



SPRAT

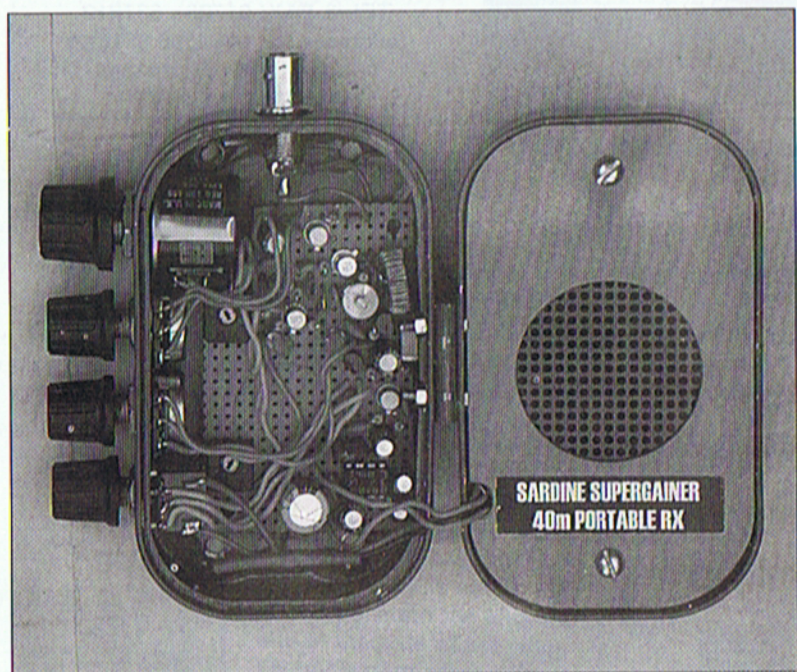
THE JOURNAL OF THE G QRP CLUB

DEVOTED TO LOW POWER COMMUNICATION

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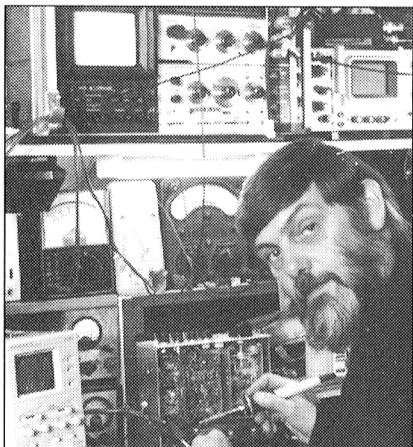
AUTUMN 2002



The Sardine Supergainer Receiver

My First QRP station ~ A Simple CW Transmitter ~ FRESCO Transmitter
Converting the 30m MFJ Cub to VXO ~ MB7LF 136kHz Remote Receiver ~
The PP2 Transmitter ~ The Sardine Supergainer ~ QRP BEACON
Epiphyte 3 Modifications ~ A Keying Console ~ Fishing for Contacts
Antennas-Anecdotes-Awards ~ Communications & Contests
Club Sales ~ SSB & Data Report ~ Member's News

JOURNAL OF THE G QRP CLUB



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Rev. George Dobbs G3RJV

Welcome to SPRAT 112,

In this issue, we publish the first of the submissions for the W1FB Award 2002. More to come in the next issue. The challenge for 2003 is given below.

Please send entries to me at the address above. Electronic submissions are very welcome for this or for any material for SPRAT. Articles for SPRAT need not be in a completed form – brief notes and sketches are always welcome. In fact we prefer minimal text so we can use as many items as possible in each issue. So share your current project with other members.

72/3

G3RJV



The W1FB Memorial Award 2003

For 2003, the project is to

**Design a Superhet Receiver [simple if possible]
for one or more amateur bands**

Please submit your design to G3RJV as soon as possible, with circuit sketch, all values and brief notes. The project will be published in SPRAT and the winner will receive an engraved plaque.

EDITED BY GEORGE DOBBS G3RJV ARTWORK BY A.W. (MAC) McNEILL G3FCK
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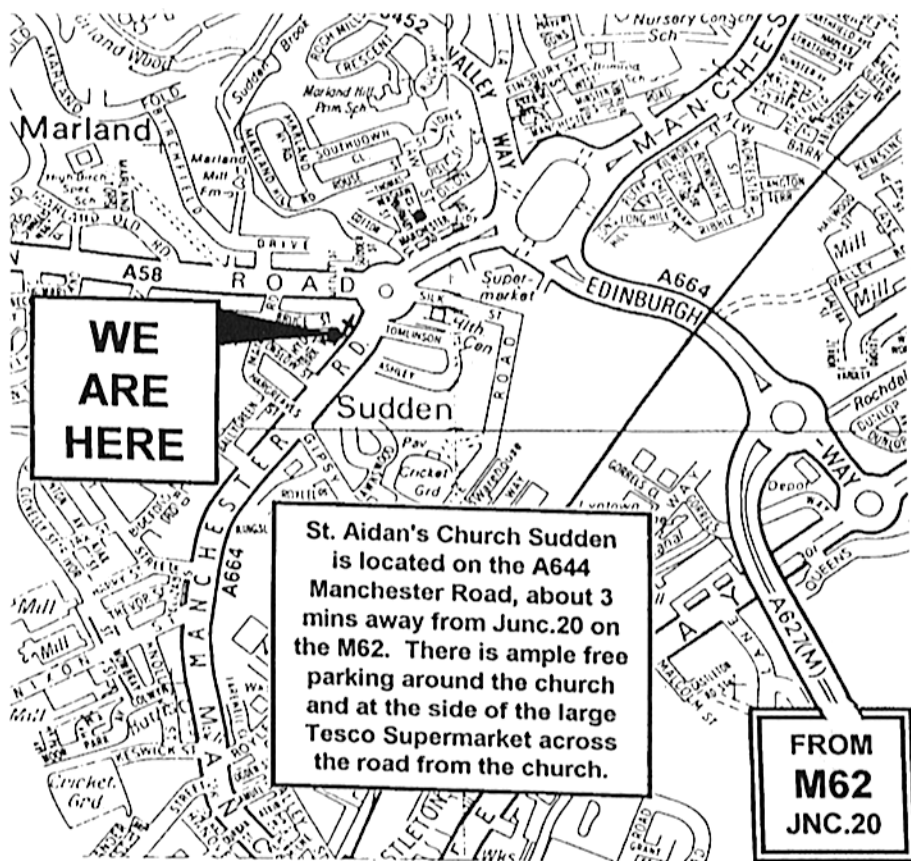
THE G QRP CLUB MINI-CONVENTION

SATURDAY 12th OCTOBER 2002
ST. AIDAN'S HALL SUDDEN ROCHDALE

ADMISSION £1 - DOORS OPEN 10am - TALKIN S22

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The Norton Grange Hotel : 01706 - 630788

Couples/families: www.hollingworthlake.com : lakeside guest house - edge of town

My First QRP station

**Oleg V. Borodin RV3GM/QRP Cosmonaut street 19 – 74,
Lipetsk, 398043, Russia. E-mail: rv3gm@qsl.net**

I recall in the 70's when I was a young SWL, I built my first direct conversion receiver (Fig. 1) It was wonderful for me because it was very simple, just a three transistors in the receiver's circuit and a few other parts. I powered this receiver with a 9-volt transistor radio battery. I did not have a good antenna - I used a piece of wire in my room. For the first construction I did not made a PCB and build the receiver "free-space" style on a piece of printed board. It was an 80m band version. The results surprised me! Before then I used an old broadcast receiver with 6 valves with home-made beat frequency oscillator. Having heard my new DC receiver, I forgot about the old "lamp receiver". The sound was clear, sensitivity very high and I heard a lot of DX during some evenings and nights. After my first enjoyment I developed a PCB and rebuild the receiver.

Other versions using a similar circuit on the 40 and 20 m bands were also were constructed. The results were also excellent.

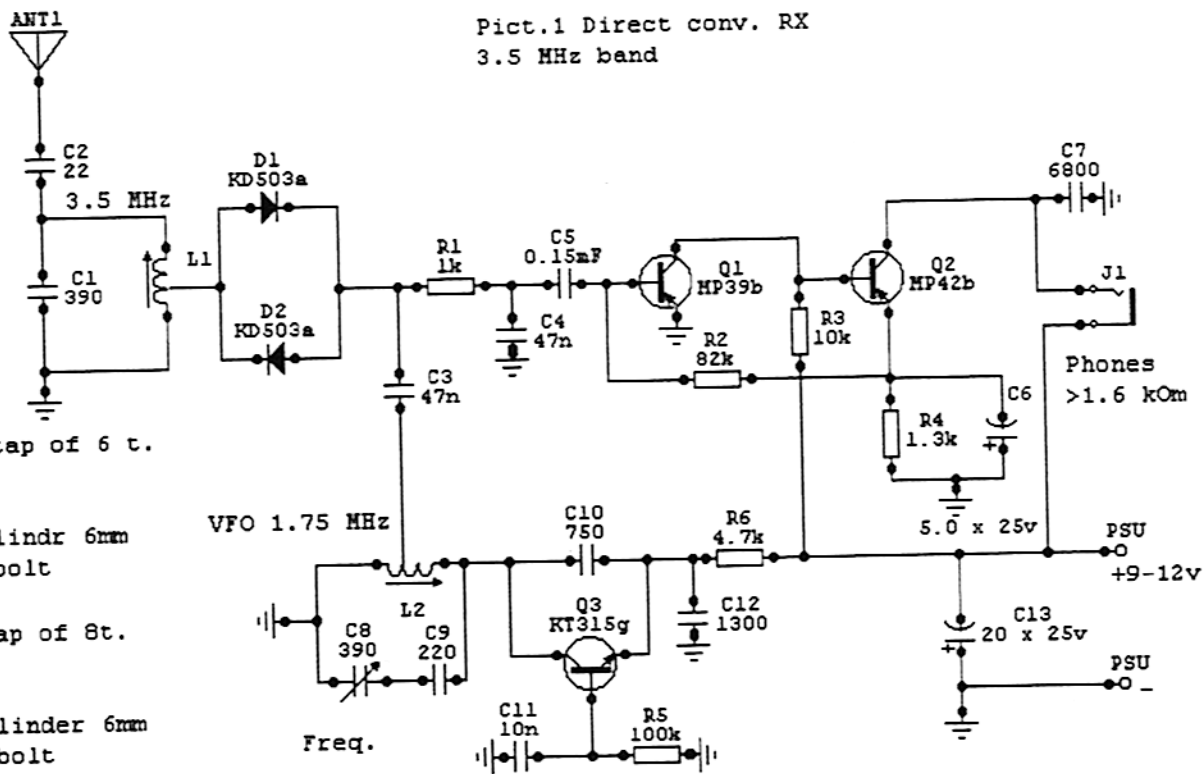
My next step with Direct Conversion was when I got a HAM license. I began to experiment with the receiver in hope of transforming it into the transceiver. First of all I decided to feed a VFO signal to the antenna through a keyed amplifier stage (Fig. 2). It worked well. There was even a frequency shift on transmission about 1 kHz that me enabled to hear stations without additional RIT. But, taking into account, that VFO works on a frequency half of the received frequency, power of a transmitting signal in the antenna was rather small, just few decimals of milliwatts. I had just a few near QSOs with this QRPP on the 80m band only. It is impossible to use this circuit on 40 or 20m bands because the frequency shift is too large (5 to 10 kHz) and your signals will be too far away from the signals of the other station.

The following version of the transceiver, based on receiver, (fig. 3) has additional keyed frequency doubler and stage of amplification. It gives me a good 0.75 watt output at 80 and 40m bands and 0.3 watt at 20m. I only needed to add the RIT and sidetone.

I had a many happy days with this transceiver. I build three transceivers for other bands. I did not made a multi-band transceiver because the complication of band changing would necessarily be mirrored in the quality of the transceiver to the worse. The frequency stability would worsen, for sure. Also it is necessary not to forget that the main advantage of direct conversion equipment is its simplicity.

The kits of parts and PCBs of these receivers or transceivers are available from me, send me your orders by e-mail or post.

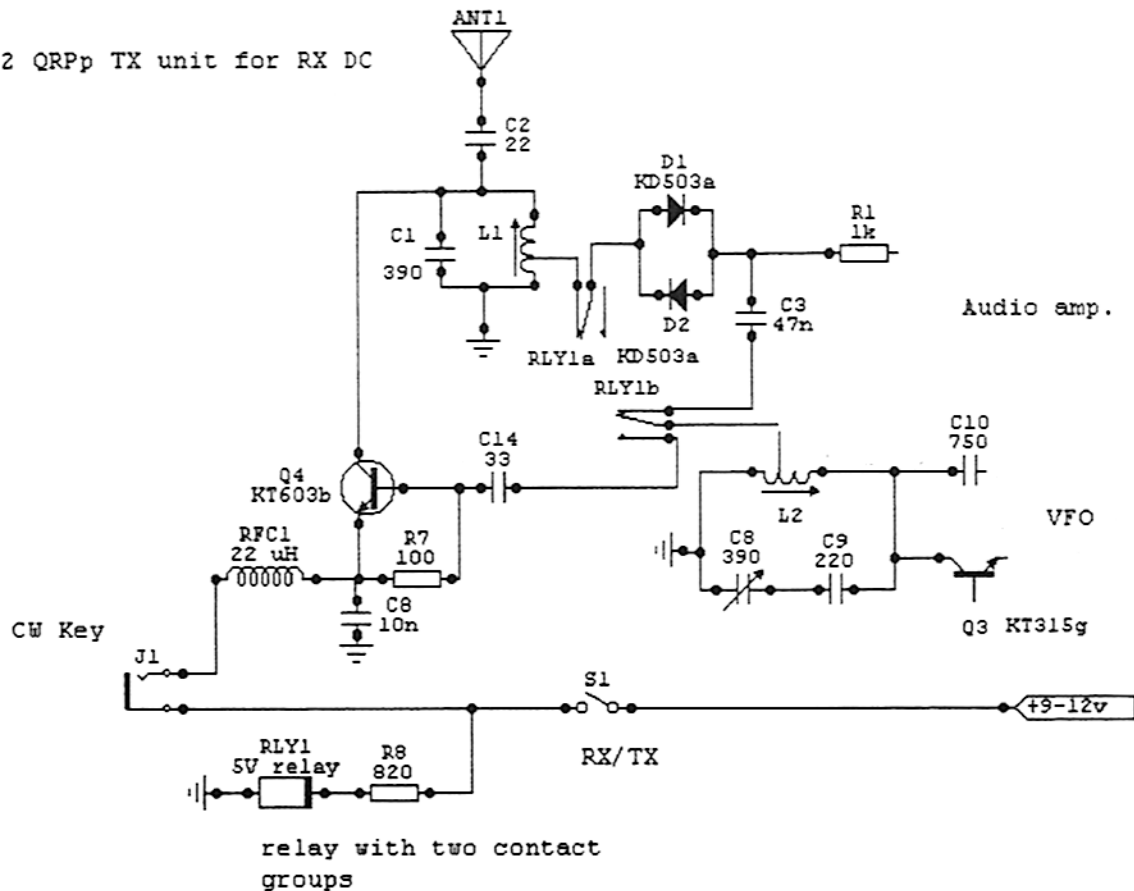
Pict.1 Direct conv. RX
3.5 MHz band

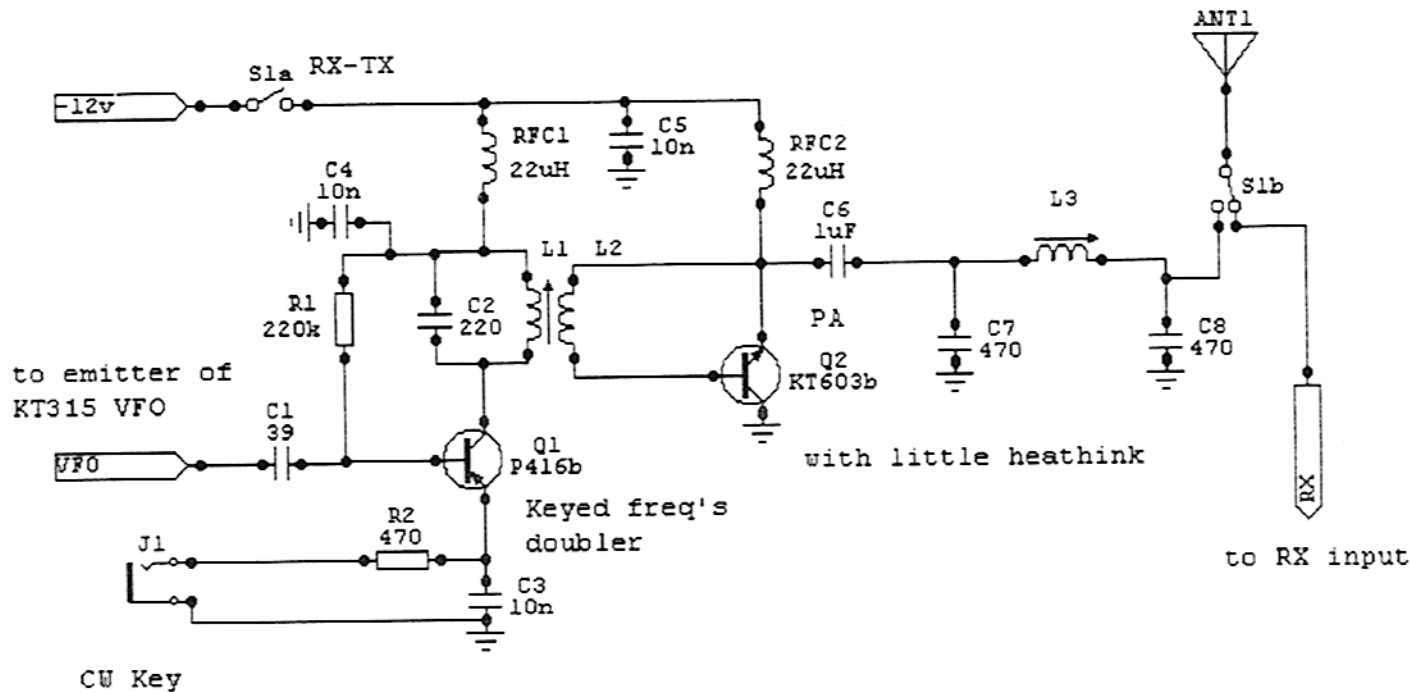


L1 27 turns, tap of 6 t.
from "ground"
wire 0.27mm
on plastic cylindr 6mm
with ferrite bolt

L2 38 turns tap of 8t.
from "ground"
wire 0.4mm
on plastic cylinder 6mm
with ferrite bolt

Pict.2 QRPP TX unit for RX DC





Pict.3 Transceiver's unit for RX DC



A Simple CW Transmitter

Milan Catari 9A9RA, Ilova, V. Nazora 43, 44320 KUTINA. CROATIA

One-transistor xtal controlled transmitters are very popular but I don't think it is the best approach to building simple and cheap transmitters. If 1-2 watts output power is needed the RF current through the crystal is too strong and can damage it. It is much better to add one or two stage power amplifier after CRYSTAL oscillator. It will improve frequency stability, waveform shape and save crystal damage.

The circuit diagram of simple and good transmitter is shown in Fig. 1. It consists of four stages: VXO (Q1), PWR amplifier (Q2, Q4), stage for keying and shaping waveform (Q3) and T/R switching system (Q5).

VXO - Inductance of L must not be too high to avoid possible instability or chirps. For 40 m A suggested value for LI is up to 15 uH, but it greatly depends on the crystal used. Crystals in HC 6U metal cases proved as the best for this purpose. With some JANs older crystals I could easily obtain variation of frequency over the nearly whole CW portion of the 40m band. Frequency stability and waveform shape stayed almost unchanged.

PWR AMPLIFIER- Q2 and Q4 serve as C Class amplifiers. Although C Class gives worse spectral purity and waveform than A or AB Classes amplifiers I used C Class amplifier for the simplicity and higher efficiency. If instability occurs connect shunt feedback network between the base and collector of Q4 as shown in Fig. 2. I had no problems with instability in my transmitter. In the table are given values for a selective filter at 1 MHz. If you want to make transmitter for ,say, 7 MHz just divide all values by 7. Those values are only valid for 2-3 Watts peak power output at 15V and for 50 Q load. Electrical stability and harmonic rejection will be enhanced by using a double-sided PC board. One of the surfaces is etched and the remaining side is left intact and serves as a ground plane. Points marked with x (see Fig. 3) are soldered directly on the ground plane without passing lead through the hole to the etched side. A small heat sink is required for Q4.

T/R SWITCHING-I recommend a 15 V supply voltage because spectral purity and efficiency are better than when using lower voltage. Most relays are made for working on 12 V, but they will work OK on 15 V, too. To reduce current consumption a resistor may be added between + rail and coil of the relay. Exact value can be calculated from next equation :

$$R_x = \frac{U_b - 12}{I_r}$$

A 100* — 150 * resistor should be OK for most types of relays that amateurs use.

ALIGNMENT- First solder all components such as resistors, capacitors, inductors, relay, crystal, diodes etc. Then solder Q1 and Q3. When the key is down oscillator should work and You can check the note. Adjust the inductance of LI inductor to set required variation of frequency. On 40m about 6-7 kHz can be easily obtained if crystals in HC 6 U metal case are used. On 80 m the variation of frequency should be restricted to 3-3,5 kHz to prevent instability

and poor note. Then add Q2, Q4 and Q6. To adjust selective filter a dummy load must be connected. Tune Ctl to obtain maximum power output. 2,5 Watts of peak power (1,25 Watts mean power) can be obtained when a 15 V supply voltage is used. Delay time is affected by 47 F capacitor. If you are not pleased with delay time alter the capacitor.

If you are not pleased with the waveform of the CW signal, to obtain the waveform you like alter 220nF and 1uF capacitors. The relay I used was made in Croatia so prospective constructors will have to slightly modify the printed board to match another type relay. The relay can be mounted on the top side of the PC board and affixed using glue. Pads and relay terminals can be connected with several short pieces of wire.

CONCLUSION- The prototype I made was tested on 80m, 40m and 30m. With LW 30 m long and 6m high it was no specific problem to work most EU countries on 80m. On higher bands I had QSOs with several DX stations, but nothing specially interesting. I had no problems with instability even if antenna tuner was used. All transistors in TO 39 metal cases worked well, even transistors that are not earmarked for RF power service. But power output and efficiency greatly depends on the transistor employed. Best results were obtained with obsolete TO 39 metal case types such as MM 1613, 2N4421or 2N3866. Better spectral purity will be obtained when low base-collector capacity transistors is used. No hiss was detected in nearby receivers. Out of band emissions are 33 to 38 dB below peak output power. It partly depends on the band and transistor employed. Croatian regulations state that any out of band emission must not exceed 2,5 mWatts power output for power below 25 Watts and operation under 30 MHz . Adequate rejection of out of band emissions can be easily obtained with a simple selective filter employed. If regulations in your country are more restrictive just add a simple lowpass filter to improve out of band rejection.

Measured RF and DC voltages at some specific points :

DC

Q1	COV*	B 10,2V*	E 10,7V*	(* when XTL is removed)
Q2	C 6V		E 0V	
Q3	C 14V		E 15 V	

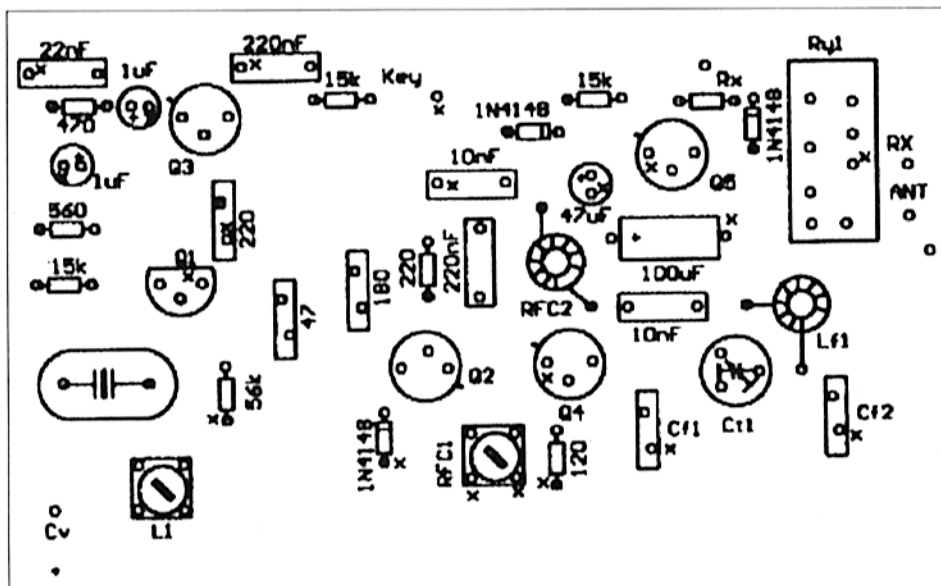
RF

Q1	C 0V		E 2,5 V
Q2	COV	B 2,2V	E 2V
Q4	C 14V	B 2V	E 0V

Total DC current consumption : 230 mA when key is down. Q4 draws 170 mA .
 Transistors used : Q1 BC 558, Q2, Q4 MM 1613 , Q3 BC 161 Q5 BC 141

Component values for selective filter for 1 MHz :

Cf1 = 1490 pF, Cf2 = 2228 pF, Ctl = 245 pF, Lf1 = 111uH, RFC2 = 65 uH,



9A9RA TRANSMITTER LAYOUT - A copy of this layout plus PCB track layout is available by sending a self addressed stamped envelope to G3RJV

Two Way QRP QSL Labels and Blank G-QRP QSL Cards

QRP Labels: Black Lettering on Gold with Club Logo : 200 labels £2. Post inc.

Blank QSL Cards: You complete your address and call. Blue lettering on white card, 5.5" x 3.5". 100 cards £4. Post inc. Sample from : **M.L. Prickett [Max] G3BSK, 260 Haslucks Green Road, Solihull, West Midlands. B90 2LR.**

Cheques: "M.L. Prickett" [The G QRP Club benefits from each order]

N.B.T.V.A

The Narrow Bandwidth TV Association (founded in 1975) is dedicated to low definition and mechanical forms of ATV and introduces radio amateurs to TV at an inexpensive level based on home construction. NBTVA should not be confused with SSTV which produces still pictures at a much higher definition. As TV base bandwidth is only about 7kHz recording of signals on mini cassette is easily achieved. A quarterly 12 page newsletter is produced and an annual exhibition is held in April/May in the East Midlands. If you would like to join, send a crossed cheque / postal order for £5 (or £4 plus a recent SPRAT wrapper) to Dave Gentle, G4RVI, 1 Sunny Hill, Milford, Derbys. DE56 0QR, payable to "NBTVA"

Island Pad Cutters

For those who want to consider other sizes etc. **Barry Young, VE3ODJ** points out the more usual names for the 'pad cutter' Spot Weld Cutter, End Cutter, Deep Cut Hole Saw, or Diamond Tipped Hole Saw. Sizes are given by outside diameter by cut depth by shank size. A wide range is stocked by Lee Valley Tools Ltd, PO Box 1780, Ogdensburg, NY 13669-6780. [1-800-871-8158] email: customerservice@leevalley.com, website: www.leevalley.com.



WIFB MEMORIAL ENTRY

The FRESCO Transmitter

K P S Kang VU2OWF, c/o B W S TE-COY, 2 Sig Bn Grp Centre,
KESHOGIRI 500 005, Hyderabad. INDIA

The FRESCO Transmitter is designed in the WIFB style with beginner's prime needs in mind. Most of the components are common junk box types, where "S1" (a slide switch from a two band pocket radio) and "Cx" come directly from an old Japanese AM pocket radio. The transmitter is designed for two bands – 80m for local use and 40m for DX use.

All coils are wound with 22 swg wire on 1 inch dia air core former. I used PVC conduit pipe for a former but anything similar can be used. The transmitter puts out more than a couple of watts with a 12 volt supply and nearly 5 watts with a 28 volt supply.

PL1 and PL2 are small pea-lamps provided for tune-up procedure. PL1 provides a tuning indication for the PA, whereas PL2 helps in tuning with the ATU.

If you do not like 'high end keying', you can wire the key socket in the emitter lead of T1

L1 = wound with 22swg 1 inch dia. aircore

1 > 2	2 > 3	3 > 4	4 > 5
6 turns	16 turns	2 turns	18 turns

L2 = 22 swg on L1

1 > 2	2 > 3
4 turns	2 turns

L3 = 15 turns 22swg close wound on 1 inch aircore former

L4 = 4 turns 22 swg on L3

S1 = Three-way double-throw slide switch. S2 = DPDT switch

Micro Radio Products

Our kits are a range of economical, easily built projects on Tripad circuit board. This offers advantages on cost. The current range is shown below:-

New!	RB001	Regenerative SW Broadcast Radio	£10.40
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	(covers approx 6 – 15 MHz)		

Post & Packing £1.50 for up to 2 kits. If ordering, please note cheques payable to D.Rowlands. Please allow 28 days for delivery.

Other radio and electronics projects kits are being developed. Details will be advertised in SPRAT when they become available. For details, please send SAE to D Rowlands Micro Radio Products Dept. GQ, 7 Broomfield Road Swanscombe Kent DA10 0LU Tel 01322 381303 (ask for David) after 7pm or Email to Microradio@Telco4u.net, mentioning the advert in SPRAT.

Converting the 30m MFJ Cub to VXO operation A Cure for Drift.

**Ken Maxted GM4JMU, 18 Castleton Ave. Newton Mearns, GLASGOW
(e-mail: kenneth.maxted@net.ntl.com)**

A couple of years ago I bought a 30m Cub. Although I consider myself an experienced constructor I had several problems:

- a) The carrier insertion oscillators would not pull to the correct frequency.
- b) One of the 6 Mhz crystals was defective (open circuit).
- c) I split three of the slug tuning cores and they jammed solid.
- d) The rig drifted unacceptably during QSOs. Once, after a period of storage, the rig had moved entirely out of band and the VFO core needed re-adjustment.

The crystal problems were solved by IQD (see Sprat advertisers) who kindly, at no extra cost, selected a batch from stock 6Mhz crystals, including two at slightly lower frequency for the CIOs. These cost me only £1.50 each (considerably less than MFJ replacements).

The damaged coils were replaced with some re-wound TOKO coils from the spares box. The process of removing the old by cutting and breaking out before de-soldering the isolated pins was brutal but effective.

I consulted the web for drift cure suggestions and juggled with various combinations of NPO, polystyrene and ceramic. I thermally bonded the capacitors to the coil screen case and put in an insulating fence and ventilation grills for the PA. Drift was dramatically reduced but still the rig moved during a QSO to an unacceptable degree (1 to 2 KHz). I came to the conclusion that the drift was primarily due to the NE602 which is in close thermal contact with the PCB; any remedy that I was trying was doomed to failure because it would not track the exact effect.

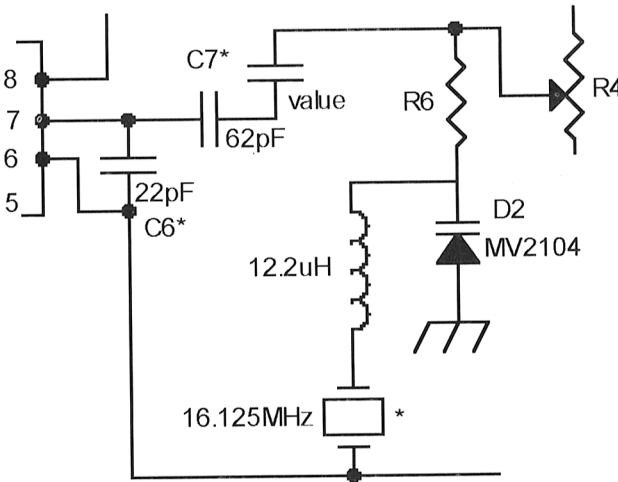
Having had a lot of experience with wide range VXO (and VXO-mixer) rigs using crystals in the 11 to 18MHz range I reasoned that to replace the 4.1 MHz vfo with a 16.1 MHz VXO (on the high side of the 6MHz IF) might give me the stability I needed. I expected to be able to pull the crystal 15 to 20 KHz; the big unknown was if this could be achieved with varicap tuning. I tried it on an 18Mhz transmitter with great success and achieved 14KHz easily. The 30m Cub only tunes (as standard) 20 KHz so I did not stand to lose much.

The modification.

The capacitive divider for the mixer-oscillator was reworked for VXO operation. I decided to remove the coil (brutally) but it could be isolated by removing C10.

The crystal was ordered from Quartslab (Erith, Kent) and specified as 16.125 MHz fundamental, 32pf series, "for VXO operation", wire-ended HC25U can. Quartslab will not guarantee the VXO range but have always supplied me with very good crystals made to order. (£10 inclusive).

Remove C6 and C7 (from the band dependent components part of the kit) and replace with ceramic plate or NPO capacitors suitable for tuned circuits: C6 (22pf) and C7 (60pf) (to make 60pf I put a 22pf NPO above the board with a 39pF underneath). The values are not absolutely critical but keep the ratio. The inductor used consisted of two sub-miniature Siemen's chokes of 10uH and 2.2 uH in series. A coil of this inductance could be wound on an Amidon core but I have always found chokes to be best in VXOs. One end of the crystal is soldered into a hole vacated by the coil, alternatively C10 could be removed and the crystal soldered to the end nearest the Varicap diode. The other leg of the crystal is soldered to the 12.2 uH inductor. Please note that a short lead should be connected between the crystal's case and ground, without this a spurious response may be heard in the receiver. No set-up is required; the rig should come on in-band and need no adjustment. The power output should be identical to that before modification. One advantage is that the power control can be adjusted to maximum power since the additional heat dissipation from the PA has no thermal effect on tuning.

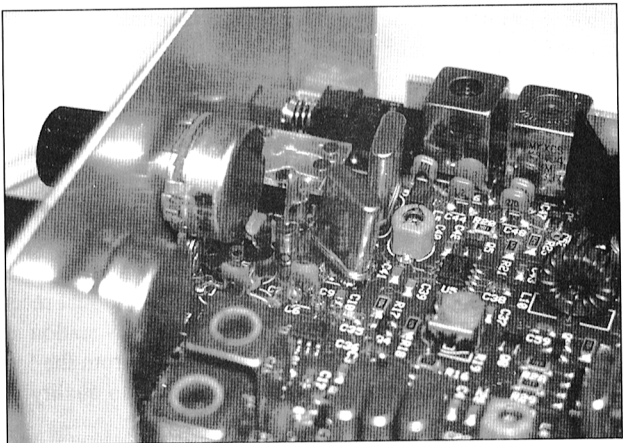


Results.

There is absolutely no drift observable on switch-on or during operation, even in extended QSOs. My rig now tunes 10.107 to 10.121 MHz. It is possible to increase the LF range by shorting R5 (in series with the tuning pot). More range may be achieved by increasing the series inductance, however, eventually it will become a poor VFO! I had initially

rejected the rig after only 28 QSOs because of the drift problem but it is now back at the forefront of GM4JMU operation.

The 40m version is also amenable to this mod: simply calculate the crystal frequency on the high side of the IF frequency and specify the crystal as 3KHz above the high frequency point of your operation plus the IF filter frequency. I would be happy to discuss any aspects of these modifications.



The MB7LF 136kHz Remote Receiver Project

This is an edited version of 'MB7LF Update' by Stewart Bryant, G3YSX, published in the Crawley Amateur Radio Club Newsletter, June 2002.

MB7LF is a remote receiver for the 136kHz band based at the Crawley Amateur Radio Club (CARC) premises just outside Crawley in West Sussex. The 136kHz band in Crawley is subject to local interference from high-speed data lines, plus the usual TV line time-base and computer noise. Because the CARC club station is located at a relatively quiet site, a project was conceived where the whole 136kHz band would be received and rebroadcast on 2m. The MB7LF remote receiver therefore allows amateurs within a radius of about 30 miles, who could not otherwise use the 136kHz band (due to either not being equipped with a suitable LF receiver or living in an area of high noise) to operate on LF. The project also provides a loop-back path for testing LF antenna designs, probably the most challenging aspect of 136kHz operation.

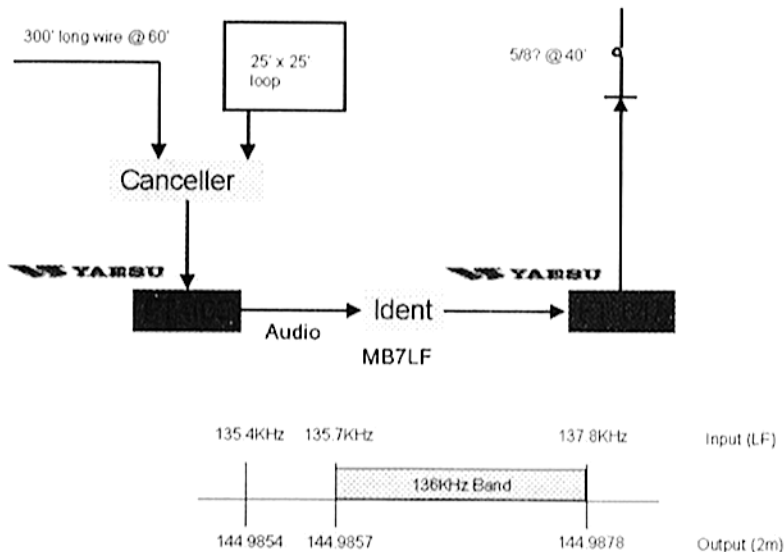


Fig 1. A block diagram and frequency translation of the MB7LF system

A block diagram of the MB7LF system is shown in Fig 1. The main receiving antenna is the club 300ft long wire, which is 60ft high. An additional receiver antenna (loop) is used to counter sideband QRM from the 100kHz LORAN station at Lessay in Northern France. By adjusting the phase and amplitude of the signal from the loop, the LORAN interference can be cancelled to produce a significant enhancement to quality of the received signal. The LF

receiver is a Yaesu FT-100. Audio from the FT-100 is fed via an audio mixer to a Yaesu FT-847, which re-transmits the audio on 2m. The station identification is generated by a PIC, and is injected into the audio mixer. The 2m transmit antenna is a 5/8l at 40ft. Output power is about 5W when the CW identification is being keyed and on strong signal peaks on 136kHz. . The output power on receiver background only is much lower than 5W. This gives an operational range of about 20 to 30 miles.

As an experimental system MB7LF was granted wide latitude by the RA in terms of amateur bands and modes so that CARC team could explore best practice for this type of operation. Experimental transmissions on 10m were subject to significant QRM. The QRN levels on 6m degraded weak signal performance, particularly at the margins of the service area. 2M has so far proved to be the best operational band.

MB7LF was allocated a 12.5KHz channel with a carrier frequency of 144.9875MHz. The optimum transmission mode seems to be SSB. When transmitting SSB the carrier is offset to 144.9854MHz, i.e. set 2.1KHz low. The receiver carrier frequency is set to 134.54kHz. Both transmitter and receiver operate upper sideband, so the kHz frequency readout on 2m, corresponds to the kHz digits on the 136kHz band. This makes it easier to cross-reference the tuning. The reason that the carrier 300Hz is set lower than the band edge is to avoid the LF audio cut-off in both the receiver and the transmitter. A frequency translation diagram is shown in Fig 1.

Operation of MB7LF on FM has not been fully explored. FM has the ability to carry the audio without frequency translation error (and in particular without short term drift), which are valuable properties for QRSS (slow morse) users. However, with FM it is not possible to 'tune across' the re-transmitted signal to receive conventional CW. Some brief experiments were done using an AM transmission on 2M, which turned out to be a good compromise mode for both conventional CW operators and for QRSS operators. However, due to the reduction in dynamic range and the constant heterodyne heard by users without narrowband CW filters on their 2M receivers, the system is normally uses SSB (USB).

The MB7LF remote receiver concept has applications beyond the 136KHz system described here. For example, if the electromagnetic pollution gets significantly worse in city areas weak signals will no longer be receivable by home stations. A remote receiver might be located in a nearby rural area to re-broadcast small segments of the lower HF bands for example the QRP frequencies, which would allow city dwellers to work weak stations that they would otherwise not be able to copy.

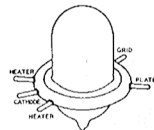
The MB7LF team would like to thank Yaesu UK for their sponsorship of this experiment with the loan of the FT-100 and the FT-847 used in this project.

The PP2 Transmitter [Peter Parker 2]

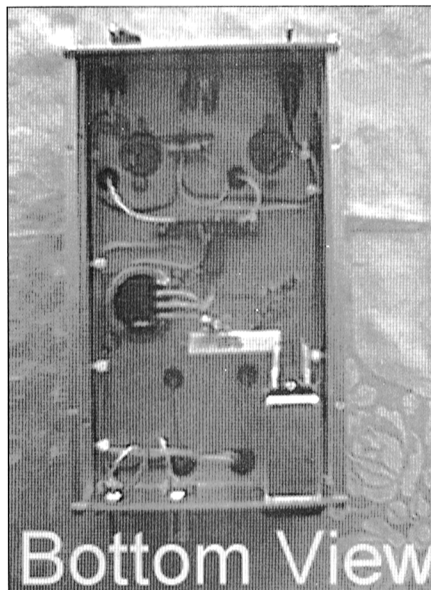
**George Burt GM3OXX, c/o Maxwell, Clunie Lodge,
Netherdale By Turrif, Aberdeenshire. AB53 4GN**

During a visit to Peter Parker, GM3PIP, I was given the great treat of being allowed to rake through his great collection of nearly new radio junk. I spotted a pair of acorn valves with a VHF strip line. They were over 50 years old – from WW2. Peter asked if I would like them, I said, yes, so the end result was this simple transmitter.

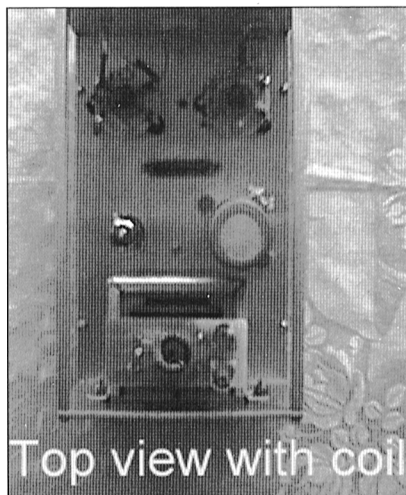
A quick check of the valve heaters showed they were OK, the bases were put in the ultrasonic cleaner and came up as new. A small mains transformer was bought from Maplins and an OA2 stabilizer was obtained at the Aberdeen radio club junk sale. The rest of the parts came from the junk box.



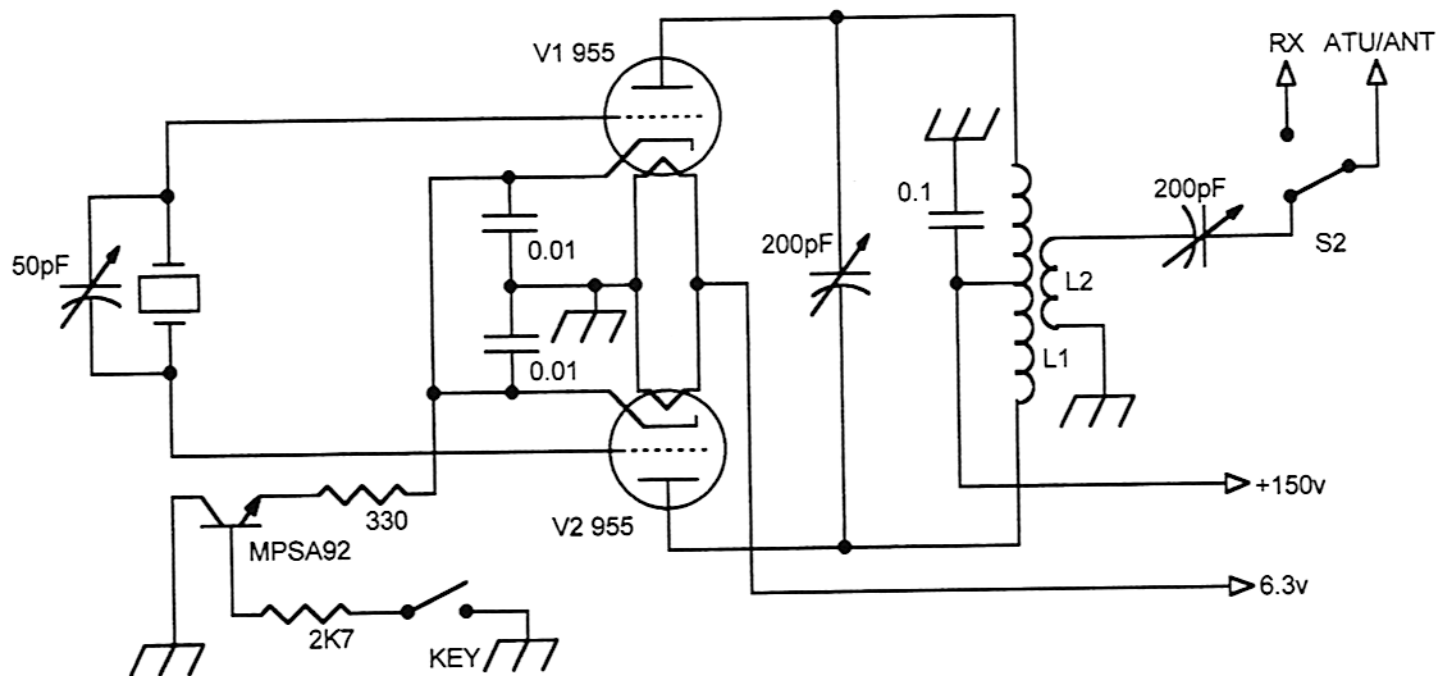
The circuit was taken from a 1940 handbook in keeping with the age of the valves. A transistor keying circuit was added because my first day of direct keying with the hand key left much to be desired.



Building the transmitter was no trouble, but being a valve circuit, it did not like modern crystals. With the tuning capacitor in series the 14MHz crystals all went 10kHz high, so the capacitor was used in parallel to restore them to nearly their marked frequencies. Although as the capacitance was increased in value the power dropped off quickly. With just the crystal in the circuit the power output was one watt with all crystals but with full capacitance it dropped to around 200/100mW. I only had one old crystal [on 14.021] made by Marconi Wireless Telegraph Company Ltd, still in its original box, and this gave one watt regardless of the value of capacitance.



Even with 100mW it was easy to get QSOs on 14/10MHz and in two days, twenty QSOs were made, including five countries – great fun! Anyone wanting to try this simple valve rig could use a 12AT7, 12AX7 series or the earlier 6SN7 types. Note the series resistor to the OA2 uses 6 watts of power [!] and get very hot. If you don't have any valves, why not build the NAT transmitter and get some real power out.

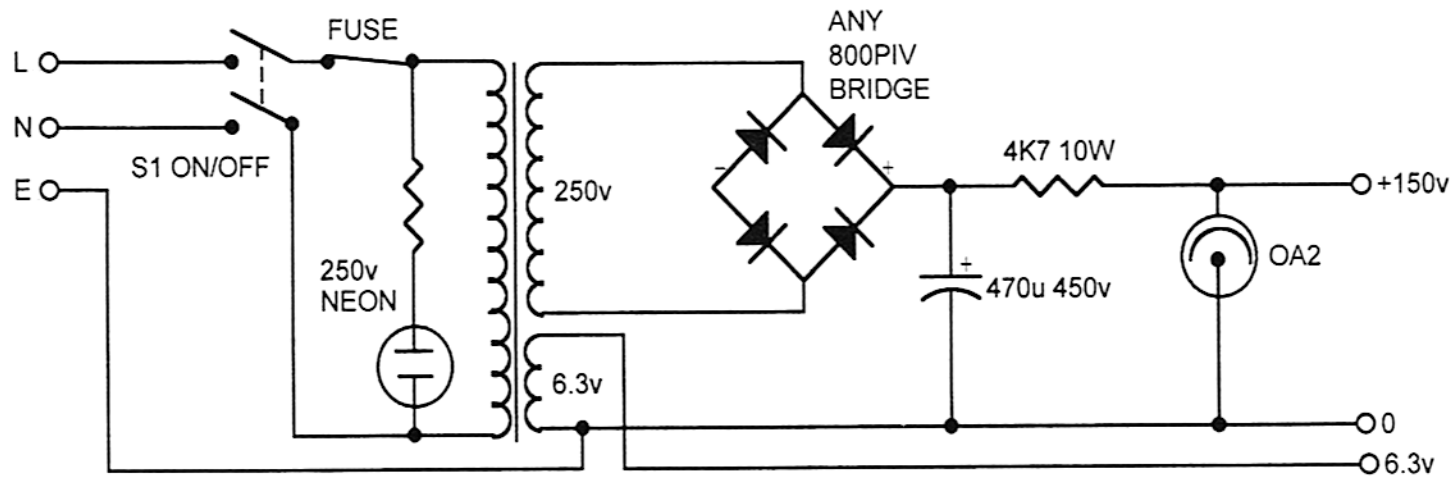


THE PP2 TRANSMITTER

L1 = 0.71mm 18 turns. L2 = 0.4mm PTFE covered 3 turns. On T-80-6 core

This covered 10 – 14 – 18 MHz

MPSA92: 30 for £1 – John Birkett



POWER SUPPLY FOR THE PP2 TRANSMITTER

The "Sardine Supergainer" A Self-Contained Portable Receiver for 40m Built into 2 Sardine Tins!

Duncan Walters G4DFV, 11 King George Fifth Ave. Mansfield. NG18 5AA

Introduction:

This receiver was designed as an entry for the "Sardine Tin Challenge" competition, set up by Les Jackson, G4HZJ, at the Red Rose QRP Festival on Sunday May 26th 2002.

The receiver is housed in two sardine tins, one housing the main circuit and controls, the other containing a small loudspeaker and PP3 size NiCad battery. The main circuit is built on 0.1 inch pitch plain matrix board, all component wiring is on the underside.

Design Criteria:

True portability of this design is achieved by employing a base loaded, short telescopic antenna which is sharply resonant on the 40m band. This is used in conjunction with an inductively loaded counterpoise wire.

Although 40m was chosen, by changing the L & C values in the oscillator stage, the receiver should work on other bands. (Antenna and counterpoise loading must be changed also). Optimum sensitivity is produced by using two stages of RF amplification ahead of the detector. As the very high input impedance of the FET detector TR4 puts very little damping on the tuned circuit, a good degree of selectivity is gained. Reasonable quality audio is also achieved within the restraints imposed by such a small loudspeaker.

The Circuit:

Signals picked up by the antenna are fed to a two-stage RF amplifier based around TR1 and TR2. A high-pass filter comprising C3, C4 and RFC1 is used to tailor the lower frequency response. RF gain is controlled by RV1.

Capacitor C5 couples amplified RF to the tap of inductor L1, which with TC1, C6 and D1, form the sole tuned circuit of the receiver. TR3 is configured as a standard Colpitts oscillator, the point of oscillation being controlled by base bias adjustment potentiometer RV5.

A 1N4001 is employed as a varicap diode, the tuning voltage being controlled by RV2, the main tuning control.

Preset pots RV3 and RV4 set the upper and lower tuning limits of the oscillator. The oscillator and tuning voltage supplies are regulated at +5v.

The audio signal appearing at TR4 source is coupled by C13 into TR5, an audio preamplifier stage.

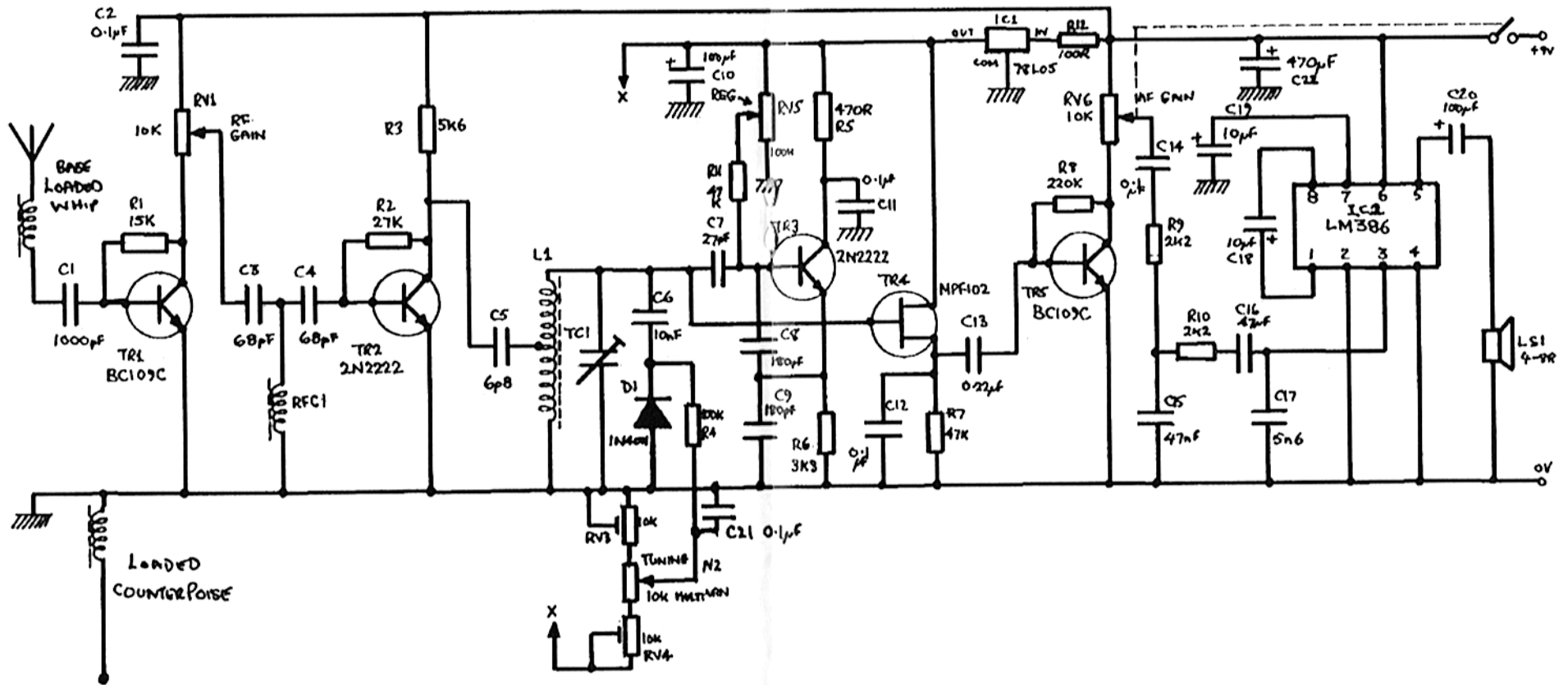
The amplified audio appearing across RV6, the AF gain control, is coupled through an RC network comprising C14, R9, C15, R10 and C17 to tailor the bandwidth of received audio.

An LM386 is used in a standard audio output stage feeding a miniature loudspeaker.

The receiver is powered from a PP3 battery, housed in the same sardine tin as the loudspeaker.

© Copyright DJ.Walters G4DFV 2002

**A DRAWING OF THE LOADED WHIP AND COUNTERPOISE USED BY DUNCAN
IS AVAILABLE FROM G3RJV [SEND AN SAE]**



The "Sardine Supergainer"

Resistors.

All 1/8 Watt Carbon Film

R1- 15k

R2- 27k

R3- 5k6

R4- 100k

R5- 470R

R6- 3k3

R7, R11- 47k

R8- 220k

R9, R10- 2k2

R12- 100R

RV1- 10k Lin pot

RV2- 10k lin 10-turn pot.

RV3, RV4- 100k lin miniature presets.

RV5- 100k lin pot.

RV6- 10k lin pot.

Capacitors:

All Disc Ceramic except where stated.

C1- 1000pf

C2,C11,C12,C14- 0.1uF

C3, C4- 68pF

C5- 6p8

C6- 10nF

C7- 27pF

C8, C9- 180pF Polystyrene

C10,C20- 100uF Elect.

C13- 0.22uF

C15- 47nF

C16- 47uF Elect.

C17 5n6

C18,C19- 10uF Elect.

VC1- 50pF miniature foil trimmer.

Semiconductors:

Tr1,Tr5- BC109C, Tr2 ,Tr3- 2N2222, Tr4- MPF102,

IC1- 78L05, IC2- LM386

Inductors:

RFC1- 47uH axial choke.

L1- 36 turns centre tapped 30swg Enamelled Copper Wire on T-50-2 toroid.

Miscellaneous:

LS1- 4 to 8 ohm loudspeaker. 18 inch Telescopic Whip Antenna

Ferrite Rod for counterpoise loading coil (culled from defunct transistor radio).

Plastic tubing for antenna loading coil. PP3 NiCad Battery. Battery Clips.

BNC Socket. 0.1 inch Matrix perf board.

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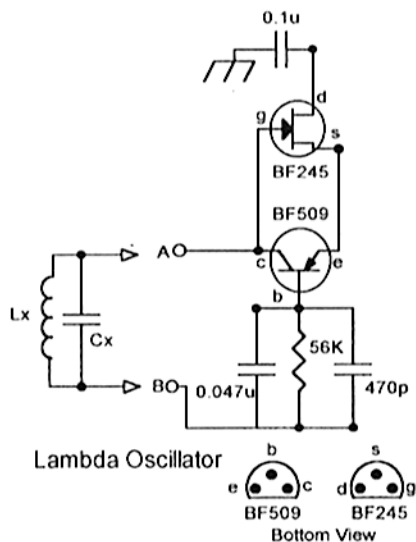
OUR VERY OWN QRP BEACON!

Victor Brand, G3JNB, 8 Greenway, Campton, Nr Shefford, Beds, SG17 5BJ

The 10 MHz band has a great deal to offer the international QRP community. There is still lots of room, it is CW only, very few monster signals, wire aerials are probably universal and it is full of propagation surprises. The band can give you 40m type, EU wide contacts one minute and then, donning its 20m hat, provide a nice path to VK!

You will probably have heard the strong DK0WCY beacon on 10,144 giving out Boulder Dam info but have you caught the exclusively 'QRP' beacon OK0EF on 10,133.90?

The OK boys are doing a grand job with a nice clean signal that drops down to 100 milliwatts and is still readable here in Bedfordshire when band conditions are reasonable. Do try it!



Error in Lambda Oscillator SPRAT 111 – Page 4

The error is that the connection "A" should be to the collector of the BF509 rather than the base as shown. Also, more obviously, there should be a chassis symbol on to the bottom line.

Also Note:

There is another error in SPRAT 111. Page 17: C1 is 0.15uF as shown in the diagram, not 15nF as shown in the component list.

MEMBERS ADS - MEMBERS ADS - MEMBERS ADS - MEMBERS ADS - MEMBERS ADS

WANTED: Bug Key – homemade or commercial. Rev Adrian Heath, 01793 762970, QTHR.

FOR SALE: GQ40 QRP 40m CW Transceiver with built in speaker - Built by Sheldon Hands from Hands Kits. Little used & in good condition. I now own a FT 817 so GQ 40 no longer needed. £120 inc P&P to UK address : Paul - G4RVM - Email paul.rvm@ntlworld.com OR Tel 07905 186 440 & leave message.

FOR SALE: Howes DXR20 receiver, with DCS2 "S" meter and CSL4 filters. (15M, 20M, 40M and 80M bands.) Complete set of DIY Radio. Three G QRP Club Morse Course audio tapes. Ideal for novice. The lot for £35. Chris, M3ERE. Phone 0151-924-1525 or e-mail c.g.gibson@liv.ac.uk.

WANTED: VHS VIDEOS – "Station X" and "Wish Me Luck" Peter Karrais, DF6IN, Jungbuschstr. 25, 68159 Mannheim. Germany.

Epiphyte 3 Modifications

Clive Hollins, M5CHH, 56 Lovell Rd. Cambridge, CB4 2QR

The Cambridge & District Amateur Radio Club are in the process of building Derry Spittal's EP3. Ron Huntsman (G3KBR) our PRO (no not Public Relations Officer, Programme Reorganisation. Organiser) and Clive Hollins (M5CHH) met Derry a couple of years ago and saw the EP2 demonstrated at our club. Derry let on that the EP3 was being prototyped, and showed us the drawings. In 2001 Derry returned to Cambridge and demo'd the EP3.

We were so impressed that we decided to build a couple as a club project. It turned out to be a bit of a marathon as we had orders for 10 units. Thanks to Mike Addelee (M0BLP) we secured 8 CA3020A's and through **Mode Components** and **JAB** we managed to get the obsolete Murata 455J1 filters and two more CA3020A's. BB212 double tuning diodes were substituted for the obsolete MVAM 108. (The second diode isn't used and is grounded to the adjacent ground point). Also SA602's were substituted for the NE602's used in the original. Clive managed to get together 10 kits and those with more time built them first. Mike and Ron being the front runners.

As a result Ron made some modifications- some culled from back issues of SPRAT and others he or someone else tried and perfected..

Covering the entire 80 Metre Band

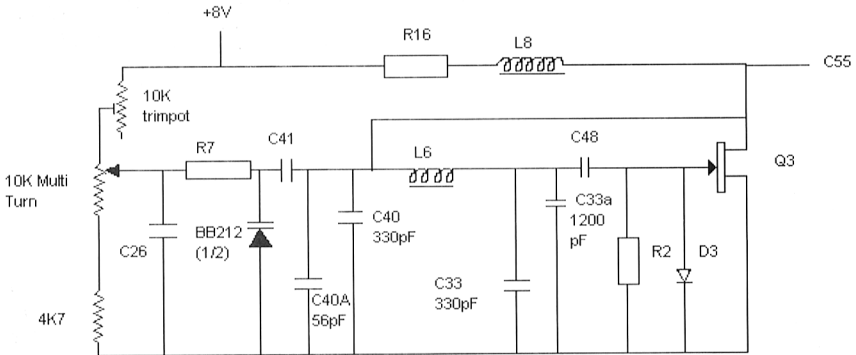
Ron designed the following circuit modifications to the VFO to cover 3.5- 3.8MHz.. The mod substituting 330pF capacitors for C33 (470pF) and C40 (680pF).. Across C40 wire a parallel 56pF NTC capacitor. On the VFO tuning pot cut the wire between pin 3 and the 8Volt rail and add in a small 10K Ω trimpot, preferably multiturn. Add a 4K7 resistor into the ground line of the tuning potentiometer. Using a signal generator, tune to the top end of the band (3.8MHz) and adjust the 10K trimmer for 3.8 MHz.. Turn the tuning pot down to the bottom of the band (3.5 MHz) and adjust L6 core for 3.5.MHz.. Repeat top and bottom end adjustments until correct.

If you have an accurate receiver you can do the whole alignment using it. I did mine in half an hour using my Index **QRP** + as a calibration receiver (CR).

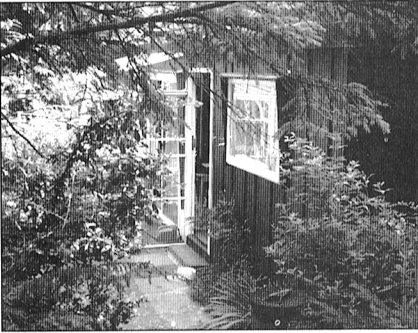
How to set up the tranceiver:

1/ First adjust the LFO FOR 452.6 KHz.(455KHz-2.4KHz) To do this, couple a 33pF (or thereabouts) capacitor from the top of the RF choke to the CR input via a piece of wire. Adjust the CR to the 9th harmonic (4.0734MHz) and tune the variable C for zero beat. That completes the LFO tuning!

- 2/ Set up the trimpot and core of L6 as follows. Adjust the 10 K trimpot for about a quarter turn from the 8Volt end.or about 7.9 volts at the wiper. Turn L6 fully into the core.
- 3/ Move the coupling capacitor 'probe' to the the VFO output (pin 5 of J1) Retune the CR to 4.2526MHz. Turn the 10 turn tuning pot to the high frequency end of its travel and back it off 10th of a turn Adjust the trimpot to get a zero beat in the CR.
- 4/ Retune the CR to 3.9526MHz Turn the 10 turn tuning pot to the low frequency end of its travel and back it off 10th of a turn. Adjust L6 core out (anticlockwise) to get a zero beat in the CR.
- 5/ Repeat steps 3 and 4 until it is correct at both ends of the tuning pot. That's it!.. You can now calibrate the dial against a chart subtracting 452.6 KHz from the zero beat reading on the CR.



MODIFICATION TO COVER 3.5-3.8 MHz.. To track VFO adjust 10K pot for top end of band and adjust 10K trimmer for 3.8MHz. Tune to lowest frequency and adjust L6 for 3.5 MHz. Repeat until perfect.



Operate QRP in a Lovely Place

G3RJV has a Wooden Lodge situated in the Dovey Valley in central Wales close to the Irish Sea and in the Snowdonia National Park. It has recently been completely refurbished with a large living area, conservatory, double bedroom, twin bedroom and a double futon in the living area. Naturally there is a small amateur radio station with an HF transceiver and a 2m multimode transceiver and antennas...ready to operate. It will be available for rent from early in 2003. A leaflet will be available shortly.

To receive a copy, write to G3RJV [see page 2] or email g3rv@gqrp.com

NEW ! 'Copper Island' Construction Outfit

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A Keying Console

Ian Brown G3TLH, 6 Gainsborough, North Lake, Bracknell. RG12 7WL

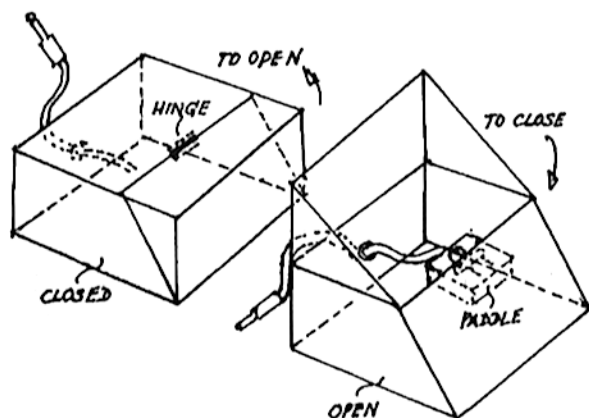
Computer software used to, and maybe still does, come in transparent Perspex boxes with hinged lids. These boxes could be quite large because, as well as the software disks, they would often contain a set of manuals. As software becomes outdated they are often discarded or can be obtained very cheaply.

I found one which was 24cm wide by 12cm high by 22cm deep, and it is the perfect solution to the perennial problem of how to keep my nice Bencher twin paddle key free from dust and damage. My operating desk also tends to get used as a workbench, and I needed a way to protect the paddle from accidentally dropped tools, soldering irons etc. As well as the paddle, I found I could fit my CMOS Super-Keyer inside the box; this also solves another problem whereby I sometimes accidentally press the memory/function buttons on the Keyer, usually leading to havoc if the rig is switched on.

The perspex box is laid on its side with the hinged lid opening upwards, as shown. Holes drilled (carefully to avoid cracking) in the rear (bottom) of the box carry the keyed output line plus any other leads required.

When open, I find I can comfortably operate the paddle and keyer with them still inside the box, perhaps just sliding them forward or adjusting the position slightly. Also the folded back lid makes a useful shelf for pens and other small items. Reference information such as one's G QRP number, locator squares etc can be attached to the back of the open shelf with adhesive labels.

When closed the paddle and keyer are well protected. The box is strong enough to withstand most things being dropped on it, and prevents the accumulation of dust. Other small operating aids like my keyer manual and pens can be left inside the box while closed. Finally, I can still display my Bencher paddle, a thing of beauty, through the transparent box. The exterior of the box can be embellished in any way desired, eg by adding one's call sign in fancy lettering.



It is even possible to attach other small items of equipment to the interior or exterior of the box. A complete QRP station could probably be built inside! Certainly, many members will have built equipment which is considerably smaller than this.

Fishing for Contacts

Richard Newstead, G3CWI, 89 Victoria Road, Macclesfield, SK10 3JA
<http://www.qsl.net/g3cwi>

One of the joys of QRP operating is the ease with which our stations can be used in the field. For us, portable operation requires no noisy generators, just a few batteries and we are on the air. However, supporting portable aerials can be a problem. Kites will suffice on a windy day – but it's often either too windy or not windy enough! Trees can be pressed into service but often they are not in a convenient position. So we need to look at taking our own support along. Ruling out the standard 20 foot scaffolding pole early on, we are left with the need for something light and easy to carry. Of course the problem has been faced by many amateurs and the most common solution is a fishing pole. These are light, can be fairly strong and collapse down to a manageable length. A survey of local fishing shops tends to show that poles fall into two categories. Carbon-fibre types which are strong and very expensive and cheaper glass-fibre poles. The carbon-fibre poles are slightly conductive (killing the odd fisherman who chooses to fish by power lines) and their price tends to rule them out. The glass-fibre types are much less favoured by fishermen and hence can be harder to obtain.

So, once you have your pole, what to do with it? Well, your choice of aerial will depend upon what you want to do. If you want to make contacts round the UK and into the nearer parts of Europe in the daytime, 40m is a good choice. For this application you will need a horizontal antenna. A dipole or long-wire will give you the angle of radiation that you need. And it does not need to be high either. Aim for a centre height of about 5 metres and keep the ends about 1.5 metres from the grounds and success will be yours! For contacts further afield, one of the higher frequency HF bands will be favourite - but a lower angle of radiation will be desirable. Try running a wire up the side of your fishing pole, add a few radials and you will have an effective vertical antenna. Use plastic parcel string as guys and aluminium tent pegs (from a camping shop) to fix them. Make sure that you keep the joints of your pole clean. Fibre-glass is quite soft and is easily damaged by grit.

As discussed above, poles can be obtained from fishing shops. However, if you cannot find a suitable one, I have a few for sale at £17 including P&P. Cheques to me at the address above. Happy portable operating!

A few thoughts on the K5BDZ current limiting NiCad charger Page 13 Sprat 111..

Jack Gentle G0RVN, St Andrew's House, St Andrew's Drive, Norwich, NR4 6NH

I have constructed the charger described by Bill Hickox in Sprat 111 and it works like a dream! However the formulas he gives do not agree with the circuit.

The 7805 is a 5 volt regulator and it holds the voltage across R3 at 5 volts provided the supply voltage is sufficient. Hence the current is inversely proportional to the resistance of R3 and does not depend upon the number of cells being charged.

I tested the circuit at 100mA ($R3=5\text{volts}/100\text{mA}=50\text{ ohms}$) and the current is constant with any number of cells from 0 (short circuit) to 6. Just what the circuit is designed to do! Bill's formulae apply to the simple circuit on page 14 but do not work for the excellent circuit he shows on page 13.

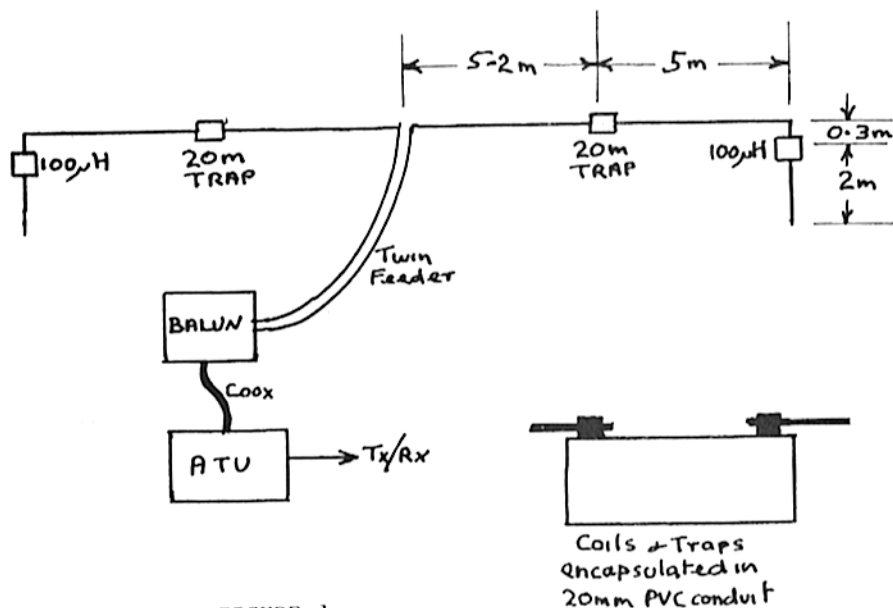
ANTENNAS - ANECDOTES - AWARDS

Gus Taylor G8PG 37 Pickerill Road, Greasby, Merseyside, CH49 3ND

A SINGLE FEED ANTENNA FOR 3.5 TO 21 MHz

Jim Brett, G0TFP, 11 Manor Road, Astley, Manchester, M29 7PH

The antenna uses 20m traps and 100 uH loading coils to cover the bands indicated, and gives good performance on all of them. To give maximum results it is used with a suitable atu. It does not work well on 28 Mhz, so a separate antenna is used on that band (It might be worth connecting the two feeder wires together and using it as a T antenna on 28 Mhz. Ed). The placing of the 100 uH loading coils was determined with the aid of the 13th Edition of the ARRL Antenna Book, as was the winding details. The traps are also described in this book. They are wound on T68-2 ferrite rings and initially tuned to 14.3MHz. Encapsulation brings this figure down to 14.2 MHz. Both the coils and the traps are encapsulated in lengths of 20mm plastic tubing with the aid of potting resin. The feeder is made from twin figure of eight loudspeaker cable (2 x 42/0.2 wire) which has an impedance close to 70 ohms. Ordinary 70 ohm twin feeder could also be used if desired. Even without the atu performance on 20 and 80 metres was good, and even better with the atu. Performance on 40 metres was really good and the antenna works well on 15m, although the atu is essential on this band. The details of the antenna are shown in Figure 1 below.



DO WE NEED A QRP EXTRA MASTER AWARD ?

This has proved to be interesting. Most of the Committee said "yes" and came up with various schemes, but the lay members came up with a resounding "no" vote (70%). The general feeling amongst the "no" voters was that the existing rules are difficult enough, particularly for those with simple antennas, but not so difficult that they discourage beginners or those with restricted antenna space from trying for the Award and achieving it. G QRP C is a democracy, so the "no" vote has it, and the QRP Master Rules will remain unchanged. But G QRP C also tries to satisfy all the members, so for the DX Big Guns how about a Gold 222 QRP Award? The rules would be quite simple. Using CW make contact with 222 DXCC countries when using 5 watts or less, all contacts to be confirmed by QSL card. As the Award would be pretty exclusive a fee could be charged for it and used to pay for a special badge. Votes on this one only from those with at least a 150 country Endorsement to their QRP Countries Award please.

AWARD NEWS

Congratulatin to the following on their Awards and/or Endorsements.

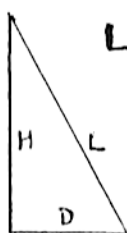
QRP Countries. 125 2Eo000; 100 F6ACC; 75 MoCDP.

Worked G QRP Club. 1160 G2DAN; 240 GWoMY; 160 GW4ALG;
140 G3SOX; 120 MoCDP; 100 GoKJK;
80 2Eo000; 20 MMoBDA.

Two-way QRP. 30 F6ACC.

HELPING THE MAST STAY UP

AAA Technical Staff



$$L = \sqrt{H^2 + D^2}$$

The formula shown to the left allows one to calculate the mast to stay picket length. At least 3 feet (1m) should be added to allow for connection to the mast and the stay picket. The longer one can make D the more effective the stay. Try and design your stay system for unexpectedly high winds as this will give you a safety factor. We suggest four stays in each

set. For masts up to 9m we suggest two sets of stays, one attached to the top of the mast and one at a height of $H \times 0.6 = H_2$. Higher masts should have three sets of stays, the third set being fitted at a height of $H_2 \times 0.6$. We suggest that the stays be made from polypropylene rope of a suitable breaking strain. This rope is non-stretch, and it seems to last for ever. The same is true of masts made from plug-together strong plastic sections if you can get hold of them.

COMMUNICATIONS AND CONTESTS

Peter Barville G3XJS, 40 Watchet Lane, Holmer Green,
High Wycombe, Bucks HP15 6UG.
E-mail: g3xjs@ggrp.com

REGION 1 INTERNATIONAL QRP DAY

Amongst the entries to this year's event was 2Q0000 - 2E0000 in disguise! It is the callsign allocated to Roy Walker, chairman of the Scarborough Special Events Group. The purpose of the callsign is to demonstrate QRP operation, particularly to new licensees. Roy reports that the project is proving very successful, impressing many (including M3's and 2E0's) with the fact that QRP 'goes places', particularly if you use cw, without the need to resort to QRO.

Thanks also to Chas GQ3SB, Valery RW3AI, and Vitas LY2FE, for their entries. Conditions were not good that day, and therefore nobody had an outstanding score. The 2002 Suffolk Trophy goes to Vitas for his score of 26 - made from 33 qso's (40m, 30m, 20m and 15m) all made using 5 watts cw from an Elecraft K2 into a 200m long wire up 20-30m. Congratulations to Vitas for a fine effort, which included eight 2-way QRP qso's.

SOMERSET HOMEBREW CONTEST

I have always thought this event particularly in the spirit of the Club, in that it actively encourages the use of homebrew equipment, and therefore is one deserving of a good level of support from the membership. There has been a tempting prize on offer each year but, despite Tim's generosity, the number of entries has not always been good, this year being particularly disappointing.

I had deferred announcing the result for 2002, because Tim Walford and I have been discussing what changes we may make in the future in order to attract more entries. If you would like to put your ideas forward, please drop me a line, and we will be delighted to give them our consideration.

Dan, GW0EGH, has some interesting suggestions of his own for attracting higher participation, following his prize-winning entry this year. He used ssb and cw on 40m during the Contest to score a total of 82 points, and used the £50 voucher 1st prize to order a digital frequency read-out kit for his homebrew superhet rigs. I think you'll be interested in the station details he supplied:

"For cw - Rx TS120V, Tx Homebrew xtal oscillator/mixer using 2 surplus crystals (using the difference instead of sum) keyed 2N3866 followed by MRF475 final."

"For ssb - Homebrew tcvr based on Belthorn design in RadCom. All ugly construction housed in a biscuit tin!"

"Aerial - Low inverted vee dipole erected specifically for the Contest as it out-performed my usual 'Zig Zag' longwire close to the house roof."

RULE CHANGES FOR AGCW QRP SUMMER and WINTER CONTESTS

Kai, DLIAH, is chairman of AGCW-DL, and has written to me with the following important changes to the above contests: There will in future be only one contest, combining what used to be the Winter and Summer contests.

New date: The second Saturday in March (8th March 2003).

New time: 1400z – 2000z

New multiplier: each AGCW member (not 'DXCC'!)

This change takes effect in 2003. The AGCW-QRP-Summer-Contest 2002 will still be held as usual, and there is no change to the 'AGCW-QRP/QRP-Party' on May 1st.

Further information is available via " dlIah@agcw.de ".

9A QRP CLUB

You may be interested in the following membership information, kindly supplied to me by Den, 9A3FO.

Membership is offered to all licenced operators in any part of the world whose transmitter output power does not exceed 5 watts CW, or 10 watts PEP SSB.

No 'test' QSO's are needed for membership of the 9A-QRP Club.

Lifetime membership fee of 5 US Dollars to be paid with your application for membership of the Club.

Every new member will receive a membership certificate and a membership number.

Further details (including their Awards Programme) from:

9A-QRP Club

Franjevačka 5

42220 Novi Marof

Croatia

E-mail : 9a3fo@hi.hinet.hr

Family health problems, and pressures of available space, ensure the column is kept to a minimum this month. However, please keep the QRP flag flying, the solder flowing, and let me have any items for inclusion in the next issue by the end of October.

72 de QRPeter

GQRP Club Sales

(For all items listed formerly from G3YCC)

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

(Non-members prices are in brackets)

Radio Projects for the Amateur by VK3XU. £6 (£7.50) } plus postage per book: UK - £1.25;
GQRP Club Antenna Handbook. £5 (£6.25) } EEC - £2.90; DX - £3.50

6 pole 9MHz SSB crystal filter 2.2kHz @ 6 dB, 500ohm in/out £12 (£14) } plus postage: UK - 50p;
6 pole 9MHz CW crystal filter 500Hz @ 6dB, 50ohm in/out £12 (£14) } EEC - 80p; DX - £1

Pair LSB/USB carrier crystals HC18U wires - [9MHz ± 1.5kHz] £6 (£7) pair } plus postage (any
MC1350 at £2.25 (£3) each; SA602AN at £1.75 (£2); } quantity) 30p (UK)
IRF510 FETs £1.25 (£1.50) each; } 40p EEC; 70p (DX)

NJ-QRP Club pad cutters (Sprat 109) - £4.50 each inc post UK, £5.00 EEC & DX

Toroid cores – Available in packs of 5 – max of 2 packs of each per member
T37-2 – 65p; T37-6 – 75p; T50-2 – 75p; T50-6 – 90p; T68-2 - £2; T68-6 - £3; FT37-43 – 65p
Plus postage – up to 5 packs = 30p (UK), 50p (EEC), 75p (DX); 5 – 10 packs = 60p, £1, £1.50 etc.

MK484 radio on a chip - £1.00 (£1.50) inc postage & circuit diagram.

Sprat on CD (1 to 109) - £10 inc postage.

G-QRP Club mouse mats £3.50 each inc post UK £4.00 EEC & DX

New Items

MAR-4 RF amplifier – 8dB gain at DC to 1GHz! £1.75 each inc postage – **Limited stock – one per member!**

Miniature calling frequency crystals (watch crystal size – very low power) –
3.560, 14.060, 21.060, 28.060. £2 each, plus postage (any quantity) 30p (UK), 40p (EEC), 70p(DX).
Very limited stock – one of each frequency per member.

These should be used in very low power circuits – they are tested before dispatch & no returns can be entertained.

Back issues of SPRAT – 50p each. At the time of printing, I have most issues from 78 (except 84)

Plus postage (sorry about the large postage charges – posting magazines is not cheap nowadays!):

UK : 1st magazine 33p + 17p each extra magazine
EEC : 1st magazine 75p + 26p each extra magazine
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2001 - 2002

INCOME £		EXPENSES £	
Bank interest	183.22	Awards and trophies	-20.00
Donations	2.00	Bank charges	-858.93
Royalties	1021.01	Books	-1883.86
Sales at rallies etc.	2464.25	Capital expenditure etc	-7.63
Sales by post	8563.14	Components for kits/sale	-5391.43
Subscriptions	19051.28	Duplicating & copying	-90.48
TOTAL INCOME	31284.90	Miscellaneous expenses	-40.50
		Officers expenses	-632.24
		Postage	-1516.05
Bank b/f	17670.25	Rally costs etc	-344.97
Bank c/f	17151.13	SPRAT printing	-20300.00
		Stationery etc	-717.93
	-519.12	TOTAL EXPENSES	-31804.02

At first glance it appears that we are just about holding our own but in fact we are doing better than that as the amount in our accounts overseas has increased to a greater extent than the apparent losses during this year. The U.S. account contained \$22,874.83 on April 3rd and some of this has been transferred to the UK since then.

There has been a huge increase in sales by post and a big pat on the back should go to our chief salesman (worldwide) Graham, G3MFJ, who has a keen eye and ear for the kinds of bits members are seeking, at the right price, and makes sure that everybody is aware of them. It is the aim of the club that we ensure that we do not make a loss for this service and so, to make sure, a small amount goes into the club funds as a result.

Over the 2 year period 34.2% of subscriptions were paid by standing order, 13.1% by VISA or MasterCard, 48.8% by cheques etc to GØBXO, and the rest by cheque or cash at rallies. The increase in standing order payments is very welcome as it cuts our costs and reduces the amount of work that John, GØBXO, has to do when processing renewals. If you reside in the UK and you do not already do so, please consider changing to a standing order for your subscription.

I'll risk repeating myself by thanking our overseas representatives again for all the work they do on your behalf. They are DK4UH, N8ET, ZL1ABS, PE1MHO, F5OQO, OE6JAD and ON4KAR. Collecting overseas subscriptions is now a very efficient operation indeed thanks to the time these gentlemen give.

Yet again our thanks are due to Peter and Betty Jackson (G3KNU and GØNYL) who have been kind enough to check the club accounts.

G3PDL, Hon. Treasurer. July 2002

SSB & Data Report

Dick Pascoe G0BPS. Seaview, Crete Road East. Folkestone. CT18 7EG
Tel 01303 894390 – Email g0bps@gqrp.com

John G8SEQ writes that SSB QRP operating is alive & well in the Midlands. (Well its alive anyway!) 6m is always good for some qrp contacts if there is an Es opening. There seems to be an increase in activity on 2m SSB lately. He tries to get on to the Tuesday night activity contests and managed to work 11 stations in just over an hour. He has a cunning plan for a super omni directional antenna on 23 cms (23 dB gain!), but I want to try it in a contest before I publish it in the VHF column of SPRAT..

Peter PE1MHO is well on the way building his K2 and comments on how good the instructions are and how well put together the boards are. He is delighted with the project. He is looking to getting one of the restricted HF licences in the near future so that he can use the rig when completed. He is still raving about his FT817 and the DX he is working.

On the home front the 2m beam died in a gale but the 6m beam and the BIG doublet survived well.

Vic GW4JUN in North Wales bagged 18 new IOTA islands Rig K2 all 10 watts ssb ANT 65 foot end fed Best DX 8Q7ZZ Maldives . He was very weak so hesitated to call him. But he came right back to my first callMOJO ! Once again I lost NO qso's due to the other guy not hearing my qrp signals. QRP ssb works Not much this time so please let me have your news by the middle of November for issue 113.

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MEMBERS' NEWS



by **Chris Page G4BUE**

Highcroft Farmhouse, Gay Street,
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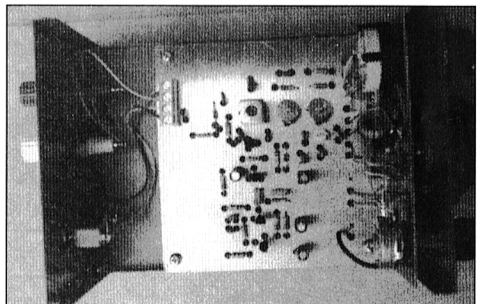
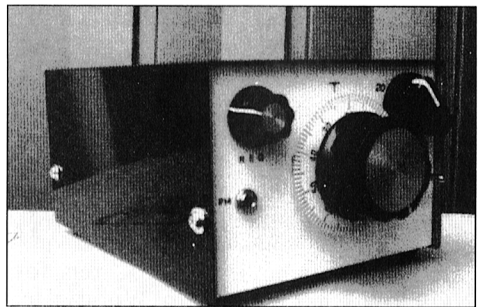
In Members' News of the last edition of SPRAT I reported **GW4ALG**'s comments about the first 136kHz repeater. **G3LDO** says, "What was set up was a LF/VHF translator by the Crawley club (with permission) which broadcast the 136kHz band on a 144MHz channel. The purpose was to encourage interest in the 136kHz band in the Crawley area by allowing those without a receiver with 136kHz coverage (not many about). It also allowed some LF operators who were badly affected by distributed cable noise to hear much more effectively via VHF. There was no way you could transmit through it and there was no instance of bad operating as a result of it. I have never heard (or heard of a report of) a pirate radio station on LF in seven years of LF operating".

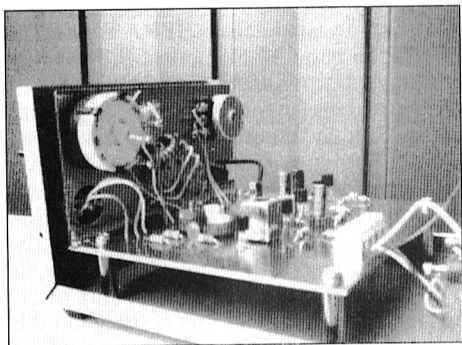
Peter says the 73 and 136kHz bands attracted a lot of 'techies', often with UHF and microwave interests, who brought a lot of technical expertise to the band. A minority of these guys had not got CW contest skills, and also because of high QRM and weak signals on these bands, the CW operating at LF is at slower speeds than you would normally find on the HF bands. He refers to the slow CW system, which requires a computer to send and receive (QRSS), a technique borrowed and refined from EME operators and

described in an earlier SPRAT and by **ON4EX** on page 34 of the last SPRAT for micropower experiments on 30m.

G3YSY, the keeper of **MB7LF**, prefers to refer to it as "a community receiver, because its job is to provide 136kHz receive capability to the community of operators who are unable to receive on the band due to local QRM. **MB7LF** has been on constantly since September 2001, and there has been no pirate or lid operation on either 2m or on 136kHz associated with this system. On the contrary the system has meant that a number of operators who would not otherwise have been able to operate on 136kHz have been able to do so".

JA9MAT is very pleased with the results he has obtained from the Walford Electronics Wurzel Regen Receiver (photos below). During three days in May Hide heard some European and lots of USA stations on 20m with it, plus **4L4FN/P5** on 80m. He now plans to build a matching transmitter based on the Oner with power levels between 50 and 500mW. Internet users can read more on Hide's Web site at <http://www.nsknet.or.jp/~ja9mat/wurzel.htm>.





GM3MXN recommends FT-817 users "who like myself have difficulty reading the small display on the rig, that they download the Cat Commander program which is free at <www.halpin.tomaatnet.nl>. Tom says this provides all the frequencies, functions etc and the only additional item required is the Yaesu CT62 lead/interface.

G3XBM spent a few days in Devon in July and "grabbed my fifth continent on handheld 15m SSB with the FT-817 and ATX15 whip. While in my 84 year old mother's back garden, the 55 report from a YV1 station was a really pleasant surprise! She does give me strange looks though, 'Roger will you never grow up?'" **GØWFH** will be QRV again from Jersey 5/12 October running QRP with a K2 and FT-817 on 1845, 3780, 7090, 7045, 14180, 14280, 18135, 21285, 24960 and 28360kHz. Chris will use a 300 feet kite antenna for the LF bands and a DK9SQ mast with a wire up the side for the other bands. QSL via Dave, **GØDBX**.

GØXAR, who is the UK rep for NORCAL, has moved to Woodville, Poringland Rd, Upper Stoke, Norwich, Norfolk NR14 8NW. Steve wants to make sure that G-QRP members know where to send their NORCAL subs and would like to meet local QRPers in the Norwich area. **EA3ADV** spent his summer holiday in Valldemossa, a small village in northwest Mallorca Island, again and took his SW+ for 20m which he used with 1W to a dipole from a fishing pole. Vicen worked several Club members, including CT4CH, DF7XF both /MM and /P, DL1JBE, F6CZC, MU/

F5MOG/P, GØTAK, G8IB, G4LHI, G4NBI, GW4KVJ, GØSVX, G3XJS, G4PRL, G4SIS, OM2AWX, ON4BV and ON5AG, all of whom he thanks "for their patience and good ears". He says "The station was all homebrew including a regulator box for a wall-wart (a SPRAT idea), a Curtis keyer 8044ABM, the SW+ and the dipole hanging from the fishing pole and fed, not with coax, but with twin household white cable (about 25m) which shows an impedance of around 75 ohms".

Nicholas, **M3LOK**, is now using "a nice low level (being fed horizontally until I can get some masts) full size G5RV which is tuning up nicely on all bands with my K2". **M5DME** is now "QRV on 20m having a great time on HF. I hope to have QSOs with Club members with my FT-817". **EA5XQ** has had QRP QSOs with USA stations on 40m with his inverted vee and monopole antennas fed with 300 ohm feeder. Juan uses a GQ40 with 5W from his Monterrey QTH. **G3YMC** continues to be amazed with what he can work with 5W from his K2. Dave is up to 129 DXCC since the end of March using a 60 feet longwire antenna. He says, "We used the K2 for a National Field Day (NFD) entry from **G4BRA/P** and it worked perfectly. We expect to be well placed in the Low Power Section and I have written more of this operation on my Website at <<http://dsergeant.btinternet.co.uk/nfd.htm>>. More recently I went portable from the same site for the RSGB Low Power Contest."

GØBXO worked DF7XF/MM at 0653z on 4 August on two-way QRP on 20m. John says, "Thomas was running 2W to an end fed wire and I was running 5W to my half size indoor G5RV. Reports were 419 both ways. He gave his location as 'off Cape Finisterre' and this is the first time I have ever worked two-way QRP to a /MM station." **GW4ALG** has been doing more HF 'bicycle portable' operating this summer and says "On one such trip, I took part in the Power Management Challenge on 1/2 June (NFD weekend). The objective of this event is to power the rig from eight 'AA' cells, and run the contest until the batteries go flat! I managed 79 QSOs on 40, 20, 15 and 10m running about 1W from my K2 into

an inverted vee doublet. But it was not lack of power that put an end to my operating - it was the lack of daylight! At 9:40pm I had to hastily pack my station away, and cycle home!". Steve tested his 4m QRP rig in the 70MHz Trophy Contest on 11 August and from his back garden with 5W CW he worked 12 stations in G, GQ, GM and EI.

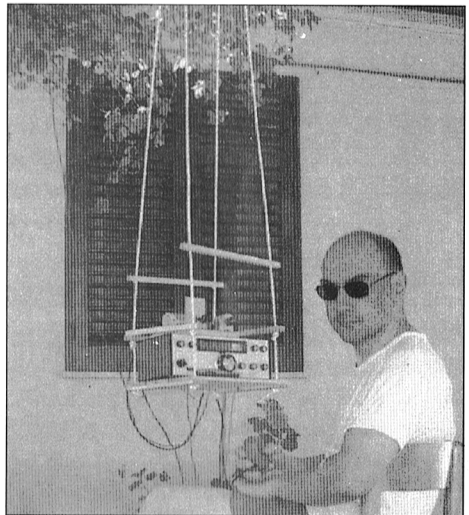
How many members have tried QRP on 5MHz? I would be interested to receive reports of QRP activity on this new band. **GW4ALG** received his NOV on 10 August and his first QRP CW QSO was with **G3SES** followed by **G3YPZ** and **G0TAK** in the evening. Steve says, "It was a most interesting first day on 60m - a band that appears to offer excellent propagation characteristics for intra-G communication. This, together with the present allocation of 'spot' frequencies, means that 5MHz will be of considerable interest to members who like to carry out propagation experiments using simple crystal-controlled transmitters". **G3TYB** has been using 5W and a doublet and has had "very good results". John says, "A 'problem' I and one or two others have found is the bandwidth of a simple wire doublet and the spread of frequencies. It is difficult to keep the SWR within bounds if you do not have an ATU. I have one but it is 150 feet down the garden and it not automatic! I am going to try a folded dipole this weekend to see if that helps". Details of the 5MHz experimental arrangements can be found on the RSGB Web site at <<http://www.rsgb.org/licensing/fivemegs/fivemegs.htm>>.

Congratulations to **G0KCA** on being the first UK amateur (and second in Europe) to receive the EUCW QRP Award. John says "I am still enjoying QRP CW with my old Ten-Tec Omni D and G5RV and G8PG indoor loop". **DL2BQD** stayed in Wales (Betws-y-Coed) this summer and was QRV on 20m with his K1 at 3W. Dieter did not work any UK stations (although he did work a GM who was /P from YL), but had DX QSOs with PY and the USA. He says, "The most crazy QSOs were on 2m from the summit of Snowdon. Yes, we walked up and down! I used a one inch pencil in my shirt pocket and a bill from the pub as a log".

Dieter then went to Hull and stopped in South Yorkshire where he was QRV in the RSGB LP Contest on 40m for a while.

G4PKU decided to try QRP on SSB after 19 years of CW and built the TCF40 design from *Radio Projects for the Amateur* by **VK3XU**. John's first QSO with it was on 40m with 3W to a half-size G5RV about 15 feet high when he worked the Lizard Lighthouse and since then has been "busy working stations in the British Isles and Europe and have been amazed at the results and found it very addictive".

The photograph below shows Giovanni, **IT9XXS**, operating QRP /P from Cefalù, Sicily with a Ten-Tec Argonaut 509 and a random wire antenna.



As we approach the end of summer and go into the autumn, we also go into the contest season. Many of you already know that contests are a great way to improve your QRP country (and band) scores, but others may not have realised that. The 'big one' is the CQ CW Contest during the last weekends of October (SSB) and November (CW) but keep an eye on the RSGB ones too.

That clears the files again. Please let me know how your autumn goes, by 20 November please. Please address mail to me at 312 Quail Avenue, Sebring, FL 33872, USA if writing after 8 October, thanks.

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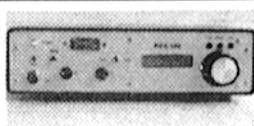
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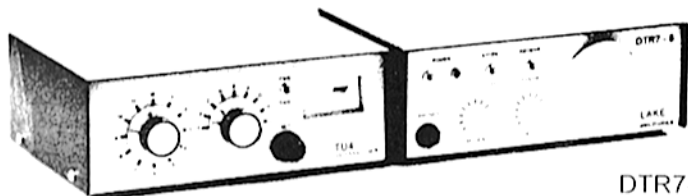
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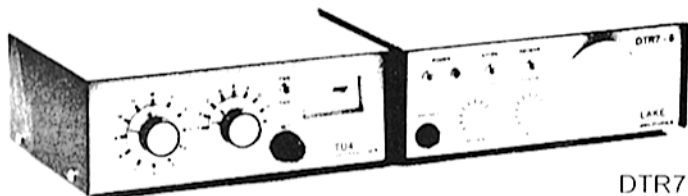
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