SPRAT

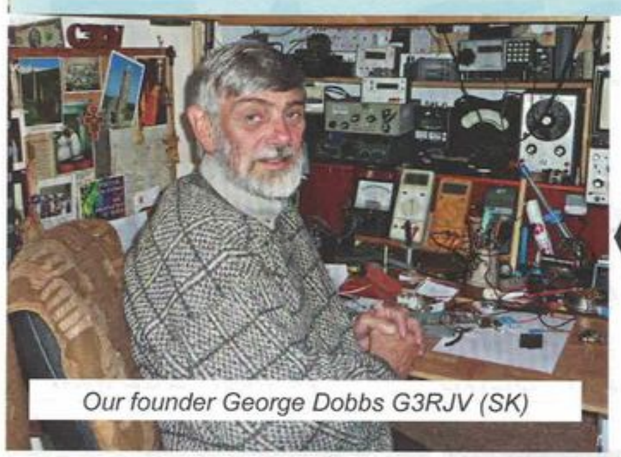
THE JOURNAL OF THE G QRP CLUB

DEVOTED TO LOW POWER COMMUNICATION

Issue No. 201	© G-QRP CLUB	Winter 2024/25

Contents

JOURNAL OF THE G-QRP CLUB



Our founder George Dobbs G3RJV (SK)

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Editorial

The 50th Anniversary Convention was a great success. With Hans Summers and Ashar Farhan mixing and chatting with some of the G-QRP 'old timers' it was certainly most enjoyable. One member said the Saturday Social Supper was like 'being amongst the radio gods'. How strange was it that we ended up with 50 members attending the 50th anniversary supper?

The 100 page *SPRAT Extra* was released at the Convention and it has been very well received. There are still copies available from Club Sales, and it is included as a .PDF on the latest SPRAT-on-a-Stick.

Enzo's inspired idea to get lots of special QRP stations on the air for the 'Low & Clear' anniversary activity period attracted lots of attention, not only in the UK but right across Europe; see his report for full info. I must thank all the SPRAT advertisers for donating some amazing prizes for that event too, some real G-QRP generosity on display.

Tex does a grand job of squeezing a lot of content into our 44 pages in each SPRAT and occasionally circuit diagrams can be a bit on the small side. For really big or complex circuits we have, in the past, uploaded them to our Club Website (on the *SPRAT* page), and we will no doubt do that again, if needed. But if you ever find yourself unable to read a circuit, please e-mail Tex and request a full sized copy.

Finally, not long after *SPRAT 200* arrived we received sad news that the key of our long serving rep in France, **Richard, F5VJD**, had fallen silent. Richard was a regular at our Rishworth Conventions and was active at local and national level in France. We have also recently lost **Ken Evans, W4DU**, past President of QRP-ARCI. Ken was a good friend of G-QRP and the main inspiration behind our Buildathons and was a kind and generous soul. Our thoughts are with both families.

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

Now a date for next year's diary: 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***

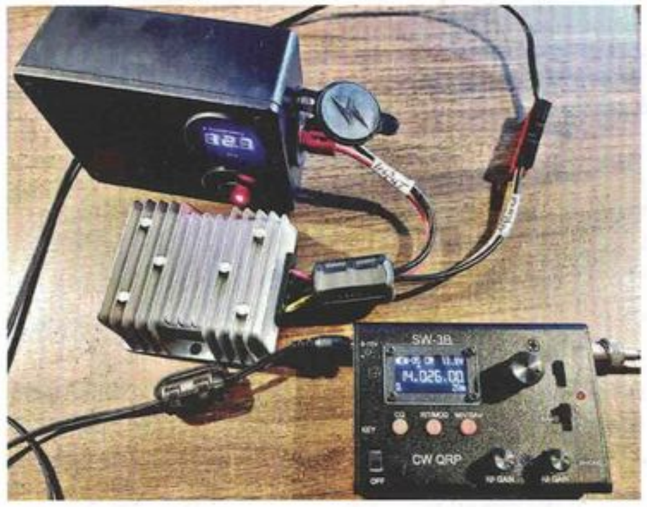
2024 G3RJV Memorial Trophy Winner

Martin M0HKG email: m0hkg@yahoo.co.uk

On behalf of the GQRP Committee, I'm delighted to announce the results of the 2024 G3RJV Memorial Trophy.

The competition received a fantastic range of entries, showcasing the creativity, skill, and dedication of our members. From simple yet elegant designs to highly complex builds, all projects embodied the G-QRP and G3RJV philosophy that "less is often more."

The winner is **Daimon Tilley, G4USI**, with his **Parker 1 Portable HF Transmitter**. This compact transmitter integrates a custom Nano VFO with a 5W PA board, five low-pass filters, and a homebrew L-match ATU, all housed in a portable die-cast enclosure. Powered by a 3S Li-Ion battery pack with BMS, it features solid-state TX/RX switching, a built-in CW keyer, and an OLED display. Designed for both base and portable operation, the Parker 1 has logged successful QSOs with stations as far as HS72KING (6,050 miles on 40m) and N2CW (20m). Daimon's attention to detail and functional design made this a standout entry.



The runner-up is **Andrew Shead, W5AWS**, with his **QRP Battery Pack with Buck-Boost DC Power Regulation**. Andrew's project addresses the challenge of maintaining a steady voltage for QRP equipment in the field. Using a modular buck-boost converter, it delivers 13.8V output, even as the battery discharges. The design includes a 10-slot NiMH battery pack, a 2.5A fuse for protection, and effective RFI mitigation using ferrite beads. Practical features such as a digital voltmeter, illuminated switch, and Anderson PowerPole connectors make it an excellent portable power solution.

We thank all entrants for their contributions and congratulate Daimon and Andrew on their achievements. The high standard of submissions reflects the ongoing innovation and craftsmanship within the club, and we look forward to seeing what members create for next year's competition!

More details of these projects will appear in the next issue of *SPRAT*.

G-QRP 50th Anniversary Convention 2024

Vic Winton, GW4JUN and Lee Aldridge, G4EJB

This very special anniversary Convention was held with the Telford and District Amateur Radio Club (TDARS) Hamfest [1] again at Harper Adams University [2], near Newport, Shropshire on Saturday 31st August and Sunday 1st September.

We had an excellent Buildathon on the Saturday afternoon, well organised as ever by **Steve, G0FUW** and a great team of helpers. This year, 16 builders tackled 'A more beefy OXO', a 5 watt version of GM3OXX's infamous OXO transmitter.

Each attendee was given a bag containing components, a pcb and a step-by-step instruction booklet. Tools and soldering irons were provided. With three or four builders at each table, everyone got building and chatting away. The instructions were excellent and the components for each stage were in separate bags – brilliant!

The Buildathon in full swing

A completed transmitter with the separate component bags, instructions and few bits of wire!

Eventually we had 5W 40m ready transmitters (and wide grins) to show for it! Also see Daimon Tilley, G4USI [3].

A big thank you

Firstly avery big thank you, to all those who helped make an enjoyable afternoon. The G-QRP Club social gathering and buffet was held in the Harper Adams 'Wellie Inn' with double the 2023 attendance. A good buffet was enjoyed with old friends and new, chatting away till late! The campus overnight accommodation was really appreciated. The Sunday morning breakfast was splendid, with many members talking with guest speakers.

Inside the main hall

Time for the Telford Hamfest to get into full swing!

This year a large hall filled with traders offering a wide range of goodies, components, special interest groups and with the RSGB represented. A busy bring-and-buy was in the entrance hallway. Outside more radio equipment for sale and in a marquee, traders selling more radio kit and components.

The Club again had an excellent stall with a great team in attendance. **Graham, G3MFJ** with his wife **Pat**, were there yet again – bless them. Club members who were quick off the mark received a 50th Anniversary goody bag containing an impressive special edition of *Sprat*, put together by Tex along with some other Anniversary items.

Meanwhile the first of three Convention talks was imminent. The Convention room soon filled for our first speaker.

Hans Summers gave us an excellent insight into how QRP Labs has developed from very humble beginnings, how products have evolved and updated us on the latest developments. He shared with us just how successful the QCX series and now the QMX series have been so far. Truly outstanding and we wish him every success for the future.

Second up, **Phillip Miller Tate, M1GWZ** gave a well-timed talk on 28MHz antennas. His numerous home-brew designs and ideas, offered reliable results with simple tools and a roll of wire. These should fit the smallest gardens and ideal for portable operation. Phillip shared his ideas for fast portable deployment, buying good poles and ground stakes, avoiding guys and, building a simple tuner.

His technical knowledge of what happens when an antenna is 'adjusted' was fascinating. Good performers could be turned into dead ducks in a flash, so best to check and compare when making 'improvements'.

And finally, **Jack Purdham, W8TEE** gave us a talk on the T41-EP Software Defined Transceiver (SDT). It featured in Sprat 191 [4] and is an open-source development. Its inception was in 2018 and now at version 12. Just like many developments we are privileged to have today, an incredible amount of work has been put in to this project. Its aimed at the

experimenter and as a teaching tool based around the Teensy 4.1 board. It also covers 160 to 6m!

All in all, three excellent presentations!

This year **Enzo, M0KTZ** roped in several club members to activate the Club call G5LOW on Sunday outside the Convention room. A doublet on top of a 7m mast and some cover for operating under were ready in minutes. The sound of CW operation attracted many visitors, some current members, some past, as well as the curious. Despite conditions not being the best, there were 22 contacts in 2½ hours of casual operating. See his full report in this edition.

An old friend

Vic, GW4JUN even met up with an old friend, **John, G4GVC** who he hadn't seen for 25 years.

With such a good attendance, the event really was again a success. The Harper Adams University facilities help considerably with accommodation, food and drinks as well as some great staff.

It's easy to take an event like this for granted and broached it with Steve. In his words: "Planning starts almost straight after the previous Convention. Liaising with our Telford hosts and potential speakers. From concept to design then, trial building of Buildathon project. Bringing everything together for about 20 Buildathon kits.

Working with our sales team and providing info to our webmaster, the RSGB News and *Practical Wireless*. Setting up the on-line streaming event and sorting out links. On the weekend, packing the car, getting to Newport and setting up rooms ready."

The speakers and sales team also do their own preparation. The considerable hours put in by everyone as well as any help from members is appreciated.'

So, our thanks to all those Club and TDARS members who voluntarily give their time for us to enjoy the whole weekend.

Will you join us at next Convention? We hope so!

Web links and Information:

[1] Telford and District Amateur Radio Society (TDARS): ***https://tdars.org.uk/***

[2] Harper Adams University see: ***https://www.harper-adams.ac.uk/***

[3] 'HF' by Daimon Tilley, G4USI *RadCom* Oct 2024.

[4] T41-EP Construction manual. *Sprat* No. 200 review

Regenerative receiver 80 – 12m

Ernst Olivier, F5LVG email: oernst599@gmail.com

Theoretically, a regenerative detector has infinite gain at the point of oscillation. This explains the extraordinary results possible with this type of detector. An audio amplifier is still needed to provide enough power to drive a headphone or speaker, and an RF amplifier to suppress interactions between the antenna and the regenerative detector stage.

Three more secrets

Here are three more secrets to achieving results close to the theory:

Use high-quality components. The detector transistor should have a transition frequency close to 1 GHz. The audio amplifier should have low noise. The fixed capacitors in the RF circuit should be of the NPO or COG type.

Use a tuned circuit with a very low L/C ratio. In practice, a tuning capacitance of more than 1000pF is required. Even at 24MHz, this value can be met. It provides good frequency stability. It is possible to listen to an SSB station on 24MHz for 30 minutes without retuning. The hand effect is almost canceled. Finally, the higher the value of the tuning capacitor, the better the selectivity, especially for eliminating out-of-band broadcast stations.

Battery power. This avoids most of the noise from the AC power line, and in particular that caused by the modulation of the detector oscillation by the AC power line (tunable hum).

Three variable capacitors are necessary (coarse tuning, fine tuning, and ultra-fine tuning) to avoid the use of a mechanical spreading device. The use of 4-gang capacitors allows the use of high values for bands below 15MHz and a much lower value above 15MHz.

Interchangeable circuits on a DIN plug will be used. Between 14 and 24MHz, the coils have

less than one turn, so they have the shape of an inverted U

Three switches (S1, S2, S3) allow adding capacitors in parallel with the resonant circuit.

The 100nF capacitor (NPO or COG) for coupling the oscillating circuit to the base of the detector transistor is essential to short-circuit the 50 Hz or 60 Hz induced by the AC power line to ground. Such a capacitor only exists in SMD. However, it is a large SMD on which it is easy to solder two wires to use it as a classic component.

Switchable Antenna Trap

On 80m in the evening, you can hear interference between the 2nd harmonic of the receiver and the broadcast stations in the 41 m band. A switchable trap circuit located in the antenna circuit eliminates this whistling.

The receiver is built in a wooden box (23x15 cm). The inner walls are covered with 5 cm wide copper adhesive strips to create the ground plane.

Rediscover the amateur bands with this receiver. It's a marvel."

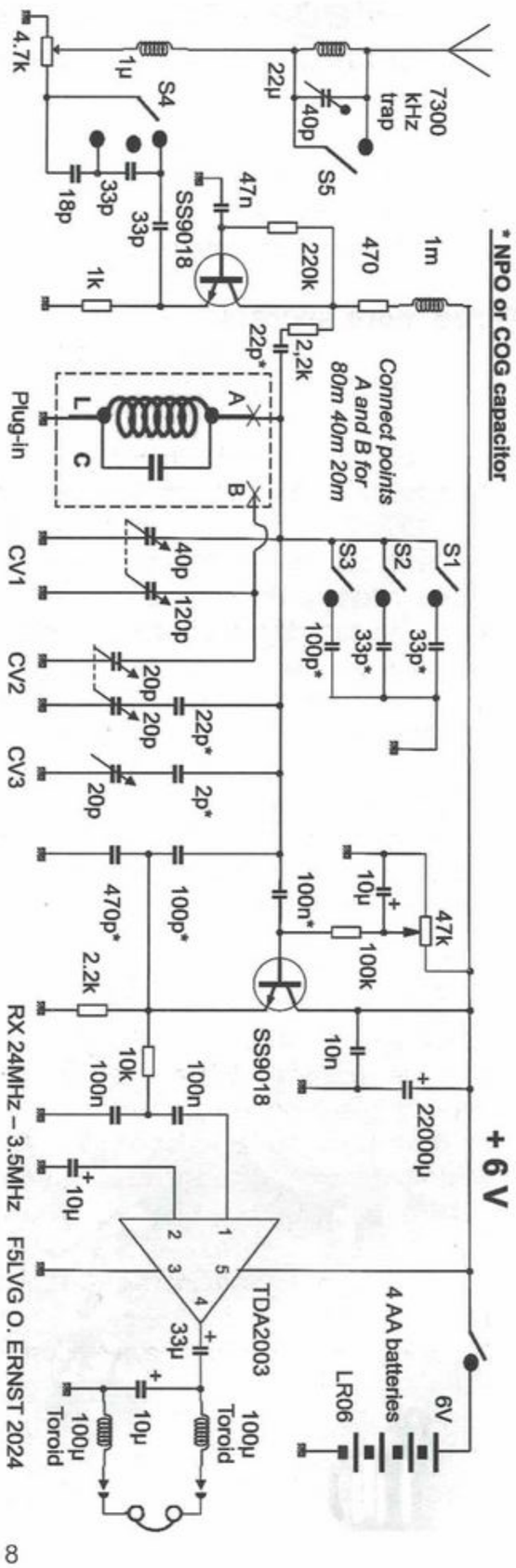
Band L / C

- 80m / 5 turns, 22mm diameter / 1141pF
- 40m / 2 turns, 22mm diameter / 3322pF
- 20m / Reversed U, 55 x 8 mm / 2533pF
- 17m / Reversed U, 50 x 8 mm / 1510pF
- 15m / Reversed U, 50 x 8 mm / 1000pF
- 12m / Reversed U, 40 x 8 mm / 1100pF
- Wire: 2.5mm² (20A) except for 80m (24 AWG single strand)

Note: The value of C (capacitance) must be determined experimentally. Up to 8 capacitors may be needed to obtain the correct value.

F5LVG

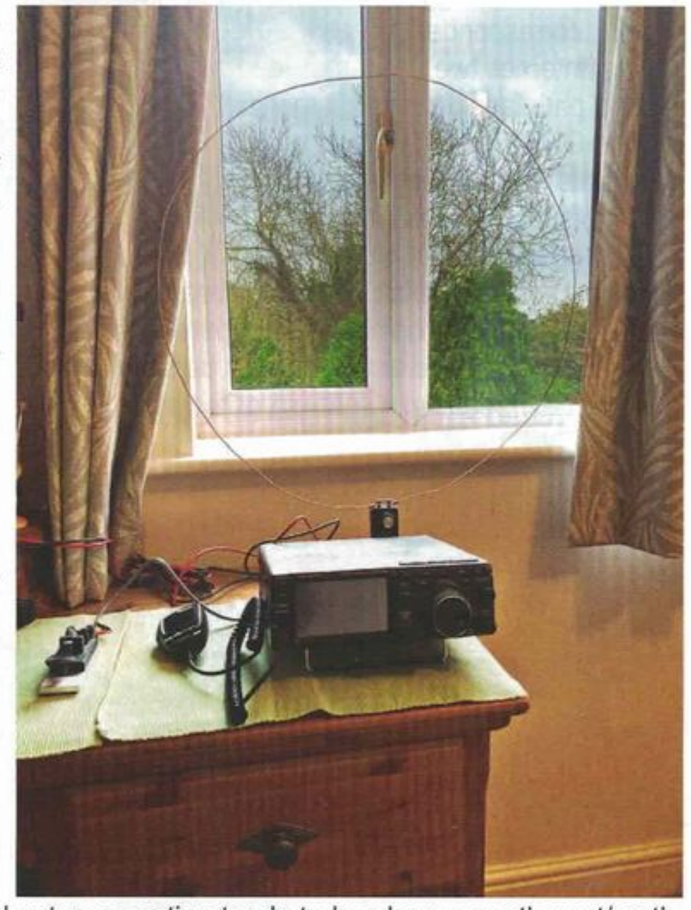
https://oernst.org/hamradio
2 Rue de la Philanthropie
59700 Marcq en Baroeul
France



Modest Station Wins GQRP Award

Ryan Pyke G5CL

I have just issued a GQRP award to **Martyn Regan M0HGG** who successfully applied for one of our GQRP Awards. Martyn has recently worked 25 DXCC areas using 10W PEP SSB and has been issued with a **Certificate of Merit** to reflect this achievement. We wish him every future success in adding to this list. Here's his story:



"I returned to the hobby in 2023 after a gap of over 40 years. I first became interested in amateur radio as a SWL back in the 70s.

"After joining the University of Liverpool Amateur Radio Society (G3OUL) and passing the RAE in 1977, family life and career then became increasingly busy. So, I didn't have any time for amateur radio. After over forty years or so working as a doctor in the NHS, and for a number of national public health agencies, I finally retired in 2022 and have since found some time to explore my interest in amateur radio, particularly low powered radio communication . I'm mainly active with QRP SSB on the HF bands, but I'm getting into CW, joining both GQRP and FIST in 2024.

"Due to the sandstone ridge to the north of me here on the Wirral, and the Welsh mountains to the south west (***Eryri*** – formerly Snowdonia), best propagation tends to be along a south east/north west arc. But in spite of this limitation, countries worked with my modest station are: Austria, Bosnia-Herzegovina, Bulgaria, Canada, Canary Islands, Croatia, Cyprus, Czech Republic, Federal Republic of Germany, France, Greece, Hungary, Iceland, Italy, Poland, Portugal, Romania, Scotland, Serbia, Slovak Republic, Slovenia, Spain, Switzerland, Ukraine, United States of America.

"All of which goes to show that a modest station can be very successful!

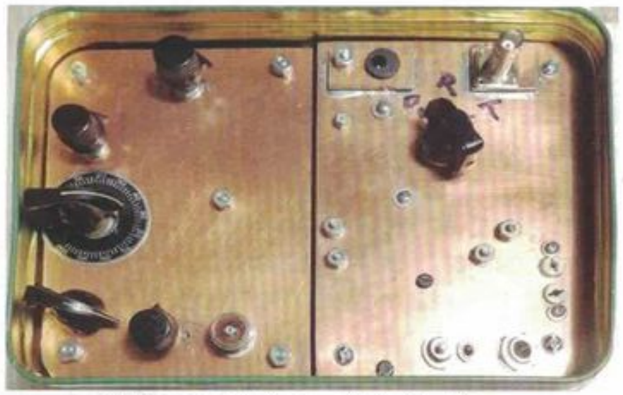
72, Martyn M0HGG "

As a general reminder of our club awards, please take a look at our website and remember that all awards are now completely free (no need to include stamps with any application).

Ryan G5CL

Dead-Bug Style 40m 'Bayou Jumper'

Frank Lotito K3DZ email: k3dz@live.com

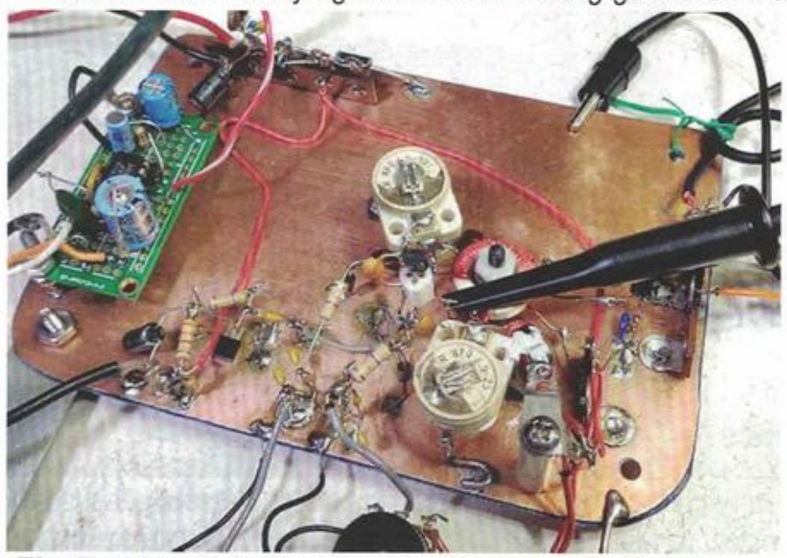


The completed unit in the box

I became aware of "spy radios" and got hooked on them after purchasing AH6CY's RSGB publication "The Paraset Radio." I started following leads, including leads suggested via personal e-mail correspondence with AH6CY. As the Internet "web" does, it lead me down a path landing me squarely on the 4 State QRP Group's web site and their solid state "Bayou Jumper" kit.

As usual, I was "Johnny come lately" and missed out on the Bayou Jumper kit sales. But to the rescue, one of the kit's co-developers had some left over circuit boards. Through the club I purchased the board set and away I went using a combination of personal coffee can / peanut butter jar stored loot, and newly purchased Mouser Electronics parts to construct the Bayou Jumper, rev C.

It worked beautifully right out of the starting gate even though dangling on short leads from the component PCB board were the receiver potentiometers, crystal holder, and rotary mode switch substitutes I wound up using. One problem though, the receiver tuned about 500 KHz too low! I corrected that problem with a few quickie tack-on fixes. In the process of trying to make my fixes permanent I botched up the tiny plastic air variables, and the PCB trace(s) in the vicinity of the J-310 regen detector/ oscillator.



The Receiver Unit Showing The Components (before installing the pots, etc. above deck):

UGH, my stupidity is only to blame, shame on me! I then put the whole 9-yards aside and started to build the receiver and transmitter dead bug style on a two physically larger double sided glass-epoxy unetched PCBs. The transmitter construction was uneventful. I did have to change the IRF-510's output circuit to that used when I constructed the VK3YE transmitter (*SPRAT* #188, Autumn 2021.) The reason, the Bayou Jumper PCB used flat pancake spiral wound type inductors for the IRF-510 output circuit that were etched on the PCB. (This inductor design goes back to the WW1 era, and before.)

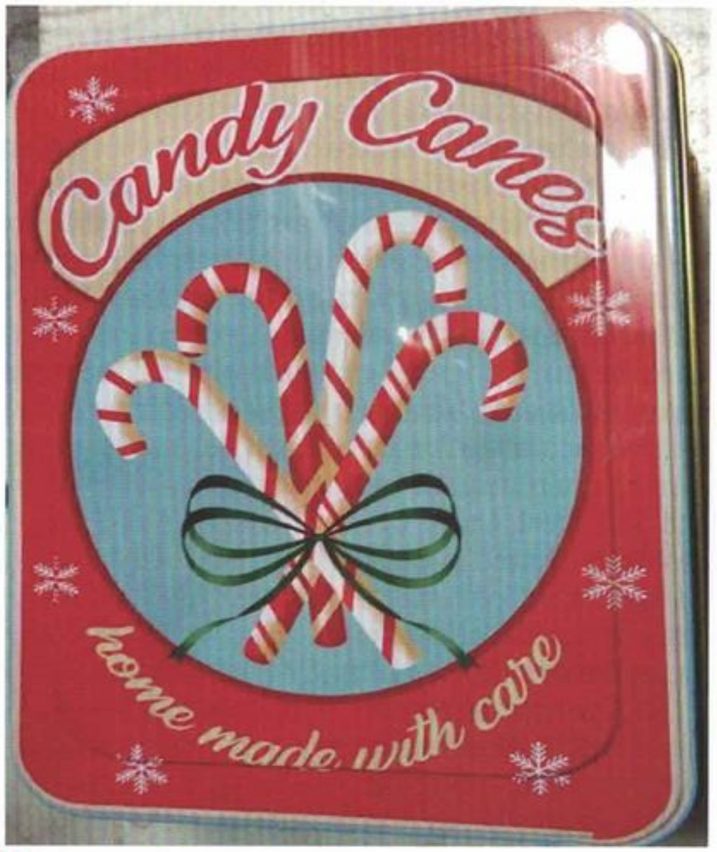
Component Side of the the Tx Unit

I had to try twice to build the receiver dead bug style. The first was a 'howler', I was too liberal with my lead lengths. I did make one notable change in the receiver circuit. In lieu of the NJM2113 audio IC amplifier I used the more bullet and klutz proof LM386 IC set to a x20 gain. I used two potentiometers for the frequency control, a 50kΩ for the coarse, in series with a 5kΩ for the fine. For the variables I used 180° ceramic pots.

Shown on these pages are a few photos of my dead bug 40M Bayou Jumper rendition. On the bench I started to kit-up an 80metre Dead Bug Bayou Jumper. I am also in the process of using my CAD software package to conjure up labels for the receiver and transmitter controls.

As the WW2 tube type (of course) Paraset radio operators used to say before they were dropped into occupied 36 Europe, "Wish me luck".

All Buttoned Up In Its Christmas Candy Tin:



Ref:

State QRP Group, rev C Bayou Jumper Kit (now discontinued) ***https://www.4sqrp.com/index.php***

12V Regulator + a Limiter

Ian Braithwaite G4COL email: ianb1955@gmail.com

The stimulus for this project was owning some of QRPLabs' kit, which operates at 12V with the proviso not to exceed this, otherwise the RF power output transistors could overheat. This isn't a problem with a 12V regulated bench power supply, but a sealed lead acid battery with a terminal voltage of almost 14V when fully charged, requires a solution.

There may well be suitable monolithic low drop-out regulators, but I didn't bother to look at these, instead designing my own quite simple one around a P-channel MOSFET, the only component I didn't have in the junk box. The design was done on a circuit simulator, and worked first time when built, as it should.

From CPC-Farnell, I chose the IRF9Z34NBPF (CPC stock code SC11120). With a maximum fully-on channel resistance of 0.1Ω, maximum drain-source voltage of 55V and drain current of 17A. So, it should be indestructible in this application. There are many such devices that will fit the bill, so feel free to choose your own, as long as it can be attached to a heatsink.

A simple long-tailed pair using two (unmatched) common *NPN* bipolar transistors suffices in conjunction with the MOSFET - the huge open-loop gain of an op-amp is not needed and would likely make stability harder to achieve. When tested with my 17m QCX+, the output voltage drop was only of the order of 10mV when the transmitter was keyed. If you want to use different transistors, go ahead (but perhaps stay off Germanium ones!).

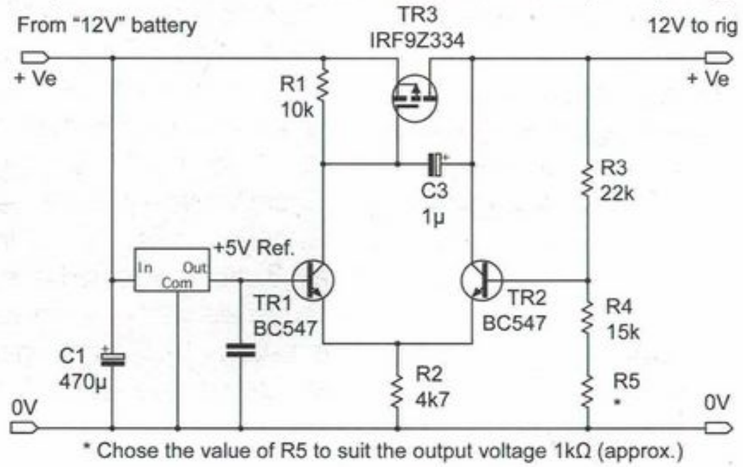
The voltage reference is a 78L05 5V regulator, and the output voltage is trimmed by choosing the value of R5 - I set mine to 11.8V with a value of 1kΩ.

If the battery voltage falls below 12V, the regulation action ceases, the FET is turned fully on, and the output voltage simply tracks the input, without drama.

If you use electrolytics for C1 and C3, as I did (they don't have to be but the electrolytics I had were smaller), they should be minimum 16V working. No current protection is provided in the unit, reliance being placed on an upstream 5 amp fuse.

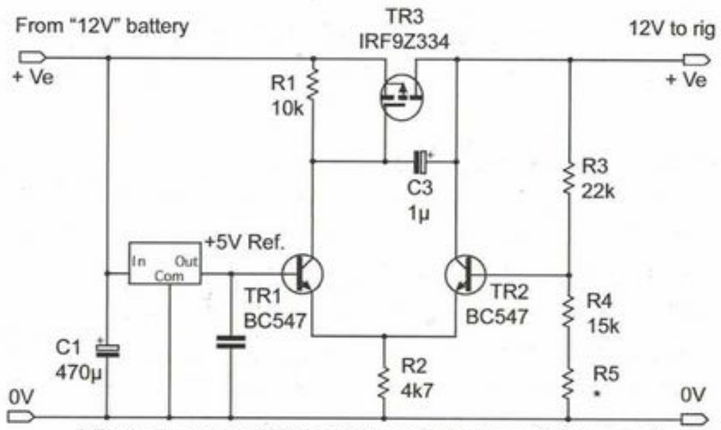
For a circuit board I used my favourite 'colander ground plane' board, but use whatever works best for you. I built my regulator (without demonstrating much constructional prowess) into a small diecast aluminium box, which acts as a heat sink for the MOSFET, dissipating a peak power of under 2 watts at maximum battery voltage and 1A current. Under CW conditions, the average dissipation will be lower, especially when one allows for receive periods.

A 2.1mm socket resides on the box, and 2.1mm plug on a flying lead, compatible with the QRPLabs' rigs.



* Chose the value of R5 to suit the output voltage 1kΩ (approx.)

Current Limiter



* Chose the value of R5 to suit the output voltage 1kΩ (approx.)

If you've built a fairly complex kit or acquired used gear of unknown provenance, the moment arrives to apply power, however diligently you've inspected it. If its supply is low voltage, a lab power supply with adjustable current limit is very useful when applying power for the first time, as wisely recommended in the QRPLabs kits' manuals. The idea is to keep the 'smoke' of functionality from escaping - no smoke without tears. Lacking such a power supply, I built this accessory in the process of constructing a series of QCX+, QMX and QMX+ kits.

Only four electronic components are needed, so I hope the late **G3RJV** would have approved. The series pass transistor is a P-channel power MOSFET. I used an IRF9510 (CPC stock code SC16944) but many types are suitable. This device can pass up to 3 amps and withstand up to 100V, so should be suitable for a wide range of supply voltages, though I've only used it on 12V. With an on-state drain-source resistance of 1.2 ohm, it will only drop the supply by 1.2V when passing 1 amp, dissipating 1.2 watts, which should be fine for QRP rigs.

The pass transistor is preceded by a common-or-garden PNP bipolar transistor, which does the current sensing. I used a BC557. When the voltage across the selectable current-sensing resistor exceeds about 0.6V, the transistor turns on, raising the FET gate voltage. Once the gate-source voltage falls below its threshold, in this case around 4V (so a gate voltage around 8V with a 12V supply), the FET starts to turn off, and the supply voltage to the unit under test falls, limiting the power and keeping the smoke in.

A couple of images show the built unit. As it is generally only used once per tested device, there's no need for constructional elegance. The current sensing resistor is fitted in a "choc block" screw terminal connector. A set of resistors in the range of 1 to 10 ohm should cover most needs. When testing the kits, I generally started with 10 ohm, going in a couple of no-smoke steps down to 3.3 ohm, at which point the kit had enough current to work. You can soon tell if the supply is shorted.

To test the unit itself, fit a low value sense resistor and short the output using a multimeter set to measure current. If the sense resistor is 4.7 ohm, say, and the short-circuit current 132mA, the sensing transistor's base-emitter voltage must be 4.7 x 132 = 620mV (you can alternatively measure this if you wish). From this, the limiting current for other values of sense resistor can be obtained, so a 3.3 ohm resistor will give a current limit around 620/3.3 = 188mA. The power (I squared x R) dissipated by the sense resistor will be 117mW, so a 0.25W rated resistor will do. A sense resistor of 1.5 ohm (current 413mA) will be very slightly over 0.25W, so if operating at higher currents, use a beefier resistor or two or more 0.25W rated ones in parallel.

Here's to your 'smokeless zone'.

ZL to VK (3000km) with 7 Components

Eric ZL2BMI email: sears@xtra.co.nz

A Marvellous Buildathon

If you look back to *Sprat* 191 you will see how I have tried to encourage all 26 club members at our local Branch to build some simple circuits in recent years. The one mentioned there two years ago turned out to be a bit complicated and not very successful. So this year I decided to go back to basics.

Some years ago **PY2OHH** came up with an IRF510 MOSFET transmitter of about five watts, which he called 'Amelia'. I thought that could be a possibility. But adjusting the volts on the gate of a FET looked like 'smoke territory' to me, even though I got 3.5 watts out of a simpler circuit.

So in the end I came up with a modification, a 7-component CW transmitter, using a bipolar transistor and putting out about 2.5 watts. See the photographs and notes below.

About 15 members turned up on the night - some of whom had never built anything in the way of a transmitter.

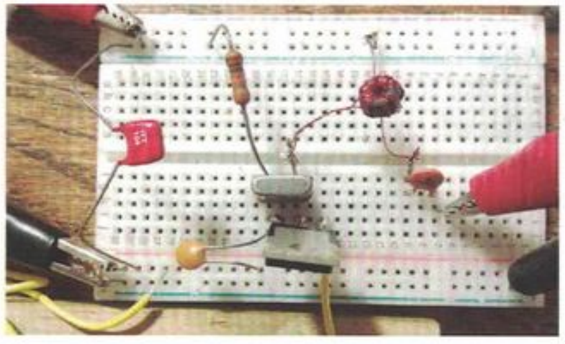
It took a bit longer than I expected as each project was tested into a dummy load before an on-air test. However, after 45 minutes all had been tested on air with **ZL2MLQ**, who is about about 270km away (50km north of Palmerston North - North Island) - being received with 5/9 reports for each of them.

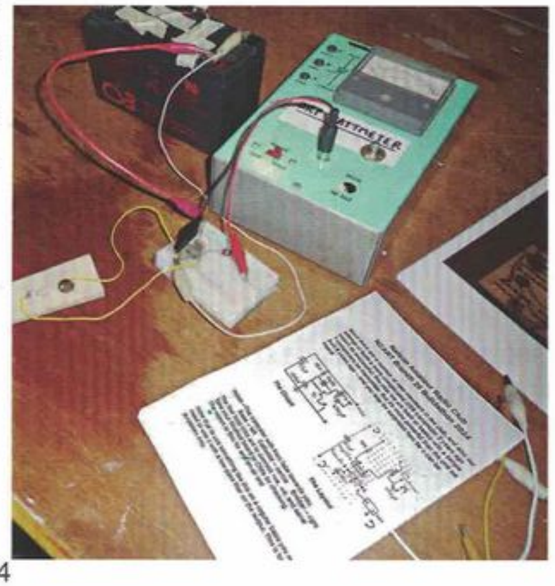
But the icing on the cake - which some found hard to believe - was hearing our signals on an SDR in Australia some 3089km away, just as we were about to pack up! All we were using was just a temporary dipole at the local hall we use for meetings. That was with an output of not much over 2 watts. Members are still talking about it – and want to know what's next?

Progress

The notes were written up on the computer with 'hand-scribbled' circuit diagram and another of the plug-in board layout added, before printing them out. You can see the instructions in the photograph below right. This shows a completed project surrounded by the paraphernalia of testing.

The photo here below left is a close-up of one of the completed projects ready for testing, before being allowed on an antenna.





Shown above is the discussion group, with myself in the middle, nursing a mug of tea.

Conclusions

1. There is nothing original about the circuit except perhaps using a RF power transistor as an oscillator and built on a plug-in breadboard. As PY2OHH points out, there are large currents circulating in the crystal circuit so some crystals may not survive long or they degrade or change frequency.
2. The crystals I used came from a club in Wellington, and they were donated Philips crystals – very good quality. Some cheaper Asian ones would not do more that 0.5 watts!
3. The small red 0.1uf visible on the left in the smaller previous pic is one of about 200 that the late **George G3RJV** "donated" to me when I visited and stayed with him in about 1994!
4. The size of the output cap is fairly critical. Too large or small may stop oscillation.
5. As a bonus, if you put a carbon mic in the power lead, and run it on 24V, it puts out a tolerable AM signal which we could hear on an SDR about 50km away.
6. Transistors – included 2SC2078, 2SC1969, 2SC1971, 2SC1984 – these were CHEAP Chinese copies which did not work well as finals in my QRP transceivers but were fine for this project and were as cheap as chips! The 2SC5706 (a sm from China) was amazing – though they get hot very quickly. Even a 2N2222 or BC338 will put out over a watt – but very short key-down!! We didn't use a heat sink on anything.
7. Transformer is a 1:4 step-up, 10 bifilar turns on a small ferrite core.
8. I made it clear that this was not a serious TX – just a demo. It would need a good low-pass filter for regular use.

Eric ZL2BMI sears@xtra.co.nz

My Elecraft K2 Contest Upgrade

Roelof Bakker pa0rdt email: roelofndb@gmail.com

Lately, I have taken an interest in HF-contesting using no more than 5W output. To be well equipped, a pre-owned FTdx3000 was purchased in 2022. The main reason selecting the FTdx3000 was, that it has a rf-out port at the back panel, suitable for feeding an external SDR, e.g. a SDRPlay RSP1A, replacing the internal waterfall and spectrum display, which is no use at all.

The receiver of the FTdx3000 is very good and a lot of features are available to enhance CW-reception. Yet, after long sessions, listening fatigue set in and my vision became disturbed as well, probably due to the screen of the FTdx3000 interfering with my PC monitor. And there is the apparently unavoidable fan noise.

The current draw of the FTdx3000 is 2 A on receive and about 9 A on transmit: 125 W DC to deliver 5W RF. This is a bit over the top and a far cry from doing more with less!.

In 2007, I had built an Elecraft K2, which has seen little use. The only options added are the 160m/external antenna connector and noise blanker. Basically it is CW only with a modification that addresses the severe signal loss using the narrowest filter setting.

Current drawn by the K2 on receive is 185mA and between 1.2 and 1.4A on transmit for 5W out. There is no fan to worry about! This looks a far less power hungry candidate for replacing the FTdx3000, yet a computer interface and rf-out port are missing.

USB-port

For serious contesting, computer control of the K2 is mandatory. Elecraft offers the KIO2 RS-232 Serial Interface kit. It is rather expensive and to be honest, a bit outdated. Furthermore, an external adapter is needed to connect it to a USB-port

Looking for an alternative, I found a description of a FTDI USB interface for use with the K2 on the website of Lex, PH2LB: ***https://www.ph2lb.nl/blog/index.php?page=k2_usb***

Lex sourced a genuine FTDI board for me and has also been so kind to provide an adapter to mount it in the existing DB9 slot at the back panel of the K2. (*See photo right.*)

To keep a long story short, this USB port works very well indeed and has proven to offer a reliable connection with my computer.

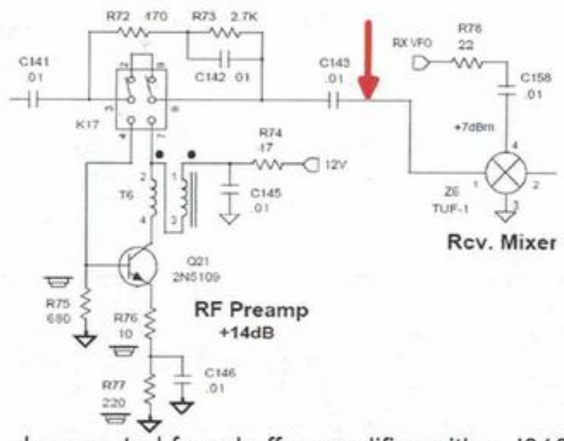
RF-out-port

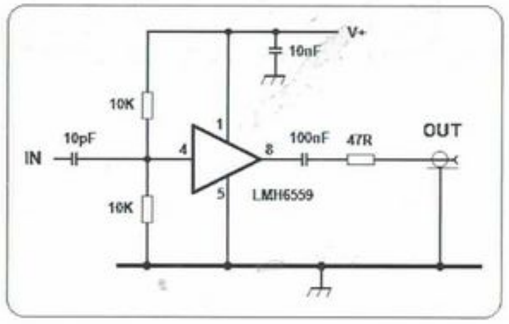
For pan-adapter use, either an IF-out-port or a RF-out-port can be used. N1MM, my preferred contest program, does not longer support the use of an IF-out-port, hence a RF-out-port has been fitted to my K2.

A suitable point to tap the RF is the junction of C143 and the input of the TUF-1 receiver mixer. The beauty of this arrangement is that the SDR benefits from the rf-bandpass filters and pre-amplifier & attenuator of the K2. *(see circuit here right)*

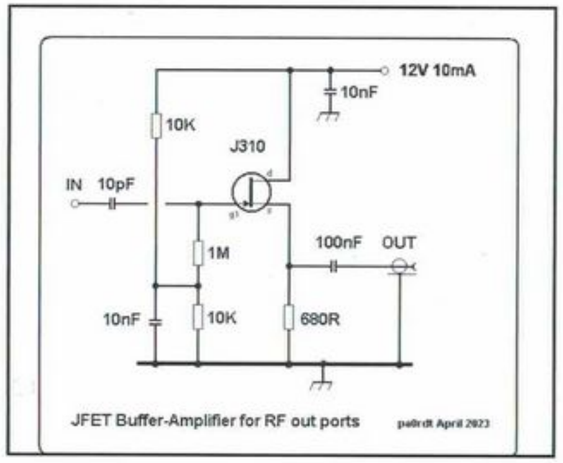
All what is needed is a 10 pF capacitor at the junction of C143 / TUF-1, connected to a suitable buffer amplifier.

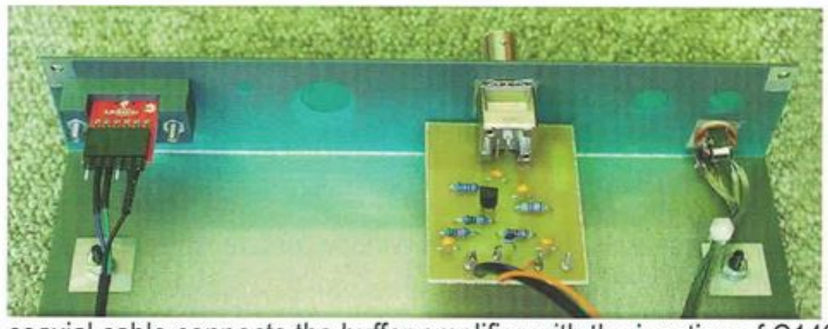
The circuit below shows the circuit diagram with a LMH6559 buffer amplifier. This works very well indeed, but to maintain K2 style, I have opted for a buffer amplifier with a J310 JFET, as shown in the circuit below.





A small PCB with an onboard BNC connector has been made for the J310 buffer amplifier. See photograph below. This board is fitted in one of the free holes at the back panel.





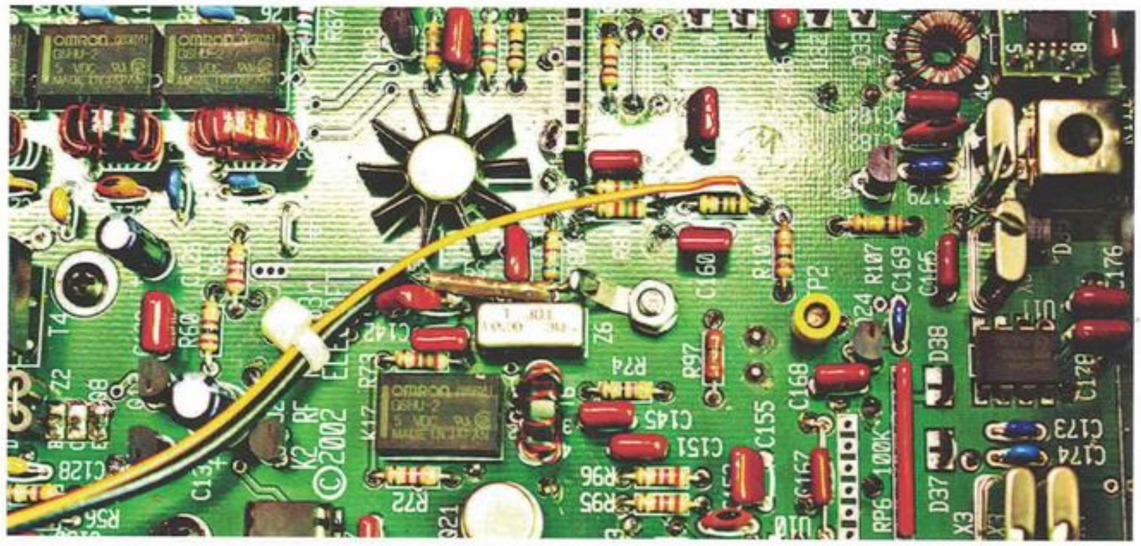
One of the other holes and a different connector type can be used as well. This simple circuit can also be mounted '3-D wise' on a standard BNC connector.

A length of RG-174 coaxial cable connects the buffer amplifier with the junction of C143 / TUF1.

One end of C143 has been lifted by using a soldering iron at the underside of the PCB. A short length of cut-off wire is then pushed through the hole, whilst heating it with the soldering iron.

This wire is soldered to the uplifted end of C143, providing a solid tag point for connecting the RG-174 cable. The cable ground has been connected to a ground lug mounted nearby. See the photograph of the area on the next page.

The supply voltage for the buffer amplifier has been tapped from one end of R82. See the photograph of the area on the next page for the location of both additions.



A short length of RG-174 coaxial cable connects 'IN' on the buffer amplifier with the junction of C143 / TUF-1.To make a reliable anchor point of the junction of C143 / TUF-1, I have lifted one one of C143 and replaced this end with a short piece of stiff wire. This is best done by heating one end of the C143 on the bottom of the PCB. A nearby ground point has been used for connecting the shield of the coaxial cable:

Receiver Software

N1MM supports the RSP1 and AIRSpy Discovery for its Spectrum Window feature and as I had a RSP1A at hand, this is what I use. For normal non-contest operation I use G3LDI, Simon Brown's excellent *SDRconsole* receiver software.

The waterfall and spectrum display of *SDRConsole* is very good indeed, putting the built-in waterfall and spectrum displays of high end radios to shame. But there is more. SDRConsole has a feature to connect third party software, e.g. your electronic logbook program at the same time.

Using a single USB cable, you have integrated your K2 with an awesome waterfall and spectrum display and your logbook in a fully transparent system. E.g. changing frequency on either the K2, *SDRConsole* or in my case LOG4OM, the rest follows automatically.

Contest software

For contests, I am using *N1MM* for a reason: its Spectrum Window feature is very useful for the QRP-contester.

For contests, I am using 'search and pounce' as my main mode of operating. Unlike the Band Map the Spectrum Window shows the signal strength of the active stations. This information is vital to select those stations that most likely will be able to copy my 5W signal.

Using *N1MM*, keying is done by keyboard and single lever paddle using a K1EL USB-keyer.

My K2 has proven to be an effective QRP contest machine, providing thousands of contacts on 160, 80, 40, 20, 15 and 10m. The antenna I use is a 2x16m doublet up 12m. And yes, it is a joy to use and no listening fatigue has been observed.

73, Roelof, pa0rdt

The MBO 5W CW Transmitter

Steve Hartley G0FUW

The 2024 Convention marks the 50th anniversary of the G-QRP Club. So, we wanted a Buildathon project that would help celebrate the Club's history and provide a useful QRP project for today. After due consideration, we decided to go for a modern take on a G-QRP classic, the OXO transmitter designed by the great George Burt, GM3OXX (SK). It first appeared in the Autumn of 1981 in *SPRAT* number 28.

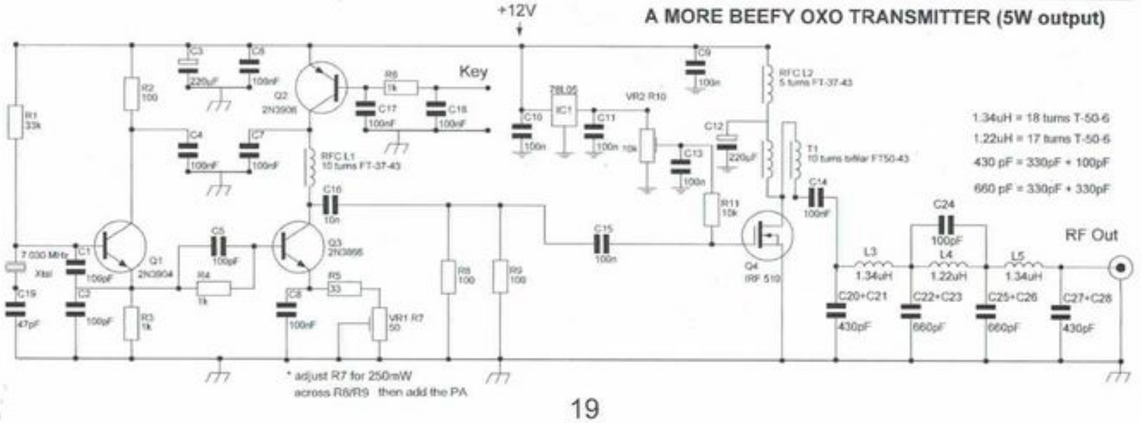
George revisited the OXO in *SPRAT* 149 (correction in 150) offering 'a much neater board' and a cautionary note about trying to squeeze more than one watt out of the transmitter; "*Normally the first thing people try to do is to get more output power…..if you want a QRO rig, build one or buy one HI.*".

So, that is what we have done!

By using a 'standard' OXO to drive a five-watt power amplifier, we have built a QRP legal transmitter with its roots firmly in G-QRP history; please welcome the 'More Beefy' OXO, or MBO transmitter. I may have miscounted, but I think it qualifies for a 50-part TX for the anniversary Construction Competition!?!?

The circuit diagram shows values for 7MHz but the MBO will work on any HF band. Just swap the crystal and the Low Pass Filter for your band of choice. Set the bias pot VR2 so that there is about 3V in the gate of Q4. C19 can be swapped for a variable capacitor for VXO operation. The full 5W output cannot be guaranteed above 10MHz, but it is still quite lively at the top end of HF; experiment with VR1 and VR2 settings. Refer back to the original OXO for details of how to use overtone crystals.

Other than the resistors and capacitors, most of the parts can be had from Club Sales.
(Q3 is free when you buy other parts, so there's no need to break the bank!)



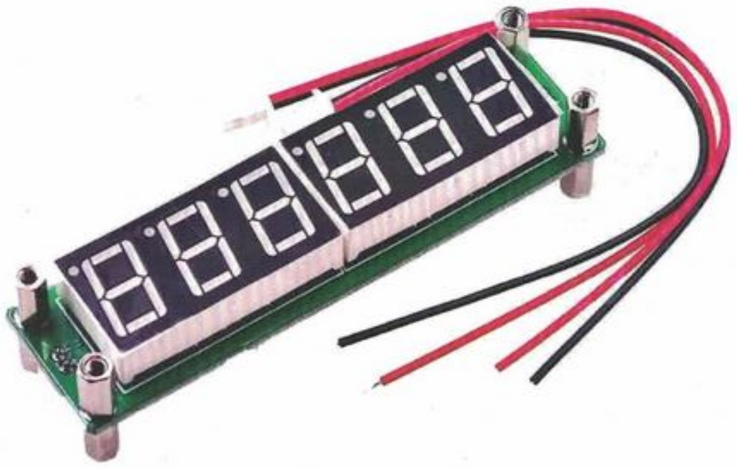
TEN-TEC Argonaut 509 Digital Display

Mike Dunstan G8GYW email: g8gyw@dunstan.uk

Guy Marchal ON5FM wrote about his restoration of an Argonaut 509 in SPRAT 199. His article inspired me to acquire my own 509 and with Guy's help I have restored it to full working order. After replacing the scale pointer drive cord I spent many hours adjusting the oscillator coils to try and get the vernier dial to track the frequency accurately, but it's several kHz out in places.

This is OK for casual use but not for competition logs so I decided to build a frequency counter. This had to be done without making any major modifications to the radio.

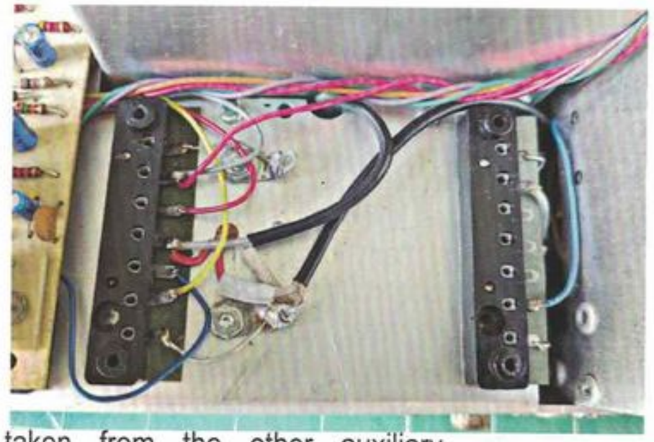
The PLJ-6LED-A LED Frequency Display Module is widely available, inexpensive (£15 or less) and surprisingly accurate. It works up to 65MHz and checked against my 10MHz GPSDO it was accurate to within 30Hz.



The output of the 509's VFO is mixed with 9MHz and both high and low side mixing products are used depending on the band selected.

Fortunately, the PLJ-6LED-A can be programmed with two frequency offsets, although this is not documented in the data sheet. What you have to do is follow the instructions to set the first offset (e.g. +9MHz) then connect pins 3 and 4 of the processor programming connector together and program the second offset (-9MHz). Then by connecting pins 3 and 4 to a toggle switch you can select the required offset.

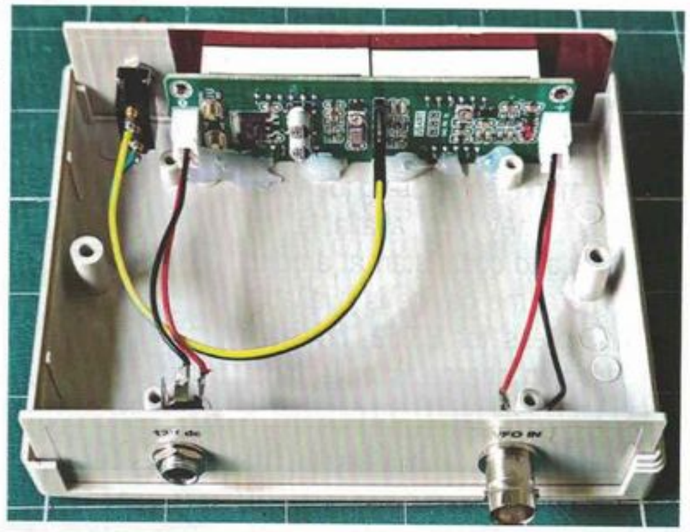
It would be possible to automate this by connecting pin 3 to a spare contact on the 509's bandswitch, but this would involve adding a connector to the rear panel and risk introducing processor noise to the receiver.The 509 has two auxiliary power connectors on the rear



The 509 has two auxiliary power connectors on the rear panel which I wasn't using, so I disconnected one and ran a coax cable from there to the VFO IN connection on the TX/RX Mixer [see photo left].

The counter input is sensitive and high impedance, so a 10pF decoupling capacitor provided an adequate drive level without loading the VFO. Power to the counter was taken from the other auxiliary socket.

The RF connector on the counter PCB is not ideal but it works well enough in this application [See photo right].



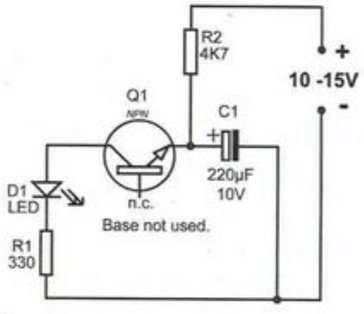
The finished frequency counter is a stylish addition to the 509, which is now a permanent addition to my shack. For a 50 year old radio its performance is impressive. I recently had a 57 report from RW4C on 10m with just 3 Watts SSB into my EFHW. [Header photo].

Blinkin'eck – an LED flasher

David Smith G4COE email: davecoe@blueyonder.co.uk

Hopefully you'll receive this issue of SPRAT magazine before christmas. And if you do, why not have a little jollity to your shack, with simple flashing LED(s). So, here's a simple circuit for you. Transistor Q1 may be a BC107, 2N3904 or almost any small signal *npn* type.

The values of resistors R1 and R2 are not critical, though choosing ones that are too low or too high in these positions it's unlikely to work well – if at all.



It's advisable not to make R1 too low, or you'll 'pop' the LED. Reducing the resistor values will increase the flash rate somewhat. The value shown has been OK, down to values as low as 47Ω in series with the LED, increasing its flash brightness.

The unit will only work with 10V or above…and NO it's not an error sticking 12V up its emitter leg!

Note: The base of the transistor is left unconnected.

High Quality Large Rotary Encoders

Andy G0POY email: andygio@g0poy.com

With the advent of software controlled frequency synthesizers such as the Si 5351 it has become very easy to build a accurate VFO with many uses, everything from a simple VFO in a Direct Conversion Receiver, a full SSB Transceiver and many forms of signal generators.

In almost all cases, while it is possible to use a keyboard and mouse to enter various tuning frequencies, almost everyone prefers the traditional rotary tuning dial control. There are small and very cheap rotary controls that can be used with a digital system, and they work fairly well. However they are small and when rotated they "click" in discrete steps.

There is nothing wrong with this, and in some cases it is a desirable function. i.e. where you want to "click" through radio channels one at a time. For the main tuning control of a base station radio, something better would be nice.

There are some rotary encoders that are marketed as being for "CNC Controls" They are available on Amazon, and costs start at around £14. The same device is available on AliExpress for £3.69, however the shipping charge is quite high. I bought three units which cost a total of £22.12, including tax and shipping which is still a good saving. As Web site URL's tend to change, the search term to use on both sites is "CNC Rotary encoders" Fig-1

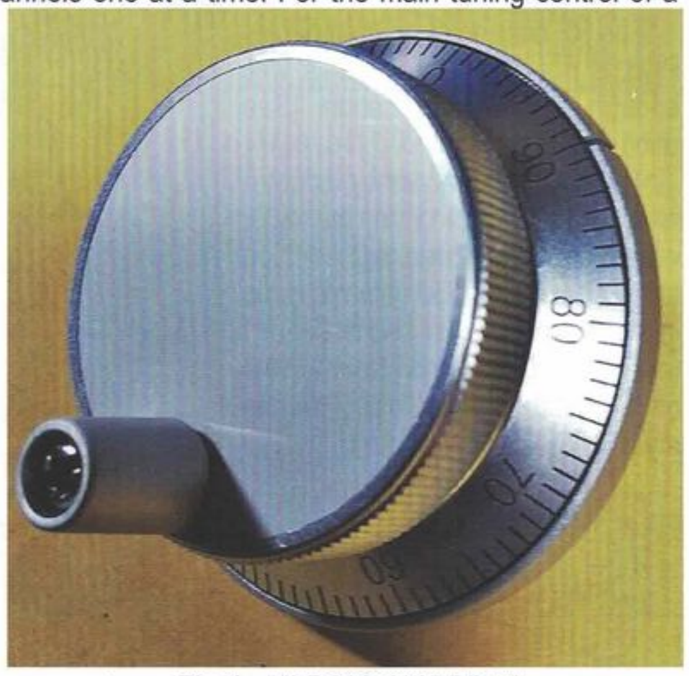


Fig-1 MLB600-100PPR-5L

Same Size as Main Tuning

These encoders are 60mm in diameter, about the same size as the main tuning control on the IC7610 / IC 9700. They are almost solid aluminum and so are heavy (167g /. 5.9oz) the control knob tapers down to 45mm and has a quick turn handle.

The encoders come in two versions, one is a 2 output quadrature, and the other is a 4 output where there are both normal and complementary outputs. The output is RS422 which is an enhanced version of RS232 but only uses single ended logic levels rather than the more usual +/- voltages. The complementary outputs can be fed into a RS422 device for use in noisy environments.

For our use you just treat the outputs as normal logic level outputs. The encoder data mentions an AM26LS31 which is a RS 422 quad line driver. The encoder is of the "click" type there being 100 pulses/clicks per turn. The specifications state that the power requirements are 5V I have found that they operate satisfactorily on 3.3V which means that you do not need to use level conversion with many of the common MCU boards. I bought the 4 output version

Physically these encoders are extremely well made, They require a 44mm hole in the panel, and three M3 holes on a 50.8mm dia circle spaced 60 degrees apart. The "zero" bolt is at the 12 o'clock position. A gasket is provided to seal the control to the panel.

Output is Quadrature

The output is quadrature, however it is slightly different to the output of the small encoders commonly used. This means that the normal encoder libraries that are available may not work. The output from this encoder is purely a 25% phase shift between the two outputs. The smaller encoders are usually less than this, which can provide a means of incorporating contact debounce in software. The huge advantage with these larger encoders are that they are OPTICAL, so there are no contacts to worry about and there is no bounce. The code required to use these encoders is trivial (Arduino) Set an interrupt to occur on the rising edge of output A. On interrupt check output B. If output B is HIGH decrement a counter, if LOW increment the counter.

That's all there is to it. The main running program can then do whatever it wants with the counter. You end up with a 100 "click" tuning control that is really very good. As there are so many clicks, they are not that intrusive … But there is more

I had to have a look inside one of these encoders. That was not as easy as I had hoped, so anyone doing the same be warned that it has the potential to do a bit of cosmetic damage.

The face of the control knob was protected with a plastic film. As there were no grub screws on the knob, it was fairly obvious that whatever was holding things together was under the face of the knob.

Fig-2

Fig-3

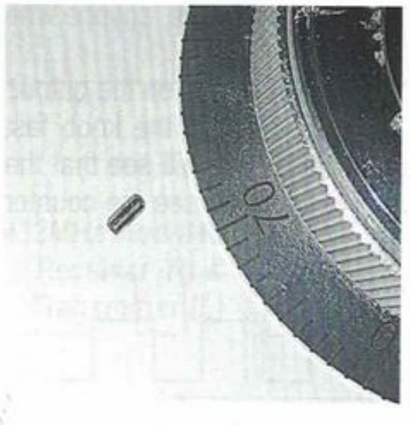


Fig-4

I first removed the fast turn handle, then I slipped a sharp knife in the small gap between the rim of the knob and the face. I was a little too heavy handed and nicked the outer edge of the knob slightly. On the plus side I did not bend the thin center face. The center face looks to have been fixed with some double sided tape. Once you manage to lift the edge of the face then sliding a thin knife under it will lift it away from the adhesive.

Fig-5

Three Cross-head Screws

Under this face you will find three cross head screws that need to be removed. Make sure that you use a well fitting screwdriver, as the screws are small and very tightly fastened. You do not want to damage the screw heads. Once the screws are removed you can lift off the control knob.

The holes in the knob are curved slots that allow you to align the zero of the knob with the edge zero marker when reassembling.

This gives you assess to the "click" mechanism Fig-2 There is a semicircular retaining plate that is set on a couple, of pins. This can be gently levered off. Under this you will find the spring and detent pin that generates the "clicks" Fig-3 The detent pin sits in the "V" of the spring. Use a sharp pair of tweezers and a small screwdriver, ease up the spring and remove the pin. **IT IS TINY**, the pin shown towards the centre of Fig-4 is only a couple of millimetres long. (The purpose of the retaining plate is to stop this pin falling out)

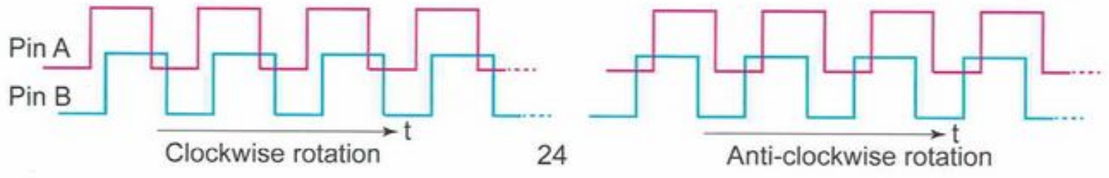
Reverse Order

Replace everything in the reverse order. If you do not want to use the fast turn handle then you will need to make up a new face plate without the screw hole.

I used a tiny spot of superglue on each pin to hold the retaining plate in place. Before replacing the center face of the knob, I used a small piece of tape to secure the detent pin inside the knob as shown in , Fig-5 just in case it was ever needed again. Once everything is back in place you end up with a control that is silky smooth to operate and the equal to most of the high end commercial rigs.

I've written a very simple program example code to access these encoders, anyone who would like a copy of the code please contact me direct via email.

And for those who may already have asked for the code, please Note: that on the output: The serial monitor is too slow to output every "click" however if you turn the knob fast clockwise and/or anticockwise stopping and starting at the zero point you will see that the counter retains all of the positions. When you turn the dial slowly you will see the counter increment and decrement with each click.



Simple Local Remote Operation

Chris Osborn G3XIZ, email: g3xizchris@gmail.com

Amateur radio operation for me has now become quite difficult and hearing anything other than strong signals is at times impossible. My local noise is such that I am reluctant to put out CQ calls on the QRP channels as often I can detect that I am being called but cannot decode incoming stations through the QRM.

Another problem is heating the shack. I am fortunate in having two shacks but both are in the garden and hence during autumn and winter they require heating. Electricity costs have escalated and it is expensive to keep even one shack up to an acceptable operating temperature during these colder months.

Solutions

Many stations are experiencing high levels of ambient QRM and have taking to using Web SDRs to overcome their receiving issues.

I often listen to the Bedford, Bracknell and Hack Green Web SDRs to monitor the bands and very often what are good signals on these on-line receivers are barely detectable on mine, being buried under my ambient noise floor.

Then a solution to both noise and heating problems occurred to me:

- Use a web SDR for receiving and
- Remotely key my transmitter from the comfort of my armchair

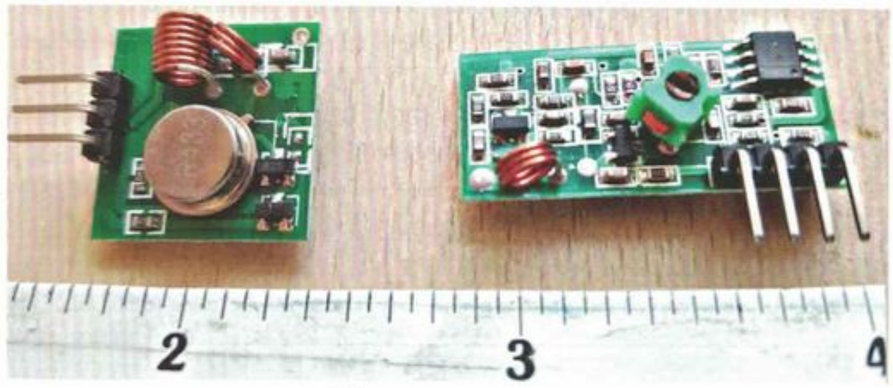
Realization

I am aware that there exist methods of remotely operating radio transceivers but these appear to require modern radio equipment and a PC at both ends of the communications link.

My shack PC generates noise so it tends to be turned off when I am on the air and much of my radio gear is home made and hence not suitable for sophisticated remote control systems.

Other amateurs, I suspect, are in the same boat. My simple solution is to use the extremely cheap 'key fob' type transmitter and receiver modules for the communication link.

These units cost only a few pence on E-Bay and work around 433MHzThe transmitter module has a nominal output of 10mW and its companion receiver is quite sensitive at -105 dBm



433MHz Modules Receiver (R) & Transmitter (L)

Wireless Keyer

The remote keyer sits beside my lap top PC and is powered from the PC's USB socket. It is an Arduino based and uses the generated 500 Hz sidetone to modulate a small on-board 433 MHz transmitter.

The distance between my lounge armchair and the garden shack is about 25 metres and the 433 MHz receiver out there easily picks up the keyer's signal.

The PC's audio output originating from the web SDR is fed into the keyer unit and thence to my headphones. When the key is pressed this audio is muted with only the side tone audible.

A second or so after keying has ceased one can just catch the delayed audio from one's own transmission via the SDR: a useful rig check.

The Arduino's keyer program (sketch) is by Ernest PA3HCM and works a treat, requiring a minimum of external components. A look at Ernest's web page is thoroughly recommended.

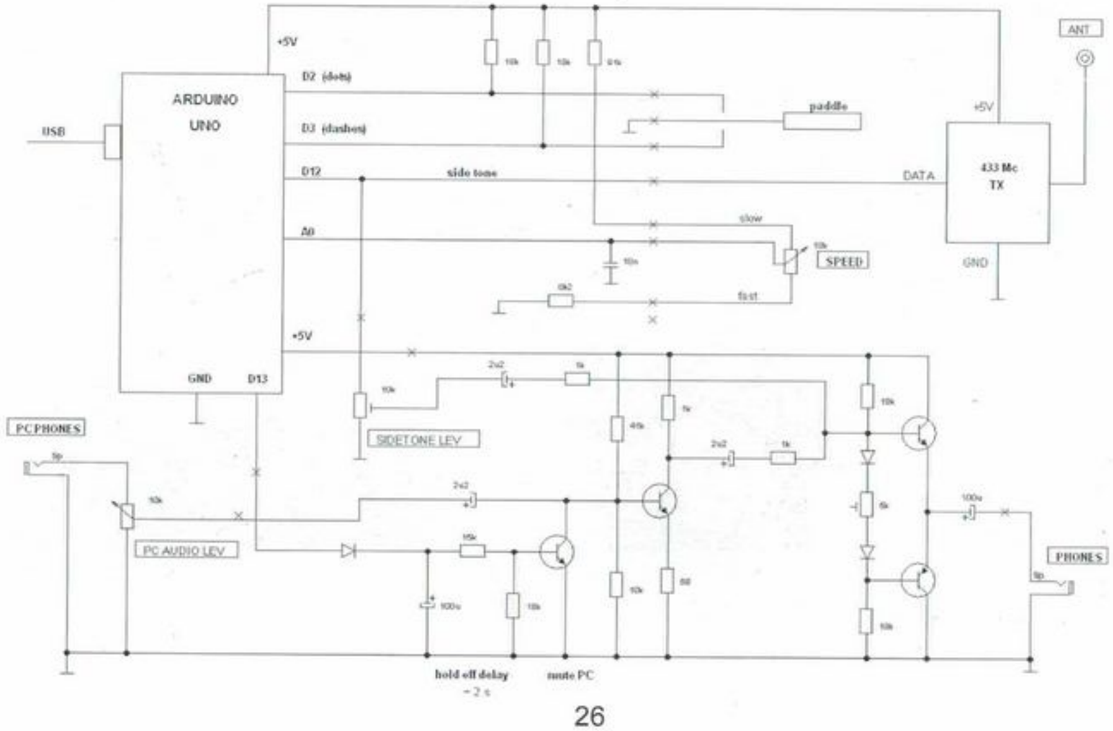
The more competent amongst you may wish to modify the program to incorporate an automatic CQ and other functions and no doubt my circuits as shown could be simplified and/or improved.

The mechanics of the on board Morse key is very simple, comprising a single, flexible aluminium 'paddle' making contact with adjacent angle brackets.

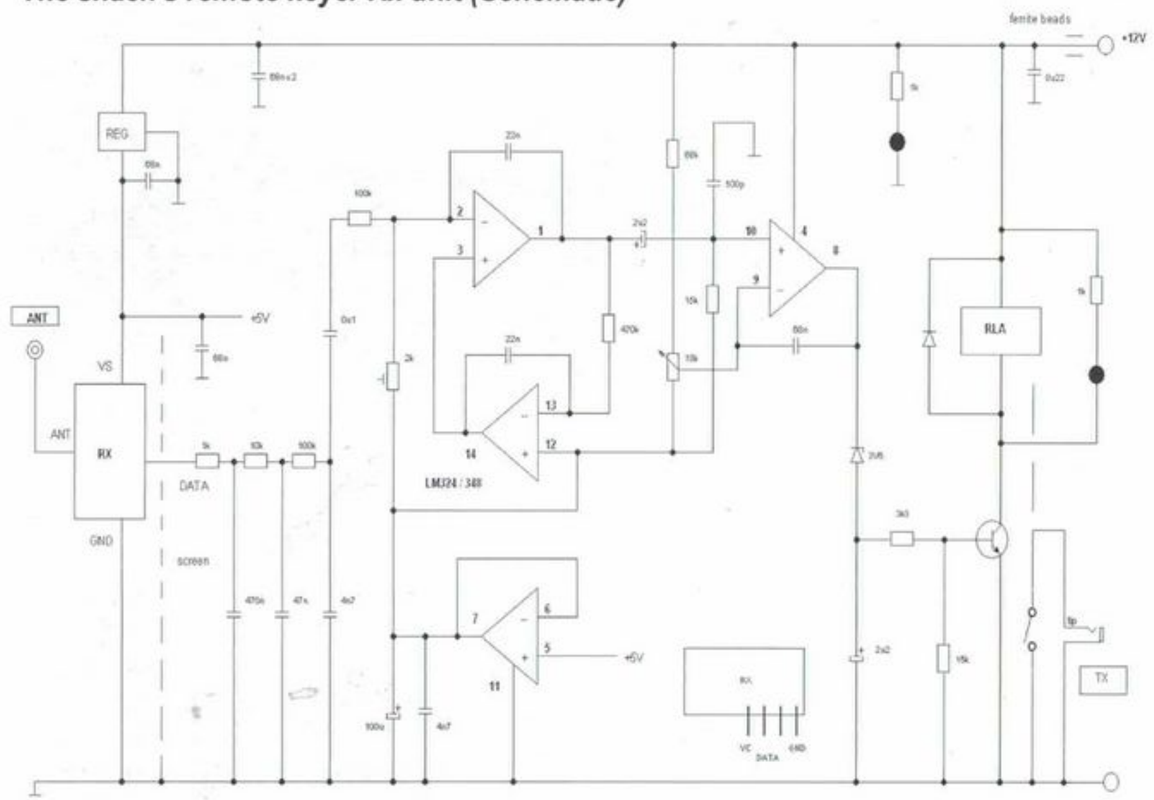
The brackets are fitted with hank-bushes to make the screw contact adjustments easier. The contacts themselves comprise sharpened M4 screws, held in position in the hank bushes with M4 lock nuts.

A nut and bolt pass through the paddle where the contacts are made and are filed down flat to a couple of mm either side giving a good steel on steel contact (see photo).

The keyer Tx unit located indoors (Schematic)



The shack's remote keyer Rx unit (Schematic)



Shack Tx Interface

The shack's remote receiver uses another cheap 433 MHz module. The unit is powered from a 12V supply and operates a small keying relay. The TTL level output from the receive module is shaped to give an approximate sine wave and is then passed through a 500 Hz filter, which is the frequency of the keying transmitter's tone.

The filtered signal is routed to a voltage comparator IC which once the signal exceeds a set level will operate the keying relay via a transistor.

My initial circuit did not have the shaping, filtering and comparator but I found that the shack's transmitter was being keyed by neighbouring devices such as doorbells and temperature sensors.

This actually wasn't a great problem as the occasional squark whilst sending didn't ruin a QSO but I wanted the unit to be immune from such problems.

The thus modified receiving circuit illiminated most of the unwanted signals but the final solution should have been self-evident: reduce the receive sensitivity and increase the signal radiated from the wireless keyer.

I found that a home made beam aerial for the receiver removed all but the strongest unwanted signals (e.g. neighbours' doorbells) and a simple dipole mounted on a wooden bracket was far superior to the rubber duck aerial which was used on my original prototype, giving a higher radiated power.

In Practice

There are drawbacks with using this simple system, the main one being that the transmitter has to be pre-set on its frequency and cannot be remotely altered.

As I tend to stick around the GQRP and 'Fists' centre of activity channels this is no great problem.

If those frequencies show no activity then I search the appropriate band using the web SDR and if I find a station calling CQ then it's only a few seconds to dash into the shack and retune the TX.

Hopefully by the time I get back to my operating position he won't have been called by someone else. It is only fair of course to notify stations that you are using a web SDR and for that reason I tend to use the one in Bedford (Barney's).

Being only a few miles from Bedford the reports I give as registered on there will be a fair approximation of what I should receive on my shack receiver were it not for the local QRM.

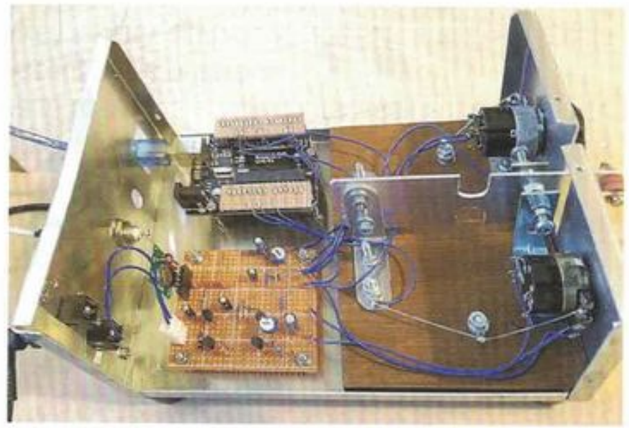
I've had numerous QSOs using this remote system and it is great being able to hear low noise signals whilst at the same time operating from a warm and comfortable environment.

My XYL seems quite glad of the company too and I cop for more tea and coffee than I would were I down the bottom of the garden, especially when it's raining!

It also gives a literal meaning to the statement:

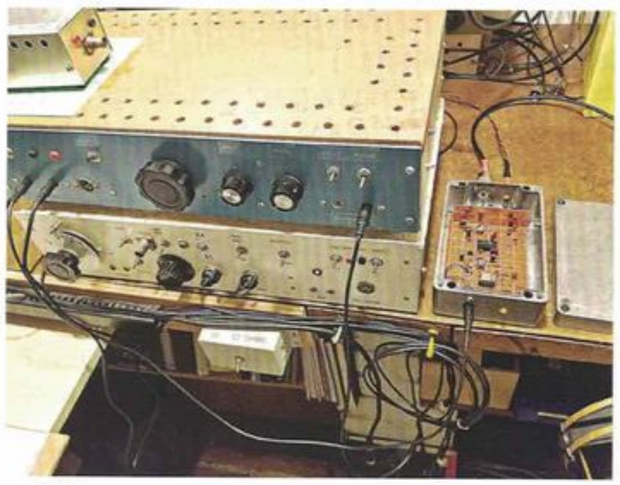
"you're armchair copy old man".

The operating position in the warm



The transmitter for the remote keyer system

The shack end of the system



Update on 8m FT8

Roger Lapthorn G3XBM webpage: www.g3xbm.co.uk

Since I last wrote about the 8m band, a lot has gone on. This is an attempt to update readers about what has happened. Most activity is on FT8 and for research a rich seam for GQRPers.

More Countries With Amateur Access

More and more countries are granting amateur access to the band, including Belgium, Italy and Spain. Often you have to apply for access and this is for a limited time. Others have been getting on the band using ISM rules, which often allows access to the 40.67-40.7MHz segment at 10mW. Some countries will allow beaconing, but not 2-way QSOs under ISM rules.

Certainly in the UK, the 8m ISM band is not intended for chatting. Primarily used by amateurs purely for propagation research. The Maximum Useable Frequency (MUF) can exceed the 8m band, especially on N–S paths around sunspot maximum so, exciting times. We still have much to learn. If more countries would allow limited 8m amateur access we could learn so much. Even with my 2.5W FT8 and a low dipole my 40.680MHz signal has been spotted in the USA, Canada, the Caribbean, Asia and South Africa. Stations with more power and beams have been spotted worldwide. A central European station has worked South Africa with just 10mW FT8!

GEAR

Many modern rigs can be modified to cover 8m. Often this involves changing the position of diodes. This can be done by the user (watch invalidating the guarantee!) or by the dealer. In some cases this is just pressing buttons.

Proposal

As the band is used almost exclusively for propagation research these are my proposals:

- 40.680 - 40.685MHz only (just 5 kHz wide only).
- Narrow digital modes only (like FT8, WSPR, CW). No voice.
- Limited time only (say 2024,2025 only).
- By NoV or equivalent for full licencees only.
- By application only.
- 10W maximum, and Strictly no interference.

On the basis that the scientific community would get lots of free propagation research, I cannot see why every administration would not agree. With ISM rules, there is no traceability and no need for a callsign! At least with radio amateurs the location and callsign would be known and the station could be located and closed down in the event of problems. Between 10m and 6m this is an ideal place for propagation research, especially near sunspot maximum.

Conclusion

A tiny amateur allocation around 8m across the world could work magic for propagation research. We have started, but so much more remains to be done. Most activity is just HF of 40.680 MHz. Most is FT8 with some WSPR. Set your receiver to 40.680MHz USB and join the fun.

Ready for Winter Sports

Andy Eustace, M0RON

I have entered the club Winter sports in the past using 5W SSB, the results haven't been that good to be honest so this year I'm going CW.

It all started last year during day 2 of WS, I decided to enter the following year with CW, however I do not know CW which posed a problem. I am also going to Fuerteventura in January so I thought it would be a good idea to learn CW in order to participate and also operate '/p' from a beach near Corralejo. I now had 12 months in which to learn and become proficient enough to get by, how to do it? I found an excellent android app by IZ2UUF, this is very flexible and easy to use, setting speed to 25wpm with an effective speed of 8wpm off I went. After learning the letters, numbers and some prosigns I downloaded the beginners and fundamental courses from CW Academy and worked through the material, I acquired a small paddle from GM0EUL which I mounted on a jeweler's block with a Kanga UK Universal code practice oscillator.

Next step.

After spending time getting my RX speed up a little higher I was almost confident of going live on air, at this point one of my sons bought me a Rooster for 40m and another bought me a K1EL K16-EXT keyer board which was duly built up into a bright orange box, so that I can see it when out '/p', with speed 'pot' and four pushbuttons.

At first I found the instruction manual daunting and impossible to get the keyer to do anything other than act as an oscillator, this was solved by altering the command speed down to a manageable speed for my ability. Then came the problem of setting up messages, I kept making mistakes and found it hard to get a readable 3x3CQ. After a lot of reading of the manual I discovered it has an auto spacing function and a correction function built in, this transformed it for me, the keyer also has a special memory slot for callsign. Armed with this new knowledge I entered CQ, waited for the beep from the auto word spacing, another CQ, beep, CQ, beep '/m', beep, '/m' beep, /m then pressed 'Cmd' button. I pressed message button 1 and a nicely spaced readable 3x3CQ call with my callsign was sent in sidetone, everything had clicked into place.

Ready to go.

Now I am ready to go, my WS set up will be: paddle, K1EL keyer, Rooster for 40m though I may build another for 20m, and a SCAF filter also from Kanga, this set up will also travel with me in January for beach '/p'.

My morse will be slow, messages sent from the keyer will be good and probably a few mistakes from my freehand keying but I'll have fun, so if you hear me this year in WS or from a beach January 14th on, give me a call and please be gentle and patient with me.

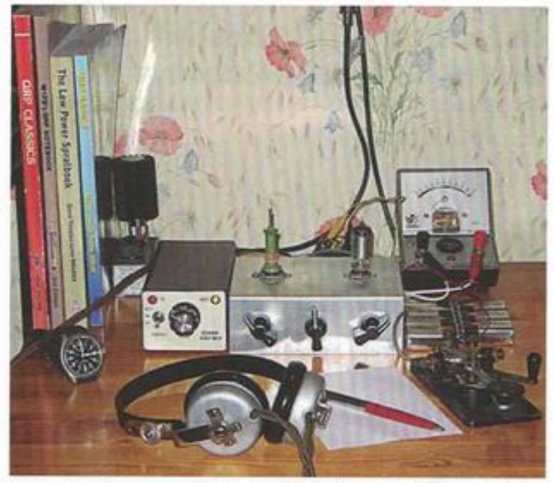
Andy.

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 early November's Valve Weekend

Steve G0FMY enjoyed some hybrid operation with a valved Rx and solid state TX. He was using his HAC Regen which he describes as problem free and "a bit of a revelation".



Steve added padding capacitors to the fine tune variable, so it now covers 45kHz over 180° of tuning. He reports regeneration is smooth, and sensitivity adequate, although the audio is a bit wide, and it doesn't like very strong signals - you have to turn the regeneration up to cope. The LT is 1.4V @ 45mA from a Ni-MH AA cell, and the HT is 63V @ 2.1mA from ***seven PP3s***!

Steve reported poor band conditions, but he worked seven stations in total, with two being QRPV, while his best DX was Kaz SP1JPM at 606 miles. However, the real fun was getting the HAC regen sorted out and on the air. He says he wished he had built a HAC when he was a teenager!

Peter GM0EUL was glad to join the weekend after a bit of a hiatus. His station was a Heathkit HW100 with a home brew ATU running 5 watts to an end-fed-halfwave. He also has a home-brew qrp watt meter to make sure he stayed under 5 watts. The key is an ex-military "key assembly no. 9" complete with leg straps (which were used for the activity!)

Peter was mostly active on Saturday managing nine QSOs in total across the UK and a few into Europe on 20 or 40m, all CW. An added bonus was three SOTA activators including IK4PMB/P from the Mountain QRP club who sent Peter a certificate to mark the QSO ! Of the 9 Peter says at least one was a fellow 'filamenteer', and five were QRP– QRP

Chris G3XIZ reports he had a rig fault, high local noise and poor band conditions so he "broke no records on this event." But hey, he joined in, and IMHO, that's more than enough. Chris tells me his rig was working fine when he put it away after last April's event but when he turned it back on again on Saturday morning it refused to work.He eventually tracked the fault down to a bad connection in a terminal block under the chassis.

Chris heard very few of the 'usual suspects' but wonders if he was just on the wrong bands at the wrong time. However, he had ten QSOs using his home made 8 valve transceiver (PA EL84 - 4W) , however a number of fellow valve stations were worked. Despite a call to arms on the reflector that he'd be QRV on Top Band on Sunday evening unfortunately no contacts resulted. But he was cheered by a QSO on 60m - although that was with a non-valve station.

Daimon. G4USI reports that he finally got around to his first G-QRP Valve weekend !. Not only that, but he made his first ever QSO's using valves alone in over 42 years of being licensed! All I can add to that is 'Welcome - and I hope it won't be your last!

Daimon was using a CODAR AT5 transmitter that he'd refurbished last year, along with a Larkspur R-210 ex-MOD receiver. Sharp eyed viewers will spot the Codar T28 companion receiver sat on the R210. He bought that recently but hasn't powered it up and tested it…….. Yet!

Daimon says he found the event fun, but also a slightly painful experience! His Larkspur is about 70 years old but generally appears rock-stable. But it took him a while to realise why his AT5 was drifting all over the place - he eventually realised that there were two plastic bags of components sitting right on top of the vented lid! Removing those improved stability considerably, but there was still a little wandering which is often a signature of vintage hollow state. I look forward to hearing more valve activity from G4USI (hint, hint!)

Derek G3NKS writes that unfortunately other commitments limited the time he was able to spend in the shack. But I'm pleased he found some time in the shack. He made 12 QSOs on 80m and 40m, 2 on Saturday evening and 10 during the day on Sunday. Derek found activity a little lower than usual with fewer of the usual stations appearing; his many lengthy CQs went unanswered. He used his usual 5W 2x 6V6 CO/PA, a Drake R4C Rx and a G5RV at 15ft. But despite the seemingly quiet bands, he's already looking forward to the next one!

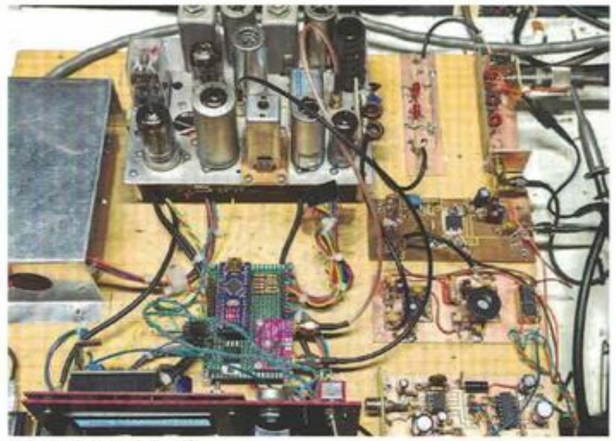
I was ***very*** pleased to receive overseas report from Kare YU7AE who tells me he only had a short time for Valve Day Activity (but as always I welcome ANY activity that can be found within life's other demands). He used his favourite "good old" Yaesu FT-101B which celebrates its 50th anniversary this year and still works nicely. As a

hybrid set, it's more than welcome here - since it features no less than 3 valves :-).

On the evening of November 3rd, Kare had 3 nice QSOs, all on 20m CW and all with good reports. He very much hopes to have more QSOs next time. And I would heartily recommend to all filamenteers to move up to 40m & 20m if you can to try to snare a few of our members outside G-Land.

Gerald, G3MCK also joined in the Valve Weekend fun. He tells me he only works 80m QRP, and his station comprises a CO/PA transmitter running 5W into an inverted V with a superhet on the receive side. He got six QSOs in the log - including R3PJN located around 250km south of Moscow - and some 2600km from the UK. Apparently the 'other end' of this QSO was running a bit more than QRP levels - 1kW to be precise. But Gerald was pleased to get a 589 report from Vlad in the Tula Oblast in Russia.

Meanwhile from across the pond Pete N6Q, has been working on his own Hybrid Rig. But contrary to common practice, he has the lower-level stages using valves with the 'power' being handled by solid state. This seemingly back-to-front combo has three transistors (2N2222, 2N3053 and IRF510) in the RF power stages, while the final audio stages use two IC's. Pete tells me he's "blown away by how good it sounds" and he's worked 8 states running about 6 watts.



Pete has been documenting the build on his website: ***https://www.n6qw.com*** - and notes he's using a 9MHz filter that was purchased from Club Sales. You might have seen some of his SSB QRP solid state rigs published in previous editions of SPRAT, but this is the 1st tube rig Pete has built in the last 20 years. I for one am impressed by his literal interpretation of the term 'bread-boarding'. Maybe a little arm twisting will result in a full article in the near future (another hint, hint!)

From my own side, I have to admit I had a garden fencing contractor carrying out some repairs over the valve weekend. And since my main feeder runs along the fence that needed help, I decided NOT to risk a meeting of coaxial and power tools so was QRT, with the feeder wound out of harm's way.

However, this shameful omission was enough to prompt me back to the bench to complete the build on my 3 valve QRP transmitter. Sadly, all I could squeeze out of the 1970s Soviet era NOS 6P3S final was 300mW, so a deep dive of fault finding was required - casting me back over 25 years to my days as a BBC Transmitter Engineer repairing HF valve gear running WELL above our QRP levels (250kW of AM anyone??)

Anyhow, after much head scratching I found the grid of my final valve was showing about 170 ohms to the cathode. This returned to an open circuit once the filament had cooled, but let's face it, that wasn't going to help keep me on the air. Luckily I had a spare; but unluckily, once that was run up to operating temperature the grid-cathode became a short circuit. Bother! Such is the risk of buying veteran parts on the internet.

So now the project requires a plan B - and luckily, after publishing the details of Colin G3YHV and Paul, G0OER EF91 transmitters in *SPRAT* 200, I was gifted a few of their collection of

these tubes. While I'm unlikely to add a DDS frequency source, I hope to re-start my project as a MOPA with a pair of EF91s in the final. Watch this space. .

Finally don't forget valve activity is also encouraged during the Winter Sports which runs from Boxing Day until New Years Day inclusive. This is a relaxed & informal gathering on or around the QRP centre-of-activity frequencies, aimed at keeping you away from the mince pies while the glow from the filaments keep you warm! .

Please let me know if you're active on hollow state during this event - and as always I welcome **any** news of valve/tube related projects or activity. Best wishes for the season ahead.

And of course, ***Shave and a haircut....Paddy G4MAD***

Sales Team Update

Members will recall that we have been making changes to the Sales Team in order to reduce the workload on Graham, G3MFJ. His eyesight continues to deteriorate and we have made the next step change; the main point of contact for Club Sales is now Dan, M7JJO, and his contact details are now listed on the Club website and will be included in all future Club Sales pages in *SPRAT*.

Dan is now receiving members' orders and passing them to the appropriate member of the Sales Team, just as Graham has been doing since the turn of the year. The system works well (most of the time) but we ask that members bear with us if the learning curve causes any blips.

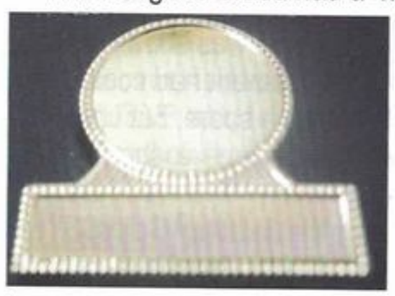
Graham will continue as Treasurer up to the end of this Financial Year when Dan will take on that role too.

Our sincere thanks go to Graham and Dan (right) along with grateful thanks to everyone involved in keeping the Club Sales ticking over as smoothly as it does.

Club Badges-A Plea For Help

The previous supplier having retired, and also recently changed engraver for the club badges. I now have trouble locating a suitable blank badge. Apparently to make a custom die would be very expensive, though once done it would be quite cheap to then reproduce.

The badge is brass has a 1in roundel in the upper centre, suitable for the club logo,and a bar for the callsign. I am asking if anyone out there might know of a suitable supplier, or even better have the expertise and facilities to make them. Ideally it would be someone in the UK in order to keep costs to a minimum.



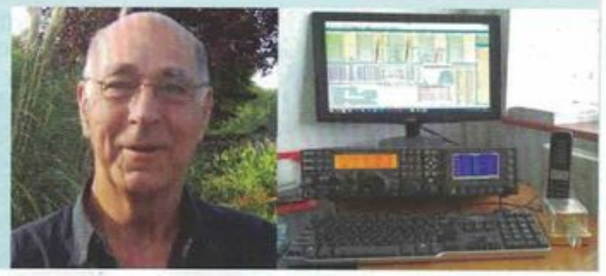
Please contact me on ***nigel.flatman@yahoo.com*** or 07871 662856.

Nigel G0EBQ #3375

MEMBERS' NEWS

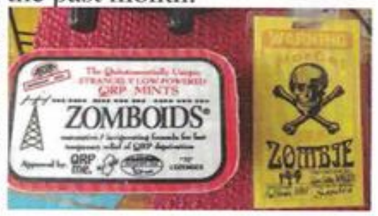
by Chris Page, G4BUE

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



I hope you managed to make some QSOs during '50 Years Low and Clear' in September to celebrate our Club's 50th anniversary. Most of the times when I switched on, there was good QRP activity, often with the special stations having pile-ups calling them. I understand the results will be published elsewhere in this edition of *Sprat*. If you had a QSO with **EG5LOW**, then either **EA2SN** (left) or **EA5AHN** was the operator. Jon and Val made over 150 'regular' QSOs and over 200 'contest' QSOs in the SAC CW and CQWW RTTY Contests. During the Iberradio Convention, they got the 50 year membership golden pin from URE, and Jon also won the HF Championship in the QRP class, gathering points on the six contests organised by URE in 2024. **OH5JJL** worked many QRP and non-QRP stations as **OH5ØLOW**, but says sadly there weren't too many UK stations he was able to QSO. Interestingly, I worked **OH5ØLOW** on more bands (60, 30, 20, 17, 15 and 12m) than any of the other special QRP stations. Tom put up the three low (20ft) three element yagi (pictured left) for 10m in October pointed (without rotator) to the USA East Coast, and has had many QRP QSOs to the USA and elsewhere with it in the past month.

Another QRP operating event this autumn was the Zombie Shuffle organised by **N5AN** and held annually on the last Friday before 31 October, Halloween, details at <https://www.zianet.com/qrp/ZOMBIE/pg.html>. This was a new event to me and after obtaining my Zombie number before the event, I found several other club members were also 'QRP Zombies', including **DJØIP**, **GØDJA**, and **GU3TUX** who sent the picture above of his original Zombie badge that Chris acquired at the Dayton Hamvention when the Zombie shuffle started in 1998. The 2025 event will be on 24 October.



Most of **IW5CWC**'s operating is done in the summer at the seaside in either I5 or ISØ on 20m CW and SSB with his Yaesu FT-818 and MFJ 1899T telescopic whip (left), while his XYL is sunbathing! Leonardo made 33 QSOs with 12 DXCC, including many from the UK including **G4MAD**. He asks if there is a Club membership list to make it easier to identify other club members on the air. While attending the Club's 50th Anniversary Convention in September, **M1GWZ** and **G4VRR** went to the Harper Adams University Rugby and Gaelic Football pitch at the rear of the campus and set up a QRP SSB station with a multiband end-fed vertical antenna and Phil's trusty FT-817. It was the weekend of the WAB DX Contest, and after establishing their WAB locator, they made eight QSOs in about one and a half hours, to EA, HA, S5, LZ, I, SP, YU and F until a cold wind and threatening rain stopped play. On 21 September, **G8GYW**

the March 2024 *RadCom* and September 2024 *Practical Wireless*.' **G4EDX** reports the South Notts ARC is running a construction project for the SCD TCVR Revisited, published in *Practical Wireless* from April to August 2024. Four people, all G-QRP-Club members, are building the TCVR for 40m that should be ready for the Winer Sports. John has started a *Facebook* Group SCD Transceiver Revisited, with the approval of **GØFUW** who wrote the series of articles. The group currently has 16 members who exchange valuable information about their progress, and new members are most welcome. Details at <easydogxray@gmail.com>.

Once again **G3MFJ** and **GM4VKI** ventured to the Galashiels Rally that came up to expectations again, and was very busy with folk chatting at the club stand. Roy says they took quite a few renewals and a couple of new members. He bought a FT-450D from a SK sale. At home, his colinear decided to die after 25 years, and was replaced with a purchasde at the rally from Canny Components. After putting it together and up, Roy had to take it down again as the SWR was way off, only to find a strand of coax shorting out the N type plug. On 30 September, **GØTRT** was QRV as **OE/GØTRT** for a POTA activation with his Elecraft KH1, 'at best putting out 5W'and a 4ft whip with a short counterpoise. Sadly he fell two QSOs short of completing the park activation, despite a QSO with your scribe.

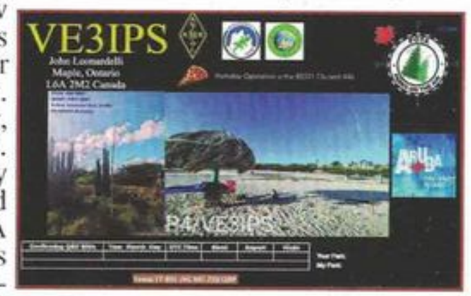
KA9P was QRV as **TF/K9AP** while touring in September with his KX2 handheld and MFJ-1898 slider coil 8ft antenna. Scott made 25 QSOs in an hour of the SAC Contest and many quick evening contacts in the 15-20 minutes available between arriving at local hotels and mandatory Happy Hour activities. He also hiked to Fossvogsbakker Nature Preserve where a Buddistick Pro tripod held the 1898 up overlooking a salt water inlet (pictured far left) for a couple hours on 22 September. Scott made 108 QSOs with EU and NA in two hours during the first ever activation of IS-0048. He said highlights of that activation included booming QRP calls from **G5LOW** and **G4BUE.** He raves about the MFJ-1898 as a handheld antenna when mounted on his homebrew bracket on the KX-2. Details at <https://scottysfunkwerks.blogspot.com> (picturedf left).

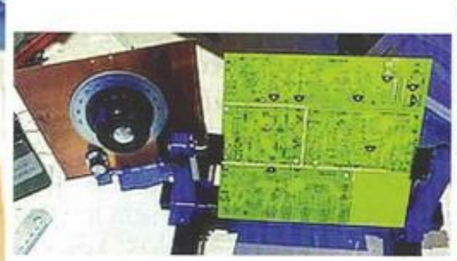
GØHUZ and **GØLUZ** will be QRV /MM from Christmas until the end of February while cruising from the UK to EA8, various Caribbean islands and Southern US ports and CU, with their trusty KX3 and centre-loaded vertical. The picture right show a chilly Suzanne working QRP off La Coruna, and (top of next page) Tony on deck 11 of the same ship on a previous Atlantic crossing.

After not being very active for the past year, **GØEBQ** has had 'some nice QSOs' with the 1W of his Sierra, the best being a solid 589/559 with ME, USA on 17m and a pleasant two-way QRP QSO with **HA2PP** on 12 November.'

Nigel says he has been struck though by the lack of QRP activity on 80m in the day. Looking back at his logs throughout the 1980s, he was working all over the UK with just a random wire, but these days he says it seems pretty dead most of the time. He adds, 'I don't know if anyone else has noticed this. Obviously the noise level these days doesn't help. All the bands above 30m are pretty much unworkable these days.'

VE3IPS has more /P antennas for POTA and WWFF operations: the Chameleon PRV, a EFHW for 40/20/15/10m coverage, the REZ Antennas' dual-band coil and the JNC MC-599 vee antenna all added to his antenna shelf. John was QRV as **P4/VE3IPS** from Arikok National Park for POTA and WWFF, and says the CQ WW SSB Contest was, 'self-induced madness with low power holding its own on 10m when the frequency was clear but the struggle with the 'Papa Four Stroke' or 'Papa 4 Slash' and then my call made for busted QSOs'. He used his Yaesu FT-891, 8aH LifePO4 battery, SotaBeams Carbon 6, EFHW and JNC MC-750 vertical. **G4TGJ** says, 'I'm pleased to report that I have finally completed construction of my Raspberry Pi Pico based TCVR and have taken it out on several successful SOTA activations with many QSOs to the USA, plus Chris **G4BUE**! It is, however, a work in progress. I have already made a number of modifications to hardware and software and plan several more to improve its performance.' In fact I have QSO'd Richard three times this summer as **G4TGJ/P**, in September, October and November!





Since the Telford Convention, **G4NMD** has been catching up with his own projects, as well as a group build of the SCD for SEMARC, the builder club started a couple of years ago. They hope to have some SCD-SCD nets in the near future. Apart from some QRP test equipment, and putting together an'out and about' QRP set-up, Graham has been restoring his original shortwave RX, built with much help from his dad, **G8KVU**. It was the FET RX by **G3OGR** in the July 1971 *Practical Wireless* (above left, with original audio board and new detector board on side of chassis). He says, 'It uses Denco plug-in coils (I still have the set) and should have been built in a metal chassis but was instead built in a plastic box, which made tuning interesting. Some years ago the suggestion was to re-box it, and my dad decided to make a chassis out of PCBs, and the re-wiring was left to me. Some rebuild of the detector board and the 1971 set lives! But it radiates well too as a regenerative RX! Plan now is to try to replicate it with newer components and a more stable construction technique.'

Thanks to all the contributors. Please tell me how your winter goes for the Spring 2025 edition of *SPRAT*; what you have been building, interesting QSOs you have made and any other information about QRP, by 12 February. Also, interesting pictures please, don't be shy in letting members see what you have been building and/or where you have been operating from, your antennas, who you have been meeting, and even a shack picture to let other members know what you and your equipment look like. Finally, please let me know if you intend operating from somewhere other than your home QTH during the spring and summer months, so I can let members know to listen out for you.

Membership Secretary News
Daphne G7ENA (g7ena@gqrp.co.uk)

Hello and welcome to membership news, another year has flown past. The postal renewals are coming in thick and fast now, but I must issue a word of caution. I have had several renewals not delivered as the sender is still using the old-style postage stamps. Royal Mail want me to pay a £5 surcharge which I will not do, hopefully the sender will eventually receive their letter back but I can't guarantee that. Please double check your postage before sending.

As usual, this is the issue of Sprat that reminds you it is time to renew your subscription. Please go and find that label on the Sprat packaging and see if it says "expires end of 2024". For the various membership rates and method of payment please refer elsewhere in this issue to the "Subscriptions for 2025 are now due" page (or look on www.gqrp.com).

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

In the UK you send your payment to me. If you write by post, please always include a stamp (or an email address) if you expect a reply. If you send insufficient funds, you will receive only one Sprat in 2025 with an underpayment notice on the label. You will receive nothing more until you make up the shortfall.

All members should be aware that the club will not accept payments that take your subscription beyond 2025. PayPal will be returned less charges, cheques will be destroyed, and excess standing order payments will be assumed to be donations - but will be returned on request (at your cost).

UK Members: All cheque payments should be to "GQRP club" and not in the name of any club officer. For UK members who wish to switch to automated payment there are details on how do this in the autumn issue of Sprat (page 39). The form should be sent to your bank (and not me) in time for your payment which must execute on the 15th January 2025. As well as ensuring the continuity of receiving SPRAT you also help reduce the thousands of letters which I will otherwise have to open in the New Year.

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

Overseas members: Please refer elsewhere in this issue to the list of DX representatives to whom you can pay in your local currency. For the remainder of the world without PayPal access you can pay by international bankers draft (in UK Pounds) or cash in UK Pounds (to me). Only local currency to your local rep - and I can't accept Euro or U.S. Dollars. Cash is sent at your own risk.

You can also save me much work if you pay using PayPal. Please see www.gqrp.com/paypal for more details. We do automatically add a little to cover PayPal administration charges but only what it would have otherwise cost you to buy a stamp to post your subscription.

Club Information – Who Does What?
(email & postal addresses are on the club website)

Sprat		
	Editor	G1TEX
	Any non-membership comments & queries	G0FUW
	Members news for news column	G4BUE
	Communications news	G3XJS
	VHF news	G8SEQ
	Sprat Delivery	G7ENA
	Sprat Index	K7WXW
	Sprat advertising	G3MFJ
Membership		
	Membership queries, subscriptions (+ any QTH & call changes), Sprat distribution.	G7ENA
General		
	Secretarial	M0HKG
	Chairman	G0FUW
	Treasurer - G3MFJ until April 2025 and then	M7JJO
	EU CW representative	M1KTA
Sales	General items & back issues of Sprat.	M7JJO
Services	QSL Bureau - in, out & sorting	M0HMS
	Antenna advice	G3VTT
	Awards	G5CL
	Circuit & construction advice	G3ROO
	Club Trophies	G0EBQ
	Internet GQRP club reflector & web site	G4WIF

Thank You

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

Daphne – G7ENA

Subscriptions are now due for 2025

Your SPRAT label tells you your current status. Your receipt is the updating of your status code on your Spring 2025 SPRAT address label. The labels for your SPRAT are printed 4/5 weeks ahead of publication so if you pay promptly your Spring Sprat label will be correct.

SUBSCRIPTIONS FOR 2025 – please see options below.

UNITED KINGDOM	EUROPE	DX
• £6.00 Cheque / Postal Order sent to G7ENA (payable to "GQRP") • £6.00 - Standing order • PayPal	• £12 sent to G7ENA (Cash in GBP [no Euro or Dollars] *2, Cheque or money order*1) • €15 (to Euro rep.) • PayPal	• £15 to G7ENA (Cash in GBP [no Euro or Dollars] *2, Cheque or money order*1) • Send to DX rep. (see list) • PayPal

PayPal - (**Mandatory**) - only use www.gqrp.com/paypal.
Notes: (*1 Payable to "GQRP"- drawn on a UK bank). (*2 At own risk)

*You can pay by direct transfer but you **MUST** provide your membership number as a reference. Our bank account details are:- G-QRP CLUB NO. 1 ACCOUNT, NATIONAL WESTMINSTER BANK PLC, ROCHDALE BRANCH (SORT CODE 01-07-44 a/c 04109546).*

UK *members can use the form from the website or from the membership secretary if they would like to pay by standing order or to amend their existing standing order for the 2025 subscription rate of £6.00. This payment must be in place with your bank to execute on the 15th January.* ***If your standing order does not quote your membership number then your payment can only be treated as an anonymous donation and your membership will expire.***

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

✂- -

Please enclose this form with your payment write your callsign & number on the cheque do not staple your cheque to this form. Send to GQRP Club, 33 Swallow Drive, Louth, LN11 0DN

Membership Number ________________ Callsign ____________

Name ______________________________

Number and road ________________________ Name used on air __________

Town ______________________ Post code __________

Country ______________________ Email ______________________

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

Changes or additions

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

Overseas Subscriptions for 2025

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

Country & Representative	Amount
U.S.A Bill Hulley K7WXW, 2943 SE Salmon Street, Portland, Oregon 97214, USA. **Cheques to be made to "Bill Hulley".** Checks should include a call sign and member number if you have one.	$20
Germany: Dirk Krause, DL1GKD, Hauptstraße 4, D-78597 Irndorf. Konto: Sparda-Bank Baden-Württemberg, Dirk Krause. IBAN: DE17 6009 0800 0107 9124 16 BIC: GENODEF1S02 In der Zeile Verwendungszweck bitte unbedingt angeben: NAME, VORNAME, CALL, GQRP Nr. Schecks und Bargeld werden nicht entgegen genommen!	€15
The Netherlands Henk Smits, PE1KFC, Storm Buysingstraat 30, 2332 VX Leiden, Nederland. Tel 06-13267146. Maak voor 1 Januari 15 Euro over op rekening ABN NL36 INGB 0002 1552 94 in the name of H.W.Smits in Leiden. Vergeet uw call en uw G-QRP nummer niet te vermelden! Een email ter bevestiging wordt op prijs gesteld.	€15
Belgium Jos Warnier ON6WJ, Kalendijk 28, B-9200 Dendermonde, Belgium. Tel. 052 220996. Vergeet niet Uw call en clubnummer te vermelden! N'oubliez pas d'indiquer votre indicatif et votre numero de membre! Contributie/cotisation: 15 Euros voor/avant le: 1 Jan op nummer/ au numero: BE21 9796 3930 7403	€15
Austria Johann Auerbaeck, OE6JAD, Kirschenhofersdlg. 120, Bitte den Beitrag bis Ende Jänner A-8241,DECHANTSKIRCHEN, Tel: 3339-23335 IBAN: AT82 3804 1000 0001 5156 BIC: RZSTAT2G041 In der Zeile Verwendungszweck	€15
France. Michel JACOB, F5MKD, 8 Rue du Chevreuil, 67450 MUNDOLSHEIM, France E-mail F5MKD67@gmail.com.	€15
Denmark. Ole Rasmussen OZ1CJS: Fornyelse af abonnement af GQRP: Venligst foretag en kontooverførelse af 115 Kr. senest d. 1. Januar til : Ole Rasmussen Danske Bank, Haslev Reg. nr. 0575 Konto nr. 3531127749 Venligst vedhæft følgende information: navn, call, medlemsnummer Undgå venligst at fremsende kontanter og checks. Har du et problem mht. bankoverførelse, så kontakt mig så vi kan finde en løsning. Nyt abonnement af GQRP: Ønsker du at blive medlem af GQRP og modtage medlemsbladet SPRAT, så send mig venligst en email med dit navn, adresse og evt. kaldesignal. Så skal jeg med glæde sørge for at du bliver kontaktet.	115DKK
New Zealand, Phil Tarrant ZL2NJ, 77 Romilly Street Westport 7825 New Zealand. cellphone 0224031096. Account details :– Kiwi Bank -Account name:- P Tarrant G-QRP, Account No 38 9003 0186315 02	NZ $30
Australia Terry Mowles VK5TM, PO Box 599 Tintinara, South Australia 5266. Phone: 0412 226 083 Account name: Bendigo Bank, Keith, SA 5267 Australia. Account name: Terry Mowles. BSB number: 633-000 Account number: 189 951 429.	AUD $28
Italy. Fabio Bonucci - IK0IXI. Via Umbria 4, I-00053 Civitavecchia Italy. "La quota annuale per l'iscrizione al GQRP Club dall'Italia è di 15 Euro. I pagamenti possono essere effettuati tramite: 1) Direttamente sul sito GQRP tramite PayPal. 2) PostePay - € 15.00 3) Diretto (contanti € 15.00). Rischio di smarrimento a carico del socio. Si può effettuare la ricarica PostePay in ogni Ufficio Postale al costo di 1 Euro, oppure tramite le ricevitorie Lottomatica al costo di 2 Euro. Per informazioni inviare email a Fabio fabiobonucci68@gmail.com oppure SMS 320-4839771	€15
España. Jon Iza, EA2SN, A. Gasteiz 48-9 izq, 01008 Vitoria-Gasteiz. Cuota: 15 euros. Ingresar en: BBVA IBAN ES05 0182 1629 8802 0151 3020 BIC BBVAESMM. Envia email con la info o pon como concepto tu indicativo y número de socio.	€15

Any other overseas to Daphne Newsum G7ENA, GQRP Club, 33 Swallow Drive, Louth, LN11 0DN, England [Europe: £12 GBP / DX: £15 GBP]