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GQRP Club Sales

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

Antenna Handbook – 2nd edition – members price £6.00 plus post } £2.20 (UK) or £5.50 EU
Radio Projects volumes 1, 2, 3 & 4 – by Drew Diamond – members price - £6 each book + post } or £9.00 DX per book

Polyvaricon capacitors – 2 types - 2 gang (A = 8 to 140pF + O = 6 to 60pF), and 2 gang – (both 8 to 280pF) Max of 2 of each
Both come complete with shaft extension & mtg screws, and both are £1.75 each. Postage is £3.50 (UK), £5.50 (EU) and £6.00 DX

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, 7.0475 } 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, 4.4336MHz } £1.50 (UK), or
4.5, 5.00, 6.00, 6.7725, 7.2, 7.6, 8.0, 8.032, 9.0, 10.0, 10.70, 11.0, 12.0, 13.50, 15.0, 16.0MHz } £4.00 (EU) or
18.0, 20.0, 24.0, 25.0MHz 26.0, 27.0, 28.0, 28.224, 30.0, 32.0, 33, 40, 48MHz – all 35p each } £5.00 (DX)

Ceramic resonators – 455, 480kHz, 2.0, 3.58, 3.68, 4.00, 10.7, 14.32 & 20.00MHz – 50p ea. }
Diodes - Schottky signal diode – 1N5711- 20p each; 1N4148 GP Si – 10 for 10p } Post free if

Varicap diodes - BB204 – twin diodes, common cathode, 15pF @ 20v, 50pF @ 1v 50p } ordered with
SA612AN - £2.00 (note – I may supply NE or SA, 602 or 612 as available. (Max of 2 per member) } heavier things
MC1350 - £2.00 (Max of 2 per member) } like binders,

LM386N-1 - 4 to 15v, 300mW, 8pin DIL - £0.50 10 for £4.75 } 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

TA-7642 Radio IC – direct equivalent of MK484 (& ZN414) – 75p each } Use just
BC109B (metal) (npn) IT - 100MHz, hFE-320 - 10 for 50p } that postage
MPSH10 transistors (npn) IT - 650MHz, hFE 60, VCEO 25V - 10p each, 10 for 80p } If parts are

2N3904 transistors (npn) IT - 300MHz, hFE-150, VCBO +40V - 10 for 50p } ordered
2N3906 transistors (pnp) IT - 250MHz, hFE-150, VCBO -40V - 10 for 50p } with books
BC517 Darlington (npn) IT - 200MHz, hFE-30,000, VCBO +40V - 13p each, 10 for £1.10 } add

FETs - IRF510 – 50p; 2N3819 - 24p; 2N7000 - 10p; BS170 – 12p - all each } this
BF981 – dual gate MOSFET – 40p each (max of 1) } 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, 45u0L, 90u0L – all 85p each } do
Magnet Wire – 18SWG – 2 metres – 60p; 20 & 22 SWG – 3 metres - 60p; } 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 – you may order 2 packs, but only if you actually need them. }
I will no longer supply packs of everything – order only what you need please. } Postage
T25-2 – 50p, T25-6 – 60p, T30-2 – 70p; T30-6 – 80p; T37-2 – 80p; T37-6 – 80p; } for toroids
T50-1 - £1.00, T50-2 – £1.40, T50-6 – £1.60; T50-7 - £1.20, T50-10 - £1.60; } includes
T68-2 - £2.20, T68-6 - £2.50, T130-6** - £2.60ea; } postage

FT37-43 – £1.20, FT50-43 - £1.20, FT37-61 - £1.20, FT50-61 - £2.40; } for all
Ferrite beads – FB43-101 (3.5mm dia x 3.2mm long, 1.2mm dia hole) – 40p for 5; } small parts
BN43-2402 - £1.50; BN43-202 - £2.40; BN43-302 - £3.40; BN61-202 - £3.40. }

All toroids are plus postage – up to 5 packs = £1.50 (UK), £4.00 (EU), £5.00 (DX).
Each additional 5 packs, please add 50% ** Except ** item – these are heavy and each counts as a pack

Standard MeSquares (0.25"), Little MeSquares (0.15"), MePads for DIL & 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 small 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 - £7.50, DX - £9.00
Sprat-on-a stick V9 – 1 to 192. Only £5 each to members plus postage, UK - £1.50, EU - £4.00, DX - £5.00 (they will
travel free with parts) There will not be a DVD version any more as sales of them had almost stopped.

Sprat Binders – nylon string type – Black with club logo on spine -16 issues per binder – £6.00 each plus postage
(one: UK - £2.20, EU – £4.00, DX - £5.00. More - add £1.50, £1.50, £2.50 each)

UK members can order by email and pay by Bank Transfer. The info you will need to do that is – THE G-QRP CLUB,
sort: 01-07-44, and a/c: 54738210. By post, send money by cheque, PO, or cash in GBPounds, or US\$/euros (at the
current exchange rates) – please send securely! Overseas members can order via e-mail and pay by PayPal - use
sales@gqrp.co.uk – and pay us in GBPounds, or by post with cash, and you MUST include your membership number
and address please. PayPal are charging us about 7%, so please add that if you can, or, send as a gift to friends/family
– thanks. Maximum quantity of any item is 20.



SPRAT

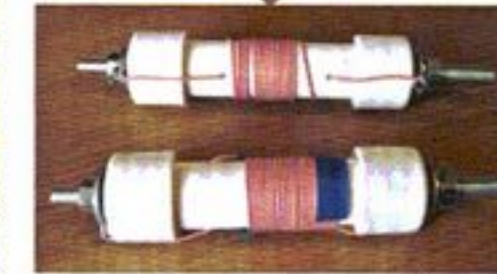
THE JOURNAL OF THE G-QRP CLUB

DEVOTED TO LOW POWER COMMUNICATION

Issue No. 196

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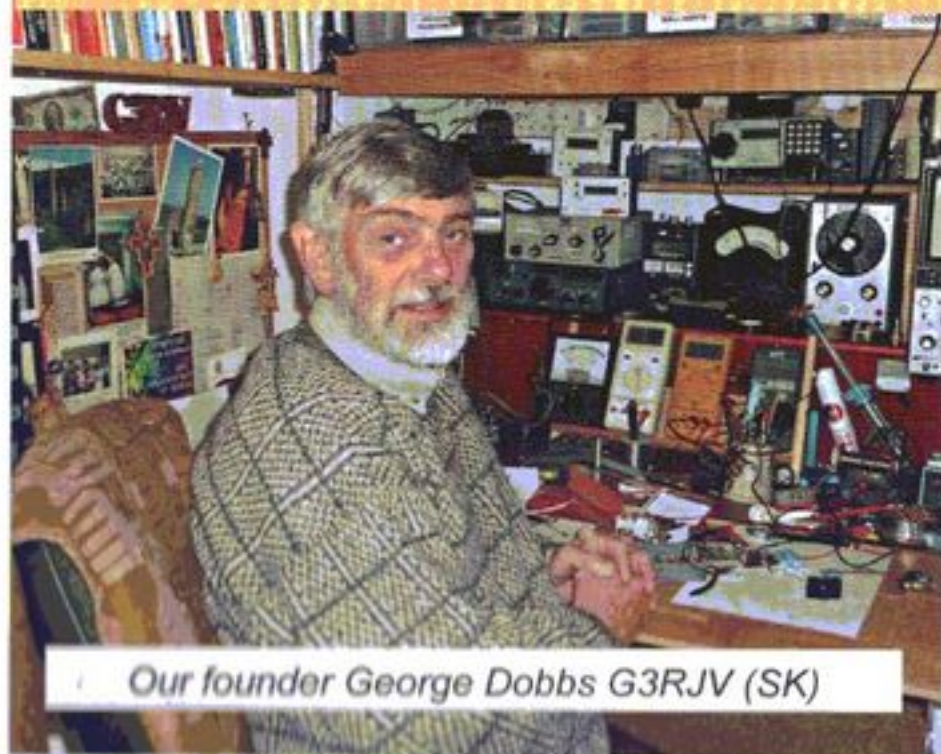
Autumn 2023



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JOURNAL OF THE G-QRP CLUB



Our founder George Dobbs G3RJV (SK)



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EDITORIAL

Number 1 important notice is that we have not yet found a new Club Sales Manager. There is a real risk that we may have to close the shop if a new volunteer cannot take it on. See page 3 of *SPRAT* 195 for a better explanation of what we would like the new sales manager to do. Or see next page of this issue.

Later in this *SPRAT*, Enzo has a great report from the Summer Sizzler. I was really pleased to hear of so many logs being received, and to arrange the Gx5LOW activations. Congratulations to all the certificate winners. Hopefully we can build on that success and make more of it in 2024.

As I write this we are preparing for our annual Convention in conjunction with the Telford Hamfest. I must thank **Paul, M0BMN**, from Kanga UK for donating some very useful parts for the buildathon kit; a version of the Stockton Bi-Directional Power Meter. **David, GM4ZNX** – 'Mr Stockton' himself, was one of the many members who came to say hello to the team at the Braehead rally in May. It was great to meet so many of you, and to recruit a few new members too. Sales and visitors at the FRARS Hamfest in August were also off the scale. Interest in QRP is very much alive!

Looking forward, we have the Winter Sports on the horizon and 2024 will see *SPRAT* 200 being published, marking the Club's 50th anniversary. We have no idea if it is possible but one of the things we would like to do is to have as many other QRP Clubs join in our celebration by having a number of special calls on the air in September 2024.

Imagine a whole set of international '..LOW' calls to work. If you are a non-UK member and you are able to assist with that, please let us know. We have a few other special things planned, but more on those in the Winter *SPRAT*.

Steve Hartley G0FUW

Chairman GQRP Club g0fuw@gqrp.co.uk

Membership Secretary News

Daphne G7ENA (g7ena@gqrp.co.uk)

As in previous years we have decided not to put a standing order form in this issue of *Sprat*. As we have 4000+ members who already pay by various methods, to have it to take up 2 valuable pages of *Sprat* seems unnecessary.

If you wish to set up a standing order then please do it online if possible, the info you will need is: GQRP Club account, 01-07-44, 04109546. You MUST include your membership number as the reference, and our preferred date is 15th January. If you do need the form, then I can email it to you, or, if you send an SAE to me, I will send you a copy.

A standing order authorises your bank to make automatic annual subscription payments for you. It is not a direct debit, I cannot make alterations to the payment and I cannot even cancel it. It remains under your full control. This means that if the membership rate rises, you have to alter the payment amount.

Full information about renewals will be, as usual, in the next issue of Sprat.

I will be accepting renewals for 2024 from 31st October.

WANTED: NEW CLUB SALES MANAGER

Steve Hartley, G0FUW email: g0fuw@gqrp.co.uk

Members may recall the notice in *SPRAT* 195 that that, **Graham, G3MFJ**, has given notice that he is retiring from the role of Club Sales Manager. Graham has been forced into this decision due to difficulties with his eyesight caused by macular degeneration.

We have had a couple of members express interest but, for various reasons, they are unable to take up the role at this time.

So, we still need to find a new Club Sales manager, and if we do not find someone soon, Club Sales will have to close down; Graham's eyesight is not getting any better.

Graham would like to complete the handover to the new Sales Manager by March 2024, at the absolute latest, but we need to start the ball rolling much sooner than that to allow plenty of time for a planned, orderly transition.

Details of what is involved in this important Member Service are set out in *SPRAT* 195.

If you are interested but would like to know more about this volunteer role you can contact Graham via g3mfj@gqrp.co.uk, or you can send your expression of interest to me via email: g0fuw@gqrp.co.uk



*Salesman of the decade!
But can you replace him?*

Current Source for Diode Matching

Nick M0NTV email: m0ntv@nickthevic.co.uk

You may ask: "Why bother matching our diodes?"

As a keen homebrewer I regularly roll my own diode ring mixers. One of the challenges of building an efficient double balanced mixer is matching the diodes for the diode ring. I generally use 1N5711 small signal Schottky diodes which have a low turn-on voltage and fast switching action. The aim is to select four components with the same forward voltage drop – as near as possible.

As the local oscillator signal energises two of the diodes at once you really want those two diodes to switch on at the same time. The greater the difference in voltage drop: the greater the time difference of the switching. Well-matched diodes will mean more effective mixing and a happier homebrewer!

How can we match our diodes?

Well, you could just use the diode function on your multimeter. The problem with this approach is that most multimeters will use a tiny current (less than 1mA) to do the measurement.

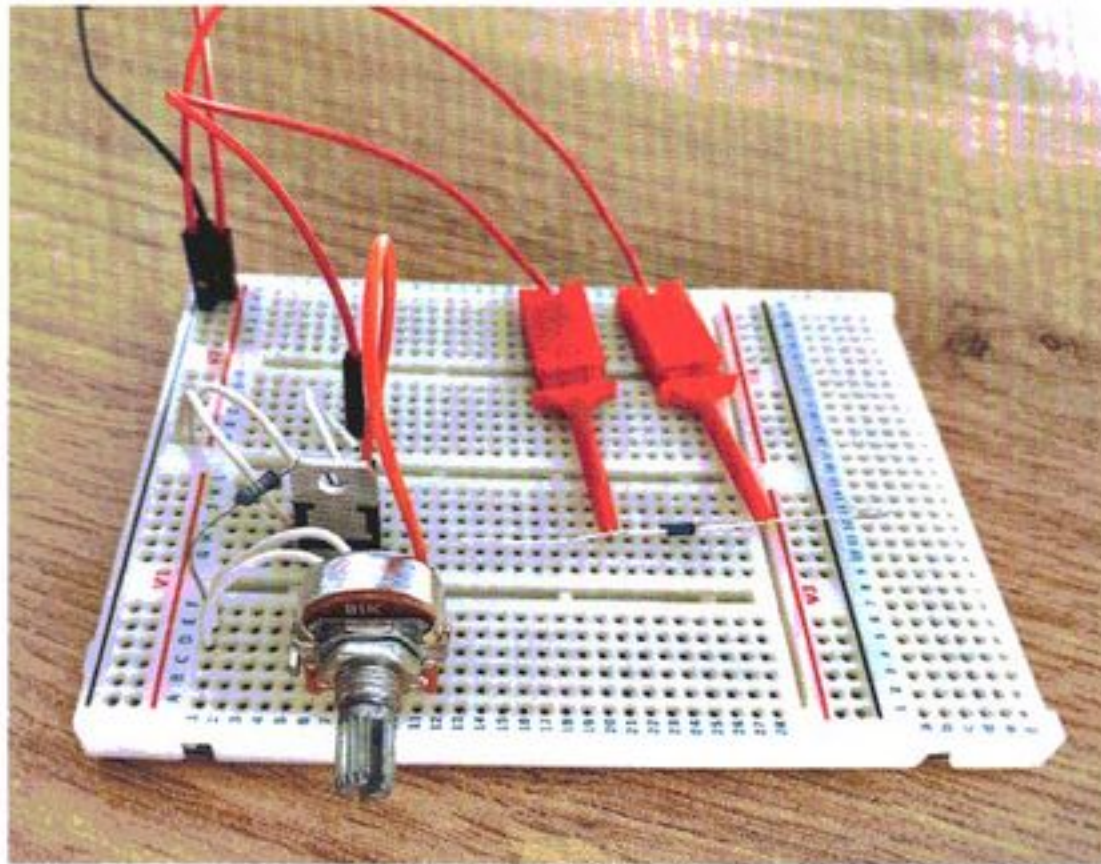
Whilst you might be able to match 4 diodes effectively at this current there is no guarantee they will still be matched at the greater current you will be pressing them into service at. Diodes follow an IV curve which tends to spread out more as current increases. What we really need is to be able to test the diodes at the current we want to use them at.

So what current level do we want to use them at?

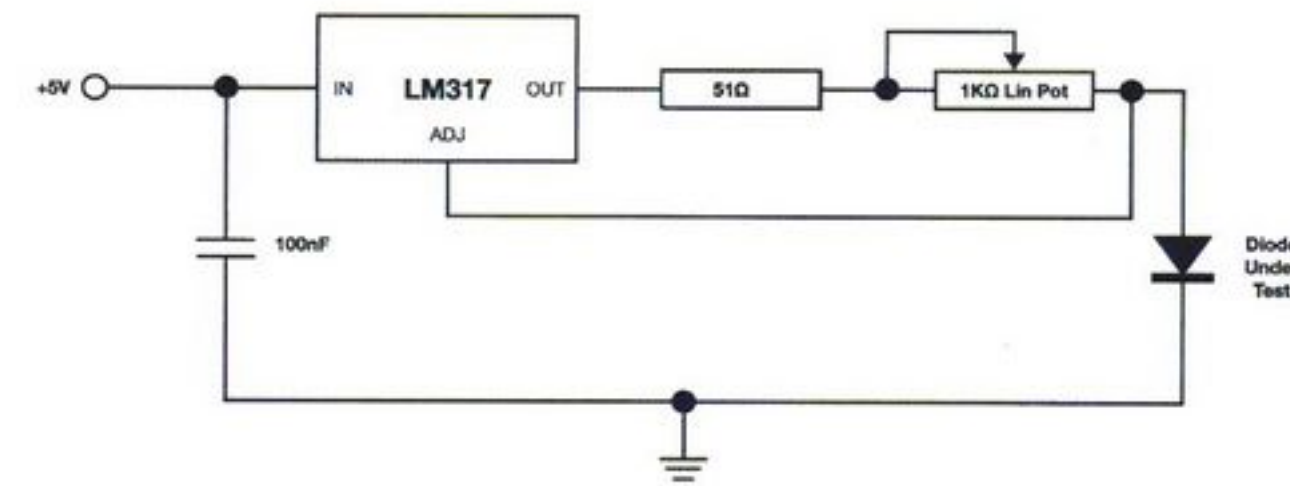
My rough and ready calculation went like this. You would normally feed a diode ring mixer with +7dBm of LO signal into 50Ω. This equates to about 5mW of power and 1.416Vpp. This means 0.5Vrms. As Mr. Ohm tells us:

The formula is: $I = V/R$ so $0.5/50 = 10\text{mA}$. So we really need to be able to test our diodes at about 10mA, read their forward voltage drop and match them accordingly.

One approach: a simple method that requires constant tweaking. There is a well-documented way of achieving this, using little more than one current-limiting resistor. However, it requires the use of two multimeters: one set up in series as an ammeter and one to read the voltage drop over the diode. In addition, every time the diode is changed the voltage source has to be tweaked to get



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the current back to the precise test level again. Changes to the voltage and load will mean changes to the test current. It certainly works but I have to confess I found it very fiddly!

What we really need is a circuit which provides us with a constant current of 10mA that will

be relatively impervious to changes in both the input voltage and the load impedance. Then we could just set it up and get swapping in diodes and measuring their voltage drop without worry that our test current was going to change with every measurement.

We need a constant current source!

The internet is awash with information about current sources and sinks and mirrors etc. It is a fascinating rabbit hole to disappear down for a while! I have built several different designs: some worked better than others but a couple were very good indeed.

The one I settled on uses a readily available LM317 adjustable voltage regulator IC. It is cheap to buy and simple to use – just three pins (NB. Do check the pinout on the datasheet though). My design is actually an adaptation of the current source schematic in the LM317 datasheet¹ plus inspiration from some other sources².

The 51Ω resistor limits the maximum current to just under 25mA and by adjusting the potentiometer you can set the constant current from here right down to just over 1mA. You could just dispense with both and simply put in a 120Ω resistor for a fixed current of about 10.4mA. I'm running the LM317 at 5V which is about as low as I can go. You need to be careful that it has enough headroom to operate properly. It needs 3V across it + 1.25V across the resistors. The rest falls across the load. For low voltage drop diodes this is fine but if you are using this circuit with a more demanding load then you'll need to increase the supply voltage. Once set to your chosen current you only need to swap in the diodes and read their voltage drop on a multimeter (DC voltage setting).

The circuit is stable and the current is certainly constant – even when the voltage is doubled or the load is shorted to ground! My version is on a breadboard right now but will be going into a permanent enclosure soon.

If you are interested in this project then it will soon be the subject of a video on my YouTube channel³. I hope you find this helpful when it comes to building that next diode ring mixer!

References

- 1: LM317 Datasheet: www.onsemi.com/pdf/datasheet/lm317-d.pdf
- 2: <http://electronics-diy.com/lm317-constant-current-source-circuit-design.php>
<http://lednique.com/power-supplies/lm317-constant-current-power-supply/>
- 3: www.youtube.com/c/M0NTVHomebrewing

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More LEDs to an N7VE SWR bridge

Graham Whaley, M7GRW

I recently built a 3-band base loaded vertical (based onz the QRPGuys tribander) to go with my recently acquired Venus SW-3B. Although each of the 3 bands should be quite resonant, by design, I wanted some form of SWR indication, both to check I'd got things wired and set up correctly and that I'd not accidentally chosen the wrong band! The 3B does not have a built in SWR meter, so I started to look around for a small (portable) inline SWR meter or indicator I could build.

Options

One design that I kept running into (including being incorporated into not only another of the QRPGuys antenna designs, but our very own G-QRP Sudden ATU!) is the N7VE SWR bridge. The basic design is a Wheatstone bridge with the antenna as one 'arm', and an LED indicator across the bridge to show an indication of the SWR. The brightness of the LED on transmit gives you the indication - the brighter the LED, the worse the match!

Now, this is all good, but I find it quite hard to tell the difference between a medium and very bright LED. This might be particularly pertinent in the field, where the nominal viewed brightness of an LED might depend upon operating conditions (such as in full sunshine?). Given I generally will not have an ATU in the chain with the antenna, as it is theoretically resonant on all the bands I'd be using, a single lit LED would not give me a huge amount of clues to actual SWR... I wondered if one could add more LEDs to give a more granular indication.

Some research

A bit of research turned up the TinySWR project. This uses a different SWR measuring technique (it uses a Bruene bridge), but does have 3 LEDs to indicate the level of SWR. In that design there are two further LEDs, which are configured as:

The 2nd LED is wired in series with another LED, so the extra LED forward voltage drop means it does not illuminate until the measured voltage has risen further than the illumination point of the first LED. The 3rd LED is wired in series with a Zener to raise its activation voltage even more.

Looking at the circuit board for the TinySWR, the 'dropper' LED for the 2nd LED is a surface mount on the PCB, and thus not actually visible when in use. In fact, it just happens to be an LED as it has a decent forward voltage drop. That felt like a bit of a shame to me, and I also wondered why not just use more LEDs in series as further droppers rather than use the zener?

OK, OK, so for the TinySWR the voltage values of the chosen LEDs and zener were carefully chosen to give a good indication of SWR. I'm not going to be so precise here...

The plan

And thus, my plan was hatched. I was not so concerned with getting a precise indication of SWR - that is, I didn't particularly need to know the exact SWR value. I just wanted a rough indication of 'good' or 'bad' or maybe 'really bad'. I took my single LED N7VE bridge build and

replaced the single LED with three strings of ultra bright large voltage drop (3.2-3.8v) LEDs to see how it performed. My strings were simply a single, double and triple LEDs in series with current limiting resistors.

Outcome

It works! I wired it in series with my Sudden ATU so I could deliberately de-tune my antenna, and also compare the LEDs with the one built into the ATU. There is a quite satisfactory gradual rise from 1 string to 2 strings and then the full 3 strings of LEDs lighting up as we de-tune. In my setup, with the Venus SW-3B transmitting on 20m I measured the following SWRs for when the extra LEDs lit.

Note

Due to the design of the N7VE bridge, no matter how bad the actual antenna, the transmitter will never see worse than 2.0, as the bridge will always present somewhere between 25Ω and 75Ω to the transmitter. This is a under-sold feature of the bridge I think - with the bridge inline your Tx finals are probably safe...

2nd leds, SWR 2.67 (with bridge, 1.46)

3rd leds, SWR 5.74 (with bridge, 1.73)

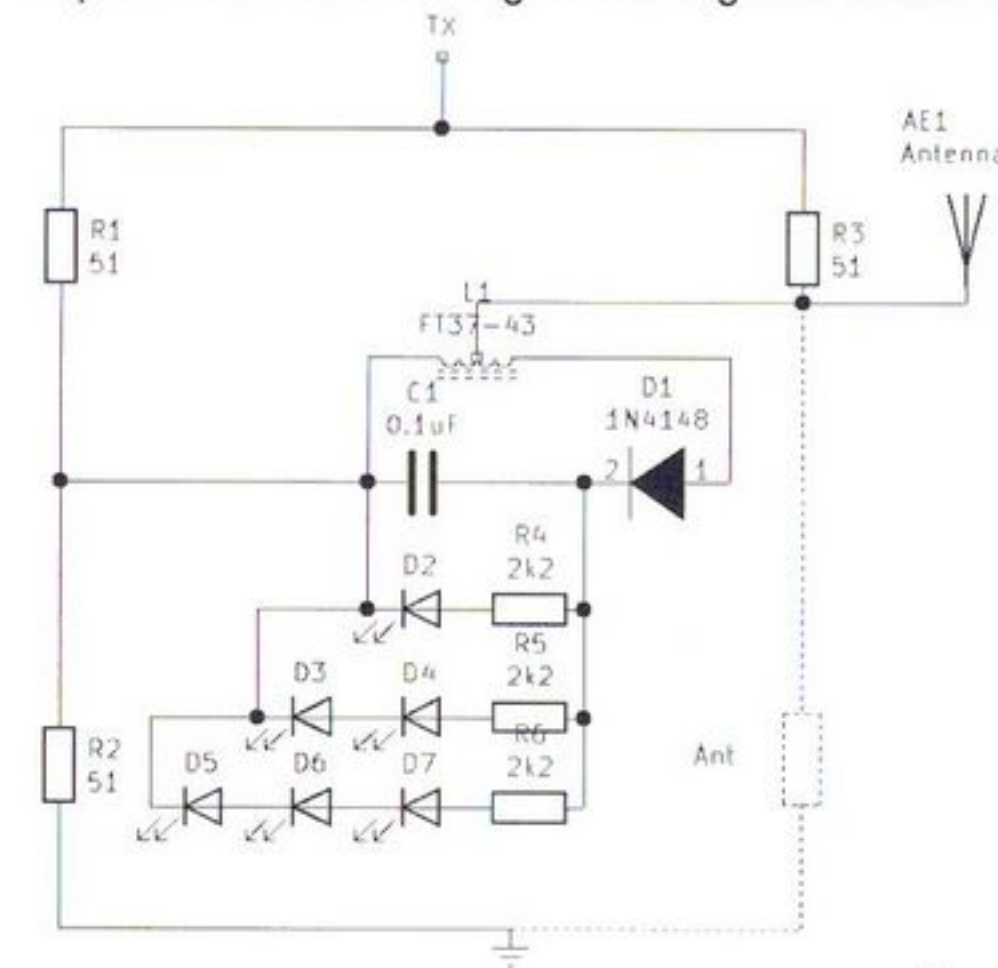
It is also easier to tune in the ATU with the extra LEDs than it is with a single LED. You can get a much better feeling for if you are heading in the right direction with the dials or not.

My build

For clarity, in my build I used some 'ultra bright 5mm green LEDs' from the *Pi Hut* outlet. I did a bit of math and bumped the inline protection resistors from around the 470Ω or 1k I'd seen in other designs to 2k2. The LEDs are still plenty bright enough with my ~5-7W transmitter, but I feel happier they might have a bit more protection from overload in a high SWR situation.

Here is my redrawn schematic, trying to show the N7VE more as a 'Wheatstone bridge' than some other schematics show - hopefully that makes it clearer how it actually works (as I spent some time staring at the originals to see where in the schematic the antenna actually sat in the 'bridge'). **Note**, there are a number of variations of this bridge, some with autotransformers, some without etc.

This is the version I am currently using. In the build there is a DPDT switch that sits between the TX and Antenna to allow bypass once 'tuned'. Another under-documented feature of the bridge is that if you leave it inline on a tuned antenna it will introduce a 6dB attenuation - useful maybe if you are trying QRPP?



N7VE modified bridge Schematic
1 LED good, 6 LEDs better...

Common Mode Choke Protects COM Port

Steve Bennett M0YYT

Having just completed a 20m half-wave dipole in my attic and trimmed it with nail-clippers for a VSWR of less than 1.1 at 14.074MHz I have used WSJT-X for FT8 and achieved QSOs all over Europe and the eastern USA with 30W or less. A few regions such as the Middle East seemed difficult to reach so I tried a quick tweak to the Tx power up to 50W and disaster struck. WSJT-X threw up error messages about virtual COM port failure, which could only, easily, be remedied by restarting Windows – obviously undesirable.

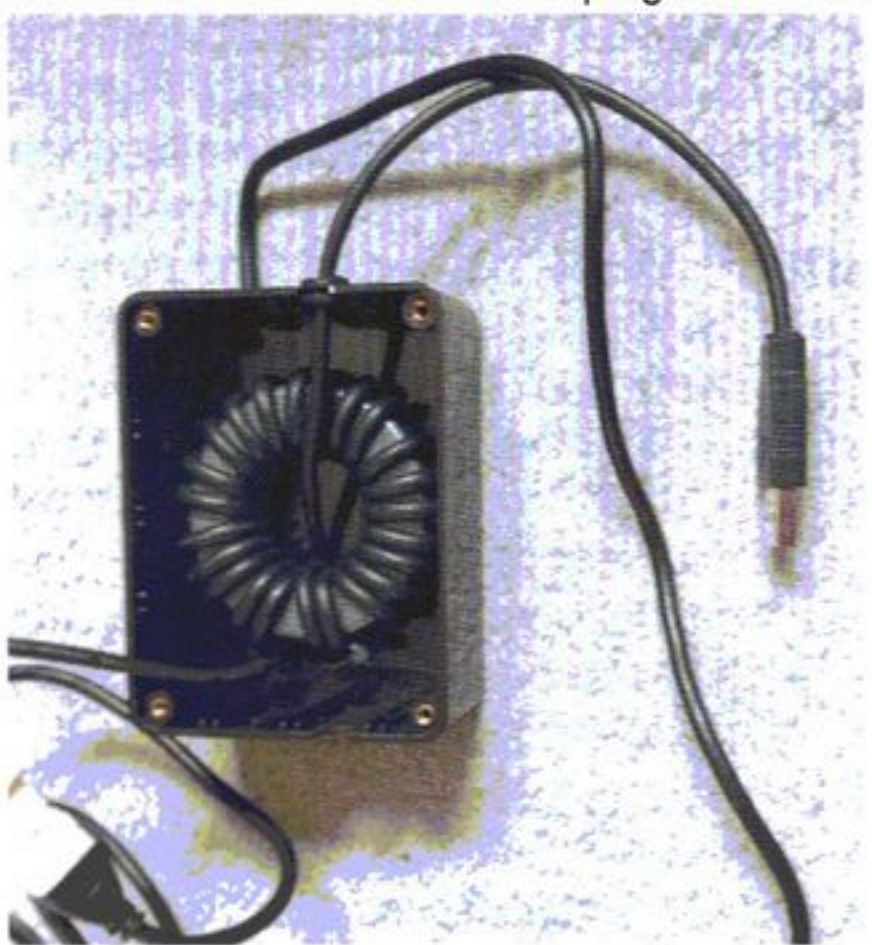
At this point I should say that I am building one of those RF earths for bedroom shacks using coaxial cable and a capacitor, but that's another story; so at present I have no RF earth but, with a low VSWR at 20m FT8 and an antenna feed-point common mode choke, that can hopefully wait – but I needed a quick solution.

My first idea was to use a 1500V USB to USB isolator, widely available on eBay to provide galvanic isolation – but it did not help at all, perhaps because tiny transformers are used to convey data and power from one USB port to the other which could be capacitively coupling RF between the two sides?

So what to do? I knew that any RF coupling would be common mode not differential, much like a coaxial feed to a dipole, so maybe adapting the concept of an antenna common mode choke to a USB cable might be the answer. I had a medium sized ferrite toroid to hand, an FT240-43, through which I wound as much of a USB A/B cable as would fit, adding a short extension cable to the male A plug and 'stuffed' the whole thing in a small plastic box to hide the scruffy bits!

But would it work? I connected my Icom IC-7300 to an active USB extension cable that reached back to my Windows 11 PC and set the Tx power to 30W and everything worked normally. I then spent an hour increasing the Tx power in 1% (1W) increments to see when the virtual com port would fail, which it had done previously at 35W. So, 36W came and went until reaching 80W I concluded that the problem had been resolved.

So for anyone experiencing virtual COM port failure with WSJT-X or similar software, with or without an effective RF earth, a USB common mode choke could be the answer.



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The Poor Man's 'Bout De Fil Antenna'

Alain F4IET email: alain@f4iet.fr

Why a Long Wire? I am a QRPp operator. As my only rig is my Master-Robert DSB trx, outputting the terrific power of 4W to 400 mW depending of the working bands.

My rig Master-Robert has been described in the Winter 2020 issue of *SPRAT*. With so little power my antenna setup is pretty important. Last summer I used mono-band resonant Elevated Ground Planes. These antennas are really efficient and despite my ridiculous power, they gave me a lot of DXCC points.

But! These antennas are fearsome on air, as is my XYL around the home. She didn't show much enthusiasm for having several Elevated Ground Plane antennas in our garden.

Last Winter I used a 121ft EFHW, multi-banding it, efficient, but requires small adjustments to be perfect on each band. And I am a bit lazy (ask my XYL, she will confirm this). So I was looking for a more effortless multi-band antenna. And so, I decided the Long Wire was a possible solution.

The Long Wire, yes but not alone.

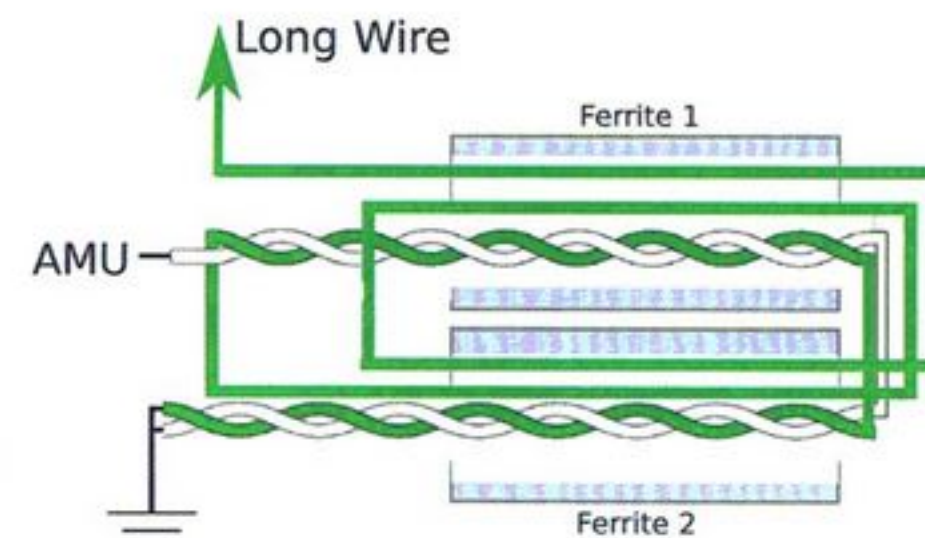
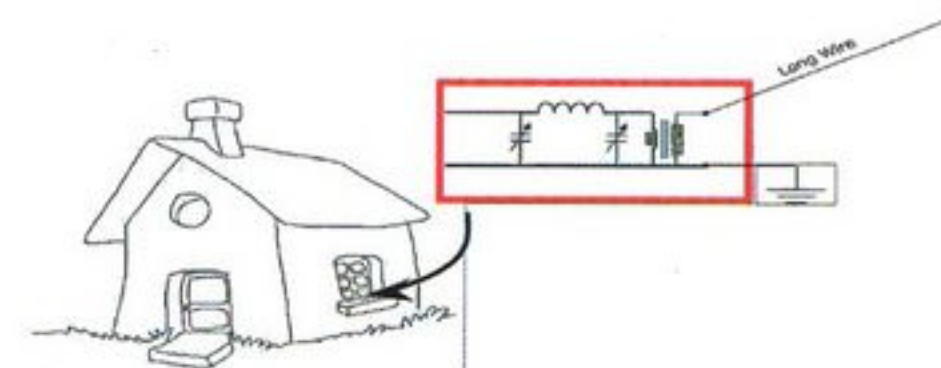
A Long Wire can be good, but requires an ATU for good efficiency. A major issue for me because I didn't own an ATU. And build one with these pricey high voltage variable capacitors was not ideal from my point of view. These devices cost an arm and more, and I still need both.

An alternative, was to build a small ATU, using cheap Poly Varicon's capacitors – much more sexy. I like the 'kiss' and cheap method. Problem! A long wire feedpoint often shows a very high impedance and so a very high voltage at the ATU. Not so good for cheap Chinese Polyvaricons.

Reading a lot of documents[†], I gathered that a 9:1 transformer between the Long Wire and the ATU could reduce the impedance a lot. Yippee! And of course, that ATU became an AMU because the Long Wire is not resonant. Some Nano-VNA testing plus tries and cuts confirmed to me that I was on the right track...great! So "The Bout De Fil Antenna" was born. Cheers!

The transformer

Of course with my 400mW, the efficiency of the transformer will be a major key to success. A lot of attempts promptly drove me to the right solution. Thanks to WSPR and my Nano-VNA, I quickly found that a binocular transformer was more efficient than a simple toroidal transformer. Even better, I found that such a core built with two coupled ferrite



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tubes were the most efficient. You can pick these big ferrite tubes at cheap prices or you can rescue them from old computer display cables.

The transformer has one turn through the two tubes for the primary, and the secondary will have three turns. The primary will connect to the AMU and the secondary to the Long Wire. A simple adhesive ribbon will keep the two tubes together. For QRP, the wire gauge don't matter. But, for more efficiency, the wires of the primary and of the secondary are twisted together for the first turn.

About the AMU I kept simple (Kiss, always). Two Poly varicons and a multi-taps inductance wound around a small piece of waste water pipe did the job! Yes I am living in the French sunny Southern and for my XYL the water pipe is a major point.

The taps are simply selected by a multi-position rotating switch. (10 positions) The π -design has been preferred to the T-design because it involves much less loss and avoids false tuning points. Also, a π -matcher flattens the SWR curve much more than a L-match design. With a so flat SWR curve, you will need to adjust the AMU at every band hop, but not inside the band. Just perfect for a lazy man, cool !

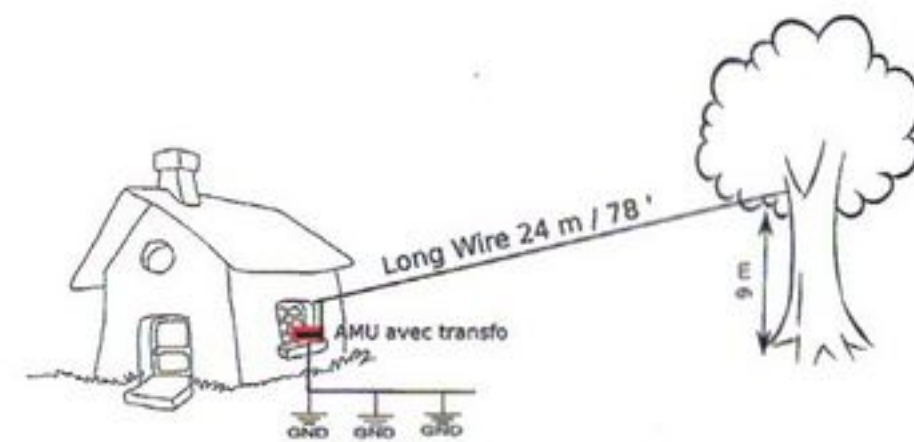
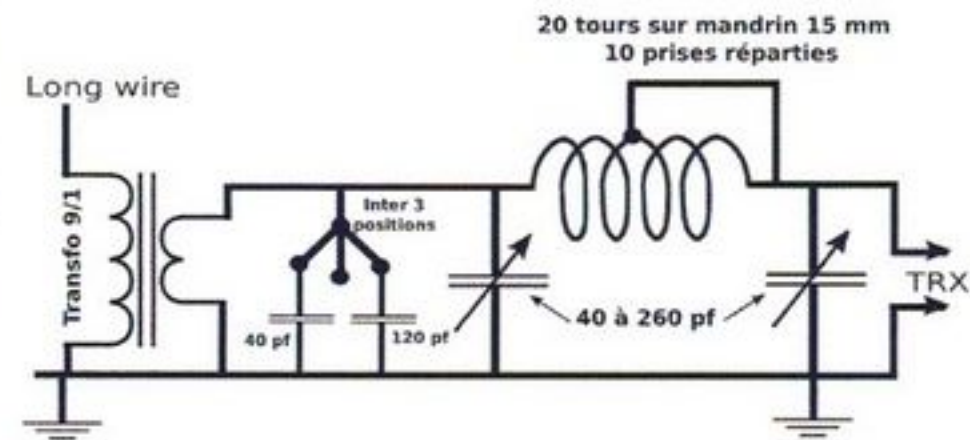
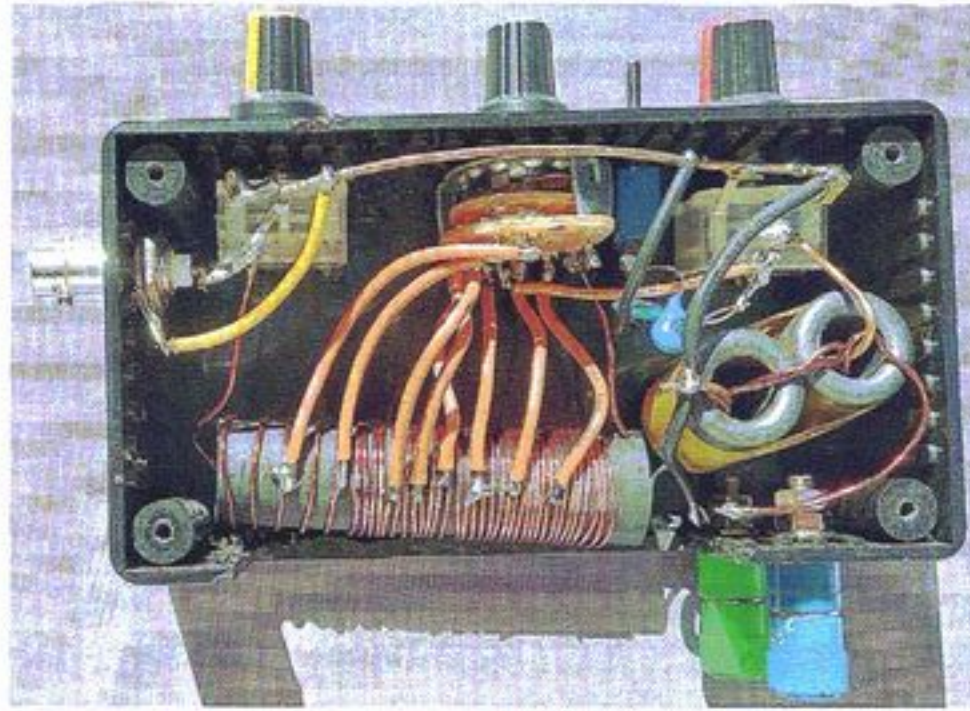
All these parts are built into a small plastic box 5" x 1.5" x 2.2". Ok, the box was not too big...

A 3-way switch allows the addition of capacitors in parallel with the input of the AMU, very useful for managing the 80 and 40m bands. The values of the additional capacitors will be defined by experiments with your own setup. It will depend on the length of the Long Wire and the height against the ground.

The Long Wire and the ground connections can be simply made via cheap Banana plugs, kiss method as I was saying. Yes you heard right, I don't use radials, but a small ground system. Only three small ground stakes (2') very close to the AMU. Of course for portable operations radials will be simpler to use. The closer the AMU is to the Ground rods, the better it will be.

Important: From my experiences, the AMU has to be connected directly on the long wire and on the ground rods. In other words, the AMU have to be on the Antenna end of the Coaxial cable, not at the TRX end of the Coaxial.

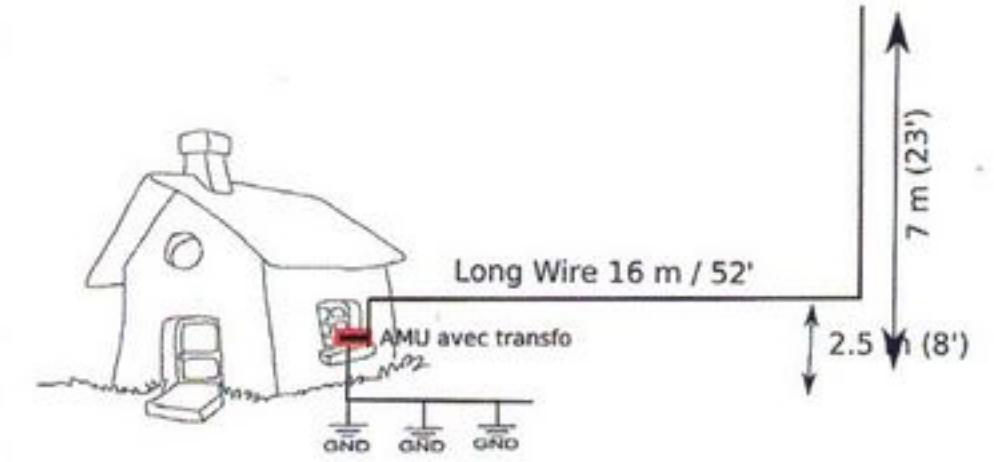
Long Wires setup met with the with



XYL 's agreement. Yes you read that correctly – because I have two long wire antennas ups.

One runs about 80' going from the shack window up to a tree. It's a bit of NVIS setup, very good for European voice QSOs.

The second one (52') has a horizontal part and a vertical part. The vertical part is simply pulled up by a cheap fishing pole. That one is really sexy for FT8 DX's on 20/17/15/12/10 m.



For changing over between the two wires I just swap the banana plugs, not too exhausting. The AMU is simply installed at a window of the shack and a 27" length of RG58 coax runs up to the TRX.

Important: A choke UNUN will be a good idea for avoiding some bad screen currents on the coaxial cable. Don't hesitate to try a lot of lengths, a lot of shapes. You will see how different shapes can bring so different QSO's. And all that is so cheap, why avoid fun for so little money and time.

Now to the costs. Please fasten your seatbelt:

Two big type 43 ferrite tubes:: 2\$ (Asia), 2 Poly-Varicons: 2\$ (Asia), one 3-way switch: 1\$ (Asia), Rotational 10(12?)-position switch: 3\$ (Asia), 2 female banana sockets: 1\$ (Asia), 2 male banana plugs: 1\$ (Asia), Plastic box: 6 \$ (Mouser). **Grand Total: 16USD**

Incredible, so much fun with so few bucks...

The results: The antennas work well on bands 40 – 10m with a maximum SWR of 1.5 easily achievable. In fact several band were close to 1.1:1 Ok, now it is your turn to play with the "Poor Man Bout De Fil Antenna", enjoy guys.

73 QRO Alain F4IET

‡ issue 09/2020 and Sprat issue Winter 20/21

** XYL is not so fearsome , 43 years of complicity...

*** Bibliography: ON5FM Transfo 1:9 Revue QSP Janvier 2013 et Juillet 2013, F8CRM Radio Amateur Magazine September 2010, G3BDQ Amateur-Radio April 1983, VE3EED SK perfect length for LW, AB3AP SARC Blog 24/01/2019, VK6YSF Blog July 15 2015

- The French sentence "bout de fil" can be translated as "a piece of wire". It is a very popular French expression. For example "un bout de fromage" is "a small bit of cheese". In old French "bout" was a rope. And "bout" is still used by seamen like a rope.

The George Dobbs, G3RJV, Memorial Trophy

Dick Pascoe email: Dick@g0bps.com

We are still looking for entries for **The George Dobbs, G3RJV Memorial Trophy**; we are not (only) looking for top drawer technical innovation, a simple kit conversion or a scratch built SPRAT circuit could be worthy winners.

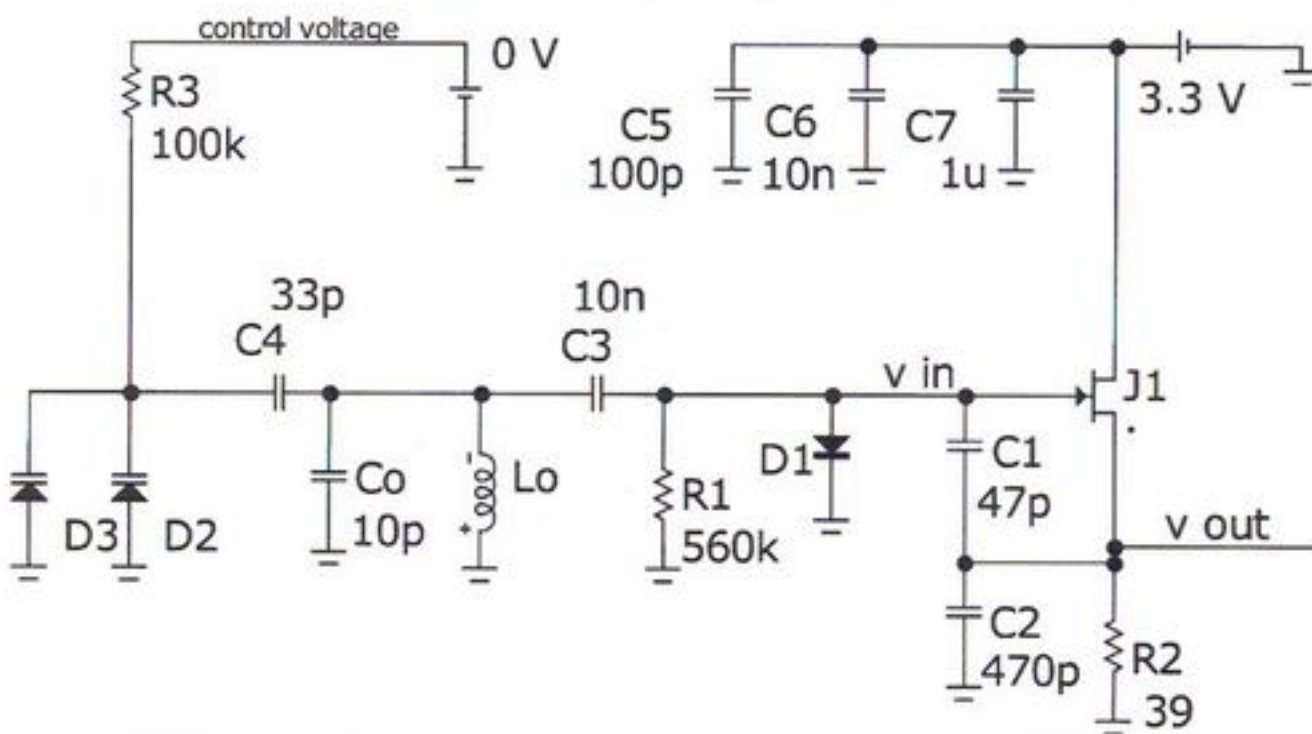
Entries should be sent to club secretary;
Dick Pascoe dick@g0bps.com

Colpitts VCO for HF bands

Marcello Donati I2DNM, & Andrea Insolera I2IAL

A Colpitts oscillator using a JFET in common drain configuration has been implemented. This circuit has been used as VFO (Variable Frequency Oscillator) for a PLL (Phase Locked Loop), so it contains also a varactor diode in order to change the frequency of the output sinusoidal signal.

All practical problems inherently this circuit will be analyzed in this note. As we said, the application of the PLL containing this VFO is aimed at the realization of the Local Oscillator for a HF receiver for 80, 40, 20 and 15m characterized by a 9MHz intermediate frequency, so it has to work at 12.5 to 13MHz, 16 to 16.2MHz, 23 to 23.45MHz and 30 to 30.45MHz. Consequently the VFO must oscillate over a frequency of almost three to one.



The schematics of the VFO is shown here in Figure 1.

The circuit is a classic and well known scheme, but perhaps not everyone knows its problems and limits that the designer might consider.

First of all we can consider the constraints to sustain steady-state oscillation at a certain frequency (Barkhausen criterion), defining a non-inverting amplifier gain A , and a feedback network attenuation β . They are

$$|A\beta| = 1; \angle A\beta = 0^\circ$$

For the Colpitts oscillator as in Figure 1, $A = V_{out}/V_{in}$ is the gain of the JFET J1 in non-inverting configuration and β depends even by C1 and C2. From the Figure 1, we have:

$A = g_m R_2 / (1 + g_m R_2)$ where g_m is the transconductance of the JFET. If we impose the condition $g_m R_2 = 1$, the gain value is $A = 0.5$ and consequently the feedback attenuation is worth $(X_{C1} + X_{C2}) / X_{C1} = (C1 + C2) / C1 = 2$ from which $C1 = C2$.

This is the classic design characteristics of the Colpitts oscillator. But it would be wrong considering it as the only one solution. In some case it is necessary increasing the feedback attenuation β value (changing the values of C1, C2); consequently the gain value goes down in order that the oscillation condition maintains also at the planned highest frequency. This requirement can be necessary as the internal Input Capacitance C_{iSS} and Reverse Transfer Capacitance C_{rSS} of the JFET couldn't reach a gain $A = 0.5$.

We've imposed $\beta = 11$ (value of C2 ten times C1) and consequently $A = 1/11 = 0.09$ approx. obtaining a stable oscillation also at 30MHz. The used N-channel JFET is MMBFJ309L of ON Semiconductor. Its datasheet declares that the values of its internal capacitances are $C_{iSS} = 5pF$ and $C_{rSS} = 2.5pF$. If we put and simulate the circuit with MicroCap, the starting

values of Drain Current I_D and Gate-Source Voltage V_{GS} when the JFET is switching ON are $I_D = 10mA$ approx. and V_{GS} is $-0.4V$ approx.

But the clamper effect of the D1 diode and C3 capacitor shifts the Gate Voltage at a negative value, so reducing V_{GS} . Consequently the gain of JFET decreases until automatically stabilizing at the value $A = 0.09$ approx. that correspond to $g_m = 2.6mmho$.

It's important to choose the ratio of C1 and C2 in order to permit that A value reaches surely this value having a good margin even at the highest oscillation frequency.

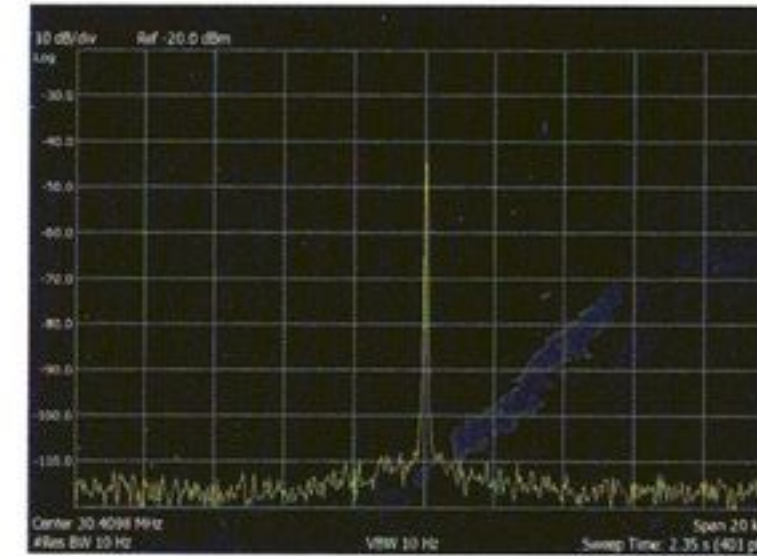


Fig 2

Other critical consideration regards the D2 and D3 varicap diodes. Normally these work to the reverse bias in order to give a junction capacitance that add to the L_O , C_O resonant circuit. But this condition couldn't be satisfied when the control voltage V is around 0V, due to the negative peak level of the sinusoidal oscillation. If the level is more than threshold voltage of the diode, this switches to the direct bias risking to overcome the limiting value of forward current. For this reason it is appropriate that a low value of the by-passing capacitor C4 is put in order to reduce the peak level of the oscillation voltage owing to capacitance ratio between C4 and (D1+D2) junction capacitance. Perhaps it would be better to find experimentally the C4 value rather to rely on the MicroCap simulator only.

A double varicap diode BB207 has been choice, obtaining a total variable capacitance between 190pF and 100pF with a 0V to 3,3V control voltage. This permits a complete implementation of all the planned HF bands.

All the components of the circuit are Surface Mounting Devices. A two-layer Printed Circuit Board has been used. A 4-position, 2-pole rotary switch allows to change the L1 inductance obtaining different resonant circuits at the four HF band defined at the beginning of this note. All inductances have been implemented using high Q toroidal cores T25-2 AMIDON.

Darlington JBT stage is also present on the board to guarantee a sufficient isolation at the Colpitts oscillator output and a 50Ω output impedance.

Measurements of the frequency spectrum and second harmonic level at the output of the Colpitts oscillator have been done with a Agilent CSA Spectrum Analyzer. Figure 2 and 3 show respectively the spectrum at $\approx 30MHz$ and the second harmonic at $-25dBc$. The noise around the carrier is characterized by a relative noise level $\approx -80dBc/Hz$.

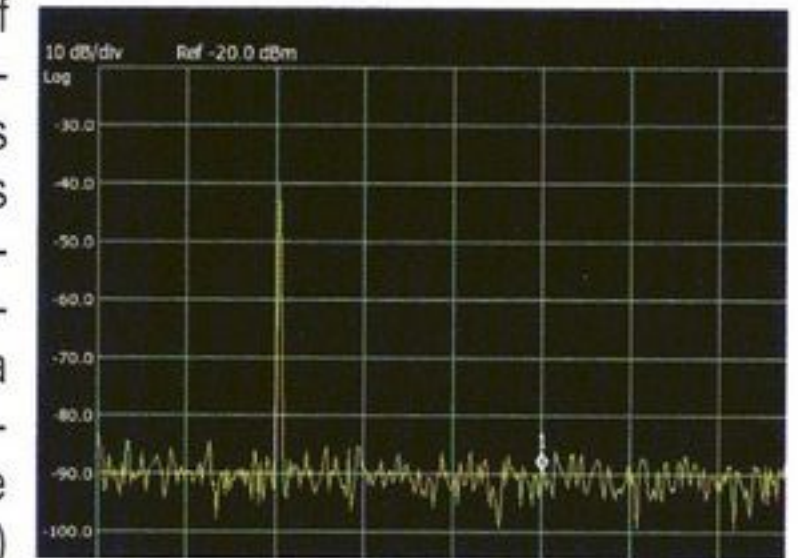


Fig 3

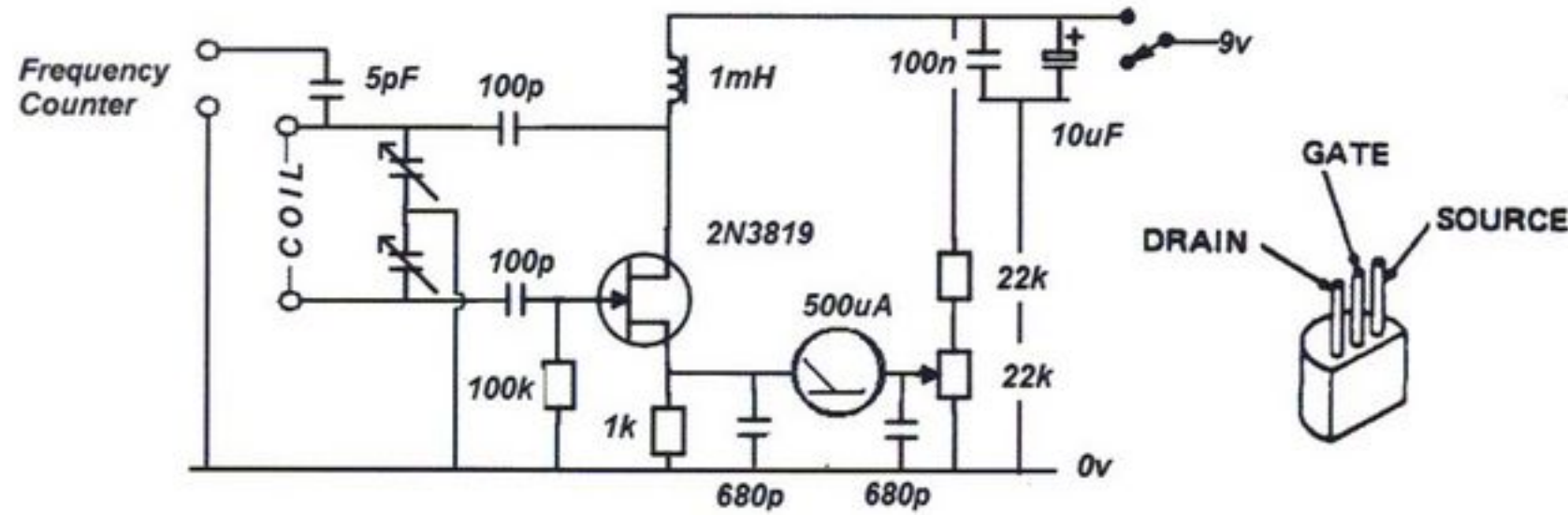


The VCO used for a LO synthesizer

emails: marcello_donati@libero.it, andrealuigi.miller@gmail.com

An interesting GDO

Peter Howard G4UMB



I bought this Dip meter, that someone had made, at a rally and the coils that came with it were also hand made. I had a manufactured dip meter that had some nicely made coils but I did not think worked as well.

So I scrapped that and used the coils and socket from it to modify the homemade one. You could use loud speaker 2 pin DIN Plugs and a socket instead and wind some coils on a 10mm dia felt tip pen body.

The variable capacitor looks like it came from a transistor radio. To use this without having to draw a complicated meter scale you will need a frequency counter to know what the frequency is at the dip point. They are tricky to use and some dips are not as deep as others but an instrument like this can be useful. The max oscillation frequency I got was about 45MHz – more than adequate for HF. The coils measured 280uH, 10uH, 6uH.



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Table-top support for my QRP-Rig

Karl-Olof SM3CLA

I read with interest DF3OL's article in *SPRAT* issue 195 about a table-top support for his ICOM 705. Just a week earlier than reading that my new SDR HF QRP transceiver had arrived from the far east.

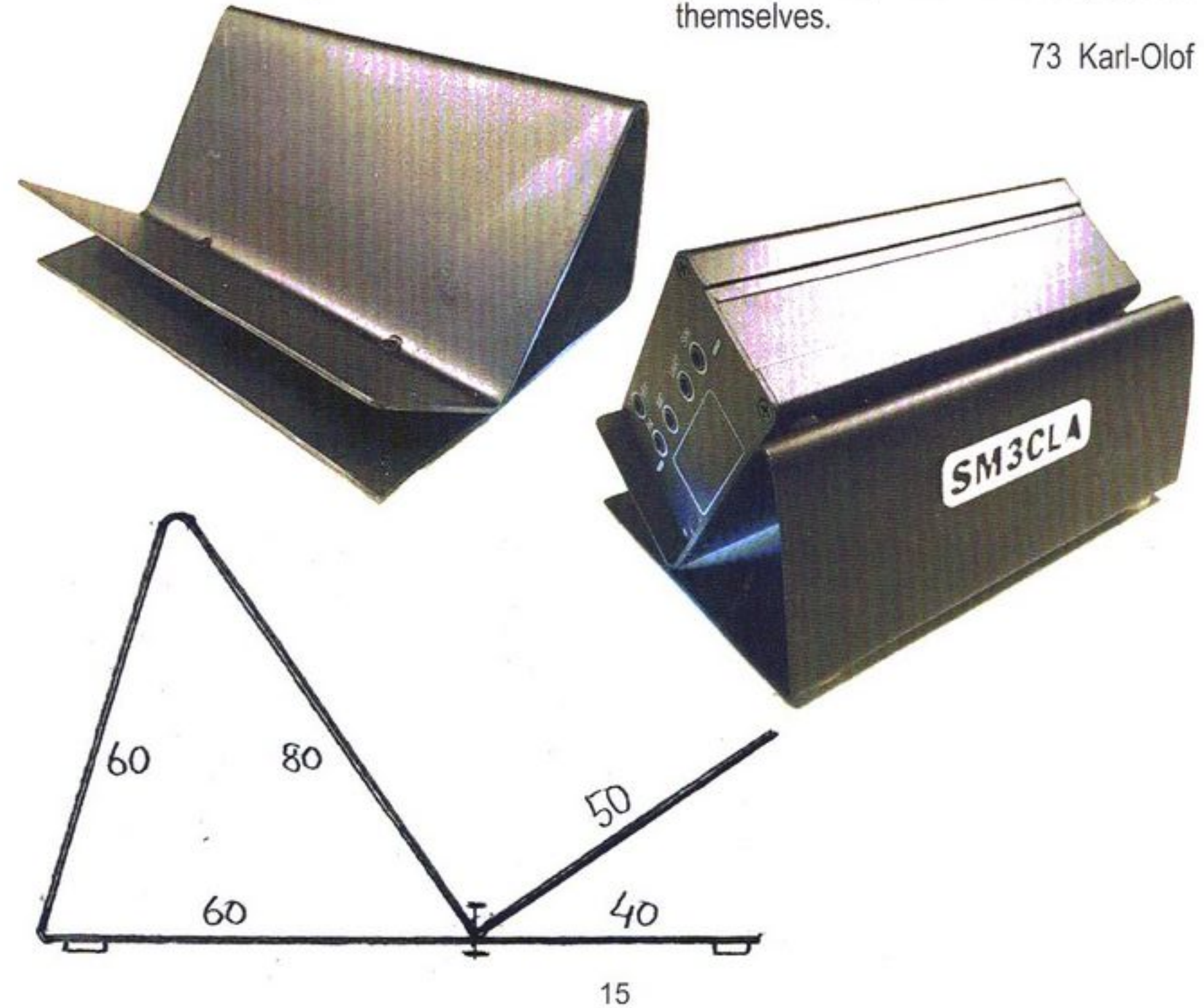


Jürgen's article gave me the idea to build a support for my new little station. And here's how I solved the problem.

Unlike Jürgen, I didn't use wooden pieces, I opted to work with a sheet of 2mm thick aluminium and some work with the vice.

The rig now stands steady to-hand on the table and is very easier to handle. You can now just let your wrists rest on the table! The pictures should speak for themselves.

73 Karl-Olof



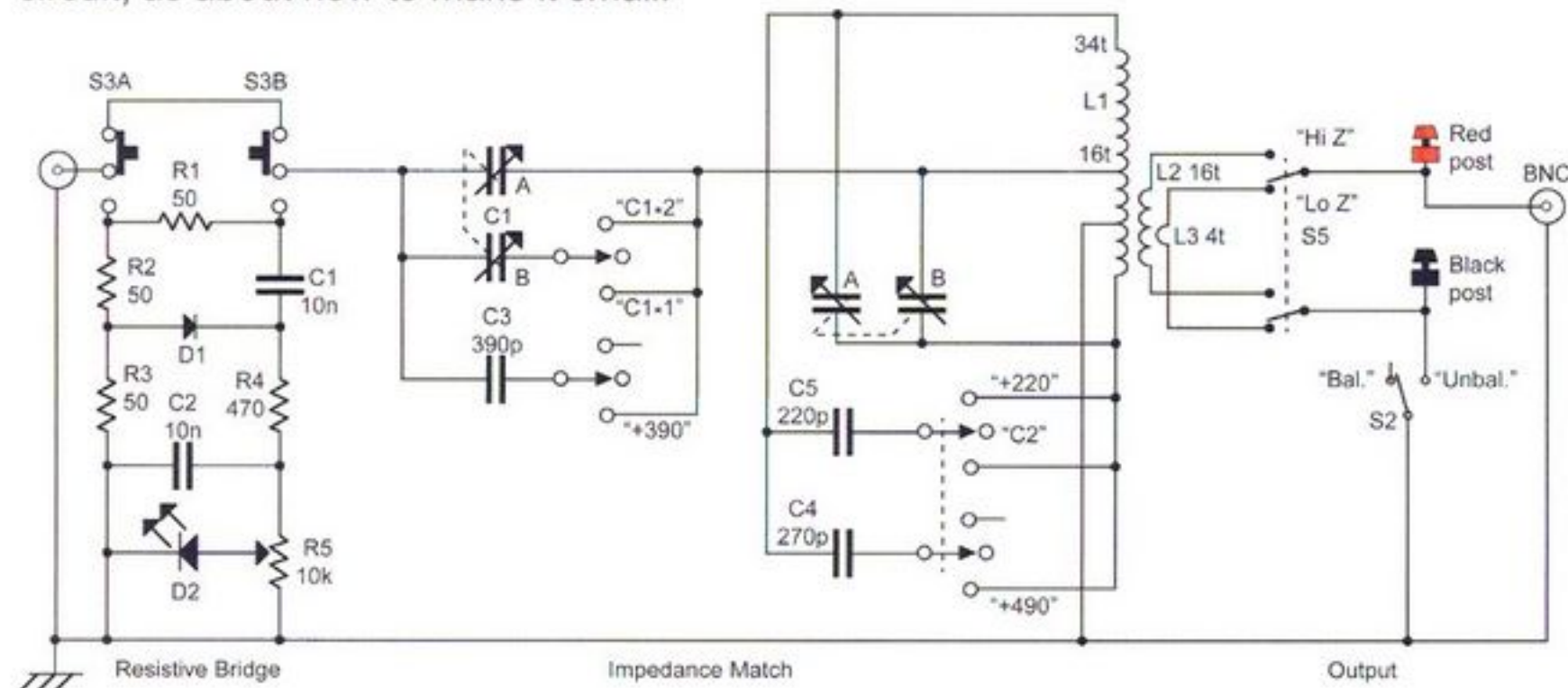
15

ZM-4 ATU in a Tin

Scott VO1DR, email: scott.schillereff@gmail.com

For 'p' field operations, I desired a small versatile ATU. The ZM-4 (from QRP Projects) is a great design, and reviews were good, but I wanted to try shrinking it into the holy grail of portable enclosures – an Altoids tin! Here is my story and successful outcome.

Fig.1 below shows the ZM-4 circuit I built, modified slightly from the original with a simpler resistive bridge, and a smaller transformer toroid. This article is not so much about the circuit, as about how to make it small.



The Outsides

Fig. 2 below shows the finished ATU. Key points are:

- all connections/switches are external, so a plastic case (food container or Pelican type) would help protect it while travelling;
- to save space, I omitted an input BNC connector. Think of it – you always need this cable, so why not hard-wire your jumper? Solder joints are less lossy than mechanical BNC fittings, much smaller, and you can't lose the cable.
- The ATU is built "through the bottom" of the tin (lid down). If I did this again, I'd build it with the lid hinges on other side (neater).
- Toggle switches take up less space inside than slide switches.
- I used an oversize knob for C2 (at right; most sensitive adjustment)
- After all metal work was done, I painted it with antique bronze spray paint; white Dymo letters.



The Insides

Fig. 3 below shows the insides of the ATU. Key points are:

- It's busy in there! Careful layout and "dry fit" are essential, so things fit in, and controls look good outside. I drew a full-scale layout of the tin and all components before I made a single cut.
- The assembly on the far left is the resistive bridge (SW3, R5 trimmer (white), and 3W resistors stacked vertically to save space.
- RF In is by RG-174 coax through a small grommet underneath the R5 trimmer (there would be no space for a BNC connector here).
- C1 (left) and C2 (right) are shown at top, with A and B sections.
- The T102-6 toroid (yellow) was a tight fit; could have downsized. This toroid is stuck with bits of double-sided carpet tape to a green perf board base (screwed to tin). The tape rigidly mounts the core, and the perf board allows core to be removed for turns adjustment.
- SW1 is dark blue to left of toroid. SW5 is light blue to right, and SW4 is dark blue above that. SW2 is small slide switch in upper right (hot-glued in; this could be smaller).
- I cut unused threads off the binding posts inside to save room. Need to file burrs off cut ends so nuts easily thread on.
- Electrical tape on inside of tin lid is to prevent shorts at switches.
- Use heat shrink tubing to insulate wires and connections.
- I made rectangular holes for slide switches by first drilling with a round bit slightly smaller than opening, then hand-filing with small jeweler's files. The BNC hole was made with an initial 1/8" hole, then 1/4" hole, then reamed with hand reamer for perfect fit.
- Carefully file and sand off all rough edges after metalwork, check fit of all components, then paint outside. Mask all holes from inside with painters tape to avoid spray paint entering tin.
- If you solder to the tin, keep it hot and quick; it will blister the paint.

This build is not technically difficult (like shielding a VFO), but mechanically challenging - every morsel of space counts. It mainly takes planning, careful layout, and patience (metalwork; waiting for paint to dry!). I recommend go slow and check each connection for continuity and against the schematic. In the end, you'll have a great little ATU for your field kit that can tune up a bed frame! A ZM-4 in an Altoids tin is indeed "curiously strong".

72/73

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5W? Telling The Truth!

Tom McQuiggan, M7MCQ, email: m7mcqio83ro@gmail.com

Life is too short for QRP I've heard it asked said times. I'm sure some people think QRP operators must be on a shoe-string budget and have no choice but to buy a low-power radio, but that's absolute tosh. Personally, I've owned some of the best base-stations available on the market and always ended up selling them on. Sure, it's nice to have a big transceiver in the shack with hundreds of buttons, dials and knobs and a huge screen, but it's not really necessary is it?

Although my license restricts me to 10W, who's to know if I use a 1000W Linear to reach those DX stations? Me!! I just don't feel the need for more power - I love QRP!!

I find it much more thrilling to obtain a DX contact using 4W than 400W. In fact, it always makes me chuckle when operators tell me they're "only running 100W" and then I go back to them and declare my 10W or less.

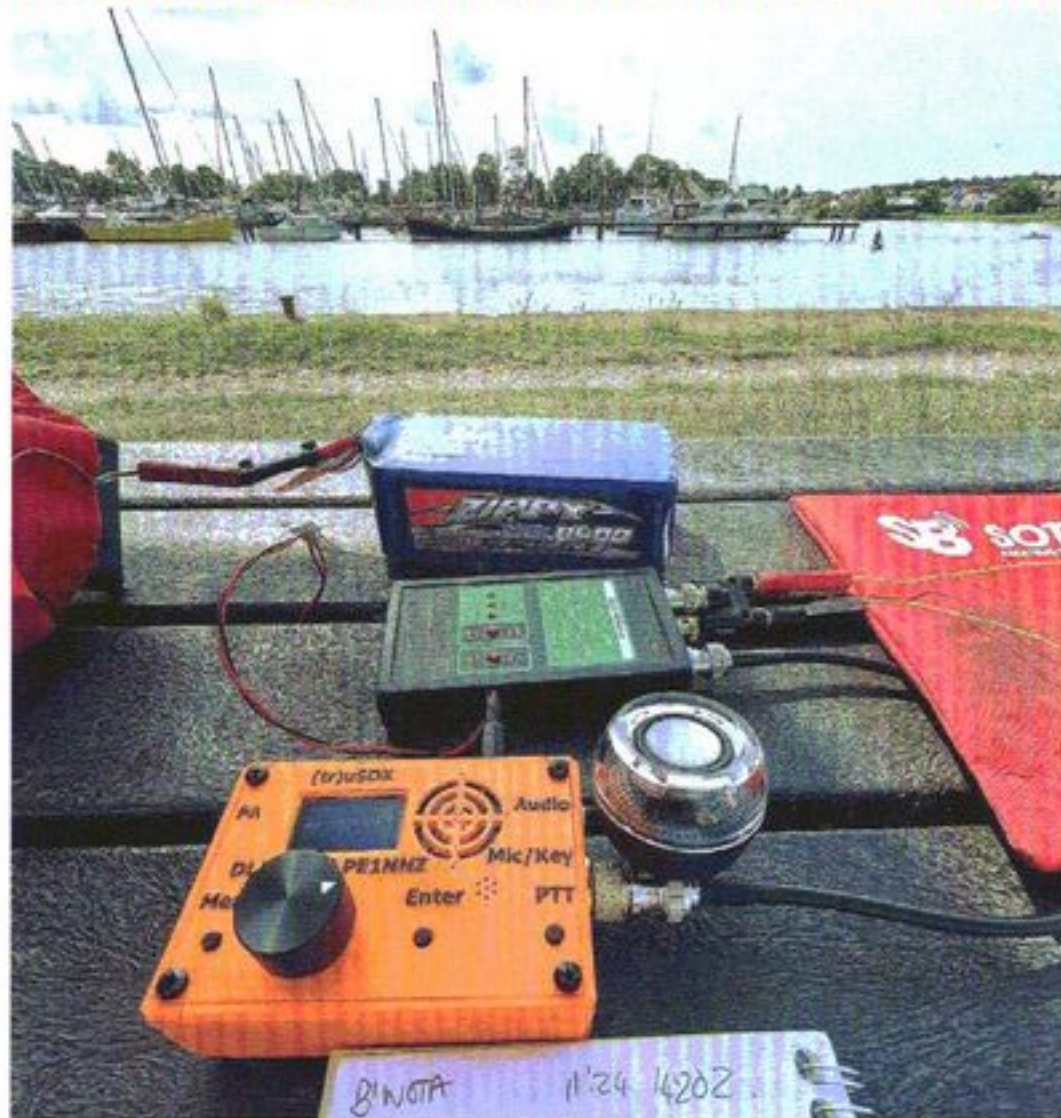
I have to admit though, most of my radio time is not spent in the home shack - it's spent in the great outdoors, so my perspective may well be different to others. People regularly mock the idea of working QRP. I see it on various internet platforms, on-air, at radio clubs and even (quite surprisingly) in magazine adverts! There are even Badges, Cups and T-shirts available to help reinforce the idea that QRP is a bit of a waste of time.

So what's the problem? Well let's not forget that in most cases it's just a bit of humour! But like any joke which is repeatedly aimed at a particular group, it can become a little tiring - especially when you keep hearing hams talking about QRP on the radio as though there's something a bit odd with low-power operators.

When I mention that I made a contact with someone thousands of miles away using low power, they smirk and imply that I'm lying. Well, apart from the fact that I'm only licensed to use 10W, I actually prefer to use less when possible!

I've made SSB voice contacts with people 7,000km away using just 2.5W and got 55 reports from them. It makes me chuckle when listening to QRO operators from my neighbourhood struggling to get a contact logged with someone and then I manage to do it with my little IC-705. It's even more amusing when I know that they're using a monster antenna and I'm using a portable dipole or a random wire thrown up a tree.

If people want to use 100W, 400W or 1500W, then that's up to them. I don't think any less



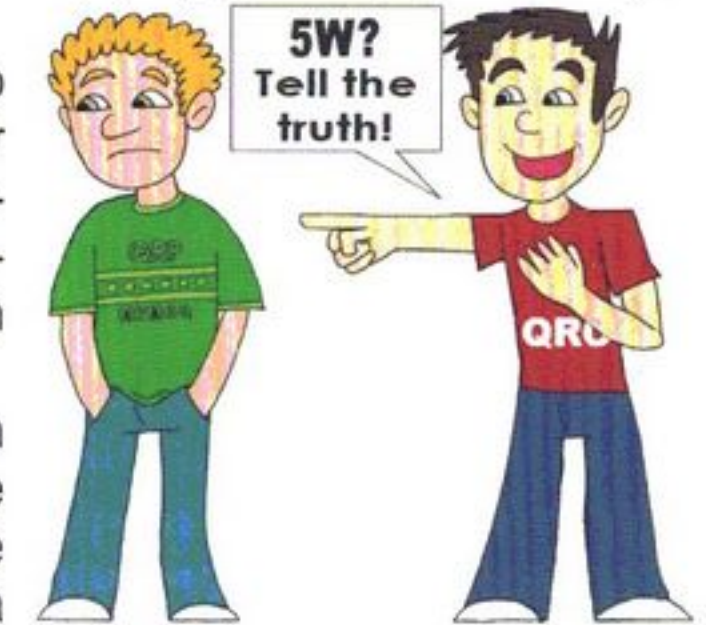
of those operators - they've paid their money and chosen their preferred operating method just like I have. For me, QRO is like fishing in a bucket - it gets boring real soon.

I know only too well that sometimes 10W just won't get you where you want to be and in my mind, I just think "I need to get to a higher location or a better take-off point". Or I need to improve my antenna. The harder I have to fight for a contact, the happier I am when I get it. Getting the station set up optimally and in the right location is my "power". And it all ties in with my enjoyment of experimentation and spending time in the great outdoors.

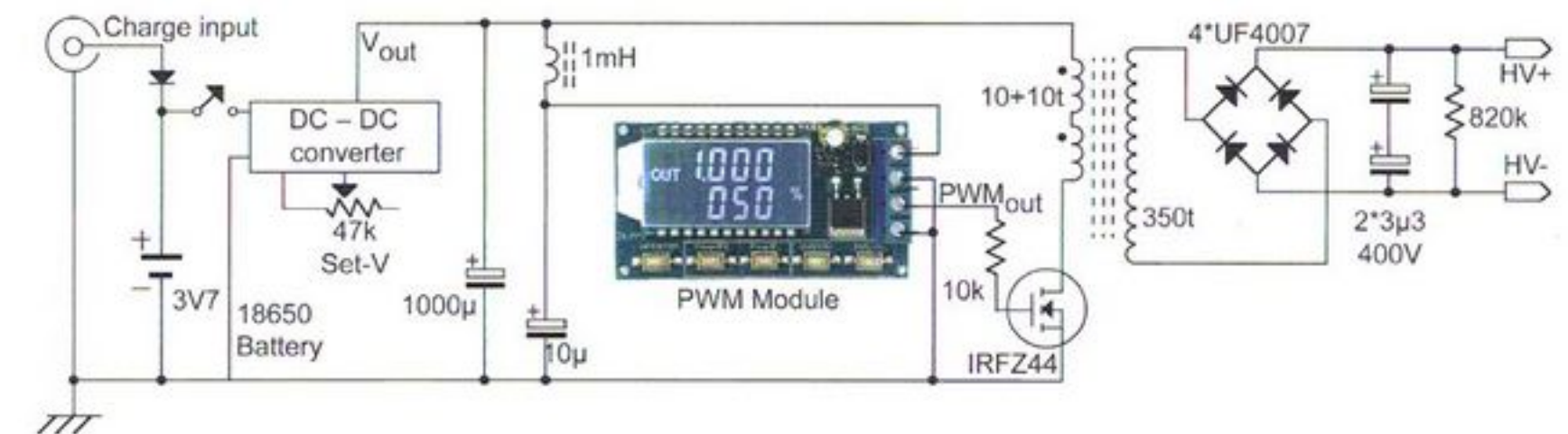
Thankfully, my wife is also happy to go out with me for the day. We prepare a picnic, choose somewhere to go and while I play radio she can enjoy a good book, walk the dog or just chill out for a few hours.

Back at home, I spend very little time in the shack to be honest. Most of my time is spent with my IC-705 or (tr)uSDX in the garden or in at my holiday home connected to a magnetic loop. If conditions are particularly bad, I switch to weak-signal modes like FT8 or run some WSPR tests.

Discovering GQRP has given me some comfort in knowing that there are plenty of other operators like me who choose to use low power and love the challenge that QRP brings. I don't want people to think I have a chip on my shoulder, but I can't help feeling that low-power operators often have a better understanding of how to get the most from their station and are much more focused on efficiency rather than getting someone in their log at any cost. So let's cut out the "Life's Too Short" jibes.



Mea Culpa!



In page 12 of *SPRAT* issue 195, the circuit diagram that was published unfortunately contained two mistakes. The 1mH choke was shown in the wrong position and the MOSFET was given the wrong identification. An edited and corrected circuit diagram appears above.

My apologies to Richard G0VXG and readers for these errors.

A more metric PAC-12 build

Graham M7GRW Email: graham.whaley@gmail.com

In my grand plan of radio, somewhere hopefully in my future, is some portable operating. I've never quite managed to get there yet. I have appropriate rigs, a QRP Z-match tuner, batteries and some wire antennas, but have not yet quite found the moment to 'get out there'.

I, like many hams, like playing with antennas. Due to general portability and space constraints, loaded verticals were on my interest list. I mentioned this to a (freebander) friend, and he dug out a telescopic whip and handed it to me. Well, now I had no real excuse not to look into them.

A PAC-12

I looked around at options, and settled on building a PAC-12. This is a mid-loaded vertical. As far as I can tell, the original PAC-12 design came from James Bennett, KA5DVS, and was detailed in Issue #8 of the NJQRP Homebrewer magazine[1].

Nicely, the instructions are downloadable from the NJQRP site[2], and can also be found as a PDF on the net. Pacific antenna (now QRPkits?) did sell the antenna and kits at one point, and their construction documents[3] may also be helpful.

The only downside is, the parts list is quite 'Imperial', being from the LHS of the pond. I used what I could find in the UK., and below are a few details of alternative parts and sources.

If you are going to undertake a build, do reference the original documents - I won't be giving details on coil calculations or duplicating construction notes here.

The whip

The whip my friend gave me was not really a 'radio whip'. He, or somebody, had figured out a cheap way to get a 2m whip was to buy a 'tourguide flagpole' from one of the internet sites. This gets you a 2m whip fixed to a rubber/plastic handle for around £7 or so, which is substantially cheaper than you might find a dedicated radio whip. The downside, and of course there had to be one, is that there is no threaded fitting on the base of the whip!

First then, we need to get the whip into some usable form. You could build a converter as per the original plans, but I found I had an M10/M8 coupler/converter where the M8 end fitted over the end of the 'nub' of the whip, and that a piece of 15mm copper pipe could be made to fit over both the coupler and the base of the whip.



Left:
Coupler components

Right:
'Dry' fitting the coupler

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With a bit of jiggling (OK, I 'eased' the coupler into the end of the 15mm copper pipe with a soft mallet, and you need to cut some slots on the other end of the 15mm pipe to get a snug push fit over the end of the whip...) and soft soldering, we end up with an M10 socket on the bottom of the whip. I will note, this is a bit 'overkill', and fairly hefty. If you can find a lighter-weight solution then that might be preferable. I am very happy with the mechanical robustness of this solution though.



Coupler soldered up

M10 too big



M10 to M8 converter

As the M10 bolt on the base of the whip is 'too big', we'll need to reduce that. Working with M10 throughout the build would just add too much more weight. Thus, I made myself an M10 to M8 coupler. You can buy these, but they are expensive for what they are, and I was feeling impatient. I silver soldered an extra nut onto an M10 bolt, then drilled and tapped an M8 socket into the head. I did this by hand, and it is not quite straight! Next time I'll use the pillar drill or find a friend with a lathe to do a better job!

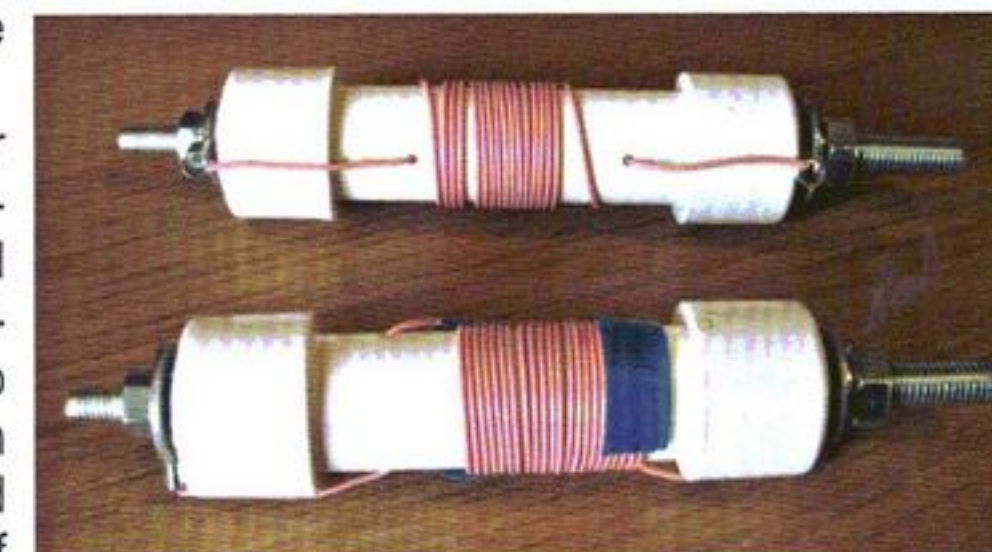
The coils

A key part to the build are the plastic pipes and endcaps for both the coils and the feedpoint. In the original document this calls for PVC 'risers' and endcaps, which I believe are threaded 'schedule 40' pipe. That can be quite hard to find in the UK., and when I did find some it was either rather expensive, or the postage costs were more than the pipes!

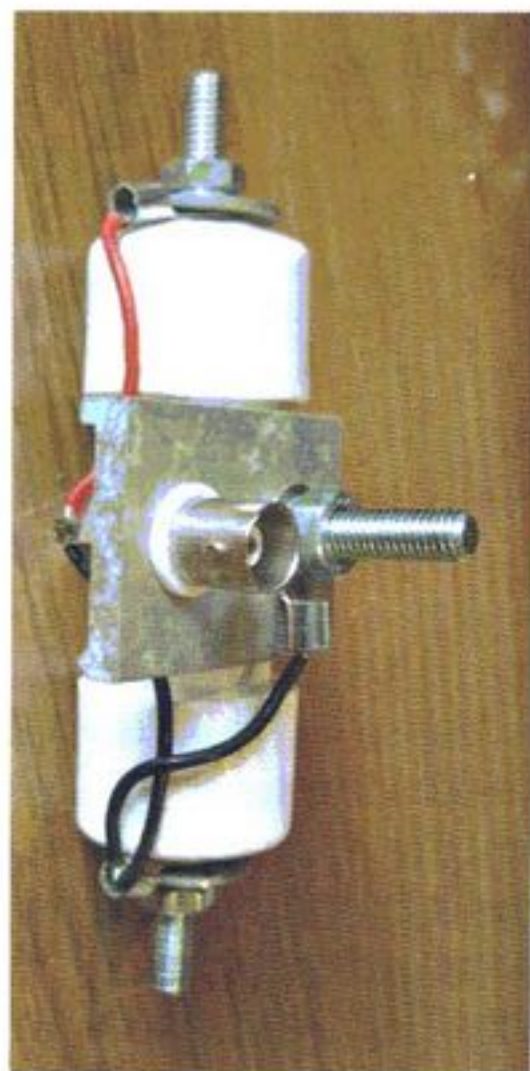
Eventually I did find a nice supplier who does thick PVC pipes and endcaps. They do them in both metric and imperial, and also do a more UV resistant 'Furniture Grade' pipe. They also do the pipe in shorter lengths which greatly helps on the postage! I ordered some 1/2 inch pipes and a bunch of endcaps. I can happily recommend the Plastic Pipe Shop[4].

Now, the endcaps I got (which were not the furniture grade ones - mea culpa!), were not quite flat on the ends, but slightly domed. I thus added some extra internal and external washers to help even that out and try to keep the threads parallel with pipe sections. This seems to have worked quite well.

Note, on my coils I have an M8 bolt on the 'top' of the coil, and an M6 bolt on the bottom. These correspond with the M8 socket on the bottom of the whip and the M6 couplers on the extension rods (see below).



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Feedpoint

Oh, whilst I'm here, I should explain why I am using pink hookup wire! Recently, after ooh, 35 or more years, I was back at my parents when I went searching for my old radio and electronics gear in their loft. Part of my haul included a number of reels of hookup wire, including a couple of kilograms of pink hookup wire. Well, waste what want not - guess what my antenna experiment wire will be for the next few years!

I used the same pipe and endcaps to make the feedpoint. I had some moderately 'industrial' looking BNC connectors already, and found a piece of handy aluminium plate I could shape. I left the main through-bolt over-long and connected it to the ground side of the connector so I can use it for attaching radials in the future.

I will note here, so far I have the endcaps merely push-fitted onto the pipes. These pipes are not threaded, and if you wanted to be super robust you would probably use real PVC pipe-weld to weld the endcaps on. So far I have not needed to, the endcaps are a tight fit, and once pushed on hard are quite hard to pull off. But one day when I am satisfied with the build I am likely to drip some superglue down the sides of the caps for extra security.

Connecting rods

The aluminium connecting rods were fairly easy to make. I sourced some 6mm aluminium rods (4x 305mm) from the usual internet sites along with some m6 coupler nuts. I then cut M6 threads on the rods, and sharpened a spike onto the bottom of one for sticking into the floor. They are a bit of a loose fit into the couplers, but I fancy that is more my inability to cut threads with a cheap set of dies than it is to the basic idea.

Storage and transport

After all this building, the thought of how to safely transport this antenna came to mind. It took some surfing to try and find a case that would accommodate the now 33cm whip, the connecting rods, the coils and feed point pipes along with any necessary coax, radials and guylines...

After a couple of not-so-fruitfull hours of surfing, finally I got a lead. Eventually I figured out that fishing 'bank stick' bags were ideal. They are made to hold a few metal rods and additional bite detectors etc. I settled on the NGT Buzz Bar Bag 520[5] which not only has two separated sections, one for sticks with elastic, and one that has velcro loops that hold the coils fairly well, but also has a couple of external pockets ideal for holding all the cables and guylines:

The case is also lightly padded, and everything feels fairly good in it.

Performance!

Well, sad to say, I've still not met my goal of portable operating, nor has the weather nor my time be kind to me, and I've not gotten to test the antenna in earnest yet! The nanoVNA SWR sweep looks promising though...



Cables in case



Coils in case



Rods in case

References

- [1]: http://www.njqrp.club/data/qrp_homebrewer.html#ISSUE%20#8 "Issue #8 of the NJQRP Homebrewer magazine"
- [2]: <http://www.njqrp.club/pac-12/index.html> "NJQRP site"
- [3]: <https://www.qrpkits.com/pac12.html> "construction documents"
- [4]: <https://www.plasticpipeshop.co.uk/> "Plastic Pipe Shop"
- [5]: <https://ngtonline.co.uk/shop/luggage/buzz-bar-bag-pouch-for-carp-fishing-bite-alarms-bank-sticks-rod-rests/> "NGT Buzz Bar Bag 520"

K3 For Sale
Martin G0MVP email: mjisted@btinternet.com

Details of the transceiver are: that is was bought brand new from Walter and Stantons, it's the QRP version, in very good condition, though there is no ATU or add-on filters.

It comes complete with box and manual along with the DX cover. I'm selling it as described for £1300. If you're interested, then please email me at: mjisted@btinternet.com

for more details



Photo for illustrative purposes only, courtesy of the internet.

Many thanks
 Martin G0MVP

VHF Manager's Report

John Beech G8SEQ e-mail: john@g8seq.com

The K4ERO antenna revisited.

I built a 4m version of this omni-directional antenna for portable use. John Stanley's original design (John Stanley K4ERO QST, April 2017, p29.) doesn't lend itself to great ease of transportation. Mine does because it folds flat.

The original design had two cross-arms, top & bottom with wire rectangles strung over them. My design has two frames reminiscent of window frames such that one frame fits inside the other.

The frames have a groove machined in them with a circular saw. The wire chosen was PVC covered multi-strand that was a press fit in the grooves, (about 10 SWG o/d). The dimensions of the frames are chosen such that the size difference of the loops is maintained to preserve the phase shift necessary to generate the omni directional radiation pattern, which is horizontally polarised.



I used half-housing joints and Gorilla glue at the corners and no screws. Because it folds flat it can be easily transported on roof bars or inside an estate car or hatchback. You could even carry on your shoulder it up a mountain if you are feeling fit enough as it only weighs about a kilogram. I can't say the same for the poles I used which are ex-army fibre glass; lightweight aluminium ones would be better. See photos.

Antenna Maintenance.

I wonder how many of us regularly service our antennas? I suspect not many of us. I have in the past done some preventative maintenance to ensure my antennas are working at optimum efficiency. In my later years I've become lazy and have adopted the old maxim "If it ain't broke don't fix it".

Part of the laziness is down to old age and infirmity. I'm 74 years old now and relectant to be running up and down ladders (I don't have the luxury of a tilt-over tower.) Most of my antennas are attached to chimney stacks or other brick work. This keeps costs down and circumvents local planning regulations.

Anyway, having been asked to have a look at the antennas setups of two of our local club members, with a view to repairing them, I decided it was time to keep my own house in order. So, I've been checking mechanical aspects such as checking rawlbolts for tightness and cable ties keeping feeders in place. The latter go brittle and disintegrate. Avoid using white ones as they don't like UV exposure. Black ones fare better but they don't last forever either.

Keeping a record of VSWR readings, even if only a mental one, will give an indication of the setup's electrical health. BUT be wary of very low VSWR if it was higher when you first put the antenna up. This can be indicative of high feeder losses. Most VHF/UHF antennas use aluminium rods/tubes often with brass or nickel plated pinch screws to connect the coaxial cable.

These should be coated with liberal amounts of grease such as vaseline as a guard against corrosion resulting in high contact resistance. Do not use "Copperease" as copper in contact with aluminium is a recipe for corrosion. If you use wire elements, check soldered joints and any strain relief you have used. I use heatshrink and/or self amalgamating tape to reinforce and protect soldered joints.

For homebrew UHF antennas I have used copper brake pipe for the driven element with the coaxial cable soldered directly to the copper element, BUT I ensure the copper has no contact with the aluminium boom. I also use Vaseline on any connectors outside the shack before wrapping them with tape. This stops water ingress and subsequent corrosion of the electrical mating surfaces.



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Tel. 07858 777363

Valve QRP Report Summer 2023

Colin Turner G3VTT email: g3vtt@aol.com

Hello to you all and welcome to this VQRP report which will be my last.

Julian **G4ETS** has been aided by **G3YVF** and was active in the last event. Being a keen reader of VQRP he wanted to join in and so he started building a Paraset. He had plenty of help from folks with donations of crystals, support and advice and he was greatly encouraged by many. He bought an HRO from **G3YVF** who transported it to Tilbury, giving Julian a 340 mile round trip from home and he put the Paraset and HRO on the air to good effect working **G4ALG** in Lydney on 7020 KHz receiving a 558 report.

He suffered the usual QRM during his session despite being able to see Steve's QTH across the River Severn and it was his first valve to valve QSO since 1976. The next day he put out a CQ call and worked **G4AQS** in Bedford who recognised his characteristic 'Paraset Chirp' receiving a 459 report. Since then he's started on a two valve 6V6/807 design so we shall be hearing him again soon.

Chris **G3XIZ** didn't break any records but had an enjoyable time in the July event. He found activity low but as he says the summer events are never well supported and the recent gales have taken their toll on antenna systems. He managed 14 contacts using his eight valve receiver 9 of which were with other valve stations including **G3TYB**, **GW3UEP**, **G3VTT**, **G4ALG** and **G4AQS**.

The modifications mentioned last issue have been fitted including an audio filter, preselector and the 40m band. He found the 40m band wiped out due to contest QRM and the 160m band dead but this band may pick up in the winter months. Chris wonders what will happen to the VQRP events as this is the final report. So far as I am concerned they can still continue or maybe even evolve into another form but the quarterly written reports will stop. Our Derek **G3NKS** has regularly supported VQRP and due to a lack of time this last session only managed five contacts of which two were with Filamenters on 80m and 40m.

Sadly Derek is finding operating is more difficult with QRP these days due to local QRM and he apologises to anybody who called him and him not replying. Such is life these days and we must wait for 'FTTP' telephone systems which must help. Thankfully at **G3VTT** the QRM level is low due to the underground distribution of telephone and data services although we are all waiting with baited breath for improved internet services living at the end of a peninsula.

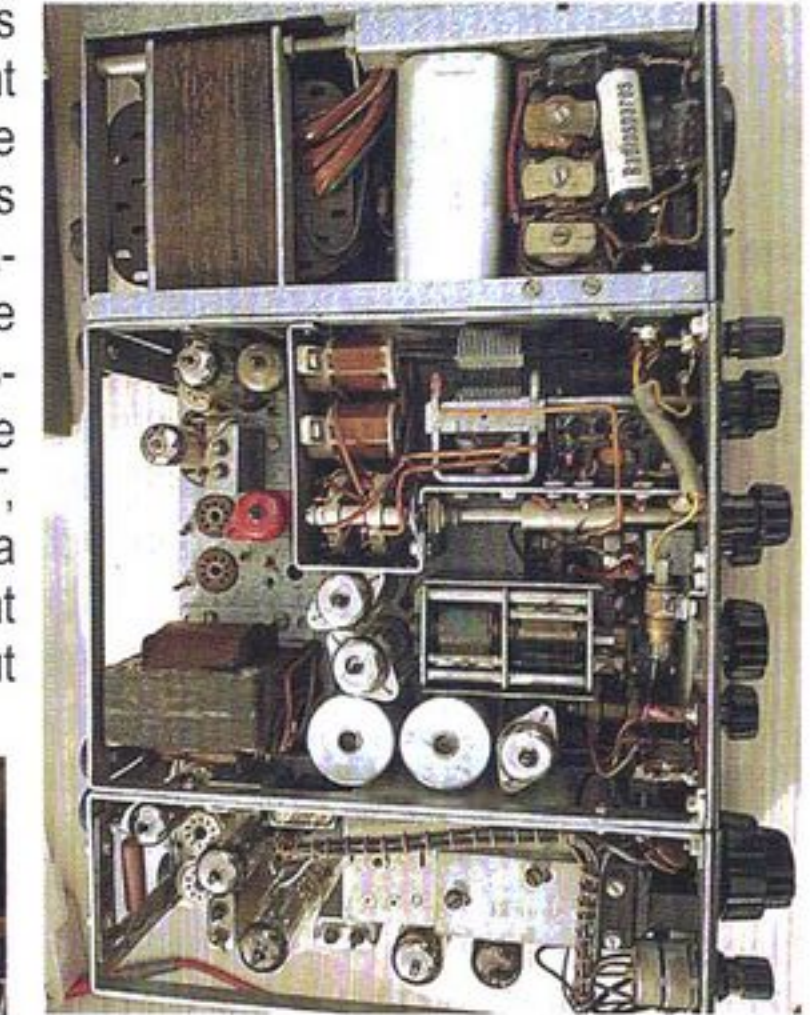
My only QRM source locally is the charger unit for a mobile scooter next door used for shopping trips by my elderly neighbour which wipes out everything from DC to light including broadcast radio. Thankfully it is used rarely and I wouldn't mind betting the RFI components have been removed by the manufacturer making for a cheaper product as suggested in Radcom. Honestly, how did things get this bad? Putting profit first and lack of regulation and control of poor quality imported products no doubt.

Steve **G4ALG** used two different arrangements for his operations, his FL50/FR50 combination and his home made 10 band VXO transmitter used in conjunction with an R71 receiver. He found conditions on Saturday poor although they improved on Sunday and he had 5 watts on the 80m through 20m bands. In total 46 stations were contacted although of these few were on 40m due to severe contest QRM. He and other QRP stations, including **G3VTT**, held

their ground and attempted communication through the din often being successful by careful operating and timing of transmissions. The antenna was the usual inverted vee dipole. Notable contacts were working **G3VNT** on 40m with his 500 mW in the contest QRM, **G3TYB** with a regenerative receiver and **G4ETS** with a newly constructed Paraset.

Mike **G4AQS** had his best VQRP for some time. The QRM level and general electronic fog was at a lower level for him when he powered up his KW77 receiver. He used a 6BW6 transmitter on 40m and 6P1 valve on 80m. He made seven contacts on 40m working G, OZ and PA with finally **G4ETS** using his Paraset with its distinctive sound and then four stations on 80m including **G4GIR** using a 'Longfellow' transmitter. Google for more information on the 'Longfellow'!

Finally, another stalwart is Kare **YU7AE** who has supported us well over the years. This last event for him was a single day affair from his work place on Mount Fruska Gors which is some 539 metres above sea level using his Telefunken SEM78 spy radio which dates from 1975 and uses an EL84 in the final amplifier. This has been modified by increasing the G2 voltage to obtain the magic 5 watts. Kare made eight contacts with the set up including YT, DL/OZ8CW, HB9, ON, DJ, HA, IK and IV3. Not a bad haul for five watts and an inverted Vee dipole at 6m high. Here at **G3VTT** I heard Kare on 7030 but we didn't make a contact.



And that wraps it up for me. I would like to thank all of you who have supported QRP and myself by submitting your results with Valve QRP and those who sent me snippets for Antennas and Anecdotes. Some of you may recall I have been writing for *Sprat* since the summer

of 2007 and up to recently I was producing both the Antennas and the Vintage columns which at times was quite a task often working closely with **George G3RJV** to edit text to fit in *Sprat* creating or losing words in the process.

I move on now to having more time to operate so I will support any QRP activity periods, (remember the old Monday QRP activity periods?), and of course any valve and vintage events. Keep building rigs, lighting filaments, passing greetings and intelligence. As **G3ZWH** used to say to me many years ago 'see you on the wireless'..

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ON-AIR Activity Manager

Enzo M0KTZ email: m0ktz@katolaz.net

I honestly did not expect that my second column would have been so exciting to write. In the last few months many things have happened in the Club in terms of activity, and I am truly amazed by the enthusiastic response of our membership in terms of support and participation, and by the overall "get-on-the-bands" attitude shown.

The Club has been busy with several events since last Spring, including the activation of the Club callsign during International QRP day on 17th June, the Suffolk Trophy on the same day, and the Summer Sizzler which ran between 17th and 25th June, with a line-up of certificates and the award of the first GM3OXX Trophy.

I will cover those in the first part of my report. But there is even more to come, with the G-QRP Convention happening on September 2nd-3rd, the forthcoming Winter Sports, and some initial news about the celebration for the Club's 50th anniversary next year. So please keep reading through the end of the column.

International QRP Day and Gx5LOW.

It was indeed a celebration of QRP activity, achievements, and fun. Dozens of enthusiastic QRP operators from all over the world filled the bands with their puny signals, using all modes. For the first time in the Club history, we had our Club callsign G5LOW aired during the day by fellow members from (almost!) all the UK Home Nations and Crown Dependencies, thus activating all the Regional Locators except Jersey (GJ5LOW).

Our Chairman says that, in the improbable event that there are no volunteers for 2024, he will travel to Jersey himself to make it happen. Not less than 19 members proudly flew the Club flag throughout the day (and during the week) operating as G5LOW from England (G8SEQ, G7HEU, M0RON, G3ROO, G3YMC, G0FUW, M0KTZ), as GW5LOW from Wales (GW0VSW), as GM5LOW from Scotland (GM4UQK, MM0UMH, GM4UBJ, MM0VPM), as G15LOW from Northern Ireland (MI0MSO, MI0WWB, G10AZB, G10VGV, MI0HOZ), as GU5LOW from Guernsey (GU4TBW), and as GD5LOW from the Isle of Man (GD4RGR).

A total of 432 QSOs on all bands from 160m to 70cm except 60m, with 38 DX entities contacted (23 on phone, 26 on CW, 25 on digimodes), and many DX QSOs to Asiatic Russia, Canada and the US. Congratulations to G10AZA for having worked the club calling 8 times, followed by GW5LOW (our Carl GW0VSW) with 5 contacts and the best LOW-to-LOW score, and by DK1HW, G4AYR, GW4BML, M0ICR, and MI0SRR with 4 contacts each.

I believe this has been a great success, which showed that members do care about the Club and are ready to represent it on air throughout the year. I am grateful to all the members who volunteered to activate the Club callsign and to make sure that International QRP Day was marked by a collective on-air celebration. This is definitely a keeper!

Suffolk Trophy.

This trophy runs on International QRP day, with a focus on contacting as many IARU

Region 1 DX entities as possible. We received logs from Val RW3AI and Carl GW0VSW. I would like to praise their dedication in participating to the event, hoping that more members will engage with it in future installments. I am happy to announce that the Suffolk Trophy 2023 goes to Carl GW0VSW, who submitted an astonishing log with 35 QSOs (27 CW + 8 SSB) on 80m, 40m, 30m, 20m, 17m and even 6m. A total of 12 DXCC entities were worked, with 17 2-way QRP contacts, of which 8 G-QRP members. Congrats to Carl for the great effort.

Summer Sizzler.

We have had a surprisingly strong response to his recently-reinstated event, with 17 logs submitted from 2 continents, amounting to more than 630 QRP contacts. We had at least two reports from stations operating away from their usual QTH, i.e., Tom DM4EA from Greece and Al G0TPH from a camping site near Friedrichshafen. Roger MI0WWB logged 30 CW QSOs on several bands, including two of his CW Academy students, and the experience has rekindled his love for QRP. Our Peter G3XJS and John G8SEQ bagged only a few QSOs, but could not let the event pass unmarked and sent their log.

Stephen G7HEU worked several EU stations with 8W SSB as G5LOW, including IQ0RU as a remarkable DX. Anthony K8ZT was one of the four non-G logs, with an astonishing list of contacts on 8 bands and four modes, some of them made from a logcabin somewhere in West Virginia. Another remarkable entry was contributed by Alan MM0VPM who worked 5W SSB on three occasions as GM5LOW and contacted 70 stations, including 2000km DX to Russia, Italy, and Southern Spain.

Val RW3AI sent an interesting CW-only log with 12 countries and several 2-way QRP contacts, while your scribe submitted the usual mixed bag of CW contacts on different bands, including a few with colleagues at the HamFest in Friedrichshafen. Now on with the prestigious prizes.

Garry WA1GWH is the recipient of the Tiny-Flea certificate, for his 8 QRP contacts using an SW-40+ single board kit built about 20 years ago, and running about 950mW. Chris G3XIZ went on to achieve the Busy-Bee certificate, for using several home-brew rigs on different bands in SSB, CW and FM. Robin G4DNP resuscitated an old HW-8 and employed its blasting 1.5W for a sizeable fraction of the 27 QSO on 3 bands, to earn the Old-Beetle certificate. Richard G4TGJ submitted a SOTA activation from Dodd Fell Hill in Yorkshire, to win the Iron-Knee certificate.

And our newly licensed OM Simone IU3QEZ becomes the first recipient of the Ladybird certificate for his log of two POTA activations in SSB and CW, one of them from Monte Grappa in the Alps, which entailed staying overnight to get a chance to work many US stations.

I announce with great pleasure that Stephen G0FMY is the recipient of the first GM3OXX Trophy. He worked 6 stations with 1W output, all on 7030kHz and including three of the Gx5LOW activators, using a home-brew and much modified Voxner from SPRAT 50 (see picture). This transmitter is a "blend" of the famous OXO and Oner by George GM30XX, and was proposed by Paul G4VAM as an entry to the construction competition in 1987.

An 'Ivel' from Tim Walford was used as a receiver, the antenna was a half-wave end-fed wire, and his best DX was EA7GZQ at 1090 miles per Watt. We believe that this entry fully embodies the spirit of the late George GM30XX: ingenious home-made stuff, low power,

simple antennas, hard work, and getting great satisfaction from every QSO, without ever despairing about the possibility of making a good DX.

I would like to thank all the contributors who have made the Summer Sizzler a resounding success, and to congratulate all the winners for having shown us a variety of ways in which QRP can be a satisfying, fun, and rewarding side of our hobby.

After all, quality and fun are the two most important ingredients of QRP, those that can "make the time stand still and fly by", as the late George G3RJV used to say on several occasions.

Get ready to celebrate!

Next year will mark the 50th anniversary of the G-QRP Club. We are preparing a variety of initiatives to celebrate this occasion, and following the success of the Gx5LOW activations during June, we would like to put in place a "LOW award" (temporary name!) for contacting special event stations during September 2024.

In G-land we will obviously have all the Gx5LOW on air, together with a special event callsign. We would like to ask members across the world to start thinking about obtaining and working a special event callsign that includes a "LOW" suffix in September 2024. If you plan to do so, please drop me a line and I will keep you in the loop.

More news will follow in the next SPRAT issues.

72 de Enzo M0KTZ



The 'Super-VOXNER' as used by Steven G0FMY

These are the International QRP Calling Frequencies:

CW: 1836, 3560, 5262 (UK only), 7030, 10116, 14060, 18086, 21060, 24906, 28060kHz

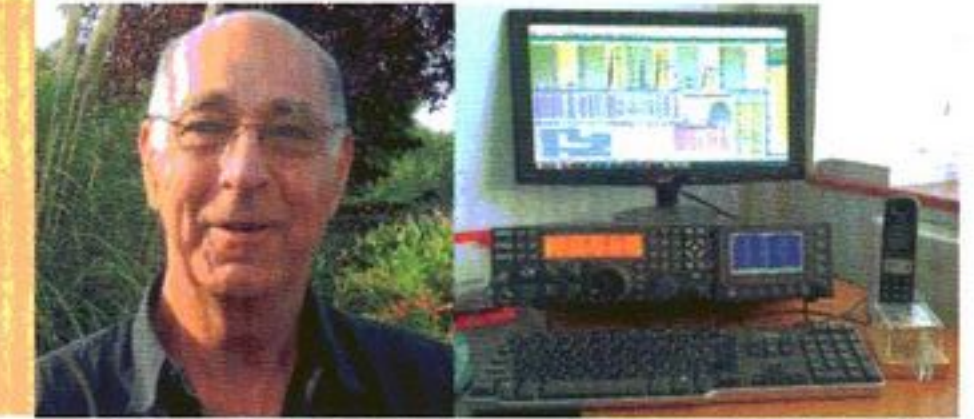
SSB: 3690, 7090, 14285, 21285, 24950, 28360 kHz

Notice that these are Centre of Activity, so please spread out when activity levels are high (and use those CoA to make sure we all need to spread out!)

MEMBERS' NEWS

by Chris Page, G4BUE

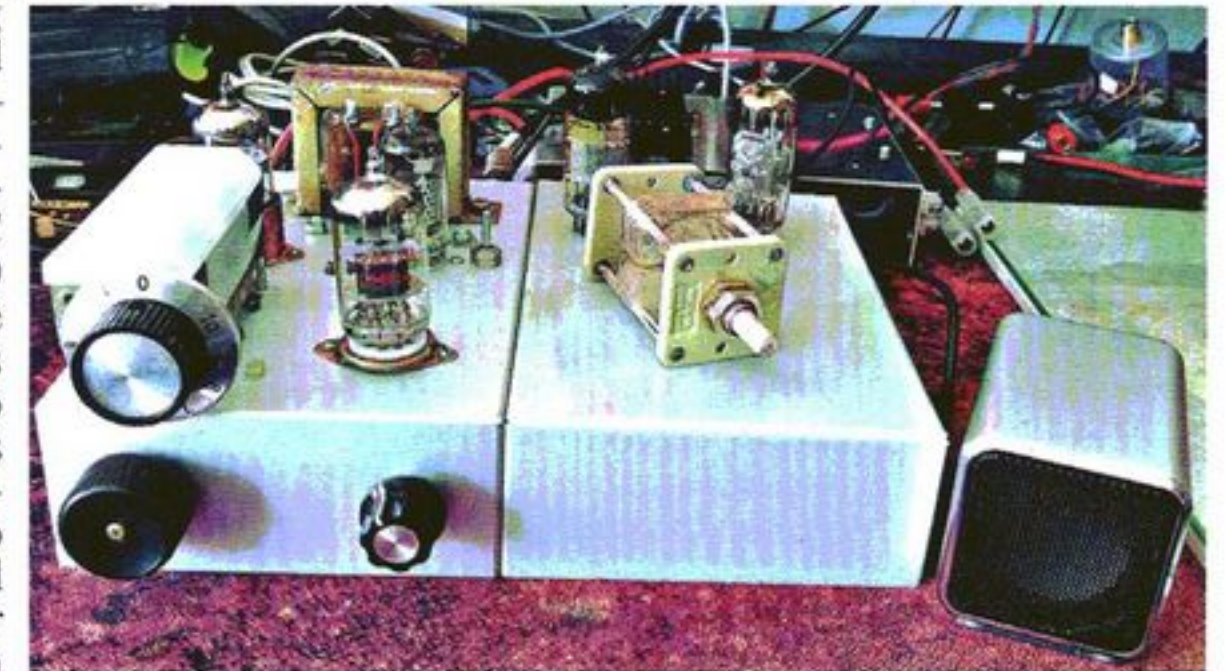
E-mail: chris@g4bue.com
gc4bue@gmail.com



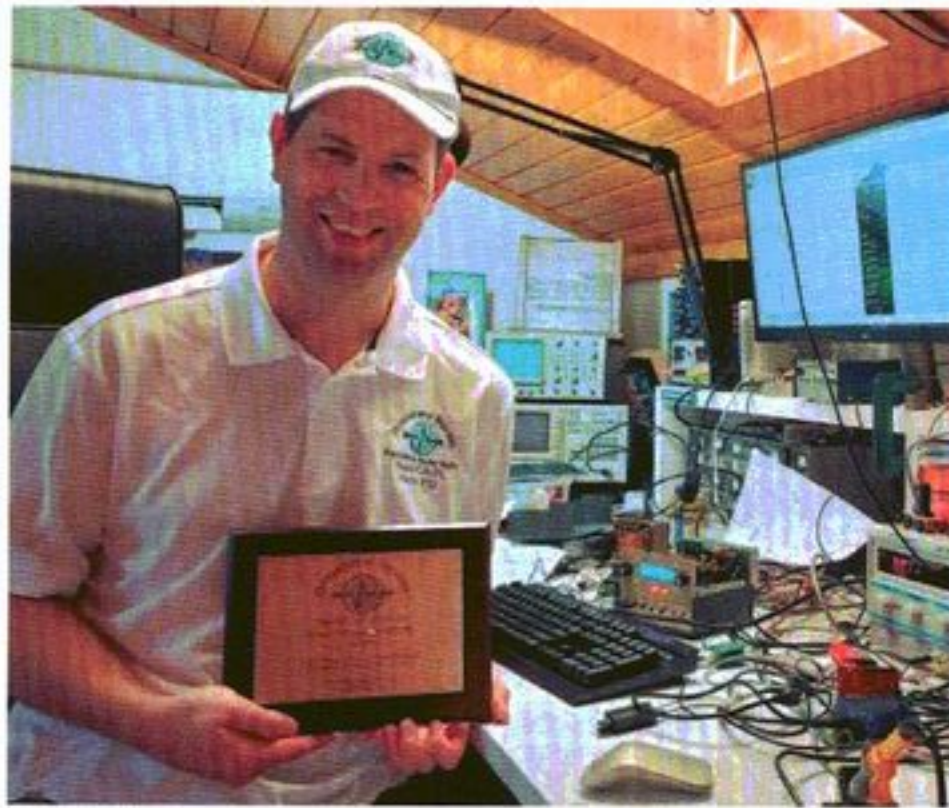
Some response to what I wrote in the last edition of *SPRAT* about using the /QRP suffix to your callsign. **MØRON** writes, 'You asked is there a good reason to sign /QRP, sometimes yes. I only operate SSB so can't comment on CW but certainly on SSB it is my experience that special event stations in particular will either call "QRP only please" periodically, or will make the effort to contact a QRP station if they hear "MØT###/QRP" or a mobile station. I believe they get so used to 5 and 9, 73, that it makes a change to operate a low-power station and to see if their often compromised antenna can pick up the small signal.' **KI4IO** writes, 'I'll usually append "QRP" at the end of a CQ. For example: CQ CQ CQ DE KI4IO KI4IO QRP, repeat. I'll occasionally toss out a /QRP in a pile-up hoping to arouse the pity and compassion of the DX station. Can't recall it ever working. As for appending /QRP to the end of a callsign, wouldn't it be nice if our flea power was actually disruptive in a pile-up.'

G3XIZ writes, 'I'll put my hand up straight away and admit on occasion I do this but generally only when calling CQ and on the QRP centre of activity frequencies. The exception is if I hear, say Italians calling I2XXX/QRP, then I may respond in kind, which seem to please them. My reasons are a station hearing my weak CQ signal, say at 449, may think that conditions are extremely poor if he believes me to be running QRO. Letting him know I am only running 5W or less allows him to mentally compute that there is a good chance of working me and may encourage him to do so. You have mentioned before that using say G3XIZ QRP would be an improvement over G3XIZ/QRP. However, this may cause confusion after my CQ calls in that it suggests that I am only looking to work QRP stations, which is not the case. Noted the CDXC's station's comments which of course are valid. I have however heard and heard of DXpedition stations specifically calling in and waiting for stations claiming to be QRP - to the exclusion of other stations so it's not all one way traffic.'

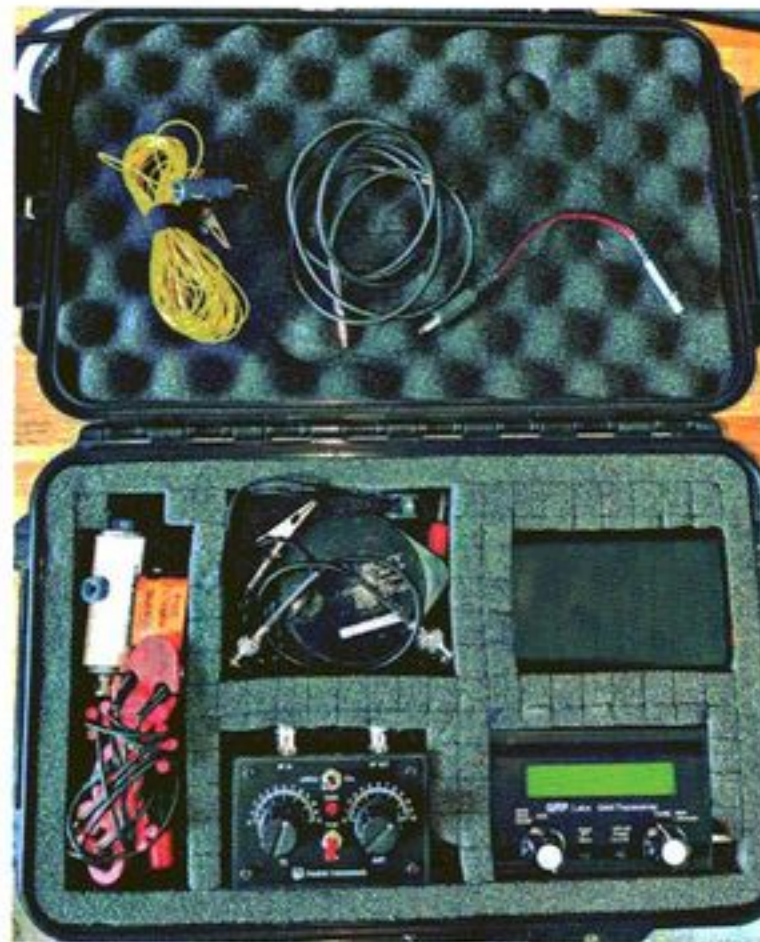
GØUCP has been working on a valve TCVR for 40 and 80m (right). Left is a Clapp - Gouriet 80m VFO/buffer/multiplier (ECC81) feeding a version of **G4HOJ**'s 'RiSiVa' DC RX (ECC83). For TX, the VFO is followed by a pentode buffer (EF92) that John says is up and running well. To come is the identical chassis on the right, shown as a serving suggestion with two EF184s and the silver plated split-stator PA capacitor (Telford Rally 2022). John says, 'The aim is for a pure QRP CW note, free of any trace of chirp or click.... The RX is fine with headphones, but the little 'Music Angel' amplifier on the right gives freedom to come and go.'



Welcome to new member **G4CWH** (M3E and occasionally **ZF2CA**) who is mostly active building things such as transverters, simple transmitters, and antennas with their switch boxes, and then using them in contests. Colin writes, 'I have enjoyed both QRO and QRP contests since 1976 by first taking part in the RSGB Low Power Contest, and in the CQWW CW and SSB as QRP, and surprising myself just how far 5W can go. Crossing the pond, or having China, Japan or Korea come back to you is always such a thrill. In this year's HF NFD in the green QRP section (5W and batteries only), I was amazed to reach a run rate of 85/hour on 40m with just a dipole, as conditions were so good.'



N2CQR sent this link <<https://solder.smoke.blogspot.com/2023/05/hans-summers-g0upl-and-his-new-qmx-bob.html>> of an interview with G0UPL (right) about his latest QRP Labs kit, the QMX (above), which is a combination of the QCX Mini and the QDX. The interview is one of those made by W8SX during this year's series of Four Days in May (FDIM) at the Dayton Hamvention for the *Solder Smoke* podcast. Hans explains the M: QMX. The M is for Marriage. Magnificent. Merger. Marvellous, many things like that. It's what you get when you marry the mechanical and conceptual design of QCX-mini with the SDR, multi-band digital implementation of QDX. Simply: QDX + QCX-mini = QMX.



One of those who bought the new QRP Labs QMX was G4USI, who has had a busy three months with lots of construction, including three DC RXs: the Little Roo, the Super Sudden and the QRP Labs RX module. Daimon also built the BP-1, a continuously adjustable BPF kit from QRP Ham Radio Kits in Spain that he says works really well, and the NanoVNA shows nice steep skirts. A few days ago he was very excited to receive the new five-band QMX CW TCVR from QRP Labs. Daimon says, 'This was a challenging build due to component density and took me well over eight hours of painstaking work and testing. I was delighted when it worked first time and took it on holiday with me to Cyprus. Sadly conditions were pretty poor and I only managed to work one station, but it was fun anyway. I will be reviewing the QMX in a forthcoming *Practical Wireless* article.' He now has a QMX 'go-kit' (above right). Finally, he recently purchased a Codar AT5 TX and PSU, which after a bit of tinkering he got working (above left). It has had a few mods but is now paired with his Larkspur R-210 RX to give Daimon his first valve separates, and he is now looking forward to the next club Valve Weekend.

G0FUW was saddened to read that G6NGR is no longer able to collate/edit the *Hot Iron* newsletter. Peter says in the latest newsletter, 'It's Goodbye from me... I have written and

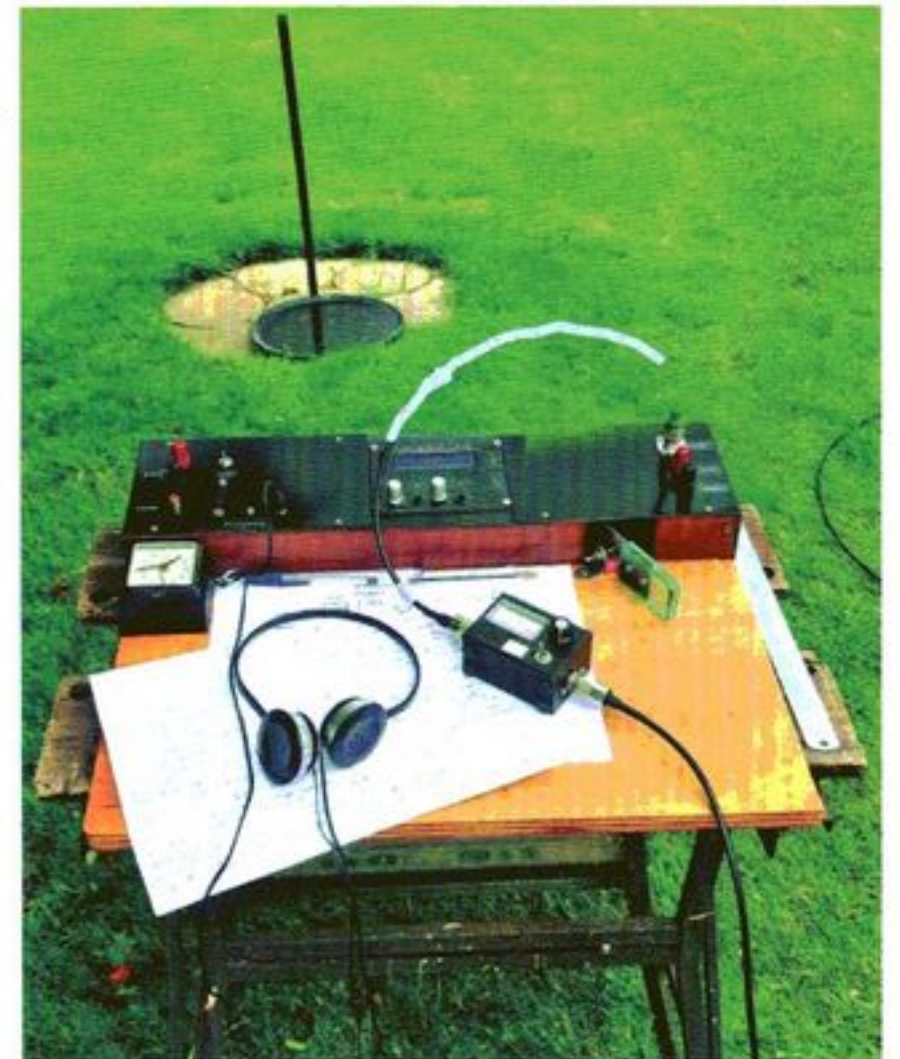
compiled *Hot Iron* now for five years; I'm most honoured to have been asked to do so by Tim Walford, the originator of *Hot Iron*. I thank all the contributors (and that includes all those web pages and references I've found so useful). My health is not what it used to be, COPD - probably not helped by all the rosin flux fumes I've inhaled over the years - is becoming a big issue in my life, and I have to spend more time out: it takes a lot of hours to put together an edition of *Hot Iron*, edit it, correct all the dud links, wrong references, checking attributes and the like. Thank you for allowing me to drop into your (amateur radio) lives every quarter. I hope I've brought something useful to your enjoyment of this fascinating pastime. It is with regret that this is the last *Hot Iron* I will be editing and compiling; if another writer wants to take up the reins please contact me (equieng@gmail.com).



IN3AQK was wondering the best way to obtain your first homemade TCVR. Paolo thought that whilst it is not so simple to develop a new TCVR, and building one from a kit could turn out to be worthless at a certain level of experience and knowledge, he found the way for him was to repair and/or improve rigs broken and/or not working. His latest project, a broken Iler 20 that suffered a supply polarity inversion that almost killed most of it (above). G3XIZ reports G3DXZ became a Silent Key on 5 July aged 92. Chris had regular skeds with Chas on MF for several years as well as numerous times on other bands, and writes, 'Chas was the very model of a radio amateur: active on the air, a keen home constructor and experimenter and always willing to help others with their projects. He was a keen QRP operator and his CW was first rate as he had been a ship's W/O in his younger days. He had even been trained on, although never had to use, spark transmitters.'

EA2SN recently came across the website of W8BH who redesigned his own version of the AADE inductance capacitance meter <http://w8bh.net/LCmeter_Builders_Guide.pdf>. W0VT says, 'The W8BH meter is a great LC meter. The Tindie meter does not have a case supplied when you order one. I found that a Hammond 1591XXBSBX case is almost a perfect fit for this meter. It can be force fit but with just a couple swipes using a file on the PC board sides makes the board fit perfectly. You can buy this case at Amazon with free delivery for around \$6.'

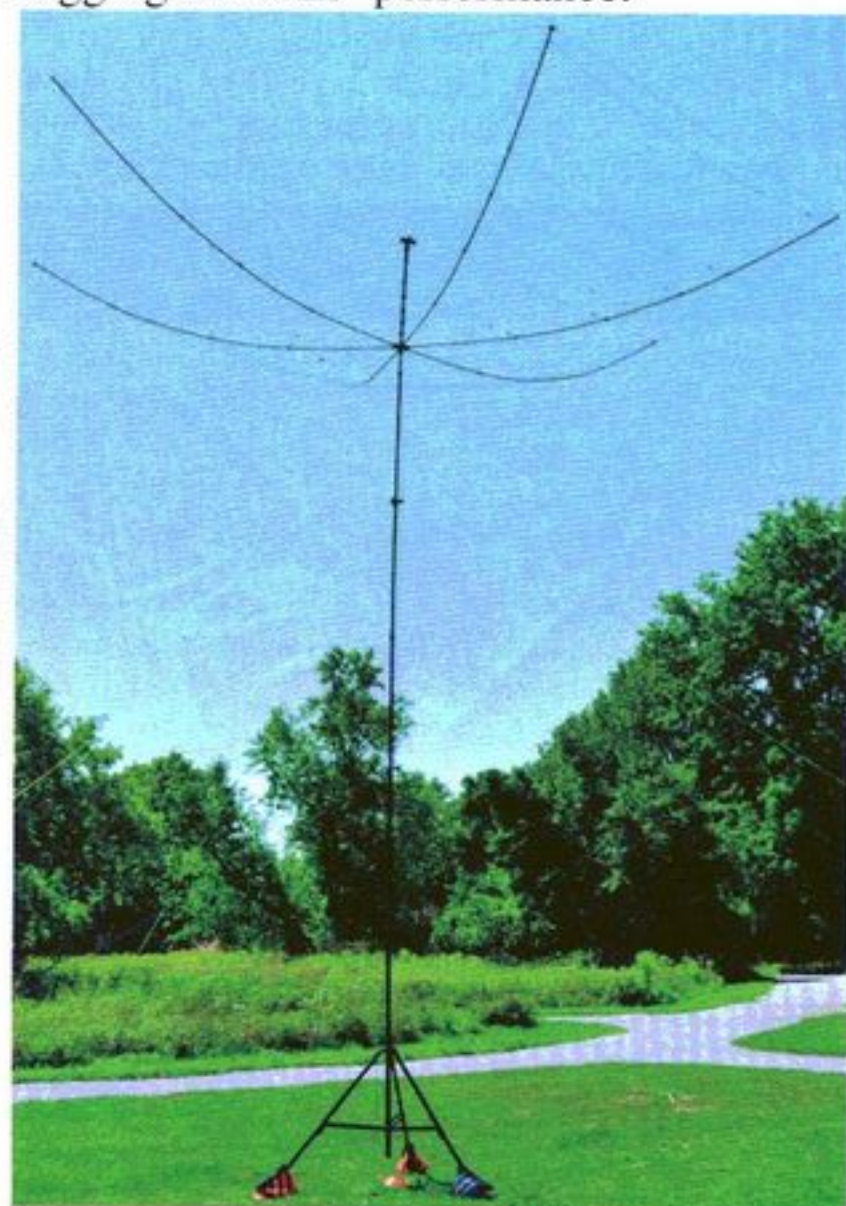
G3XIZ reports, 'A most interesting "QSO" with ZL2BMI in July. I was transmitting on 160m and Eric on 80m, both using SSB. For receiving we used each others respective local Web SDRs via the internet. It may not be radio as we know it but it was interesting, especially as I was using Eric's TCVR design from *SPRAT* 180, and he could hear what it sounded like "on the air".' Chris has made a 'console' (right) to house his portable radio



equipment: QCX TRX, batteries, clock and even a built in Morse key. He cut a dipole for 40m and checked the whole set up from his front garden, even having a few QSOs and is now only awaiting some half decent weather to try it as proper /P. Finally, Chris has been playing around with some old rechargeable cells. Some were completely duff and he managed to bring them back to life by blasting them with a large charged capacitor. He made himself a charger/discharger unit and has thus been data logging the cells' performance.



VE3IPS has been busy playing with the antennas he bought at the Dayton Hamvention: a Radiowavz TFD, RF Pixel and a MFJ low noise loop, a DX Engineering RTR-2, and a MFJ-1026 Phaser. John found an A&A Engineering 40m TCVR and a Ten-Tec AC5 tuner for \$10 (above). He has been spending 'too much time' looking at beverage antenna articles on the Sprat-on-



stick and says it is an incredible repository of information that everyone should have in their library. Parks on The Air activities is helping him achieve his exercise and fresh air quotas, and he knows he needs to get his Kanga Kit QRP Altoids on the air at a park. John says the ARRL Field Day was a great success to test out various emergency communication setups, and the Buddi Hex beam (above right) proved to be an ideal antenna to work the east coast stations. He made a short YouTube video about it at <<https://www.youtube.com/watch?v=4mNuH7bxh50&t=98s>>.



IK1WVQ moved to his summer QTH at JN44bf 2100 feet above sea level in north-west Italy where he is QRV with an entirely homebuilt 15W TX (Si5351, 3*bs170 class E, MRF510 PA) and a short antenna (8.5 feet) for 40m (left). Mauro's TX is controlled by an Arduino Uno

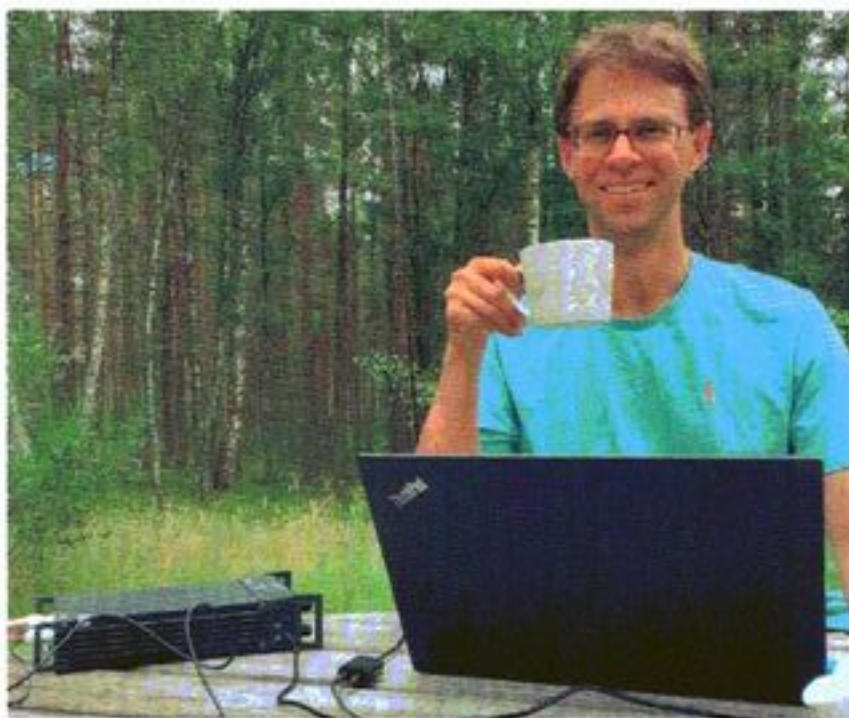


Nano and can TX WSPR and Opera_OP-2 modes. He says the results (bottom right previous page) are amazing and adds, 'Too bad there are very few stations active in Opera mode.' G3XJS was QRV from 9A for two weeks in May and 'found it hard going with a small loaded vertical (MP-!) on the hotel room balcony. I was hoping the location by the sea would have provided better success but don't think the poor propagation helped!'

G4TGJ has been using his superhet based TCVR on regular SOTA activations. Initially, he had to have the volume on max but an increase in audio gain, plus some changes in the audio filtering, mean it is now working well. Richard says MIBUU sent him a 20m Rockmite which he tried on a couple of activations and says, 'It is amazing what can be done with a simple design using just a PP3 battery! It's inspired me to have a go at designing a simple rig but I got frustrated with the lack of efficiency in the TX, so I have put it to one side for the moment. In the mean time I have been porting my TCVR software to a Raspberry Pi Pico board with the aim of using it in a future project.'

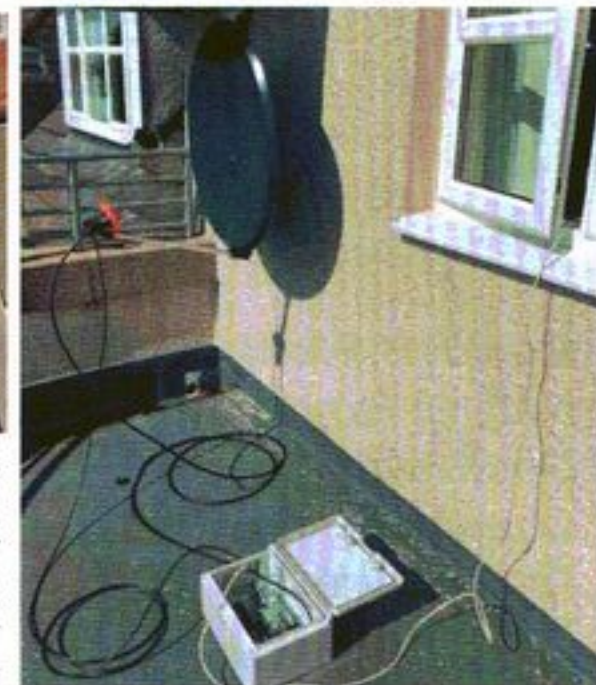
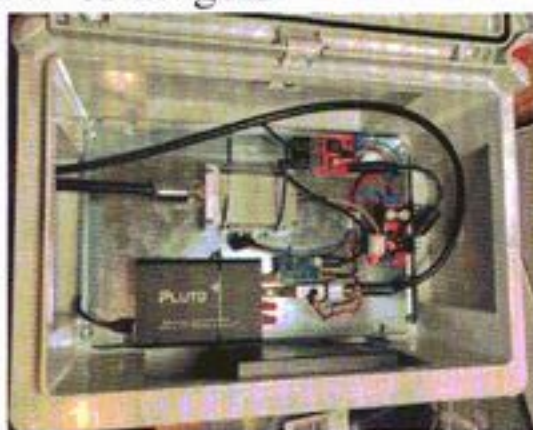
F5NZY was QRV 2/9 June from near Olbia as IS0/F5NZY with his FT-817ND and Elecraft's T1. Steph took a 20 feet fishing rod, a length of small coax and a 9:1 unun with a coil of enamelled copper wire to build an antenna for 10-20m and perhaps 30m. Back home, on 15 August he QSO'd VK2GR on 20 and 17m with 5W to his Hexbeam. Steph says, 'Life is too short for QRP? Certainly not!' M0K7Z also QSO'd VK2GR on 15 August from IT9 where he was QRV with 5W and a 33 feet doublet. Enzo was also QRV 16/17 June as 9H/M0K7Z with QRP from his hotel room balcony with a doublet or random wire. G4DNP was QRV in August at Pescara as I/G4DNP on 20, 30 and 40m, mainly with his QCXs, but also MTR 3B at 3-4W, to a 46 feet non-resonant end-fed antenna about 13 feet high and Phoenix transmatch. G0TPH answered Robin's CQ on 14 August and Alan said that despite the QSB, they managed a two-way QRP QSO.

Recent member GM5ALX (formerly MM7RVP) has only been on the air since April and has been, 'amazed by the community and has been drawn towards the QRP side.' Alex did his first /P activity near Aviemore in the Cairngorms National Park (right) with a home-made 1/4 wave vertical for 20m with radials and a Xiegu G90 TCVR. He says it was mainly FT8, so he could see who could hear him on PSKReporter. He had a QSO with Oklahoma, USA and a few /P stations in Slovenia and Belgium, and says, 'I was most amazed at who I could hear, having only ever used a horizontal EFHW at my home in Aberdeen. An abundance of ZLs for several hours was most pleasing.' Alex has also just got on the air with the QO-100 satellite, feeding around 12W of 2.4GHz signal into his 80cm dish (right). He gets signal reports of 59+10, and says, 'I could probably turn it down a little! It is great for two hour plus inter-G rag-chews.'



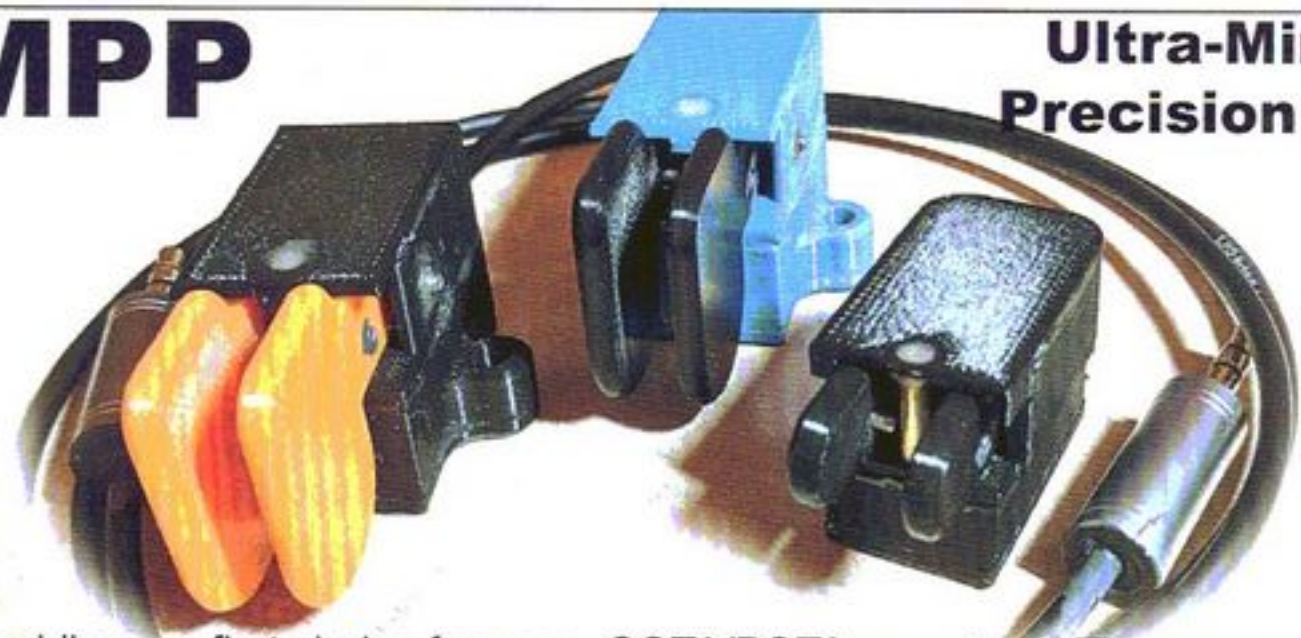
Thanks to all the contributors. Please tell me how your autumn goes for the winter 2023 edition of SPRAT; what you have been building, interesting QSOs

you have made and any other information about QRP, by 12 November. 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 winter and spring months, especially during the Winter Sports, so I can let members know to listen out for you.



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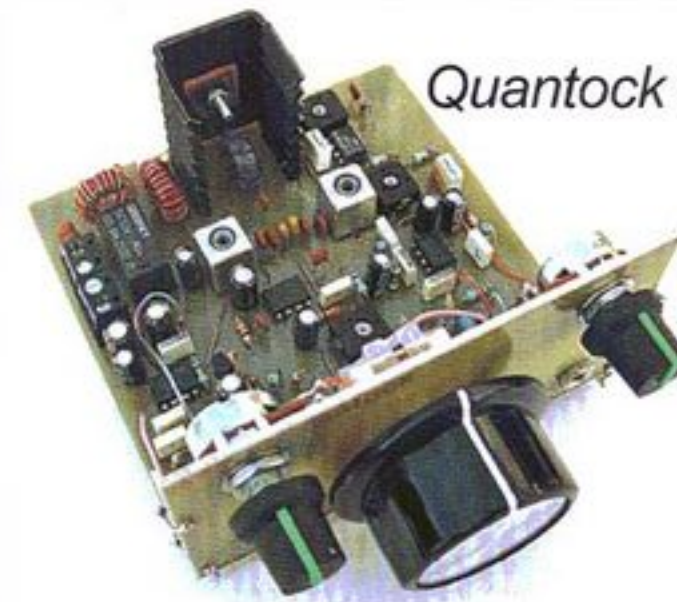
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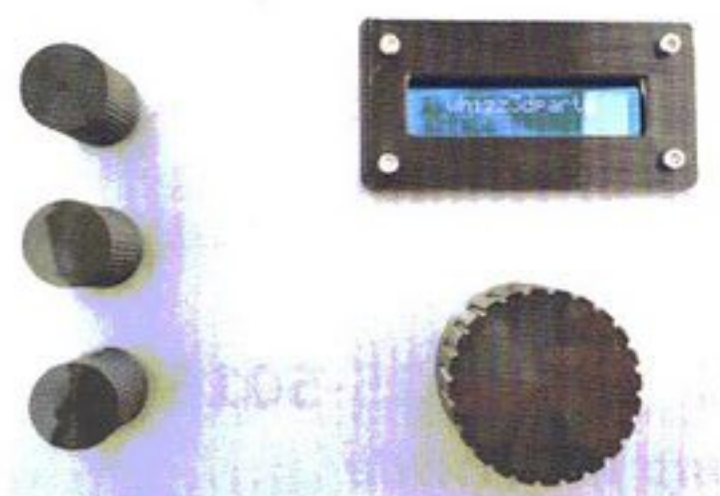
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