SPRAT

THE JOURNAL OF THE G QRP CLUB

DEVOTED TO LOW POWER COMMUNICATION

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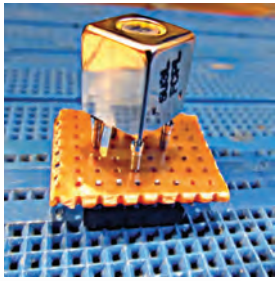

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Our founder George Dobbs G3RJV (SK)

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The Club's virtual Convention was an amazing success with over 500 members attending for at least some of the sessions. The recordings were made available to attendees very soon after the event and should be available to all on the Club's new YouTube channel by the time you receive this SPRAT. So, if propagation is not keeping you busy in the Winter Sports, you can watch, or re-watch, the excellent Convention presentations. I must, once again, thank all concerned in making it happen; it was a fantastic team effort and I cannot remember a more positive reaction to any amateur radio event that I have been involved with.

Many thanks to the 196 members who voted on the proposed Constitution. 97% of the votes were in favour of accepting the proposed wording, so Constitution V4 is now active. There were a few comments made by voters that highlighted some typos, these have been corrected prior to publication.

Please can I ask all members to be understanding when trying to contact Club Officials. The team are all volunteers and have lots of other things going on in their lives. If you don't get a reply from a Club Officer after a reasonable time, please contact me, or Dick, the Secretary, and we will try to find out why there has been no response. There is normally a perfectly good reason and, especially in this crazy Covid world, normal services are sometimes disrupted by circumstances way beyond our control.

Please look after yourselves and your loved ones and let's hope 2021 is a little nearer to normal.

Steve Hartley, G0FUW
Chairman GQRP Club
g0fuw@gqrp.co.uk

Measuring the Club's 1.4MHz CW Filter

Bob Burns G3OOU

I recently purchased one of these filters to go with the SSB and FM filters already in stock and now just looking for the AM (6KHz) filter. My initial tests were conducted using a Rigol spectrum analyser and tracking generator which works well with wider bandwdth filters but would not display the correct shape with this narrow filter so I went back to a well tried and tested 'filter jig' shown below. The signal generator is a low noise HP8640B with a 50Ω output port capable of providing up to 80mW and a digital frequency display. I have also used a Marconi TF2008 which has a lower output level capability and a rather worse sideband noise level.

The log detector‡ is a home made item based on the Analog Devices AD8307 followed by a simple op-amp DC amplifier with adjustable gain which allows the scope display to be set to 10dB per division. The detector box also contains an optional unity gain amplifier with a high impedance input and low impedance output. The circuit above uses the 50Ω input port directly into the log detector.

For swept measurement the X output of the scope is connected to the sweep input of the signal generator but the measurement undertaken on this narrow bandwidth filter used the signal generator in manual tuned mode.

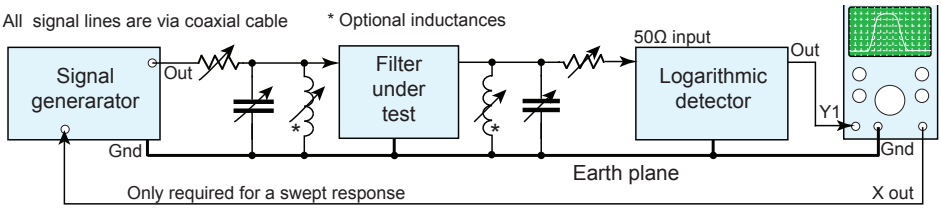
Some crystal filters have complex source and load impedance requirements, that is a combination of resistance and reactance which is why the test jig has the optional trimmers and variable inductances – the preset potentiometers are 2k2 cermet types. Wider 1.4MHz filters that I own all require 50Ω terminations but this filter gives the lowest ripple values with resistive terminations of around 1000Ω.

The measured results are shown here, with a measurement floor of around –66dB, probably because the filter was not mounted in a screened enclosure and there are many transmitters in the upper part of the medium wave band that are audible in the evenings. This filter is physically smaller than my other 1.4MHz filters so probably has less crystals.

The ripple is about 2dB and the insertion loss is about 5-6dB. The centre of the passband is 1.399905MHz or 95Hz below 1.40MHz which is probably due to crystal ageing.

dB	LF MHz	HF MHz	Bandwidth Hz
-3	1.39973	1.40008	350
-6	1.39971	1.40020	490
-10	1.39969	1.40022	530
-20	1.39962	1.40027	650
-30	1.39954	1.40034	800
-40	1.39942	1.40043	1010
-50	1.39932	1.40056	1240
-60	1.39915	1.40068	1530
-66	1.39870	1.40095	2250

‡ My technical website is at *https://www.qsl.net/g3oou/*



Project 'Master-Robert'

Alain F4IET

This is a project that is my double sideband transmitter for 60/40/30/20m. But first I absolutely want to thank some fellow hams. They replied kindly to so many stupid questions. There was **Robert F6EUZ**, my teacher at my radio club. An incredible kindness added with a deep technical knowledge. Of course the name of the project was already found. Then of course **Pete N6QW**, I continue to try to understand why Pete replied to my first questions, they were so stupid! But that's Pete all over.

There was also **Charlie ZL2CTM**, The master of home-brew, in a few words he can give a fluent explanation of a tricky subject – classy! And finally **Basanta VU2NIL**, The master of the KISS method, nothing else, just the master.

After have been in touch with ham radio since my teenage, but I lost contact for about 45 years, sorry. At the very beginning of 2018 I stumbled upon an issue of *QST*, and immediately I was back into radio. I guess that the virus was simply sleeping somewhere in my brain. I prepared my license with a huge help from my radio club F6KRD in Marseille. Finally I got my license and call sign at the very end of 2018, nice Christmas gift !

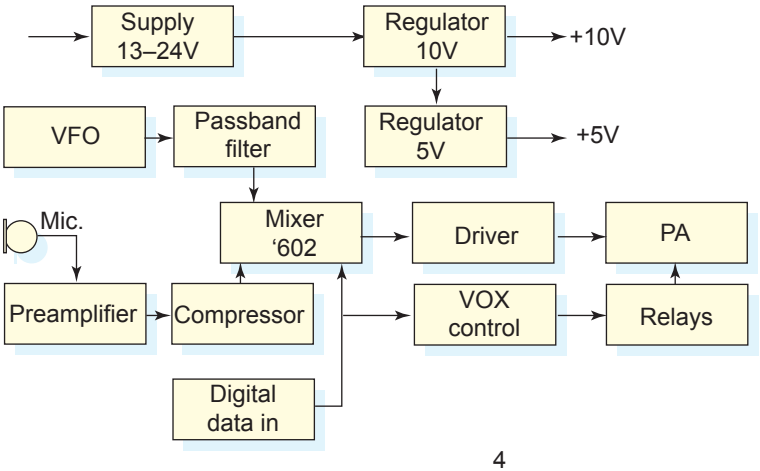
With my license in pocket I took the stupid, but so unusual decision, to build my station. The only exception is an SDRPlay RSP2 receiver. That kind of device performs so well that I don't have the possibility to build anything comparable. So, there were no QSOs for a long year, but a lot of soldering hours and a lot 'fried' transistors...

I decided on a small project as a huge teaching session, of about a year. But it is now a DSB TX, for 4 bands, with 10W for both voice and digital modes. Coupled with the SDR Play for the reception job.

My two priorities: Low power and very small price. Keep it simple !

The main points :

I've really invented nothing in this project, I only picked out a variety of ideas from well-known authors. Of course I have added some little differences, we will see that later. But I also spent a lot of time in measurements and calculations with help from other hams to build it with slight differences of component values, depending on junk boxes. Some



possible working values are presented in this project.

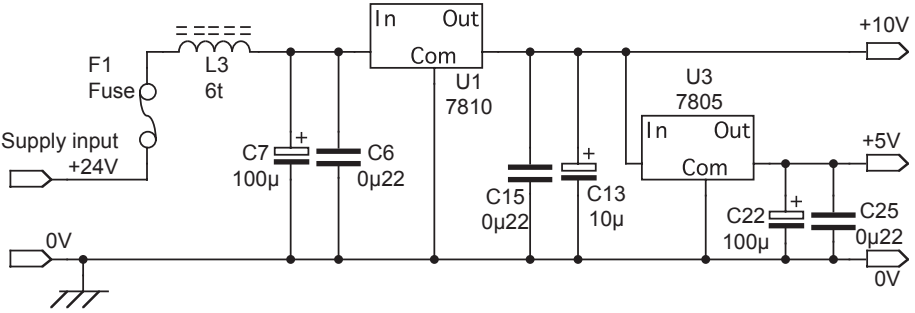
The power supply is homebrew, powered from two 12V/1.2Ah batteries in series. These batteries are charged (floating mode) by a small 25V/2 A supply. A simple solution that allows portable operation and also these small and cheap batteries can push about 5A on transmitting, so no problem. The 24Vdc, allows a degree of HF power by using a very simple PA design.

The VFO is a OZ-QRP module, so small, so easy to integrate. I also did try an analog VFO but it was not sufficiently stable for digital modes.

The DSB is generated by a using a 602 chip. The signal levels have been carefully adjusted for a nice DSB quality.

The Audio section bring an input for digital mode and a pre-amplifier chain for voice. These parts have been also carefully designed.

The rest is really very 'classic style', that can be surely improved but it will be an other project.

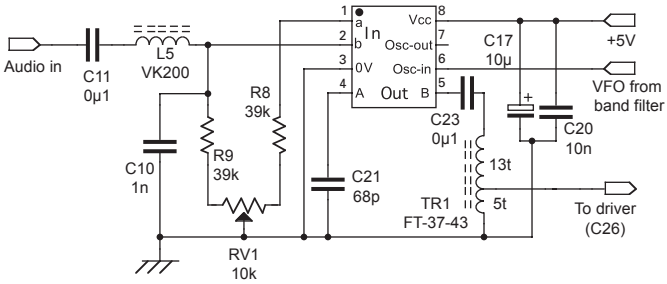


Power supply

A small 25V charger, acting in floating mode on two series connected 12V/1.2Ah batteries. Simple and yet very efficient. In addition, there are five and 10 volt regulated supply ICs for the driver, audio and mixer stages.

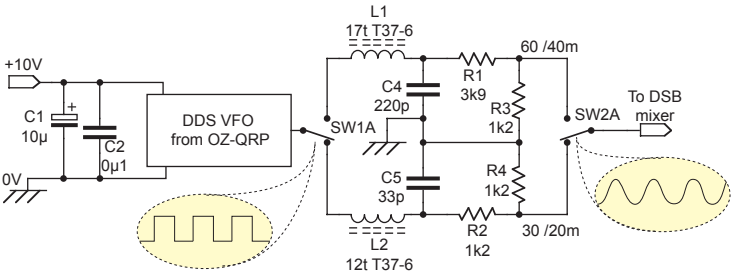
DSB generator

Simply based on a '602 chip mixer. However, a particular attention have been dedicated to the levels of LF and HF signals. A balance pot. have also been added between input pins 1 & 2. It allows an excellent carrier rejection. The VK200 choke stops all the HF at the audio input.



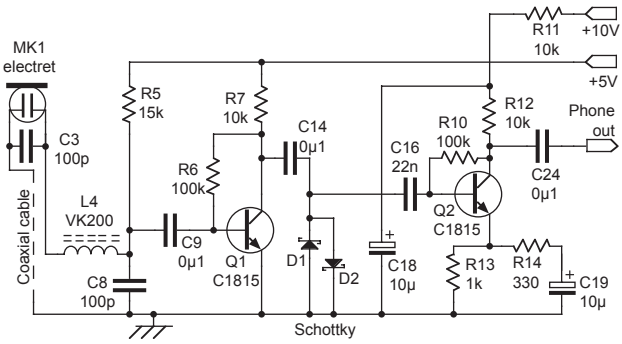
The 68pF capacitor on the unused output helps also for a good DSB signal. Difficult to explain, but when you listen to the DSB with an external receiver, the capacitor does a good job. The transformer (TR1)

adapts the output impedance of the 602. It also contributes to the excellent signal quality.



VFO waveform

The OZ-QRP DDS VFO gives an output square signals. I noticed that these signals, directly injected in the mixer, gave poor DSB. So, the two low pass filters and the two attenuators help to produce more sinusoidal waveforms at the right levels and impedance for the 602.

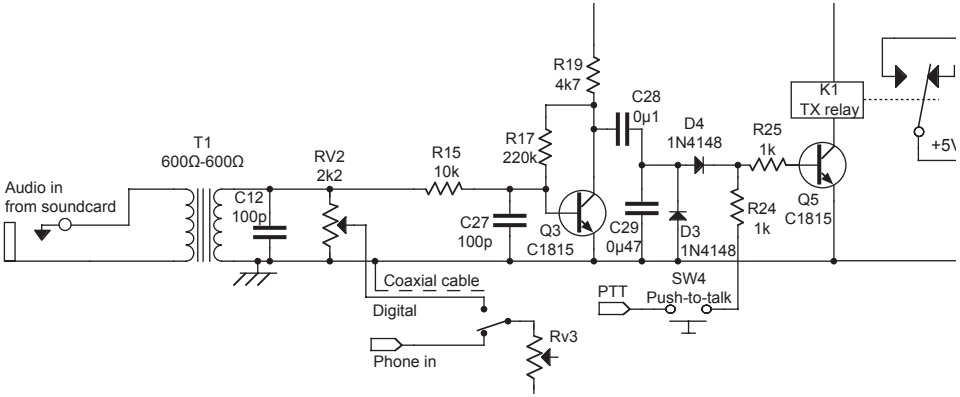


Audio Stages.

I used a simple Electret microphone. A first stage amplifies the signal and push it into a Shottky diodes compressor. The low value capacitor between the next stage acts as a high pass filter. The diode compressor and the highpass give a small degree of distortion but a much more crisp voice sound. Very good for the intelligibility, that's important in QRP mode!

Take care, I seen a lot of sensitivity difference between Electret devices. So it may be possible to adjust the gain of the audio stages depending on the chosen Electret.

Capacitor C3 and choke L4, help to prevent RF feedback from the HF. It seems to be a detail, but one more time, by listening the generated DSB, the difference is noticeable.



Digital Input

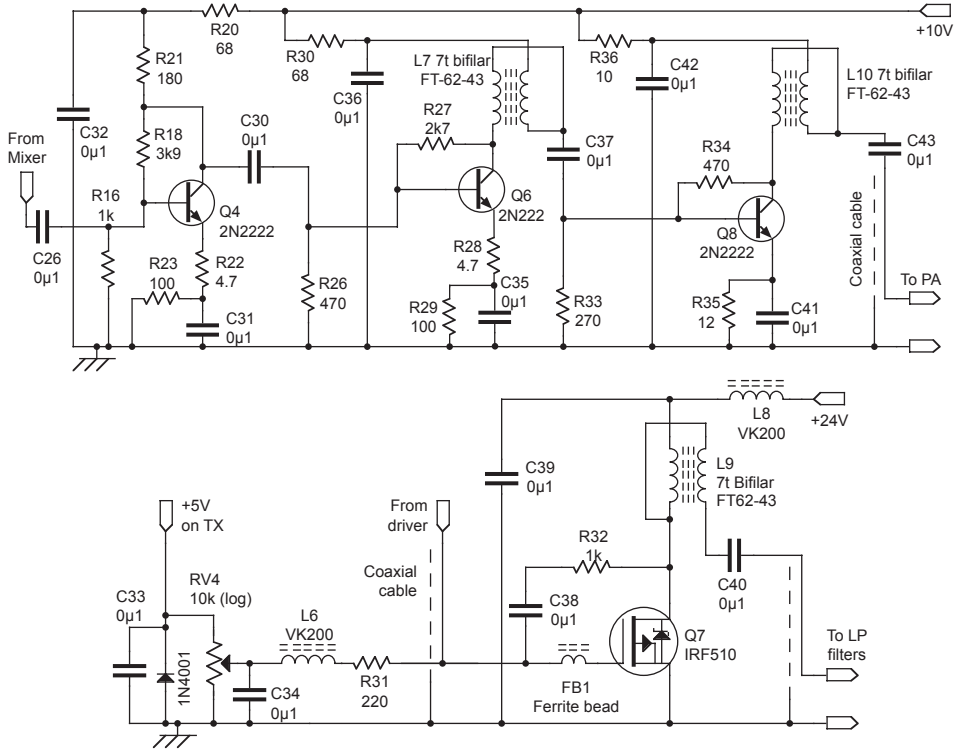
An audio 600/600 transformer interfaces the TX with the PC audio Card. The primary of the transformer is completely and carefully isolated from ground and the 0V. The merging of the

digital and voice ground returns can cause problems!

Part of the output of the transformer is also connected to a VOX control stage. It's avoids any computer solution for the TX sequence in case of digital modes, simple and efficient.

HF stages

Nothing special here, we are in a very classical design. Simply, the 24 DC source allow an easy 10W with a really simple PA design. Keep it simple we said. Inductors L7 and L10 don't carry any special requirement. But the L9 output transformer requires careful attention in its building. Stability and efficiency of the PA are dependent on the quality of that transformer. Twisted pairs need to be tight, some nail polish will lock the wires – a simple solution. Pay attention to the MOSFET heatsink, when using digital modes it need a large heatsink. In particular the slow JS8 mode.



Construction

What is there to say? It is a pure ugly mode. It's perhaps, not pretty to look at, but it works! What else? And you know what, I'm not ashamed of it :-))

Results

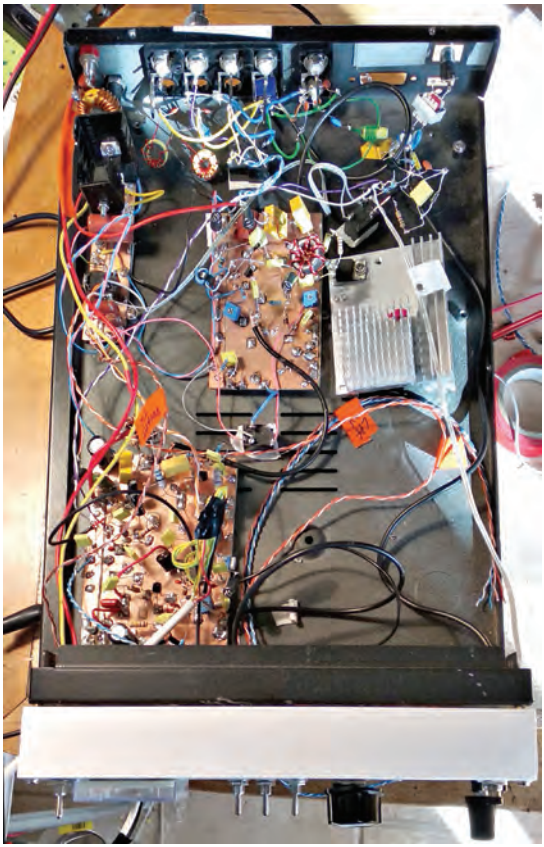
On the QSO side: On some days I had contacts on 60/40m, around a big part of Europe using JS8, FT8 and FT4. Also some American, Japanese and Indonesian contacts, mainly in FT8. I did also a lot of voice QSOs with reports like 5/3 or 5/4. With reports of the signal saying 'weak

but the intelligibility very good'. This I believe is thanks to the voice and level adjustments.

When you know that the antenna is an simple inverted V at the terrific height of 7m (22 feet)... My first contact using JS8 mode was with Jef ON8NT, I felt it was rather good with such basic equipment. By the way, that QSO cost me an IRF510 MOSFET, the long JS8 sequences 'fried' the poor transistor. After that, I increased the sizing of the heatsink :-))

I've not carried out any tests on other bands because I don't have a suitable antenna for these frequencies, and my dummy load is not very efficient, even for FT8.

On the learning side: I have nothing to add, only a huge quantity of newly learned ideas.



Instrumentation used

The oscilloscope was a USB 60MHz model with an integrated signal generator of up to 20MHz

The home-brew power supply was adjustable up to 30V@2 A

SDR dongle with *SDR#* and *SDR Spectrum Spy* software for listening and spectral measurements

2 low cost DVMs

Temperature measurement:
My wet finger…

NanoVNA for filter calibrating

My warmest thanks again go to F6EUZ, N6QW, ZL2CTM and VU2NIL

73 Alain F4IET
Aix en Provence

The Limpet – Stuck to You

Jim G4LND G-QRP 1084

Do you like operating '/p' from the car, but don't like holes being drilled in it? So, this is the idea I came up with for mounting an antenna to a car without drilling holes. I think it may be of interest to many of you.

I call it the LIMPET, and I made it from a plate glass lifter (sucker type) about £6 from Tool Station, it is a double type so you can make two, it holds onto the panel very well in fact you can rock the car with it.

The picture is, I feel, self explanatory so does not require much in the way of text.

LiPo Voltage Dropper for QRP Operation

Bill Coombes G4ERV Email: bill@allgraphics.co.uk

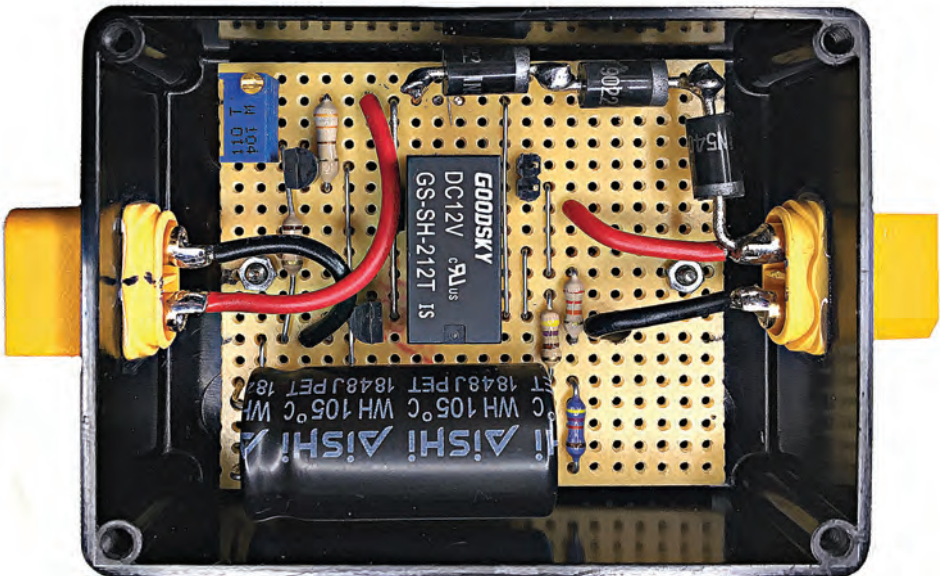
Further to my talk on Lithium Batteries at the G-QRP Virtual Convention in September 2020, I promised I would give details of my Lithium Polymer 4 cell Battery Voltage Dropper that I showed during the presentation.

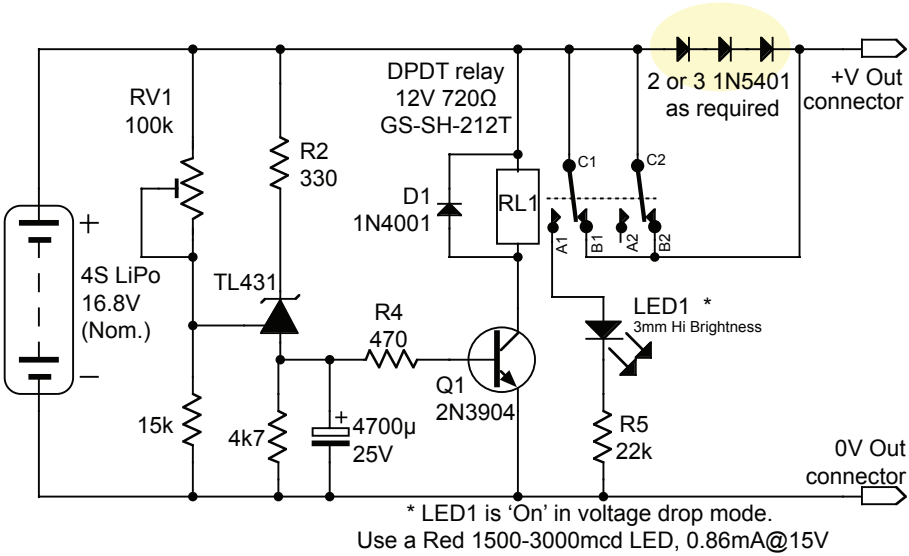
It's a very simple circuit that uses no microprocessors and is easy to build and set the dropper voltage. It's based on a TL431, a Transistor, a Relay and a few components.

When going portable QRP, until recently I would take the popular 12v 7AH Sealed Lead Acid Battery with me. There are 2 problems with them, one is weight and this is around 2.2kg (4.85lbs) and this is quite a lot of extra weight to carry when climbing a hill. The 2nd is Lead Acid Batteries terminal voltage drops quite a lot as they are discharged.

Having worked with batteries for most of my life and also flying Electric Model Aircraft, I very quickly started to use Lithium technology for both radio and model flying as they have a lot of advantages. Firstly, they maintain the terminal voltage for most of the discharge of the battery pack and also, they are lightweight. A 4 Cell 5000mAH weighs 518gms (1.14lbs) making it nearly a fifth of the weight of the Lead Acid battery but with the same capacity. You do need the correct charger for these types of batteriey packs but they will also normally charge a range of different type including Lead Acid. With all types of normal rechargeable batteries, you should not discharge them below 80% of their capacity if you want to get a good working life out of them.

When using a freshly charged 4 cell LiPo battery pack, the terminal voltage will be around 16.8 Volts and with most rigs, this voltage is too high. My LiPo Dropper will, during the time that the battery is at this elevated voltage, put 3 power diodes in series with the battery and will





drop the voltage down to an acceptable level. Once the battery voltage drops sufficiently, the diodes will be switched out of circuit by a small relay. The 4700uF capacitor in the Base of the 2N3904 is there to stop the relay 'chattering' as the battery voltage gets near to it's switching voltage particularly on Tx peaks.

The battery voltage is monitored by a TL431 adjustable shunt regulator and the switching voltage is set by VR1. When the battery voltage is higher than needed, it will turn on Q1, LED1 and RLY1. This action switches the diodes in series with the batteries positive terminal and lower the voltage supplied by the battery. When the voltage of the battery drops sufficiently, the relay will turn off and short out the 3 diodes that are in series with the battery. Once set up correctly, it all works automatically.

To set the trigger voltage, connect the LiPo Dropper input to a variable PSU that you can set to the voltage you want the Dropper to switch the diodes out of circuit. Adjust VR1 so that the LED just switches off at this voltage. You can adjust the amount dropped by either adding or removing the Diodes that are switched into and out of circuit. The suggested diodes each drop around 0.8 volt with my rig.

The circuit has been designed to use as little current as possible and this includes the indicator LED that only draws 0.7mA when lit. When it is switched out of circuit as the battery voltage drops to an acceptable level, the circuit draws 2mA at the most.

When building it, you do need to use a 700 Ohm or higher Relay and a High Intensity LED. Both of these can be obtained from bitsbox.co.uk. Their part numbers are:

SW100 - 12v 720R 1 Amp DPDT Relay

OP166 - 3mm Red 1500-3200mcd High Brightness LED

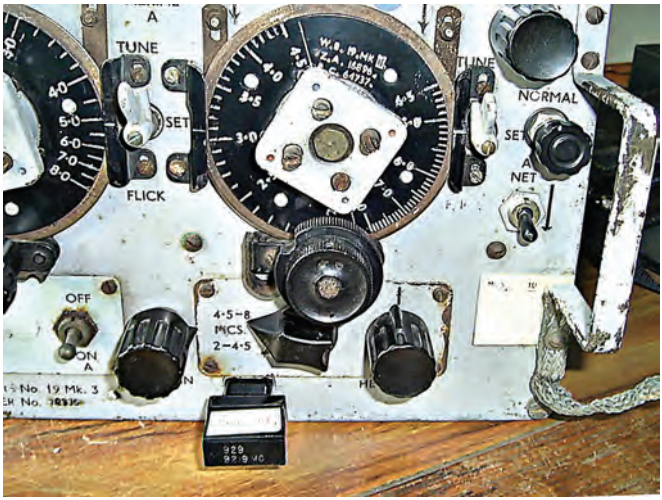
All others parts can also be obtained from the same company.

This has been designed for QRP use only and drawing more than a couple of amps will damage both the diodes and the relay as they are only rated for QRP power.

I am more than happy to answer questions via email.

Some Mods for the 19 Set

Bill Kitchen G4GHB



I bought a Wireless No. 19 Set about three years ago which required a lot of work to get it going again. After quite a lot of hours re-wiring wrong wiring and re-winding open circuit coils I tried c.w. with a friend on 40m and was told later it was drifting up the band with him chasing me. Not good.

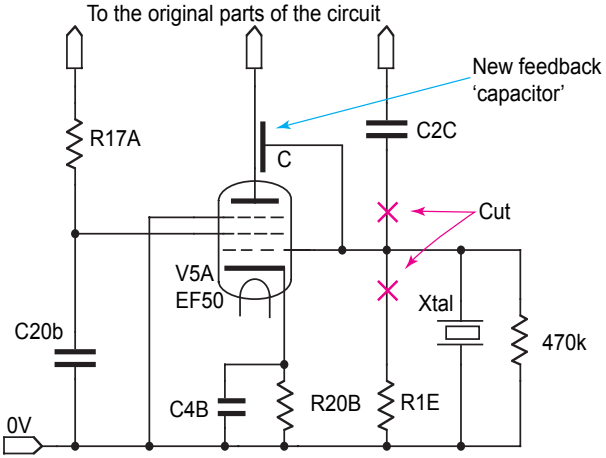
I had a QSO with **G4ZXN** one day on 60m and the stability seemed much better at this lower frequency, however if it did drift I could drift out of our frequency allocation. It was also tricky to tune onto 5.262 MHz.With these two things in mind I looked at the circuit diagram to see if I could use crystal control for transmitting without adding an extra valve. It appeared the EF50 would be ideal to use with minimal circuitry but it needed to be isolated from the previous stages.

I did a quick lash up to test my idea. It resulted in the xtal not oscillating! In theory it looked good and should have worked.

An Old Trick

I remembered a trick from years ago how to get a valve oscillating was to connect a wire from grid to anode but not connected together to act as a capacitor to provide feedback.

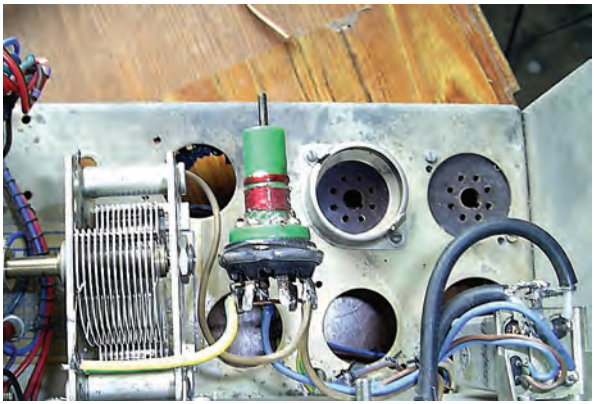
I drilled the front panel of the 19 Set to accept an FT243 crystal socket. Referring to the circuit diagram and photo to locate the parts in the screened bandswitch compartment, R1E is 470kΩ beneath the tag strip and R43A, 3.3 MΩ from tag strip to the coil are both left in position.



Capacitor C2C, 0.0001µF, to the tag strip is now disconnected at the tag strip and a sleeve

put over the bare wire to insulate it.

This one action isolates the previous circuitry. The green wire from V5A on the tag strip has a new blue wire soldered to it to the xtal socket and the right end of the tag strip which is a fixing point for the strip and earthed is wired with blue wire to the right side of the xtal socket.

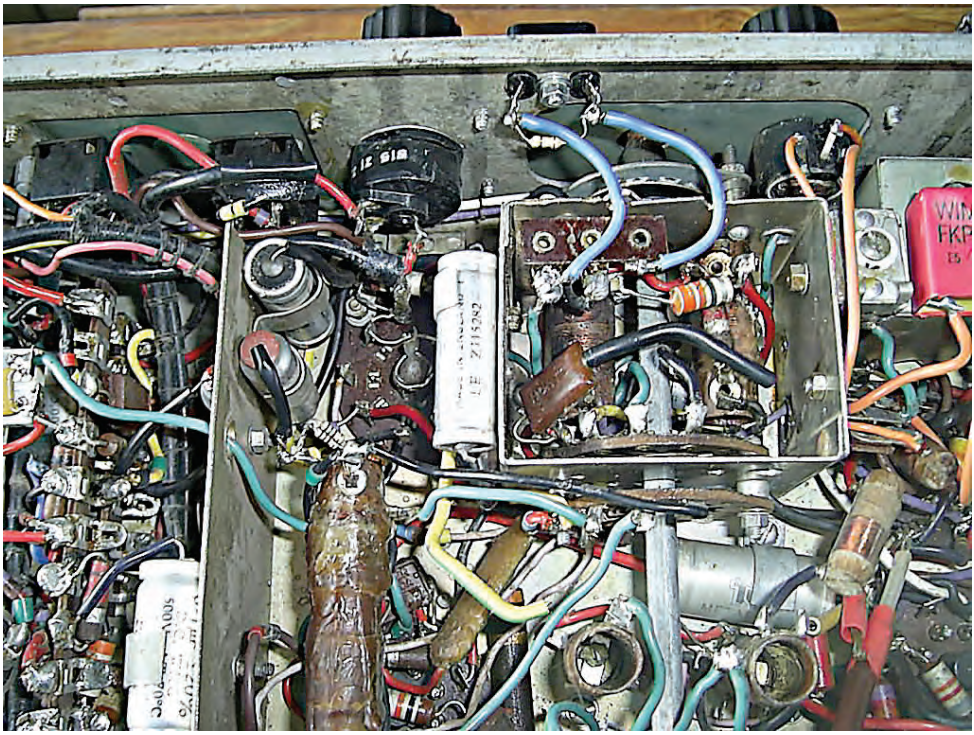


A 470KΩ resistor is soldered across the socket to aid oscillation.

I have notched out the screening box beneath the two blue wires with tin snips so the cover can be replaced. The 'feedback' capacitor 'C' on the circuit diagram is the yellow/green stiff wire soldered to grid 1, Pin 7 on V5A and positioned near the anode coils, L4A/4B/4C/4D at bottom middle left.

This gets the EF50 to work as an oscillator for good frequency stability on transmit with enough output to drive the 807. I opened three FT243 holders, took out the original xtals and soldered in G QRP Club xtals so can operate the QRP cw frequencies on 80m, 60m and 40m.

Now I need to repair the low frequency range on receive as a coil has gone o/c.
Well, it is 76 years old so things will go wrong!

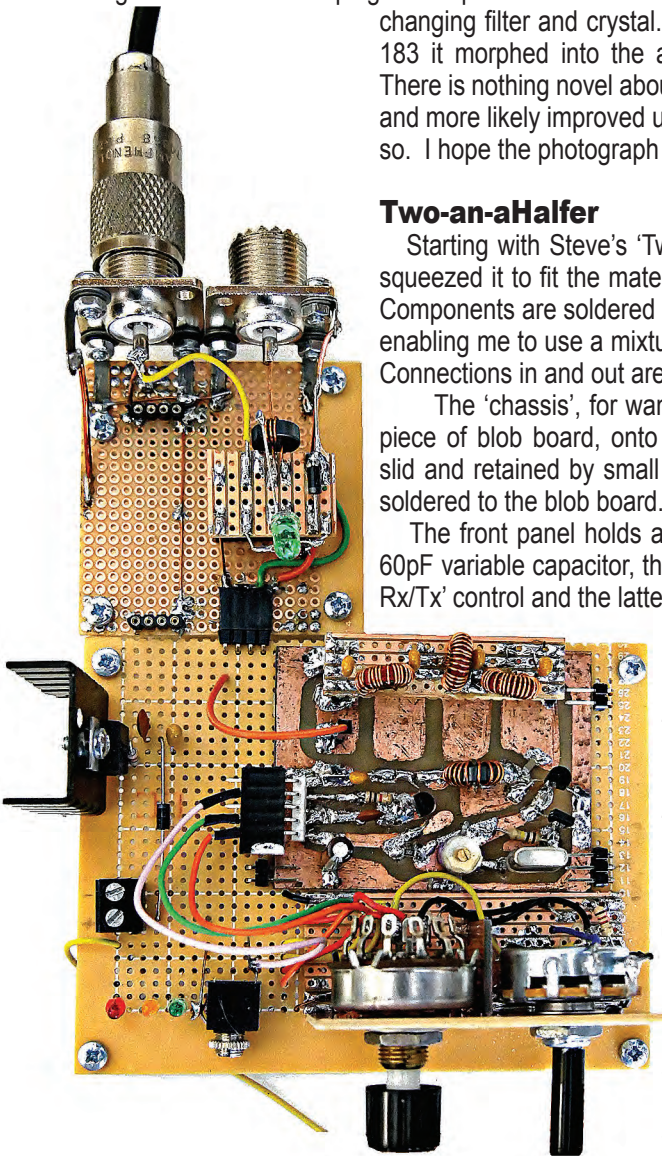


Pssst! Want to make a Fiver?

Chris Wood G4CWS g4cws@yahoo.co.uk

OK, so now I've got your attention....
This project arose from contributions to SPRAT from both **Peter G4UMB** with his modular transmitter design and with his variant of the Oner.

It began as a Oner with plug-in low pass filters so that bands could be changed by changing filter and crystal. Following receipt of SPRAT 183 it morphed into the arrangement described here. There is nothing novel about it and it could be replicated, and more likely improved upon, by anyone minded to do so. I hope the photograph will be self-explanatory.



Two-an-aHalfer

Starting with Steve's 'Two and a halfer' pcb layout, I squeezed it to fit the material I had to hand – 2" x 2.5". Components are soldered to the track side of the board, enabling me to use a mixture of leaded and SMD items. Connections in and out are by header pins.

The 'chassis', for want of a better description, is a piece of blob board, onto which a Oner board can be slid and retained by small pieces of right angle header soldered to the blob board.

The front panel holds a rotary switch and, initially, a 60pF variable capacitor, the former for 'power available/ Rx/Tx' control and the latter to go in series with the crystal as in the standard Oner circuit.

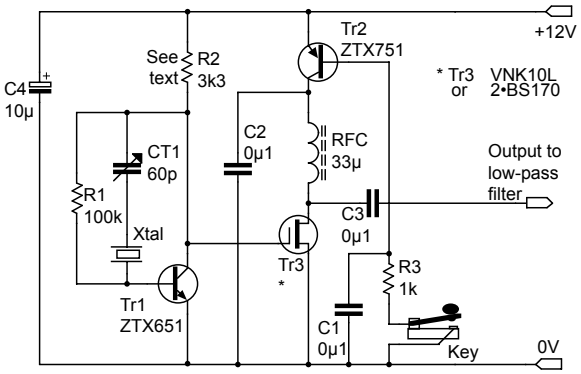
I found this to be unsatisfactory so reverted to a capacitor on the board. The available hole in the panel found another use almost immediately.

Completing the arrangement at the front of the chassis are three LEDs to indicate control status and a jack for the Morse key.

My original thought was to use an aerial changeover circuit I had built previously, then, the rotary switch having

some spare contacts, I considered direct wiring of the necessary connections. However, pondering the board I had built to take the plug-in filters for the original Oner, I saw that it had just enough room to accommodate a second SO239 and a DPCO relay.

Thus Plan C resulted in a stand-alone board which plugs into the chassis and receives the RF and DC feeds to the relay. The observant will notice that the facility for plug-in filters has been left on the board, though not used, just in case of future retro-cycling of the board.



The oner circuit in its simplicity

The relay was fitted 'dead bug' with a piece of stripboard to provide connection to its pins. Conveniently that left some unused strips between relay pins, which were used to mount an LED connected to four turns on an FT37-43 toroid with the feed from relay to SO239 running through the middle of the toroid. Makes a nice and simple RF detector and keying indicator.

Wondering what to do with the space left on the chassis, I concluded that a regulated power supply would fit nicely, since I needed one anyway. Thus an LM317 takes 16.5 volts from a retired laptop power supply and produces a variable DC supply of 9 to 13.8 volts for variable output power. Remember the redundant hole in the front panel – now occupied by a pot to adjust the DC supply.

My initial Oner board used a BC327 as the switch, a single BS170 as amplifier and a BC108 as oscillator, and I found, as Steve did, that it didn't have a lot of 'oomph'. Nor did any other transistors from my collection. Steve kindly sent me a couple of ZTXs to try – thank you Steve. Replacing the BC108 with a ZTX651 improved matters to the tune of getting nearly 2 watts out on 40 with one BS170. Unlike Steve however, I found that adding a second BS170 reduced the output slightly, so all my boards use a single device.

Steve G0FUW's "two-and-a-halfer version

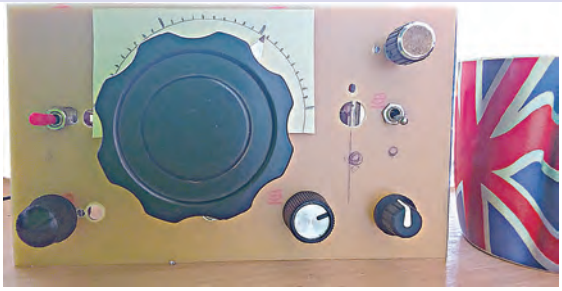
I have built boards for 80, 60, 40 and 30m. A 20m board has been etched but has not progressed further yet. Of these, the 80m board uses the original plug-in LPF and the others have the LPF built directly on the board.

I was amazed when my first test CQ on 80 produced an instant reply from fellow-member **Terry G4AYR**! It's been a bit harder going since.....

So there you are, 5 square inches and 5 band capability – has to be the 'Fiver'.

ANODER.RXtras

Philip, G4HOJ@yahoo.co.uk



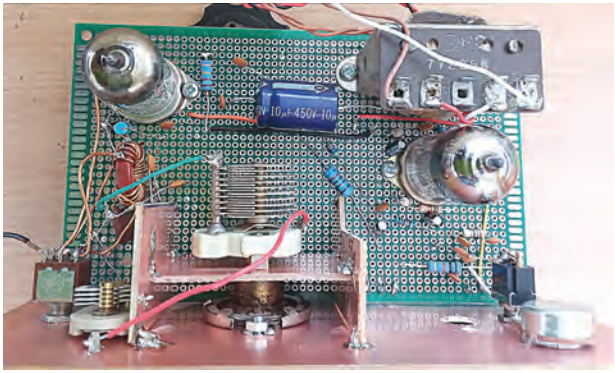
The original project was featured in issue 182, the spring 2020 issue

A few (aimless) potterings – Anoder.RX filter, stabilisation, and 'Single Signal' experiments I was diverted somewhat from the bench with other duties during the national lockdown but recently, I decided to experiment with some crystal filtering for another superhet receiver in the future. I found a couple of crystals in my junk box so tried a single crystal phasing approach with one and a two pole ladder filter with both. I found that one and two crystal filters don't provide significant stop-band attenuation and, because my crystals are within 50Hz of each other around 1.725 MHz, I could only produce a very sharp-nosed (around 100Hz) filter with relatively poor shape.

Anyway, I digress…but only a little. It has been so nice to hear from a number of people (with questions and positive comments) who have built their version of my Anoder.RX, including one from an Australian constructer who utilised the detector and audio stages in a regenerodyne (a superhet-style frequency converter followed by a tuneable regen detector). When I have had opportunity, I almost always use mine to listen around….it is an enjoyable receiver to use.

In the various email exchanges, I had a couple of questions around the negative feedback loop that I incorporate in most of my receiver designs to provide tuneable low-pass or peaking filtering…mostly around whether a slightly lower filter tuning range than the original 450Hz to 1100Hz could be easily achieved. This is possible…as shown in this schematic of the revised filter/preamp audio stage. Simply increase C11 to 1n, which shifts the filter tuning range to around 350Hz to 950Hz.

Another question was whether closer to communication bandwidth high frequency tailoring could be achieved as in the original design, the low-pass filter could be tuned out almost completely, leaving little or no high frequency tailoring. Again, this can be achieved simple by adding a resistor in series with the filter tuning pot. I recommend 4.7k or 5.1k but the value can be adjusted according to taste although, for me, 10k restricts the highs a little too much for SSB and AM.



One other question asked if there was a simple way to regulate the voltage to the detector and RF isolation stage. Again, if required, this can be achieved very simply by placing a Zener diode(s) across C3. In my case,

two 1N5372 diodes held the voltage there at 123.3 Volts.

Finally, I had a couple of comments about the better-than-expected selectivity of the design. Now, while I usually run mine fixed at quite a bit above oscillation threshold to achieve 'one-knob' operation and for maximum resilience around the strong signals on 80m, I remembered that in developing the design, I had discovered that the lightly loaded toroid tank circuit has quite high Q. So, in a random experiment, having figured out a good-enough way I could measure crystal filter response, I decided to use a similar method to look at the Anoder.RX selectivity on 3.5MHz.

To my surprise, I found that I could achieve an almost single signal response!...although, this did need the variable resistor screen voltage approach re-instating and then reducing voltage until just below oscillation (so maximum Q multiplier effect) and being very careful with signal levels. Having achieved it with locally generated signals, I decided to try with off-air CW. By very lightly coupling (no direct connection) a VXO the to the detector stage, it operated fully as a direct conversion receiver but still with maximum Q multiplier benefit. The audio output is lower this way (could perhaps be improved by optimising bias for this mode of operation?) but I saw something between 19 and 23dB of opposite sideband suppression with careful set-up. Clearly, at 3.5MHz, nose selectivity can be quite sharp.

When any regen is operated in the usual way, the oscillator frequency is, of course, dead on the peak of the tank circuit so there is equal response on both sides – and, if the tank is selective, the wanted signal must be down the side of the Q multiplied filter slope. In my 'single signal' mode experiment, the BFO is set, say, 800Hz high or low of the wanted signal (on the slope) and the wanted signal can then be on the nose, or perhaps slightly to the other side of the q multiplied response.

I don't know if this is a useful discovery for my future experiments? This is not a huge amount of rejection (and probably would need careful driving!) but, on a busy band, maybe something worth considering? Anyway, I was grateful for the question…I certainly found the exercise interesting and informative and, without this look at things, I would never have thought that such selectivity could be achieved as high in frequency as 3.5MHz.

A resonant speaker enclosure?

If you read my Re.Si.Va article a few issues ago, you might recall that I used to use a resonant speaker made from an old pill bottle…..although the measurements came through the system incorrectly (was actually 50mm diameter and 62mm tall for a resonance of around 760Hz)…… and that was surprisingly effective in reducing unwanted tones. However, I was told by someone that perhaps the pill bottle looked a bit too 'Heath Robinson' and the other incentive was that I had to unplug the pill bottle and plug in a regular speaker if I didn't need the audio peaking.

So, I decided I needed to make a dual purpose speaker box that, at the flip of a switch, would change from normal operation (if there is such a thing!) to peaked response for busy CW band conditions….and here is the result:

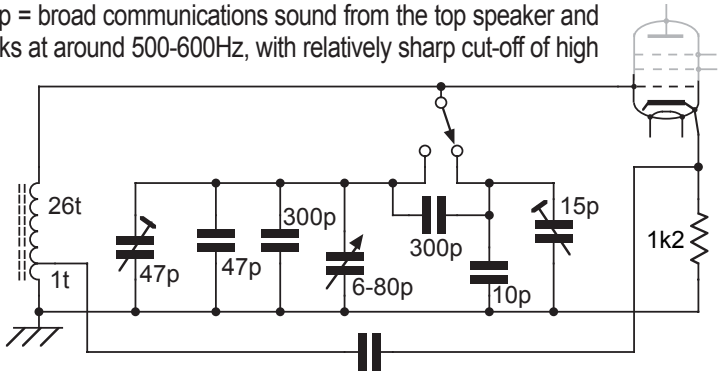
I use two small speakers in a divided box. The forward facing one for the peaking section is

actually the one from the pill bottle, about 36mm in diameter, and the other, top facing, is a cheap one from the internet - about 60mm diameter.

For the resonant 'chamber', the internal height to the dividing 'shelf' is 65mm, internal width is 78mm and depth 83mm (quite a bit more volume than the pill bottle approach - it uses a different approach) and the 'vent', curving above the speaker, is about 4.5sq cm. The size of the vent does affect pitch and sharpness of resonance but the shape of the vent is not particularly critical. It should be forward facing and close to an edge of the chamber. The top facing speaker is simply in the space that remains in a box that is the same overall height as my receiver. In this case, internally, it is 3.2cm from the top of the dividing 'shelf' to the low side of the top of the box….with, as you would imagine, internal width and depth the same as the chamber below.

Other than the 'vent' for the resonant chamber, all other parts of the box are sealed (in the prototype, I used blue tak and screws to seal and hold the speaker together!). The switch simply switches one side of the speaker feed from one speaker to the other, with the other side being common). Switch up = broad communications sound from the top speaker and switch down = sound peaks at around 500-600Hz, with relatively sharp cut-off of high frequencies, from the resonant speaker below.

The resonance with this development is not as sharp as with the pill bottle but some may prefer it as it is a little 'fuller', others may prefer this version just for its outstanding beauty ☺



Adding 60m to the Anoder.RX?

By habit, I almost always listen to 80m so the Anoder.RX was developed just for 80 but I realised it would be quite easy to add 60m. This is how I did it very simply:

The addition is achieved by the addition of a switch, 300pF and 10pF capacitors and a 15pF trimmer and changing C4 in the original from a 370pF to a 300pF and a 47pF in parallel. Switch to the right = 60m and switch to the left = 80m. The reason for the reduction of total capacitance in the original tank circuit is that this simple way of achieving two bands, adds 20pF of capacitance from the new 60m components across the tank circuit when the switch is left, i.e. in the 80m position. The increase in tuned frequency when the switch is moved right, in the 60m position, is because of the 300pF in series with the toroidal inductance reducing the effective capacitance across the inductance to around 200pF, as opposed to around 400pF when the switch is in the 80m position.

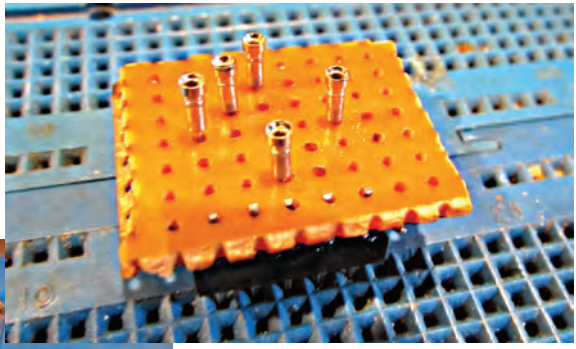
The inductance value I achieved with my toroid means that my variable (with a little tweaking of trimmers) gives the right 300KHz tuning range on 80m and just under 200KHz on 60m. The original trimmer allows adjust ment of 3.5MHz position and the new trimmer allows adjustment at 5.25MHz. There is a little interaction between the two because of the simple switching but I did not find it too difficult to get things where I wanted them. In my prototype, 80m coverage is 3.494MHz to 3.813MHz and 60m coverage is 5.246MHz to 5.444MHz.

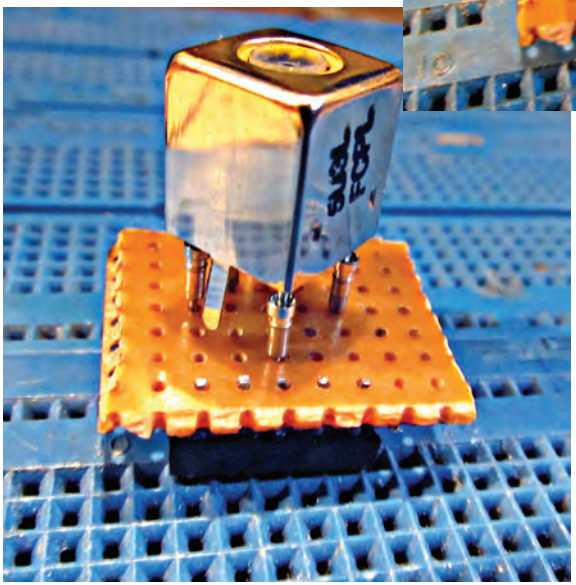
Keep pottering and stay safe!

Socket for 10mm Coils

Peter G4UMB, email: pahowd@gmail.com

If like me you may use 'Breadboard' for initially experiments and then make your radio project. I find coils in the 10mm square cans don't fit The pins are the wrong spacing for standard strip board as well.





However they will fit on strip board if you turn them at 45 degrees and cut a track. Unfortunately the bread-board does not have enough holes in a line to fit the coil like that.

So to overcome this I have made this adaptor. I cut up some turned pin type IC holders.

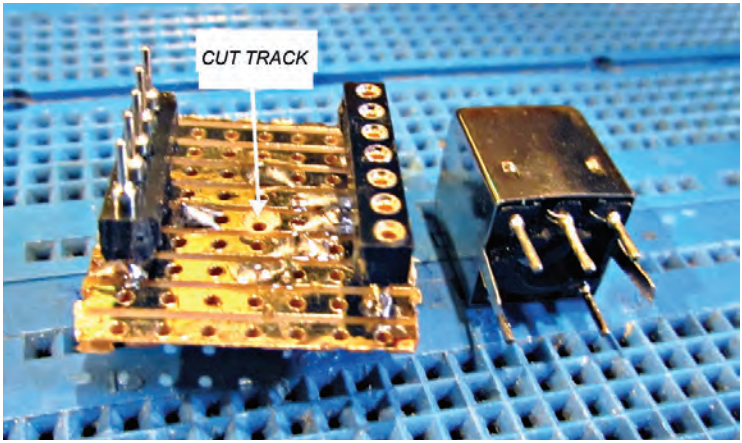
I removed 5 turned pins to start with and fitted them on the coil pins.

Following this, I soldered this "can on stilts" to a piece of strip board.

Then using another piece of the IC socket I soldered 5 wires in it to link it to the strip board.

Finally I put an-other piece of IC socket the other end on the strip board the other way up to act as a spacer foot.

This socket adap-tor can then be used for other experi-ments without hav-ing to solder the coil pins keeping them like new.

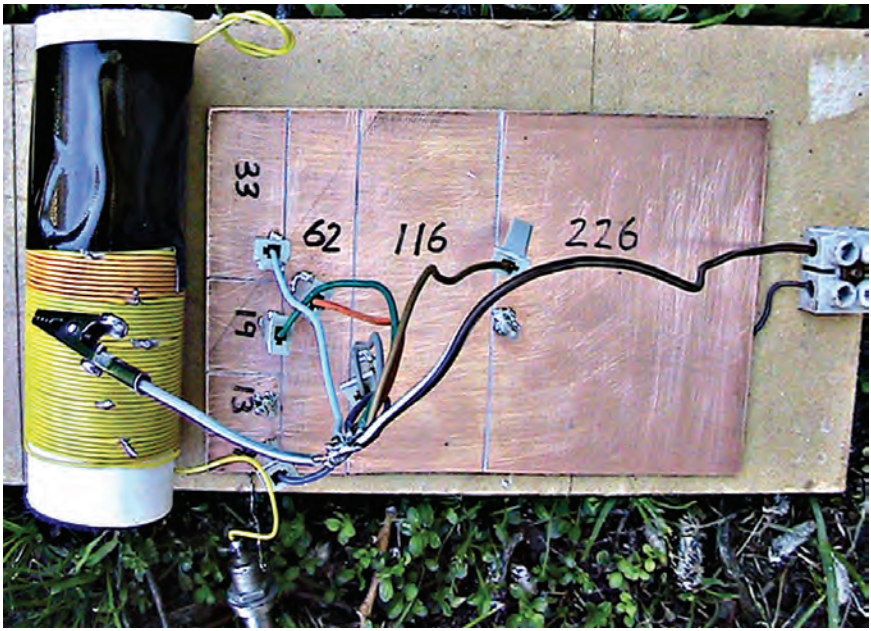


No variable cap L-match ATU

Peter Parker VK3YE vk3ye.com

One of the stumbling blocks for those starting out is getting the parts together for an antenna coupler. A tapped coil is easy enough to wind but finding a variable capacitor can be tricky, especially if there haven't been many hamfests lately and your junk box isn't very deep.

Here is a quick solution to the capacitor problem.



It's to use a blank fibreglass double sided printed circuit board. Being a sandwich, comprising two metal plates with an insulator in the middle, this is already a capacitor.

A 9 x 16 cm piece I had measured around 450pF. That's a perfect maximum for a homebrew antenna coupler.

The next problem faced was how to make its capacitance variable. It does not have to be continuously variable but the steps need to be close enough to permit fine adjustment for a range of antennas and frequencies.

The solution is digital binary. Recall how you can count to 31 with just one hand if you use a base-2 numbering system? In other words two to the power of five (fingers) minus one?

You can do the same with a selection of switched capacitors to achieve the highest number of value combinations from the smallest number of parts. This is done in some commercial antenna couplers.

The circuit board sandwich mentioned before can form the multiple capacitors needed. You just need to cut slots on one side so that instead of a single 450pF capacitance you have several of smaller values. These values should be double or half the values either side. Since

capacitance is proportional to area of overlap you have a progression of shrinking 'islands' until they get too small to bother with.

The first step is to split the copper on one side to half its size. A hobby knife or hacksaw is handy. Test with an ohmmeter to verify the islands are electrically separate. Use sandpaper to remove any burrs.

Testing

Testing with the capacitance meter (one probe on the underside, other probe on one of the top islands) will reveal that instead of one 450 pF capacitor you have two capacitors of half that value. Connecting both in parallel will restore full capacitance (or very nearly so).

This forms the basis of your switched variable capacitance. Saw another slot, dividing one of the islands in half. This will give four pads with a progression something like this: 220, 110, 55 and (again) 55 pF.

Extreme accuracy isn't important. But check for shorts if something is way out.

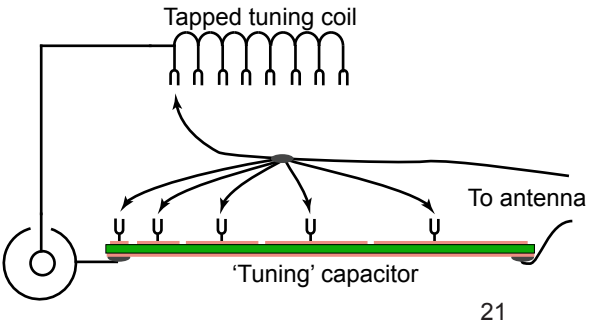
The above is a start but finer adjustment is needed. Keep going by splitting the smallest strip. Go the other way so they get more square-like. Keep going until you have 7 islands with the lowest measuring around 10pF. Use a permanent marker to write the individual capacitance on each island.

Use circuit board pins or sockets, soldering one to each pad. Then make a cable harness with mating connectors. This allows you to connect one or more pads. You will have over 100 different combinations of capacitance. It's not continuously variable but the steps should be fine enough, especially for the lower HF bands.

The coil is not critical. I used about 40 turns of thin insulated wire close wound on a section of 4cm diameter pipe. There are taps every 5 to 7 turns with an alligator clip to make contact. Have a few more taps near the start of the coil if you value better matching ability above 10MHz.

Try various combinations of capacitor and coil for maximum noise on receiver. Then with a VSWR meter or resistive bridge make any adjustments for lowest VSWR. This is the only real disadvantage of this coupler; band changing takes longer than it would if simply turning a variable capacitor. Still you will soon get used to it, especially if you make a table for bands most often used.

I was able to load up 20 metres of end-fed wire on all bands on 160, 80, 40, 20 and 17 metres. 30 metres might have been possible if I had extra coil taps. CW contacts and WSPR spots indicate good performance on 40 and 20 metres. Add length for full performance on 160 and 80 metres.



If you want the multiband flexibility of an end-fed wire but lack a suitable variable capacitor for a coupler then this is a way around it.

A video demonstrating it appears on my 'channel' on YouTube at:

www.youtube.com/vk3ye

Yet Another Aerial Article!

David Holland, G4LDT email: g4ldt@outlook.com

Sitting here alone in my 12 weeks of solitary as a vulnerable / shielded person I have been turning my hand to many things that have been long thought about but never done – such as getting a decent aerial up for Topband!

For the last 40 years or so since I was first licenced as a G8 and for years before that as a SWL I have never had anything other than impossible locations to erect a decent aerial system. In my previous semi-rural location I was lucky in that a neighbour allowed me to fasten a "long wire" to his chimney stack. Alas I had no garden, only a yard and thus getting any sort of earth was hopeless.

Advancing age and serious health problems have forced me into my current home, a council bungalow reserved for coffin dodgers such as me. The place is tiny and there is nowhere inside that can be made into any sort of shack. It has a postage stamp sized front garden that the regulations prohibit me from using.

To the rear is a communal area of lawn with a sign right in the middle on a post reading "No ball games". That made me laugh. The only ball game likely to be played by the locals here is croquet! To make matters worse just before I moved in a ban was placed on the erection of sheds in this communal area.

Sheds that were already in place could stay though. There was one such shed to the rear of my property that was upright only by the grace of God and which was completely unusable.

So that was what I had to work with. Not very promising. The first problem was a shack. All my stuff, and there was a very great deal of it, was stored in the bedroom. Getting into bed was an undertaking in itself! I approached the council and asked them if I could replace the rotting shed that was already in existence.

Much letter writing and begging did not do the trick, however, as my previous career had been in law I decided to get hold of a copy of the council's constitution. I discovered that they were breaking their own rules by imposing the ban as they had not first consulted the residents, nor had they given the name of the person who had instigated the rule (they still haven't).

To cut a very long story short eventually the council not only gave me written permission to erect a shed but even offered to lay the concrete pad for it at their expense. I suspect that this might have been down to the fact that I had threatened to widely publicise the unlawful ban and thus open the floodgates! So the shed became a £3,500 log cabin 5x3m with walls 43mm thick.

A lovely big warm shack! Being an avid constructor and tinkerer I split it into two divided by a door. A "dirty" area for metalwork etc. and a clean area for construction and operation. With a great deal of help from my long time friend Phil G4XWR it was fitted out with benches etc.

Right then that's the shack sorted, what about aerials. Well being literally right on the coast the height ASL isn't very much, about 20 metres so VHF DX was immediately forgot-

ten about. I have a home-brew plumber's special J pole on a random bit of wood attached to the cabin that is good enough for local 2m work. It works after a fashion on 70cm as well.

The Doublet

The first HF aerial had to use what supports actually existed. I decided upon a doublet fed with 450ohm feeder. Luckily at the front of the bungalow, more or less in line with the chimney there was an old GPO telephone wire bracket attached to the soffit. This is shaped like a 'C' and provided a fastening about 10" above the roof edge. I decided that that would have to be one end of the doublet as there was nothing else at the front anyway. So where to fasten the other end then?

As luck would have it the sign that I previously mentioned (No ball games) was also in line with my chimney stack a few metres behind the new cabin. With the good old Geordie maxim "Shy bairns get nowt" in my mind I cheekily fastened an insulator to it. The doublet now ran from the C bracket on the front of the bungalow, up to and through an insulator attached to the TV aerial pole mounting and down across the space between the bungalow and the cabin, across the cabin and finishing at the signpost. Fortuitously the centre came out between the house and the cabin. The feeder is pulled away at 90° by some Terylene line attached to a drainpipe and then goes under the eaves of the cabin. It is tacked over the inner side of the roof and own to a home-brew Z-match on the bench.

Results

I was not expecting much of this aerial as it is only about 24' each side but I was pleasantly surprised. Sure it is no DX special but it works on ALL bands – even Topband to some degree or other. Theoretically it should not work on the lower bands – but it does! Alright on Topband you need safe-cracker's fingers on the Z-match controls but it does work.

The Helical

After being in my bungalow for about a year I decided that there MUST be some way to get out an aerial for Topband. Obviously it would have to be some sort of vertical. Having many years of experimenting with such aerials behind me I knew that whatever I erected would probably have a tiny bandwidth.

OK then where to centre it and how to build it? The first thing that struck me was that you can buy 10 metre long fibreglass fishing poles. That seemed like a good place to start. Now 10 Metres is far more than I have been able to use in the past AND it is non-metallic. A helical seemed to fit the bill.

Well to say I knew nothing about helicals was an understatement. I remembered reading somewhere that you needed to wind on a half wave of wire to get it to behave like a quarter

wave Marconi. I also remembered a CB aerial that I had been given many years ago called a “Firestick”. This was a top loaded thing that allegedly worked well. Combining these two nuggets of information led to the creation of the beast.

The calculations

These fibreglass poles obviously taper from bottom to top. I needed to know what pitch of winding would cover the pole with the correct amount of wire.

I started out with a guessed length of 273 feet of wire. I then needed the average circumference of the pole. This is found as follows:-

Minimum circumference = pole diameter at top x 3.142

Maximum circumference = pole diameter at bottom x 3.142

Average circumference = (Min circumference + Max circumference)/2

The number of turns needed is given by – Wire length / Average circumference

Finally the pitch is given by – pole length / number of turns

In my case this came out at just over 1cm. However I had decided to close wind the top one metre long section of the pole. So I adjusted the pitch to about half an inch.

The winding

To stop the windings slipping as I wound the pole I used some of the very thin (almost see through) double sided tape available in £1 shops. Anyway much later with aching hands I could see that the amount of wire left on my spool would run out before the bottom and so I gradually increased the pitch as I neared the bottom.

Now for the test. Using my ancient original MFJ aerial analyser (much more primitive than the later ones) I discovered that it was resonant at 2.2 Mc/s. So more wire needed. This came out for me at 92 turns at about 1/4” pitch. It is now resonant at just about 1.9Mc/s. This was easily achieved with the pole in its final position. I worked out the pitch using the above method with the “top” now being the bottom of the remaining windings.

The pole is mounted on the rear of the shed using two stand-off brackets I had to hand with rubber around the pole where the U bolts go. The earth system at the moment (to be improved when nobody is looking) simply consists of a 6’ length of copper pipe hammered into the ground. It is connected to the shack via some copper braid from old cable. I later added a buried radial of about 20’ of copper brake pipe.

Results

So does it work I hear you say. Well YES it doesn’t half work. Apart from my home-brew rigs

all I have is a Xiegu G90. This has an amazing internal ATU. Either using the aerial direct or via a 9:1 home-brew UNUN it works on ALL bands. I have no pretensions of being a DX hound But I have worked Yekaterinburg on 10Mc/s with 1 watt. Oman on 5Mc/s with 5 watts etc. On Topband it really is a “Firestick” with best DX so far as Sri Lanka on FT8. Next winter will be interesting I hope.

Postscript

After the winter I took the helical down to check it as it had been giving erratic results. It turned out that the wire I had used for the winding was far to thin and inflexible. I rewound the whole thing using thin multicore flexible wire. While I was at it I discovered that the top three sections of the ultra El-cheapo fishing pole sold on ebay fitted nicely over the top of the 10m, pole.

I couldn’t resist it and added another one and a half metres with a single wire up the centre. I have no idea if this has improved things yet. No doubt time will tell.

Prospective builders should note that it does take a bit of adjusting the turns at the bottom to get the aerial resonant at the correct place. Unlike other verticals I have used this one has quite a wide bandwidth. Good for am nets etc. above 1900 and FT8 and cw down the bottom end.

The l0p Super Modification

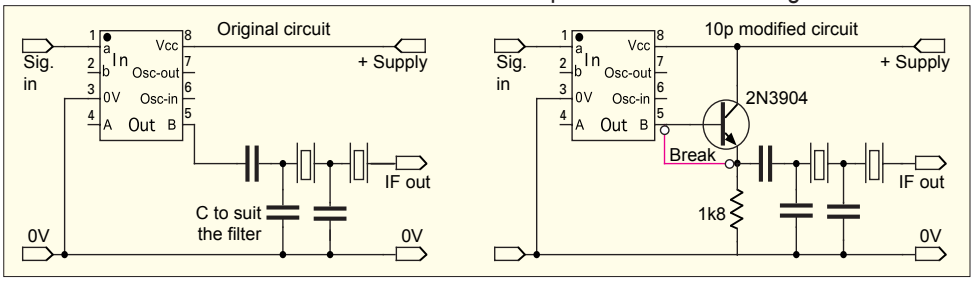
GM4VKI Roy Kavanagh

All my QRP receivers use the same basic formula of SN602/612 (Mixer/VFO) crystal filter then another SN602/612 (Demodl) then out to an LM386 audio. They work quite well and receive signals but I wouldn’t say they were very sensitive.

Following the repair for a friend of a KXl Elecraft rig. I was astounded by the sensitivity of it as it follows the same chip configuration as I was using. This fact intrigued me. So, searching the circuit diagram of the KXl, I noticed that, tucked in between the SN602/612 output pin 5 and the xtal filter, was a single *npn* transistor.

The output from the SN602/612, which is normally going directly to the filter. But in the KX1, this transistor was attached to pin 5 instead. It’s an emitter follower used as a driver and matching the Xtal filter to the 602/612’s output pin. So, trying one of the club’s 2N3904 and a 1.8kΩ resistor, in one of my rigs, I cut the track from pin 5 (normally to the filter) and inserted the transistor bridging the gap Manhattan style. The effect was amazing. Signals now bounced out of the little rig’s speaker.

So 2N3904 + 1.8k 1/8W resistor = l0 pence. Well worth doing!



A Tunable Whip Antenna Mount
(A 3D- Printed accessory) Gareth Edwards GM7WFT

In the last few months I've gained access to a 3D printer and I've been spending a bit of time acquainting myself with it, printing test pieces, understanding the slicing software, and exploring the Autodesk Fusion 360 application for design.

I have a tunable whip I occasionally use for portable operating - a Wonder Wand Widebander‡. This is designed to attach directly to the back of a portable radio such as the Yaesu FT-817D using its RF connector. However, a number of my radios are kit-built or homemade and don't have a suitable mounting point, and I'd like to use a cable to connect the antenna to those radios - a support was therefore needed for the antenna.

I spent some time over the Christmas holidays putting together a design for a bracket for the antenna that would mount onto a standard camera tripod and printing the first instance. A recess in the bottom of the bracket accepts a push-fit 1/4"-20 UNC nut that the tripod can screw into. CAD files for the print are available on Thingiverse** including STL files for printing and a Fusion 360 archive for remixing and modifications. If any reader would like a print for their own use but do not have access to a 3D printer, please send me an email to the address in the header; I can likely supply a mount for the cost of the print plus postage (likely around £7 delivered in the UK).

‡ *http://www.wonder-wand.co.uk/*
** *https://www.thingiverse.com/thing:3327532*

VHF Managers Report

John Beech G8SEQ 124, Belgrave Road, Wyken, Coventry CV2 5BH

I was asked by a member, **Rob PA3EQB,** to come up with some ideas for a simple CW T/Rx for 2m VHF. My first thoughts were to use a Raspberry Pi as a DDS to generate the VHF, then amplify it up to a watt or so using a small PA. Rob didn't like this approach and wanted something simpler ie an crystal oscillator (VXO) and multiplier with a PA.

For the receiver, a simple DC receiver with a pre-amp ahead of the mixer should suffice. These are also known as "Super-gainer" receivers. I've used this scheme from low VHF (6m) up 2.5 GHz, using Schottky diode type BAT86 in both classic, double balanced ring mixers and the "Russian Style" harmonic mixers. This latter type uses two diodes connected back to back and driven at half the receive frequency, thus saving one multipler stage in the receiver LO. A suitable pre-amp for this can be found in *SPRAT* 62, page 33.

All of these issues of *SPRAT* can be found on the latest (and previous editions) of "SPRAT on DVD", available from club sales.

Or other designs for 2m DC Rx see *SPRAT* 43, pages 24 & 25.

For a suitable transmitter, you could try *SPRAT* 42, page 22 or *SPRAT* 36 Pages 16,17,18. Despite the age of these designs, the components for these designs are still available and are discrete, wire ended – no fiddly SMD stuff!

Going even further back, in *SPRAT* 5, Page 5 there is a design for a 3W AM Tx which could be adapted for CW. Amazingly the RF devices used in this are still available!

Rob PA3EQB has been experimenting with 24MHz xtals iHe says: "I have done a quick experiment with three 24MHz xtals in the"super-vxo" config, then tripled and doubled to 144MHz. Configuration" and says he can tune "from 144.034 to about 144.105MHz first try. This is quite a useful range!"

Rob also suggests we could claim 144.060MHz as a QRP CW calling frequency. I've suggested this in the past, but due to low band occupancy, it is better perhaps to stick to the general CW calling frequency of 144.050MHz and maybe move up to 144.060MHz when contact has been established. What do others think?

Personally, I'm not one for collecting awards but a target to aim for could be the "1000 miles per watt" award, which I don't think has been claimed on 2m.(Hint go for mW o/p over a shorter distance, as you might have to wait sometime for an Es opening to achieve an actual 1000 miles.]

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G5LOW in the CQ WPX Contest

Dave Sergeant G3YMC 11029

GQRP has a special callsign, G5LOW, which can be used for special events, like the GQRP Club Convention, during special activity periods like World QRP Day and our Winter Sports, and in contests where clubs can participate. As such I suggested that I used G5LOW in the CQ WPX contest.

CQ WPX is one of the major international contests of the year, with the CW section happening over the last full weekend of May. It is a very competitive event with the leading stations making 5000 or more QSOs in the 48 hours.

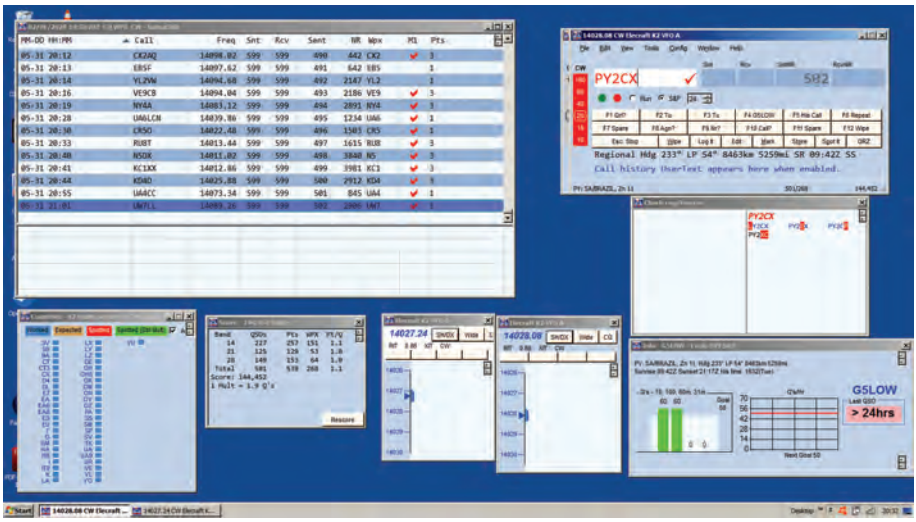
There is a QRP section where all entrants are limited to 5W. I have entered this contest for some years and have regularly scored high in the UK QRP section. Would the attractive prefix of G5LOW increase my position?

The G3YMC Station

The station at G3YMC has for many years comprised a kit assembled Elecraft K2 with most accessories. Antennas are a fairly low 75ft end fed longwire and a Hustler 4BTV vertical, used mainly on 20m.

Because of current VDSL issues I am operational at the moment only on bands 30m and above. So for WPX I could either do a 20m only entry or if conditions allowed an all band entry on 20/15/10.

All serious entrants to contests use contest logging software, in my case the free N1MM package run on my Windows 7 laptop (see screenshot). This is interfaced to the K2 for band and frequency control and also to a K1EL Winkeyer for easy sending of CW either with my Vibroflex paddle or from N1MM. See photos.



On the Day

One advantage of doing the higher bands is that there is no need to do the overnight periods so I turned on at 6.15 UK time on the Saturday morning. The rig had been left on 10m from the day before and was surprised to hear it packed with contest stations even at that time of the morning.

So a 20m only entry was quickly abandoned and I spent the time equally between 20, 15 and 10m. A steady stream of stations was worked, mostly in search and pounce mode as calling CQ produced few callers.

Band	QSOs	Points	Prefixes	DXCC
14	227	257	151	43
21	125	129	53	33
28	149	153	64	33
Total	501	539	64	46
Final Score		**144,452**		

I soon realised there was confusion of our call **clashing with F5LOW,** a station listed in the Super Check Partial database used by all the contest loggers. Despite corrections many will have logged me as F5LOW and lose points, these big boys just don't listen and trust what their computer tells them, hi.

Although there were excellent sporadic E conditions, propagation to further afield was pretty poor and I later learnt that there had been a geomagnetic disturbance with the K index up to 5 at times. I managed a few USA stations on 20m but they were generally weak and the best dx was CX2DX on the Sunday evening. But apart from that it was Europeans all the way.

I spent just over 26 hours in the shack over the weekend and achieved 500 QSOs, a nice achievement. Results are as shown in the table:

Aftermath

Was it worth it? Most definitely. Contests may not be everybody's thing but they are an excellent chance to make loads of QSOs and spread the word that the GQRP Club is active and working far more than a few short range contacts between members.

The RAW scores, i.e. before adjudication and checking, have now been published at cqwpx.com and G5LOW is second place in the G non-assisted QRP section with GQRP member **Alan G0TPH** operating as **M7R** in first place ahead of me.

A double for our club!

I look forward to more members taking this unique opportunity to air G5LOW in forthcoming contests. I enjoyed it, you will too.

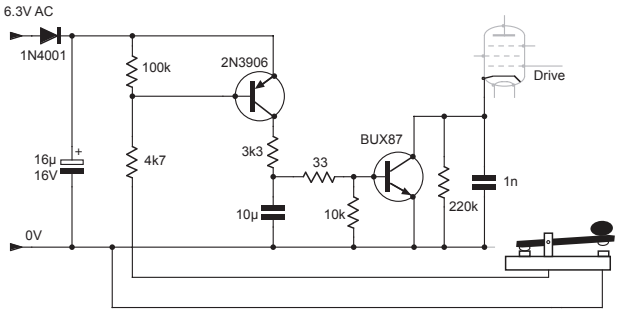
Valve QRP Report 18/19th July 2020

Colin Turner G3VTT 182 Station Road Rainham Kent ME8 7PR

The Valve QRP event in November was well attended by the clubs 'Anoders', 'Valvies' and 'Filamenteers' as I've heard us called. The event has been called by a couple of folks a reunion with all the usual operators on. We did have one new member, **G4FKI**, with his Codar AT5 and there appears to be an increasing level of 160m activity with **G3XIZ** starting a four way CW net on that band and John G3TYB fully active on 1836 KHz.

Roy, GM4VKI, recently refurbished a Hallicrafters SX24, once owned by **Gordon G3DNF** and has used it with a homemade 5763 Top Band transmitter.

Gerald G3MCK made 12 contacts including DK4IN who was using 800mW on a noisy 80m. Other contacts included G4ZXN using a Paraset and a number of UK stations. Gerald has also provided a keying circuit for valve transmitters which itself was originally sourced from the USA.



Peter GM0EUL writes 'I fired up my "icom" radio today to get some valve contacts in for the valve weekend. I've also reworked my Laserbeam DSP using an Arduino script from Dennis KG4RUL which adds a nice digital display of bandwidth and centre frequency.

Having a display makes a huge difference as it has revolutionised the control of filtering on my FRG7700 and makes it very much easier to isolate people who are replying to me from the general hubbub. The next stage is to get a VFO working with the transmitter. Over a couple of sessions on Sunday afternoon and evening I worked two stations on 40m in Germany and Switzerland and then three on 80m, one here in the UK and two in France.

In the picture the black box is a homemade keyer with a high voltage switching stage to manage grid-block keying and allow me to use any of my paddles, in this case my Begali Expedition. The valve sessions with their associated fettling and building are becoming one of my favourite events.

Dave G4FKI from Ampthill Bedford told me 'I had a good weekend which was my first time at the QRP Valve weekend and I worked the following with my Codar AT5. The reception has been a struggle with the CR70 and inverted L antenna. Stations worked included G4ARI, G4DUL, DJ9IE, G4ZXN, G3MCK, G3TYB, G4FGJ, G3XJS and on the Friday before testing the rig G3SES, DL4YHF, GS8VL, G4FUO'.

Derek G3NKS wrote: 'Another much enjoyed Valve QRP weekend making 12 QSOs, five on 5262 kHz and seven on 3560 kHz. Stations worked declaring valved transmitters were: Cliff GI4CZW, Chris G3XIZ, Alan G4BLI, Rupert G4XRV, Gerald G3MCK, Tim G4ARI, Martin G4ZXN and Colin G5LOW. Conditions were good with 80m producing QSOs during most of the daylight hours. I had some good chats and used my usual 6V6 CO/PA transmitter feeding a G5RV at 15ft, a Drake R4C receiver on 80m and a BC-348 receiver on 60m. I'm looking forward to the next one. Many thanks Colin and please continue the good work'.

'Hi Colin I was on this weekend on 80 with my Skeleton transmitter at 3W and space charge valve TRF receiver both from recent Sprats. I didn't hear much apart from G3MCK, G3XJS, G3XIZ and G4ARI but all very weak. I did manage one QSO with Rupert G4XRV. He was using 5W but I was not sure if he was using valves as his signal peaked S5 but was mostly unreadable with very deep QSB so I copied very little.

I had tried adding a coupling winding to the receiver input coil as suggested but it just would not work so I reverted to taking the antenna to the top of the input coil and found reducing the capacitance of the trimmer from the antenna to the coil as you previously advised very helpful so thanks. Maybe I'm expecting too much from a one valve (triode-pentode)

receiver though I'm inclined to try a copy of the Eddystone All world receiver which is highly recommended' 72 **Nigel G0EBQ**

'A good weekend, very enjoyable' said **Ian G4GIR**. 'I missed a few of my regular contacts but none the less made a total of 19 QSO's, 12 unique stations,160m 8, 80m 5, 60m 4 and 40m 2 QSO's. I was airing my AT5 and 807 CO/PA. The AT5 was used on 160, 80 and 60m, whilst the CO/PA was used on those bands plus 40m. The modified AT5 gives 2 Watts out on 60m. Both transmitters were used in conjunction with my latest receiver acquisition,

a Radiovision Commander. I believe it is Serial No 799 as each piece of metal work has '799' engraved on it. It was dead on arrival but found a lot of faults and it now works reasonably well and performed well enough. Does anyone else use one of these sets? I would be interested in exchanging notes. My thanks to all who took part and see you in the next round'.

'Hello Colin I had a most enjoyable valve weekend and managed to work nearly all of the regulars this time. Using my trusty valve TX-RX I had 28 QSOs, all but 4 being with other valve stations. Contacts were fairly evenly spread over 160, 80 and 60m. Valve stations logged were: G3MCK, G3NKS, G3TYB, G3XJS, G4FGJ, G4FKI, G4GIR, G4XRV, G4ZXN, G5LOW and M0JXM. You'll notice a new call sign to the usual list: G4FKI who was QRV with his AT5 transmitter. We local stations repeated our 4-way valve QSO on Top Band which is now becoming a regular part of valve weekends' 72 / 73 **Chris G3XIZ**

'Hi Colin I'm ashamed to say I nearly forgot valve weekend but thanks to a reminder from Ian G4GIR I cleared the bench of next project, (polite way of saying junk), connected the Minimitter and KW 77 for a look round 80m on Sunday afternoon. I could hear a few of the usual valvies but they were all very weak; at least there was no competitions running. Ian popped up to say the Minimitter sounded fine but a few CQs failed to raise anyone.

I did run into Gordon G4FGJ who was quite local, he was using a ECL86 with 1W out, next was Derek G3NKS, unfortunately I think my VFO drifted out of his pass-band and I was

lost. Netting is difficult on the Minimitter as it has quite a lot of "give" in the dial drive cord to the VFO, also it drifts a bit, but being only about 10 years younger than I am it may be entitled to drift a bit, just like its owner does at times!

Later had a QSO with Peter G3XJS who was using his AT5 and Drake 2B as receiver. I must be more organized next time but with the various hobbies to follow I for one have not been bored during lock-down' 72 **Mike, G4AQS**.

John G3TYB 'I had several sessions of casual operating over the two days produced 15 QSO's. Six were on 80m, two on 40, one on 60 and pleasingly six on top band. In total seven QSO's were valve to valve and the venerable Codar AT5 seemed to be a popular choice for a transmitter.

Contest activity rather limited 40 and 80m but a bonus was hearing lots of North American stations on 80m, just after sunrise on Sunday morning, taking part in the CW sweepstakes (even if I couldn't work them!). Equipment used was my newish homebrew valve receiver, and either a homebrew VFO/PA transmitter or the crystal controlled Mk119 clandestine transmitter. The antenna was a 200ft doublet about 38ft high in the middle'

'Hi Colin', says **Peter G3XJS**, 'I hope you enjoyed the valve weekend. I certainly did but was not able to spend as much time on the bands as I'd hoped. Funny how 'things' come along to get in the way! For 80m QSOs I used my AT5 (5 watts output) and a Drake 2B Receiver. For 160m QSOs I used my Drake pair, the T-4XC (5 watts O/P) and R-4B Rx Antenna for both bands was/is the 180ft doublet.

I thought activity levels were good, at least at the times I was able to be QRV. I did not look at 60m as I do not have a valve transmitter for that band, although the Drake 2B does now cover 60m. All in all, another successful G3VTT event - well done! Thank you'. 72 Peter G3XJS

To finish **CT4RL** sent me this picture of a fine 955 Acorn valve transmitter. Close your eyes and wish hard, you might find one in your Christmas stocking. See you all again in the Winter Sports and a Happy and Healthy New Year 2021

72/73 Colin G3VTT

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On-Air Activity

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Winter Sports:

I realised too late that I failed to mention 'WS' in Sprat 184 and know that this issue may not reach members in time for you to put this year's event in your diaries. The ever-popular Winter Sports runs each year between December 26th and January 1st (inclusive) and is a great opportunity to fly the QRP flag on the bands.

It would seem that HF Propagation is improving fast so please take the opportunity to get on the bands with QRP and meet up with friends, new and not so new. For the first time we will incorporate one of Colin's **QRP Valve Events** throughout WS (running for the duration of WS), which will provide plenty of added interest.

Winter Sports is not a contest but please send me your logs ASAP, but certainly by the 7th February, and remember that whoever submits the best log will be awarded the **G4DQP Trophy**. It could be you!

Your WS activity will contribute to your on-air activities throughout the whole year thus counting towards an entry for the **Chelmsley Trophy**. Unlike other Club events the Chelmsley Trophy has slightly more complicated rules, so please may I suggest you see full details of this and other events on the Club website – or drop me a line and I will send you the info.

Club trophies:

While on the subject of Club trophies, up until now all logs have been considered grouped together as just one category. However, there has been a growing interest in data modes recently, particularly FT8, and the Club has therefore decided that we should have a separate category for digital modes.

Some might define digital modes as the 'non-human' modes, Hi! In future, for every Club event, the Club will issue specific separate awards to entrants in any of the non-digital modes category, and to entrants in the digital modes category.

Activity Periods:

Opinions seem to differ with regard to whether we have too many, or too few, activity periods. One argument against activity periods is that they may encourage activity for that particular brief period but then activity levels will fall off again.

I received no feedback about **Roy GM4VKI**'s suggestion for local 'phone nets

on 160m and/or 80m and have to assume there is unfortunately not sufficient support for the idea.

Some folk are not really particularly keen on coming on the bands at all, apart from just to test newly built equipment. My conclusion therefore is that we should keep things as they stand and not introduce any new events. **Colin G3VTT**'s Monday Activity Day continues to attract support (particularly from 'the regulars') as do his ever popular QRP Valve Days (see above).

Kieron M0RTQ, used the Club call sign G5LOW during the RSGB DX contest on Sunday 4th October. With a 135ft doublet antenna in inverted–V configuration supported by a 10m fibreglass pole, he managed a total of 64 contacts. He says that it was great to fly the QRP flag and to have the privilege of using the Club call sign.

Results revealed that he came 9th out of 11 in UK QRP overall. What's more is that he was first in the SSB unassisted 12 hour category. Well done Kieron.

On a personal note, I had a very interesting QSO with **Chris SV8/DL4FO/P** in October on 14060kHz. It was interesting because Chris was running an entirely hand-held station consisting of an Elecraft KX2, and a telescopic whip only 140cm long. A fascinating video of his operation can be seen here:

https://youtu.be/PDRU_HmhY44

As I mentioned earlier, propagation on the higher bands is suddenly looking very much better, and the sun spots are increasing fast. So, blow the dust off the key/mic/rig and get on the bands. If you like QRP/QRP QSOs then don't forget the QRP COAs, as listed below. See you in Winter Sports, and enjoy your QRP!

72 de QRPeter G3XJS

Felucca, Pinesfield Lane, Trottiscliffe, West Malling, ME19 5EN

These are the International QRP Calling Frequencies:
CW: 1836, 3560, 5262, 7030, 10116, 14060, 18086, 21060, 24906, 28060kHz
SSB: 3690, 7090, 14285, 21285, 18130, 24950, 28360kHz
But they are "Centres of Activity" so please spread out if activity levels are high.

MEMBERS' NEWS

by Chris Page, G4BUE

E-mail: chris@g4bue.com
gc4bue@gmail.com

The two Parasets (left) are the latest project of **G4UDG.** Chris says a most enjoyable project so far, a little more work is needed on them and then to build a PSU. **N2CQR** of *SolderSmoke* has been working on test gear and has replaced a 'tine' on a HP8640B, and inally converted some gear from a Kempton Park rally to 110V AC. Bill is also working on a recently acquired Lafayette HA-600A (which was his first SW receiver).

G3XIZ recently made a test set for use when developing TX power amplifiers. It has a crystal oscillator covering the QRP frequencies from 30-160m and a current booster circuit for driving a MOSFET. The MOSFET and filter components may be easily changed and the RF output is fed to either an ATU or to an in-built dummy load. Using this test set, Chris can now build and modify a PA 'off-line', knowing the components will work when transferred to the TX being built.

F5VLF has been reading up on various types of loops (both ferrite and air cored) during lock-down, with the intention of doing some bench tests to get the feel of things. John has been given a ferrite-based antenna, which was intended for LF cave radio but no longer works, and says it will be an interesting challenge as it is potted in *Araldite*, and there is no documentation. **GØIAX** has bought a new radio, the Xeigu G90. Richard says it is very menu driven but he is slowly getting to grips with it. The lowest power is 1W, but with a Soyabeans power reducer, he can go down to QRPp mW levels, and is looking forward to making a milliwatt QSO with it.

GM4VKI says, "What do they say, if you wait for a bus, two will come along! Following the picture in the last *SPRAT*, I received an e-mail to say did I want another Hallicrafter, a SX11 Super SKY Raider? It was very rusty and didn't have its case, but hey what the heck, it's a Hallicrafter. Roy said it arrived in a large box and is on the bench in his shack to see what the sad story is (above). He says, "I thought a picture of the shack/shed would make everybody laugh" (above right). Roy has also been resurrecting an old audio filter for a 40-40 CW TCVR he found in a box bought at the last Rishworth Convention.

VK5GI says like most of the world, they have been in lock-down because of Covid-19 and he has been busy getting some of his Eddystone receivers back into working order. Currently, Norm's tally is six, but says maybe another is in the pipeline! He was lucky to find an EB36 in mint condition, but the others have been used! He says, "And the weight - they

were intended to be bolted to the bulkhead of one of HM's ships and weigh 40 to 50 pounds, total hernia country!" Norm is the Club VK local rep and says it has grown a little, new members continue to pop up as they appreciate the benefits of low-power operation.

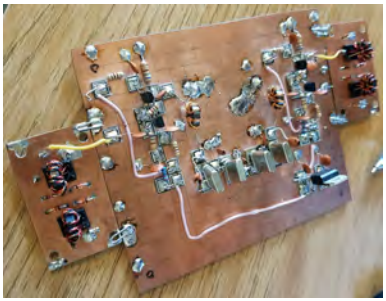
MC1496, Two Band SSB Transceiver ~ N6QW 9-2020

N6QW finished building a retro SSB TCVR (above) in September using four MC1496 ICs, two 40673s and, of course, a Club Sales 9MHz filter. A two-band rig on 40/20m, it has proven to work very well. The Arduino, Si5351 and colour TFT makes for a modern day rig using 50 year old technology. An experiment using a single MC1496 as a DC RX convinced Pete that a workable SSB TCVR was just a bit of soldering away. He says the MC1496s are still available for sale (Mouser) and cost less than $1. During its first week on the air, Pete says running a bit more than QRP, he worked across the USA (2500 miles) on 40m, and even worked a bit of DX in South America running 100W, see <https://www.youtube.com/watch?v=fvtnPGhyTYM&t=1s>.

G4JQT has some Heathkit HW-8s (*Practical Wireless* published his HW-8 'Essential' mods article in November 2015), and this summer he decided to see if a separate receive antenna was possible for this classic little rig. Ian says, "It is and it's easy! Just lift one end of C114 (270pF) and connect it there. I also added a couple of back-to-back 1N4148 diodes to be on the safe side. (If you have a pristine HW-8 without any nasty 'ham holes', you might be reluctant to drill any additional holes in the back!)". He left the relay in place, but says you can probably remove it and replace the relay coil with a resistor of similar value and link the transmitter output (point L) to the TX antenna connection. Chris adds, "Many of us have adequate transmitting antennas which are noisy on receive, but have an active receive antenna located in a quieter place. A few watts from the HW-8 isn't likely to damage an active antenna, provided the transmit and receive antennas are not too close. These days all rigs should have this dual-antenna capability".

G3TPV's shack (right) showing his fine range of home-brew equipment. Alan's lates project is a 160m crystal control AM TCVR, four ECL82 double valves built on a 6x4 inches copper clad board. Each valve sections perform a dedicated purpose making switching between TX and RX simple and straight forward. Transmit output power is 3W of AM with favourable reports from several stations on the local Sunday morning AM net on 1985kHz. The RX audio is rather low, but ideal on headphones. A plug-in active speaker is ideal with no hum problems, the RX being TRF design. Modulation is anode screen and the microphone is crystal. Its first outing was on the Southampton Waterside top band AM net on 1985kHz between 0900 and 1000 on 28

September (Alan was net controller), and the net calls were **G1JRU**, **GØSZI**, **G6MNL** and **G4SBF** within a seven miles radius. Alan's antenna is a loaded vertical at 20 feet with a ground plane - *(thanks **G6MNL**)*.



GØFUW has been putting together a version of the **N6QW** 'Convention' SSB rig (right) with a home-made crystal filter, and DBMs using the Ashar Farhan pre-wound transformers from Club Sales. Steve says, "So far, so good. All being well it will be on air in the Winter Sports". Before new member **G3YJE** retired, he read about the Tuna Tin II and the guy working all the US states on about 350mW. So Peter decided to build one but when he put it on the air he got no response. As he was sadly putting it away, he suddenly realised the antenna was not matched for 40m. Peter could not match it because there was not enough power, so he had to match it using his FT-102. With the next try, he nearly fell off his chair when he immediately got a 579 report from the middle of Germany, a distance of 400 miles away! He then decided to join the G-QRP Club.

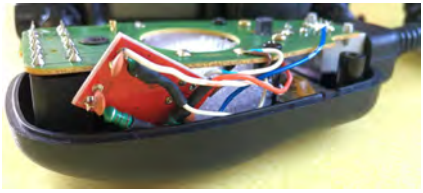
For years **G3XIZ** had an old Watson switched mode PSU which he was reluctant to use because it would generate 'birdies' that wandered up and down the bands and currupted the wanted signals. Chris was faced with buying or making a linear supply but found a cheaper solution. He made a screened aluminium box in which to house the offending PSU and filtered the mains input and DC output. It now works a treat and with no 'birdies'. **G4TGJ** has continued to experiment with his image cancelling DC RX with some new surface mount PCBs. Instead of an Arduino Nano, Richard is now using an ATtiny3216 microcontroller and says, "I don't think I have been on the air at all during the period as I much prefer to tinker with the hardware and software. In fact, I have spent more time listening to the Russian standard frequency station RWM (4996, 9996 and 14996kHz) than the amateur bands, as it is an excellent beacon".

G4FBC recently resurrected a few of his QRP builds whilst having a shack sort out, and the first one (far right) was **G3RJV**'s JLD 20m CW TX/RX from the May 1985 *Short Wave Magazine*. Ron put out a few CQ calls with its 200mW output into a sloper dipole, but says local QRN confounds reception at the best of times. He looked at the RBN and was delighted to see several good reports from Europeans and **W3AU**. The second one (right) was from *SPRAT* 90, the Alva, from **SM7UCZ**, and a CQ on 40m with its 250mW output into a random LW and homebrew Z-match ATU, brought RBN reports from **TF4X** and **SE6E**. Finally, a Pixie matchbox sized rig from at least 30 years ago (top right), and a 40m CQ resulted in a RBN report of 10dB S/N ratio from **TF3X**. "Not bad going from a matchbox Pixie on a 9V PP3 battery!", says Ron. A recent build came about from a junk box rummage after finding the parts to make a copy of the ZM-2 ATU, and a nice box to fit (above centre and right).

After a QSO with **TF3CW/P** on 20m on 22 August, **G3XJS** heard club member **TA4/GØMFR/MM** calling CQ on 14060khz. Gareth was running 3W and a dipole and was near Kas, and Peter says, "I've operated /MM from the same area, and know how pleasing it is to

hear and work back into the UK with QRP from on board a yacht. Even with a sked or two it can be quite tricky, so I was delighted to make the contact with Gareth". **GØFTD** warns us of using cheap USB cables, while trying to determine why some equipment was messing him about. It all started with a rather expensive VNA, available on the amateur radio market (not the Nano VNA), that he couldn' get to work. The software drivers would not, or when they did, the item only worked now and again. Andy says it turned out be be yet another badly made USB cable, where the plug tolerances were so poor that you had to slightly crush the plug to make it work. Not a good solution, since it could end up damaging the mating half built into the PC! Andy says, "That's the fifth cable I have had problems with, all supplied new with either the expensive VNA, to DVD drives, external hard disk cases, or various accessories. It is too easy to be caught out, especially if you are just trying to install drivers, and you end up believing it all to be a software problem. But easier to detect if it's just some hardware to plug in".

MØSUD reports building this, "Sort of dodgy 'portable' indoor version of the loft antenna used by **GØKYA** (described in his *Stealth Antennas* book)". Stuart says it is essentially a dipole with the first 10ft held straight and the rest of the wire folded on a frame which he can position in his flat. He says it seems to do alright for an indoor antenna compared to the Wonderwand he was using before, enabling him to hear a lot more stations than he used to. He has had 5W FT8 QSOs over 1000km and although designed for 40m, it tunes nicely on 20m. The 4:1 pico balun and wire are from SOTAbeams. The picture shows the two frames with antenna wire wound around them, and then a middle one used purely to support the weight of the balun. The frames are made from plastic plumbing pipes and connectors, mostly for ease of purchase, not being metal and relatively cheap, total cost was £50 as he used push-fit connectors.



GØUON had never had much luck using SSB with his FT-817, and during a QSO with **GØCBM** they concluded the lack of any proper audio compression was the limitation. Jim found the SSM2167 chip was a simple way to achieve compression, pre-made surface mount boards are available cheaply on *eBay* (search 'SSM2167 board'). This easily fits inside the hand mic and he utilised the switch on the back of the mic to make it switchable. Jim says, "I needed to choke the mic in, +V in, and audio out lines to solve some RF feedback (100uH axial inline and 1nF to ground). I set the compression level at about 6db. The transformation is incredible! Tests on air and with Hack Green showed an R5 signal with the compressor was barely readable without it. Over a couple of days away at relatives near High Wycombe at the end of October, I had seven 'proper' SSB QSOs around England on 60m. All gave me 58 or 59 and all were surprised I was running only 4W to a doublet. I find the standard Yaesu mic element is a bit muffled and bassy and changing this for a Heil HC-5 made a dramatic improvement. A similar audio response can apparently be achieved with an electret and a shaping circuit from **G8JNJ** <g8jnj.webs.com> – that's my next little project. Nothing groundbreaking, but it has been well worthwhile to make my FT-817 a useful SSB rig".

Thanks to all the contributors of this column. Please tell me how your winter goes for the Spring 2021 edition of *SPRAT*; what you have been building, who you have been working, and any other information about QRP, by 12 February. Also, interesting pictures 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 picture to let other members know what you and your equipment look like. Let me know if you intend operating from somewhere other than your home QTH during the spring and summer months, so I can let members know to listen out for you.

(sales@gqrp.co.uk) **GQRP Club Sales** *(sales@gqrp.co.uk)*

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

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A Pair of 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, 7.028, 7.030, 7.040, 7.045 } plus **postage**
7.122, 10.106, 10.116*, 14,060*, 18.086, 21.060, 24.906 & 28.060 all are **£2 each (* also in LP)** } **(ANY quantity)**

HC49U crystals- 1.8432, 3.5, 5.262, 5.355, 7.0, 10.006, 10.111, 11.5, 14.0, 22.0, 29.0MHz – **50p each}**

HC49U crystals – 2.00, 3.00, 3.20, 3.579, 3.58, 3.60, 3.6864, 4.0, 4.096, 4.1943, 4.433, 4.5MHz } £1.20p (UK), or
5.00, 6.00, 7.2, 7.6. 8.0, 9.0, 10.0, 10.70, 11.0, 12.0, 13.50, 15.0, 16.0, 18.0, 20.0, 24.0, 25.0MHz} £3.50p (EU) or
26.0, 27.0, 28.0, 28.224, 30.0, 32.0, 33, 40, 48MHz – **all 35p each** (Some of these are low profile) } £4.00 (DX)

Ceramic resonators – 455, 480kHz, 2.0, 3.58, 3.68, 4.00, 7.37, 14.32 & 20.00MHz **– 50p ea.** }

Diodes - Shottky signal diode – 1N5711- 20p each; 1N4148 GP Si – 10 for 10p } Post free

Varicap diodes - MVAM109 – 40pF @ 9v, 500pF @ 1v. **50p each** } if ordered

- BB204 – twin diodes, common cathode, 15pF @ 20v, 50pF @ 1v **50p** } with heavier

SA602AN - £2.00 **(note – I may supply NE or SA, 602 or 612 as available.** **(Max of 4 per member)** } things

MC1350 - £2.00 **(Max of 2 per member)** } like binders,

LM386N-1 - 4 to 15v, 300mW, 8pin **DIL - £0.45** } toroids,

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

TDA2003 - 10w audio amp – 5 pin **£0.25 each** } or filters

TDA2822 - 1.8 to 5v stereo amp – can be bridged. 0.5WAudio amp 8pin DIL – **£0.20 each** } Use just

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

BC109B (metal) (npn) fT - 100MHz, hFE-320 **- 10 for 50p** }

MPSH10 transistors (npn) fT - 650MHz, hFE 60, VCEO 25V **- 10p each, 10 for 80p** } If parts are

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

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

BC517 Darlington (npn) fT - 200MHz, hFE-30,000, VCBO +40V **- 13p each, 10 for £1.10** } or DVDs

FETs - IRF510 – 50p; 2N3819 - 24p; 2N7000 - 10p; BS170 – 8p - all each } add this

BF981 – dual gate MOSFET – 40p each (max of 2) } postage

Pad cutter - 2mm shaft: 7mm o/s, 5mm i/s diam, gives a 5mm pad with 1mm gap **£6.00** } as books

10K 10mm coils – 1u2H, 1u7L, 2u6L, 5u3L, 11u0L, 45u0L, 90u0L, 125uL – all 80p each } or DVDs

Magnet Wire – 18SWG – 2 metres – 60p; 20 & 22 SWG – 3 metres - 60p; } do not

24, 25 & 27SWG – 4 metres - 40p; 30, 33 & 35SWG – 5 metres - 30p. } travel well

Bifilar wire – 2 strands - red & green bonded together. Solderable enamel. 3 sizes } with parts.

21SWG (0.8mm dia) – 2metres = £1; 26SWG (0.45mm dia) – 3m = 70p; 30SWG – 3m = 60p }

Litz wire – double silk covered multi-strand wire 7/.04mm -12p, 14/.04mm. 25p. Both for 3 metres. }

All our magnet wire is solderable enamel insulated. Max of 3 sizes per member per order

QRP heatsinks - TO92 – 30p; TO39/TO5 – 40p; TO18/TO72 – 80p (pics in Sprat 148) }

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

3.3, 4.7, 6.8, 10, 15, 18, 22, 33, 39, 47, 56, 100, 150, 220, 470 and 1000 - all uH, all 20p each. }

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

T25-2 – 50p, T25-6 – 60p, T30-2 – 70p; T30-6 – 80p ; T37-2 – 80p; T37-6 – 80p; T50-1 - £1.00; T50-2 – 90p; } **Postage for**
T50-6 – £1.10; T50-7 - £1.20; T50-10 - £1.20 ; T68-2 - £1.80 ; T68-6 - £2.50; T130-6** - £2.60ea. FT37-43 – 90p } **toroids includes**
FT50-43 - £1.20 ; FT37-61 - £1.20 ; FT50-61 - £2.40; Ferrite beads – FB43-101 (3.5mm dia x 3.2mm long, } **postage for all**
1.2mm dia hole) – 40p for 5: BN43-2402 - £1.50; BN43-202 - £2.00; BN43-302 - £3.40; BN61-202 - £3.40. } **small parts**

All toroids are plus postage – up to 5 packs = £1.20 (UK), £3.50 (EU), £4.50 (DX). Each additional 5 packs, please add 50%

**** Except ** item** – these are heavy and each counts as a pack (ask for quote if you want more than 2 of the large toroids)

Standard MeSquares (0.25"), Little MeSquares (0.15") & MePads for SMD - £6.00 each plus post (UK & EU as parts for up to 4) :
I can include up to 3 of these with parts for no extra postage.
I can supply UK & EU, will DX please order direct from Rex. ***These items from Rex's stock are pictured on the website.***

Limerick Sudden kits RX & TX both single band (160 through 20m); **ATU** (80 through 10m) **£40.00 each plus post** UK - £3.50, EU - £6.50, DX - £9.00

NEW! Sprat-on-DVD – 1 to 184. Only £5 each to members plus postage, UK - £1.20, EU - £3, DX - £4.00
Now available as Sprat-on-a-stick – on a USB stick – same price and same postage

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

Cheques (UK) and payable to G-QRP Club. MINIMUM ORDER for cheque or PayPal payments is £5
You can also pay by BACS. The info you will need to do that is –
The G-QRP Club Account, sort: 01-07-44, and a/c: 54738210

I can accept cash in GBPounds, or US$/ €uros (at the current exchange rates) – but please send securely!
You can order via e-mail and pay by PayPal - use sales@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

Membership Secretary News

Daphne G7ENA (g7ena@gqrp.co.uk)

Hello and welcome to membership news, I can't believe I have completed my first year the time has really flown by. On a personal note I got married in January so my name is now Daphne Newsum, luckily my initials are the same so I don't need to change my Louis Vuitton luggage.

As usual, this is the issue of Sprat that reminds you it is time to renew your subscription. Please go and find that label on the Sprat packaging and see if it says "expires end of 2020". For the various membership rates and method of payment please refer elsewhere in this issue to the "Subscriptions for 2021 are now due" page (or look on www.gqrp.com).

UK members with existing standing order arrangements 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.

In the UK you send your payment to me. If you write by post please always include a stamp (or an email address) if you expect a reply. If you send insufficient funds you will receive only one Sprat in 2021 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 2021. 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 are details on how do this in the autumn issue of Sprat. The form should be sent to your bank (and not me) in time for your payment which must execute on the 15th January 2021. 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.

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 local currency to your local rep - and I can't accept Euro or U.S. Dollars. Cash is sent at your own risk.

You can also save me much work if you pay using PayPal. Please see www.gqrp.com/paypal for more details. We do automatically 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.

Club Information – Who Does What

(email & postal addresses are on the club website)

Sprat		
	Editor	G1TEX
	Any non-membership comments & queries	G0FUW
	Members news for news column	G4BUE
	Communications news	G3XJS
	VHF news	G8SEQ
	Sprat Delivery	G7ENA
	Sprat Index	K7WXW
	Sprat advertising	G3MFJ
Membership		
	Membership queries, subscriptions (+ any QTH & call changes), Sprat distribution.	G7ENA
General		
	Secretarial	G0BPS
	Chairman	G0FUW
	Treasurer	G3MFJ
	EUCW representative	M1KTA
Sales		
	General items & back issues of Sprat.	G3MFJ
Services		
	QSL Bureau - in, out & sorting	GM3VTH
	Antenna advice	G3VTT
	Awards	G5CL
	Circuit & construction advice	G3ROO
	Club Trophies	G0EBQ
	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.

G-QRP Club Constitution V4

Many thanks to everyone who took the time to read our proposed constitution. The time for comments has now passed. I can assure all members that all comments were considered by the committee and where appropriate acted upon.

The constitution is now active.

Dick Pascoe G0BPS; Hon Secretary.

SUBSCRIPTIONS FOR 2021 ARE NOW DUE

Your SPRAT label tells you your current status. Your receipt is the updating of your status code on your Spring 2021 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 2021 – please see options below.

UNITED KINGDOM	EUROPE	DX
• £6.00 Cheque / Postal Order sent to G7ENA (payable to "GQRP") • £6.00 - Standing order • PayPal	• £12 sent to G7ENA (Cash in GBP [no Euro or Dollars] *2, Cheque or money order*1) • €15 (to Euro rep.) • PayPal	• £13 to G7ENA (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 Payable to "GQRP"- drawn on a UK bank). (*2 At own risk)		

*You can pay by direct transfer but you **MUST** provide your membership number as a reference. 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).*

UK *members can use the form from the website or from the membership secretary if they would like to pay by standing order or to amend their existing standing order for the 2021 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 GQRP Club, 33 Swallow Drive, Louth, LN11 0DN

Membership Number ____________________ Callsign ______________

Name ____________________________________

Number and road ____________________________ Name used on air _____________

Town ______________________________ Post code _____________

Country ______________________________ Email ______________________________

NOTE - by joining, or renewing your membership, you are agreeing to the Club Constitution, which is available on the website, or in hard copy, upon request to the Secretary.

Changes or additions

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Checklist for UK Cheques:
- Did you make your cheque out to the GQRP club?
- Did you date it correctly?
- Did you sign it?

OVERSEAS SUBSCRIPTIONS FOR 2021

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, 10541 SW 63rd Drive Portland, OR 97219, USA. **Cheques to be made to "David Yarnes".**	$20
Germany: Dirk Krause, DL1GKD, Hauptstraße 4, D-78597 Irndorf**.** Konto: Sparda-Bank Baden-Württemberg, Dirk Krause. IBAN: DE17 6009 0800 0107 9124 16 BIC: GENODEF1S02 In der Zeile Verwendungszweck bitte unbedingt angeben: NAME, VORNAME, CALL, GQRP Nr. Schecks und Bargeld werden nicht entgegen genommen!	€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 Jänner 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, numéro de membre et adresse E-mail indiqué au verso).	€15
Denmark. Ole Rasmussen OZ1CJS: Fornyelse 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 Undgå venligst at fremsende kontanter og checks. Har du et problem mht. bankoverførelse, så kontakt mig så vi kan finde en løsning. Nyt abonnement af GQRP: Ønsker du at blive medlem af GQRP og modtage medlemsbladet SPRAT, så send mig venligst en email med dit navn, adresse og evt. kaldesignal. Så skal jeg med glæde sørge for at du bliver kontaktet.	115DKK
New Zealand, Phil Tarrant ZL2NJ, 77 Romilly Street Westport 7825 New Zealand. cellphone 0224031096. Account details :– Kiwi Bank -Account name:- P Tarrant G-QRP, Account No 38 9003 0186315 02	NZ $28
Australia Norm Lee VK5GI, The Vineyard, 28/170 Main Road, MCLAREN VALE, South Australia 5171. Account name: Norman Joseph Lee GQRP Club Account, Bank: ANZ Bank McLaren Vale. BSB number: 015 627, Account number: 1812 – 51764. Cell: 0402 446 453 (Call - don't text).	AUD $25
Italy. Fabio Bonucci - IK0IXI. Via Umbria 4, I-00053 Civitavecchia Italy. "La quota annuale per l'iscrizione al GQRP Club dall'Italia è 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 può 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. Jon Iza, EA2SN, A. Gasteiz 48-7 izq, 01008 Vitoria-Gasteiz. Cuota: 15 euros. Ingresar en: BBVA IBAN ES05 0182 1629 8802 0151 3020 BIC BBVAESMM. Envía email con la info o pon como concepto tu indicativo y número de socio.	€15

Any other overseas to Daphne Newsum G7ENA, GQRP Club, 33 Swallow Drive, Louth, LN11 0DN, England [Europe: £12 GBP / DX: £13 GBP]