



# SPRAT

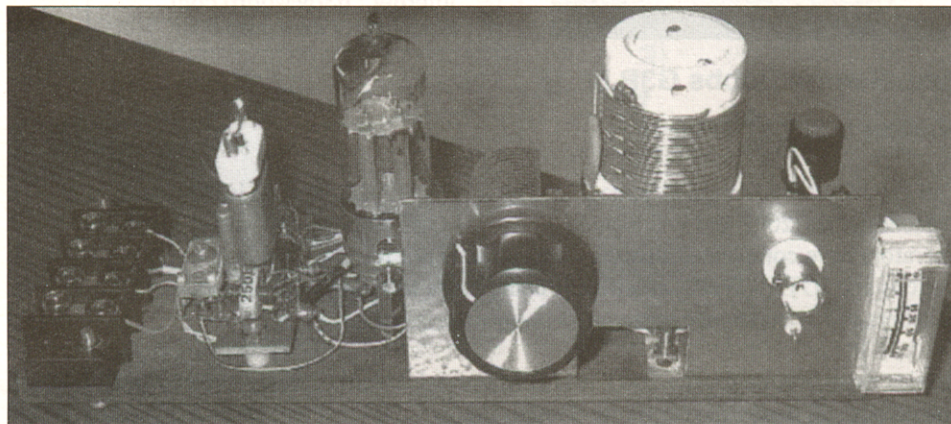
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Spring 2003



**The 12BH7A Push-Pull Transmitter for 30/40m  
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# JOURNAL OF THE G QRP CLUB



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## Rev. George Dobbs G3RJV

Welcome to SPRAT 114,

Can I draw your attention to page 35? The RSGB HF Convention is moving to Manchester for 2003 and will include a one-day QRP Forum. For some time QRP operators have complained that the convention is not for them but is about big-gun QRO stations and IOTA. Well – an effort is being made to redress the balance and I hope members will want to take part.

Entries close in June for the 2003 W1FB Memorial Award. I have received several good entries but still have time for more. Details below.

Enjoy the “antenna weather” 72/3

G3RJV



## The W1FB Memorial Award 2002

For 2003, the project is to

**Design a Superhet Receiver [simple if possible]  
for one or more amateur bands**

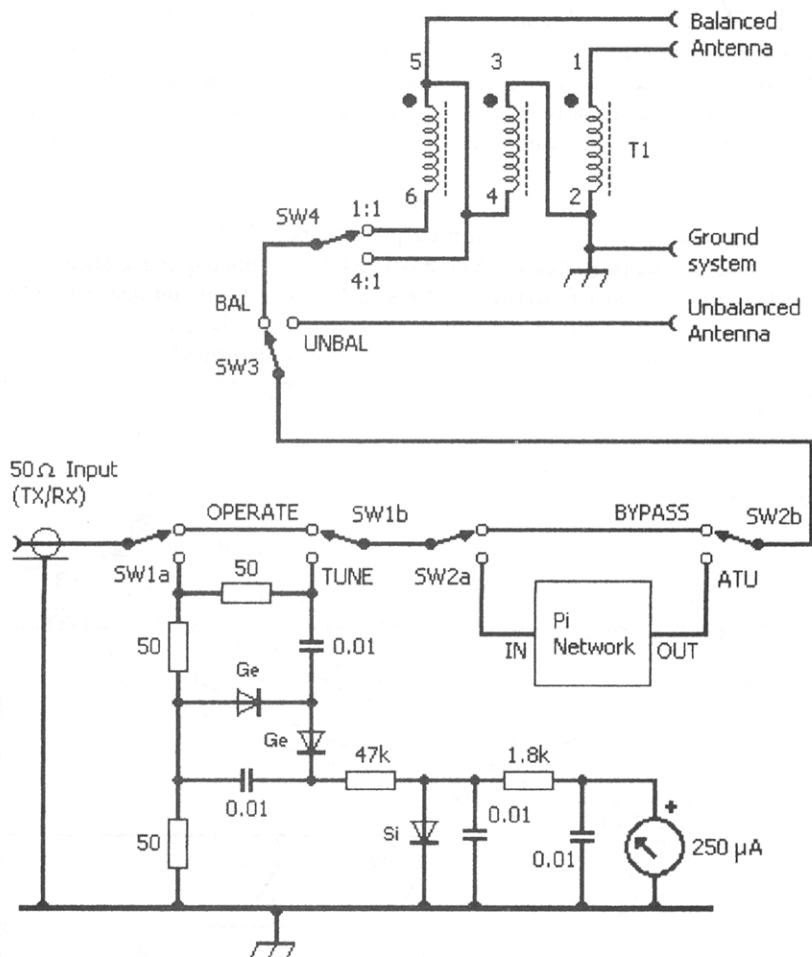
Please submit your design to G3RJV as soon as possible, with circuit sketch, all values and brief notes. The project will be published in SPRAT and the winner will receive an engraved plaque.

EDITED BY GEORGE DOBBS G3RJV ARTWORK BY A.W. (MAC) McNEILL G3FCK  
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# The 'Carlton' Portable Antenna Matching Unit

Steve Rawlings GW4ALG, 14 The Paddock, Chepstow, NP16 5BW, UK

When I first started going 'bicycle portable', I found myself transporting numerous items of equipment to cope with a range of portable antennas. What I really needed was a single, compact unit to provide the combined functions of dummy load; SWR meter; multi-band antenna matching unit (AMU); and balun. The resultant design described here was first used in the 2002 Power Management Challenge, using an inverted-V doublet having a 40 m top and 10 m of balanced feeder. The *Carlton* successfully matched the doublet on all bands, and has been used subsequently in numerous QRP applications – both fixed station and portable.



The general arrangement is shown above. Novel features of the *Carlton* include a balun with switchable antenna-to-AMU impedance transformation ratios of 1:1 and 4:1; plus the use of 'flat' coils to save space within the small ABS plastic case, in which the unit was constructed.

For portable operation, I prefer to terminate antenna wires; feeders; and ground wires onto 4mm 'banana' plugs. Consequently, I used 4 mm sockets for all four of the external ground and antenna connections. Miniature toggle switches were used for SW1-SW7, but note that SW1 and SW2 are both double-pole changeover types.

### Reflected Power Indicator

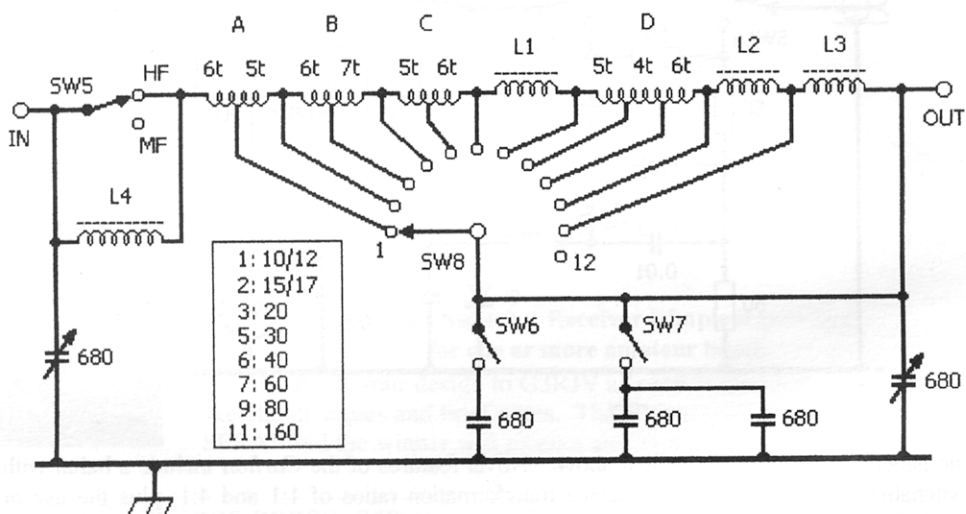
I am grateful to Ha-Jo Brandt DJ1ZB for the circuit of the reflected power indicator which I have found works very well [G-QRP Club Circuit Handbook, 1983, Page 63]. For the germanium (Ge) diodes, I used type OA95; the silicon (Si) diode was a 1N4148. The 250 uA moving coil meter was obtained from Maplin (part number LB80B, internal resistance of 675 ohms). The 50 ohm resistors should be 2 watt carbon types.

When transmitting in the TUNE mode, the meter indicates relative reflected power. The 47k resistor sets the meter sensitivity; and the 1.8k resistor sets the maximum pointer deflection. The 50 ohm resistors in the bridge circuit maintain a safe load for the transmitter – regardless of what's happening at the antenna (even if it's been disconnected!). Hence, when in the TUNE mode, the *Carlton* serves as an adequate dummy load when testing QRP transmitters.

### Pi Network

The antenna matching circuit uses the well-tried 'pi' network. SW8, a 12-position rotary switch, is used to select the tapping points; and SW5 selects additional inductance when using electrically-short antennas on 1.8 MHz. The table included in the circuit diagram indicates the typical switch positions for each of the amateur bands. Naturally, the actual switch position required for a given band will depend upon the impedance presented by the station antenna. SW6 and SW7 and the associated 680 pF capacitors are required to provide sufficient tuning range on 80/160 m.

Many of the twin-gang air-spaced variable capacitors found in old broadcast receivers would be suitable for this project.





## Coil Details

Due to space limitations within the case, I decided to use a combination of space-saving toroidal inductors, and tapped air-spaced coils wound on plain 0.1 inch matrix board. Of course, there is nothing particularly special about the size of coils that I used – they just happened to work!

L1 – 17 turns, 26 SWG enamelled copper wire on T50-2 ring core.

L2 – 23 turns, 26 SWG enamelled copper wire on T50-2 ring core.

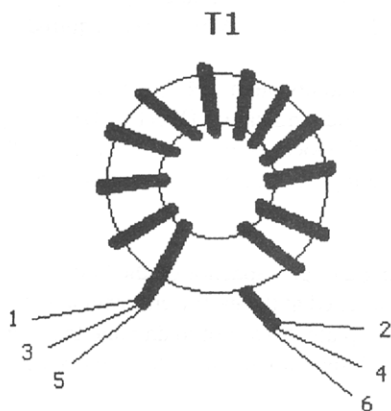
L3 – 23 turns, 26 SWG enamelled copper wire on T80-2 ring core.

L4 – 38 turns, 26 SWG enamelled copper wire on T80-2 ring core.

T1 – 12 bifilar turns, on T130-2 ring core. The wire gauge is not critical: multi-strand wire salvaged from a length of mains flex would be fine. Start by twisting three wires together at about one twist every 15 mm. Wind 12 turns on the ring core, and label each of the three wires at the start of the winding with the identification numbers 1; 3; 5, then label the other end of each wire with 2; 4; 6 respectively.

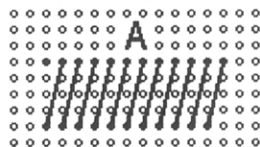
In all cases, one pass through the centre of a ring core counts as one turn; two passes as two turns, etc..

For all coils A - D, I used plain solid-conductor copper wire from my junk box that, luckily, was a snug clearance fit within the holes of the matrix board.



Coils A and B were formed into 'open' solenoid coils.

Coil A: 11 turns, 3 clear holes



Coil B: 13 turns, 4 clear holes

Coils C and D were wound 'flat', against the matrix board.

Coil C: 11 turns, 14 clear holes

Coil D: 15 turns, 19 clear holes

## Suggested Improvements

- 1) To facilitate the use of 'strapped feeders', install another unbalanced antenna socket in parallel with the existing one; or use an external adapter.
- 2) Attach a plastic document wallet to the top of the unit. Then add sheets of paper to the wallet for each antenna type used, detailing the optimum switch and variable capacitor settings for each band.

## Support

Those needing help with the construction of the *Carlton* are welcome to write to me, enclosing an SAE. Updates and useful tips from other constructors will be maintained on the GW4ALG web site at: <http://www.alg.demon.co.uk/radio/qrp/equip.htm>

## Using the Elecraft K2 on 5MHz

David M Pratt G4DMP, 11 Moorleigh Close, Kippax, Leeds LS25 7PB

The K2 is designed to operate on all the usual h.f. bands from 10m to 80m, or to 160m with the optional K160RX module. With the issue of the 5MHz Notice of Variation for which UK amateurs could apply for experimental and test purposes, there was a need for K2 users to extend the coverage to include the five 5MHz mini-bands.

It is the intention of Elecraft eventually to supply an internal K60XV (60m + transverter I/O) board for 5MHz, but the design is no longer a priority following the FCC turning down the ARRL request for a 5.25 - 5.40 MHz band. To meet the immediate need of UK 5MHz NoV holders a simple temporary modification can be made to the K2 to enable it to operate on the 5MHz bands. The suggestion was made by Wayne Burdick N6KR, one of Elecraft's founders, so the writer claims no credit for it other than having carried out the modification and tested it thoroughly.

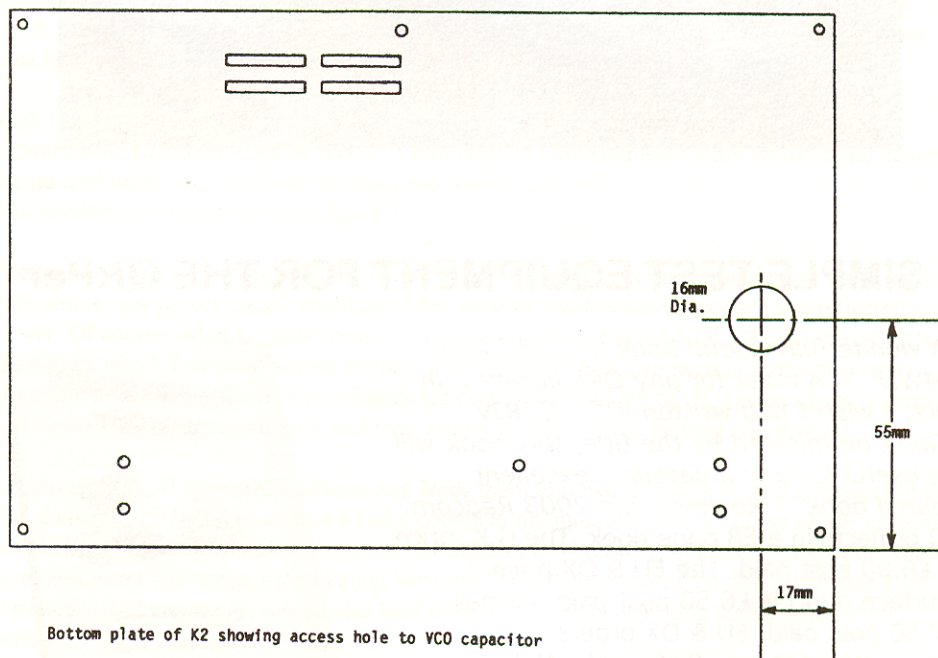
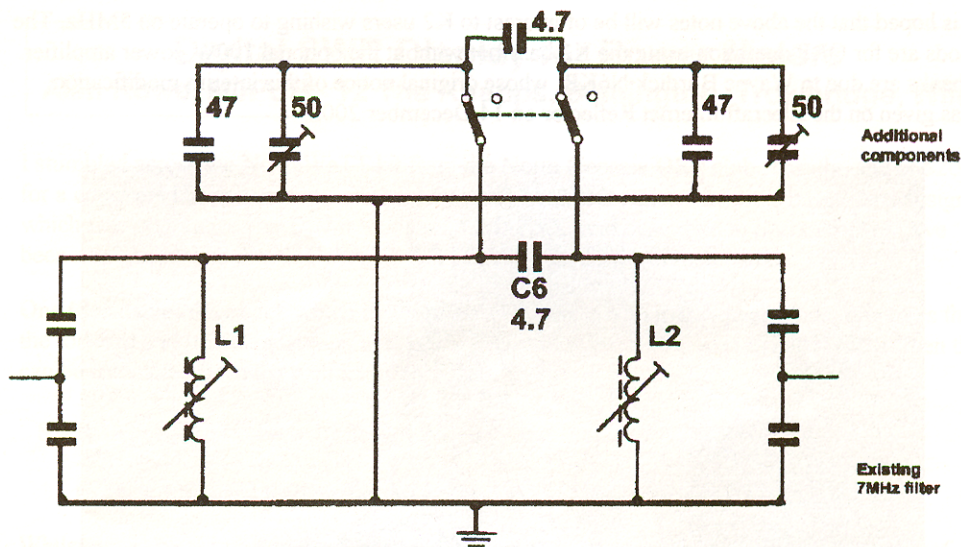
In brief, the modification is to use the 7MHz band setting but to switch in additional capacitance to the 7MHz band pass filter enabling it to tune 5MHz. Additional capacitance is also required in the VCO to ensure the PLL remains in lock down to 5MHz. To enable the K2 to operate as normal, these modifications use miniature toggle switches to select 5MHz when required.

Firstly, the components needed for the band pass circuit modification: a 4.7pF capacitor, two 47pF capacitors, two 50pF miniature ceramic trimmers and a miniature DPST or DPDT toggle switch. The circuit is given below and the photo shows the location of the components at the back of the main PCB. The switch is positioned so that it protrudes through the hole labelled IN XVRT in the angled back plate of the K2.

The second part of the modification involves connecting a 68pF capacitor on the bottom of the main PCB across the existing C71. The capacitor is switched at the earthy end with a SPST switch, this being accessed through a hole in the bottom plate. So as not to damage the original bottom plate, another was made from 18swg (0.048") aluminium, a 5/8" hole giving access to the capacitor and switch.

### Alignment

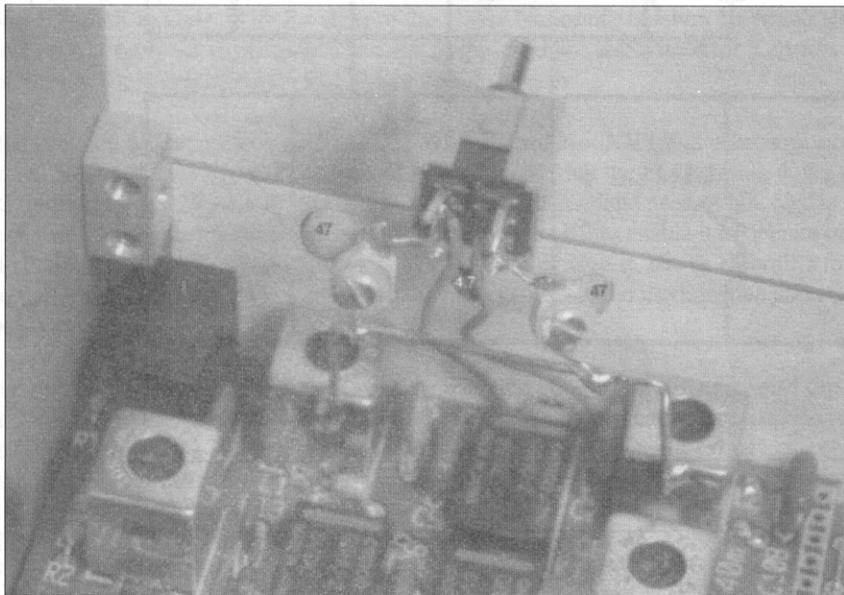
With the K2 switched to 7MHz and tuned to the middle of the band the cores of L1 and L2 should be adjusted for maximum output. Switch over the two toggle switches and tune the K2 down to 5.260MHz. Ensure that the voltage appearing at R30 is within the range 1.5 to 4.5V when tuning between 5.260 and 5.405 MHz. Alter the value of the 68pF capacitor to obtain this range if necessary. Although page 58 of the K2 manual recommends a range of between 1.5 and 7.5V, it has been found that the CW note is impaired with voltages towards the top of this range. Using a dummy load and/or power meter peak the two trimmers for maximum output at 5.3MHz.



Bottom plate of K2 showing access hole to VCO capacitor

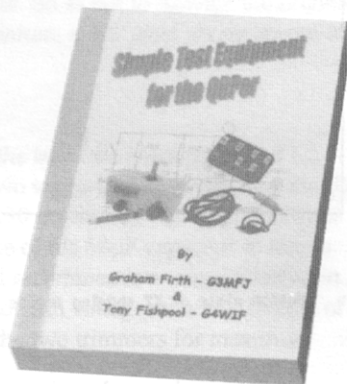
The memories may be used to give easy selection of 5MHz and 7MHz. For example, memory position 7 could be used for 40m and positions 1 to 5 for each of the 5MHz channels. Remember to move the two miniature toggle switches to the correct setting when selecting the 5MHz and 7MHz bands.

It is hoped that the above notes will be of interest to K2 users wishing to operate on 5MHz. The mods are for QRP operation using the K2 barefoot without the optional 100W power amplifier. Thanks are due to Wayne Burdick N6KR, whose original notice of this interim modification was given on the Elecraft Internet Reflector on 14 December 2002.



## SIMPLE TEST EQUIPMENT FOR THE QRPer

*"A wonderfully useful book by G3MFJ and G4WIF .... A must for any QRP library .. in fact, I wish I had written it!" - G3RJV*  
*"Don't be mislead by the title, this book will be useful for any amateur... excellent source book" - Review - Jan 2003 Radcom.*  
20 projects in a 58 page book. The U.K. price is £6.00 post paid. The EU & DX price (surface mail) is £6.50 post paid. Airmail £7.50 post paid. EU & DX orders International Money Order only. Make cheques & money orders payable to "G.Firth" and post to 13, Wynmore Drive, Bramhope, Leeds, LS16 9DQ UK - see [www.fishpool.org.uk](http://www.fishpool.org.uk) for U.S. orders.



## Digital SWR Display for Power Meters

Alan Rowe, M0PUB, 12 The Knapps, Semington, Trowbridge, Wilts.

I stumbled across the NoGaWaTT kit from the North Georgia QRP club recently, and at \$20 for a complete HF power meter (excluding case) I couldn't resist. The kit is based on a design which was popularised by David Stockton, GM4ZNX, and described in Sprat issue 61. I've been so pleased with the NoGaWaTT that I haven't used my old meter since.

One (debatable) drawback which the NoGaWaTT shares with many other power meters is that the forward and reflected powers are shown independently. If you need to know SWR, then this can be calculated from the well known formula:

$$\text{SWR} = \frac{(\text{Forward Power} + \text{Reflected Power})}{(\text{Forward Power} - \text{Reflected Power})}$$

Whilst this is no big deal to work out, it is inconvenient if you just want a quick indication of whether it is safe to transmit without harming your PA. A lot of commercial SWR meters get around this by using the cunning cross-needle meter arrangement to effectively perform the SWR calculation mechanically. However, unless you have an old cross-needle meter in your junk box, this isn't an option for the NoGaWaTT or other homebrew equipment.

With this in mind, I developed a little circuit to continuously perform the conversion from forward and reflected power, to SWR. It probably isn't the simplest circuit which could achieve the desired result, but it's cheap to make and works very well.

The resulting circuit is shown in figure 1.

Although I designed it to go with the NoGaWaTT, I think this circuit should work fairly well with almost any power meter which provides separate indications of forward and reflected power. Of course, what is really measured is forward and reflected VOLTAGE (at least, it is on the meters which I've come across so far). The results are just displayed in terms of power assuming a 50 Ohm system. The voltages are converted from RF to DC (generally by a simple half-wave rectifier arrangement), and then displayed on a pair of moving coil meters.

My circuit taps off these DC voltages and feeds them into two channels of A/D converter in the PIC. I chose a PIC16C71 because I had a couple in my junk box, but of course newer variants could also be used with minor changes to the firmware. The PIC is clocked by a 4MHz crystal, again because I had some, but anything between 3 and 4MHz should be fine. Mine was built on Veroboard, but the design should also lend itself to 'island' or dead-bug construction if you prefer.

One very important point to note is that the A/D inputs to the PIC must not exceed 5V. I wound the toroids in my NoGaWaTT for a 12:1 voltage step-down, so 5V DC after peak rectification corresponds to a peak input voltage of  $5 \times 12 = 60\text{V}$ , hence a peak power of  $60^2 / 50 = 72\text{W}$ , or 36W rms. This is more than enough for me, but if your meter produces a bigger output voltage, then the A/D inputs will need some attenuation.



The necessary maths is easy going for a PIC, and the SWR display is updated in real time: in fact about 10 times per second. The result is shown on a two digit seven-segment LED display which is multiplexed by the PIC. Each of the seven segments, plus the decimal point, of both digits are connected to the eight pins of PIC port B. Pin B0 goes to segment A, pin B1 goes to segment B...and so on. B7 goes to the decimal point indicators of both digits.

I got my LED display from JAB Electronics, their part number 7SD-14MRC, and the resistor values shown in the schematic were chosen to give a good compromise between current draw and visibility. If you use a different display (or have a better-lit shack than mine!), you may need to adjust the series resistor values.

SWR is always displayed in the format X.Y so the highest SWR which can be shown is 9.9, but in practice I don't find this to be a limitation (an SWR approaching 9.9 is pretty bad news anyway). If the SWR is greater than 9.9:1, then the display still shows 9.9 since I find this easier to assimilate than some form of over-range indication.

If the forward voltage is less than 1/10th the maximum value then accuracy is much reduced, so rather than risk a misleading value, the display just shows "-". If reflected voltage is greater than forward voltage then something has gone wrong (e.g. TX and Ant. connections have been swapped) and the display shows "E" for error.

The PIC firmware, including source code, is available from the internet at <http://www.qrp2001.freemove.co.uk/swrmeter.htm>

There are a number of devices which can program the PIC16C71, so hopefully you should be able to find someone who can help get the firmware onto yours. However, if you get stuck then contact me directly by email at [alan@rowe9.freemove.co.uk](mailto:alan@rowe9.freemove.co.uk)

To find out more about the PIC processor range I recommend that you start at the microchip web site (<http://www.microchip.com>). As well as data sheets and application notes, you can also download an assembler (MPASM) so that you can modify my source code to suit your own preferences, and then re-assemble it.

One final note: I only switch on the SWR display when I need it, which in practice isn't all that often. Since the circuit doesn't take very much current anyway, I think that a PP3 battery should last for years.

(With thanks to G0BBL for proof reading and comments)

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## MEMBERS ADS

FOR SALE: Icom 726S 10W Tcvt. 160-6m. Internally adjustable to 5watts or less if required. With mobile mount, fitted 500Hz cw filter, GWO but needs minor repairs as 50pc of display lights u/s and front headphone skt u/s. Rear skt ok. Mic needs a plug. £325. Call Steve G4MPK on 01424 893386 or e-mail [stephen.foster27@btopenworld.com](mailto:stephen.foster27@btopenworld.com).

FOR SALE: Army RX R109 + CCTS £30, Yaesu FRG7700, needs slight attention £70, Drake R4C, fitted calib & CW filter, good condx £130, MX14 + spkr, mic + case + nicads £120 G4UDG, Tel: 01782 560218

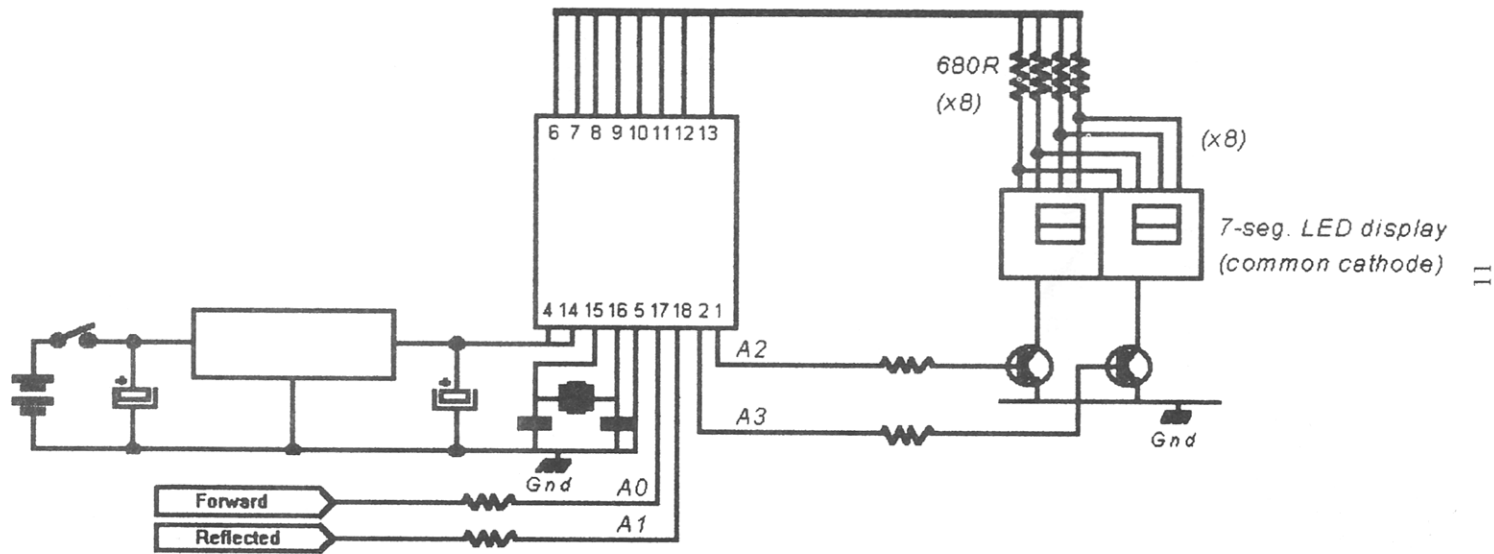
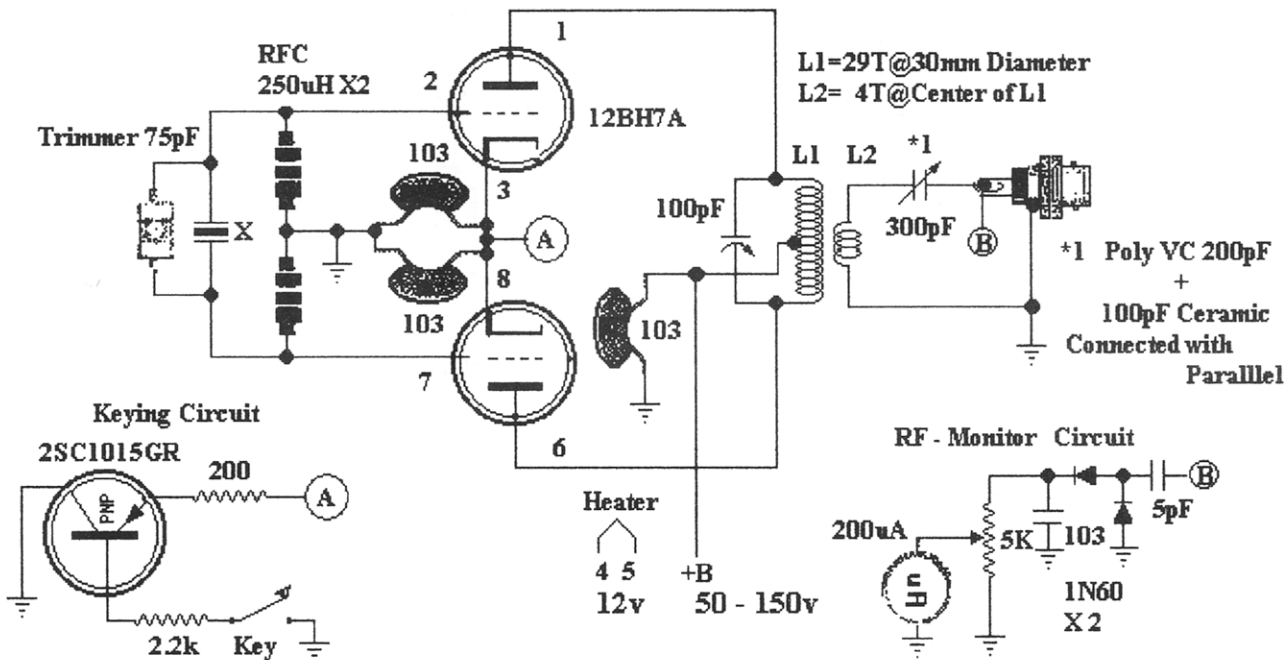


Fig 1: SWR calculation and display

# 12BH7A Push-Pull QRP Transmitter for 30m / 40m Band



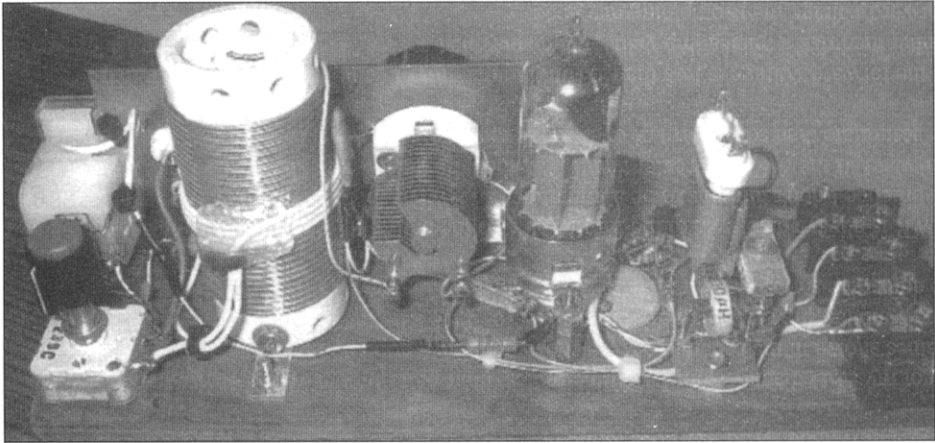
**12BH7A Push-Pull Transmitter for 30/40m**  
 Hehiko Komachi JA9MAT, 44-10 Ishize-Hommachi, Takaoka City,  
 TOYAMA. 933-0011. JAPAN.

## Power Rating

Vp(V)	Ip(mA)	Po	Vp(V)	Ip(mA)	Po
10	1.3	5mW	80	17.0	500mW
20	3.2	25mW	100	21.5	750mW
30	5.4	70mW	120	26.3	1.2 W
40	7.9	100mW	140	31.2	1.7 W
50	9.9	150mW	160	35.5	2.0 W

Notes:

- 1) I tried several tubes in the circuit  
 12AT7, 12AU7, 6RHH2, 6CG7 and 12BH7A [the same pin connection.]  
 The result is that 6CG7 is better than 12BH7A for QRH and out-power.  
 Both 12AT7 and 12AU7 are not good power ratings. (ex; 1W@Vp=200V)  
 (Result in order of usefulness; 6CG7>12BH7A>6RHH2>12AT7>12AU7)  
 It seems that the bigger PLATE is better.



- 2) The TR Keying circuit reduces the QRH (Chirp), so must be added.
- 3) RFC (250mH) is from an old YAESU rig. So called PEAKING-COIL used in old TV set.
- 4) Frequency shift has about 2 or 3KHz around the fundamental frequency.
- 5) But the Japanese "law" does accept for QRV by PP2/J, because the only 1-stage TX is bad! hi  
 So I built it for experimental use only.  
 Please enjoy PP2 in your version and QRV in your country!  
 It's simple but efficient Tube Transmitter.  
 My thanks to GM3OXX for the Original Version of PP2.

## The Small Wonder Labs PSK20: Small CAN be better...

Peter Halpin, PE1MHO / M3ECN, Ch Kohlerst 69,  
7558 VB HENGELO The Netherlands

If you ask me, the astounding success of the Foundation license is tempered only by the restrictions on home-built equipment. Many M3 holders who have been active for any time on VHF with Class B licenses are very competent technicians - after all, it requires a lot more expertise to build a decent rig for VHF and up than it does for say 40m - but the rules state that only properly-designed kits are allowed. Another group of builders who can miss out on building their own equipment are the younger (or older!) newcomers who just can't afford to buy even a used rig to get on HF. This group doesn't have the experience of building, and I fervently believe that they should be encouraged at every opportunity. One major problem is that CHEAP often equates to NASTY...

So what can be done about this? Well, there is a way to get on HF on a shoestring and yet be able to reach all parts of the globe without too much difficulty with a well-designed rig that meets all reasonable demands of stability and spectral purity, that doesn't cost an arm and a leg, and is also wife-pleasingly compact. This answer to a maiden's dream has been designed by Dave Benson K1SWL (ex NN1G) of Small Wonder Labs <<http://www.smallwonderlabs.com>> and is called the PSK20. It should be noted that there are also similar models for 30m and 40m, and two designs that are somewhat different for 80m and 10m. As I was looking for something for 20m - using my K2 for PSK31 seems a bit overkill - I decided to order a PSK20 and the all-important matching case...with my metal-bashing skills that case is a definite plus!

So what is the PSK20? Well, it's basically a fixed-frequency crystal-controlled superhet SSB rig that has been slightly modified to allow the use of PSK31. This is a mode that has already proved its worth for QRP operators, and there is a plethora of free and not-so-free software available. The PSK20 has been designed with a relatively wide xtal filter to allow optimum use of the freeware program DigiPan. There are others that will also work - such as Simon HB9DRV Brown's amazing PSK31 Deluxe, and WinPSK or WinPSKse. Dave has made clever use of cheap computer crystals which result in a zero-beat frequency of 14.073: in effect this is LSB, which is not standard on 20m. This is not a problem, as the software will compensate for this - after all, we are only interested in audio tones, not RF frequencies. Nobody will notice the difference unless you try to use QPSK, which requires both stations to use the same sideband.

The kit itself is complete (with one notable exception which I'll come to later) and of good quality. The silkscreened PCB is very nicely made, with almost all components clearly marked. The exceptions are clearly indicated in the excellent kit instructions. Assembly is quite straightforward, with only three toroids to be wound for the LPF, and a simple 4:1 transformer in the PA's output stage. The instructions for winding the coils make it easy for a first-timer to get this right. I don't know why people fuss about winding toroids, but there are more than a few who just hate it. Construction took me about three hours in two sessions following the instructions to the letter. Normally I'd not bother and just refer to the circuit diagram and component list, but I wanted to look at this from a beginner's perspective. Alignment was very simple, but I have to admit to deviating from the recommended procedure when setting up the BFO: I used a noise bridge and a program called Spectrogram to optimise the bandpass characteristics. Careful alignment of the TX section resulted in an output of just over 3W, which will ensure lots of world-wide contacts using even a dipole.



The one exception to completeness that I mentioned earlier is that the DB9 connector supplied with the rig is a MALE. This is non-standard, and means that you either have to buy/make a cable with female connectors at each end, or buy a gender changer. I opted for the later, as I just loathe non-standard cables floating around in my shack.

As my M3 call can't be used here in the Netherlands I have had to do all my TX testing on a dummy load: this showed that the rig can produce a pretty grotty signal if overdriven - but then we all knew that, didn't we? As long as you keep the output at about 80% of maximum you can almost guarantee a decent signal. I'd also recommend the use of isolating transformers in the audio cables as a matter of course: these can be removed from junked telephone modems, and help clean up your act if you are having problems with RF getting back into the TX audio. Reception using the PSK20 is surprisingly good: it can't compete with my K2, but it is no worse than my FT-817. The only real problem that I have noticed is that very strong signals can overload the AGC at times. This can be solved in many cases by disabling the AGC by grounding pin 5 of the MC1350 IF amplifier chip. Adding a front-panel LED to indicate power output is also a good idea: there are pads on the PCB that allow for this.

All in all I am very pleased with the PSK20. For the \$145 including the case and postage it is a realistic entry-level rig for new licensees and those interested in PSK31. I am looking forward to my holiday in Scotland this June: watch out for MM3ECN/P around 14.070.

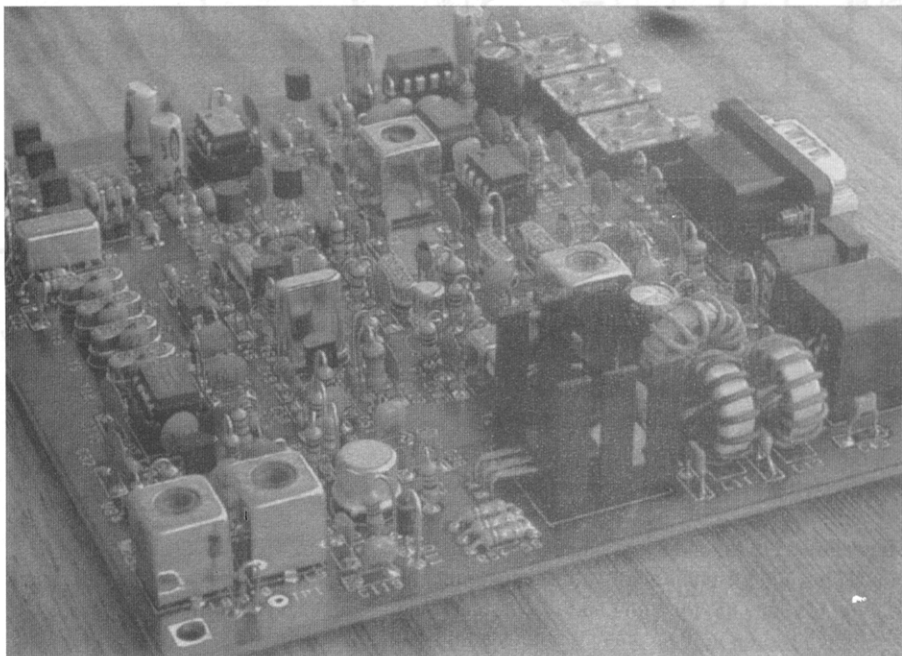
Useful URLs:

<http://www.halpin.tomaatnet.nl> (PSK31 Deluxe and FT-817 Commander)

<http://www.winpskse.com> (WinPSKse)

<http://www.digipan.net> (DigiPan)

<http://www.aintel.bi.edu.es/psk31.html> (loads of info about PSK31)



## Converting the 20m MFJ Cub to VXO operation

Ian Braithwaite G4COL, 28 Oxford Avenue, St Albans, Herts, AL1 5NS  
(e-mail: ianb@g4col.demon.co.uk)

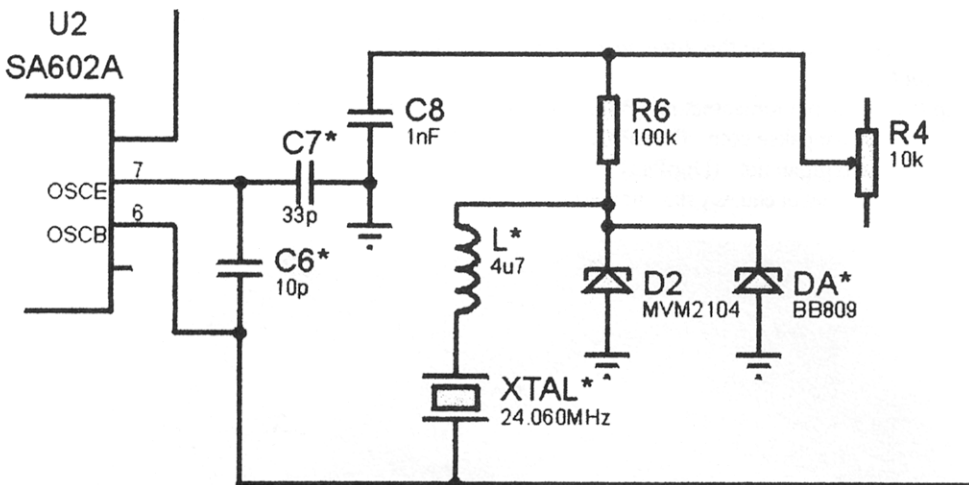
Having both a 30m and 20m Cub, I was immediately interested in Ken, GM4JMU's article in Sprat 112, since both my radios drifted a little more than I would like.

I ordered crystals suitable for both rigs, followed Ken's instructions on the 30m Cub, and am happy to report that they worked exactly as described.

This short article gives details of my mod to the 20m version, which follows exactly the same principles.

I specified my crystal (from Quartslab) in a slightly different way, but aiming for a similar result: "frequency 24.060MHz, fundamental, series resonance (unloaded), for variable crystal oscillator use".

The circuit diagram of the modification is shown below.



Note the addition of a second varicap diode, a BB809 (in the Sycom online catalogue [www.sycomcomp.co.uk](http://www.sycomcomp.co.uk)). This is a leaded diode, which was added when I found the frequency range was a little on the high side, and a bit smaller than desired.

The tuning range (to the nearest kHz) is 14.050 to 14.063MHz. I found that the 4u7 inductor was as large as I could safely use. A larger inductance does tune lower in frequency, but the frequency becomes unstable, as reported by Ken.

I had originally set out to produce a daughter board containing an 8.02MHz VXO and a tripler to 24.06MHz. I am confident this arrangement could produce a larger frequency swing, but making it all fit in wasn't looking too easy, so I was glad to copy Ken's simple and economical approach.



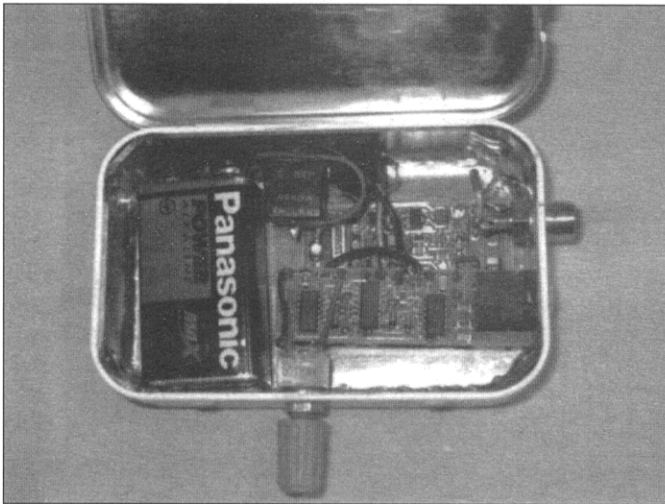
## Electronic Keyer

**Jack Bennett G3PVG, 11 Enderby Rd. Thurlaston. Leicester. LE9 7TF**

Most of my operation these days seems to be either portable or mobile. To that end I use a Yaesu FT100, which as you will be aware, covers all bands and lends itself very well to this task. This rig contains an excellent keyer and I use a Norcal paddle with it.

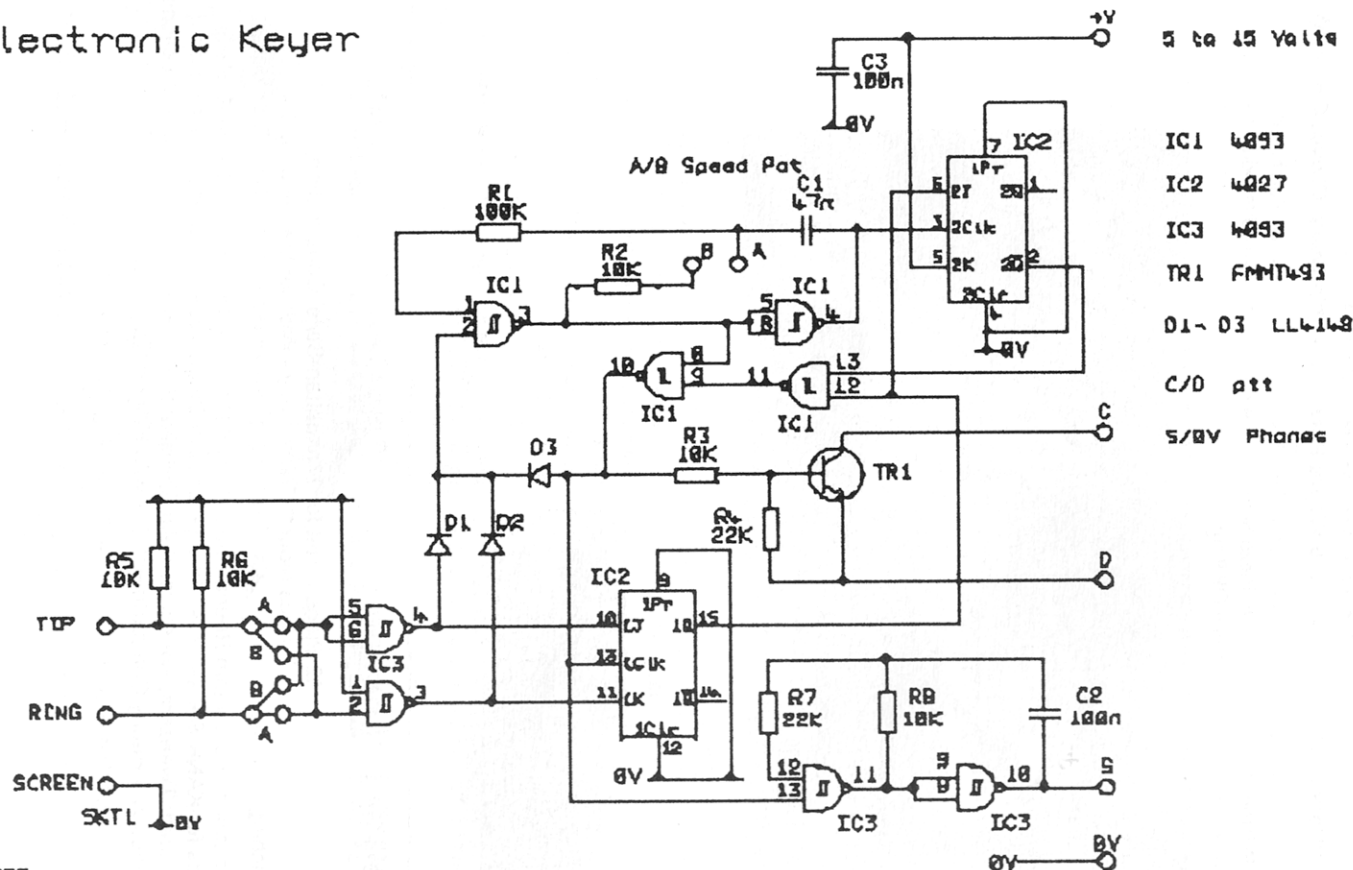
I wanted to have a separate keyer to go with the Norcal paddle for use with one of the several qrp rigs I use whilst out portable. I did not however want to build something which relied on someone else for hardware supply and software, simply because I wanted to do it myself and be able to make changes if I chose to do so. I looked through previous issues of Sprat for a simple circuit that I could build, and use it either as a dedicated stand alone keyer, or as a module I could build in to separate equipments. I came across the design by Pierre Fillinger FE1MOG in Sprat 69 of Winter 1991/92.

This circuit was simple enough but had the drawback of requiring the common point of the paddle to be connected to the positive voltage rail, and did not have a sidetone. Since the first project I had in mind was a homebrew version of the Knightlights Smite surface mount transceiver, I decided to adapt the FE1MOG design, arrange for a 0 Volt common, add an audio sidetone generator and implement it in surface mount. These changes would allow me to use the keyer either as a stand alone or a dedicated module. It is of course not necessary to build the circuit in surface mount technology, but simply use ordinary cmos d.i.l. packages. One could use Vero board or Manhattan construction. My finished module measures 54mm x 16mm and the circuit diagram is shown in Figure 1.



The SMD version of the Keyer mounted in a tin with the Smite Transceiver

# Electronic Keyer



5 to 15 Volts

IC1 4093

IC2 4027

IC3 4093

TR1 FMMT493

D1 - D3 LL4148

C/O att

5/8V Phono

NOTE.

FDR DDT CONNECTED TO TIP AND DASH CONNECTED TO RING CUT LINKS A  
 FDR DASH CONNECTED TO TIP AND DDT CONNECTED TO RING CUT LINKS B  
 CONNECTIONS A AND B FOR 2M SPEED CONTROL

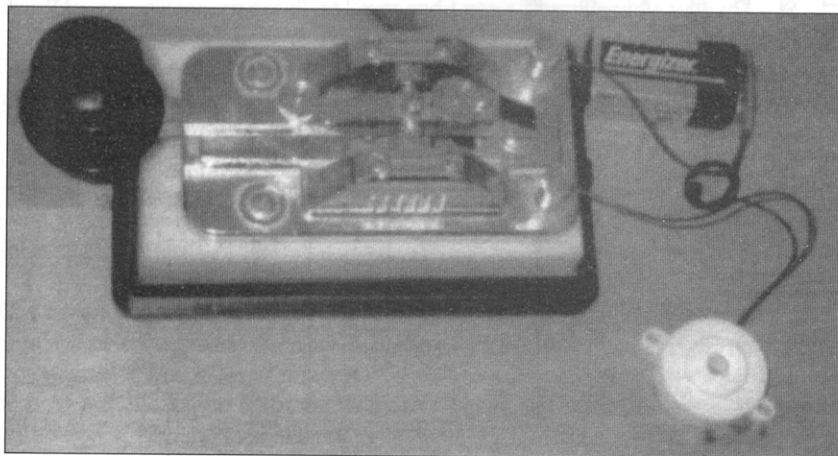
G3PVG 4725



## Two Practical Ideas

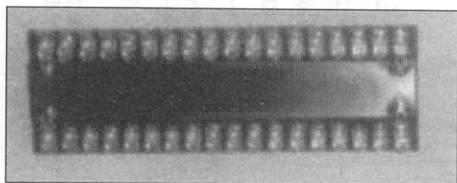
George Woodworth, GW4ZAG, 136 Wepre Park. Connah's Quay, Clwyd. CH5 4HW

Looking for a cheap Morse Practice Oscillator, then this might be the answer. Purchased from Bowoods Electronics Ltd for 95 pence, Piezo Sounder with built in oscillator. Just add a battery, a switch, box it or perhaps build it in a QRP rig.



### TAG Board Construction

It is difficult to establish a good neat method to build small projects. There are a number of methods on the market such as the Island method and so forth. I use a tag board with a piece of PCB soldered down the centre, so that there is a common ground plane. Not the most wonderful method in the world, but far better than lots of ugly construction. It enables the easy soldering to earth from any side, IC's are glued upside down on to the ground plane, with their legs spread, allowing plenty of room for soldering.



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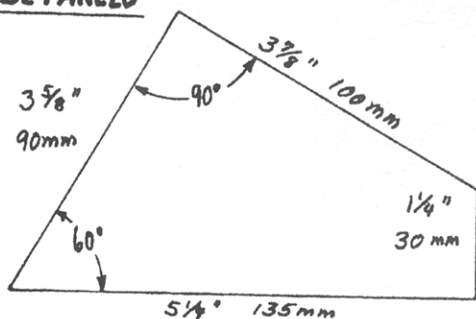
# The "ROCK-Steady" - A Cradle for the FT-817

Hans Schroeder, AE9G, 1840 N Prospect Ave. Apt 711, MILWAUKEE. WI53202-1964

The Yaesu FT-817 (almost) all-band QRP rig is a great instrument, but a bit awkward to use at my desk. I found myself tilting it up with the left hand, while operating it with the right. Building a cradle to hold the 817 solved the problem.

In the cradle the 817 is tilted up at a 30-degree angle, with the face being about 5½" (14 cm) above the table surface. I find this position quite comfortable for viewing and operating, and in addition the construction has enough space under the transceiver to store the power cord and also microphone & cord. My raw material was stiff (also cheap) cardboard, about 2mm thick, which I "butt-welded" with casein glue ("Elmer's"). Suggestion: After the first joining of pieces, it is possible to let a thick drop of glue run down the inside corners to add strength.

## SIDE PANELS



The dimensions given in the sketches here are not critical, and are given more as suggested guidance, rather than construction plans. Personal preference and ingenuity, also availability of materials are more important and will dictate details. A few comments: It is nice to give the 817 a snug fit where it is held on the top surface, which then gives the whole a rather solid feel. Little details have to be observed, so the

strip to stop the transceiver from sliding down needs a little notch to accommodate the screw that is located there. Also, the right side panel needs to be short enough to leave room for the earphone and microphone plugs.

My dimensions:

Base: 6½" (16.5 cm) square;

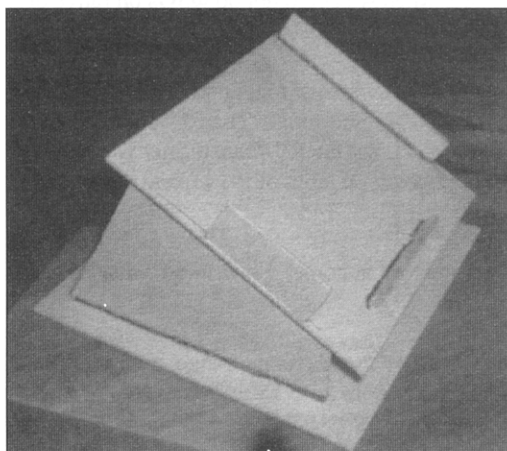
Sloping top surface 5½" wide, 5" deep (14 cm x 13 cm)

Side panels – see sketch

Front board and two small triangles inside provide lateral stability.

\*\*\*\*\*

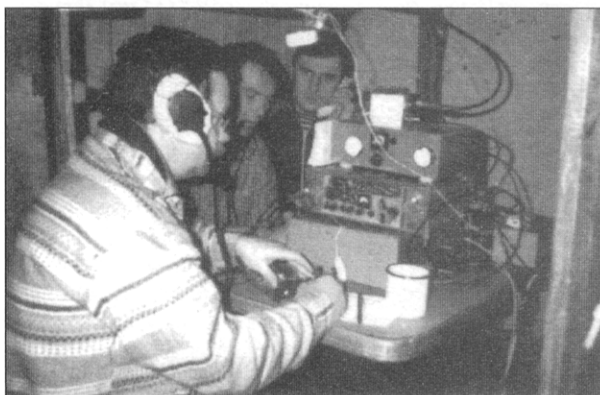
And why did I call it the "ROCK-Steady"? Steady it is, but mainly I want to surprise and honour my good friend, C.F. "Rock" Rockey, W9SCH, GQRP #91, also QRP/ARCI Hall of Fame, who taught me all about AM and FM transmitters at the Milwaukee School of Engineering many years ago, and has been an inspiration to me ever since.



## QRP Beyond Belief

Igor Grigorow, RK3ZK, Box 68 BELGOROD – 15, 308015. RUSSIA

Work on QRP is wonderful when with only several watts of power to do a DX QSO. But the surprising is especially great if a radio amateur do not know that he works on QRP... later he see to his log and do not belief in this! About such improbable work on QRP I want to tell.



It taken place at 10<sup>th</sup> December 2001, in a QRP expedition on Ai-Petry plateau. This expedition passed in honor of one century of Markoni's First Transoceanic. UR-QRP-C made the expedition. EM100GM call was used. We used old military Russian made radio R- 143. It provided 8 watts RF- power at 1.8- to 18-MHz. An ATU (Antenna Tuning Unit) was used with the military transceiver. Fig. 1 shows the scheme for the ATU.

By mistake, one of operators has connected transmitting aerial to jack J4 instead them to jack J2. In other words, the aerial was connected to dummy load by resistance 50 ohm, located inside the ATU. The dummy load served for purposes of control of matching of a transmitter with the ATU. So, we worked some hours in the air with such aerial, switched - off from our transceiver. It is beyond belief, but we made 21 QSOs! One QSO was made on range of 40-m, three QSOs were made on range 17-m and the others 17 QSOs were made on range 20-m. Only casually the mistaken connection was detected, when we could not do QSOs on range of 80-m... Tab. 1 shows the page from EN100GM log with the QRPP QSOs..

Certainly, a part of a RF- power was induced on the dummy load at tuning the LC circuit from the ATU in a resonance. Hence, a small power was going in the aerial. The RF- power also was induced on ATU's current transformer (T1 at Fig. 1). So, the RF- transformer was shown some RF – current. At reception a part of RF- energy going on input of P-143, and this military radio station could provide quite good reception.

After the termination of our expedition, when I was arrived at home, I measured, what RF- power could be induced on the dummy load.

At going to the ATU the RF –power at level in 10 watts, depending on a range, it was induced from 0,5 up to 0,8 V RF across the dummy load. Hence, about 5- to 15 mWts of RF- power was going in our aerial. And with such small power we worked within several hours! Four persons, UU4JCQ, US1REO, USIRCH, RK3ZK, observed it.

# QSO	Call	Time, GMT	Band, MHz	RS
1	RK4LXD	14.20	14	59\59
2	UA1UPC	14.21	14	59\59
3	RV9MM/9	14.25	14	59\59
4	UA3BT	14.30	14	59\59
5	RA3DCU	14.31	14	59\58
6	RK4CXK	14.32	14	59\59
7	RW9AS	14.33	14	58\59
8	UA0AX	14.38	14	58\58
9	UA1NCX	14.39	14	59\57
10	UA9FLD	14.45	14	58\59
11	RW4UU	14.49	14	59\59
12	UA4SX	14.56	14	59\55
13	RX3AX	15.00	14	59\59
14	RX3FZ	15.04	14	58\59
15	RK4YWK	15.07	14	58\58
16	RV3DNT	15.12	14	58\58
17	4Z5AF	15.41	14	58\58
18	UR4QI/M	15.53	7	59\56
19	IK4WКУ	16.15	18	59\54
20	ON4LAN	16.33	18	59\53
21	PA3DUV/M	16.36	18	59\59

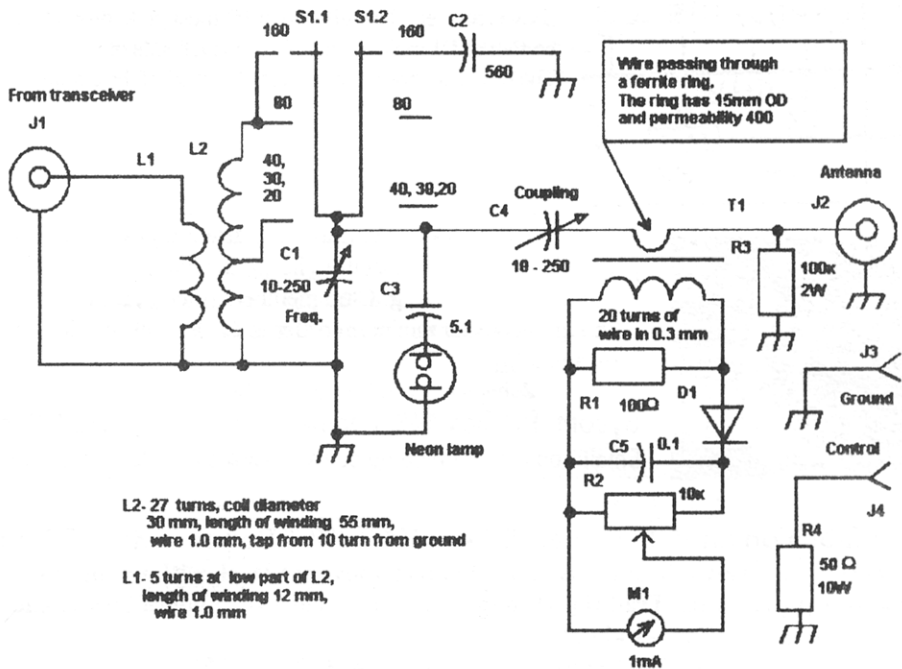


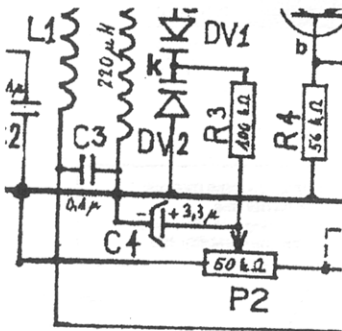
Figure 1

## Another Mod for the QRP+

Roy Walker G0TAK, Highgate Barn, Old Hutton, KENDAL. Cumbria. LA8 0LX

My long suffering QRP+ has had the lid off yet again! Tired of replacing the (expensive) 3V. memory back up battery I have replaced it with two AA batteries in series. Take out the existing battery and dispose of it in an eco-friendly manner. No need to take out any boards or connections. With an abrasive tip on a small hobby drill, lightly rough up a spot on the Negative contact for the battery (the base of the holder) and another at the inner end of the Positive contact. Solder red and black wires to these points, long enough to reach to a position on the top board on the right hand side of the speaker. Put a sliver of card in where the battery used to lie to ensure the + and - contacts do not short. Clean up the ends of two AA batteries and tin them, connect them in series and check the voltage. Connect the Red and Black wires appropriately. Do a reset of the memories (press Mem and switch on) and reload your favourite QRP frequencies.

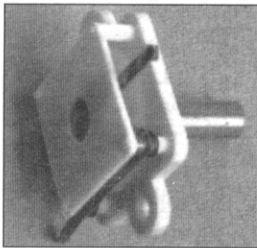
I have insulated my installation and wrapped the batteries in foam rubber to stop them rattling around. I have not had the chance to test the time the batteries will last but, judging by my alarm clock, which has had similar treatment, it should be some years. Check occasionally for leaks etc.



### SPRAT CORRECTION.

#### Lambda Regenerative Receiver [SPRAT 113]

9A2HL has informed me of two errors in the diagram for the above receiver. The left side of P2 must go to ground and the bottom of L1 must go directly to the left side of S-1. The drawing shows the corrected section of the circuit diagram



Robin at SYCOM draws my attention to some 180pF polyvaricon variable capacitors he stocks, with good shaft length and simple fixing. Club members price 60p each. Although his usual minimum order is £1, he will sell singles [postage 50p].

Also note: Robin has the full range of TOKO coils

**Sycom, PO Box 148, Leatherhead, Surrey KT22 9YW**

Email: [robin@sycomcomp.co.uk](mailto:robin@sycomcomp.co.uk) [www.sycomcomp.co.uk](http://www.sycomcomp.co.uk)

Vacations on La Palma Island, EA8. K1 + K2 + Sommer XP707 beam at QTH on the west side of the island, 2300 feet above sea level, with unobstructed view over the Atlantic. Traditional countryside stone cottage. modern inside, and a good starting point for walking tours.

[ea8yu@arrl.net](mailto:ea8yu@arrl.net) Goran +34-922 491 053



## POLYCON SHAFT PROBLEM 'SORTED'!

Victor Brand G3JNB, 8 Greenway, CAMPTON, Nr Shefford, SG17 5BJ

The tiny 'finger tip' shaft that characterises the little polycon variable capacitors beloved of QRP construction designers, is really too short to allow even a padded extension coupler to be added.

If you have not cracked this problem in your own way... here's a solution! The plastic tip protector in the Parker 'Roller Ball' refill pack is a perfect fit. Glue it in place or just push on for occasional use. A bit of Velcro tape around the top provides an effective grip.

### 2003 YEOVIL QRP CONVENTION

As advertised in the SPRAT 115, this year's event will be held on Sunday the 8th June.

The Club has advised that the talks will be:

<b>G3MYM</b>	<b>The G5RV Antenna.</b>
<b>G3WVG</b>	<b>Summits on the Air.</b>
<b>G4JFN</b>	<b>The Background Boys</b>

### QRP Master – Silent Key

Angel LZ1SM Club member #5192 passed away on 2nd of February 2003. He achieved QRP Master using a home brew 1 Watt VXO TX on 14 MHz only. (Harry LZ1BB)

### Reddish Radio Rally

Saturday 28th June, St Mary's Parish Hall, St Mary's Drive, South Reddish.  
Admission £1. doors open 11am. Usual talk in on S22, usual refreshments.  
Tables £10 each. To book, or further details contact John, G4ILA, tel: 0161 477 6702 e-mail: John@McKae.freeserve.co.uk.

### Two Way QRP QSL Labels and Blank G-QRP QSL Cards

**QRP Labels:** Black Lettering on Gold with Club Logo : 200 labels £2. Post inc.

**Blank QSL Cards:** You complete your address and call. Blue lettering on white card, 5.5" x 3.5". 100 cards £4. Post inc. Sample from : M.L. Prickett [Max] G3BSK, 260 Haslucks Green Road, Solihull, West Midlands. B90 2LR.

Cheques: "M.L. Prickett" [The G QRP Club benefits from each order]

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

The Narrow Bandwidth TV Association (founded in 1975) is dedicated to low definition and mechanical forms of ATV and introduces radio amateurs to TV at an inexpensive level based on home 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 mini cassette 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 £5 (or £4 plus a recent SPRAT wrapper) to Dave Gentle, G4RVI, 1 Sunny Hill, Milford, Derbys. DE56 0QR, payable to "NBTVA"

# Telegraph Key for a QRP- expedition

Igor Grigorow, RK3ZK, Box 68 BELGOROD – 15, 308015. RUSSIA

It is a problem what a key to use in a QRP-expedition, hand or electronic. An electronic key does not provide a good operation at a QRP-expedition for the following reason. At first, it need in an external feeding for it, at second, as rule an electronic key made on the CMOS (Complementary Metal Oxide Semiconductor) chips is undergo of dampness. From dampness it would leave out of operation in the most improper moment. A standard telegraph key, usual for routine radio amateur activity, is complicated in application in field conditions because this key should be reliably fixed to any fixed base. The matter is not always possible in a field QRP- expedition. Often a key is keeping in one hand (or even on a knee) and by other hand working on it. Certainly, it is very inconveniently for job in the ether and rate of transmission is very low in that case.

My special self-made hand telegraph key has no the defects. Fig. 1 shows drawing for the key. It consists of from a rectangular part of PC- board (item 1), which is connected to "ground" of a transceiver and a keying unit (item 2), made from a copper thick wire in 3 mm diameter or #11 BWG.

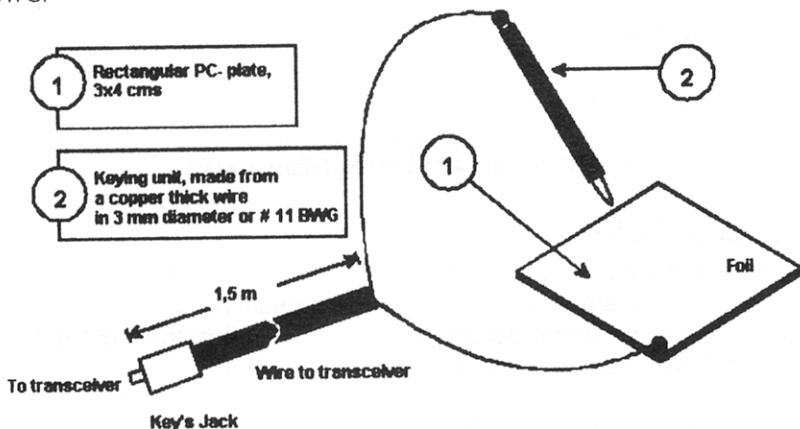
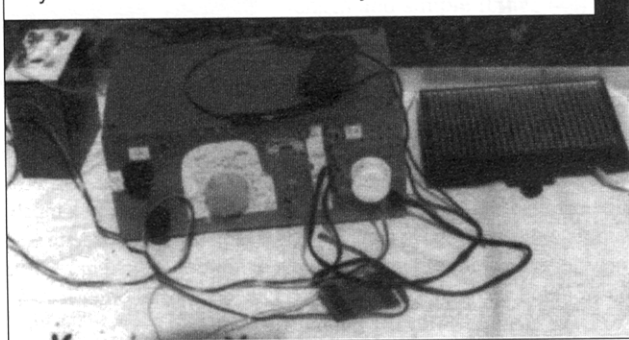


Figure 1

My QRP transceiver with the key and solar battery



At operating in the ether the rectangular part places in a hand, on a knee or on any fixed basis. The other arm does keying. Ever it is possible to paste this slice of PC -board with help of an adhesive tape to a transceiver case or to floor of a tent. This key was used at operation from any possible most inconvenient positions. For example, laying in a tent, and even laying in a sleeping bag. Certainly, the keying rate

is not so high, up to 60 symbols per one minute. But it is quite sufficient for operation from a QRP expedition, where the high speed do not use usually.

## ANNOUNCEMENT FROM THE RU-QRP CLUB

The Russian RU-QRP Club have begun to make a World QRP Top List as a table of World QRPers Results.

You may see this table at RU-QRP Club's site <http://www.qsl.net/rv3gm>

I invite you to view the WebPages and send your results for WW QRP Top List with:

- Total wkd/cfm QRP DXCC (also separate by CW, SSB, Digital DXCC)

- Total wkd/cfm 2-way QRP DXCC (and separate CW/SSB/Digital)

The Table will update each two weeks. Write-down your callsign in QRP-history :- ) !

Send your data to me or to QRP-List Manager RW3AA directly (Vyacheslav Lukin) to [rw3aa@bk.ru](mailto:rw3aa@bk.ru). CUL es 72! de RV3GM/QRP Oleg, RU-QRP Club's Chairman

## Micro Radio Products

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RB00 480m SSB/CW Regenerative Receiver \*\*\* New \*\*\*£11.50

RB005 Boosted Short Wave Crystal Set (Aprox 6 - 15 MHZ) £9.70

*Post & Packing £1. 50 for up to 2 kits. If ordering, please note cheques payable to D.Rowlands. Please allow up to 28 days for delivery.*

Other radio and electronics projects kits are being developed. Details will be advertised in SPRAT when they become available. For details, please send SAE to D Rowlands Micro Radio Products Dept. GQ 7Broomfield Road Swanscombe Kent DA10 0LU Tel 01322 381303 (ask for David) after 7pm or Email to [Microradio@Telco4u.net](mailto:Microradio@Telco4u.net) mentioning SPRAT. *We shall be at Elvaston Castle Rally on 8<sup>th</sup> June-come and see us there!*

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## ANTENNAS - ANECDOTES - AWARDS

Gus Taylor G8PG 37 Pickerill Road, Greasby, Merseyside, CH49 3ND

10 TO 80 METRE SHORT LOADED DIPOLE WITH 160 METRE ATTACHMENT.

G. A. Davey, 49 Maltward Avenue, Bury-St-Edmunds, Suffolk (G4XSM).

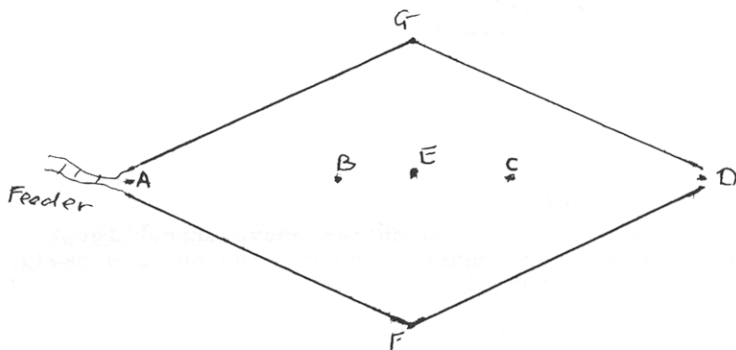
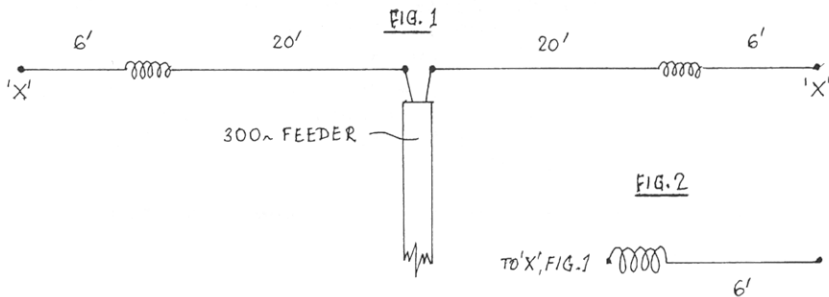
The basic 10m to 80m version is shown in Fig.1. The loading coils, L1, each consist of 55 turns of 18 swg enamelled copper wire, spaced by one diameter with the aid of suitable nylon cord. The coils for the addition of 160 each consist of 80 turns of 28 swg enamelled wire close wound. The coils L1 are wound on 2½ inch diameter formers, and the coils L2 on 1½ inch diameter formers. The formers should be of a material such as plastic to withstand outdoor conditions, and they should be protected with self-sealing tape or similar material. Feed is via 300 ohm ribbon feeder and a suitable unbalanced-to-balanced a.t.u. With 10 watts of s.s.b. the world has been worked using this antenna. The design was published many years ago, but I cannot recall the name of the magazine. It fits nicely into my 35 foot square garden.

ONCE WE BUILT A RHOMBIC

G8PG.

At some time probably every hf operator has had the yen to build a rhombic. I have never had the chance to build one for the amateur bands, but almost 50 years ago I was given the task organising the building of one for some non-amateur tests. The requirement was for the antenna to be used in its bi-directional form the forward path being 4,000 miles and the reverse path about 800 miles. Fortunately the reverse path great circle bearing was within a few degrees of the reciprocal of the Forward path bearing so, provided the antenna was orientated on to the long path great circle bearing, it would function in both directions. Once the required great circle bearings had been determined they were converted to magnetic bearings by applying the local compass deviation. To align the antenna on the correct bearing a wooden stake was driven into the ground at point A on Fig.3, the correct compass bearing was taken through this stake, and three assistants were in turn directed onto this bearing at points B, C and D by means of hand signals. A further stake E was then driven in at the exact centre of the line, and two further stakes, F and G were added to complete a line at right angles to the A to D line, thus completing the rhombic pattern. The four masts were then assembled on the ground with the base fulcrum about 10 feet behind the associated stakes A, F, D and G. The fulcrum consisted of a metal stake pivoted on top of which was an L-shaped assembly which allowed the bottom section of the mast and the bottom section of the associated gin pole to be attached to it. Both were assembled on the ground and all the guys were attached, the front and side guys being taken to their securing stakes, and the rear guys, together with the lifting block and tackle assembly, being attached to the top of the gin pole. The halyards were also attached to the masts prior to raising. Each mast was raised to the vertical position with the aid of the lifting tackle, the rear guys were transferred from the gin pole to their securing stake, and the gin pole and block and tackle were removed. While this work was going on other members of the party had run out the antenna wires and feeder, which were then hoisted, the input end of the feeder having already been terminated at the transmitter vehicle. A 4-wheel drive truck was used to bring the hardware on to site, and the whole job took about 9 hours to complete. In use the antenna did all that was asked of it, but

had the job been for permanent use some improvements could have been made. Firstly, replacing the 48 foot high masts with masts 120 or 150 feet high would have enormously improved the reliability of the 4000 mile circuit. Secondly, a single wire rhombic covering 3 to 30 Mhz will have awkward feed point impedances at certain frequencies. This problem can be cured by using three wires in parallel instead of the single wire. The feed point impedance will then be 600 ohms + 50 ohms over 3 to 30 MHz range. Thirdly, if you want more information on the mechanics of mast erection try "Raising a 60 Foot Mast For Portable Operation" by Dick Pascoe, GoBPS. ( Radcom May 1972 or "HF Antenna Collection" ,RSGB 1991, page 175). A final labour saving tip is attach the rope from the lifting tackle to the towing ring on a truck and then gently reverse the truck away, thus raising the mast with no hard labour !



A to G = Stakes used to align antenna on correct bearing.  
The antenna is bi-directional. Maximum radiation A-D and D-A.

Fig 3.

## APOLOGIES TO DJoGD AND DJoPJ

Nothing wrong with our congratulating DJoGD on his 260 DXCC countries, but of course we got it wrong by also crediting him with operation as FY/DJoGD, The QRP operation from FY was of course by FY/DJoPJ/QRP. Sorry guys, we got it wrong !

## AWARD NEWS

QRP MASTER. We welcome SM6ANZ, JAlKGW, and G4PRL to the Worshipful Company. Well done gentlemen !

QRP COUNTRIES. 270 W7CNL (Well done indeed ! ); 125 F6ACC;  
100 JAlKGW; 75 SM6AWZ; 50 M5AEF, 2EoATZ;  
25 EU6DA.

WORKED G QRP CLUB. 340 G4PRL ; 320 GM4OSS ; 260 G3JNB,  
GWoMY, GoTAK ; 160 G3SOX ; 140 MoCDP;  
120 2EoOOO ; 100 SM6AWZ, JAlKGV ;  
60 EU6DA ; 20 GW3LHK.

TWO-WAY QRP 100 GM3OXX , W7CNL (Centurians from both  
sides of the Atlantic. Well done !!);  
90 DJoGD ; 50 JAlKGW ; 40 2EoOOO ;  
30 GoTAK; MoCDP.

Sincere congratulations to every one of the above Members !

## WELL DONE UKRAINE QRP CLUB !

Peter, US1REO, recently sent me a copy of "Hummingbird" , the news sheet of the Ukraine QRP Club, which he edits. Beautifully reproduced on both sides of a single A4 size sheet, it includes photographs, drawig, members news, circuits and other items, and serves as an example to any QRP Club wishing to publish a high quality but low cost source of information for its members. The only thing missing was the weather forecast ! (Peter used to be a forecaster hi hi )

## THE OM2ZZ HIGH RISE FLAT DIPOLE.

Rado, OM2ZZ, lives in a flat 30 metres above street level. It has three windows, the central one opening on to a small balcony. To make a 14 MHz dipole peter fixed a 1m long strut to the far edge of each of the outer windows. This allowed him a 9m horizontal run for the antenna wire, with 0.6m of wire hanging down at ech end to make up the length for 14 MHz. The centre is secured to the balcony to take the weight of the 50 ohm feeder. QSOs with the antenna include FY/DJoPJ/QRP and W7CNL/QRP.(By strapping the feeder conductors together and using an ATU it should work well on a number of other bands. G8PG ) . The design seems to allow construction of the antenna at this height above ground with a minimum of risk. When working at height always remember death is permanent !

## FROM THE CLUB MEMBERSHIP SECRETARY

John Leak. G0BXO. Flat 7. 56 Heath Crescent. HALIFAX. West Yorkshire  
HX1 2PW Tel:- 01422-365025. Email:- g0bxo@gqrp.com

Thank you to members for prompt subscription payments. Thanks also to those members who sent extra contributions to Club funds and to those who wrote expressing appreciation of the work of Club officers.

Please remember that we do not issue receipts unless we receive an SAE with your payment. Your receipt is the updating of the "Up to end" statement which appears after your membership number on on your SPRAT address label. Members who have paid by credit card via email will have received an acknowledgement from me via return email.

Please remember that there is a time delay of about 4 weeks between the printing of the address labels and the despatch of SPRAT.

Please write to, telephone or email me if you think we have made a mistake.

**PLEASE QUOTE YOUR CLUB NUMBER AND CALLSIGN.**

### CHANGE OF ADDRESS

Please remember to tell us if you change your address. Each quarter, several copies of SPRAT are returned to me by the Royal Mail as undeliverable because the member has moved and has not arranged for mail to be forwarded. Please remember that changes take time to work through the system.

### STANDING ORDER PAYMENTS

IF YOU ARE A U.K. MEMBER AND YOU DO NOT ALREADY PAY YOUR SUBSCRIPTION BY STANDING ORDER, PLEASE CONSIDER DOING SO IN THE FUTURE. THIS METHOD OF PAYMENT IS EASIEST FOR CLUB OFFICIALS TO PROCESS AND IS ALSO THE CHEAPEST FOR THE CLUB.

A standing order mandate form appears in the Winter issue of SPRAT each year.

May I again plead with members to write their membership number and callsign on the back of cheques. 95% of members help me by doing this--- it really does save me a considerable amount of time when processing renewal payments by cheque. Can we try for 100%.

## Seventh RED ROSE QRP FESTIVAL

Sunday 1st June, 2003. 11am to 4pm. [Note the wrong date was given in SPRAT 113]

Formby Hall, Alder Street (off High Street), Atherton, Manchester.

**TECHNICAL CHALLENGE** ~ Following the Sardine Tin Challenge of last year, this year there is The QRP OPTICS CHALLENGE. " Let there be light!" Entrants must construct a device useful to the QRP enthusiast centred on the use of opto-electronics. The device need not be complicated or even original but should include a brief description and construction details. Bring it along to the Red Rose QRP Festival at Atherton, Manchester, on 1st June, 2003. Judging will take place at 1pm with a prize and certificate for the winner. Details of all entries will be forwarded to G3RJV, for consideration of inclusion in SPRAT. Entry into the challenge is free with no restriction on number of entries per person.

## COMMUNICATIONS AND CONTESTS

Peter Barville G3XJS

e-mail: g3xjs@gqrp.com

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

### WINTER SPORTS 2002

“Winter Sports 2002 – a must for every QRPer and great fun! Thank you for the nice contacts.” Not my words, but those of Klaus, DL8MTG, who used them as a heading for his WS log, and I certainly wouldn’t disagree! I received 33 WS logs this year, which is a healthy total, but not quite as many as last year. That’s a pity, but it probably reflects the conditions on the LF and HF bands, which were not brilliant. Having said that, Trans-Atlantic 2-way QRP qso’s appear in a few logs, and I did receive a report that PA3ALX worked VK2 2-way QRP, and G4ZXN (?) apparently worked 9L1QRP. G3LHJ worked JA6PA and DU9/G4UNL (both QRP) for new ones, and W6CYX via 20m long path.

My thanks to all who took part, and particularly to the following for sending their logs (with apologies if I have omitted anybody): G0KRT, G0TAK, G3CQR, G3JFS, G3LHJ, G3MCK, G3NUA, G3XYS, G3YPZ, G3ZFF, G4VPF, G8PG, GM0NTR, GM4OSS, GM4XQJ, GW0VSW, GW3SB, M5AEF, AB8FJ, DL8MTG, EA3ADV, EI3IK, F5RQG, K2JT, LA7FF, OK1AIJ, OK2BMA, OM2ZZ, OM3TY, PA9RZ, SP6GB, W2JEK and W3TS. Here are a few more quotes, and highlights, from various logs: GW0VSW “Really enjoyed this year’s event and made qso’s from 160m to 10m and several on 2m”. GM0NTR “For a lot of people on their own during this time of year WS is a lovely thing”. PA9RZ “Following the example of GM3OXX again I decided to use no more power than 1 watt, even for our local chit chat on 2m. Even worked across the pond three times 2-way QRP”. LA7FF “Greatest surprise was OH9NB by the Arctic Circle who was 559 with his 10mW to a 3 ele yagi”. G3ZFF “Good fun, but lots of qrm – but then that’s part of the fun, Hi. QRO operators do not seem to know what CQ QRP means!”

For G3YPZ this was the first time he has submitted a WS log, and it includes several QRP AM qso’s – WA1EAD just copied 500mW of John’s 10m AM! His best QRP ssb qso was with AP2JZB on 12m. M5AEF submitted an excellent ‘all 17m’ (1W cw and ssb) log, which also includes a qso with AP2JZB. Robin found no other stations calling CQ QRP, and didn’t work any G-QRP Club members, but did have five 2-way QRP qso’s. G0TAK chose 30m for his single band entry (having just built a Ten Tec 1330 30m tcvr and 1202 wattmeter). Roy made 95 contacts, 26 of which were 2-way QRP – but only 12 G-QRP Club members. G3JFS achieved his aim of making good contacts, and spreading the QRP message. In particular, he worked an East coast USA station running 800 watts to a large 20m beam who copied Peter with no need for repeats – so why did he need so much power just to reach Eu? Peter’s excellent log shows 160 QRP qso’s with 154 different stations in 40 countries, using all bands 160m to 10m (including 60m), and 2m. Modes he used were cw, ssb, fm, psk, mfsk and hellschreiber. A super log Peter.

For Ted, AB8FJ, the motto was “GTRO” – Get The Rigs On! He wanted to make contacts with as many rigs as possible, with the emphasis on home constructed xtal controlled transmitters. Just take a look at the different homebrew QRP rigs Ted used: 20m Universal 20, using the TX board from the G3RJV FDIM Six-Pack (1W), SW-20+ (1W). 30m Another Dave Benson special, the SW-30 (1W), 38 Special (300mW). 40m RockMite with a 2N2222 final producing 350mW. 80m W7ZOI designed Universal 80 (1W).



A close call, but this year's outstanding WS log came from G3XY5. Mark also put a number of homebrew rigs (Wilderness SST20 at 1 or 2W, SST30 at 2W, 40m and 20m Rockmites) to good use, although it proved hard going with the Rockmites. A Yaesu FT817 completed the HF line-up. To comply with the "Winter" in Winter Sports, Mark completed a 16km round walk to operate /P in a temperature of zero degrees with a 2m 5W hand-held from Shining Tor (Summits on the Air). The previous day had been spent successfully building the Rockmite 20, and I think you will agree that Mark's efforts make him the deserving winner of the G4DQP Trophy, and with it our warm congratulations.

#### CHELMSLEY TROPHY 2002

Entries from G0BXO, G3YMC, GW4ALG and M5AEF all show an interesting and productive year. M5AEF used one watt, or less, for the whole year mainly on 17m. One of Robin's highlights was a 1W ssb qso (in French!) with 3B9FR, who came back first call. GW4ALG's fascinating entry includes reference to the 120 QRP qso's made whilst out and about 'bicycle portable' (although they are not included in the totals), together with a fine photograph of the bicycle mounted K2 and mast. Steve says that, despite a lower DXCC score, the portable operation has been more rewarding than operation from home. The operating notes (and photographs) which accompany his entry give a superb account of his QRP year. Well done Steve.

Using a homebrew tcvr for 5mHz, and K2 for the other bands, G3YMC compiled a superb wining total of 165 DXCC countries worked, from 2242 qso's. Dave points out that he was also active on 136kHz (with 1mW ERP), but didn't include qso's on that band in his totals. As he will tell you, Dave is not able to put up antennas which are in any way 'special' (eg he uses a 60' long wire at 25'), but his perseverance and dedication have certainly paid handsome dividends. ZL7C was Dave's best dx (17m), and he wonders whether his 60m qso with VO1MRC was the first transatlantic qso on that band.

As in Winter Sports, excellent logs from all, with G3YMC winning the Chelmsley Trophy for 2002, and GW4ALG the runners up certificate.

#### SLOVAK INTERNATIONAL "SPRINT" LOW POWER CONTEST

Alex, G4FDC, has kindly sent me full results of the 2002 event. Space precludes me including the details here, but I am happy to send them to you if you drop me a line.

#### EA QRP CW 2003 CONTEST

Again, space does not permit me to include full details, but the 2003 even will take place 19<sup>th</sup> April 1700-2000z 20m, 2000-2300z 80m, and 20<sup>th</sup> April 0700-1000 40m, 1000-1300z 15m. Full details upon request.

#### EUCW/FISTS QRS PARTY 2003

As usual, this event is intended to help and encourage newcomers to CW.

Sunday 27<sup>th</sup> April to Saturday 3rd May. Mode: CW only.

Frequencies: All bands, except WARC bands. Non-QRP stations are requested to avoid calling CQ on the popular QRP frequencies. Keys/Speeds: Any type of key or keyer may be used, but no keyboard sending or pre-programmed messages from computers or keyers allowed.

Maximum speed 14 words per minute (70 cpm). The speed of a QSO should be at the speed of the slower station

Call: CQ QRS/EUCW. Stations may be worked or logged once each day in each band.

EUCW Clubs:

Listen out for members of the following clubs, taking part in the EUCW/FISTS QRS Party: AGCW-DL (Germany); ARI (Italy); Benelux-QRPC; BTC (Belgium); CFT (Belgium); CT-CWC (Portugal); EA-QRPC (Spain); EHSC (Extremely High Speed Club); FISTS; FOC (First Class Operators); G-QRP; HACWG (Hungary); GTC (Greece); HCC (Spain); HSC (High Speed Club); HTC (Switzerland); INORC (Italy); I-QRPC (Italy); MCWG (Macedonia); OECWG (Austria); OHTC (Finland); OK-QRPC (Czech Republic); RTC (former GDR); SCAG (Scandinavia); SHSC (Super High Speed Club); SP-CWC (Poland); UCWC (Russia); UFT (France); U-QRQC (Ukraine); VHSC (Very High Speed Club); YL-CW-GP (Germany); 3A-CW-G (Monaco); 9ACWG (Croatia).

Club membership: Entrants who are members of more than one EUCW club should take part in the QRS Party as a member of only one of those clubs.

Classes:

A - Members of EUCW clubs using more than 10w input or 5w output power

B - Members of EUCW clubs using QRP (10w input or 5w output, or less)

C - Non-members of EUCW clubs using any power

D - Shortwave listeners

Exchanges:

Class A & B, RST/QTH/Name/Club/membership number

Class C, RST/QTH/Name/NM (ie, not a member)

Class D, Log information for both stations

Scoring:

Class A/B/C - 1 point per QSO with own country, 3 points per QSO with other EU countries.

Class D - 3 points for every complete logged QSO.

Multiplier, all classes: 1 multiplier point for each EUCW-club worked/logged per day and band.

Logs: To include date, UTC, band, call worked, info sent, info received, and score claimed for each QSO

Summary: To include entrant's full name, call, address, EUCW club, Class entered, multiplier claimed, total points claimed, station details, including type of key/keyer used, power used, comments (if any) on the event, up to three votes for "Most Readable Morse Heard" (only one vote per station), and signature of entrant.

E-mailed logs and summaries are acceptable, provided they follow the same format as detailed above.

Entries: Send log and summary to: FISTS/EUCW Contest Manager, R. Kimpton, M5AGL, 15a Buckden Road, Brampton, Huntingdon, Cambs. PE28 4PR. England.

e-mail bobm5agl@btopenworld.com

All logs to be received not later than 31st May 2003.

Awards:

a) A certificate will be awarded to the three top scorers in each class.

b) A certificate of merit will be awarded to the operator receiving most votes for the "Most Readable Morse Heard", provided the operator nominated has also submitted a log. If the recipient of the most votes has not submitted a log the certificate of merit will be awarded to the qualifying entrant with the next highest number of votes. In the event of a tie multiple certificates will be awarded, endorsed "Shared Award".

No correspondence can be entered into. The Contest Manager's decision shall be final in making all awards.

As always, have FUN, 72 de QRPeter

## VHF MANAGER'S REPORT

John Beech M3AGM 124 Belgrave Road Wyken Coventry CV2 5BH 02476  
273190 johng8seq@ntlworld.com g8seq@gb7cov

### A Cautionary Tale

As you may have read in RadCom, the contest group I manage for the local club have been experimenting with renewable energy sources to power field day stations. However, the 4m station we ran this year used an FT847 which is hopelessly inefficient on this band. It draws 18 amps from a nominal 12 v supply for RF out of less than 10 W. In order to improve the efficiency, Dave G1ORG the owner of the '847 decided on another route ie use a Transverter and an FT817 as the 28 MHz IF along with a PA, the total current consumption for 10 Watts o/p was now of the order of 2.5 A – much more efficient!

Snag! The transverter ( a Spectrum Communications 28 – 70 worked fine when first built, giving about a watt o/p from the bare board. It needed a second relay, mounted off the board to route the Tx-Rx IF. So Dave boxed it up and brought it round to me for some tests & to marry it up with the PA. We gave it a final tune-up, coupled up to the amplifier, using FM as the test signal & measured the total DC input current. Everything seemed fine, the PA didn't get too hot and showed no signs of thermal runaway. THEN we decided to look at an SSB signal using a spectrum analyzer. We didn't need an analyzer to tell us something was wrong, the power meter said it all. As soon as we keyed up and spoke, loads of power out, but it was all still there when we stopped speaking. Something was taking off.

Well after some considerable time prodding and poking, retuning and disconnecting various components, I came to the conclusion that the whole Tx amplifier strip was taking off due to a feedback problem. Some more poking about revealed that it was a layout problem. Fortunately I managed to solve the problem by turning the board through 180 deg. and re-siting the off board relay. This allowed the input and o/p coaxial cables to be kept well away from each other and most of them could be shortened. A salutary lesson; just because it is in coax, it doesn't mean to say it won't leak out. The DC leads were also shortened and re-routed. The unit is now stable.

I can't help thinking though, that a lot of the problems could have been avoided if the designer had made provision for the second relay to be mounted on the PCB. The transverter was obviously designed for the older rigs, which have separate low level TX o/p for driving transverters, which then use a separate lead for receive.

73 de John M3AGM

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### NOTE FOR YOUR DIARY.....

**The Rochdale QRP CONVENTION 2003 will be on Saturday 11<sup>th</sup> October**

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### **The RSGB HF Convention . is moving and including QRP....**

The 2003 HF Convention will be at the Britannia Country House Hotel, Didsbury, Manchester, **Friday 31st October to Sunday 2nd November**. The Saturday will include a **QRP FORUM**. The club will have a display and will provide speakers. Can you help? Offers of help would be gratefully received by G3RJV. Do you have a talk? We still have a spare 'speaker slot'. As we are being offered this chance to promote QRP, it would be good if as many members as possible could be involved. Details of the event will be carried at <http://www.rsgb.org.uk/hfc> or contact G3RJV for more information.

## SSB & Data Report

Dick Pascoe GØBPS. Seaview, Crete Road East. Folkestone. CT18 7EG  
Tel 01303 894390 – Email gØbps@gqrp.com

Rick M3RAL posted a note on the QORP internet reflector that started a chat entitled. 'Now who needs more than 10W' Rick only got his licence last August and is finding things entertaining. His best DX from his QTH in Shipley, West Yorkshire using a Yaesu FT-817, SSB at 5W into an indoor 40-50ft very-random wire antenna strung around the attic room. Tuned through a MFJ-16010 'LC' tuner. He managed this afternoon to work John K2VV in Lincoln County, Missouri, USA. This was at a distance of 6574km (4085 miles) calculated by their Lat/Lon position references. Together with a 56 report from K2VV this was his first QSO with a US station and made for quite a nice early Christmas present for him.

Well done on the contact. This is possibly a good time to remind members about the 'Miles per Watt' award. This award is not from the G-QRP Club but from our sister organisation the QRP-ARCI in the USA. Since Rick was using 10 Watts, his contact was worth 408.5 Miles per Watt. However, had he used just 1 Watt he would have easily cracked the '1000 miles per watt' qualification. Check their web pages for full details on [www.qrparci.org](http://www.qrparci.org).

A letter from Roy DU9/G4UNL told about winning the FT817 competition from RadCom using 5 watts SSB and a 'Miracle Whip' He says there is not much QRP activity there but he chatted with WL7ARV on 10m who was running just 2 watts. During the QSO two others called in; KL7IBY and VE7GFS both who were running 5 watts. Roy uses a variety of antennas but the two Windom's strung between Mango trees are the sweetest. He also tells me he listens for 'M3's' so do give him a call guys.

Let me have YOUR information for the next SPRAT please. 73 Dick

### The AntMan

Interface for PSK31 and other Data Modes £19.95

Using the sound card on your computer and this interface you can decode many of the data signals found on the bands today.

Just add the Mic plug to match your rig and off you go. Full information is supplied with CD software to get you started. P/P is included for UK

R Pascoe, Seaview. Crete Road East, Folkestone. CT18 7EG



### Amateur Radio in a Lovely Place

G3RJV has a Wooden Lodge situated in the Dovey Valley in central Wales close to the Irish Sea in the Snowdonia National Park. It has recently been completely refurbished with a large living area, conservatory, double bedroom, twin bedroom and large living area. Naturally there is a small amateur radio station with an HF transceiver and a 2m multimode... ready to operate. A leaflet with details and prices is now available. Write to G3RJV [see page 2] or email [g3rjv@gqrp.co.uk](mailto:g3rjv@gqrp.co.uk)

# MEMBERS' NEWS



by Chris Page **G4BUE**

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Your reports suggest HF conditions have been very good for QRP recently. I found this in the ARRL DX CW Contest in February when I was QRV as **W4/G4BUE** with QRO from Florida. I worked 75 European stations (including two on 40m) who gave me 5W or less. The report from **M5AEF** below, which includes Robin's DXCC totals for 2002, has prompted an idea. Would there be any interest in my running an annual table in this column showing your total DXCC worked on Mixed, Phone and CW? The table would be updated in each issue of *SPRAT* until the final table for the year would be published in the Spring issue of the following year. Let me know what you think, and your scores so far for 2003 if you like the idea.

Den and Boro will be QRV 31 May/4 June 80-10m CW as **PA3FO/P** and **9A3KB/P** from five islands (31 May Sv Marko - CI 117, 31 May/1 June Krk - CI 046, 2 June Susak with Lighthouse - CI 108, LH 0444, CRO 011, 2/3 June Losinj - CI 058) and 3/4 June Cres - CI 021, all in EU-136). QSL via home calls. **G3TLH** recently found new enthusiasm for QRP and is using a transceiver for the first time in nearly 40 years! Ian acquired a Rascal RA1772 receiver with outputs to drive a transverter to generate a signal anywhere from 15kHz to 30MHz tunable by the receiver. He obtained a transverter, thanks to **G4DDN**, and is feeding it from the receiver into a QRP VMOS PA, turning the receiver into a trans-

ceiver. He says, "The RA1772 is a superb CW receiver with narrow filters and an excellent front end. It was designed by **G3NCN**, who lives local and worked for Rascal, and he has given me enormous help in bringing it up to scratch. It has enabled me to get going quickly on new 5MHz band, a great band for QRP CW. **G3YMC**, who also lives locally, recently had what is probably the first transatlantic QRP QSO on 5MHz with **VO1MRC**. I gave **VO1MRC** a call after Dave made his QSO and he came back to '**G3TDH**', then lost me, and so I almost made the second QSO. Anyway, I was quite pleased that my 4W to an attic loop antenna was at least being heard". **G3YMC** adds, "I had a nice surprise on 23 December when I QSO'd **VO1MRC**, operating under a special licence, for possibly the first QRP transatlantic QSO on the band".

**N4UY** tried out his new 20m 800mW Tuna Tin to a vertical dipole in the CQWW CW Contest. Jake used the *wait and pounce* technique - "I *wait* until a DX station is on one of my few Tuna Tin frequencies; I *wait* until they have worked everyone and are calling CQ and then I *pounce* (maybe pounce is a bit strong)" and worked **CYØMM** and **EA8/DL6QW**. **G3NYY** has a 40m Tuna Tin 2 and has worked 10 European countries with it. Walt says it runs just 300mW output with a 2N2222A VXO driving a 2N2222A PA. **MØCZP** is having fun with his Epiphyte 2 (5W on 80m) and has worked 15 countries to an inverted vee in a short space of time. Tim says, "Five watts on the lower bands is fine!". **GMØRWU** has used 2 to 5W on 40m with both a good (G5RV) and a poor (20m dipole!) antenna. Jack says, "These power levels work fine if you can find a clear spot. QRM is the main problem; I work mostly during the day, night time it gets harder, but I find it a much better QRP SSB band than 80m, although that band is quieter (often too quiet!)".

**GM3PIP** says, "I apologise to 30 members for giving out a wrong membership number. I gave the number 11191 instead of my correct number of 11192 and the 30 QSL cards which I sent to the QRP Bureau carried the wrong number". Peter built an OXO a few years ago but never took up QRP in earnest then but now, having joined the QRP fraternity, almost all his QSOs are now QRP with one watt CW on HF. He says "The man to blame for this late move by me in amateur

radio is George, **GM3OXX**, (page 18 of SPRAT 112, the PP2 Transmitter - Peter Parker 2 - the name should read Peter Park not Parker but no harm done)". **CU2JL** (**N2CQR**), will finish duty in the Azores this summer and Bill's next post is London, where he looks forward to getting more involved in club activities.

**G4WIF** built the RockMite transceiver and says "It works really well and copes admirably with 40m QRP. During the day the few hundred milliwatts got me as far as Germany but in the evening there is just so much competition. For the money, a little radio that includes a keyer has to be good value. A word of caution - you do have to put it in a metal box - they have been known to howl a bit without one - mine did, but as soon as I put it in a case made of PCB material it was perfectly well behaved. Tony refers to **NØRC**'s Website for the Rockmite at <<http://www.qsl.net/n0rc/rm/>> and his own at <<http://www.qsl.net/n0rc/rm/Rock-Pile/g4wif/g4wif.html>>. **G3JNB**'s FT 817 has been giving a good account of itself after a 'no quibble' warranty repair by Yaesu for loss of output stages. Victor had switched off and left it standing connected to a live 12V power supply whilst QRT for ten days. On returning...no RF out! A number of such cases have been reported but appear due to a variety of causes. Lesson? Unplug the leads when QRT. His best DX lately was **W4THE** on 17m SSB with 2.5W to a very low long wire between houses whilst operating /P in Chiswick.

**GM3MXN** built a modified version of the **G3YMC** Super Sixty (**GW4ALG**) in SPRAT 113 and substituted an untuned driver stage in the transmitter, which gives 3W out and T9X reports. Tom's antenna is a 2 x 15m doublet. **GW4ALG** asks if valves are making a come back? On 21 October Steve worked **EA2EIE** on 40m running a three valve QRP rig, and the next day worked **GØUPL** on 80m, also running a homemade valve rig (see below). A possible record for a HF beacon transmitter? Over the last four months, an extremely low power beacon transmitter has been QRV on 7029kHz from **ZSIJ**'s QTH at Plettenberg Bay. The measured output power is 100 microwatts and reception reports from up to 1100kms have been received. But the big surprise came on

29 January when **W8LXJ**, in West Union, Ohio, made a positive identification of the beacon transmitter. Bill gave it a 219 RST report and made a tape recording of the signal received and played it back to amazed South African amateurs on the daily, split frequency net (7095 and 7177kHz). There is a new beacon in Germany (Scheggerott), **DRA5** on 5195kHz in test mode on CW, RTTY, BPSK31 and QPSK31

Information about the new IC-703 QRP rig is now on the Icom Web site at <<http://www.icom.co.jp/world/info/ic-703/index.html>>. **GØUPL** got started in QRP by building a 80m receiver using ideas from SPRAT 101 (QRP2001 receiver). It uses a Taylor switching mixer followed by a poly-phase audio network for unwanted sideband cancellation and the VFO is Huff Puff stabilised. It has a homebrewed frequency meter and UT clock on the front panel. Hans was so impressed by the performance of it that he built a 80m transmitter based on a one-valve ECL82 design found on the Internet. Construction is traditional chassis style but with single-sided PCB rather than sheet aluminium. It worked first time and puts out up to 10W on 80m, using the 3.560MHz QRP calling frequency crystal. On 25 March 2002, Hans strung up about 30 feet of wire in the loft, tuned it with a homebrew ATU and had his first ever QSO, with **G4GZG** over a 12 mile distance! Larry gave him a 559 report, but Hans later discovered the forward/reverse power switch on the ATU was mounted upside down, and so most of the power was dissipated in the ATU coil! The switch was corrected and he has since made 240 QSOs in 19 countries with it, all 80m CW. Details are on Hans' Web site at <<http://www.HansSummers.com>>.

**MW5HOC** writes, "Do you ever stop and think about what an amazing hobby amateur radio is? I have just QSO'd **VA3GA**, in Toronto on 10m SSB running 1kW to a multi-element beam. I was running 5W from my FT-817 into a 40m loaded dipole". I have been outside and looked at my antenna which cost me next to nothing to make and only an hour of my time. It is two lengths of wire, each with a coil wound in it, and is about 25 feet high. Whilst looking at it, I wondered how it is possible that with the same amount of power you get from the bulb in a AA cell

torch, I can communicate with people thousands of miles away. This really is the closest thing to a miracle that I can imagine. I understand the physics of EM radiation, but will never fully understand how such small amounts of power can end up thousands of miles away". In reply **GØUPL** says, "It really *is* amazing. I have nothing quite so DX to report but then I am restricted to 80m. This morning at midnight exactly, I worked Yuri, **RW3DIP**, and then his 20 year old son Ilya, **RW3DIO**, on 80m with my all homebrew station and 7W output to my longwire antenna. These were my 188th and 189th QSOs, my 19th country and best DX to date. Yuri and Ilya's family station is also homebrew, running 50W to an 84 metres long delta antenna". Hans uses a one valve transmitter (see <<http://www.hanssummers.com/radio/cwtw/index.htm>> and has added a power switch to select 10W or 5W (adds two 47K resistors in the grid circuit) and another switch to select a 3.560MHz QRP or a 3.558MHz FISTS crystal. He uses a longwire antenna almost 200 feet long but bent horizontally like a V. The end is about 40 feet up a pine tree and the earth connection is the central heating system via a crocodile clip to the radiator. Finally Hans says, "Like Darren I often wonder about the whole thing. They hear me so far away yet my soldering iron uses more power than I'm sending out. It *is* incredible, and ten times more satisfactory when you have built the rig yourself!".

**G3XBM** worked eight US states, Brazil and Argentina (11,200kms) on SSB in the ARRL 10 Meter Contest. Roger says, "This was with a Miracle Whip and FT-817 indoors on the bedroom table with the ground system as the bedroom radiator! Yes, conditions were good but I am still amazed how such a simple set-up can be so effective. It almost beggars belief that one can make QRP SSB QSOs at this range with this set-up. I know others have done much better but it still gives me one heck of a buzz even after 40 years in the hobby!". Joe, **GØSQF**, says, "Further to my report in SPRAT 102, thanks to Richard, **G4XHE**, the first two-way QSO using the homebrew 6m FM rigs at 500mW was achieved on 5 October over a path of about half a mile. Richard reported 100% copy although I experienced periodic interference from an unidentified source. This result is

encouraging although there is a very evident lack of adjacent channel selectivity, hi! A combination of high order elliptic high-pass and low-pass filters is being currently evaluated as this seems to be the only way to achieve even modest selectivity in a 25kHz IF receiver".

Rick, **M3RAL**, writing in December, says, "From my QTH in Shipley, West Yorkshire, using a Yaesu FT-817, SSB at 5W into an indoor 40-50 feet very-random wire antenna strung around my attic room and tuned through a MFJ-16010 LC tuner, I managed to work John, **K2VV**, in Missouri (4085 miles) for my best DX since getting my licence in August". **HB9BQB**'s daughter built him a Web page, <[www.hb9bqb.ch](http://www.hb9bqb.ch)> as a surprise Christmas present. Guido says, "It is still under construction because she didn't know about the most important things, like CW, QRP, G-QRP etc, that must be added to my Web site!". **M5AEF** worked 41 DXCC between 1 November and 31 December with 1W, including AP2JZB and 3B9FR, which he says is probably the most exotic DX he has ever worked. Robin's DXCC totals for 2002 are 77 Mixed, 68 Phone and 52 CW.

**G3YMC** had a serious attempt at the QRP sections of the CQWW CW and the ARRL 10 Meter contests and was amazed at his results. On claimed scores it appears Dave will be well placed not just in the UK entries but also the DX tables. He would encourage more activity in the QRP sections as it is possible to compete on a far more level playing field than in the low power (100W) sections. He also entered the CQ 160 Meter Contest which he said was very hard going with 5W, but managed 25 DXCC including **VY2ZM**. **GW4ALG** had 830 QSOs in 74 DXCC with his Elecraft K2 at 5W and G5RV antenna in the CQWW CW Contest and 69 QSOs in 21 DXCC in the CQ 160 Meter Contest. Steve says, "At times it can be very hard going, but the results can also be both surprising and rewarding". **VK3CBO** has worked several European and USA stations with his K1, mainly on 20m between 2 and 4W. Rod's uses a ground mounted multi-band vertical antenna.

That clears the files once again. Please let me know how your Spring goes, together with your 2003 DXCC scores, and some pictures, by 20 May please.



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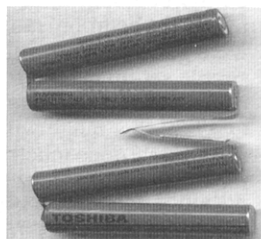
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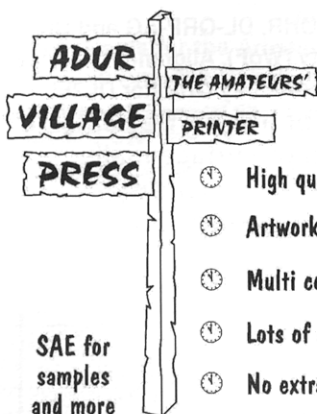


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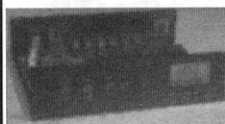
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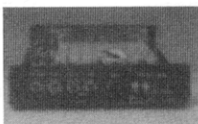
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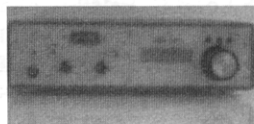
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