The idea is to foster interest in QRP amongst those not currently active on QRP. Please give reasons for your nomination. Not doubt there will be more nominations than available kits and limited time will not make it possible for replies to letters nor to write to say the nomination is accepted. The Kits will be sent with a greeting from the club, an application form and the name/call of the nominator.

We hope to use this kind offer from Ty to promote QRP operation and the G QRP CLUB to fellow radio amateurs.

## COMMUNICATION AND AWARDS NEWS

By Gus Taylor G8PG, 37 Pickerill Rd, Greasby, Merseyside, L49 3ND

**DIFFICULT LOCATIONS WEEK 4-12 OCTOBER 1986** For those members in difficult British Isles locations, namely all west coast counties in Ireland and all of Scotland, north of Aberdeen. They are asked to call "CQ QRP UK" on 3.5 and 7MHz at all suitable times during the period. Will other UK members listen for such calls and reply to them; do not call CQ yourself. Difficult location stations please spread out a bit above/below 3560/7030, and also use 3570 if necessary.

**QRP SUMMER RAMBLE 14-22 JUNE - FINAL REMINDER** Do not forget this event. Full details in Sprat 46.

**WINTER SPORTS POSTSCRIPT - GM TO VU ON TWO-WAY QRP** During the Sports, GM4HBG, using an Oner, worked a VU station who was using an OXO. This was on 14060. Who says conditions are bad! A couple of weeks later, GM4HBG worked VK, VE and W in the space of an hour on 3.5MHz.

**400 UP FOR GEORGE!** Congratulations to George, GM30XX on being the first person to be granted a 400 member endorsement to his Worked G-QRP-Club Award. Nice going.

**NEW QRP MASTER** Congratulations to G3VXJ on becoming QRP Master Number 35. Well done!

**AWARDS NEWS** Congratulations to the following members:

**QRP WAC** G3VXJ; GM4UYE

**QRP Countries** 75 G3VXJ; 25 G3ZPN, G4XYX, GM4UYE

**Worked G-QRP-Club** 400 GM30XX; 320 G4JFN; 300 G4BUE; 200 G8PG; 180 G3DNF; 100 G3BFR; 80 G4VGA; 60 G4ELZ, GM4YLN, G3VXJ; 40 G4SXE; 20 G4BCY, G4XYX, G4XVE, G4NVF

**Two-Way QRP** 40 G4BUE; 30 G4JFN; 20 G3VXJ; 10 G4ELZ, GM4UYE, G4XYX, GM4YLN

**AN APOLOGY TO SM7KWE** In our last issue his QRP Master Award was shown as SM7KWR

**CZECH-UK LOW POWER RADIO TESTS - 1/2 FEBRUARY 1986** Many members may have already reports of these tests in various UK radio magazines; these reports provided excellent publicity for QRP in general and our Club in particular. The object of the tests was to provide an opportunity for the rapidly growing QRP group in Czechoslovakia to test equipment over the path to the UK. Operating periods, selected by OK1DKW. the Czech organiser, covered all bands 21 to 1.8MHz. The UK end was organised by G8PG with G3BFR, G3DNF, G3XJS, G4EBO, G4FAI, G4JFN, GM3KPD, GM30XX, GM3RKO, G4HBG and GM4YLN also participating.

### AGCW - DL SUMMER QRP CONTEST

The above contest is being held on 19 July 1986 and the rules are the same as in previous years. They can be obtained from back issues of Sprat or from G3RJV for a SAE

**THE JOY OF QRP by WORSP is now available from RSGB Sales.**

PROPOGATION NOTES

**Sporadic E Operation from Spain on 28MHz During 1985**

By Miguel Molina EA3FHC

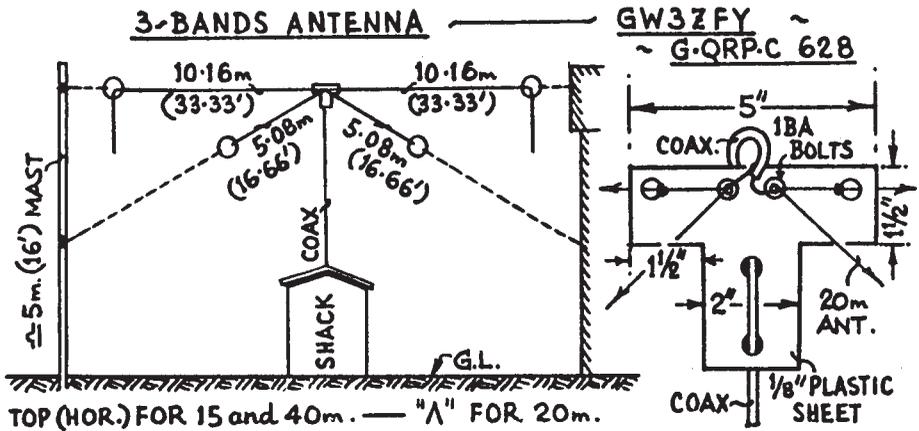
I operate on 28MHz from Barcelona mainly using a converted CB rig running 1w of CW and 3w PEP of SSB; an FM rig is also available. My antenna is a simple ground plane. Mode percentages for the Sporadic E contacts were 75% CW, 35 QSOs on FM, and the remainder on SSB. Threequarters of the contacts were obtained by answering CQ calls. This study covers the period of May to July 1985, as I was on holiday during August. There were some openings during April, September and October, but they are much more rare in those months. Low power presents no problem during these openings. The worst report received was 569, but many reports were S9+. Portable operation was also very successful, allowing me to enjoy QRP in the sun.

A summary of results is as follows. During the three month period, I made a total of 727 Sporadic E contacts. May proved to be the best month, with the band open for Es on 25 days, and 373 contacts made. The earliest the band opened was 0800 GMT on 1st May, and the latest it stayed open to was 1850 on 13th May. Best days were 12th May (58 QSOs) and 25th May (79 QSOs). June was almost as good with the band open on 23 days, though activity was less with only 203 QSOs. The earliest band opening was 0730 on the 16th, and the latest close 2000 on the 9th. Best days for QSOs were the 23nd (Field Day) with 75, and the 16th with 22. During July the band was open on 13 days. The earliest opening was 0800 on the 7th, and the latest close 1930 on the 16th. Best days for QSOs were the 13th (90 QSOs) and the 5th (16 QSOs).

The best paths were to the UK, Netherlands and Germany, 55% of all contacts being with those countries.

During periods of low Sporadic E activity I have noted further openings when there are sudden changes in atmospheric pressure. So far I have recorded ten such openings recently. At the time of writing, (March 1986), the paths open from Spain on 28MHz are to Africa and Asia, and I have worked C53, D68, OD5, ZS, 5H3 and J28 recently.

Of my Sporadic E contacts, only 10 were with QRP stations, so I hope my report will encourage others to try the band. My 28MHz QSO total for the whole of 1985 was 1135 - not bad for a "dead" band.



## VHF NEWS

By John Beech G8SEQ, 14 Hollow Crescent, Radford, Coventry, CV6 1NT  
(Tel: 0203 598186)

It seems almost last week that I was at the NEC chatting to old and new QRP friends. Time has flown by and I still haven't done the work I was hoping to do construction wise, so I've held over the 50MHz TX and 6, 4 and 2 metre FM RX. The schematics are ready for the latter, but I was hoping to do a PCB layout too for this one. So instead, this quarter's construction is from the antipodes.

I get asked from time to time about awards and contests for VHF. Personally I'm not an awards person, I get enough satisfaction out of working the occasional DX station using low power, but what's low power? A 3 watt PEP TX working into an 8 element beam could give an ERP of 30 watts.

What I propose is that we have a VHF activity weekend on Sunday 3rd August 1986, 0600 start to 1800 BST finish on any VHF band and any mode. I will award a small prize for the station with the most club members worked in two way QRP and for the best DX during the period. Fixed or portable operation. Remember also the PW and the RSGB 144MHz Low Power Contests on 26th July, (also 20 and 27th July for other bands - see Rad Com January 1986, page 50).

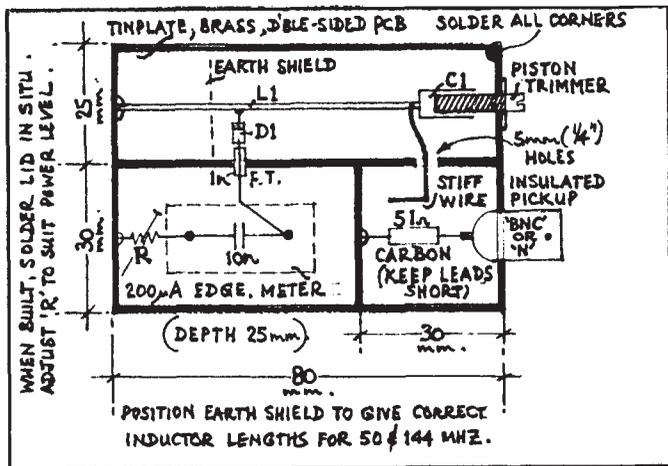
### A DUMMY LOAD WITH SELECTIVE POWER INDICATOR FOR THE VHF BANDS

From down under Mike, ZL1ABS, aided and abetted by Mike ZL0AEH (WA6TBQ), have sent this interesting little circuit for measuring relative power at a specific frequency.

The power is absorbed by the dummy load resistor, but part of it is captively coupled to the tuned circuit, (effectively a wavemeter. A tapping off this tuned circuit is used to drive a meter via a detector diode.

The gadget is a useful aid when tuning transmitters, as it prevents tuning up the unwanted harmonics - no doubt the idea could also be extended down to the HF bands with greater coupling to the dummy load.

The device needs to be peaked up on a known transmitter in the centre portion of the band you are interested in, and the meter calibrated for relative power at that frequency. With a sensitive meter, (100uA or 200uA), and a low value of R in series with the meter, the unit is capable of measuring very low powers, i.e. tens of milliwatts.



## SSB NEWS

By Ian Keyser G3ROO

"Rosemount". Church Whitefield, Dver, Kenty, CT16 3HZ. Tel: 0304 821588

Many thanks for the letters wishing me a speedy recovery, but they contained very little news of what is happening in the various shacks.

The highlight of the quarter was the NEC Exhibition. A last minute change of plan enabled me to join the others for a fantastic week-end. Many thanks to Norman, G4LQF for opening up his house to us, and I hope that by now he has managed to tidy up after our departure!

The stand at the NEC was well patronised by members and we managed to enrol many more. My wish was that I had taken some notes so that I could pass on some of the snippets, but being the disorganised person that I am, I failed miserably.

The MLX PCB attracted considerable interest and many were ordered. This will be a very cheap method of getting onto SSB on one band, and eventually I am hoping to produce a PCB to use it on all bands. For £25.40 it's a snip!

I had a very interesting chat with one member about kitebourn aerials, but cannot now remember who it was. I think that there is a lot of interest in portable operation and the kite as a sky hook is ideal....how about an article for SPRAT?

I have received a letter from Joe, G3DDI, who I am not sure if he is a member or not. He refers to SPRAT articles but did not give his club number. He has been experimenting with ladder filters for some time, and is having considerable success, perhaps this will be the subject of a future article for SPRAT.

## RADIO TELEGRAPHY VERY HIGH SPEED CLUB

25 Years Radio Telegraphy Very High Speed Club VHSC

On 1st May 1986 it is 25 years ago that VHSC has been founded! On occasion of this event, and also to honour the good ham relations between VHSC members and the many other friends of radio telegraphy, VHSC offers the VHSC JUBILEE AWARD, VHSCJA. Owners of the VHSCJA are nominated as FRIEND OF VHSC.

The VHSCJA may be gained by all licensed hams and SWLs who made (heard) QSOs with VHSC members during the period from 1.5.86 to 31.12.87. One needs at least 25 points. A QSO with a VHSC member in ones own (DXCC) country gives 2 points, a QSO with a VHSC member in Europe (not in own country) makes 4 points and a QSO with a DX VHSC member (outside own continent) 6 points. Each VHSC member counts only once, CW only. Applications for VHSCJA, (no QSLs, a log extract only, checked and signed by 2 licensed amateurs) go, with a fee of 5 IRC, or equivalent to PAODIN.

A list of VHSC members is available from G3RJV for a SAE.

## MEMBERS ADS

**WANTED:** Home-brew CW rig for all bands, whether in kit or finished, but it must have about 3 watts and be an economical price. EA8MQ, Juan Rodriguez Marrero, Luis Doreste Silva 24-6-2, 35004 Las Palmas, Canary Is.

**FOR SALE:** 80m QRP TCVR based on Howes modules. VFO, RIT, break-in, side-tone in professional case. Complete with separate PSU and Howes ATU - £45. Bob Rylatt, G3VXJ, QTHR or Tel: 090671 3614.



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

As a result of your voting on the experimental smaller type face, I have gone back to the normal size. Voting was about three to one against, but George has been kind and given me an extra page for this edition, so I guess that's a good compromise. Thanks for all your letters and comments. Last word on the small print goes to W5QJM. Fred is a journalist in Austin, TX and refers to the small print as Nanotype or at least micromicrotype or uuT! This is a good time to remind you that due to the large volume of mail I receive I cannot acknowledge your letters other than through this column, unless of course you want some information, etc.

The NEC was a another huge success for the Club, and it was great to meet so many of you at the Club stand. 47 new members joined us, so there is still plenty of new interest in QRP in the UK. G4LQF did a splendid job in opening his QTH to us and I'm pleased to report the advice given to Norman regarding his antenna has paid off, as he is reporting much better results with it.

Two weeks after the NEC I went to the USA. I started my trip with Wes Hayward, W7ZOI in Portland, Oregon. Wes is very well known in the UK as co-author of Solid State Design for the Radio Amateur. He is also well known for his backpacking exploits and /P activity in the Oregon mountains. Due to snow still on the mountains we went up the Columbia River Gorge, and operated /P from a picnic site on the Washington side of the river with an inverted vee up 25 feet in the pine trees. We christened Wes's new 40m TCVR with several W6 QSOs, about 500 miles away, and I had a W6 QSO with my OXO. A visit to see W7EL, and the following day to see N7FKI, who showed me his 7MHz handheld TCVR, complete with antenna, PSU and key built around a single FET, and then it was time to leave. I cannot explain the feeling of working /P on the Wash/Ore border with W7ZOI, save to say it will remain one of the magic moments of amateur radio for me.

Then followed Southern California for the W6 DX Convention, and the stories of those big amplifiers! I saw the rotary 36 element 14MHz array at W6KPC and then to Ohio for the Dayton Hamvention. I met up with the ARCI QRP gang, and found QRP is very much alive in the USA, despite the bad band conditions. We had taken over the top floor of one of the downtown hotels and for three days ate, drank and spoke QRP. There were QRPers from all call areas there and I lost count of all the G-QRP-Club members I met. The ARCI gang ask me to pass on regards to their friends in the UK, and to say you will be made very welcome if you can join them over there one year. They are already planning for 1987. Dayton gets bigger every year, but I did manage to get round all the 1650 stands in the flea market this year, in 92 degrees of sunshine! We had a QRP Banquet on the Friday evening and made quite a name for ourselves by going to the "hottest spot in town", found by W6SKQ. We had a table for 30 right in front of the stage at Jays in Dayton, and W1FMR summed it up by saying "This must be good place, there's even a phone in the men's room!". The hospitality suite went on very late Saturday night, and on Sunday morning the QRP Forum lasted over two and half hours.

After Dayton I went down to Kentucky to stay with my good friend N4AR again. Bill and his friends are the perfect hosts, which together with the Kentucky weather and countryside and Bill's 9 towers, is the closest that a QRPer from the UK is going to get to heaven! Bill is a homebrewer of antennas and those of you who come to "Alamosa" for the July QRP Party can see some slides of what he has done. The final week-end saw me at the FOC

Dinner in Danbury, CT and then home. Amongst my luggage coming home were 80 MLX boards for the Club which I had collected at Dayton. I was a little worried they may have sent the security checking devices at the airport barmy, but all was well. Another great trip to convince me what a great hobby amateur radio is and what wonderful friendships we make through it.

Still on the social scene the Yeovil QRP Convention has been cancelled this year. The next one will be in 1987, earlier in the year to avoid the RSGB HF Convention. More details nearer the time. Many thanks to those of you who wrote with information about RF and cardiac pacemakers requested in the last Members News. I have passed your letters onto Jesse, G4GOF.

Despite the fact we are at the bottom of the sunspot cycle, members are still getting amongst the DX and doing great things with QRP. G4MEW kept a daily sked with a W4 over a two week period in February and also worked member WB3JJK. Charles also worked ZS, DU and YB on 15m. GW3ATM has been giving 50MHz a try with 500mW. Doug worked into Northern England during the aurora of 8/2. Udo, DL1HCU has now worked the USA on 20m with his magnetic loop antenna (80cms dia.), on his balcony.

80m seems to have been the most popular band this Spring, and as G3NKS commented the Oner the most popular rig. G4OKN says there has been lots of activity around 3560, but Roy has had a lot of local QRN due to being surrounded by DIY fanatics! GM3KPD worked YU3BH followed by an OK with his Oner, and G4ABV worked a YU station for the first QSO with his. G4YGX has built a variation of the Oner with four switched crystals for 80-20m. KM0Y, who I met at Dayton, has what is probably the first Oner in Nebraska, Brian is waiting for crystals. G4WZV says his wife Ida, G4ZGJ has built a Oner, but is postponing the building of a RX until she has got her exams out of the way, (flower arranging exams says Dave!). G3PDL has also been having lots of fun with his Oner, and is turning it into a Twoer with a VFO! Whilst Pete was building his new TCVR he got into QSO with HA5JI and kept removing stages whilst maintaining contact. He finished up using 1mW direct from the mixer!! SM7KWE has just erected a 80m antenna and will be on the band for the first time with his new IC735.

G4SLS says he is having a whale of a time on 80m with his homebrew TCVR, Frank having ditched his QRO rig! G3XJS reports good news and bad news. Peter switched on 80m one day to find S8 RF noise being radiated from overhead power lines, making it impossible to work QRP. Suddenly it went as quick as it had come, and the local Electricity Board are as puzzled as Peter is. Peter is building the G3OGQ TCVR and would like to compare notes with other members who are/have built it. G4NNJ tells me he has built the G3OGQ TCVR and finds the RX superb. Alan says he has had some problems with the 3w PA - no doubt Peter would like to hear more about it Alan.

The Howes kits are also proving popular amongst members. G0CMW has worked 23 DXCC in Europe on 80m with his. John answered W1CFZ's CQ call on 80m and was surprised with a QSO. He was even more suprised a few days later when Russ sent his metal call sign car number plate via airmail to confirm the QSO. G4YZO's best QSO with his is a Y75 in Halle, East Germany. GMOBCA is also using a C7X80 whilst trying to improve his CW. David is hoping to erect a half size G5RV soon. G4RSR is another Howes fan, Dave using a G2DYM dipole. G3OEP has a Howes TX for 7MHz but says it is no better than his STX. Dave also says "No rig is as exciting as one you entirely construct yourself on the kitchen table". Very true. Dave is also working /M QRP with a Century 22. G4NBI has built the HC220 converter and is using it with his FT290. Les is very pleased with it and will use it as G4NBI/5B4 between 6th and 20th August.

G4KRN is to become GJ4KRN. Alan promises to be active on all bands with homebrew QRP gear. G3VXJ will be in GU for the first half of August and will be on 80 and 20m during the evenings. G4MIJ, G3GUV and G4VJR formed a QRP construction group in the Darlington area last Autumn. They build on a 2m net on Sunday mornings and began with a 80m VFO DC TCVR and are now starting a 10MHz VFO. Rod says there are six 80m rigs and two receivers completed and if you work a QRP station in the Darlington area it's almost

certain you will work one of these rigs. G3PDL, G3IGU and G3YCC had a Club QRP stand at the recent Humberside Radio Rendez-vous which went well.

G4YUA has built the Omega and has worked EI and GI with it. Martin uses a top loaded wire antenna in his loft. New member G3JNB christened his 20m Oner with a QSO with UZ6AYG in the Black Sea. Victor says "Meeting members of the G-QRP on the calling channel really is a pleasure and just like the comradeship of the original QRP Society so many years ago." Victor is referring to The QRP Society which flourished in the 1950s in the UK and will be remembered by several members.

G3DNF reports on the RSGB LP Contest in April. Gordon says that 40m is like a new band to him as he can now hear QRP signals that had previously been masked by TV line QRM from a neighbour. The offender has now moved. G4KTG has just returned to QRPing after being QRO (8/10w). Harry says he seems to make just as many QSOs and "Such a nice class of people".....

EA3FHC sends a further report on his 28MHz activities. Mike reminds members he is QRV 12/1400z on 28060. He worked a VE1 with his Fag Box(o) at 250mw and with the 1w rig has found lots of DX including D68, XT2 and 5H3. He also made a two-way QRP contact with a ZC4. Mike is also QRV in the contests, being one of the operators at the EA3MM multi-single station. G3BOK has had several QSOs with Mike on 28MHz during the last year and Bill says his 2w is "quite remarkable when the band is open". Gus, G8PG is spending May on 10m investigating Es. He has also worked Mike a couple of times, but says the QSB can be a problem. KH6CP has been working VK/ZL stations on 10m. Zack mentions a good JA pile-up in the WPX SSB Contest. GMOBZF is another member who has been working 10m, albeit SSB. Dave sends his log showing his first QRP QSOs, with contacts round Europe on 80m and a W1 on 20m. He uses an 80m delta loop and a GP for 10m.

G4IKR intends building a "truly /P TCVR" into a cassette storage case, with space for a lightweight antenna and headphones. Dave says to look for him /P from the Cornish "mountains". GM4JMU has a new /P rig based on a W7ZOI design. Ken is using a MRF8004 PA and on the receive side has a CA3046 transistor array as a balanced mixer to two stages of AF amp. He also mentions having to replace the diodes in the SWR bridge of his 509 Argonaut with hot carrier diodes. I had the same problem recently, and it appears to be a common fault on the 509 Argonaut. Ken also says he replaced the final transistors in his Argonaut with a pair of 2N3553s with total success. ON4KAR is building an ATU inside his HW9 and GM3MXN says he has got the "usual VFO drift problem" with his. G2HLU has just worked his first USA station on 10MHz with his new Micron, Harold then went on to work 13 States, VE2 and VO1 in the ARRL CW Contest. G3ZPN has also built a Micron and has been on all bands except 10m. Best QSO is W8VSK who was running 3w. GI4CBG mentions a couple of Club get togethers in Belfast with 12 attending the November meeting and 6 in February. Further meetings are planned so get in touch with Roy if you are going to Belfast. G4MLI would like to see the Club offer more kits like the Oner. It takes a lot of work Brian - any volunteers? Brian uses an Argonaut 515 for his main rig and would like a circuit of a 10/20w linear for those "difficult" occasions.

W5QJM is building a new 5w TX for 30m. Fred has been trying out a full wave delta loop for 40m which he is feeding with 450 ohm 'line and a tuner. He feeds it in a bottom corner and finds it better and quieter than his G5RV. GW4JMN is also building a new QRP TX. Mike has sold all his QRO black boxes, and during the winter has renovated an Eddystone receiver. G4WZV, G3PDL, G4OQQ and G4ZMH are building a revised version of the WB4VVF accu keyer with six memories. G4ILR says he is 100% valves and has designed a 4w QRP rig for 80 with VFO around a single valve.

That clears the news, except to remind you of the QRP Party here on 26 July. Let me know how your summer goes, by 20 August please.



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