



SPRAT

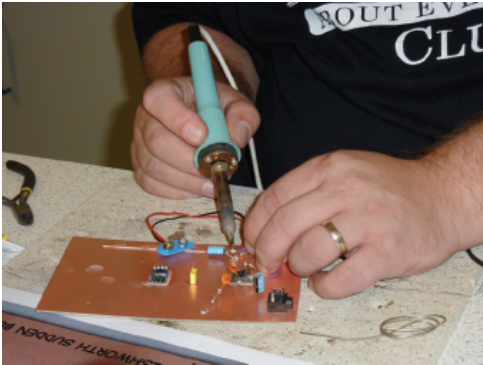
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AUTUMN 2011



It is Rishworth QRP Convention time again – Full details inside

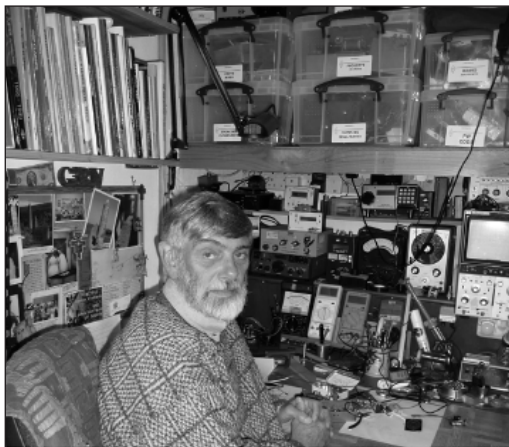
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JOURNAL OF THE G QRP CLUB



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Rev. George Dobbs G3RJV

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Rishworth Convention 2011

I look forward to seeing many members at the Rishworth QRP Convention (see facing page). In a remarkably short time it has become a worthy successor to the Rochdale Convention. The hall is larger and the lecture theatre is excellent. As mentioned in the last issue, the Buildathon and equipment display has had to move from the school laboratories. We have found a new venue for the proposed Constructors Evening on the evening before the convention (see the item by G3MFJ). Hopefully this will prove to be a popular new addition to the convention. If you are interested in being part of the Constructor's Evening let George (g3rjv@gqrp.co.uk) or Graham (g3mfj@gqrp.com) know (postal addresses are also in SPRAT) so we can plan for numbers etc.

I am very pleased to announce that the main guest speaker at Rishworth will be the well known German QRPer Peter Zenker, DL2FI.

72/3

G3RJV



The W1FB Memorial Award 2011/2012

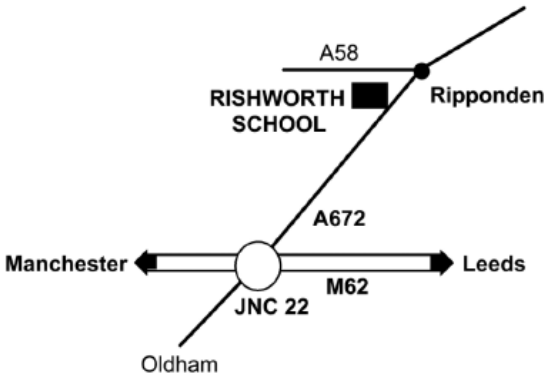
The theme is "SPRAT Article Feedback". Many members build projects in SPRAT, many with improvements and modifications. So – I invite members to send their versions of previous SPRAT projects: Mods, improvements and pictures of their completed projects with notes. In fact, any useful addition information on what we have published before. Please submit before the end of April 2012.



THE G QRP CLUB MINI-CONVENTION

(in conjunction with the Halifax Radio Society)

Saturday 22nd October 2011
The Rishworth School, Ripponden



OPENS AT 10.00am
ADMISSION £2
DOORS OPEN 10am
TALK-IN S22
LARGE SOCIAL AREA
LECTURES ON
QRP SUBJECTS
RING & BUY - SURPLUS JUNK
- COMPONENTS
KIT TRADERS
FOOD & DRINK ALL DAY
WITH THE FAMOUS PIE AND PEAS



**The Rishworth School is on
the A672 (Ripponden) road
from Junction 22 on the
M62. [Postcode: HX6 4QA]**

**Look for the G QRP Sign on the
left after you have passed all
the sheep!**

CONSTRUCTORS EVENING (A new feature on Friday Evening)
Please see the item by G3MFJ on the following page.

Other suggestions for local accommodation:

The Premier Inn, Milnrow. Junc 21 on the M62 (Tel: 0871 527 8936)

<http://www.premierinn.com/en/hotel/ROCTHE/rochdale>

**The Malthouse, Rishworth. Almost next door to the school – only 5 rooms
(Tel: 01422 822382) www.malthouserishworth.co.uk**

**The Turnpike Inn, Rishworth, excellent but quite expensive. (01422 822789)
www.turnpikeinn.com**

G-QRP Mini-convention 2011

Graham Firth G3MFJ

Since the last issue of Sprat, things have moved along a lot. As you may remember, we can no longer use the laboratories at the school for health and safety reasons, so we have been looking elsewhere for somewhere to host the buildathon and other ancillary events. In the last Sprat, we said we had been offered the use of a church, and whilst this was ideal, we wanted somewhere nearer. We have now found an almost ideal place – a hotel – just 6 miles from the school – which has a large room that we can use, and of course being a hotel, those who are staying overnight can stay there.

This is the Halifax Premier Inn, HX3 0QT, 01422 347 700. If you wish to stay, contact them direct, either by phone, or via their website (premierinn.com/en/checkHotel/HALPTI/Halifax). The website quotes an 0871 number, but the above number may be better if you have inclusive calls on your phone!

The plans are to have a buildathon on the Friday evening, as well as a QRP show and tell. The buildathon will be a QRP Z-match ATU. There will be a light buffet with tea and coffee, and there is a restaurant & bar next door to the hotel.

Contact George (g3rjv@gqrp.co.uk) or me (g3mfj@gqrp.com) or (0113 267 1070) if you need any further information. See you there?

Club Member voted ZL Amateur of the Year News Report

**David ZL3DWS NZ Amateur of the Year
at Waverley ARS Sydney station.
(Photo - VK2FDGW)**

At the June NZART Conference held in Wellington NZ, President Roy Symon ZL2KH announced that the *NZ Amateur of the Year* for 2010 was David W Searle ZL3DWS. This was in recognition of “the tremendous results he achieved in his ZL3 Radio Buildathon projects.” In accepting the award David commented: “If we each share our enthusiasm for a great hobby with just one young person, their interest in radio, communicating and electronics could last a life time.”

Following a swarm of damaging earthquakes in Christchurch, David relocated his family to North Bondi, Sydney in March, and is greatly enjoying the warm support and friendship of the Waverley Amateur Radio Society www.vk2bv.org Sydney’s oldest radio club. “WARS generously lent me ham gear and antennas so I could get on the air having left Christchurch with nothing. I feel proud to be part of a universal hobby with wonderful people who make strangers so welcome, so quickly”, added David now VK2DWS.



ATU With Plug-In Modules

Anthony Langton, GM4HTU, 71 Gray Street, Aberdeen AB10 6JD

I recently erected a centre fed doublet to get back on the air after being QRT for several years. This antenna requires a tuner, but I have always been wary of some configurations, feeling that there are sometimes too many components for the little signal to get lost in. I wanted a minimalist set-up, something which would please our mentor, William of Occam. I decided on an L match system, only three components. Well, four actually, as one is divided into two halves for balance.

The idea evolved into a plug-in system. The main unit would hold the input socket from the transceiver and a balun. This would terminate in two 4mm sockets. A tuning capacitor would also be included, connected only to another two 4mm sockets. Finally, two more sockets would connect to the 300 Ohm feeder. So, the six sockets would mate with a plug-in board onto which a variety of components could be assembled, depending on what was required for tuning that band. The advantage of this system is that I can work on improvements for any band without upsetting the ones which work well.

This is not for the contest operator, rapidly switching from band to band, but I am rarely on the air anyway, and I tend to stay on one band for a while. In practice it only takes about 10 seconds to change coils, and a few more to tune the one and only knob.

There is no point in giving detailed component values as every system will present a unique set of impedances, so I will only give details of the fixed parts. The balun is a transmission line device and is wound with home-made

50 Ohm twin feeder onto an FT114-43 ferrite ring. It shows a 1:1 SWR from 7 MHz to 40MHz, rising to 1:1.2 at 50MHz. (I cannot work 3.5MHz because of the S9 noise). Loss at 50MHz is less than 0.5dB.

The capacitor is a Junk Sale item; an Eddystone 275pF unit with very low minimum capacity and not a lot of framework to cause unbalance problems. A split stator type would be nice, but next to impossible to get. Anyway, my antenna is not *that* balanced: it slopes over roofs, past gutters and phone lines, anything but Free Space! A lower value would have been preferred, around 100pF, but this one works well enough.

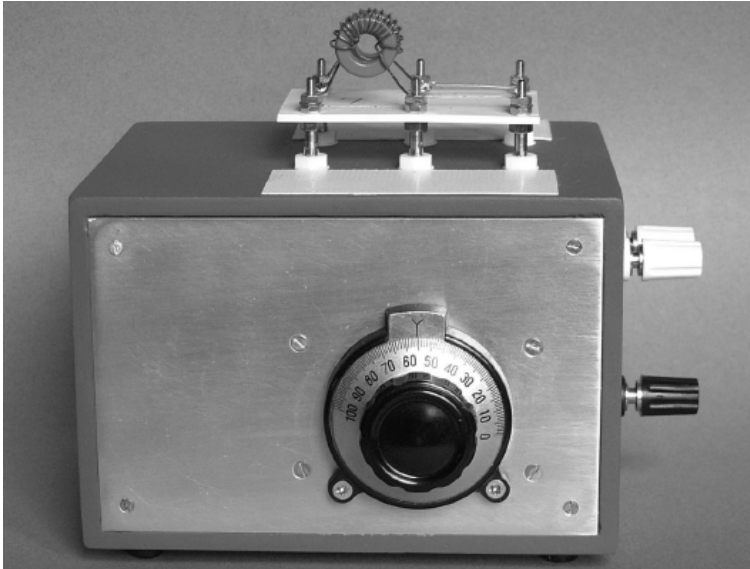
The last two sockets go directly to the feeder connectors, 4mm terminal posts, but also have 47 kOhm resistors and gas discharge devices connected to an earth terminal to discharge any static build-up and hopefully protect against any nearby lightning, rare in Aberdeen.

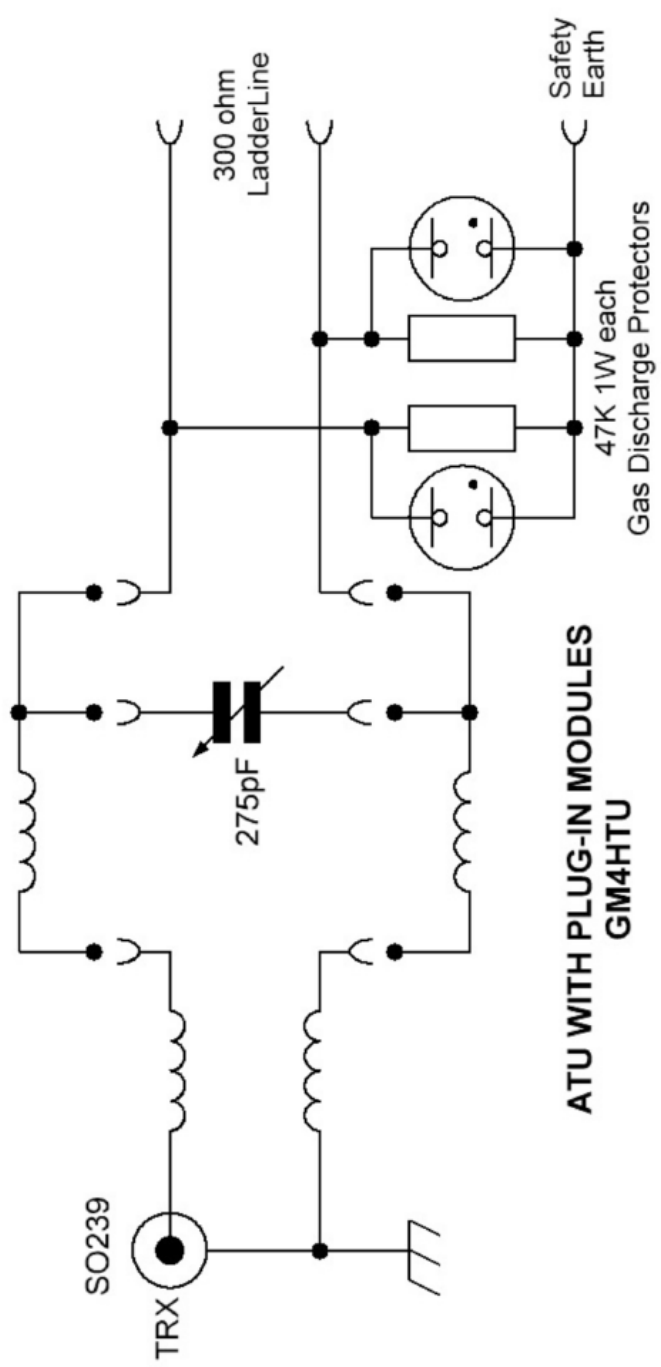
The plug-in units were assembled on pieces of 2mm styrene sheet, obtained from a modellers' supplies shop. I got eight pieces about the size of a playing card from one sheet. Another board was made up out of 3mm plywood, for testing various configurations. Styrene has excellent RF properties but does not stand hot irons or solder splashes very well. Once a design had been optimised for a band, the components were carefully transferred to the styrene sheet. The 4mm plugs were obtained from Rapid Electronics, along with the sockets. I made up a drilling jig from a piece of 3mm aluminium to make sure each board came out the same. This was also used to drill the case for the sockets. The proof of concept version worked, only 14MHz proving difficult to match. Mostly I measured the impedance at the end of the feeder and designed the L-match to suit. Where

the system is greater than 50 Ohms it works well. On 14MHz the impedance is much lower.

Pleased with the result, I built a proper case and front panel and made a calibration card for each unit. The capacitor is mounted on another piece of styrene sheet and the shaft connected to the slo-mo drive with a plastic rod, so the whole thing floats with respect to earth. The case is plywood, to reduce stray capacity to ground, but the front panel is aluminium to reduce hand capacity effects, the panel being connected to the input socket.

The photos show details of the capacitor mounting assembly and an overall view of the tuner.

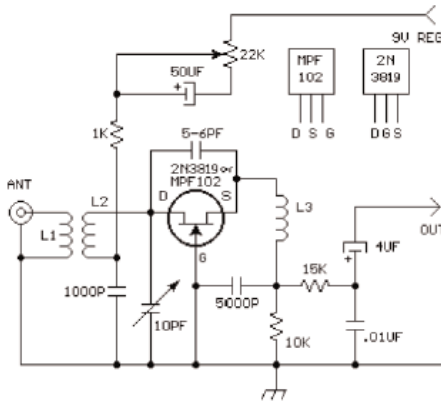




**ATU WITH PLUG-IN MODULES
GM4HTU**

VHF Super-regenerative Receiver

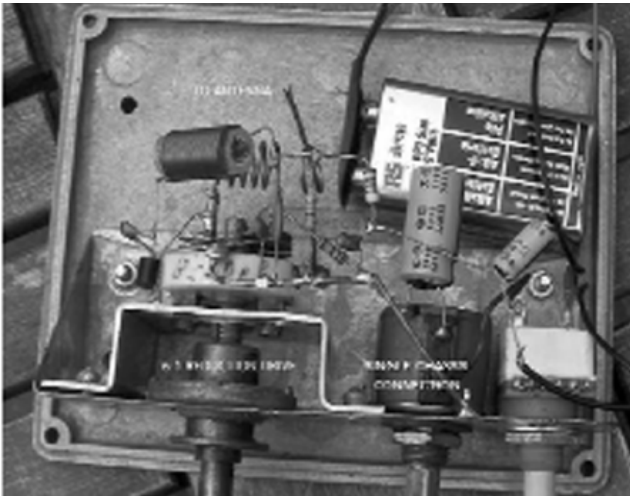
Pat Walton, M1BNH, 106 Aberford Rd. Oulton. Leeds. LS26 8SN



I built this in 1981 – and again in 2011, the original article by R H Longden was published by Practical Wireless. I offer my successful layout only.

This is a Super-Regenerative Detector which can be tuned from 100 to 150 MHz covering the AM air band and 2m amateur bands. When properly constructed the receiver is very sensitive.

Coils L1 and L2 should be wound using 1mm or so bare copper wire. Strip out some house Mains size cable for this. L1 has one turn and L2 has 3-4 turns and is 15mm. long. These are wound on a 1cm diameter former which is then removed. L2 should be in line with L1. Changing the turns and/or spacing of L2 will change the frequency. L3 has 25 - 30 turns of 0.5mm enamelled copper wire on a 6-7mm diameter air core. All dimensions are approximate.

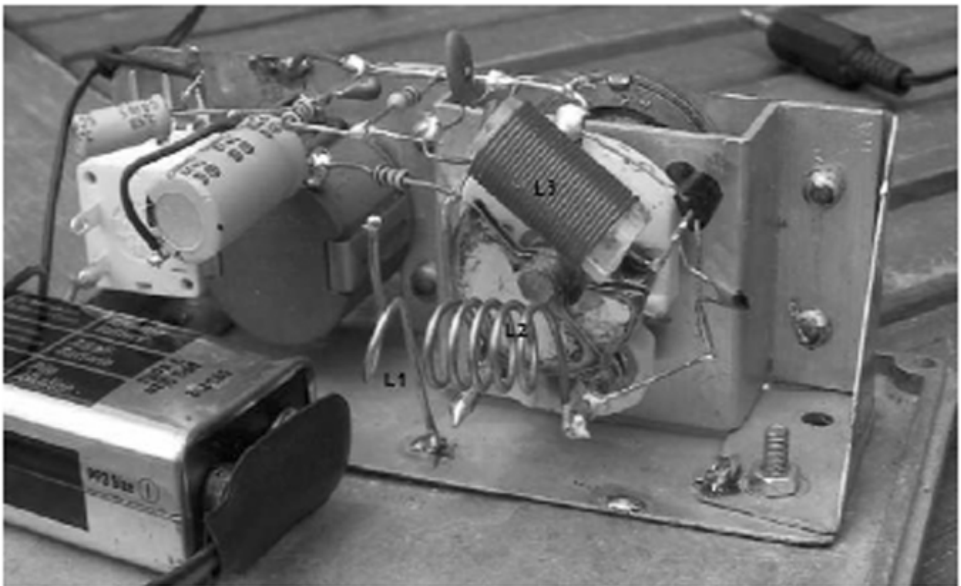


Connect an audio amplifier and an antenna to the receiver and switch on; turn the 22k pot (Regeneration Control) until a hiss is heard. This is roughly the correct position. This hiss should cease when any signal of sufficient strength is tuned in. Regeneration will need to be adjusted as the detector is tuned. Try to re-adjust the regeneration for every transmission you pick up – you'll be surprised.

Using an MPF102 FET and with the layout shown in the photos there are no drop-outs from 105 to 150MHz using a 150mm antenna. Aircraft, data and pager transmissions can be heard clearly. If hissing stops then starts again with no sound, this is a NBFM transmission. Carefully reducing regeneration until the hiss almost stops will allow NBFM reception – watch out for hand capacitance as the set will become very selective and difficult to tune.

NOTES

- Keep all wiring as short as possible and use only a single chassis connection (see photos). The detector itself should be soldered directly onto the tuning capacitor, which should be a high quality air-spaced (Jackson) type, ideally fitted with a reduction drive. Or a large knob. Or both.
- L1 should be 12mm from L2 and wound in the same direction.
- The 22k potentiometer really needs to be a 10-turn type.
- A preamplifier between the antenna and L1 can improve tuning, reduce antenna radiation and prevent drop-outs.
- The detector and preamplifier (if used) should be enclosed in a metal box and all control spindles should have plastic knobs. All coils should be as far away from the metal box sides as possible.
- Don't operate near any radio gear – the detector is a broadband noise generator (a preamplifier helps here).
- All controls will interact with each other.
- The 5-6pF capacitor may need to have its value altered to achieve regeneration. It is 2.2pF in my version below.
- The 5000pF capacitor may be hard to get hold of. Use a 4700pF.



Modern Test Equipment Kits You Can Build

Gereon Ostermann – DJ1WY – Hauptstr. 35, D-55568 Staudernheim, Germany

Part 3: Transistor-Dipmeter “DIPIT” by DK1HE & DL2FI

This part of the mini-series describes a precision dipmeter which overcomes the limitations of conventional transistorised dipper designs.

Unlike valve-based GDOs, typical transistorised dippers often lack the RF-power to achieve a clearly visible dip with loose coupling. My own commercial LDM-815 dipper (an otherwise fine instrument for 1.5 - 250MHz) behaves no better in this regard. Also the coupling often cannot be as loosely as wanted due to the same reason, giving a somewhat incorrect resonance frequency due to “pulling”. Even with tight coupling the dip itself is often barely visible at certain frequencies, not to mention the constant need for readjusting the sensitivity-setting of a traditional dipper. So the typical dipmeter clearly has some issues with respect to sensitivity, easy handling and accuracy.

“DIPIT” designed by Peter DK1HE of the DL-QRP-AG is meant to solve these issues, and is sold as a complete kit with a predrilled case and all other parts by “QRP-Project” (Peter DL2FI). This handy multi-purpose instrument gives you the following options in the frequency range of 1-42MHz (expandable well below and above this range simply by additional coils):

1. Determine the resonance-frequency of a passive LC-combination with 1kHz resolution, working as an active and super-sensitive dipper
2. passive absorption meter when examining oscillators
3. signal generator with a 400Hz-modulated sine-wave of constant +7dBm-level
4. frequency counter with 1kHz resolution up to 60+MHz

Despite its conventional look “DIPIT” is different from typical designs in some respects: It uses 400Hz-wobbling to incredibly increase the dipper-sensitivity and to eliminate a manual sensitivity setting. See the website for a thorough explanation of the principle in English. “DIPIT” has a digital frequency readout, so no need to check the dipper’s frequency with the station (T)RX. “DIPIT” is battery operated (4x AA-cells) and is a self-contained unit.



"DIPIT" superbly built by DL7AMZ



"DIPIT" prior to finishing by DJ1WY

The kit comes with 170+ parts in separate bags plus all the hardware pieces, together with a comprehensive manual. This manual explains all details about the circuitry, the step-by-step assembly, tests and possible applications. An English manual is available, too.

Assembly is done in a proven Heathkit-like style with simple tests after each stage. The supplied case is laser-cut, predrilled and bent but without paint or labels. The various plug-in coils have to be built and all materials for this are supplied with the kit (except epoxy cement), the manual gives detailed instructions for each coil. I found my coils to be very close to the values given in the manual.

My kit went together smoothly and as described in the assembly manual. Although no SMD components are used a tight layout and dense packing of the completed unit result in a compact instrument for handhold use, measuring just 18x7x4cm (LxWxH) without the plug-in coils. Despite the tight layout assembling the PCB is quite easy, just fitting all together into the case requires a bit of fiddling.

The digital frequency readout of my kit didn't work at first, and Peter DL2FI found a sluggish 20MHz crystal to be the reason. After a free of charge replacement "**DIPIt**" worked as planned. There is also a separate little add-on in kit form (a measuring bridge plus amplifier) which turns "**DIPIt**" into a handy resonance-finder for antennas.



My "**DIPIt**" works like a champ and sees frequent use in my shack– but still isn't too beautiful because it lacks a colourful paint job & labelling. Maybe later...as always. J I bought my kit from DL2FI's shop for 153,-EUR + p&p, see: www.qrp-project.de for more details of this marvellous dipper, also in English. DJ1WY Gereon

K1 Stand and Protector

Les Austin, G0NMD, Leslie@laustin4.wanadoo.co.uk

On a recent visit to G3VTT I showed Colin my Elecraft K1. He suggested that my way of protecting it in transit and standing it up should be made into an article for SPRAT, so here it is.



When I bought my K1, I was a bit bothered that if I ordered the Elecraft “KTS1 wide range tilt stand” it would be a considerable weight, and awkward in a back-pack. Besides, it costs \$40 +p&p, and my radio money goes fast enough as it is... I also wanted some way to protect the front panel and its fittings and the rear connectors and switch in transit. So I came up with this which answers both requirements for pennies. It is nothing fancy, but works well, weighs very little and both protects and mounts the K1. And it kept to the “QRP spirit” so good all round.

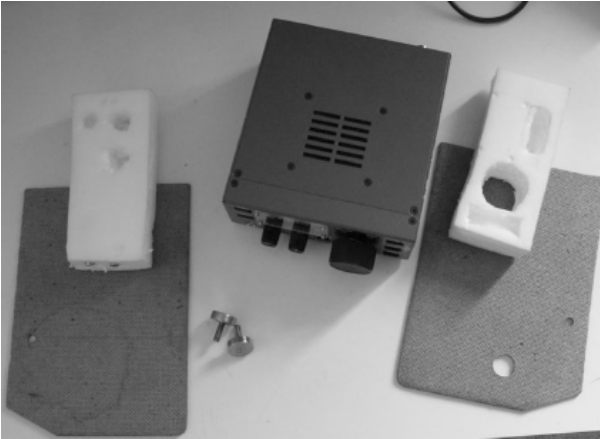
“First build your K1”, as a famous writer once (nearly) said. Then you need two screws to fit the thread in the side-panels of the K1. The thread is a US one, “UNF 10x32”. Most machine-fixings suppliers should be able to sell you a couple. I got pan-head stainless screws. I later made myself a fancy pair of finger-screws on my lathe from mild steel and brass. Either work well. Beware of over-tightening them, they are only screwed into aluminium.

Next item is a piece of 1/8th” (3mm) hard-board – Mason board in the USA? From this you cut two rectangles 7.25” x 5.125” (185mm x 130mm). The sizing of the boards is the width of a K1, by the overall length of a K1 including knobs and connectors. They will be the protection in transit, when they go top and bottom of the rig.

Hold the two pieces rough sides together, and drill a hole through both. I placed the hole on the long side, 0.5” in from the edge, and 4.5” from what will become the back edge in use. The hole needs to be big enough to pass the shank of the 10/32 screw plus a bit for clearance. Assemble the boards to the K1, tilt the rig to the likely operating angle, and mark the front panel edge of the K1 on the inside of the boards. Disassemble, and cut off the corner you have just marked. This gives you clear access to the front panel. As I am a

“leftie” I also drilled a large hole in the right hand board to pass the connector for my ‘phones as it then keeps the cable clear of my left hand operating the key or paddle.

Next get some thick plastic closed-cell foam - mine was a builders material. Not sure where you get it, I found mine in a skip where builders were working. Closed-cell means that if your /p operation entails rain or salt-spray (SOTA or summer hols abroad?) you won’t be wrapping the rig in soggy and corrosive “protection”.



Use a knife or scissors to make cut-outs in the plastic for the various knobs, switches and connectors. Rough is o.k., its just a buffer for the rig in a rucsac. Cut the plastic to fit into the “overhang” of the hardboard. Now get two elastic bands discarded by your postman, and you’re done. Your K1 is now as protected as it reasonably can be, and you have a means of supporting it on even or uneven surfaces, seeing the front panel at any height, keeping it up off the ground while operating, and keeping the rear connectors free of the ground too. The two metal eyes peering out of the rear padding are spare glass fuses for the K1 supply wire. Not yet needed them, but you never know.. and its a good place to protect them.



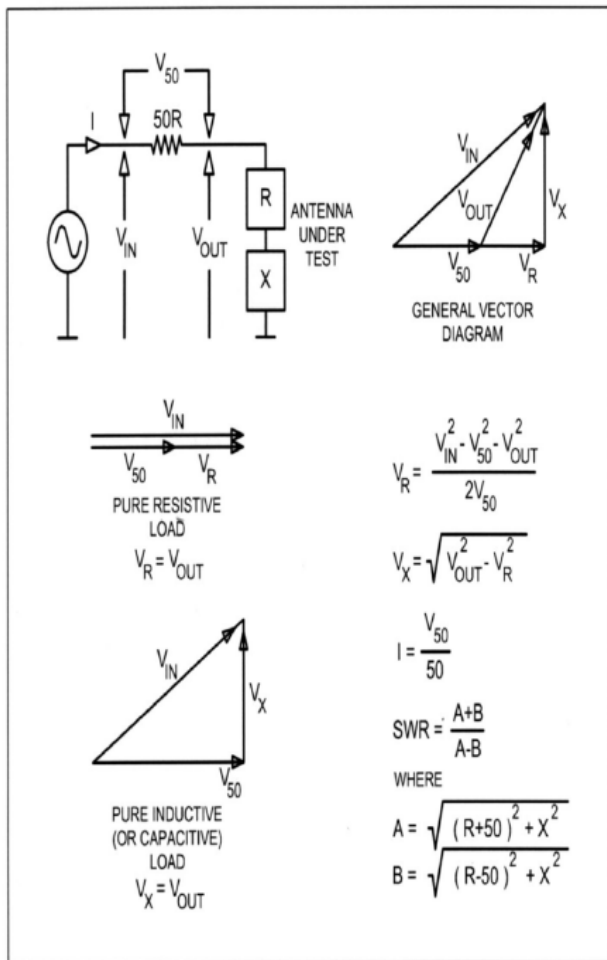
It took longer to type this than protect and support the K1.



SuperMAAn

Roger Hill, G3YTN, 35 Coxwold View, Wetherby, LS22 7PU

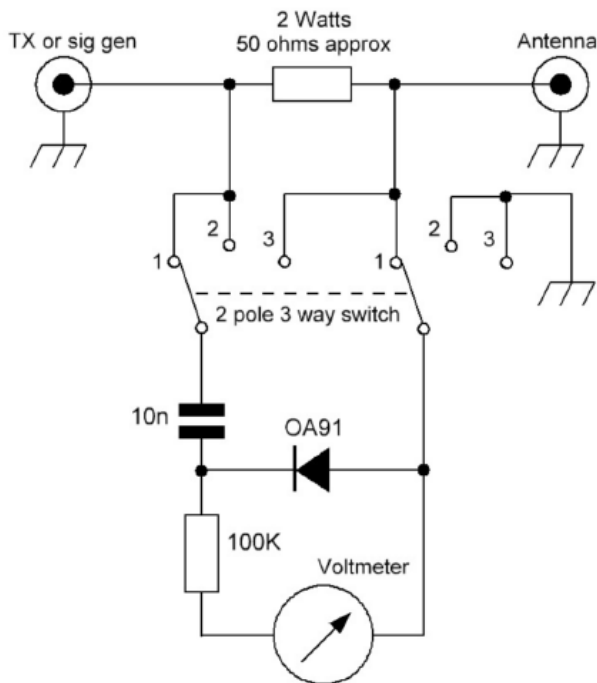
Gerald Stancey G3MCK described the Miser's Antenna Analyser in Sprat 103, reprinted on page 7 of the GQRP Antenna Handbook. I decided to try it. Rather than use his graphical method, I wrote a small program to do the calculations, based on Gerald's diagram.



The method worked well enough, but I soon got fed up with the actual process of measuring the various voltages V_{in} , V_{out} and V_r , moving the voltmeter probes around every time I wanted a set of measurements.

So I built the MAA in a box, with a two-pole 3-way rotary switch to pick up the different measurement points. Now I could connect the MAA inline, and get my measurements in just a few seconds at any frequency. SuperMAAn was born!

As shown in the diagram below, when the switch is in position 1 the meter measures V_r (the voltage across the resistor), in position 2 it reads V_{in} (the voltage at the transmitter or signal generator output) and in position 3 it reads V_{out} (the voltage at the antenna terminal). You can of course vary the connections to the switch so that you read in a different sequence if you wish.



Construction

Construction is as far as I can tell entirely non-critical. I brought out the output of the RF probe to an RCA jack, and used a flying lead with two 4mm plugs on the end to go straight to my meter. Note that the resistor between the input and output is not critical - I used a nominal 47 ohm resistor, but a 51 ohm or anything in that region will be fine. Also, the construction of the RF probe is not critical. It does not matter if the voltages measured are not exactly the RMS voltages...as long as they are some fixed proportion of RMS, the algebra involved is such that all the factors cancel out, and you get the same answers as if you had measured RMS directly.

Operation

The operating procedure is now quite straightforward:

Connect a low power RF source to the input of the MAA, such as a QRP rig, or a signal generator, at the frequency of interest.

Before starting any other measurements connect a dummy load to the Antenna terminals of SuperMAAn, and measure the difference $V_{in} - V_{out} - V_r$.

This gives the diode offset to be ADDED to each of the measured voltages. This should always be the same, but you never know. For the diode I used, it was 0.1 volts.

Now connect the antenna under test to the output socket. Key the rig (or the sig gen), and quickly note the three voltages. I usually have a scrap pad with Vin Vout Vr headings, and a place to note the frequency. Each set of readings just takes a few seconds to read and rotate the knob, and to scribble down, because it is now almost a hands-free operation.

Shift frequency by say 10KHz. Rinse and repeat as needed.

Calculations

Now I can go to my program, and enter the offset, the frequency, and the three voltage readings, and immediately get my resistive and reactive components. By observing the behaviour as I change frequency I can determine the sign of the reactance (if it increases as the frequency increases, it's inductive and positive). I can see how the values behave as I move frequency across the band, tweak my matching components and repeat my measurements and so on.

Finally, if I'm really keen, I can take these measurements and use the TLW program from the ARRL (mine came with my copy of the ARRL Antenna Book, 21st edition) to get values for various matching tuners and all sorts of useful information.

The BASIC program is shown below. It is very crude, without any error checking for example. Treat it as a skeleton program that you can enhance for your own purposes.

Program Listing

```

////////////////////////////////////
// Antenna impedance calculations           //
// RHill 2011/05/22                        //
// Based on GQRP Antenna Handbook page 7,  //
// A miser's antenna analyser             //
// By Gerald Stancey G3MCK. (Sprat 103)    //
////////////////////////////////////

print "_____ "
label TOP

input "Antenna description (END to finish) " title$
IF (title$="END") GOTO DONE
input "Enter frequency in MHz " freq$

input "Enter Diode offset in volts " D
input "Enter Reference Resistance in Ohms " R
input "Enter Vin volts " VP1
input "Enter Vout volts " VP2
input "Enter Vr volts " VR

// apply diode correction
a= VP1+ D
b= VP2+ D
c= VR+ D

```



```

r_vr_factor= R/c

// get the squares
a2= a**2
b2= b**2
c2= c**2

// now for the calculations
x= ( a2 - b2 - c2)/(2*c)
x2= x**2
y= ( b2- x2)**0.5

// and the final steps
Ri= x* r_vr_factor
Xi= y* r_vr_factor

// and finally the SWR
rp50sq=( Ri+50)**2
rm50sq=( Ri-50)**2
Xsq= Xi**2
swr= (sqrt(rp50sq+ Xsq)+sqrt(rm50sq+ Xsq))
      /(sqrt(rp50sq+ Xsq)-sqrt(rm50sq+ Xsq))

// now display the results.
print "Resistive impedance= ",Ri
print "Reactive impedance= ",Xi
print "SWR= ",swr
print "NB: If the magnitude of the series reactance increases as the frequency "
print "is moved upwards, then the series reactance is an inductor. "
print "And vice versa for a capacitor. "
print "_____”

goto TOP
label DONE
// end of maa

```

DSB Demodulation Ideas

Mike Pinfold, ZL1BTB, pinfold@xtra.co.nz

I have always been keen on DSB, particularly demodulation. So I have built up a DSB demodulator to enable this, from reading old magazines and trolling the web for ideas.

I am sure it can be simplified quite markedly and still work, it's somewhat complicated but I thought it may be of interest to more technical members.

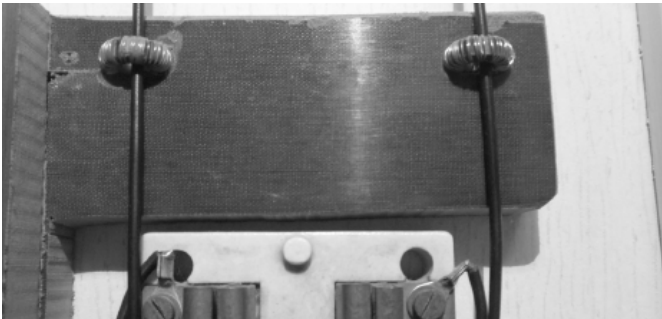
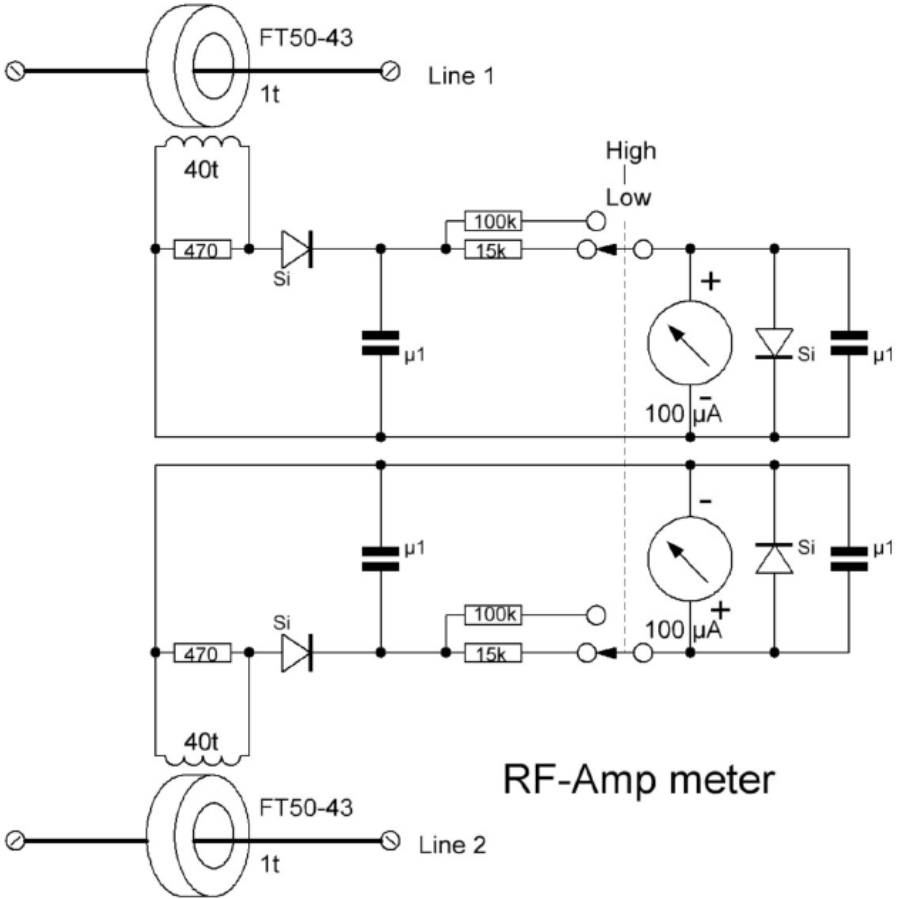
http://www.amalgamate2000.com/radio-hobbies/radio/dbsc_demodulation_by_the_squari.htm

Feel free to use any information in there. Feedback is welcome.

Open Wire Feeder Current Meter

Johnny Apell, SM7UCZ, Ekedalsvägen 11, S-373 00 Jämsjö. Sweden

SM7UCZ's implementation of the circuit by Drew Diamond in Radio Projects for the Amateur Vol.3. (book available from the club). **Shown in pictures.**



Sensing Coils



SM7UCZ Sensing Coils and Meters

Reducing Hiss in the LM386

Reproduced from QST March 2002

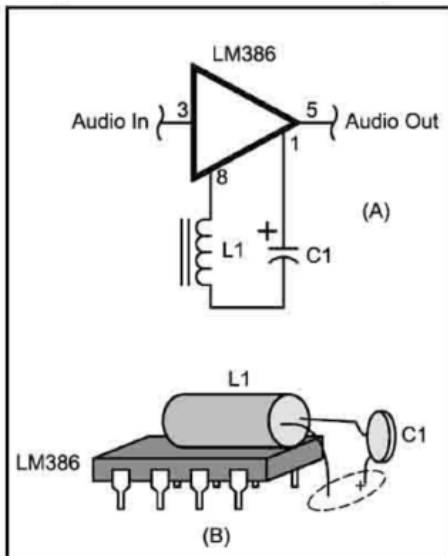


Figure 1—A shows the schematic. B shows how he mounted the parts in his NW8020 transceiver. Part numbers in parentheses are for Mouser (see Note 4).

C1—0.47 μ F, 35 V electrolytic capacitor (#581-0.47K35V)
 L1—82 mH inductor (R = 71 Ω , Q=100, #434-02-823J)

In “Hints and Kinks” for March 2002 James Graves, ex WA9RDT writes:

The LM386 has a bad reputation for hiss. I believe most of the hiss is not produced by the 386, but rather its wide gain bandwidth amplifies any noise from an IF section or 602 (612) mixer stage.

My solution is to make the 386 into an active filter by adding a series LC circuit as shown in figure 1. I figure that the response of this filter peaks at about 800Hz. I use the Emtech NW8020 and the parts mount neatly on and besides the 386

Note from G3RJV:

JAB Electronics (see advert at the back of SPRAT) stock Toko 10RB 82mH chokes (181LY823J) with the same characteristics as the Mouser inductor named in the article.

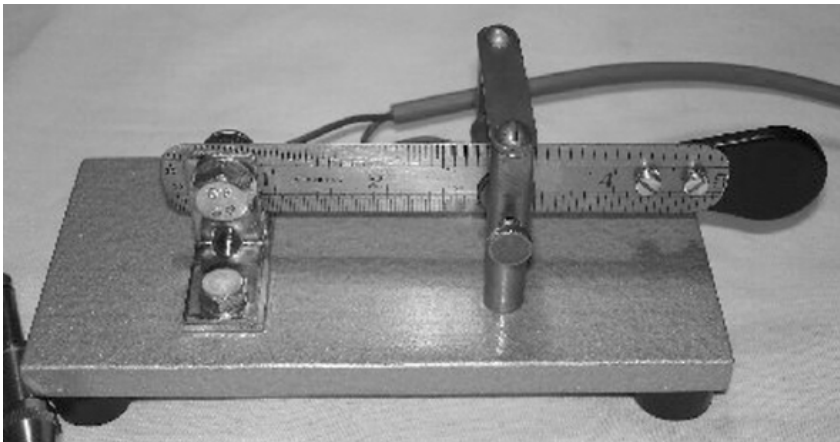
<http://www.jabdog.com/toko-10rb.htm>

Thank you to David ZL3DWS for pointing me to this article.

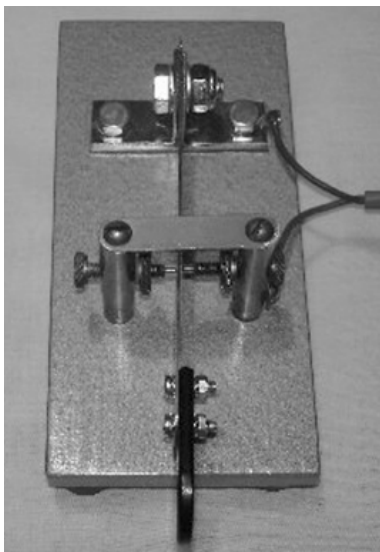
A Simple Sideswiper or Cootie Key

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

I'm sure many UK club members will remember Bob G0ADE on 80m with his 'Sideswiper' key, also known as a 'Cootie' Key. These things can sound pretty awful unless you get some practise in and they seem to be loved by our French friends, the old Great Lakes radio operators, Russian trawlers, submarines and Interpol! Nevertheless they are another form of straight key and I've always shied away from them as I found these keys daunting if not frightening. The idea is you use them manually make the components of the dots and dashed on alternate sides of the key. Take a look on You Tube at G0VQW and others slapping them from side to side. Its just a central lever and a pair of contacts. After visiting PA3CVV in Amsterdam and observing his excellent fist on the Cootie, (he's left handed as well!), I wanted to try one as another life time ambition in radio. There are one or two manufacturers in Italy, France and I believe Russia but I thought I would try and make one. The Begali version is expensive, a mere £200 - it's quality of course, but if I couldn't pick up the necessary skills it would be a rather expense way of trying a Cootie out so I decided to scout around for some bits and pieces to assemble something that would work.



All you need is a central contact with some spring in it and a pair of contacts. My good friend Daniel 4X1FC told me he had used a pair of knives in the Israeli Army in the 1970's but I found the following items in my junk box and the garage. The central moving arm is a steel ruler I bought in a Yorkshire model engineering shop many years ago when I was out with George G3RJV, the 'L' brackets, (insulated by a scrap of PCB from the metal base), I found in the local tool shop, (that kindly Mrs Pierce often let's me rake through the hardware), the contact frame and the plastic finger piece are from some parts of a scrap Lionel bug given to me by Doug G3ZWH about 30 years ago and finally the steel base was found in the metalwork classroom when its closed down six or seven years ago. Yes, they are 'Nylock' bolts holding the thing together such is the vibration at speed! The total cost so far has been 20 pence, plus the price of the hammer finish spray paint of course.



It took me a couple of weeks to get a reasonable fist, I'm nowhere as good as our colleagues though - yet, but I'm catching up fast. Sometimes my brain stops and tries to work out if I'm on the bug, pump or el-bug today and sending comes to a shuddering halt! Mind you, the 3566 KHz SSN, (Side Swiper Net) have let me join and they seem to understand what I'm sending. Straight keys are not to everybody's liking of course but these keys are part of the folklore of radio being standard fitting in most amateur radio stations just before and after WW2 and are making a comeback. As PAoCWF said to me 'you sound more like Murmansk Radio UMN' these days.



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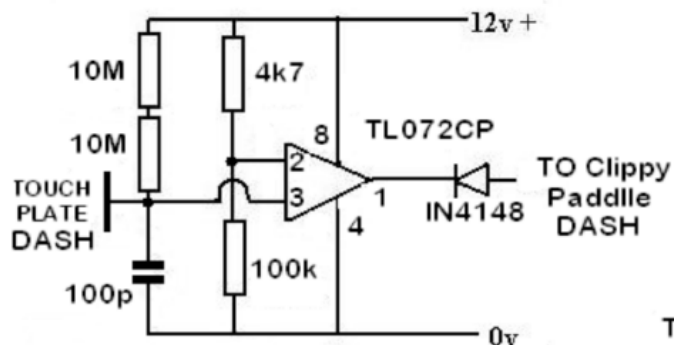
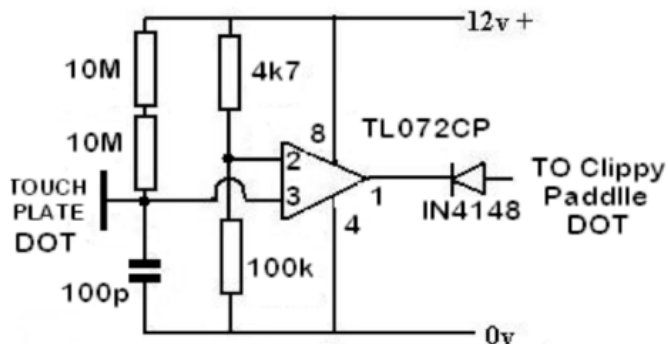
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Clippy Keyer - Touch Paddle Version

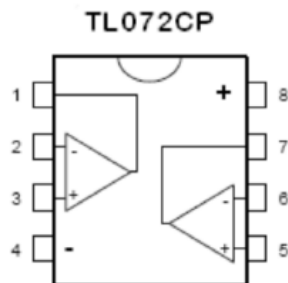
Peter Howard G4UMB 63 West Bradford Rd Waddington Lancs

This is an additional unit which I added to convert the Clippy Keyer from a paper clip paddle to a touch paddle. It could be used for other keyers providing the common key contact is negative. Two separate IC's are required because I found by experiment if one IC was used with it's identical circuits then there was occasionally a malfunction. A circuit like this is dependant upon individual skin resistance but I believe that given the component values I have used it should work for almost everybody.

TOUCH PADDLE CONVERSION

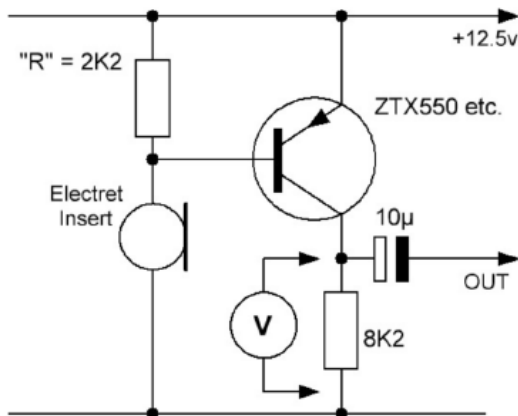


NB. Use two separate IC's



Kiss Electret Pre-Amp

Peter Thornton, G6NGR, 99 Hollingworth Rd. Littleborough. OL15 0AZ
Peter.Thornton@millersvanguard.co.uk



KISS ELECTRET PRE-AMP G6NGR

The Electret Insert consumes 280uA to bias the internal jfet.

Assuming base-emitter (V_{be}) of approx. 0.6v, $R = \frac{0.6v}{280uA} \approx 2K2$

I simply measured "V" (collector to ground) and set "R" to give "V" \approx 6v.

No doubt purists will pooh-pooh this circuit. "there's no bias stabilisation." "it'll be too temperature sensitive."etc. But it works! It's the least components solution to an electret buffer.

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“VALVES REVISITED” – A Book Review

Thomas J (Skip) Arey N2EI, PO Box 236, Beverly, NJ 08010.

<tjarey@gmail.com>



VALVES REVISITED by Bengt Grahn SM0YZI, 262 Pages, ISBN# 9781-9050-8670-2

Non Member's Price £16.99, RSGB Member's Price £14.44

Published by The Radio Society of Great Britain,
3 Abbey Court, Fraser Road, Priory Business Park, Bedford.
MK44 3WH. United Kingdom.

Many of us are old enough to remember the warm glow of valves (or tubes as we call them on the other side of the Atlantic). The pages of SPRAT indicate that many of us still enjoy experimenting with what I've long referred to as "Hollow State" technology.

That said, there are now a couple of generations of radio hobbyists that may have never had the experience of working with valves. Truth be told, the technology never really died, solid state technology just became the dominant form for modern radio design. Bengt SM0YZI's book has a great deal to tell both old timers and folks who want to get to know valve technology in a modern context.

The book begins with a brief history of the development and evolution of the valve followed by an excellent explanation of how valves work. Armed with this information, Bengt moves on to in depth analysis of the characteristics of valves including a full explanation of the standard measurements used to evaluate various valves for particular applications. This includes simple schematics developing the basic circuitry around the valve.

Next comes a study of building up tubes stages into more complex systems. From this point things get very interesting as the book teaches the reader about valve based tuned circuits, amplifiers and modulation. Then the book moves on to the next logical process, explaining superheterodyne circuits and how to design a receiver.

While we, as hams have a particular interest in tubes for radio projects, Bengt does dedicate a chapter to the most common modern use of valve technology, that being, high performance audio amplification.

But any SPRAT reader is probably asking: "When do we get to melt some solder?" No worries, the book goes on to talk in detail about constructing valve based circuits including power supplies, oscillators, transmitters and even a modulated signal generator.

The book includes an appendix of European valve designations as well as a fairly exhaustive collections of Web based resources for folks who want to pursue valve technology further.

No matter if you are looking to build up a design from scratch or trying to restore a fine old piece of radio equipment to its former glory. "Valves Revisited" is an enjoyable read that will help you along the way.

Membership News

Tony G4WIF, PO Box 298, Dartford Kent. DA1 9DQ

Some EU & DX members will not have received a summer Sprat because they paid the old rate and therefore underpaid for 2011. Please check your Sprat label for a note from me and either pay your local DX representative (or me) the outstanding subscription and I will send the summer Sprat. In fact all members should at least glance at the label as it will remind you of your subscription status.

This is the Sprat that comes with the member's handbook and a source of considerable correspondence that I have to deal with during the year. The member's handbook is produced on a best endeavours basis. Yet in excess of one hundred members wrote to me during the 2010/2011 asking if they were still members because they were not in the handbook or complaining that they were not listed. If you got the handbook and Autumn Sprat you absolutely must be a member.

The layout of the handbook is now an automated import from the member's database. It reads from left to right just like a book. Of those hundred plus members I mentioned only two were actually not in the handbook – the rest had not spent enough time looking.

For 2011/2012 please take note. Dealing with these enquiries takes an inordinate amount of time and going forward I ask members to read the foreword in the handbook. If mistakes happen then they have happened. We can't reprint the handbook and the probability is that you are listed anyway. If the printer has truncated your callsign then we apologise but if it is correct on your sprat label then the club database does not need altering. There will be a new import next year which will correct any errors. Please don't write to me unless I've spelt your name incorrectly.

Tip for cutting ferrite rods

Jerry Gerard G0AED, 18 Hunstanton Rd. Dersingham, Kings Lynn. PE31 6HQ

Ferrite rods can be cut to length easily with an electric drill and a Workmate/Vice. Wrap the rod with a layer of electrical insulation tape on the end you are going to put in the chuck. Clamp drill in Workmate/Vice. Place taped end of rod in chuck and give drill a spin to ensure rod is running fairly true. If it is not just loosen chuck and twist rod a bit until it is running as true as you can get it.

Start drill and use a tile cutter to cut through hard outer surface of rod. Stop the drill and tap the rod with the tile cutter and it will break off with no trouble at all. I use a piece of wood clamped alongside the drill to act as a toolrest for the cutter. Use eye protection whilst carrying out this process!

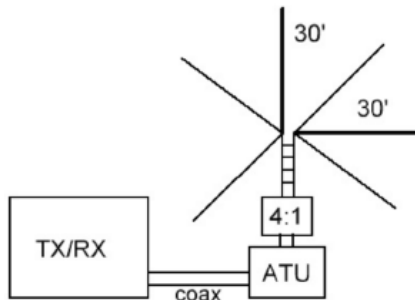
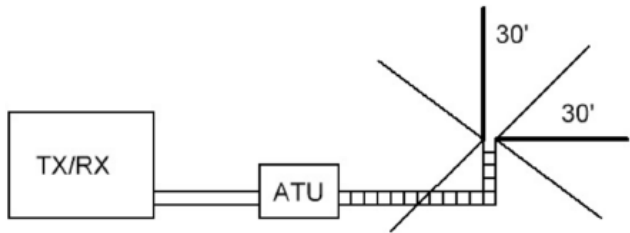
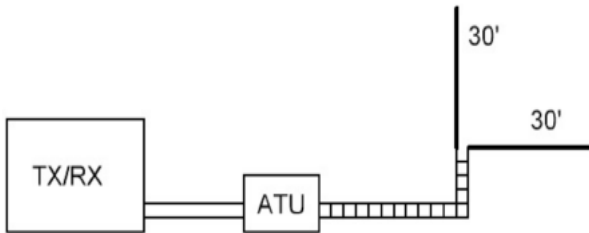
Antennas Anecdotes and Awards

Colin Turner G3VTT

30 Marsh Crescent High Halstow Rochester Kent ME3 8TJ

G3vtt@aol.com

*On seeing the 'upper and outer' notes in the last AAA Panagiotis SV3AUW/MOLPT (12766) immediately wrote to me to say he had tried a similar system. 'I made my first "upper and outer" or "square angle dipole" back in 1988 when I was first licensed. It's a remarkable antenna that served me well up until I evolved it into a GP and then to "multiband GP". As it is 30 feet or 10 metre long/tall it tunes to any amateur band between 80m to 10m. Reduced efficiency on 80m is evident but a low launch angle at 10m is a bonus. I found an auto tuner can be added at its base and be remotely controlled from the shack but do not forget to add a 4:1 balun between the antenna itself and the auto tuner. It helps tuning! Three to six counterpoise wires, (*great improvement*), are more than enough and it can outrun a lot of commercial verticals by a couple of S-units! (*and outrun them in terms of efficiency and cost too- G3VTT*)*



G0AED writes 'Colin, I tried the Up and Outer antenna on 6 Meters with 22 foot legs and it worked a treat. I got Five and Nine from Northern Spain during a short opening which adds to the usefulness of a very simple design. I hid the mike up after that because I only like CW!. Just thought I would let you know..... Jerry G0AED # 912

Boost your portable for almost nothing: The Tiger Tail! *From Michele Mastroianni, IZ8JJI, via Calandra 3, I-82100 Benevento, Italy, email iz8jji@yahoo.com* 'If you need to boost your portable radio, you must try this little trick, proposed by Edward KE4SKY (<http://www.hamuniverse.com/htantennamod.html>): the Tiger Tail, which is a quarter wave counterpoise. The trick is trivial, and is surely well known to all hams operating in HF. A quarter wave vertical MUST be used with a good ground plane or against one or several counterpoises. This is true also in VHF region, but what is the amount of improvement? I soon arrange a quick-and-dirty counterpoise for my VX-2: 49 cm of speaker wire wrapped around the SMA antenna connector: the improvement in RX seems to be incredible, better than 1 s-point, in some conditions even 2 s-points! In TX same situation: other hams reports that is an average +1 s-point when I use the counterpoise. I've built a cleaner and more stable version: a 6mm ring terminal and 49 cm of RG-174 (only braid connected). The 6mm terminal fits well in the SMA connector, and screwing the antenna locks counterpoise firmly in place. The counterpoise is I've also built a two band version, using speaker wire; both wires were connected at ring terminal, one wire cut at 17cm and the other at 49cm.

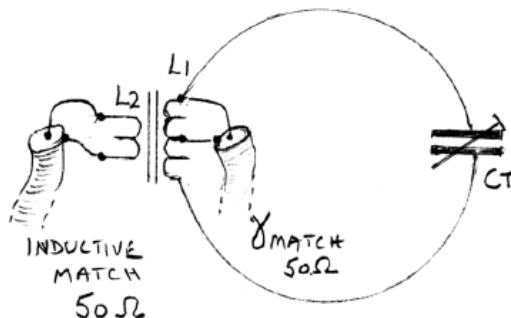


The counterpoise is useful for all kind of quarter wave antenna, even shorted quarter wave or rubber ducks. Of course, I try also many conventional 5W HT, with the same (good) results in terms of performances. In UHF the improvement is less noticeable with my telescopic antenna, which is a half wave on 70cm. This simple trick really performs well, is very cheap and fast to build. I'm surprised that is unknown by most ham radio operators. Try it!

VARIABLE INDUCTANCE LOOP John Seager G0UCP

Thinking of a portable loop for the summer? A magnetic loop can be small, but often has a bulky fragile tuning mechanism. All loops need retuning when there is a change of height or terrain. A variable inductance approach in QEX last September solves some of the problems. A new 120cm. diameter loop of this type (for 14 and 21MHz) is described here. The diagram looks like a 'Rockloop' with permeability tuning but the elements are 8mm. copper gas pipe instead of wire and there is no variable capacitor. The inductance of the loop is controlled by a ferrite rod which passes through a 2 turn winding (L2) that matches

the loop to a 50 Ohm coax line. As a bonus you can also match coax directly to the loop by using a novel form of gamma match, where the coax braid is connected to the mid-point of L1 and the core to either end of the coil. It is easy to make both types of feed available by using two sockets. The unexpected turns ratio (L1 has 3 turns and L2 just 2 turns, all 2cm. diameter) is explained by the relatively greater effect of the ferrite core on the inductance of L2, which it passes through prior to entering L1.



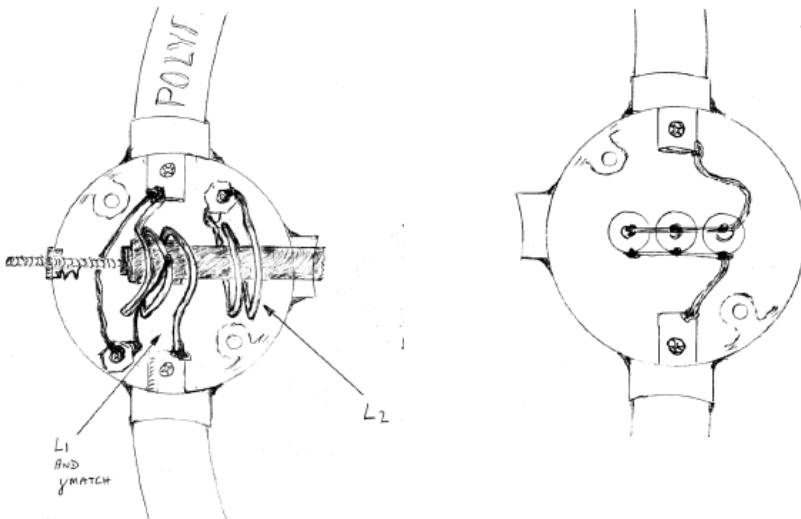
DIAGRAM

Ct is 3 small 2-7pF trombone type trimmers in parallel. Any combination of trimmers and fixed capacitors giving a range of 6 to 21pF should be fine. Using Garden Centre copper tapes instead of piping would cut down weight and works well. Whatever you use is threaded through 20mm, O.D. flexible blue SDR9 PE80 water supply pipe which makes an excellent friction fit to the two white electrical conduit boxes that house the tuning/coupling transformer and the trimmers at opposite poles of the circle. The structure holds together and keeps shape without adhesive. The ferrite rod can be held in a rubber 'cup' mounted on a 5cm. long 3.5mm. bolt that passes through a 3.5mm. phone socket in the wall of the conduit box. This gives surprisingly precise control and holds it in position.

At this low voltage point on the loop there is negligible hand capacitance effect so adjustment is straightforward. Alternatively a small servo motor can be used to control the core. Perhaps this could be written up elsewhere if there is interest. If 3-way conduit boxes are used a transverse 2cm. conduit tube can be inserted diametrically between them for further strength. The ferrite core can still be adjusted by turning the bolt that protrudes on the left hand side. In use the loop is fed via a Stockton power meter. With the ferrite rod about mid-range position, peak the trimmers for maximum signal strength on receive (about 20pF for 14MHz and 8pF for 18MHz).

Then using the ferrite rod, tune for zero reverse power on transmit. Only use QRP as this antenna is kept near to the operator. It can be re-tuned after changing frequency every 25 kHz or so using the ferrite rod. In the WPX SSB in March, with the loop about 25cm. above the grass just outside the house, quick exchanges included New York and Kuwait. I would be interested to know how it performs at the edge of the sea.

Ref. 'A New Tune for the Loop' QEX Sept-Oct 2010, 35-37.



Thanks to John for an interesting antenna that was mentioned in G4BUE's members news column last month.

Awards

G3WWS 10 Countries worked QRP to QRP. Congratulations!

Valve QRP Day

Not part of the AAA column but part of my GQRP brief! I am pleased to announce the next **Valve QRP Day** will be on **Sunday November 20th** from early to late on all bands on the QRP frequencies. You are invited to use your valve (tube) transmitters or receivers and submit some notes to me for a report plus hopefully a photograph or two. I was greatly encouraged to hear from G0JRM who has a supply of 6V6 valves for anybody who wants to try the G3VTT OV1 receiver from the last issue, make a Paraset, a G3YVF one valve transceiver or any other simple transmitter using these useful devices. Not bad for a valve designed nearly 70 years ago. Please contact G0JRM on telephone no. 01284 735441 or at 8, The Elms, Horringer, Bury St.Edmunds. Suffolk. IP295SE where he can supply them at reasonable prices plus postage.

My thanks to all of you who submitted your antenna notes to me and I'm always interested in your experiments. Hopefully I will have worked some of you in the excellent new 'Summer Sizzler' QRP activity session at the end of August.



VALVE EVENTS

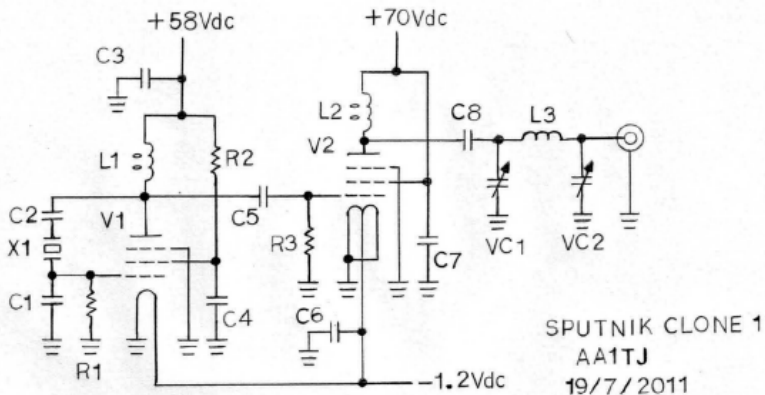
Colin Turner G3VTT. G3vtt@aol.com

The GQRP Club Valve QRP Day

will be on Sunday November 20th 2011 throughout the day until conditions decline, (or you get fed up!) You are invited to operate on any of the HF bands with homebrew or commercial valve, (tube), equipment either a receiver or hopefully a transmitter with 5 watts or less and submit a photo and details of contacts for inclusion in Sprat. Please e-mail your short report and if possible a photograph of your equipment to me at g3vtt@aol.com no later than November 27. This event follows a number of previous events which have stimulated activity, encouraged others to homebrew equipment and even produce a short article for Sprat. Operation here in Europe appears to be CW oriented and on 80m but you are free to operate with whatever mode your valve transmitter works on provided you enter into the spirit of the event. There are no prizes just heaps of fun. Please send any prospective articles about your valve rig to our Editor G3RJV. Watch out for valve activity afloat as GB2LV will be operating with a complete valve set up aided by the Bodgit and Scarper team.

Sputnik QRP Event

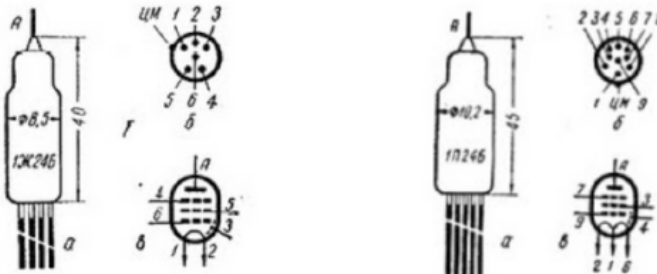
Watch out for station active on October 4th for the whole day commemorating the launch of the first Russian satellite Sputnik 1 in 1957. A group of QRP constructors and operators will be QRV on 21.060 using the same valves that were fitted to the spacecraft in 1957. These were Russian 'rod' valves and were a development of the standard valves using wire leads instead of pins. This development path was tried in the West briefly but soon discarded for the now common transistor. Thanks to the generosity of Mike AA1TJ and the inspiration of RV3GM a number of co/pa transmitters will have been built and tried on air. The initial drawings from Mike AA1TJ are shown below. Take a listen throughout the 24 hours to these old technology devices.



C1: 85pF S.M.
 C2: 100pF S.M., 100V
 C5: 1000pF, 100V
 C6: 10nF
 C3,4,7: 10nF, 100V
 C8: 2200pF, 250V
 R1: 27k
 R2: 68k
 R3: 100k
 L1,2: 67uH
 L3: 3.3uH
 VC1: 5-35pF
 VC2: 20-150pF
 X1: 21.060MHz, ESS Type HC49
 V1: 1sh24b (1j24b or 1?24?) ex-Soviet sub-miniature “rod tube”
 V2: 1p24b (1?24?) “ “ “

Notes:

1. Ground the internal shields (V1 pin 3 and V2 pin 4)
2. A low-pass filter may be required between the Pi-network impedance matching circuit and the antenna. I have not yet checked the RF output spectrum, however the inherent Pi-network 2nd harmonic attenuation is only ~28dB.
3. The value of C1 may have to be adjusted for your particular circuit layout. This capacitor helps both to maintain the optimum level of oscillator feedback and provide the proper loading capacitance for the quartz crystal resonator.
4. I had somewhat better results with V2 pin 1 (the filament common terminal) negatively polarized.



COMMUNICATIONS AND CONTESTS

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

** SUMMER SIZZLER **

So, were you active during our new summer event? No doubt there will be plenty of comments re poor band conditions, but (as I write this on 8th August) I am sure plenty of contacts will be possible and I am looking forward to seeing a bag-full of logs (by 1st October please).

INTERNATIONAL QRP DAY

My thanks to Dave G3YMC, Ryan G5CL, John G8SEQ, Aage LA1ENA and Valery RW3AI for submitting their logs. Valery also sent 22 additional logs from other RU QRP Club members, as “an act of respect and friendship amongst QRP Clubs”. I cannot list the log details of those 22 RU QRP Club members, and (as they are not GQRP members) neither can they be eligible for the International QRP Day Plaque, but their support is very much appreciated, along with Valery’s effort in compiling the information. It is good to see the level of QRP activity on 17th June amongst our friends in the RU QRP Club.

By their own admission, the logs from Dave, Ryan, John and Aage were all quite short, with just a handful of QSOs each, but Valery (as is often the case) compiled an impressive log with 39 QSOs, resulting in a total of 37 points scored.

Valery RW3AI is the clear winner of the International QRP Day Plaque, and our congratulations go to him.

THE VK QRP CLUB “TRI BANDER AWARD”

Garry VK2YA has advised me of this new award from ‘down under’:

In order to qualify for this award, simply make contacts on all 3 bands – 80m, 40m and 20m – and earn at least 5 points on each band. If you are a VK QRP Club member it is even easier!

The Award is being offered free of charge until 31st December 2012 to all amateur radio operators who enjoy the pleasures of CW.

For rules, and more information, please visit “www.vkqrpclub.org” and click on “Awards”. Please feel free to contact the Awards Manager, Garry Cottle VK2YA using his email address: “tribanderaward@vkqrpclub.org”.

STOR

I wonder how many members found a way through the pile-ups to work this new country? This was a very tricky one indeed, with absolutely huge demand making a QSO with QRP probably beyond the reach of most – but not all.

HTC QRP-SPRINT

Guido **HB9BQB** has written to me to advise that there have been some rule changes “to make the event more attractive”.

1. Moved from Saturday to Sunday (in 2011, this will be on Sept 11th)
2. Changed/narrowed the specified ‘window’ in each band.
3. Please visit “www.htc.ch” for full information

Rumi **LZ2RS** has recently acquired an Elecraft K3 and Cushcraft A4S antenna and has used the combination to conduct some successful QRPP experiments across the pond with Allen N2KW, culminating in Rumi being copied (rst 409) by Allen when he was running only 1mW!

NEW G-QRP CLUB CALLSIGN – **MX0VLP**

It has been decided that the Club should apply for a Club Licence in order to promote Club activities, and QRP operation in general. In an ideal world we would have liked MXOQRP but, unfortunately, Ofcom do not issue callsigns with a suffix beginning with the letter “Q”.

Consequently, the best alternative we were able to obtain was **MX0VLP**. It is hoped to activate the callsign during the month of October to coincide with the QRP ARCI celebrations for their Golden Jubilee. Our QRP colleagues in Canada have obtained a special callsign, **VC3ARCI**, which will be aired during October as part of the QRP ARCI celebrations, and it may be that similar special event stations will be active from other countries.

It is also hoped that **MX0VLP** will be active from the Rishworth Convention on Saturday 22nd October and perhaps on Friday (21st) at the Constructors Evening. The operator will be Colin, G3VTT.

I am currently listed as the licence holder, and my address is the main station address, but we will shortly put in place a procedure whereby members can apply to use the callsign for suitable occasions.

The Club is seeking a volunteer to become QSL manager for **MX0VLP**. He/she might like to help with the design and printing of the cards, as well as handling the day to day QSL requests. Any takers?

As you can see, plenty of opportunities for QRP Fun over the next few weeks! The deadline for inclusion in the next issue is the beginning of November.

72 de QRPeter

VHF Managers Report

**John Beech G8SEQ 124, Belgrave Road, Wyken, Coventry CV2 5BH.
Tel. 07958 777363 e-mail: John@g8seq.com**

I'm writing this as I take a break from last minute preparations for our trip to Fair Isle. Unfortunately the deadline for SPRAT is about the middle date of the trip. If I can get an internet connection I will try to update George on any VHF activities I get up to. We are taking equipment for 6, 4 & 2 m (as well as HF) so if the gods of RF propagation are listening then an Es opening would be nice. This is primarily a WAB operation so most traffic will be QRO on 40m. I'm also going to try PSK31 & RTTY at QRP levels and it co-incides with Lighthouses on the air weekend.

There has been some chatter recent on various reflectors about using 2m FM for Dxing and lo & behold one of my most recent pupils decided to see what he could work using his brand new call M0ZAI, an FT-290 and a 3 element yagi mounted on a surveyors tripod vertically polarized. Conditions were flat so nothing spectacular but managed to pull in a couple of stations at 40 miles plus in the 20 mins he was operating.

I've not done any construction lately except for re-constructing most of my VHF antennas. I have practically had to re-make all the electrical connections as they were corroded. Some of them I hadn't touched for over 10 years and as I burn wood a lot of sooty deposits were evident. One antenna had one of its elements almost sawn through where it had been chafing on the chimney brickwork. So how long have your antennas been up? Noticed any loss of performance?

I used to take my antennas down once a year to use on VHF NFD but since our group gave up portable contesting eight years ago that no longer happens so it came as a bit of a shock to see the state the antennas were in!

Lastly, while listening to GB3RAL beacon last night it reminded me of the first time I heard this particular beacon on 6m. It was using a program called Argo. It was evident from the traces that aircraft reflections were present. At the time RAL was running just 10 W to an inefficient temporary antenna, so high power is not required for a/c reflections. I know the microwaves boys are frequently working each other via aircraft reflections over 100's of kilometres. Anyone fancy a sked using VHF? You don't need to elevate your antenna as the vertical beamwidth is usually more than sufficient. KST & Plane finder are usually used to set up contacts.

73 de John G8SEQ

ADVANCED REMINDER - GQRP CLUB WINTER SPORTS EVERYDAY – DECEMBER 26th to JANUARY 1st

Call "CQ QRP" on the International QRP Frequencies

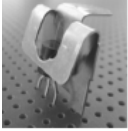
The Winter Sports is not a contest, although it is usual for operators to exchange their G QRP Club membership number. Those taking part are invited to submit logs and comments to the G QRP Club Communications Manager, Peter Barville G3XJS, Felucca, Pinesfield Lane, Trottscliffe, West Malling, Kent ME19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

G-QRP Club Sales

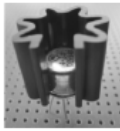
Graham Firth G3MFJ

It's very rare that I take a page in Sprat (as well as the normal back cover), but there are quite a few things to say about the club sales.

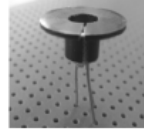
Firstly – new items. I now stock some small QRP heatsinks for transistors – here they are:



For TO92
30p each



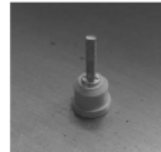
For TO39 &
TO18
40p each



For TO18 &
TO72
60p each

I have expanded the range of crystals – see the back page. Also, I have started stocking the popular calling frequency crystals in low profile HC49 (wires). I will normally supply full size HC49/U unless you specify the small ones. They are available for 80 through 20m .

Another new item is nylon stand-offs – useful for Manhattan type construction – they are a pin on a nylon mount & can be glued down with superglue. They are 9mm tall and the base is 4.5mm diameter. Here is a picture – they are 10 for 15p.



Next – I hope you have noticed the new transistor – MPSH10. I got this idea from the Homebrew column in Radcom. These are $f_T = 650\text{MHz}$ npn transistors and they are 7p each. No limits on how many you order.

I also hope you have noticed the extras in the toroid range – T25 & T30, also T130. Both available in type 2 and 6 mixes. Also, I have just added FT140 in 43 and 61 mixes.

The Sudden kits are going well – we hope to keep these available for a long time. We are still working on the 160m receiver, and other bands for the transmitter are also being worked on. We hope to have some of these available at Rishworth. We have almost finalised the circuit for the matching ATU, but there is still more to do yet, before it is available as a kit. A version of this will be used at the mini-convention as the buildathon kit.

I have just restocked with Sprat binders – of course they have gone up in price - but there is a slight advantage in that they now have room for 16 issues, rather than the 12 that the old ones had. The new price will be £4.50 I'm afraid.

I hope by the time you read this, that the new Sprat-on-DVD (1 to 148) should be available. We have outgrown the CD format now. I hope also, that the price will remain the same. As last time, there will be an exchange deal if you have bought the old CD after 1st July. Send me the appropriate postage (cash, or stamps – unless as part of a larger order) and the leaflet from the CD case.

I will, of course, be at Rishworth with everything from sales – if you have a large order – it will really help if you can send me the list beforehand so I can prepack it – then you can pay and collect there – post free of course!

Finally – many thanks to those who order and include their membership number – it really does help, as I file all orders under this number (last year, I sent out over 1000 packets!).

Thanks also to those who send a little extra – especially through PayPal. PayPal is very successful, but their charges do cut into our small margins, so every little helps. I do not wish to go down the surcharge route and I do arrange an appropriate refund if you send too much!

MEMBERS' NEWS

by Chris Page, G4BUE

Highcroft Farmhouse, Gay Street,
Pulborough, West Sussex RH20 2HJ
E-mail: chris@g4bue.com



Congratulations to **G0FUW** (below – thanks *RSGB*) on being awarded the Don Cameron Award **G4STT** for “an



outstanding contribution to low power operation for services to amateur radio QRP” by the *RSGB*. Steve was presented with the award at the *RSGB* AGM by the President and says, “I was shocked and stunned but highly honoured to receive the award. This is a lesser known trophy for ‘contributions to QRP’, is a gold (coloured) NorCal 20 mounted on a wooden plinth. Receiving the award was a fine thing but to see my callsign engraved along side the likes of **G3RJV**, **GM3OXX**, **G0UPL** and **G8PG** was something else. I have no idea who nominated me, but thanks, whoever you are”.

The *Daily DX* reports **AA4GA** has started an unofficial QRP DXCC standings list on his website at <www.aa4ga.com>. Click on the QRP DXCC link to submit your information to Lee for inclusion. The ARRL only issues QRP DXCC certificates but doesn't keep official standings for QRP. In May the Four State QRP Group offered a new kit, the **K8IQY** designed SS-40 40m superhet receiver for \$50, including shipping. SS stands for ‘Stable and Sensitive’, more information, including the assembly manual, at <<http://www.wa0itp.com/ss40.html>>. Two new Softrock kits were available from **KB9YIG** in July.

Congratulations to **GM3OXX** for QSOs with **ST0R** and **JG8NQJ/JD1** (Minami Torishima taking George to 288 DXCC with his 1W CW. On 22 August **KH6MB** running QRP answered George's CQ on 14060kHz and he heard **HB9DAX** thank him for a new two-way QRP country afterwards. George received an email on 24 August from **BW/9M6YMG** thanking George for being his first QSL for his recent DXpedition. Congratulations also to **G3LHJ** on winning the QRP Section in this year's Commonwealth (BERU) Contest with his K2. **G5CL** QSO'd **ZS6X** on 30m with his K1 on 26 June for a new DXCC on the band and a ‘birdie’ tells me that **G3ICO** has made 150 DXCC this year with his 5W. **G3YMC** worked **ST0R** for DXCC 232 and 124 this year and **G0SDT** was pleased to QSO Brazil on 27 July on 20m with his 5W and dipole. **F5NZY** QSO'd **E21EJC** and **CX7CO** for ‘new ones’ with his 5W in July. **GM4XQJ** found 20m evening conditions good in July when he QSO'd XU and JAs with 5W and 3ele yagi. **G4NTN** is pleased with the Am-Pro 20m whip he used with his FT-817 to make some QSOs around Europe in the IARU Contest in July. Peter now has 40 through 10m of the Am-Pro range and says they all work well.



G8SEQ was QRV as **G8SEQ/VK2** and VK3 recently with 5W SSB from a FT-817. His best DX (ever) was from his cousin's QTH at Albury, VK2 (left) with Oliver, **E18GQB**, on 20m using an Esseeque sloper antenna from a gum tree over the swimming pool (right)! John used the football as a makeshift globe



to work out the best antenna orientation for Europe! Until the QSO with Oliver, his best DX was **JQ1QKK** about 60 miles northeast of Tokyo, also on 20m. John writes, “This contact was special because we had a 16 minute conversation with my signal never below 57, not bad for a 5W phone signal over 5000 miles!

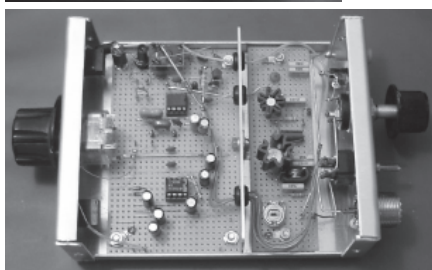
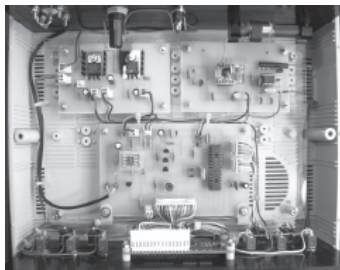
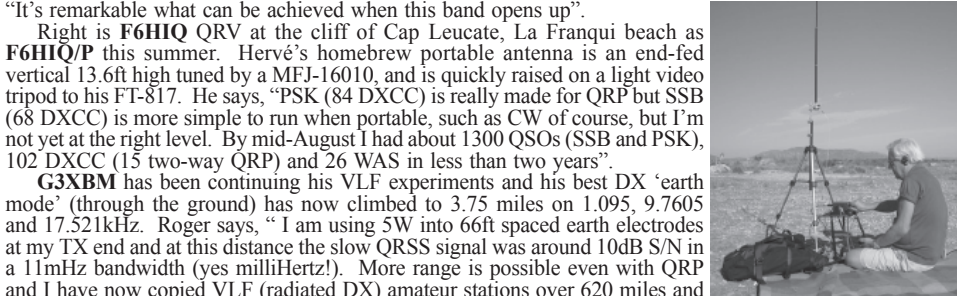
M3KHZ had a “blast” on 2 July when he used his KX1 from the side of a hill overlooking Brighton. Pete set up an antenna made from a couple of single strands of computer ribbon cable, main element was 26ft just 8ft high in a tree sloping to a few inches off the ground, with a counterpoise about half that just thrown on the ground. The KX1's internal tuner matched it easily on 40, 30 and 20m and power was supplied by a 2200mAh 11.1V LiPo pack. A CQ on 10106kHz resulted in **E16KA/P** answering with a strong 589 and giving Pete 579. **M1EYP** QSO'd VP5 on 20m on 13 June and YN on 30m the previous weekend. Tom reminds us of **G3WGV**'s UK CW Progress Tables at <<http://ukcwtable.g3wgv.com/Results.html>>. **GM3MXN** had been using his Flex 1500 for about six weeks on 12 June and was very pleased with it. Tom was running it with Windows 7, 64 bit, without any problems and says the initial setting up was easy following the instructions, but found a bit of latency in the CW keying was cured by reducing the buffers. It is a “superb receiver, plenty of filters and good quality on SSB”.

G3XJS is suggestion 51600kHz as the nominated QRP AM and SSB frequency for 6m. **G6XDI** found 6m conditions “superb” on 18 June for the 6M Trophy Contest. Using a new 3ele Cushcraft yagi and Flex 1500

at 5W, Chris made 37 QSOs in about six hours, 14 DXCC and best DX HA in KN06. On 3 June **G4GXO** QSO'd over 680 miles on 6m with his FT-817 using its internal batteries and whip antenna inside his house! A QSO with **DH8BQA** close to the Polish border was followed with **OZ1XAG** in Copenhagen. Ron says, "It's remarkable what can be achieved when this band opens up".

Right is **F6HIQ** QRV at the cliff of Cap Leucate, La Franqui beach as **F6HIQ/P** this summer. Hervé's homebrew portable antenna is an end-fed vertical 13.6ft high tuned by a MFJ-16010, and is quickly raised on a light video tripod to his FT-817. He says, "PSK (84 DXCC) is really made for QRP but SSB (68 DXCC) is more simple to run when portable, such as CW of course, but I'm not yet at the right level. By mid-August I had about 1300 QSOs (SSB and PSK), 102 DXCC (15 two-way QRP) and 26 WAS in less than two years".

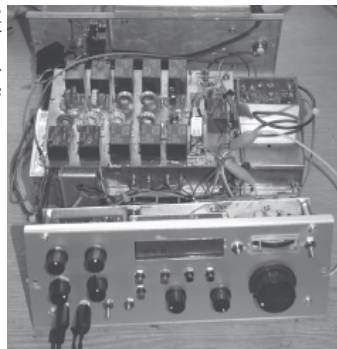
G3XBM has been continuing his VLF experiments and his best DX 'earth mode' (through the ground) has now climbed to 3.75 miles on 1.095, 9.7605 and 17.521kHz. Roger says, "I am using 5W into 66ft spaced earth electrodes at my TX end and at this distance the slow QRSS signal was around 10dB S/N in a 11mHz bandwidth (yes milliHertz!). More range is possible even with QRP and I have now copied VLF (radiated DX) amateur stations over 620 miles and more stations are becoming active all the time. **G3XIZ** is a consistent VLF signal (28 miles) on 8.87666kHz when on (low mWs ERP)". **OK1CDJ** was QRV 6/7 August with friends from Rax Alpe, Austria (summit Heukeuppe 6580 feet) in the Alpe Adria VHF Contest They were in the 5W QRP category above 1600m and made 174 QSOs with 5W and 7ele yagi plus some SOTA QSOs on 40m CW. Ondar has some photographs at <<https://picasaweb.google.com/106928195655819516199/AlpeAdriaContest2011>>.



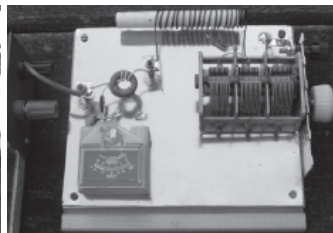
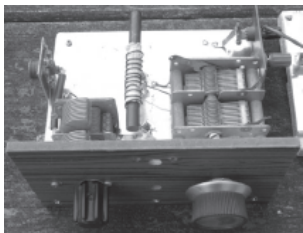
G3ZOH completed a stand-alone WSPR message generator on 10 August. The design is based around the SI570 programmable oscillator under the control of a 16F873A PIC. The output frequency can be set anywhere in the seven WSPR sub-bands from 10140.1kHz 50294.6kHz with 13 different power messages from 0dBm to 40dBm and five different TX cycles from 10% to 50%. There is also a calibration mode as well as 'TX next' and 'Tune' options. Time synchronisation is achieved with a MSF clock module feeding a 12F675 PIC to extract even minute markers. The callsign, QRA locator and SI570 parameters are embedded in the assembler code for the PIC but could be changed if required. The output power is about 10dBm but a 500mW PA for 130 and 20m (three x BS170 in parallel + relay switched seven pole LPFs) is nearly finished. Brian says this has been his most enjoyable QRP project to date.

G3XIZ has built the **ZL2BMI** DSB 80m TRX (below left) published in a recent *SPRAT* with a few modifications to suit available components. Chris says the rig works well and the receiver is really quite good considering it uses only two ICs. The TX gives 500mW PEP and his uses a BFY50 PA transistor and a 12V supply. He has received S9+20 reports from local stations **MOJXM** and **G7NKS** and his 'best DX' is **GW4JUN** at 142 miles. He almost made a two-way QRP QSO with **G8SEQ** (60 miles) but unfortunately John's local noise level defeated his 500mW although he was receiving John solidly at 57. **G3XBM** is building his first ever valve TX using old Russian Sputnik valves provided by **AA1TJ** and is hoping to have a 15m CW TX working for Sputnik Day (4 October 2011). Roger says, "By the way, what does HT mean?!"

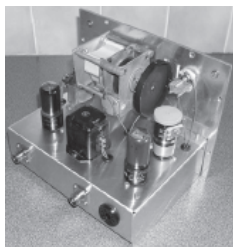
M5FRA's eight-band transceiver he has been building the last few months (right) is called the 'scrap heap challenge' rig! Chris's first QSO with it was on 27 August with **K8CW** on 17m. **M0CGH** has built a RockMite 30m CW rig using the Marathon technique and is currently building the new Super Tuna Plus from **WIREX**. Using an inverted vee at 23ft on 24 July, Colin QSO'd **HB9UH** with the RockMite running 520mW and says, "I was thrilled to have made my first contact using a transceiver built by myself and not from a kit". The same weekend he made a two-way QRP QSO with **DL2DBU** (4W) using 300mW on 7030kHz with a homebrew Tuner Tin 2 TX and Sudden Storm RX from **WIREX**. If you need a good reference on crystals, **GOXAR** recommends the Wiki at <http://en.wikipedia.org/wiki/Crystal_oscillator>.



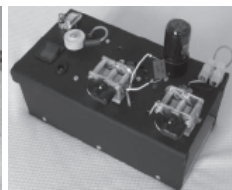
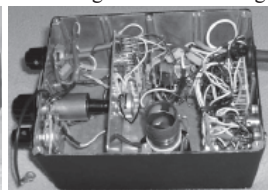
This is **G4ICP**'s 'Ground Tuner' which is a series tuned circuit that tunes a radial wire to resonance at the operating frequency, based on similar techniques used in the 'No Cost ATU' in the *G-QRP Circuit Handbook*. Richard used tin plate cut from an old Christmas biscuit tin screwed to a scrap piece of melamine chipboard! The variable inductor is a ferrite rod (from a defunct broadcast radio) sliding inside a small coil. A small toroid he had to hand was used as a current transformer to drive the meter indicator. Duncan says, "There is no doubt it's made a significant improvement when used with my 60ft end-fed wire and radial wire about 20ft with an upstairs shack, enabling many QRP CW QSOs on 80, 40 and 30m including **ON6WJ** and others in the UBA Foxhunt on 80m.



Inspired by **G3VTT**'s Stable Regenerative Receiver using the 6V6 article in *SPRAT* 147, **G4DFV** built his version of the receiver (left). Duncan incorporated the superb tuning capacitor and dial, as well as the 30H audio choke, both culled from a scrapped BC221 heterodyne frequency meter. He says using homemade plug-in coils, the receiver does a magnificent job on 160, 80 and 40m, and with just two 6V6 valves, it does, as Colin says, "the audio output can really drive a loudspeaker"! Duncan built his in the case of a low frequency stroboscope fitted with a new 4mm aluminium



panel and a homemade chassis and says the chrome handles give it the finishing touch!



M0AYF has caught the 'Paraset bug'! Des says it began earlier this year when he chanced upon a Paraset schematic at <http://www.paraset.co.uk/> and became curious about the anode tank and ATU circuits in the TX. He contacted **G3YVF** and then found himself building a 'Pseudo Paraset TX' to experiment with the tank circuit for himself. Des thought building the TX (above left) would cure the bug but only a few weeks later he found himself building a matching pseudo Paraset RX (above centre) to go with the TX (above right). He says both units work well and he has enjoyed CW QSOs on 80m. Des is now building a replica Paraset, primarily for 80m but the TX may also be used on 40m with a separate RX, that he hopes to complete by the end of September. A web-page about it is being constructed at <http://www.qsl.net/m0ayf/Paraset.html>.

The photograph above shows (l to r) Harold, **GI4GOS**; Frank, **GI4KKB**, and Michael, **MI5MTC**, at the GI HF Conference hosted by the West Tyrone ARC on 20 August. Michael, who sent the photograph, says the nine talks included his 'A Futter's Fun with QRP Homebrew'. Harold, who was offering Altoid mints from a tin due soon to encase perhaps a TR switch, said it was good to see such a large display of QRP rigs, most of which I had never seen before, ranging from a Ten-Tec PM3 to a Walford Brue. The picture below shows some of those attending the G-QRP DL branch's 20th annual meeting at Waldsassen. **DL2BQD** says it was real teamwork lead by **DK4UH** to organise the meetings and has been continued by **DK3WX**, **DF6MS** and **DJ3KKK**, and many helpers. Attendees were from all German counties and G, HB9 and OE. Dieter says on Monday evenings there is a fairly regular meeting on 80m, CQ WS.



GM4WZG is a member of the thriving EAQRP Club www.eaqrp.com and attended the 2011 annual convention 20/22 May at Sinarcas. Bernie says the Spanish amateur radio community are invited to come and see QRP in action, listen to lectures, share ideas, look at homebrew kit and of course enjoy a long



leisurely Spanish style lunch together (**GM4WZG** is second right in the photograph). Presentations were given by **EA5GHS** (antenna measurements), **EC5ACP** (SSB phasing), **EA3WX** (500kHz experiments), **EA5BFT** (Club CD) **EA4DTP** (Club website). Late in the evening many 1W QSOs were made with **EA5GDW**'s rig, including some in the King of Spain contest. Bernie says, "There's nothing like a QRP convention to get the enthusiasm up and the next day from my hotel room I threw a wire out of the window into a very conveniently placed tree and set the FT-817 up for 1W. The contest was still in full swing and after a few hours I had some 40 QSOs logged, including **EA0JC**, HM King Juan Carlos, on 40m".

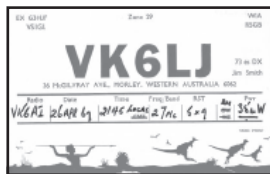


G3XIZ says his VLF activities have, "temporarily stalled as my large loading coil has developed a severe short-circuit. I plan to make another coil (MK III) but this time using PVC covered wire as the previous versions, using enamel-covered wire, proved unsuitable for the high voltages involved. Chris has deliberately held-fire on the rebuild as UK stations' NOV's expire in October and is waiting to see if they will be renewed.



M15MTC's 'Lollipop' ladder-line's spacers (left) are made from two dozen Magnum lollipop sticks with holes 30 inches apart running up 38ft to an inverted vee doublet, 85ft each side, looking over the sea from above Derrynane Beach in southwest Kerry to mainland Europe. The three-part mast, on a foot-board pegged to the ground and held firm in the caravan's jockey wheel clamp, was a broken off aluminium laser dingy mast, then a GRP sailboat mast topped by a telescopic GRP fishing rod, shortened with telescope joints taped. Mick had good contacts with other QRP stations, the most distant being EA, HB9 and I.

G3JFS says he was sorry to read **G3HJF** had become a Silent Key (*SPRAT* 146). Peter first met Jim in 1967 in Western Australia working overseas as contract engineers with a British Company. They ended up in Perth between 1967-71 as next door neighbours, Jim was **VK6LJ** and Peter was **VK6AI**. Fortunately they were usually on different shifts so their proximity didn't interfere with their CW QRP operating, but the QSL shows a two-way QRP QSO between them on 26 April 1969 on 27Mc/s (MHz), which was an ITU Region 3 allocation at the time but was lost soon after through lack of use! More recently Peter has made a lot of 'run-of-the-mill' QRP contacts on CW and SSB in various contests, with about 60 DXCC made this year, the best DX being **ZL3GA** on JT65-HF with 5W and an end-fed wire.



The G-QRP Club supported its Scottish members in August at the Lorne Radio Rally in Crianlarich with a club stall (right) manned by **GM4VKI** where 17 members signed in



and we five new members were recruited. Roy will have the stall at the Galashields Rally on 23 October and asks if you want anything special brought there to e-mail him at <kavampsev@aol.com>.

A Buildathon photograph from **G3PCJ**'s 'QRP in the Country' event on 17 July showing (below, l to r) Dan, **M0TGN** and son, Greg not yet licensed, and Dave, **M0SXZ**,

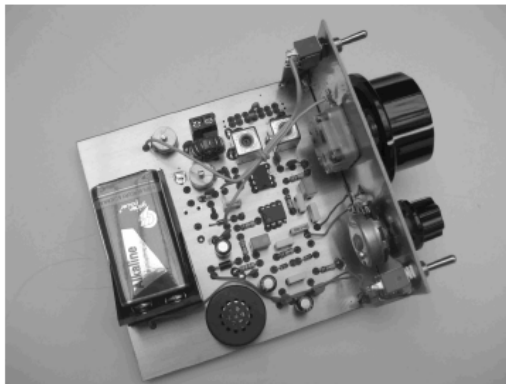


working on their kits. **G0FUW** says four builders braved Tim's new Cary regen receiver kit for 80, 40 and 20m. **G3RJY** popped in to give regen building his blessing but was not tempted to build yet another receiver – perhaps Jo was keeping an eye on him! Steve also reports a visit to the Torbay & District ARS in June when along with Lewis, **G4YTN**; Mike, **G3VTO**, and Dan, **M0TGN**, he helped members build a batch of Sudden receivers, all for 40m. Steve says everyone had a great day with some building radio projects for the very first time. At home, Steve has 5W CW TX on the bench based on Dew Diamond's Mk4 TX in *Projects Vol 4*, but is trying to multi-band it as

a kind of HW8 for the 21st Century. He says, "Slow progress but I am getting there".

RV3GM reports the revived World QRP Federation (WQF) produced its first new bulletin on 15 August. Anyone who would like a copy can send Oleg their email address to <mr72@wqrf.com>. A WQF web-page is being constructed at <www.wqrf.org>. Whilst looking up the subject of 'minimalist radio receivers' **G0NSL** came across a website at <www.mindsetonline.co.uk/images/POSTCARD.pdf that Brian describes as, "Surely a case of 'doing more with less'!". **G0LVH** moved to Pembrokeshire southwest Wales in May and is now QRV portable using an FT-817ND as **GW0LVH/P** from the spectacular Nation Park, more details on his QRZ.com entry. Charles also contributes to the QRP Pembrokeshire Blog at <http://qrppembrokeshire.blogspot.com>.

Sorry for the small photographs this time but space was against me. Let me know how your autumn goes, with words and pictures, by 20 November please.



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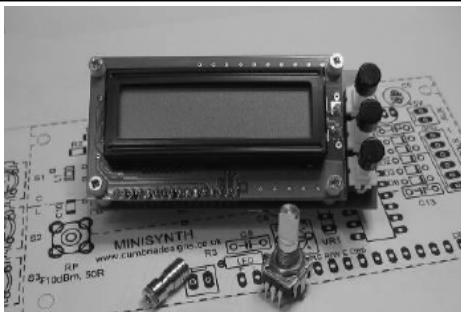
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SDR-Kits.net - Synthesizer kits to 1417 MHz

New!! PA0KLT Low Noise Synthesizer kit with LCD display uses high performance **Si570 ICs** covers **3.5 MHz–1417 MHz**. Suitable for home brew Local Oscillator Projects - Signal Generator etc
QRP2000 USB-Controlled Synthesizer kits with Si570 up to 280 Mhz, Si570BBB up to 945 MHz

"Last Frequency Remember feature" allows use as programmable Crystal Oscillator.

DG8SAQ USB-controlled Vector Network Analyser VNA covers 1 kHz to 1.3GHz - In stock - Assembled and tested: as described in QEX Jan/Feb 2009 see www.SDR-kits.net for details

Si570 ICs - Si570CMOS only £15.00, Si570DBA 1.417 MHz, Si571CFC with FM Modulation

New!! Mitsubishi 175 MHz RF FETs now stocked: RD15HVF1, RD06HVF1, RD00HSV1 also RD16HHF1 16W £.4.20, RD06HHF1 6W £3.20 RD00HHS1 0.3W £1.10 - UK postage only £1.00

KB9YIG Softrack SDR Receiver Kits 40M £14.00 and 80M Lite with 3750kHz Xtal only £14.00

Jan Verduyn, 14 Ragleth Grove, Trowbridge, Wilts, BA14 7LE, UK, sdrkits@gmail.com

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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.orbital.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: m0nija@aol.com (make cheques payable to : Melanie Rowe)

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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

GQR 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 } £1.50 (UK); or £3.60 EU
Radio Projects volumes 2, 3 & 4 – by Drew Diamond – members £5, non-members £10 } or £5.80 DX per book

6 pole 9MHz SSB crystal filter 2.2kHz @ 6 dB, 500ohm in/out £12 plus post } £1.50 (UK); £1.60 EU
Polyvaricon capacitors – 2 gang (A = 8 to 140pF, O = 6 to 60pF) c/w shaft ext & mtg screws - £1.20 each } £2.20p (DX)

Pair LSB/USB carrier crystals HC18U wires - [9MHz ± 1.5kHz] } £4 pair } All components

HC49U (wire) crystals for all CW calling freqs – 1.836, 3,560*, 7.015, } plus postage
7.028, 7,030*, 7.040, 7.0475, 7.122, 10.106, 10.116*, 14,060*, 18,096, 21.060, } (ANY quantity)
24,906, & 28,060 all are **£2.00 each** (* = also available in low profile) } £1 (UK),

HC49U (wire) crystals – 1.8432, 3.500, 7.00, 10.106, 10.111MHz – **50p each** } £1.60p EU,
HC49 (wire) crystals – 2.00, 3.00, 3.20, 3.579, 3.5756, 3.5820, 3.6864, 4.00, 4.1943MHz, } £2.20p (DX)

4.433, 5.00, 6.00, 7.6. 8.0, 10.0, 12.00, 13.50, 20.00, 24.00, 25.00, 27.00, 28.00, 32.0MHz } If
35.50, 43.00MHz – all **35p each** (Some of these are low profile types) } 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** } toroids,

General Purpose silicon diode - **1N4148 10 for 10p** }
Varicap diodes – **MVAM109** – 40pF @ 9v, 500pF @ 1v. } **50p each** } max of 2 of } binders,
– **MV209** – 5pF @ 12V, 40pF @ 1V } **35p each** } each per member } or

SA602AN - £1.50 (note – I may supply NE or SA, 602 or 612 as available. All are fully interchangeable. } filters,

MC1350 - £2.00 These are getting in short supply now so max of 2 per member } use

PICAXE-08M – 8pin - £2 each; **CA741** op-amps 8pin DIL – 5 for £1 } that

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

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

TDA7052A - 4.5 to 18v, 1W 8pin **DIL** low noise & DC vol control – £0.60 each } ordered

TA-7642 Radio IC – direct equivalent of **MK484** (& ZN414) – **75p each** } with books

2SC536 transistors (npn) ft - 100MHz, hFE-320, VCBO +40V - **5 for 50p** } or CDs

MPSH10 transistors (npn) ft - 650MHz, hFE 60, VCEO 25V - **7p each** } add this

2N3904 transistors (npn) ft - 300MHz, hFE-150, VCBO +40V - **10 for 50p** } postage

2N3906 transistors (pnp) ft - 250MHz, hFE-150, VCBO -40V - **10 for 50p** } as they do

2N3819 N channel JFET – **12p each**; **2N7000 N channel MOSFETs** - **10p each** } do not travel

IRF510 FETs – **50p each** } well together

10K 15mm coils – 1u2H, 1u7L, 2u6LC, 5u3L, 11u0L, 45u0L, 90u0L – all **75p each** } postage

Magnet Wire – 20, 22 SWG – 3 metres for 60p; 24, 25, 27SWG – 4 metres for 40p; } postage

30, 33, 35SWG – 5 metres for 30p. This is solderable enamel insulated } postage

max of 3 sizes per member (I have to measure and wind this!) } as

QRP heatsinks - **TO92** – 30p; **TO39/TO18** – 40p; **TO18/TO72** – 60p (pics in Sprat 148) } postage

Axial lead inductors (they look like fat ¼W resistors) these are low current – a few hundred mA } postage

4.7uH, 6.8uH, 10uH, 15uH, 18uH, 22uH, 33uH, 39uH, 47uH and 100uH - all **15p each.** } components

Toroid Cores – priced per pack of 2 – max of 2 packs of each per member

T25-2 – 50p, T25-6 – 60p, T30-2 – 60p; T30-6 – 70p; T37-2 – 75p; T37-6 – 80p; 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; T130-2** - £1.50ea; T130-6** - £2.00ea.

FT37-43 – 80p; FT50-43 - £1.20; FT37-61 - £1.20; FT50-61 - £1.20; BN43-2402 - £1.20; FT140-43** - £2.50 ea;

FT140-61** - £2.50; BN43-202 - £2.00; BN43-302 - £2.00; BN61-202 - £2.00.

Ferrite beads – **FB73-101** (3.5mm dia x 3.2mm long, 1.2mm dia hole) – **40p for 5**

All toroids are plus postage – up to 5 packs = £1.00UK, £1.60 (EU), £2.20 (DX). Each additional 5 packs, please add 50%

** **Except** ** items – they are heavy and each counts as 2 packs

Limerick Sudden kits **RX** (80 through 20m); **TX** (40m only) **£34.00 each plus post** UK - £2.50, Eu - £3.50, DX - £5.00

NEW Sprat-on-DVD – 1 to 148. Still only **£4 each to members** (we have outgrown the CD size!)

Sprat Binders – nylon string type – Black with club logo on spine -16 issues per binder – **new stock** - £4.50 each plus postage

(one: UK - £1.40, EU - 2.20, DX - £3.00. More - add £1, £1.20, £2.00 each)

Please note - I only have stock of the above items – I do not sell anything else. Anything in previous advertisements and not shown

above (except coils) is out of stock – if it becomes available again – it will be in the next magazine. The PDF on the sales page of the

club website is usually up-to-date (check the date at the bottom!)

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

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 GBPounds,

or US\$ / uros (at the current exchange rates) – but please send securely! You can order via e-mail and pay by PayPal.

Use g3mfj @ gqrp.co.uk – pay me in GBPounds and you **MUST** include your membership number and address please