

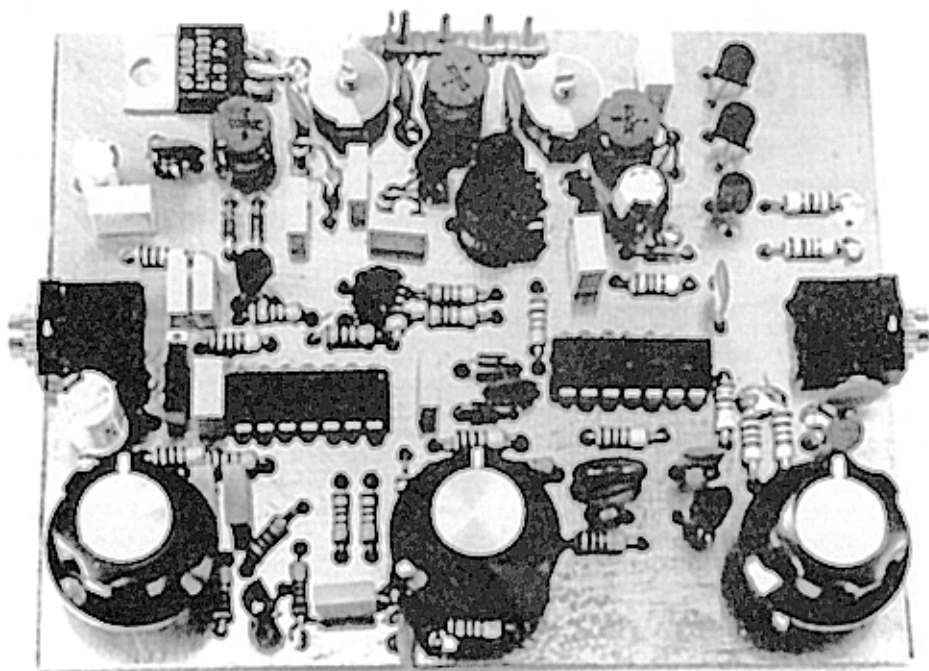


# SPRAT

THE JOURNAL OF THE G-QRP CLUB

DEVOTED•TO•LOW•POWER•COMMUNICATION

ISSUE NR. 96 © G-QRP CLUB AUTUMN 1998



**THE SPARKFORD 80M CW TRANSCEIVER**  
By G3PCJ - With Special Club Kit Offer

**ROCHDALE CONVENTION - THE G3RJV SIX PACK [WITH KIT OFFER]  
SUPER WIDE RANGE VXO - STEREO FILTERS - G4FBS AERIAL TRAPS  
FREQ-MITE REVIEW - BALUN FOR L MATCH TUNERS - KISS OSCILLATOR  
30>80 CONVERTER - THE SPARKFORD TRANSCEIVER - CARD CIRCUITS  
ANTENNAS-ANECDOTES-AWARDS - COMMUNICATIONS & CONTESTS -  
NOVICE NEWS - SSB COLUMN -VHF NEWS- MEMBERS NEWS**

# JOURNAL OF THE G QRP CLUB



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**Rev. George Dobbs G3RJV**

## EDITORIAL

Dear Member,

Since the last issue the club has lost two well-known members through death: Nick Carter, G2NJ, a founder member and Ian Wye GØOKY, our Sales Officer. Please read the words about both of them later in this issue. Frank, G3YCC, has kindly taken over the club sales [again-see later]. If you have outstanding, unfulfilled orders, please contact Frank but be patient with us until this unexpected change is completed.

On a happier note - we have two special kit offers in this issue. The G3RJV Six-Pack was a project I devised in response to being asked to deliver a forum in Dayton this year, to encourage home construction. It proved to be very popular and, by request, it is repeated in SPRAT. Tim Walford of Walford Electronics, in conjunction with the club, presents his Sparkford Transceiver with a special offer on kits for members.

In mid October, I am to attend the QRP Convention arranged by NorCal which is part of the Pacificon event near San Francisco. I attend by kind invitation of NorCal to present the Six-Pack forum again. I will be away for nearly two weeks and return only 2 days before the Rochdale Mini Convention! - so please be patient with me over QRP mail. Perhaps you could avoid writing to me in the middle of October.

See you at Rochdale .... In the Winter Sports .... Or even at Pacificon

72/3

G3RJV

**EDITED BY GEORGE DOBBS G3RJV ARTWORK BY A.W. (MAC) McNEILL G3FCK  
PRINTED BY SHOREHAM COPY, 4 Hyde Square, Upper Beeding, Sussex BN44 3JE**



# THE G QRP CLUB MINI-CONVENTION

**SATURDAY 24th OCTOBER 1998**

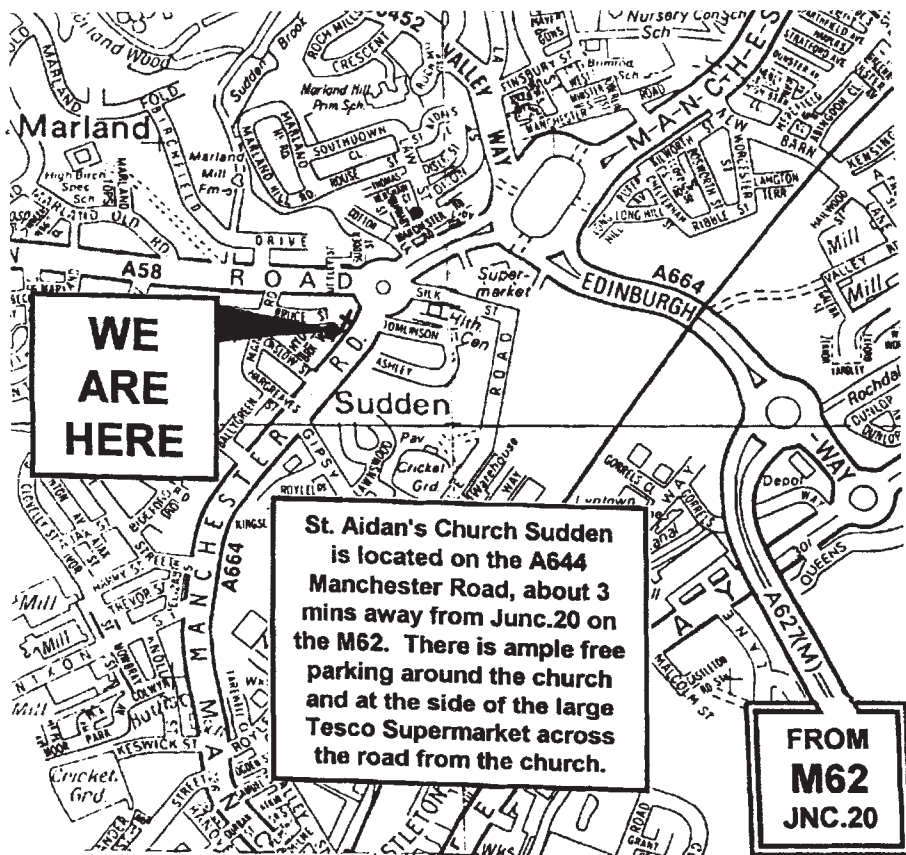
**ST. AIDAN'S HALL SUDDEN ROCHDALE**

**ADMISSION £1 - DOORS OPEN 10am - TALKIN S22**

**LARGE SOCIAL AREA - LECTURES ON QRP SUBJECTS**

**BRING & BUY - SURPLUS - JUNK - COMPONENTS - KIT TRADERS**

**FOOD & DRINK ALL DAY - INCLUDING THE FAMOUS PIE AND PEAS**



## LOCAL ACCOMMODATION

The Royal Toby Lodge - Tel: 01706 - 861861. Fri/Sat Tarriff : £39.95 per room

All rooms en-suite each with a double and single bed. Restaurants and Public Bar

Also within close range of the site : Oakenrod House : 01706 - 642115

The Midway Hotel : 01706 - 632881, The Norton Grange Hotel : 01706 - 630788

## THE G3RJV SIX PACK : SIX ONE NIGHT CONSTRUCTION PROJECTS

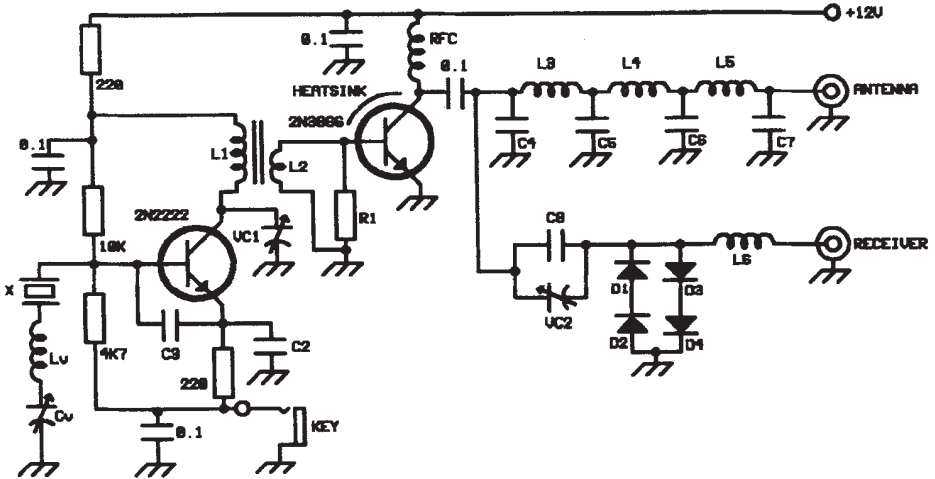
At the Dayton Hamvention "Four Days in May" symposium this year, G3RJV presented a series of simple projects to encourage home construction.

The projects came with a printed circuit board containing all six projects on sub-boards which snap off from the full board plus all the parts to build the projects.

Following several requests - these projects are now shared with SPRAT readers.

**KANGA KITS SPECIAL OFFER - £25.00 + £2 pp - LIMITED 100 RUN ONLY**

**The "snap-off" Printed Circuit Board + All Parts for All Projects**

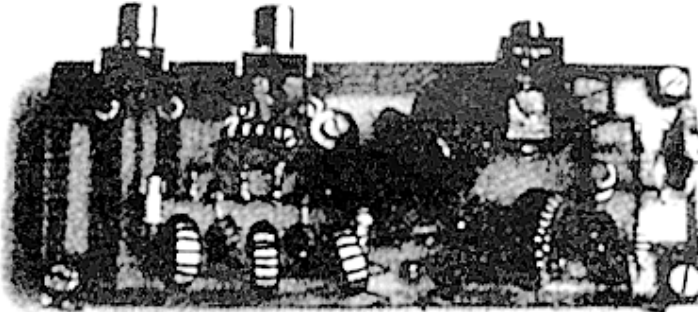


### [1] THE PLUG AND PLAY TRANSMITTER

The PLUG AND PLAY TRANSMITTER is a re-working of the W7ZOI Universal Transmitter to include several new features:

- A Better Lowpass Filter - following the W3NQN constants
- Full Break-in Change Over circuit
- A VXO (Variable Crystal Oscillator as the RF source)

The whole transmitter builds on to one board with input/output sockets and yields 1 watt of RF output on the selected band. Values are given for four popular amateur bands. The constructor merely chooses the values from the band table for the preferred band. Adjust VC2 for the best compromise between transmit and receive.



## VALUES FOR PLUS AND PLAY TRANSMITTER

BAND	VC1 *	C2	C3	R1	RFC	L1	L2
3.5	120p	100p	220p	39	25uH	43t T50-2	6t
7.0	120p	100p	None	39	15uH	35t T50-2	5t
10.1	60p	47p	None	47	15uH	35t T50-6	4t
14.0	60p	33p	none	47	15uH	27t T50-6	4t

\* Murata 5mm Ceramic Trimmers [120p - Black, 60p - Brown]

Wind L2 over the "VC1 end" of the L1 winding. L1 occupies ¾ circum. of core.

### VALUES FOR THE PLUG AND PLAY TRANSMITTER LOWPASS FILTER

Band MHz	C4,7 pF	C5,6 pF	L3,5 turns	L4 turns	Core	Wire swg
3.5	470	1200	25	27	T37-2	28
7.0	270	680	19	21	T37-6	26
10.1	270	560	19	20	T37-6	26
14.0	180	390	16	17	T37-6	24

Note : Wire gauge is not critical.

Use size to comfortably fill the core about three-quarters of full circumference.

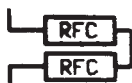
### VALUES FOR CHANGE-OVER BREAK-IN SYSTEM

COMPONENT	3.5	7.0	10.1	14.0
VC2 Trimmer	120pF	120pF	35pF	35pF
C8 Disk	47pF	47pF	47pF	NOT USED
L6 : FT37-61	22 turns	14 turns	11 turns	11 turns

The VXO Circuit : The values for Cv and Lv are open to experiment.

Suggested values are:

BAND	3.5	7.0	10.1	14.0
Lv	39uH	33uH	22uH	22uH
Cv	100p	60p	60p	60p



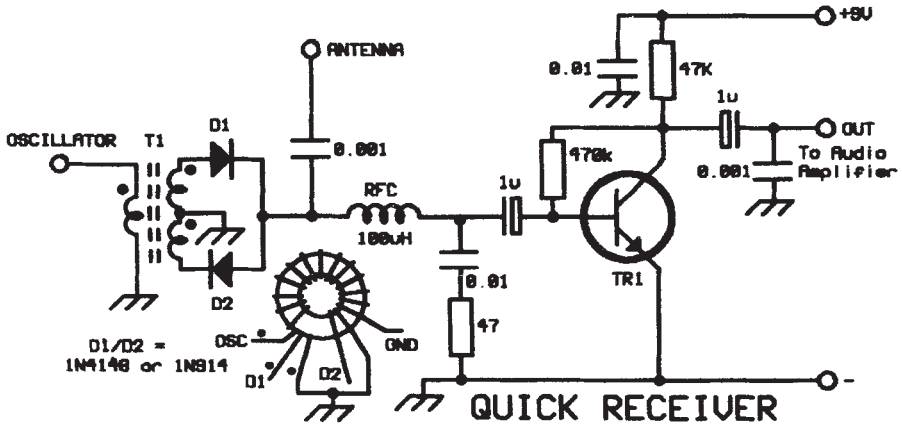
Experiment with a wider swing VXO. DJ1ZB introduced the idea of placing two inductors physically next to each other to increase the VXO swing using mutual inductance between the two inductors. The inductors are placed as shown on the left.

Experimental Values to Try: These are just suggestions - try your own values.

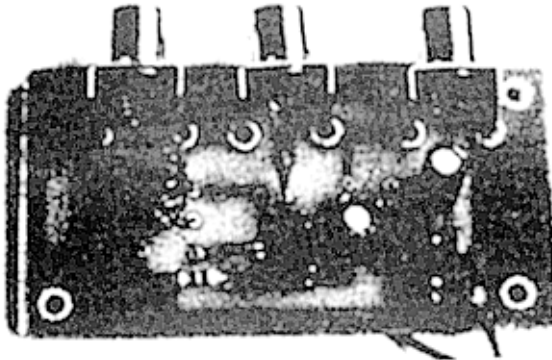
3.5MHz - 39 + 39uH      7MHz - 39 + 33uH

10.1 - 22 + 15uH      14MHz - 15 + 15uH

## [2] THE QUICK RECEIVER



T1 is 8 turns trifilar wound on FT37-61 Core



THE QUICK RECEIVER BOARD was born of necessity. Some time ago I was in need of a test receiver to listen to some SSB signal generated at 9MHz. At that time I did not have a receiver which covered 9MHz so decided to build one for myself.

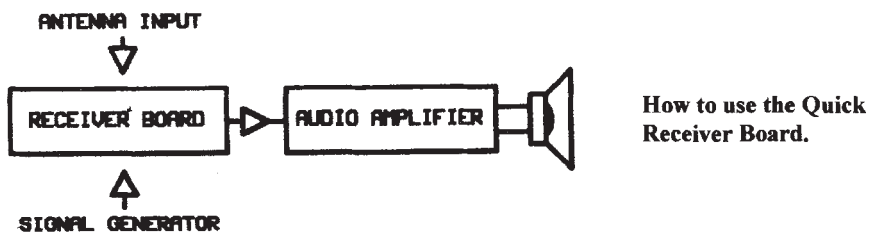
The circuit is simple and basic : a passive mixer formed by D1 and D2 feeds an audio pre-amplifier TR1. To make a receiver the board requires a oscillator signal and an audio amplifier. Most people have a small utility audio amplifier and a signal generator to complete the receiver.



The board requires about half a volt of signal injection into T1 and about 80dB of audio amplification after TR1. There is no input tuning although this could be added at the antenna input port.

The board is easy to build. If you go wrong, it will be winding L1. Trifilar transformers are easy ... on the second one. Lightly twist together three lengths of enamelled wire (about 8 twists to the inch will do) and wind them on the core as one winding. The dot marks the "start" end of each winding. Join them in the circuit exactly as shown. Get it wrong and it won't work!

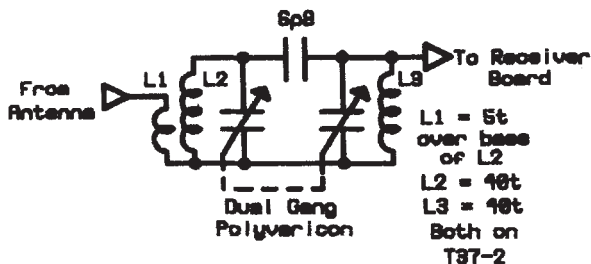
Although the board was built for one specific purpose, it has remained a useful piece of test equipment as well as a stand-by receiver for odd frequencies not covered by my other equipment.

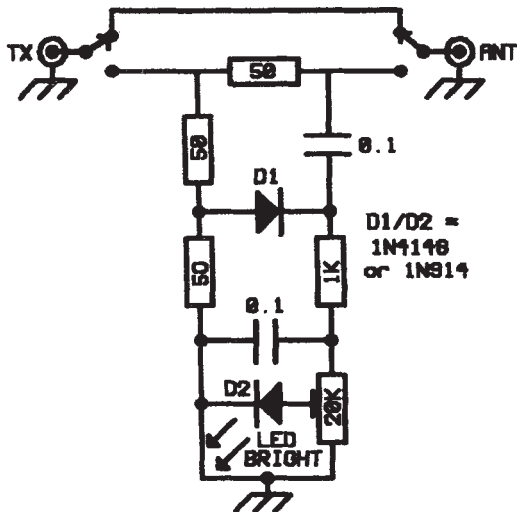


### Want to add a Bandpass Filter to the input?

This will give a little selectivity and make it more like a conventional receiver. The circuit below tunes from about 3 to 15MHz and is inserted between the antenna and the antenna input on the Quick Receiver Board. It uses a surplus two-gang polyvaricon tuning capacitor culled from a transistor AM radio. If you want to add any more features - you might as well build a proper receiver!

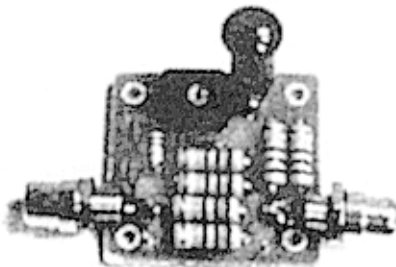
### The Suggested Bandpass Filter





**LED SWR MONITOR**  
50 = 2X100 1W

**[3] LED STANDING WAVE INDICATOR**



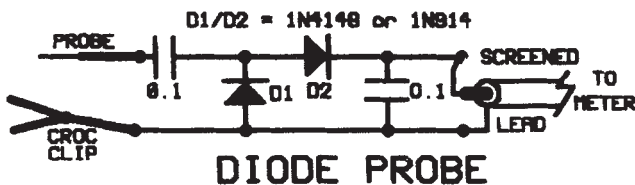
John Young, G0WQR, offered this little circuit to the readers of SPRAT 93. This just puts it on to a PCB. The basic circuit is that of a Resistive SWR Bridge.

The SUPERBRIGHT LED is remarkable in that it will still glow when dissipating currents of 10

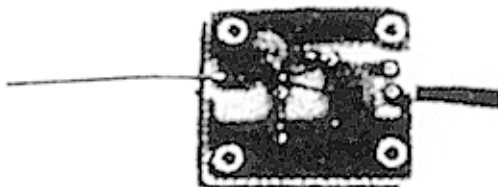
microamps or less. As the antenna is tuned for minimum VSWR, the Superbright LED will extinguish. The preset provides a sensitivity control and the indicator will work with signal to below 1 watt. BUT... switch out the circuit after tuning up and before transmitting.

**[4] A DIODE PROBE**

The beginner at radio construction sometimes assumes that they will have to invest heavily in test equipment. Most QRP projects can be built with the minimum of test equipment. The basic

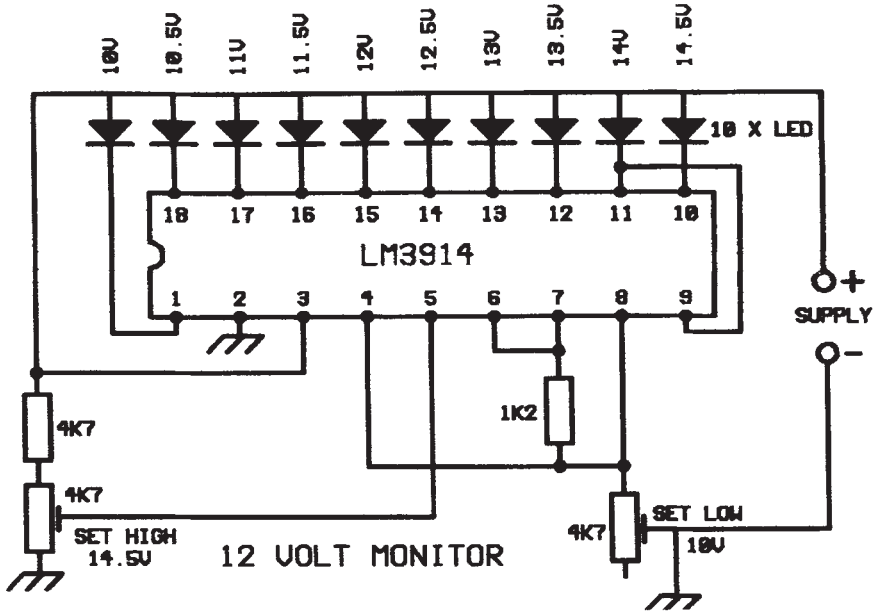


need is an analogue multimeter. Digital ones are nice but most times we are more interested in changes in reading rather than finite readings. The next essential for RF work is a diode probe. Anyone who buys one of these should be ashamed - it is just a "crystal radio on a stick". The circuit shows a basic peak reading diode probe for RF signal tracing and measuring. It would be possible to add a series resistance to get a RMS reading probe but the voltages in QRP RF work are usually quite low and usually the purpose of the probe is to adjust RF levels in circuits. A sharp pointed wire makes a probe and a crocodile clip is the ground connection. The leads between the probe and the VOM must be screened to avoid RF pick-up. The PCB provides top and bottom screen panels to attach to the main PCB using stand-off pillars or extra bolts.

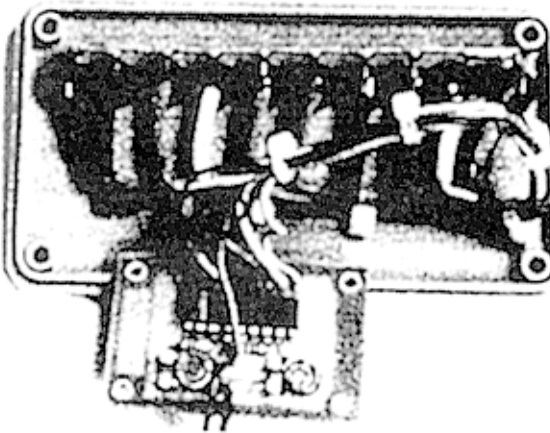




## [5] A VOLTAGE MONITOR

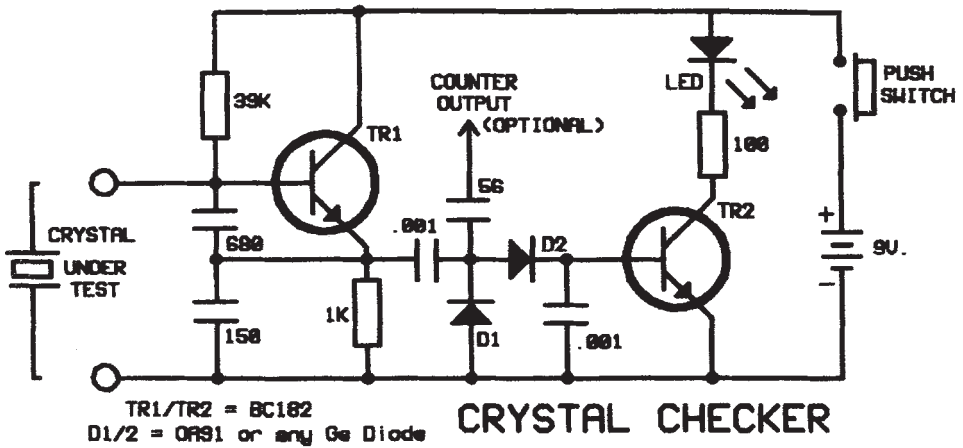


The Indicator uses an LM3914 Dot/Bar Display Driver Chip. The LM3914 lights up to ten LEDs (in the Bar mode) or one of 10 LEDs (in the Dot mode) in response to an input voltage. The chip contains a voltage divider and 10 comparators that turn on in sequence as the input voltage rises. There is an internal reference voltage source that can be used to set high and low reference points on two pins at either end of the voltage divider chain to adjust the range of measurement.

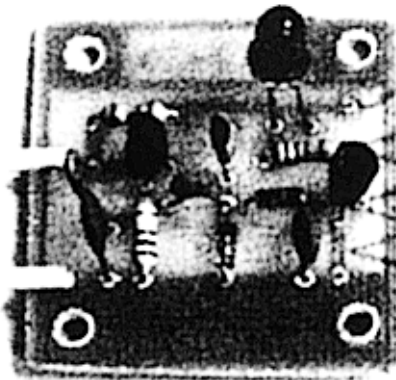


The battery (or supply) being monitored provides the operating voltage. The LM3914 operates with any supply voltage from 3 to 18 volts. A preset potentiometer feeds the input to pin 5. This is used to set the highest reading point. Another preset control sets the low reading voltage using the internal reference voltage. Pins 1 to 10 feed the LEDs. Setting up is simple. The left preset control sets the high voltage and the right preset sets the low voltage readings.

## [6] SURPLUS CRYSTAL CHECKER



This is a little pocket tester for those surplus crystals sometimes seen at amateur radio events. The avid constructor is always looking for good deals and money saving. It does pay to search around the smaller tables and pick up inexpensive crystals. Even if they are not on an amateur band, some crystals will mix with another frequency to hit a desired band. But do those surplus crystals work? This little circuit is simple to use. Simply attach to crystal to the clip leads and press the button. If the LED glows - the crystal is oscillating. It also has a facility for measuring the frequency of unknown crystals.



The circuit is very simple. T1, a generic NPN silicon transistor, is configured as a Colpitts Oscillator which works from about 2 - 20MHz. The oscillator output is taken from the emitter of T1 via a 1000pF capacitor. A small value capacitor (56pF) couples this signal to an optional socket for a digital frequency meter. A phono, or similar socket may be added to the case to provide output to a digital frequency counter. Two diodes rectify the signal and produce a DC voltage on the base of T2. T2 functions as a DC amplifier with an LED in the collector. If T1 is oscillating, T2 will conduct and the LED will glow. A good crystal produces output from the LED.

My prototype was built in a small case with enough space to include a 9-volt PP3 battery. The crystal connection leads come out of the front of the box and are terminated with crocodile (alligator) clips. The LED protrudes through the front panel and the push switch is on the end of the box.

## SUPER WIDE RANGE VXO

FRANCO AMBRI I4AFQ, Via Montegibbio, 33/a, 41040 MONTEGIBBIO (MO) ITALY

The basic idea is to use two classic VXO's with low price quartz at the highest possible frequency, **(not 3<sup>rd</sup> overtone!)** and shift the VXO's with varicaps and a single shaft double potentiometer changing voltage and frequency upside for one xtal and downside for the other one.

I started with this concept of VXO years ago when I needed a stable reference frequency for a PLL system, having also the possibility of a continuous tune between the steps of the PLL dividing chain.

Every VXO has its own resonant circuit at the output in order to reach the maximum purity before the following stages. The use of a normal mixer NE602 gives a frequency that is the difference between the two VXO's, but the range of variation will be the sum of the two shifting ranges, having the possibility of reaching 50 kHz or more, with an excellent stability and spectral purity.

The values of the crystals indicated in the Components Ref. are normally found in components catalogues e.g. CIRKIT, VIEWCOM, DISTRELECT, PROF1 etc. and are given only as a guide, since it is not important the real fundamental frequency of the crystals (integral or not) but only the difference between them.

Moreover, since the change in frequency of a crystal with a series inductance is not exactly predictable – depending on the cut of the quartz – it is impossible to calculate the exact resulting frequency. For this reason, before you make the complete “WIDE VXO”, I suggest you to check each VXO separately and control the real frequency and range.

A band pass filter assures a good and clean frequency at the mixer output, since the image frequency (sum!) is very distant. A final stage with a small transistor increases the output to a good level.

The gain and linearity of the final amplifier is set by the small trimmer (R17) on the base voltage of Q3. The R.F. level may be set by R18.

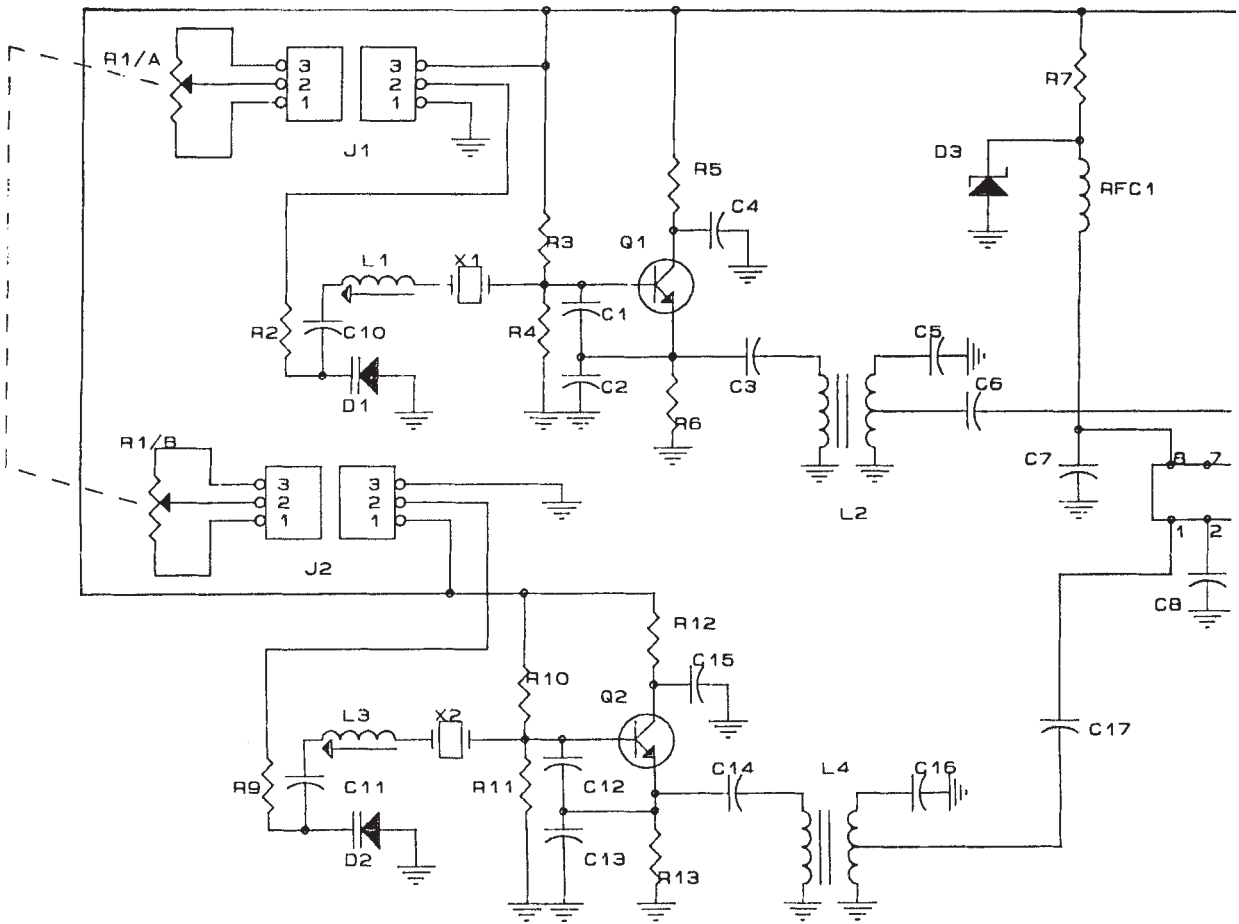
The varicaps diode D1 and D2 have a capacity range from 20 to 500 pF and may be substituted by any other type, depending the VXO range on their capacity range.

You can plan the VXO final frequency for a D.C. or Superhet RX as you like. Only remember that you must change the final band pass filter. Otherwise you can use as final filter a **LOW PASS FILTER**. My experience is that a band pass filter gives better results!

The “WIDE VXO” may be improved with a R.I.T., simply changing (with a small relay controlled by the 12 TX line voltage) the input voltage at one section of R1.

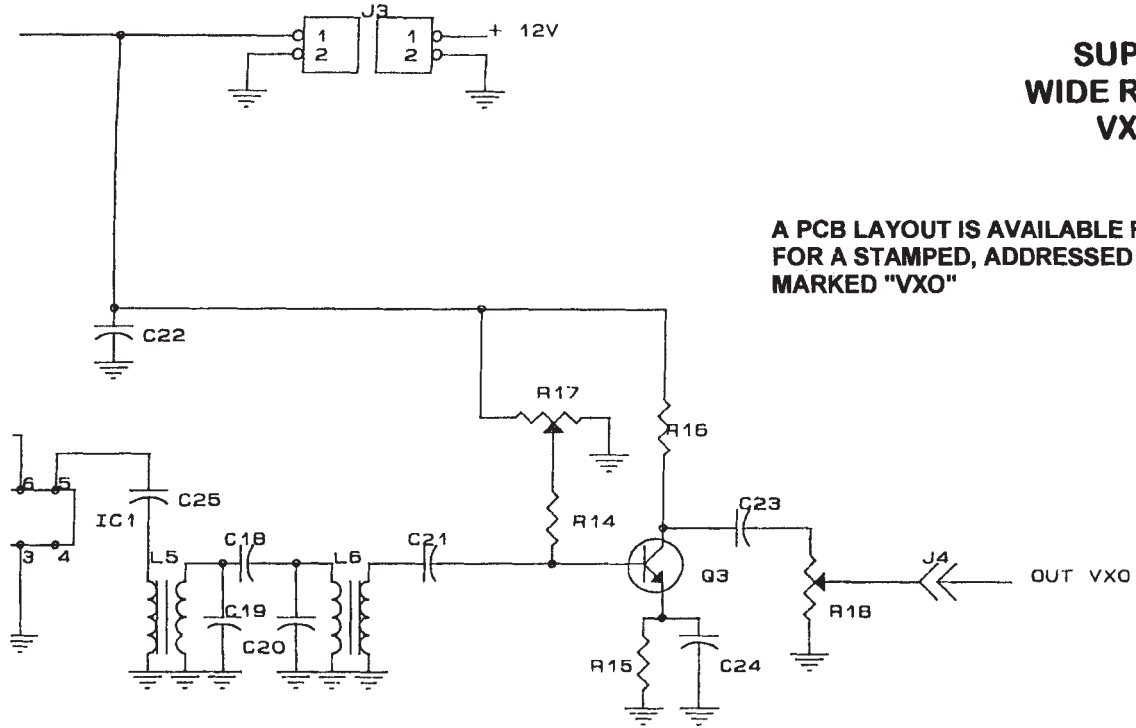
The PCB master is made on a double face vetronite board, and it is only a summary guide since every body has his own component preference. The lay out of the components helps to find the exact positioning of the different parts. Note that all resistors are placed vertically. The prototype PCB has a lot of empty space between the components so you may improve the final compactness. Since in the upper face of the PCB there is only the 12 V line, it will be easy to make the PCB with one side, or more simply, in a punched board.

Together with Eugenio (IT9VKY) and IW9CMM (Carmelo), we are now thinking to start from the DJ3KK DDS-VFO (ref. SPRAT Spring 1998) and make a simple and complete all-purpose VFO. You can write me at E-mail address: ambri@books.it  
Or you can write to Eugenio IT9VKY at: Emartin@alpha4.ct.astro.it



# SUPER WIDE RANGE VXO

A PCB LAYOUT IS AVAILABLE FROM G3RJV  
FOR A STAMPED, ADDRESSED ENVELOPE  
MARKED "VXO"



## WIDE RANGE VXO PARTS LIST

R1/A-R1/B	10K Double Pot	C16,C17,C24,C25	0.001u
R1,R2	33K	C9,C22	0.1u
R3,R10	3K3	C10,C11	220-330p
R4,R11,R14	6K8	C18	2p2
R5,R12	22	D1,D2	VARICAP BB112
R6,R13	820	D3	6V1 ZENER
R7,R15	150	Q1,Q2,Q3	BC182[or sim]
R16	220	IC1	NE602N
R17	5K Trim	X1,X2	SEE CHART
R18	200 Trim	L2,L4	SEE CHART
C1,C12	390p	L5,L6	SEE CHART
C2,C13	270p	L1,L3	28uH
C3,C14	33p	J1,J2	3-Pole Con
C4,C7,C8,C15,		J3	2-Pole Con
C21,C23	0.01u	J4	COAX
C5,C16,C19,C20	SEE CHART	RFC1	50-100uH

## Band Determining

	3.5	7.0	14.0	21
X1 MHz	27.0	27.0	27.0	27.0
X2 MHz	23.4	20.00	13.0	6.0
L2 [CIRKIT]	35-41720	35-41720	35-41720	35-41720
L4 " "	35-41720	35-37660	35-38940	35-33370
L5 " "	35-26960	35-33370	35-38940	35-37660
L6 " "	35-26960	35-33370	35-38940	35-37660
C5 pF	22	22	22	22
C16 pF	33	47	56	100
C19 pF	82	82	47	47
C20 pF	82	82	47	47

### MEMBER'S ADS - MEMBER'S ADS - MEMBER'S ADS- MEMBER'S ADS

TRIO TS120V HF QRP Transceiver, MC35S Micophone, excellent electronic condition, 500Hz CW filter, inc. manual and box £250. YAESU FL110 HF Linear, 10w in 100w out, manual £120 VFO 120 £40, DFC 230 £35, Best Offer over £350 secures the lot.

Original Box, Mobile Mount and Owners Manual for the TR751E, £20.

TS530S HF Transceiver, immaculate condition, SSB and CW narrow filters fitted, £325. MC50 Desk Mic £35. Brand New Spare Set of Valves, Driver and 2 x PAs £50. AT230 Matching ATU £155. Inc Manuals and boxes, One owner. Best Offer over £500 secures the lot.

KENWOOD TR751E Multimode 25 watts on 2m £300. SOTA 100w Linear £100. Eagle 9 element Yagi for 2m £35. Or the lot £400. Buyer Collects on all items - Cash preferred Gerard, G4IUT, 01952 - 550235.

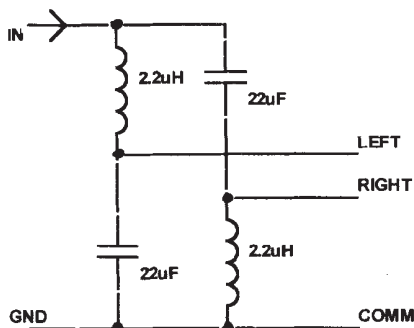
FOR SALE: INDEX QRP PLUS Transceiver, excellent condition. Offers in the region of £300. Contact Bill, G4LQO on 01202-622690. (Poole, Dorset)

WANTED: An FM Board, or information on a suitable FM board for a Trio TS430S. Reg Bassford, G2BZR, 59 Watling St, Dordon, Tamworth, B78 1SY.



## More Stereo CW Filter Ideas

H.C. "Spenny" Spencer G6NA and Mike Haugrund DF2OK



### CORRECTION OF G6NA CIRCUIT (SPRAT 95)

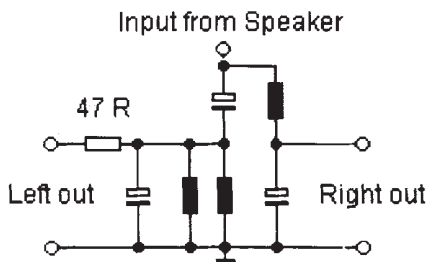
A repeat of the drawing in the last issue of SPRAT for the simple stereo effect filter used by Spenny, G6NA, in his Sunset Transceiver (SPRAT 94).

### FURTHER EXPERIMENTS BY MIKE, DF2OK

Following the idea by Spenny in the last SPRAT, this is the circuit that worked for me. The audio input from the phone-jack of the receiver is at the top. The right part of the circuit is for the lower audio and the left one for the higher audio.

I added left capacitor near to the 47 Ohm resistor to reduce the hiss. Without this you can hear this circuit work, because all hiss appears in at the left ear. The 47 Ohm is to reduce the gain at the higher frequency, because our ears have a lower sensitivity to low frequencies. This is also the reason, you find loudness tuning devices in HiFi receivers. Physiological ear correction. The value may need to be adjusted for individual use.

### Stereo effect filter by DF2OK after an idea of Dud, G6CJ, SPRAT 95



All C = 10uF/35V  
All L = 2,2 Milli-Henry  
Stereo Walkman Earphones  
32 Ohm each

This circuit works in a broad audio spectrum (CW reception in SSB mode) better than in an active audio filter stage with a bandwidth of 100 Hz when it is not effective.

The 2 Inductors are in parallel to get 1,1 milliHenry. Why I choose then? I have them here because of the original circuit, hi.

With these values in the circuit the same voltage (without 47 R) is reached at every output at 950 Hz. This is the middle frequency. But there is a phase shift between left and right channel of about 60 degrees. So the sound is not really heard in the middle of the head. At 650 Hz the left (high) audio is reduced to 2/3 of the input. At 1.65 KHz the right (low) audio is reduced the same factor.

The effect of the circuit is more on the scope that in the ears, but it does work. Perhaps it would be more effective to use active filters with tuneable nearby frequencies to get it on the small audio bandwidth of a crystal CW-filter.

# The G4FBS Light Weight Aerial Trap

Horndean & District ARC, c/o GØFYX, 35 Mavis Cres. Havant, PO9 2AE

One of the difficulties of making an aerial trap<sup>1</sup> is that of getting suitable high voltage capacitors. One way out is to wind the coil with coaxial cable and use the capacitance between the inner and the outer. Trying this with 75 ohm URM 70 cable close wound, gave a coil Q of 80 at 3.6 MHz. Close winding with fabulously expensive RG188 gave a coil Q of 300 at the same frequency. The reason for the enormous difference in Q is that URM 70 is covered with PVC, whereas RG188 is covered with PTFE, a much lower loss dielectric.

Coaxial winding therefore is either expensive or lossy, so why not try another approach? PTFE covered equipment wire is not all that expensive compared to the cost of capacitors, and can be found on the surplus market at absurdly low prices. How can it be used? There are traps on the market which use a single layer solenoidal winding which resonates with its own self capacitance, but the L/C ratio is rather high for trap use, making the aerial length rather critical for lower resonant frequencies.

The bifilar winding is known for the tight coupling between the two halves, but also high self capacity; this latter being a disadvantage for many purposes. Increase of the self capacity is just what is required for traps, and the G4FBS construction makes for easy adjustment of the resonant frequency.

## Formers

It is not worth paying for low loss wire insulation only to spoil it by poor former material. The Gas company comes to our aid here. using 25.4 mm outside diameter yellow piping made of polythene which is a good radio frequency. insulator. Offcuts can usually be obtained by proper approach to the Gas company. and for 7 MHz 75 mm per trap is all that is needed. The water suppliers also use polythene piping (blue). but the walls are thicker than gas pipes. on account of the higher pressure that they have to withstand. The object is to make a light weight trap, so gas pipe is preferred.

## Construction



For a 7 MHz trap, using 19 x 0.15 mm PTFE wire on a 25.4 mm diameter gas pipe. 42 turns total will be needed. These will occupy some 52 mm. If the overall length of pipe is 75 mm, then holes need to be drilled 11 mm from the ends. Figure 1 shows the end of the winding in close up.

Fig.2

Take 3.6 metres of wire and fold it double. Thread the two loose ends though one pair of holes. from the inside to outside. leaving 50 mm projecting. with the loop not as yet cut. Wind 21 turns of the doubled wire tightly, making sure that the wires never cross. Now thread the loose ends into the other two holes. bring them to the outside through the same end of the tube and pull tight. A pair of wires should now protrude. and it should be apparent which wire is which, but to make sure. cut the loop with which you started and identify the wires with a meter or other continuity tester.

Fig.1.



A bifilar winding is made by connecting the start of one wire to the end of the other, and not to the end of itself, which happens even in the best places, hence the advice given above. The join has to take place inside the tube, but this is not as difficult as it might appear, for an excess length of one turn must be included in the join. So the soldering can be done outside the tube. Having done this, re-check continuity. All ends and middles should show continuity to each other. If only the two free ends show continuity, you have joined the wrong pair. The object of leaving enough wire to make a turn inside the tube is to allow the resonant frequency to be precisely adjusted, in the way soon to be described. Figure 2 shows the external and internal appearance at this stage.

The free ends can now be trimmed and terminated with suitably strong connections to withstand the pull of the aerial, and this is left to the constructor's ingenuity to use available materials, and to add waterproofing (Chemists' pill boxes or polythene wrapper?). The trap must be adjusted to frequency with the terminations in place, but no other connections. The internal turn is manoeuvred so as to aid or oppose the main winding to lower or increase the resonant frequency as measured by a grid (or FET) dip meter, loosely coupled. You may notice another resonance at about 100 MHz. This is due to the distributed nature of the wires' inductance and capacitance forming a coiled Lecher line, and is of no consequence. When you are satisfied, waterproof and then use. The effect of the trap will be to shorten whatever length of wire is needed to resonate at the other (lower) frequency, which will probably be 3.5 MHz for this trap. Trial and measurement in situ is needed for finding the correct length

Reference 1. For an explanation of aerial traps see RADIO COMMUNICATION HANDBOOK (RSGB) 6<sup>th</sup> Edition, 1995 reprint, Page 12.68.

## **The Pottenstein Meeting of the G QRP Club : May 22-24<sup>th</sup> 1998.**

Over 50 German G QRP Club members, with some Austrian members attended an annual meeting of the German Chapter of the club in Pottenstein last May. The weekend was organised as usual by Rudi Dell DK4UH, the G QRP Club German representative. The three day event included an impressive programme of lectures.

Oliver Borkowski, DF6MS gave a presentation about his experiences with kite supported antennas and showed off his ONYX II home constructed transceiver for use with kite antennas. DJ3KK recently wrote up a novel DDS controlled transceiver, the ELBC40, for SPRAT. The transceiver is incorporated in to an electronic bug key and all functions are controlled by the paddle key.

Manfred demonstrated the ELBC and spoke about the design.

Antennas featured prominently in the lectures, with Norman, DL6NEE/G0NNA, demonstrating the antennas he uses on the road with his motor caravan, Willi, DK6SX, explaining his Maeander-type short dipole and Max, DJ7RU, displayed his home made 8 band "square loop".

Other lectures included Thomas, DL1JBE, explaining the basics of DSP technology, Ha-Jo, DJ1ZB

talking about German EMC regulations and running a technical forum, and Peter, DL2FI, offering comparisons of a number of commercial QRP transceivers. The xyls had their own programme including a sightseeing tour by coach and the members look forward to another successful meeting in 1999.

Thanks again to Rudi for his hard work.

**Rudi, DK4UH, presents a gift to Oliver, DF6MS, and Manuela, DL2MGP, to mark their recent wedding.**

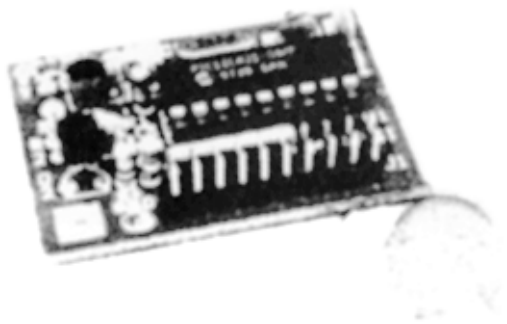


## Review of the "Freq - Mite"

Tony Fishpool G4WIF, 38 James Road. Dartford, Kent. DA1 3NF

Dayton 1998, was as usual, an absolute blast and I came back with some unusual kits, here is my report of one of them.

Providing frequency readout for those small rigs has always presented a problem. Do you spend twice as much as the rig probably cost on one of the many Digital Frequency counter kits?



At Dayton this year, Dave Benson of Small Wonder Labs presented a new solution, the "Freq-Mite". A tiny counter that announces the frequency in morse code at the very tempting price of 20 dollars (\*\*), I bought two!. The kit comprises of a high quality double sided 30mm x 45mm PCB, complete with all components and a preprogrammed PIC chip. Virtually all I.F. offsets are catered for by various combinations of shorting jumpers.

Following the very clear instructions, construction took under an hour and the first rig I tried it on was the Epiphyte 2. This has a 455 kHz I.F. with the VFO running higher than the incoming signal. The "Mites" sensitivity is quoted at between 0.1 volts at 1 MHz to 0.3 volts at 20MHz and the EP2 has an ideal place to pick off the VFO output at Conn.9. When a button (not supplied) is pressed, the counter announces at 13 or 25 wpm (selectable), the three least significant digits in KHz. There is also an option to announce the actual VFO frequency including the MHz component. This makes for a useful diagnostic aid.

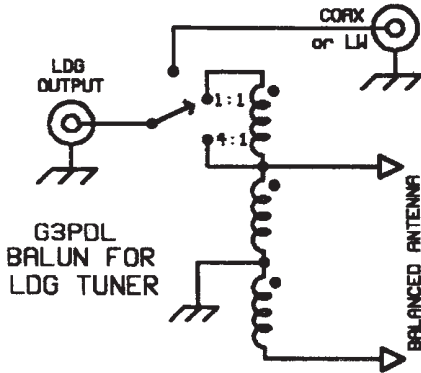
Next I tried the "Mite" on the NORCAL 38 Special which has a VXO running at 22MHz and an I.F. of 12MHz. The 38S VXO uses the internal oscillator in the NE602. The signal at pins 6 or 7, was 0.3v which when loaded by the "Mite" dropped to 0.2v, but that's only place you can get at the VXO as the mixer is also part of the NE602. The Mite accurately told me where I was in the 30m band, but the drop in mixer injection affected the overall sensitivity of the receiver. Some additional buffer amplification would certainly help here on these simple rigs.

Finally, I fitted a Freq-Mite to my MFJ204 antenna analyser. This is one of the early models without a digital readout. It does have a dial but it is only loosely aware of the concept of accuracy. The Freq-Mite has an additional frequency counter mode, which will announce the MHz as well as kHz. Mine worked all the way up to 30MHz when plumbed into the MFJ's counter output.

I think Small Wonder have a winner here, and you can find out more from their web site <http://www.fix.net/~jparker/sml.html>, Dave can also be reached by telephone (001) 860 667 3536 (before 9:30 Eastern time please). (\*\* including postage to virtually anywhere in the world.)

# A BALUN FOR THE LDG AUTOMATIC TUNER OR OTHER ANTENNA TUNERS

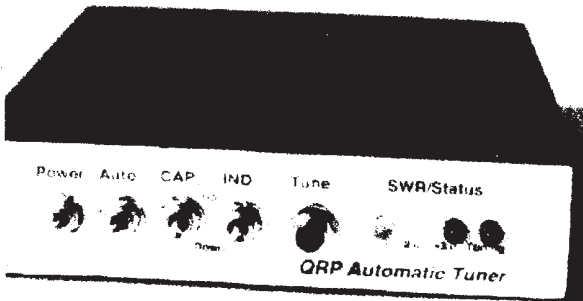
P. F. Linsley, G3PDL, 12 Cambridge Cres. Brookenby, MARKET RASEN, LN8 6HB



This simple addition to the LDG QRP Tuner allows it to feed a balanced antenna with a ratio of 4:1 or 1:1. Before I made one I tried what was on the bench! It has 8 twisted trifilar turns on an unknown toroid, but I think it is an FT50-43. It tunes my doublet easily on 9 bands from 1.8-30MHz with no sign of stress or heating.

It is mounted inboard with a 3 way switch and 2 terminals. I found a switch small enough to fit the back panel of the LDG Tuner giving three positions : Direct / 1:1 / 4:1.

Using my QRP++ I have worked a selection of DX including VE8TA & ZP6CW on 18MHz CW, K0HA, VE3KZ, SV5/IK2YYO on 18MHz SSB and a heap of EU on all bands.



## The LDG QRP TUNER

Is a microprocessor controlled, switched L network

Designed to work with a wide range of antennas 1.8-30MHz.

It is available in kit form on a 4.4 x 4.3 x 0.6" PCB with an optional case 5 x 6.6 x 1.3". The case happens to fit exactly on the top of a QRP PLUS Transceiver.

Specifications Include: Switched "L" Network - Inductor Range: 20uH - Capacitor Range - 2700p  
Tuning time: 0.1-3 secs [av. 1.5 sec.] - Tunes Loads: 6-800ohms - Power range: 0.1-10w. cont.

Comments by G3RJV:

I have had an LDG Tuner on test here for some time. Using the balun described by G3PDL, it works extremely well on my doublet antenna. It even worked when the doublet came down last month and rested on the lawn and trees!

At G3PDL's QTH we tried a whole variety of loads using both my test LDG Tuner and the one he has bought and found they tuned everything we offered them. It does need a continuous signal to perform the automatic tune-up. Using pulsed signal from an automatic keyer causes the tuner to hunt.

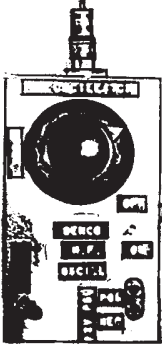
The LDG Tuner would be a very useful addition to any QRP station

Kits for the LDG Tuner are available from:

HANDS ELECTRONICS, TEGRYN, LLANFYRNACH, DYFED, SA35 0BL, [01239 - 698 - 427]

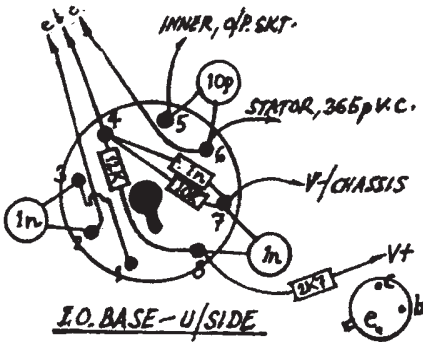
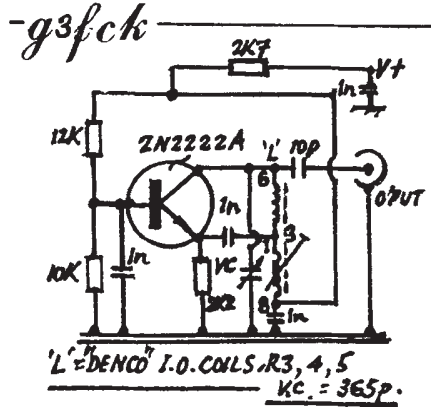
## A KISS HF Oscillator for Test Applications

A W (Mac) Neill, 40 Turnpike Road, NEWBURY. RG14 2NF



Still working on the basis of providing simply constructed, cheap equipment for the shack, this circuit (which like my previous circuits uses ranges 3,4,5 of Denco I.O. Coils) should prove valuable for many purposes.

As with my previously presented wavemeter, most components can be mounted on the unused pins on the octal base (pins 2,4,5 and 7) in addition to the coil connections (pins 3, 6 and 8).



A small airspaced variable capacitor is preferred and, if desired, a PP3 battery can be included in the case, allowing more mobility and versatility in use.

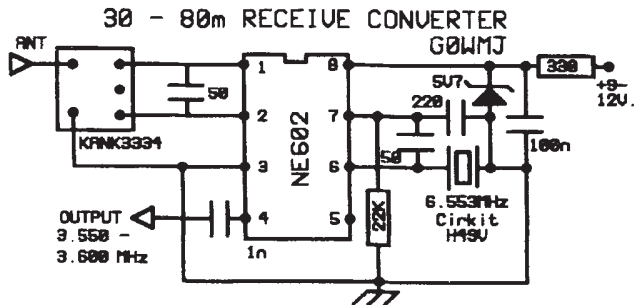
### Components List:

Small Aluminium Box. 356pF variable capacitor, Denco Coils I.O. ranges 3.4 & 5, 2K7, 110, 12K 2K2 resistors, 10pF and 3 x 1n capacitors, I.O. valve base, chassis phono socket, sockets for external supply, PP3 and connecto

## 30 to 80 Metre Receive Converter

Jim Walker GØWMJ 249 Mosley Street, BLACKBURN, BB2 3RX

A lot of people seem to build 80m receivers - a popular band for receiver constructors. This simple circuit based on the NE602 mixer will add 30m to an 80m receiver. I tried it first with a Colpitts VFO but then spotted a suitable crystal in the Cirket catalogue which gives me much better results. The circuit would be ideal for an older amateur bands receiver without WARC bands.





**The Sparkford 80m CW Transceiver -**  
**Tim Walford G3PCJ, Walford Electronics**  
**UPTON BRIDGE FARM, LONG SUTTON, LANGPORT, SOMERSET. TA10 9NJ**

The full circuit with 2 ICs and 9 MOSFETs, shown overleaf, uses a number of slightly novel techniques to lower overall cost without compromising performance by sharing functions. The whole rig, including controls and sockets, fits onto a 80x100 mm double sided PCB. In this completely working minimalist form (see photo), three special shafted presets with knobs are used for the controls (AF gain, main tuning and tuning offset). After you have had some fun with it like this, you can easily replace the PCB mounted controls with normal ones. The 8 volt LDO regulator, which powers all internal circuits apart from the output FETs, allows use on 9 up to 30 volts with care!

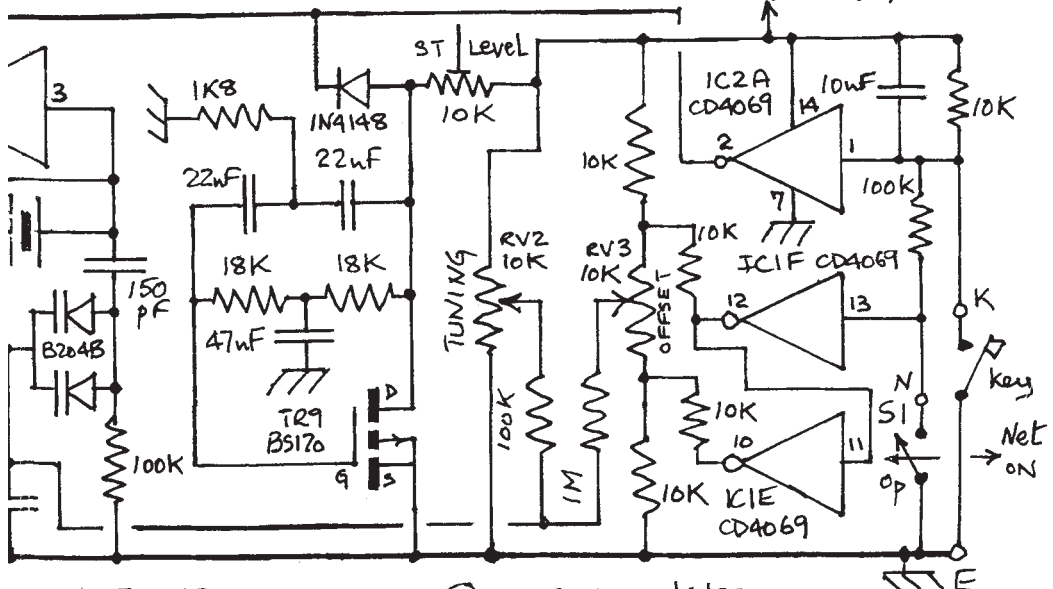
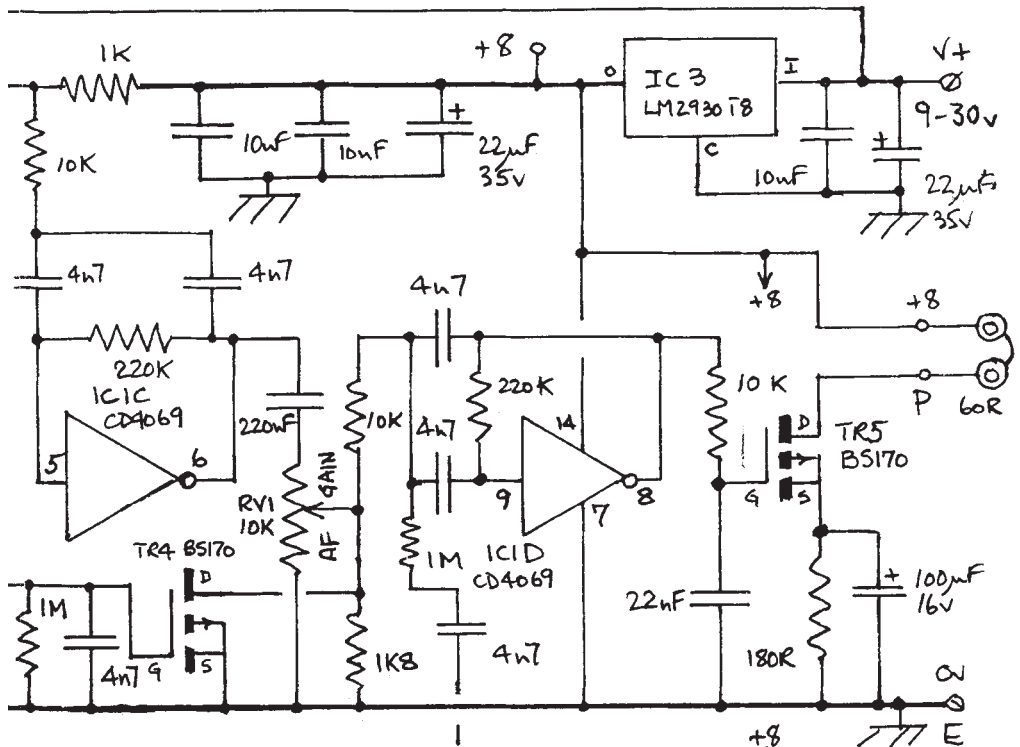
The RX is direct conversion with four audio stages. The first stage TR3 is conventional using a BS170 MOSFETs, the second and third stages IC1C & D are linear bandpass filters centered on 750 Hz each using one gate of the normally digital hex inverter IC type CD4069. The feedback resistors bias their outputs to mid supply without oscillation allowing them to be used in a linear mode as low gain op-amps. The audio output stage TR5 has further audio filtering and is intended to drive series connected 'walkman' type 32 Ohm stereo phones. TR4 provides RX muting during transmit hence suppressing key clicks. Sidetone, with an adjustable level, is fed into the second bandpass filter from the twin T oscillator when the key is closed.

The RX has a double tuned 80m RF bandpass filter with the input winding also acting as DC feed to the RF output transistors. Setting the trimmers of this bandpass filter are the only adjustments for the whole rig! The second resonant circuit has diodes across it for protection during transmission; it feeds the RF amplifier stage IC1A which is another hex inverter gate biased for linear operation. The second RF stage IC1B is arranged to have an inverting unity gain so that RF signals of opposite phase are available for the switching detector comprising TR1 and 2. Filtering on its output removes any residual RF passing only AF to the audio stages. This form of doubly balanced detector avoids breakthrough problems that occur with simpler detectors. The opposite phase digital drive signals for the gates of TR1 & 2 are obtained from further hex inverter stages driven from the 'digital' VFO.

The VFO hex inverter IC2B is biased for linear operation but subsequent stages (IC2C, D, F & E) operate with square wave signals. The VFO is based on a 3.58 MHz ceramic resonator tuned by two B204B twin varactor diodes; this gives a tuning range of about 50 KHz down from near 3570 KHz under the control of the main tuning voltage from RV2 with a small switchable incremental voltage from RV3 for the frequency offset. Increasing the 150 pF capacitors coupling to the varactor diodes will permit operation down to 3500 KHz but will also reduce the upper tuning limit. The offset tuning voltage is obtained from the two digital stages IC1F & E - when the input to IC1F is at 0 volts, the voltage across RV3 is about 4 volts centered on mid supply thus allowing a small tuning range either side of that set with RV2. When the input to IC1F is high (normally key up) both ends of RV3 go to mid-supply thus removing the offset voltage. This arrangement gives a transmitting frequency offset. (The alternative of receiving offset is easily arranged by feeding IC1F from the output of IC2A instead of its input - there was not space to do this on the PCB - the offset control switch then needs to connect the point N to + 8 volts to turn off the offset when setting the main tuning.)

The transmitter output stage is two more BS170 MOSFETs TR6 and 7 connected directly in parallel. (You can borrow one for a spare!) Their gate capacitance needs a source follower TR8 to drive them on 80m from IC2D; RF keying is done by controlling the DC bias to this stage and hence the output FETs. The 50 Ohm drain load of the antenna line defines the RF output of 1.5 W on 13.8 volts, varying with supply voltage squared up to about 4 Watts max. The drain DC feed is





CW TCVR

© G3PCJ 6/6/98

coupled to the first tuned circuit of the RF bandpass filter which gives harmonic suppression but an additional external low pass filter is advised. This arrangement gives full break in operation. The kit includes all parts to get it working in minimalist form with 10 pages of notes and instructions; building is done in stages needing only a high impedance voltmeter for tests. Various modifications are suggested for experimentation.

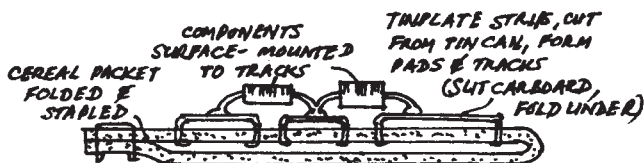
### Special Offer for GQRP Club Members

The Sparkford is available in kit form for UK customers from Walford Electronics for the specially discounted price of £30 plus £1 P&P. This offer remains open till March 31st 1999 when the normal price will apply. Send your cheque for **£31** to Walford Electronics, Upton Bridge Farm, Long Sutton, Somerset TA10 9NJ. Overseas orders may made by credit card [Visa./Mastercard - include card number, expiring date, name, address and club number] Accounts will be debited for the equivalent of **£33** via the G QRP Club.

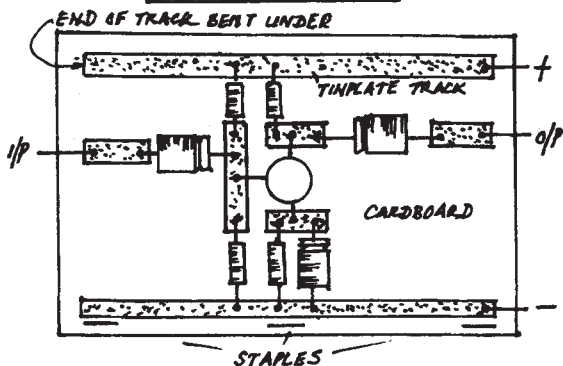
Credit card orders are only available to overseas members.

## Cardboard Circuit Boards Do Work!

Rod Seymour G1TNE, 134 Beaumont St. Stoke, Plymouth. PL2 3AH



- TYPICAL LAYOUT -



This is an almost zero-cost construction and quick way of building prototypes.

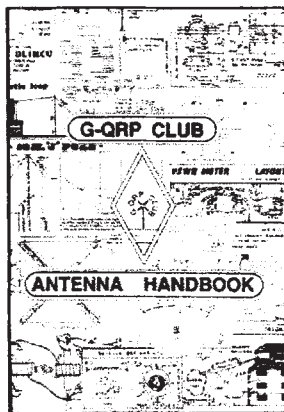
Cardboard sounds an unpromising material, but VHF regenerative and superreg radios I have built this way are still working after a couple of years in a damp attic.

Components are surface mounted on tinplate tracks fixed to piece of cardboard.

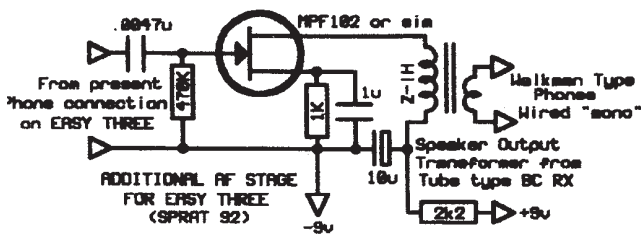
Caution - do not use for valve circuits because of fire risk.

**THE G QRP CLUB  
ANTENNA HANDBOOK**  
HOW QRPERS WORK THE WORLD WITH 5 WATTS  
THE COMPLETE COLLECTION FROM SPRAT  
SPECIAL MEMBERS PRICE £4.50+£1.43pp  
EUROPE £4.50+£2.24pp US/DX \$14 Surface  
Mail Order from : [NOTE NEW ADDRESS]

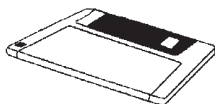
Shoreham Copy Centre, 4 Hyde Square, Upper Beeding,  
Sussex BN44 3JF All cheques to "G QRP CLUB"



## Audio Pre-Amp for the Easy-Three Receiver [SPRAT 92] C F (Rock) Rockey, Nichols & Mechanic St. ALBANY. WI 53502, U S A



Good H-Z headphones are hard to get these days. As it stands I cannot guarantee that the Easy Three will provide enough volume into Walkman type stereo headphones. This schematic shows a suitable additional audio stage for using the Easy Three with Walkman type headphones.



### CLUB OFFER - G3ZQS HAMLOG PROGRAM

George Longden, G3ZQS, Secretary of FISTS has been kind enough to offer his HAMLOG Logging Program as Freeware to members of the G QRP Club. If you want a copy of the program please send £1.00 [to cover disk and postage/packing costs] to **Frank Lee G3YCC, 8 Westland Road. Kirkella, HULL. HU10 7PJ.** Please make out all cheques to "G QRP Club" (an address sticker helps)

### THE ANNUAL QRP OPERATING EVENT.....

## THE G QRP CLUB ANNUAL WINTER SPORTS

**DEC 26<sup>th</sup> to JAN 1<sup>st</sup> inclusive on all QRP Frequencies - Call "CQ QRP"**

Logs can be sent, along with notes and remarks, to Peter Barville, G3XJS, 40 Watchet Lane Holmer Green, High Wycombe. Bucks. There is an award, the G4DQP Trophy, for the operator who is considered to have contributed most to the event and certificates are presented to those whom the G QRP Club feel gave "a little something extra" to the event. See you there !

### MEMBER'S ADS - MEMBER'S ADS - MEMBER'S ADS- MEMBER'S ADS

**HELP** - Does anyone have experience of the SGC230 Auto-Tuner on QRP? David, G4RMC would like to hear. 67 Fourth Ave. Garston. Watford WD2 6QH.

**FOR DISPOSAL FREE:** plus or minus 800 PW, RadCom and odds and ends. 0151-339-3476 David Roberts G3KDN.

**LOOKING FOR:** FT243 Xtal 7030kHz. 3 sockets for FT243 xtals. DL6YCG, B. Zander, Illzacher Weg 11, 12109 Berlin, Germany.

**WANTED:** Partially disabled member requires unwanted PK88 TNC or help with servicing his broken down module. I use it to contact other sick and lonely people. Walt Spence, G0TUJ, 111 Rosmead St. Newbridge Rd. Hull. HU9 2TE.

**WANTED:** Slow motion drives eg RF27 type or w.h.y. Colin G0CEU. 0181 801 1415

**FREE:** To anyone, a Heathkit O-12-U oscilloscope including build specification and circuits. When last powered up the spot was the size of a golfball! Also an Advance OS2200A storage Oscilloscope with instruction manual and circuits. This unit is faulty and will need a bit of work to get going. Could possibly deliver if not too far from Eltham in S.E. London. - Stephen McGuigan, G8MFI. 194 Westmount Rd. Eltham. London. SE9 1XQ

## CLUB NEWS....

### Nick Carter G2NJ

We regret to announce the death of Nick Carter, G2NJ, on June 4<sup>th</sup>.

Nick was G QRP Club Member Number 2 - a founder member of the club. He was a former sports journalist and an avid CW operator on 80 metres

In many ways Nick was instrumental in the formation of the club. It was after several 80m QRP CW skeds with Nick that I decided to write to the Short Wave Magazine asking for like minded people to drop me a line about the possible formation of a QRP group. Naturally Nick was one of the first 30 or so people who made up the club. When we added membership numbers, as the club grew, because of his early involvement and motivation, he became number 2.

His call will live on in the club through the "G2NJ Trophy" an award he presented to the club many years ago [in fact our first award]. This is offered each year to the person we believe to have made the best overall contribution to the club or to QRP operation during the previous year.

### CORRECTIONS TO THE BANDBREAKER RECEIVER - SPRAT 94

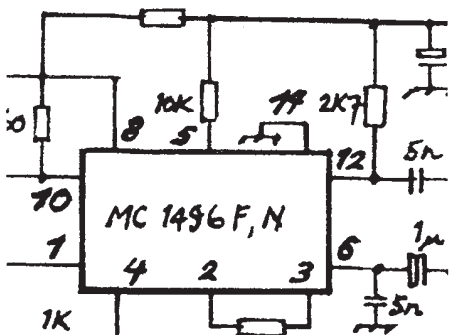
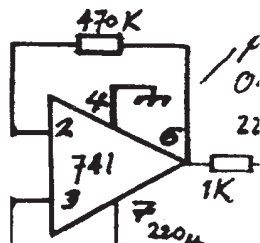


Figure 2 had the pin numbers missing from the MC1496 and the 741 ICs. The numbers are as shown.

Figure 3. The VFO - The 100nF capacitor shown in the gate of the MPF102 should not be omitted (it appears between the 100K resistor and the 1N914 diode on the original drawing.



### IAN WYE GØOKY.

We regret to announce the death of Ian Wye, GØOKY, for many years the G QRP Club Sales Officer. Ian will be remembered in the club for the excellent and friendly service he offered to members buying club items. He was the ideal club officer. He quietly got on with the job, often going further than asked in his dealings with members. Our sympathies are with his wife, Julia, and young daughter, Grace.

Ian's role in the club is now being taken over by Frank, G3YCC, and we thank Frank for stepping in to the gap left by Ian's untimely death. Please direct all club orders to Frank Lee G3YCC 8 Westland Road. Kirkella. HULL. HU10 7PJ

### CLUB OFFER .....WHILE STOCKS LAST

NE602 at £1.75 each inc post

MC1350 at £2.25 each inc post

Cheques to "G-QRP CLUB" (an address sticker is helpful) Orders to: Frank Lee G3YCC, 8 Westland Road Kirkella HULL HU10 7PJ [Please note - the NE602 chips are branded SA602AN]

Also available from G3YCC :

### Radio Projects for the Amateur

by Drew Diamond, VK3XU, Workable plans for the construction of receivers, QRP transmitters, transceivers, test equipment, and some handy construction hints for the practical radio amateur. Available for £6.00 (plus UK postage £1.25, EEC postage £2.00)





## G-QRP CLUB ACCOUNTS 1997-8



INCOME	£	EXPENSES	£
Bank interest	433.35	Awards and trophies	103.98
Sales at rallies etc.	3617.64	Bank charges	745.26
Sales by post	4461.59	Books	839.64
Subscriptions	26000.90	Capital expenditure etc	454.06
<b>TOTAL INCOME</b>	<b>34195.38</b>	Components for kits/sale	3859.61
		Duplicating & copying	213.82
		Miscellaneous expenses	327.00
		Officers expenses	491.03
		Postage	1662.77
		Rally costs etc	617.79
		SPRAT mailing costs	9155.39
Bank c/f	24878.65	SPRAT printing	9619.20
Bank b/f	19166.25	Stationery etc	711.53
	<b>5712.40</b>	<b>TOTAL EXPENSES</b>	<b>28801.08</b>

Again the club is in a healthy financial state. The membership has remained pretty static and the higher amount collected in subscriptions reflects the transfer of funds from Germany and includes some subscriptions from last year too. We also hold dollars and marks in our US and German accounts.

The year has seen several changes. The two standard subscription rates, at £6 for Europe and £8 for DX, have vastly simplified collection and everybody knows where they stand. Unfortunately there are a few folks who have not increased their standing orders from £5 to £6 after four years and they are now so far behind that they will not receive this copy of SPRAT. It would be unfair to everybody else to let this situation continue.

Our overseas representatives, DK4UH, N8ET (who kindly took over North America at the end of 1997), ZL1ABS, PE1MHO, F5OQO, OE6JAD and ON4KAR have again contributed much to the club's efficient collection of subscriptions. We would now have an almost impossible task without their help and it is hard to thank adequately.

Our largest expenses by far are in connection with the printing and mailing of SPRAT. Ron, G3YLL, has done sterling work in mailing SPRAT for some years but had to resign in Spring. In future SPRAT will be mailed by the printer, Shoreham Copy Centre. A bulk posting arrangement means that QSLs can no longer accompany SPRAT but we shall make worthwhile savings during 1998-9.

Many thanks are due to Peter and Betty Jackson (G3KNU and GØNYL) who have been kind enough to audit the club accounts.

G3PDL, Hon. Treasurer. August 1998

# ANTENNAS - ANECDOTES - AWARDS

Gus Taylor G8PG 37 Pickerill Road, Greasby, Merseyside, L49 3ND

## THE G3OEP ANTENNA

Dave Buddery, G3OEP, 33 Addison Road, Gorleston, Great Yarmouth, NR31 OPA

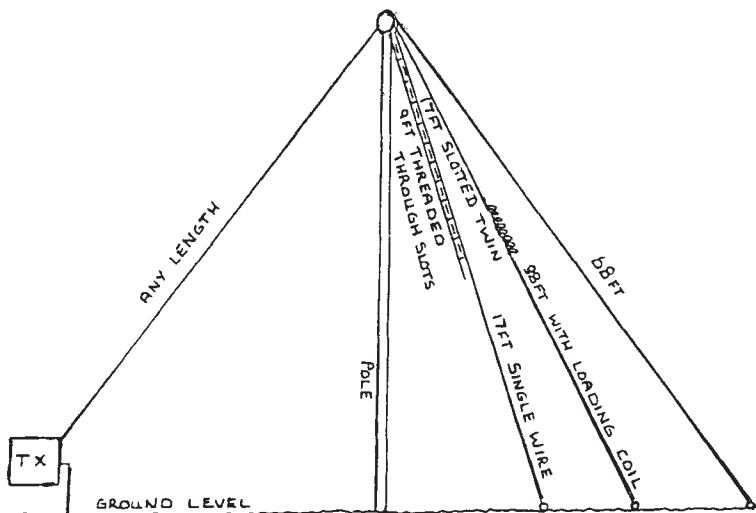


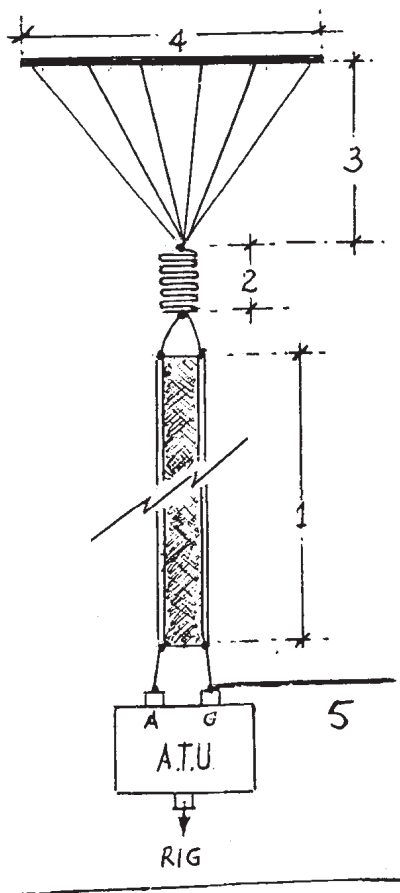
Figure 1.

The antenna is shown in Figure 1. Its principle of operation is that (a) a quarter wavelength long wire will have maximum current at the feed end when fed with a single wire feeder of any length and (b) that maximum radiation will take place around the feed point. In the version shown the antenna is in inverted V form, so requiring only one mast; it could be erected horizontally. As stated the single feeder wire can be any length, but for 1f band operation a minimum length of 45 feet is recommended. The design principles described only apply to the harmonically related amateur bands, but it can be loaded as a random length wire on the WARC bands. The 14 MHz radiator consists of one conductor of a 17 foot length of slotted 300 ohm feeder. The other conductor has an additional 17 feet of wire soldered to it to provide a 34 foot radiator for 7 and 21 MHz. A 9 foot length of wire is threaded through the slots in the 300 ohm feeder to provide the 28 MHz radiator. A 68 foot wire provides the 3.5 MHz radiator. If 1.8 MHz operation is required a 98 foot radiator with a loading coil in the order of 56 uH is suggested. A good ground system and an atu capable of handling a wide range of impedances is essential with this antenna system.

## A SEVEN AND A HALF BAND 8 METRE LONG ANTENNA

AAA Technical Staff

The antenna is shown in the Figure at the side of this paragraph. It consists of a 22 foot length of 300 ohm feeder (1), a loading coil (2), a capacity hat (3) (4), and a counterpoise (5). The loading coil is 40 turns of 18 swg (0,71mm) enamelled copper wire on a 1 inch (25mm) diameter former. It must be suitably weatherproofed. The capacity hat consists of 6, one metre long light, multi-strand plastic covered wires, spaced 2 inches (50mm) apart at the spreader end. The spreader was made from a plastic coathanger. The counterpoise was a 17 foot long wire (approximately 5m) run under the carpet. The antenna is designed to cover the 7 bands 7 to 28 MHz. Best results are when used as a sloper (fed at top or bottom), or as a vertical. It will work horizontally at a reasonable height. The "half band" is 3.5 MHz where results were marginal when used as a sloper fed at the top. A more extensive ground/counterpoise system would undoubtedly improve the 3.5MHz performance. At hf it was good, contacts including two-way QRP with Valere, FM5CW. Note that on 3.5 MHz best results are obtained if both wires in the 300 ohm feeder are connected to the "A" terminal on the ATU. Well worth experimenting with if you are short of space. If you have no 300 ohm ribbon, two wires space about one inch apart should work instead.



WHEN PATRICK , GW0VMR LOST HIS ANTENAS IN A SNOWSTORM a 14x12 foot loop around the walls of his attic shack soon had him back in business - and with reports not very much down on the big outdoor wires !

A READER REPORTS WORKING A /P W on ssb when the guy was walking his dog in the park and operating the QRO hf rig via a 2m handheld!

DOUG, VE7NH says how much he agrees on the subject of automated logs and calling machines in contests. He thinks all contests should have a section for non-automated logs and keying.

## AWARD NEWS

QRP MASTER. It is with great pleasure that we welcome LY2FE and DL1AVH into the Worshipful Company. Well done gentlemen!

QRP WAC. DL1AVH.

QRP COUNTRIES. 75 ZS2ACP, LY2FE, DL1AVH , 25 VU2NGB,F6BLK,GoWAL.

WORKED G QRP CLUB. 1260 GM3OXX (What a man !), 1000 G2DAN (nice !). 450 G4NBI, 320 KB1FK, 300 G4ZHE, 240 GoWAL, 200 GoKZO, G4EIB, GoTUE, 180 Gi4SRA, 160 G4ICP,G4LQO, 100 GM3JOL, DL1AVH, 80, DL1HTX, 2EoAOZ, G3XYO, 60 G4ARL, 40, DJ3LR, 20 F6BCK.

TWO-WAY QRP. 70 DJoGD (great work !), 30 DL1HTX,DL1AVH, 20 GoWAL, 10 F6BLK, DF5WI.

CW NOVICE AWARD. So far 345 issued on behalf of EUCW. If you know a novice get him or her interested in this Award which is backed by our own Club and every cw club in Europe. Remember that the cw mode is still the backbone mode of QRP communication and we must all encourage its use. If QRP cw goes then much of the remaining home construction in amateur radio goes with it. Whereas home brew QRP rigs are common, how many folks home brew computers ? The threat to the future of QRP has increased one hundredfold during the past few months and it is up to us to meet that threat by encouraging the use of QRP in every way we can.

### /P OPERATION WARSAW PACT STYLE !

Holidaying in Italy as IK5/DL2RM Rudi took along an ex-German Democratic Republic military manpack transceiver and the "Hints For The Operator" from an old Red Army handbook. This led him to the following approach. (1) Keep co-ax lines between rig, swr meter and ATU short -1m or less. (2) Connect all radials to the ATU ground terminal, not the rig ground terminal.(3) Use between 5 and 10 radials. (4) Use radials between 5m and 7m in length. (5) Lay the radials on the ground;there is no need to raise them above ground if 5 or more are used. If only one or two are used raise them and tune them.(6) Antenna; use the longest bit of wire that you can, not bothering about resonant length;the ATU will bring the wire into resonance. (7) Get the antenna up as high as you possibly can. Rudi says that he found people in Italy very helpful in allowing him to run wires out, hang them from tall trees etc.From a technical point of view his approach seems good for long wire antennas and it certainly gave him excellent /p results. Short antennas are of course a different matter. Here radiation resistance is low and resistance in the ground or counterpoise system can have a vital effect on antenna system efficiency  
(R.Wolf,DL2RM, Lupinweg 1, 84098 Hohenthann, Germany)

### THIS IS WHERE WE CAME IN !

Conditions this summer are very reminiscent of the summer of 1937, the year G8PG first started adding to the QRM. There seem to be quite long periods of very poor propagation with an eruptive sun and a disturbed magnetic field, but in between there are days when the bands really open up. The forecasts from DKoWCY at the top end of the 10.1 MHz band are very useful. They tell what the sun and magnetic field are doing, and also give A, K and flux information. A most useful service provided by our German friends.

## COMMUNICATIONS AND CONTESTS

Peter Barville G3XJS, 40 Watchet Lane, Holmer Green,  
High Wycombe, Bucks, HP15 6UG.

E-mail: "peter@barville.demon.co.uk" Packet: "g3xjs@gb7avm"

As I write this, the Solar Flux is rising and signals appearing across 10m. So too, I notice, are illegal CB signals around 28060kHz - let's make our presence felt on this (and other) QRP frequencies. Use or lose!

### INTERNATIONAL QRP DAY

This event has always been held on the same day each year (17th June), irrespective of the day in the week. It may well be that when it falls on a weekday many operators find it difficult to put in much time on the bands, and so do not put in an entry. This year there were only two logs submitted, one from G0DJA (Dave) and the other from G4MQC (Stan). Dave's was not a serious entry (by his own admission), and as a result Stan has won yet another event. Congratulations to Stan, who put in a fine log despite poor band conditions making it rather hard going. The rules for the event are very straight forward, so why not make an effort next year and give Stan a run for his money?

### HF LICENCE MORSE REQUIREMENT

The RSGB recently asked for comment following its apparent decision to support a change in the existing UK HF Licence Morse requirement. This change of heart by the national Society is likely to have far reaching implications for all members, and for the hobby generally, and it was felt by Club officers that a response should be forthcoming from G QRP Club. The RSGB conducted a democratic process recently in order to ascertain the views of its membership, and the result showed that there was no majority in favour of a change in the Morse requirement. It appears that the RSGB is now choosing to ignore this decision, and therefore the expressed views of its members.

Ideally, we would have sought the views of G QRP Club members before stating our views, but the RSGB saw fit to impose a very short deadline (31st August) for comments to be received, and unfortunately we were therefore not able to do so. It was felt preferable to respond to the RSGB proposals despite having no opportunity to consult members, rather than let such a major issue pass without reaction from the Club, which has a particularly large membership and interest in the HF bands.

Inevitably, we are now also vulnerable to one of the criticisms we make of RSGB (ie ignoring the views of the general membership), but our action has been to urge proper consideration of the issues, whilst the RSGB is on the verge of committing our hobby to major changes. The wording of the letter sent by G QRP Club to the General Manager, RSGB, was as follows:

Dear Peter

Compulsory Morse Testing

I am writing on behalf of the G QRP Club in response to the change of policy announced recently by the RSGB.

It is not that long since the Society sought the views of all members as to whether the Morse requirement for an HF licence should be retained, but this exercise did not result in sufficient support for a change of policy. Therefore, it is hard to see how you can justify such "a fundamental change of direction" simply by the subjective process of trying to "gauge reaction at grass roots level".

The Morse requirement is still part of international radio regulations, and consideration for amending or eliminating these will not take place for at least another three years. The new form of HF licence you propose will not be recognised by the international administrations who have agreed these regulations and therefore, as you point out, will not meet CEPT requirements.

To say that "Morse is seen as a barrier to getting an HF licence", and then to use that as an argument against the retention of the Morse requirement is quite unacceptable. To carry that argument to its logical conclusion would also mean the removal of the RAE, because no doubt that is also seen by some as a barrier. In fact, the HF bands are not short of activity, and it is obvious to anybody listening across those bands that the number of stations using CW is very similar to the number of SSB users. The bands which are currently under utilised are the VHF and UHF allocations - where CW is not a licensing requirement.

Is the Society's concern about the (alleged) falling numbers of operators on the HF bands, or the proven falling RSGB membership?

The worldwide growth in activity and interest in QRP contrasts sharply with the problem of falling numbers now being experienced by the RSGB. There are few other (if any) areas of the hobby which can claim to encompass home construction, technical interest and development, and the opportunity to communicate with simple and inexpensive equipment. This positive approach to the hobby is proving increasingly popular amongst old timers and Novices alike, and surely offers a more constructive solution to the problem of attracting newcomers.

An Amateur Radio Licence is a privilege, not a right, and access to the HF bands in particular must remain so. In order to receive a driving licence one requires a degree of skill and application, but those sufficiently motivated are successful in their efforts. The Amateur Radio Licence should be no different, but the Society's proposals will only succeed in further lowering standards, and pushing our valuable asset further down the road towards becoming a "cheque book hobby", when it will be hard to differentiate from CB. It is doubtful whether these proposals will even succeed in their attempt to bolster membership numbers.

The issue should be about encouraging participation in this wonderful hobby, and one of the greatest thrills of Amateur Radio is that of making contacts on simple equipment you have built yourself. Experience shows that it is usually with CW that these contacts are made.

The G QRP Club believes the proposed relaxation of the Morse requirement is against the interests of its members, and the many other QRP operators and organisations around the world. More importantly, we feel the proposals to be against the interests of the hobby of a whole.

Yours sincerely

Peter Barville G3XJS *G QRP Club Communications Manager*

Clearly, with a membership as large as G QRP Club enjoys, we will never reach a form of words with which everybody will completely agree, and no doubt you will have your own particular views. I hope that time will still be available over the coming months to register opinions and suggestions, and therefore urge you to make your feelings known to RSGB and the RA.

*(I suggest letters to the RA are rather more important than letters to the RSGB - G3RJY)*

The addresses to use are :

The General Manager, RSGB, Lambda House, Cranborne Road, Potter's Bar, Herts. EN6 3JE  
and For attention of Mrs Karen Scott, Radio Communications Agency, New King's Beam House,  
22 Upper Ground, London. SE1 9SA

May I also ask that, should you wish to write to G QRP Club with any comments on this particular issue, you address your letters to me rather than to George, who already enjoys a particularly large

postbag! I cannot guarantee to answer each letter, as I suspect my postman might also become rather busy, Hi.

George is organising a "CW and the RSGB" Forum during the next Rochdale QRP Mini-Convention in October. This could offer the opportunity for an exchange of views on this difficult subject.

I hope you had a good summer, with plenty of QRP operating - maybe from a holiday location? Let's hope for the long awaited improvement band conditions over the next few months, with plenty of activity around the QRP frequencies (including the WARC bands).

## THE ORIGINAL QRP CONTEST

The popular twice-annual QRP Contest sponsored by Harmut Weber, DJ7ST.

Participants: Operators of original QRP equipment, commercial or home-made, including commercial QRP equipment exceeding 5 watts, like the QRP Plus, FT-7 and QRP versions of QRO transceivers. QRO transceivers (over 20 watts output) temporarily tuned down to QRP are not allowed.

Date: 4<sup>th</sup> and 5<sup>th</sup> of July 1998.

Saturday 1500 UTC until Sunday 1500 UTC, with a rest period of 9 hours minimum in one or two parts.

Frequencies: CW segments of the 80, 40 and 20 metre bands

Call: "CQ OQRP"

Categories: VLP : 1w out or 2w input, QRP : 5w out or 10w input, MP : 20w out or 40w input.

Operation: Single operator CW. Various transceivers and transmitters may be used but only one at a time.

Exchange : RST, serial number / category / e.g. 559001/VLP. No series reports please.

QSO Points: the log checker will count 4 points for a QSO with another contest station whose log has been received. All other QSOs count 1 point. The exchange of RST is sufficient with stations not in the contest.

Multipliers: The log checker will count 2 multiplier points for each DXCC country from a QSO with a station whose log has been received. Otherwise, each DXCC country counts as 1 multiplier per band.

Final Score: Sum of QSO points multiplier by the sum of multiplier points. (Calculated by the log checker. Do not try your own calculation points depend upon other logs received) So every log is welcome, even if just 3 QSO on a postcard.

Summery Sheet: Must show name, address, callsign, and the minimum rest periods. Indicate the types of all equipment used, with output or input power on each band according to the manufacturer or measured under contest conditions. Home-made transmitters should name the PA device and a possible circuit referencé.

Logs: List QSO, sorted bandwise. Add the DXCC prefix if you claim a multiplier for a QSO.

Deadline: 31<sup>st</sup> July 1998 to:

**Dr. Hartmut Weber, DJ7ST, Schlesierweg 13, D-38228 SALZGITTER, Germany.**

## HIGHLIGHT YOUR QRP CONTACTS

by attaching a "Two Way QRP QSO" label to your cards. Black lettering on gold with club logo. 200 labels £2 inc post (overseas plus 30p) For Order Form (or to order now) M.L. Prickett, G3BSK, 260 Haslucks Green Road, Shirley, Solihull, West Midlands, B90 2LR. Cheques: M.L. Prickett. (The G QRP Club benefits from each order.)



# NOVICE NEWS Steve Ortmayer G4RAW

14 The Crescent, Hipperholme, Halifax. HX3 8NQ. Tel: 01422-203062

## The future of Amateur Radio

Members will be aware of the moves to Amateur Radio licencing system. Two main points have been proposed to the RSGB Council.

1 A Novice allocation on Two Metres.

2 Novice participation in RAYNET using their own callsigns. If you have comments on these or other Novice Licence please make them known to the RSGB.

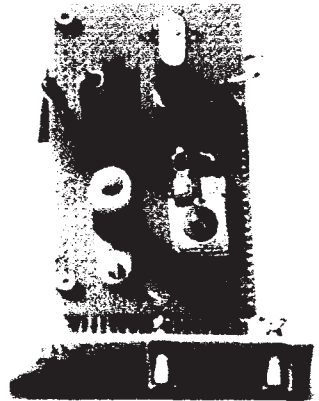
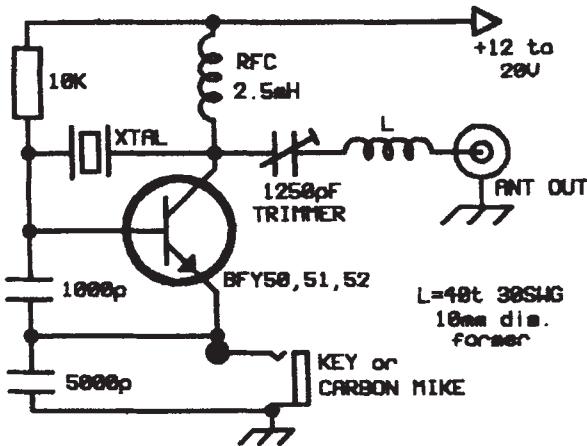
## Project Millecom

Details have been sent to Novice Instructors of Project Millecom to mark the year 2000. It is to be a programme of activities for young persons to expand international friendships through communication by electronic means. There will be prizes for the best projects.

Eileen 2WIBPS has sent details of how she has improved her 6m antenna with a counterpoise of 125cm of TV coax just connecting the braid. This has improved her signal by up to 2-S points. The end of the cable is capped by a moulding from her clothes horse. Eileen has obviously got her priorities in the correct order Amateur Radio before washing clothes!!

## Tiny Talk on Top

Novice op's have often complained that they do not have an allocation on 2m. A way around this is to talk on Top Band where there is a Novice phone allocation and listen on 2m. This would allow a Novice Op to take part in the local 2m net. I have tried the AM rig by G3YQU as modified by GM3HBT details of the original Tx are in the GQRP Circuit Handbook. You need to monitor the transmission because the antenna load can stop the oscillation and you will be talking to yourself!!



## VHF MANAGER'S REPORT

John Beech, G8SEQ 124 Belgrave Road, Wyken Coventry CV2 5BH

Tel. or Fax 01203 617367. Packet Homebbs : GB7COV. Email: john8seq@discover.co.uk

First of all this quarter, I had an interesting article sent to me by Gabriele IK5OSA. He calls it "The LOSER, VHF/UHF Dummy Load". Trying to get hold of suitable carbon resistors to make dummy loads for powers of more than a watt or so is difficult and are not cheap when you find them. Gabriele's idea stems from an old article by James Bowen WA4ZRP in an ARRL publication: "A Calorimeter for VHF & UHF Power Measurements."

I haven't seen this article myself but I can guess that it is an absolute method, which relies on the heat being produced in a large coil of lossy co-ax. IK5OSA has extended this idea by placing a small 50-ohm resistor on the end of some RG174 to terminate it. By using a 30 metre length of co-ax, a 1W resistor becomes a 30 W dummy load at 150 MHz because the cable loss is 15 dB at this frequency. At 432 MHz the loss is nearer 20 dB, so the 1 W becomes a 100 W dummy load! Gabriele goes on to say that even if the frequency is dropped to 7 MHz, the technique is still useful, as this represents a 3 dB loss or doubling the power-handling capability. One of course could increase the cable length to 100 m and uprate the power handling even further.

Normally there would not be any observable effects of this loss, but if the RG174 is coiled up it will get noticeably warm when 10 W or more is pushed into it. This brings me to another point. People have often said to me "I've got a perfect VSWR, but I don't seem to be getting out very well." This is almost invariably due to excessive feeder length with a poor antenna on the end. Any old impedance will look good on the end of a long length of lossy feeder!

IK5OSA doesn't give any construction details, except to say that thin film resistors will work & he reports VSWR's of 1.05, VHF & 1.15, UHF which is close enough for reasonably accurate measurements with a power meter. When I (G8SEQ) terminate co-axial cables, I cut the inner short & solder one end of this to the resistor lead, insulate and pull the outer braid over the resistor and twist round the other end of the resistor, right up to the body & then solder. This is a simple way of putting the resistor inside a co-axial cavity. Alternatively mount a BNC connector on the end of the co-ax & fit a commercial termination, but this only serves to increase the expense!

Now some news from Dave G0DJA. He has been active on a number of bands including 4m & 6m and mentions a transverter produced by the Andover Club. I would be interested in the circuits for this for possible inclusion in SPRAT if any one from the club would like to contact me. Dave has an unattended personal 4m beacon located in Wakefield running 5 W (freq. not given) on in the evenings & weekends unless Dave is actually operating on the band! No doubt he would be glad of any signal reports.

Recently I visited Poland and Germany, and did some operating from the latter country. There seems to be a lot more activity in Germany than here, so why don't you blow the dust off your rig and up the activity this end. Steve DL5SW (G4DFN) assures me that there is always more activity there and it is relatively easy to work the East Coast of Britain even if there is only a moderate lift on 2m.

That's all for this time. I would like more reports and especially VHF construction articles from you, the readers, or any tips for newcomers to the hobby.

## SSB COLUMN : Dick Pascoe GØBPS

Seaview House, Crete Road East, Folkestone. CT18 7EG. Tel: 01303 891106

Email : Dick@kanga.demon.co.uk.

via packet to GB7RMS

David MMØAOF has been very busy with SSB over the past few months. His 10 watts or in some cases 5 watts (PEP) have gained him several contacts which include JW7, OH0, R3, SP4, SQ9, HA, ES0, EI and GB4HMS which was HMS Warrior in Portsmouth. David uses an FT840 or an FT990 with internal ALC backed off. His 'G5RV' at 40 feet seems to work well. He enjoys CW but when venturing onto SSB found even more of a challenge and fun He tells me "it is fascinating and great fun"

Rune SMØGKF has also been enjoying himself, his QSO with Ron, VK3OM got him and 57 report with just 8 watts of RF. He has a regular contact with Ron on 20m usually about 0800. around 14.285 - 14.290MHz

Readers may well have heard of the ELEcraft K2 all band transceiver that has the facility for SSB use too. So far reports on this little rig have been quite good with SSB. I look forward to seeing one when they reach this country. What should be remembered though, that even though Wayne Burdick is an excellent design engineer we have another even nearer to home doing excellent work in the form of Sheldon Hands of Hands Electronics. His SSB rigs will knock spots off most of the competition.

More information can be found on the ELEcraft web pages at <http://www.elecraft.com> or email them at [radios@elecraft.com](mailto:radios@elecraft.com). Hands Electronics can be contacted via [Hands@rf-kits.demon.co.uk](mailto:Hands@rf-kits.demon.co.uk). Of course you will find his advert elsewhere in Sprat.

Not too much information this issue, so please let me have your letters or notes for the winter issue. You can mail them to me as above. 72...

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FOR SALE: TRIO TS120V CW/SSB QRP Transceiver in good working order. Buyer collects or pays carriage. Sale Prices £250. Gerry Maxwell GM4BAE. Northbrae, Brookfield Crescent, Stranraer, DG9 0HY. 01776 - 702876

FOR SALE : GQ40 [Club] Transceiver, full spec, built, with additional audio filter £75. 40m SSB Transceiver, based on G4CLF board, VXO [wide range] tuning, 4w PEP £50 Please ring for details - Ken Maxted, GM4JMU. 0141 - 639 - 5854.

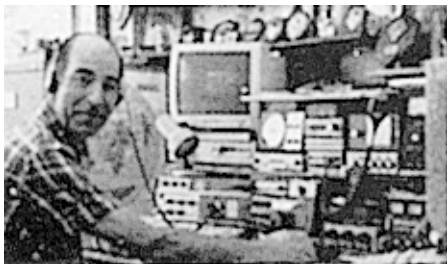
FOR SALE: CENTURY 22 and TenTec PSU, good condition. £350 or ono. Stan. 01785 - 612106 Stafford.

FOR SALE: YAESU FT470 Dual Band Handheld, 2m/70cm plus desk charger and loads of accessories £165 ono

## N.B.T.V.A.

The Narrow Bandwidth TV Association (founded 1975) is dedicated to low definition and mechanical forms of ATV and introduces radio amateurs to TV at an inexpensive level based on home-brew construction. NBTVA should not be confused with SSTV which produces still pictures at a much higher definition. As TV base bandwidth is only about 7kHz, recording of signals on audiocassette is easily achieved. A quarterly 12-page newsletter is produced and an annual exhibition is held in April/May in the East Midlands. If you would like to join, send a crossed cheque/postal order for £4 (or £3 plus a recent SPRAT wrapper) to Dave Gentle, G4RVL, 1 Sunny Hill, Milford, Derbys, DE56 0QR, payable to "NBTVA".

# MEMBERS' NEWS



## by Chris Page G4BUE

Highcroft Farmhouse, Gay Street,  
Pulborough, West Sussex RH20 2HJ.

Tel: 01798 815711 Fax: 01798 813054

E-mail: g4bue@adur-press.prestel.co.uk

Packet: G4BUE on UK DX PacketCluster

**G3YCC** believes there is going to be a lot of great DXing on 17 metres as the sunspot activity increases. Frank QSO'd **W3KC** in Maryland with his 2W to the Cobbweb antenna and has heard "quite a few choice morsels". He smiled when QSOing **W1DQ** who was using 1kW into a three element yagi against Frank's 5W on the Cobbweb. Interestingly though he was calling CQ on 14006kHz and no replies, he came straight back to Frank who says, "He was not that strong (569) and I have often found that you can work stations when they are a bit weak. He may be beaming away from you etc, but it is always worth a quick call".

**SM5LWC** has made "similar observations" on 17m. Near the end of July Gert says "I heard a very weak C6 station, he was about 429 at my QTH. I gave him a call and he came right back to me with a 439 report. I guess that 17m is less crowded than 'the old bands' so weak signals are more easily heard. Interesting though that he was able to copy me when he was so weak with 100W out. I used my QRP+ at 5W to a dipole two metres above ground!". Gert adds that 12 metres is also opening up, he QSO'd a CX and ZB2 on SSB with 5W.

**DL2RM** was in Tuscany on holiday at the end of June and made over 100 CW and SSB QSOs as **IK5/DL2RM**, including half with QRP, using a 30m random wire 10 metres high. During the first week of August, Rudi was due to spend a week with **DL6DQW** in Dresden and use his log-periodic antenna and amplifier and try to convince his friend about the success that can be had with QRP! On 24 July **HB9AMZ**, who was on holiday in Thailand, was QRV on 14060kHz from Long's, **HS2CRU**, QTH with 5W. Kurt's good signal was heard by **G3XJS**, and despite having difficulty hearing Peter due to local QRN, a two-way QRP QSO was completed to give Peter a new one on two-way QRP.

**DL4OBN** (e-mail: <th.roth@apc.de>) recently rejoined the Club and has just got a SG 2020 and "loves it, I don't know what everyone is complaining about. The little rig works CW just fine. I Worked member Einar, **SM5CBC** for starters and lots of islands in the IOTA Contest, all with 3W and my attic-Window! It's sure nice to be back with the gang". Thomas would like to see a QRP net for Europeans. **K3TKS** reports on the KnightLite QRP Net on the USA East Coast every Sunday night at 0130z (9.30pm local time) on 3686.4kHz, a commonly available computer crystal, and which is very active. Danny says there are quite a few crystal controlled (VXO) milliwatt rigs built especially for this net, the SMiteKit is one and is available from Bob Kellogg, **AE4IC** of the Knight Light Club. **GØBQI** is QRV on 80m again "after a rather long time" with a Howes TX/RX that he made some years ago. Morris is using a helical antenna (from information supplied by **G8PG**).

**PA3FPJ** has moved to Nijmegen where he has a new job at Philips Discrete Semiconductors working on the design PA stages for use in GSM telephones. The design is based on silicon bipolar transistors which are mounted (as a chip) on a ceramic substrate, "the radio amateurs dream", he says. Johan is not QRV yet, but will put up an antenna after a holiday in England walking the Pen-

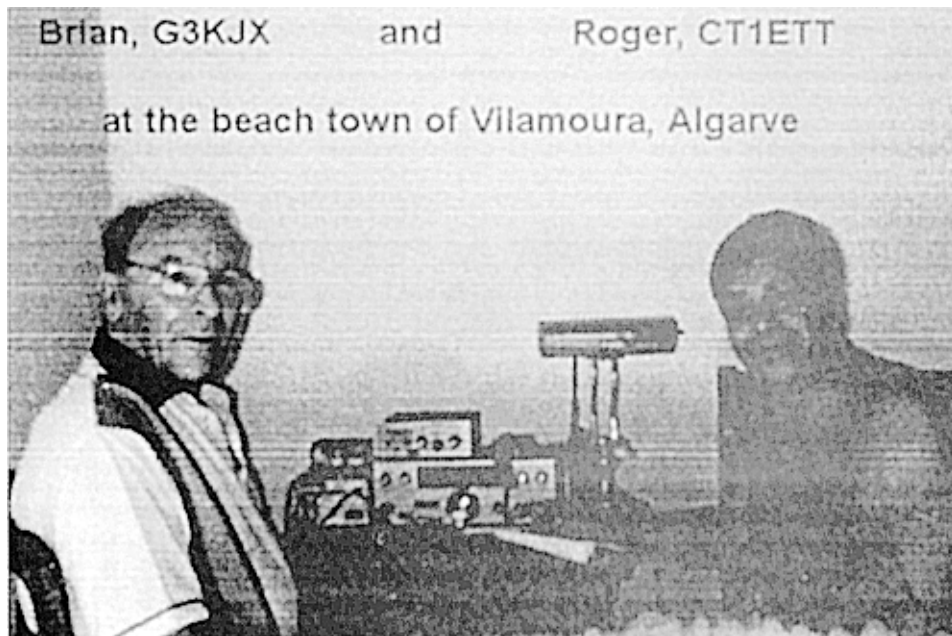
nine Way. **OM2ZZ** (BBS: OM2ZZ @OM0PBM.#ZSL.SVK.EU) is willing to make skeds with anyone who wants two-way QRP QSOs with Slovakia. Rado is QRV on 160, 80, 40, 30, 20, 15, 10 and 6 metres.

**CT1ETT** was QRV at the end of July from Vilamoura in the Algarve while on holiday with his xyl Helena, **CT2YWH**. Roger used his Argonaut 509 for mostly CW, and constructed several antennas, including a FD3-like Windom wired for 10-40 and 15m (two independent wires fed by the same 4:1 balun, made of electrical wire wound over a scrap ferrite rod), and a trapped dipole for the 10, 15 and 20m with a 1:1 balun also made with a ferrite scrap rod and the traps with coaxial wound over 35mm film canisters. He says, "we had the very good luck of making an eyeball QSO with **G3KJX** and his xyl. Actually we have visited each other's homes". Brian spent four weeks in Portugal and although he found conditions "not very good" but did

manage to QSO ZL and VK and 30 and 20m. He and Roger hope to meet again in the summer of 1999 on their holidays.

First QSO for **G4EDX** with his Epiphyte 2 was with **G2CVV** in Derby (from Nottingham), signal report 2 and 9 until John reduced the drive to get 5 and 9! He thanks Kenn, **G0NKZ**, for introducing him to the rig, which he built into an old Pye Whitehall control box. It was a bit of a squeeze, but the extra front panel holes aid PA cooling. **DL4OBN** "really had a ball on 15m" in mid-August when he had QSOs with W1, 2 and 3 and VE3 and 9, followed a few days later with W2 and V26E on 20m, all with his SG-2020, 3W and his attic Windom antenna. Thomas says, "had a nice QSO with Marc, **2E0APH** (G-QRP 9571) on 10m recently. He has a real nice fist. Good we have a few youngsters joining the ranks every now and then".

**DF2OK** was planning to spend his holiday on the Island of Foehr in the North Sea (IOTA EU-042, DIA N-017) during the last



I have never seen the original of the photograph above of Brian, G3KJX, (left) and Roger, CT1ETT! It was sent to me in .TIF format over the Internet by Roger.





Is this where Frank, G3YCC, does his home-brewing!?

weekend of August, and was hoping to make QRP QSOs with his Sierra CW transceiver for 80, 40, 30, 20, 17, 15 and 10m. Did you make a QSO with Michael?

**G4GIY** bought an IC706 Mk II for mobile and caravan use, and after unsuccessfully trying the Pro-Am 80m whip, bought the Comet CA-HV which covers 40, 20, 15, 10 6 and 2m, just before going to Brittany for his holiday. With it mounted on the car roof, and operating from the caravan in Brittany with just 5W, Robin worked European stations on 20 and 40m, including two-way QRP QSOs with **F5LVA**, **GW3ITT** and **FB1LKU/P** (on holiday in the Pyrenees), and then **S57A** and **S58J** on 6m for his first ever QSOs on the band. He heard several VKs around 14056kHz, including **VI2CAR** who was very strong on several occasions, and Chris, **G3TUX**, working him, but Robin couldn't get through. He then QSO'd **VE2KN** on 20m for his first ever transatlantic QRP QSO (and first ever two-way QRP transatlantic QSO as Jim was running 3W from his Sierra!) Robins says, "next I shall be getting the mobile station set up to see what I can achieve from the M1 motorway - a place where I spend far too much of my time!"

**DF1GN** writes to thank the G-QRP Club for selling him a HW8 on their stand at Ham-

*Radio* in Friedrichshafen for a cheap price because the band-switch was defective and there was no manual with it. Norbert tested it for a few hours over the next two weekends and made QSOs with 4X, 4L, EA8, UA9, W2 and W4 with about 1.5W into his doublet fed with open-wire feeder. **G3LHJ** entered the German QRP Contest at the end of July and had QSOs with **FM5CW** and **SV1KU** for two new ones on two-way QRP. Derrick stuck

mainly to 20m with his Oak Hills transceiver. **ZL4SEA** says "long haul QRP conditions have been down in the doldrums for June and much of July, but picked up over the end of July and the beginning of August". George's log for 17 May - 13 August shows two-way QRP QSOs on 20m with **G3XJS**, **ON5UP**, **SP5AGU**, **OK1DXK**, **GWØVSW**, **G3RJE**, **G4INM**, **DJØGD**, **9A9RA**, **OM2WW** (twice), **OK1DVX**, and **GØIEE**, and **GWØVSW** on 30m (10137kHz). He will be QRV Sundays on 10137kHz for 15 to 30 minutes each side of the UK sun-rise.


Are G-QRP Club members shy about having their photograph or pictures of their shacks and homebrew equipment published in *SPRAT*? I think they must be! Why? Apart from the photograph of **G3YCC**, which Frank sent to me a long time ago, the photograph of **CT1ETT** and **G3KJX** is the only one I have received since the previous edition of *SPRAT*. Remember the saying that a picture is worth a thousand words? It is so very true. Please don't be shy! Share your looks, your shack your home-brew equipment with your fellow club members by sending photographs to me. I can always return them after scanning if they are the only copy you have. Let me know how your autumn goes, by 20 November please.

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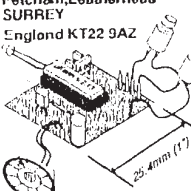
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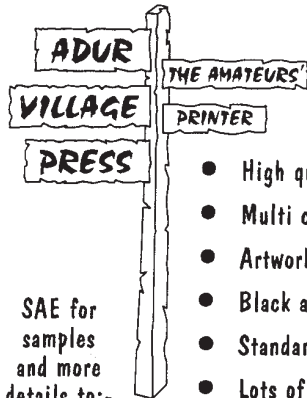


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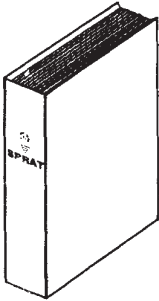
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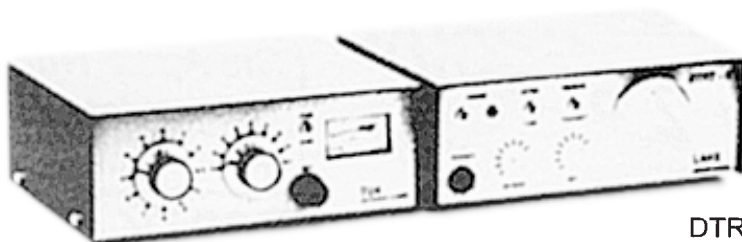
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