SPRAT

THE JOURNAL OF THE G QRP CLUB

DEVOTED TO LOW POWER COMMUNICATION

ISSUE Nr. 170	© G-QRP-CLUB	SPRING 2017

The shop of John Birkett on Steep Hill, Lincoln.
Full of radio goodies, it is the only shop I know that
sells radio surplus and parts .....in a medieval street.

The Telford Hamfest & 2017 rally club attendances
A cheap S meter for portable rigs ~ Simple electrolytic capacitor tester
Assorted tips ~ Membership news ~ Annual Christmas challenge
Some observations on the Chinese 49-er ~ VHF Manager's report
Analogue multimeter repair ~ Sales notes ~ Valve QRP report
A novel Morse key ~ A new high performance regenerative receiver
Yeovil and DQradio rally invitations ~ Sprat 169 errata
Communications and Contests ~ Antennas valves & vintage ~ Members' news

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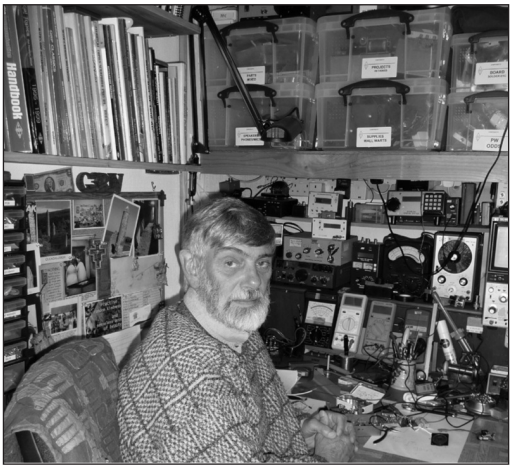

Rev. George Dobbs G3RJV

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I am pleased to announce the winner of the W1FB Trophy 2016, and it is Peter Howard G4UMB who is a prolific article writer for Sprat. Congratulations to Peter

I have struggled to fill this issue of Sprat, my pot of articles is almost at the bottom, so we do need more material. As with all items for SPRAT almost any format or medium may be used. Ideally I would prefer items in MS WORD and in the preferred SPRAT format but I will attempt to use any articles we receive. Contact me for a SPRAT formatted page, the appropriate file is on the web page for those who have internet access – look at www.gqrp.com/sprat.htm where you will find a sample page or even a MSWord template.

Finally, after many years of loyal and very efficient service to the club, our German representative Dieter Klascha DL2BQD is stepping down. This is effective immediately.

German members should contact Tony G4WIF with membership queries/payments and any late membership renewals must be in UK Pounds.

Paypal is the best option for you.

Use www.gqrp.com/paypaleu.htm to pay. Any German member who would like to become the GQRP representative should contact Tony G4WIF (g4wif@gqrp.co.uk).

72/3

This could be your last SPRAT. Check your delivery label and please read the Membership Secretary's notes on page 10

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G-QRP Convention at Telford HamFest

2nd - 3rd September 2017

Martyn Vincent G3UKV

Following on from the item in Sprat Issue169 (page 30), things are slowly beginning to take shape for the weekend of 2nd - 3rd September.

The venue for the **Telford HamFest (Sunday)** has been booked at the hands-on technology centre called "Enginuity" – which is just one of ten historic sites located in the Ironbridge Gorge area of Shropshire. We plan to have several notable speakers in the tradition of the Rishworth G-QRP event, and these will take place in the magnificent Board Room of the old Darby Company which was once the cornerstone of the industrial revolution of the eighteenth century.

But this is more than just a radio rally with guest speakers. . . .

On Saturday (Sept 2nd) a block booking has been made at **The Holiday Inn in Telford Centre** for the Social and Buildathon side of the Convention to take place. We visited several venues, but this one stood out as ideal for such an occasion. Spacious meeting/conference room, free parking, special overnight rates, swimming pool, gym, licensed bar, good food, and ample space to gather together in small groups to make or renew acquaintances.

So, once again, we invite you to come along in September and continue the G-QRP Convention tradition which began so many years ago.

One word of warning. If you choose to take advantage of the special overnight block booking rates, you need to apply directly to the hotel, mentioning the G-QRP Convention, (tel 01952 527385) before **Saturday 8th July**, eight weeks prior to the event.

Two people sharing a family room (two double beds), including a hearty breakfast, is just £95, (£47.50 per person). I don't think you will be disappointed. More details in the next "SPRAT".

e-mail hamfest@ukv.me.uk and perhaps look at our website www.telfordhamfest.org.uk

Rallies where we hope to have a G-QRP club stall in 2017

So far, we have arranged to go to Blackpool (9th April), Scottish Convention near Glasgow (7th May), Rochdale (20th May), Red Rose at Warrington and Spalding (both on 4th June), Junction 28 & Suffolk (both on 11th June), Telford (3rd September), and Galashiels (22nd October).

A simple, cheap S-meter for portable rigs

Steve Collins, M6SLO

One of my reasons for starting up amateur radio was to try and pick up some electronics knowhow, as a foundation licence I can't use homebrew stuff, but I can still make it, so I have been doing just that. I decided that I wanted a PFR3B, I had always liked the look of that rig, so I bought one of the early 3B's and set to building, I'm in the process of upgrading to the intermediate so I can use it. Along the way I added an external connector to the battery pack so I could monitor the voltage and a little LED log light on the front panel, but what I felt was missing was an S-meter.

Those of you who have seen one of these rigs will know that there isn't the space to put an old CB meter in, so I figured it would have to be electronic/LED based. One option is to use an LM3915N, a ten channel/level device, but you need to get them from Farnell, and I wanted something using easily and cheaply sourced components. Having searched the web I found that Mike Martell, N1HFX, had made a level meter using an LM339N quad comparator[1], and these could be sourced cheaply from Maplin.

I built Mike's circuit up on breadboard and found that it worked well for DC voltages, but not AC voltages, this matters depending on how you intend to derive your "signal", if you use ALC voltage, then it's not an issue, if like me you don't have that option a slight modification is required to measure AC voltages.

The next issue is the level of voltage used as a signal, in many cases this will be too low for the comparator to work, so some sort of pre-amp is required, mine was lashed together using a 741 opamp, yet again easily available. The final polish was on the potential divider that sets the "levels", Mike had just fed this straight from the supply line, however I thought that I'd run mine from a 5volt regulator, as this was a battery powered rig, and the supply voltage would drop over time, I used a 78L05.

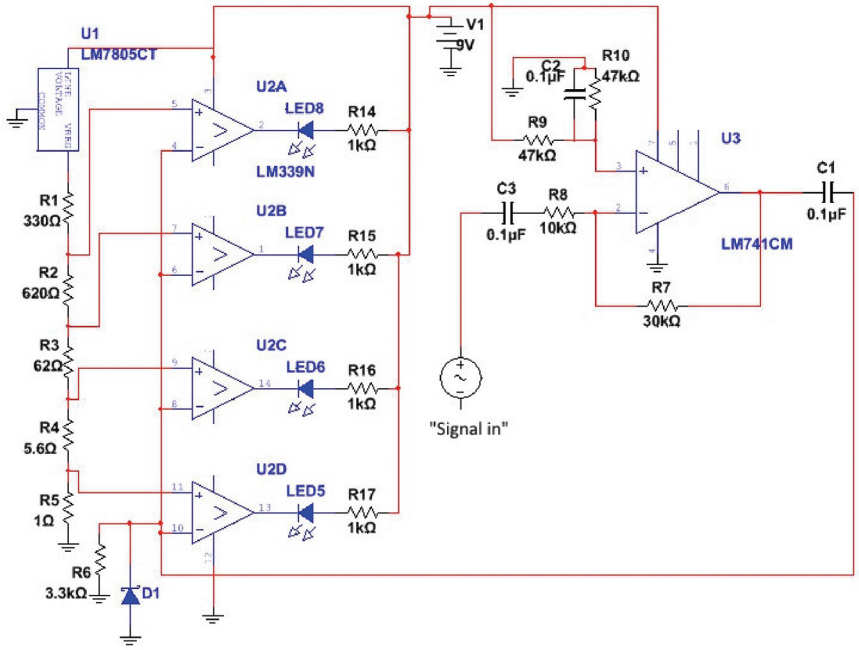
A circuit diagram is shown below, with component values, you will probably need to alter the potential divider levels, and possibly the amp gain, dependant on where you derive your signal, my pick off was before the volume pot on the PFR3B, which meant that I lost the amplification of the LM386, hence the need for the preamp.

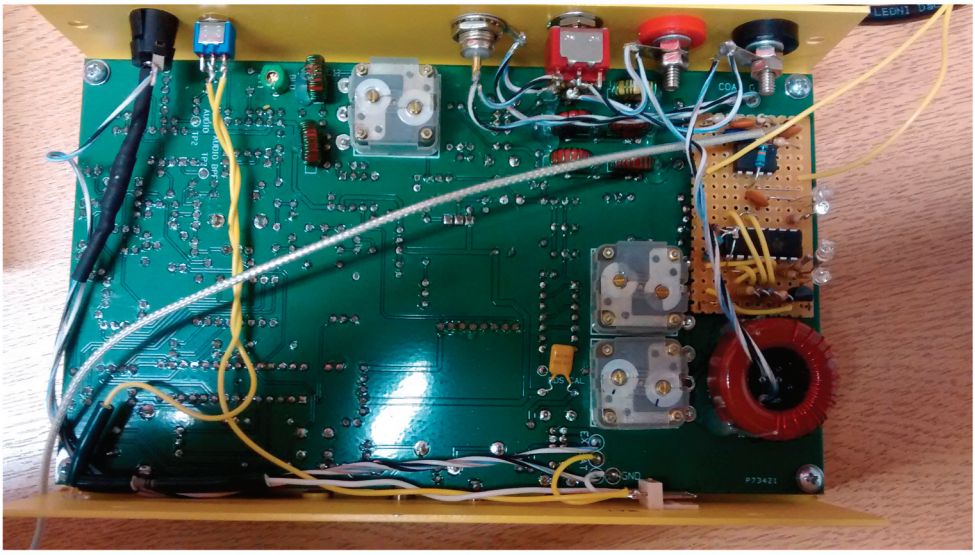
I feel sure that I have made some fairly big mistakes with this, but, it does work. A slight hum can be heard through the 'phones, but its not intrusive, this was made up onto a small piece of vero-board, the solder side potted, there is just enough space to fit it in above the ATU toroid in the PFR3B. 3mm LEDs were fitted to the top case and cabling run to avoid pinching at the side of the board. The diode D1 is a BAT43, the LED current limit resistors were changed, R14 was omitted, R15 was 270 , R16 and R17 300 .

Whilst it's not great it does work, I'm sure it can be improved. Thank you to Mike for providing the original inspiration.

[1] http://www.rason.org/Projects/smeter/smeter.htm

Note –we should add that a foundation licence holder cannot make, modify or use a home brew transmitter.


U1
LM7805CT
V1
9V
U2A
LED8
R14
1kΩ
LM339N
U2B
LED7
R15
1kΩ
U2C
LED6
R16
1kΩ
U2D
LED5
R17
1kΩ
R1
330Ω
R2
620Ω
R3
62Ω
R4
5.6Ω
R5
1Ω
R6
3.3kΩ
D1
C2
0.1µF
R10
47kΩ
R9
47kΩ
U3
C3
0.1µF
R8
10kΩ
C1
0.1µF
LM741CM
R7
30kΩ
"Signal in"



Simple Electrolytic Capacitor Tester

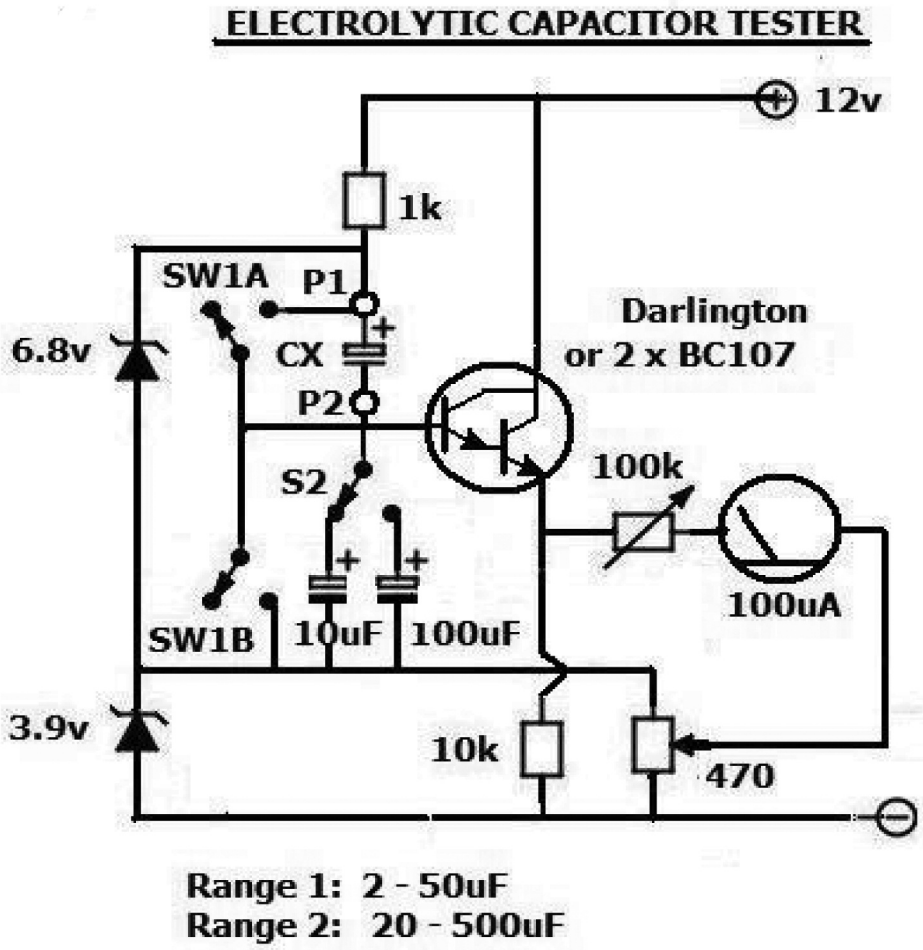
Peter Howard G4UMB 63 West Bradford Rd Waddington Lancs BB7 3JD

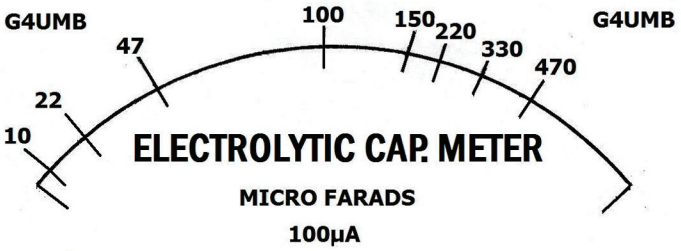
It's unusual to find a circuit of a Simple Electrolytic Capacitor tester without using a signal generator with an oscilloscope to measure its series resistance So here is a simplified circuit which I made based on an article by G A French from a February 1977 Radio Constructor magazine .

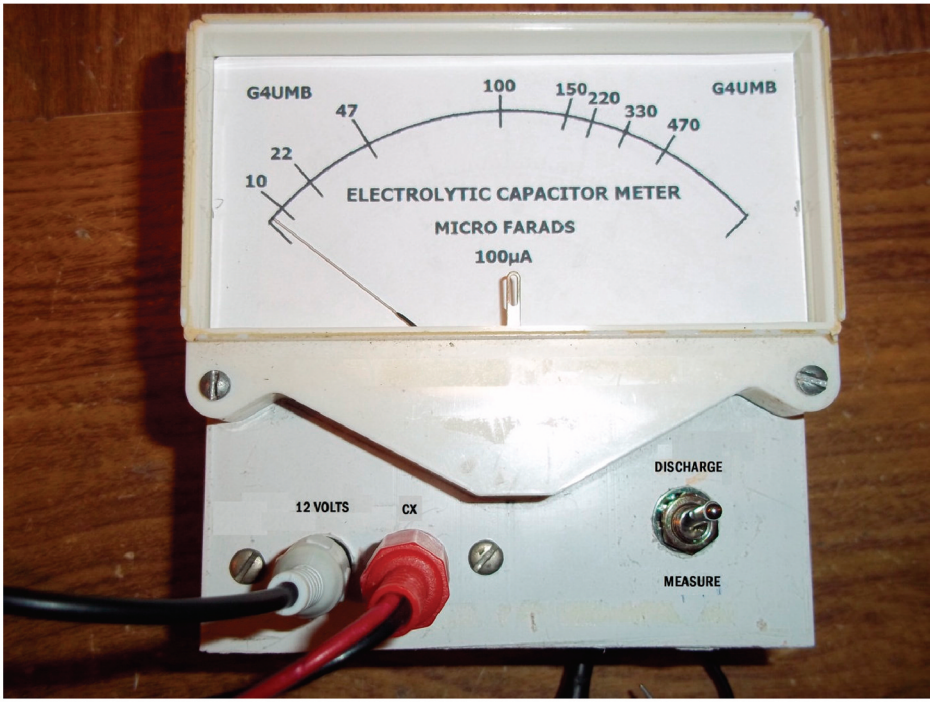
You can use a multimeter switched to 50uA or 100uA range instead of buying a Meter. The meter readings are not linear so if you want to avoid having to make a calibrated scale for the meter or if you are using an external multimeter with a 1-100uA scale you will need to make a list of the uA values on the meter scale that correspond to various Capacitor values. So a batch of good assorted capacitors are necessary for calibration.

The original circuit had three ranges but this requires a three way rotary switch for S2. The third range switched in a 1000uF Cap. so that Range 3 went from 200 - 5000uF. The switches I used were all miniature 2 pole 2 way toggles. The meter needs to be set up only once. This is done as follows. Connect together the test points P1 & P2. Turn SW1 to short across the capacitors. Then adjust 470Ω variable resistor to read 0 on the meter, Then change the position of SW1 and adjust 100kΩ variable resistor so the meter reads FSD. Then remove the connection between P1& P2: Now the meter is ready to use:

To test. Put SW1 back to short across the capacitors. Put SW 2 so that it's connected to the 100uF capacitor and place another 100uF capacitor across the test points P1 & P2. Then change over SW1 to measure the CX. It should make meter needle read 50uA or half scale. This is because two 100uF caps are in series across the supply and the circuit is measuring the centre connection. I have found this unit to be reasonably accurate considering its simplicity and it will detect a leaky capacitor because the meter needle will keep moving up the scale. It will also act like a bridge circuit and can match two capacitors of the same value. Finally remember that every time you use it. SW1 has to short out the Capacitors first and then be switched over to measure CX. So I have labelled SW1 Measure & Discharge. My built meter has only one range so far, 20 – 500uF.


ELECTROLYTIC CAPACITOR TESTER
12v
1k
SW1A
P1
6.8v
CX
P2
Darlington
or 2 x BC107
S2
100k
100uA
SW1B
10uF
100uF
3.9v
10k
470
Range 1: 2 - 50uF
Range 2: 20 - 500uF


G4UMB
100
150
220
330
470
G4UMB
47
22
10
ELECTROLYTIC CAP. METER
MICRO FARADS
100µA


G4UMB
100
150
220
330
470
G4UMB
47
22
10
ELECTROLYTIC CAPACITOR METER
MICRO FARADS
100µA
DISCHARGE
12 VOLTS
CX
MEASURE

TIPS from G1CXE John Palmer

Have you got any useful, practical, tips? Remember that what may seem obvious to you is probably unknown to other members. No extra work for you – just the text – Below are a couple of ideas from John G1CXE. …. Have you any tips?

A comment about the brilliant 4in1 tester from **G4UMB in SPRAT 160**. If the LED is mounted via another bit of I/C socket the device becomes a FIVE in one tester.

In **SPRAT 163 the Westminster Goldmine by G3ZII and an article by G3YVF in SPRAT 147**. It may be talking to the knowledgeable, but the Westminster was a series of radios going from around 50MHz to about 500MHz, in both AM and FM variants. It is also set up to contend with positive or negative earth vehicles, an available in dash and boot mount versions. So please be aware that there are several different varieties of each board, all a valuable source of bits. The best write up I have seen is the Chris Lorek book, SURPLUS 2-WAY RADIO CONVERSION HANDBOOK which covers identification and connections comprehensively.

Coil Winding Tip: GM4HTU Anthony Langton

Like Ken, GM4JMU, I too, have been winding 40m loading coils on PVC pipe. Mine are almost identical to the one shown in the photo (Sprat 168) but much longer, about 350mm on each end of a 1m length of pipe. For this reason I used single turn spacing and to stop the wire sliding about I stuck two lengths of carpet tape along each side of the tube. A short test piece worked well: the active and spacer wires stayed in place even when I let go, and the spacing wire came off easily but only when I wanted it to.

I cut through the backing about every 100mm so I had something to hold while wiring, removing a short length as I worked my way along the tube. The problem is not holding, it's letting go afterwards!
Once it was done, tested and tuned I wrapped each coil with PVC tape to stop anything sticking to it.

Regarding the 4mm fibre glass rods, and before B&Q reach for their lawyers, I must point out that the rods come with red labels stating that they should not be broken, bent, sawn, filed or otherwise abused because of the nature of fibreglass. This is a warning for ordinary users but a challenge to Sprat readers. I cut mine under water (just the rods, not me as well). I dried and varnished them immediately but still itched for days.
All materials were given an MOT (microwave oven test) before use. And finally, how did we manage before tie wraps

Membership News

Tony G4WIF, PO Box 298, Dartford Kent. DA1 9DQ

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

If I could not identify your payment then your membership has lapsed. Please everyone, check the wrapper now.

Members also need to check the wrapper label for a message about under payment. In 2017 you will only receive this Spring Sprat with an underpayment warning on the label - and then there will be no further magazines until you send the balance.

If you sent me cash in any currency other than UK pounds sterling there will also be a warning on the Sprat label. Euros and Dollars are not acceptable – we can't spend them here in the UK. It states this in the Winter 2016 Sprat. I have tried to email those that did this. Unfortunately, some did not reply.

USA Members using bank generated cheques.
Many USA members are using bank generated "bill pay" checks for subscription renewal. Most of these have very limited space for adding info regarding the purpose of the remittance. Critical info, like GQRP membership number and call sign, are often left out completely. This makes check processing much more complicated.

PLEASE provide call sign and membership number if possible. If you can't fit this in the info section of your "bill pay" check, at least send an email to the USA representative, putting him on alert as for your remittance. This info is really just as critical with ANY form of payment, so please don't send your personal check without supplying that same information plus email address which is always helpful.

Finally.
Contact details for overseas representatives and myself. Our addresses were in the 2016 Winter Sprat and are also on the club website along with email addresses. If you have an email address then why not create an entry on QRZ.COM so that either your DX representative or I can easily reach you. If you write by post to any club officer expecting a reply, please include return postage.

Annual Christmas Challenge

Jon Joyce, GM4JTJ (gm4jtj@yahoo.co.uk)

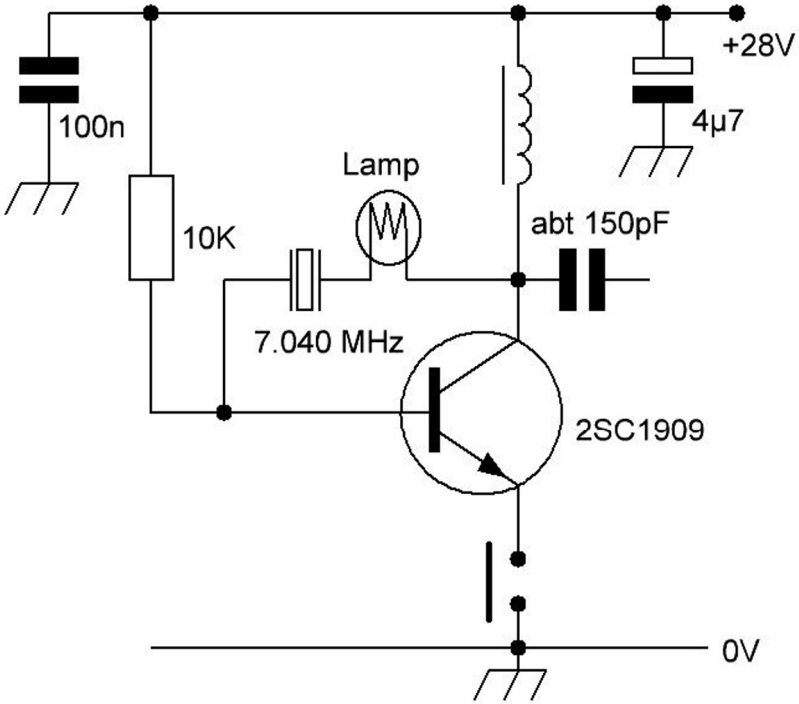
For several years now my 'building buddy', Dave G4FEV and I have embarked upon a little challenge each Christmas to try and focus our thoughts, and also distract us from the merriment of this festive period.
We used to be almost 'next door neighbours' and would collaborate on various projects from HF to microwave until my move to Scotland when the geography prevented such activities. This series of challenges over the Christmas period are almost a celebration of all the prior years of enjoying radio construction together.

At Christmas 2014 we endeavoured to build a simple transmitter which would enable us to make contact with each other using the energy from one Christmas candle.
Clearly the 504km between us was not going to bridged by any form of modulated light transmission which was one possible avenue suggested by Stuart, G8CYW. Other ideas were to utilise some form of Peltier device to generate the necessary power or maybe by 'raising steam'. Ultimately this is what we both settled upon and it was also an excuse to don the overalls and break out the oilcans as we enthusiastically fired up steam engines which had been languishing in our attics since boyhood.
We didn't quite make it!.
We were however able to demonstrate via the on-line web sdr receiver at Hack Green that we 'half made it', each being able to see the others trace on this resource.
These online receivers are an extremely valuable resource clearly demonstrated by our last challenge and so could they be used more effectively this year?

The 2015 challenge was to build a 40 metre transmitter using just one active device!! (BC108?, IRF510?, 6V6 or maybe even a 4CX250B!!!.) Just one active device contained in a single package.
The objective was to put a signal into a selection of online SDR receivers across Europe. Namely - "See one's own signal on twelve receivers, one for each of the twelve days of Christmas."
Quite clearly a 2N2222 or 2N3904 was just not going to be man enough for the job as far as this challenge was concerned, more power would be needed!!!

This brief article describes the solution I finally settled upon, having first made many trial builds using various devices I had in the junk box, like BFY51s and even a basic 6V6 transmitter.
The circuit I arrived at is really a modification of earlier designs I found in Sprat or on the excellent DVD (for those of us who have not been members for very long) and is shown below.
It is also a celebration of G3YUQ's very early design. Eric was my instructor on the Bedford RAE course many years ago who was a keen 'qrper' and who hated these 'new fangled 3 legged fuses'.

Unlike Eric I fully intend to add a low pass filter to this project and unless you wish to suffer the same fate as Eric, I suggest you do too!!?



Rather than describe in detail the construction of this circuit I will draw your attention to some of the difficulties I had making it work.

I made the decision that I would use an old 10Watt CB output device, the 2SC1909, which incidentally are still available via Chinese suppliers. I found one supplier offering a pack of 5 for about £6 postage free to the UK, for those who do not have such extensive junk boxes. For 'extensive junk boxes' please read 'shed-full of clutter' as my xyl describes it!!

My first prototype stubbornly refused to oscillate. At this time I had not added the bulb in series with the crystal. Thinking that maybe my choice of collector coil might be a bit on the mean side I upped it to a significantly higher value of 2.5mH and was rewarded with a circuit which now appeared to function.

I next encountered a problem with the board refusing to oscillate once connected to either a load or my qrp low pass filter.
I determined by experimentation that the value of the coupling capacitor was fairly critical and I ended up using a 100pf and 60pf trimmer in parallel. Anything larger than this tended to damp the circuit out of oscillation.

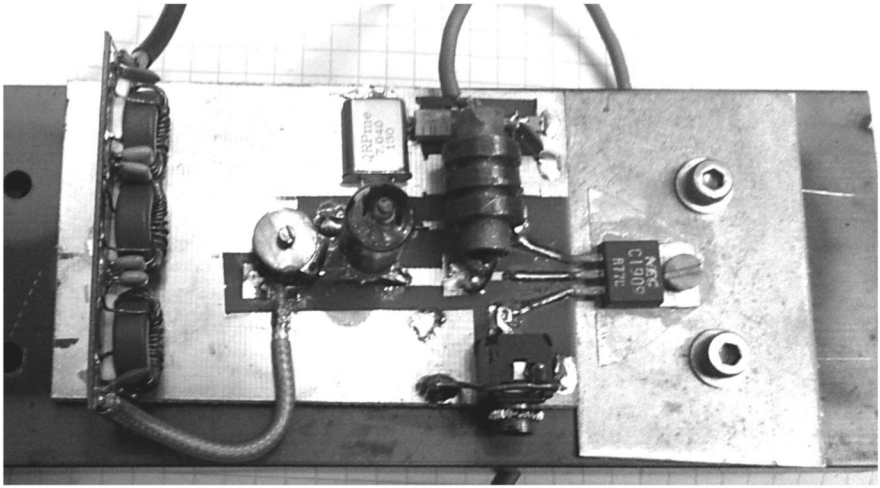
I then built my second prototype board using the time honoured technique of cutting bits of black tape with a scalpel to mask the copper-clad board prior to etching. I have used this technique successfully on projects up to 5.6GHz!!
I decided to leave a space for either an inductor or a trimmer in series with the crystal to allow some trimming of the final frequency. I was to become grateful for this forethought later on.

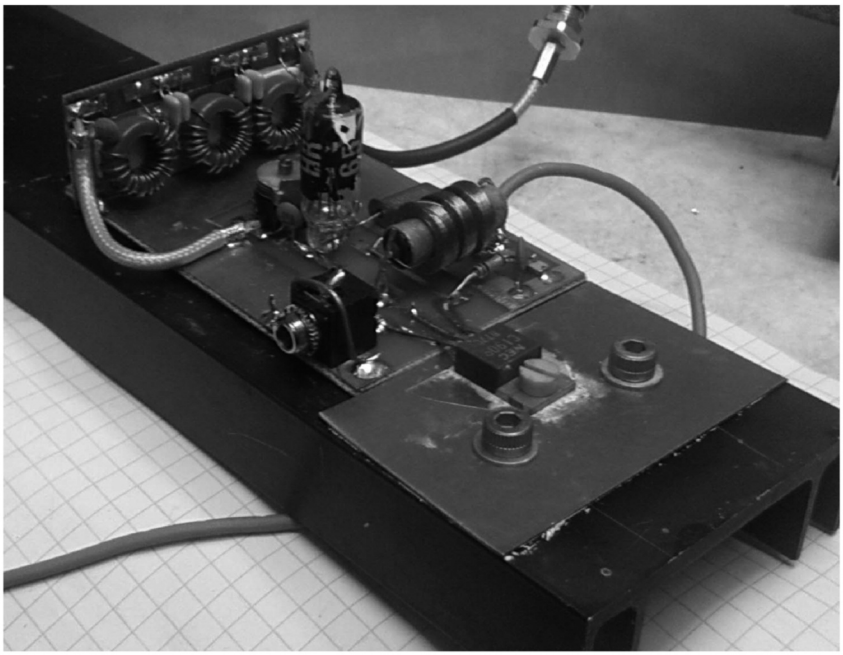
Once built and mounted on a suitable heatsink with a copper spreader beneath the transistor for improved heat conduction, it became clear from early tests that frequency stability upon key-down was a significant problem. Something was getting hot and causing drift. The transistor itself was remaining relatively cool so what was causing this drift?.
I had been speaking with another amateur some days earlier and was telling him about this project and that I had some concerns about the crystal currents using the smaller GQRP club crystals and he told me about an old-timers trick of putting a small bulb in series with the crystal.

I delved back into the junk box for something suitable and came up with the one shown in the photograph. I have no idea what it is or where it came from other than it is a low power 12 volt bulb. Maybe a Christmas fairy-light bulb would be an appropriate second choice here!

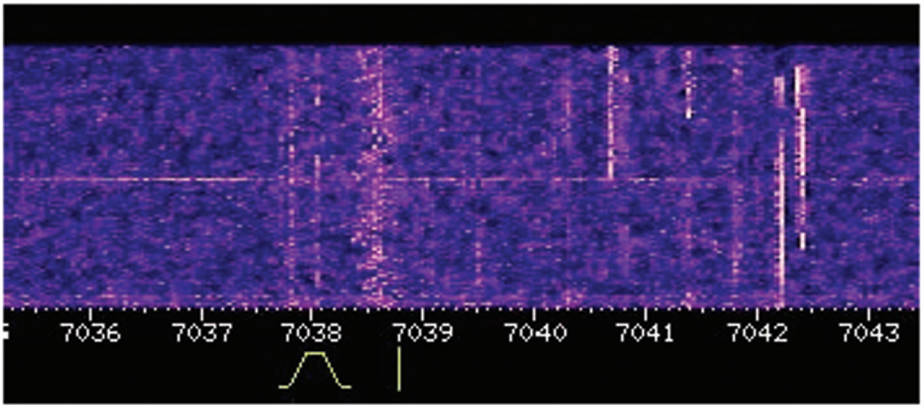
The incorporation of this bulb in series with the crystal has almost completely stabilised the drift, presumably originally due to overheating of the crystal and I would now appear to have a working 40meter cw transmitter to compete in this years challenge.
Approximately 5 watts output, QRO indeed. During keying there is the satisfaction of watching the bulb glow in synchronisation with my somewhat ‘iffy’ keying.

I have been unable to cure the small chirpy shift at key down but for the purpose of this challenge I felt this was acceptable and forgivable. I did try using a 100nF capacitor across the key contacts but this reduced significantly the output level.





Results to date have been quite encouraging and during the initial tests I have been able to ‘see myself’ on an assortment of web SDRs in Poland, Germany, Sweden, Holland and eventually Russia from my home QTH here on the east coast of Scotland.
My antenna is just a long wire.



Screen grab from the Russian SDR in KO89XC, 2373km away. My signal is the intermittent one shown at 7.0381MHz

This challenge, although not yet fulfilled at the time of writing as it is still a few days before Christmas, has been thought provoking, and entertaining which I thoroughly commend. Not only has it been a joy to build and operate but it was also a good excuse to go and review / revisit old Sprat articles as well as motivating me enough to write this article.

So what of next year?. Dave has already suggested it might be fun to build the smallest tx possible and see who can work the greatest number of kilometres per square cm. of circuit board using surface mount devices. No vertical stacking allowed!
Anybody else out there up for a challenge next Christmas?? Jon Joyce GM4JTJ

Some observations on the Chinese 49-er

David Wright, G3VBQ

Some observations on the Chinese 49-er which I bought for around £8 recently on Ebay, and which may be useful to others:- Both the red and black power wires, and the rf output wires, to plugs J2 and J4 were reversed on my unit, and I blew the safety diode thoughtfully provided when the board was powered up. Beware! The transmitter output was only a few mW, and faded quickly (see article by G4AQS in Sprat 164). The driver transistor Q6 is an audio device, working near its gain limit, and replacing this with a good rf transistor will give more drive (and Q6 will run a lot cooler as well). The output transistor Q5 is also intended for audio use – hence the poor output, and fade in output as the transistor gain drops with junction temperature increase. I replaced this with an Eleflow 2SC1971 VHF power transistor. [Note that the Internet is awash with (usually Chinese) fakes of this device, so buy yours from a reputable source – I got mine from weazle66]. This is not a pin-for-pin replacement, and you will need to sleeve and bend the transistor legs to get it to fit. With these two mods in place I am now getting around 4W output, with no fade in output.

VHF Manager's Report

John G8SEQ QTHR john@g8seq.com

With RF pollution seemingly all over the HF bands from plasma TV and the myriad of switch mode PSU's, one might think that VHF/UHF would be the answer. However, I am getting reports that noise/interference levels are on the increase. The six metre band in the Coventry area is definitely far noisier than when we first had access to the band. Its not just white noise either; there is an S9 carrier local to me which is right on 50.000 MHz which means I cannot hear the Buxton beacon (I'm not convinced it is transmitting anyway – anyone know any different?)

Four metres seems to be the quietist of the bands from the noise /interference point of view but activity is on the increase with the advent of the European version of the IC-7300 self-contained SDR. In fact my best DX in 2016 was with an Icelandic station (about 8W from a transverter to a double turnstile antenna).

Two metres is also noisier than it used to be but outside contests I rarely hear much activity on SSB or CW. There is usually some FM activity locally but even the repeaters aren't particularly active in this area.. What is it like in your area? I'd like to know. There doesn't seem to be much activity abroad either. My friend Bob G4GEE is often away and always tries the local repeaters but rarely gets a reply. I'm visiting Australia & New Zealand soon so I'll have a first-hand opportunity to try foreign repeaters.

Does anyone remember the “horizontal FM” group? This was an informal group who used their horizontal beam antennas for simplex working on FM. They got some impressive results (not that anyone should be surprised) with regular 100+ miles contacts with just a couple of watts to a Yagi.

Lastly, does anyone remember cordless phones? There used to be some “long range” models capable of working over several kilometres. They occasionally turn up at car boots etc. The one I'm particularly thinking of is called a CT 505. The base unit of these has a small transmit board capable of 2 W rf o/p. They are normally crystalled for 47 – 49 MHz but can easily be re-crystalled & retuned for 6m. I came across one the other day in the piles of junk in my garage.. They can be modulated with NBFM/CW/FSK. If you get a complete unit i.e. base station and handset you could rextal both the handset (transmits in 4m band) & the base station to give you a full duplex system with phone patch (not legal in this country). There is also a model called the 5200 LRCP which is almost identical to the CT 505.

73 de John G8SEQ

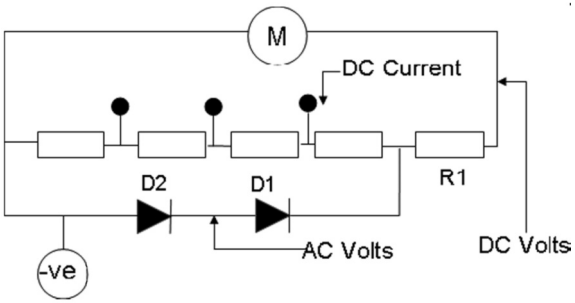
Analogue Multimeter Repair

Colin McEwen G3VKQ [colin@the-mcewens.co.uk]

I acquired a 1960s vintage Japanese multimeter [TMK model TP-5SN] which was very insensitive on the voltage and DC current ranges and could not be zeroed on the ohms ranges.

It turned out that the meter movement was OK but the fault was in the AC side of the meter. The two germanium diodes used as the meter rectifier had gone low resistance.

What surprised me, and took a while to find, was that this AC side fault had the effects described on the DC side. To understand why, look at the simplified circuit diagram below.



Diodes D1 and D2 form the meter rectifier for the AC voltage ranges. The diodes are hard-wired into the universal current shunt used for the DC current ranges, and the polarities are such that the diodes are reverse biased when the DC ranges are in use. However, when the diodes fail and become low resistance, resistor R1 becomes a permanent shunt across the meter, thus giving the symptoms found.

I had some 1N5817 Schottky diodes so used these as replacements. Lower rated diodes would have sufficed, such as the 1N5711 available from Club sales.

Club Sales notes

Graham Firth G3MFJ

Just a couple of notes – the free 2N3866 equivalents as mentioned in a recent Sprat are still available - you can add half a dozen to any order, but if that's all you want, then a couple of second class stamps to me will get you some. They are house-marked genuine 2N3866 in case you were wondering.

Secondly, I have had to increase the prices for the kits to £40 due to an increase in parts prices – sorry about this, but they are well worth the new price.
Finally, a reminder about Rex's boards, MePads, MeSquares & STIX - plenty in stock,

Valve QRP Report November 2016

Colin Turner G3VTT
182 Station Road Rainham Gillingham Kent ME8 7PR g3vtt@aol.com

Many thanks chaps for the support again for this event designed to stimulate home brewing and activity. As usual we had to battle with the regular weekend contest. Thank you all for the reports which unfortunately I have had to edit due to space restrictions.

Hello Colin I hope all is well. I heard you on over the weekend but didn't get a chance to give you a call. For the valve event I used a resuscitated Mk119 'covert' transmitter and my Eddystone 830 receiver. The Tx is crystal controlled on the QRP frequencies and has a 2E26 PA. Power out was as close to 5 watts as I could manage but probably more like 7 or 8. The log is 40 m G4IBH,60m G4ZXN, G3XIZ, G3XVL, 80m G4ARI, G4GTW, G3OTK,160m G3XIZ, G3FYX.QRM from a Contest and my electric fox fence compromised operation on 160m!All the best John G3TYB. Hi Colin,I just recently became a member of the G-QRP club, and tried for the first time to join in the Valve QRP Day. The equipment used was a homebrew 2 tube crystal transmitter of W1TS design, for 80, 40 and 30m, which puts out an average of 3 Watts. It is described in "W1TS Vintage Transmitter" by Ralph Taggart, WB8DQT.On 80 and 40 it has a clean note, on 30 it is a bit chirpy, but that only adds character. As a receiver the "Mate for the Mighty Midget", a companion receiver for the "Mighty Midget" transmitter is used. It can be found in the April 1966 issue of QST. This receiver is an 80 and 40m single conversion superhet, using a crystal filter, based on FT-241 surplus crystals. I modified the original design a bit, by replacing the germanium detector diodes by a grid detector. For this the triode in the RF amplifier tube was used, originally intended as a headphone amp. Furthermore an ECL82 was used as a pre- and final amp to drive a loudspeaker. Unfortunately I only made one contact during the Valve QRP day, it was on 30m with HA2NEP, Peti, who gave a 599 report. 73 Jan PA3GSV Hi Colin, I just got the 19 Set going in time for Valve Day. It feels and looks like real radio should. My first ever contact on it was a sked with G0RGU on the Saturday morning and he was neither

valve nor QRP but I knew then the tx/rx and vertical aerial which was the outer of coax to my 40m dipole plus roller coaster worked and the set earthed to a radiator. It doesn't seem to like my 50 Ohm dipole but they originally used a variometer and tank whip. With 3 Watts out on 40m it was down to business in the afternoon on 60m because there was a contest on 40m. 60m was an ideal choice away from the madness on 40 where I heard GW3UEP, G4XRV, G4ZXN; I called G4ZXN but no QSO. Fifteen minutes later I had retuned the Set for more power, (measured later at just under 2 Watts out), and I worked G4ZXN with deep fast QSB. I later heard G3TYB. 73 Bill, G4GHB. Hello Colin OM,
Another 'challenging' valve activity weekend has passed, which found us 'merry few' again competing with the ubiquitous QRO contest brigade, awarding themselves the obligatory 599 reports. This event I managed 18 QSO's using my valve TRX and was active on 160, 80 and 60 m. Having listened on 40 m I decided that my simple receiver just wasn't up to the task. I worked 9 stations 'valve to valve' which was an improvement on last time and most of the regulars were in evidence. Valve stations contacted were: G3DXZ, G3NKS, G3TYB, G3VTT, G3XVL, G4XRV, G4ZXN, GW3UEP and M0FMT. I also managed to work foreign stations: DL1RWG, EW6FA and OK1JRU who were all running low power. It was quite a trial for my poor regenerative RX so I have stripped and started to rebuild it. Hopefully improvements will be realised in time for the next valve weekend. Many thanks for organising the event.73 Chris G3XIZ (The G3XIZ transceiver is shown below).

Just a note to say I did enter the Valve QRP days (Just). Saturday was a busy day and I only managed one QSO DK0SU Stuttgart University station they were in a contest but took time out to listen for my signal. This was on top band at 22.30. On Sunday again a busy day as it was 2m CW for the Fists club in the morning and Fists Ladder activity in the afternoon Both QRO. But Sunday evening I did manage to hook up with D5DTL on 80m QRP. Both days there were contests running making it impossible to transmit on a crystal controlled frequency so both contacts were on my TS 530SP rather than on my Peanut Whistle one valver. Probably not in the true spirit of Valve and Vintage but at least I had a couple of contacts.

On another subject, I have my 5.262 MHz crystal installed in my Peanut Whistle so all ready for Mondays in 2017. TS 530SP. 5Watts MFJ 974B Balanced ATU. G5RV. fed with 300 ohm twin feeder. On Top Band the feeder is strapped against a counterpoise and the ATU set to LW setting..Regards best 73 Richard G0ILN Hi Colin, Regret didn't get much time to play radio on 12/13th November. Just three QSOs, with G3XIZ (valve tx), G3XVL (valve tx) and G4OZG (KX3), all on 80m with my CO/PA using two 6V6s. No luck on 40m. Only one suitable crystal for 80m, 3560, a very busy frequency during Sunday evening, gave up waiting for it to clear before I could call CQ! Thanks for organising the weekend, I look forward to the next one when I hope to be more active and may be will be VFO controlled by then! 73 Derek G3NKS.

It sounds like Derek needs to get grinding a few crystals or making a VFO for that excellent little transmitter. That wraps up the reports for this time. The next Valve QRP day is on April 22nd and 23rd.

G-QRP-DL-Treffen 2017

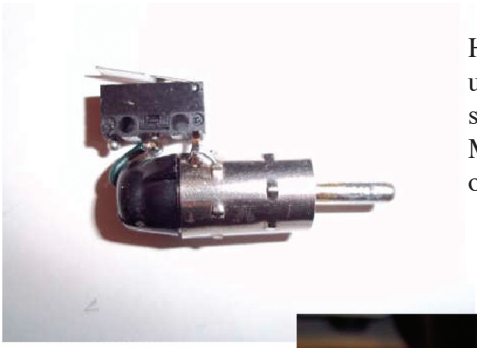
Das traditionelle G-QRP-DL-Treffen fuer Mitglieder des G-QRP-Clubs findet auch 2017 wieder **im April (21/22/23) statt – in Waldsassen**,
in der Nähe von Cheb/OK – unsere QRP-Freunde aus OK sind herzlich willkommen.
Weitere Infos gibt es auf der Homepage:

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

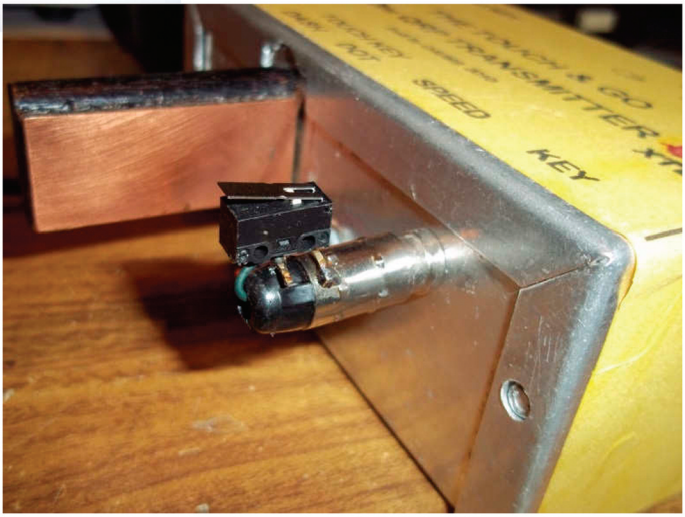
Zu Vortragsthemen und Beiträge usw. bitte Bernd via DK3WX@DARC.DE kontaktieren – vy 72 es awds
Fred, DJ3KK - Bernd, DK3WX - Oliver, DF6MS - Manuela, DL2MGP
The traditional G-QRP-DL-meeting for members of the G-QRP-Club will be held late in April 2017 (21/22/23) in **Waldsassen near Cheb/OK** – our QRP-Friends from OK are welcome.
Further infos on our homepage: **http://www.g-qrp-dl.de**
For lectures and articles etc., please contact Bernd via DK3WX@DARC.DE
vy 72 es hpe cu Fred, DJ3KK - Bernd, DK3WX - Oliver, DF6MS - Manuela, DL2MGP

A Novel Morse Key

Peter Howard G4UMB



Here is a very simple method of using a micro switch with a lever soldered to a Phono plug as a QRP Morse key. Ideal for portable operation

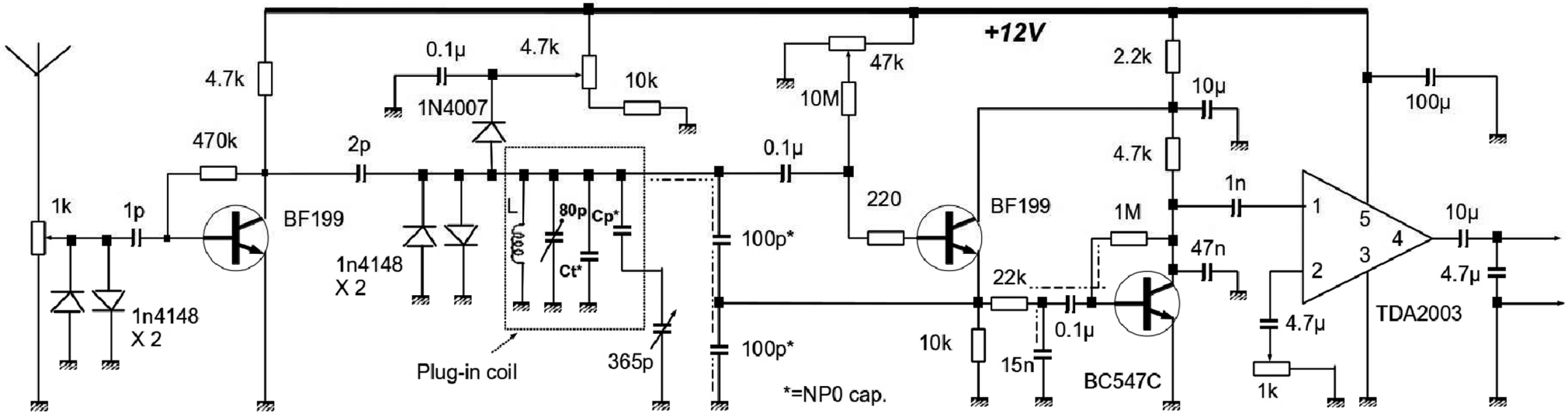


Extra Tip G1CXE

Sitting contemplating the fact that a watched kettle never boils, on the way back from a rally, I noticed that the red plastic cap from the small gas cylinder made a nigh on perfect push on cap for keeping dirt out of N-type plugs, and at an effective cost of zilch! An alternative design from the same type of cylinder fits the sockets beautifully.

New high performance regenerative receiver

Olivier Ernst, F5LVG, 2 rue de la Philanthropie. 59700 Marcq en Baroeul. France



New high performance regenerative receiver

Olivier Ernst, F5LVG,

2 rue de la Philanthropie. 59700 Marcq en Baroeul. France

I made this regenerative receiver for 5 amateur bands : 80 40 20 17 15m. With this Rx and a homemade transmitter, I made several SSB QSO between North America and France. It is possible to listen, without noticeable detuning, SSB QSO on 15m during 15 minutes. There is no hand effect, no common hum and no mains hum.

I will focus on the following points:

1 RF attenuator, mandatory for all regenerative receiver.
2 Very small coupling capacitor between the antenna, the RF transistor and the tuned circuit to avoid overloading (I use my transmitting antenna).
3 Plug-in coils without coil forms to obtain very high Q. The coils are easy to make : only one coil without tap for each band. I use 4 pins DIN connectors.
4 High C “oscillator” with NP0 capacitors to obtain a high frequency stability.
5 Band spreading with small capacitors in series with the variable capacitor.
6 High capacitor value between the tuned circuit and the detector to avoid mains hum.
7 Very short connection for the dot and dash lines.
8 Fine tuning with a 1N4007 diode.
9 1N4148 : transistor protection during transmission.

Diameter for the coils : 22mm

80m, L=11 turns, Ct=470pF, Cp=122pF
40m, L=5 turns, Ct=552pF, Cp=55pF
20m, L=3 turns, Ct=320pF, Cp=25pF
17m, L=2 turns, Ct=440pF, Cp=16pF
15m, L=2 turns, Ct=253pF, Cp=16pF
Wire for 80 40m : diameter 0.5mm.
Wire for 20, 17, and 15m : 2.5mm2 installation cable.

APRIL 23rd THE 33rd YEOVIL QRP CONVENTION
THE YEOVIL AMATEUR RADIO CLUB QRP CONVENTION
SUPPORTED BY RSGB RAFARS AND RASARS
WILL BE HELD AT THE DIGBY HALL
HOUND STREET SHERBORNE DORSET DT9 3AA.
THE DOORS WILL BE OPEN BETWEEN 9.30 AND 3.00PM
THERE WILL BE REFRESHMENTS TRADE STANDS
BRING AND BUY CLUB STALLS AND A
PROGRAMME OF TALKS .
FACILLITIES FOR THE DISABLED.
BOB HARRIS Email wjh069@gmail.com
http://yeovil-arc.com/qrpconvention

Info: www.dqradio.org
We invite You to our hamradio - electronic meeting & flea market
On the 11 March 2017 8,00 - 15,00 in VOKE House
Debrecen, Hungary. 4034 Debrecen Faraktár utca 67

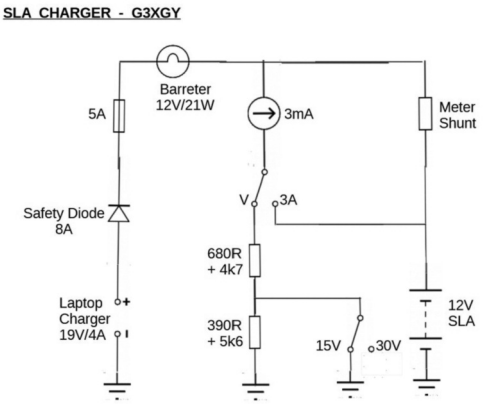
Program:
Homebrew construction: recycling FM kitchen receiver, digital clock...

Technical presentations:
ardunio 2.0, ARDF receiver, Audio cw&ssb filters.

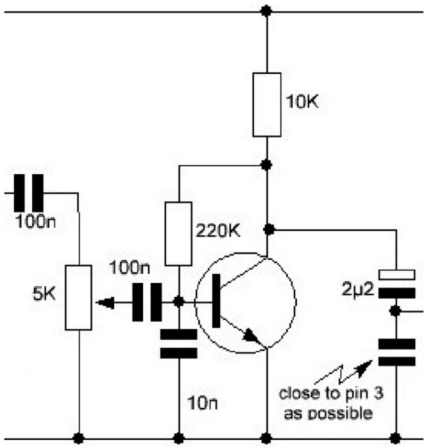
Flea market
Info: www.dqradio.org VY 73! Steve HA5GY.
www.qslnet.de/member/ha5gy

Sprat 169 Errata

A couple of errors sneaked into the last Sprat, firstly, the SLA article on page 18 lost its diagram. Here it is:



Secondly, the G0KJK receiver has a resistor missing between c & b on the LM386 driver transistor. Here is the relevant section of the diagram:



It is worth repeating here that as soon as we get to hear of an error, then it is put on the Sprat page of the website, (www.gqrp.com/sprat.htm) so checking here could save you some time. Also, should you think there is an error and it is not there, then please let someone know – Tony is a good start as he is the guy who would update the web site – g4wif@gqrp.co.uk

COMMUNICATIONS AND CONTESTS

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

G QRP Club Winter Sports

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

These are: CW: 1843, 3560, 7030, 10116, 14060, 18096, 21060, 24906, 28060 and 60m 5262kHz

SSB: 3690, 7090, 14285, 21285, 18130, 24950, 28360 kHz

Well done everyone who took part. Thanks to all for all of the entries both online (hope I didn't miss anyone, I was on way to New Zealand and OC-203) and postal especially some DX. I'll return them to you to you shortly, especially those that seemed to have sent me some of the station log book pages. I do not wish to keep any personal details here so I will return paper entries to you. Please let me know if you think I have missed you. Apologies Carl for last year.

Activity seems a little varied this last year. There were 46 DXCC worked by everyone which was not bad for a week's part time operating. The total was 2,145 QSOs altogether and 473 unique calls in all. I saw many members in the logs but didn't see an entry? Lots said activity was down on last year on HF bands and there was big move to LF. 2m and 70cm being open in the middle of the period saw a few QRP QSO. Once again thanks to all who logged my feeble attempts at CW on 80m and 30m just after Xmas day, the W1FB/VK5BR/ANC-4 inspired noise canceller was put to good use! Sadly no QSO from Dubai on NY eve.

On 27th I looked at the 40m and 30m bands using SDR and as per last year the advice that if the QRP CoA frequency is busy please spread out a bit I know this is a "double edged sword" as some crystal bound operators are not as fortunate. Most entrants managed QSOs on 3 or 4 bands, the most popular bands were 40m and 80m as always but 60m showed up much more this year. Anyone else manage to work Santa Claus this year? No 10m this year.

The antenna that seemed to be used most this year was the end fed half wave followed by the G5RV. Quite a few (self-included) put up an inverted V on 80m especially for WS.

Selected comments, a soapbox if you will:

Robert, PA9RZ sent me a lovely note including the comment. "High pressure and temperature inversions gave me open pipelines up to 400, even 500 miles.... on 144 and 423 MHz!" That explained the VHF/UHF log entries.

Val, RW3AI sent me a reduced log "just New Year's eve".

"Richard, G0ILN ... I think my furthest contact was Florence. I totally enjoyed myself

even if condx were not helping me! ... Plenty of light hearted rag chewing. Key is a copy of a Marconi PS 213 Made by Phil Boyle G0NVT.
Chris G3XIZ came on with great plans for the Winter Sports this year and was going to power up his entire collection of home built equipment - about 20 units.
Dave G3YMC was away until 29th, then with the wave of coronal holes conditions were dire and inter-G skip on 40m totally absent. Must try better next year…
Brian GM4XQJ concentrated on 60m this year, with FT817 and new PA module.
Victor, G3JNB 5MHz provided him with his best LF DX for ages…. SO1WS (Western Sahara ARS), tells the op was working QRO DL, DL, DL then went very quiet and G3?
Peter, G3JFS was 'confined to barracks' for much of the week … hoped to fill a lot of logbook pages. Sadly conditions were terrible, especially for QRP operating, so I ended up with just 107 contacts with 41 DXCC entities. Last year I had 160+ contacts with 44 DXCC. DX was in very short supply and my best was with Eric 5R8IC in Madagascar on 14MHz RTTY for a new all-time QRP country. Other notable contacts in the prevailing conditions were with Jose KP4JRS on 18MHz CW and Brian 9J2BO in Lusaka on 21 MHz CW. I heard a very weak ZL2AGY on 7MHz but he was struggling with the QRO EU stations.
Steve, G0KYA "While not a serious contender for the Winter Sports, I did take the opportunity to work a few stations and put a QRP signal on the air."
Andrew MI0BPB, KX1 or K1 at around 2-3 watts, first QRP in some time, good to be back in the saddle! Welcome back.
Gerald, G3MCK – seems he had some fun but remarked were worst conditions in 60 years.
I could keep going on as many added lot of extra comments. Anyway this is a hard one to judge but the entrant that deserves the G4DQP Trophy this year was Chris G3XIZ as he seems to have kept going no matter what and tried all sorts with different rigs, modes and bands.

UK CW Ladder
Secondly, why not enter the UK CW ladder run by John G3WGV at http://ukcwtable.g3wgv.com/. Although this doesn't specifically recognise QRP entrants there are a few of us who do submit our totals each week and compete between ourselves.
John would certainly welcome more entrants and is another way to promote QRP. (sorry SSB ops, this is CW only...).

CHEMLESLY TROPHY
Wonderful range of entries after a slow start but this year head and shoulders above the chasing pack yet again was Peter G3JFS #10890 with 91 DXCC.
Peter followed his success in last year.

".. Conditions throughout the year have mostly been very poor making things especially difficult for QRP operating. .. I made a few contacts with homemade transistor and valve transmitters … I took part in a North American QRP CW Club (NAQCC) monthly Challenge and had several QSOs with just 1 watt, all of which were over 1000 miles.

My antenna is still a bent end fed wire about 20 metres long with a remote SmarTuner.

During 2016 I made around 819 QRP CW and SSB contacts 696 on CW with 90 countries and 123 on SSB with 49 countries.

Rigs used other than homebrew Yaesu FT1000MP MK-V and ICOM 7100 with 5 watts maximum for CW, 10 watts for SSB.

RSGB Spectrum Forum
There are some foot note comments about 60m, in the latest RSGB band plans https://thersgb.org/services/bandplans/doc/rsgb_band_plan_2017.pdf and there might be some confusion. Please DONT use the WRC-15 recommended 15kHz segment 5351.5-5366.5KHz for contacts as the UK does not have this allocation.

Yes it is noted that there is a lot of CW activity from Europe between 5351.5 and 5354 and similarly data use starting at 5358, so OUTSIDE our allocation. As I expect several members might chase countries on 60m there may be a temptation to use the frequency, please don't. We are secondary users, the Primary user is the MOD and they can cause issues.

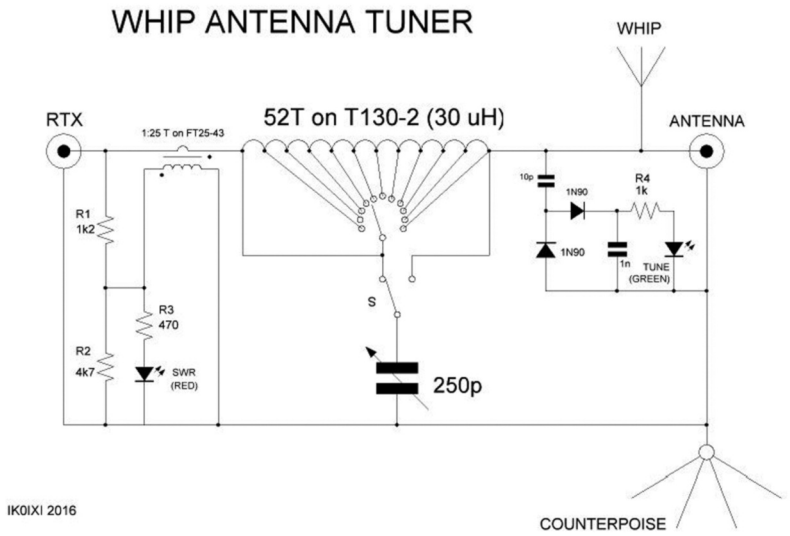
Antennas Valves and Vintage

Colin Turner G3VTT 182 Station Road
Rainham Gillingham Kent ME8 7PR
G3vtt@aol.com

How did you do during the Winter Sports? With poorer conditions this year it was tough going but the 60m band had some life during the daytime hours. Only one station has been worked during the Monday night Activity period on 5262 kHz but hopefully things will improve as the year progresses and conditions improve. Don't forget to check the band during the latter part of the Monday for activity. This column exists because of your input and a regular contributor is Fabio IK0IXI. He has made a whip tuner with an in built SWR indicator which could be added to an existing tuner and is the essence of simplicity. Please send me your contributions on antenna projects and vintage equipment to g3vtt@aol.com on Word if you can. Fabio writes:

Hi Colin. How are you? I built a manpack radio set around an SGC SG-2020 transceiver. http://nuke.ik0ixi.it/Recensioni/SGCSG2020HFManpack/tabid/615/Default.aspx I was looking for a simple circuit to know if my whip antenna was matched fairly close. Not looking for total perfection I've found an interesting SWR LED indicator by DF3OS so I decided to build it inside my whip tuner. It allows me to find the minimum SWR easily. On the antenna side you'll see a Green Led indicating the relative power. When the Red led bright at minimum and the Green one is at its maximum, you'll be sure there is a good SWR match between the radio set and antenna and is a very easy and effective circuit. Perhaps it could be of interest for SPRAT readers?

72/3 Fabio, IK0IXI



Geoff G3YVF has been home brewing again and has made a copy of the Naval 5G transmitter. This simple CO/PA was designed for Naval Beach parties and was a crystal controlled two stage transmitter with excellent keying characteristics. Geoff has put this to use on 60m too but it is capable of a much wider range of frequencies. The crystal oscillator stage covers LF (1.8 to 7.0 MHz) and is in regular use with a rebuilt Eddystone All Wave 2 receiver. Life is simple - you just tune your receiver to the crystal frequency and sit and wait until a station appears in your receiver passband then - pounce. Geoff informs me:

Here is my schematic which is slightly different from the 5G original transmitter, sort of "5Gish". This arrangement reduces the chance of breaking the crystal and the pa arrangement loads all sorts of odd lengths of wire easily. Topband, 80, 60 and 40 are covered by this transmitter. The TX is self-contained with its power supply and is very tame and easy to tune and load and use. You can have a lot of fun with it. I also grind my own crystals, very easy this, but that's another story.

Construction notes:

1 Use a 100VA "panel transformer" AC mains to 415V (roughly)...plenty of these are on eBay. Look at the picture to see if there is room to add a 6.3V winding to drive the heaters. It takes a little patience once you have found out how many turns but is typically around 24 turns. If one uses a toroid then this is simple. The H.T. volts derived are around 500V DC so the 807 will last forever. At 50mA input current it will only be loafing along but of course will be way over the 5W QRP limit!

2 No component values are critical....and the HT smoothing choke could be dispensed with if you use lots of capacity for smoothing. A 1000uF or more will do nicely! Also with this arrangement for HT don't forget to add a 100 ohm resistor in series with the bridge rectifier output, or the diodes may fail on switch on with the surge to charge such a big capacitance. Also fit an HT fuse as 1000uF of smoothing capacitor feeding into a fault could do a lot of damage!

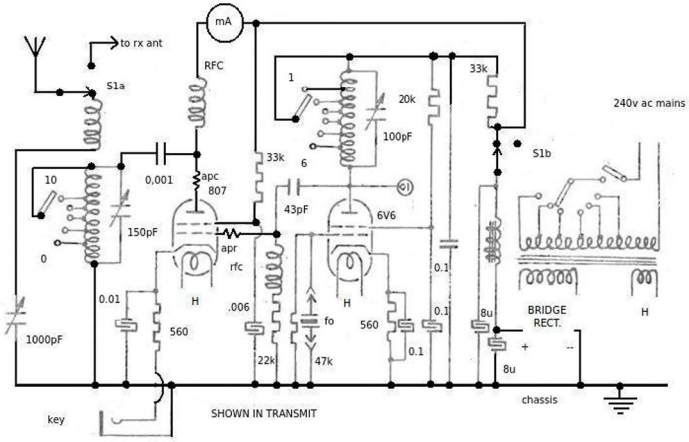
3 The TATG oscillator (tuned anode tuned grid) is a persistent one. However, if you have the odd crystal that is reluctant, then twist a pair of insulated wires together for about 1" forming a "gimmick" 1 or 2pF capacitor and solder these across the anode and grid 1 pins at the valve base. This increases the capacity from anode to grid allowing more feedback. Tuning the anode across the crystal frequency "fires up" the crystal and the neon will glow. Don't leave it tuned on the peak but off tune just slightly,(I think a little HF) this will prevent the crystal "going out" due to the dip in HT volts when you key up.

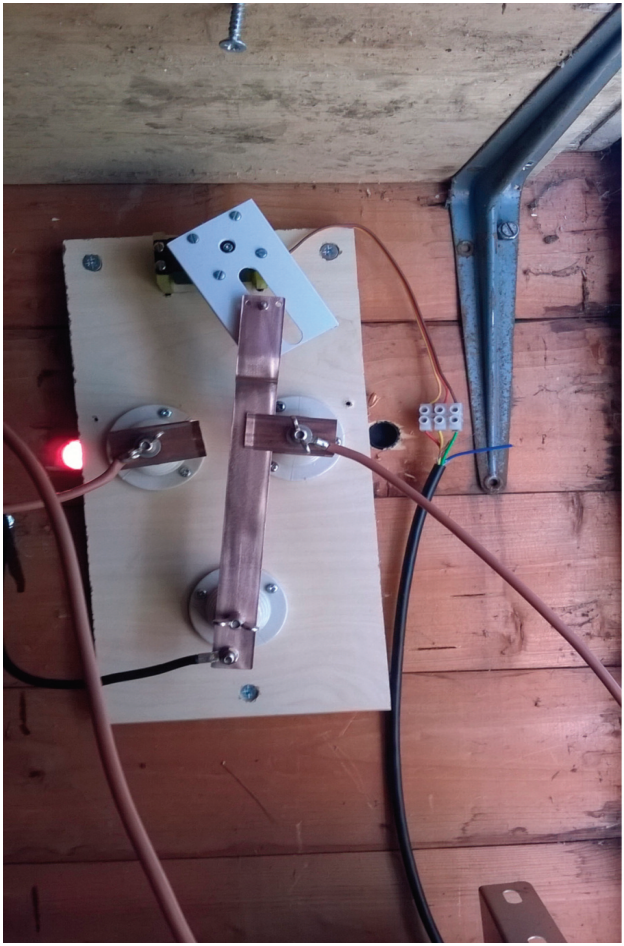
4 No component values are critical as I say but the resistors dropping the HT voltage and cathode resistors will need to be very generously rated so use 5W resistors at least.

5 ***One word of warning*** *Make sure you do not tune the PA to twice the crystal frequency! Prevent this by looking for a dip in the anode current with the maximum inductance and tuning capacitance in service...switching out a little inductance at a time until you get to the first dip. Any other dip is most likely to be a harmonic of the crystal and NOT what you want! As with any transmitter, check with a wave meter or GDO that you are not generating any unwanted "sprogs" before you use it!*

If you decide to build one and run into trouble then by all means email Geoff with any problems and he will be happy to help. He can no doubt give you the coil data for this circuit. Use gw.woo@btinternet.com to contact him. I worked Geoff on 5MHz at Christmas and the note sounded very good indeed.

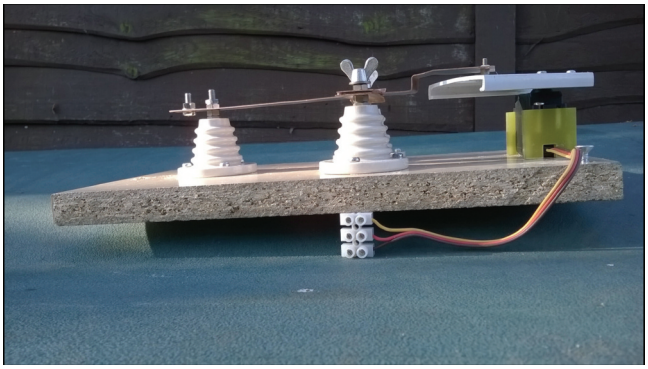
Transmitter 5Gish.
1.7 to 8 Mc/s A1 mode





A couple of issues back another circuit Geoff suggested was using the winding of a trap to produce the effect of a capacitor and so permit an expensive capacitor to be removed from the trap. The idea was tried by Ian G4GIR and he says: *Hi Colin, I've not had a lot of luck with the traps. I could get a dipole cut for 20m with traps included for 10 & 15, to work on 10 & 15 but 20 wasn't playing the game, so parked the 3 element wire beam using the YVF traps for further investigation - (well at least until the weather warms up!). However, in the meantime I have finally found a way of remotely switching my 140' Inverted L between MF & HF. I tried about a year ago to produce a usable system but all options failed causing fires and arc overs with whatever I tried. The only option I didn't try was a vacuum relay which I felt was a bit over the top in terms of cost, besides I didn't have one in the junk box so I decided to make something. The final creation is a servo operated knife switch. A couple of stand-alone photos and one of it in situ screwed to the inside shed wall are attached. The base is a piece of old MFI Chip Board 300 x 200 mm. The fixed and moving contacts were fabricated from a piece of old 15 mm copper water pipe, flattened and milled down both sides to give 2 lengths of flattish bar. The contacts are mounted on three Beehive porcelain insulating posts (given to me by G4AQS thanks Michael). The assembly is then operated by the machined white plastic cam made from a piece of old cable trunking lid, which is in turn screwed to the servo mechanism. The servo is from Maplin but unfortunately expensive. The knife contact has a small porcelain stand-off terminal screwed in its end and this helps isolate the knife blade from the servo and actuating arm. As the servo is swung from end to end effecting change over it is returned back a few millimetres to keep the porcelain terminal from touching any part of the system. So far it's not flashed over at all running around 3W EIRP at 472 kHz. I use another of the same*

type of servo to tune the variometer. I hope you can use this in the AVV section. 72 Ian G4GIR



This looks like a neat switch made from scrap and is a good example of 'upcycling'.

Well that about wraps up the Spring AVV. My thanks to the contributors and remember to drop me a line about your antenna ideas and results of experiments plus any vintage valve circuits you may have tried. I hope to work as many of you as I can for the next valve QRP day which is on April 22nd and 23rd 2017. Call 'CQ VQRP' and use any valve or tube QRP equipment. The idea is promote activity and keep vintage equipment on the air and to stimulate home brew equipment construction. There will be a clash with the fairly new UK/EI Contest but hopefully they will be operating down the bands and can keep their contest to themselves.

21st RED ROSE QRP FESTIVAL 4th JUNE 2017

Just a quick reminder that this years Red Rose QRP Festival will again be held at Lowton Civic Hall, Manchester, UK, on Sunday 4th June due to other hall bookings in July.

This is a great opportunity to have a clear out, not just of unused equipment but smaller components, etc. and pay for that next venture/holiday! A 6ft table is still only £8 but please contact me early to reserve space.

There is also a very low cost Bring and Buy stall.

For visitors old and new, members of West Manchester Radio Club look forward to seeing you all again in June!
The key is STILL mightier than the mouse!!

72, Les G4HZJ amtools@ntlworld.com

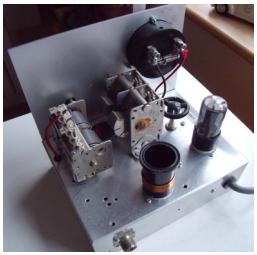
MEMBERS' NEWS

by Chris Page, G4BUE

E-mail: chris@g4bue.com

M1KTA was QRV 17/18 January from Stewart Island, OC-203, as **ZL/M1KTA**. **W2APF** will be QRV 17 March/1 April from Nevis, NA-104, as **V47JR** using an Elecraft KX3 and wire antennas. QSL to **W2APF**. **DF4WX** will be QRV 18/27 June from Comino Island, EU-023, as **9H3ND**. Micha says the activity is not planned as a DXpedition as the main focus is recreation and sightseeing, but will use his Elecraft K2 occasionally, often as possible on CW, and is looking forward to QRP-QSOs with other Club members. On 29 January **GØFTD** did a little expedition to the Whitstable beach using a FT-817 and vertical wire up a 23 feet fishing pole with an eight feet counterpoise, and home-brew ATU. Andy tried 60m and up and worked **MWØBFY** on 60m CW, a CN8 on 17m and an EA5 on 20m. Andy said it was hard work trying to get responses on the usual QRP frequencies despite the RBN reporting his signals up to +23dB in W3 on 15 and 17m. "So much propagation there and it's all going to waste" he wrote. He did the same on 12 February when he worked **7Z1JA** on 17m CW and then "a real easy and pleasant QSO" on 14062kHz with **W2WC** who was chasing WAB squares. The RBN again reported his signals up to +24dB on the USA east coast on 15 and 17m.

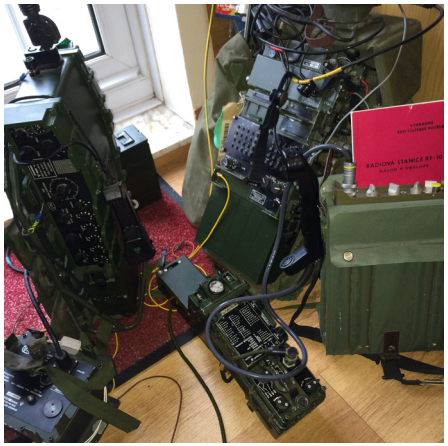
G4VUX's local radio club **G3EFX** celebrated its 70th year in 2016 and Graham set himself the task of designing and building a transmitter using only parts that would have been available to radio amateurs in 1946 when the club was founded. The result is the Platinum (left) that runs about 4W on 40 and 80m. He has worked several countries with it and, despite stiff competition, it won the club Construction Contest in December. Graham says there is video on *YouTube* at <https://www.youtube.com/watch?v=JnXQMb1INV8> which shows the Platinum in operation. He is delighted with the minimal chirp which was achieved after some mods to the original design. He will probably post more videos in the coming months. Graham has already spent the prize money on a few parts for his next valve project, which will be a Whaddon MkVII (Paraset) replica.



On the right is **G3UD**'s build ready for Valve Day. Graham will be using a 6V6gt giving him 5W. **G3UKV** says the 2017 G-QRP Mini-Convention will take place at Telford on 2/3 September. Martyn will prepare an article for *SPRAT* about the convention. **G7VFY** has created a new *Facebook* group, called 'Radio Rally's Live'. Stephen says, "So that early birds, traders and rally organisers can post photos and live video that might tempt those who are undecided, first thing in the morning, if they want to go to that day's rally. This is a closed, but lightly moderated group.....Let's embrace the new technology and see if we can help keep rallys going etc, <https://www.facebook.com/groups/579213752263817>.

Pictured at the top of the next page is an addition to **G4FBC**'s military collection, the Racal 'Minicall', that has been re- crystalled and set up for 40 and 80m at 1W on LSB. Some of Ron's

other military collection is pictured far right: (l to r) PRC320, PRC316 and PRC319 SAS patrol sets and the Czeck Army RF-10 VHF FM set which covers the 6m band. Congratulations to **NA7US** on becoming the new editor of *QRP Quarterly*, the journal of ARCI-QRP based in the USA. Mitch welcomes your articles about operating, building, and National Parks on the Air to him at <NA7US@outlook.com> or <editor@ QRPARCI.org>.



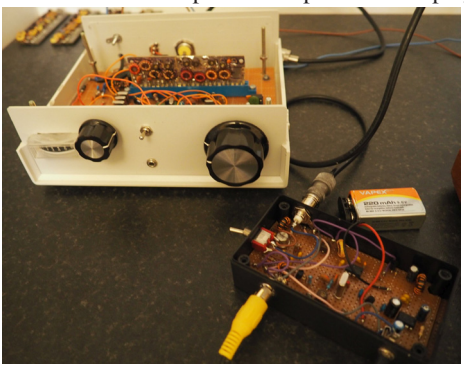
G3YMC writes, "Some of you may know that I write a regular QRP column, *QRP Focus*, in the CDXC bi-monthly magazine. My intention is to spread the word about QRP among CDXC members, where for many of them QRP is less than 400W! George of course does the same for *RadCom*. It would be good if I could have some input from the wider QRP community as to date it has been very much focussed on what I have been working (or rather in current conditions not working!). Ideas might be a review of Winter Sports, unusual DX worked, /P operations, pretty similar to **G4BUE**'s column. If you have something appropriate, or need more information, please send it to me. Photos are a possibility though probably in small quantity. As I saw at the RSGB Convention, there is considerable interest in the sort of things we are doing. Let us spread the word!".

Just before Chrismas **HB9BQB** finished his new home-brew project: the mcHF from **MØNKA**, see <www.m0nka.co.uk>. Guido says, "This is a wonderful state of the art SDR QRP-kit full of SMD parts. A colour display with spectrum and waterfall display, it is a new feeling to work. SDR is our future! All Bands (including the new 60m), all mode, open source and with still ongoing improvements. Yes, it was the most challenging project I have ever built, for it was not a complete kit, just two prints and the display, and all the other parts you get yourself. After a month of work, I enjoy the mcHF very much". **N2CQR** has been building a RX (that may become a TCVR) based on the Si5351 chip, an Arduino, a 1 x 1 inch OLED screen and two NE602 chips. Bill hopes to return to the happy land of 2N2222s and LC VFOs once this project is finished.

MØIFA writes, "Activity here has been mainly writing software for the Arduino Uno. My Arduino drives a SI5351 synthesiser module I am using to generate Hellschreiber transmissions on 40m. Hellschreiber is an interesting digital mode, able to transmit alpha-numeric ASCII characters in a very narrow bandwidth, in my case less than 15Hz! Transmissions are made slowly, about the speed of QRS S3 (three second dot morse). Each character is sent as a bit mapped font (5 x 7) with pixels encoded as seven frequency pulses of 200ms sequentially sent in 2Hz steps. People claim to have made QSOs over 2485 miles using 1mW or so".

GM4YLN has been building a new rig (above), a SDR that goes from 1.8Mhz all the way up to 1296Mhz on all modes. More info at <https://groups.io/g/globemaster>. Chris has had lots of QSOs with the rig and has now worked and confirmed 305 DXCC all-time with his 3W. A suggestion from **G3TMG**: Dave writes, "If you are making calls and getting nowhere why not try the Reverse Beacon Network (RBN). My old pal **G3MAE** introduced me to it recently. I find it so useful that I felt obliged to send a donation! I wonder how many members use this great facility?". In January **GØUPL** announced a new 5W HF PA kit, price $20 from QRP Labs at <http://qrp-labs.com/pa>. Also in January **G3CWI** at SOTA Beams announced the WSPRlite Antenna Performance Analysis System. Richard wrote, "We have been working hard developing a new way to test and compare HF antennas. Whether it's stacked mono-banders or backyard dipoles, our system gives you a unique insight into how your antenna is really performing. It's already proving helpful for magnetic loop users to allow different types to be compared. Details at <http://www.sotabeams.co.uk/wsprlite>".

G4EFE uses 1 and 2mW running WSPR on 7038.6kHz using an IC-703 running 100mW through a 20dB attenuator into a full-size 40m square loop. Martin's signals have been spotted in Scotland at 440 miles distance. **G3CWI** suggests Martin might like to track his results on their WSPR data analysis system at <http://dxplorer.net/wspr/tx/dxgraph.html?band=7&callsign=g4efe&timelimit=1d>. **G3JFS** finished 2016 with more than 1200 contacts in his QRP log giving him 100 DXCC; 88 on CW, 49 on SSB, 60 on RTTY and 50 on the other data modes. Peter says, "These were mostly run-of-the-mill contacts but I did end the year on a cheery note with a QRP RTTY contact with **5R8IC** (AF-090) on 20m during the Winter Sports. He was barely moving my S meter on peaks and dropping into the noise so I never expected him to copy my 5W with an end-fed wire. However, after my second call he replied, which goes to show what I have been saying for many years, that RTTY is an excellent mode for QRP operating. The best bit though was finding it was a new all-time country in my QRP log and that it was confirmed on e-qsl. My aim this year is to improve my antenna and to complete some part finished projects that are cluttering the work bench".



GØEBQ got back on the air in January using an indoor **G8PG** eight feet square loop from the *GQRP Club Antenna Handbook* (recommended). Nigel says it is certainly no worse than his loft antenna and he can now work 40m for the first time in years. He is QRV with the Sierra on 12 - 40m and says although the rig is 20 years old, it is still a great rig, after all its basically a K2 from the filter on. The band module concept does allow easy multiband use. He knows **G3XJS** has just bought one after disposing of one previously. Inspired by someone at the club who built a Chinese 49er, Nigel made 'a proper one' from the Norcal website for 20m that gives about 250mw and can work all round Europe. The picture above shows the 49er with his Sierra behind it.

G8SEQ writing on 7 February, "*The VHF/UHF DX Book*, 2017 Replica Edition, is now available for free download at <http://www.trpub.net/html/dx_book.htm>. The book was written in the early to mid-1990s by a team of experienced VHF/UHF DXers and equipment developers, in an

effort to pass on our knowledge and stimulate further developments. But eventually the book went out of print, and information of lasting value became trapped on the printed pages. To keep that information alive for future generations of VHF/UHF DXers, a digital replica of the Second Printing (1995) has now been released as a free download, by kind permission of the copyright owner TRPublishing and its proprietor Trevor Preece. As with all older books, the challenge for the reader is to separate the parts that are of lasting value from other parts that have become dated. But we make no apology for that; even the outdated parts remain an accurate snapshot of VHF/UHF DXing in its heyday".

The pictures left show what happened to **F5NZY**'s Hexbeam after a bad storm during the evening of 12 January when the nwind blew at over 93 MPH and the antenna was destroyed. Steph says he is going to replace it with a new one in the spring, but fortunately, his wired dipole for 30, 40 and 80m survived.

GØKYA says to all the newcomers to QRP, "Give it a go - you never know!". In January Steve was listening on 17m when he heard **K9LJN** in Chicago running 500W to a beam and says, "I went back with 5W to a loft-mounted 17m dipole and bingo, he came back. We exchanged the basics and that was it, but I did email him after the QSO. Gary replied, 'Great to contact you today. The band was good but your persistence paid off with the very deep QSB. Sorry it took so long, but your signal went from a S7 down to the noise very quickly. You folks running QRP have a lot more patience than myself, I'm usually running 500W to hold a frequency'".

Christmas got off to a good start for **GØKYA** with a 5W CW contact on 23 December with **SK6SAQ** at Grimeton in Sweden, home to the Alexanderson alternator that puts out a 200kW signal on 17.2kHz. SAQ also has a special event callsign so it was good to get operator Kjell in the log using 5W from a Yaesu FT-991 into an outside EFHW. After Christmas Steve turned to his K1, which he finished building in the summer after owning the kit for 12 years! This brought CW QSOs with **OMØWR** on 40m with 5W into his loft-mounted zig-zag dipole and **YT160TESLA** on 20m celebrating 160 years since the birth of Nikola Tesla in Serbia. Finally he had a nice (but weak) QSO with **EA7JUK** in Lubrin, Spain on 20m CW using 5W from the K1 and an indoor dipole, Ian's UK call is **GØWHX**. Steve says, "We might introduce a QRP hour during International Marconi Day on 22 April when we operate **GBØCMS** from Caister Lifeboat. I think there will be some interest from some of our local club members".

In December **GØFTD** set up a QRP CW beacon on 40m to a very short antenna in his loft in Kent using 1W and says the results were staggering, with excellent reports such as 589 to Yorkshire. The Reverse Beacon Network (RBN) produced data that gave Andy the following conclusions: Running time about five hours, average DX = 300 miles, best DX = 1300 miles, best s/n 37db, worst s/n 0db, average from last 100 reports 8db. Propagation lasted generally exactly two hours after sunset, with one station providing a report at 45 hours afterwards (EA5 land). Andy has built another ATU (left), this one spurred on from his last report when he went /P in the Scilly Isles. He wanted to make the ATU a bit smaller and a bit more versatile and size was one thing. He says he found the L match was ok, but often needed to tweak the wire lengths to get the best match. T matches always get the job done without the faff so he made one in a day. It included a tiny Guanella 1:1 balun wound on an FT50-43 toroid that handles QRP perfectly well, and is only a tiny thing.

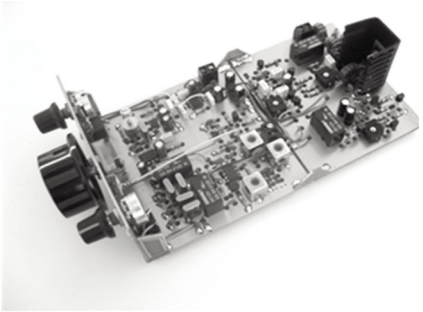
A rummage through **G4FBC**'s junk box unearthed a couple of variable capacitors suitable for a 6m band transmatch ATU for use with an older project, the PW 'Otter' 6m receiver from a 1980s issue of *Practical Wireless*. The two are pictured here. **VA3ZNW** reports a free e-book from *AntenTop* magazine (a free e-magazine devoted to antennas and amateur radio) called *Antenna Manu-*

script at <http://www.antentop.org/library/shelf_Antenna_Manuscript.htm>. Igor says there are chapters on Beverages, HF helical, magnetic loop, and apartment antennas, antennas for limited space and limited and unlimited open space, **UA6AGW** and field antennas and ATU and RF transformers.

G3OTK completed his new home-brew QRP CW TCVR just before Christmas. It covers 80, 40 and 20m and has an output of 3W – he was going to include 30m but ran out of room! It has a DDS VFO, integral electronic keyer and auto-ATU and to control everything it uses seven PICAXE micro-processors. It is built 'Manhattan' style on three copper clad ground planes. Richard doesn't have a permanent outside antenna but is able to put up dipoles for contests thanks to a pulley on a tall clothes line post, although the average height of the antenna is only about 10 feet. He entered the RSGB AFS CW contest in January and worked 106 stations with the TCVR, mainly on 80m. His QTH is on the south coast and only GM stations were workable on 40m. Richard hopes to use the TCVR for the RSGB Low Power Contest in July and the 80m CW Club Contests. He used the breadboard version in both the 2015 and 2016 LP Contests. His best DX using the TCVR with 26 feet of wire strung around the gound floor shack, is Moscow on 20m and Maderia on 40m. Richard says, "The project started a couple of years ago. I had designed and constructed a linear phase/constant delay crystal filter for CW and wanted to hear what it sounded like - such filters are said to be easy on the ear. So I put together a simple RX and then just kept adding bits until I had a usable breadboard TCVR. I then built a second TCVR, which is the one in the picture".

G3UD's latest build (left), a QRPp rig from <www.breadboardradio. com> that Graham says is a, "Little beauty from **W4FSV**, easy through hole build TCVR, 500-650mW, 5-7kHz VXO, sidetone, simple one finger key, DC RX with attenuator BPF and wooden plinth to mount the PCB. Mine is feeding 550mW into my home-brew Texas Topper amplifier at 5W. Do you think my MFJ-564 twin paddle is big enough, hi!? It goes to my home-brew EZ keyer 111 from Four State QRP". **G3TMG** writes, "This is what, for me, makes amateur radio so rewarding! On 29th December, 20m was quiet with apparently poor conditions and no good for QRP, so I tried to raise a 'Fists' on 14058kHz with QRO. **WB2LQF** replied. I am very fortunate in having a very low local noise level and he was just above it, dipping below it at times, but we did manage a reasonable QSO. He said he was running QRP with a new KX1, but I was really surprised to learn from his email that he was using an indoor wire - and thought QRP would be a waste of time! Stan said, 'I just finished building my new KX1 a few minutes earlier and really didn't expect to make the contact! It was laying on the bench, all opened up while I peaked everything. You were my first 20m contact with it. I think I was putting out about 1.5W or so on six AA batteries and a piece of wire stretched across the room'. It's great to make someone's day!".

Thanks to the contributors to this column. Please let me know how your spring goes for the Summer 2017 edition of *SPRAT*; what you have been building, who you have been working, and any other information about QRP, by 10 May. Also, interesting photographs, please don't be shy in letting members see what you have been building and/or where you have been operating from, your antennas, who you have been meeting and even a shack photograph to let other members know what you and your equipment look like. Let me know if you intend operating from somewhere other than home during the summer and autumn months so I can let members know to listen out for you.



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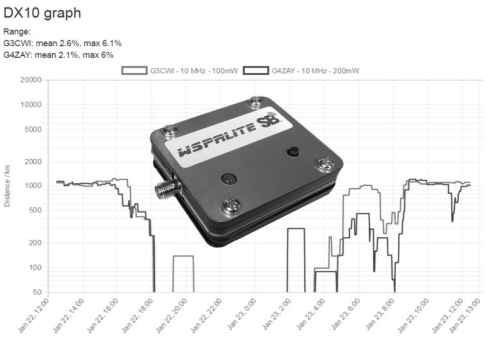

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For people need QSL cards urgently LZ1YE dispatches three days after the payment is made. UK Members can pay via a UK address: Please send your cheque / cash via recorded delivery to: LZ1YE QSP Print service, c/o Melanie Rowe, St. Leonards House, 35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

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Google "***acelticlodgeforrent"*** to find pictures and further information.

GQRP Club Sales

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

Antenna Handbook – 2nd edition – **members price £6.00 plus post** } **£2.00 (UK) or £5.50 EU**

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6 pole 9MHz SSB crystal filter (2.2kHz) £12 plus post (max of one) } **£3.50 (UK); or**

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

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

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21SWG (0.8mm dia) – 2metres - £1; 26SWG (0.45mm dia) – 3metres – 70p }

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

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

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

**** Except ** items** – they are heavy and each counts as 2 packs (ask for quote if you want more than 2 of the large toroids)

SBSS PCB clamps * – single - £12, two - £20 all plus post (£3.50 UK & EU : DX – order direct from Rex please)

MeSquares & MePads * - £6.50 each plus post (UK & EU as parts for up to 4) : will DX please order direct from Rex)

STIX board * – 3" x 1", 80 x 0.15 square pads plus 2 x SOIC pads. £3.75 each. Will post with parts for no extra postage.

QRPme Brass sets * – PCB feet to lift the board off the table - £10 plus post as for SBSS clamps - DX order direct from Rex)

*** these items from Rex's stock are pictured on the website.**

Limerick Sudden kits RX & TX both single band (160 through 20m); **ATU** (80 through 10m) **£40.00 each plus post** UK - £3.50, EU - £5.40, DX - £8.00

Sprat-on-DVD – 1 to 160. Only £5 each to members plus postage, UK - £1.20, EU - £3.50, DX - £4.00

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

Cheques (UK) and payable to G-QRP Club. MINIMUM ORDER for cheque or PayPal payments is £5

You can also pay by BACS. The numbers you will need to do that are - sort: 01-07-44 and a/c: 54738210

I can accept cash in GBPounds, or US$/ €uros (at the current exchange rates) – but please send securely! You can order via e-mail and pay by PayPal - use sales@gqrp.co.uk – and pay us in GBPounds and you MUST include your membership number and address please. PayPal charge us about 4% so a contribution towards that is always welcome, or, send as a gift to friends/family - thanks