



SPRAT

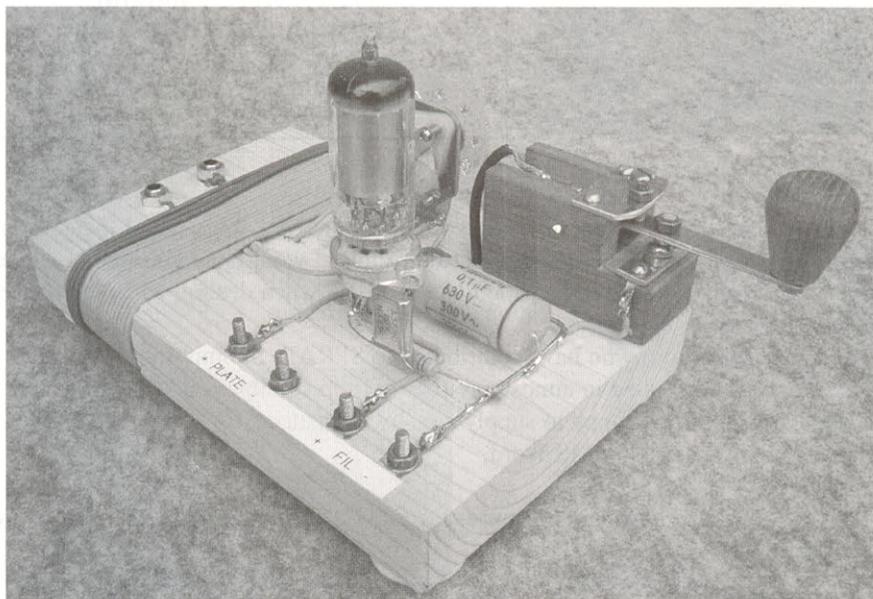
THE JOURNAL OF THE G QRP CLUB

DEVOTED TO LOW POWER COMMUNICATION

ISSUE Nr. 133

© G-QRP-CLUB

Winter 2007/8



The SM7UCZ "Timber Transmitter"
Step by Step Instructions in This Issue

The Timber Transmitter ~ BasicDSP ~ Special Kit Offer
Linearization of Varactor Tuned VFOs ~ Mis-using Inverters
Pi - T Mini ATU ~ Subscription Information ~ Membership News
Small Talk 160m Transmitter ~ Antenna - Anecdotes - Awards
Communications & Contests ~ VHF News ~ Member's News

YOUR SUBSCRIPTION IS NOW DUE - SEE CENTRE PAGES

JOURNAL OF THE G QRP CLUB



© G QRP CLUB



**St. Aidan's Vicarage,
498 Manchester Road
Rochdale, Lancs.
OL11 3HE, England**
TEL & FAX: 01706 - 631812
(overseas tel: +44 1706 631812)
Internet : g3rjv@gqrp.co.uk
Homepage : www.gqrp.com

Rev. George Dobbs G3RJV

A Happy New year to all club members. As we begin the New Year, may I thank all of those who have generously given their time to the club. I would like to remind members this is all freely given time and to be patient and thankful when dealing with club officers.

Our thanks also to all those who have contributed to SPRAT. Submissions are always welcome and may be supplied in almost any format from scribbles on scrap paper to fully worked articles. I am happy to supply a ready formatted SPRAT page for those who wish to submit material in MS Word.

... by the way... so far I have had no entries for the W1FB Award this year – see below



The W1FB Memorial Award 2007/8

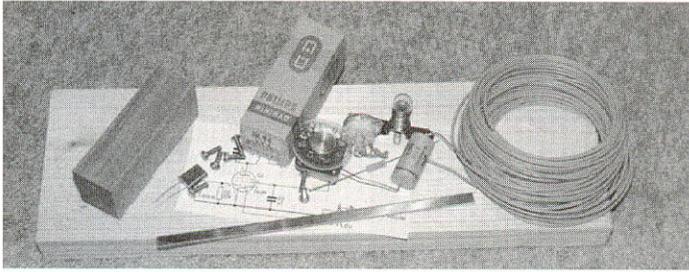
Design, build and operate a QRP Transmitter that is powered from a "natural source". Please send details to G3RJV by Spring 2008

72/3

G3RJV

The Timber Transmitter [A CHRISTMAS PROJECT?]

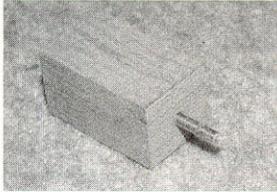
Johnny Apell SM7UCZ, Ekedalsvagen 11, S-373 00 Jamjo. Sweden



Is it possible to build a TX on a 1" x 4" piece of wood??

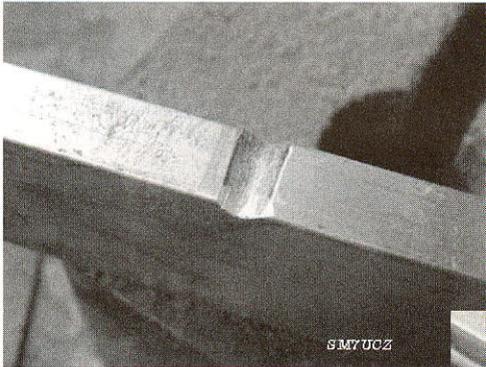
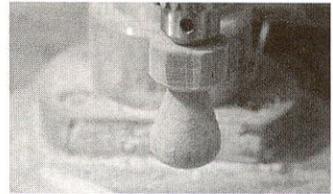
It is planed on 3 sides. Nothing to do with frequency stability ... it just looks a little nicer....

With little wire for the coil. A piece of brass for the key. 5 bought items (six with the valve holder). Here a battery valve is used, DL94/3V4. But other valves work in the schematic. You only need: one Crystal, one resistor 20k, one condenser 0.1uF, one variable condenser 200-300pF, and little wire to get the TX to run. The dark piece of wood, oak, will be the key.



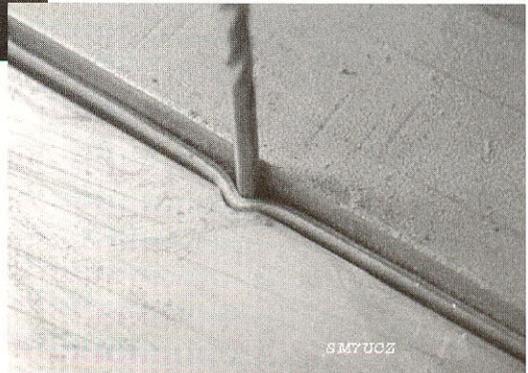
For the key you will need a knob. An M3 bolt, is threaded in there you think the middle is. Cut off the head. Made the wood roughly round with a knife.

In a machine drill the knob is turned to shape with a file.



The key arm requires a "U" insert. This idea is from the Paraset transceiver. File a groove in a piece of metal to make a bending jig.

Using the bending jig in a vice, with a suitable drill, the "U" shaped bend is made in the brass key arm.



To complete the key arm



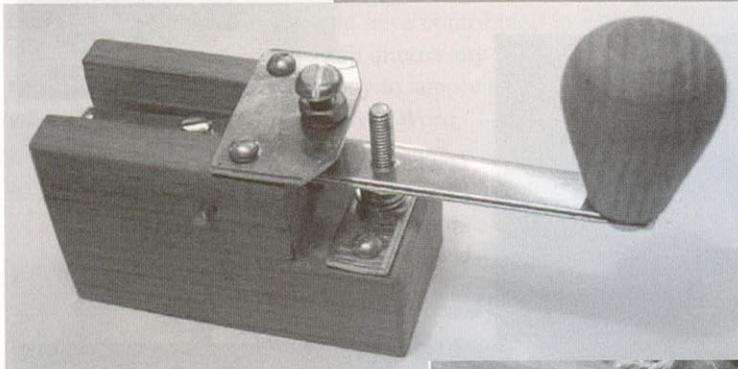
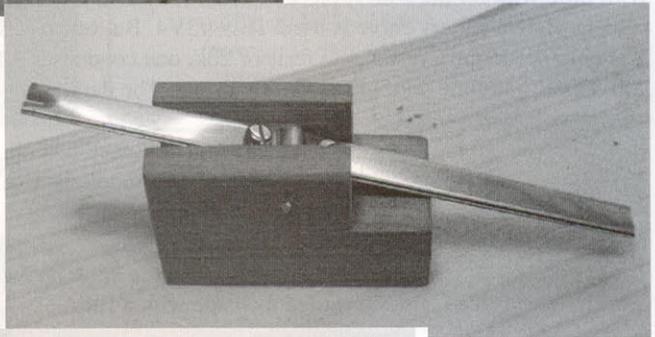
A small piece of brass is made for locking the key arm to the pivot.

Holes are drilled in the shaft and the small brass retainer

The body for the key is made with a saw.

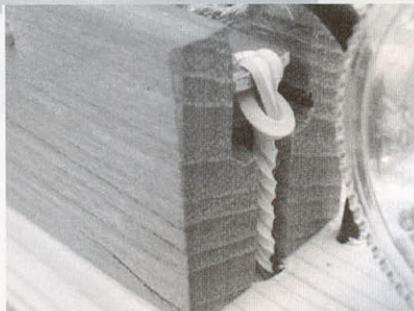
Sand to shape and finish

Test the assembly with a 2mm shaft.

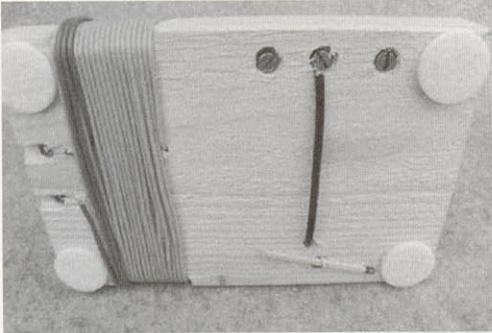


Some pieces of brass and brass bolt are used for the key contacts and adjustment.

The key spring is a rubber band.



The underside of the wood

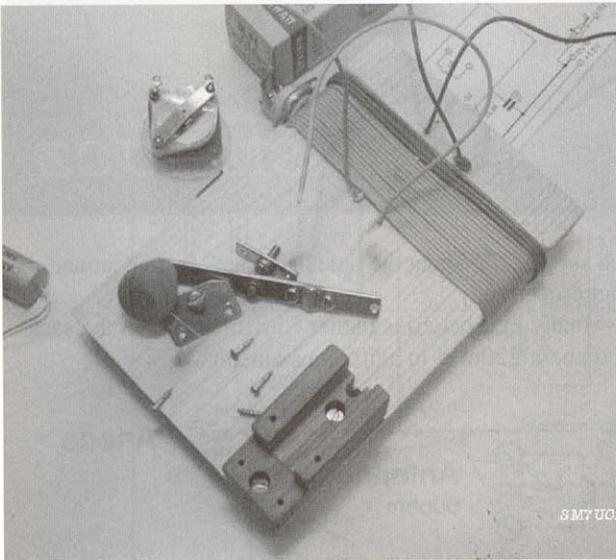


The rubber band goes through the chassis, and is locked with a match.

If the rubber to weak, twist it like a old rubber-powered aeroplane...

The black wire is zero volts to the key

The key contacts are made from brass, not so good... but for a few QSO it will not be out worn...



Lets go on

For 3.5MHz we twist 20 turns of the wire around the chassis.

The edges are little smoothed.

20 turns gave about 20uH which sounds good for the 80 meter band.

Over the "cold" end of the coil add 3 turns for the antenna.

This will be about 50 ohm.

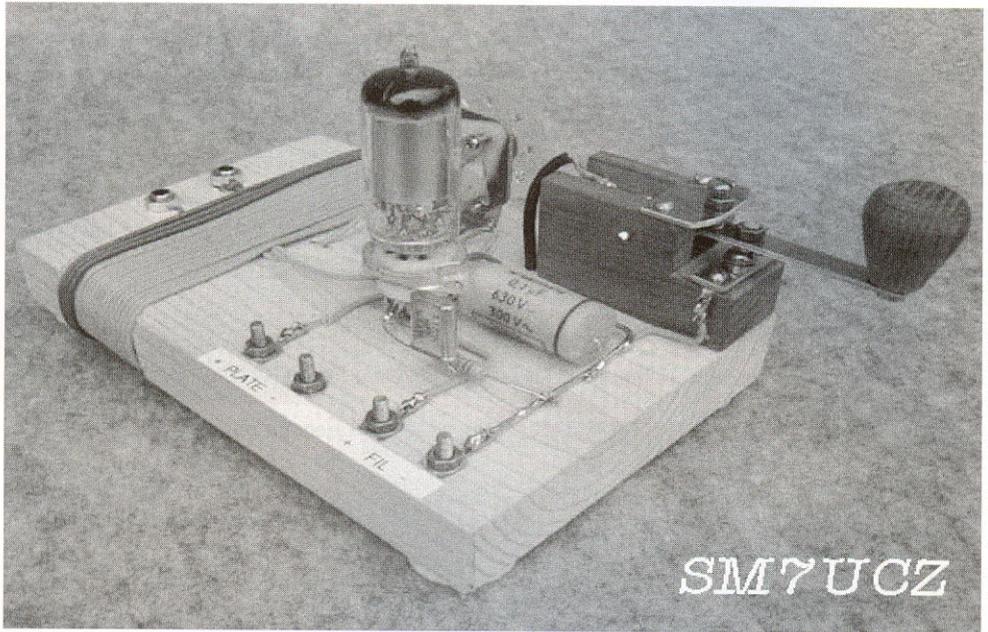
Close-up of all the components

Showing the breadboard method of construction.



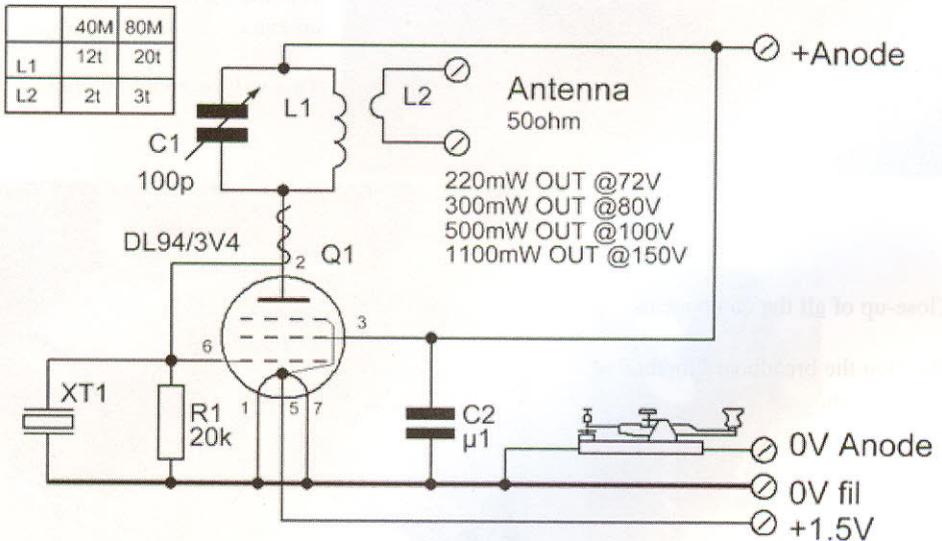
Fit for the fight ! Just connect the batteries.

boom silt to st...

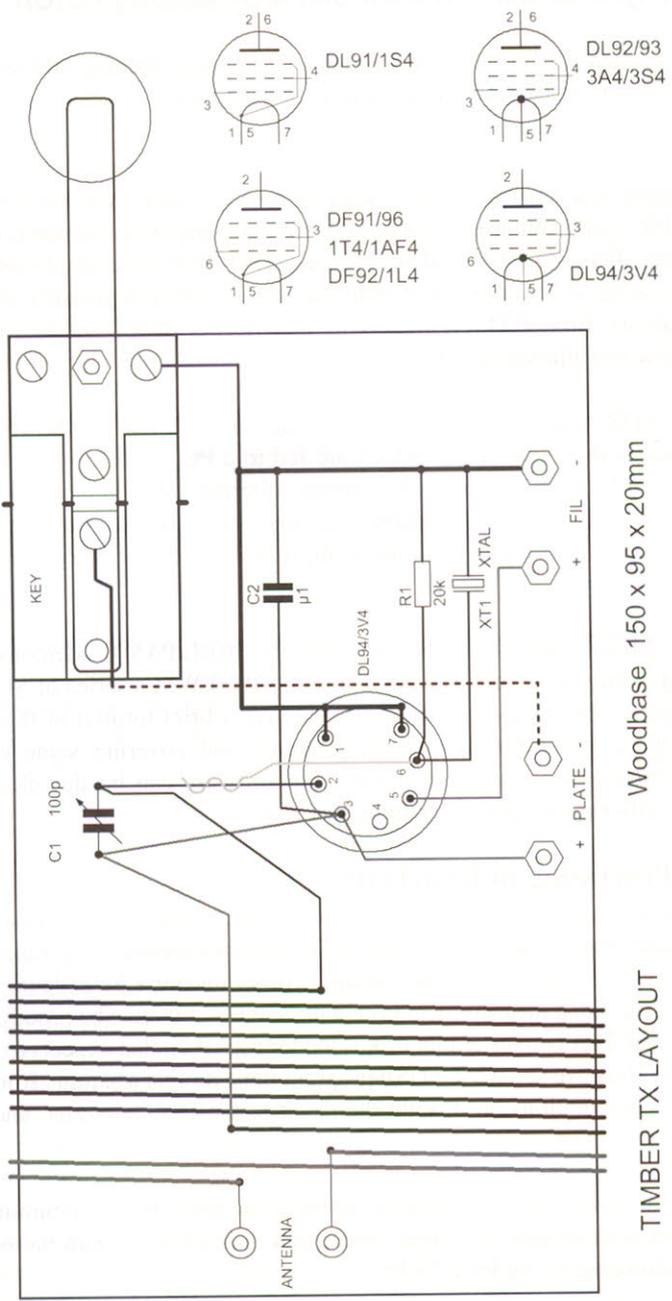


You can not make a transmitter much simpler. Without the little “gimmic”, twisted around the anode wire, the transmitter didn't start properly..

The power out is depending of how many PP3 batteries Father Christmas had in the sack! With 8 batteries you get 72 volt and about 220mW in a 50 ohms antenna.



Tested briefly with 230V, I got about 3W!! ... not good for the valve!



Woodbase 150 x 95 x 20mm

TIMBER TX LAYOUT

An introduction to BasicDSP

Pieter-Tjerk de Boer PA3FWM and Niels Moseley PE1OIT

In this article, we present the BasicDSP software, which makes building and modifying simple radios in software as easy and accessible as in hardware.

Background

In recent years, there has been a growing interest among radio amateurs for Software Defined Radio, SDR: radio signal processing done in software on a computer, rather than in analog hardware. This digital signal processing (DSP) has several advantages over analog signal processing: it does not suffer from the non-idealities of practical components (temperature sensitivity, limited Q, etc.) allowing e.g. steeper filters, and is very flexible (adaptive filters, new modulation schemes, etc.)

A typical amateur SDR setup consists of a circuit that mixes a part of the HF spectrum down to frequencies in the audio range, which are fed to a PC sound card for conversion from analog to digital for further processing (tuning, filtering, demodulation) in software. The external hardware is often very simple, e.g. just a few ICs in the SoftRock kits; however, the software is typically rather complicated and not very accessible to experimenters.

At the G-QRP Mini-Convention, Jan Verduyn, G0BBL/PA5D, demonstrated the BasicDSP program, which we wrote as a companion to PA3FWM's series of SDR articles in the Dutch magazine 'Electron'. In this article, we give a brief tutorial of this program, ending with a minimal but functioning SDR program, and covering some elementary digital signal processing theory along the way. The software can be downloaded from <http://wwwhome.cs.utwente.nl/~ptdeboer/ham/basicdsp/>

Digital Signal Processing in BasicDSP

The first thing to understand about digital signal processing, is that it happens on a sample-by-sample basis rather than continuously. The A/D converter measures its (analog) input voltage periodically, e.g., 8000 times per second; this rate must be at least twice the highest input frequency. Each measurement is called a sample and must be processed by the software. Similarly, the D/A converter that drives the loudspeaker also expects to get a new sample periodically. Thus, we see what a DSP program must do: get a sample from the A/D converter, do some computations on it, send the result to the D/A converter, and wait for the next sample.

In BasicDSP, you can specify the computations using a few lines of programming code, to be executed once for each sample. All other tasks, such as interfacing with the soundcard, are taken care of automatically by BasicDSP.

Getting started

Try first the following minimal program:

```
out = in
```

Type this into BasicDSP's text entry field and press the 'Run' button. The text entry field will turn green to confirm that the program contains no syntactical errors and is now running.

But what does it do? It simply copies the content of the variable called 'in' (which contains the input sample) into the variable called 'out', the content of which is sent through your soundcard to your computer's speakers. The input sample can be read from either the line/mic input of your soundcard, or a .WAV-file, or a locally generated sine wave or white noise signal. Thus, you can now hear either of those sources on your PC speakers.



Perhaps you find the sound too loud?

The following program attenuates it by 20 dB, which is the same as multiplying by 0.1:

```
out = in * 0.1
```

The attenuation can also be made variable:

```
out = in * slider1
```

'Slider1' refers to the setting of the first of four controls that are located in the lower half of the BasicDSP window.

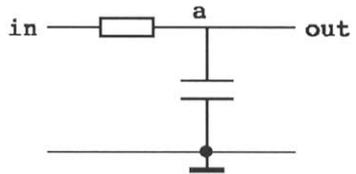
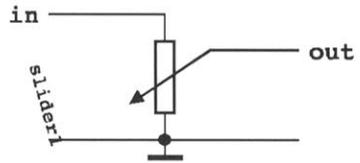
A first-order low-pass filter can be programmed as follows:

```
a = a + slider1*(in-a)
out = a
```

We see a new variable being used here, arbitrarily called 'a'. Each such a name is a reference to a location in the computer's memory, in which numbers can be stored temporarily; thus, the output sample may depend on both the current input sample, and on previous samples through information stored in such variables.

The program does the following: for every input sample read, it adds to 'a' a contribution that is proportional to the difference between 'in' and 'a'.

Compare this with the circuit sketched: the voltage on the capacitor changes at a rate which is proportional to the current through the resistor, which in turn is proportional to the difference between the input and output voltages. We know the circuit is a low-pass filter: slow changes of the input voltage are tracked by the output voltage, fast changes are



not because the capacitor cannot charge and discharge quickly enough. Precisely the same happens in the computer program: fast changes of ‘in’ are not tracked by the variable ‘a’, slow changes are. The setting of ‘slider1’ in this example determines the cut-off frequency, just like the resistor’s value does in the analogue circuit.

We can also build an oscillator in BasicDSP. The first step for this is building a saw-tooth generator:

```
sawtooth = mod1(sawtooth + slider1)
out = sawtooth
```

At every sample instant, this program adds the value of ‘slider1’ to the variable ‘sawtooth’. The function mod1 however leaves only the fractional part of this sum, so when the sum reaches or exceeds 1, 1 is subtracted from it. Thus, if e.g. slider1 is set to 0.2, sawtooth will successively get the values 0, 0.2, 0.4, 0.6, 0.8, 0.0 (not 1.0!), 0.2, and so on. This is an oscillation with a period of 5 samples, which corresponds to a frequency of 8000/5=1600 Hz if the default samplerate of 8000 Hz is used.

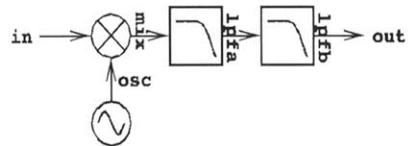
To turn this into a sine wave, we use the sin1() function:

```
sawtooth = mod1(sawtooth+slider1)
osc = sin1(sawtooth)
out = osc
```

sin1() is the sine function taught in school, except that its argument just needs to cover 0 to 1 for a complete period of the sine wave, as opposed to 0 to 360 degrees for the regular sin function. Thus, it converts our sawtooth into a sine wave.

Now, we can build a very simple direct-conversion radio-receiver:

```
samplerate = 48000
sawtooth = mod1(sawtooth+slider1)
osc = sin1(sawtooth)
mix = osc * in
lpfa = lpfa + slider2*(mix-lpfa)
lpfb = lpfb + slider2*(lpfa-lpfb)
out = lpfb
```

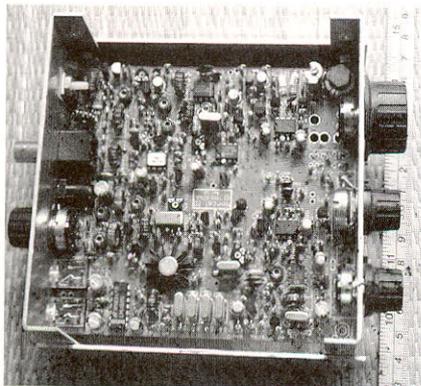


The first line sets the sample rate to 48000 Hz, the highest supported by most soundcards. The next lines are our sine-wave oscillator, followed by a mixer (the mixing operation is a multiplication), and finally two first-order low-pass filters.

The above program needs an input signal. That can either be taken from one of the popular SDR downconverters such as the SoftRock kits, or from a recording of the output of such a downconverter. A suitable .WAV file containing SSB signals is available at the Flex Radio website: <http://support.flex-radio.com/Downloads.aspx?id=59>

This receiver program works, but it is very simple. Further improvements are possible, such as a steeper filter, and rejection of the image frequency (using the quadrature mixer found in most SDR front-ends).

A Once Only Club Offer – NorCal 20 Transceivers



Ten years ago, Doug Hendricks, KI6DS, of NorCal produced 1,000 20-meter QRP transceiver kits, 500 of which were to be donated free to radio amateurs in Third World countries. G3RJV and the G QRP Club undertook to oversee dispersal of the other 500 kits. The kits have enabled many radio amateurs without equipment to get on the air. There are now very few of the kits left. KI6DS and G3RJV have agreed to sell the remainder to fund the sending of MFJ QRP radios to India. So a limited number are now available for sale.

NorCal-20 Specifications:

Size: 5" x 5" x 2" nominal. Weight: 1 lb. 2 oz. (515 g). Mode: CW only. Keying: Semi-break-in, all electronic, TiCK-1 (Rev. 1.02) keyer built in. 1/8" stereo jack connection. Frequency control: VFO, varicap diode tuned +center detent RIT control with approx. +/- 2KHz range (user adjustable). Stability: Approx. +300Hz drift first 30mins, +50Hz drift per hour thereafter. Frequency counter: AFA, accurate to within 1KHz, manual and automatic modes - internally user selectable. Frequency range; A (nominal) 70KHz segment of the CW end of 20m (14MHz) - internally user selectable. Antenna: 50 Ohms, BNC connector. Output power: 0 to 5 Watts nominal (7 Watts typical) - internally user adjustable. Output protection: 2SC1969 output device is SWR protected - will run into open or short circuit loads. Output match: Better than 1.5:1 into 50 Ohms nominal. Output spectrum: Relative to main carrier at 5W output, all harmonics -70dB or better, all spurious -50dB or better. Receiver: Single conversion superheterodyne, JFET pre-amp, high level double balanced mixer. Receive sensitivity: MDS -133dBm nominal. I.F.: 9MHz. Receive filter: 4 crystal main filter, 1 crystal unwanted sideband noise filter. Receive bandwidth: 300Hz nominal. Stopband atten.: -70dB typical. AGC: Audio derived, 1 PIN diode + SA612 method: AGC range: 100 dB typical. Audio output: 1W into 8 Ohms from an LM380N, 1/8" stereo jack output connector. Power supply: 10V to 14V D.C. Negative ground, 3.5mm power jack (center pin is positive). Receive current: 160mA typical (idle with background noise) Transmit current: Depends on output power setting - user adjustable - and power supply voltage. Transmit efficiency: ~ 60% efficient (class C output stage).

The NorCal 20 kits include PCB, all components, hardware and a drilled case.

The Kits are available in the UK from our club sales officer;

Graham Firth, G3MFJ, 13 Wymore Drive, Bramhope, LEEDS. LS16 9DQ.

In the U.K. NorCal 20 Kit £50 plus £2.50 postage (UK bank Cheque or PayPal)

See the back page for our usual payment procedure.

We also have a few kits in the USA:

U.S. hams can order for \$100.00 (postage paid) from Ken Evans, W4DU. Send a check or money order for \$100.00 made payable to GQRP Club to: Ken Evans, 848 Valbrook Court, Lilburn, Georgia 30047. For Pay Pal, send \$100.00 to w4du@arrl.net

Linearization of Varactor Tuned VFOs

Bob Kopski K3NHI (kopskirl@cavtel.net)

I recently replaced a ratty air variable / vernier dial combination in a VFO with varactor tuning. The new 10-turn pot is such a refreshing pleasure to use! But like all such tuning schemes I've seen, this one suffers the classic "crowded low end" and "expanded top end" tuning non linearity. This was expected of course and is not a show-stopper, but I wanted to "straighten this out" - for the fun and utility of it. The actual tuning curve is shown in the graphic titled "VFO Frequency vs. Voltage".

I reran the same data this time adjusting the tuning voltage as needed to produce even increments of frequency and the resultant plot is shown as "VFO Varactor Voltage vs. Linear Frequency". The curve shape shown here is what is needed to "bend" a linearly changing tuning pot voltage to produce a corresponding linear VFO frequency change - for my particular VFO. But every VFO I've seen has a transfer curve of this same basic shape despite values particulars varying among them, so I believe what follows should be applicable in principle to all such VFOs.

The circuit approach is shown in the "VFO Linearizer" schematic, and the result of using it is shown in the graphic "Measured Linearized VFO Transfer Characteristic".

The circuit design began with some assumptions and decisions. For example, I decided to have a total tuning pot voltage range of 5 volts. (I had to pick something.) And I decided upon an approach to setting the low frequency point - the "start point". The former voltage is established by R2 and the latter by variable R3. Both resistors have 5 mA flowing in them by the action of the LM317LZ current source - which is also the reference / regulator for everything else in the circuit. Both voltages are buffered by op amp voltage followers resulting in the "V-LO" and "V-HI" busses. And the tuning pot has 5 volts across it as planned.

Tuning pot wiper voltage is buffered by a third op amp which outputs drive to segment resistor R10, and a diode pedestaled voltage to drive segments 2 thru 5. The diode very nearly tracks out any temperature related motions of the transistor emitter diodes. Between this op amp and the final varactor-driving op amp output section lie 5 parallel paths each incrementally contributing to what will become the "bent" output voltage transfer function.

Operation and tune up begins by first setting all segment resistors (R5 - R10) to maximum value and the tuning pot to the low end. R3 is then adjusted to produce the beginning or start value varactor voltage and the corresponding lowest frequency - as dictated by the graphic data. (In this case that voltage is about 2.55 volts and the frequency is 4.2 MHz.) The tuning pot is then adjusted upward from zero to result in 1 volt between the pot wiper and V-LO.

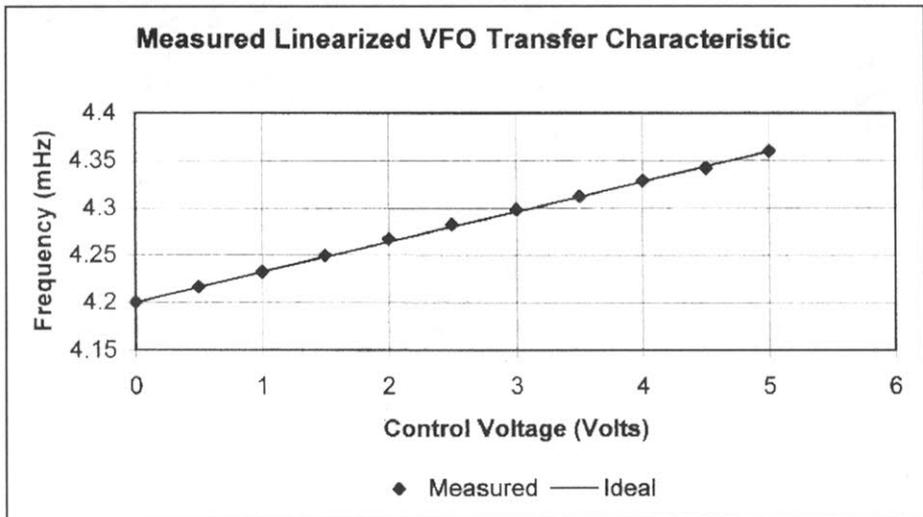
The resulting frequency will fall short of the desired value so R10 is adjusted to set the frequency correctly. The first portion (segment) of the transfer curve is now properly set.

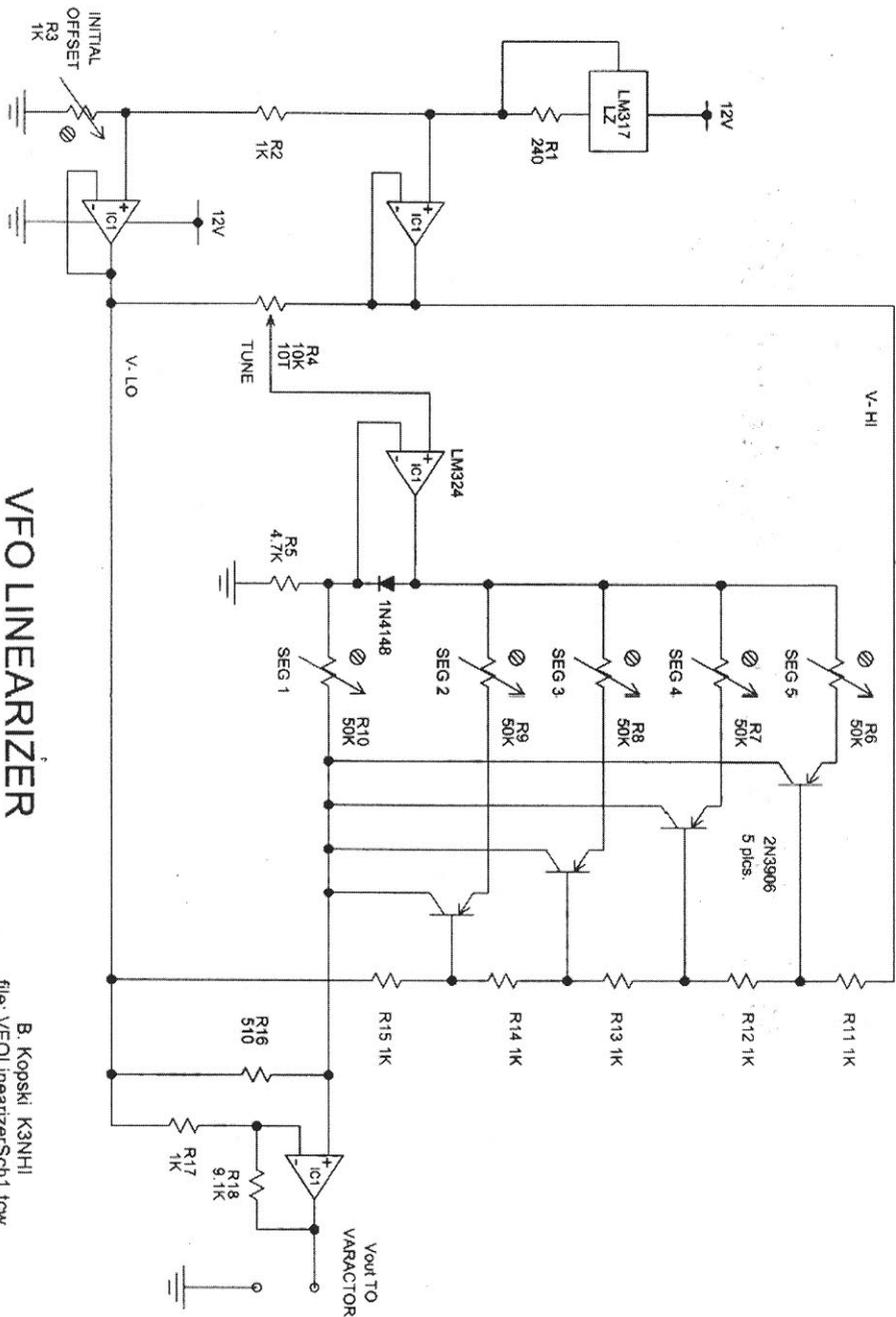
Noting that the subsequent segment forming transistors have base voltages set at one volt increments, the tuning pot is now set to produce 2 volts between the wiper and V-LO. (Up to this point no transistor emitter are forward biased, so none of these paths was conducting.

At this point however the first such path (second segment) initiates transistor conduction and the associated collector current flows into R16 incrementing the voltage already there from R10 current.) Once again the associated frequency will be low and so R9 is adjusted to make it the correct value. The remaining steps are more of the same 1-volt increments until finally R6 is adjusted, the circuit output voltage is 7 volts, and the upper end of the dial has a frequency of 4.36 MHz. The graphic “Measured Linearized VFO Transfer Characteristic” pretty much tells the success story.

Note that the circuit details and specifics here are appropriate for my particular VFO. Since all VFO V-F curves I’ve seen follow much the same general shape, I believe this approach will be generally applicable - suitably customized to the needed specifics. I can imagine where fewer segments and a more-coarse approximation would be just fine in some cases. Similarly, I can imagine even more than these 5 segments being used to attain an even smoother curve. Then there are the very wide range of low-to-high tuning voltage ranges in use - all accommodated I believe with proper choice of circuit constants.

Whatever the end design detail, I do think this approach to a piece wise approximation of the non-linear voltage transfer characteristic needed for most any varactor tuned oscillator can end that “crowded low end” and “expanded high end” lament once and for all!

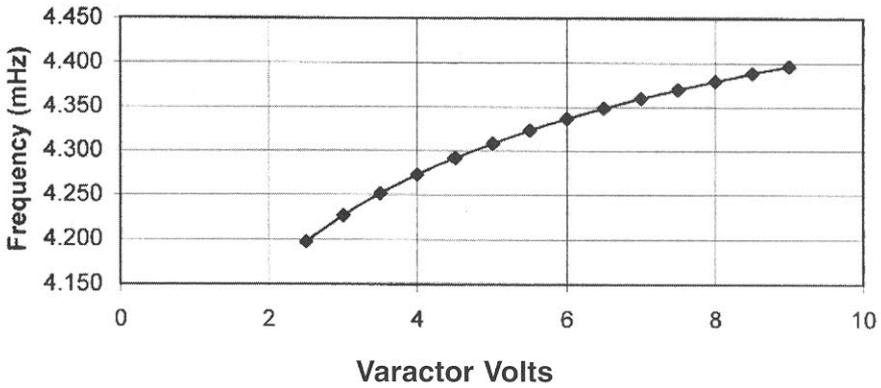




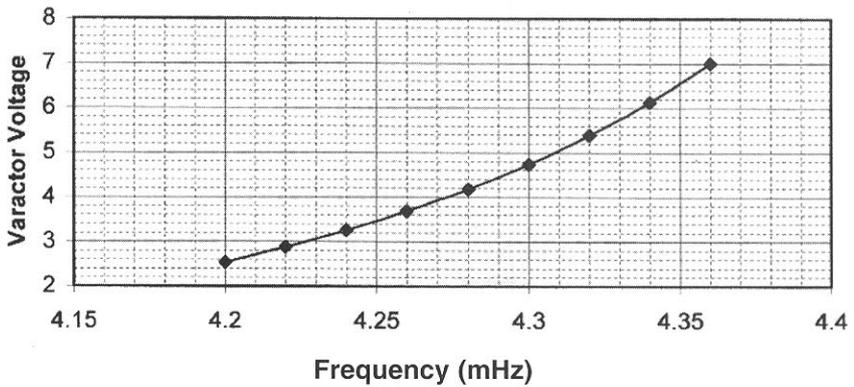
VFO LINEARIZER

B. Kopski K3NHI
 file: VFOLinearizer-Sch1.tcw
 10/10/07

VFO Frequency vs Voltage



VFO Varactor Voltage vs Linear Frequency



Correction –SPRAT 132

The item on SprintLayout 5 (pp 26-27 of SPRAT 132) attributed to Brian Baker, GM0JRQ was written by Chris Pearson, M0JRQ.
My apologies to Chris for the error

(Mis)using inverters to drive a pair of headphones

Aren van Waarde, Boslaan 62, 9801HH Zuidhorn, The Netherlands

In an article reprinted in the autumn 2007 issue of SPRAT, Bill Currie indicates that CMOS inverters can be used as amplifiers, both for RF and AF. Yet, the “optimal version” of the receiver which is the subject of his article ends with an LM386 audio chip. This made me wonder whether headphones may be driven by a few inverters wired in parallel. A complete receiver could then be designed using 74HCU04 chips as the only active device.

A datasheet search on the WWW resulted in some interesting documents¹⁻³. However, information provided by Philips³ suggests that CMOS inverters have a limited capacity for current drive. Z_L should be 10k or greater. If that figure is correct, even six inverters wired in parallel will not drive a Walkman pair of cans.

However, an additional Google search gave me some encouragement. A “74HCU04 pocket headphone amp” is presented on a Korean-language site⁴ (Figure 1). Since I cannot read Korean, I do not know for which type of headphones the circuit is intended. To find this out by trial and error, I decided to build a prototype on a piece of Veroboard, using 74HCU04 chips made by Philips and Texas Instruments.

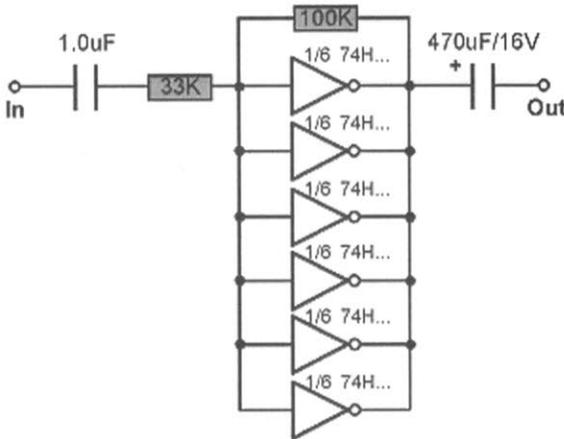


Figure 1. 74HCU04 Pocket Headphone Amplifier proposed by mr.Shin

For initial tests, I used a function generator, AF-millivoltmeter, scope, and +5V DC power supply, whereas a 120 Ohm resistor was employed as the output load. Gain proved to be 2.0 x, close to the theoretical gain of 2.5 for loads > 2k. Bandwidth was 10 Hz...65 kHz (-1 dB, see Figure 2). Squarewaves at audio frequencies looked excellent, without any sign of ringing or overshoot. For reasons I don't understand, Philips chips proved to be more power-hungry than their Texas counterparts (80 mA vs. 60 mA, respectively). In all other respects, Dallas and Eindhoven performed similarly. PSU decoupling in my prototype was

done with a 100nF ceramic capacitor wired between pins 7 and 14 of each i.c. and a 2200 μ F electrolytic.

Since listening is the proof of amplification, I performed extensive listening tests using a pair of Sennheiser headphones (HD465, 60 Ohms) and several CDs with classical music. It was a great surprise to observe that the amplifier sounds excellent! A high-quality stereo amplifier for hifi use may be possible using 4 or 5 rechargeable NiMH batteries wired in series as a power supply. In some RX circuits, the 74HCU04 may perhaps replace the ubiquitous LM386....

74HCU04 amplifier

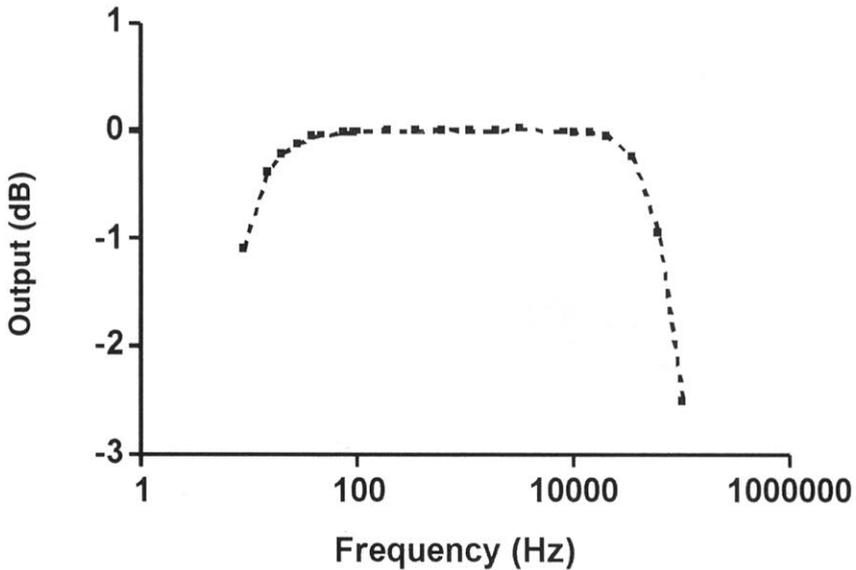


Figure 2. Bandwidth of 74HCU04 amplifier in 120 Ohm load

Notes:

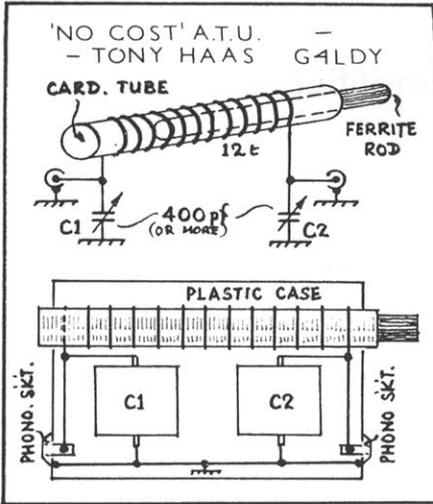
- 1 Fairchild Semiconductor, Application Note AN-88, "CMOS Linear Applications", July 1973, revised April 2003 (see Figure 9 in this document).
- 2 ON Semiconductor, "74HCU04 Hex Unbuffered Inverter", March 2007 (see Figures 8 and 9 in this document).
- 3 Philips Semiconductors, "74HCU04 Hex Inverter", September 1993 (see Figure 12 in this document).
- 4 Sijosae, "74HCU04 Pocket Headphone Amp", www.headphoneamp.co.kr. (Sijosae is a nickname for JeongSeob Shin).

'Pi' - 'T' Mini HF ATU.

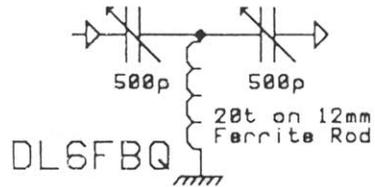
With acknowledgements to G4LDY & DL6FBQ.

John Earnshaw G4YSS, Dunelm, Ayton Rd. Irton, Scarborough. YO12 4RQ

Way back in 1992, with a holiday to CT3 looming, I badly needed a means of operating from a hotel. I saw the 1983 G-QRP handbook and Sprat 71 articles by Tony Hass G4LDY and Gastav Michalik DL6FBQ respectively



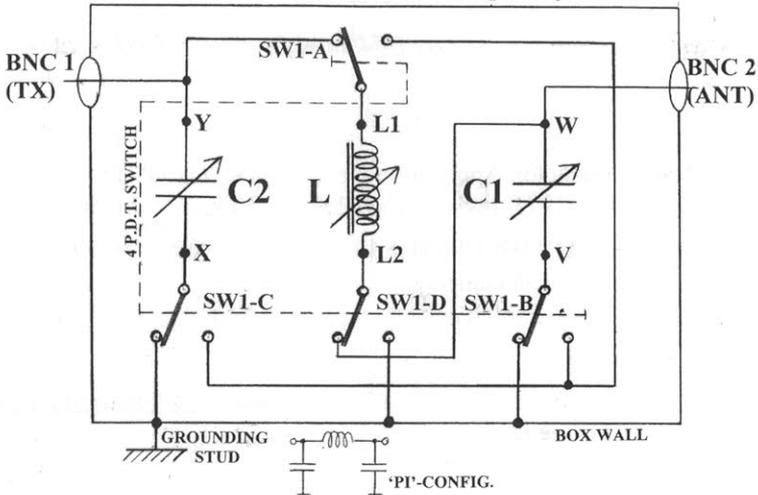
NO COST ATU II

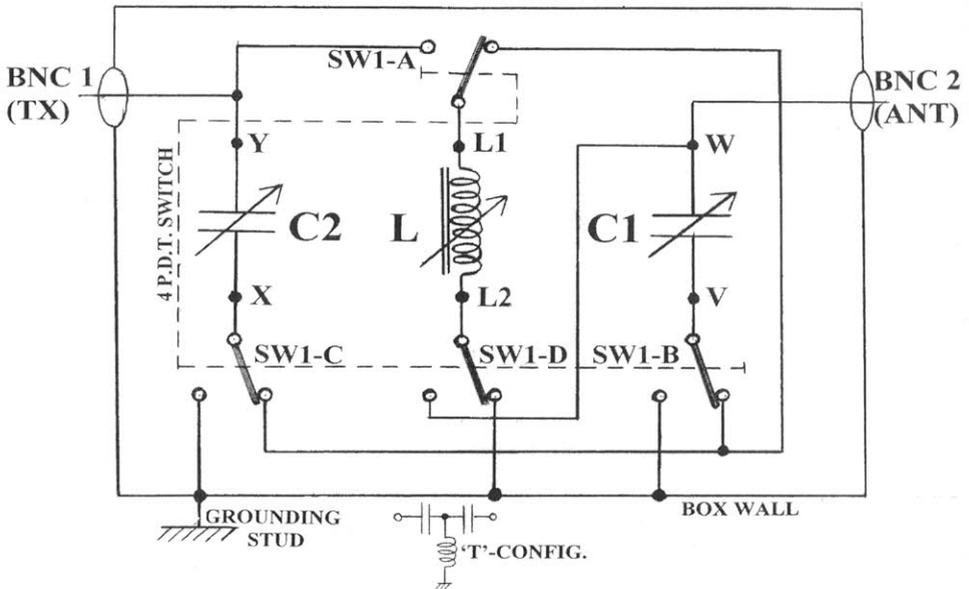


and decided a mini ATU could be of great help to me. Having no idea how much wire I would be able to deploy from a hotel balcony or how it could be arranged I might need either 'Pi' or 'T' type ATUs.

Aircraft baggage allowances drove me to combine these two excellent designs into one using just a four pole switch. Apart from that, the resulting ATU is pretty much what Tony G4LDY conceived.

SWITCHABLE 'PI / T' ATU - Adapted by G4YSS





I can say that in one configuration or the other, it has tuned almost any metal that I could manage to connect and it got me holiday QSO's year after year, some QRP and some not so QRP. It often tuned a 7m H/B 16-section ali (suitcase) mast with as much wire as was 'danglable' fishing rod style, from the end. SOTA is another possible application.

Parts list:

Dilecon 500pf variable capacitor: The Jackson Bros. 2093 is not cheap. In 1992 they were available from JAB or Cirkit at about £11 each and I tested them at 1000V before installation (the highest voltage available to me at the time). In 2007, they may still be available from Maplin but I noticed some on Ebay at £10.28 each plus £2.30 p&p See <http://cgi.ebay.co.uk/ws/eBayISAPI.dll?ViewItem&item=230173322026&category=96966> Or <http://shopping.lycos.co.uk/query.html?cat=0&qu=4+pole+switch>

Switch, 4PDT: Mine was unmarked but I insulation tested it (terminal to terminal) with a 1000V megger. A suitable switch with the same body dimensions (22 x 13 x 11) is available at CPC as follows: Multicom 1M4IT6B11M1QE. CPC Order Code: SW02871 and cost £1.60.

See <http://cpc.farnell.com/jsp/search/productdetail.jsp?sku=SW02871>

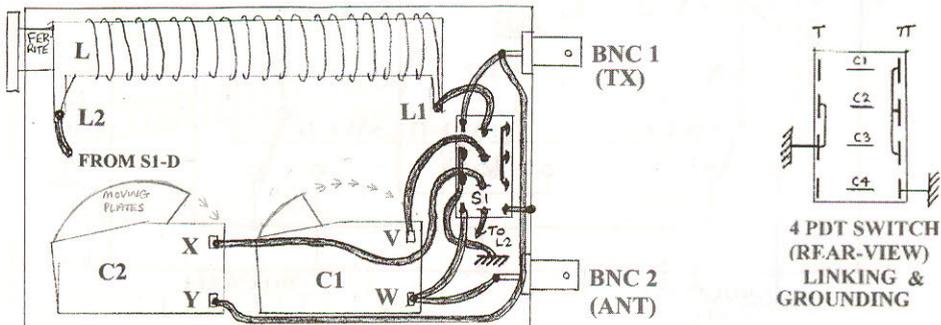
Ferrite Rod: 10mm dia x 90mm long of unknown (junk-box) spec.

Coil former: I used a suitably sized hypodermic-syringe with the coil wound around the outer sleeve and the ferrite rod installed inside the inner. Graduating the plunger with the numbers 1 to 10 gave a way of recording the inductance settings. This was a fine arrangement until I applied 100W of RF to it. It tuned the antenna without a murmur but after a couple of QSO's the syringe inner melted and fused with the outer. For the 1993

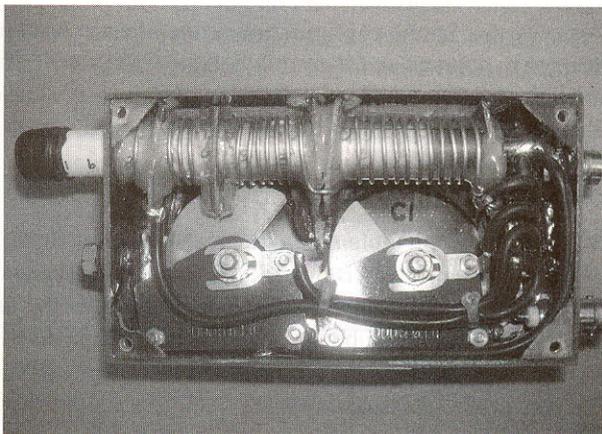
holiday, the inner was discarded and the ferrite rod sleeved with heatshrink until it fitted the outer former.

Coil: 22 T of 18 SWG tinned copper wire.

Wiring: 18 AWG aircraft wire with 150 deg C insulation. PTFE would make a good alternative. I over-sleeved my wiring with 2mm dia. silicone and routed it with due regard to flashover at QRO. PVC wiring might best be avoided except for true QRP use.



Enclosure: Single-sided copper-clad PCB, soldered inside. Top: 118 x 65. Base (access): 118 x 67. Front: 118 x 19.5. Back 118 x 34. Two ends (handed): 62 x 20 x (34). Ends are trapezoidal to produce 'console' shaped inclined box. Four small triangular corner pieces are soldered in after assembly of the four box sides. These are drilled to take the self-tappers which will hold the base on.



Only then should the top be soldered into place. A 2BA screw through the box wall with its head soldered inside, serves as a grounding stud. The flanges of the two BNC jacks can also be soldered directly to the copper groundplane.

Labelling: Two semi-circular scales graduated 1 to 10 and knobs with pointer-lines were added after spray painting the case. The unit is simple and versatile, weighs 390 gm and needs no battery!

Membership News

Tony G4WIF

There are no circuit diagrams in the article so you may be tempted to turn the page. Please persevere as there is important information to follow.

In this the Winter issue we remind you that subscriptions are due on the 15th January. Many of you do pay on time and it is appreciated. There is significant leeway until the Summer issue label file is sent to the printers. After that, if you haven't paid, you are deleted from the member's database. Subsequent re-subscriptions cause much more work for me, because aside from retyping your records, I also have to dispatch your Sprats instead of the printer doing it. So please do pay on time and make this volunteer's job a little easier.

As always *please* no staples in your letters, also quote your club number as well as your name and callign in all correspondence – it really does help. All payments should be to “GQRP club” and not in the name of any club officer. There is a UK bank standing order form in this issue to send to your bank (and not me) in time for your payment. As well as ensuring the continuity of receiving SPRAT you also help reduce the thousands of letters which I will otherwise have open in the new year. Important - the standing order mandate must quote your membership number or we won't know who has paid.

In Sprat 130 our treasurer Graham G3MFJ announced the withdrawal of credit card facilities to all countries with an alternative payment method. We had to do this for two reasons. There was a considerable administrative overhead for both him and myself - and the surcharges were not insignificant either. Also in recent years we have seen increased security and we were outside of the “chip and pin” system. As a result several members' cards were frozen by banks suspecting fraud when they paid their subs.

We have reluctantly decided that from this point onward we will completely withdraw credit card payments facilities - other than via Paypal. The experiment with Paypal has proven very successful. Members can use their cards to pay over the internet (see www.gqrp.com/paypal/).

Please refer elsewhere in this issue to the list of DX representatives who you can pay in your local currency. For the remainder of the world without internet access you can pay by international bankers draft (in pounds sterling). Cash in UK Pounds, Euro or U.S. Dollars will be accepted but of course you send them at your own risk.

This brings me to the DX Dollar rate where we are now losing money on each subscription. Postage costs and exchange rate come into play and we reluctantly must raise the DX subscription to 15 U.S. Dollars - effective immediately.

Did I mention “no staples”? – Cheques and postage stamps don't as a rule get lost in envelopes but staples do stick in our fingers.

Finally my sincere thanks to all overseas representatives who work so hard dealing with local members throughout the year. I couldn't do my job without you. My special thanks to Jean Michel Yeromonahos F5OQO our French representative for many years. Jean Michel has been inducted as a life member of the club. Jean Michel is succeeded by Richard Sayer F5VJD.



I used the Linear Amplifier with it just because it was what I had to hand. With the values shown an output of 6-10 Watts with good upward modulation is achieved.

I have only provided the Linear circuit as a guide to what The Small Talk can drive. However I would have preferred a transistorised linear to go with it, but as yet I have not been successful in making one work properly. If anyone has any suggestions I who be glad to hear from you?

Another (small) Windfall – TCA440 (Graham Firth G3MFJ)

We have had another small windfall – this time of the AM receiver chip TCA440, and again, they were found in George’s cellar! There are not very many and instructions on how to obtain one or more are below.

Among other things, this chip was the basis of the RSGB 80m DF receiver. It comes with an abbreviated data sheet which, amongst other info, shows the max frequency of 50MHz for the RF section and 2MHz for the IF. I will also include a copy of the original circuit of the DF receiver from The Netherlands which was the basis of the RSGB kit.

The chips are £2.50 each, plus my standard postage for components, as on the back page of this issue of Sprat. There are fairly limited quantities, so a max of 2 chips per member please.

G-QRP-DL-Treffen 2008

Das traditionelle G-QRP-DL-Treffen fuer Mitglieder des G-QRP-Clubs findet auch 2008 wieder am **letzten Wochenende im April (25/26/27) statt – in Waldsassen,**

in der Nähe von Cheb/OK – unsere QRP-Freunde aus OK sind herzlich willkommen.

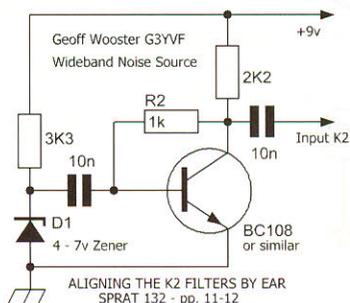
Weitere Infos gibt es von DJ3KK, POB 801, D-25697 Meldorf (bitte SASE) - oder auf der Homepage:<http://www.g-qrp-dl.de>

Zu Vortragsthemen und Beiträge usw. bitte Bernd via DK3WX@DARC.DE kontaktieren –
 vy 72 es awds Fred,DJ3KK- Bernd,DK3WX - Oliver,DF6MS- Manuela,DL2MGP

The traditional G-QRP-DL-meeting for members of the G-QRP-Club will be held at the last weekend of April 2008 (25/26/27) in **Waldsassen near Cheb/OK** – our QRP-Friends from OK are welcomed . Further infos via DJ3KK, POB 801 , D-25697 Meldorf (pse SASE) and on our homepage: <http://www.g-qrp-dl.de>

Lecture and article etc., please contact Bernd via DK3WX@DARC.DE

vy 72 es hpe cu Fred,DJ3KK - Bernd,DK3WX - Oliver,DF6MS - Manuela,DL2MGP



SPRAT 132 – ADDITION ALIGNING THE K2 FILTERS BY EAR Geoff Wooster, G3YVF

The circuit of Fig.1 was omitted.

As many readers guessed, any suitable noise generator could be used.

The circuit used by Geoff is shown here.

Antennas Anecdotes and Awards

G3VTT Colin L. Turner

30, Marsh Crescent, High Halstow, Rochester, Kent ME3 8TJ

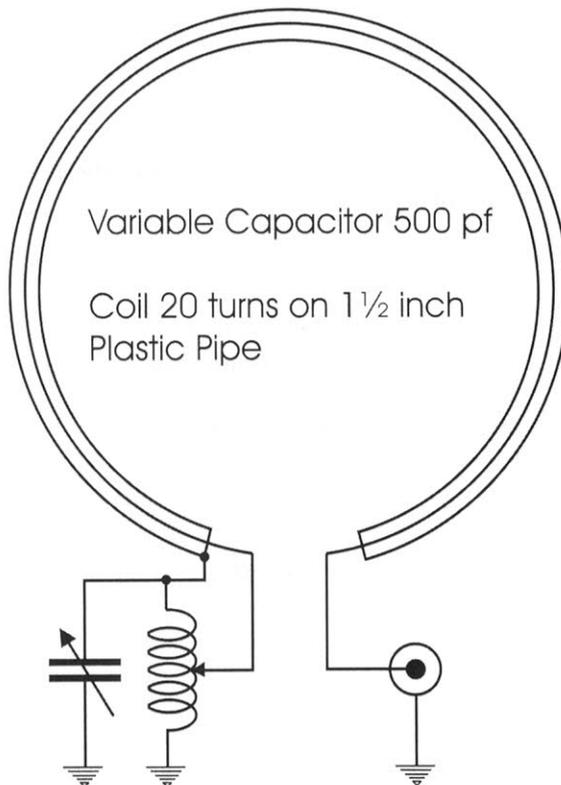
g3vtt@aol.com

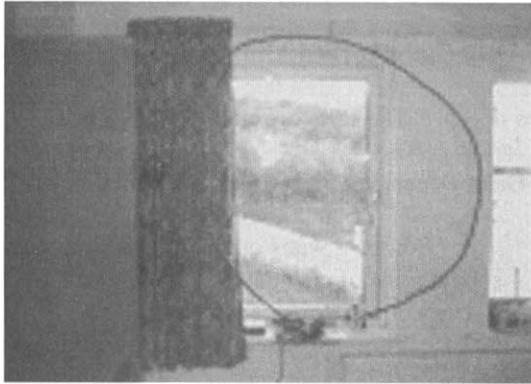
Once again I have received letters from members who have been experimenting with antennas. Thank you to all but if you have an idea or an antenna 'experience' please keep them coming.

Les Austin G0NMD has kindly sent me an email and the attached drawing about a simple loop antenna he has been trying which he found on the GM3KXQ website. Its design is attributed to GM3HAT and it has been referred to as a CFA loop.

Les tried it one wet day, (when the fly fishing was rained off!), and he used a 10 foot length of 10 mm copper pipe. Using the coil and capacitor combination he found it would tune up on 80, 40, 20 and 15m and it seemed just a little down on his doublet despite being used near a steel window.

This seems like another interesting loop antenna variation. Our thanks to Les for bringing this design to my attention. I think it merits more experimentation and research by members.





The CFA Loop in the shack at G0NMD

The New QRP WABC Award – G3MCK

I have received a letter from Gerald G3MCK who has offered to sponsor a new award for QRP Club members that reflects the old Short Wave Magazine 'Worked All British Counties' award. For those that remember the halcyon days of the 1950's and 60's, (I was at school for most of it), Top Band was alive with stations active from such rare counties as Merioneth, Cardigan and the lesser known areas of Radnorshire and Peebles. Where are they now? I remember the stations I heard as an SWL using simple 10 watt transmitters and I seem to recall Gus G8PG made a simple VFO/PA and regenerative receiver portable rig just to be on the band for the award.

Gerald writes, 'I remember G5PP, G3IGW and G8PG making rare trips to Westmoreland and North Wales to give us these rare counties. Short Wave Magazine wanted us to work 60 of the then 98 British counties on Top Band. What I am proposing is that we try a counties award on 80m with a time limit of one year. If G2NJ could work these counties on 160m with a CO/PA design we should be able to do the same around 3560 and boost our QRP activity'.

As many of you know Gerald lives in Rutland and for the purpose of this award he has opted to be in Leicestershire, which at one time was the major county and absorbed Rutland. I am pleased to say Rutland now has its own council and stands for a bastion of freedom, free speech and fair play! Gerald does not want to have an unfair advantage as he is in a good location for being rare in his own right and he has also opted to pay for the scheme. Thanks to Gerald for kindly sponsoring this award.

There must be a zillion designs of simple transistor or valve transmitters out there that will run the 2 watts required for this award and of course you can use you latest VFO creation, Elecraft, Ten Tec or crystal controlled rig. What can be better than making a simple 2 watt transistor co/pa transmitter and sitting on 3560 or 3562 during those long winter nights armed with a cup of coffee and your log waiting for a new county to be snared in your receiver? You might even consider using valves and be cheered with that fiery glow. Add a regen receiver and the good old days will surely return.....

The W3EDP (or the ubiquitous 84 footer)

One of the best antennas I have ever used for portable work and indeed from home has been the 84 foot wire. This can be used with a 17ft counterpoise as in the original W3EDP design or against a ground system. In between experiments on 500 KHz I have been operating once again on HF, primarily on 80m, using this length tuned against my MF ground system which consists of a fan of wires buried under the lawn and a large number of radials that extend beyond out property in hedgerows and under driveway. The results have been exceptionally good. The laying of these ground wires perplexed the builder who laid our new driveway last year.

I have also been doing some research on the W3EDP design and I commend to you a book written by G3BDQ called 'Practical Wire Antennas' published by the RSGB which outlines its history. My research has recently produced what I believe is the original article of the W3EDP described in an ARRL publication called 'Hints and Kinks for the Radio Amateur' that was originally published in 1933 although my issue dates from 1943. In this publication Yardley Beers W3AWH describes 'an unorthodox antenna.....designed by my friend Mr H. Siegel'.

A further reference has been found in a Short Wave magazine article by Austin Forsyth G6FO around 1948 in which he describes an 85 foot wire that can be conveniently tuned on most bands. Incidentally both this article and the original state quite categorically that the antenna can be used on 160m even with the 17 foot counterpoise of the original design.

There appears to be some merit in using this antenna with a balanced output antenna tuner and not the single ended type as is often described. I have made simple tuner using a parallel tuned circuit with the transceiver coupled into it via a link and the antenna and counterpoise wire merely connected to each side of the tuned circuit as in the traditional version of this antenna. I will not repeat the design here but refer you to the excellent new G-QRP Club publication 'Antenna Handbook' by M0JRK who has made a magnificent job of editing the old version. You will find a suitable alternative ATU design on page 79.

New Awards

Congratulations to Victor UA1CEX (12240) who has a successful claim for 20 Countries QRP and 20 G-QRP Club Members worked. He sent in a comprehensive and accurately completed list along with his 5 Euros. The certificates will follow after the Christmas break.

Finale

I have still yet to receive records of the awards programme from Gus and am still working on producing the certificates! Please be patient. There some interesting antennas in the pipeline for you to try - watch this column over the winter and spring periods. I have also had interesting correspondence from G4JCP regarding Miles Per Root Watt Award and W2SH regarding loop antennas which will be included as soon as I have space. Finally a plea from Geoff G3YVF, nothing to do with antennas or awards, but is there anybody out there with a 'Torn Eb' German regenerative receiver for sale? If you have one and want to sell it please let me know as Geoff is desperate to try one for his antenna experiments on the marsh. I hope it is not too early or late to wish you all a happy Christmas and a Healthy New Year. See you in the Winter Sports and in 2008 on 3560.

The Awards certificates have now been produced.

Congratulations to the following Members

New QRP Master - DL7DO

Worked 20 GQRP members - UA1CEX

Worked 290 Countries QRP W7CNL

Worked 1540 GQRP Members - GM3OXX

Worked 25 Countries QRP - UA1CEX

COMMUNICATIONS AND CONTESTS

Peter Barville G3XJS, Felucca, Pinesfield Lane, Trottsicliffe,
West Malling, Kent ME19 5EN. E-mail g3xjs@ggrp.co.uk

Please note that you should use the address as shown above, and not that quoted in the Club Officers page in the 2007-2008 Members Handbook, which is incorrect.

I've had no takers following my request (SPRAT 132) for input re the fledgling Sunday Morning 40m QRP SSB net, and so have to assume that currently there is no net. Hopefully it will be re-instated when 40m offers more reliable propagation for inter-UK contacts.

If this edition of SPRAT reaches you in time then hopefully you will be busy getting ready for Winter Sports – ah, and Christmas! If it arrives after Christmas then you won't have time to read this column as you'll be far too busy enjoying Winter Sports, or preparing to send me your log! On the other hand, if you prefer a slight competitive edge to your QRPing, then please don't forget CZEBRIS. Support for this once popular event has fallen away dramatically over recent years, which is a great pity as it is a gentle contest, and an excellent way of keeping in touch with QRP friends, particularly those in OK and OM land.

CZEBRIS 2008

The scoring system is shown below but, in common with all QRP events, you will find this a relaxed and enjoyable weekend of operating.

1600z Friday 22nd February to 2359z Sunday 24th February, around the usual QRP cw frequencies: 3560, 7030, 14060, 21060, 28060kHz, +VHF/UHF if conditions permit.

Your Location

QSO With Station In

	UK	OK/OM	Eu	Non-Eu
UK	2	4	2	3
OK/OM	4	2	2	3
Eu	4	4	1	2
Non-Eu	4	4	2	1

No multipliers. Your final score is the total number of points scored. Separate logs for each band showing (for each QSO) date, time, callsign, exchange sent/received, and a summary sheet showing your name, callsign, claimed score for each band, and brief details of your station should be sent by the end of April to G3XJS (UK entries). Non-UK entries go to OK1AIJ (Karel Behounek, Na sancich 1181, 633705 Chrudim IV, Czech Republic). We are both happy to receive logs by email: "g3xjs@ggrp.co.uk" and "karel.line@seznam.cz".

CHELMSLEY TROPHY 2007

A reminder that logs need to be with me by 10th February - details are to be found in the Members Handbook. This tends to be poorly supported, so please give it a go! Guido HB9BQB has kindly sent me the results of the **HTC QRP Sprint** held on 9th September, which are available if you would like to drop me a line. He is delighted by the

increasing level of support for the Sprint (47 logs from 10 Eu countries), but has commented on the fact that there are *no* entries from the UK! Our chance to rectify this situation falls on 6th September 2008, and details are to be found at “ www.htc.ch “.

2008 Yeovil QRP Convention

To be held on 27th April 2008 at the Digby Hall, Sherborne. Talks include “Circuit Design” by Stef Niewiadomski, “The First Low Power Britain to New Zealand Contact” by Rob G3MYM, and “Submarine Communication” by Paul Hawkins. Tim Walford (G3PCJ of Walford Electronics) is offering a prize for the overall winner of this year’s Fun Run, and is also sponsoring the Club’s Annual Constructors Challenge.

For further information contact Gary (2E0BFJ): g.swain@tesco.net

24th YEOVIL QRP CONVENTION FUNRUN 2008 RULES.

- FUNRUN BONUS STATIONS** F5VJD, 2E0BFJ on Mon, Tues & Wed evenings. On the last evening the only bonus station will be GB2LOW in Yeovil on 3.563 & 7.023 MHz +/- QRM
- WHEN** Monday 31st March 2008 to Thursday 3rd April 2008 inclusive, 19.00 to 21.00 UTC
- FREQUENCIES** 3.560 MHz and 7.030 MHz, both +/- 10 kHz.
- CONTACTS** Contacts should be between QRP stations with a maximum 5 watts output CW. However contacts with QRO stations are permitted, but with reduced points value (see “Scoring” below). All stations may be worked ONCE EACH EVENING on EACH BAND. Funrun Bonus Stations will be operating each evening randomly for one hour on each band.
- CALL** “CQ FR”
- SCORING** Each QSO with another QRP station scores 10 points.
Each QSO with the Funrun Bonus stations scores 25 points.
Each QSO with a QRO station scores 3 points.
All duplicates must be marked and no points claimed. Points will be deducted for unmarked duplicates at twice that particular QSO score.
- EXCHANGE** RST, Serial Number (see below), Output power and name.
- SERIAL NUMBER** The three-figure number must start at any random number of your choice not less than 100 and must be increased by one for each QSO throughout the WHOLE of the contest. However, the Funrun Bonus Stations will commence at 001, with all leading zeros being sent.
- ENTRY SHEETS** Separate log sheets for each band, with sub-totals for each evening, preferably in the RSGB format. A separate RSGB style cover sheet stating the Rig, Output Power, and aerial.

Entries should be sent to Gary Swain 2E0BFJ, 3 Flaxfield Drive, Crewkerne, Somerset, TA18 8DF to arrive not later than Friday 18th April 2008.

Entries will be accepted by E-mail to g.swain@tesco.net

AWARDS SHEETS

Certificates will be awarded for the highest score for any 3 evenings out of the 4, on each band and also for the highest overall total score for any 3 evenings on both bands. These evenings do not necessarily have to be the same on 3.5 MHz and 7 MHz.

Certificates will also be awarded to the station consistently using the lowest power, and to the top scoring non UK station.

Certificates will be presented at the Convention on 27th April 2008 immediately after the lunch break.

S. W. LISTENERS

Listener reports will be appreciated and a certificate will be awarded to the listener who submits the most comprehensive report.

NOTE. F5VJD & 2E0BFJ will be QRV on the first three evenings only.

On the fourth & final evening the only BONUS STATION will be GB2LOW transmitting from the YEOVIL AMATEUR RADIO CLUB meeting.

Your comments on any aspect of the Funrun will be appreciated.

Further information from 2E0BFJ, postal and E-mail addresses above, Tel. No. 01460 72088

Items for inclusion in the next SPRAT should be sent by the beginning of February; in the meantime I wish you Season's Greetings and a Very Happy New Year.

72 de QRPeter

The Min-Convention Moves... (G3RJV)



For the last 18 years the G QRP Club Mini-Convention has been at St. Aidan's Church Hall in Rochdale. I plan to retire in the summer of this year and a new venue has been sought. The new venue will be Rishworth School, some 12 miles from the old site. Rishworth School is on the A672 (Ripponden) road from Junction 22 on the M62. The School has had strong connections with amateur radio through a school radio club and residential "Stella" courses for teachers wishing to become radio amateurs.

I am pleased to announce that the 2008 QRP Mini-Convention will be on Saturday 18th October at Rishworth School.

2008 QRP CALENDAR

1st Jan	Last day of Winter Sports
5th Jan 2000z-2300z, 6th Jan 0400z-0700z	EUCW 160m Contest
1st Feb	Last Day for Winter Sports logs to G3XJS
10th Feb	Last Day for Chelmsley 2007 logs to G3XJS
22nd Feb 1600z to 24th Feb 2359z	CZEBRIS
9th Mar	AGCW QRP Contest
24th Mar 1400z-2000z (Every Easter Monday)	Slovak Low Power Sprint
31st Mar, 1st 2nd 3rd Apr 1900z-2100z each day	Yeovil Fun Run
27th April	Yeovil QRP Convention
21st Apr to 25th April	EUCW / FISTS QRS Party
30th Apr	Last Day for CZEBRIS logs to G3XJS and OK1AIJ
1st May 1900-2300z (Each Ascension Day)	7th QRP-Minimal Art-Session
17th Jun	IARU Region 1 International QRP Day Contest
16th Jul	Last Day for International QRP Day Contest logs to G3XJS
8th Sept	HTC QRP Sprint
18th Oct	QRP Mini Convention (Rishworth School)
16th Nov 1300-1700z	QRP Contest Community HOT PARTY (3rd Sun in Nov)
26th Dec - 1st Jan 2009	G-QRP Winter Sports

(Please advise G3XJS of any errors, or omissions.)

MEMBERS ADS - MEMBERS ADS - MEMBERS ADS - MEMBERS ADS - MEMBERS ADS

FOR SALE: MFJ ACTIVE ANTENNA model MFJ-1010C. As new in box with manual. MFJ World Band Shortwave Receiver model MFJ-8100W constructed by MFJ, original box with manual. Both items as new, make good working pair. Together £60.00 plus postage. Separately £35 each plus postage. John Noble 01634 401472.

FOR SALE: HEATHKIT HW8, factory built, serial # 12005, No mods at all, £30. Nigel, GØDTQ, 01488 648544. email- ngoldstraw@hotmail.com

WANTED: Phasing type Single Signal Direct Conversion Receiver or Transceiver. Any Rick Campbell design [Mini/Micro R2 or similar] Prefer 80m coverage but 40 acceptable. Working or sortable, unbuilt kit OK. John, G3GTJ, 01963 240 319 [Somerset]

VHF Manager's Report

John Beech G8SEQ 124 Belgrave Road Coventry, CV2 5BH
Tel. 024 76 273190 or johng8seq@ntlworld.com

Since appealing for more input, I have had an e-mail from Angie G0HGA reminding me that there used to be some CW activity on 144.050 MHz on Monday nights at around 20:00 clock time (which just happens to be 20:00 UTC for the rest of the world.) There is an interest group at: twometrecw@yahoo.com. . If you have any problems joining the group contact Angie via her e-mail address: vivatmorse@ntlworld.com.

If you don't have access to the internet, just listen and call CQ on the frequency. As a result of doing just that I managed to work one station in Staffordshire and heard a few others, with my lousy Morse. It was only later that I realized that someone was sending ? and not QRZ to my CQ calls. I never did learn punctuation properly. That threw me because I thought he/she was already in QSO with another station I couldn't hear and I stopped sending to listen. Another problem I had was at least one station came back to me at about twice the speed I was calling at, so I had no chance there.

Other people had more success and several stations in Scotland contacted each other and I think also Northern Ireland, although they are only about 20 miles apart at their closest.

I have also set up a "regular" 6m AM sked. with a local amateur Alan G1MSA. He is rock bound on 50.300 and 50.350 from his homebrew kit. So listen out for us at 19:30 UTC on Wednesday evenings. Occasionally we are joined by other locals, but so far haven't managed to attract any Dx. I am hoping to publish Alan's circuit in the next issue, which I gather from his over the air description is a conglomerate of designs published in PW and other magazines/books. Why AM on VHF? Well a lot of it is down to availability of old PMR equipment (particularly on 70 MHz) and also because it is a little easier to homebrew the circuits for AM than it is for other phone modes. The receivers can be really simple – even a crystal set will work at close range!

I'm using a Howes HC266 transverter with my FT-817 at the moment because since I did "Softjump" on mine to give me 5 MHz TRx, it no longer covers 50 MHz. Anyone else had this problem? Or more to the point any one know of a solution?

73 de John G8SEQ.

GQRP CLUB WINTER SPORTS
EVERYDAY – DECEMBER 26th to JANUARY 1st
Call "CQ QRP" on the International QRP Frequencies



The Winter Sports is not a contest, although it is usual for operators to exchange their G QRP Club membership number. Those taking part are invited to submit logs and comments to the G QRP Club Communications Manager, Peter Barville G3XJS, Felucca, Pinesfield Lane, Trottiscliffe, West Malling, Kent ME19 5EN. email g3xjs@gqrp.co.uk. The G4DQP Trophy is awarded to the station making the best overall contribution.

MEMBERS' NEWS

by Chris Page N4CJ (G4BUE)

312 Quail Avenue, Sebring, FL 33872, USA

Tel: (863) 385-1217

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

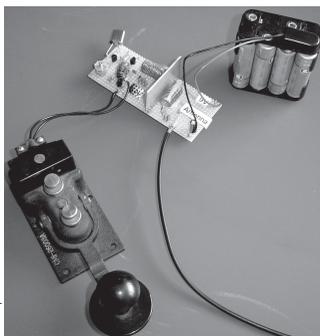


G0FUW reports on the first Bath *Buildathon* to be held on 12 January 2008 between 9am and 5pm, to encourage newcomers to try homebrewing and allow those with limited soldering experience to develop their skills under the watchful eye of some very experienced homebrewers (Elmers). The kit chosen for the *Buildathon* is the Brendon DSB Transceiver from Tim Walford's Somerset range of kits; the three watt QRP transceiver has been specifically designed for the newcomer. All soldering and test equipment will be made available on the day and refreshments will be provided; all you need to bring is a bucket full of enthusiasm and a packed lunch. The cost of the day will be £60 to include the cost of the kit, refreshments, room hire, etc. Steve says, "You can be confident that you will go home with a working 80m voice transceiver". If you are interested in joining in the fun, please contact Steve on 01225 464394 (7-9pm weekdays), or by e-mail at <G0FUW@tiscali.co.uk>, or by post at 5 Sydenham Buildings, Bath, BA2 3BS.

M0JRQ reports on 13 November, seven SP-1 transmitters were made in 2½ hours at the Pontefract & District ARS construction evening. On the right (l to r) is Chris **M0JRQ**; Dave, **G0SDO**, and Bob, **2E1BGV** and one of the completed kits below. The following week it was planned to put them on the air on 40m.

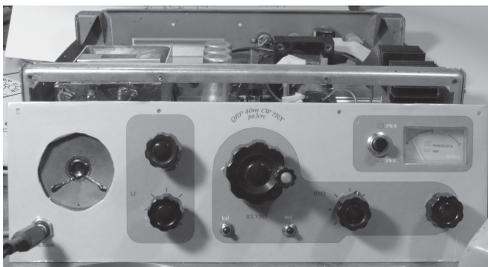


DM4EA sends details of the first European QRP Foxhunt organised by DL members of G-QRP and DL-QRP-AG each Monday 1900-2000z between 7 January and 31 March on 80 and 40m, see <www.eu-qrp-foxhunt.org>. Tom says QRP stations from all over Europe are invited to apply to act as the 'fox'. Our sympathy to **N8ET** who was a casualty of the bad floods in Ohio at the end of August. Bill said, "We were one of the lucky ones - we only had water up to the ceiling in the basement, others lost a lot more. All the Kanga US equipment and inventory (except the DK9SQ masts in the garage) has been lost". **G0NSL** says those interested in CW might be interested in a website at <www.morsetelegraphclub.org>, a comprehensive site with an excellent on-line magazine. The *Daily DX* reports a new QRP Challenge starting on 1 January for fixed and portable QRP stations, see <http://qrpftr.free.fr/challenge/index_gb.php>.



G4EFE writes, "For any others who are, like me, interested in building a 20m SSB TX, Doug Hendricks at QRP Kits is now taking orders for such a beast - the BitX20A, at \$85 including postage to the UK. There is a Yahoo! Group dedicated to the subject, see <<http://groups.yahoo.com/group/BITX20/>>. **G0EBQ** recommends the Eamonn Skelton PSU from *Radcom* which he says is a great improvement. Nigel says the rig is much quieter, even when his daughter is using her laptop in the next room! **M3GHE** has just come across the Juma kits from Finland at <<http://www.sitecno.com/juma-tx1/>>. Martin says there is a 40/80m TX and RX and a combined TRX. **PA3CRC** has just finished a new 40m CW TCVR

(right), a complete station in one box, including PSU. It has a superhet RX, a separate VFO-driven TX and hang-AGC, QSK, PWR/SWR meter, crystal calibrator and 5 and 15W. Gert says his neighbours gave permission for a wire from his house to theirs (132ft long and 33ft high), "So the real QRP work can start!". He's worked lots of Europeans and Asians with a 66ft wire at 20ft with 5W and is wondering how the new antenna will work.



Too late for the last SPRAT, **F5NQL** sent details of the Swiss HTC-QRP-Sprint on 8 September organised by the Helvetia Telegraphy Club, Switzerland (HTC). The 2008 event will be held on 6 September and the rules can be found at <http://www.htc.ch>. **HB9BQB** received 47 logs from ten European countries but says, "Where are our G-QRP friends?". Guido says he hopes to see some UK participation in 2008. **M1KTA** will be QRV 1/16 March as **3B8/M1KTA** while visiting his wife's uncle.

Have you ever heard of a DX QRP operation from the caboose of a moving train? No, neither had I until I looked at <http://w1pid.freeshell.org/train/train.html> and saw **W1PID** had done just that on the Winnepesaukee Scenic Railroad in New Hampshire this summer. Jim took a job as a conductor on the railway and with help from one of the fireman, Bruce Smith, **NIHSS**, they operated 5W CW/SSB with a FT-817. Jim worked two Italian stations on CW and **EU5/UT2XD** and **SP3LPG** during a second operation a few weeks later using an Outbacker Perth mobile antenna. The photograph on the right shows Bruce adjusting the antenna on one of the rear handholds of the caboose. Two days later they did it again and Jim says, "For the next couple of hours Bruce worked SSB and I worked CW and as the train swayed back and forth like a ship at sea, we added QSOs to our log one after the other. We ignored the local QRM from the train whistle even though we missed the odd word in each QSO. With the conductor peering over my shoulder, I worked the Ukraine, Hungary, and then Bosnia (lower photograph on right).



IKØIXI worked **G7CNF** on 22 September on 4m JT6M with 1.5W and a dipole (his first G station on 4m). Fabio welcomes reception reports, colt45auto@virgilio.it, for his QRSS beacon **IKØIXI/B** on 10140kHz running 200mW to a dipole from his QTH. More information on his web-site at <http://www.geocities.com/ik0ixib/index.html>. **G3XBM** heard the **SM6BHZ** beacon on 28 September in slow CW on 505.1kHz at 549 near Cambridge. This was Roger's furthest signal heard on the 501kHz band. New member **KD8GZ** is QRV from Ohio with an IC-718 and a low off-centre-fed dipole running 1 to 5W QRP. **MØNJP** is fascinated by valves and working on a 12V valve SSB TX and also a simple and cheap valve superhet which he might release as a kit. Nick's web-site is www.pettefar.eu/m0NjP



EA6BB QSO'd **K2MEN** on 11 March with 500mW to a three element tri-band yagi and Sheldon was running 5W to a 40 metres loop. Peter says he is QRV daily on 30, 20 and 17m. Congratulations to **GM3OXX** for working **9K2MU** on 19 November for DXCC 112 on

two-way QRP and for QSOing **3B7C** for DXCC 276 on 15, 17, 20, 30 and 40 metres, all with just 1W output, and to **GM4YLN** who has 275 DXCC confirmed with 3W. Congratulations also to **SMØPMJ** for obtaining the QRP ARCI Gridsquare Award on 20m with his inverted vee (see right). **RV3GM** says there are listings for the number DXCC and two-way QRP DXCC worked by QRPers on the web-site of the Union of Earth Low Power Radio Operators (UE QRP) at <http://www.ueqrp.org>.

DL2BQD was QRV in September from Onchan in Molly Quirk's Glen and the Point of Ayrehad as **MD/DL2BQD** with his K1 and dipole on a 30ft mast (see picture below). Dieter said, "We activated one famous Stephenson lighthouse and two SOTA, Sneafell and South Barrule, on 2m". **OE3SGU** is trying to make the first QRP DXCC from Austria and is up to 76 all on CW, the best being **3B7C**. Hannes runs 5W and indoor



Superantennas MP1 in his living room and an IC-7000, IC-703, FT-817 and MFJ-9020.

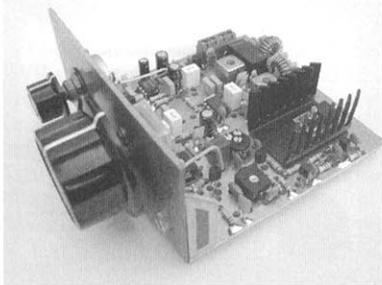
GØBBL, **G8BTR** and **MØPUB** announce the on-line publication of their 'QRP2004' HF TCVR design at <http://myweb.tiscali.co.uk/qrp2004>. **MØJRQ** has created *AntExp*, a new Yahoo! Group for antenna experimenters everywhere. Chris says if you would like to join, please visit <http://groups.yahoo.com/group/antexp>. When he is mobile, **GØSVO** has found that the clear plastic cap from one of the brands of bottled drink has a slight rim on the inside and makes a very tight fit on the PL259 female socket of his antenna. A piece of amalgamating tape over the holes on the cap, and you have a very cheap watertight

replacement. Pete has lost the proper PL259 covers from time to time when taking the antenna off the car for hotel stop-overs, etc.

In reply to a question on the G-QRP Reflector from **F5NZY** asking for a technique for breaking DX pile-ups with QRP, **G3YMC** offered the following advice, "Basically there is no difference between cracking a pile-up with QRP and doing it with QRO, you just need to be more patient. When working split my finger hovers on the A/B VFO button on my K2 and I am constantly switching between the DXer's frequency and the pile-up. On bands where you can here those calling, it is relatively easy to find the stations he is working, whether he is moving slightly between each QSO and which way, whether he is actually listening 2kHz up but telling everybody 'up 1' and things like that. Sometimes it is very quick and easy, other times if the pile-up is big and you can't hear the other side it takes a lot of time. Best secret, if you don't break it in 10-15 minutes, go away for a cup of tea or whatever, you will get it first call when you come back. Realistically, there is no secret and it is all about practice, listen, listen etc".

VK4TJ found the bands 'perked' up on 19 October when 20m was open to Europe, Asia, Africa and locally, all at the same time. John had QSOs with OY (his first in 35 years from VK) and T9. At the same time, **G3YMC** worked **V51AF**, **A61Q** and **C52C** on 15m and **VQ9LA** and **C52C** on 17m. **G3XBM** says, "Isn't it amazing how the CQWW Contest 'improves' conditions? Today, with a sunspot count of zero, there were stations audible from S. Africa, N. America, S. America and Europe on 10m SSB in the contest. I'm sure there were Asians on too but I didn't hear any when I listened. It goes to show that what 10m needs most of all is *activity* when the band is quiet. Never, ever, assume 10m is a dead band; if there is activity there is the chance of inter-continental QRP DX, even at the low spot of the sunspot cycle".

That clears the files. Please let me know how your winter goes, by 20 February, please.



Several new kits

Knapp - Regen TRF for 20, 40 or 80m

Knole - Good DC RX for 20, 40 or 80m

Brendon - Builder friendly DSB phone TCVR
Kilton, Kilmot, Brent, Midney, Kingsdon,
Fivehead all available!

Minster multiband CW/SSB superhet TCVR
imminent.

Visit www.users.globalnet.co.uk/~walfor

or SSAE to **Walford Electronics,**

Upton Bridge Farm, Long Sutton, Langport, Somerset TA10 9NJ

www.jabdog.com

We are proud to announce the purchase of over 30 tons of stock from Ward Electronics, Birmingham. This means we have a warehouse absolutely bursting, with many exciting offers to come.

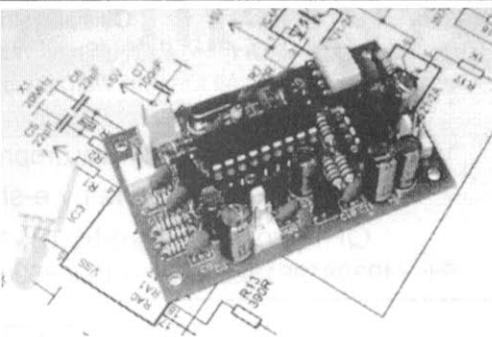
Visconol condenser 0.001uF 5KV dc	£5 each or 3 for £12
C12 Computer Cassette	10 for £4
Flashing 3 LED board (mock alarm)	£1 each or 6 for £5
50 x 10K Toko coils our mix with data	£8 each or 2 for £15
URM43 RF Coax 500ohm	£3 per 10m
LM380N Amp	10 for £7
LM747 Amp	10 for £4
10 each KANK 3333/4/5 Coils (total 30)	£25
ZVN1306A EM fet 100V 200mA	20 for £10
50 x TO5 + 50 x TO18 pads	£1

Have you tried our priority bi-Monthly loyalty offers list? Available on subscription at £6 for 12 months or send a SSAE for a sample copy

JAB Electronic Components, PO Box 5774, Birmingham, B44 8PJ
Fax: 0121 681 1329 e-mail: jabdog@blueyonder.co.uk www.jabdog.com
Mail order postage:- please add £1.20 FREE over £20 UK DX Post see Website
(Post charges will change August 2006)
Cheque or Postal Orders (Payable to P.A. Thomas please) MasterCard, VISA or Paypal also welcome.

X-LOCK 2 - VFO STABILISER KIT

The latest version of our successful VFO stabiliser kit is here! Featuring a new hardware design with an improved input circuit and updated software, the X-Lock connects to your VFO to compensate for long term drift. Measuring only 36mm x 61mm, the X-Lock continuously monitors the VFO frequency and computes a correction signal to compensate for drift. Opto-coupled low noise analogue circuitry produces an exceptionally clean DC tuning voltage for the VFO correction varactor. Other features include power-on auto centring, RIT memory, automatic unlock during tuning, input and Lock states indicated by a dual colour LED, on board regulators, nominal +12v supply.



The X-Lock kit comprises double sided, high quality silk screened PCB, pre-programmed processor, all components, connectors, IC sockets and a comprehensive step by step instruction manual. Just add 12v and a VFO!

X-Lock VFO Stabiliser kit £22.95 inc. VAT (£19.53 ex VAT), P&P UK £1.76, EC £2.94, Rest of World £6.00 Order on-line or by post.

www.cumbriadesigns.co.uk, email: sales@cumbriadesigns.co.uk

Tel: +44 (0)7973 894450 Cumbria Designs, The Steading, Stainton, PENRITH, Cumbria, CA11 0ES, UK



Bowood Electronics Ltd

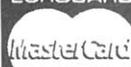
Suppliers of electronic components

Batteries, Buzzers, Capacitors, Connectors, Diodes, Cases, Ferrites, Fuses, Heatshrink, IC's, Inverters, LED's, PCB, Potentiometers, Power Supplies, Presets, Rectifiers, Relays, Resistors, Soldering Equipment, Stripboard, Switches, Test Meters, Thermistors, Thyristors, Tools, Transistors, Triacs, ...

Catalogue available NOW Please send 41p stamp or visit our website.

Website: <http://www.bowood-electronics.co.uk>

email: sales@bowood-electronics.co.uk



Mail order only.

**7 Bakewell Road, Baslow, Derbyshire. DE45 1RE.
UK Telephone/Fax: 01246 583777**

QPRproject - QRP and Homebrew International, Berlin Germany

Official distributor of:

Hands Electronics, Wilderness Radio, Small Wonder Labs, OHR, DL-QRP-AG and Ulm-key. QRP-Kits and more. All kits with Warranty of Functionality (WoF), Alignment Service, Helpdesk (e-mail), German or English manuals, Supported by QRPeter DL2FI

Visit our homepage <http://www.qrpproject.de> or ask for free catalogue

All orders can be done by e-shop system or surface mail.

QRPproject, Saarstr. 13, 12161 Berlin, Germany.

Tel: +493085961323. Fax: +493085961324. e-mail: sales@qrpproject.de

Rig Broken or needs alignment?

Commercial/Homebrew equipment repaired & aligned

Ten-Tec repair specialist, spare parts ordering service available

Adur Communications

Belmont Buildings, The Street, Bramber, West Sussex. 01903 879526

Ten-Tec Kits Now In Stock

I-Q Electronic Design

69 Angus Close, Chessington
Surrey, KT9 2BN

QUARTZ CRYSTALS

455.2kHz/£1.75	1MHz/£2.95	1.4MHz/£9.95	2.00MHz/£1.95
3.560MHz/£1.75	4.00MHz/£0.25	8.9985MHz/£1.95	9.0MHz/£1.95
9.0015MHz/£1.95	10.106MHz/£31.95	10.7MHz/£1..50	11.115MHz/£2.95

28.060MHz [fund] £1.95 All30pF, mostly HC49. Matched Crystals 9MHz & 10MHz £14/8 units
~1.4MHZ USB\LSB Filters £15.00. ~10.7Mhz 10kHz Filters £9.75/unit
P&P £1.50 + VAT - Tel/Fax: 0208 391 0545, e-mail: vincent@jakomin.fsnet.co.uk

QSL Cards from Nasko - LZ1 YE

LZ1YE has sent me details of some attractive QSL cards including the Club Log.

Members can make their orders by sending samples, explaining what they want to print, and sending the materials: photos, files...etc via e-mail: qsl@qslprint.com or qsl@kz.orbitel.bg or if no internet access via the postal address: Atanas Kolev, P.O.Box 49, 6100 Kazanlak, Bulgaria. Examples of cards and prices can be seen at www.qslprint.com

For people need QSL cards urgently LZ1YE dispatches three days after the payment is made. UK Members can pay via a UK address: Please send your cheque / cash via recorded delivery to: LZ1YE QSP Print service, c/o Melanie Rowe, St. Leonards House, 35 St. Leonards Road, Exeter, EX2 - 4LR, Devon. e-mail: m0mja@aol.com (make cheques payable to : Melanie Rowe)

Practical Wireless

THE UK'S BEST AND ONLY INDEPENDENT AMATEUR RADIO MAGAZINE

Radio Basics

Rob Mannion G3XFD's simple circuits

Carrying on the Practical Way

by SPRAT's own Rev. George Dobbs G3RJV

Tex's Tips and Topics

Tex Swann G1TEX/M3NGS looks at helpful hints and topics

Plus all your regular features including:

- *Amateur Radio Waves*
- *Bargain Basement*
- *Club News*
- *Keylines*
- *News*
- *Radio Scene*
- *Valve & Vintage*
- and much, much more!

SUBSCRIPTIONS (UK&WORLDWIDE): +44 (0)8702 247830. E.mail: joan@pwpublishing.ltd.uk



Look at 'www.celticpilgrim.com' for Amateur Radio in a Lovely Place

G3RJV has a Wooden Lodge situated in the Dyfi Valley in central Wales close to the Irish Sea and in the Snowdonia National Park. It has been completely refurbished with a large living area, conservatory, double bedroom, twin bedroom and a double bed sofa in the living area. Naturally there is a small amateur radio station with a QRP HF transceiver and a 2m

multimode. An easy to use station in a quiet location.

Look on the webpage above or for leaflet write to G3RJV or email g3rjv@ggrp.co.uk

GQRP Club Sales

Graham Firth, G3MFJ, 13 Wynmore Drive, Bramhope, LEEDS. LS16 9DQ

Antenna Handbook – 2nd edition – members £6.00, non-members £10.00 plus post } £1.00 (UK); £2.30 EU
} DX - £3.90 per book
6 pole 9MHz SSB crystal filter 2.2kHz @ 6 dB, 500ohm in/out £12 plus post } £0.80 (UK); £1.00 (EU)
6 pole 9MHz CW crystal filter 500Hz @ 6dB, 50ohm in/out £12 plus post } £1.50 (DX)
Pair LSB/USB carrier crystals HC18U wires - [9MHz ± 1.5kHz] £6 pair } plus postage
Crystals – HC49/U wire - 3.579MHz - 30p each; 10.111MHz - 50p each } (ANY quantity)
SA602AN - £1.75, MC1350 - £2.00, IRF510 FETs - £1.25 } 60p (UK),
MAR-4 RF amplifier - £1.50 } £1.00p EU,
} £1.50p (DX)
HC49U (wire) crystals for all CW calling frequencies – 1.836, 3,560, 7,030,
10,106, 14,060, 18,096, 21,060, 24,906, & 28,060 – £2.00 each }
HC49U (wire) crystals for DSB on 40m – 7.159MHz – £2.00 each } If
Miniature crystals (watch crystal size – very low power) – 3,560, 7,030, 10,106, } ordered
18,096, 21,060, 24,906 & 28,060 – limited quantities – £2.00 each } with
Ceramic resonators – 3.58, 3.68MHz & 14.30MHz – 50p each } heavier
Schottky signal diode – 1N5711 low fwd volts for up to vhf/uhf 20p each } max of 5 } items
Varicap diodes – MVAM109 – 40pF @ 9v, 500pF @ 1v. 75p each } max of 2 } use that
– MV209 – 5pF @ 12V, 40pF @ 1v 35p each } per member } postage.
CA741 op-amps 8pin DIL – 5 for £1 } plus
2SC536 transistors (npn) fT – 100MHz, hFE-320, VCBO+40V - 5 for 50p } 10%
MPSA92 transistors (pnp) fT - 50MHz, hFE-40, VCBO-300V - 5 for 50p } of this
MK484 radio on a chip - £1.00 inc circuit diagram. } postage

Toroid cores – Priced per pack of 5 – max of 2 packs of each per member
T37-2 – 75p; T37-6 – 75p; T50-1 – £1.00; T50-2 – 90p; T50-6 – £1.10; T50-7 – £1.20; T50-10 – £1.20;
T68-2 – £1.80; T68-6 – £2.20
FT37-43 – 80p; FT50-43 – £1.20; FT37-61 – £1.00; FT50-61 – £1.20; BN43-2402 - £1.00; BN43-302 - £2.00
BN43-202 - £1.80; BN61-202 - £2.00
FT114-43 – 80p each (for postage – 2 counts as a pack of 5)
Ferrite beads – FB-73-101 (3.5mm dia x 3.2mm long, 1.2mm dia hole) – 40p for 5
Plus postage – up to 5 packs = 60p (UK), £1.00p (EU), £1.30 (DX); 5 – 10 packs = £1.00, £2.00p,
£2.60 etc. (please note – if you order 2 packs – you will probably get all 10 in one pack)

Binders for Sprat - the original 'nylon string' binding type back in stock again! Black with club logo on spine £3.75 each plus postage (one: UK – 80p, EU – £1.50, DX – £2.00. More – add 75p, 80p, £1 each)

Back issues of SPRAT are still available at 50p each. I have most issues from 78 plus a few earlier ones. UK Postage is 1st magazine – 50p, each additional magazine add 40p.

Sprat-on-CD V3 – 1 to 132 (see Sprat 132) – members £5 – non-members £10 plus post as for components

Sorry – I have sold out of the HW8 book and FT240-43 toroids and no more are expected.

Please note - I only have stock of the above items – I do not sell anything else. Anything in previous advertisements not shown above is out of stock – if it becomes available again – it will be in the next magazine.

To keep within second class postage limits, orders may be sent in more than one package!

Cheques (UK) and payable to G-QRP Club. Sorry, but cheques in other currencies are uneconomical to us due to bank exchange charges!

Visa/Mastercard. - Due to insurmountable problems, we have now ceased to accept credit card payments – sorry to anyone this affects – if it really stops you buying from the club, or paying your subscription - please contact me and we will sort something out.

If ordering multiple items, enclose the highest postage charge plus 10% of the rest please.

MINIMUM ORDER for cheque or PayPal payments is £5

For orders less than £5 – please use postage stamps (any denomination £1 or less please), or cash. We can accept cash in GB Pound, or US\$, or Euros – but please send securely!

You can order via e-mail to g3mfj@gqrp.co.uk Pay by PayPal please.

PayPal is very successful – if you can use it, please do – it is easy!

Send the order to Paypal using g3mfj@gqrp.co.uk - show clearly what you want with the payment – and your membership number!