



# SPRAT

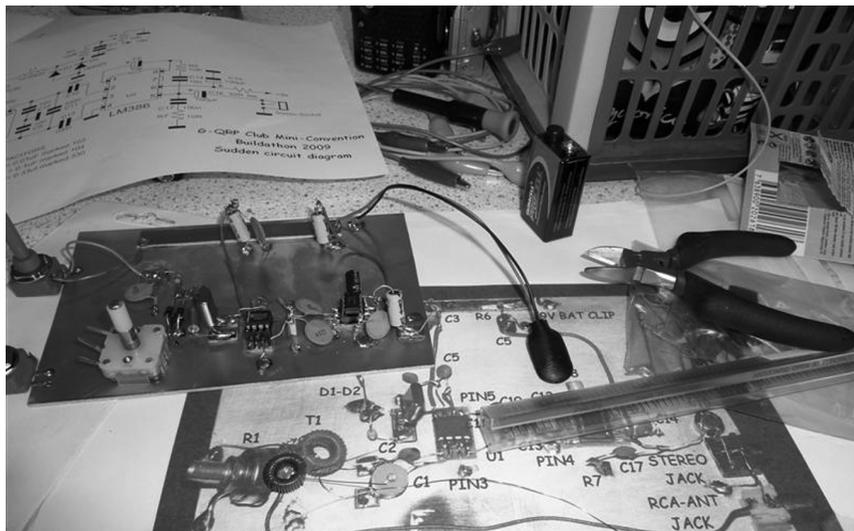
THE JOURNAL OF THE G QRP CLUB

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Winter 2009/2010



## The Rishworth Convention Buildathon Project

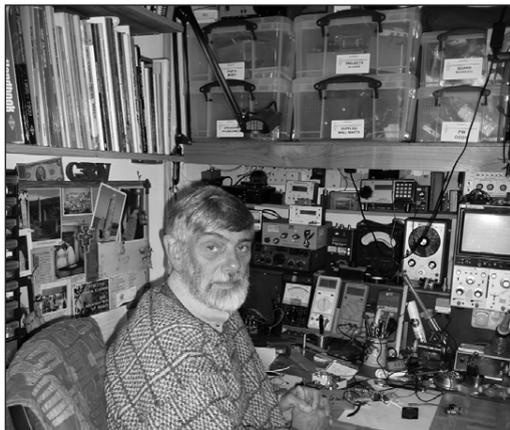
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# JOURNAL OF THE G QRP CLUB



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**Rev. George Dobbs G3RJV**

**9 Highlands  
Smithy Bridge  
Littleborough, Lancs.  
OL15 0DS. U.K.**

**Tel: 01706 - 377688**

**(overseas tel: +44 1706 377688)**

**Email : g3rjv@gqrp.co.uk**

**Homepage : www.gqrp.com**

Welcome to SPRAT 141. May I begin by wishing all members a good year in 2010. I was pleased to meet so many members at the Rishworth Convention. I have written a short report on the opposite page.

My thanks go to all the club officers, overseas representative and all helpers. They give a lot of time without pay to keep the club running. May I ask members to assist us by directing mail and email to the appropriate persons as on page 3 of the Member's Handbook.

I look forward to receiving articles for SPRAT. It is this exchange of circuits and ideas that keeps the club alive and SPRAT the lively journal so many members enjoy. We can accept articles in almost any format from scribbled notes on the back of an envelope to WORD files in full SPRAT format. I am able to supply a blank SPRAT formatted page on request.

72/3

G3RJV



## **The W1FB Memorial Award 2009/2010**

The project is to **Design a QRP station (transceiver or transmitter – receiver combination) using a minimalist approach. Produce a log of 10 QSOs** Significant improvements on existing designs could be accepted. Please submit your design to G3RJV by the **end of March 2010**, with circuit diagrams, all values and brief notes.

The projects will be published in SPRAT and the winner will receive an engraved plaque.

# The Rishworth Convention 2009

George Dobbs, G3RJV.



The 2009 QRP Convention at Rishworth was declared a success by those who attended it in October. There was a fascinating range of stalls; where else could you buy a homemade Paraset, an Eddystone 358X or Litz wound plug-in coils?

This is a Convention, not a rally, and as usual there was a fine line up of speakers – WIREX, G4GXO, W4DU and G0UPL. Steve, G4GXL, webmaster of the QRP ARCI, provided video streaming of the lectures; an experiment we hope to repeat next year. The Open Technical Forum with David Stockton, GM4ZNX, was allocated extra time and ran in one of the school laboratories.

An exhibition of homemade QRP equipment, organised by Dom, M1KTA, was impressive showing an amazing variety of projects from a rebuilt B2 Spy Set to a complete Pic-a-Star transceiver. G3ROO operated his B2 from the physics lab. Also located in the physics lab was the convention's first attempt at a Buildathon. 12 people, of all ages, built a Manhattan style Sudden receiver under the guidance of a team of mentors led by the experienced Bath Buildathon team of Steve, G0FUW, Mike, G3VTO, and Lewis, G4YTN. All 12 participants completed their Sudden and every Sudden received signals on 40 metres. We are already talking about a possible Buildathon project for 2010 and another homemade equipment exhibition.

Our thanks go to all those individuals who helped in any way before and during the event including the elegantly dressed "QRP Ladies". Our thanks also go to the Rochdale & District Amateur Radio Society for running the Bring and Buy, not least of all to the Halifax Amateur Radio Society without whose practical help the event could not have taken place.

As soon as we arrange a date for 2010 this will be announced in SPRAT and on the club website

# PAC 12 - The English Version

Tony Lifton GØPEH. [tony@marant.freeseve.co.uk](mailto:tony@marant.freeseve.co.uk)

To make this antenna you should first look at the site of **James KA5DVS** who designed and made the original. <[www.njqrp.org/pac-12](http://www.njqrp.org/pac-12)> What follows is the variations to use UK parts where needed. The PVC risers with threaded ends are not available here.



We are using 20mm conduit instead of the American PVC risers to make the loading coils there is a difference of 0.5mm in diameter. (Risers are 19.5mm) The ends are made up of 20mm adaptors and blank plugs both of PVC obtainable from electrical wholesalers. The blank plugs are drilled through their centres to take the set screws and nuts for attaching the rods of the antenna.

Once these are made up the adaptors less the blank plugs with there setscrews can be glued to the ends of conduit cut to length determined by band being constructed (Note: leave screwing the blank plugs in until coils are wound to allow you to thread the wires through the holes at end of your wound coil.(See photo)



With no 6 Foot telescopic whip available here I used a whip of 4 ft, 3? inches (1.31mtrs) available from Maplin. Using a brass, 'copper to iron' fitting I drilled out the iron end to take the base of the whip and fixed it in place with a small screw through the side of the fitting. Making up the extra length was done by fitting a length aluminium tube or bar to give an overall length of 6 ft as per James's whip. (See the photo) Subsequent tests found that new whip and a 1 ft extension to top of loading coil that all bands tuned including the 10 MHz with its coil adjustment.( i.e. with one turn removed) First tests at our Club meeting on the 12th February 07 went well all bands tuned down to 1:1.2 and 1:1.5. Note also number of turns was as the table by James except for 10 MHz where I removed one (1) turn to

make it tune.( that 0.5mm difference in diameters I guess.)

A note on coil winding. I found that using small strips of masking tape cut from a 25mm wide roll in 6mm widths; I put on a strip every 10 turns of wire. This keeps turns in place and more importantly allows you to keep track of the number of turns you have put on.

Frequency	Approx. coil length in mm's with 0.6 mm insulated wire.	№ Of turns using those American risers.	№ Of turns Using 20mm conduit.	№ of whip Sections retracted to tune the antenna.	Approx. length of cable needed to wind the coil.
3.560					
7.010	108	86	<b>86</b>	<b>1½</b>	5.6 metres
10.105	53	42	<b>41</b>	<b>1</b>	2.8 mtrs
14.010	41	23	<b>23</b>	<b>2½</b>	1.6 mtrs
18.100	19	14	<b>14</b>	<b>4</b>	1.05 mtrs
21.050	13	8	<b>8</b>	<b>4</b>	0.7 mtrs
24.900		5	<b>Not made yet.</b>		
28.050		1	<b>Not made yet.</b>		



The feed point insulator at base of the antenna is again made from 20mm PVC (in fact I used a piece of 25mm to make it more robust but your 20mm will do ok) Instead of using the bolt through the conduit and aluminium strip to attach the counterpoise wires I fitted and extra screw and nut tightened to it and then a wing nut to attach said counterpoise wires. (See photo) I also used 2 of 4mm set screws and nuts to affix aluminium plate to conduit to stop tendency to swing round.

To fix the antenna to the ground you can make a spike as per a method in James's antenna or mount on some form of tripod. I used an old camera tripod I had which serves well with a connecting bracket made from a square section tube drilled and threaded.

Maplin part number for the whip is LB 10 L. priced at £3.99. They also do that 0.6mm insulated wire in various colours to wind your coils for example a 10mtr hank in red is part No. BL 92 A. priced at £1.59. As you can see in the article by James, he used 22 awg to wind the coils. This equates to 0.64mm so 1/0.6 is ideal for us to use.

Note 1: I used different colours for each coil to aid identification.

Note 2: A price for 10 of PVC adaptors and 10 of threaded bank plugs is approx. a fiver at most electrical wholesalers. Enough for 5 coils.

## Simple CW Transceiver

Tony Bowmaker, G0EBP, 1 Hestham Dr. Morecambe. LA4 4QD

This little c.w. transceiver is a friend of the Pixie and Foxx.

I've tried to give some improvements in the form of 1 Watt of RF output, a sidetone, a little more gain from the audio section and QSK muting. The simple circuit lends it's self nicely to Manhattan or dead bug construction - it works on 80 or 40m.

The VN10KLS mixer/PA gives less MW broadcast breakthrough - it's actually clear compared to a bipolar - a this QTH anyway! Chunkier FET's here don't work well on receive or transmit, probably due to increased capacitance/ drive requirements needed.

So keep to the smaller FET's with lower threshold. BS170's and 2N7000 should work, but not had chance to try these yet. The sidetone is a small Radio Shack black self contained piezo sounder.

The choke in the FET drain is about 10 turns on a ferrite bead. Please include C5 the 560 pF in the capacitance for the external filter. This cap should be mounted close into the drain with short leads. A Polyvaricon can be used to give some shift of frequency and please mount the 10nF on pin 3 of the LM386 audio amp close into the chip. The simple limiter (2 back to back diodes and a capacitor) prevents key thumps getting through on TX.

## The Marconi Basic 7 Kit

George Dobbs, G3RJV



During the Dayton Hamvention in May, I was approached by Seike Hidefumi (Hidy) a young Japanese man who had just produced his first QRP kit; the Marconi Basic-7 transceiver. Some time after my return home he sent me a kit to try. The Basic-7 is a no frills direct conversion transceiver for 40m with the following specifications: RF power 1.5W (12VDC), VXO 7.020~7.040MHz, RF Attenuator, RIT, Sidetone and full

break-in. It comes with a good quality PCB and a pressed steel case (W:180 H:70 D:120 mm). The kit was easy to build from a rather novel step by step pictorial manual. My finished Basic-7 put out a shade over 1.5W and did all one might expect from such a transceiver. The audio output was a little low for the built-in speaker but more than adequate for headphones. It would make a useful home built transceiver suitable for building by a less experience constructor. Details can be had from [www.marconi-japan.com](http://www.marconi-japan.com) (use the Google translator) or [seike@marconi-japan.com](mailto:seike@marconi-japan.com).



# TEMPERATURE STABILIZED VFO

Bozidar Pasaric, 9A2HL, Kataliniceva Str. 6. 51000 RIJEKA. Croatia

On the Web-site of Indian radio amateurs <[www.hamradioindia.org/circuits](http://www.hamradioindia.org/circuits)> you can find an article written by VU3NSH and titled "Multipurpose VFO for your rigs".

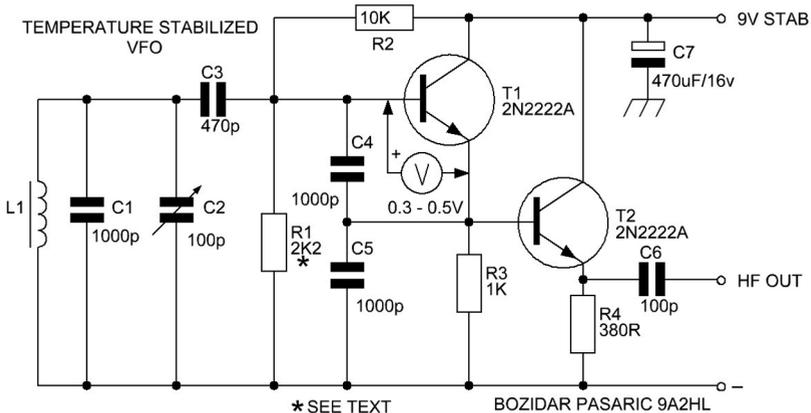
It deals with the fact that h.f. oscillators with bipolar transistors are considerably more stable if they work in class A, i.e. if their base voltage is positive relating to the emitter for about 0,3 to 0,5 volts. So the "catch" is in the voltage divider R1/R2 (fig 1).

Instead of a fixed resistor R1 I first used a trimmer-resistor of 5 k $\Omega$  and slowly increased its resistance, starting from zero. At the same time I measured the base-to-emitter voltage difference of the bipolar transistor Q1 (2N2222A or similar), as you can see it in the schematic diagram. I stopped at 2.2 k $\Omega$  when the base was 0.4 V more positive than the emitter and then substituted the trimmer with a fixed resistor of 2.2 k $\Omega$ . Of course this info is only for orientation because R1 depends on the used transistor.

Then I soldered the whole oscillator: C1, C3, C4 and C5 are styroflex, and the coil is 10 mm in diameter with a tuning core. The number of turns depends on the frequency you have chosen; VU3NSH has tested the VFO up to 9 MHz. I have chosen 3.5 MHz. I powered the oscillator from a new 9V battery.

I was pleasantly surprised after switching-on that the frequency stood fixed from the first second - there was no "travelling" of the frequency for the first few minutes! In fact my counter stood still up to 1 Hz. VU3NSH is of opinion that an expensive synthesizer or a DDS is justified if you build a multi-band rig, but if you build a single-band one - then this oscillator is a good cheap solution.

VU3NSH finishes his article with this sentence: "Discovery consists of seeing what everybody has seen and thinking what nobody has thought."





## Open Wire Feeder Idea

Jerry Gerard G0AED, 18 Hunstanton Rd. Dersingham. Norfolk. PE31 6HQ  
[Henrynfk62@aol.com](mailto:Henrynfk62@aol.com)



We all know the advantages of open wire feeder over coaxial cable. Less losses, less cost and the ability to fabricate from available materials. The “less” I would like to introduce is less hassle in making the spreaders. Spreaders I have used are plastic conduit, both round or oval, and plastic tubes that till receipts are wound on. The latter are free for the asking at your local supermarket. Cut all spreaders to length, allowing 5-8mm each end of the distance you wish the feeders to be. Scribe a line on the spreader to ensure that the feeder holes will be in line. An old trick is to use a small piece of angle stock (round spreaders only). Hold the spreader in the V of the angle and use the edge to scribe a line. Mark the feeder hole in from the end and drill. Use a drill slightly under size of the diameter of the feeder. This gives the spreader good gripping qualities. Using a craft knife, Stanley knife or electronic snips (my favourite) cut a V notch to each of the feeder holes. Snap the feeder wire into the notch making sure it seats itself in the hole. You now have open wire feeder that does not need threading onto the feeder or glue, wire or tie wraps to hold in position. The drilling can be done with a hand drill but the process is speeded up if you have access to a press drill. I have made a jig that clamps to the drill table and makes this job even easier. A small piece of board or plywood and some strips 20mm by 20mm nailed or screwed onto the board as shown will hold the spreader for drilling. Make sure the spreaders are a snug fit in the jig. The centre line on the jig is to set the round spreaders in line. Once set up and clamped to the drill table any amount can be quickly and uniformly made.

# Another Simple Audio Filter

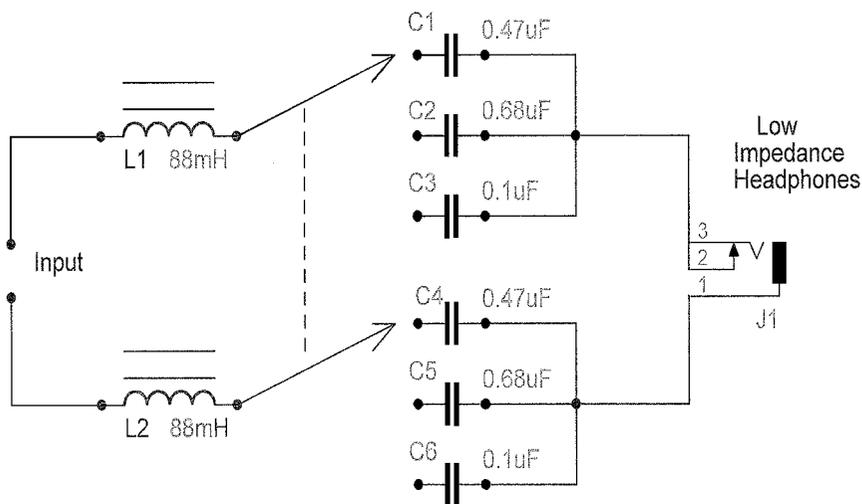
Colin Turner G3VTT, 30 Marsh Crescent, High Halstow, Rochester, ME3 8TJ  
G3vtt@aol.com

Here is another rainy day project that might be worth playing with. You will need two 88mH toroids, the sort that W3NQN used in his audio filter of many years ago.

I read somewhere on the internet, I think it was the Drake reflector, that a simple series tuned circuit using a toroid with a high value capacitor could be used to clean up the audio in a receiver with hum. I wanted a filter to use on my Corsair II and was surprised at the pleasant tone it gave.

Having two toroids I decided having two toroids and an ancient double pole three way switch I could work out some values to give some useful curves.

According to my schoolboy maths these are 360Hz, 530Hz and 780Hz. Don't forget this a low impedance unit and will slip in line between the wireless and your shiny modern 8 ohm headphones.



NOTE from G3RJV:

Although some readers may have the 88mH inductors once supplied to the club by W3NQN, others may have problems with this value. One possibility is to use the 82 mH 10RB series available from JAB Electronics.

# The New England Code Talker

Michael Rainey AA1TJ [mjrainey@gmail.com]

The idea for a voice-powered radio transmitter arises from time to time. For example, I first read about such a scheme in a 1960's-era Italian radio hobbyist's magazine.<sup>1</sup> The range of this particular AM radiotelephone transmitter was given as 200 meters. A similar, but more recent design, suggests the transmitter and receiver ought to be located in the same room! Over the years I've wondered if the range of voice-powered radio transmitter might be extended.

"It would take the power radiated by 2 million people in conversation to run a 50watt electric bulb."<sup>2</sup>

The prospect of producing an appreciable RF power output from a lone human voice is not promising if the above quote were accepted at face value. Other sources confirm the acoustic power output associated with our conversational voice falls within the range of 10 to 25uW. These same sources indicate that as much as 1mW of acoustic power may be generated by shouting. However, accounting for the expected conversion losses, the RF output power produced from a shout-powered transmitter would still appear to be limited to several hundred microwatts.

Over the past weeks I've constructed a number of voice-powered radio transmitters. I was surprised, gratified and perplexed to speak into my fledgling design and see 2.5mW of RF power appear at the dummy load. What's more, the output power has steadily increased with each redesign and new optimization. Shouting into my latest voice-powered 80m CW transmitter, for example, produces a peak power of over 50mW! How is this possible?

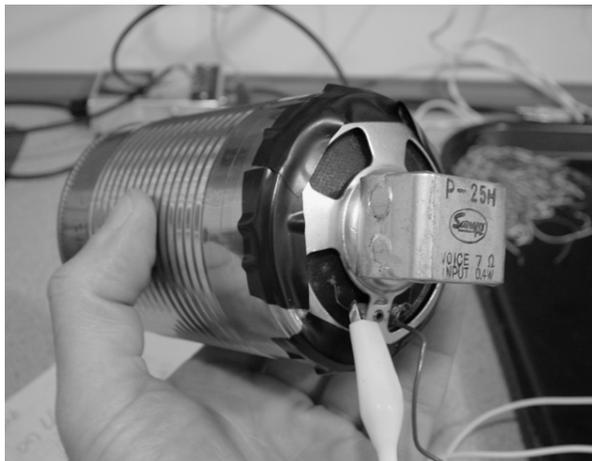
The explanation came from an unlikely source.

"Most of the acoustic energy does not make it out of the mouth...Sound reflected backwards from our lips and from major expansions and contractions along the tract, create standing waves, and these standing waves in the vocal tract are the basis of vowels, consonants, and many vocal qualities....we keep most of the sound inside to give variety and clarity to the little bit of sound that we allow to escape."<sup>3</sup>

There is my answer. Human voice power measurements are typically taken *at* the mouth, rather than *inside* the mouth. The above cited article, for example, states that the maximum sound pressure taken at the mouth is approximately 400Pa; whereas, the pressure in the mouth is as high as 4000Pa. Given that acoustic power is proportional to the *square* of the pressure, these measurements represent a huge difference in available power.

- 1 *Radiotelefoni a Transistor*, G. Montuschi, et al., "Il Baby Signal" p.40
- 2 *The Physics of Music*, Alexander Wood, p.34
- 3 *Journal of Singing*, Nov./Dec. 2005, I. Titze, "How Loud is My Voice Inside My Mouth and Throat?," pp.177-178

As such, the acoustical-to-electrical transducer ought to be located *inside* our mouth rather than *in front* of our mouth. This may be accomplished in practice by placing an acoustic waveguide over our mouth. The acoustical-to-electrical transducer is mounted at the rear of this waveguide. In use, the operator places his mouth inside the waveguide while leaving a small “DC” acoustic vent at the interface between his mouth and the waveguide.

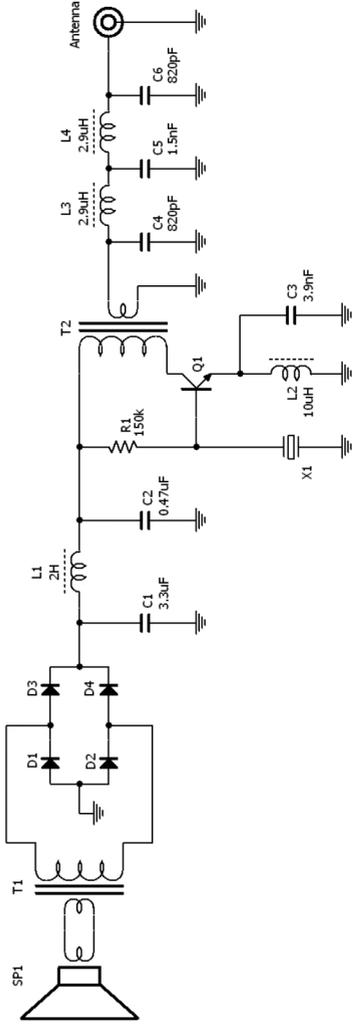


My acoustic waveguide is an olive can that I pulled from the recycling bin. The thin metal cylinder is less than ideal on account of the energy dissipation resulting from cylinder wall vibrations. A thick-walled cylinder made from high acoustic impedance materials, such as ceramic or glass, would be preferable (my wife has promised to throw a suitable waveguide for me in her pottery studio).

My acoustical-to-electrical transducer is a permanent magnet dynamic loudspeaker. This was selected from a collection of dozens of surplus loudspeakers. Three of them stood out well above the rest. Curiously, the words “Voice Input” are printed on the rear of the best performer. This particular loudspeaker was made by *Sanyo*. As indicated by the photo, the power-rating is 400mW and the impedance is given as 7 Ohms. A moderately loud “Doooo” spoken into the loudspeaker/waveguide will produce 0.8Vrms across a 10 Ohm load resistor (64mW).

In order to protect the loudspeaker from moisture damage due to condensation, it’s best to place a loose diaphragm of “cling-wrap” plastic film over the mouth-end of the acoustic waveguide. I arrange the film into slack bag and then seal it around the outside of the waveguide using a rubber band. This film is almost acoustically transparent, given that its acoustic impedance is nearly the same as air.

My loudspeaker-waveguide assembly has a peaked response at 250Hz. This is fortunate, given that the maximum voice output power occurs in a frequency band located in the vicinity of 250Hz. It happens that most of the acoustic energy produced by our voice is carried by the vowels. The reason is that vowels are produced with a nearly unblocked vocal tract (that’s why your doctor asks you to say, “AAAAH” when he wants to peek at your tonsils). In contrast, consonants are formed using the tongue and lower lip to block the vocal tract, thus reducing the available acoustic energy just inside the mouth. The higher frequencies associated with consonants are also attenuated to a greater degree by the soft tissue in the mouth.



- SP1 : Junkbox PM loudspeaker; 7 Ohm, 400mW
- T1 : Audio transformer; 8 to 1200 Ohms
- D1-D4; Germanium signal diodes (1N34a, etc.)
- L1, Select for < 25 to 50 Ohm DC resistance
- X1 : 80m quartz crystal
- Q1 : 2N3904
- T2: 16 turn primary/4 turn secondary on T50-43 ferrite core

## New England Code Talker

Voice-Powered 80m CW Transmitter

de AA1TJ

11/18/09

The AC electrical potential appearing at the loudspeaker terminals is stepped-up by transformer, T1. A bridge-rectifier comprised of germanium diodes (Schottky diodes work nearly as well) is followed by a 90Hz cut-off, low-pass filter. Ideally, a clean, CW-keyed, DC signal is applied to the RF oscillator stage.

The transmitter is both keyed and powered by speaking into the acoustic waveguide. It's best to monitor the transmitted signal in a receiver while wearing a pair of headphones. In this way one quickly learns to send the best possible CW. I prefer to say "DO DOOO DOOO" (= "w"), as the leading "D" helps to form a crisp leading edge. I've found that it's possible to form a fairly clean trailing edge so long as I'm not straining to produce the maximum possible output power.

Most of the contacts listed in the log below were made using an output power of 10 to 20mW. My best voice-powered DX contact to-date is 1486km. I've also received a credible SWL report at a distance of 2214km. Most of these contacts were made with my eyes bulging; which is to say, they required quite a lot of physical effort. Still, there were one or two moments when I felt a tingle run up my spine. I could almost envision the energy produced deep in my chest radiating high above the earth - and back down - where it was heard almost instantaneously at a distance of nearly a thousand miles.



**20m version of my *Code Talker*.**

The last two contacts shown in my log were made after the transmitter power efficiency had been increased to 60%. This higher efficiency allows one to produce 5 to 10mW of RF output power while speaking in a normal, conversational voice level. In fact, the second to last QSO shown below was made at the same voice level that one might use at a dinner party. Once again, I felt the hair rise up on the back of my neck. I wasn't screaming; I was simply talking. My contact, W1PID, had a 100% copy (my signal was peaking S-9). We had a pleasant, 17minute ragchew. Again, what gave me pause was the fact that I was *just* talking; just talking across a distance of 109km. Such is the magic of QRP.

I've named this transmitter, *The New England Code Talker*, in commemoration of the heroic, Navaho Code Talkers of WW2 fame.

#### Transmitter Log

80m	AA1MY	589/559	Bethel, ME	160km	“gud cpy”
80m	K1MPM	599/569	Freeport, ME	214km	“wow really big sig fer ten mw”
80m	W1DFU	579/579	Wallingford, VT	68km	
80m	KB1KGA	599/579	Mt. Vernon, NH	152km	“solid cpy hi vy gd sig”
80m	W1PID	569/599	Sanbornton, NH	109km	“peaking S9 hi”
80m	W4OP	569/469	Glenville, NC	1329km	I peaked 569
80m	NU4I	559/239	Williamsburg, VA	826km	I peaked 439
20m	W4OP	599/579	Glenville, NC	1329km	
20m	K4NK	559/339	Anderson, SC	1364km	
20m	W4FOA	599/579	Chickamauga, GA	1486km	“FB Mike ur an honest 579”
20m	WE5O	599/519	Seneca, SC	1367km	
80m	W1PID	599/599	Sanbornton, NH	109km	<i>Normal speaking voice!</i>
80m	W1LVT	599/338	Richmond, VT	100km	



## The Candlelight Transceiver

A complete 80m CW three-valve radio station

Oliver Borkowski DF6MS/DL0VLP,

Waldsassenerstr. 5, 95692 KONNERSREUTH. GERMANY

Designing a radio that really works with a minimalist approach has always been a challenge. The set-up presented here shows that it can be met.

### Specifications



VFO controlled tuning of the entire band, only little warm-up drift (200 Hz/h)  
True-blue superhet receiver with five tuned LC circuits, rejection of unwanted sideband  
High sensitivity on CW and SSB signals, 0.5 uV CW clearly readable, good dynamic range  
RIT and sidetone function  
Keyed carrier oscillator, no clicks or chirps  
Typical 1 Watt output, spuriis at least 40 dB down  
Easy transmit-receive switching

### Circuit description

A VFO/mixer stage (ECH 42 or ECH 81) is followed by a single triode (1/2 ECC 83) in a refined reflex configuration. It provides IF amplification, BFO oscillator and AF amplification very effectively.

A separate diode detector is used to achieve good strong signal handling which is a major advantage of this design. There is no need for any form of RF attenuation, even S9+ stations will not overload the mixer or detector. With the IF down in the 330 kHz region, the band filters provide comfortable rejection of unwanted signals.

VFO stability can easily be made excellent. The tuning range (3.8xx to 4.1xx MHz) for 3xx kHz IF offers no problems if good components are used and the well-known design principles (shielding, ventilation etc.) are followed.

For transmitting, the control grid of the input stage is fed with the signal of a keyed carrier oscillator (second half of ECC 83), thus converting the correct TX frequency at the output of the ECH 42. Here, two band filters are placed in series without affecting each other since the operating frequencies are well apart. The 1nF capacitor of the RX band filter circuit provides sufficient grounding of the 3.5 MHz TX signal. The TX band filter is essential to suppress the VFO signal which is only about 300 kHz away. A single tuned LC circuit won't do this job properly.

The transmit signal is remarkably clean and strong enough to drive a little PA stage (EF 184) in AB mode for about 1 Watt output.

There is an antenna coupling and tuning network which does its job for both transmitting and receiving, for 80m operation this is a remarkable simplification but works very well. A 3x2 rotary switch provides transmit-receive changeover. It is advisable, however, to use a 3x3 switch with the middle positions free in order to avoid short-circuiting of HT terminals.

Both the 105 and the 210 VDC should be stabilized, e.g. by two neons in series. The easiest way to get low voltage bias are dry cells. The PA bias must be variable to adjust for maximum output.



### **Construction & operation**

The photographs show that the T/R switch is the centre of the mechanical layout. The suggested construction method in a wooden cigar box (labelled “Candle Light”, hence the name) with the T/R control poking through the top panel is a bit unusual. Nevertheless, it is simple and easy to make. The dry cells are mounted on the chassis but the power supply should be a separate unit.

Aligning the set is straightforward but requires some patience. First, the IF/AF section must be tuned up. It only functions properly when the AF gain control works as usual, that is, fully counter-clockwise setting means almost no reception. If this is not the case, the reflex stage (feeding AF through the valve again via the transformer) does not work effectively.

The tickler coil (turns about 1/10 of the IF circuits) must be on a sliding tube. Carefully moving it will establish the position of smooth oscillations “just about to stop” but substantial enough to tackle strong IF signals. Any IF in the range of, say, 330 to 455 kHz will do, the lower the better. With 300 kHz or lower, however, it will become more and more difficult to keep the VFO frequency away from the output spectrum. If a crystal in the 3xx kHz range is available, the carrier oscillator should be crystal controlled. Proper

shielding provided, keying the CO can be monitored during transmit (sidetone function as well as controlling T/R frequency offset).

There is only one major shortcoming of the receiver section: VFO harmonics (7.6xx MHz will convert 41m BC stations on the IF channel. With a doublet antenna fed through a Z-match ATU or similar, these signals are barely noticeable. The problem becomes serious with any type of coax-fed dipole also responding to 40m (W3DZZ etc.). Here, an additional LPF at the front end will cure the trouble thoroughly. Harmonics of the oscillating BFO couldn't be detected at all.

Correct aligning the TX band filter is essential for both output power and spectral purity. If available, a spectrum analyzer should be used to determine the desired "cut off" above 3.6 MHz. If the filter is tuned properly, output will be constant from about 3.450 to 3.650 MHz.

Typically, the set will produce S9 + 40 on the station RX and the VFO,"300 something" higher, only S7/S8.

When operating, it is important to find the correct sideband on which the stations must be tuned in for a decent 700 Hz offset of the local carrier oscillator. If it is crystal controlled, the entire IF strip has to be tuned to achieve just that. With only one watt out, the TX signal must be placed right into the far receiver's filter or it will not be noticed.

### Final

Working with this radio station is far from the usual "happy-go-lucky"-approach normally encountered with minimalist rigs. As C.F. Rocky, W9SCH, had it so truly: "Any active QRPer knows what can be done with two watts input and a good antenna", there are good chances for satisfactory operation with this simple but not primitive set.

By the way, this is not a beginner's project. Working with glowing bottles is fascinating and the layout is charming in its simplicity, but alignment needs experience and some test equipment – and a good deal of respect to high voltages. Death is so permanent!

**Log of 10 QSOs** (that means, conducted ONLY with this rig, 'phones and antenna, NO other form of additional support used):

22.May 2008 1910z II1UCI

2316z IK2SCD

01.Jun. 2008 2025z SM5COP

06. Nov. 2008 1617z OK1IR (2xQRP)

1700z HG5A (2xQRP)

1716z HF90PR

1719z OK1AN

24.Nov. 2008 1706z F5VV

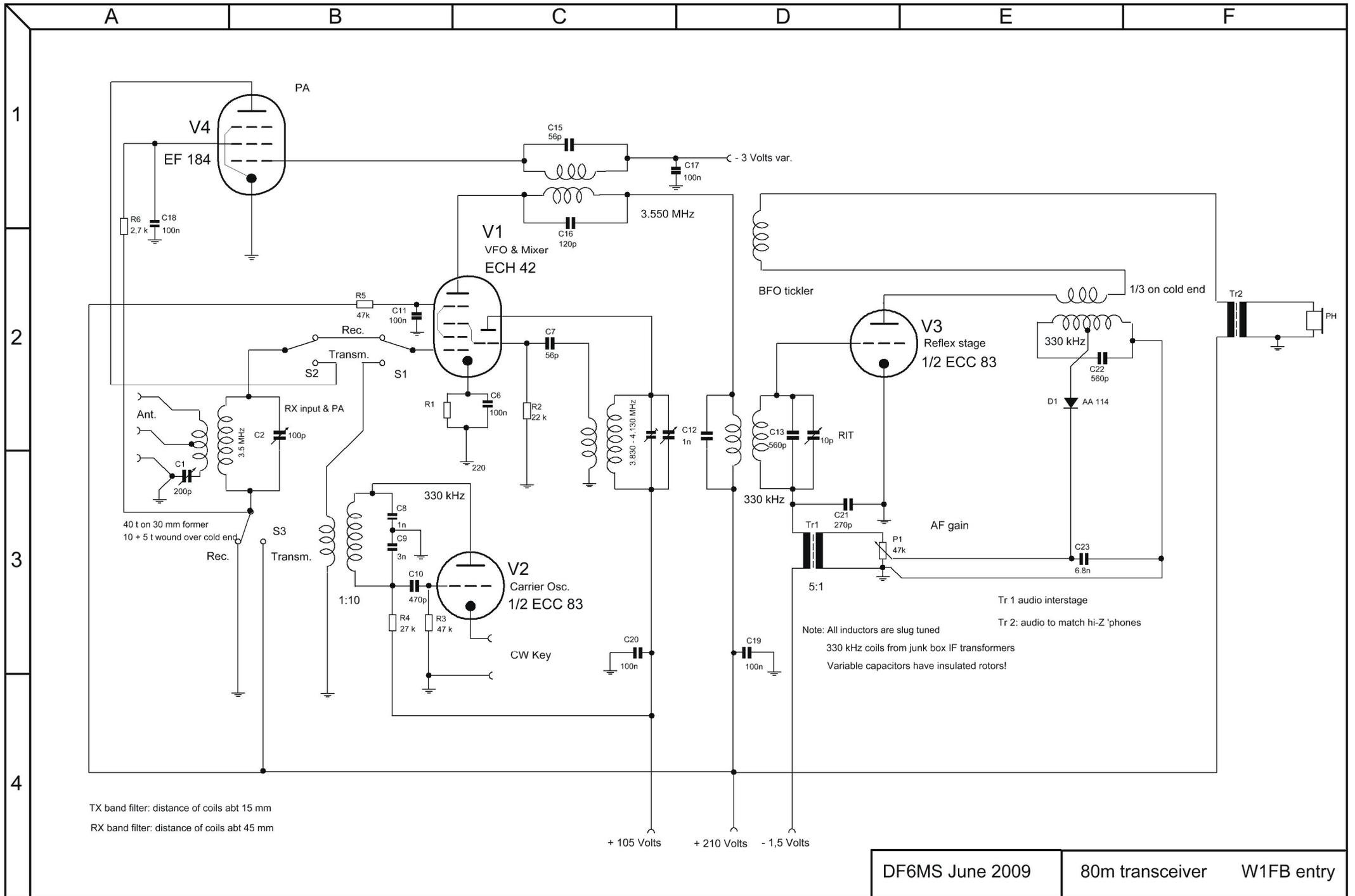
...

08. Jun. 2009 1826z DK2RW (2xQRP)

1905z DK5VD (2XQRP)

1935z OE6WTD

RSTs usually about 449 to 599...



# SUBSCRIPTIONS FOR 2010 ARE NOW DUE

Your SPRAT label tells you your current status. Your receipt is the updating of your status code on your SPRAT address label. We do not send receipts. The labels for your SPRAT are printed 4/5 weeks ahead of publication so there may be a time lag before your code is updated.

<b>SUBSCRIPTIONS FOR 2009 paid to G4WIF</b>		
<b>UNITED KINGDOM</b>	<b>EUROPE</b>	<b>DX</b>
£6.00	£6.00/10 Euro	£8.00 or \$15.00
<b>Cheque / standing order</b>		With Paypal the currency used must be UK Pounds.

**Please Note: (as announced over 2 years ago) Credit cards are only acceptable now via Paypal (see [www.gqrp.com/paypal/](http://www.gqrp.com/paypal/))**

*Direct transfer information is in the Members Handbook. Please note that there are special arrangements for members in North America, New Zealand, Germany, Spain, Belgium, France Austria, Denmark, Italy, and The Netherlands, and can pay their club representative **in their own currency** if they wish.*

## UK

*members can use the form provided overleaf if they would like to pay by standing order or to amend their existing standing order to the 2010 subscription rate of £6.00. This payment must be in place with your bank to execute on the 15th January. **If your standing order does not quote your membership number then your payment can only be treated as a donation and your membership will expire.***

**All cheques must be made payable to "G-QRP CLUB"**  
Please do not make cheques payable to individual club officers.



**Please** enclose this form with your payment write your callsign & number on the cheque **do not staple your cheque** to this form. Send to G4WIF, GQRP Club, PO Box 298, Dartford, Kent. DA1 9DQ

Membership Number \_\_\_\_\_ Callsign \_\_\_\_\_

Name \_\_\_\_\_

Number and road \_\_\_\_\_ Name used on air \_\_\_\_\_

Town \_\_\_\_\_ Post code \_\_\_\_\_

Country \_\_\_\_\_

Changes or additions - *please check your SPRAT label & handbook entry*

.....

.....

Send to your bank

### UK MEMBERS: PAY BY STANDING ORDER FORGET ABOUT YOUR RENEWAL BY USING THIS FORM

How to complete the form :-

- Write in the Name and Branch where it says (1) & (2)
- Go to the bottom of the form and add:
- Name of your account in the box marked (3)
- Number of your bank account in the box marked (4)
- Add the date and sign (5 and 6)

**MOST IMPORTANT :-**

Put your club number in the box marked (7)

Now please take or send the form to your bank. **Do not** send it to the club.

To  National Westminster Bank

Bank (1)

(2) Branch

## Standing Order Mandate

Do not send to the club.

Please pay	Bank	Branch Title (not address)		Sorting Code					
	National Westminster Bank	ROCHDALE		01 - 07 - 44					
For the credit of	Beneficiary's name								
	GQRP CLUB NUMBER 1 ACCOUNT		0	4	1	0	9	5	4
The sum of	Amount in figures	Amount in words							
	£6.00	SIX POUNDS							
Commencing	Date and amount of first payment			Due Date and Frequency					
	15-1-2010	£6.00		ANNUALLY ON JANUARY 15th					
*until	Date and amount of last payment								
	-----	-----							
Quoting the reference	(7)								
	<b>GQRP #</b>		Enter your membership number here.						

Until you receive further notice from me/us in writing  
And debit my / our account accordingly

Enter your membership number here.

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Special Instructions

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(4) Account Number

(5) Signature(s)

(6) Date

Note. The Bank will not undertake to:

- (i) make any reference to Value Added Tax or other indeterminate element
- (ii) advise payors address to beneficiary
- (iii) advise beneficiary of inability to pay
- (iv) request beneficiary's banker to advise beneficiary or receipt

\* Delete if not applicable

Send to your bank

# OVERSEAS SUBSCRIPTIONS FOR 2010

Please send your subscriptions to the following overseas representatives:-  
(for email addresses see [www.gqrp.com](http://www.gqrp.com) – members page).

Country & Representative	Amount
<b>U.S.A</b> Bill Kelsey, N8ET,3521 Spring Lake Drive, Findlay, OH 45840. U.S.A.	\$15.00
<b>Germany:</b> Dieter Klaschka, DL2BQD, Kuelzviertel 20, D-16303 Schwedt, Germany. Überweisen Sie bitte den Klubbeitrag von 10 Euro bis Ende Januar auf das Konto Deutsche Bank, Klaschka, Karl Dieter und Rosmarie Ktnr: 260 70 59 63 BLZ 120 700 24	10
<b>The Netherlands</b> Niels Moseley, PA1DSP, Pathmossingel 205, 7513 CG Enschede, The Netherlands. Tel 053-4350393. Maak voor 31 Januari 10 Euro over op rekening nummer 47.32.99.704 t.n.v. N.A. Moseley te Enschede. Vergeet uw call en uw G-QRP nummer niet te vermelden! Een email ter bevestiging wordt op prijs gesteld.	10
<b>Belgium</b> Jos Warnier ON6WJ, Kalendijk 28, B-9200 Dendermonde, Belgium. Tel. 052 220996. Vergeet niet Uw call en clubnummer te vermelden! N'oubliez pas d'indiquer votre indicatif et votre numero de membre! Contributie/cotisation: 10 Euros voor/avant le: 31 Jan op nummer/ au numero: 979-6393074-03	10
<b>Austria</b> Johann Auerbaeck, OE6JAD, Kirschenhofersdlg. 120, Bitte den Beitrag bis Ende Jänner A-8241,DECHANTSKIRCHEN, Tel: 3339-23335 überweisen.RAIKA BLZ 38041 KontoNr. 15156	10
<b>France.</b> Richard Sayer, F5VJD, Vignouse, 35380, Paimpont, France (cheque perso [SAYER Richard] avec votre indicatif, numéro de membre et adresse E-mail indiqué au verso).	10
<b>Denmark.</b> Fornylse af abonnement af GQRP: Venligst foretag en kontooverførelse af 75 Kr. senest d. 1. Januar til : Ole Rasmussen Danske Bank, Haslev Reg. nr. 0575 Konto nr. 3531127749 Venligst vedhæft følgende information: navn, call, medlemsnummer og email adresse. Efter at overførelsen er registreret, vil jeg tilsende dig en kvittering på email. Undgå venligst at fremsende kontanter og checks. Har du et problem mht. bankoverførelse, så kontakt mig så vi kan finde en løsning.  Nyt abonnement af GQRP: Ønsker du at blive medlem af GQRP og modtage medlemsbladet SPRAT, så send mig venligst en email med dit navn, adresse og evt. kaldesignal. Så skal jeg med glæde sørge for at du bliver kontaklet.	75DKK
<b>New Zealand</b> , Mike Sheffield, ZL1ABS, 176 Albany Highway, Albany, Auckland 0632	NZ \$28.00
<b>Australia</b> Norm Lee VK5GI, 52 St Andrews Terrace, WILLUNGA, SA 5172, Australia. Account name: Norman Joseph Lee GQRP Club Account, Bank: ANZ Bank Willunga Branch. BSB number: 015 456, Account number: 1812 – 51764. Phone: (08) 8556 4661, Cell: 0404835071	AUD \$20
<b>Italy.</b> Giancarlo Moda, I7SWX, c/o ARI Sezione Cassano Murge - Casella Postale 104 - Via Maggior Turitto 30 - 70020 CASSANO DELLE MURGE – BA. Quota Associativa G-QRP Club 10 Euro. Indirizzare il pagamento a mezzo C/C Postale : 57871626 intestato a: ARI Sezione Cassano Murge - Via Maggior Turitto 30 - 70020 CASSANO DELLE MURGE - BA; o meglio a mezzo Ricarica Carta PostePay (info I7SWX),riportando: Quota associativa iscrizione o rinnovo 200X, nominativo e numero di associato. Il pagamento puo' essere effettuato anche a mezzo assegno bancario intestato a: ARI Sezione Cassano Murge oppure per contanti indirizzando al sopra riportato indirizzo. Copia del bollettino postale (od i relative riferimenti) e' apprezzata a mezzo e-mail onde accelerare il processo. La scheda di iscrizione puo'essere richiesta per lettera (si prega di aggiungere busta pre-indirizzata ed affrancata).	10
<b>España</b> , Jon Iza, EA2SN, A. Gasteiz 48-7 izq, 01008 Vitoria-Gasteiz. Cuota: 10 Euros. Envía un correo electrónico a si quieres hacer una transferencia bancaria.	10

Any other overseas, Tony Fishpool G4WIF, GQRP Club, PO Box 298, Dartford, Kent. DA1 9DQ [Europe: £6 GBP / DX: £8 GBP]

## Second Valve QRP Day

Colin Turner G3VTT

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

G3vtt@aol.com

The second valve QRP day was run on November 15th 2009 from 1600 until midnight. Despite an initial flurry of activity the condition faded in the evening and activity became less although some good contacts were made. The reports received were as follows.

*I 'almost' had a QSO with a German station who answered a call of mine on 3.558 but the QSB got rid of him before I could catch his call sign so no luck! Most of my calls were on my 3.560 crystal, but I also have crystals for 3.510, 3.530, 3.540, 3.548 and 3.558 in my 1-valve (ECL82) transmitter so tried those other QRG's occasionally too. The 30-foot end fed "long wire" strung between two balconies and well-shielded by surrounding buildings, can't have helped either. 72/3 **Hans G0UPL**.*

*Having been unable to get near the rig until about 22:00z and not hearing a lot around 3560, I thought I must have missed all the activity. However a brief CQ had Ray G13PDN from Antrim and DJ6CB Dix of Bremen in the log. Many thanks indeed to both stations for their ability to untangle the total garbage that the 8 amp no 2 Mk III key seemed to produce, at times it seemed to have a mind of its own. Rig used:- TX, Codar AT5 5watts. RX, Homebrew from a design in Radcom by G3TXQ a few years ago, with an audio filter from a kit by Wood & Douglas. Antenna was a G5RV. A couple of photos on Flickr to mark the occasion at [www.flickr.com/photos/g0bpu/](http://www.flickr.com/photos/g0bpu/) 73/72 **Mike G0BPU***

*I called CQ on and off from about 20:50 to 23:30 before finally giving up. The only station I heard sending slow enough for me to copy was DJ2XB. I couldn't hear any G-stations. I'm not convinced I am putting much RF out though the DC input power according to the anode meter is 8W, so I would expect about 4 W RF out. I need to get a power meter in line. **John G8SEQ***

*The valve QRP day has got me digging out all my old valve stuff - not much left now so I will have to bash some tin and melt some solder. A CW valve TX is straightforward but the receiver got me thinking. I. Does anyone know of a design for a valve DC receiver? Best 72's **Tim MW0CZP***

*Swear I heard Colin G3VTT at one point as I heard the familiar weep weep of his paraset but then lost him in the noise. **Dom M1KTA***

*I worked a number of stations on 80m G3VTT, G3MCK, G3TYB, G13PDN and others. Band conditions on a whole were good. Rx here was the Drake R4c with a modified Heath kit DX40u with 5 watts out also a T4xc and two 3v4 valve co/pa Tx at 1 watt. **G4UZU***

*I used a 6AG7 c/o with one watt output from Rutland during the late afternoon. I was crystal controlled on 3561 KHz and used a homebrew receiver. Next time I'll try a co/pa transmitter again! **G3MCK**. Paraset using a 6V6 c/o and a K1 as receiver here. 72 all **G3VTT**.*

Thanks for your participation chaps; we can try again in the New Year! How about March?

## Membership News

### Tony G4WIF

This is the issue of Sprat that reminds you it is time to renew your subscription - if the label on the packaging that contained this copy of Sprat says “expires end of 2009” (you did look at it didn't you?). Of course, UK members with existing standing order arrangement with their banks need do nothing until your Spring Sprat arrives. If your expiry date hasn't incremented by then, assume something has gone wrong and you need to contact me.

Important - the standing order mandate must quote your membership number or we won't know who has paid.

Can I please emphasize that it is me you should contact for membership matters. Not Graham in Club Sales or George the Club Secretary – it is probably no surprise how much extra work members cause us when they do not contact the correct club officer, but each year people do just that. If you write by post please always include a stamp if you expect a reply.

As always *please* no staples in your letters. It has been my experience that cheques do not get lost in the envelope if you don't staple - but they do stick in my fingers while removing them. Also quote your club number as well as your name and callsign in all correspondence – it really does help.

All cheque payments should be to “GQRP club” and not in the name of any club officer.

There is a new UK bank standing order form in this issue to send to your bank (and not me) in time for your payment which must be timed for the 15th January 2010. As well as ensuring the continuity of receiving SPRAT you also help reduce the thousands of letters which I will otherwise have to open in the new year.

Members who are feeling “all 21st century” can pay using PayPal. Please see [www.ggrp.com/paypal](http://www.ggrp.com/paypal) for more details. Please do use the special form on the club website which will add a little to cover PayPal administration charges. We have kept the charges to around what it would have otherwise cost you to buy a stamp to post your subscription.

Please refer elsewhere in this issue to the list of DX representatives to whom you can pay in your local currency. For the remainder of the world without PayPal 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 cash at your own risk and each year many of these payments never arrive.

Finally my sincere thanks to all overseas representatives who give up their time to deal with local members throughout the year.

My special thanks to new volunteers Ole Rasmussen, OZ1CJS our new DX representative in Denmark and to Norm Lee, VK5GI our new DX representative in Australia.

# Antennas Anecdotes Awards

Colin Turner G3VTT

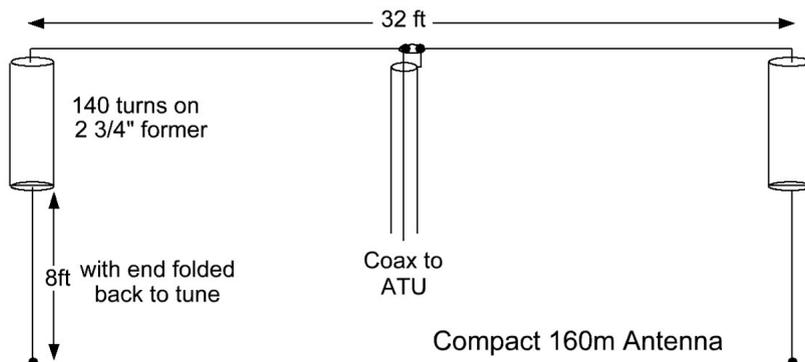
30 Marsh Crescent, High Halstow, Rochester, Kent ME3 8TJ  
G3vtt@aol.com

It was nice to see so many of you all at Rishworth again this year particularly those who made some encouraging comments about AAA. The social side of QRP at the Convention was at its best during the dinner at the 'Hobbit' Hotel - a hostelry with its own unique character. This column survives on your input so my thanks to all of you who have written to me. Thank you also to all who supported the second 'Valve QRP Day' on November 15<sup>th</sup> by the way – please see the report in this issue of Sprat.

## A Compact 160m Antenna

The theme of 160m and the vertical antenna is still lingering from last month although here is a horizontal antenna from G3UDU using some loading coils. Phil G4UDU and Bob G3VXJ write in their local club magazine.

*After coming up with the idea of a net on 160m the next problem was to try and think of an antenna that was easy to set up in an average size garden. Bob G3VXJ and I were mulling over various ideas, verticals, dipoles loops etc but almost everything is TOO BIG! Bob suggested a very short dipole may be possible if we could get the loading coils to work. So I set about building some coils and he started playing with designs in the antenna modelling program. The end result is this design; the feed impedance does not come out to quite the same as a model but at this frequency and putting the antenna very close to ground in terms of fractions of a wavelength this can be expected. The most important thing with this antenna is the tuning, you MUST NOT tune for lowest VSWR. The antenna needs to be put into the working position and then couple the feeder either to a GDO (that's grid dip oscillator for the new licences) or an antenna analyser and tune for resonance. This will result in VSWR of about 2:1 or 3:1 that can be tuned to a suitable match on the ATU in the shack. The losses on the coax at this frequency will be very low and because of it being resonant there is no high reactance to worry about.*



## The W3EDP Antenna (again)

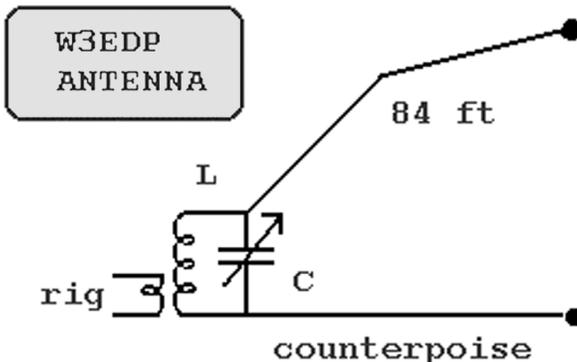
This antenna has long fascinated me. Just two lengths of wire and you have a reasonable match across a number of HF bands but with a simple ATU. I've used it on the beach here in North Kent, from our holiday flat in Holland with a height of only 3 metres or so using the K1 internal tuner and from G3RJV's vacation home in Wales. Ken Ketner KA5ELD dropped me an email a few weeks ago and made a few comments.

*I have been puttering around with one of said antenna for a while in my back yard ...( er .... garden). I am confident you are more knowledgeable about antennas than me, I am no engineer, just a happy tinkerer (we all are Ken!). Mine is set up in this way: 84 ft wire from lawn level just outside a wall of my shack running up to top of a tree (about 25 ft height at tree end). The 84 foot wire connects to the 'hot' lead of a 50 ohm coax cable, (centre core), and the shield or screen of the coax connects to a ground rod which also has the 17 ft. of wire on it. The 17ft runs along the ground and can be disconnected if needed. The coax is immediately wound around a 4 inch diameter plastic pipe piece (about 10 turns to make a coax balun) and the coax runs into shack with another coax balun on it before the coax enters my Heathkit 2050 Antenna Tuner (ATU/AMU). I am able to tune up this on just about any band with this system.*

*Since traditionally the antenna 84 ft wire is connected directly to the Antenna Tuner, what I am wondering is whether the 84/17 of the W3EDP antenna can be connected directly to the coax balun as I have done, or whether some other kind of lash-up should go between the 84/17 and the coax balun — perhaps a 4:1 balun, or a 1:1 balun, or some other kind of matching arrangement between the 84/17 and the coax.*

*I wonder if I have created a mis-match that is losing signals. When the antenna is tuned with my ATU I seem to be able to put 100 watts easily, (I usually less than 5 watts into it). I seem to hear reasonably well given the lowish height of my tree but I wonder if I am missing something — perhaps what one needs at the 84ft/coax connection is a remote automatic antenna tuner.*

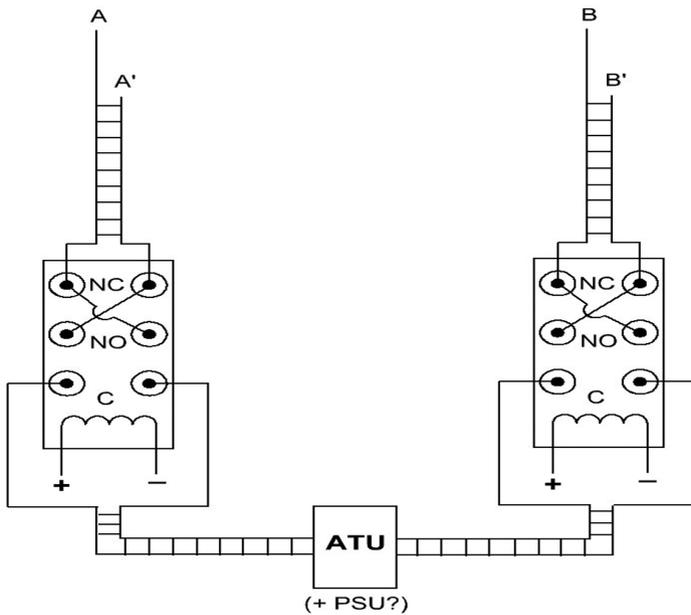
*I suspect that many folks who might want to try this antenna might, like me, need to bring it into the shack as coax instead of as the termination of the 84 wire. It would make a good SPRAT article to describe an updated W3EDP for people whose through-wall situation is coax-bound. You guys got any ideas or tips?*



Well Ken, the W3EDP traditionally uses a direct connection to a parallel tuned circuit linked to the transmitter output stage. The original pre war design had the counterpoise length attached to a parallel tuned circuit close to the PA anode and the radiating section from the cold side of the same tuned circuit. It has been hinted the arrangement relied on capacitive coupling between the PA and the link as well as electromagnetic. Like you I've used an unbalanced and balanced ATU and an auto tuner with the W3EDP and I've even replaced the counterpoise with a decent ground system for 160m.

They all seems to work however it would be a good idea to obtain some more scientific measurements on the W3EDP efficiency with different antenna tuners. How are you feeding your W3EDP? Please let me know in time for the next issue. As soon as I get time, this retirement lark is so time consuming, I intend to try some different ATU circuits and give some meaningful answers, in the meantime, over to you. What is your arrangement?

### A Directive Vertical Antenna System



I spoke to George SV3AUW at the Convention and he told me of this arrangement using two change-over relays for an antenna originally described in Radcom for July 2008 by M3KXZ as a 'no counterpoise vertical'. It gives some directivity and the relays permit switching of the directions with some ease. The lengths for A and B in the diagram are 7.6m and for the shorter lengths 3.8m. The common connections on the relays are joined by open wire lines of equal length back to the ATU and the ATU is fed with coax to the operating position. As the diagram infers a power supply will be needed to operate the change over relays and the spacing of the two antennas should give a useful switching pattern if spaced 3m for operation from 20m to 6m. A spacing of 5m with lengths of 15.2

and 7.6m for the antenna should give 40m to 10m operation. Sorry we could not fit in the coax feed which goes to the ATU in the diagram. So that's another nice antenna project for a winters day when the sun is out and low on the horizon. Thanks to G0LAD and G3RJV for the diagram.

### Valve QRP Day

There is a separate report on Valve QRP Day in this issue of Sprat but after the closing date for reports I received a log posted from Ray GI3PDN. Ray was using a KW Viceroy Mk 4 transmitter with one of the PA valves removed giving 5 watts out measured on a Lake PM20 Wattmeter. Ray used an FRDX 400 receiver and his antenna was a dipole at 65 feet. His log is impressive as he worked G, ON, S59, DJ and UU9JK on 80m (gosh!).

Ray tells me the stations worked used a variety of transmitters including a Heath DX40U, a 6AG7 crystal oscillator with 1 watt, a Russian RBM1 transceiver with 1.5 watts output, a Codar AT5, a 6V6, an 'OXO' crystal oscillator with 500 mW, a TS830S and an FT101 - not to mention the newer IC703 which appeared during the session.

Thank you Ray for the report it just goes to show there are still plenty of old rigs out there capable of working over great distances. Now, how about another session? April would seem to be a good month and I would suggest an earlier start in the day at 1400z. If you are considering a valve rig I suggest you get building. I'll give a date in the next AAA in the meantime any comments on date, time and frequency? How about a **single transistor** transmitter activity period with a watt or two?

### Awards

Ryan G5CL has been busy again and has attained 75 DXCC Countries QRP, Worked 40 QRP Members and 20 Two Way QRP Countries. I am expecting an application for a QRP Masters any day now.

### Another year gone!

Well that's it for the winter edition. Having just got over last Christmas I see from the calendar we have another one just around the corner so its time for the Christmas cat. Don't forget the **Winter Sports** from Boxing Day until the New Year by the way.

This is my favourite operating time and on January 2nd and 3rd 2010 the **First Class CW Operators** will be having their Straight Key Weekend which you are all invited to join in. Pump key, bug key or just tapping two pieces of wire together - all are welcome to participate - don't be put off as they are looking for pump key operators and speed is not important.

Finally I would like to wish you all a Happy New Year, most of all a healthy one, and I look forward to working you all in the Winter Sports.



# COMMUNICATIONS AND CONTESTS

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

Band conditions are now showing definite signs of improvement, which has to be good news, although the Autumn has also brought some very severe weather for many parts of the UK. Whatever the weather, I hope all members will be enjoying a happy time during the Christmas and New Year period.

## WINTER SPORTS

You haven't forgotten the QRP highlight of the year, have you?! Chances are that you will receive this SPRAT whilst the event is in full swing (26th December to 1st January inclusive). Brian **G3KJX** has written to say that he will probably be QRV from CT1, operating on all bands and the better conditions should allow plenty of opportunity for QSO's with other members.

## CZEBRIS 2010

In response to suggestions from members following last year's event, we were hoping to introduce some changes to the event this year. In particular, we had hoped that logs from all participants could be sent to a single adjudicator, but this has not proved possible. It may be that we make some changes in time for the 2011 event, but in the meantime the rules remain very familiar:

1600z Friday 26th February to 2359z Sunday 28th 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@gqrp.co.uk" and "karel.line@seznam.cz".

Please do your best to support this event which, over the years, has usually proved very popular. It is a relaxed and friendly event (no need for 'rubber-stamp' QSO's!) and a good opportunity to fly the QRP flag. Activity has not been so high recently, so anybody willing to spend time on the bands (having fun) will stand a very good chance of winning.

## FOC

You may remember that FOC invited G-QRP members to participate in their Pump Handle Party at this time last year. Colin **G3VTT** extends the same invitation to our members this year to join the event, Saturday January 2nd between 0000z and 2359z. He has also suggested that

FOC members participate in Winter Sports – hopefully with reduced speed and power, where necessary!

### **EUCW**

As normal, I have been sent the latest quarterly bulletin (3/2009) which I will be very happy to send to anybody wishing to see a copy. Please drop me a note and let me know.

### **RSGB SPECTRUM FORUM**

It may not be generally known that G-QRP has a representative (currently myself) on the Forum, and if there are any relevant issues members wish to raise they may write to George and/or myself.

Please remember to send your **Winter Sports** logs to me – the more the merrier – in good time for inclusion in the next SPRAT, and in good time to clear the decks in time for **CZEBRIS**. Let's all make a New Year Resolution to make those QRP frequencies hum with activity!

The deadline for inclusion in the next issue is the beginning of February.

72 de QRPeter

## **2010 QRP CALENDAR**

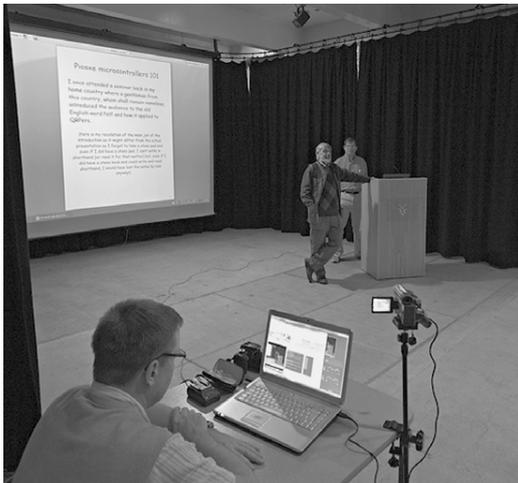
1st Jan	Last day of <b>Winter Sports</b>
2nd Jan 0000z-2359z	<b>FOC Pump Handle Party</b>
2nd Jan 2000z-2300z, 3rd Jan 0400z-0700z	<b>EUCW 160m Contest</b>
1st Feb	Last Day for <b>Winter Sports logs</b> to G3XJS
10th Feb	Last Day for <b>Chelmsley 2009 logs</b> to G3XJS
26th Feb 1600z to 28th Feb 2359z	<b>CZEBRIS</b>
7th Mar	<b>AGCW QRP Contest</b>
5th Apr 1400z-2000z	(Every Easter Monday) <b>Slovak Low Power Sprint</b>
19th Apr to 23rd Apr	<b>EUCW / FISTS QRS Party</b>
30th Apr	Last Day for <b>CZEBRIS logs</b> to G3XJS and OK1AIJ
13th May 1900-2300z	(Each Ascension Day) <b>QRP-Minimal Art-Session</b>
17th Jun	<b>IARU Region 1 International QRP Day Contest</b>
16th Jul	Last Day for <b>International QRP Day Contest logs</b> to G3XJS
11th Sept	<b>HTC QRP Sprint</b> (2nd Sat Sept)
Oct – TBA	<b>Rishworth QRP Convention</b>
21st Nov 1300-1700z	QRP Contest Community <b>HOT PARTY</b> (3rd Sun in Nov)
26th Dec - 1st Jan 2011	<b>G-QRP Winter Sports</b>

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

# A Maine Yankee in Rishworth Court

Rex Harper, W1REX.

I was asked to make a presentation on the Picaxe microprocessor at the GQRP Convention and was happy to oblige and make my first trip across the pond to the UK. After a family conference and much lobbying with my XYL, it was decided that we would all make the trip and have a much needed family vacation. G3MFJ and his lovely XYL Pat were wonderful hosts and my family had a great time taking in the sights and sounds of the UK. After the convention, Graham and Pat drove us all over the English countryside taking in the sights. We visited castles, Roman ruins, English cities, York Minster, and a highpoint for my daughter: riding up top in a double decker bus! We had a wonderful time and look forward to the day when we can take our second 'trip of a lifetime' and return. Thank you Graham and Pat! Our experience at the Rishworth convention was likewise wonderful.



The people were great and my daughter had a fantastic day selling £32 of earrings. I was surprised to find a standing room only crowd in the lecture hall for my Picaxe talk.... and an additional 100 or so around the globe watching the streaming video. Last minute troubles with converting my talk to Powerpoint caused me a little bit of grief but I managed to make it through my presentation. I gave away UK BUGS boards to everyone in attendance with the intent of starting an online dialogue on building many different QRP related projects based on the Picaxe microprocessor and the UK BUGS board and parts kit. By the time you read this there should be a couple of the projects already posted. You can find the projects posted on my Yahoo Groups Email list: QRPme\_Kits. Some of the projects on the agenda include: code practice oscillator, keyer, beacon keyer, QRSS beacon, Morse code practice device, battery monitor, temperature controller and IR remote controller. You can find a sign up link to the Yahoo Group and a full copy of my Rishworth presentation on my website: [www.QRPme.com](http://www.QRPme.com)

On another note, I left quite a few of my QRPme kits with G3MFJ for future UK sales. Until the kits are depleted, UK sales of many of my kits will be shipped from G3MFJ's QTH for £2 postage, a huge savings in postage and time over kits from the US. Contact either me or Graham on the availability of any kit you may be interested in.

Thanks again for the invitation and the positive response! I hope to have some lively Picaxe discussions with some of you in the future on my QRPme\_Kits Email list.  
de W1REX

## NorCal-20 Modification

Elmar Völler, DL2QA, Kielsbergstr.8, 36251-Bad-Hersfeld, Germany

I have build a NC-20 -TRX with one of the latest Kits from Graham, G3MFJ ,(mni tnx) and have much fun with this little box. But soon I noticed a chirp on the signal, especially on the low band edge and even with relative “stiff” power-supplies.

Therefore I made some measurements and experiments around VFO and tuning-section. After a while I found a quite simple solution:

**C2 (10uF) from Pin 3/ LF 351—U1—to ground has to replaced with 100uF——** or much easier: solder a new 100uF parallel to C2 (foil-side) and the signal-quality is now T9. Perhaps this can be helpful for hams which have the same situation.



## Czech Army Morse Keys

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## CORRECTION

G3ZKZ's “IRT with QSK” in the summer issue.

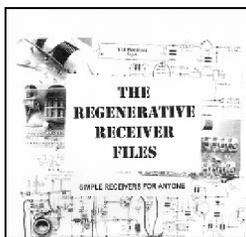
1. The LEDs are drawn with the wrong polarity.
2. The varicap, D6, should be linked to the left of the 6p8 capacitor.

My thanks to Ned, KD8FCB

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G4DQP, 07759 260 881 or [g4dqp@btinternet.com](mailto:g4dqp@btinternet.com).

## The G3RJV Regenerative Receiver Files



Over the last couple of months, several members have asked me about the regenerative receiver CD I produced a few years ago. It is still available on request. It contains all the information on the practical designs used in the G3RJV 2006 Dayton presentation and later appearing in QRP Quarterly. The CD is available to UK amateurs for £5 each [post paid] and to US amateurs for \$12 [post paid]. Dollar bills from the US – UK cheques to G.C. Dobbs. ( 10 for EU) or PayPal to [g3rjv@gqrp.co.uk](mailto:g3rjv@gqrp.co.uk)

# MEMBERS' NEWS

by Chris Page, N4CJ (G4BUE)

312 Quail Avenue, Sebring,  
FL 33872, USA  
E-mail: [chris@g4bue.com](mailto:chris@g4bue.com)

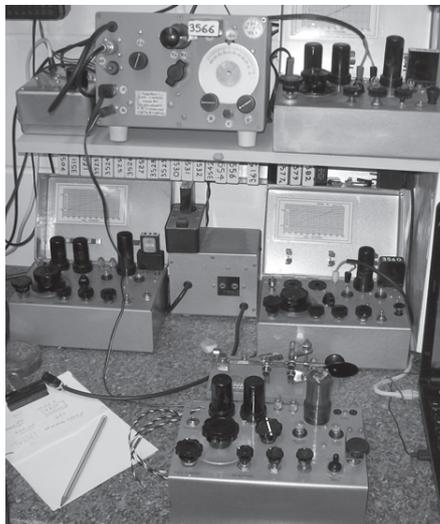


**G3XBM** has been gradually improving his 500kHz station/signal which is now up to 2mW ERP using a 16.4 feet (five metres) vertical with a spiral top capacity hat. So far, on WSPR, Roger has been heard by 31 stations in seven countries with the best DX being **SM6BHZ** at 591 miles. He says, "WSPR really is superb on 500kHz with real QRP". On 15 November Roger QSO'd **G3KEV** for his first two-way QRP QSO on 500kHz, and was then called by **G3XIZ**. **KB9BVN** reports running his 1W WSPR mode on 30m with an attic dipole and Ten-Tec tuner and has been heard all over Europe.

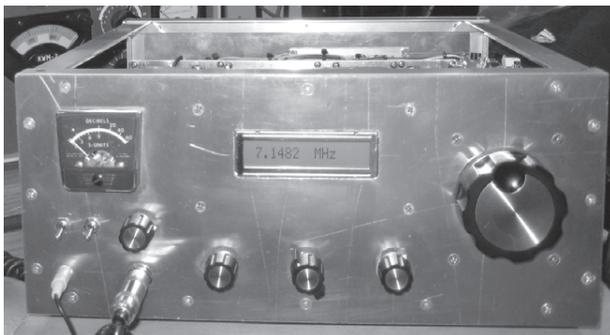
After reading **G3VTT**'s report of the QRP Valve Day in the last *SPRAT* and about **PA3EQB**'s TT Paraset, it occurred to **G3YYF** that some members may not know what a Paraset is. Geoff writes, "The TT is a replica 'Paraset' which looks like the real thing but is in fact a transistorised receiver and transmitter, hence the prefix TT. I designed it to behave just like a valved Paraset. Being an avid constructor I have built several replica valve Parasets (left photo). The photo below shows a close up of my TT built by quite a few others now. The TT has the transistors fitted inside the valves; the '6V6' PA even gets warm like a real valve as the valve body acts as a heat sink. Anyone who wants to build a TT Paraset, or a replica valve Paraset, is invited to go to [paraset.co.uk](http://paraset.co.uk)".

In August a 'Rendez-Vous' was organised by **G3VTT** via the G-QRP Reflector, on 14060kHz which resulted in two-way QRP QSOs for Colin with **UA1ASB**, **GOLJD**, **RX3PR**, **RX3DOR** and **HB9FBQ/P**. **G3KJX** QSO'd **OH1NC** twice, also on two-way QRP, **M6FBK** QSO'd **RX3PR** and **MI5MTC**, "Was hearing five or more QRP stations around 14060kHz on my TS-130V and 180 feet loop 26 feet AGL on a south sloping hillside. Then, a visitor arrived and I had to go be host". **RV3GM** put details on the RU-QRP Reflector that led to good activity from Russian stations. Watch for further dates from Colin that Oleg says may include participation from **KH6B** (Chairman of the Hawaii QRP Club) and other KH6 QRPers.

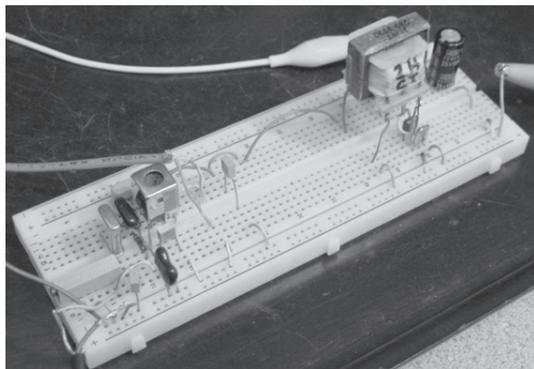
**WA0ITP** reports that Four State have announced the addition of a **NT7S** designed direct conversion 40m receiver kit - the **VRX-1** for \$25, and an **AA0ZZ** keyer kit for \$17. The receiver is described as, "A simple yet versatile direct conversion receiver that employs some circuitry not commonly seen in the QRP receiver kits currently on the market. The kit is shipped to be built as a VXO-tuned 40m receiver, although it can be reconfigured for different bands and types of tuning with a handful of junk box parts", see <http://www.wa0itp.com/vrx1.html> and <http://www.wa0itp.com/aa0zzkeyer.html> for the keyer. **GU3TUX** notes from *RadCom* that Martin Lynch is proposing to import the **HB1A** transceiver.



The photo on the right is **N6QW**'s tri-band QRP SSB transceiver. Pete writes, "The project started with a whim purchase of an inexpensive crystal filter used on the Heathkit HW/SB series of valve transceivers, the centre frequency of which is 3395kHz. Soon I added the USB and LSB crystals and followed that with the heterodyne crystals for 40, 20 and 15m. In about two months time I had an operational dual conversion solid state tri-band QRP SSB transceiver that produces 6W watts on 40 and 20m and 4W on 15m. The transceiver employs a 5MHz PTO that was utilised by Ten-Tec in many of their early radios. The heart of the transceiver is the use of several bilateral amplifiers that were designed by **G4GXO** described in *SPRAT* 128. The LCD display uses a PIC micro-controller and is based on a design from **EI9GQ**. The radio has been used in conjunction with a small solid state amplifier and has provided many DX contacts on 40, 20 and 15m. For detailed information, see <[www.jesssystems.com/2009\\_XCVR.html](http://www.jesssystems.com/2009_XCVR.html)>."



**G3ROO** has started a new Internet group, "For those interested in spy and man portable sets". It is called "B2spy" and is for the discussion and exchange of ideas and bits, including "wanted" and "for sale" postings, see <<http://uk.groups.yahoo.com/group/b2spy/>>. On 18 September Ian made his first QSO on 3553kHz with his rebuilt B2 transmitter. **GM4VKI** acquired a Paraset after the, "Fantastic B2 display by **G3ROO** at Rishworth", and since then has realised how 'rusty' his CW is. Roy has suggested a 'CW Rusty Evening Net' on Tuesday evenings at 1930z on 3565kHz, 12WPM maximum, "Call 'CQ REN'. Once over 12WPM then your owt, as they say".



**AA1TJ** and **G3JNB** have been exchanging information about Victor's 1954 transistor QSO with **G3IEE** that I mentioned in *Members' News* of *SPRAT* 140. Mike built his 'Fifties Pixie' (photo on left) based on **G3IEE**'s 1954 design with a used Western Electric 2N110 point-contact transistor, date-coded the 47th week of 1956, that Jack Ward of the Transistor Museum had sent him. On 24 September he had it running as a beacon on 80m and received an e-mail from **W1VZR** 100 miles away saying he was receiving it, peaking 579. He called him on the telephone and Pete held the phone to the receiver's speaker so Mike could hear his beacon. Mike says, "Not bad for midday on 80m". Mike says he, "Was tickled to

read this passage, 'Point contact transistors are not now used or manufactured. In fact, they are considered collector's items'. I found this on page 23 of *The Transistor Radio Handbook* by D Stoner and L Earnshaw Editor's and Engineers, 1963".

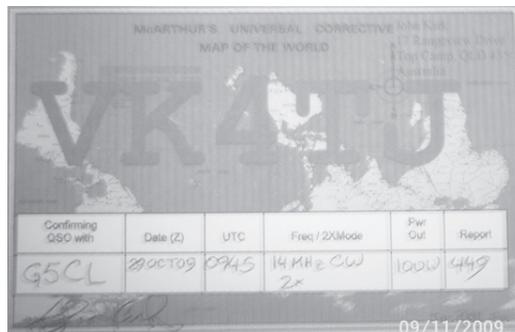
**G7MRV** writes, "On 16 September my wife gave me a tin of mints, asking if they were the same as the Altoids I like. These are 'curiously strong mints' from Marks & Spencer, and apart from the tin being green and the lid a little deeper, the dimensions are exactly those of an Altoids tin. She thinks that price wise there isn't much in it, but whereas Altoids are getting hard to find, most of us have an M & S close by! So, a useful alternative". Regarding Martin's comments, **G1HSM** says the tins are Altoids, rebadged for M&S.

**I0/N2CQR** has been doing most of his operating from a country house in an olive grove north of Rome in the Sabine hills. Bill has been using his trusty HW-8 powered by a gel-cell battery and a Volkswagen solar panel. The antenna is a doublet fed by TV twin lead. Bill's blog is <<http://s=oldersmoke.blogspot.com>>. **G4ICP/P** was QRV on 13 November from the Essex Marshes with his TS-120V 10W SSB into a ground-plane on the salt marsh. Richard worked some USA stations, K1, VE1, K8, K3 and a **K0** in Missouri for the best one. After propagation dropped out to the USA, he was called by a 5B4 station who told him he had made it onto the DX Summit spot list!

After reading about a member making a PAK 12 antenna in *SPRAT* 139, **GØPEH**, writes, “The original PAK 12 was designed and made by James, **KA5DVS**, but using parts in the USA, some of which are not obtainable here in the UK. I have made the antenna and have written a short article on how I sourced the parts to make the antenna. It works very well”. The photo on the right shows Tony’s antenna. He will send the article and pictures to members on receipt of an e-mail request to <<tony@marant.freemove.co.uk>.

**PE1KTH** says information on a, “New novel wideband KTH-SDR direct conversion I & Q receiver is now available on PAØRWE’s web-site, <<https://www.nonoh.net/myaccount/contacts.php>>. The receiver front-end is based on the linear I & Q demodulator LT5517 and the frequency range is from 3.5 to 450MHz”. **G7NSN** has uploaded photographs from the 2009 G-QRP Convention to the Internet at <<http://www.flickr.com/photos/johnv2544/sets/72157622657615368/>>. On 12 November **KA5DVS** announced that the Norcal kits will no longer be available for a time, while those involved in supplying them take a break.

The QSL pictured below was received by **G5CL** for his ‘personal best’ QSO on 29 October with **VK4TJ** on 20m running 5W with his rather “old but dog-eared” FT-817 with 5W. Ryan says this was his first VK QSO in 25 years of amateur radio! Other DX this summer included **7Z1HL**, **5N/LZ1QK** and **YB4IR** but Ryan’s favourite QSO, “Has to be a rag-chew



with the famous **GM3OXX** on 20m one night! I have worked 54 DXCC this year with 5W CW into a 66 feet long wire about 30 feet high”. **G3XJS** QSO’d **VK4TJ** on 15 November on two-way QRP. Peter was running his homebrew Picostar transceiver at 3W into an inverted-vee doublet. Congratulations to **WB3AAL** on QSOing **JA4FKX** on 14060kHz two-way QRP on 28 October. Ron says a couple of other QRP stations also made a QSO. On 11 October **AB9LM** in central Illinois, using an indoor dipole (12 feet up in his garage rafters) and 500mW on 20m SSB, QSO’d some USA stations and a 9Y. Jim then used 5W to get a ‘genuine’ 59 report from a PA station.

The photo on the right is **G4DFV**’s MKARS80 SSB transceiver. Duncan writes, “This is an excellent kit, superbly designed by Steve, **G6ALU**. Essentially a SSB QRP transceiver, it operates over all of 80m and features a LCD frequency display, and a ‘huff and puff’ stabilised VFO. The received audio is excellent, however lack of AGC means having to back off the RF gain on stronger signals. Reports on transmitted audio have been stunning - several stations have commented that the audio sounds as though it was coming from a more expensive rig! I have found that if I can hear the station, they can hear me on this little rig! I



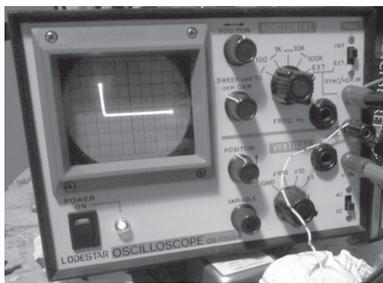
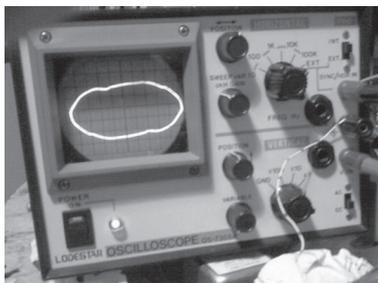
built my MKARS80 in a home-made case so I could include a speaker. The kit comprises a professional quality PTH PCB, all components and case. Knobs are not supplied and you have to drill the case yourself. All this for £50 - incredible value”.

On 26 October, **G3CWI** became the first person to activate every hill in England. This has taken Richard seven and a half years to achieve and was done using the list of hills used for the popular SOTA award programme ([www.sota.org.uk](http://www.sota.org.uk)). The combined height of the hills he climbed is nearly ten times that of Mount Everest! Richard completed the task on a hill called Baystones, near Troutbeck in the Lakes using his normal homebrew station running 2W on 40m CW. The photograph on the left shows Richard celebrating afterwards with a pint!



**WA0ITP** says the Four States QRP ‘Comfortable CW’ Net meets each Wednesday at 0100z on 3562.5kHz and then moves to 7122kHz about 0130z. If you like PSK then the ‘Wednesday Warble’ happens at 0200z on 3580.5kHz. **AB8DF** says the Michigan QRP Net meets each Tuesday at 0100z on 3535kHz. **G1KQH** mentions Surplelectronics, a new Internet supplier of components at <http://www.surplelectronics.com>. **G0FUW** had some parts from them at the Wimborne Rally. “Limited range but good value”, says Steve, “They have offered a discount to club members for the rest of 2009”. **G3JFS** operated QRP in the Fists Straight Key Week in September and filled several pages of the log with, mostly, inter-G and a few European contacts on 80 and 40m. Peter says, “I rarely operate SSB because my hearing is not so good but I took advantage of quieter periods during the CQWW SSB Contest to work a few stations. Nothing exceptional but I filled some new all-time band/mode slots in the QRP log, like **8P5A** on 15 and 40m and **ST2KSS** on 15m, both worked with 10W PEP and an end-fed wire about 120 feet long”. **G3KJX** will be QRV from CT1 in December, including the Winter Sports, with his FT-817 and K2 on CW and digital modes. **GM4CXP** planned to be QRV 18 November/5 December as **EA8/GM4CXP**.

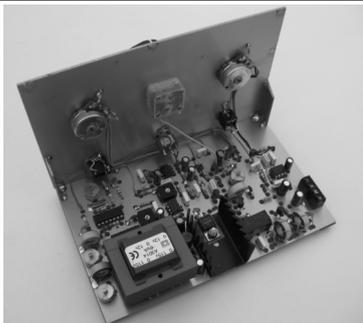
**G4KKI** has just finished making a BLT tuner and used it with his HW-7. Bill has also just made an Octopus Tester which he is using with an old oscilloscope. He says he isn't sure if everyone knows how useful these are. Bill writes, “It was so easy to make, just an old heater transformer at 6.3V and three resistors! It allows you to test certain components while they are still in circuit without any power applied. I think it's going to be one of the most used bits of test gear in my shack. The photographs above show the octopus tester in use here, the circular shape trace on the scope shows a 1uf capacitor and the other shows a diode. You can find out lots about it just by ‘Googling’ octopus tester”.



“It was so easy to make, just an old heater transformer at 6.3V and three resistors! It allows you to test certain components while they are still in circuit without any power applied. I think it's going to be one of the most used bits of test gear in my shack. The photographs above show the octopus tester in use here, the circular shape trace on the scope shows a 1uf capacitor and the other shows a diode. You can find out lots about it just by ‘Googling’ octopus tester”.

**G0FUW** reports his 25 year project is finally on the air, a **G2DXK** transceiver he started building in 1984 from a *RadCom* article. Steve's first QSOs were with **EW8A** on 17m followed by **G3OLB** on 17 and 12m and then a couple of USA stations in Ohio and West Virginia on 17m, all 4W SSB. He is now working on getting it to work on 30m CW. Congratulations to **IK1ZYW** on QSOing **P29CW** on 30m on 13 November using his FT-817 at 5W and homebrew balcony antenna on his eighth floor flat. Paolo didn't realise that the P2 prefix was Papua New Guinea until he looked it up after the QSO!

Thanks to all the contributors, and please let me know how your winter goes, including photographs, by 20 February please.



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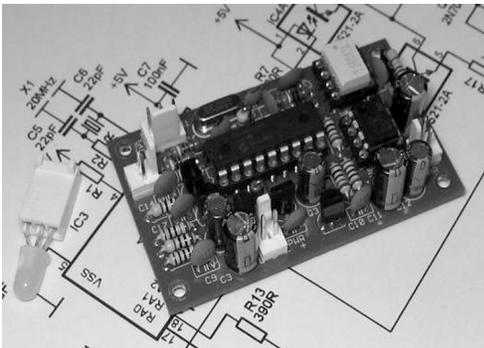
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ADE-1 double balanced smd mixer. (Like SBL-1), 2 FOR £5.50.

Fibre glass spreader set for cobweb, quad, etc. £22.

HZj7 QRP ribbon antenna kit, £14. Springy (Slinky) £2.45.

20pc micro drill bit set £3.50. Eye loupe magnifier (10x mag.) £2.50.

Mini-Circuits HPF-505X-1 mixer, £2.00...Lots more! ...Low mailing charges worldwide.

Visit the AMTOOLS *virtual* department store at [www.amtoolsuk.com](http://www.amtoolsuk.com)

72, Les. 00 44 1942 870634.

Amtools UK, 1 Belvedere Avenue, Atherton, MANCHESTER, M46 9LQ

## **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](mailto:qsl@qslprint.com) or [qsl@kz.orbitel.bg](mailto: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](http://www.qslprint.com)

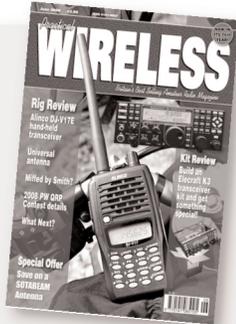
For people need QSL cards urgently LZ1YE dispatches three days after the payment is made. UK Members can pay via a UK address: Please send your cheque / cash via recorded delivery to: LZ1YE QSP Print service, c/o Melanie Rowe, St. Leonards House, 35 St. Leonards Road, Exeter, EX2 – 4LR, Devon. e-mail: [m0mj@aol.com](mailto:m0mj@aol.com) (make cheques payable to : Melanie Rowe)

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## **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](mailto:g3rjv@ggrp.co.uk)

# GQRP Club Sales

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

Antenna Handbook – 2<sup>nd</sup> edition – members £6.00, non-members £10.00 plus post } £1.30 (UK);  
Radio Projects volume 2 – Drew Diamond – members £5, non-members £10 plus post } £2.30 EU;  
Radio Projects volume 3 – Drew Diamond – members £5, non-members £10 plus post } DX - £3.90  
Radio Projects volume 4 – Drew Diamond – members £5, non-members £10 plus post } per book

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6 pole 9MHz SSB crystal filter 2.2kHz @ 6 dB, 500ohm in/out £12 plus post } £1.20 (UK); £1.20 EU  
Polyvaricon capacitors – 2 gang (A = 8 to 140pF, O = 6 to 60pF) c/w shaft ext & mtg screws - £1.20 each } £1.70p (DX)

Pair LSB/USB carrier crystals HC18U wires - [9MHz ± 1.5kHz] £6 pair }  
MAR-4 RF amplifier - £1.50 } **All components**

HC49U (wire) crystals for all CW calling freqs – 1.836, 3,560, 7.028, 7,030, } plus postage  
7.040, 10.106, 10.116, 14,060, 18,096, 21,060, 24,906, & 28,060 - £2.00 each } **(ANY quantity)**

HC49U (wire) crystal for DSB on 40m – 7.159MHz - £2.00 each } 60p (UK),  
HC49U (wire) crystals – 1.8432MHz, 10.111MHz – 50p each } £1.20p EU,  
HC49U (wire) crystals – 3.579MHz, 3.5756MHz, 3.5820MHz, 3.6864MHz, } £1.70p (DX)  
4.1943MHz, 10.0MHz, 13.50MHz, 32.00MHz – 30p each }

Miniature crystals (watch crystal size – very low power) – 7.030, 10.106, } if  
18.096, 21.060, 24.906 & 28.060 – limited quantities - £2.00 each } ordered

Ceramic resonators – 455kHz, 2.0MHz, 3.58MHz, 3.68MHz & 14.30MHz – 50p each } with

Schottky signal diode – 1N5711 low fwd volts for up to vhf/uhf 20p each } max of 5 } toroids,

Varicap diodes – MVAM109 – 40pF @ 9v, 500pF @ 1v. 75p each } max of 2 } binders,

Sorry – sold out of MV209 – I am trying to get some more

SA602AN - £1.75 (note – I may supply NE or SA, 602 or 612 as available. All are fully interchangeable. } or

MC1350 - £2.00 } filters,

PICAXE-08M – as used in Rex's kits – 8pin - £2 each } use

LM386N-1 - 4 to 15v, 300mW, 8pin DIL - £0.40 } that

LM386M-1 - 4 to 15v, 300mW, 8pin SMD [0.2" (4mm) x 0.25" (5mm)]- £0.35 } postage

CA741 op-amps 8pin DIL – 5 for £1 } plus

TA-7642 Radio IC – direct equivalent of MK484 (& ZN414) – 75p } 10%

2SC536 transistors (npn) fT - 100MHz, hFE-320, VCBO+40V - 5 for 50p } of this

MPSA92 transistors (pnp) fT - 50MHz, hFE-40, VCBO-300V - 5 for 50p } postage

BF988A dual gate MOSFETs TO50 package – 20dB @ 800MHz - 50p each }

IRF510 FETs - £1.00 }  
**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; BN43-202 - £2.00; BN43-302 - £2.00; BN61-202 - £2.00

Ferrite beads – FB-73-101 (3.5mm dia x 3.2mm long, 1.2mm dia hole) – 40p for 5

All toroids are plus postage – up to 5 packs = 60p (UK), £1.20p (EU), £1.70 (DX); Each additional 5 packs please add 50% of the same postage 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 – £1.00, EU – £1.80, DX - £2.40. More – add £1, £1, £1.20 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 1<sup>st</sup> magazine – 50p, each additional magazine add 40p.

**Sprat-on-CD V4 – 1 to 140** (see Sprat 140) – members price - £4 plus post UK - £1.00, Eu - £1.20, DX - £1.70

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

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

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) - any quantity of stamps is OK, or cash. I 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](mailto: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](mailto:g3mfj@gqrp.co.uk) - show clearly what you want with the payment – pay in GB Pounds please - and include your membership number!