

(sales@gqrp.co.uk)

GQRP Club Sales

(clubsales@gmail.com)

Dan Simpson 1 Bridge Cottage, Dartmouth, TQ6 0RG

Please note we are at present unable to ship components or kits to EU Countries. We will endeavour to send Books and Sprat on a Stick to these Countries, however there may be delays due to your Customs Departments. We will only refund cost of items (not shipping fees) should items be returned to us undelivered.

Below is a summary of items generally held in stock (see webpages for full list), please confirm your order by email before paying.
Antenna Handbook – 2nd edition – members price £6.00 plus post } £3.15 (UK) or £6.50 EU
Radio Projects volumes 1, 2, 3 & 4 – by Drew Diamond – members price - £6 each book + post } or £10.50 DX for 1 book
(please ask for shipping quote for multiple books)

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 £4.00 (UK), 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, 7.0475 } 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 } UK £3.15

HC49U other crystals – Check webpage for availability – all 35p each } £6.00 (DX)

Ceramic resonators – 455, 480kHz, 2.0, 3.58, 3.68, 4.00, 10.7, 14.32 & 20.00MHz – 50p ea. }

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

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

SA612AN - £2.00 (note – I may supply NE or SA, 602 or 612 as available. (Max of 2 per member) }

MC1350 - £2.00 (Max of 2 per member) }

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

LM380N - 2w 16pin DIL - £1.30 }

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

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

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

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

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

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

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

FETs - IRF510 – 50p; 2N3819 - 24p; 2N7000 - 10p; BS170 – 12p - all each }

BF981 – dual gate MOSFET – 40p each (max of 1) }

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

10K 10mm coils – 1u2H, 1u7L, 2u6L, 5u3L, 45u0L, 90u0L – all 85p each }

Magnet Wire – 18SWG – 2 metres – 60p; 20 & 22 SWG – 3 metres - 60p; }

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

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

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

Litz wire – double silk covered multi-strand wire 7/0.04mm -12p, 14/0.04mm. 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 – 35 & 60p; TO18/TO72 – 80p (pics on website sales list) }

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 – Please check webpage for availability }

Ferrite beads – FB43-101 (3.5mm dia x 3.2mm long, 1.2mm dia hole) – 40p for 5; }

BN43-2402 - £1.50; BN43-202 - £2.40; BN43-302 - £3.40; BN61-202 - £3.40. }

Standard MeSquares (0.25"), Little MeSquares (0.15"), MePads for DIL & MePads for SMD - £6.00 each plus post 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, (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 to 20m); ATU (80 through 10m) £40.00 each plus post

UK - £4.00, DX - £21 (please ask for shipping quote for tracked post or multiple kits)

Sprat-on-a stick V10 – 1 to 200. Only £5 each to members plus postage, UK - £3.15, EU - £5.00, DX - £6.00 (they will travel free with parts)

Sprat Binders – nylon string type – Black with club logo on spine -16 issues per binder – £6.00 each plus postage

(one: UK - £3.15, EU - £5.00, DX - £8.00. More than one - please ask for a quote)

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 GB Pounds, or US\$/€uros (at the current exchange rates) – please send securely! Members can order via e-mail and pay by PayPal - PayPal are charging us 7%, fees so please add this to your total, use sales@gqrp.co.uk – and pay us in GB Pounds, or by post with cash, and you **MUST** include your membership number and address please. PayPal are charging us about 7%, so please add this to your total.



SPRAT

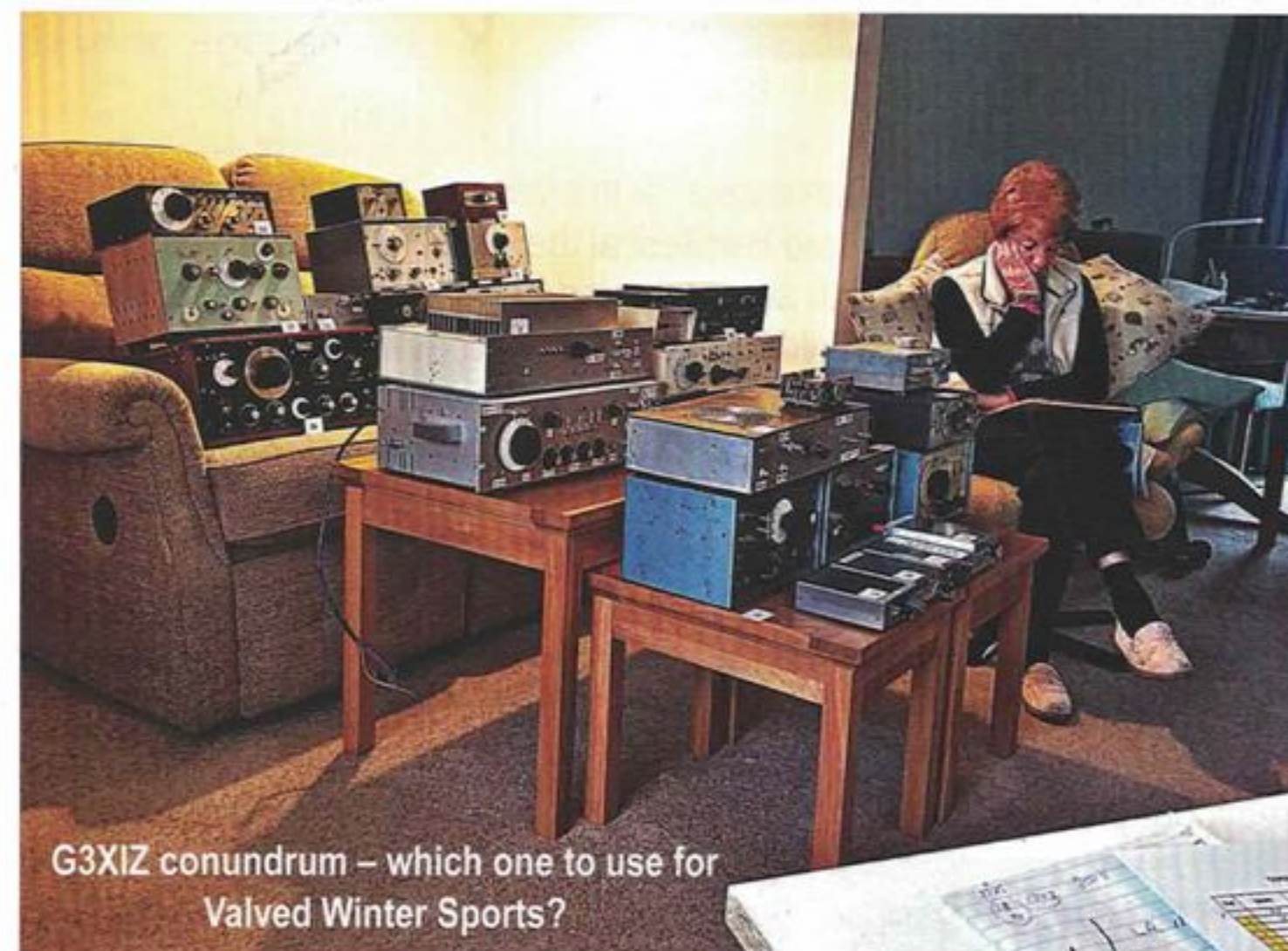
THE JOURNAL OF THE G QRP CLUB

DEVOTED TO LOW POWER COMMUNICATION

Issue No. 202

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Spring 2025



G3XIZ conundrum – which one to use for Valved Winter Sports?

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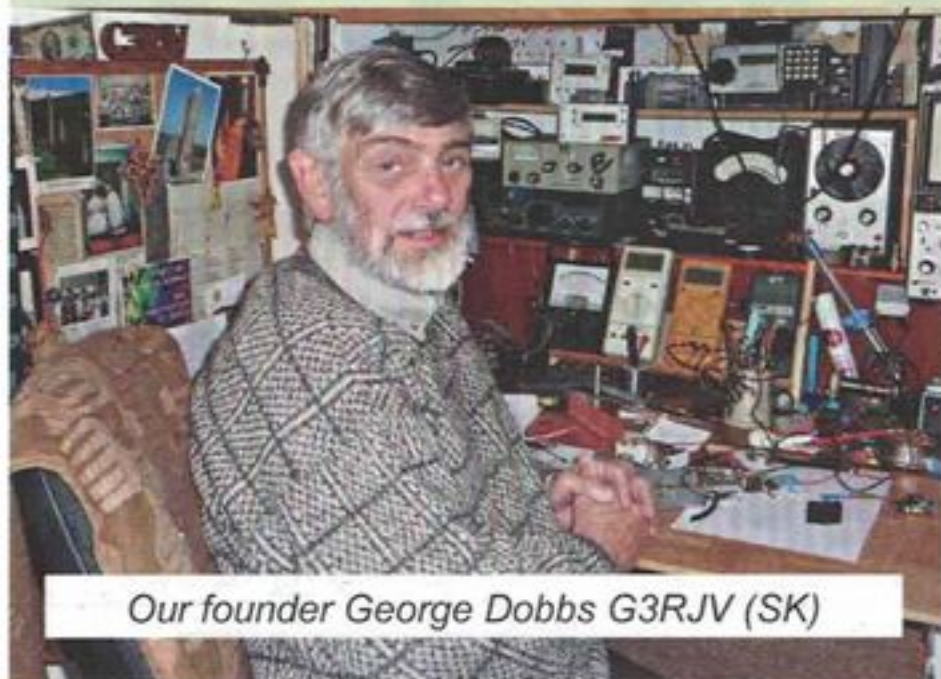
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This could be your last *SPRAT*. Check your delivery label, and please read the Membership Secretary's notes on p39 of this issue.

JOURNAL OF THE G-QRP CLUB



Our founder George Dobbs G3RJV (SK)



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Editorial

Let's start with some positive news....the date for this year's Convention will be 30-31 August to be held in conjunction with the Telford Hamfest at the Harper Adams University. Details will not be fixed for a wee while but if you are interested in attending the Buildathon and/or the social supper on the Saturday, or would like overnight accommodation, please register your interest with Dan at Club Sales.

On the subject of sales, due to a number of packages being returned from EU countries we sought advice about the EU General Product Safety Regulations. Compliance with these regulations is way too onerous for our volunteer team and, regrettably, we have had to cease supplying kits and bits to our EU members.

SPRAT does not appear to be impacted and we will continue to monitor the situation. We are also exploring how we might be able to supply SPRAT-on-a-Stick via our overseas representatives. We will keep this under review.

A wee reminder that this year's construction competition is for 50MHz projects; an explicit link to our 50th anniversary year. The winner will receive the coveted G3RJV Memorial Trophy.



And finally, I need to give notice that membership fees will be increasing at the end of this year. The last increase for UK members was in 1994/95, so this is probably long overdue, and members keep telling me we should be charging more! Details will be published later in the year, before you renew for 2026.

73 Steve Hartley G0FUW

Chairman GQRP Club g0fuw@gqrp.co.uk

Don't forget! Yeovil Amateur Radio Club is delighted to announce that the 2025 QRP Convention will be held at Digby Hall, Sherborne on the 12th April 2025, doors open 09:30.

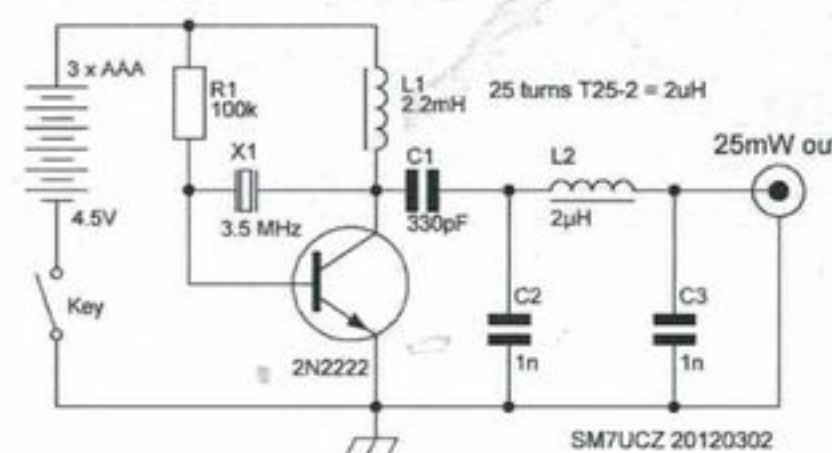
Darren 2E0EVU, Yeovil ARC club secretary

Solar Powered Transmitter

Jonny Apell SM7UCZ (SK)

Just before Christmas we learned that the key of Johnny Apell, SM7UCZ, had fallen silent in November.

Johnny contributed to *SPRAT* with many simple, and often quirky, projects and he was also a regular at our Rochdale and Rishworth Conventions. He would travel all the way from Sweden with his wife, **Birgitta**, in their van. With them, they would bring food, drink and much good cheer. But the move to Telford coincided with changes to the ferry he used, so he had to stop attending.



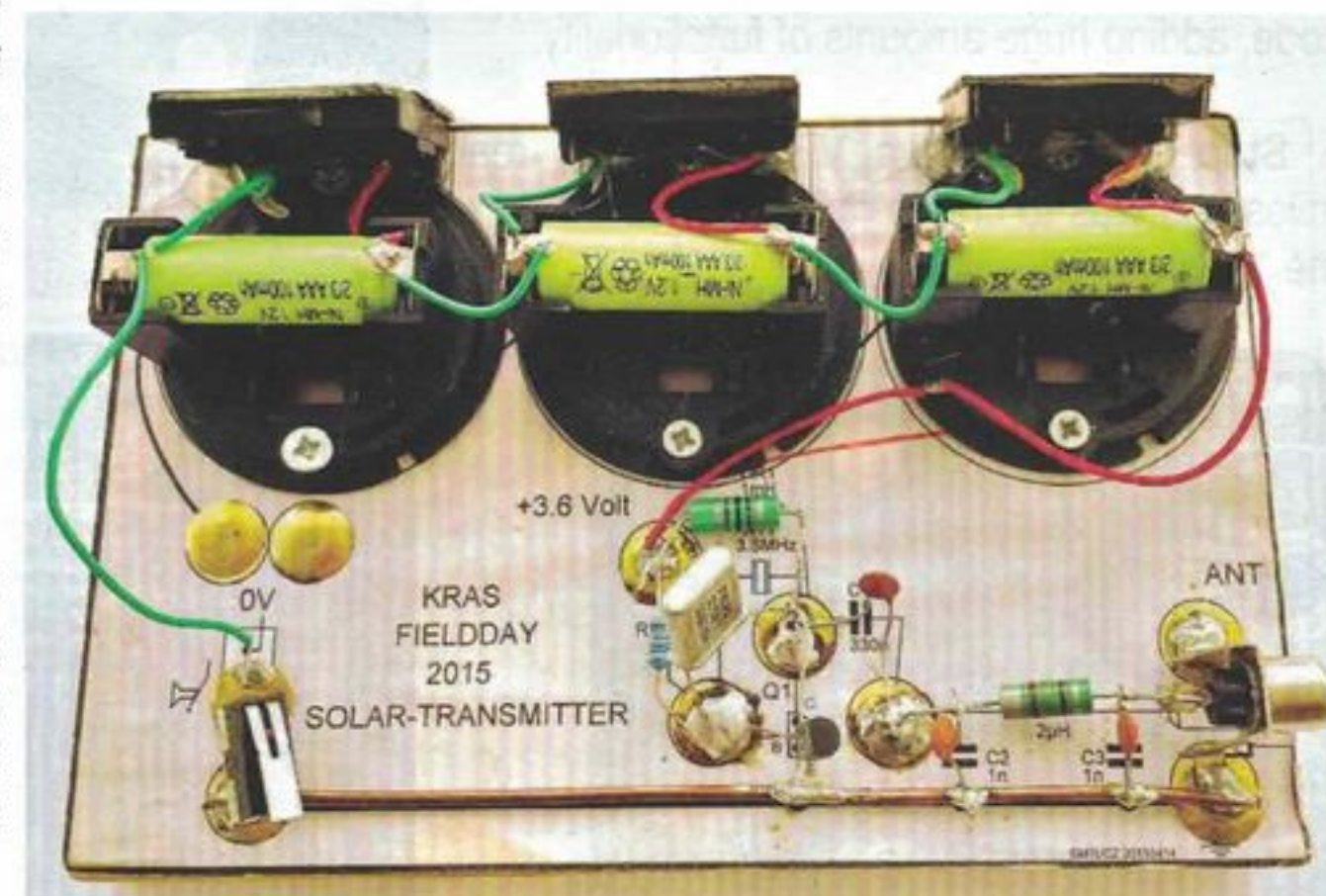
As a tribute to Johnny, here is one of his projects that we used for our 2016 Convention Buildathon. It is a QRPp transmitter powered by three 1.2V 2/3AAA nicad batteries, each topped up by a solar cell wired in parallel. They can be seen in the photograph of his project, as the three units at the top of it, each with their own solar cell and battery.

I seem to recall he salvaged the solar panels/batteries from garden lights. Johnny had used the TX for a field day activation the year before. It is built 'point-to-point' using brass drawing pins. L2 can be a pre-wound axial choke, or you can roll your own with a toroid.

A more elaborate Low Pass Filter would be more effective but would feel out of place on such a simple TX. Any harmonics 'leaking out' are unlikely to cause 'undue interference'!

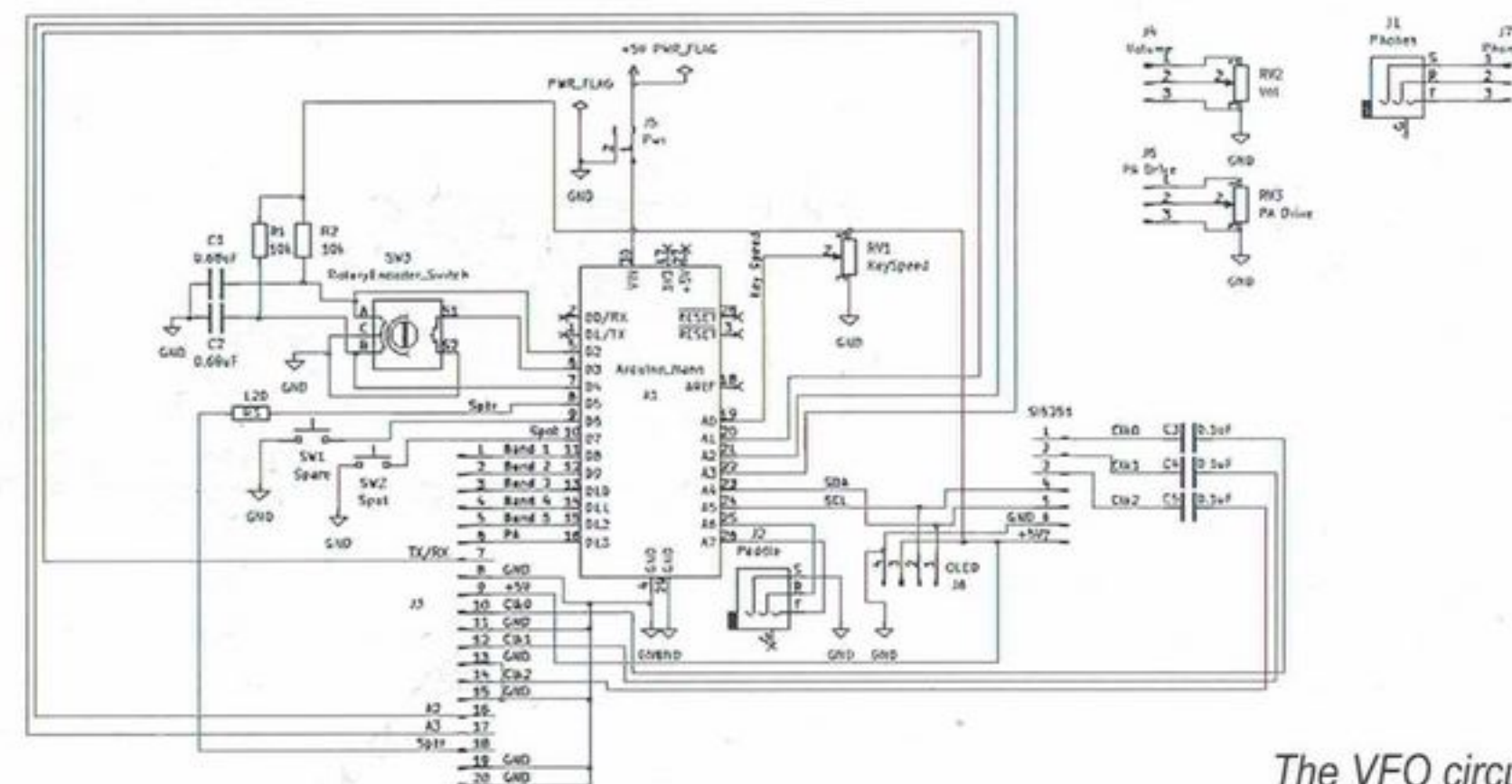
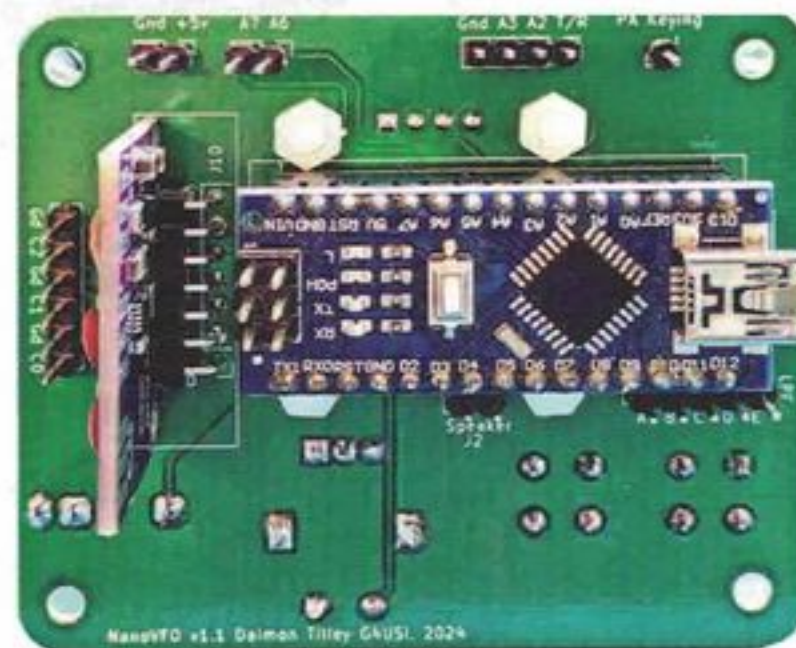
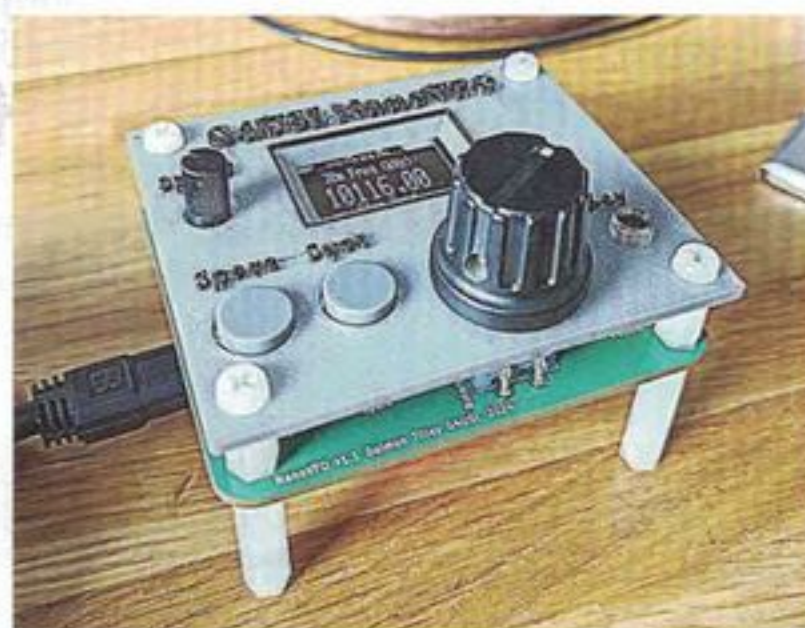
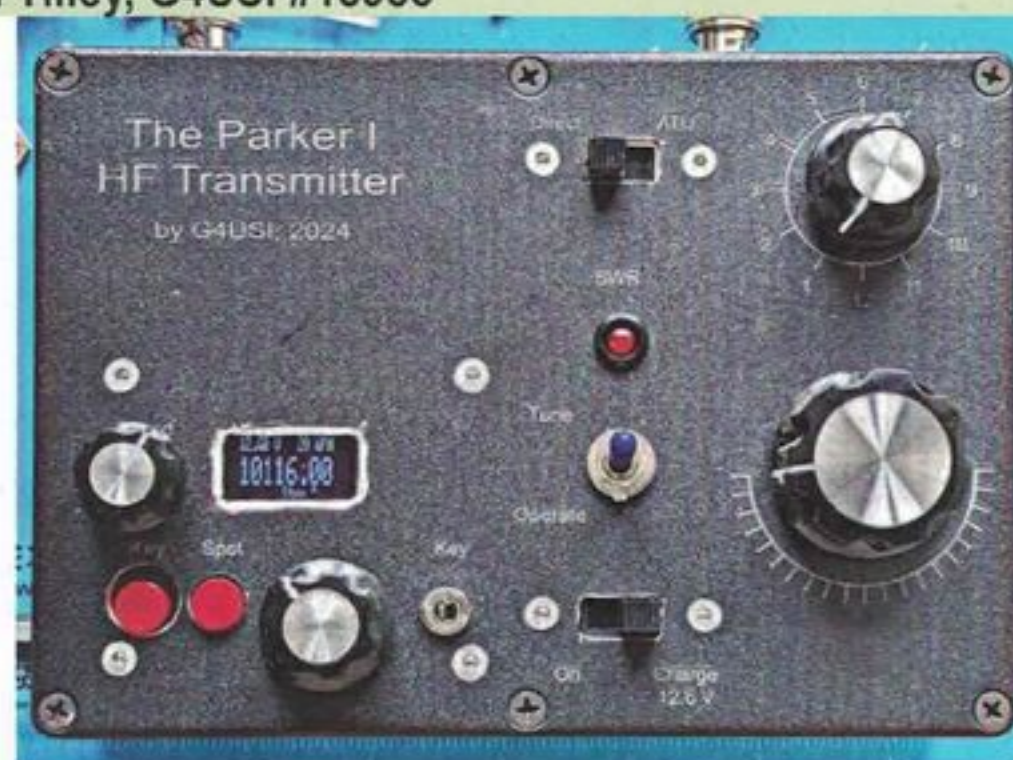
It might be interesting to use this circuit with the 'new' Licence rules that explicitly allow QRP beacons for personal use. If anyone builds one of these, please let us know, especially if you make 2-way contacts!

It would make a most appropriate tribute to the late **SM7UCZ** to report such success in a future *SPRAT*.



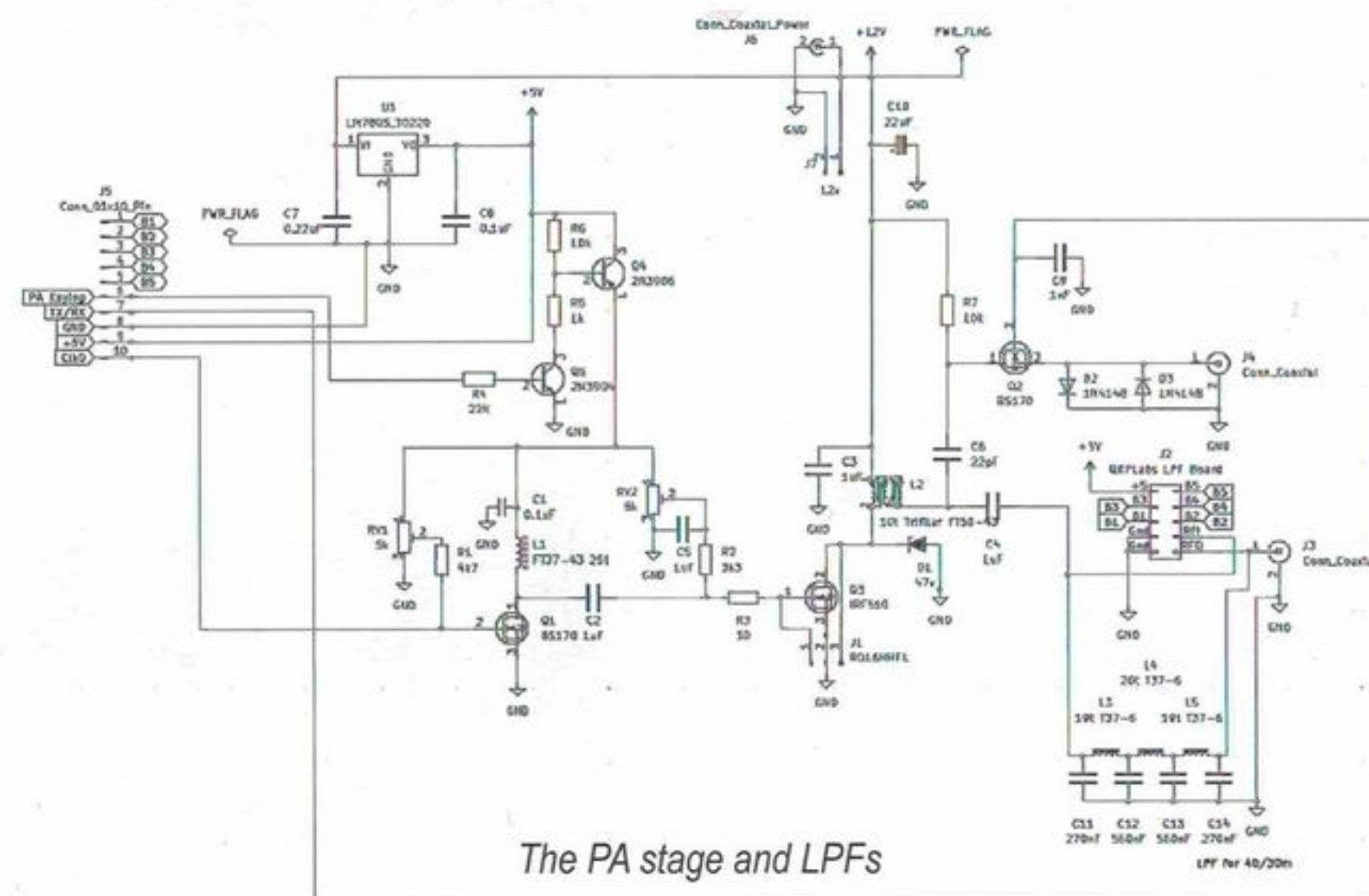
A finished example from the 2016 Buildathon

Daimon Tilley, G4USI #15985



The VFO circuit

Additionally, solid state TX/RX switching is also included, and the board is designed so that either an IRF 510 or an RD16HHF1 can be used. There is the option on the PCB, to leave out the integration of the QRPLabs LPF relay board, and, if doing so there remains an option to include a single LPF of your choice for use on one or two bands



The PA stage and LPFs

Step Three: A portable transmitter

The Nano VFO/PA combination worked well. With an IRF510, powers of up to 12 watts were available on the low bands, dropping to a few hundred milliwatts on 10m. To stay QRP legal would require making the driver stage bias pot adjustable from the front panel. However, the use of the RD16HHF1, whilst more expensive, produced a much more even power output without the need to change drive by band. Therefore bias was set for 5W on 160 – 30m, which gave 3.3W on 20m, 2W on 17m and 12m, with 2W on 12m and 1.1 watt on 10m.

I like things in self-contained packages and set myself the task of combining the VFO and PA board, with a home-brew 3S Li-Ion battery pack with BMS, and with an L Match ATU. Basically I just wanted to connect a small receiver and an antenna and begin to operate.

I secured a Hammond black die-cast enclosure, measuring approx. 171 x 121 x 81mm (Hammond 1550EBK). Imagine the size of a thick paperback novel, and that would be about right.

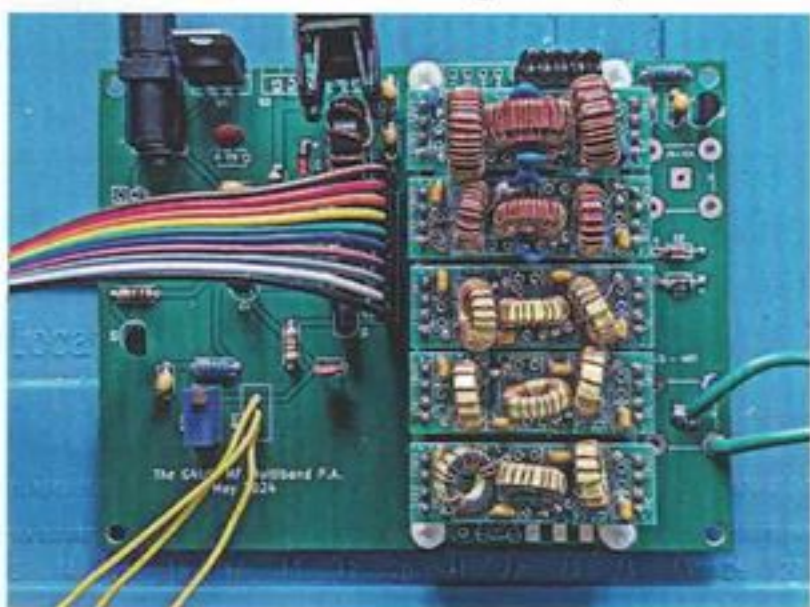
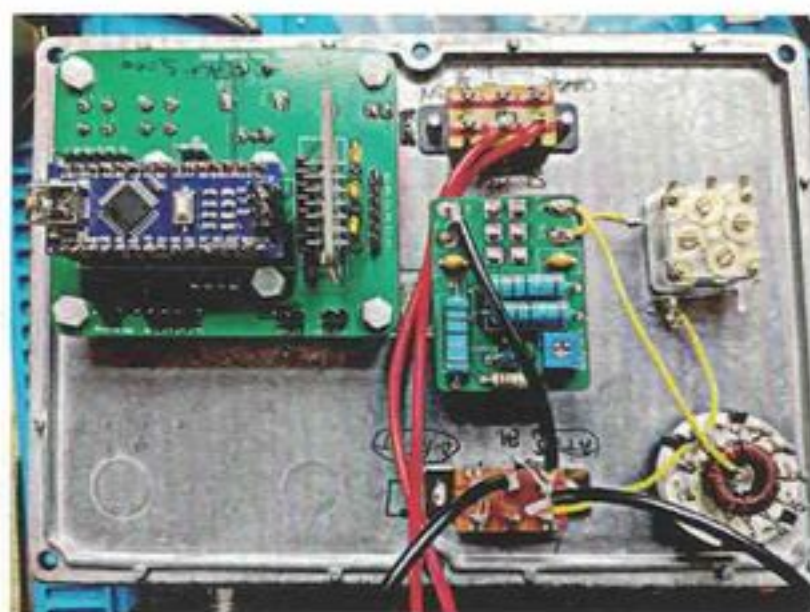
Building the battery pack, and L Match ATU

I also included the Kanga Products SWR bridge, as it was already to hand. The rig can be powered by an external supply of 10–18 volts or the battery can be switched in to power the rig and be re-charged. The L-Match is home brew and can also be switched in or out of circuit as required. Antenna connections are via BNC for the antenna and the RX, which is switched solid state by the VFO. Additional terminal post connections for a wire antenna and counterpoise are also available. Finally a small speaker is included in the front edge of the case for the side-tone.

The whole case was then laser engraved by me to my own design and can be seen in Photographs during the stages of construction.

Step Four: Post Trophy

Whilst the transmitter alone was entirely complete and has made a good deal of successful CW contacts around the world, paired with either my Belka DX or Malahit receivers, you will see that there originally was



an empty space next to the battery pack. Since winning the Trophy I have now included a QRPLabs Tayloe Detector RX module, along with home-brew CW filter and based on the NM0S Hi-Per-Mite design.

The audio amp feeds into what was the sidetone speaker, and I have added a volume control and headphone socket. All are now working well together which is hugely satisfying - the Parker1 Transmitter has become a Transceiver! Highlights include QSOs with HS72KING on 40m (6,050 miles) and N2CW on 20m.

Summary of transmitter features

The project continues to be developed with additional refinements coming frequently, but at the time of writing (February 2025) the feature list is already pretty exhaustive and is listed below and overleaf.

Regulated 12V supply, offering external power source or use of / and re-charging of internal battery pack.

Supply voltage indicated on display.

Ten bands, sharing five Low Pass Filters, as follows:

- 160 / 80m
- 60 / 40m
- 30 / 20m
- 17 / 15m
- 12 / 10m
- Each filter that is selected automatically by choosing the band on the VFO, can be shared in parallel for Bandpass Filter switching in addition, if required.

Options in code for:

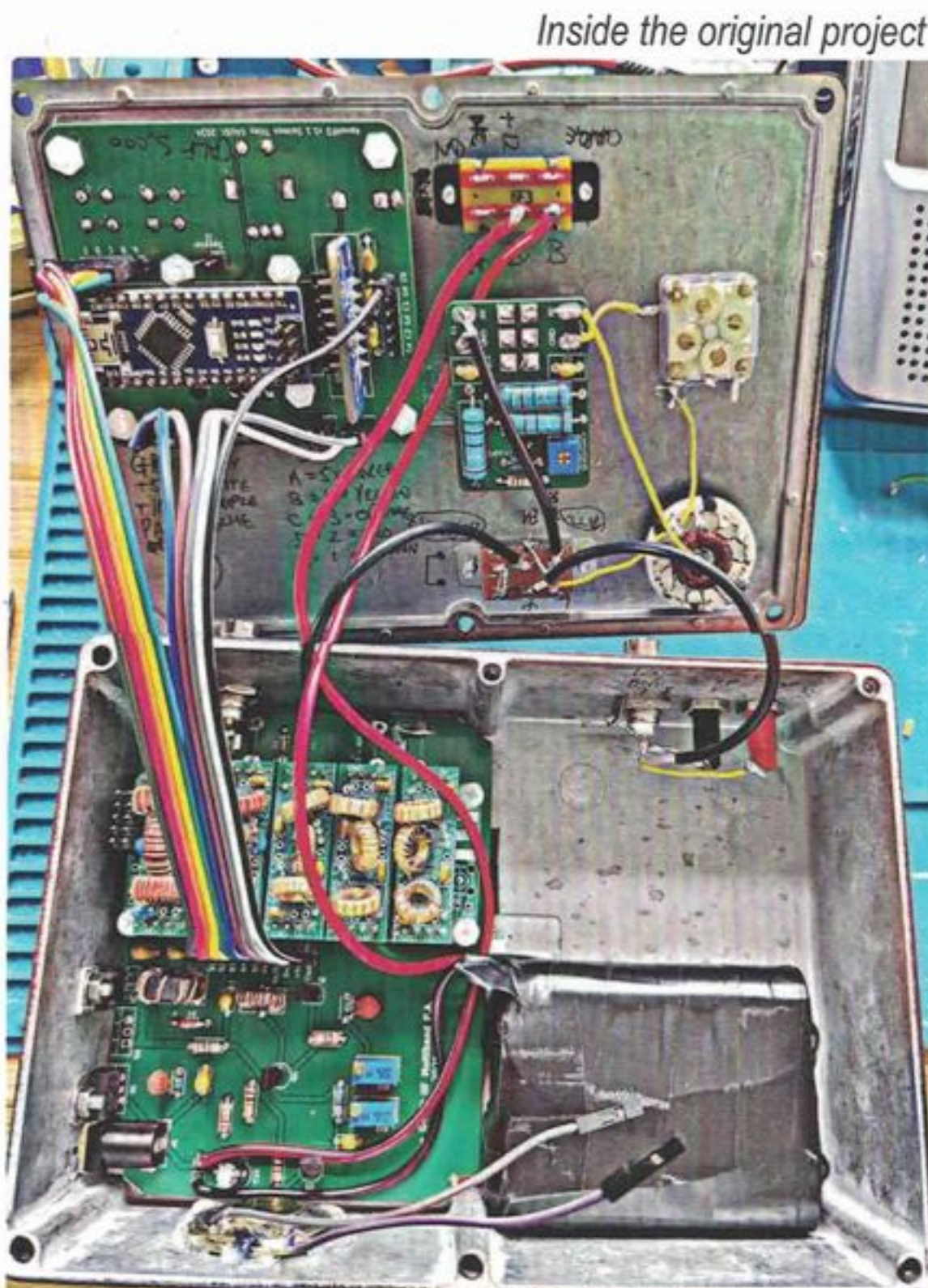
- External RX
- Offset for DC RX
- Offset for Quadrature Receivers
- Option for Superhet IF
- Selectable VFO tuning steps and no-skip tuning
- Cheap but clear OLED display
- Inbuilt detection of straight / iambic keys on power-up
- Inbuilt straight key
- Inbuilt CW keyer code with speed adjustable by potentiometer and displayed on screen. Any speed is possible but currently coded for 12 – 35 wpm.
- Inbuilt single CW memory keyer for a three by three CQ call (can be interrupted)
- Full QSK with automated solid state TX / RX switching
- CW side-tone
- SPOT button (without activating PA)
- Automatic switching of PA bias on TX for low RX current consumption
- Spare Arduino pins broken out on VFO board for future use
- Modular construction to allow for additions, replacements and modifications
- Robust, laser engraved case for a professional look

Conclusion

The inclusion of the RX module, CW filter and audio amp has made this a truly portable HF 'station in a box' and I am delighted with its performance.

The RX uses no BPFs - just the LPFs shared with the TX, and despite two local high power MW stations, BPFs do not appear to be required!

This is my biggest and most complex project to date and I am pleased about how far I have come in my relatively short construction journey. I hope that you find it worthy of recognition. Thank you for considering my project.



Inside the original project

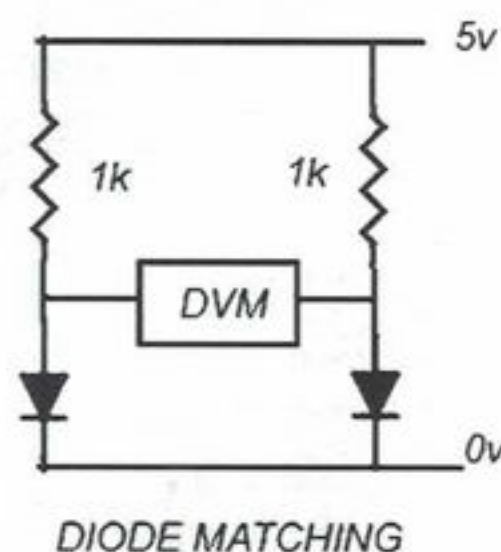
This is a reworked article from Daimon's original submission. If you would like a copy of the original you might like to contact Daimon directly via email at: daimontilley@hotmail.com

Matching diode forward voltages

Peter Howard G4UMB

There are times when building radios that the circuit calls for a diode mixer or a product detector stage, and it's recommended that the diodes should be a matched pair. So how do we find which diodes from our junk box that are matched? The answer is to build this simple bridge circuit on breadboard which I found in a 73 magazine and simplified it.

Using your digital multimeter first find two 1kΩ resistors that measure the same value. Then build the circuit and set your meter on the 200mV range. Test all your appropriate diodes and choose the ones that give a reading nearest to 0V on the meter.



2024 G3RJV Memorial Trophy Runner-up

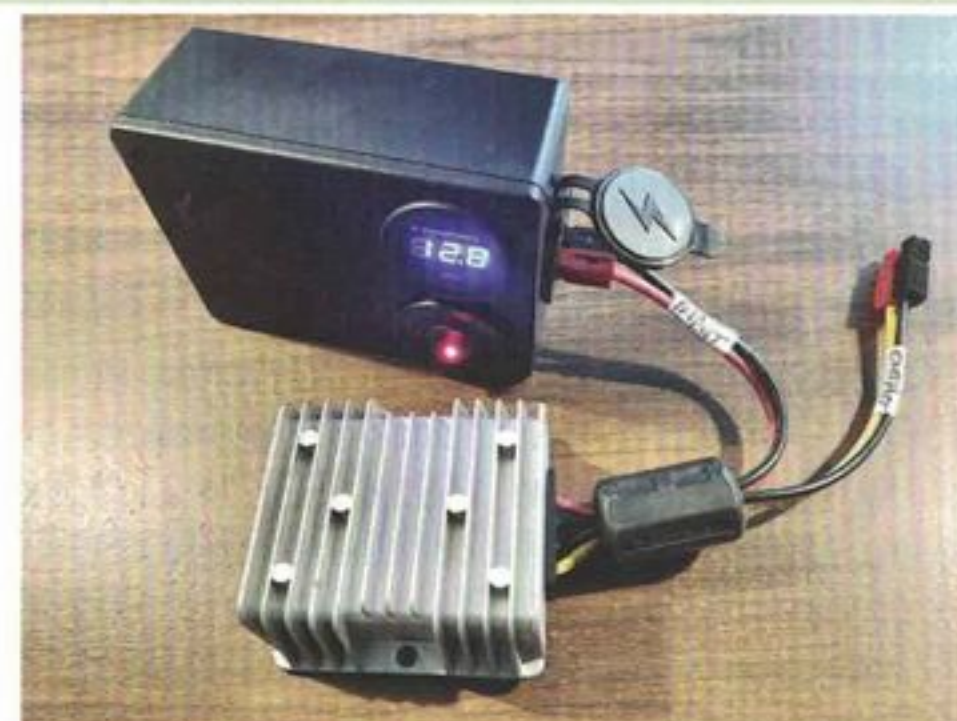
QRP Battery Pack with Buck-Boost DC Regulator

W5AWS Andrew Shead

Motivation

When operating CW, one doesn't need much power to be heard far away. Some operators have extremely portable, lightweight rigs. My equipment is medium to lightweight, easily portable. Lately, my thoughts turned again to lighter-weight rechargeable power with a stable output voltage maintained even at the bottom end of a battery-pack discharge curve.

When operating QRP, RF output power declines with decreasing voltage output by the battery pack, so keeping the system power supply voltage steady at an optimum operating value is a desirable attribute.



Design

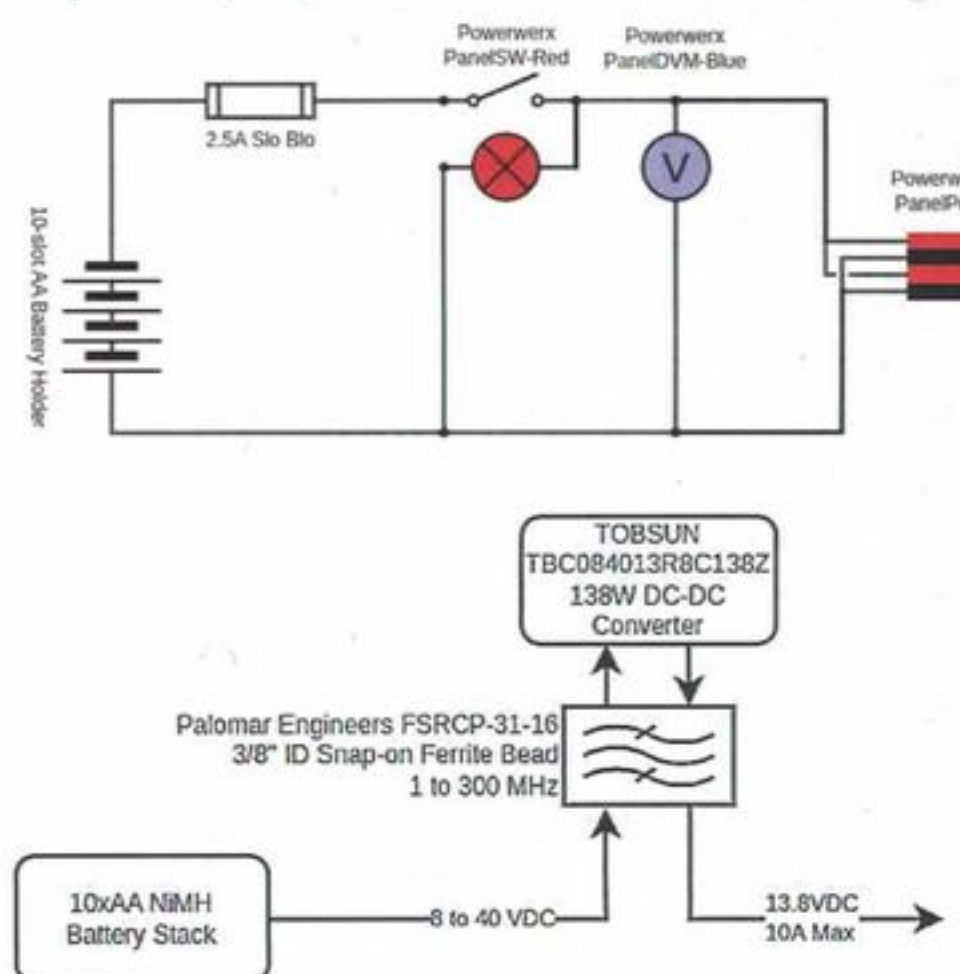
For greatest flexibility of operation, maintenance, and repair, I decided to separate the battery pack from the buck-boost functionality. Main reason for this is that the buck-boost is an inexpensive, disposable module from Amazon at a cost of \$20 in round figures. Also, I could

use the buck-boost separately with alternative sources of stored DC energy.

A predictable problem with the buck-boost is RFI caused by its boost function, indeed so it proved, that the radio-frequency interference was horrible. However, attaching a clamshell ferrite bead around both input and output wires eliminated the interference.

A separate battery pack allows us to have more than one that is easily exchanged in the field with a fully charged replacement.

An inline fuse rated at 2.5A 'slo-blo' provides short-circuit protection, particularly when the possibility exists that the rechargeable cells could be replaced with Lithium AA cells that can deliver more current.



Original AA Battery Pack idea above, then below it the Battery Pack with Buck-Boost Converter

I intended this design for use with 2800mA/H NiMH batteries. The illuminated switch, digital voltmeter, and Anderson PowerPole connector are unused parts from another project. Lit-up like a Christmas tree, there is almost no chance the operator will leave the PSU energized unattended, consequently discharging the battery pack.

By monitoring the PSU voltage, the operator can easily see when it is time to recharge the batteries instead of discharging below the critical voltage of the cells. Without a battery-pack voltmeter, when using the pack with the buck-booster there would be no indication of state-of-charge until it stops working altogether.

Bill of Materials

Tobsun, DC-DC Buck-Boost Converter, Pt. No. TBC084013R8C138Z. 8, 40VDC input, 13.8VDC output, 138W. <https://www.amazon.com/dp/B089M5KYZM>

Hammond Enclosure, 1591XXSBK, 4.3 x 3.2 x 1.60 inches.

<https://www.hammmfg.com/part/1591XXSBK?referer=1182>

Battery Holder, Eagle Plastic Products, 12BH310A-GR.

<http://www.mouser.com/access/?pn=12BH310A-GR>

Powerwerx Panel Mount Red Switch for 12V Systems, PanelSW-Red, 840128902530.

<https://powerwerx.com/panel-mount-red-switch>

Powerwerx Panel Mount Digital Blue Volt Meter for 12/24V Systems, PanelDVM- Blue, 840128902349. <https://powerwerx.com/panel-mount-digital-volt-meter-blue>

Powerwerx PanelPole2, Panel Mount Housing for Two Powerpole Connectors with a Weather Tight Cover, PanelPole2, 840128906057.

<https://powerwerx.com/panelpole-panel-mount-powerpole-black-dual>

Littelfuse In-Line Fuseholders for 2AG or 5x20mm Fuses.

<https://www.mouser.com/ProductDetail/Littelfuse/01500274ZXU?qs=HS3fcsxbgMwxzHo3fy8LGg%3D%3D>

Littelfuse 2AG Cartridge Fuses 250V 2.5A Slo-Blo.

www.mouser.com/ProductDetail/Littelfuse/022902.5MXP?qs=8QfiMw8FY5PMsACUjS54fQ%3D%3D

Tenergy Premium PRO Rechargeable AA Batteries, High Capacity Low Self- Discharge 2800mAh NiMH AA Battery, 20 Pack, 10446.

<https://power.tenergy.com/tenergy-premium-pro-rechargeable-aa-batteries-highcapacity-low-self-discharge-2800mah-nimh-aa-battery-20-pack/>

Tenergy TN160 12-Bay AA/AAA NiMH/NiCd LCD Smart Battery Charger, 01160.

<https://power.tenergy.com/tenergy-tn160-12-bay-aa-aaa-nimh-nicd-lcd-smart-batterycharger/>

Palomar Engineers, Ferrite Snap on/Ring Combo Pack, Mix 31, RFI Range 1, 300MHz 16 filters, FSRCP-31-16.

<https://palomar-engineers.com/ferrite-products/ferrite-beads/Ferrite-Snap-on-Ring-Combo-Pack-Mix-31-RFI-Range-1-300-Mhz-16-filters-p78504431>

About the most convenient form-factor for DC power is the rechargeable AA battery. Nickel-metal Hydride (NiMH) battery chemistry has two to three times the capacity of Nickel-cadmium (NiCd) batteries, and is not subject to the memory effect of NiCd cells, though NiMH cells can develop voltage depression from repeated partial discharge.

Voltage depression is reversible with a few full charge-discharge cycles. Another

advantage of the AA form-factor is that an operator could use nonrechargeable AA batteries in place of NiMH rechargeable batteries.

Battery Pack

Since a NiMH AA battery produces a nominal 1.2V output, a ten-slot series-battery holder will produce 12V. In practice, a fully charged stack of batteries in good condition produces a no-load measured voltage of 13.56Volts. Charging A fully charged cell supplies an average 1.25V per cell during discharge, declining to about 1.0–1.1V/cell, with further discharge liable to cause permanent damage to cells in a multi-cell pack. Over discharge can cause polarity reversal in one or more cells of a multi-cell pack. Therefore, when the battery-pack voltage drops to 10 Volts, it's time to recharge the cells.

Charging Procedure

Given the inevitable slight physical variations between individual cells, manufacturing tolerances, and failure modes, best practice is to remove the cells from the pack and charge them individually in a multiple-cell NiMH charging unit that also performs health checks on each cell.

Indicator Load

Total measured load of the indicators is 18 mA: Voltmeter = 7mA plus Switch LED = 11mA

Construction

Installing the parts into the Hammond enclosure produced a tight fit with barely enough space to get everything inside, but it all worked out in the end. Inside the enclosure, there are posts on which it is possible to install PCBs, both in the body of the enclosure and in the lid. I removed these posts by cutting the away with a pair of end cutters.



Mounting Holes

To cut the holes for the switch, DVM, and connector, I used a step-drill in a battery operated variable-speed drill motor running slowly.

Connections

All in-line solder joints I covered with heat-shrink tubing. I installed the connector first after populating the connections with wire pigtails. All interconnections were made by soldering to the terminals of the switch and meter.

References

Nickel-metal Hydride battery:

https://en.wikipedia.org/wiki/Nickel%E2%80%93metal_hydride_battery

Gabil GRA-7350T Portable HF Antenna

John, VE3IPS ve3ips@gmail.com



Clamped to a railing

The Gabil GRA-7350T antenna is a game-changer for portable amateur radio enthusiasts. Its compact physical size combined with the common 3/8-24 stud thread makes it an excellent choice for on-the-go operations.

<https://www.gabilradio.com/ga-7350t>

When I first saw the Gabil antenna come onto the marketplace, I really didn't pay too much attention to it because it looked to me like another compromise antenna that had a PL-259 connector (M-P). I already had the Comet HFM-350 that uses that connector and I just found it to be somewhat limiting in how I would deploy it. My BNC mount GRA-1899T antenna could also be used with adapters. I don't really like the M-P connector that much, as most of my antenna systems use the standard 3/8-24 connector. I do use them with the Wind Camp RC-1 bracket.

As soon as I saw that they were releasing a version with the 3/8"-24 thread, I knew that I had to have one because now I have the ability to use that with various mounts that I have acquired over the years that I found to give me the most flexibility in the way I need to operate.

The use of the common 3/8-24 stud thread adds immensely to its versatility. This thread size is widely used in the industry, allowing users to easily mount the antenna on various portable setups without the need for additional adapters or modifications. Hip Hip Hooray for Gabriel taking notice to offer this antenna with this thread.

Another strong attraction to this antenna was the fact that it packs down into a small form factor. It could almost fit into a vest pocket. In fact, it does fit into a vest pocket in my Burberry Spy trench coat. The size is as follows: 80m coil 6.5 inches, main loading 11 inches and the telescopic whip is 9.75 inches. It weighs a light 340 grams. I found a perfect carry case as shown on the right.

IMPORTANT ADVISORY:

"This antenna is designed to use the car body or the metal handrail as the ground earth when the portable use only. I have deployed the antenna that way using a

JAWS clamp made by Workman. However, experiments showed that it can also be used on a camera tripod with appropriate counterpoise wires.

With an upcoming trip to Spain, I also thought this would be ideal for POTA and portable activations. It covers 40-6m plus 80m with the add-on coil. This also allows enhanced shortwave listening and CB radio activity. When I was out and about playing radio, it fit inside my backpack pocket without a worry.

I brought my Icom 705 and my portable CB on this trip to Europe. It turned out this antenna was ideal and also took it along on several bus tours we did. I used RG-316 coax as well to keep things light. I did bring another telescopic antenna system as a backup.

I was right. This antenna packs down pretty small, its light, and it's very efficient. For its small size, it will never out-perform a full quarter wave antenna but who can or be able to deploy that in a public space without drawing attention or something that's too heavy. If you are driving to the beach or to the park, then weight isn't an issue, but if you are hiking to the operating location, doing a SOTA summit or just taking the bus into the city park then a small light weight antenna that is efficient and radiates well is what you need.

It uses a slider control that adjusts the Inductance of the coil to match it to the frequency that you plan to operate on. No antenna tuner is required!

It is very simple to use. You just adjust the slider control up or down for maximum noise. And then make small adjustments in order to get the SWR under 1.5 to 1. I was often able to adjust the antenna to the sweet spot just by listening to and looking at the meter for maximum signal. Of course, I was using this antenna in a portable environment with a JAWS clamp attached to a metal pipe or railing. I did have 16 feet of counterpoise wire that sometimes I used.



On the rubbish bin

I also used it on the CB radio band and for listening to the SW Broadcast bands.

I found the Gabil antenna allowed me to make contacts in various locations and was fast to set up and somewhat stealthy.

The Hotel had a rooftop pool and I used my JAWS clamp to mount it on an outdoor shower. I used it in Gazamel during a tour after having lunch attached to a garbage can. Photo 3 Another time it was CB radio on a railing.

The next hotel I stayed at in Madrid had its rooftop pool under renovation, and I was able to clamp the antenna to the hotel room window frame. I had it sticking out (I had some Paracord attached to the clamp and the antenna for safety) and I could hear stations but the noise level was S9. This was not a good location. Many



Parts to the antenna (JAWS clamp is an accessory from a 'Workman')

city Hotels are noise magnets.

Back home, I tried it on the local ONTARS Net on 3755 KHz. A very short antenna on 80m is not going to work DX but it allows great reception and I did try it and work a couple of stations 100 miles away. Next up is to try it with higher power with the Yaesu FT-891 as it supports 100W PEP.

Another great feature was it can be easily used with my other portable radios that do not have a tuner. The slider does all the tuning.

I had it out in a light rain and windy snowfall and so far no rust and I do wipe it and ensure it's dry before putting it away, but the quality of the materials is very high. The threads are tight and no wobbling. I get really upset when antennas I buy fall apart quickly due to poor quality and bad workmanship. Buy once – Cry only once too!

I also have an antenna tripod mount I made that I use with my Manfrotto tripods. This antenna requires a counterpoise in that configuration. I use two 17 ft wires, or 4 ten foot ones. Even though it's a mobile antenna it can be used as a portable antenna out in the field with a tripod. Gabil offers a nice one as an accessory. I use them elevated for the longer lengths and the 10ft ones are for use laying on the ground.

Elevated operation is preferred but anything works. I don't spend too much worrying about all of this because all I really want is to deploy the antenna quickly and start making contacts quickly.

My friend is stuck in a Home owner association (HOA) community where 'Fiona' is on the lookout for violations but with this antenna he can mount it on the patio table and he can FT8 all he wants. In fact if the HOA police knocks on his door he can quickly collapse the whip, unscrew the base coiled and put it in his pocket as he goes to answer the door...antenna what antenna? With the tripod accessory,

Brian can set it up in his second floor study. Naturally, SSB needs more signal power and he can use this antenna with his FT-891 at the park.

I plan to put a stud mount on my bicycle rack and use this antenna for operating from my bicycle. Stationary of course. The telescopic whip antenna can be bent if it gets snagged by a tree branch or if handled roughly.

Before I get 1000 messages, the antenna was packed in its heavy duty vinyl bag and went through several airline security checkpoints and several train station security lines with no concerns, issues or baggage inspections.

Overall, the Gabil GRA-7350T antenna is a must-have for any amateur radio operator seeking a compact, reliable, and versatile antenna solution for portable operations. Its combination of compact size, common thread compatibility, and robust performance make it a valuable addition to any radio enthusiast's toolkit.

73s, John VE3IPS



Poolside operating

Antenna end fittings.

Andy Eustace, M0RON, Cheltenham

If like me you like getting out operating portable with wire antennas then I have a tip that may be of interest to you. I use the Sotabeams lightweight wire to make my own antennas using one of their top insulators to attach the antenna wire to the top of my telescopic mast. Until recently I used one of these on the end of the wire to act as an insulator and attachment point for a cord to peg out in the ground. The problem I find is tuning the antenna to length and then knotting it to the insulator, but not anymore.

The solution,

I like working on the KISS principle and came up with this easy solution to fitting a tensioning cord to the antenna wire, it's reusable, cheap and allows easy adjustment of the antenna wire. One of my other past hobbies was flyfishing for Stillwater trout and there was always an issue of attaching leader lengths to the flyline whilst maintaining good presentation, the solution was to use braided loops.

I then thought that this could be applied to attaching cords to antenna wires, I tried it and it works, remarkably well. The loops can be bought in various sizes and breaking strains, I use 30lb breaking strain and is suitable for use with Sotabeams lightweight wire and DX Wire ultralight. Heavier wire may need heavier gauge loops.

Your local fishing tackle shop will be glad to advise. Supplied in packs of 10, each with a small plastic end sleeve. Fitting them is easy and takes seconds. The loops are made of a braid fashioned into a tube with a small loop at one end, simply lengthwise compress the non-loop end slightly and insert the end of your antenna wire for around 2cm. Now if the loop end is pulled it will be difficult to remove from the antenna wire, the more tension the tighter the loop grips the wire.

Tuning changes are no problem, If it's found that the antenna is too long and needs shortening, a slight compression on the braid will enable the wire to be withdrawn easily, adjustment made, then refit into the endloop. Remember the small plastic sleeve mentioned earlier? Once the antenna is adjusted to satisfaction the plastic sleeve is then slid along the loop and covers the braid and wire adding extra security to the joint. If you are nervous over the security of the connection a small drop of superglue can be used.



For SOTA, POTA, portable and holiday use this method of attaching a cord to peg the antenna out is great, it's cheap, lightweight, easy to use, reusable and also it acts as an insulator as well, just tie the end of the final cord to the eye in the braided loop.

Supereth Valve Receiver "Partridge"

Giovanni Lorenzi, IT9TZZ, email: it9tzz@gmail.com

I like to spend the warmer months in Tortorici, a Sicilian town in the Nebrodi area, where I can better carry out my activity as a radio amateur and experimenter. Here I met many interesting people who gave me the sense of true friendship and with whom I acquired a taste for slow living, with the rhythm marked by life in a mountain community that until recently was quite isolated, where things are not all discounted; in many cases, we need to sharpen our ingenuity and creativity to solve everyday problems, especially in the technical and technological field.

One of these people was Antonino Di Marco (SK), a pioneer of radio and television reception in Tortorici and a self-taught radio technician. I considered him a radio amateur, even if he didn't have the authorization, simply because he embodied its spirit.

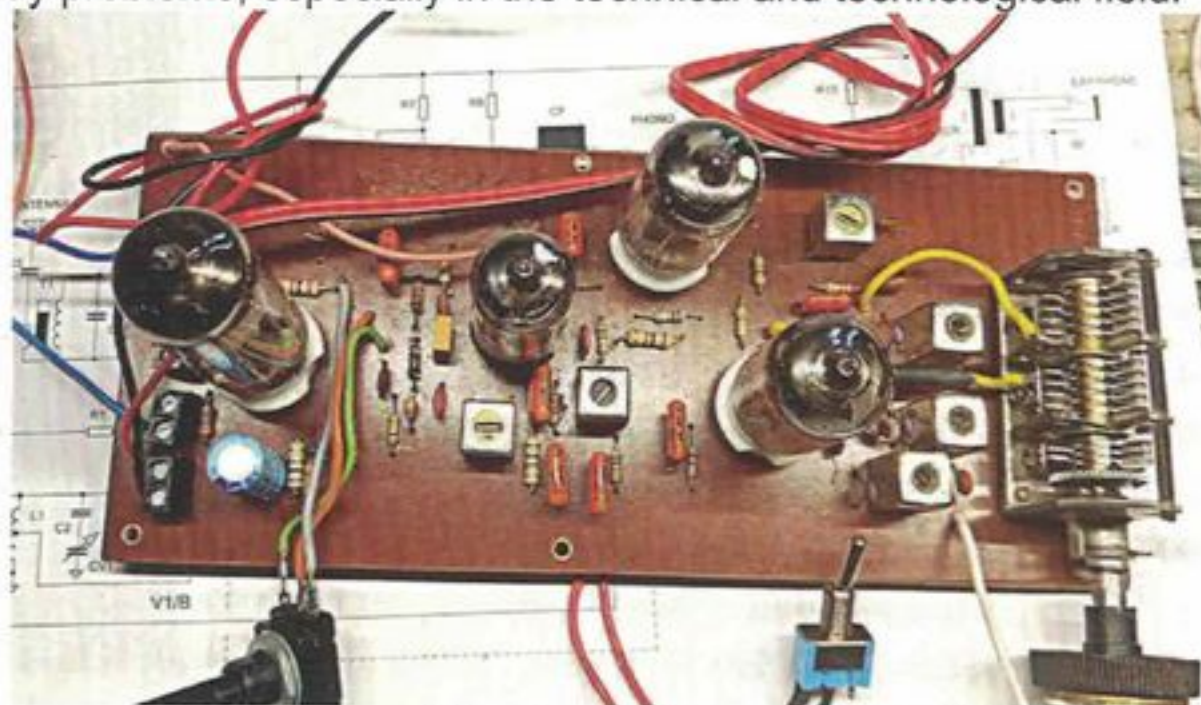
On several occasions he competently participated in the remote monitoring of the transceiver equipment that I set up. Our friendship was simple, founded on a shared passion for radio and everything technological.

Among other things, he was a volunteer guide of the Ethno-anthropological Museum of Tortorici, where he welcomed tourists from all parts of the world with his characteristic liveliness tourists from all parts of the world, who appreciated his simple and colourful way of telling the life and professions of the past.

The custom, widespread in the Tortorician area of having a nickname that is handed down from father to son and intended, however, exclusively for the first-born son, imposed that of "Pernice" (Partridge in english language). For him it was a source of pride and he was proud of it.

At this point the reader will be wondering what the connection is between Antonino Di Marco and the title of this article. Nino "Pernice" was also very generous. Knowing my attraction for tubes, he gave me many types of tubes and I was able to do my first experiments with them. When he entered my laboratory station, which he jokingly called my "holy of holies", he was pleased, observing his valves that had given shape to modulators, receivers and transmitters. I therefore wanted to revisit one of these tube receivers, based on my recent experiments and thus pay due honor to a friend.

The technology tried to replicate the behavior of the thermoelectric valve with transistors, with the aim of obtaining the same responses in terms of dynamics and harmony. In the low frequency area, particularly in audio reproduction, a marked superiority of the valve over the transistor has been established. From the point of view of radio engineering, I considered the close analogy that exists between the field effect transistor (FET) and the triode valve. Both have three electrodes, which allow them to interface with the outside, as follows: drain-anode, gate-control



grid, source-cathode.

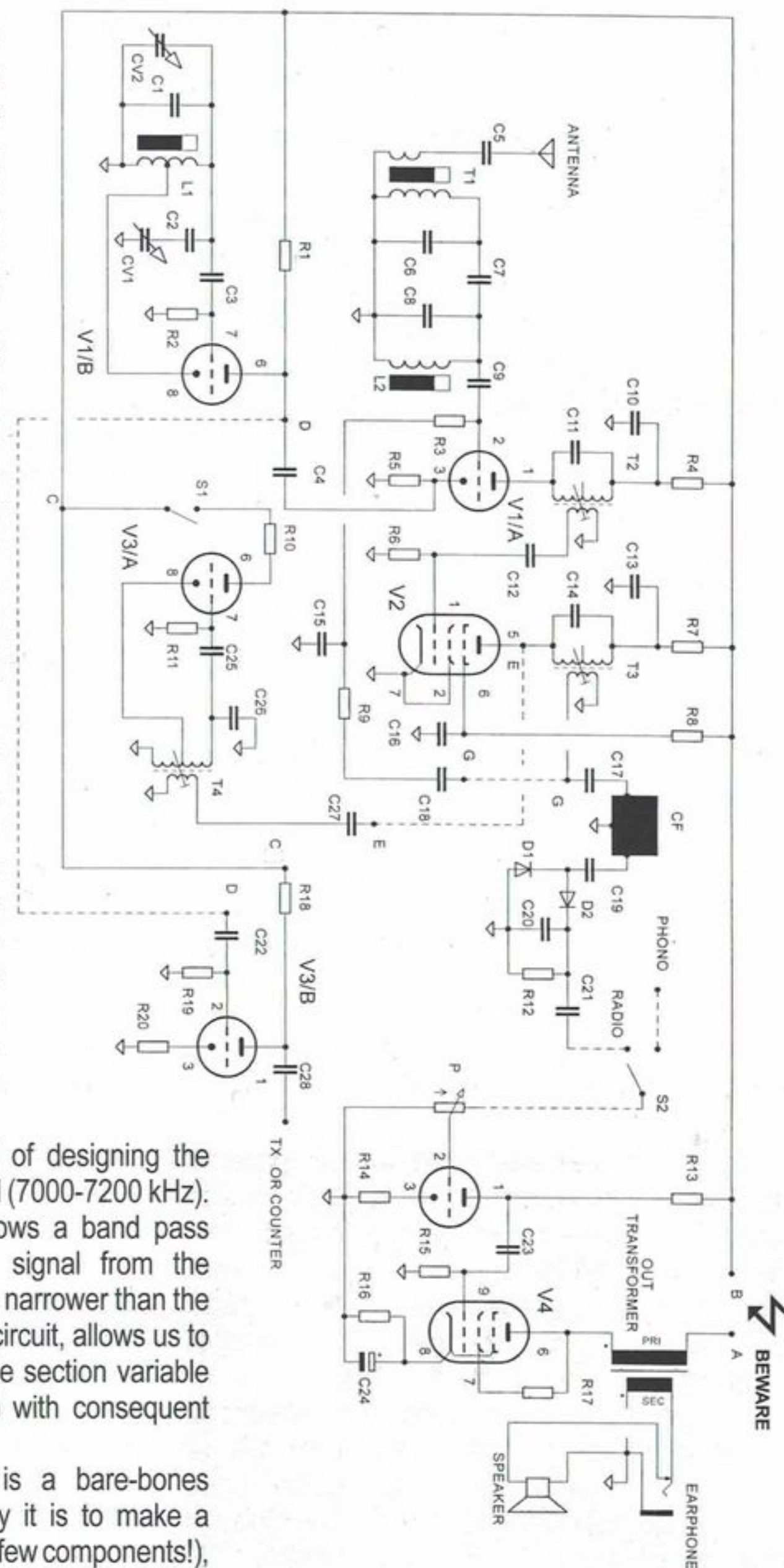
This structural consideration was one of the many teachings received from my Elmer, IT9AQF (SK) to whom I gratefully owe my knowledge in the HAM field. The result is a very simple four-valve device, simple in terms of circuitry but also anything but simplistic, with fairly available valves, moderately compact in size and with very flattering performance. Among other things, it is easy to set up, an aspect considered the "Achilles' heel" of the homebuilder, in the presence of superheterodyne receivers.

My "Partridge" does not present excessive alignment problems given the specific circuit simplification, which does not require the use of sophisticated instrumentation.

I set myself the goal of designing the receiver for the 40m band (7000-7200 kHz).

The schematic in shows a band pass filter that receives the signal from the antenna. This filter, much narrower than the classic single tuned L-C circuit, allows us to avoid the use of a double section variable capacitor (dual ganging) with consequent ease of tuning.

The local oscillator is a bare-bones Hartley circuit (how easy it is to make a valve oscillator with just a few components!), which is based on a triode section of the



V1/A valve. The conversion takes place on the other triode section of V1/B which receives, on the control grid, the filtered signal coming from the antenna and on the cathode the one produced by the local oscillator.

Only the resulting signal at 455 kHz (defined value of the medium frequency) is allowed to pass downstream from the coil marked T2 made up of a tuned IF transformer. This is followed by radio frequency amplification with V2, also tuned to 455 kHz and a passage through an CF filter which guarantees a definitive narrowness of the passband.

Finally there is the revelation with the usual germanium diodes in the voltage doubler configuration, which is more congenial to me, and a rather generous and "enveloping" amplification with V4 regarding the quality of the audio. The CAG (Automatic Gain Control) circuit formed by R9, C18 and C15 acts on the polarization of the V1/A control grid, guaranteeing a signal always at the same audio level.

The BFO is structured with V3 of which I only used one triode section, I'm thinking of using the other to drive a frequency counter or a future transmitter.

The three coils (photo 1), to be wound on the usual 5 mm diameter plastic supports equipped with a screen and an adjustable ferrite core, are composed as follows: L1 with 32 turns of 0.16 mm diameter enamelled copper wire with socket intermediate to the 10th turn on the ground side. L2 with 32 turns of 0.16 mm diameter. Same number of turns and type of wire for the secondary as T1 (towards C6) and 7 turns of 0.2 mm enamelled wire for the primary (towards C5). The two medium frequencies MF1, MF2 and MF3 contain the capacitors C11 and C14 and C26 inside them.

For testing and calibration operations, I recommend operating in moments of good propagation, when the 40 m band comes alive. The general test could be done with certainty of success during one of the usual contests when constant and strong signals are present. Connect a good antenna (I used the dipole) and open the entire variable capacitor CV1 in order to obtain the minimum capacitance. Tune the frequency of 7655 kHz (7200+455 kHz) with the continuous coverage receiver of the amateur radio station and rotate the L1 core until you observe a strong carrier signal highlighted by the S-meter of receiver of ham station.

Without touching the core of L1 anymore, rotate the CV1 pin in the opposite direction (maximum capacity) to read the minimum value of the frequency produced by the local oscillator which should contain that of 7455 kHz (7000+455 kHz = minimum limit of the frequency band 40 m). Obviously these operations would be made easier by the use of a frequency counter.

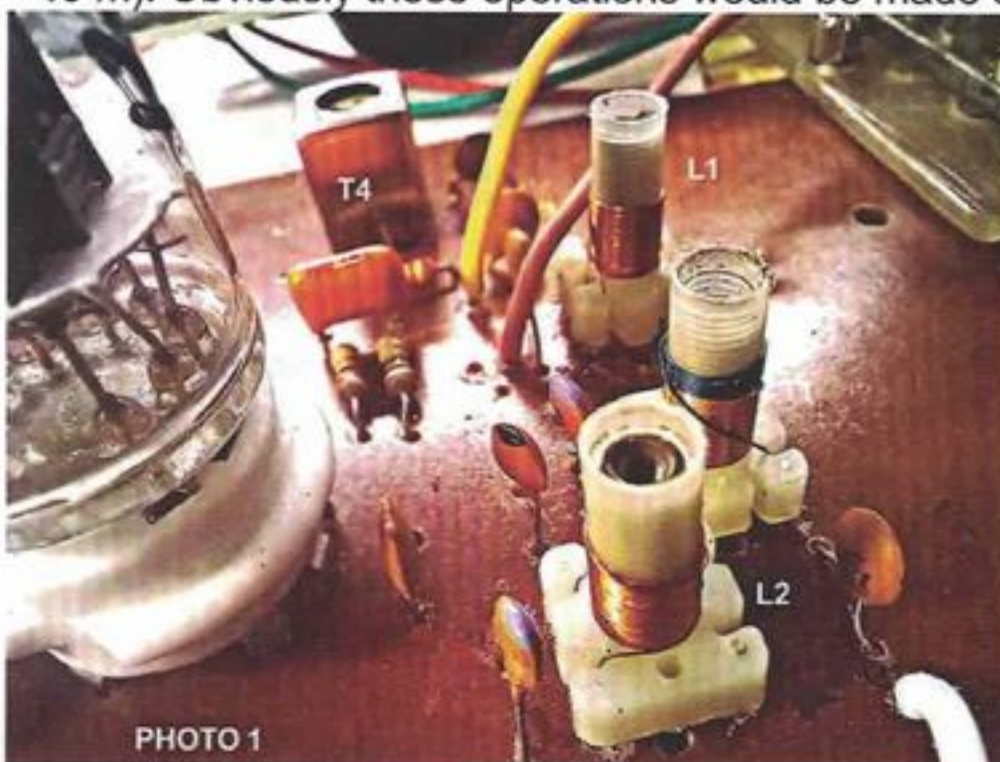


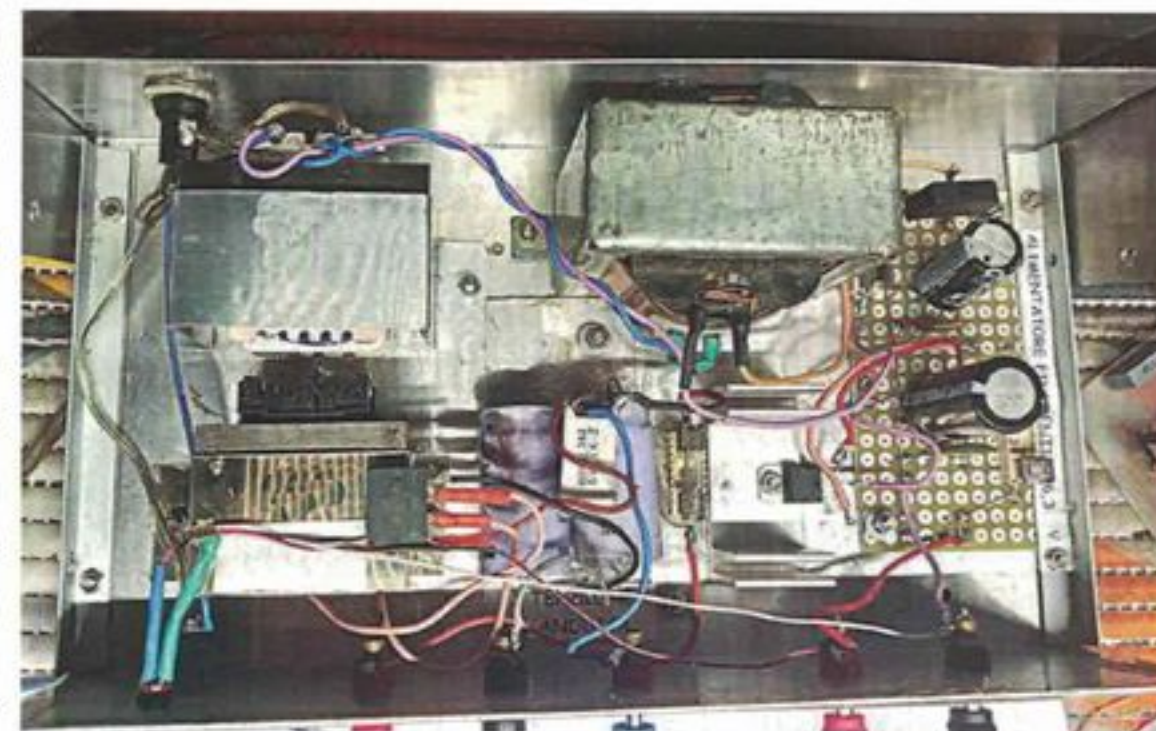
PHOTO 1

Adjust the cores of T1 and L2 very slowly to fine-tune the bandpass filter values: by tuning a station you should find the best audio/noise result. At this point adjust, in sequence, the T3 and T2 cores for maximum audio performance. If necessary, slightly retouch T1 and L2.

During the calibration phase, the actual frequency range will be realized and, possibly, the preferred frequency portions will be managed as best as possible and according to preferences. I have widened the reception range to

also include the neighboring 41m radio band, giving space to my nature as a broadcasting listener, my "first love".

The capacitor C2, possibly placed in series with CV1, will serve to reduce any excessively large value of the variable, to obtain a reduced range of receivable frequencies, therefore its value will be chosen based on personal needs. If the range of your CV1 has a small value, you can connect it directly to the x point of the layout and omit C2. It will also be convenient to use a CV2 variable capacitor of very small value to achieve fine tuning.



Some additional considerations are in order. I used copper-plated Bakelite to make the printed circuit (see photo 2) because it, with the heat developed by the valves, gives off the classic smell of vintage equipment, which isn't a bad thing: like the eye, the nose also wants its part!

The nominal anode voltage of my power supply is around 280 V no load voltage but you can vary it as you wish, keeping in mind the recommended voltages for the four tubes. Figure 4 shows the schematic and the values of the power supply that supplies the anode voltage and that of the tubes filaments. The construction is visible in photograph 3.

Just as you will have to choose the output transformer with the appropriate impedance value for the type of final valve, possibly instead of the ECL85. In all cases you could omit the valve low frequency stage by reproducing the audio with any BF amplifier or even with your PC sound card. This ploy would, however, do little honor to the fee imposed in the mandatory use of valves.

To fine-tune LSB reception it is necessary to close the S1 switch and tune an amateur radio transmitting by voice, slowly adjust the T4 core until the modulation is clear. This operation must be carried out once and for all. Obviously, for amplitude modulated reception the S1 switch must be opened.

With the S2 switch (optional) you can use an external signal coming from a CD player or whatever to drive the V4 valve and achieve the warm and captivating listening experience typical of valves.

The dotted lines in the diagram indicate the use of coaxial cable to transfer signals.

Don't forget to connect, with a coaxial cable under the printed circuit, the points G indicated in the layout, which activate the Automatic Gain Control (CAG) circuit. All connection points under the PCB are indicated by the darkened holes on the pin.

I will never tire of urging builders to carefully create the receiver coils because the success of the receiver depends on their efficiency.

It seems obvious but I recommend connecting the valve pins for the filaments with short twisted wires, the heaters and pin connections are not drawn in the layout.

I have already written about the advantages of the tube receiver, as usual I will also add

the defects, the most important of all is the size and weight of the entire structure which, between power supply, output transformer and tubes, adds up to a few kilos and passes. In short, a receiver that is anything but portable and this makes us reflect on the importance of technological research to obtain increasingly significant advantages. The construction of a transistor receiver that has the same performance would result in a circuit that would measure less than a square decimeter and weigh about a pound.

Another defect of the receiver consists in a poor sensitivity due to the use of the 12AX7/ECC83 valve indicated for low frequency use. Listening through headphones is preferable to listening through a speaker especially when listening to HAM. Surely, the use of another amplification stage would resolve the situation but, in my opinion, the simplicity of the project would be missing, a specific peculiarity

I recommend handling the appliance with caution and always making sure that it is not powered. During setup, pay attention to the anode voltage, operating with caution and well insulated.

The project is complete with printed circuit board (figure 2 actual dimensions cm 17x7,5), layout of the components (figure 3) and some photos that will help in the creation. The videos posted on my YouTube channel IT9TZZ will give a concrete idea of its performance:

Reception LSB 40m <https://youtu.be/NhWvA4y-zBk>

Reception CW 40m <https://youtu.be/dElsLq0ZYp8>

Reception AM 41m https://youtu.be/mZXDfv3i_nw (VOICE OF AMERICA reception)

For any clarifications, please contact it9tzz@gmail.com

RESISTORS

(Unless otherwise indicated all 1/4 W)

R1= R7=R10=R18= 10 kΩ

R2=R11=R19= 47 kΩ

R3=R6= 1 MΩ

R4= 4,7 kΩ

R5= 1 kΩ

R8=R16= 100 Ω 1/2 W

R9= 2,2 MΩ

R12= 100 kΩ

R13= 270 kΩ

R14= 1 kΩ 1/2 W

R15= 470 kΩ

R17= 33 kΩ

R20= 1 kΩ 1/2 W

P= 470 kΩ Volume potentiometer

CAPACITORS

C1= 68 pF

C2= Read text

C3=C5= 220 pF

C4=C10= 39 nF

C6=C8= 68 pF

C7= 3.9 pF

C9=C21=C23=C15=10 nF

C11=C14=C26= Included in T2, 3 & 4

C12=C18=C22=C28= 100 nF

C13=C16= 82 nF

Giovanni Lorenzi IT9TZZ, Via Catania 16,
98124 Messina, Italy

C20= 100 pF

C24= 25 μF/50 V Electrolytic

C25= 330 pF

CV1= 10-20 pF Variable capacitor

CV2= (Read text)

VALVES

V1=V3= ECC83/12AX7 Double triode

V2= 6BA6 Pentode

V4= ECL85/6GV8 Power triode-pentode

VARIOUS

L1-T1-L2 = Read text

T2 = Medium frequency coil 455 kHz black core

T3 = Medium frequency coil 455 kHz yellow core

T4=Medium frequency coil 455 kHz yellow or black core

FL= Murata SFU 455 B filter

D1=D2= Germanium diodes of any type

TU= Output transformer

S1= Switch

S2= Switch signal

Surprising QRPp

Ken Ruiz ZB2MD (#2065) email:ken.zb2md@gmail.com

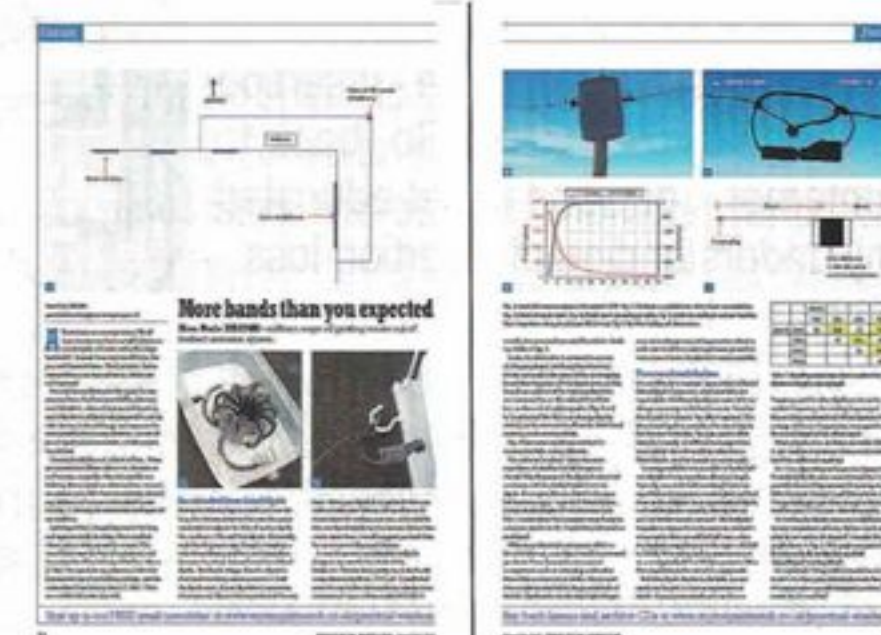
This is not so much an article, rather more for the "Letters to the Editor" section...

SPRAT winter edition No. 201, carried an item by Eric ZL2BMI telling how he had spanned 3000km with seven components. This prompted me to recall a not-quite-a QSO that I had on 21st April 2024 with HB9IJW.

The equipment

I had acquired a Quansheng VHF/UHF hand-held transceiver and was mightily impressed with it. I'd also uploaded the IU0IJV firmware onto it.

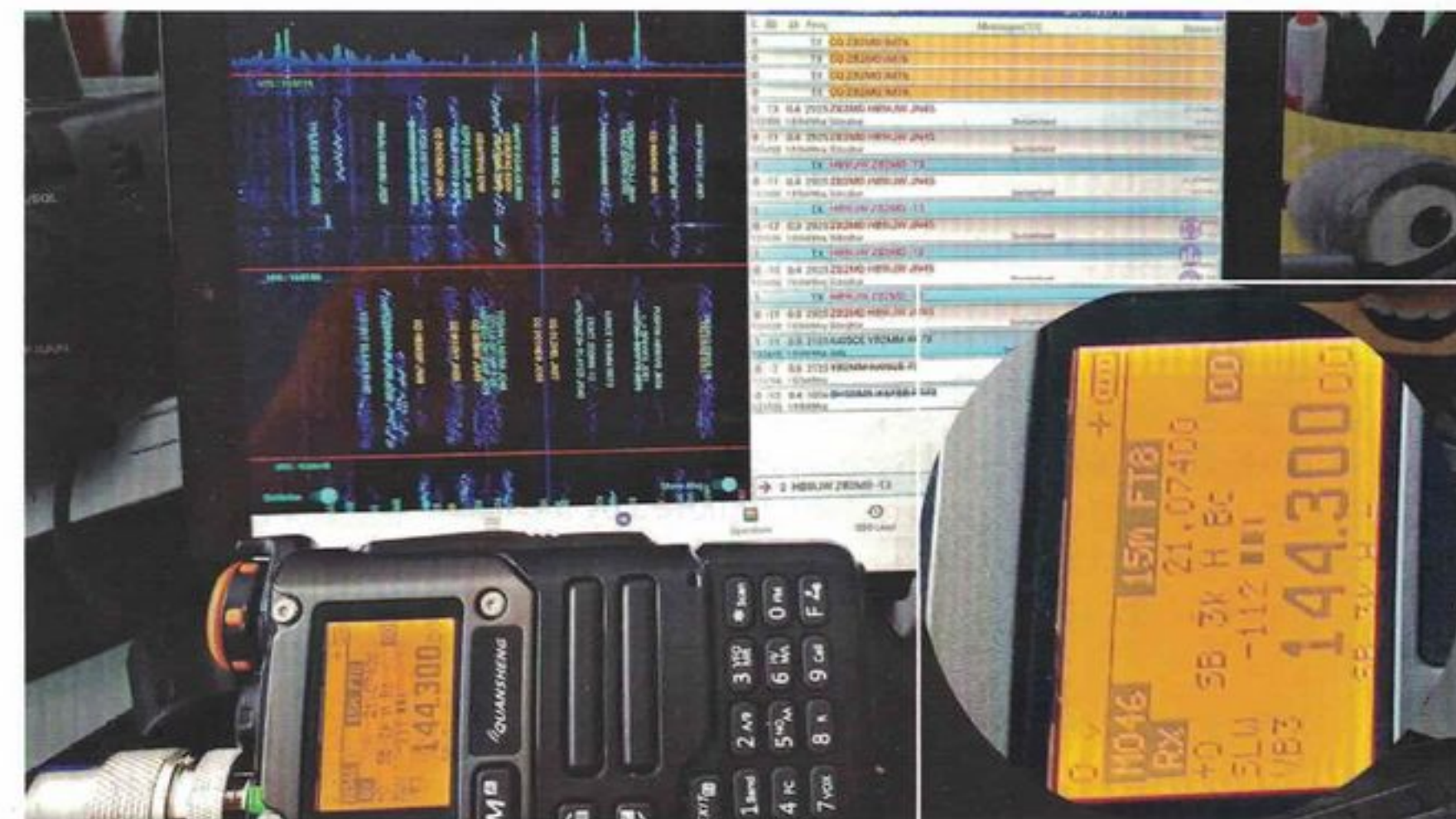
Now, I know it's naughty, but my dipole (see PW Nov 24, p22-24) was tuned to 21.074MHz and I thought, "why not?" I had read the Quansheng might put out about 2 mW at this frequency, so off went my CQ call, running FT8CN software on an Android tablet



The surprise

I was heard and replied to by HB9IJW, but he was unable to hear my replies to him and no formal QSO took place. Below is a pic. of the setup, note the active VFO on the Quansheng is set to 21.074 MHz, the other is on 2m.

This "listener's report" suggests my signal covered approx. 18,700 km, or :
one heck of a lot of miles per Watt.



The Value of Insertion Loss

Howard Krausse, W5OM, w5om@arri.net

After winding the nth toroid, and again, carefully assembling the lowpass filter for my WSPR beacon, I checked the output. Nice sine wave!

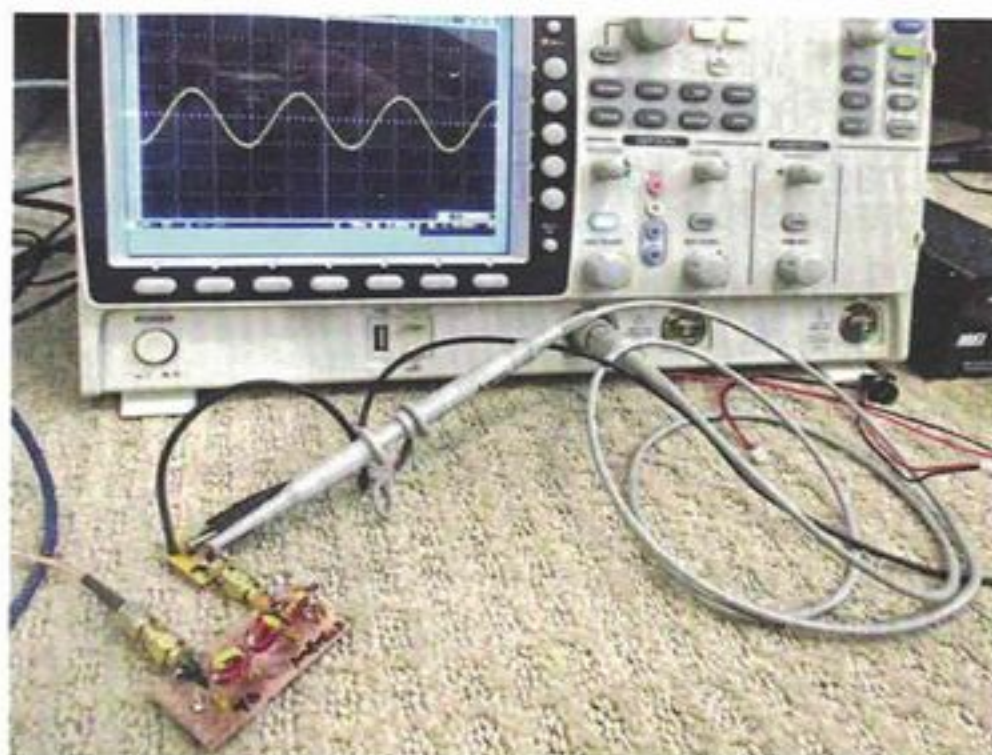
Then I calculated the insertion loss...Higher loss, yuk!! So, back to the Internet, I decided to get educated in my understanding of insertion loss.

The "first engineer" who lectured claimed that "generally, your filter is working better if it has a higher insertion loss." That seemed crazy wrong to me. Moving on, I read about Fourier transforms, harmonic distortion and spectrum analyzers.

OK. What percent of power is lost when trimming out all of the harmonics of the square wave that comes out of the Si5351 VFO?

According to the formula, you would lose 48% of the RMS input voltage if you were trimming a perfect square wave to a single frequency sine wave! That is the part of insertion loss that tells you that your filter is working, as the first engineer wisely noted.

The rest of the measured loss is a result of what we think of as "normal" losses in real components, or (the reason I was winding toroids over and over) losses from poor constructor technique.



Showing off the latest lowpass filter

The problem with using insertion loss as a figure of merit for lowpass filters is that the formula for insertion loss is a simple measurement of voltages on the input and output of a filter and presumes an appropriate waveform for a single frequency, which is a sine wave. In other words, calculating insertion loss only makes sense for signals that are pure sine waves. Otherwise, for other waveforms, the output of the lowpass filter will be reduced by not only losses in the filter, but by "losing" harmonics which are removed by the filter.

The formula for calculating insertion loss for power is:

$$\text{Insertion Loss (dB)} = 10 \log[\text{Pin}/\text{Pout}]$$

For calculating insertion loss for voltage use:

$$\text{Insertion Loss (dB)} = 20 \log[\text{Vin}/\text{Vout}]$$

It's simply the ratio of the output power versus the input power (or voltages), expressed in dB. To test the theory, I constructed a lowpass filter for 40 metres using the GQRP filter table, connected it to my signal generator set to 7MHz, oscilloscope and dummy load.

Table 1 shows the results comparing sine wave and square wave inputs to the filter. I set the input voltage for both sine and square waves to approximately 0.80 Volts. The insertion loss for the sine wave input is approximately 0.84 dB. The loss from filtering square waves is higher at 3.762dB. As expected, the loss is higher from filtering square waves as it includes filtering of the harmonics.

Imagine that a friend listens to your signals on his receiver. In an A-B test, the signal generator output for the sine and square waves are both set to 0.80 Volts. The output after the lowpass filter is higher for the sine wave input, 0.73 Volts vs. 0.52 Volts output for the square wave input, so your friend will tell you that sine waves are "more powerful" than square waves!



A few toroids from my collection

is that your friend's receiver only hears the signals on one frequency, the fundamental, and ignores all of the harmonics in the square waves which add nothing to the received signal strength. This is true whether the transmitter filters the harmonics or not.

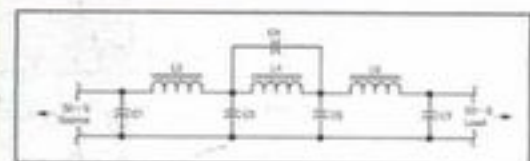
If the transmitter is a typical WSPR beacon with a square wave oscillator and only a few milliwatts output, is it really necessary to filter the output (other than the legal requirement)? For those seeking to get the most distance per watt from their WSPR transmitter, converting the square waves to sine waves with a lowpass filter and then measuring the power output will give you more kilometres per watt! When you properly filter your transmitter, you are really only throwing away what is useless anyway. The "kilometers" will stay the same, but your reported "watts" will be smaller.

After writing this up, I decided to see if my increase in knowledge would translate to greater kilometres per watt by my 20metre WSPR beacon. Being very optimistic, I set the output after the lowpass filter to about one milliwatt, as with my experiment (0.24Vrms is 1.15mW or about 1dBm at 50 ohms), and walked away. When I came back a short while later I was rewarded with a few spots including one from KL3RR that calculates to 2,855,000 kilometres per watt, a kilometre/watt record for me!

May all of your filters be "ideal!"
The KL3RR spot is **2,855,000** kilometres per watt!

GQRP Club Data Sheet

WINCON NEW IMPROVED FILTERS.



Schematic diagram of a CWAZ low pass filter designed for maximum second harmonic attenuation. For GQRP filtering, use Philips GQD low E (high Q), 100 V dc ceramic capacitors, mainly for their close tolerance (2%). The Microvets 132, 144 or 150 cores of materials (red), (yellow) or — 17 (blue/yellow) are suitable.

CWAZ 50-0 Low-Pass Filters

Designed for second-harmonic attenuation in amateur bands below 30 MHz.

Band Frequency (MHz)	C1, F	C2, F	C3, F	C4, F	C5, F	C6, F	F4
1.80	1000	2500	2500	2500	2500	2500	2500
3.50	1000	2500	2500	2500	2500	2500	2500
7.00	1000	2500	2500	2500	2500	2500	2500
14.0	1000	2500	2500	2500	2500	2500	2500
21.0	1000	2500	2500	2500	2500	2500	2500
28.0	1000	2500	2500	2500	2500	2500	2500
30.0	1000	2500	2500	2500	2500	2500	2500
35.0	1000	2500	2500	2500	2500	2500	2500
40.0	1000	2500	2500	2500	2500	2500	2500
45.0	1000	2500	2500	2500	2500	2500	2500
50.0	1000	2500	2500	2500	2500	2500	2500
55.0	1000	2500	2500	2500	2500	2500	2500
60.0	1000	2500	2500	2500	2500	2500	2500
65.0	1000	2500	2500	2500	2500	2500	2500
70.0	1000	2500	2500	2500	2500	2500	2500
75.0	1000	2500	2500	2500	2500	2500	2500
80.0	1000	2500	2500	2500	2500	2500	2500
85.0	1000	2500	2500	2500	2500	2500	2500
90.0	1000	2500	2500	2500	2500	2500	2500
95.0	1000	2500	2500	2500	2500	2500	2500
100.0	1000	2500	2500	2500	2500	2500	2500

SIERRA revisited: BM10

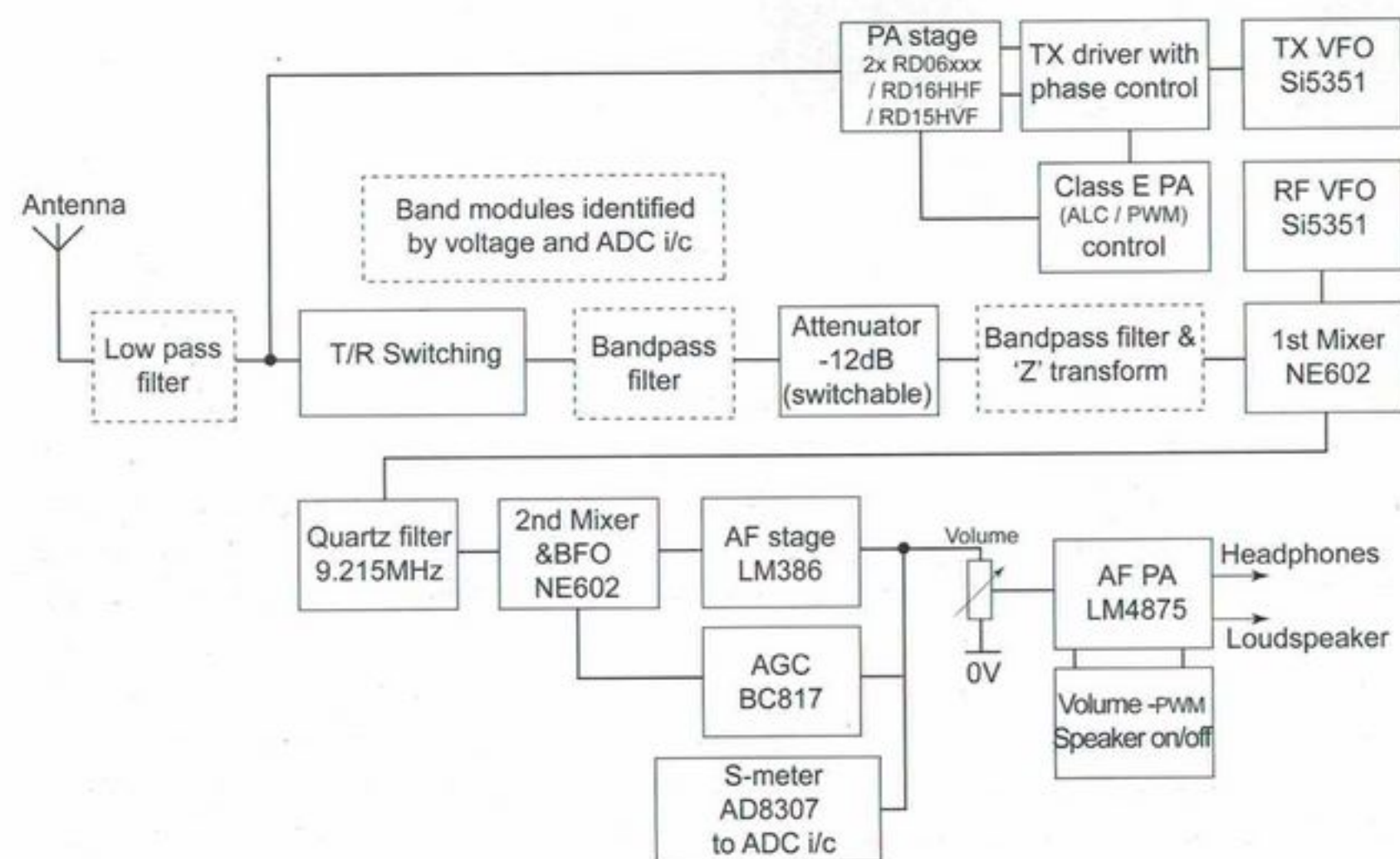
Raimund, DL1EGR email: Raimund.Reh@web.de

The SIERRA is a well known QRP transceiver from WILDERNESS. In 2024 Andreas, DL4JAL, was inspired by this idea and give it a roundup.

I'll now take a brief look on his work: The BM10, consists of PIC controlling an SI5351 multi-output synthesizer, along with an OLED Display. This has an effect of making the rig that looks up to date.

As the original rig features the BM10 HF bands from 160 to 10m all inc. WARC with up to full 5 watts output.

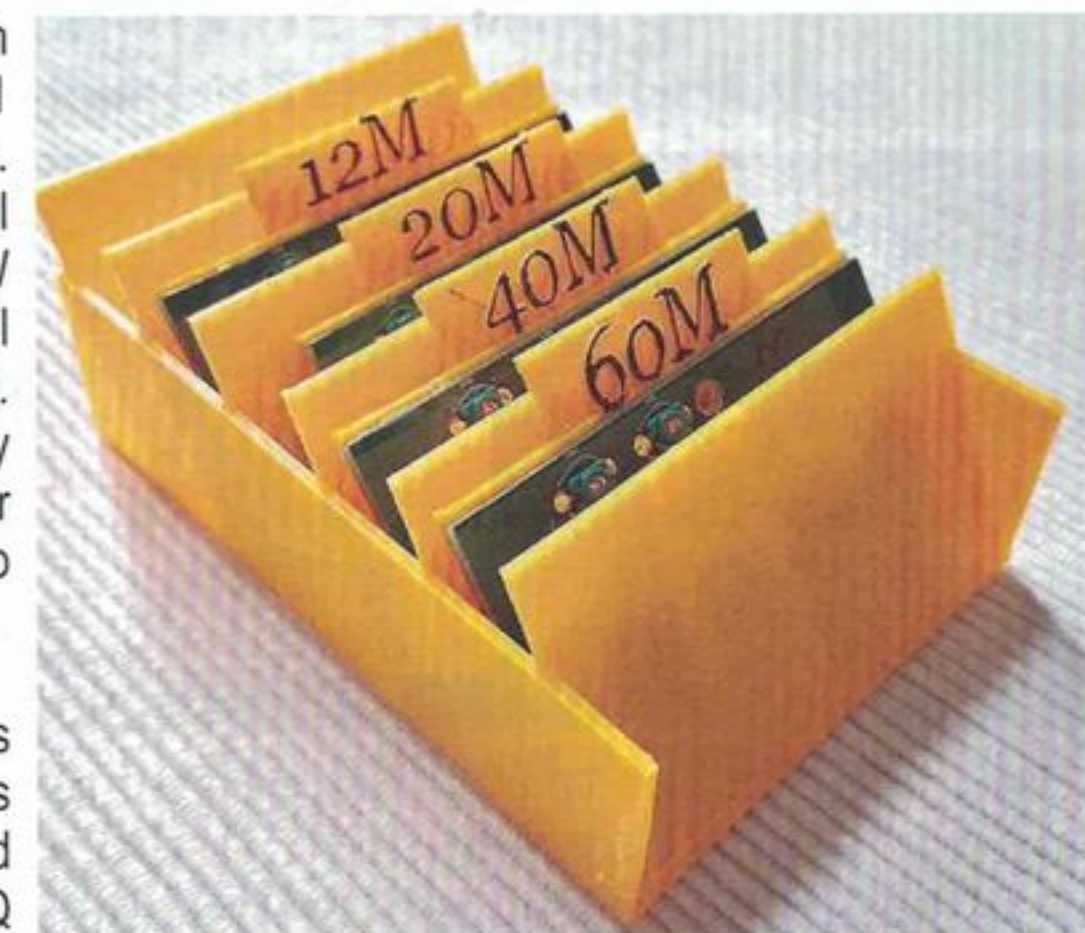
The block diagram is shown here below. And when fed with 13,8V-DC it draws about 80mA on receive and about 1A on transmit.



The receiver: This contains an NE602 which is this day in most HAM bench. It works as simple superhet on a 9.215MHz IF. AGC is suitable and switchable. RIT XIT are also included. Sensitivity: RX on 40m about -130dBm MDS -126dBm on 15 to 12m. PCB is 9x10cm RF- board.

The transmitter: This section works straight from the SI5351 as in many other application s. It's then followed by a push-pull PA stage 2x RD06HVF1. A 5W output should be achieved on all bands, adjustable for each band. Keying has keyshape functionality to ensure smooth sound. A keyer is also included from 9WPM to 40WPM.

On air: As I was writing this article I have built band-modules for 60, 40, 20, 12 and 10m. And with these, tried out many CQ calls on the bands.



My set of band-modules. The enclosure is 3D printed

Dale Yu BA4TB was one of the standout highlights that I logged with this rig. This was using my EFHW86432 (published in Sprat issue 198 page 6 onwards).

Stations worked: Included on my list of contacts worked on 10m include BA4TB, EA7EKU, K2SSS, RD3PO, RV3NG, W2XL, WK3A, 20m: EI5KI, F5LLY, LY2PX, 60m: F5NTV.

Full details on the BM10 project can be found on DL4JAL's website at:

www.dl4jal.de

Contact me for flags on band-modules, module housing or CAD files.

Another Source for Crystals

Wes, KN4NPH email: kn4nph@gmail.com

When I saw **Sebastien, F8CMH** mention crystals (SPRAT 200), it reminded me of **John, KC9ON** and 3rd Planet Solar

www.3rdPlanetSolar.com

John at 3rd Planet, has an interesting assortment of QRP kits, components and crystals. I needed 50MHz (third overtone) crystals for a 6m QRP CW transmitter I am building, and such ones are available from 3rd Planet Solar, along with many others. Use his Ebay store (search, 3rd Planet Solar) for orders outside the USA.

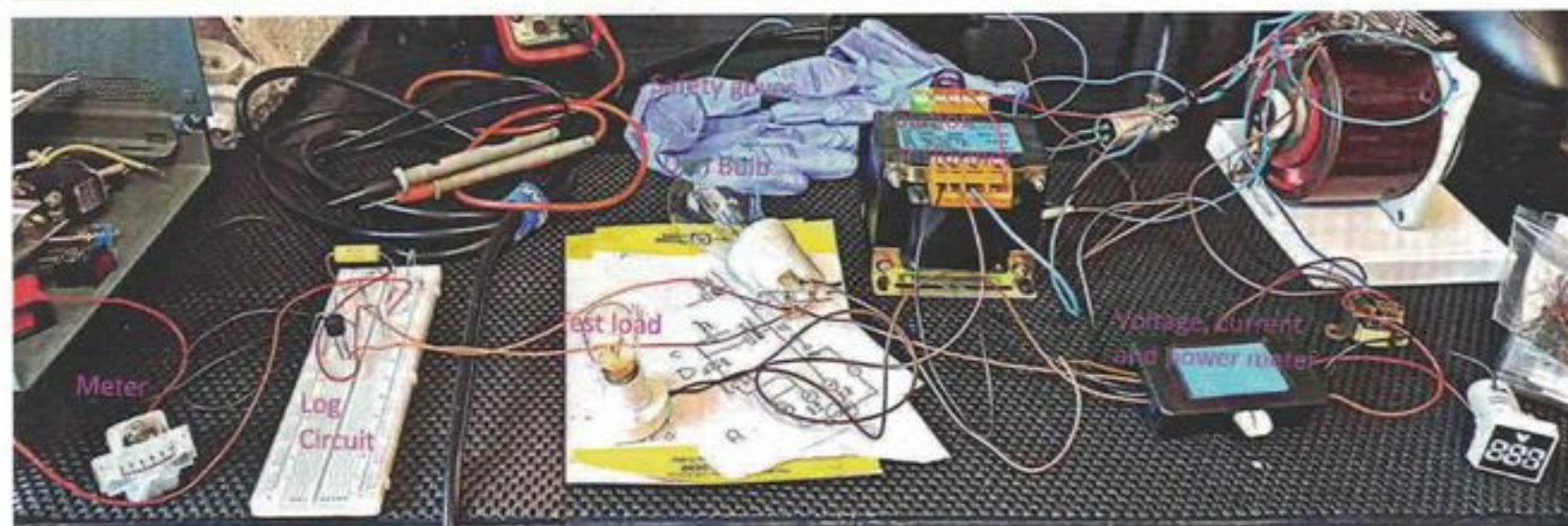
The UK ebay site lists it as:

<https://www.ebay.co.uk/str/3rdplanetsolar>



A Not So Dim Bulb

Steven Bennett M0YYT email: m0yyt@gmx.com

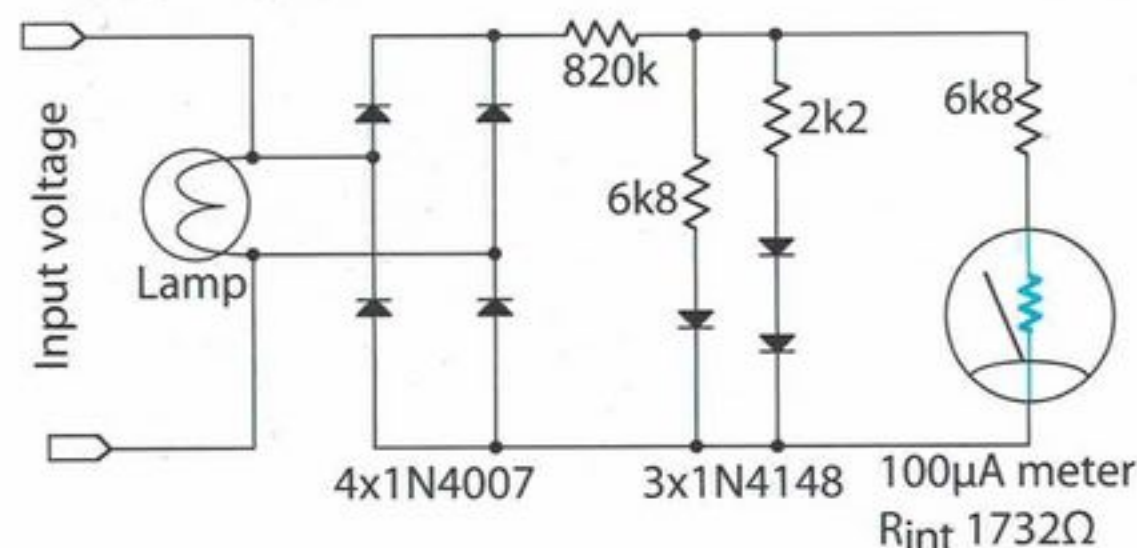


A "dim bulb" is a common term for a device that can safely limit the current drawn from the mains when testing a piece of equipment. Usually, older equipment with leaky reservoir capacitors, or selenium rectifiers that can explode or produce terrible smells.

There are many examples of this simple circuit around the Internet; most of which involve nothing more than a 240V filament light bulb, a switch and a mains socket. If you have seen one, or made one, you will know that the device can not be hidden inside a smart enclosure as the light bulb has to be viewable in order to gauge the extent of any problems the equipment being tested may have. If you are happy to have a test device that looks as though it would be more at home in Frankenstein's laboratory, that's fine, but I wanted to design something that looks a bit more modern.

My initial thought was to measure the AC voltage across the "dim bulb" and present the result on a small moving coil meter that would follow the bulb voltage more quickly than a digital meter could. My early experiments showed that the meter barely moved for modest powers, that a vintage radio might consume, for example 25-50W, but "hit the peg" for a complete short circuit. A filament bulb has a positive temperature coefficient of resistance with respect to applied voltage, which is the exact opposite of what is required for a reasonable meter deflection for a reasonable power consumption.

After some thought I realised that a logarithmic approach might produce a more useful display and a bit of Internet research suggested that a matrix of diodes and resistors could produce such a response. I originally created the circuit for DC conditions but added a suitable bridge rectifier between the "dim bulb" and the logarithmic meter circuit.



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For a healthy small five valve radio the meter displays about 20µA, or 20% of Full-Scale Deflection (FSD) and for a total short circuit exactly 100% FSD. Now I have a "dim bulb" tester where the bulb is hidden from sight and a meter where the needle moves in a similar way to the bulb's brightness.

Valved QRP News

Paddy O'Reilly G4MAD email: g4mad@gmx.com

Welcome to the latest valve column, and a big thank you to the contributors who have sent me updates following the Winter Sports (WS).

Tim G4ARI was active during WS, but reported to me that "No valve stuff was harmed...." I look forward to future reports of glowing filaments from you Tim!

Paul G0OER was spoiled for choice, using both his "EF91 Challenge TX" and the QMX he completed building on Boxing Day. Paul reports his EF91 challenge TX accompanied by his Racal RA17 RX, is a joy to use as a combination. The TX covers 80m/60m/40m putting out 3.5W on CW so he had QSOs on all three bands.

His log included **Ian G3ROO** (always a strong signal from his 160m doublet), and Chris G3XIZ (twice, valve to valve plus another using the QMX), he also bagged M0KXN/P who was activating a SOTA at Mynd Heath in Shropshire.

Here's is a photo of Paul's TX, tucked in under the monitor of the shack computer with the PSU to the left. Colin (G3YHV) and Paul hope to get the circuits of both their EF91 Challenge Tx's drawn up so we can publish them in SPRAT soon - comparing and contrasting the two different approaches to addressing the "challenge" they set one another last year.

Gerald G3MCK wrote to say he felt activity was rather low. He did manage 6 QSOs; three of them with fellow QRP operators. At the other end of the power scale was Vlad, R3PJN, located around 200km south of Moscow and running 1kW. Gerald received a favourable 58 with Vlad being over 2,500km away. Gerald's station comprises an 80m CO/PA giving 5W out to his inverted V dipole, with a superhet doing the receiving side.

Rich G0GGA says there was not a lot of QRP Valve activity from him over the "Winter Sports" period. A combination of lack of time and high local levels of QRM kept him off the air. However, he did spend some time experimenting with 1950's vintage battery valves (DL96s to be exact). With only 25mW heaters they are definitely not shack warming!

His first test on air was with a single DL96 running as an 80m band "power oscillator", using a GQRP club crystal, and giving 250mW out on 80m. He worked a local station - **Jim M0GJQ**; by local, Rich advises he could almost yell to Jim from the shack window. But the QSO was proof of concept, and Rich then moved to the 40m band with a COPA/MOPA arrangement of two DL96s. At 500mW out he worked Terry G4AYR who was running 5W- this QSO spanning around 90km rather than a few hundred metres across Leicestershire.

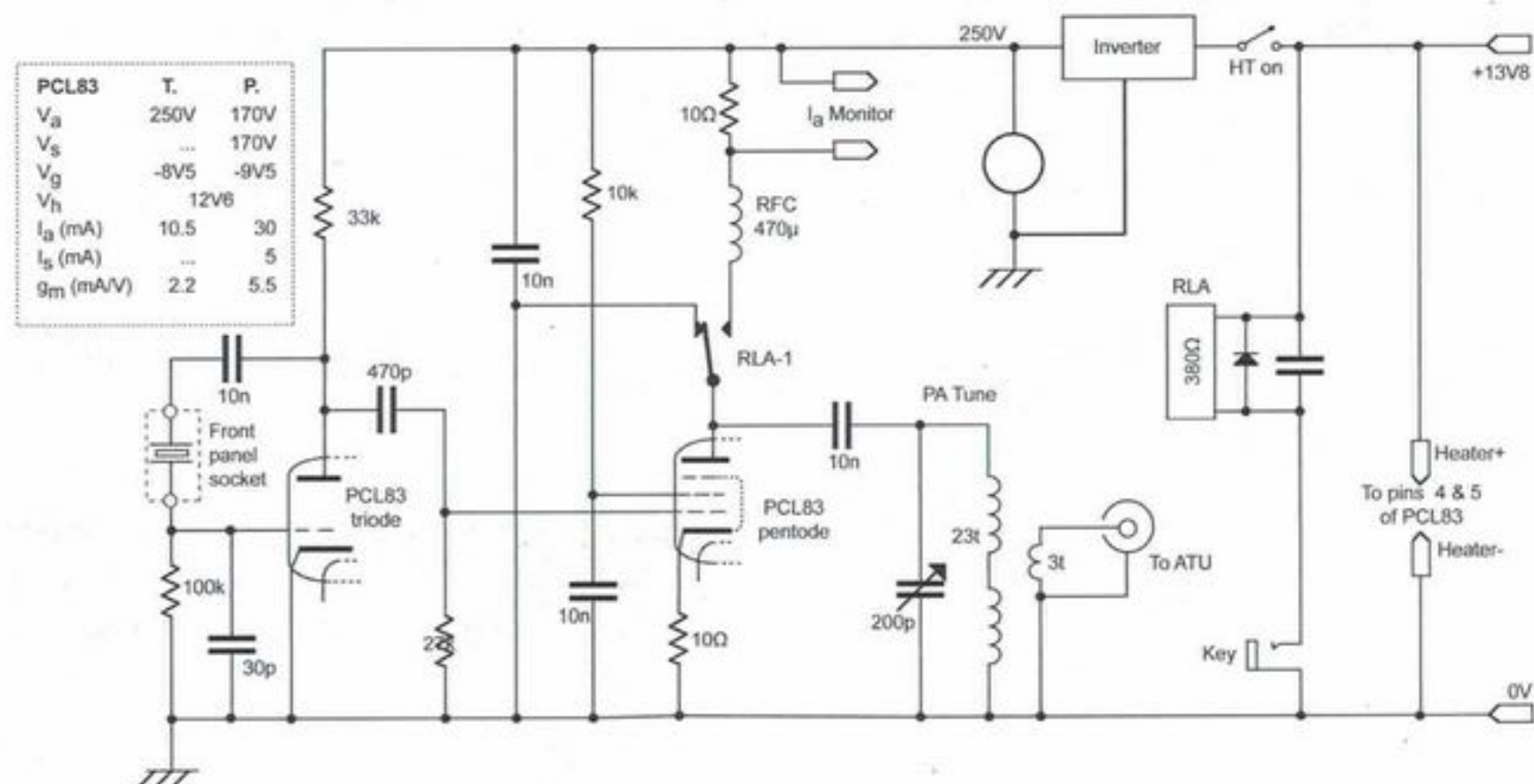


Rich modified his circuit to put two DL96s in parallel as the PA - upping power to about 800mW. And, again on 40m, he worked **Roy G4DMC** in Bath.

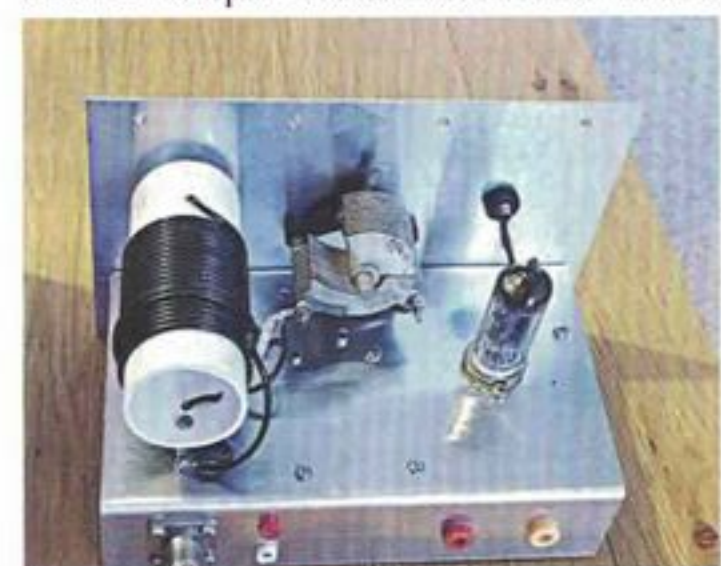
27

All of the above were worked using a small (30m circumference) Delta-Loop, fed with balanced feed to the shack where he has Balun/ATU arrangement to match things up. Planned next is trying the two DL96 arrangement on 60/30m. Watch this space!

Chris G3XIZ sent me a very detailed report about the newly built ex TV valve Tx which runs from a single 12V supply. The chosen PCL83 has a heater voltage of 12.6V and he used an on-board inexpensive inverter to give 250V HT. The circuit diagram is shown below



Initially Chris had 3 switched crystals covering 3560, 5262 and 7030 kHz and a fixed tank coil with a 200pF PA tuning capacitor covering all 3 bands. The circuit has a relay that keys the HT to the PA stage and the RF output is about 3 watts with a clean CW note.



Chris did have some trouble with the miniature wire-ended crystals blowing up. Fortunately, Colin G3VTT kindly sent a selection of

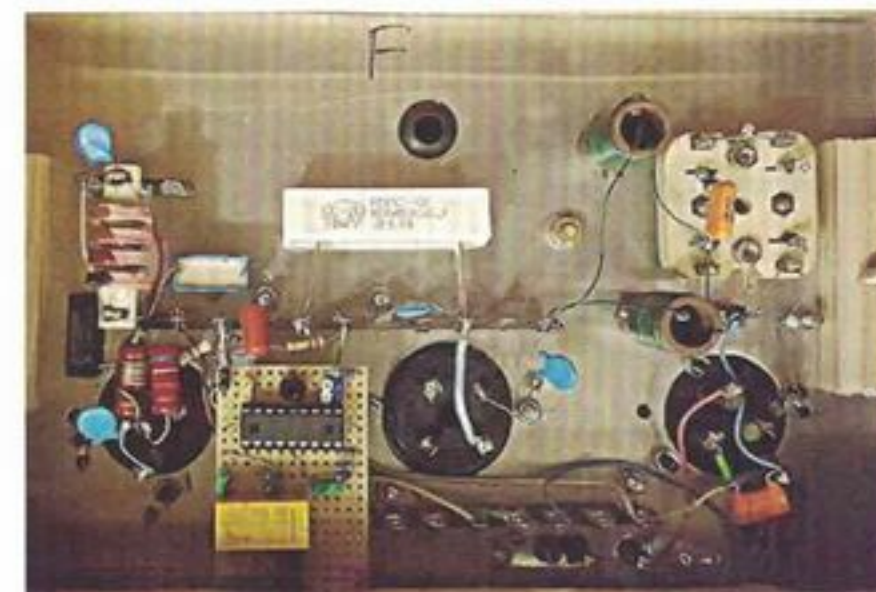
the larger FT243 types, which work a treat. Colin had ground the crystals to cover a range of useful frequencies so the 3 switched crystals have been replaced with a front panel mounted crystal holder.

This wonderful one valve CW transmitter is beautifully laid out and was put to good use during the Winter Sports activity

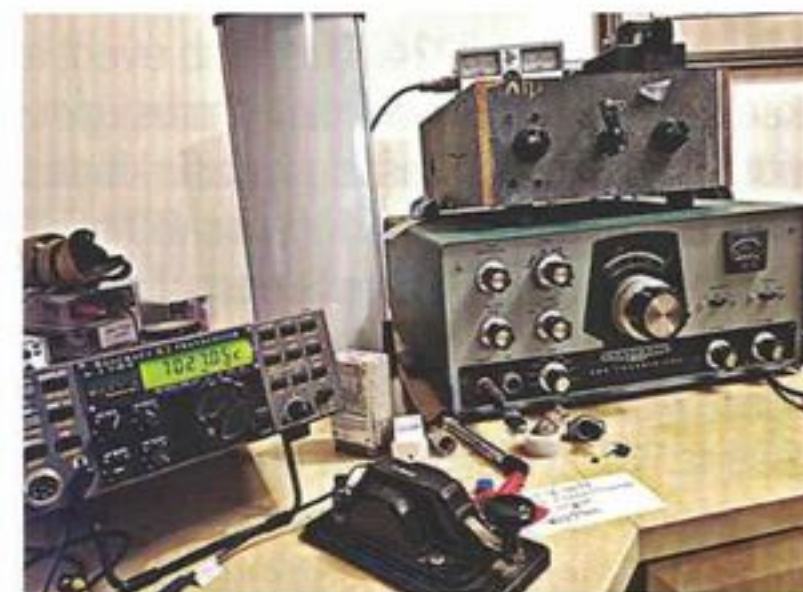
Colin G3YHV, not content with his "EF91 Challenge TX", decided that some of his very

old valves should get an "airing", so he's putting together a CW Tx for 80 & 40 m. The xtal oscillator is a DE5, which was first introduced in 1924 And his example still works like the day it was made !

The circuit also has a S130 regulator, and the pa valve is a PT25H. This valve is also known as a RAF VT46. Mixing old and new tech, Colin has included a PIC chip to allow use of a dual paddle. It also handles the changeover delay. The project is a work in progress and Colin reports the front panel is next. However, IMHO, those 1920s valves are elegant devices, too good looking to hide away. I await the log of Colin's first QSOs.



Peter GM0EUL was running his HW100 during a recent SKCC weekend sprint which had a 'boat anchor' theme. This radio has featured several times in this column. During the sprint it was being used at non-QRP levels and after just five qsos it blew a fuse in the 800v power supply. With a new fuse there was no plate current and no output, so his K2 was used to complete the WES. Hopefully Peter will get it back up and running for the next valve weekend. Peter has enclosed a picture which shows the K2 and HW100 side by side in his shack.



And on the topic of Valve Weekends, the events take place on April 12/13th and November 1/2nd this year.

Additionally, if you are an early riser the April date ties in rather nicely with the QRP ARCI Spring QSO Party (0000Z-0600Z, Apr 12th, 2025).

As always, this is not a contest, but a weekend of relaxed activity using any valve equipment at QRP levels. This can be commercially made, homebrew or a combination of both, and hybrid equipment is welcomed too.

Sensible RS(T) reports are encouraged and logs aren't required. Just send me a summary of contacts made, equipment used, and any soap-box & photos you'd like to share.

As a final note, the club now has a stock of EF80 valves at £1 each, contact SPRAT sales or in Scotland **Roy GM4VKI**

Keep those filaments glowing! Paddy. G4MAD
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Communication & Activity Report

Enzo M0KTZ email: m0ktz@katolaz.net

I will start with an apology for missing the Winter SPRAT 201 issue. That was due to several concurring factors (an exceedingly busy time at QRL, dealing with a very bad influence, and a misunderstanding with the Editor) which are improbable to occur again in the future. I had the chance of including the column as an "erratum" to SPRAT 201, but I decided not to do that: how many of you have gone through the SPRAT errata, just to find a substantial amount of content about so many of the Club on-air activities? HI

I indeed do have a variety of things to report about regarding the recent CLub on-air activity and events, so without further ado, let's start with them.

International QRP Day and Suffolk Trophy 2024. This year the band conditions were pretty poor around International QRP Day, and in general during the Summer Sizzler. Nevertheless, I still received logs from several members who were active in those events, despite the odds of getting QRP contacts were definitely against them.

The best International QRP Day log received is awarded the Suffolk Trophy. I am glad to announce that the recipient of the 2024 Suffolk Trophy is **Val RW3AI**.

Summer Sizzler 2024. This Club event is second by participation only to the Winter Sports (keep reading), and awards the prestigious GM3OXX Trophy to the best log overall, together with 5 more certificates for specific kinds of activity (with vintage, QRPp or homebrew rigs or in the outdoors). Back in June we witnessed two weeks of truly dire solar conditions coinciding with the Summer Sizzler. Several flares and at least two major geomagnetic storms stealed the scene and somehow reduced the number of logs submitted. Nevertheless, I received 14 logs from 4 continents, with a variety of interesting QRP activity to show off. A special mention goes to **Val RW3AI**, who submitted a rich log and also made available commemorative certificates for the members of the RU QRP Club who took part to the Summer Sizzler. I also commend the effort by **Chris 2E0IXV** who convinced his club members to follow him in an outdoor QRP activation.

The **Iron-knee certificate** for /P QRP activities goes to **Colin M1BUU**, who kept himself busy with a variety of SOTA activations during that period. A special mention for another remarkable series of /P activities goes to **Alex GM5ALX**.

An outstanding effort was put in by **Steve G0FMY**, who celebrated the 50th anniversary of the Club making 50 contacts with his QRPp homebrew equipment, and is awarded the **GM3OXX Trophy** for the second year in a row. We do have a Trophy runner-up in **Peter VK3YE**, who showed persistence and determination in collecting many QSOs and several DX on 4 modes.

Well done to all our fellow members who took part in the Summer Sizzler.

Winter Sports 2024. This confirms to be the premiere event of the QRP calendar, which sees many fellows bringing out their rigs, honing their operating skills, and spending time on the air for a friendly get-together that makes the festive period merrier and funnier. The 2024 edition was probably one the most well-attended so far, with many fellows thanking the Club for keeping this event on the map. We received logs from **G0BON**, **G0FMY**, **G0ILN**,

G0UBE, **G3NUA**, **G3XIZ**, **G3XJS**, **G4ARI**, **G4BUE**, **G4DNP**, **G4HMC**, **G4MAD**, **G4XUV**, **G8GYW**, **GM0EUL**, **GU4YBW**, **IU8OJT**, **MI0BPB**, **MW0IDX**, **MW0KXN**, **OH5JIL**, **PA9RZ**, **WA1GWH**, **WA1GWH**, **YU7AE**, plus a checklog from your humble scribe, accounting for a total of more than 1200 QSOs! We note phenomenal efforts from **Chris G4BUE** who got 44 DXCC entities, of which 19 2-way QRP, **Peter G3XJS** who battled the elements to recover his doublet battered by storms and submitted a log with lots of 2-way QRP contacts, **Kevin MW0KXN** and **Roger MW0IDX** who filled their logs from the hills and summits of Wales, **Peter GM0EUL** and **Tom OH5JIL** who got busy in a variety of contests and friendly chats. I strongly commend the great effort by **Robert PA9RZ**, to whom the Winter Sports were merry companions of his personal battle against a most undesirable guest. Robert showed us clearly that there is no good reason at all to not enjoy our hobby at any time of our life.

Finally **Chris G3XIZ** had the crazy idea of bringing to the desk no less than 16 different homebrew equipments he had built in the span of more than 40 years of QRP craziness, to make for a special 50th anniversary Winter Sports. It looks like his XYL was not especially impressed by that idea, though (see picture). Chris put his puny signals out and loud from 137kHz to 20m, logging 50 QSOs on CW, AM, DSB, SSB, FT8, for a total of more than 7 hours chatting on the bands. If that was not enough, he also fired up a WSPR transmitter when he had had enough for the day HI. This was by far the log with the largest number of homebrew rigs used per QSO, and for this majestic effort in Winter Sports 2024 **Chris G3XIZ** is the recipient of the **G4DQP Trophy 2024**.

Chelmsley Trophy 2024. The Chelmsley Trophy recognizes year-long dedication to QRP operations with simple antennas. We received two submission plus a checklog from your humble scribe. **Peter GM0EUL** managed to bag 37 DXCC and 51 band-slots on 4 bands in slightly less than 300 QSOs. The checklog by your scribe contained 81 DXCC with about 3600 QSOs and 278 band-slots. But **Chris G4BUE** was the one who made a truly astonishing effort last year, concluding that 2024 was by far its best QRP year since he got licensed in 1974: 5832 QSO (up from 4045 last year) across all 11 HF bands (160m-6m), 167 DXCC, with DXCC 100 attained on 4 bands + 4 narrow misses, 892 band-slots, 38 of the 40 CQ zones contacted, 367 2-way QRP QSOs, 41 2-way QRP DXCC, many chatty QSOs with Oceania, North America, Asia, and participation to several contests with great placements among QRO stations. All this running 5W or less into a 132ft doublet up 10m. It is a great pleasure for me to congratulate **G4BUE** on gaining the **Chelmsley Trophy 2024**, having showed for the third year in a row that QRP can work wonders, if we put time, patience, and determination into it.

50 Years Low and Clear. In September 2024 the GQRP Club has celebrated the 50th anniversary of its foundation with the "50 Years Low and Clear" month-long on-air activity. The activity was kicked off on September 1st, at the Telford Convention with **G5LOW** active throughout the event, and continued thanks to the large effort of many activators, both in G-land and abroad.

On behalf of the Club, I would like to thank all the people who made this event possible, and who put a lot of effort to make it a resounding success. This includes all the club members who volunteered to run a special event station, all the activators, all the chasers, and all those who cared to make a QSO with a "LOW" station, to celebrate this fantastic anniversary.

I report in the following a few statistics of the event, which would give the measure of the commitment and effort put into it by our fellow members.

Activity results: Special Event Stations. During September there were a total of 12 active Special Event Stations on air, namely (QSOs): G5LOW (818), GW5LOW (128), GM5LOW (56), Gi5LOW (200), GU5LOW (440), DM50LOW (Germany, 3278), EG5LOW (Spain, 405), IR3QRP (Italy, 104), OE50LOW (Austria, 179), OH50LOW (Finland, 291), TM50LOW (France) and YP50QRP (Romania, 435). In total, more than 6500 QRP QSOs in just 30 days.

Thanks to **Fabian DJ5CW** who helped putting up a web page with a bandmap of active CW stations, which facilitated spotting them on the bands. Most stations made QSOs on several modes and several bands, as summarised in the tables shown right and below.

Station	CW	SSB	RTTY	FT8/FT4	FM	Other
G5LOW	•	•	•	•	•	•
Gi5LOW	•	•		•	•	•
GM5LOW	•	•			•	
GU5LOW	•			•		
GW5LOW	•	•		•		•
DM50LOW	•	•	•	•	•	•
EG5LOW	•	•	•			
IR3QRP	•	•				
OE50LOW	•					
OH50LOW	•		•			
YP50QRP	•	•			•	

Station	160m	80m	60m	40m	30m	20m	17m	15m	12m	10m	VHF+
G5LOW	•	•	•	•	•	•	•	•	•	•	
Gi5LOW		•		•		•		•	•	•	•
GM5LOW		•		•	•	•	•	•		•	
GU5LOW		•	•	•	•	•	•	•	•	•	
GU5LOW		•	•	•	•	•	•	•	•		
DM50LOW	•	•	•	•	•	•	•	•	•	•	
EG5LOW		•	•	•	•	•	•	•	•	•	
IR3QRP				•	•	•					•
OE50LOW		•		•	•	•	•				
OH50LOW		•	•		•	•	•	•	•	•	
YP50QRP		•		•	•	•	•	•	•	•	•

I am personally grateful to the many G-land members who volunteered to air all the regional variations of the Gx5LOW Club callsigns. We have decided to award special recognition prizes to **Jason M0NYW**, **Roy GM4VKI**, **Carl GW0VSW**, and **Paul GU4YBW**, in recognition of their special effort in the 50 Years Low and Clear Activity.

We are all also deeply grateful to all the OM's who operated the overseas special event stations, but truly special thanks go to the team behind **DM50LOW**, namely **Tomas DB4SNK**, **Sebastian DG8WA**, **Frank DH0JAE**, **Gerald DH1CAD**, **Falco DL2LQC**, **Olaf DL4HG**, **Andy DL7AT**, **Mike DL7UGN**, **Lutz DM6EE**, and **Klaus DL8TG**.

The DM50LOW station was the only one to be active every single day of September, on all bands and modes, and showed an exemplary dedication to the celebration of our first 50 years of QRP activity together. A special prize will be sent to the DM50LOW team.

Activity results: Chasers. We received logs from no less than 35 chasers, who attained different levels of certificates, as follows:

Commemorative certificates: GM4UQK, HA7SW, DE6CKR, G0UBE, G3UDI.

Bronze Certificates (5 band-mode slots): DB4SNK, DH0JAE, DL2LQC, DM3RCK, G4DNP, GU4YBW, M0SHM, S58MU.

Silver Certificates (10 band-mode slots): DL8MF, IW0HLG, OK1DLA, YO5OSF, M0HNK

Gold Certificates (15 band-mode slots): DK2LO, G3YMC, M0NYW, IK5WOB, DM6EE, DL8TG, G4IVV, DL4HG, G0TPH, YU7AE

Platinum Certificate (each of the LOW Stations at least once): Chris G4BUE

We have awarded a special prize to **Richard M0HNK**, who was just one QSO short of a Gold certificate, but put together a fantastic account of his personal experience of the activity.

We have also awarded special prizes to **Chris G4BUE** for the one and only Platinum certificate and a majestic effort chasing all the LOWs around the bands, and to **Dave G3YMC** for the best Gold certificate log.

Closing comments. If I look back to two years ago, when we started putting together ideas to celebrate the 50th anniversary of the Club with "some on-air activity", well I would have never imagined to see so much participation and enthusiasm coming from our membership. I have received many personal emails from members thanking the Club for those initiatives, and I was very happy to be part of this endeavour to mark our golden anniversary with an outstanding activity.

I have also received a few emails from members who expected to see the whole event to be better organised, better managed, better advertised, better participated, better.... well, just better. I have humbly taken on board all those comments and suggestions, and I accept full responsibility if the 50 Years Low and Clear celebration was not to your liking, or up to the standards you expected. I am sorry for any mistake that I have done in organising this event and on making it happen: I will try to do better next time.

I am again extremely grateful to all the members who showed that they care for our Club during 2024 by getting on the air enthusiastically. Your participation to those events testifies that G-QRP is not just a Club, but a family of like-minded people, who are ready to share efforts to fly the flag of QRP. This enthusiasm is the only force that can ensure a long and prosperous life to our beloved Club. Let us treasure and foster it with all the energy we can.

72 de Enzo M0KTZ

These are the International QRP Calling Frequencies:

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

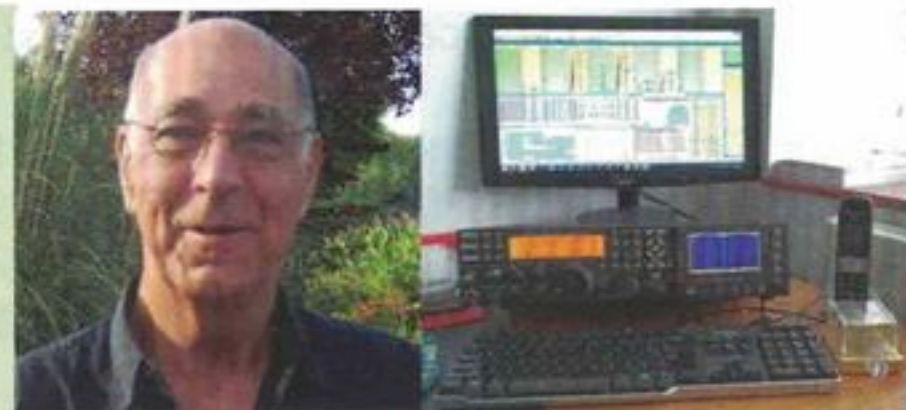
SSB: 3690, 7090, 14285, 21285, 24950 & 28360kHz

Notice that these are Centres 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



First a correction to the start of my column in *Sprat* 201 – Referring to the picture and text on page 35, **EA2SN** writes, ‘Unfortunately there was a mixup with the other operator at **EG5LOW**. Most of the CW operation was done by **EA1KC**, a long standing member of the Club, while I ran SSB and RTTY. My apologies Jon. **G4EFE** writes, ‘Some folks might be interested in a clutch of BBC programmes regarding Morse, and other radio-related topics. Details on Martin’s webpage <<https://martinsrant.blogspot.com/2025/01/a-collection-of-bbc-radio-and-tv.html>>.

Pictured right is **K3DZ**’s 80m dead bug rendition of the Four States QRP Club’s 40m Bayou Jumper, the ‘solid state version’ of the WW2 era British Paraset radio! – see *Sprat* 201 page 10. Frank’s next project is a BC-221-M Bendix frequency meter, alla the WW2 - Korean War era. He has the documentation for it, including the unit’s error correction log book, but says, ‘all controls seem to turn as if they were last lubricated with road tar! Inside, the unit appears clean. There is a 1955 MFP red date stamp on the unit’s front panel. As the secret agents used to say during WW2 “Wish me luck”. If you are interested in WW2 spy sets, **GØXAR** suggests watching **LA6NCA**’s video of a WW2 Milorg Agent Radio – Olga at <<https://youtu.be/7m7xZitngPg?si=vkstmjM12FH1KkW>>.



MØNTV writes, ‘My latest project is a digital VFO featuring TFT touchscreen with integrated ESP32 microcontroller (the so-called “Cheap Yellow Display”). It uses an Si5351 module and rotary encoder and, best of all, only *four* connecting wires!’ Nick’s professional video about is at <<https://youtu.be/KZYTFOBqWkE>>, and he adds, ‘Check out the comments section for free downloadable resources.’ **G4TGJ** has added an external CODEC board to his Raspberry Pi Pico based TCVR which has improved its performance, and Richard has continued to use it on SOTA activations. **GØXAR** writes, Those of you tinkering with the Raspberry Pi Pico microcontroller might like to know that in the latest SDK the ‘official’ clock speed has increased to 200MHz. This has a lot of possibilities for experiments in the 2m band. See <<https://www.tomshardware.com/raspberry-pi/the-raspberry-pi-picos-rp2040-has-been-certified-for-200-mhz-clock-speeds-up-from-133-mhz>>. **G1HSM** wrote, ‘I overlocked the newer RP2350 to 300MHz, IIRC. Rated speed is 150MHz.’

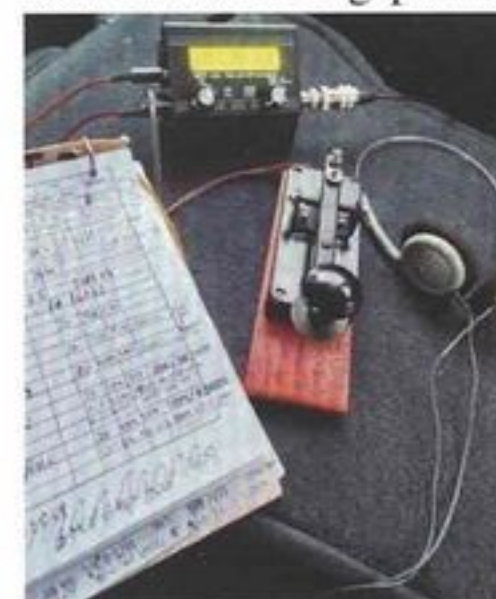


GØACE writes as an adjunct to **N2CQR**’s contribution in *Sprat* 201, ‘Where the *Solder Smoke* guys concentrated on a discrete component approach, the Reading & District Amateur Radio Club (RADARC) went the IC and microcontroller route to catch the interest of

young computer geeks. The club has encouraged local scout groups to experience amateur radio by running construction events, and scouts have been building various RX kits, coached by club members for many years. Realising many youngsters have an interest in computers and programming, RADARC embarked on a project using Skyworks Si47xx series of radio chips and a Pi Pico controller (pictured right) to give RX construction and a basic programming experience. The building team of **MØSKP**, **MØZSU** and **G4RDC** have three working prototypes and are testing programmable firmware in CircuitPython and other programming languages via USB. Receive bands range from long-wave to air-band with RDS available. The units are using a 1.3 inch IPS colour LCD display and are able to add options such as a torch, compass and GPS.’ Ace says Scouts building this RADARC project (one pictured above right) will be able to gain their Electronics and Communicator activity badges as well as an introduction to amateur radio. The project will not be limited to scout groups and will be made available to a broad range of interested parties, such as schools and youth groups. More info at <[GitHub - RADARC/Scout-Radio: Si4732 and Raspberry Pi Pico Radio dev...](https://github.com/RADARC/Scout-Radio-Si4732-and-Raspberry-Pi-Pico-Radio-dev)>.



G4EDX says South Notts ARC will be running Special Event Station **GB4VVV** on 1, 5 and 8 May, and 10 May when it will be open to the public, for VE Day 80th Anniversary with at least one SCD Revisited TCVR on 40m, and more on display for visitors to admire. **N2CQR** writes, ‘Take up the *SolderSmoke* Direct-Conversion Challenge. Build the very simple DC 40m RX that *SolderSmoke* guys designed. We are mentoring builders on Discord and posting videos on the *SolderSmoke* blog and YouTube. If you have never homebrewed a RX, you should do this, or point new builders to the *SolderSmoke* Challenge’. Details at <<https://soldersmoke.blogspot.com/search/label/Direct%20Conversion%20on%20Challenge>>.



On 27 January I had the pleasure of making a CW QSO with ex-member **CU2IJ** on 20m for a new 2025 DXCC. Luis was operating QRP from his car with a QRP Labs QCX-Mini 20m kit (above left) and a mobile Komunika HF-PRO-2 antenna. A few days later on 2 February I QSO’d Luis again with QRP on 30m, and this time he was using a Xiegu X6100 with the firmware from **R1CBU** that he says makes this rig much more attractive compared to the X6100 with the original FW. The antenna was a portable end-fed. He also uses a FT-817, TS680V, SW40+ and SW20+. Luis hasn’t erected antennas at home yet and sent the picture above of another set-up he uses. He has since re-joined the Club and been given his old number (10549).



Part 2 of the 'Hitchhiker's Guide to OCFD' that **DJØIP** (**G5BMH**) gave to the Denby Dale ARC is now posted on *YouTube*. Rick says it is actually more of a seminar, because each part is two hours long, followed by about 20 minutes of Q&A. Part 1 explains how and why the OCFD antenna can work on so many bands and Part 2 is the practical part showing how to plan OCFD antennas, determine lengths, feedpoint position and then how to build the baluns, etc. Finally, it shows how to tune the OCFD. For each part there is a backup page on Rick's webpage at <<https://www.dj0ip.com/hhg2-ocfd>> with additional info and links to the **G3TXQ** and **W8JI** web/blog pages.

A good way to make two-way QRP QSOs is in the Original QRP Contests that in 2025 will be held on 5/6 July and 27/28 December. Rules at <www.qrpcc.de/contestrules/oqrpr.html>. **DL5XL** has been QRV from Antarctica as **DPØPOL** during the winter and has very good ears for QRP stations. I QSO'd Felix on 1 February on 15 and 20m and, unbeknown to me at the time, just after my 20m QSO, **MØKTZ** also QSO'd him. **F4IUJ** will be QRV 29 July/22 August as **HK/W4IUJ** from various parks. Yannig says his club is organising 'Conf' QRP' on 17 May which is a meeting for francophone amateurs with talks and time to socialise.

G8GYW has been concentrating on building in recent months and made a speech compressor (*Sprat* 201) and frequency counter for his Ten-Tec Argonaut 509 (pictured right). Mike is currently building a 10W linear PA for SSB operation and a third GPSDO. He says all his QRP QSOs to date have been responding to CQ calls, but has never heard any QRP stations QRV around the COAs. His best yet is a 57 report over 1800 miles with 3W SSB on 10m. Although the Winter Sports will be reported elsewhere in this edition of *Sprat*, I have to include the comments of **MWØKXN** made on the first day of the event (26 December) that, to me, sums up **G8PG**'s original concept of the Winer Sports. Kevin writes, 'I have just come off a 30 minute natter with fellow GQRP club member **GØJXX** on 40m, QRP to QRP. If this is what the Winter Sports are all about then I am a fan. I look forward to meeting some more from the G-QRP Club for a friendly chat over the coming days.'

OZ6ABZ took part in the Hamaward WWA in January with his KX3 (5W CW) and 'some wire arranged as a Windom antenna only a few metres high.' At the end of the month, Jens had made 154 QSOs and his score ranked him number 981 world and number 5 in Denmark. He said, 'I had a month of fun chasing the big guns with their huge PAs and in some cases, maybe not so good ears. The best DX was **UP7WWA** and **CQ3WWA**.' Other members who took part can check their score and ranking at <<https://www.qrz.com/db/GB2WWA>> by typing your callsign in the 'Your Callsign' field. **G4MAD** also chased some of the WWA stations, as did your scribe on CW only, despite the website showing me as Mixed Mode!

DDØVR and **DE3BWR** were touring Australia in December and QRV with an Elecraft KX3 5W and an OCF dipole (104ft and 34.5ft) and a **DL1VU** vertical dipole (2 x 17.8ft) on the 38ft DX-Wire mast, mostly 10m, (28460kHz SSB and 28040kHz CW, IOTA). On 13 December he made his first QSOs, including IPA member **DL3MDK** from their local club back in Germany, and the following day with 10W with **KH6AQ**, **AL4A** (KL7) and **RUØLL**. **G3YMC** made 66 QSOs with 31 DXCC in the first two days of 2025, including **BY1RX** on 10m.



G4YVM writes, 'On 28 November **EA1KT** launched a TALARC Pico-Balloon ALP40-E from the Boulder City Dry Lakebed in Nevada, USA with a payload similar to the ALP40-A balloon that circled the earth over six times in 74 days, well above 43,000ft. Cris constructed the ALP40-E with help from **KB7HTA** and as an experiment, decided to transmit a CW signal after the WSPR transmissions to see how many people received the weak CW 27mW signal (27 mW). Surprisingly, in mid-December the RBN showed over 80 spots on 28022kHz since launch by stations in DL, F, KV4, S5, TI, VE and USA. An eQSL can be obtained if confirmed on the RBN, otherwise a transcript of the message and reception time in UTC is required to receive the card. The CW message (transmitted twice) is in the form of: CQ EA1KT EA1KT BALLOON [6 Grid Square] [Altitude in meters or GPS speed] [Battery Voltage in mV]. Dave says, 'Get your headphones on and good luck!' More information about the flight and how to track it at <<http://kb7hta.com/>>.

Over Christmas **GMØEUL** designed a new mini straight key (pictured right) for, 'SOTA, POTA or those who just like miniature things'. Peter used it in a recent SKCC event and is delighted with it and says it will be advertised for the first time in this issue of *Sprat*. His original UMPP-1 mini paddle was recently featured by **K4SWL** in his QRPer blog and *YouTube* channel. He says Tom did a great activation and write up with it, see <<https://qrper.com/2025/01/super-portable-pota-one-watt-one-tiny-key-big-fun/>>, and adds his reviews and accounts of his activations with new kits are always worth a read. At the end of December, **M1LCR** ran a 900mW beacon on 40m that was heard in USA. Adrian then changed it to 14066kHz, again with 900mW, where it was heard around Europe, and finally to 3566kHz with 500-600mW to test the 80m section of his multi-band antenna, where it was heard in DL. He says that whilst he is not researching propagation, he is testing his home-brew multi-band antenna. 'So far it's performing well and as expected, particularly on 40m and above. Being a vertical it has low angle radiation so unlikely anyone between say 3 miles and 150 - 200 miles away would hear it. This is confirmed by a review of the RBN network, but the TX site is Hereford, not central London which the RBN website indicates. Once testing is complete on 80m tomorrow evening, I shall make some adjustments to the antenna and retest on 160m, possibly at the weekend. For those interested, the antenna is a Swallow Tail antenna, very similar to a DX Commander, but with the addition of three traps to enable 160m and 80m operation.'



G3ZBU's Mk III SCD (pictured left and below) is at <<https://www.dropbox.com/scl/fozy62ckevxjs7f49awk1qb/ANAARzemPRRHjPaO63IjRuY?rlkey=iar0re0a5s1qe3fliakvkv2p&st=1tap4o2k&dl=0>> that includes a pdf file of Alister's build - thanks **GØFUW**.

M3GHE writes, 'In the last *Sprat* (page 25) **G3XIZ** made mention of using WebSDRs to overcome his issues of local QRM. The Bedford site he mentioned is mine. It consists of nine radios, including two Kiwisdr and two SDRPlay RSP1As, with many extensions to use such as SSTV, WSPR, FT4/8, CW decoder etc. You can access my radios from the home page at <<http://remoteradio.changeip.org/>> and all members are free to make use of them.'



G4MAD has built an active loop antenna (pictured right) based on the **G8CQX/M0AYF** designs, to support a Scouts Communicators Badge evening run by his 17 years-old son, a Young Leader of a local Scout group. Paddy says all parts were from the junk box, thus zero cost!, and writes, 'The novel aspect of my loop is rather than use copper pipe or stiff coax, I have used a length of underfloor heating pipe. This is a semi-flexible plastic with an aluminium foil layer within, which forms the conducting loop itself. I'm quite pleased with the performance and once temperatures rise and the rain abates, I will install it in my own garden. It is currently on a tripod stand.'

G0DJA cleared his loft in January and, after a discussion on the G-QRP reflector about loft mounted antennas, and a suggestion for **G8PG**'s double delta antenna, managed to feed some thin black ladder feeder up through a hole for the cold water feed to the header tank. Dave was unable to fit the suggested 132ft wire in two triangles fed in the centre, but was able to fit about 98ft in a rough figure of eight shape as he wasn't brave enough to get right into the corners of his loft! Using a SEM Transmatch he was able to tune the antenna on the QRP QRGs from 80 to 10m, and it has given Dave two-way QRP QSOs with members, including **GM4JMU** and **G0FOZ** on 40m and **F5NZY** on 30m.



G3OEP asks if anyone has seen the ferrite rods at e-Magnets (pictured left)? David says the subject of ferrite rods for QRP comes up now and again. and, after a review of published material, he has come to the conclusion that one of the snags is the availability of large ferrite rods at 'sensible' prices. He chanced upon e-Magnets and has bought two of their rods. They are currently selling two one inch diameter rods, C-4018-CR at 18 inches long and C-4022-CR at 22 inches long. They are currently on sale at less than half price! The full URL for the rods is too

long to include here, but go to <<https://e-magnetsuk.com/>> and in the search field top left, enter 'C-4018-CR' to take you to them. David writes, 'I found an article about ferrite rods for QRP antenna use several years ago on the now defunct **G3XBM** QRP website, and saved it. I can attach the .html files or write them to a DVD if anyone is interested, <davedb7@yahoo.co.uk>.'

G3XIZ says his new one valve TX works a treat and **G3VTT** very kindly gave him a selection of crystals to use with it that he had 'penned' to get them on to useful QRP QRGs. Thus inspired, Chris has been trying to modify some of his old crystals, with varying success. He has now had 300 QSOs using his 'remote' set up whereby he can key the cold garden shack's TX from the comfort of his lounge armchair. Chris' latest project is trying to modify an ancient 'Workmate' bench into an aluminium folding machine. If it works, he should then be able to make his own chassis.

Thanks to all the contributors. Please tell me how your spring goes for the Summer 2025 edition of *SPRAT*; what you have been building, interesting QSOs you have made and any other information about QRP, by 12 May. 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. Finally, please let me know if you intend operating from somewhere other than your home QTH during the summer and autumn months, so I can let members know to listen out for you.

Membership News

Daphne G7ENA, 33 Swallow Drive, Louth, LN11 0DN

Welcome to the first membership news for 2025. A big thank you to everyone that sends me their used stamps, I am still collecting them for the local horses' home.

Your last Sprat?

This will be your last Sprat if your wrapper label says "membership expired" or "underpaid". Please check your wrapper and contact me (or your overseas representative) if this applies to you. Please do not assume if that if you are a UK standing order payer that it can't be you.

If I could not identify your payment, then your membership has lapsed. Please everyone, check the wrapper now. If underpayment applies to you? There will no further Sprats until you send the balance.

If you wish to pay by **PayPal**, please use the page on the club website:

<https://gqrp.com/paypal.htm>."

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Providing information with your payment.

Astonishingly our overseas representatives and I receive payments with no information about the member paying. We have no special gifts of prescience so please take the trouble to include your name, callsign, membership number and address. An email address is very helpful if we need to contact you about the payment.

Privacy.

This is to remind you that the club holds a database of all our member's names, callsigns and addresses. It is implicit that every time that you renew your subscription, you are giving us active consent to record this activity in the club database. We only use your data to confirm your membership to send you *Sprat*, QSL cards, or fill your order in the club component store.

We only share your data with the printers who mail you your *Sprat*. If you are unhappy with us holding this information about you, then clearly you cannot, for all practical purposes, be a member of the G-QRP Club. If you contact us we will gladly refund your unused membership fees and delete your data.

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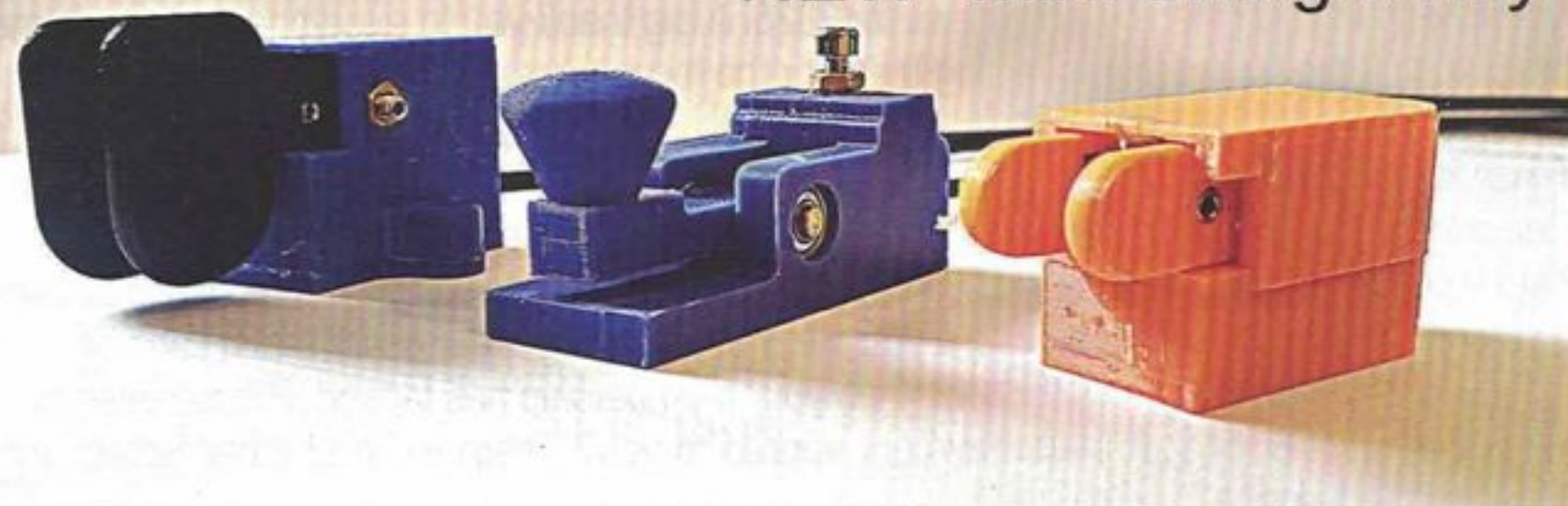
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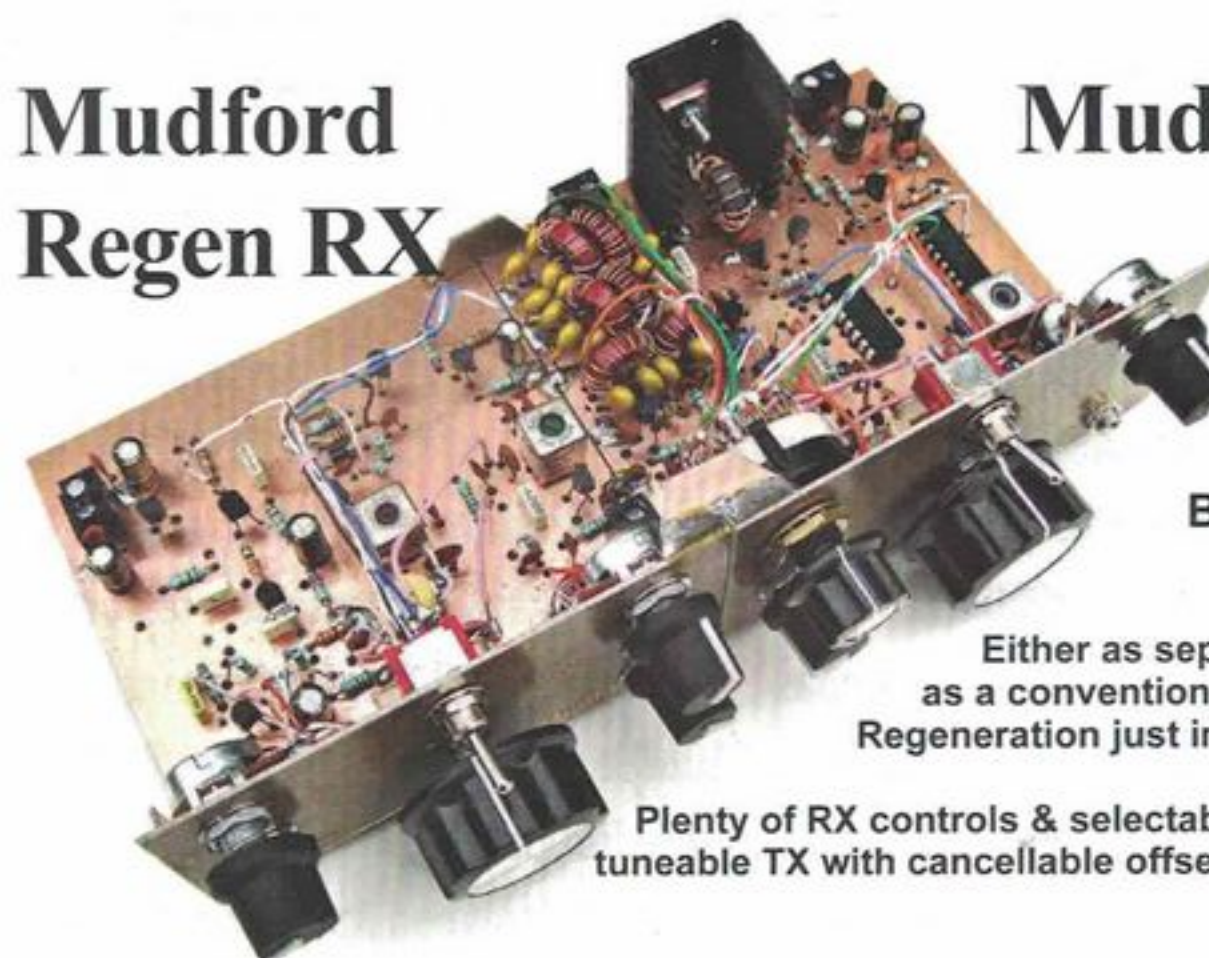
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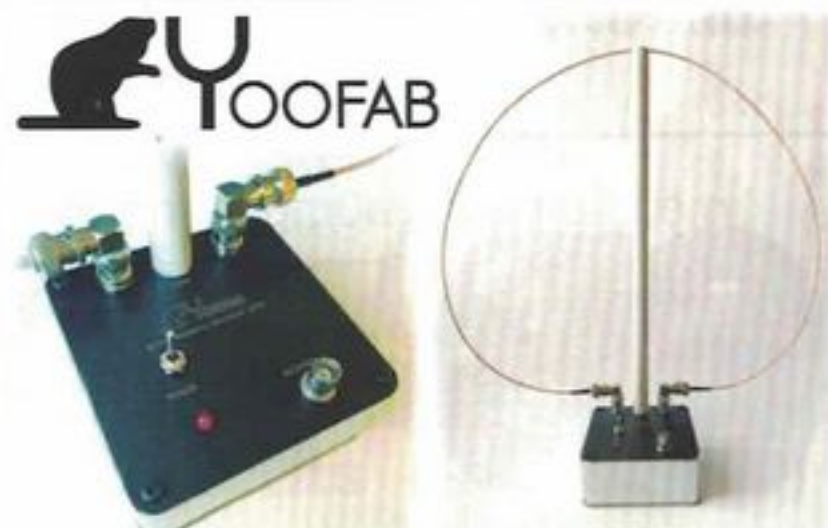
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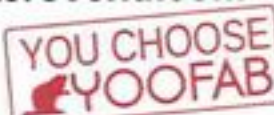
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