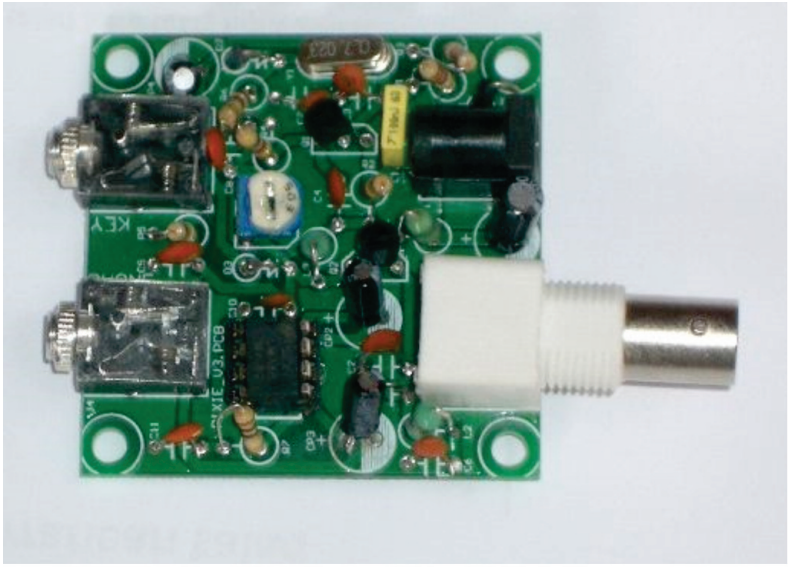
SPRAT

THE JOURNAL OF THE G QRP CLUB

DEVOTED TO LOW POWER COMMUNICATION

ISSUE Nr. 168	© G-QRP-CLUB	AUTUMN 2016



The 40m. Pixie II Kit from China

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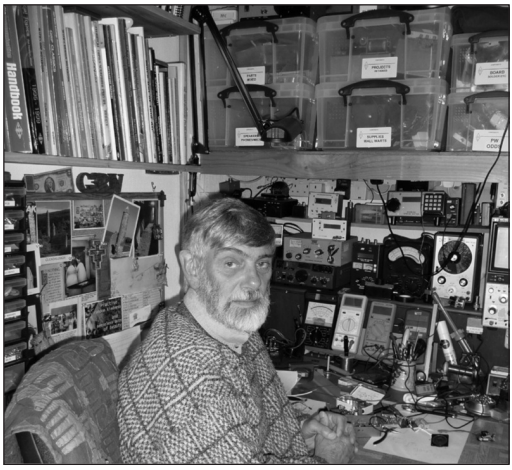

Rev. George Dobbs G3RJV

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When I announced that the W1FB trophy for 2016 was to be on the topic **"Useful items and tips for Test Equipment"** I thought that will be a good one. Shortly before I wrote these words, a member was offering to submit an article for the trophy ***"if there is room for another one".***
There was plenty of room for another W1FB entry – as this was the only entry! I feel sure that members have many ideas on homemade equipment or ways of using equipment. As ever we can accept many formats. The usual editorial format is MS WORD on an A5 sheet with narrow margins. I can supply such a formatted page for would-be authors.

Tony, G4WIF, who has a tremendous pile of work to sort out at subs renewal time, makes a plea to members. **"We ask that you kindly do not start sending renewals for 2017 until after November 1st".**

Ah – I almost forgot …. 72/3 to you all

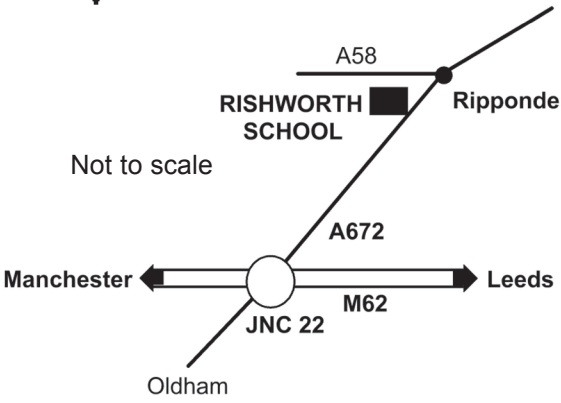
Printed & Distributed by G QRP Postal Mailing

FOR THE FINAL TIME!
THE G QRP CLUB MINI-CONVENTION

(in conjunction with the Halifax Radio Society)

Saturday 22nd October 2016

The Rishworth School, Ripponden



OPENS AT 10.00am
ADMISSION £3.50
DOORS OPEN 10am
LARGE SOCIAL AREA
LECTURES ON QRP SUBJECTS
BRING & 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 (Friday Evening before the convention) Including a Buildathon to be held at the Premier Inn, Salterhebble Hill, Halifax, HX3 0QT. (Tel: 0871 527 8486) – To begin about 7.30pm
www.premierinn.com/en/hotel/HALPTI/halifax-south

BUILDATHON – A solar powered amateur radio transmitter, suitable for all levels of radio construction – not costed yet… but cheap!

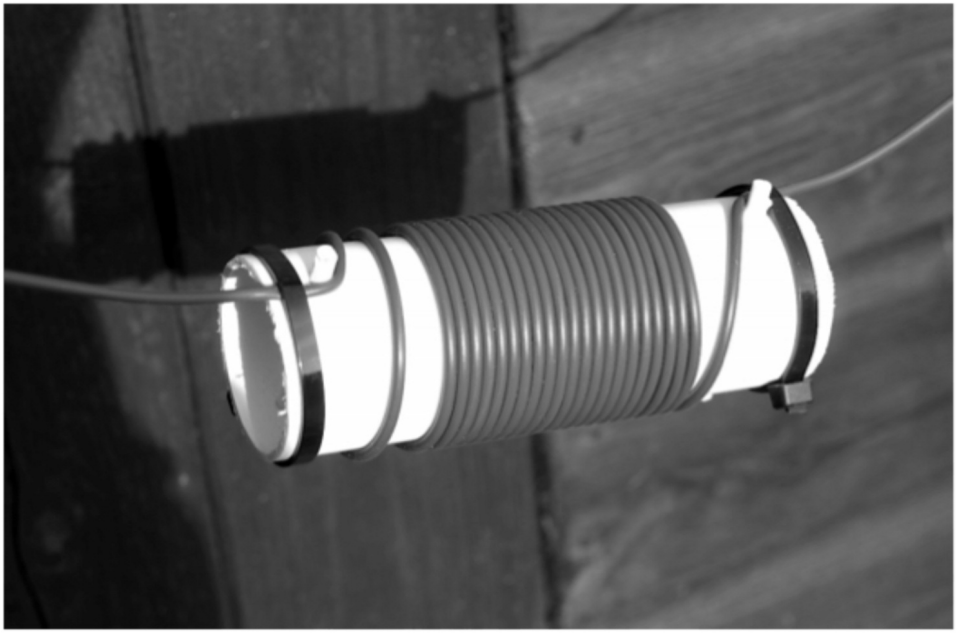
Our suggestions for local accommodation:
The Premier Inn, Huddersfield West. Junc 24 on the M62 : HD2 2EA
www.premierinn.com/en/hotel/HUDNAG/huddersfield-west
The Premier Inn, Milnrow. Junc 21 on the M62 : OL16 4JF
www.premierinn.com/en/hotel/ROCTHE/rochdale
The Turnpike Inn, Rishworth, excellent but quite expensive.
(01422 822789) www.turnpikeinn.com

An adjustable loading coil for short loaded dipole antennas.

Ken Maxted GM4JMU, Newton Mearns, Glasgow, UK

In Sprat No 74, I published a 40m shortened dipole which seemed to attract some attention with amateurs having small garden plots. I wanted to put up this antenna in an Inverted-Vee configuration and make the best use of my 15m garden. The antenna I describe is a 14m version of the original but uses a coil design that permits easy adjustment of resonance.

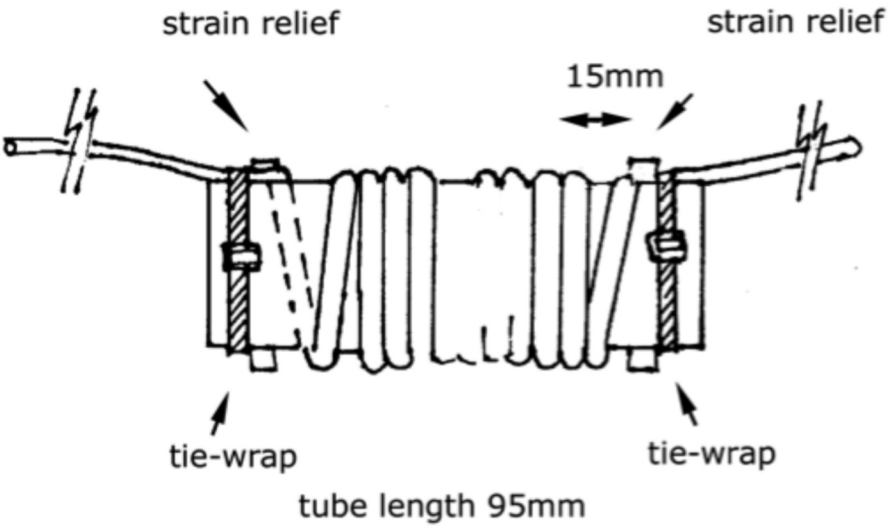
Construction.



The antenna is constructed using SOTA-Beam green antenna wire (about 2.2mm diameter, PVC covered http://www.sotabeams.co.uk/antenna-wire-lightweight-100m/). Two 10.5 meter lengths were cut and terminated at a dipole centre insulator. I used a 1:1 balun but this is not essential.

The remote end of each wire was folded back through an end insulator and, using three small Nyloc cable ties was fastened back along its length for 300mm (this would allow for fine tuning if needed). At this stage you have a full-size 40m half wave dipole

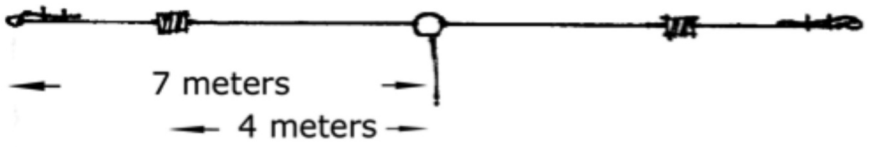
The shortening coils.

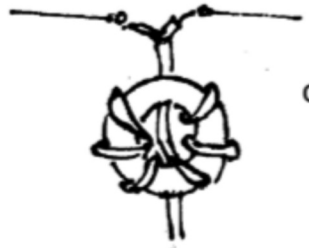


Coil construction

The coils formers are cut from 40mm diameter PVC waste pipe. However, the principal design feature is the fastening method: at each end of the 95mm length of pipe is drilled a pair of diametrically opposed holes of a diameter to suit the press-fit of a 50mm length of plastic or fibreglass rod. It is quite difficult to drill diametrically opposite so you may need a few attempts to get this right.
(I used 4mm fibreglass rod from B&Q for the strain relief rods but please note it is unpleasant to use as it sheds fine glass fibres when cut, and even rubbing the surface can cause skin irritation, and it is probably best cut using a Dremel type tool rather than a Junior hacksaw as the latter encourages fibres to split off). Thin wooden rod could be used, with the proviso that it is soaked well in paraffin wax. Nylon rod is probably the best choice.
The protruding rods serve as strain relief anchor points and all that is required to secure the coil is a large cable tie around both the former and the antenna wire,

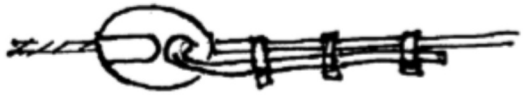
outboard of these strain reliefs. (See the picture) To adjust the coil tums or position all that is required is to slip the cable tie off the end, keeping it on the wire, remove or add turns and slip the same tie back on. The same can be repeated at the other end of the coil: to move the coil outwards and raise the resonant frequency, add turns to the outer end and take them off the inner end, make an identical change to the coil on the other leg of the dipole.





optional 1:1 balun

end fold-back



To make up the14m (46') shortened dipole, measure out from the centre of the centre insulator a distance of 4 meters (put a small piece of tape on to remind you), hold the wire at this point to the middle of the length of the coil former and secure the wire to the former at the end of the tube with a tie-wrap. Make the first turn bending the wire behind the strain relief post and space the first turn spiral over 15mm of the length of the coil former.

From that point on, wind on 21 turns, close wound, and then make the final 23rd turn spiral out to pass in front of the second strain relief pillar towards the outer end of the antenna, keeping the centre set of coil turns close and under tension. Fasten at the end of the former with another tip-wrap.

The coil should be perfectly secure and when under tension the wire will pull on the strain relief pillars, keeping the coil tight but also protecting the wire from sharp angles of bend. This process is repeated for the other leg of the antenna. The distance from the centre insulator to the centre of the coil winding should be 4 metres.
With the tie wraps on the ends of the former, they can be slipped off in order to alter the turns on the coil and then slipped back on to secure the windings: do not fasten them too tightly in order to permit this.

Tuning up

The antenna should exhibit a resonance in or near the 40m band. If the antenna is too far LF the coils can be moved towards the ends by taking a turn off the dipole-centre side of the coil (lengthening the centre straight section) and adding one to the free end of the coil (making the straight section at the end of the antenna shorter by the length of one coil circumference). The ties are slipped off one at a time and slid back on to secure the new number of turns. I found that a frequency change of about 60kHz was made by adding a turn to one end and taking it off the other. If you wish to make a smaller change simply alter the length of the antenna end folds.

(To make the original half-size antenna, 40 turns can be put on the coils, the centre portion will be 2.57m and the outer section 2.27m. This will use all the space on the coil former- check a dummy winding before you cut a length of former and drill it. You will probably need a 160mm long former)

Performance.

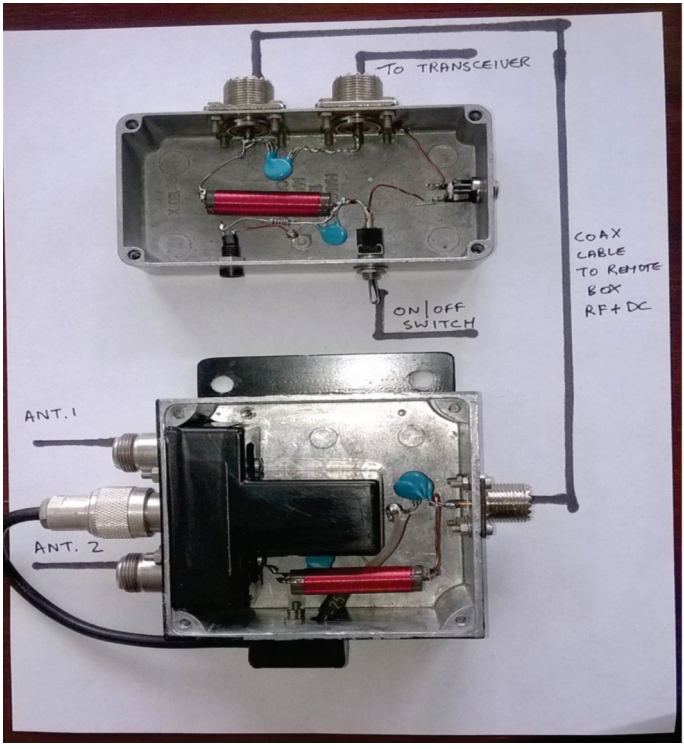
Each half of the finished antenna will measure 4m to the centre of the coil and 7 meters overall length (with 300mm adjustment ends folded back). When supported with the centre at 7 meters above ground level and the ends 2.5m above ground the antenna had a resonant feed-point impedance of 48 ohms, so I get a very good match in the shack without an ATU. The useable antenna bandwidth is at least 100kHz, *the shorter version is closer to 30 kHz and its impedance is a little lower but still useable without an ATU*. The original half size antenna performed very well indeed, this longer one should be very useful as well, especially since it has a wider bandwidth, but radio conditions have been too poor recently to fully evaluate it. I have, howeve, regularly had good reports from the PSK reporter out to 1400 Km.

Remote Antenna changeover relay

Bill G4KIH [bill.g4kih@gmail.com]

I have been using a home brew cobweb (see www.qrz.com/g4kih) for a number of years. This was located at the bottom of the garden on a 25 foot pole. The RG-213 feeder was fed back to the shack under the ground. An ideal situation you may say, until you want to add another antenna. A recently acquired IC-703 gave me a 4m capability, so the project of the remote changeover relay was born to allow a home brew 4m sleeved dipole to be mounted on the same pole as the cobweb.

The design idea can be found all over the internet, however a useful design for Sprat publication and can be used to switch two antennae down one coax.

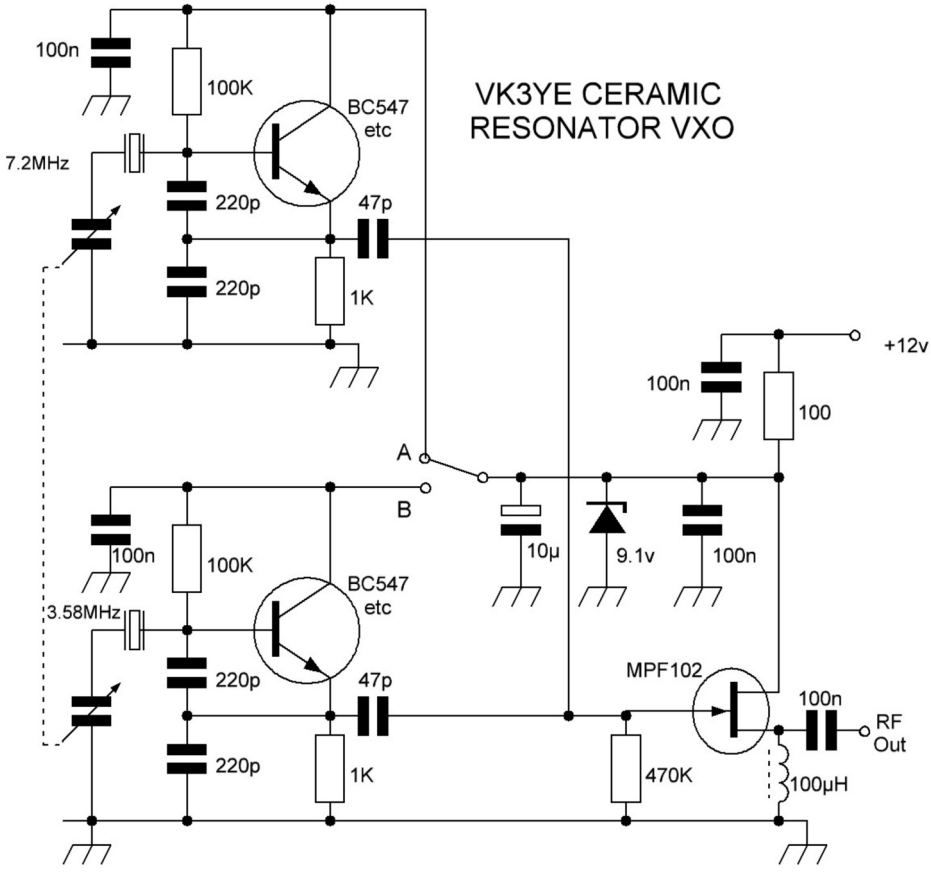


The project is in two parts, 1. Control box shack end, 2. Remote Relay box.
The circuit is straight forward the only real decision is the choice of relay. For qrp good quality 12v car relays could be used, However I had acquired an aircraft antenna relay from some distant rally. So the choice of relay will influence the dc supplied and the led series resistor.

Two Band Ceramic VXO

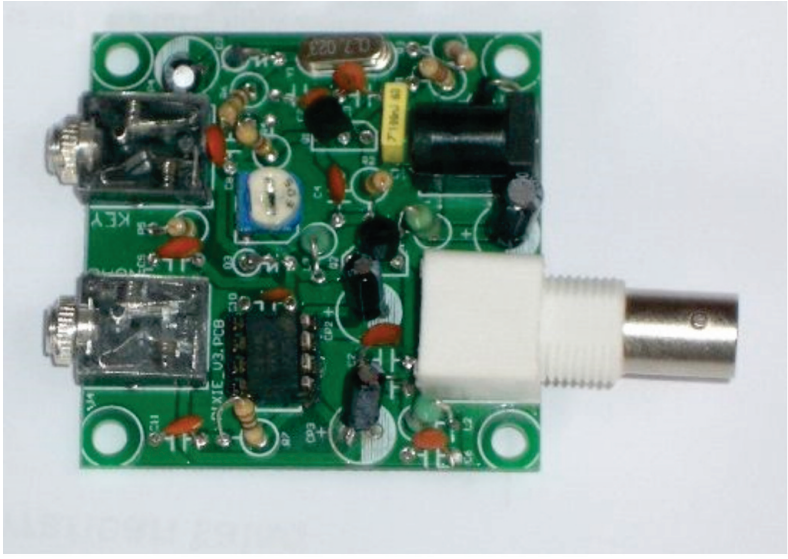
Peter Parker, VK3YE, 5/51 Blantyre Ave, Chelsea, Vic 3196

This article was first published in the Sep. 2011 edition of **'Lo Key'**, The Journal of the VK QRP Club) to whom we offer our thanks



The 40m Pixie II Kit from China

John Faulkner, VK2DVW, PO Box 4057 Bexley North NSW 2207 Australia, vk2dvw@iinet.net.au



The simplicity and ingenuity of the Pixie transceiver holds an interest for QRP constructors, and its small size makes it attractive to SOTA activators, so when a Pixie kit appeared from a Chinese source, I decided to buy one. There are numerous sellers of this kit and a wide variety of prices. This one was bought for (Australian) $5.99 plus $0.99 postage. A radio for seven dollars! You couldn't buy the components for that.

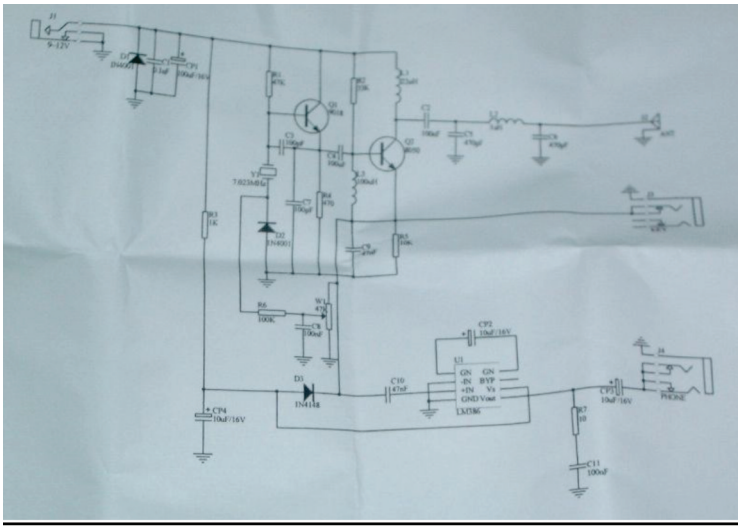
A padded postage bag arrived 9 days after placing the order. Inside was a zip-locked plastic bag. You get a good quality, through-hole plated PCB, a bag of components, a bill of goods, a circuit diagram – and that's all.

Having read about the kit in on-line forums, I checked every component. Like many others I found that some capacitors were missing, some were the wrong value and that there were also some extra random components. The great majority of components, however, were of good quality and correct value.

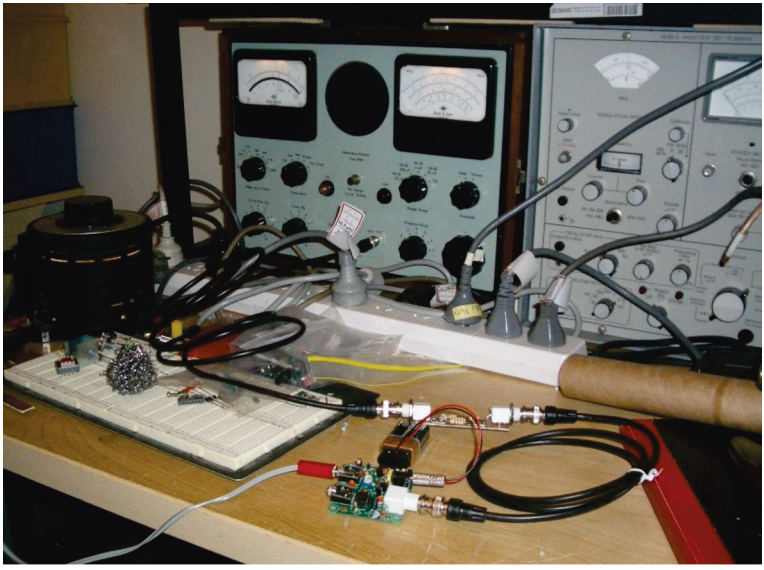
Construction took about three hours, testing at every stage and giving my eyes the occasional rest. Parts placement is easy, with outlines and parts numbers marked on the PCB. So the lack of assembly instructions would only be an issue for the inexperienced builder. The solder pads are quite small, so use a fine-pointed iron. The Key and Phone sockets are 3.5mm stereo and a BNC socket is for RF.

The circuit is a typical Pixie 2. A small NPN transistor runs the VXO constantly, with a IN4001 acting as a variable capacitor for RIT. When a press on the key earths Q2, the

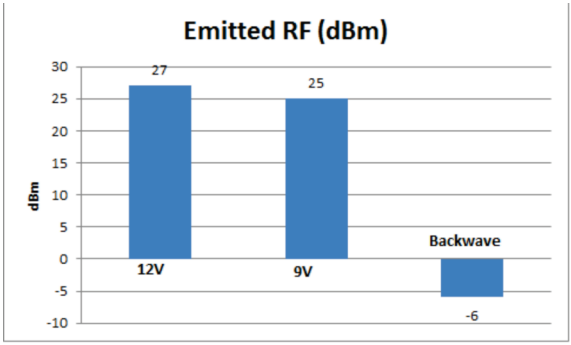
Pixie transmits RF through a low-pass filter. When the key is up, Q2 mixes the output of the VXO with an incoming signal. The products pass through a low-pass filter (C9, R5) to a 386 amplifier which drives headphones. A trimpot provides tuning and RIT, such as there is.



So how does it measure up? This requires a visit the VK2DVW Advanced Research Facility.



With a 12V battery, transmission power is 500mW, with a 9V battery, 300mW. Disturbingly, there is a 0.25mW output on receive because the VXO runs continuously.



Importantly, does it meet our legal obligations? In Australia these are listed in the Licence Conditions Determination published by the Australian Communications and Media Authority. Power and bandwidth limits are easily met, but there is this:

7A Spurious emission limits for an amateur station

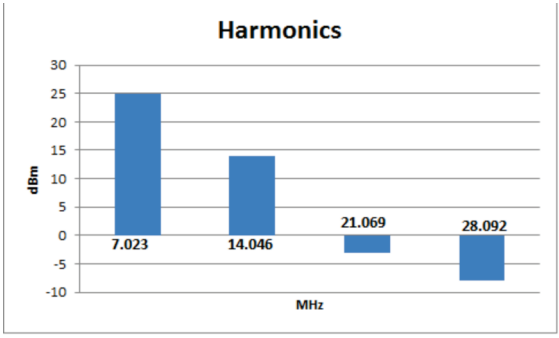
(1) The licensee must not operate an amateur station if the emissions of the station include spurious emissions that are not attenuated below the power of the wanted emission supplied to the antenna transmission line by:

(a) for frequencies less than 30 MHz — the lesser of:

(i) 43 + 10 log (PEP) dB; and

(ii) 50 dB

Note that these are db "below the power of the wanted emission", a relative, not an absolute value. The Pixie just does not meet these requirements. Most builders will not have the facilities to test the output, and we all know how far even a QRPp signal can travel.



Reception is very broad (plus it also receives on the harmonics of the VXO). Sensitivity is hard to measure, but about 100uV. I am about 12 km from a cluster of AM broadcast transmitters in the 10 to 50kW range but there was no AM broadcast breakthrough as some have reported. On the other hand, a nearby AM transmission, even at low output, will break through – one of the well-known issues with the 386.

You cannot adjust headphone volume and there is no sidetone. The crystal locks you to 7023kHz plus or minus about 3kHz. This is in the CW allocation but is not a recognised QRP spot. Perhaps that will change with the popularity of the Chinese kits.

Conclusion

Albert Einstein allegedly said *"Everything should be made as simple as possible, but not simpler"* and I'm afraid that the Pixie comes under the "simpler" heading, which probably explains why so many "improved" versions of it exist – with sidetone, audio filter etc. It's a seven dollar radio – what do you expect? But experimenters could use the kit as a basis for some modifications to allow it to go to air, perhaps as a beacon or for ultra-portable use.

A Warning from G3SES

Perhaps you can pass on the following information to other members via SPRAT.

A few years ago I purchased a number of new transistors at a NW radio rally. Unfortunately I cannot remember the location nor the vendor.

They were TO220 style, marked C2078 IFA. Recently I have been experimenting with a 5W PA for a 5262 kHz transmitter and could not get anything like the expected output. Trying an MRF475 gave excellent results.

Investigation on the Internet informed me there are a large quantity of fake Chinese transistors, usually being sold on Ebay. The popular CB PA transistors are particularly being faked as they are obsolete types and desirable to repair CB transceivers.

The particular fakes have very shiny heat sink tabs. They give a high beta , about 80 on a dc tester but have no gain at radio frequencies. They seem to be remarked LF transistors.

I hope this information may save other members a waste of money and time.

COMMUNICATIONS AND CONTESTS

Dom Baines, M1KTA, 34 Bury Road, Stapleford, CAMBRIDGE. CB22 5BP
m1kta@gqrp.co.uk

Hi all, thanks for the comments (please keep them coming). Don't forget there are loads of large and small contests as the evenings start to close in (sorry to mention that, my wife mentioned it was beginning to get dark again as we sat outside in the garden after I finished putting up a new antenna for 160m). This does mean the LF bands will start to see some more activity and the twilight hours will be closer to the centre of the day again.

I hope everyone had fun in the summer operating from base and portable both home and away. Conditions appeared mixed with some periods when operating appeared relatively easy to be followed by rather lean sessions.

Thanks everyone for the entries for the International QRP Day. Valery RW3AI wins this year with contacts pretty evenly split between 80m and 20m and the two sessions

There will be a QRP stream at the RSGB Convention this year thanks in no small way to Steve G0FUW. You'll hear Paul Darlington M0XPD giving a technical talk, Dave Seargant G3YMC will talk about QRP for a modest QTH and yours truly will present some experiences having been the DX QRP a few times.

It might be of interest to some members I'll have Bob G3PJT's remote K3 setup with me using GB3HQ on the Friday night and others from Camb-Hams will have it throughout the weekend. The technology is fairly new and not everyone has seen a station operating remote before. Whilst the actual station is capable of operating from QRP to very QRO (It is a K3 with a KPA500 attached) it does have some very good antennas and for some this might be an opportunity to hear what difference these might make. Remote operations are not for everyone and there are very opposing views on the benefit or otherwise but it does mean that for some with ability to have a station at home due to constraints it might present an opportunity to operate that they did not have before, anyway the station will be there.

There is no planned GQRP activity during this quarter however if you are looking for other qrp ops then the usual International QRP Calling Frequencies should be active.
CW: 1843, 3560, 5262, 7030, 10116, 14060, 18096, 21060, 24906, 28060
SSB: 3690, 7090, 14285, 21285, 18130, 24950, 28360 kHz
I recommend if there are a few stations on frequency spread out a bit if you can.

It is usual for operators to exchange their G QRP Club membership number when making QSO but it is not essential.

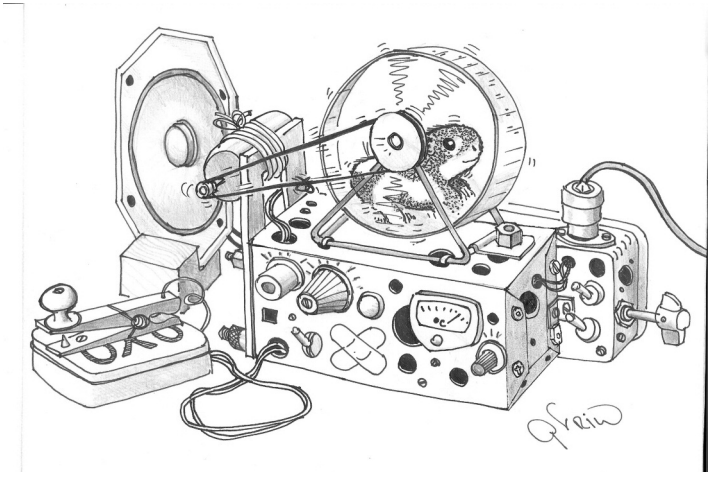
QRP Labs

Kits & modules for QRP enthusiasts!
http://qrp-labs.com

Si5351A VFO kit, rotary encoder, IF offset etc.	$33	£23.74	€30.28
Si5351A Synthesiser breakout kit	$7.75	£5.58	€7.11
OCXO/Si5351A synthesiser – kit-built OCXO	$16	£11.51	€14.68
Arduino shield for Si5351A kit, LPF/relay/etc. kit	$14	£10.07	€12.84
Ultimate3S QRSS/WSPR/etc. TX kit	$33	£23.74	€30.28
7-ele Low Pass Filter, any band 2200m to 6m	$4.60	£3.31	€4.22
6-band relay-switched kit for plug-in LPF kits	$16	£11.51	€14.68
Ultimate3S cut/printed Al box, accessories kit	$22	£15.83	€20.18
QLG1 very sensitive GPS receiver kit, patch ant	$23	£16.55	€21.10
Shack clock kit with optional GPS discipline	$19	£13.67	€17.43

Order online at http://qrp-labs.com using PayPal.

Note: prices are based in US $. Prices shown in £ or € are correct at time of writing but will vary depending on exchange rate fluctuations.



From time to time SPRAT has had excellent cartoons from G8RIW. We need a caption for "Hammy", his most popular cartoon. Send to G3RJV … This also reminds us of the multi-talented members who submit offerings to SPRAT. Looking forward to entries.

N CHANNEL JFET TESTER

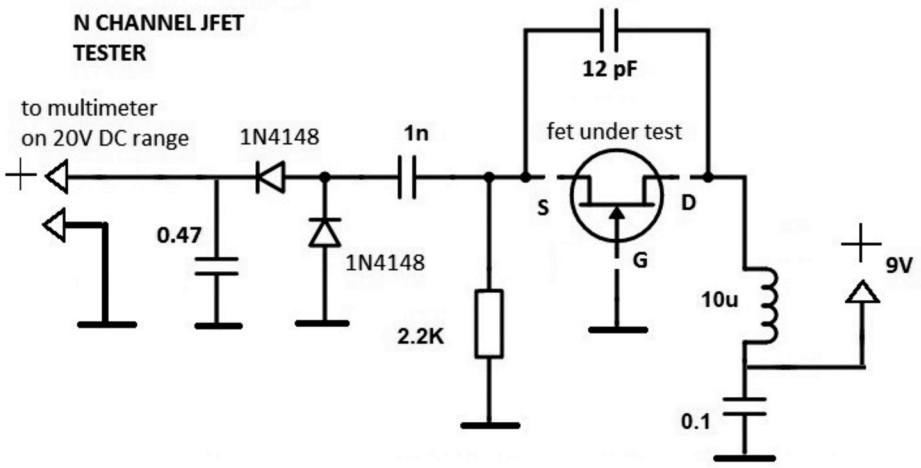
ALAN TROY G4KRN **alantroy49@gmail.com**

There are different methods for testing bipolar transistors but testing common N channel JFETS like the 2N3819 seems to be more complicated. Here is an oscillator circuit with diodes in the output for reading RF voltage output on the DC range of a digital multimeter that we can use to test JFETS. It will demonstrate that the JFET oscillates and the output can be compared with similar JFETs.

The oscillator circuit uses a moulded 10uH inductor and oscillates around 14.380 MHz. The diodes are 1N4148s and allow a meter on the 20 Volt DC range to read the RF volts output when a JFET is inserted in circuit. The capacitor between drain and source is really critical and needs to be 10 to 12pF. I used two 22pF capacitors in series. A small trimmer of 33pF could be used and adjusted for best output.

I made up the unit on a piece of trackside veroboard with short, colour coded leads, for source, gate and drain to a small breadboard for inserting the JFET under test. Output leads go the the multimeter. Also leads go to a 9V battery. To operate, insert the JFET under test in the breadboard, noting the pin-outs, connect the multimeter on the 20V DC range and connect the battery and note the voltage reading.

Testing N channel JFETs from my junkbox: 2N3819s gave outputs ranging from 4 to 5V, J304s and J310s were around 5V and 2N5457s, an AF JFET were 2 to 3V.



DCR1007 Direct Conversion Receiver

Gerard Kelly G4FQN, gerardkelly429@googlemail.com

The DCR1007 (Direct Conversion Receiver) is designed from scratch, with amateur radio construction in mind, it should not be compared to previous DCR circuits which in general do not share the same aims.

The DCR1007 amplifier circuit (excluding P.A.) is 100% unconditionally stable, 100% free from mains induced 50Hz background "hum".

The DCR1007 receiver has:
no construction limitations just use good r.f. and a.f. practice,
a single power supply requirement.

In practice the DCR1007 can be constructed on the kitchen table, perhaps, with a little more decoupling and still work satisfactorily. I am aware that some experienced constructors may be uttering the words made popular by Victor Meldrew at this point and a stripboard layout is provided in Fig. 2, should you want to try this circuit out.

This is an amateur radio project and the main design aim is to provide amplification at the middle range of audio frequencies and no other, the high degree of stability came as a welcome surprise. I apologise to the more experienced constructors of amateur radio devices reading this for stating what for them is the obvious.

For any amplifier to function an input signal must be provided between ground and its input. In this circuit each amplifier, over several stages, has input filters which both provide and restrict signal coupling between stages deigning connection between them to the signals we do not want. The supply of each stage is also independent the only remaining common link is the "ground"connection. The source of 50Hz mains from the local environment around us (aerial/earth/power etc.) in my view cannot be easily filtered-out, which is why in my experience DCRs often display "earthing issues" where it is difficult to find a "true" earth. In the DCR1007 circuit the wanted signals have a common ground, the unwanted signals share this ground but not the input circuit. Which (if this makes any sense?) means that the circuit of TR1 in particular isolates or blocks all the nuisance signals we do not want. No more technical stuff, once you have constructed the circuit on stripboard I guarantee you will be impressed!

Construction:
To produce a PCB for this circuit I recommend putting the transistors in line, e b c to e b c to e b c using 0.25W resistors mounted horizontally flush with the board you should end up with a total circuit length of about 5cm. The reason for doing this is that if the circuit is made smaller with a greater component density the gain can reduce.

The 140pF + 60pF variable capacitors available from SPRAT are ideal for construction of the DCR1007 but they have thin connecting strips of metal which are not the most robust. If you are going to solder leads several times to one of these strips without them braking I suggest the following: Tightly place a " nylon tye" around the capacitor and carefully tease the three metal connecting strips across it. Hot glue each strip in place with a small blob of glue, now when you solder a connecting lead the soldering iron melts the glue instantly and in seconds you make your soldered joint wait a few seconds longer and the glue sets once again leaving you with a rigid soldered joint. the nylon remains unaffected. Set all the preset capacitors to zero capacitance before installing.

Testing the audio circuit:
If your using recycled 220uF capacitors check that they are serviceable before fitting, before switching on, turn the preset V/C to it's zero ohm to pin4 position, switch on and check that the voltages are the same, or a little higher, than provided. Slowly rotate until circuit noise is heard and set this for comfortable listening. An audio transformer could be used to replace the demodulator/mixer r.f. filter.

Components:
Stripboard is available in several sizes, the 127mm x 95mm 50 hole is sufficient for three complete audio circuits.

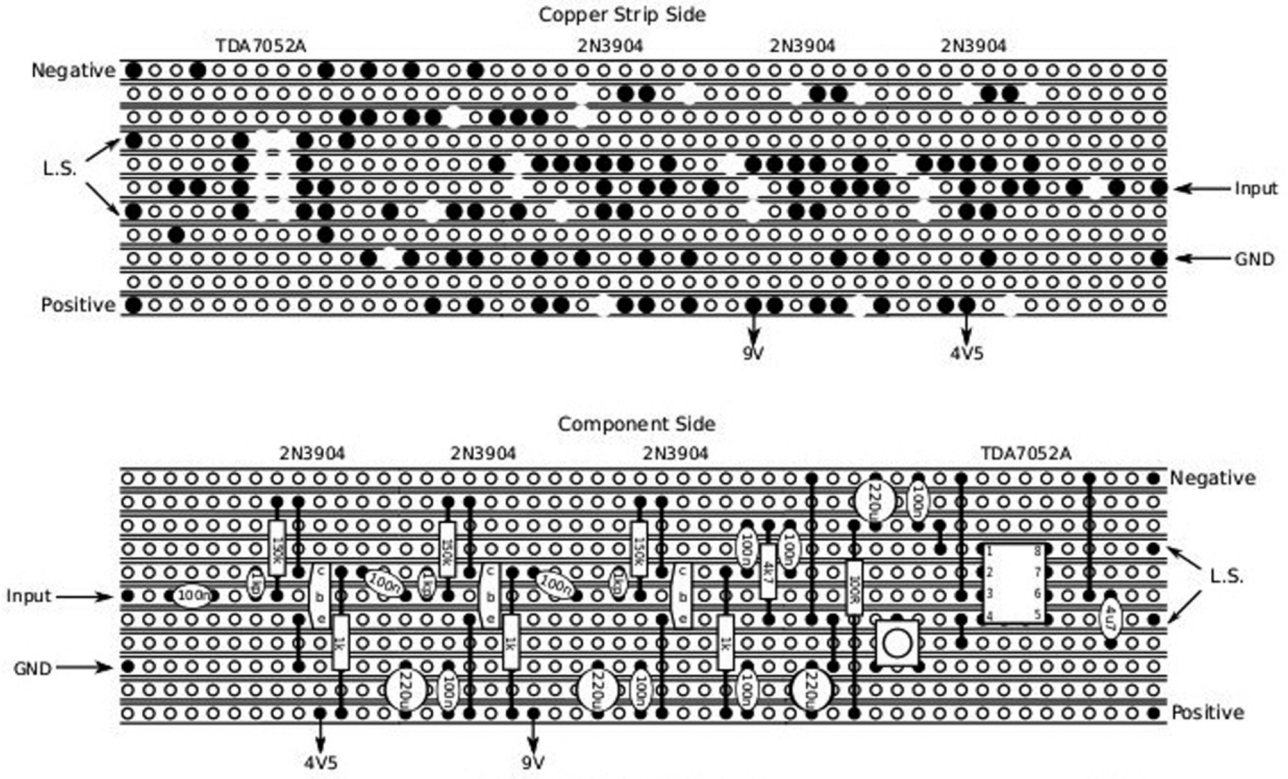
The r.f.c. Axial Lead Inductors of 100uH+ can be purchased or simply wind 21 turns of 27swg onto a FT37-43 ferrite ring.

I used a T68-6 core (yellow) for L1 with L2 wound over at the centre of the L1. The construction of L1 (21T) and L2(3T bifilar wound) are fully described in "International QRP Collection by Rev. George Dobbs, G3RJV and Steve Telenius-Lowe, 9M6DXX, page 61"

For D1, D2 use any signal diodes.

For transistors Tr1-Tr3 I used BC109, 2N3904 etc.

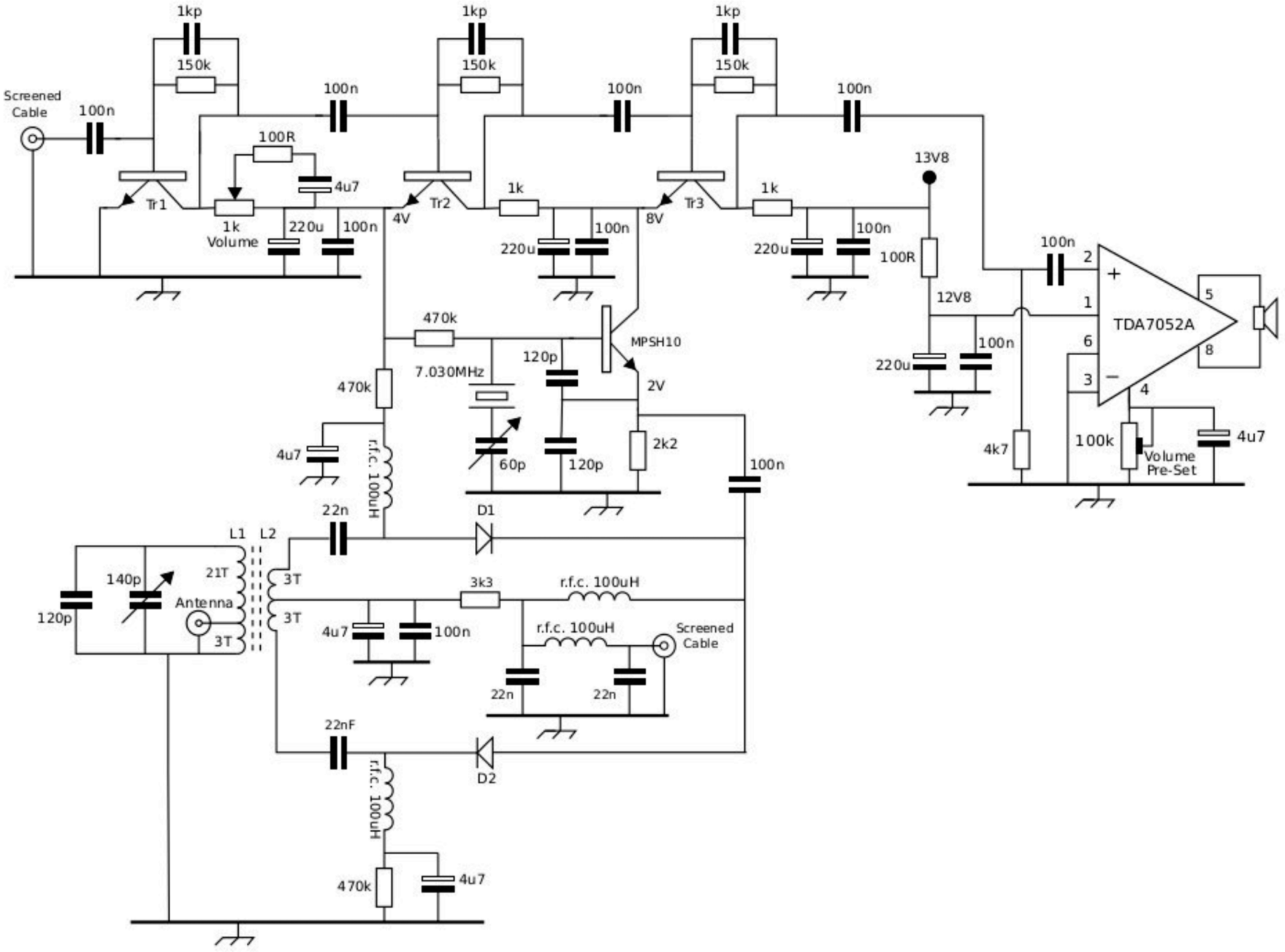
Stripboard is the best way I have found to produce the audio circuit but a dedicated P.C.B. would make this the perfect project for clubs (component count of 60) and individuals alike. Although the temptation to add a transmitter stage will be irresistible. The component values are suggested values and wherever possible limited in the number and the range of values used.



Audio Amplifier for the DCR1007

Fig. 2

The DCR1007 a (Direct Conversion Receiver) by G4FQN



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FORGET ABOUT YOUR RENEWAL BY USING THIS FORM

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

MOST IMPORTANT :-
Put your club number in the box marked (7)
Now please take or send the form to your bank. **Do not** send it to the club.

To National Westminster Bank

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Standing Order Mandate

_____ **(2)** Branch

	Bank	Branch Title (not address)				Sorting Code				
Please pay	National Westminster Bank	ROCHDALE Beneficiary's name				01 - 07 - 44				
For the credit of	GQRP CLUB NUMBER 1 ACCOUNT					0	4	1	0	9	5	4	6
	Amount in figures	Amount in words								
The sum of	£6.00	SIX POUNDS								
	Date and amount of first payment				Due Date and Frequency					
Commencing	15-1-2017	£6.00	and thereafter every		ANNUALLY ON JANUARY 15th					
	Date and amount of last payment									
*until	----------	--------	Until you receive further notice from me/us in writing							
Quoting the reference	(7)		And debit my / our account accordingly							
	GQRP #	**15154**								

Special Instructions

Please cancel any previous Standing Order in Favour of the beneficiary named above under this reference.

(3) Account to be debited	(4) Account Number

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Note. The Bank will not undertake to:
(i) make any reference to Value Added Tax or other indeterminate element
(ii) advise payors address to beneficiary
(iii) advise beneficiary of inability to pay
(iv) request beneficiary's banker to advise beneficiary or receipt

Send to your bank

Do not send to the club. Do not send to the club.

Do not send to the club. Do not send to the club.

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Club Information – Services and Awards

We have a number of Awards and Trophies which are described on the club website.

Club Awards: Our Awards Manager is Ryan Pike – G5CL, 63 Bishopstone Village, Nr. Aylesbury HP17 8SH.

Trophies are managed by Dom Baines M1KTA. 34 Bury Road, Stapleford, Cambridge, CB2 5BP

If you don't have internet access and you would like to find our more then please write to Ryan (awards) or Dom (trophies) enclosing return postage.

QSL Bureau: Managed by - Mr D S Coutts GM3VTH, 29 Barons Hill Avenue, Linlithgow, EH49 7JU.

QSL cards are sent out at regular intervals, in February, May, August, and November, in stamped addressed envelopes, paid for by the club. We no longer need to receive envelopes or stamps from members. All cards for the bureau should be sent to GM3VTH at the address above. Please help to speed up the service by following the following dispatch procedure:-

1. Put the receiving stations membership number on the top right of the card.
2. Sort cards in ascending number order.
3. Do not include cards with no number, or for non-members.

Unclaimed cards and those of ex members will be destroyed after 6 months.

North American members can send cards to:-
David Gauding, NFØR, 14220 Tullytown Court, Chesterfield, MO 63017, USA
David will send these in bulk to the UK bureau for distribution.

Technical Advice:
Antennas.
Colin Turner G3VTT (address on the Antennas page) will advise members on antennas to fit their location. Please send a plan, with dimensions, of your site and required bands, type of equipment and location of shack.

Technical Problems.
Ian Keyser G3ROO will give advice to members on circuit and construction problems. Please provide the fullest information possible. Write to Rosemount, Church Whitfield Dover. CT16 3HZ

A weak signal source for 15M receiver testing

Mike McShan, W5RST, 626 NE 14th St. Oklahoma City, OK 73104, USA
w5rst@icloud.com

I've recently built two of W8DIZ's 1watter transceivers (one for 30M and one for 15M). Testing the sensitivity of the 30M receiver was easy since the band is quite active, and I also have the Norcal S9 signal generator that they offered as a kit several years ago, which provides S9 and S1 signals for 80, 40, 30, and 20 meters. However, 15M is not covered by this generator, and the band is often (usually) dead by the time I get home from work. Weekends can be hit or miss, too. So, I decided to adapt the Norcal circuit for 21.060 MHz since I had a HC49 crystal that I bought from ESS (see below).

The Norcal circuit was replicated ugly style on a piece of unetched PC board. Using my FT-817 as a test receiver, nothing was heard. A 40M crystal was substituted, and an S9 signal was heard on 7.040 MHz. I figured that there was insufficient drive to get oscillation from the 15M crystal, so a variable resistor was substituted for the 20K emitter resistor (R6) in the original circuit. A stable S9 oscillation occurred around 5-6K. After replacing the pot with a fixed 5.7K resistor I discovered that I was getting more than S9 output. I played around with the output capacitor (dropping it to 10 pF) and the L attenuator pad to get S8-S9 at 9V. The 15M generator gave this output stably with 3V(!) through 9V supply but increasing the voltage caused the output to go over S9. To keep the output independent of the voltage source, I added a 78L05 voltage regulator.

The attenuator pad from the original Norcal circuit to give an S1 signal was not built since I have a lab quality Kay attenuator that can do the trick, but the link to the original circuit is shown below if you want to add it.

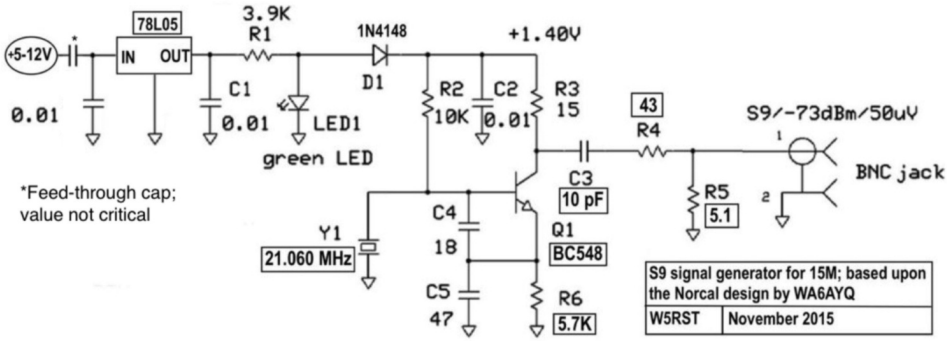
The generator was mounted in a Hammond die-cast box with a feed-through cap for the positive terminal. With the coax disconnected, none of my receivers can hear it no matter how close it is, so I think the shielding is pretty good. A BC548 was used for Q1 because I have large supply of them in my junk box; any small signal NPN should work. Additionally, R6 could be replaced with a 10-turn trimpot if greater output precision is required.

The changes from the original design are boxed in the schematic.

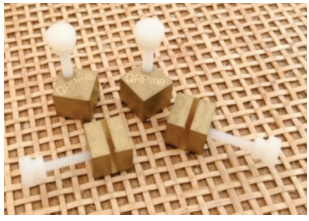
So, how sensitive is the 15M 1watter? Very sensitive! If we assume that the generator is putting out about -73 dBm for S9, then I can insert over 40 dB of attenuation and still hear a faint signal. I think that's FB for a radio that costs less than $50. Now, if I can just get some radio time when 15M is open…

Web links:

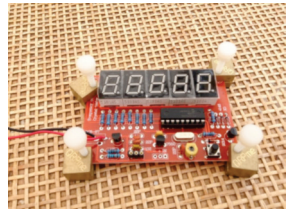
W8DIZ 1watter transceiver: http://kitsandparts.com
Norcal S9 signal generator: http://www.norcalqrp.org/s1s9generator.htm
Expanded Spectrum Systems (ESS): http://expandedspectrumsystems.com



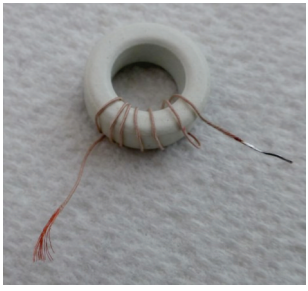
Club Sales
Graham G3MFJ



Since the last sales info, I have a couple of new items in the list. Firstly, another offering from Rex (W1REX), and he calls this a brass set. Here is a picture of the set in use when I was building a Chinese kit recently. As you can see, they will fit anywhere – I used them with the nylon screws on the component side. Once you have used them, you won't want to live without them! They are not cheap I'm afraid - £12 for a set of 4, but that is partly due to the cost of getting them here. Postage is as for polyaricons please.



The second item is more wire – Litz wire this time. I have two sizes – 7 and 15 strands of 0.04mm solderable enamel, covered in a layer of silk thread. For those of you as old as me, who remembers using a small tin lid of burning meths to dip the Litz wire in it to strip the enamel coating, this is solderable, I repeat solderable!! How we ever survived without setting fire to the shack, I will never know! I know there were other methods, but the burning meths was much more fun!This is 12p for 3 metres of the 7 strand and 20p for 3 metres of the 15 strand. If you are interested, ask for a sample with your next order and I'll send you a few inches.



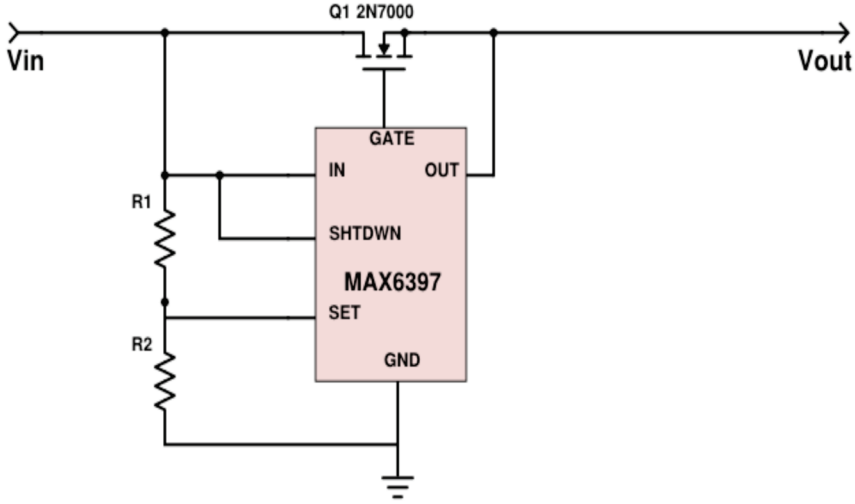
Overvoltage protection using MAX6397

Robin Harris, G4GIY, 303 Northate, COTTINGHAM, HU16 5RL.
robin@sprite.karoo.co.uk

I came across the Maxim MAX6397 device recently and thought it had some useful features. Essentially it monitors a supply voltage and if this exceeds a preset threshold it very quickly disconnects the load. The switching element is an N-channel MOSFET - the voltage drop is negligible and any power level can be switched by choosing a suitable MOSFET.

The threshold is set by using two resistors in a potential divider. The maximum input protection is up to 72V. Switching times are of the order of 100uS so plenty fast enough to keep downstream equipment safe.

This is the circuit:



I used a cheap 2N7000 n-channel FET but other choices could provide more power handling.

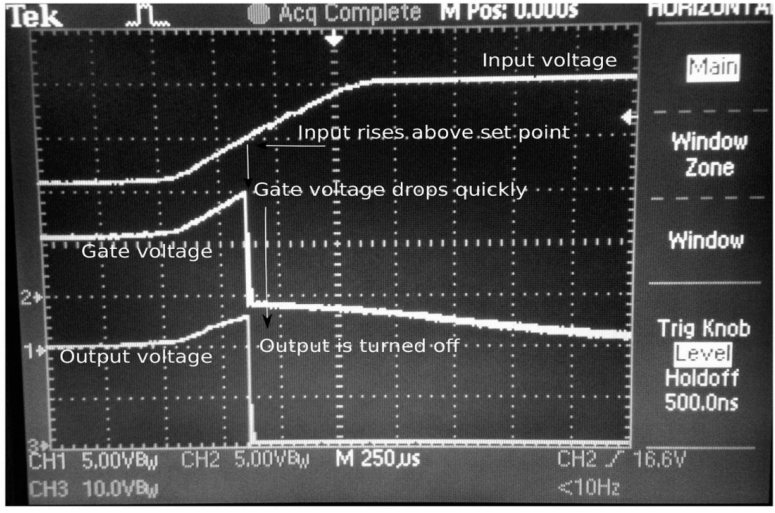
R1 & R2 are chosen to set the threshold. There is a full description in the datasheet but this approximation is fine:

Rtotal = (R1 + R2) should be about 1 - 2M
R2 = 1.215 x Rtotal / Vov (Vov is the desired threshold voltage)
R1 = Rtotal - R2
I used a pot to experiment with the threshold voltage and then used fixed resistors in the final circuit.

Things to be aware of:

- The IC is available from Mouser (UK) at £3.36 (May 2016) for a single device
- The package is SMD 3mm x 3mm so mounting requires a specific PCB pattern. I bought mine from Proto-Advantage - they are not cheap with postage from the USA but it is really the only way of safely mounting the chip. For my first attempt I soldered thin wires directly onto the IC but it was VERY tricky and only suitable for testing and not for a real application.
- Be careful buying a PCB adapter - this IC uses 0.65mm pitch so the part number from Proto-Advantage is IPC0063.
- Soldering using paste and a hot air gun worked fine
- Pin 2 is labelled SHTDWN and must be held high to turn on the IC. Connect it to IN for normal operation. This pin can be used to control power with TTL logic levels.
- The IC includes thermal protection and will shut down power if it overheats

The IC also includes a 100mA 5V regulator and a pin (POK) that monitors this level.



The screenshot above is an oscilloscope trace to show how the device responds to an input voltage over the threshold. At that trigger point the gate of the FET is taken low isolating the downstream equipment from the supply. When the overvoltage condition is removed there is a short startup delay before the supply is reconnected to the equipment.

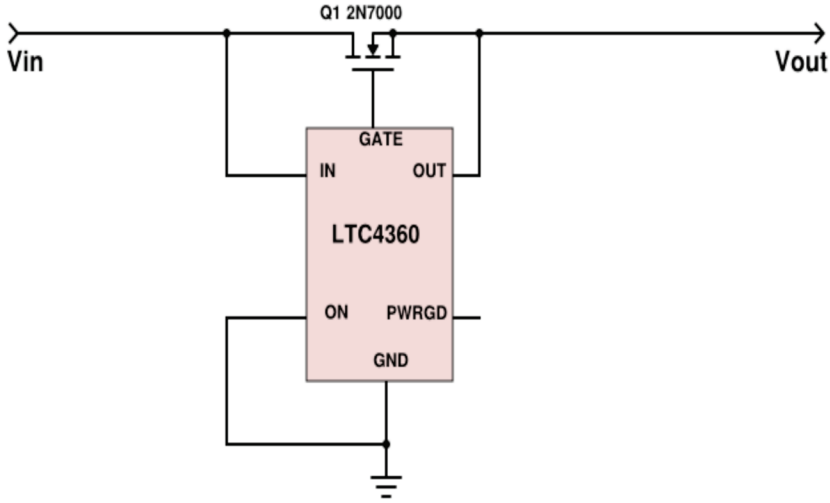
A Specific 5V Option – LTC4360

Another alternative for protection of 5V systems is the Linear Technology LTC4360. This comes in an 8-lead SC70 package and will disconnect downstream equipment when the supply exceeds 5.8V. It is rated for up to 80V input.

This device also switches an external n-channel MOSFET - I used a 2N7000 again. The circuit is very simple but remember the ON pin must be grounded to turn on the output. This pin can be used as a switch - take it above 2.5V to turn off the output.

The PWRGD pin is held high by an internal pull up resistor and goes low when the output is connected i.e. 'on'.

Soldering is a little easier with this device as it has 'legs'. I used a PCB adapter, solder paste and a hot air gun and had no difficulties.

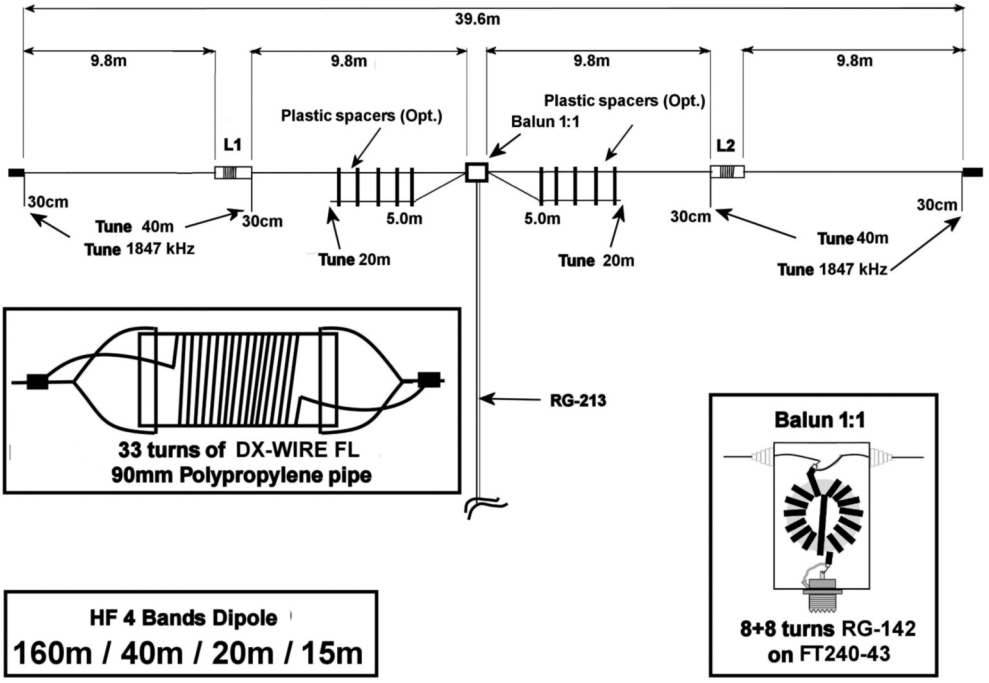


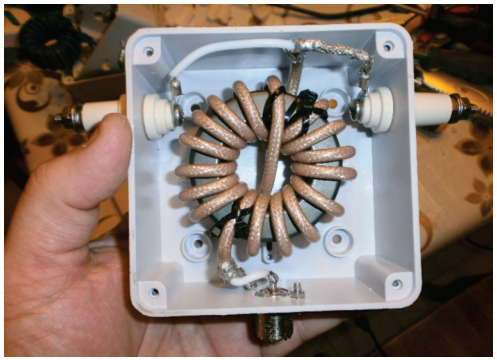
Antennas Valves and Vintage

Colin Turner G3VTT
182 Station Road, Rainham Gillingham, Kent ME8 7PR
g3vtt@aol.com

There is some valve information this time plus an aerial and watch out for a new QRP activity period. Fabio IK0IXI, who is our representative in Italy, has provided some excellent photographs and drawings of another multiband aerial he has constructed. The photographs and diagrams give a comprehensive description of its construction.

Hi Colin, this is a simple 4 bands HF dipole that I built a couple of months ago and use daily. It works very fine and is loaded on 160m only and full size on other bands. Basically I have added two inductances on a 40m dipole. They act as an RFC for 7 MHz (and above) and as partial load for 1.8 MHz The 40m dipole works on 21 MHz in third overtone mode. For 20m a monoband dipole is connected at the same feed point. A 1:1 balun completes the dipole. Nothing else is required and it gives very good results on every band.



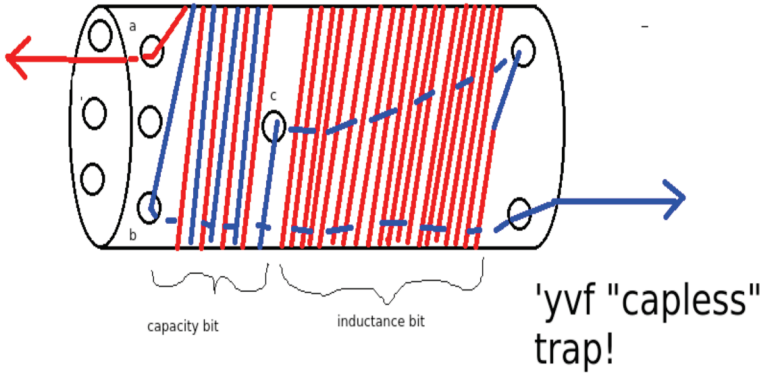


The balun construction next the loading coils for the dipole.

Is this a new Capacitor Free Trap construction method?

G3YVF has written and supplied a diagram about another method of trap construction he is considering using. So far as I know this has not actually been tried but it may well work. Is there somebody in GQRP who wishes to try this idea out? The idea stems from the tuning capacitor being removed and replaced by the capacity between the windings. I suspect that they may be some cancellation in the value of the inductance but this can be replaced by careful adjustment of the number of turns on the trap coil. The benefit would be cheaper construction, stronger construction, no expensive high voltage capacitor, more stable tuning if the turns of the trap coil are securely in place and lighter overall weight. Has he got something here? Please let me know how you get on if you try this idea.

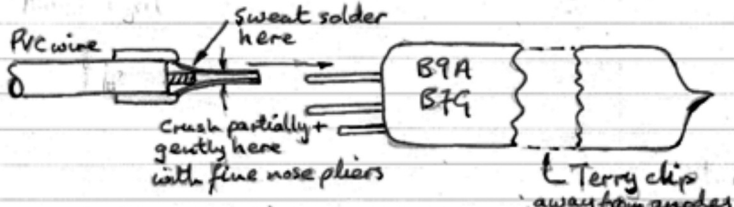
Hole C is approx 1/3rd down the former. To trim for freq move wires a and b around the former taking fractions of a turn off at a time raises the resonant frequency of the trap. On a 1" 1/4 former and using approximately 6 red turns the capacity formed is approximately 45pF. All turns are tightly wound along side each other. As a starting point, and guide only, for a 14MHz trap, 1" 1/4 dia use 16 red turns and 4 or 5 blue turns. I use the same wire on the trap as the antenna so long as it is insulated wire!



Home made Valve Sockets

Valves can be mounted through drilled out Vero, etc, or even hardboard! To connect to the pins –

Use "1 mm BOOT LACE" crimp ferrules, as below, pushed on anode, kathode + grid pins. From usual "Electrical Factors" in the "City" (hint---)



Heater pins – higher current required

Brass liner stripped from 1 A "choc-bloc" connector

Tighten screws CAREFULLY!

Octals, 807's etc

Use 5A "chocbloc" inners; 2 × Terry clips secure the phenolic base skirt.

Top Cap connections: formed from 16swg (or similar) copper wire, wound on a pencil – the hexagon shape makes it easier to open up to grip the top cap.

P. Thornton G6NGR

The diagram above supplied by Peter G6NGR shows a method of connecting to valve pins using bootlace crimp ferrule, choc block inner connectors and tinned copper wire. No more complaints about the lack of valve holders please!

QRP Activity Periods during 2017

The Monday evening Activity Period continues on 3560 with regulars G3MCK, G3KLT, G4LFU, G4HMC and ON6WJ turning up. Thanks to all and the others who have called in but it is time for change. I have considered moving the activity to 160m for next year but bearing in mind the requirement of good propagation around the UK in the evenings I think 60m will be a better solution.

The band is contest free and 60m propagation can be studied plus hopefully more equipment will be constructed. We have Club crystals in stock available from G3MFJ and there are some designs available already using modified 40m transmitters. Aerial sizes are still manageable in a standard UK garden on 60m and many a multiband doublet has been tuned up on 5262 KHz.

I have a design of a simple trap dipole for 60m and 30m coming along thanks to Fabio and there is plenty of ex-military equipment that will work on this band. Ask the various cadet corps using the band so polish up and prepare your military collection if you have one.

This is a chance for GQRP to make its presence felt on the bands using homebrew and vintage equipment and provide regular meaningful communication.

Monday Evening Activity Period

Starting from Monday 2nd January 2017
GQRP Activity Evening will be from 2000z on 5262 KHz.
Start building your equipment now!

You may receive this copy of Sprat a little late but the next **Valve QRP Day** is on **November 12th and 13th**. Please call 'CQ Valve QRP' or 'CQVQRP' and don't forget to tune a little higher or lower than your frequency. You can use any band or mode using valve (tube) equipment only and I welcome pictures comments and circuits but please no logs – it is not a contest. Finally, please send me any circuits of valve equipment you have made, aerial ideas, tips and hints for inclusion in AVV for the winter Sprat.

I'm looking forward to the Winter Sports as usual, easily the best event at Christmas.

Yeovil Amateur Radio Club 70th Anniversary

Anniversary celebrations in Yeovil on 15th Oct 2016
Vicarage Hall, Vicarage Walk, Quedam Centre, Yeovil, Somerset.
A short walk from bus station and multi-storey car park.
Open 10am – 4pm refreshments available. Wheel chair friendly.
Join us for demonstrations and rag chew ex members very welcome.
More info Bob wjh069@gmail.com 01963 440167

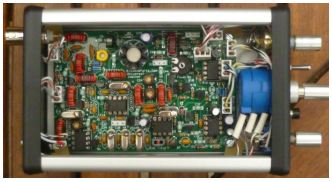
FOR SALE: BC221 Frequency meter, working, with charts and ac psu. £5.00.
Collect from near Reading, Colin G3VKQ. 0118 934 0300

MEMBERS' NEWS

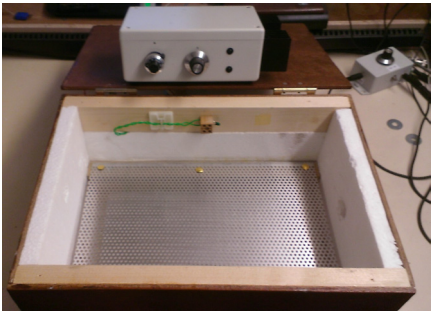
by Chris Page, G4BUE

E-mail: chris@g4bue.com

Inspired by **G3UD**'s notes on the KitsandParts 1W escapades, **G4GIR** decided to try the 1W 30m version. Ian says it took 14 days to arrive and seven to construct! He squeezed it into a Maplin N84AL box and machined and engraved the panels on his brother's CNC Mill (see pictures below). The VXO manages 10100-10121kHz and finding suitable sized knobs was impossible, so Ian was back on the lathe! He has QSO'd 21 DXCC so far, the best being **SW9AA**, using a delta loop antenna with the apex at 40 feet. He noticed some front-end overload as dusk fell so an RF gain will be essential and he intends to 'mod' it with a Chinese DFM, RF gain and homebrew audio peak/notch filter, housed in another N84AL box.



In May **G3CWI** introduced an audible SWR/power meter, rated for 0.25-100W, for 160-6m use to the Sotabeams range of products, see <http://www.sotabeams.co.uk/swr-power-indicator/>. Richard says, "Like most of our products, it is available as a kit, kit + enclosure or fully built". **GØUPL** says QRP Labs introduced a new kit in July: a 50-ohm 20W dummy load for $8.50, see <http://qrp-labs.com/dummy>. Hans says, "In the kit you will find 20 resistors, 1k 1W 1% that are sandwiched between two identical PCBs. A BNC connector is supplied and the kit also includes a simple diode-capacitor peak voltage detector which, with a DVM, can be used to give a rough estimate of power".



G3XIZ has been playing with an antique data logger system and doing experiments with his home brewed temperature control unit and heated enclosure (picture left). Chris says, "The system is ideal for checking and correcting free-running VFOs. I can set the enclosure temperature between 22-42°C with an accuracy of about 0.2°C". Has anyone built a Klopik 2 TCVR, asks **MW1LCR**, who is interested after completing his **G6LBQ** multi-band TCVR. Adrian says the Klopik 2 kit is available via *eBay*, has an IF of 8.86MHz and is for CW and SSB. He would like to see the circuit diagram if anyone has one.

G4FBC was so impressed with the Pixie, as reported in the last *SPRAT*, that he has built another one (see pictures below). Ron says, "This was inspired by another 'find' whilst perusing the aisles in my local *Aldi* store. I spotted a rather neat metal box containing mixed herbs for barbecue meat and in a flash of inspiration, I thought it would make an ideal mounting for the Pixie PCB. The completed project has turned out to be a neat handheld 40m QRPp TCVR. As a bonus, all the transistors, crystal, and band-pass filter components are mounted in sockets made from cut up turned pin IC holders, which makes field repair, band and frequency changing, and further experimenting much easier".

The Chippenham and District ARC will hold a rally at the Kington Langley Village hall on 25 September as part of the Club celebrating their 50th aniversary. **G6HUI** reports the Club were QRV in August as **GB5CRC** and now hold regular meetings at the Sea Cadet HQ in Chippenham on Tuesday nights - all welcome. **W1REX** has written a report on the FDIM (Four Days in May) and WBB (World's Biggest Buildathon) at the 2016 Dayton Hamvention at <http://www.qrpme.com/docs/FDIM%202016%20Report. pdf>. **GØXAR** needed to put up a TV antenna, to replace the one his dad put up 45 years ago, and found a useful site at <http://www.aerialsandtv.com/onlineaerials.html>. Steve says, "Whilst the site is aimed at TV and VHF/UHF users, it is full of good advice about installation and the shop carries a good range of masts and wall brackets. They have complete installation kits which saves a lot of time finding things one is bound to forget before starting work".

G3XVL has been building a valve TX and hopes to use it in the next G-QRP Valve Day. Chris says, "It is almost complete, I just have to finish the TX/RX antenna switching and tidy the case up. It is a 6AG7 CO/PA and manages 4-5W on 40, 60 and 80m. I'm hoping to include 30m as well but don't as yet have a crystal for that band. It has been a long time since I have built any valve gear but after reading **G3VTT**'s column in *SPRAT*, I just had to have a go and have really enjoyed going back in time!". Radio activities have taken a back seat with **G3XIZ** recently as he has been fully refurbishing his old prefabricated garage. Chris has panelled the walls, installed work benches, shelving, and 24 mains sockets and hopes to get some radio gear installed before winter.

IKØIXI/P was QRV from Lake Trasimeno (pictures above) while on a camping holiday with **IUØAHC's** family, with his FT-857 (pictured right) and end-fed antenna, 50 feet long (loaded half-wave dipole on 40m). During nine days, Fabio made lots of QRO contacts, including ZL, PR and W1 on 40m and 7Z, A4, 6Y, JT, VE7, A6, KP4 and W7 on HF, and two-way QRP QSOs on 14060kHz with European stations, including **G4XRV. G3XIZ** recently dug out his old DSB 40m QRP WSPR TX and has been getting useful reports, although HF conditions have not been so good. **MW1LCR** planned to be QRV from Corsica in the last two weeks of August with his FT-817 and light weight antennas for some beach type of activity. Adrian was hoping to use a LiPo battery pack in addition to the FT-817's NiCDs. **G3RÖO** says if you want to build a Paraset then the definitive website for this is **SM7UCZ**'s at <http://www.sm7ucz.se/Paraset/Paraset_e.htm> where every possible bit of information to build one is found there.

G4ICP received the certificate pictured right for winning the single operator low power 20m phone section for England in the 2015 Oceania Contest while operating saltmarsh portable. The low power category is 10W and Richard used his IC-703 and ¼ wave vertical on a roach pole. He has made a video at <https://www.youtube.com/watch?v=qx3-I26hEVo>. **GØFUW** says this year's RSGB Convention will have a number of QRP attractions. The weekend event on 7-9 October takes place in Milton Keynes and the programme includes a buildathon using an update on the Kanga UK FOXX-3 QRP TCVR, a construction contest with the Pat Hawker Trophy for the winner, and a number of QRP talks, as well as talks on a whole host of other amateur radio topics. Full details at <www.rsgb.org>.


The Wireless Institute of Australia in conjunction with
The NZ Association of Radio Transmitters

OCEANIA DX CONTEST 2015

Takes pleasure in awarding this Certificate

This certifies that station G4ICP

Achieved First Place in England

For the Single Operator Low Power Single Band 20M - Phone category

with a Score of 12 Points.

Issued 30th June 2016

Certificate number 2015-625

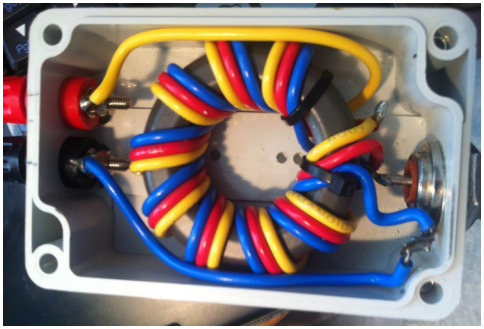
P. Miller
Phil VK2HN for Oceania DX Contest Committee

The pictures above show Beeston Bump (TG14) in North Norfolk (the site of Beeston Hill Y Station, a secret listening post during World War II) where **GØKYA** and **G3YLA** were QRV from in July on the hottest day of the year. They used a 40m inverted L end-fed half-wave (EFHW) on a 33 feet fishing pole 'bungeed' to a bench and fed with Steve's homebrew EFHW matching unit (picture right). While Jim QSO'd a DL station on 40m with his FT-817 at 2.5W (picture lower right), Steve used 2m FM to raise the **GB3FR** and **GB3NB** repeaters. Steve then used his 2.5W Mountain Topper Radio (MTR) for the first time (pictured below) and QSO'd **G3XJS** on 40m CW running 5W. When he got home, Steve checked the RBN and, "Was pleasantly surprised to see I was picked up all over the place, including the USA". More info on Steve's blog at <http://g0kya.blogspot. co.uk/2016/07/operating-qrp-from-beeston-bump-tg14-in.html> and a video at <https://www.youtube.com/watch?v=obnUyPo1_xE>.

G4GXO writes, "I've not built a regenerative receiver since I was a lad and seeing on the internet what can be achieved with these simple regenerative designs intrigues me. I can see that I need to put some time aside from all things digital and DSP to build one, but I wonder if anyone has tried this approach: (1) a fixed frequency regenerative receiver, at say 10MHz, as an IF followed for convenience with a simple IC amplifier (ubiquitous LM386?); (2) a reasonable mixer, perhaps a hybrid cascode offering low gain with reasonable noise figure followed by a tuned circuit to offer some image suppression; (3) a wide range local oscillator using an Si5351 (or

Si570), again for convenience - yes I know, I've just added a microprocessor and gone digital again, sorry! and (4) a simple preselector for a front end?". Ron's rationale is that the regenerative IF would offer AM, SSB and CW demodulation (though not single frequency) and once the regeneration has been set for a particular mode, it should not require require continuous tweaking as the tuning changes. He continues, "If feasible, this approach should offer a simple HF general coverage with dare I say 'multi mode' capability and reasonable performance. Useful perhaps as a compact holiday rig or as a test receiver for checking oscillators, harmonics and looking for interference etc. Just thinking aloud at present, but before I start cutting laminate, I would be curious to know it anyone has tried this, and if so, how well or otherwise did this approach work? Whilst SSB and CW reception should be straight forward, would AM detection still require frequent adjustment of regeneration to accommodate different signal levels?" - (ron@cumbriadesigns.co.uk).

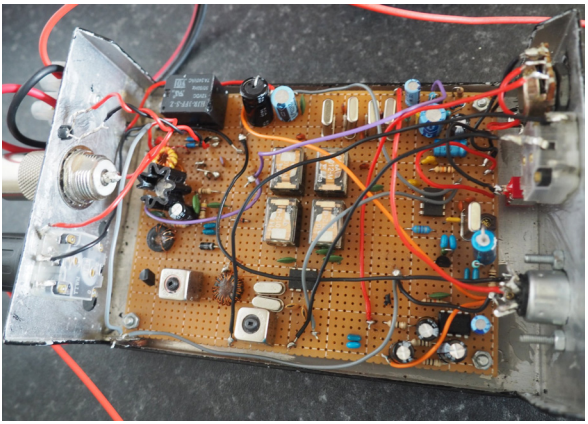
Pictured right are the smiling faces of (left to right) Graham, **G3MFJ**; Trevor, **G6PSZ**, and Daphne, **G7ENA** at the G-QRP Club stand at the Finningley ARS rally on 24 July - *thanks G4DFV for photograph*. **GM4VKI** and **GM3WIL** ventured north on 7 August and met up with 16 fellow QRPers who signed in at the G-QRP stand at the Crianlarich rally in bonny Scotland. Roy said, "A couple of new members joined and a renewal so all was not lost. Trade was a bit slow but we did a roaring trade in G-QRP mugs, it has to be the fashion accessory of the month!". Roy and Dave's next event is Rishworth, and then Galashiels the day after.



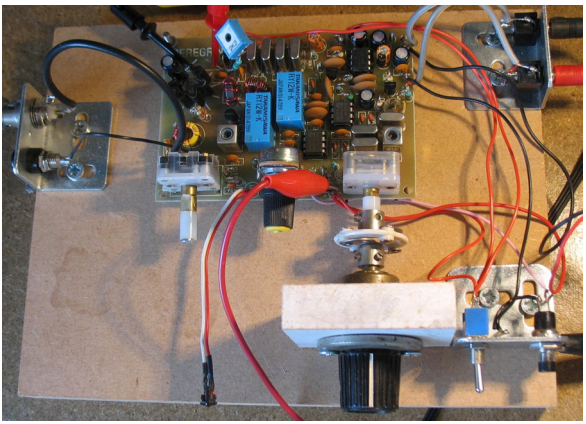
G4FBC has been trying out the Rybakov type of antenna as a portable and emergency option; it consists of a 27.5 feet wire end-fed via a 9:1 un-un (pictured far right). Whilst browsing a local camping supplies store, Ron found a very useful ground screw (pictured lower right) which has fittings for various diameter poles. His 29.5 feet fishing pole fits very securely without the need for guy lines (pictured above left) and the combination has proved to be a very easy and versatile portable antenna support for vertical, end-fed, and inverted vee dipoles. It simply screws in the ground using the supplied 'Tommy' bar. Ron says, "The un-un and wire are held in place with elastic bands. My version of the Rybakov has proved to be very capable of multi-band operation and has proved a good match with the auto ATU on my FT-450D, giving good trans-atlantic QSOs on 40m to 10m".

G4EHF bought an IC-7300 in June, that he is very pleased with, and finds the SDR technology employed seems superior to the 'old hat' technology which has been used for many years. Bill says, "It is also a excellent QRP rig, and will go down to half a watt if wanted, and of course up to 100W. A couple of days ago I worked **EA2EFI** on 40m, who is the station I worked with my homebrew QRP rig that you mentioned in *SPRAT* 167. This time Nol was running 5W and I was running 50W! He was 449 and then increased his power to 1500W, real QRO, and went up to 579". Bill then added he had the pleasure of a two-way QRP QSO with **GM3OXX**, who was running 1W from his new Elecraft KX3.

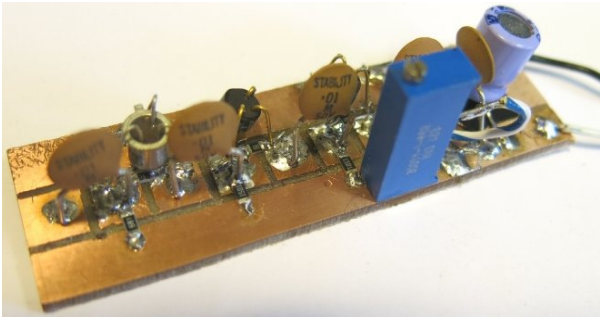
Pictured right is the Spanish 'Peregrino' ('Pilgrim') rig for 17m SSB built by **GØEBQ** who says it is a very basic but ingenious design by **EA3FXF** and **EA3GHS** giving about 400mW out. It is designed for portable use with its own integral half-wave antenna, details at <www.ea3ghs@qrp.cat/peregrino>. Nigel was hoping to try it at the Orwell Estuary or Felixstowe, next to salt water and would like to hear from anyone else who has used the rig (nigel.flatman@yahoo.com). Nigel says, "I was blown away by **GM3OXX**'s fantastic cake in the last *SPRAT*! Unfortunately George's comments about now being unable to solder makes me very much aware that none of us are getting any younger!".



G8XUL is also building the Peregrino for 17m SSB (pictured right lower) and would like to thank the guys at EAQRP, particularly **EA4BPG** and **EA3FXF**, for their help and support in building the rig and also for sourcing some of the more difficult components. Dave has it working on a breadboard, is looking forward to getting it boxed up and on the air soon, and says it is a great first step into homebrew SSB.



M1KTA saw a post on the CDXC reflector that might be useful for those (like him) that service the aluminium antenna bits from time to time and get rid of the /creepy crawlies´ that setup home in the traps. It worked for Dom who used the plumbers strips to clean up copper tubing before soldering. The post, by **G4BYG**, says, ".... strip of emery cloth dipped in petroleum jelly (vaseline!) and then rub on both mating surfaces till you get a nice grey conductive paste. This is the method we used when joining (by clamps) aluminium bus bars above telephone exchange racks. It stops oxidisation. I used this method for years on telescoping aluminium tubing with no problems. It is cheap and effective. Hint: most copper slip is non- conductive. Try dipping your multimeter probes into the gump and see just how open-circuit it is".



G4WIF has been doing quite a bit of constructing this year using the 'toner transfer' method of making PCBs, that has been very successful - as has making a board in five minutes using a quick milling method. This is Tony's **NØSS** zener noise generator; he says, "As you can see, the pads are cut pretty straight and work for both conventional and surface mount components, more detail on the two methods at <www.fishpool.org.uk>.

Thanks to the contributors to this column. Please let me know how your summer goes for the Winter edition of *SPRAT*, what you have been building, who you have been working, and any other information about QRP, by 9 November. Also, interesting photographs please, don't be shy in letting members see what you have been building and/or where you have been operating from, your antennas, who you have been meeting and even a shack photograph to let other members know what you and your equipment look like. Let me know if you intend operating from somewhere other than home during the winter and spring months so I can let members know to listen out for you.

The Mountains, the Sea and Miles of unspoiled Beach . . plus amateur radio

G3RJV has a Wooden Lodge situated in the Dyfi Valley in central Wales close to the Irish Sea and in the Snowdonia National Park. Well maintained with a large living area, conservatory, double bedroom, twin bedroom plus a double bed sofa in the living area.

Naturally there is a small amateur radio station with a QRP HF transceiver and a 2m multimode. An easy to use station in a quiet location with lots of local places to visit and a vast open sandy beach only 3 miles away all set in wonderful walking country.

Enquire via G3RJV or email g3rjv@gqrp.co.uk
Google "***acelticlodgeforrent"*** to find pictures and further information.

GQRP Club Sales

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

Antenna Handbook – 2nd edition – members price £6.00 plus post } **£2.00 (UK) or £5.50 EU**
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4.5, 5.0, 6.0, 7.2, 7.6. 8.0, 9.0, 10.0, 11.0, 12.0, 13.50, 15.0, 16.0, 18.0, 20.0, 24.0, 25.0MHz }
26.0, 27.0, 28.0, 28.224, 30.0, 32.0, 33MHz – **all 35p each** (Some of these are low profile) } Post free
Ceramic resonators – 455, 480kHz, 2.0, 3.58, 3.68, 4.00, 14.32 & 20.00MHz **– 50p each** } if ordered with
Diodes - Schottky signal diode – 1N5711- 20p each; 1N4148 GP Si – 10 for 10p } with heavier
Varicap diodes - MVAM109 – 40pF @ 9v, 500pF @ 1v. **50p each** } things
- BB204 – twin diodes, common cathode, 15pF @ 20v, 50pF @ 1v **50p** } like binders.
SA602AN - £1.50 (note – I may supply NE or SA, 602 or 612 as available. All are fully interchangeable. } toroids
MC1350 - £2.00 These are getting in short supply now so max of 2 per member } polyvaricons
LM386N-1 - 4 to 15v, 300mW, 8pin **DIL** - **£0.40, LM386M-1 SMD – 35p** } or filters
TDA7052A - 4.5 to 18v, 1W 8pin **DIL** low noise & DC vol control – **£0.60 each** } Use just
TDA2003 - 10w Audio amp 5pin – **£0.25 each** } that postage
TA-7642 Radio IC – direct equivalent of **MK484** (& ZN414) – **75p each** }
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MPSH10 transistors (npn) fT - 650MHz, hFE 60, VCEO 25V **- 8p each** } with books
2N3904 transistors (npn) fT - 300MHz, hFE-150, VCBO +40V **- 10 for 50p** } or CDs
2N3906 transistors (pnp) fT - 250MHz, hFE-150, VCBO -40V **- 10 for 50p** } add this
BC517 Darlington (npn) fT - 200MHz, hFE-30,000, VCBO +40V **- 13p each** } postage
FETs - IRF510 – 50p; 2N3819 - 22p; 2N7000 - 10p; BS170 – 8p - all each } as books
BF981 – dual gate MOSFET – 40p each (special deal - 10 for £3.50) } or DVDs
Pad cutter - 2mm shaft: 7mm o/s, 5mm i/s diam, gives a 5mm pad with 1mm gap **£6.00** } do not
10K 10mm coils – 0.6uH, 1u2H, 1u7L, 2u6L, 5u3L, 11u0L, 45u0L, 90u0L, 125uL – all 80p each } travel well
Magnet Wire – 18SWG – 2 metres – 60p; 20 & 22 SWG – 3 metres - 60p; } with parts.
24, 25 & 27SWG – 4 metres - 40p; 30, 33 & 35SWG – 5 metres - 30p. }
Bifilar wire – 2 strands - red & green bonded together. Solderable enamel. }
Litz wire – silk covered multi-strand wire 7/.04mm -12p, 14/.04mm. 20p. Both for 3 metres. Solderable enamel
21SWG (0.8mm dia) – 2metres - £1; 26SWG (0.45mm dia) – 3metres – 70p }
This is solderable enamel insulated. Max of 3 sizes per member per order }
QRP heatsinks - TO92 – 30p; TO39/TO5 – 40p; TO18/TO72 – 60p (pics in Sprat 148) }
Axial lead inductors (they look like fat ¼W resistors) these are low current }
3.3, 4.7, 6.8, 10, 15, 18, 22, 33, 39, 47, 56, 100, 150, 220 and 1000 - all uH, all 18p each. }

Toroid Cores – **priced per pack of 5 – max of 2 packs of each per member**

T25-2 – 50p, T25-6 – 60p, T30-2 – 70p; T30-6 – 80p ; T37-2 – 80p; T37-6 – 80p; T50-1 - £1.00; T50-2 – 90p; } **Postage for**
T50-6 – £1.10; T50-7 - £1.20; T50-10 - £1.20 ; T68-2 - £1.80 ; T68-6 - £2.40; T130-6** - £2.40ea. FT37-43 – 90p } **toroids incl**
FT50-43 - £1.20 ; FT37-61 - £1.20 ; FT50-61 - £2.40; Ferrite beads – FB43-101 (3.5mm dia x 3.2mm long, } **postage for**
1.2mm dia hole) – 40p for 5: BN43-2402 - £1.20; BN43-202 - £2.00; BN43-302 - £2.00; BN61-202 - £2.40. } **small parts**

All toroids are plus postage – up to 5 packs = £1.20 (UK), £3.50 (EU), £4.50 (DX). Each additional 5 packs, please add 50%
**** Except** ** **items** – they are heavy and each counts as 2 packs (ask for quote if you want more than 2 of the large toroids)
SBSS PCB clamps * – single - £12, two - £20 all plus post (£3.50 UK & EU : DX – order direct from Rex please)
MeSquares & MePads * - £6.50 each plus post (UK & EU as parts for up to 4) : will DX please order direct from Rex)
QRPme Brass sets * – PCB feet to lift the board off the table - £13 plus post as for SBSS clamps DX order direct from Rex) *
these items from Rex's stock are pictured on the website.

Limerick Sudden kits RX & **TX** both single band (160 through 20m); **ATU** (80 through 10m) **£38.00 each plus post** UK - £3.50, EU - £5.40, DX - £8.00

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Sprat Binders – nylon string type – Black with club logo on spine -16 issues per binder – **new stock** - £6.00 each plus postage (one: UK - £2.00, EU – £4.00, DX - £5.00. More - add £1.10, £1.50, £2.50 each)

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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 – and pay us in GBPounds and you MUST include your membership number and address please. PayPal charge us about 4% so a contribution towards that is always welcome, or, send as a gift to friends/family - thanks