



SPRAT

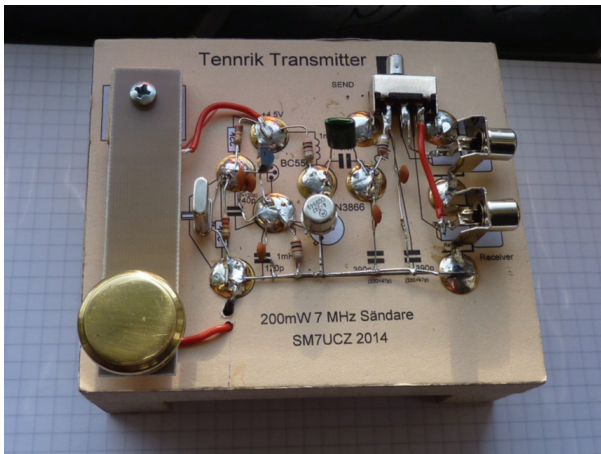
THE JOURNAL OF THE G QRP CLUB

DEVOTED TO LOW POWER COMMUNICATION

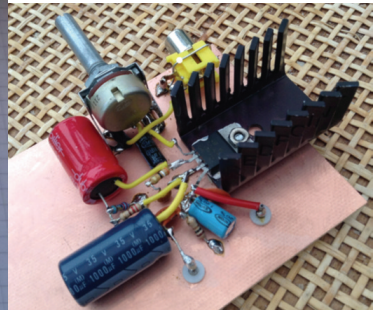
ISSUE Nr. 161

© G-QRP-CLUB

WINTER 2014/15



Rishworth Buildathon Project



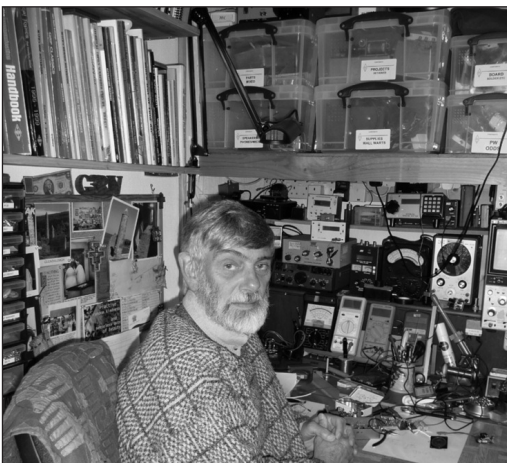
TDA2003 Offer

In this issue

LiPo Batteries with KX3 ~ Simple Building Aids
Sound Card Radio ~ 40m SSB/CW Receiver ~ Valve TX HT+
HW8 AF Filter ~ 249 Receiver ~ Simple 80m Transceiver
Valve Regenerative Receiver ~ Hand Generator
Ramsey HR40 ~ Pull-o-Matic ~ Club Offer and NEW DVD
Membership News ~ Antennas Valves and Vintage
Communications and Contests ~ Calendar ~Member's News

YOUR SUBSCRIPTION IS DUE – CHECK CENTRE PAGES

JOURNAL OF THE G QRP CLUB



© G QRP

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

Tel: 01706 - 377688

(overseas tel: +44 1706 377688)

Email : g3rjv@gqrp.co.uk

Homepage : www.gqrp.com

Rev. George Dobbs G3RJV

Preparing this issue of SPRAT has been a little unusual in that my “SPRAT IN” box file was a little thin this time. It was good quality but not as much variety as usual. I like to offer a spread of articles to suit most members. So please keep those articles coming. A blank SPRAT formatted page can be supplied but handwritten articles with pencil diagrams are fine. The preferred computer format is MS Word but we can handle most things. To encourage would be authors, two awards are available.

The **Gordon Bennett Trophy** is awarded each year to the member thought to have submitted the best practical article to SPRAT. This may not necessarily be the most complex article. A keepsake plaque is awarded and the winner is named in the autumn issue. Do not forget our annual award for SPRAT authors. Details of the **W1FB Memorial Award** are below.

72/3

... and a happy new year

G3RJV



The W1FB Memorial Award 2014/2015

An easy topic this year - “My favourite weekend project”. There are dozens of little construction projects laying around on member’s work benches. So Describe your favourite little project for other members. It can be original work but I am happy to see existing projects that have been improved or updated.

Please supply circuit diagram(s), full component values and brief notes. A SPRAT formatted page (MS Word) can be supplied on request but any format including hand written may be used.

Using LiPo batteries with the KX3

Richard Wilkinson G0VXG

I travel quite a lot and like to take my KX3 with me. The problem when QRV is the battery. The standard 12volt 7amp sealed lead acid battery weighs about 2.25kg (5lbs) which adds quite a bit to your total baggage allowance and some airlines are not too happy carrying it either. I started looking at the new Lithium Polymer batteries by Turnigy, the 4S (4 cell) 5Amp will give 14.8volts and is about a ¼ of the weight, size 145x50x35mm and retail at about £24. I would recommend buying these from an established supplier not a cheap and cheerful one off the internet...

I chose the 4S rather than the 3S because the 3S will only give 11.1 volts and although the KX3 will run on this voltage mine would not give me the full 12watts. When the batteries are fully charged they sit at about 16volts which is too high for the KX3. By connecting 2 power diodes in series, this brings the voltage down to 14.6v. Once the batteries have been used for a few hours they will drop to nearer to 14.8volts and at this point the diodes can simply be shorted out with a switch so that you are now running directly off the LiPo battery.

LiPo batteries have to be treated with a little care when it comes to charging and storage.

I bought the Turnigy charger Accucell 6 which will also charge all of your other batteries, lead acid, NiMH NiCd including LiPo and LiFe. It is a very comprehensive charger, giving you lots of functionality cycle/ discharge/ storage and of course charging. The charger needs its own PSU so you can use your rig PSU or a Laptop PSU or a car battery. I typically charge mine at 3amps so it does not take long to charge a 5 amp battery. The internal resistance is only a few milliohms, these batteries are rated at 25C or more which means that they can discharge at 5 * 25 amps! When transmitting with a power of 5watts the battery voltage typically drops only by 0.3volts. When using the LiPo 4S battery the voltage should never be allowed to drop below 12volts or 80% of stated battery voltage. The total number discharge / recharge cycles is about 350 with some claiming 1000.

The battery comes with 2 sets of leads, one for high current charging and a 5way one for monitoring and balancing the 4 cells. When charging, the display shows the voltage of each cell so over a period time you can check that all the cells are OK.

As I said LiPos need a little care when it comes to storage, they do not like being stored fully charged or discharged. One of the options on the charger is the Storage function. This will charge or discharge the battery to the correct storage voltage which is about 15volts. I have found that this setting is really useful, it means that the battery will run for many hours and you do not have to worry too much about leaving it unused on the shelf, however they should be checked at regular intervals, the self-discharge rate is low but not zero.

The power leads from the battery consist of 1 male 4mm plug and 1 female 4mm socket. Connecting to the socket is not a problem, but the plug is a little nonstandard. When you buy your battery make sure you get one of the conversion leads. I forgot and had to turn down an old 4mm socket and for £2 it's not worth the aggravation!

These are just my views on using this type of battery and I have to say that I have been pleased with its performance, and although they need a little more attention than a SLA battery I believe their benefits outweigh their care requirements.

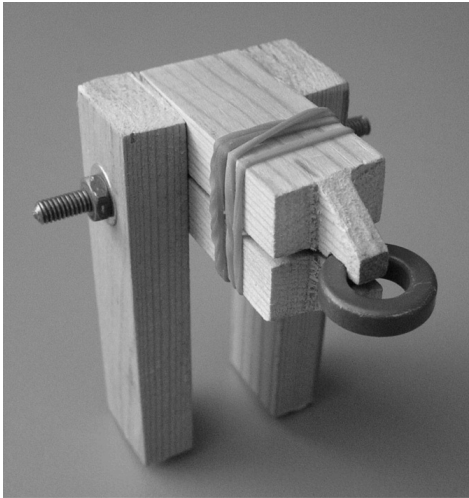
Further reading: <http://www.rchelicoptersonline.com/rc-lipo-batteries.html>



Ultra Simple Building Aids

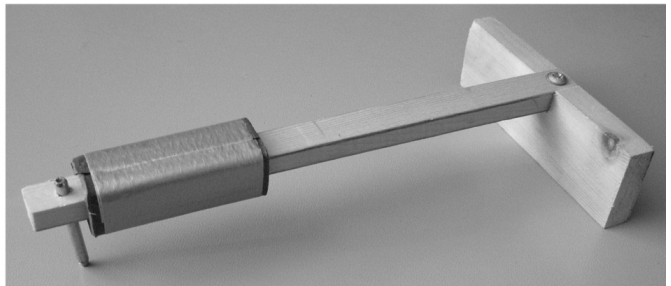
Barry Harvey G8RIW – clockwork@ntlworld.com

As components get smaller it gets harder to hold them so I have constructed a couple of very simple devices to assist me. I cannot claim any credit for either design. I have just made them in as simple (and cheapest) fashion possible. Both are made from bits of scrap wood plus a couple of nuts, bolts, washers and screws.



The first is a device to hold toroids whilst I attempt to wind them with wire. The only things to note are the top jaw is not fixed whilst the lower jaw and two legs are bolted together tightly. The tension between the jaws being applied by an ex Post Office elastic band. The vertical legs are held in a vice or can even have a base screwed on if required.

The second holds Surface mount devices (and other things) down whilst they are soldered in position. The weight is provided by some scrap lead flashing, but anything heavy can be used instead.



The last building aid I use to hold things is just a large lump of “Blue Tack”. Stick the “Blue Tack” onto your work bench and the insert components into it to hold them whilst soldering, much better than burning your fingers

Another Simple Sound Card Radio

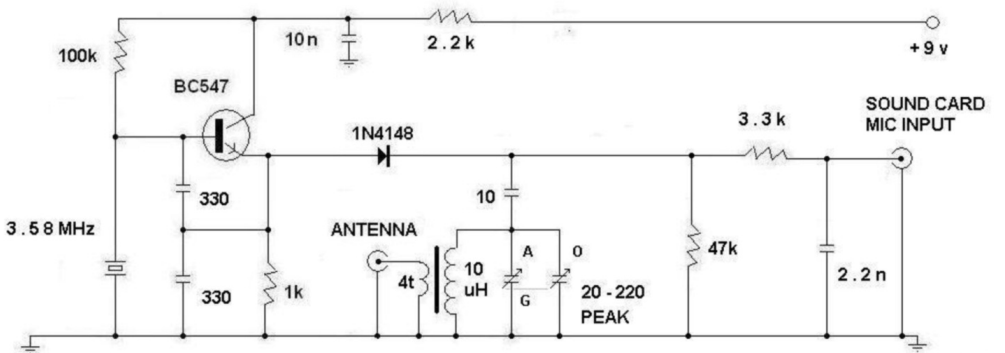
Peter Parker VK3YE <parkerp@internode.on.net>

The simple SDR designs by EA3GHS (#134) and G8SEQ (#140) were too easy not to try. Inspired by these here's another. Only basic parts are used, no adjustments are needed and there's no coil winding.

Like the rest DC bias is applied to a 1N4148 to avoid the need for a less common germanium diode. A 10 uH RF choke resonates with a transistor radio variable capacitor to provide a tunable 3.5 to 9 MHz front end. Signals from the antenna are coupled in with 4 turns of thin wire over the choke's body.

Band switching is by retuning the front end. 80 metres is audible near maximum capacitance and 40 metres near minimum. The 96 kHz wide band (if using a good sound card) is centred on the crystal frequency or harmonics, so a crystal around 3.520 MHz would better suit CW reception on both bands.

Use a full-sized outside antenna and the microphone input of a low-noise sound card for best results. There is no image suppression so each signal will be seen twice on the spectrum display (and potentially interfere with reception of others). If this is a problem make the local oscillator variable by 3 or 4 kHz (perhaps by using a ceramic resonator instead of a crystal) to move interfering image signals away.



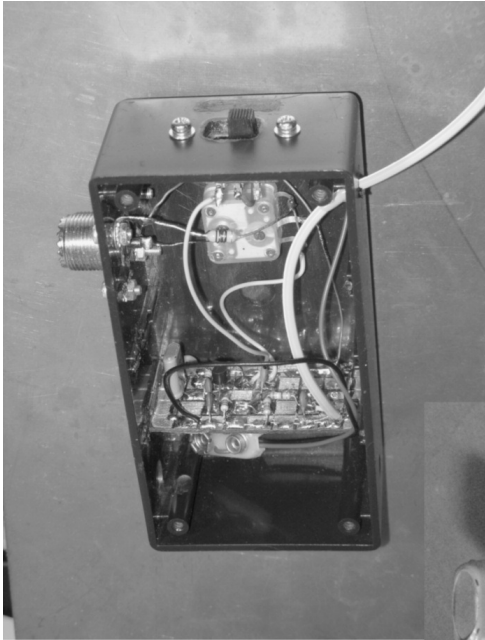
SIMPLE SOUND CARD RADIO

VK3YE

Graham, G3MFJ adds

To use the receiver, you need suitable software to decode the signals - two examples of free software that come to mind are by SDR-radio.com, and by M0KGK (m0kgk.co.uk) although there are quite a few others. some mic inputs on sound cards

have a dc bias to energise an electret microphone, so it might be an idea to add a blocking capacitor – something like 10nF would be fine



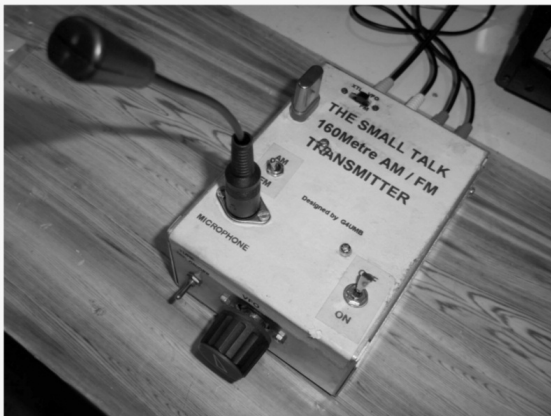
Left
Sound Card Radio

Below
The circuit board using pads cut into board with a hack-saw.



Inexpensive Microphone

Peter Howard G4UMB 63 West Bradford Rd Waddington Lincs



Here is a picture of a idea I had of making a cheap microphone from a Pound-Land headset.

A pair of headphones went faulty so I cut off the microphone and found it could be easily fitted to an audio plug and bent into the shape required.

A convenient (and cheap) way of providing a desk microphone!

40m SSB/CW Receiver.

Andy Choraffa, G3PKW, 1 Windsor Rd. Roby, Liverpool. L36 4NG

I decided to build a small pocket rx which I could take on holiday. Light weight and small for air flight and cover 40m and maybe 80m later. I wanted it to be as economical as possible with a small 9v battery. I decided to build a circuit similar to the GQRP club 'Sudden' Rx. I wanted it to be easy to reproduce with common available parts and on Vero-board. I didn't want to start designing a PCB with all the etching procedure. Vero board proved to be quite adequate and no track leakage problems were evident. Initially I changed a few component values from the original design to optimise performance.

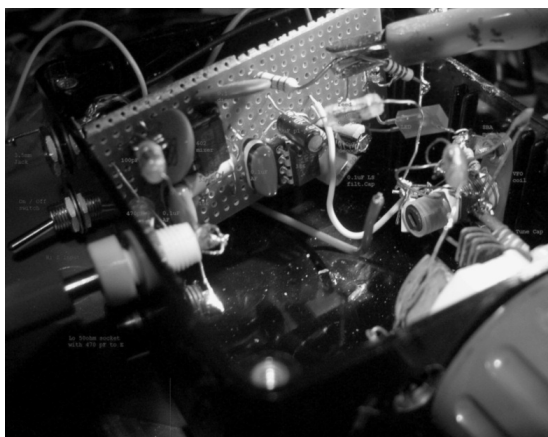
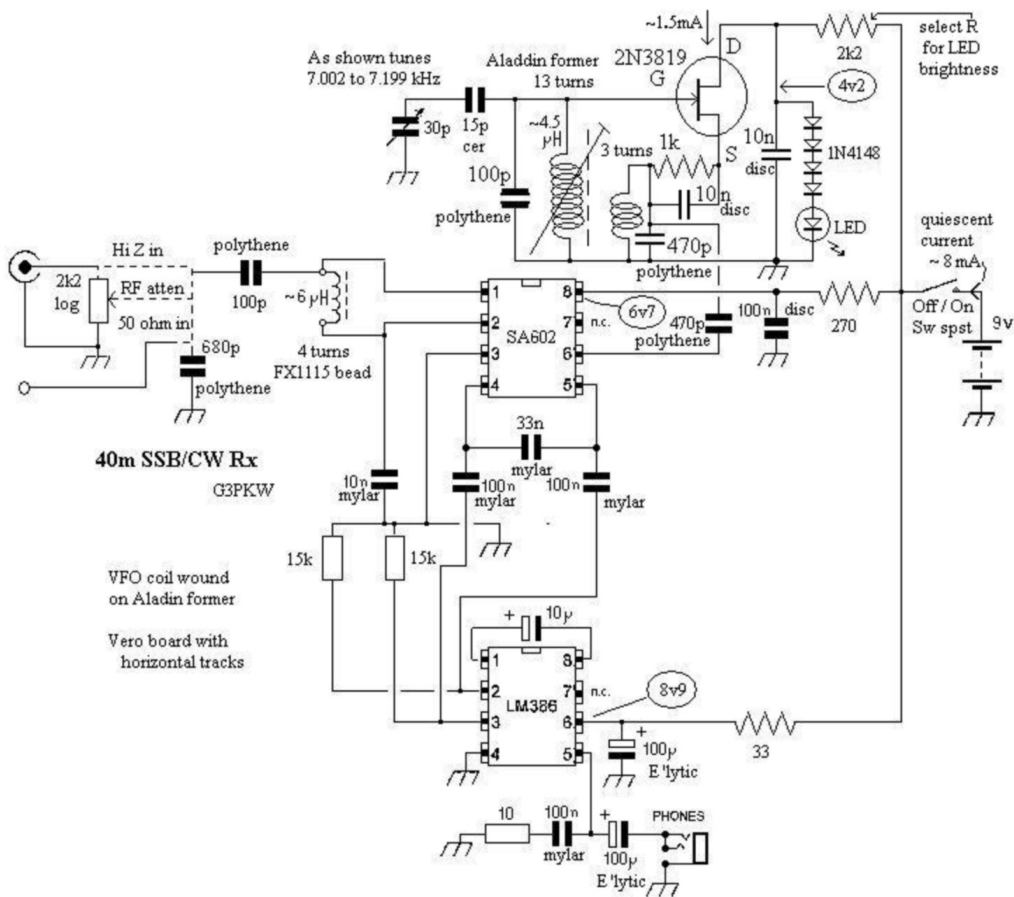
Component values for both the 602 Gilbert cell balanced mixer and the 386 AF amp were decided on from my experience and calculations around the original data. These are slightly different from the original GQRP club design. The oscillator circuit in the SA602 was designed for PMR use with a xtal and works well. The design impedances around the SA602 are low as is evident in the 'Sudden' rx. Note the 2 uH as used for the osc coil design, yet 6 uH for the input coil. Both these tuned circuits are operating at 7 megs. I built a VFO around the SA602 but found it was not very reliable in starting. I think this was due to these low impedances which the chip was originally designed around. As I experimented with a xtal which worked well. I could have continued to wrestle building an osc using the SA602. But its lack of purity encouraged me to build a separate FET osc.

The spectral purity of the original osc design I found to be poor The 3rd harmonic at 21 megs was only about 12 dB below the 7 meg wanted. It also had some second harmonic at 14meg., about 25 dB down. In PMR use with a xtal this wouldn't be evident or a problem.

As the xtal osc in those applications is typically an overtone variety. I built a separate FET osc and it started very well with a good clean spectrum. It was very clean with all harmonics at least forty dB down. The FET only needed 1 and half mA at about 4v to operate without any problems. I stabilised the osc supply with a couple of 4148's plus the red Indicator LED. The 2k2 resistor was the highest value to maintain enough LED brightness to be visible. To make the LED brighter a lower value will be needed.

The 4148's were in plentiful supply and cheap, but I could have used a single 3v zener in its place. The 602 only needs about 6v at two and a half mA so was fed via a 270 ohm and suitably decoupled. The 386 draws a quiescent three and a half mA so the total drain from the PP3 battery is about 8 mA. The picture of the original prototype shows the rats nest construction after many mods. The FET osc was built suspended around the osc coil assembly as shown The Aladdin former had the thirteen turns held firm by small pieces of heat shrink sleeve offcuts. Then the three turn link was loosely wound over the top. The 15 puff ceramic from the 30 puff air spaced variable gave nice coverage of 40m over the full 180 degrees. This enabled tuning CW / SSB without reduction drive, possible, and just a large red knob sufficed.

*Note the oscillator coil could probably be replaced by a Spectrum 5u3L coil.



Inside the receiver.

HT power supply for a portable valve TX

Jesper Fogh Bang OZ1XB, Elmevej 10, DK-3500 Vaerloese, Denmark
[fogh.bang@gmail.com]

This DC-DC converter is meant as a simple HT power supply for a portable QRP valve TX being sourced from a 12V lead acid battery or similar for field day use.

The first attempt was based on the power supply in an old Heathkit tool [1]. Unfortunately, both the efficiency and the voltage regulation were very poor with this single-transistor design. The present circuit is much more reliable and efficiencies around 67-73% have been obtained with a 12W output. Higher efficiency may be obtainable with a modern high-frequency circuit but the objective has been to make a simple approach with the use of standard and easy-to-buy or even junk box components.

I have tried a number of standard 50Hz C-core, E-core and toroidal type transformers 230V/2x12V or similar. They all work but the toroidal types generally have the best voltage regulating performance. Three different NPN and PNP transistors have been used, 2N3055, TIP 32 and TIP 36C, the latest being a Darlington type and providing the highest efficiency. Heat sinks have not been used even at 12W output.

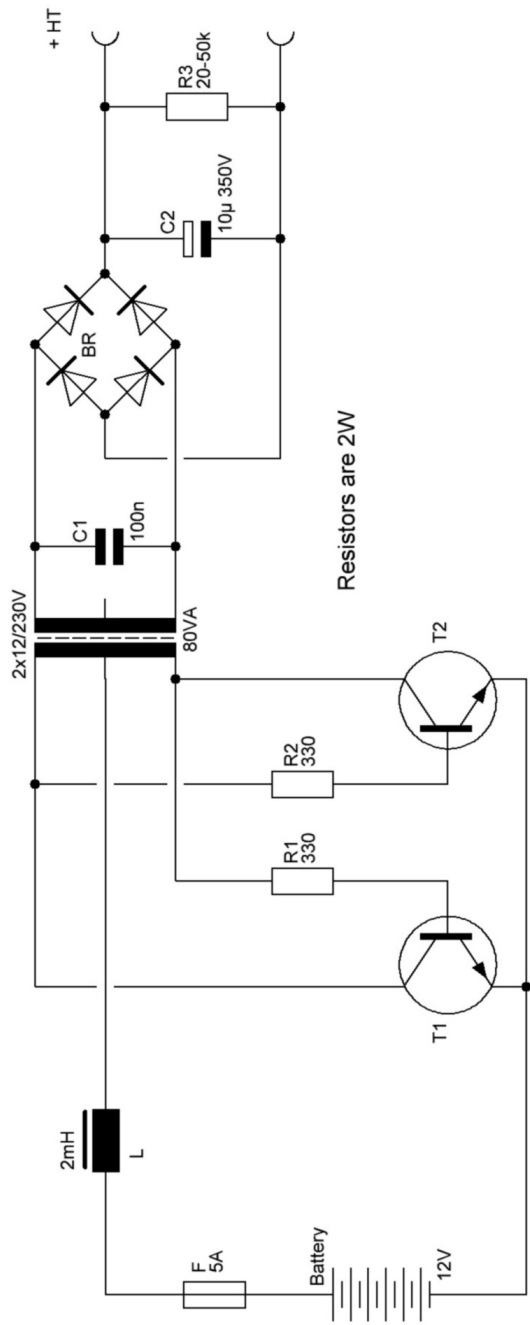
The circuit is shown with NPN transistors and it will operate even without the choke L and the capacitor C1, however, they both reduce the ticking sound from the transformer and they both have a minor influence on the idle current and the output voltage. The frequency of oscillation is approx. 40Hz irrespectively of transformer, transistors or base resistors. L can be 2-5mH [2] and C1 can be 47-220nF. The base resistors, R1 and R2 should be selected just small enough such that the transistors saturate efficiently at full load. Smaller values will increase the no-load current. A smaller value of the bleed resistor R3 will improve the output voltage regulation, but it will also increase the no-load current accordingly. If the no-load current of approx. 0.3A is a problem, the unit can be turned off during receive. Output voltage is 195-230VDC at no-load and approx 170V at 12W load with a 12V/1.5A load current depending on transformer type etc.

I normally use a 12V 60W incandescent light bulb [3] in series when testing such a new circuit together with a lead acid battery just in case something is wrong which causes the unit to draw excessive current. Later on the light bulb is replaced with a suitable fuse. An oscilloscope should be used for testing the final design, saturation voltage and square wave edges etc.

[1] CI1040 automotive timing light

[2] E.g. from an audio loudspeaker filter unit

[3] Available in boat, car or caravan accessories stores.



Heathkit HW8 Audio Filtering

Did they get a critical value wrong?

Dave Wells, M0CEM, m0cem@spamabyss.net

I have just been working on an HW-8 that was acquired some time ago at a rally. It had a couple of messy modifications that needed fixing properly, but it now works as it should although I still have to tidy up some of the original wiring.

As most Sprat readers will know, the HW8 is a simple but quite effective CW-only QRP transceiver for 80/40/20/15m, VFO controlled with about 2 watts output and using a direct-conversion receiver. Like many DC receivers this has a 2-stage audio bandpass filter to provide selectivity, switchable to “wide” with one filter and “narrow” with both in circuit.

One thing that has always annoyed me with HW8's - this is the second one I have owned - is the audio filtering. When switching from “wide” to “narrow”, it is obvious that the filter centre frequency changes, and the gain increases too. This is really not what's wanted, especially when working weak signals with simple equipment.

Whilst studying the circuit diagram, and just out of casual interest, I decided to take a closer look at the filter design. Each stage uses a single opamp in a bandpass filter, a standard circuit which appears in various textbooks. For example, page 82 of Hayward and DeMaw gives the formulae for the component values. For given capacitor values the filter response is determined by three resistors.

The HW8 manual quotes a centre frequency of 750 Hz and using that in the calculations, the component values in the first stage imply a voltage gain of 5 and a Q of 2 which is how the filter measures on test (actually 740Hz, close enough).

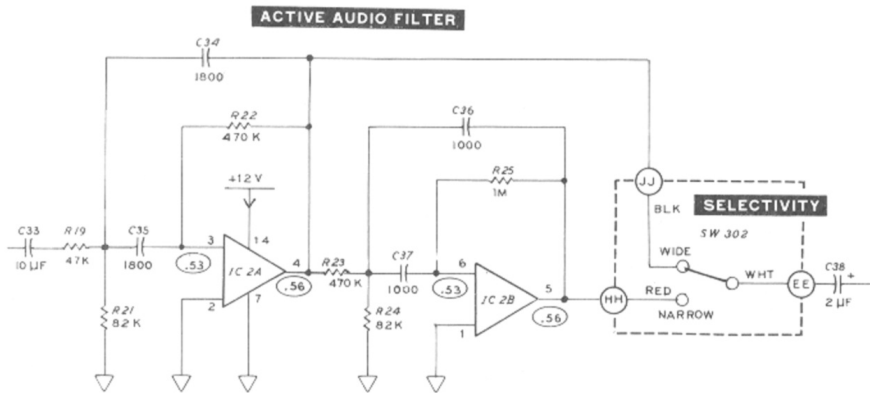
However those in the second filter don't look right. R23 and R25 are correct for a gain of 1 (so the level should remain the same when switching to “narrow”) and give a calculated Q of 2.34 for a 750Hz centre frequency, but the value of 82k for R24 makes no sense at all. Calculations indicate it should be 49k8.

Substituting with 51k provides the second filter with a measured gain of 1.02, a frequency of 740Hz, and a Q of 2.28. Now when listening to CW, switching the second stage into circuit has the effect of cleaning up the signal by reducing the bandwidth, with no shift in either the level nor the centre frequency. This is of course what one would have expected in the first place.

The HW8, which has a large following as a “Classic” QRP radio, is the subject of numerous internet articles and a popular booklet, with many modifications having been published over the last 35 years. I find it hard to believe that I'm the first person to have

discovered this anomaly in the design but I certainly seem to be the first to have reported it. I wonder if somebody at Heathkit in 1978 made a mistake when specifying the component value?

R24 is rather hard to get at, and changing it is a fiddly job requiring a tweezers. You may find it easier to solder a 130k resistor across R24, on the back of the pc board.



A scan from the Heathkit circuit diagram is shown above.

EA3GCY HAM RADIO KITS

ILER 40 / 4-5W QRP SSB 40m TRX KIT.....	78,65 €
ILER 20 / 4-5W QRP SSB 20m TRX KIT.....	78,65 €
EGV 40 / CW QRP 40m Transceiver KIT	72,60 €
ILER-DDS VFO/DDS - Generator 0 to 40MHz.	50,82 €
ILERTENNA endfed Antenna Tuner.....	31,45 €

All shipping by registered Airmail. VAT included. + Shipping.
NOW: Flat Rate for Shipping to Worldwide 10€ (until 3 kits)

www.qsl.net/ea3gcy

249 Direct Conversion Receiver

Paul Smith, G4BJG mithsp@gmail.com

The aim of this project was to build an 80 metre direct conversion receiver using just the many components that I have in stock. XYL Barbara will attest to the fact that I have a large stock of components! In this I failed slightly because I had to buy just one item for the final design. This one item cost me £2.49 and for that reason alone this project was dubbed the “249 DC Receiver”!

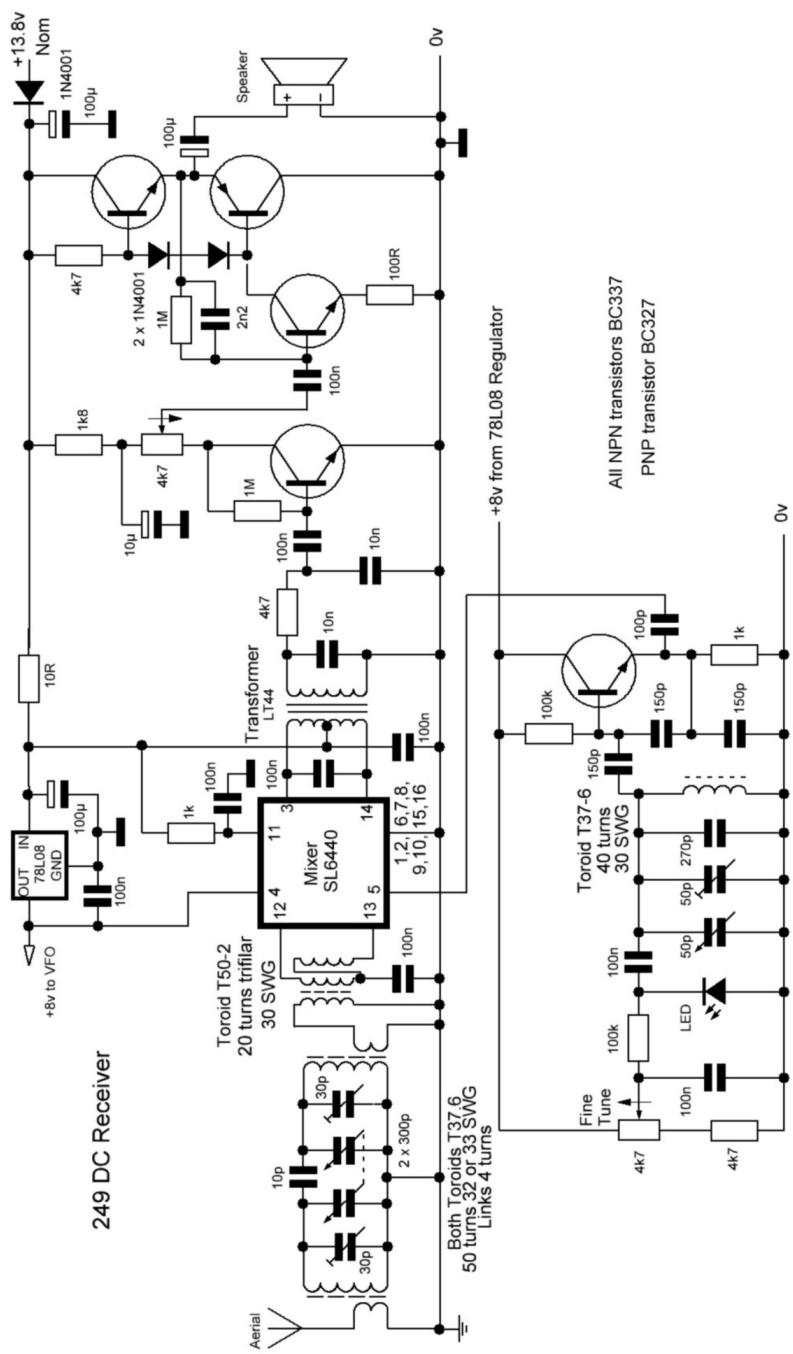
The input circuit is a double tuned circuit with links for aerial input and feed to the mixer input. Two T37-6 toroids and a two gang tuning capacitor were used here because I had them in stock. The 10 m.m. canned coils readily available could be used of course. Check the G-QRP Website if you are using these. (<http://www.gqrp.com/technical1.htm>)

The VFO is nothing special using a coil wound on another T37-6 toroid. Not the most stable tuned circuit but not too bad after a warm-up period. I added a varicap circuit as a fine tuner. I didn't have a varicap diode so I used a 5 m.m. LED as a substitute. I got a shift of about +/- 5 kHz which suited the purpose of fine tuning. I also tried a 1N4001 power diode which gave around +/- 10 kHz shift which is also usable. LEDs and power diodes work as a substitute for a varicap diode so it's worth trying any of these you may have to see what shift you get.

The mixer I used is an old Plessey SL6440 IC. These are long since obsolete but they are still available and I have plenty here so I wanted to see what I could do with them. To maintain the balanced circuit of the mixer a trifilar wound coil is required for the input to pins 12 and 13 which I wound on a T50-2 toroid. For the output from pins 3 and 14 I used an LT44 audio transformer with the tapped side of the transformer used as the input and the (usual) primary feeds the audio stages. Many of you will recognize this audio interstage transformer from the past but, like the aging SL6440 and this author, still has its uses. A well know high street electronics store still supply these transformers. This is the component that cost me £2.49. You may find one in a scrap transistor radio.

For the AF stages I used a complementary pair amplifier with a simple pre-amp which gives good loudspeaker volume. The transistors are not critical so if you have alternatives then try them out. Many members out there will already have an AF module based on the many ICs available waiting to be used which will obviously work fine. I was trying to use as many stock items as possible so used all discreet components for these stages. I added a little audio filtering to cut the HF audio response a little.

The 1N4001 in the 12 volt line is for reverse polarity protection. Hands up all those who have destroyed a project by connecting the supply in reverse? I love the smell of burning silicon in the morning!



249 DC Receiver

All NPN transistors BC337
PNP transistor BC327

Both Toroids T37.6
50 turns 32 or 33 SWG
Links 4 turns

+8v from 78L08 Regulator

+13.8v
Norm
1N4001
100µ

+8v to VFO
78L08
OUT IN
GND

Aerial

Toroid T50-2
20 turns trifilar
30 SWG

Transformer
LT44

Mixer
SL6440

Toroid T37-6
40 turns
30 SWG

LED

Fine Tune

0v

0v

Using this DC receiver I can hear stations that are around S2 on my main rig, an Icom IC-756 PRO III, when using the same aerial.

I also tried this receiver on 40 metres by just changing the VFO coil to 21 turns on a T37-6 toroid. The aerial input circuit also tuned 40 metres with the vanes near fully open without any problem so I didn't need to change that at all. Switching the two VFO coils gives me a simple but effective two band receiver. I plan on adding another VFO coil to try out the 60 metre band.

The whole receiver consumes about 50 mA so would run from a small 12 volt battery for ages.

I haven't shown my construction method for the receiver because it should not be at all critical. Mine is nothing special consisting of stripboard and birds nest/ugly methods! I'm sure G-QRP members will have their own preferences.



SOTABEAMS™
AMATEUR RADIO FOR THE GREAT OUTDOORS

NEW

BOXA-LINE PRODUCTS
A range of useful items for the shack. Each is available as a kit or ready-built.

- SWR bridge
- Dummy load
- ATU tester ..and more



SOTABEAMS, 89 Victoria Road, Macclesfield, Cheshire, SK10 3JA, UK
www.sotabeams.co.uk 07976-688359

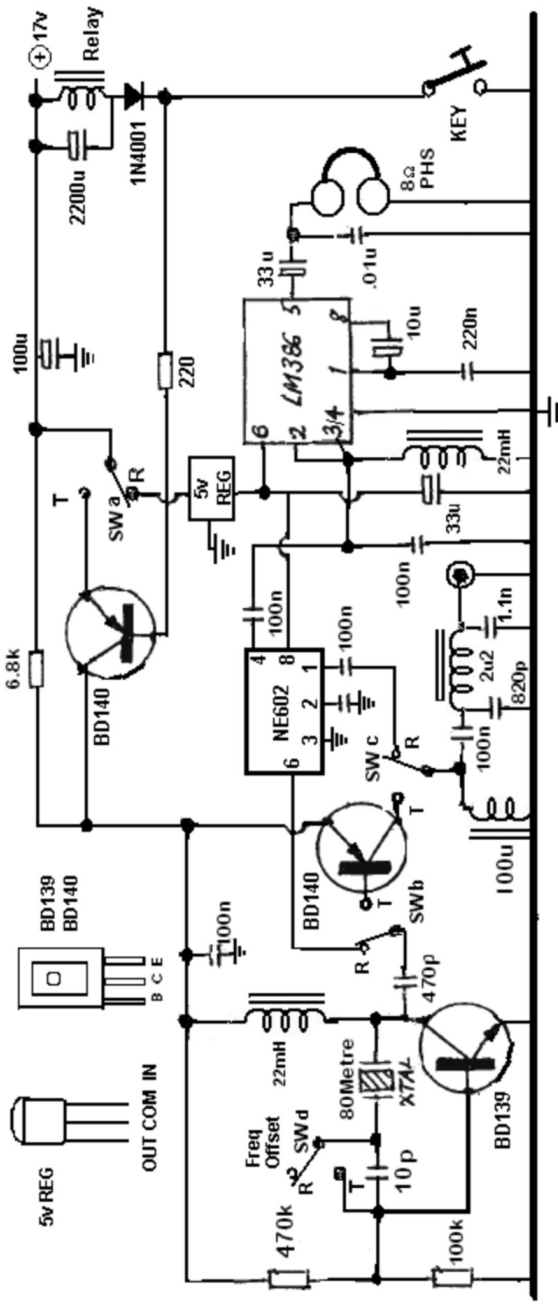
MEMBERS ADS - MEMBERS ADS - MEMBERS ADS - MEMBERS ADS - MEMBERS ADS

OFFER – 2-beam scope 20MHz g.w.o. portable, FT101E with mike and manual, g.w.o. Free to collect! From G0SDQ tel: 01761 432 260, Les Talkowski #06562

Simple 80m Transceiver

Peter Howard G4UMB 63 West Bradford Road Clitheroe Lancs

In this 80m Transceiver I have tried to combine the popular NE602 mixer and LM386 Audio amp receiver line up with the FOXX transmitter circuit. Plus adding auto change over . The capacitor across the relay coil delays the receiver coming on by about 2 seconds after keying has stopped . Output is about 4Watts with a 17v supply. The circuit can be made as a manual change over by using a 4 pole 2 way toggle switch thereby deleting the relay and 2200uF across it plus the diode. To simplify the circuit even further you can wire the key in place of the BD140 if you don't mind having a non earthed key.



A Valve Regenerative Receiver

Barry Zaruki M0DGQ, 26 Heathfield Rd. Kings Heath, BIRMINGHAM. B14 7DB

This simple receiver uses three Russian rod pentodes, a marvellous device from the cold war era and in plentiful supply to this day (eBay). The set covers 1.6MHz to 8MHz, 730kHz - 1200kHz BC and 472kHz using plug in coils for the band in use.

With a reasonable aerial the set is very sensitive and drives a loudspeaker at good volume, roughly 300mW. Bandsread tuning is also used to enable easy tuning of amateur stations.

Circuit Description

The aerial is connected directly to V1 control grid, no grid tuned circuit is used. V1 is reflexed, it amplifies RF and AF simultaneously, the gain of this stage is controlled by its G2 voltage (VR1). The main purpose of V1 is to prevent oscillation from the regen stage being radiated by the aerial causing interference to other stations.

At RF the anode load for V1 is tuned circuit L1 - VC1, while at AF the anode load is R3. Amplified RF from V1 is coupled to V2 control grid. V2 is configured as a regeneration stage, degree of regen is control by G2 voltage via VR2.

Demodulated audio is taken from V2 anode via C14. R11, C2 form a low pass filter thus eliminating any RF from V2 anode passing to V1. Amplified audio is taken from V1 anode via C6, R5 - C7 form another low pass filter to remove any RF/oscillation being passed to V3. A 1J29b is used as an audio output stage providing a few hundred milliwatts of output power. V3 anode load is a small 100V line transformer, the 250mW tap is used as this gives the best match and loudest volume, it presents a load impedance of roughly 40K. Standard output transformers work but with slightly reduced volume.

A range of plug in coils are used for L1, these are constructed from a piece of broom stale with copper wire pins on the bottom arranged in a B9A pattern. 1mm holes were drilled in B9A formation and suitable stout copper wire was pushed and glued into the holes, I used a two part epoxy resin.

The wire used for the coil winding is 32 swg enamelled copper wire. On the broadcast band coil a “cheat “ is included, a switched 470pF capacitor is used to receive CW transmissions on the new 472kHz band. The switch and capacitor are mounted on the coil (see photos).

All coil winding details are given in the circuit diagram, the frequency ranges are approximate so the odd turn may be added / subtracted depending on stray capacitance etc.

The set works well with a dipole (at home I use it with a 80m dipole), end fed long wires will also work fine provided a step down RF transformer is used in line with the antenna, otherwise all that will be heard is loud mains hum due to the first stage acting as a audio

pre amplifier with a long wire connected to its input. Alternatively a 2.2mH choke connected between the antenna terminal and ground will suffice.

In use

The set is easy to use and its performance is very good indeed for such a simple set. Amateur stations are easily copied, both ssb and cw. Broadcast stations romp through, VR1 is useful here as it controls both RF and AF gain.

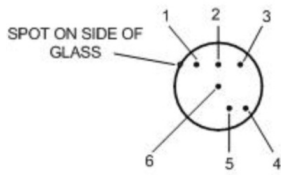
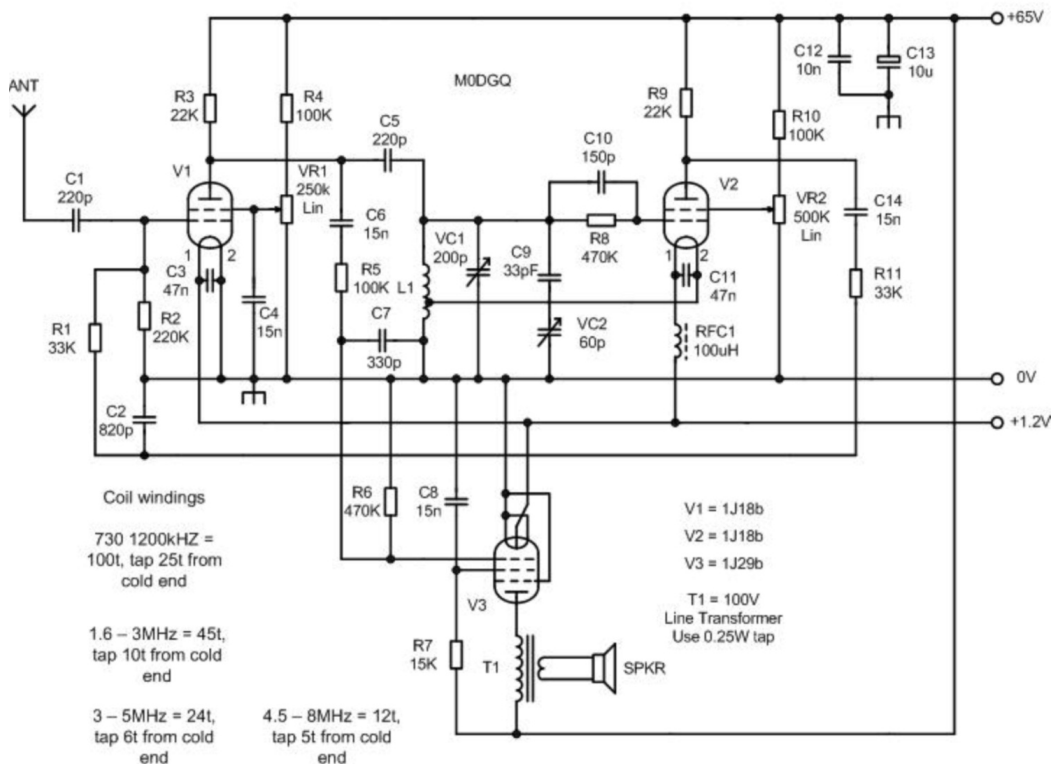
Note

The suppressor grid (G3) is internally tied to the filament/cathode in the 1J18b tube, this is not shown on the circuit. If you are using a battery to power the tube filaments do not use a 1.5V battery, use a NiCad (1.2V).



VR1 = GAIN

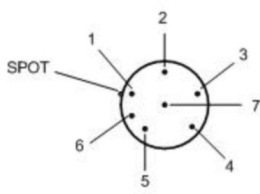
VR2 = REACTION



1J18B

- 1 = HTR
- 2 = HTR GND
- 3 = NC
- 4 = NC
- 5 = G2
- 6 = G1

ANODE = WIRE TOP OF ENVELOPE



1J29B

- 1 = HTR centre tap (htr +)
- 2 = G3
- 3 = G2
- 4 = HTR (GND)
- 5 = SCREEN
- 6 = HTR (GND)
- 7 = G1

ANODE = WIRE TOP OF ENVELOPE

HAND GENERATOR for portable QRP

Fabio Bonucci, IKØIXI - KF1B, Email: gqrp-italy@ik0ixi.it
G-QRP Representative for Italy

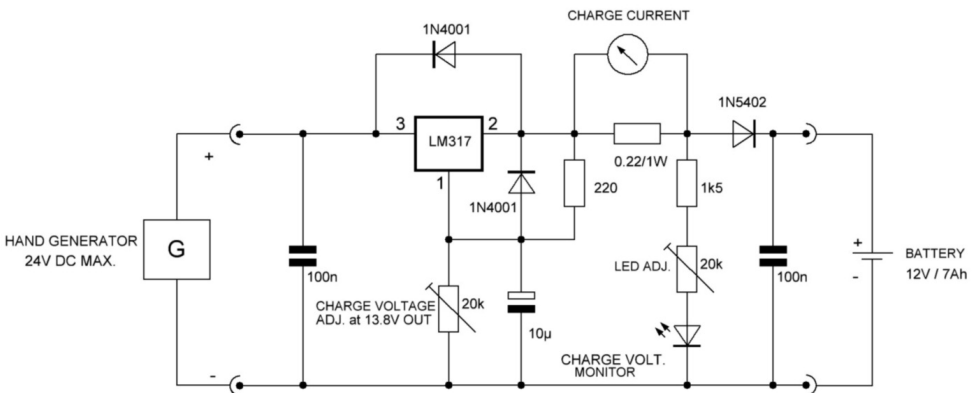
I made an interesting piece of equipment to recharge my 12V - 7Ah battery. It's a military hand generator made in '80es by Brownell LTD. for the British military radio set PRC-320. I found it as new on Ebay at a reasonable price. I think that this generator is an useful accessory, a complementary power source to the solar panels. Thanks to it you can recharge battery also during night, indoor or when the Sun is overcast.

Originally it generates about 24V DC for the PRC-320, so I made a simple solid state regulator to use it on our civilian 12 - 13.8V world. A classic LM-317 is a perfect device for this job. I added a meter to check the charge current (so the state of the battery charge) and a red LED to view when the hand generator reach the optimum revolution speed. I found that 45 R.P.M. is a nice compromise between battery charge and operator fatigue....HI!!



HAND GENERATOR REGULATOR

by Fabio, IKØIXI GQRP#12095



The Ramsey HR40 All Mode Receiver Kit

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

I recently was asked by my old chum G3ORP to put together a Ramsey 40m Direct Conversion receiver kit for G4VFQ who is now residing in a nursing home and needed a little receiver just to keep tabs on a 40m SSB net. It gave me a chance to assess this kit and I hope the following aids any builders who may build this variant of the Sudden/Neophyte NE602/LM386 arrangement. The circuit is a real barebones version using a wide range of components ranging in value depending on what was stocked at the time. Nevertheless it works.

The instructions are very clear, in fact Ramsey do a pretty good job of educating builders on the precise purpose of most of the components and explain the concepts of pcb construction, bandspread, decoupling, construction techniques etc. On these points alone it is a good buy, it is a good buy even at the well known one US \$ equals £1 exchange rate from Messrs Walters and Stanton. Beware of the following though!

The receiver was found to be deaf and on perusing the circuit diagram the ground end of the antenna link winding on L1 was shown to be grounded but was in fact left floating! The circuit shows a connection from the ground end of the input winding but there is no foil from this pin on L1 to the earth plane. I do not know why this is. A link from this pin to ground is needed to bring the signal levels up. If you don't believe me take a look at the PCB layout on page 10 of the HR40 manual or on the Ramsey website. The PCB quality is quite good taking solder well and not lifting if extensively heated up.



When I fitted the link the signals were stronger but appeared to be mixed up with the massed bands of the Chinese Peoples Army and the coil in L1 didn't peak even when

Membership News

Tony G4WIF

This is the issue of Sprat that reminds you it is time to renew your subscription. Please go find that label on the Sprat packaging and see if it says “expires end of 2014”.

Although I keep writing this, some seem not to understand, it is me you should contact for membership matters (including subs). Not Graham in Club Sales or George, the Club Secretary – it is probably no surprise how much extra work members cause when they do not contact the correct club officer, but each year people do just that. If you write by post please always include a stamp (or an email address) if you expect a reply.

EU and DX members should remember that your subscription has increased. If you send insufficient funds you will receive only one Sprat in 2015 with an underpayment notice on the label. You will receive nothing more until you make up the shortfall.

All members should be aware that the club will not accept payments that take your subscription beyond 2015. Paypal will be returned less charges, cheques will be destroyed and excess standing order payments will be assumed to be donations - but will be returned on request (at your cost).

UK Members: All cheque payments should be to “GQRP club” and not in the name of any club officer. For UK members who wish to switch to automated payment there was a UK bank standing order form in the Autumn issue of Sprat to send to your bank (and not me) in time for your payment which must be timed for the 15th January 2015. As well as ensuring the continuity of receiving SPRAT you also help reduce the thousands of letters which I will otherwise have to open in the new year.

UK members with existing standing order arrangement with their banks need do nothing until your Spring Sprat arrives. If your expiry date (on the label) hasn't incremented by then, assume something has gone wrong and contact me. Your standing order mandate must quote your membership number or we won't know who has paid.

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

Overseas members: Please refer elsewhere in this issue to the list of DX representatives to whom you can pay in your local currency. For the remainder of the world without PayPal access you can pay by international bankers draft (in UK Pounds) or cash in UK Pounds (to me).

Only send Euro or U.S. Dollars to your DX rep – I can't use them. Cash is sent at your own risk.

You can save me much work if you pay using PayPal. Please see www.gqrp.com/paypal for more details. Please only use the special form on the club website which will add a little to cover PayPal administration charges – but only what it would have otherwise cost you to buy a stamp to post your subscription.

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

SUBSCRIPTIONS FOR 2015 ARE NOW DUE

Your SPRAT label tells you your current status. Your receipt is the updating of your status code on your Spring 2015 SPRAT address label. The labels for your SPRAT are printed 4/5 weeks ahead of publication so if you pay promptly your Spring Sprat label will be correct.

SUBSCRIPTIONS FOR 2015 – please see options below.

UNITED KINGDOM	EUROPE	DX
<ul style="list-style-type: none"> • £6.00 Cheque / Postal Order to G4WIF • £6.00 - Standing order • Paypal 	<ul style="list-style-type: none"> • £12 to G4WIF (Cash in GBP [no Euro or Dollars] ^{*2}, Cheque or money order^{*1}) • €15 (to Euro rep.) • Paypal 	<ul style="list-style-type: none"> • £13 to G4WIF (Cash in GBP [no Euro or Dollars] ^{*2}, Cheque or money order^{*1}) • Send to DX rep. (see list) • Paypal

Paypal- (Mandatory) - only use www.gqrp.com/paypal

Notes: (*¹ Drawn on a UK bank). (*² At own risk)

You can pay by direct transfer but please write to Graham, G3MFJ, to say that you have arranged the transfer. Our bank account details are:- G-QRP CLUB NO. 1 ACCOUNT, NATIONAL WESTMINSTER BANK PLC, ROCHDALE BRANCH (SORT CODE 01-07-44 a/c 04109546). Overseas members please contact G3MFJ.

UK

*members can use the form provided in the Autumn Sprat if they would like to pay by standing order or to amend their existing standing order to the 2015 subscription rate of £6.00. This payment must be in place with your bank to execute on the 15th January. **If your standing order does not quote your membership number then your payment can only be treated as an anonymous donation and your membership will expire.***

**All UK cheques must be made payable to “G-QRP CLUB”
EU & DX cheques – see “Overseas Subscription” page.**



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

Membership Number _____ Callsign _____

Name _____

Number and road _____ Name used on air _____

Town _____ Post code _____

Country _____ Email _____

Changes or additions

.....
.....

OVERSEAS SUBSCRIPTIONS FOR 2015

Please send your subscriptions to the following overseas representatives:-
 (for representative email addresses see www.gqrp.com – membership renewals page).
 Please provide your email address and club number to overseas representative with payment.
 Also check the GQRP website for updated information on renewals/subscriptions.

Country & Representative	Amount
U.S.A Dave Yarnes W7AQK, 12630 E. Cape Horn Drive TUCSON, AZ 85749 USA. Cheques to be made to "David Yarnes" .	\$22.00
Germany: Dieter Klaschka, DL2BQD, Kuelzviertel 20, D-16303 Schwedt, Germany. berweisen Sie bitte den Klubbeitrag von 15 Euro bis Ende Januar auf das Konto Deutsche Bank, Klaschka, Karl Dieter und Rosmarie IBAN DE47120700240260705963 BIC(SWIFT) DEUTDEDB	€15
The Netherlands Henk Smits, PE1KFC, Storm Buysingstraat 30, 2332 VX Leiden, Nederland. Tel 06-13267146. Maak voor 1 Januari 15 Euro over op rekening ABN NL62 ABNA 0450 4063 34 t.n.v. H.W.Smits te Leiden. Vergeet uw call en uw G-QRP nummer niet te vermelden! Een email ter bevestiging wordt op prijs gesteld.	€15
Belgium Jos Warnier ON6WJ, Kalendijk 28, B-9200 Dendermonde, Belgium. Tel. 052 220996. Vergeet niet Uw call en clubnummer te vermelden! N'oubliez pas d'indiquer votre indicatif et votre numero de membre! Contributie/cotisation: 15 Euros voor/avant le: 1 Jan op nummer/ au numero: BE21 9796 3930 7403	€15
Austria Johann Auerbaeck, OE6JAD, Kirschenhofersdlg. 120, Bitte den Beitrag bis Ende J nner A-8241,DECHANTSKIRCHEN, Tel: 3339-23335 IBAN: AT82 3804 1000 0001 5156 BIC: RZSTAT2G041 In der Zeile Verwendungszweck	€15
France. Richard Sayer, F5VJD, Vignouse, 35380, Paimpont, France (cheque perso [SAYER Richard] avec votre indicatif, num ro de membre et adresse E-mail indiqu au verso).	€15
Denmark. Ole Rasmussen OZ1CJS: Fornylse af abonnement af GQRP: Venligst foretag en kontooverførelse af 115 Kr. senest d. 1. Januar til : Ole Rasmussen Danske Bank, Haslev Reg. nr. 0575 Konto nr. 3531127749 Venligst vedhæft følgende information: navn, call, medlemsnummer Undg venligst at fremsende kontanter og checks. Har du et problem mht. bankoverførelse, s kontakt mig s vi kan finde en løsning. Nyt abonnement af GQRP: Ønsker du at blive medlem af GQRP og modtage medlemsbladet SPRAT, s send mig venligst en email med dit navn, adresse og evt. kaldesignal. S skal jeg med glæde sørge for at du bliver kontaklet.	115DKK
New Zealand, Phil Tarrant ZL2NJ, 7 Waitote Street, Castlecliff, Wanganui 4501, New Zealand. Ph 06 344 7182	NZ \$28.00
Australia Norm Lee VK5GI, <i>[From February 2015 there will be a new address. Check the club website for details]</i> 52 St Andrews Terrace, WILLUNGA, SA 5172, Australia. Account name: Norman Joseph Lee GQRP Club Account, Bank: ANZ Bank McLaren Vale. BSB number: 015 627, Account number: 1812 – 51764. Phone: (08) 8556 4661, Cell: 0402 446 453	AUD \$24
Italy. Fabio Bonucci - IK0IXI. Via delle Sterlizie, 10 I-00053 Civitavecchia Italy. "La quota annuale per l'iscrizione al GQRP Club dall'Italia di 15 Euro. I pagamenti possono essere effettuati tramite: 1) Direttamente sul sito GQRP tramite PayPal. 2) PostePay - € 15.00 3) Diretto (contanti € 15.00). Rischio di smarrimento a carico del socio. Si pu effettuare la ricarica PostePay in ogni Ufficio Postale al costo di 1 Euro, oppure tramite le ricevitorie Lottomatica al costo di 2 Euro. Per informazioni inviare email a Fabio oppure SMS 320-4839771	€15
España, Ion Jza, EA2SN, A. Gasteiz 48-7 izq, 01008 Vitoria-Gasteiz. Cuota: 15 Euros. Env a un correo electr nico si quieres hacer una transferencia bancaria.	€15

Any other overseas to Tony Fishpool G4WIF, GQRP Club, PO Box 298, Dartford, Kent. DA1 9DQ [Europe: £12 GBP / DX: £13 GBP]

Club Information – Who Does What

(addresses are on the club website)

Sprat

Articles & Editorial	G3RJV
Members news for news column	G4BUE
Communications news	M1KTA
SSB news	M0NJP
VHF news	G8SEQ
Delivery and Sprat Index	G4WIF

Membership

Membership queries, subscriptions (+ any QTH & call changes), Sprat address labels	G4WIF
--	-------

General

Secretarial	G3RJV
Treasurer	G3MFJ
VHF matters	G8SEQ
SSB / Data matters	M0NJP
EUCW representative	M1KTA

SALES

General items & back issues of Sprat.	G3MFJ
---------------------------------------	-------

SERVICES

QSL Bureau - in, out & sorting	G0M3VTH
Antenna advice	G3VTT
Awards	G5CL
Circuit & construction advice	G3ROO
Internet GQRP club reflector & web site	G4WIF

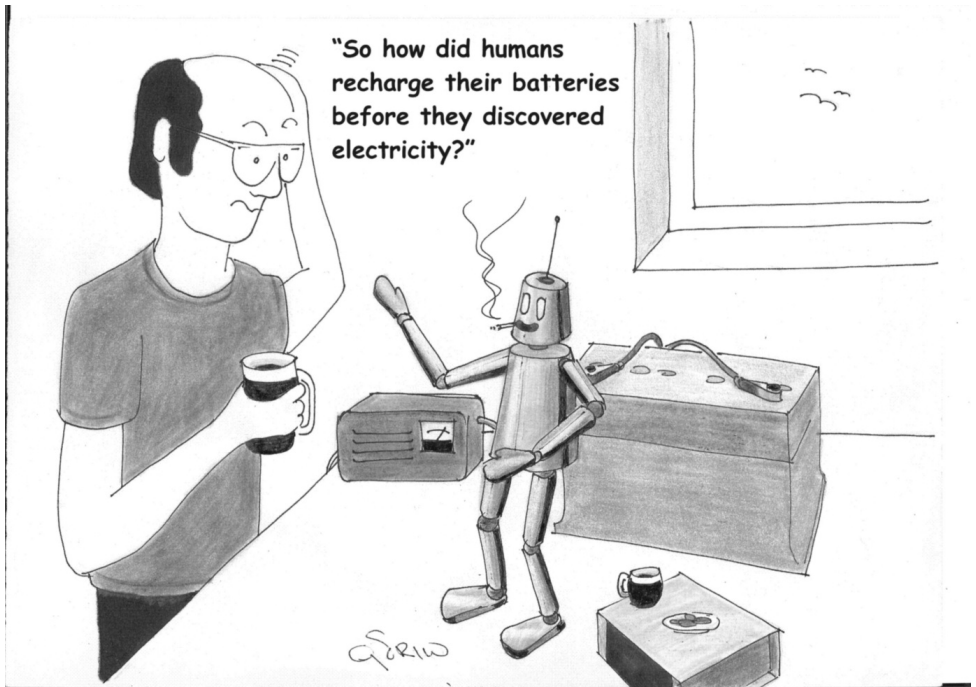
Please quote your membership number (and email if you have it) in all correspondence and include an addressed envelope with postage if you need a reply.

screwed halfway to Australia. I decided the manufacturer had used a 10.7 Mhz IF transformer for the input coil and there was insufficient capacity across it to reach 40m due to production spreads. This was cured with a 56pfd capacitor in the position of C13, which is not used on the HR40 - very convenient, and the antenna coil finally trimmed nicely.

The linearity of tuning can be improved by changing C4 to 5 or 10pfd as stated in the manual from its value of 35pfd to tune a particular portion of the 40m band. I fitted 3.3pfd to tune 7130 KHz only plus a bit side to side.

The receiver really needs a metal box and not the flimsy plastic one it comes with but it would make an interesting training exercise to put it together. I still don't like varicap diodes for tuning, actually they use a power diode, and I'll hang on to my own variable capacitors for as long as I can for my projects.

There is plenty of room in the box for an audio preamp which it needs or maybe a little audio filter using an op amp or two. Perhaps the 80m version would be more stable and easier to construct but whatever you do, remember - building little radios in boxes is habit forming.



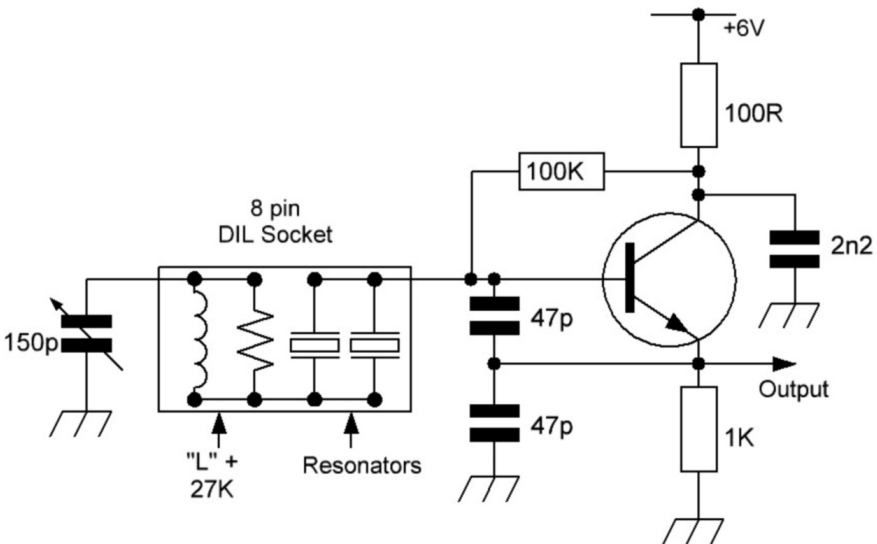
The “Pull-o-Matic”

An Experiment with Ceramic Resonators

Peter Thornton, G6NGR, 99 Hollingworth Rd. Littleborough. OL15 0AZ

I like simple elegant circuits, so for my next project, a 6m CW / DSB rig I thought about a crystal oscillator. I wanted a decent shift, to 51MHz; I'd read the guff about pulling crystal oscillators umpteen kHz with variable capacitors and inductors, but the crystals I tried wouldn't shift more than a few kHz despite different inductors, capacitors, oscillator configurations, still the same result – not enough shift for my purposes. I'd got through loads of Vero trying these circuits, so it was time for a rethink – hence the “Pull-o-Matic”, a Colpitts test bed oscillator plus an 8 pin DIL socket to hold the components under test.

I got some ceramic resonators. They were the two wire type, 10MHz from Rapid Electronics (90-0565, at £0.22 each), plugged in my “Pull-o-Matic”. I used 47pF capacitors base to emitter, emitter to ground on a BF199, an 8 pin DIL IC socket to hold the resonators, inductor and parallel resistor. I'd recently got some 150pF Polyvaricons from the SPRAT shop so the set up was complete. The inductor I wound on a ferrite ring I found in a noise suppression filter; I don't know what material it was, but on an ATLAS LCR gizmo it came up at 12 uH. And that was that.



The scope I use has a frequency counter built in; it's not dead accurate, but near enough to see what's happening.

Brilliant! Fired up first time, nice waveform. Wait for ‘scope frequency readout --- WOW!! 9.1095 MHz!! I couldn’t believe it, so I left it running whilst I went for lunch. An hour later, 9.1096MHz!! OK, let’s tune upwards – good signal on the scope – no dips or sudden shifts, but my goodness, you could SEE the sine wave closing up! Now that’s some serious frequency shifting! Where’s it stop? WOW (once again)!! 10.115 MHz!! That’s over 1 MHz shift, stable, repeatable, rock solid (literally). For £0.22p times 2, plus £2 for assorted bits – all up, less than a fiver for 1 MHz shift with rock bound stability!

A single resonator ran nearly as well, from 9.355 MHz to 10.00 1Mhz. I noticed a bit of spread in the 10 resonators I’d got, but all were near enough to trim up to where I wanted them. The “Pull-o-Matic” enables very fast “cut and try” to find the best combination for the job in hand.

A bit of tweaking, a 100pF fixed silver mica and a red LED varactor and my patent 100 turn pot simulator circuit (more on that later) has got me bang on the slots at 6m I’m looking for, dead easy. Who needs synthesizers?

G-QRP-DL-Treffen 2015

Das traditionelle G-QRP-DL-Treffen fuer Mitglieder des G-QRP-Clubs findet auch 2015 wieder am **letzten Wochenende im April (24/25/26) statt – in Waldsassen**, in der Nähe von Cheb/OK – unsere QRP-Freunde aus OK sind herzlich willkommen. Weitere Infos gibt es auf der Homepage:

<http://www.g-qrp-dl.de>

Zu Vortragsthemen und Beiträge usw. bitte Bernd via DK3WX@DARC.DE kontaktieren – vy 72 es awds

Bernd, DK3WX - Oliver, DF6MS - Manuela, DL2MGP

The traditional G-QRP-DL-meeting for members of the G-QRP-Club will be held at the last weekend of April 2015 (24/25/26) in **Waldsassen near Cheb/OK** – our QRP-Friends from OK are welcome.

Further infos on our homepage: **<http://www.g-qrp-dl.de>**

For lectures and articles etc., please contact Bernd via DK3WX@DARC.DE vy 72 es hpe cu Bernd, DK3WX - Oliver, DF6MS - Manuela, DL2MGP

Julian Moss – G4ILO

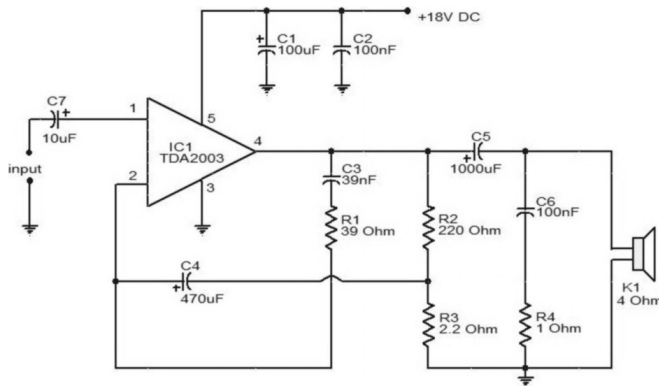
We regret to announce the death of Julian, a member of the club and well known through his websites and blogs. He gave a compelling account of his brain tumour in his ‘one foot in the grave’ blog. A web search for ‘Julian Moss G4ILO’ will turn up a lot of interesting material. Our sympathies go to Olga, his wife, and his many friends.

Audio Amplifier using TDA2003

Graham Firth G3MFJ

Some time ago, Steve, G1KQH, pointed out a deal for these audio amplifier ICs. They were really cheap, so he suggested that I added them to the sales list. I agreed, and after a long delay, they arrived. I thought that as they were so cheap, that I ought to check them out. The following is the circuit & construction that I came up with. I appreciate that 10 watts is above QRP, but members may want to amplify their QRP receiver output.

This is the circuit – from the manufacturer’s data sheet -

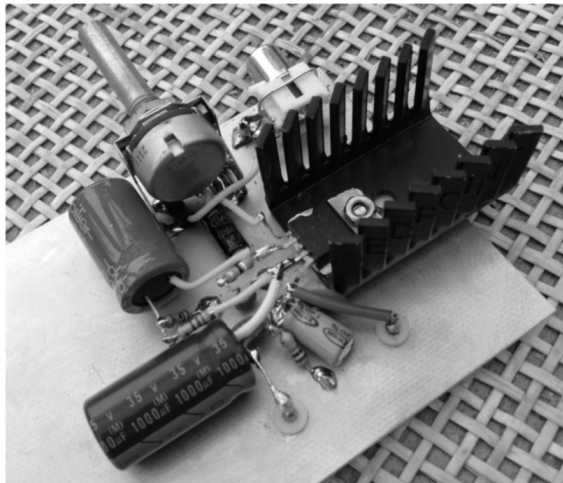


Nothing difficult about the components - you must use a heat sink for the IC - you can see the one I used in the picture but you will probably need a bigger one if you are running it at full volume continuously.

I built up the circuit ugly style, I used a phono socket for the input, and a couple

of stand-offs for the power and output connections.

This is the picture of the layout I used on a handy piece of PCB I had. Nothing difficult - short leads are good, and the output is plenty for use in a noisy environment. I added a volume control – just because I had one - I used a 10K log pot with the input signal across the outer connections, and the amplifier input taken from the slider. It will stand up to an 18v supply, and it is rated at 10/12 watts output. All the parts I used came out of the junk box (I have a well-stocked junk box), and it worked first time. If you need



more power, then there are plenty of circuits on line to use two in a bridge format.

The chips are available from club sales - 25p each - usual postage rates for components apply - you can add a couple to your next order!

G-QRP Club Sales News

Graham Firth G3MFJ

New DVD!

We are pleased to announce the availability of the new DVD – for issues from number 1 to 160 (the last issue of Sprat).

I had hoped to be able to announce this in the last Sprat, but I could not get a firm delivery date from the supplier until the last issue had gone to bed.

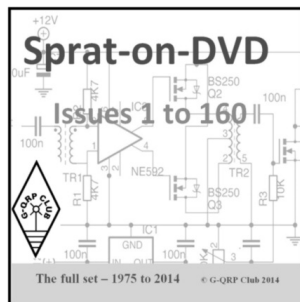
Unfortunately, the price has had to increase – but only to £5, well worth it for all the reading matter!

For non-members, we have increased the price to £12, and if you do the maths, you can see the reason that we have gained quite a few members already is that they can join and get a DVD for £11!

The DVD is available now of course – UK postage is £1.20, EEC postage is £3.50, and DX postage is £5.00

For members in Germany, Spain, Belgium and Holland, the club reps for those countries have said that they will accept orders and payments in Euros (€11.00) and then arrange for me to send a DVD from here.

As we have known that this issue has been on the way for a while, as a concession, we will let anyone who bought the current DVD (1 to 148) after 1st August this year, have a copy of the new DVD for the special price of £2.50 including postage. To get this deal, you have to tell me when you bought the old DVD – if at a rally, which rally it was, and send me the CD case paper label together with the £2.50 in stamps. I do not want the actual DVD, just an assurance that you will destroy it when you receive the new one. I should add that this is for members only of course, and applies just to UK members! Overseas members who think they also qualify should contact me direct and we may be able to work out a deal for them also.



A Tip from Trevor Trudgeon, G0ENZ

I am a reader of Practical Wireless and a GQRP member. I notice that projects use what I think is called dead bug construction. I read somewhere that you stick pieces of circuit board on to a blank PCB to form lands to solder to. Usually when I get a idea it's already been suggested, but just in case it hasn't I thought I would mention it. In my wood working tool box I have a set of plug cutters. There are 5 in a set and you can usually buy them from a market or ebay etc for 3 or 4 pounds. The plug cutters are hollow drills. They will cut out circular lands in 5 different sizes, which are neat and could be stuck on. Also if you use them in a drill press, you can remove a copper polo shape leaving the land in place and separated from the copper plain. If a larger separation ring is needed, just put the next size down in and take another bite. You can also make neat capacitors by using double sided board, I haven't tried making a capacitor, but it seems it might work.

Antennas Valves and Vintage

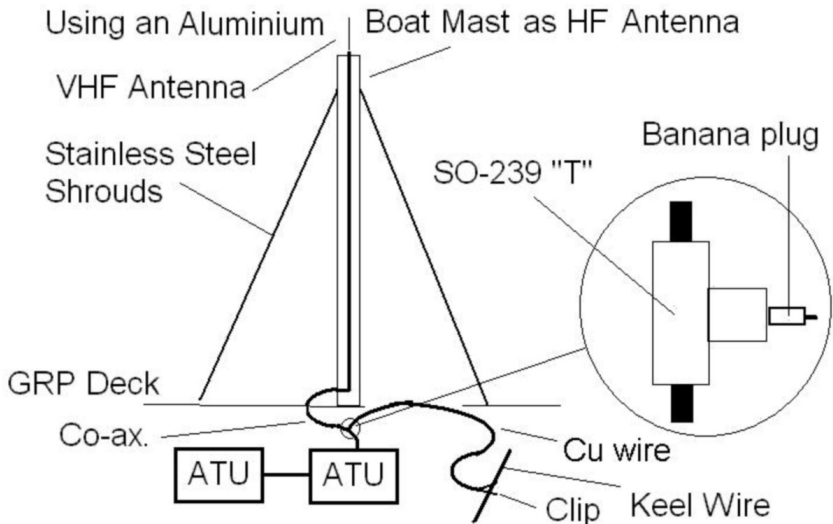
Colin Turner G3VTT

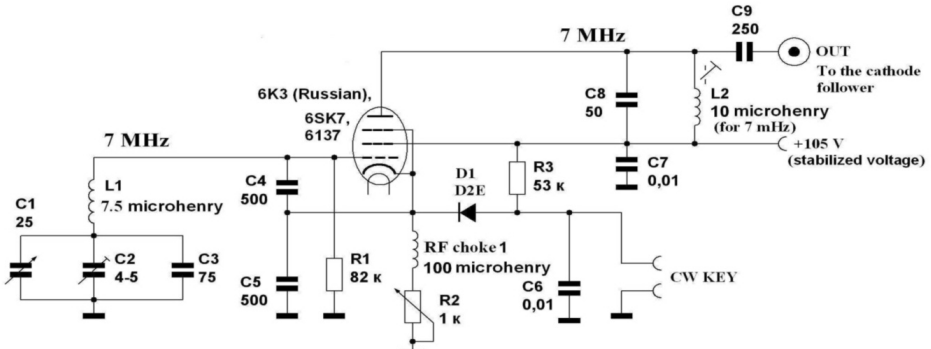
17 Century Road Rainham Gillingham Kent ME8 0BG

G3vtt@aol.com

Welcome to AVV for winter 2014/15. Thanks to contributions from some members I have been really pushed to find space in my few allocated pages but George kindly gave me a wee bit more so thanks to George for finding me an extra page in this issue. For 'Antennas' this time our VHF Manager G8SEQ describes his boat antenna.

Hi Colin, Please find attached computer drawing of how I load up the mast on my boat. The mast is a large diameter aluminium tube of about 90 mm X 75 mm oval section with seven stainless steel shrouds and stays connected near the top acting as capacity hat. It is 26ft or 7.8 m high so just short of a quarter wave on 7Mhz and loads easily with an ATU but the clever bit is the way I connect it. I screw the VHF antenna lead into an SO-239 T-piece, ATU patch lead on the straight-thru side and a banana plug plus a 6ft of wire with croc clip to the stainless steel keel wire which is a quarter tonne slab of iron. This reverses the flow of RF. The VHF antenna lead goes up the inside of the mast but it is connected electrically where it enters the mast at the base. The centre pin takes the RF to ground which is lots of lovely salty water! It has enabled me to put a big signal during the day back into Coventry from the Norfolk Broads using just 5W SSB from an FT-817. *This antenna relates to medium wave broadcast techniques where the guy wires are bonded to ground and the antenna is in effect a folded vertical.*





Keying the Oscillator
 (CW keying in the 1st stage)
 The "Radio and Televiziya" magazine,
 N7, 1969, BULGARIA

Keying a VFO Stage – A diode keying circuit

Gary EWIMM who has sent this circuit originally from the Bulgarian magazine 'Radio Televiziya' issue N7 dated 1969. As Gary says 'We must remember these good high quality projects and long live valves!' With the recent interest in the valve QRP Days you might like to consider this circuit. Everybody knows how to key a VFO master oscillator circuit but the appearance of chirp or a poor quality note often leads to the abandonment of the idea. The circuit shows a keying system using a 'diode key', that is a diode switch, to connect C6 and C5 in parallel to bring the oscillator smoothly in and out of oscillation. With the key 'up' a positive potential from the screen grid resistor R3 biases on the diode D1 which puts C6 in parallel with C5 which is a large enough total value to reduce feedback. This combined capacity is much larger than C4, which is 500 pfd, and a value of in excess of .01uFd is enough to reduce feedback and hence oscillator output. When the key is depressed the voltage is removed from the anode of D1 and the diode is biased off so removing the .01uFd capacitor C6 and the effective value of C5 returns to 500 pfd and the oscillator subsequently turns on producing RF at a frequency determined by the values of L1, C2, C3, C4 and C5. R2 is adjusted to maintain the DC conditions around the valve so that the anode current remains constant between key up and key down further maintaining stability. A neat circuit suitable for any VFO circuit and pentode valve although the 6SK7 is still easy to find and should key well. *Thanks Gary!*

STABLE VFOs FOR A NO-COMPROMISE 'MOPA'

By Cristiano Greggio – IZ3CQI - gregcris@virgilio.it

Cristiano has produced this in depth appraisal of good VFO design and construction practice which will benefit any of the 'Valve QRP Day' enthusiasts. Our thanks to Cristiano for these extensive notes which are well worth studying if you want to learn about these techniques from the past or brush up on what you once learnt. G3VTT

The construction of a very simple two tubes MOPA (Master Oscillator – Power Amplifier) transmitter to cover all the bands from 1.8 up to 28 MHz has always attracted me. In particular the use of an additional VFO, instead of driving the TX with a crystal, gives that frequency agility that makes the MOPA approach a winner if one looks for a TX that is rather minimalist being easy to build and that allows a comfortable frequency change *with* no limitations. Nevertheless, the achievement of a stable and clean CW on the higher HF bands is a real challenge when few tubes and frequency multiplication are used. After years of experimentation I had recently been able to successfully test a VFO configuration that is promising for achieving all what is needed for a superb CW operation of any MOPA-like transmitter.

The proposed schematic has nothing special: it is a two tubes circuit, using a medium/high mu double triode as Clapp Oscillator/1st buffer, and a high transconductance pentode as 2nd buffer. The first buffer is aperiodic and the second may be aperiodic or tuned. The first secret for a good CW tone then is to have adequate separation between the oscillator and the driver/multiplier stage, and my experiments tell that for a MOPA at least two buffers that work in Class A are almost mandatory.

CW keying is done through the oscillator grid negative bias. Some shaping may be added but in my tests it was not needed. The tubes which gave me the best performance in terms of frequency stability, CW tone quality, consistency of output voltage level, are the 6BQ7 for V1, which can be substituted by a 12AT7 and the EF184/6EJ7 for V2, replaceable by the EF183/6EH7. Variations are of course possible with other tube types, but they have to be investigated. In particular, the 12AU7 can be used as V1 instead of the preferred 6BQ7, but the 'Ca/Cb' values may have to be reduced if oscillations do not start. Ca/Cb were 300pF in my prototype and they worked fine up to 11.0 MHz

Another important point is to keep the oscillator plate DC voltage at the lowest level at key down. My prototype has been set for 30 VDC. The lowest the oscillator plate DC voltage results in the lowest thermal drift of tube capacitance which is essential to obtain good frequency stability. Voltages above 50-60 VDC may produce a drifting and chirping tone.

At 30 VDC plate voltage the output level at 1st buffer cathode was 0.3-0.5 V peak @ 11.0 MHz, depending on the LC oscillator tank efficiency. Do not forget to have the sturdiest mechanical construction of both the box that holds the valves and their components, and the highest variable capacitor quality, along with a solid construction of the oscillator tank coil. The proposed circuit uses NP0 capacitors at the frequency determining section.

The application to the oscillator tube of a quick experimental series LC tank that resonates from 11.0 up to 11.6 MHz, after a couple minutes of initial warm-up, produced a total frequency drift of about 300 Hz in 3 hours. Note that no attempt has been made yet to improve the stability by application of fixed capacitors with the proper temperature coefficient types. The CW tone resulted just perfect at fundamental frequency, and equally at the second harmonic, so around 22-23 MHz which is close to 28MHz! T₀ is the output impedance transformer which resonates at the VFO center frequency with the aid of the

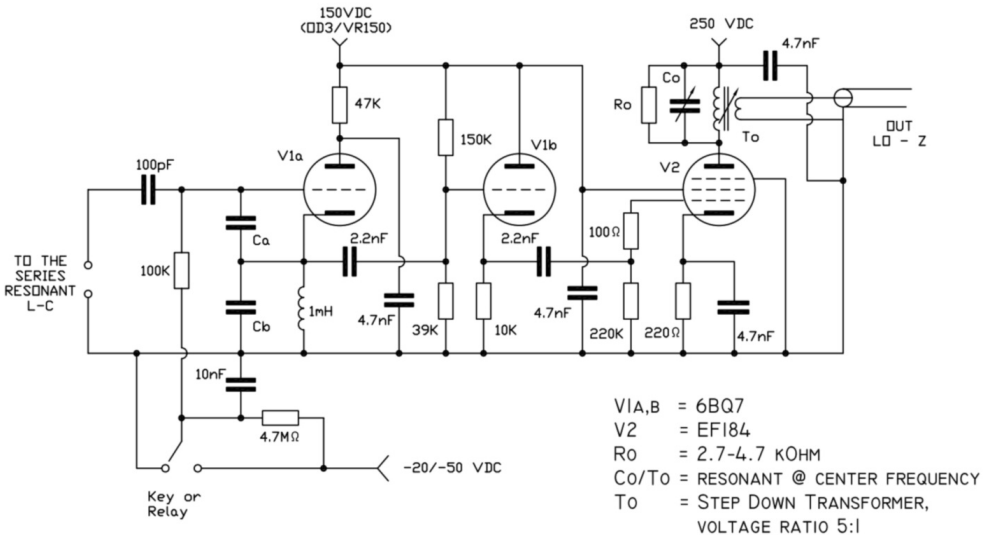
trimmer C_0 . Its frequency response may be flattened, if desired, by a few Kohm resistor R_0 . By setting R_0 at 2.7Kohm from 5 to 6 V peak can be measured at the Lo-Z output terminal, in open circuit condition. If R_0 is not used, the output voltage level goes up to 30-40 V peak. This VFO was meant to work in a future single conversion TX but its surprising and unexpected performance at such an unusually high frequency for a valve VFO is bringing me back, unavoidably, to the old and everlasting dream of having a 'no-compromise' two tubes MOPA, based on a single frequency multiplication stage.

For the case of an aperiodic 2nd buffer I have tested a 6CL6 working as class A amplifier with an 8K ohm 6W (!) resistor from plate to HV supply. The amplified signal has been taken at the plate through a coupling capacitor. With 300 VDC at the plate and 150 VDC at screen grid, the output level can still reach 30 V peak at high impedance, but at the price of a much higher dissipated power. Nevertheless, in the case of two linear cascaded aperiodic buffers (double triode + pentode arrangement), the resulting frequency bandwidth can easily be flattened within -3dB from few tens of KHz up to 10.0 MHz: a very interesting feature if one wants to build a general coverage MOPA.

If a MOPA is used as straight amplifier, with no frequency multiplication and good CW quality is still achievable, provided the driver and the PA are also set to work as linear amplifiers and there is an overall good mutual shielding between the VFO section and the PA. If a stable and clean CW signal at around 9.5 MHz is tripled in a two tubes MOPA, the output around 28 MHz will also be like that. A chirp-less tone in a TX using frequency multiplication is possible then if the signal is amplified as linearly as possible through the buffers chain before the multiplier.

Furthermore, if a CW signal is 'dirty', i.e. there are transient oscillations at the fronts and the tails of dot and dashes, the multiplier stage will worsen the harmonic content and 'clicks' appear. For these reasons, it is to be noted that the 1st buffer is the most critical part of the circuit: it is a CATHODE FOLLOWER, polarized by a voltage divider (39K/150K) that allows enough dynamic range to the incoming signal from the oscillator so that it can swing without being deformed by (unwanted) current grid absorptions.

It is to be noted that all V1 sections and the screen grid of the output pentode are fed by a stabilized 150VDC line that comes from an OD3/VR150 gas tube. A solid state stabilizer would do the same job more efficiently but, frankly, who of you does not like the 'pink' glow of that nice valve? I have not applied any filament voltage stabilization. In case of questionable quality of the public electricity it may be worth to have some kind of filaments supply regulation too. There's nothing new under the sun then. You only need to refresh the good old practices that would be a pity if they were forgotten.
Keep your tubes glowing!



Valve QRP Day November 2014

This continues to be a successful event with a few new stations appearing. I will be submitting a report on activities and equipment in the next Sprat for spring 2015 plus the date of the next event which will be in April 2015.

Please keep an ear open around 7030 KHz for Ted G2HKU. Ted has been an extremely active QRP operator over the years and now resides in a plush care home on Sheppey. He has his IC703 set up in his room and is active on 40m with a 33 foot wire literally against the wall of the home about ten foot high and a 33 foot counterpoise under his bed. This system is fed via a Tee Match tuner from MFJ and with QRP has worked seven countries as reported to me in early November including the USA. This is an amazing performance and Ted shows what can be done with small covert antennas. If you are in QSO and he goes QRT this is due to the nursing staff requiring him to stop.

Christmas 2014 looms ahead! The years go so quickly these days. I would like to take this opportunity of wishing you all a Happy Christmas and a Healthy New Year and look forward to working as many of you in the best QRP event of the year, the Winter Sports. As ever if you have an article or letter please contact me at g3vtt@aol.com and my sincere thanks to all of you who have contacted me this year with articles.



COMMUNICATIONS AND CONTESTS

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

Hi I hope everyone has had an interesting time on the air this Autumn and are looking forward to the Christmas holiday period. I see the banter between some GQRP members for the most worked DXCC in 2014 (**Chelmsley Trophy**) has been increasing lately and some amazing DX has been worked. Along with a few rare DXCC being activated.

Some recent exchanges on the email reflector might provide some encouragement for some others and an interesting note that other contests QRP categories throughout the year have added significantly to their totals for 2014. There seem to be several members above 100 DXCC which is a great accomplishment when considering these are all QRP.

I hope you had fun in the other contest QRP categories this year.

GQRP-EA EA3EGV Memorial Contest - RESULT

Towards the end of 2013 George (G3RJV) was sent a couple of EGV-40 kits from Javier Solans EA3GCY from the EA QRP club, these he sent over in memory of his friend Miguel Montilla EA3EGV and these will be awarded to G-QRP members at Rishworth. (You do not have to be there to win one)



The two winners of the two categories were RW3AI #9429 and G4ISJ #4538. They approached the contest in two completely contrasting manners one from home qth the other portable. They were able to show what is possible with qrp.

1. G4ISJ, #4538 Peter won the category for the most qso with EA stations and managed to contact 59 different EA stations. He managed most of these contacts whilst operating SOTA with 4W using either an MTR or ATS4, from 21 different 'tops'.

2. RW3AI, #9429 Val won the category for the most qso with members outside EA. This he managed by operating almost every day and also entered 37 different contests all in the qrp categories. He used a range of rigs from an IC7800 to a homebrew single valve TX. No special antennas only wires used. He managed to contact 96 DXCC and managed over 5000 qso with >3700 unique stations. He also managed to contact 42 EA stations.

Thanks to all the other (22) entrants who made this such an interesting event.

I will be on the air as I am sure several others will be for the annual:

G QRP Club Winter Sports

The G QRP Club Winter Sports is one of the most popular QRP operating events. Each year between Boxing Day (December 26th) and New Year's Day (January 1st) the club invites any operators to join in a QRP "QSO Party" using 5 watts of RF output or less. The operating takes place on and around the International QRP Calling Frequencies/ Centres of Activity.

The Winter Sports is not a contest, although the G4DQP Trophy is awarded to the operator thought to have made the best overall contribution to the event. 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, Dominic Baines, M1KTA, email at m1kta@gqrp.co.uk, Dom Baines, M1KTA, 34 Bury Road, Stapleford, CAMBRIDGE. CB22 5BP.

Operating for all these activities should take place on and around the International QRP Calling Frequencies.

CW: 1836, 3560, 5262, 7030, 10116, 14060, 18086, 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.

Please take part if able and join Jos ON6WJ, and friends as they keep QRP enthusiasts active all through the winter. He has organised his so-called EU FOXHUNT twice weekly, from **November 2, 2014 – February 22, 2015**. Is well worth taking part as they will love to have members from GQRP take part. There is a website http://www.on5ex.be/foxhunt/foxhunt_view_unreg.php

RSGB Spectrum Forum

I will brief in the next SPRAT as the minutes of the meeting are not yet official, but GQRP had representation from not only myself but a few other GQRP members attending in other capacities. It was with some surprise to some groups that we were as large a group as we are.

146-147 MHz NoV

I am sure several members will have applied online (full licencees only) for their NoV, the allocation is for experimentation. I will be putting together an SDR set-up for this once I have finished off a rig I am completing for another.

For further details see

<http://rsgb.org/main/operating/licensing-novs-visitors/online-nov-application/146mhz-147mhz-nov/>

2015 QRP CALENDAR

1st Jan	Last day of Winter Sports
1st Jan 0000z-2359z	FOC Pump Handle Party
3rd Jan 2000z-2300z, 4th Jan 0400z-0700z	EUCW 160m Contest
1st Feb	Last Day for Winter Sports logs to M1KTA
10th Feb	Last Day for Chelmsley 2009 logs to M1KTA
28th Feb 1600z to 1st March 2359z	CZEBRIS
1st weekend in March	
14th to 15th Mar	RSGB BERU Contest (See RSGB Contest Website)
TBC	AGCW QRP Contest
6th Apr 1400z-2000z (Every Easter Monday)	Slovak Low Power Sprint
22nd Apr to 26th Apr	EUCW / FISTS QRS Party
TBC	Last Day for CZEBRIS logs to M1KTA and OK1AIJ
14th May 1900-2300z	(Each Ascension Day) QRP-Minimal Art-Session
17th Jun	IARU Region 1 International QRP Day Contest
12th Jul	Last Day for International QRP Day Contest logs (M1KTA)
19th July	RSGB Low Power Contest (See RSGB Contest Website)
25th to 26th July	RSGB IOTA Contest (See RSGB Contest Website)
14th Sept(?)	HTC QRP Sprint (2nd Sat Sept)
October TBA	Rishworth QRP Convention
15th Nov 1300-1700z	QRP Contest Community HOT PARTY (3rd Sun in Nov)
26th Dec - 1st Jan 2015	G-QRP Winter Sports

(Please advise M1KTA of any errors, or omissions.)

I have added a couple of extras in the calendar for a couple of reasons.

They all have QRP categories, I have worked other GQRP members in them and they offer a real opportunity for QRP stations to work some DX.

I wonder if others might be interested to have a go at some of the other big contest QRP categories this year ? e.g. With an M1 call I find this one interesting CQWW WPX interesting... SSB: March 28-29, 2015 CW: May 30-31, 2015 Starts: 0000 UTC Saturday Ends: 2359 UTC Sunday

MEMBERS' NEWS

by Chris Page, N4CJ (G4BUE)

312 Quail Avenue, Sebring,
Florida 33870, USA
E-mail: chris@g4bue.com



Congratulations to **GM4YLN** on attaining 304 DXCC with QRP. **GM30XX** says Chris must be the first GM to achieve QRP 300 DXCC and wonders if he is the first in the UK (or even Europe)? George's own DXCC is stuck at 291, and has taken him over 53 years using almost totally 1W. Chris has just received his **TX6G** card taking him to 298 confirmed and is awaiting QSLs for PJ2, PJ4, PJ6, PJ7 and **FK8VHT** to take him to 304 confirmed, an amazing achievement. Chris says it has taken him more than 31 years and has all been achieved with 3W to a three element yagi in a 24 x 36 feet garden.

Is **GM4YLN** the first in GM/UK/Europe to achieve 300 DXCC with QRP? Please tell me if you know different and at the same time give me your own DXCC QRP totals for worked/confirmed. I know there are some amazing totals out there. If there is sufficient interest, I can run a regular DXCC worked/confirmed table as part of this column. What do you think?

Talking of DXCC, **G3JFS** writes, "Due to ever increasing demands on my time for more important family matters, I gave up chasing annual DXCC scores several years ago so I was surprised to find that I have worked over 100 countries with QRP this year. Nothing exotic as I have not done too well with the rarer DX and DXpeditions this year, but I have worked 60 European DXCC. Many of my contacts have been made in contests which I enjoy in small doses, but I have also been pleased to make a lot of 'real' QSOs, including some with two-way QRP. Since mid-summer, taking part in some of the North American QRPCW Club (NAQCC) challenges has boosted my QRP activity - see <www.naqcc.info>. NAQCC promotes QRP CW, especially with simple wire antennas, and I have collected some of their certificates to show local club members what can be done with QRP".



Left is the homebrew magnetic loop antenna and operating table of **DL4AC** that he used with his KX3 at 5W to make QSOs on all seven bands of the loop (40 to 10m). Uwe worked about 80 stations in 26 DXCC in four continents in a few hours, including **UN7JZ** on 12m, **CT9/DL1RNN** on 10m, **KG9N** on 15m and **CN8GLO** on 20m. He was also pleased the **ZL2HAM** skimmer heard him on 20m at 9dB S/N. The PSU is a little LiPo 3S1P with 3.5 Ah. Details of the magnetic loop are on his web-page at <<https://sites.google.com/site/uwedl4ac/homemade/magnetic-loop>>.

Congratulations to **MØHQO** who, after struggling quite a lot, made his first QSO on 14 September with special station **PA7OKP** on 40m using 5W SSB with his ILER-40 and an Ampro-40 mobile antenna. In making the QSO, Cesar learnt he had to tune the vertical, use a counter-poise and mount it as high as possible (his is now ten feet above ground). **G3JKB**'s best QRP DX recently was a 5W QSO using his low doublet on 12m with 'Mr Golden Ears' **G3TXF** operating as **ZD9XF** in September. Your scribe confirms Nigel's 'Golden Ears' title when he also made a 5W QSO on 12m with **ZD9XF**. **M5AML** QSO'd **G4FZN/P** near Thirsk twice on SSB, with 5W and an indoor five element yagi in the monthly RSGB 2m UKAC. This is John's furthest north so far on 2m from his Derby QTH and says, "Aircraft scatter briefly enhances our signals for a few seconds - just long enough for a contest QSO!". John's best recent HF QSOs were **7X2GK**, **J69DS** and W1 and W2 on 15m and **7X2RD** on 17m using a 22 feet gutter dipole and 5W SSB.

M3KXZ made a stop on the way home after work on 19 September to listen to the **P29NI** pile-up on 17m and after listening for a while, tail-ended a DL station he had just worked and made a QSO with his 5W. Two evenings earlier Pete stopped at Firlie Beacon on his way home and QSO'd LU, JA and JW, then just as he was leaving he saw an inverted vee on a fence across the car park and someone operating from a car. He walked over and had a nice chat with **G7HFS!** **G3JFS** also had a good day on 19 September starting with **VK2KM** on 20m for his first QRP QSO with Oceania this year. Peter also QSO'd **OJØW** on 30m, **TY1AA** on 12m, **TA2AO/4** on 15m and **W1AW/1** on 20m. Then just before going QRT at bedtime, he snagged **PY8ADI** on 20m to complete a CW QRP WAC for the day. The following day **IKØIXI** made a two-way QRP QSO with **EA8AA** on 20m, both using dipole antennas.

Pictured right is **SM3TSZ**'s house in the forest (JP84HJ) where his ancestors lived, about 105 miles from his home (JP83OE) Two months ago Mauritz put up 'a sort of Windom' antenna there and was amazed how quiet it was on the bands. His closest neighbour is almost a mile away and there is no traffic or electronics around. He visits the house from time to time but not in the coldest winter time! Mauritz says gardening and building a little house have taken his time from amateur radio recently but he is now hoping for a new start.



LZ2RS has been continuing his 'milliwatt' experiments with power levels down to 3mW. Rumen is using a homebrewed attenuator and a Oakhills Research WM-2 wattmeter, that has been calibrated by **LZ1IU** at the Acom factory in Sofia, to measure the low power levels. He has found the minimum output power from his K3 is 250mW on 20m and a little less on 10m, and with the attentuator set at -20db, obtains 3mW output on 10m and 3.3mW on 20m which has given him QSOs with **JA4FKX**, **N2KW** on 20m and **AA9AA**, **K1WHS**, **WØJX** on 10m. The **JA4FKX** QSO on 26 September started with both running 100W, then both dropped to 5W and they were still 599 with each other. The JA station then heard Rumen's 250mW signal at 559, 449 with 30mW finally 219 at 3.3mW. Rumen used his K3 and four element tri-band yagi at 105 feet and the JA used an 11 element tri-band yagi at 79 feet. **K1WHS** in ME uses stacked five element yagis at 70, 50 and 30 feet and on 26 October gave Rumen 559 at 250mW, 539 at 30mW and 429 at 3.3mW on 10m.



MØHDF was QRV 31 October/7 November as **EA8/MØHDF/P** from Tenerife with his HB-1B, multiband EFHW at 3W, Mountain Tuner and 16 feet travel pole (photo left). Angel built an emergency ground plane for 20m and 'had a blast' with it on the beach at sunrise on 6 November, working stations in DU, FK, JA, PY, VK and VO1 see <<http://m0hdf.blogspot.com>>. He will be QRV as **EA2ECG** over the Christmas holidays and plans a few SOTA activations in EA2, EA5 and possibly EA3. In the summer Angel built a MTR v2 and a **VK5JST** analyser.

DDØVR and **DE3BWR** are QRV 6/30 November as **S79VR** from Mahe, Praslin and La Dique Island using a KX3 and the new HyEndFed Antenna (<<http://hyendfedantenna.nl/joomla/>>). Heli made 79 QSOs on 6 November after having some initial problems with the antenna. **GØHUZ** and his wife Suzanne, **GØLUZ**, were off on their 'nautical meanderings' between the end of September and the end of October, taking them

through the Mediterranean into the Black Sea and back, calling at various ports on the way. Tony hoped to be QRV/MM with his FT-817 on 20-10m and a centre loaded helical mobile whip if he was able to obtain the Captain's permission.

The fine Paraset pictured right took **GW4LPB** about three months to build from scratch, including getting all the parts together. The variable capacitors are trimmers that he added shafts to (new military surplus), the valves are all new surplus and the main dial is from the USA that came complete in its box that John thinks is from the 1960s. He says, "It was a lot of fun to build and I learned as I went along as it was my first valve project. It is very basic but it does work. The hardest part was making the box and chassis fit together using basic tools".



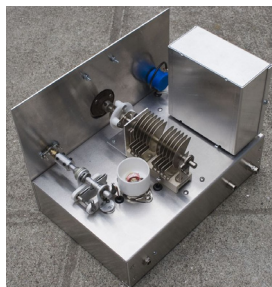
GMØAEG was very interested in the comments on 60m in my last column and has been hoping some simple projects would be forthcoming in *SPRAT*, but so far nothing. David has built a small TX from things he found on the Web but it isn't up and running yet. The problem was some of the components are now not available so he had to find others to replace them. David has three crystals for 60m, one of them for the QRP calling QRG and is looking forward to getting some contacts. **G4ELI** has released a greyline program he wrote for his own use, the first in a suite of programs for his station. Simon uses it for greyline on 80m, etc, see <<http://www.dit-dit-dit.com/Downloads.aspx>>.



The Galashiels Rally on 19 October was the latest venue for the intrepid pair of **GM4VKI** (right in the photograph) and the nearly naturalised Scot of **G(M)3MFJ** (left), who manned the G-QRP Club stall where 37 members signed in out of a total attendance of 275, which is pretty good. Roy says, "It was toriods that were 'flying out of the door' this time with a couple of Sudden ATU kits as well. It was off to Rishworth the following weekend and what a great weekend it was. I met a couple of new

Club reps in Fabio, **IKØIXI**, from Rome and Mark, **K5MGJ**, from Texas, and the usual gang from around Europe with Johnny, **SM7UCZ**, and Richard, **F5VJD**. The Buildathon went well with everybody achieving success. I took a stall next to **G3UFG** on the book stall and sold all my QRP junk and helped Richard for the day as well. Then it was back to the Travel Lodge for a joint meal and blether before heading home on the Sunday morning".

AA7EE has been hankering to build a general coverage regen receiver with plug-in coils and a nice big old vernier drive and the photographs on the right is the result. Dave wanted a receiver that had the look and feel of a classic regen, but with relatively modern solid state circuitry. The RX front end is based on Nicky's TRF and the AF stages were borrowed from a regen designed by **N1TEV** published in *CQ Magazine* in February 2010. The AF stages have adjustable bandwidth filtering and an LM380 in the output stage. The plug-in coils are wound

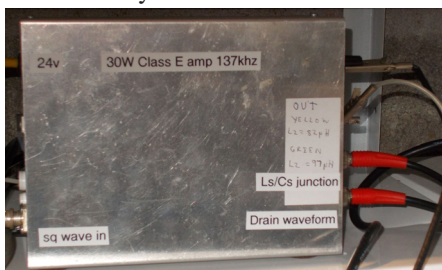


on toroids and mounted in octal valve bases. Dave wanted to listen to SW BC stations, and said, "This one does the trick in style. I named it 'The Sproutie' in honour of my kitty 'Sprat the QRP Cat', whose civilian (non-radio) name is Sprout. I have wound nine coils covering 2-16MHz stored in a modified cigar box. Details are in my blog at <<https://aa7ee.wordpress.com/2014/08/21/the-sproutie-a-general-coverage-regen-receiver-with-plug-in-coils/>>.

GØFUW reports 16 QRP TX builders at Rishworth, "Battled with melting battery boxes to generate somewhere around 3W of RF between them; 40m should be alive with milliwatt signals now! A truly international Buildathon with reps from USA, Italy, Ireland, Wales, Scotland and England, all building a circuit from Sweden!". **G3ROO** made six QSOs, including one with **DL5YL**, on 7 November with his TX at 150mW into sloping dipole fed with 165 feet of old coax with its top at 30 feet and using an Eddystone EA 12 RX. After a little QRG adjustment (it was on 7027.4kHz) **IKØIXI**'s little 'Made in Buildathon' has given him QSOs with **IIGIS**, **IK4VFD** and **IØJGE** with 150mW to a half-wave dipole. **G3UGF**'s TX is also on 7027.4kHz but he is yet to make a QSO with it. Richard is using a 'proper' key, "As the simple on-board unit doesn't give a good note under load. I also installed a heatsink and tried higher supply voltage to no real effect, still 150mW. Shame no one local to me can read CW these days! I will keep trying". **MØBJA**'s is on 7028.5kHz and is yet to make a QSO.

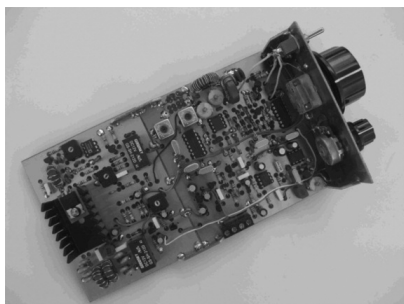
On **MØNDE**'s bench for this winter are some old FT-707 IF and AF boards and a copy of *Building a Transceiver* by **E19GQ** and **G4LFM** because he is thinking of building a modular rig to learn more than just following a kit instruction. Nigel has made a tilt-up mast for the rear cycle rack of his RV to raise mobile whips up where campsites will not allow long wires, and got his 12 year old to help him wind coils for the mobile whips. He is still WSPRring using the Hand Summer Ultimate U3 on six bands and reports a new radio club in Burnham-on-Sea, Somerset that meets on the first and third Wednesdays of each month

F5VLF was recently asked to provide a picture of his radio equipment for an exhibition of members' work at the local Cheveux Blancs (Women's Institute but with men). John provided the photograph right of his main LF amplifier which he mounted on a display with his wife Rosy's patchwork. He says nobody commented, or even asked him, what that funny silver thing was!



On 31 October **WIREX** announced some new products: Power and Efficiency kits for 40, 30 and 20m, 17 and 15m Rockmite kits, a version of the Texas Topper for Rockmite users with a low profile band module enabling it to be installed in a matching enclosure, and a new Z-Rock Tuner, also in a matching enclosure, details at <<http://www.qrpme.com>>. At Rishworth **G4WIF** showed folk in the lecture theatre how to 'wallop' copper pipe into the ground using an SDS drill, a normal hammer drill will not do it. Tony's SDS drill came from *Lidl* and he says, "Like many of their tools, you get pretty fair value for money and the drill is once again available, see <<http://www.lidl.co.uk/en/our-offers-2491.htm?action=showDetail&id=17793>> (when I checked the Internet on 14 November it appears to have been withdrawn - **G4BUE**).

Thanks to all the contributors to this column. Please let me know how your winter goes for the spring edition of *SPRAT*, in particular what you have been building, who you have been working, and any other information, news, ideas, suggestions or opinions about QRP, plus your QRP DXCC worked and confirmed totals, by 10 February 2015. 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 spring and summer months next year so I can let members know to listen out for you.



New 3 band DC RX & CW TX

**Marsh (photo) – Xtal mix VFO
for 3 of 20 - 80m**

**Mells – 1.5W 3 band CW TX
to go with Marsh**

**Berrow – CW DC 1.5W TCVR,
any of 20 – 80m**

**Lydford – SSB phone 5W TCVR,
any of 20 - 80m**

**Yeo – Entry level DC RX,
any band of 20 – 80m**

**Minster Mk3 – multi-band
CW and SSB TCVR**

Visit www.walfords.net to see whole range

Walford Electronics

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

www.jabdog.com

Now in Excess of 11,000 products stocked and ready to ship

Crystals select any 20 from list below for just £6

3.579545MHz, 3.6864MHz, 4.19304MHz, 6MHz, 8.863256MHz, 9.8304MHz,
10MHz, 11.52MHz, 12MHz, 16MHz, 25MHz or 39MHz

Classic Style Chicken Head Black Pointer Knobs

KNO-122 Buy 10-for £3 or Buy 25-for £7

1N4002 Diodes Buy 100-for £1.50 == 1N4148 Diode Buy 100-for £1.50

1N5406 Diodes Buy 100-for £4 == 1N5819 Buy 100-for £9

BC546 NPN Transistors Buy 100-for £3 == 2N3904 Buy 100-for £5

2N7000 FET Buy 10-for £1 == 2N3819 FET Buy 10-for £3

2N3055 Power Tran Buy 10-for £4 == BC107 Buy 10-for £2

BD139 Transistor Buy 10-for £3 == BF245B FET Buy 10-for £2

BFR79 Transistor Buy 10-for £4 == BFR40 Buy 10-for £2

BFW92 Transistor Buy 10-for £5 == 2N5400 Buy 10-for £2

2N3773 buy 10-for £10 == BC147 Buy 10-for £1

BSY95a Buy 10-for £3 == IRF510 Buy 10-for £6

ZTX108 Buy 10-for £1.50 == IRF630 Power FET Buy 10-for £5

ZTX653 Buy 10-for £3 == ZTX751 Buy 10-for £3

Have you tried our priority bi-Monthly loyalty offers list?

Available on subscription at £6 for 6 months or send a SSAE for a sample copy.

JAB Electronic Components. PO Box 5774. Birmingham B44 8PJ

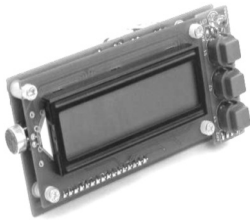
e-mail jabdog@blueyonder.co.uk www.jabdog.com

Mail order: - Post please add £2.60 Free over £25 UK DX Post see website

Cheque or Postal Orders (Payable to P A Thomas please). MasterCard or VISA also welcome.

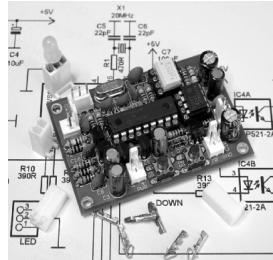
KITS FROM CUMBRIA DESIGNS

Microcode DSP Morse Reader



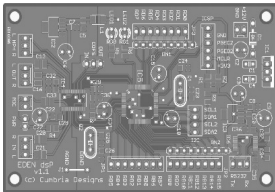
Place near a speaker or connect to a receiver audio output to decode and display Morse Code at up to 45wpm.

X-Lock VFO Stabiliser



Banish drift from that VFO, valve or solid state. Crystal referenced stability with tri-colour LED status indicator. Push button configuration. The X-Lock even copes with RIT!

The Eden "dsP" card



Bare PCB for dsPIC33E/F processor and CODEC. *Look, no PC!* Use with SoftRock or similar direct conversion radio to make a self contained SDR transceiver! Yahoo Groups Support site; "eden_dsp"

For more information on our products visit

www.cumbriadesigns.co.uk

Bowood Electronics Ltd

Suppliers of electronic components

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

Catalogue available NOW Please send 60p stamp or visit our website.

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

email: sales@bowood-electronics.co.uk



Mail order only - NOTE NEW ADDRESS
Unit 10, Boythorpe Business Park, Dock Walk,
Chesterfield, Derbys, S40 2QR
UK Telephone/Fax: 01246 200222

www.SDR-Kits.net - Visit our Webshop!

New – in stock! – KN-Q7A 40M QRP SSB TRANSCEIVER KIT

Fun to build – complete kit all leaded components except 1 SMD part

Fun to Operate: 0.5uV Sensitivity and 10W RF Out - 12V- 13.8V DC

20 kHz VXO coverage 2 Xtals supplied 7080-7100 & 7110-7130 kHz

Special intro- Price **£99 incl VAT, Speaker Mike £19.50 UK Carr £4**



Famous KB9YIG SDR Lite II SDR RX Kit builds either 160m, 80m,

40m, 30m or 14 MHz version. requires computer soundcard - 2nd Xtal supplied **£21.00**

PA0KLT Low Noise Synthesized VFO kit with LCD display uses high performance **Si570 ICs**

covers **3.5 MHz up to 1417 MHz**. Suitable for homebrew VFO or LO Projects - Signal Gen etc

DG8SAQ USB-controlled Vector Network Analyser VNWA covers 1 kHz to 1.3GHz - In stock

Assembled and tested as reviewed Radcom Nov 2011 - Calibration Kits - Details on Webshop

Si570 ICs - Si570CMOS only £10.80, Si570DBA 1.417 MHz, Si571CFC with FM Modulation etc

Mitsubishi RF FETs stocked: 175 MHz RD16HHF1 £4.44 RD06HHF1 £3.30 RD00HHS1 £1.14

SDR-Kits 129 Devizes Road Trowbridge Wilts BA14 7SZ UK - email orders@SDR-Kits.net

Rig Broken or needs alignment?

Commercial/Homebrew equipment repaired & aligned

Ten-Tec repair specialist, spare parts ordering service available

Adur Communications

13 Dawn Crescent, Upper Beeding, Steyning, West Sussex. 01903 879526

Unadilla baluns & traps - Outbacker Antennas

www.adurcoms.co.uk

AMTOOLS UK

www.amtoolsuk.com Virtual Amateur Radio Emporium!

Web site recently updated.

Bargains in tools, components and antenna hardware

Favourites include fibre glass poles, Springy (Slinky element),

FAST-TRACK instant PCB tape, popular QRP devices such as ADE-1 and SA602A.

variable capacitors, magnifiers, PCB drills and lots more.

Low prices and low postal charges worldwide.

email enquiries welcome. (amtools@ntlworld.com)

72, Les. G4HZJ Tel. 01942 870634

1 Belvedere Avenue, Atherton, MANCHESTER, M46 9LQ

QSL Cards from Nasko - LZ1 YE

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

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

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

Practical Wireless, the magazine that brings you Amateur Radio & so much more...

**Practical
Wireless is
Britain's best
selling Amateur
Radio magazine**

Practical **WIRELESS**

Britain's Best Selling Amateur Radio Magazine



Contents include; George Dobbs G3RJV's long running and ever popular Carrying on the Practical Way series, Amateur Radio News, Products and Rally Information. The magazine also brings you regular reports on all the bands, antennas, historical, technical and feature articles and a comprehensive, fast Book Service.

Available from UK newsagents, by subscription or direct from us

TEL: 0845 803 1979 FAX: 01202 659950 E-MAIL: info@pwpublishing.ltd.uk

Quality, value-for-money hobby radio magazines from PW Publishing Ltd.

PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW, UK
web: www.pwpublishing.ltd.uk



**Look at 'www.celticpilgrim.com' * for
Amateur Radio and Lovely Scenery
Between the Mountains and the Sea**

G3RJV has a Wooden Lodge situated in the Dyfi Valley in central Wales close to the Irish Sea and in the Snowdonia National Park. Refurbished 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. Look on the webpage above or for leaflet write to G3RJV or email g3rjv@gqrp.co.uk

*If there are problems with the website URL; Google ***acelticlodgeforrent*** to find it.

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 } £2.00 (UK) or £5.50 EU
Radio Projects volumes 1, 2, 3 & 4 – by Drew Diamond – members £5, non-members £10 } or £8.00 DX per book

6 pole 9MHz SSB crystal filter (2.2kHz) £12 plus post (max of one) } £3.00 (UK); or
Polyvaricon capacitors – 2 gang (A = 8 to 140pF, O = 6 to 60pF) c/w shaft extension & mtg screws - £1.50 each } £3.50p (EU); or
– 2 gang – (both 8 to 295pF) c/w shaft extension & mounting screws - £1.50 each } £4.50p (DX)

Pair LSB/USB carrier crystals HC49U 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*, 18,086, 18,096, } (ANY quantity)

21.060, 24,906, & 28,060 all are £2.00 each (* = also available in low profile HC49/S) } £1.20 (UK), or

HC49U crystals- 1.8432, 3.500, 5.262, 7.00, 10.006, 10.111, 14.00MHz – 50p each } £3.50p EU, or

HC49U crystals – 2.00, 3.00, 3.20, 3.579, 3.5820, 3.6864, 4.0, 4.096MHz } £4.50p (DX)

4.1943, 4.433, 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, 20.0, }

24.0, 25.0, 26.0, 27.0, 28.0, 32.0, 33MHz – all 35p each (Some of these are low profile types) } Post free

14.070MHz – 20m PSK – set of 3 crystals - £2.55 } if ordered with

Ceramic resonators - 455, 480kHz, 2.0, 3.58, 3.68, 4.00, 14.32 & 20.00MHz – 50p each } with heavier

Diodes - Schottky signal diode – 1N5711- 20p each; 1N4148 GP Si – 10 for 10p } things

Varicap diode – MVAM109 – 40pF @ 9v, 500pF @ 1v. 50p each } like binders, toroids

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

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

LM386N-1 - 4 to 15v, 300mW, 8pin DIL - £0.40, LM386M-1 SMD – 35p } Use just

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

TDA2003 - 10w Audio amp 5pin – £0.25 each } postage

TA-7642 Radio IC – direct equivalent of MK484 (& ZN414) – 75p each } If ordered

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

MPSH10 transistors (npn) fT - 650MHz, hFE 60, VCEO 25V - 8p each } or CDs

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

2N3906 transistors (pnp) fT - 250MHz, hFE-150, VCBO -40V - 10 for 50p } this

BC517 Darlingston (npn) fT - 200MHz, hFE-30,000, VCBO +40V - 13p each } postage

FETs - IRF510 – 50p; 2N3819 - 17p; 2N7000 - 10p; BS170 – 8p - all each } as books

Dual gate MOSFET – BF981 - ~~SOT103~~ - 1GHZ (diode protected gates) - 85p each } 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. }

This is solderable enamel insulated. Max of 3 sizes per member per order } Postage

QRP heatsinks - TO92 – 30p; TO39/TO5 – 40p; TO18/TO72 – 60p (pics in Sprat 148) } as for

Axial lead inductors (they look like fat ¼W resistors) these are low current }

4.7, 6.8, 10, 15, 18, 22, 33, 39, 47, 56, 100, 150, 220 and 1000 - all uH and all 18p each. } components

Toroid Cores – priced per pack of 5 – 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; T130-6** – £2.00ea. FT37-43 – 80p; FT50-43 – £1.20;

FT37-61 – £1.20; FT50-61 – £1.60; BN43-2402 – £1.20; BN43-202 – £2.00; BN43-302 – £2.00; BN61-202 – £2.40. 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 = £1.20 (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 (£3.00 UK & EU : DX – order direct from Rex please).

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

Sprat-on-DVD – 1 to 160. Only £5 each to members plus postage, UK - £1.20, EU - £3.50, DX - £5.00

Sprat Binders – nylon string type – Black with club logo on spine -16 issues per binder – new stock - £5.00 each plus postage

(one: UK - £2.00, EU – 3.00, DX - £4.00. More - add £1.10, £1.50, £2.50 each)

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) - any quantity of stamps is OK, or cash. I can accept cash in GBPounds, or US\$/ Euros (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