SPRAT

THE JOURNAL OF THE G QRP CLUB

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The Naxos Tranceiver by OE6EIF described in this issue

MINI-CONVENTION - NAXOS TRANSCEIVER - PCB DRILL IDEA
BACKPACKERS DIPOLE - SSB/CW FILTER - ATTENUATOR
VARACTOR BANDSPREAD - MFJ CUB OFFER - COIL FORMERS
CORK PINOUT CHECK - NATTERBOX 160 AM - THERMO-AMMETER
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A.A.A. - CLUB NEWS - COMMUNICATIONS NEWS - VHF NEWS
NOVICE COLUMN - MEMBER'S NEWS

JOURNAL OF THE G QRP CLUB

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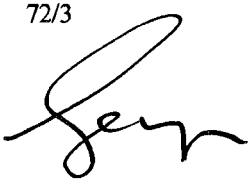
EDITORIAL

This issue of SPRAT may appear a little later than usual because of the timing of the Celticon event and a busy summer. Although may I remind members that the publication dates for SPRAT are a target, rather than a definitive date. Remember that everyone engaged in club work does so in their own free time.

Have you got of favourite project, or something you have been doing recently, that you would like to share with SPRAT readers? SPRAT is a forum for all our ideas. We do not require people to be technical authors. A few notes and drawings marked with all component values is all that we require. Hand written and hand drawn material is acceptable. If you can provide PC files in WORD format (or any format WORD will read) that can be helpful.

I look forward to meeting many of you at the Rochdale Convention.

72/3



G3RJV

EDITED BY GEORGE DOBBS G3RJV ARTWORK BY A.W. (MAC) McNEILL G3FCK
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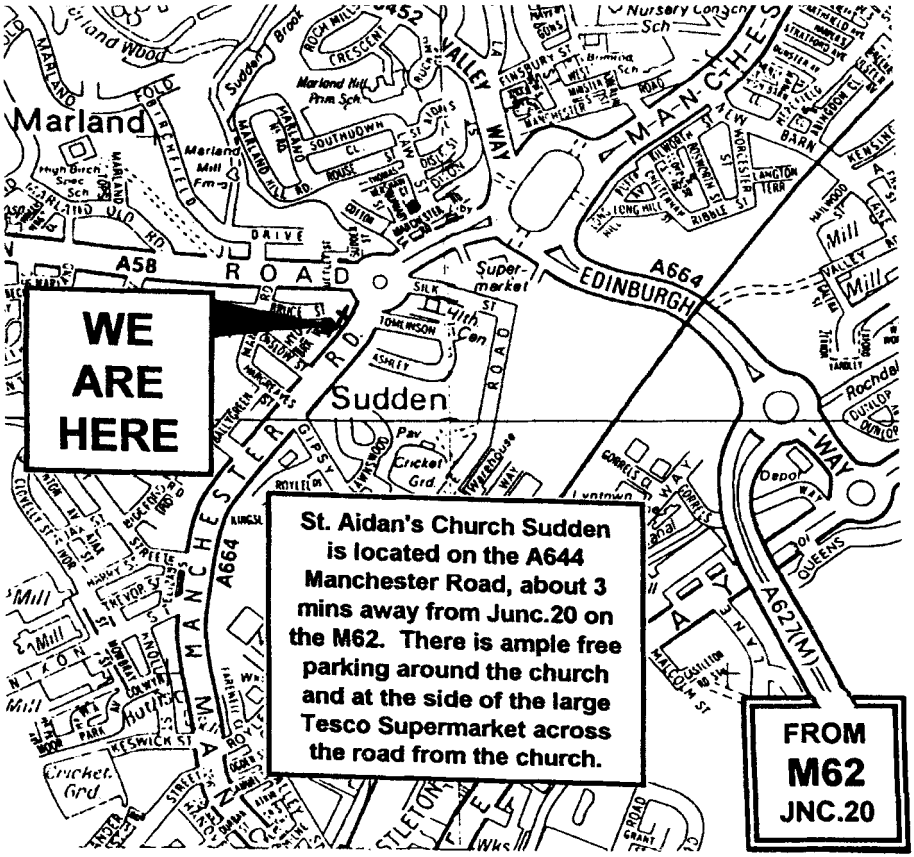
THE G QRP CLUB
MINI-CONVENTION
SATURDAY 28th OCTOBER 2000
ST. AIDAN'S HALL SUDDEN ROCHDALE
ADMISSION £1 - DOORS OPEN 10am - TALKIN S22
LARGE SOCIAL AREA - LECTURES ON QRP SUBJECTS
BRING & BUY - SURPLUS - JUNK - COMPONENTS - KIT TRADERS
FOOD & DRINK ALL DAY - INCLUDING THE FAMOUS PIE AND PEAS



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„NAXOS“ - A Miniature 20 Meter CW Transceiver

Andreas Seereiner ,OE 6 EIF, Pöglweg 39, A-8600 Bruck/Mur ,Austria

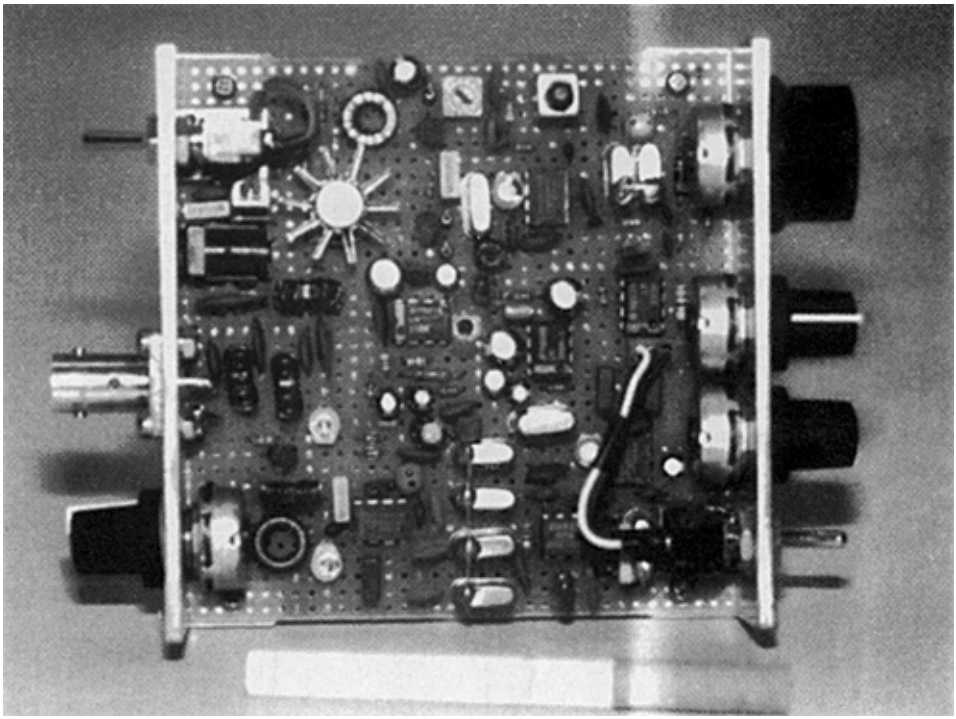
The idea was born during my last holiday on Naxos island in Greece. I had a QRP rig with me and I made some great contacts with a simple „Up and Outer“ antenna. For this year I want to have a smaller rig, but one that works just as well! So I used a homemade case with 10 x 10 x 4 cm from an idea from my good friend Werner – *OE6GWG*. He uses a profile square tube made of aluminium and mounts the front and back cover directly to the printed circuit board. The board then slides into the tube. The result is a perfect box for the transceiver.

Picture 1 shows my ready build prototype

Construction:

I use a veroboard with dots for this rig. It's cheap and the connections are made underneath the board.
The VXO uses 2 crystals in parallel to achieve the frequency range from 14.040 – 14.065 MHz.
Use a heatsink for final transistor Q8. T3 has a bifilar winding - see part list at the end.
The crystals for IF filter (X3 – X7) should have not more than 50 Hz difference in serial resonance (check with a grid dipper and frequency counter).
Avoid too thin ground connections - especially between TX PA , TX LPF and ANT connector.

Picture 2 shows the mounted board

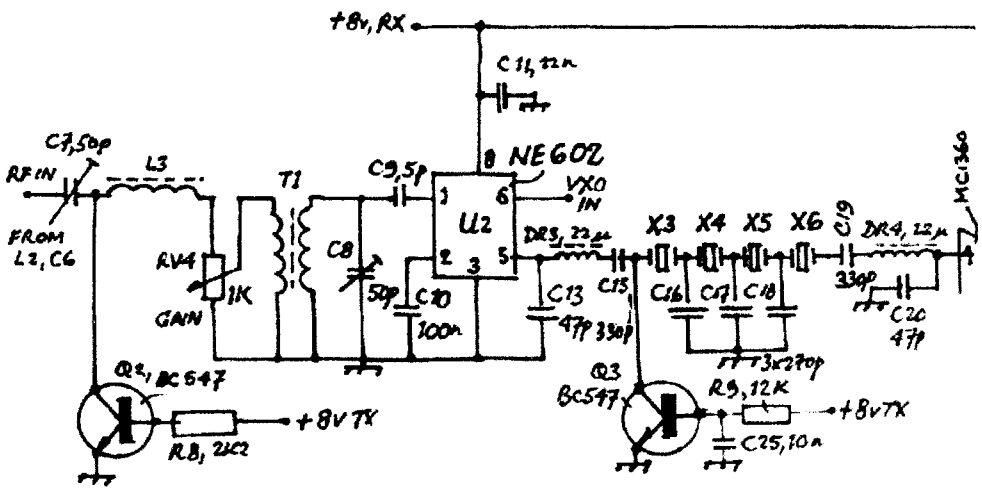


Adjustment:

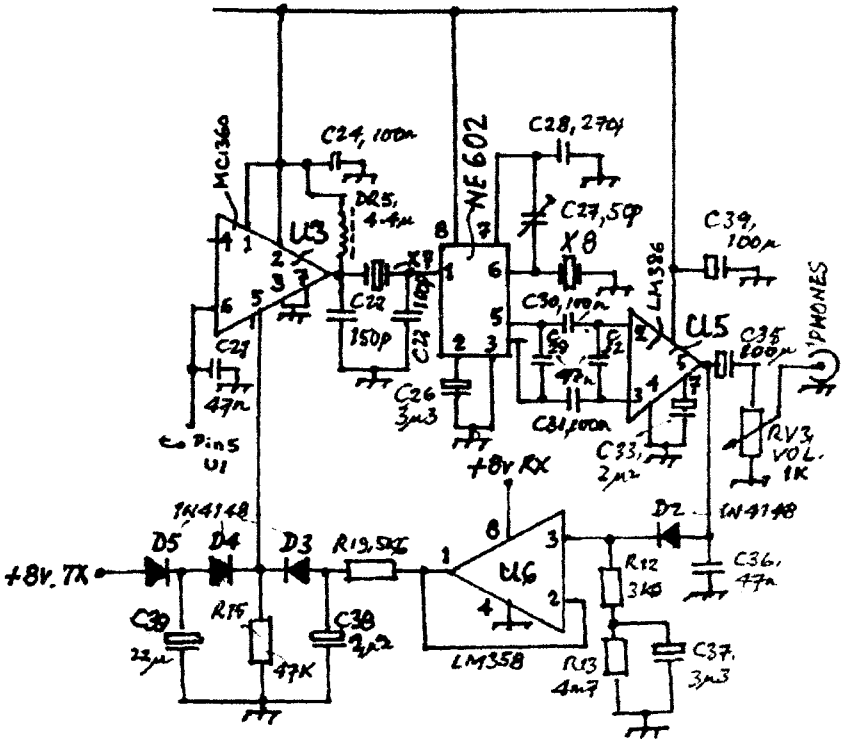
- VXO: RIT off! Check with a frequency counter at U7-pin 1. 17.977 to 17.992 is OK, if not change R1 and R2.

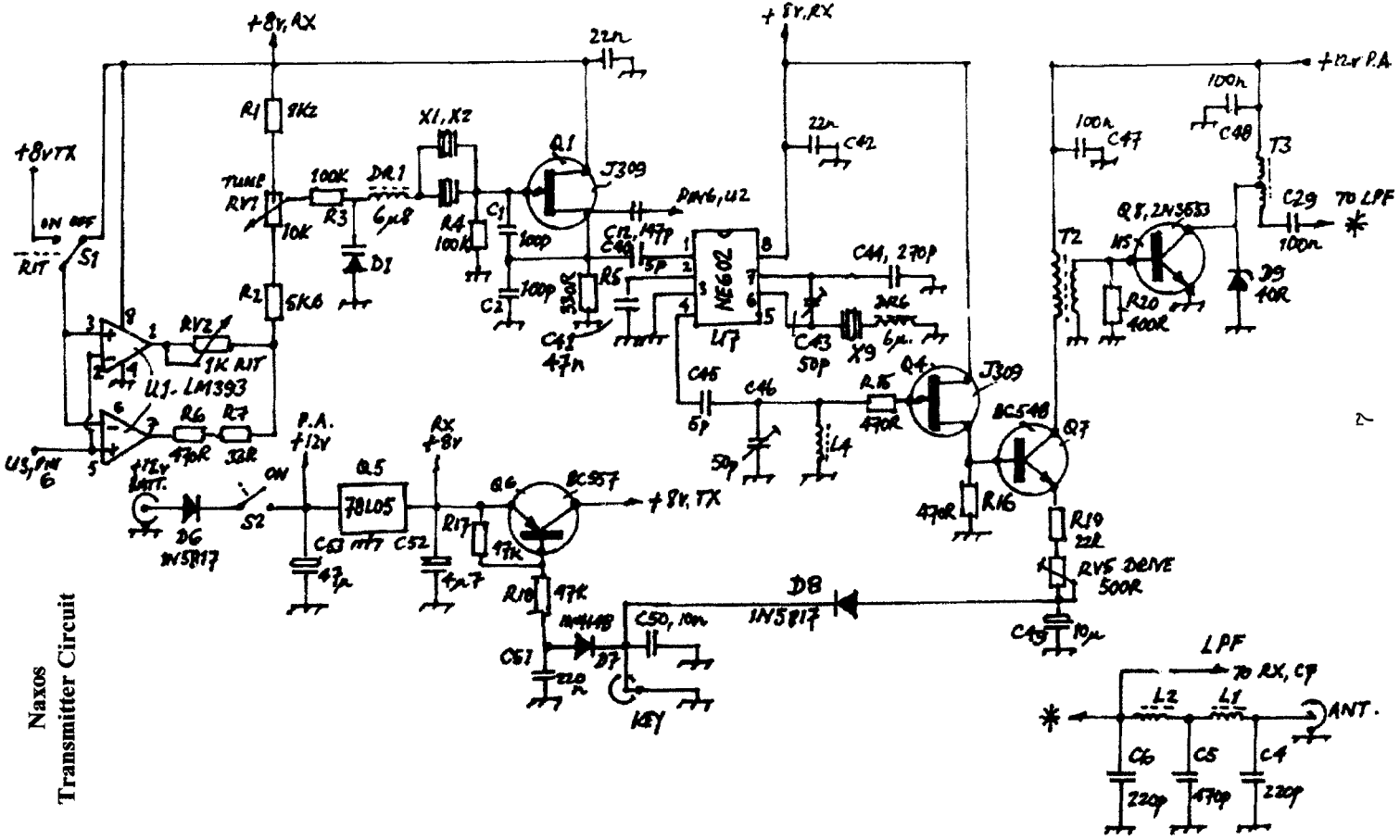
- Connect the antenna and tune in a CW station. Adjust C7 and C8 for maximum level in your speaker.
- Then tune C27 for 600 – 800 Hz BFO tone (depending on your feeling).

- Connect a dummy load to the antenna jack and turn R5 into the middle.
- Key the transmitter and adjust C45 to the same frequency (600 – 800 Hz) like the BFO before.
- Connect a HF Voltmeter to the antenna jack (parallel to the dummy load) and adjust with R5 for max. amplitude, then turn R5 back to about 85% -90% of max. value. This prevents excessive harmonic radiation



Naxos Receiver Circuit - in two sections





Naxos
Transmitter Circuit

NAXOS - Parts list:

Q1, Q4	FET J309
U2,U4,U7	NE 602
U5	LM 386
U6	LM 358
U1	LM 393
U3	MC 1350
D1	BB204 (Varicap)
Q8	2N 3553 + Heatsink
C1,C2	100 pF – Ceramic NPO (black)
X1,X2	18.0 MHz Quartz
X3 – X9	3.932 MHz Quartz
D6,D8	1N5817 (Schottky)

DR 1	6.8 uH	
DR 2	If necessary in series with DR 1	
DR 3, DR 4	22 uH	
DR 5	4,4 uH - 9 T on FT 37/61 (Amidon)	0.4 mm wire
DR 6	12 uH	
L1, L2	0,6 uH - 12 T on T37/2 (Amidon)	0.5 mm wire
L3	2,9 uH - 27T on T37/2 -„-	0.3 mm wire
L4	1,6 uH - 19T on T37/2 -„-	0.3 mm wire
T1	Prim: 4 T ; Sec 19T on T37/2 : - -	0.3mm wire
T2	Prim: 14 T ; sec: 4 T on FT 37/43	0.4 mm wire
T3	10 T bifilal on FT 37/43	0.5 mm wire
	„T“ = Turns	

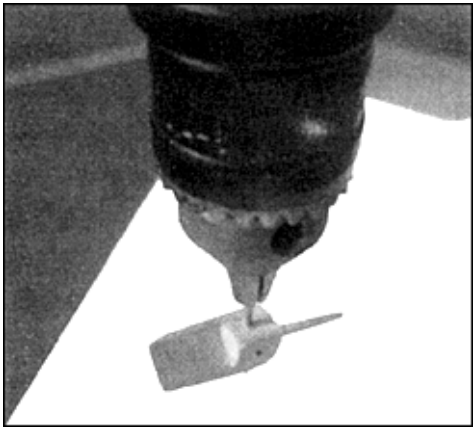
Measurements:

- Sensivity: 0.1 uV
- Output power: 2.5 W@ 13.2 V ; 2.0 W@ 12.0 V
- Selectivity of IF- Filters: 390 Hz@ -3dB
- Power consumption RX: 24 mA
- Power consumption TX: 320 mA@ 13.2 V
- Size: 100 x 100 x 40 mm

Larger circuit printouts and an interconnection diagram are available from G3RJV. Send a self-addressed stamped envelope marked "Naxos"

A PCB DRILL IDEA

Rory Geoghegan, Marino Institute of Education, Griffith Ave, Dublin 9



Adding a small propeller fan to the shaft of a PCB drill helps to remove the PCB material dust as the hole is drilled.

This propeller is made from a small piece of square section wood.

The propeller slips over the drill with a pre-drilled hole.

(See Photograph
taken at Celticon 2000)

A Backpackers Dipole Antenna

Ian Butterworth G4BZO

Following the author's "backpackers beam" for 144mhz. a similar HB9CV type antenna for 50mhz was considered, but rejected as too unwieldy for backpacker use. In fact the required mast arrangement is probably more of a problem than the antenna itself. In any case it was decided to settle for a simple telescopic dipole.

Two telescopic whips about 1.3m long were purchased from Maplin and secured in a short length of plastic trunking with tie wraps. While not theoretically a quarter wave long at 6 metres they worked perfectly probably due to the "capacity hats" formed by the end pieces of the whips.

It only remained to connect a BNC socket to the base of the whips using short lengths of wire and to secure the socket in a notch cut in the trunking by binding with self amalgamating tape. A choke balun was formed by a few turns of the coax feeder close to the antenna, giving a better SWR.

So far the antenna hasn't made it up any mountains, remaining in the loft as a remarkably effective home station antenna, securing a contact with San Marino using 250mw of SSB when the 5 watt PA was out of action.

While not intended, it has since occurred to me that the antenna could also be used on 70 and 144mhz by collapsing the whips to the appropriate length.

Two Modes for the TCF* and Computarock*

(* from Radio Projects for the Amateur, VK3XU)

K P S Kang, VU2OWF 301/2 Nandi Colony, Khanna 141401, Punjab, India

Radio Projects for the Amateur, by Drew Diamond VK3XU, (See Below) contains some very good circuits. I built two of them and they happened to be the most pleasant projects in my homebrewing career. For the first time I discovered the mystic ways of that tiny NE602

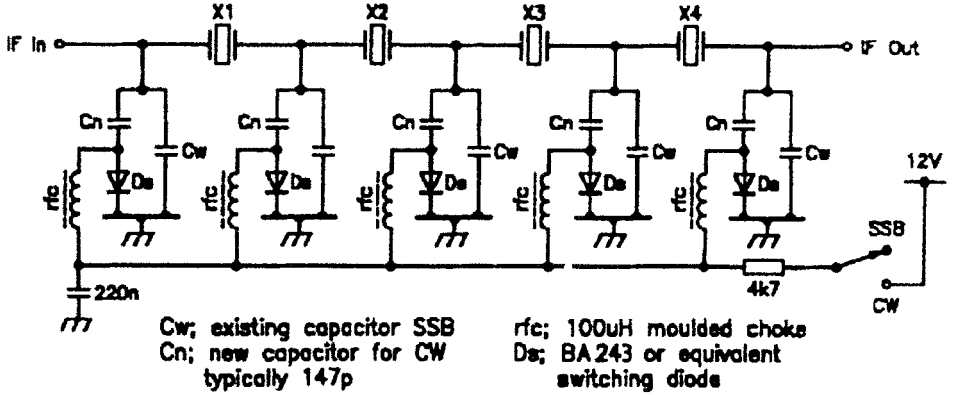
Here are two simple mods for TCF 1 and Computarock which can be carried out on your version very easily and will certainly enhancs the performance of these rigs.

1 **Variable IF Bandwidth**

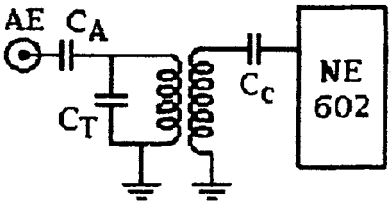
When operating the rigs onto CW portions of the band I found the bandwidth is a bit great for serious CW-ing. Though the rig is designed with SSB in mind why not try some simple mod. For variable bandwidth? Naturally there's no reason why it shouldn't work - and it did!
The following simple modification to the Rx filter took care of CW needs. The bandwidth control is mounted on the front panel and it simply works great.

1. **Improving Dynamic Range:**

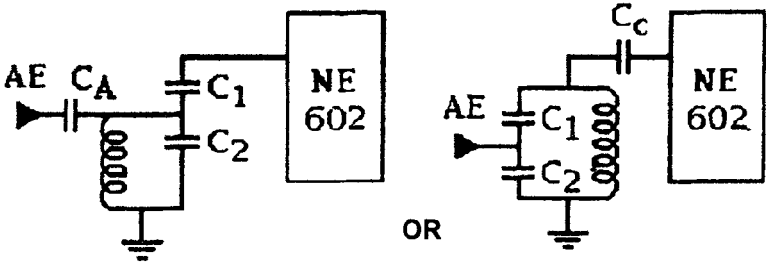
The frond end of computarock (and similar projects) can be improved in terms of dynamic range by the following tip. Actually in some NE602 designs where we use inductors for impeda nce transformations (see A) the voltage magnification occurs at the input of the NE602, which cuts its dynamic range.
So instead of inductors try to employ capacitive dividers and you can earn immediate dividends. A simple mod. Such as this was empirically carried out on my version to add a few dB's!!) and results were immediately recognizable.



4–STAGE SSB/CW FILTER
by VU2OWF



(A)
Voltage magnification occurs respective of turns ratio



(B)
Modification to cure voltage magnification causing deterioration of dynamic preformance

Article reproduced from LO-KEY (Sept. 98)
The journal of the VK CW Operators QRP Club

A 0 - 15dB Attenuator

Malcolm Eales, MØAJL, 137 Heron Way, UPMINSTER. RM14 1EE

Many simple receiver circuits use a 1K pot as a variable attenuator ahead of the band pass filter. Whilst this has some benefit, when in use it does mis-match the band pass filter and the ATU (also the TX LPF if used) de-tuning them when they are most needed.

The following is a simple switched attenuator giving approximately -3dB per step and close to 50 ohms in any position. All the components are readily available, even from Maplin, and if bought new should cost less than £2. Also if built as shown on the back of the switch, it can easily be transferred to the next project.

I kept the resistor leads short (less than 5mm) and tested it with short lengths of coax between a dummy load and an Autek RF analyser when it gave a VSWR of better than 1.5 : 1 in all switch positions from 1.8 to 30 MHz. If the rx has a double balanced diode mixer it might be better to position the attenuator between the band pass filter and the mixer to give the mixer input a broader band 50 ohm load during strong signal conditions. The switch numbering was embossed on the back of my switch but you may need good eyesight!

In use I set the attenuator to the -9dB position, pre-set the af gain for comfort and thereafter use the attenuator to adjust for weaker or stronger signals. If you have a much larger garden than me with lots of wire very high up then you may find -15dB is not enough so I suggest using your wire cutters to prune the aerial down a bit! (sorry, just jealous)

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.**

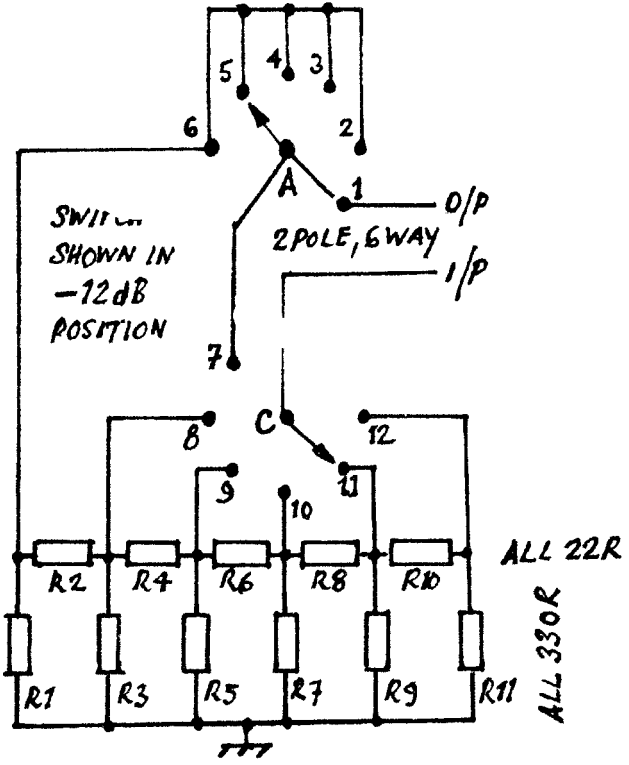
Cheques: "M.L. Prickett" [The G QRP Club benefits from each order]

N.B.T.V.A

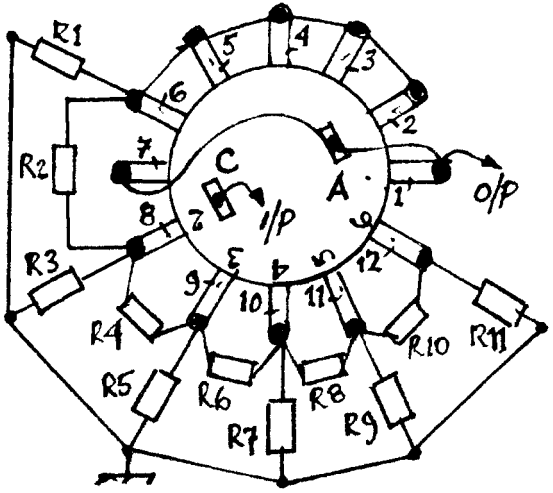
The Narrow Bandwidth TV Association (founded in 1975) is dedicated to low definition and mechanical forms of ATV and introduces radio amateurs to TV at an inexpensive level based on home construction. NBTV should not be confused with SSTV which produces still pictures at a much higher definition. As 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 £4 (or £3 plus a recent SPRAT wrapper) to Dave Gentle, G4RVI, 1 Sunny Hill, Milford, Derbys. DE56 0QR, payable to "NBTVA"

SSTV on QRP

I would like to know of any other SSTV QRP'ers with a view to exchange of ideas and possible skeds. Any responses can be made either by e.mail Peter@g3myz78.freeserve.co.uk or QTHR. Peter Nicholson G3MYZ



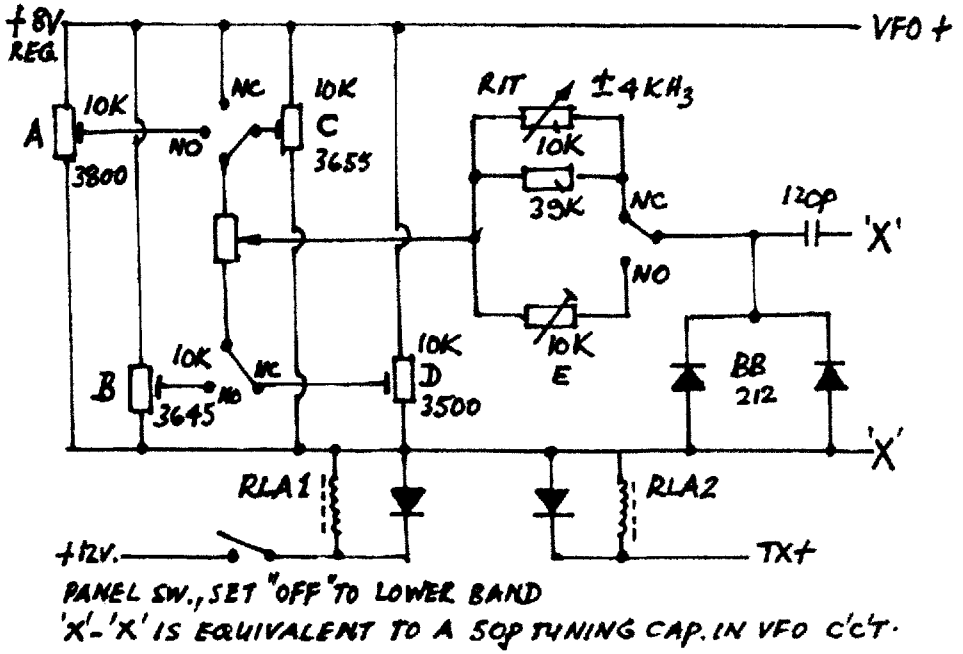
R 1, 3, 5, 7, 9, 11 MOUNTED VERTICALLY



REAR VIEW OF SW.

Increasing Bandspread with Varactor Tuning

Derek Alexander G4GVM, 52 Brockington Rd. Bodenham Hereford HR1 3LP



I decided to use a DC receiver in the design of an 80m CW transceiver in order, additionally, to use the rig for SSB reception. This required covering the whole 300 KHz of the band - no point in wasting inherent abilities! Bandspread, therefore, needed some consideration.

I was drawn to the use of varactor tuning because of the 250 degree rotation of the tuning potentiometer (as compared to 180 degrees for a tubing capacitor) and for the easy use of voltage to set frequency.

With a 6 : 1 reduction drive this meant an equivalent 1620 degrees as against 1080 degrees for full rotation. Further spread was obtained by leg switching the band in halves by a front panel switch and relay 1, thus increasing the equivalent to 3240 degrees for 150 KHz. Swing (or 21.5 degrees per KHz.) - very good on its own, even without fine tuning.

However, since the transceiver is sometimes to be used for receiving SSB signals, I arranged the necessary CW off-set in variable form, so providing RIT. For CW, this control is centralised and the main tuning tuned to zero beat with the incoming signal. The RIT is then turned to a marked off-set position, where the CW note will be heard. On transmit, the RIT is

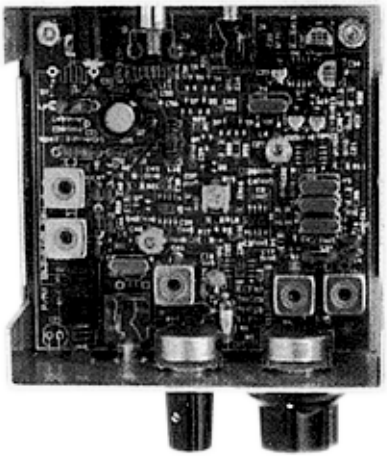
automatically switched out, giving the required off-set. When initiating CW transmissions, the RIT control should be set to the off-set position.

It is essential in any varactor tuning system to have a stable, regulated voltage supply. I have found the LM317T to be superior in this respect to the fixed voltage types.

The circuit could been arranged so that the limit trimmers were in series with the main tuning pot and the positive and negative rails, but setting up is much easier if each trimmer is taken to both rails as shown, since interaction is greatly reduced. Trimmers A and C should be set with the tuning pot at maximum (positive and) and B and D, at minimum : RIT at mid position. Trimmer E must be set to the same frequency as RIT mid position.

Since the voltage circuits are less touchy than trying switch capacitance, it may be possible to replace relay 1 & panel switch with a DPDT panel switch wired as shown for the relay.

RIT/ off-set is quite straightforward, being switched out of circuit by relay 2, operated by TX +. RIT should have about an 8 KHz swing with the values shown, and off-sets marked at + and - 800 Hz.



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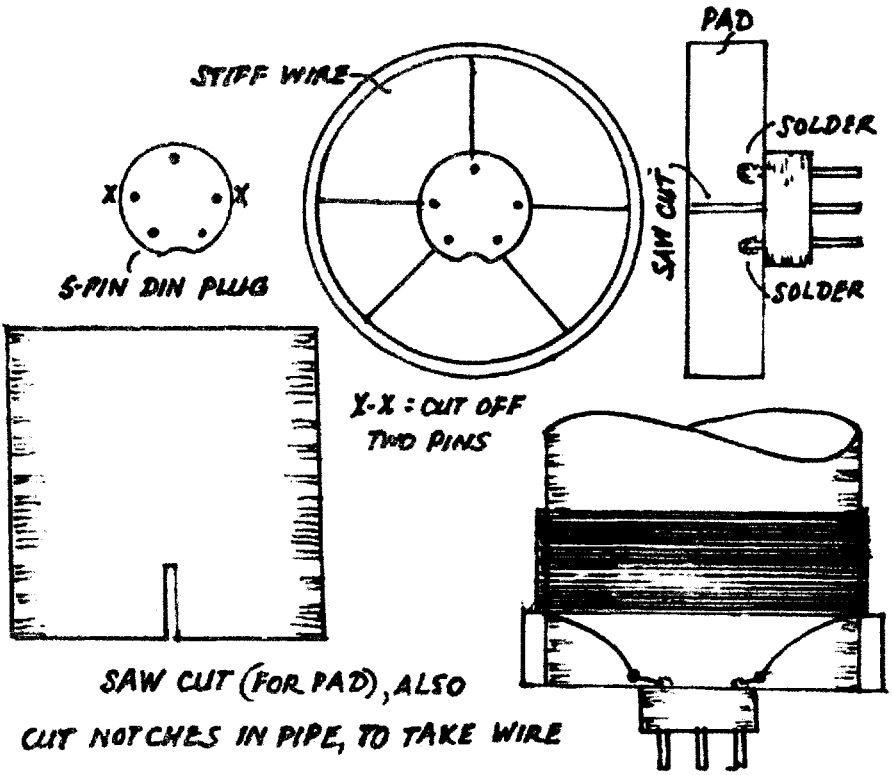
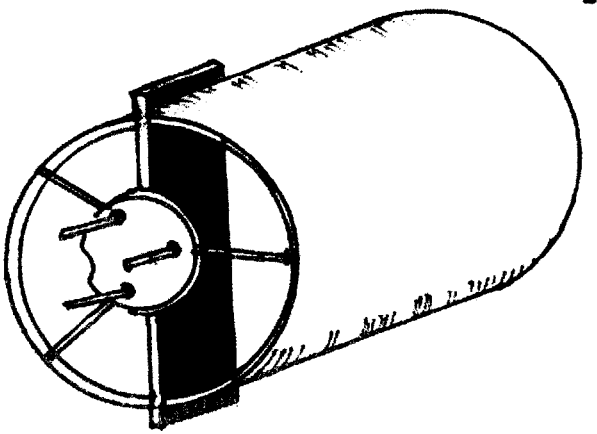
Coil Formers Using DIN Plugs

Alan Upton G3UZU, 36 Robin Way, Woodchurch, Merseyside. L49 7NA





I came up with this idea for plug-in coils, which can be used for any size plastic pipe.

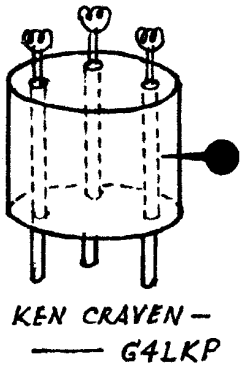
I used a piece of plastic pipe 22 mm outer diameter. Take two large hacksaw blades and tape together (this being the right width for the double sided PCB) and cut a slot across the plastic pipe to suit the PCB.

Cut a piece of double sided PCB material 28mm x 12mm and divide the copper into two pads on one side this then gives three pads for the pins of the DIN plug. I used a five-pin plug with two pins removed. The PCB is then soldered to the pins of the DIN plug. Take three pieces of stiff wire and solder to the pads. The assembly is then glued into the slot in the pipe. Cut a notch to take the wire through the plastic pipe.

The One Cork Pin-Out Checker

Dr. Ken Craven, G4LKP, 8 Melander Close, YORK. YO2 5RP

This can help the home constructor to check that transistors, when viewed from above, are positioned in accordance with their pin-outs, which are customarily depicted from below. It also adds further meaning to the term 'home brew'.



Method

Cut a 15mm cylindrical section from a wine bottle cork. Drill three 1.5mm holes through the full length of it, corresponding to the transistor pin positions. Mark the entry and exit holes with a black felt tip pen for their easier location. Next, cut separate 5 cm lengths of black, yellow and red hook-up wire, and tie a knot at the end of each wire. Pass the wires through the holes as far as the knots, as per the appropriate pin out, using the NPN convention: Black (Emitter), Yellow (Base) and Red (Collector). Trim protruding wires back to 1 cm. The wires can be re-positioned to suit different pin-outs, and the position of any TAB on the transistor case identified by sticking a coloured map pin into the appropriate side of the cork. (this also has the advantage of stopping the cork from rolling off the bench.)

A Handy transistor pin out guide can be made if two pages of pin out diagrams are Photostatted and glued to both sides of a piece of board such as the hard back cover of an unwanted book, cut to size and covered with sticky back clear film for protection. It can be hung in a convenient place for easy reference.

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WANTED: Graticule for CT52 Military Miniature Oscilloscope. Dave, G4ELZ 01457 762799

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Natterbox - Crystal Controlled AM Transceiver for 160

Dave Smith G4COE 54 Warrington Rd. Leigh, WN7 3EB

About the Natter Box

Initially the 'Natter Box' is a crystal controlled AM transceiver for the 160 Metre band. It runs some 10 watts of DC input power and gives 'good quality' amplitude modulation.

It is hoped that at some later date an identical circuit would be built but using a NE606 mixer instead of the crystal oscillator stage, by taking a little RF from the mixer stage of my home-brewed receiver that it could then be converted into a AM/CW transceiver covering the entire band, hence, this is really a pilot project aimed at getting good quality modulation from a circuit that is repeatable without snags and hiccups.

It is quite easy to build say a crystal or VFO stage and connect it to the next and get instant results, but to get a nice clean sine-wave at its output is not that easy as one may think, this applies to other stages within the transmitter chain!

There are disadvantages when amplitude modulating a PA transistor, unlike valves they are 'transparent' and require plenty of negative feedback which results in low gain. OK, we should know by now that a transistors gain will vary with varying amounts of current through it, this could be caused by varying aerial loading, tuning the ATU or by the modulation itself.

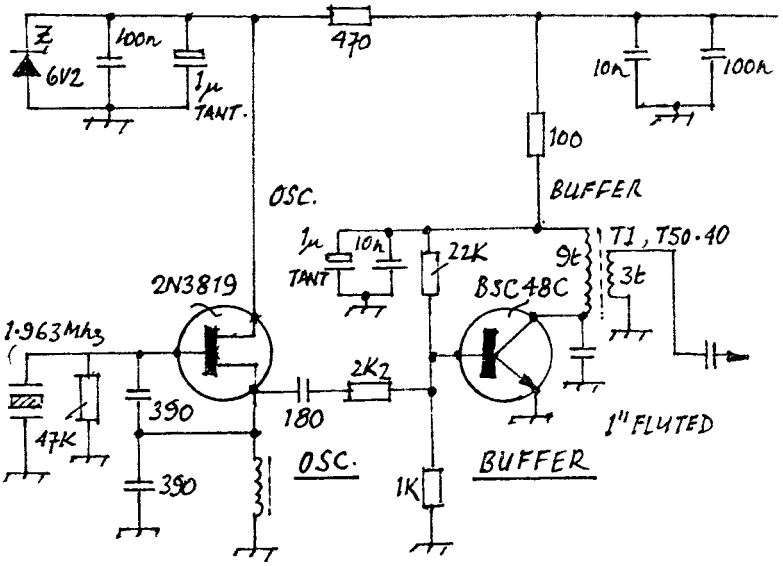
The circuit that I have presented here is stable under all load conditions and yes the output has been ran into a short circuit and had been ran with no load on for several minutes without any blown PA transistors, nor does it go into 'orbit' (self oscillation) whilst tuning the ATU, thanks to VK3XU (RSGB Handbook) who designed the PA for use as a linear amplifier.

If a VFO is required it should be straight forward to replace the crystal oscillator stage. It would be far superior however, to use a mixer stage rather than run the VFO at the final frequency, which is never a good practice anyway. Just enough drive should be used to reach the power level, it is not a matter of 'shoving' as much as you get 'up the spout' just to squeeze that extra few Watts! An extra Watt or so is not going to make a great difference against 7 Watts or so, overdriving will distort the output of the following stage which will increase the harmonics.

For CW the modulator should be 'switched out'. A little extra will be gained because of the modulation transformers resistance. A low power stage ought be keyed and this should present no problems.

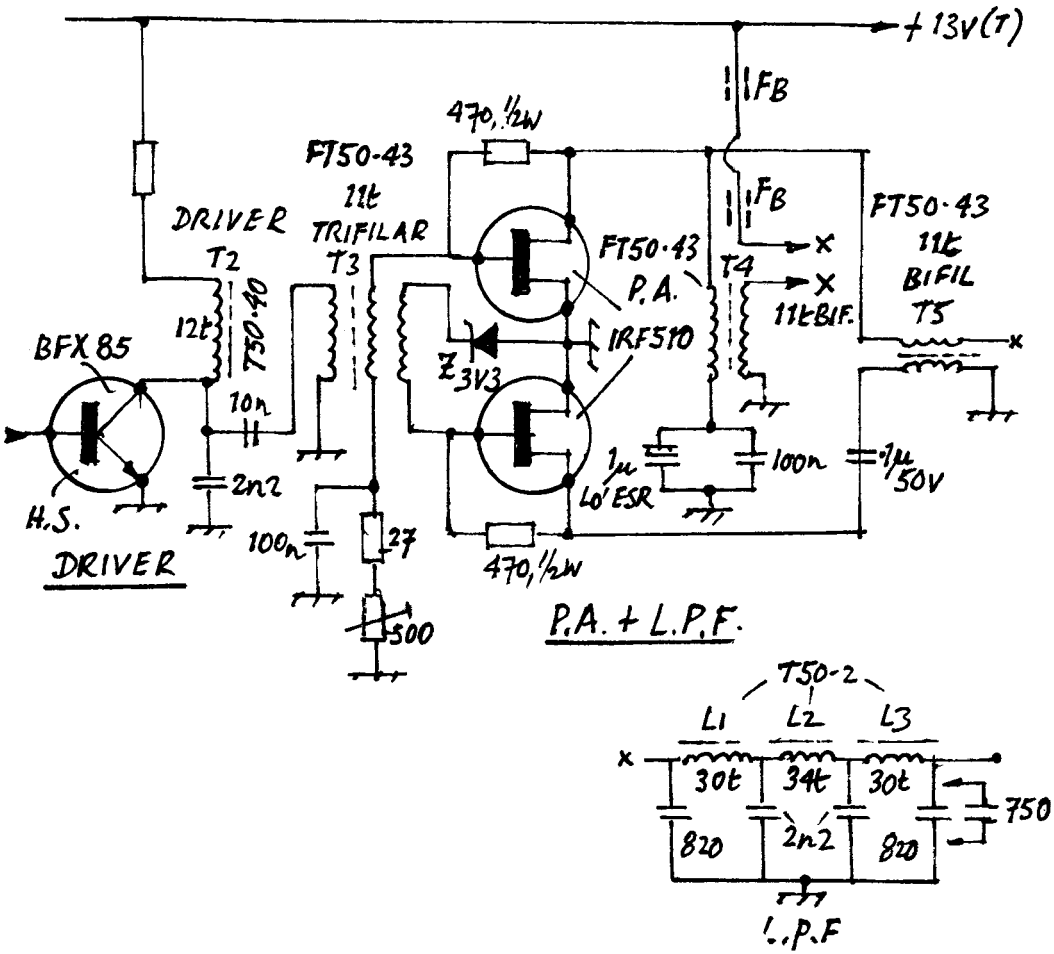
A description of each stage will now follow:

The crystal oscillator:
Almost any N channel FET could be used here such ass 2SK30 etc. The zener diode can be anything from about 5 to 8.2V and its dropper resistor anything from 270-470 ohms. The feedback capacitors should either be ceramic plate or polystyrene although these are large in size and a value of 330-390pF will suffice. The isolating capacitor should remain at 180pf maximum. The RFC used was a miniature axial type an inductance of 100-470uH will work fine.



The Buffer Amplifier:
Almost any RF NPN transistor will work here, those tried were BC457/8/9 (hi-gain types are preferable but not essential, i.e. those with a 'C' suffix), even a BSX19 worked fine. T1 is wound on a T50-40 Green/Yellow core its primary having 9 turns of 26/28SWG close wound. The secondary has 3 turns of thin PVC coated wire (enamelled copper wire could also be used) this is wound opposite the primary winding. The 2n2 capacitor broadly tunes the primary and should be adhered to; it could be either ceramic plate or polystyrene.

The Driver
This stage runs quite hot and requires a decent clip-on heat sink, the type I used had a fluted appearance and was an inch long. Transformer T2 was wound on another T50-40 Green/Yellow core and consisted of a single 12 turn winding spaced evenly over the core, the wire size being about 26SWG.



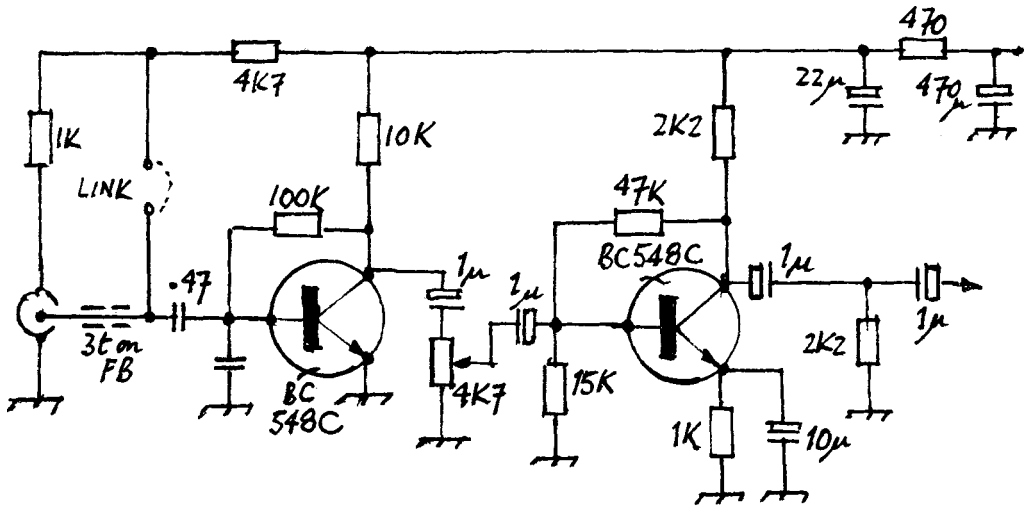
The PA Stage:

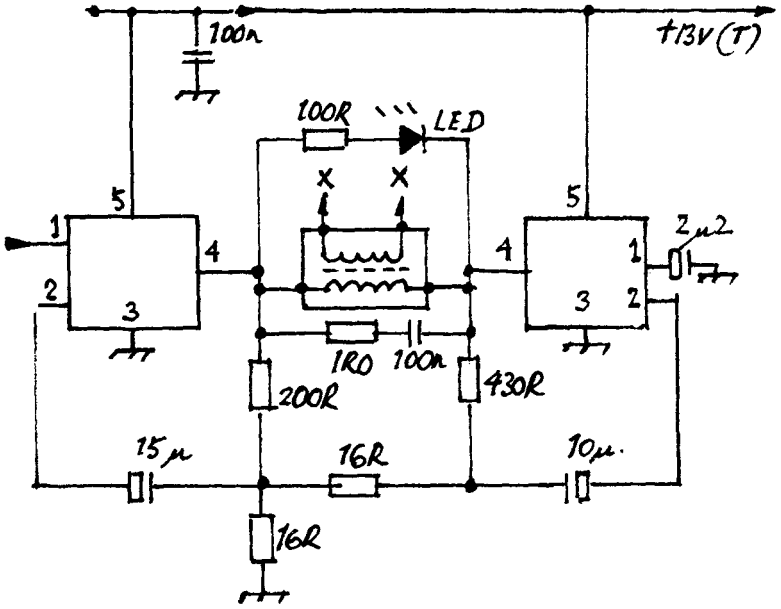
This was constructed VHF/surface mount style, that is the components were soldered to the copper track side. The board should be double sided fibre glass, one side remained un-etched (avoid paxolin PCB).

A square hole was cut to enable the transistors to be mounted flat on the panel and a finned heat-sink was fitted to the outer side to give it that professional look. Do not forget to use insulating kits for the transistors to isolate them from the case.

With no drive, adjust the bias pot for 2,5 Volts on one of the gates of the FET and then again with no signal and a meter in the supply line adjust the pot for a current of 250mA.

T3, T4 and T5 are wound on a T50-43 core. T3 has 11 trifilar turns (3 wires slightly twisted together) of 22/24SWG; T4 and T5 had 11 turns bifilar wound (2 wires slightly twisted together) 22/24SWG. Ensure each winding is correctly phased on each of these transformers or incorrect operation will result.





The Modulator

The TDA2003 will yield some 3 Watts RMS (6 Watts peak) into a load of about 4 ohms. Although one of these proved ample - two are used in a bridge configuration so that the single ended version did not have to work 'flat out', over some 9 Watts RMS (18 Watts peak) is available and is ideal as a modulator stage as at the 5 or 6 Watt level they are just idling along!

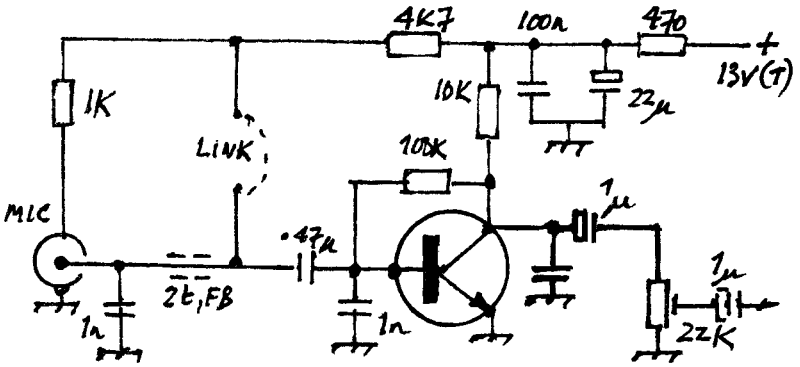
The Transformer

The transformer used was rewound 12V 1A mains type. Find one that will take the required number of secondary turns using the thickest wire possible, remembering there will be a voltage drop across the secondary if any resistance is present as the PA stage will be drawing about an amp or so. The wire size should be no less than about 24SWG.

The primary (audio) side need not be wound with thick wire as it is not passing a DC current, 30/36SWG is ideal for this winding, this leaves more space for the secondary. I re-wound two mains transformer with differing turns ratio and both worked nicely.

Transformer No. 1.
The primary had about 120 turns of 26/28SWG and a DC resistance of 0.9 ohms. The secondary had about 180 turns of 22/24SWG and a DC resistance of 1.4 ohms.
Transformer No.2.
The primary had 85 turns of 36SWG and a resistance of 2 ohms, whilst its secondary had 180 turns of 22'24SWG and a DC resistance of 1.4 ohms. This is the one presently used.

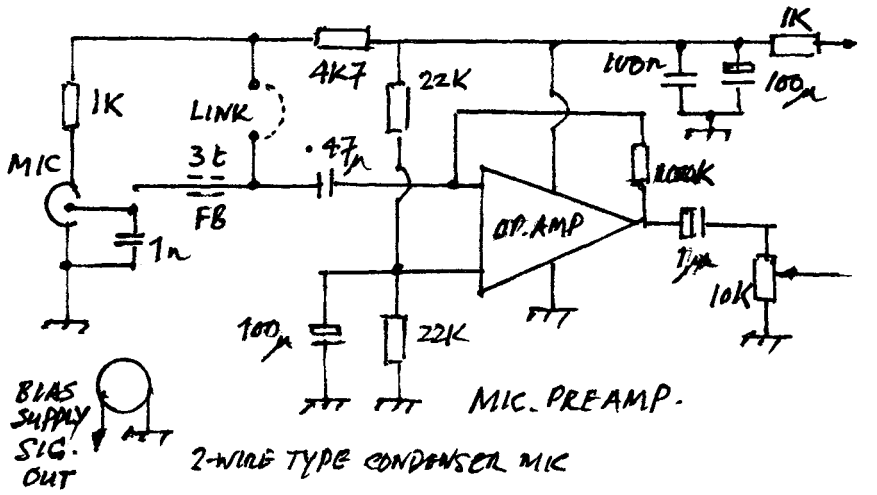
The ideal transformer would be the one that had very little resistance on the secondary and at least twice the number of turns than its primary. There are no reasons why other transformers can't be tried such as a 100V line transformer.

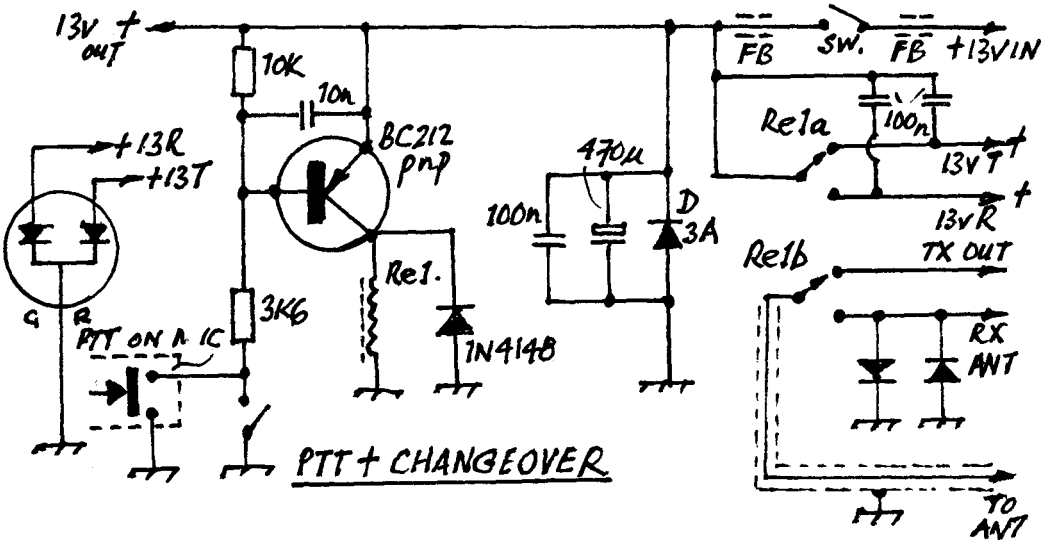


SINGLE TRANS. MIC. AMP.

The Microphone Pre-amplifier.

Initially a single transistor was used and was changed to a two-transistor stage, hoping that the extra gain would enable a moving coil microphone to be used but the quality left a lot to be desired. In the other 'Natter Box' I built a single op-amp was used, with a condenser type microphone. The audio quality was very crisp in all the circuits I tried.





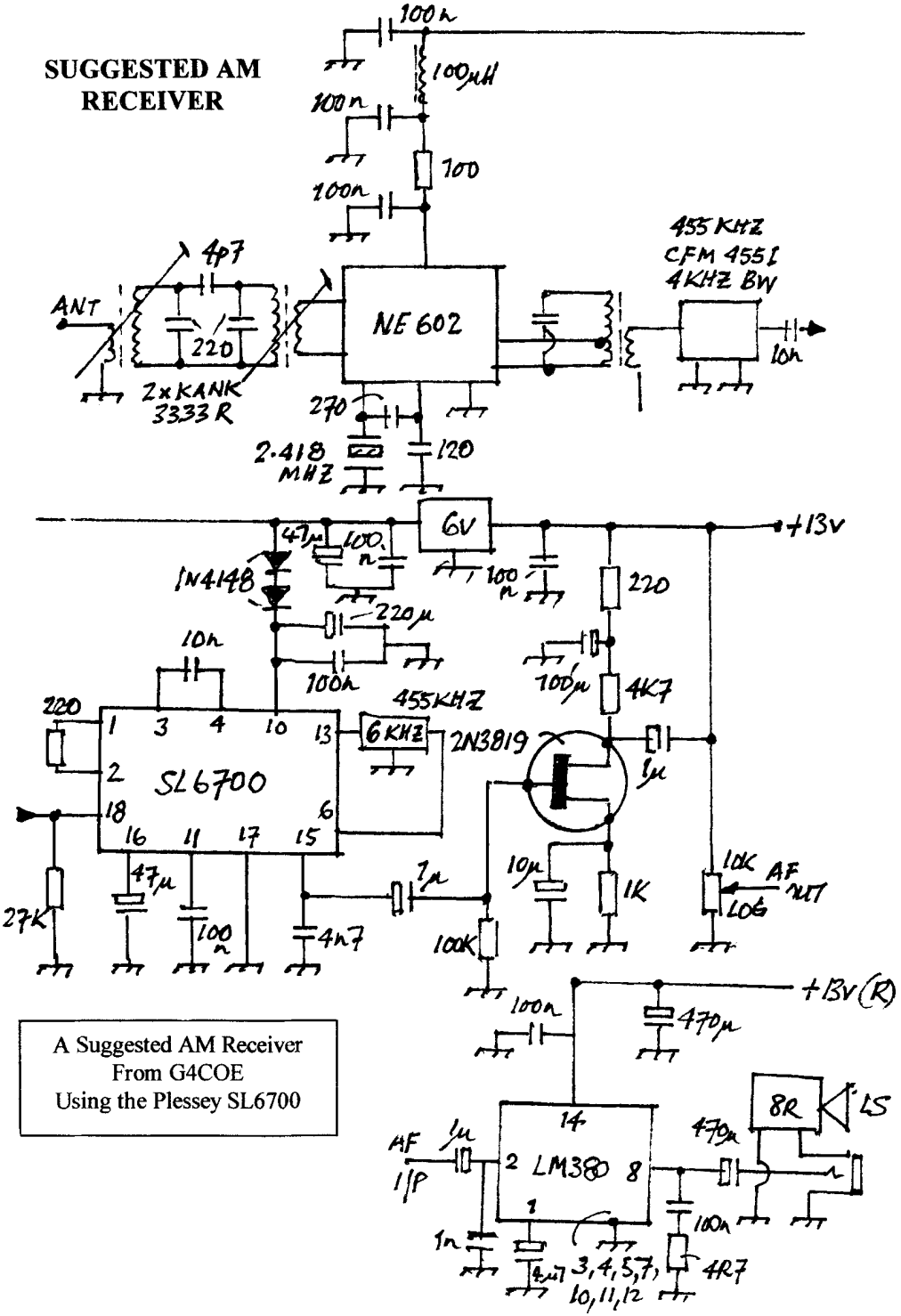
PPT and Changeover

The relay is a 'flat pack' type, miniature ones should be avoided because of the RF and current.

The crystal frequency may be changed to other frequencies within the 160Mtr band. An in-line fuse should be used and rated at 2.5 - 3A Max!

Two of these units where built and have been in use for some considerable time just for 'Nattering' to Norman, G4GLJ, sometimes they had been keyed up for over two hours in cross band QS O's four or five times a week and without any fault or bugs creeping up, incidentally Norman's 'Natter box' won the construction contest at the West Manchester Radio Club! Both units were built in a box measuring 6" x 4 by just 2" high.

SUGGESTED AM RECEIVER



A Suggested AM Receiver
From G4COE
Using the Plessey SL6700

A Modern Thermocouple Ammeter

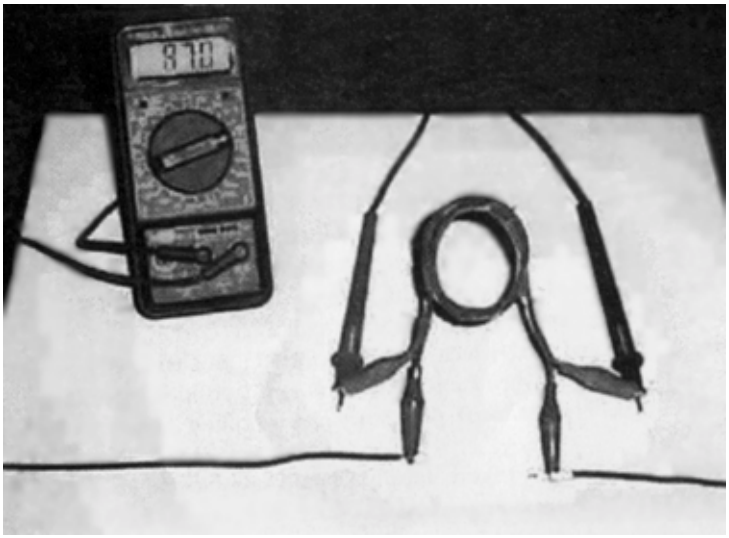
David A. Reid PA3HBB / GØBZF Leenderweg 46, HEEZE, 5591 JE, THE NETHERLANDS
(based on work by Yardley Beers WØJF)

Thermocouple ammeters are very rare these days, but the job they were perfect for - measuring antenna currents - is still a modern requirement especially in respect to groundplane currents. When it comes to ground systems, the famous QRP phrase 'Less is More' is unfortunately not true. However, by optimising a small ground system more of your precious power gets radiated. The thermocouple ammeter is useful for measuring antenna currents and finding resonances in antenna systems.

I made one for measuring the ground currents in my groundplane for a short vertical I have been working on. It has proved an invaluable aid in creating an effective ground system. Basically this piece of test equipment allows relative measurements of currents running in the ground wires of my system.

I used two crocodile clip leads to make the coupling transformer. The two wires of the two clip leads are tape together to make a parallel line, which is then coiled into a suitable size and taped together. During a test of a ground wire, one lead is inserted into the ground wire, in series, and the other, with a small diode (e.g.1N4001,1N914) inserted in one lead, is connected to a digital multimeter, or small meter. The transmitter is operated and a reading taken on the meter, adjusting the power to get a reading which is within the range of the meter. The ground lead is then altered in length and the reading recorded. The highest reading on the meter indicates the highest currents in the ground wires, and therefore the higher effectiveness of the ground system.

An interesting fact, which I discovered is that ground radials of $1/8^{th}$ electrical wavelength produced the highest readings. I researched this
phenomenon and discovered that some work supporting this claim has been published in the past (by John Stanley, K4ERO/HC1 and Roger Hostenback, W5EGS in QST 1976).



The QRP PLUS & LOG-EQF ... and another QRP+ mod

Roy Walker GØTAK, 3 Elderberry Cl. Thornton- Cleveleys, FY5 2ZB

I have recently been searching for a way round the poor keying characteristics of the QRP+ at speeds above 18wpm, without sending the chip away to the states and thus losing the use of the rig.

One "Fix" has been to build in a "Tick" Keyer which was I believe also produced originally by Index labs. and that works very well. Co-incidentally I obtained a shareware version of Log-Eqf and I found to my delight that it contained a comprehensive keyboard based keyer and I resolved to have a go at it.

If you browse or download the instructions for the programme you will find that there is a very simple interface required, it requires only a NPN transistor and a couple of resistors to do the job and only takes a couple of minutes. I had not got the suggested NPN in stock so I substituted constructed and installed - and it did not work. Doubting my constructional skills I made another one, this time with a different breed of transistor with the same results. When I say it did not work, that is not quite correct, I did get keying, but it was "reverse" keying and I did not consider that the QRP community were quite ready for that.

I decided to go down another route. With the aid of a Break out box, (One of those items which you never use but do not throw away "just in case") I prodded around and found that from the D25 plug/socket of COM2 there was a voltage between pins 2 and 23 which was keyed in the "proper "sense. The junk box produced a suitable small relay and this was built into the case of the plug at the end of the cable - recently vacated by the other D25 item. A twin wire comes out of the relay and is terminated in a miniature jack plug to fit the tranceiver. And it worked first time. I can now send CQ 'till the cows come home and do the odd soldering job in the shack at the same time.

Depending on the relay being used it can make a bit of a clatter, and it will never replace the trusy old Bencher, but it was/is an interesting little project to fill the odd hour. I have found it particularly useful for sending slow morse, where I tend to make a disproportionate amount of errors. Incidentally it works with my TS50s and my home brew rigs as well. If anyone succeds in getting the transisistorised version to work - please make on for me.

"Attenuator indication for the QRP+"

I dearly love my QRP+, but let's face it although competent it is a bit "Basic". One aspect that requires careful management is the handling of the RIT/SPLIT and the Attenuator switches. For those that do not know the radio, the only indication that these facilities are switched on is that the switch is not "Up". I, and I suspect a number of other operators have on occasions found that after a QSY we have been getting no reply - due to the fact that the RIT is on, or started to "Fault find" the set up because the receiver had "Gone dead".

There is a published circuit and mod, which overcomes the RIT problem, and I built that in some months ago. The result is that when the RIT switch is in any position other than XCVE, a LED on the front panel is illuminated. (The scary part is drilling the hole in the front panel)

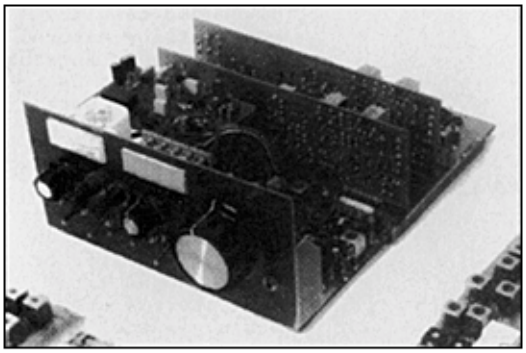
The Attenuator problem is not so easy to cure. Ideally I would have liked to build a similar system as that for the RIT but experimentation found that it was not going to work. In the end I

settled for a minimum intervention system which gives me an LED indication when the Attenuator is in the NORM position and a No light condition when the Attenuator is in the 20DB position. I find it works very well.

The mod involves the following steps.

- Pick up 5V from the lower pad of C3 on the back of the front panel PC board.
- Lead this to the + end of an appropriate LED via a suitable resistor, About 270/330 Ohm depending on how bright you need it to be.
- The Ground end of the led needs to be soldered to either of the two lower posts on the attenuator switch - S1.
- When you find it works to your satisfaction, drill an appropriate hole in the front panel and insert/secure the LED.

In operation the LED provides you with a "confidence check" that the radio is switched on, something else which is missing in the original spec. I have found that when the key is down the light glows brighter, I haven't quite worked that one out, but it must be picking up from the transmit side, it has no detrimental affect on the receiver as far as I can tell.



New Multiband 5w Transceiver Kit

Walford Electronics announce their Bristol Transceiver is now available. It is a CW/SSB rig for any/all bands 160-10m. The main TCVR can take either single or two band plug-in cards but, with the card switch kit added, up to four bands can be selected from the front panel with others available by changing a band card. Prices start from £129 for a single band and details may be had from Walford Electronics - See advert p.40

ANTENNAS - ANECDOTES - AWARDS

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

NOT ONLY A NOVICE BUT ALSO A MASTER - IAN MARSHALL, 2EoAOZ

CLAIMS HIS SPOT IN CLUB HISTORY !!

It is with great pleasure that we welcome Ian, 2EoAOZ, to the Worshipful Company of QRP Masters. His admission on 16th June,2000, marked the culmination of four years of hard effort, and makes him the first Novice ever to become a Master. Well done Ian !

GETTING TO GRIPS WITH YOUR FIRST EVER LONG WIRE ANTENNA.

AAA Technical Staff continue the Novice theme.

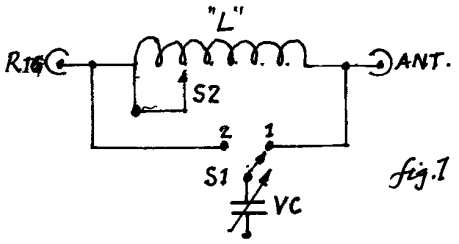


fig.1

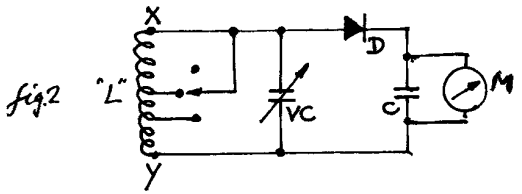


fig.2

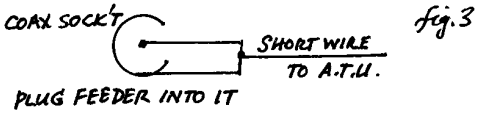


fig.3

Many beginners on h.f. begin by using a dipole. There is nothing wrong with this and a dipole can give good results, but it is by nature s single band antenna. So for most of us multi-band hf work will involve the use of an end-fed antenna. To use such an antenna one will need an antenna tuning unit (atu) and either an s.w.r. indicator or a multi-band r.f. indicator. A simple a.t.u. is the L-network shown in Fig 1. With S1 in position 1 it will match impedances higher than the TX output impedance, and with the switch in position 2 it will match impedances lower than the TX output impedance. The switch S2 allows the correct value of inductance for the band in use to be selected.L1 is wound on a 3cm diameter former using 40 turns of 24 s.w.g. or similar enamelled copper wire.Taps are made at 2 turns, 4 turns, then each further 4 turns. The variable capacitor should be 200p or larger. With these values the unit should cover all bands 7 MHz to 30 Mhz. Many rigs have a built-in swr meter and an excellent circuit for one appears on page 12 of the G QRP C "Antenna Handbook".A suitable circuit for

a tunable r.f. indicator is shown in Fig.2. L can be wound on a 3 cm diameter former,using 30 turns of 24 s.w.g. or similar wire. The coil is tapped at 4 turns and 12 turns. CV can be 150p or larger and C 1000p or larger (not critical). D is any small signal diode, and M an analogue meter reading 0-1 mA or less. If no calibration source such as a g.d.o. is available sufficiently accurate calibration for each band can be achieved by connecting point y on Fig 2 to the antenna terminal of a receiver via a short lead, and connecting a metre or so of wire to point X on the diagram. The receiver is then tuned to a strong signal on the desired band and S1 and CV are used to tune across each range of the indicator until a point is found where the strength of the incoming signal is reduced to a minimum. The r.f. indicator is then tuned to the band the receiver is tuned to. The connections to X and Y are then removed once the desired bands have been calibrated.

Let us now turn our attention to how one tunes up a long wire antenna. If one already has a dipole with a feeder 7m or more in length or a v.h.f. beam with a similar length of feeder, one has a ready made long wire to experiment with. Make up the simple adaptor shown in Fig.3 and use it to connect the shack end of the co-ax feeder to the rig via the L-network. You then have a top loaded long wire antenna. To adjust the L-network to approximate resonance on the desired band tune the receiver to this band then try each position of S2 in turn until one is found where rotating CV peaks the received signal to a maximum. Make final fine adjustments by either (a) tuning CV for minimum reading on the s.w.r. meter (if available) or (b) tuning the r.f. indicator to the desired band, placing its coil close to the co-ax being used as an antenna and adjusting CV on the L-network for maximum reading on the r.f. indicator meter. If it is impossible to get correct tuning on a particular band first try temporarily connecting a metre or so of wire in series with the co-ax being used as the antenna. If this provides no improvement switch S1 on the L-network to position 2 and repeat the tuning procedure.

While using the feeder of a dipole or vhf beam as an end fed antenna is an excellent way of learning the tuning procedures (and may give surprising results) ,the serious h.f. operator will soon want a proper multi-band end fed wire. Whereas with a dipole we take pains to make the wire resonant, this is not a good idea with a multi-band end fed antenna, as it will give a very high feed point impedance on one or more bands . It may be possible to overcome this problem by slightly lengthening or shortening the wire, but it is best to avoid it altogether. Avoidance has been complicated by the W.A.R.C. bands, which are not harmonically related, but for the bands from 7 Mhz to 30 MHz tests using the coupler shown in Fig 1 indicate that a length of 75 feet (23m) can be loaded with no problems (adding 20 turns to L in the coupler should also allow 3.5 MHz operation). It will increase efficiency if one or two counterpoise wires - say 33 feet, 16 feet and 11 feet are connected to the ground terminal on the coupler. They can be run indoors or outdoors. Get the antenna as high as possible. If you are short of space do not be afraid to bend it a bit and/or run part of it in your roof space. Knowing how to handle a long wire antenna means you can operate almost anywhere. We hope this has taken most of the mystery out of it.

AAA CAN ONLY SURVIVE IF YOU LET US HAVE YOUR ANTENNA IDEAS . ****
WHERE ARE THEY ???? ****
****
****

AWARD NEWS

QRP MASTER

Belatedly and with apologies we welcome Derek, G3ZNR. to the Worshipful Company. His omission from an earlier edition of SPRAT was due to Award Managers' Amnesia ! Welcome also to GWoVSW and 2EoAOZ (see earlier). Well done all of you !

QRP COUNTRIES. 200 G3DNF (Well done Mr Chairman), 150 G3JZO, 100 G3ZNR, 75 DL2LQC, 2EoAOZ, GWoVSW.

WORKED G QRP CLUB. 1360 GM3OXX (beat that !), 460 G3FCK, 340 G3ZHE, 200 GW3VLU, 180 GWoMYY, 120 GoTAK, 80 G3SOX.

TWO-WAY QRP COUNTRIES. 50 GoMOU, 30 DFlNH, G3ZNR, 10 GoNSL (ssb), UY5OQ.

Congrtulations to all the above and also to M5AEF, the first M5 to obtain the CW Novice Award.

A BEACON POINTER

The updated beacon system on 14100 kHz seems to be working very well. There are now 17 beacons in all continents, the length of the dashes from each beacon have been greatly reduced, and the whole cycle only takes about 3 minutes. U.K. members should note that if VE8AT beacon,located at Alert, 83N 78W,is coming in well condtions are likely to be very good. These beacons also operate on 18,100 , 21150, 24930 and 28200 kHz. We would be interested to hear from members who are using these other frequencies. It would also be interesting to know which beacons members in areas other than the U.K. find are indications of very good conditions. Apart from their use as an operating aid these beacons provide a fascinating service for those who are interested in studying propagation for its own sake.This is particularly so if one uses them in conjuction with the propagation information broadcast every 5 minutes from Beacon DKoWCY at the hf end of the 10.1 MHz band.

TO SHORT OR NOT TO SHORT ?

Like many generations of home constructors we were always brought up to short out unused turns on inductors to prevent "dead end effect". Recently this practice has been called into question.To provide some actual data, AAA recently set up a simple test rig. It consisted of a 3w rig, an L-network A,T.U.and a Heathkit H-M-9-A wattmeter terminated in a 50 ohm resistor. Measurements were made at various frequencies between 7 and 28 MHz, firstly with the uused turns on the L-network shorted out, then with the shorting wire removed. In each instance the measured r.f. output power was the same ! (But note that in receivers where we are handling microvolts it may be a different matter).

QRP MASTER CLASP

We are still looking for a suitable maker who can supply a quality item at a reasonable price. Plese keep watching this space

WE REPEAT - AAA CAN ONLY SURVIVE IF YOU SEND YOUR ANTENNA IDEAS IN

G QRP CLUB ANNUAL WINTER SPORTS

The grand annual QSO PARTY for all QRP Stations

December 26 - January 1 - Call CQ QRP on any QRP Calling Frequencies

CW: 1843, 3560, 7030, 10106, 14060, 21060, 28060 kHz

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

Logs may be sent to G3XJS (See "Communications & Contests" in this issue)

The G4DQP Trophy is awarded for the best overall contribution to the event.

GQRP Club Sales

For all items listed formerly from G3YCC, the new address for orders is Graham Firth, G3MFJ, 13 Wynmore Drive, Bramhope, LEEDS. LS16 9DQ

Currently available:

Radio Projects for the Amateur by VK3XU. £6 + £1.25 UK post [EEC £2.90]

Low Power Communications Vol 3 Rich Arland. £8 + £1.25 UK post

6 pole 9MHz SSB crystal filter 2.2kHz @ 6dB, 500Ω in/out £12 [50p post]

Pair LSB/USB carrier crystals HC18U [9MHz +/- 1.5kHz] £6 a pair

6 pole 9MHz CW crystal filter 500Hz @ 6dB, 50Ω in/out £12 [50p post]

88mH Toroids - 2 for £2 [60p post]

LT700 [type] Transformers £1 each post free.

NE602 *[SA602]* at £1.75 each. MC1350 at £2.25 each [both inc post]

IRF510 Power FETs £1.25 each [inc post]

Micro Radio Projects

Introduce Special Projects for Novices

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Many other radio and related projects available ready built or kits - for list and prices send s.a.e. to:

Micro Radio Projects, 1 Hestham Drive, Morecambe, Lancs. LA4 4QD.

Tel: 01524-420743. Mobile: 07901-544785

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7.030MHz/£3.95	10.106MHz/£3.50	8.9985MHz/£2.95	9.0MHz/£2.95
9.0015MHz/£2.95	10.0MHz/£1.54	10.106MHz/£3.50	10.245MHz/£1.54
10.7MHz/£1.54	11.0592MHz/£1.60	11.155MHz/£3.50	16MHz/£1.54
21.040MHz/£4.75	21.060MHz/£4.75	28.060MHz/£3.75	41.0MHz/£3.75
42.5MHz/£3.75	42.5MHz/£3.75	45MHz/£1.75	48MHz/£1.95
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COMMUNICATIONS AND CONTESTS

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

EUCW FRATERNISING CW QSO PARTY 2000

Many members may be unaware that the G-QRP Club is a member of the European CW Association (an organisation of European CW clubs which seeks to promote and encourage amateur CW), as are our friends in other UK based clubs, ie, FISTS and FOC. Our own contribution to the work of the Association is the EUCW/G-QRP Novice Award, managed by Gus Taylor G8PG, and the club as a whole is committed to supporting EUCW activities in any way possible.

This year's EUCW annual Fraternising CW Party will be held on 18-19th November 2000. Although there is a contest element in the sense that certificates are awarded to top performers, its real purpose is to give members of EUCW clubs the opportunity to meet each other and to demonstrate that amateur Morse is still alive and well. In the past, it has not been too well supported by our own members although there is a specific class for QRP operation, and it would be very nice this year if G-QRP members were to turn out in force to show their support for EUCW. Remember, in fun events like this it's more important to take part (and to send in an entry) than to win!

Look out for members of the following clubs: AGCW-DL (Germany); ARI (Italy); Benelux-QRPC; BTC (Belgium); CT-CWC (Portugal); EA-QRPC (Spain); EHSC (Extremely High Speed Club); FISTS; FOC (First Class Operators); G-QRP; HACWG (Hungary); HCC (Spain); HSC (High Speed Club); HTC (Switzerland); INORC (Italy); I-QRPC (Italy); MCWG (Macedonia); OE-CWG (Austria); OHTC (Finland); OK-QRPC (Czech Republic); RTC (former GDR); SCAG (Scandinavia); SHSC (Super High Speed Club); SP-CWC (Poland); UCWC (Russia); UFT (France); U-QRQC (Ukraine); VHSC (Very High Speed Club); YL-CW-GP (Germany); 3A-CW-G (Monaco); 9ACWG (Croatia), and work them as follows:

Dates, Times, and Frequencies

18 Nov 1500-1700z 7010-7030 & 14020-14050 kHz
1800-2000z 7010-7030 & 3520-3550 kHz
19 Nov 0700-0900z 7010-7030 & 3520-3550 kHz
1000-1200z 7010-7030 & 14020-14050 kHz

Classes

- A - Members of EUCW clubs using more than 10w input or 5w output.
- B - Members of EUCW clubs using QRP (less than 10w input or 5w output).
- C - Non-members of EUCW clubs using any power.
- D - Shortwave listeners.

Exchanges:

- Class A & B, RST/QTH/Name/Club/Membership number.
- Class C, RST/QTH/Name/NM (ie, not a member).
- Class D, Log information from both stations.

Call: CQ EUCW TEST. Stations may be worked or logged only once a day, per band, during the contest.
Scoring: Class A/B/C - 1 point per QSO with own country, 3 points per QSO with other EU country. Class D - 3 points for every complete logged QSO.
Multiplier, all classes: 1 multiplier point for each EUCW-club worked/logged per day and band.
Logs: to include date, UTC, band, call, info sent, info received, and points claimed per QSO. Summary: to include full name, call, address, total points claimed, station details, power used, and signature.
Entries: to be received by the EUCW Contest Manager, Guenther Nierbauer DJ2XP, Illinger Strasse 74, D-66564 Ottweiler, Germany, not later than 31st December, 2000.
Certificates will be awarded to the three highest scorers in each class.

Worked EUCW Award
Additionally, this event offers a good opportunity to make contacts qualifying for the prestigious "Worked EUCW" Award, printed on heavy parchment type paper depicting the map of Europe "at the time of Samuel F.B. Morse". There are three classes of award, "Standard", for contacts made using any authorised transmission power; "QRP", for contacts made using not more than 5 watts r.f. output transmission power; and "SWL", for shortwave listeners".

The requirements of the award are confirmed CW only contacts (SWLs - CW stations heard) with 100 different stations who are members of EUCW clubs, over 3 different amateur bands with a minimum of 20 stations worked or heard in each band. The total of 100 stations worked or heard over 3 bands must include at least 3 members of six different EUCW clubs.

Only contacts made on or after Morse bicentennial day, 27th April 1991, count for the award, with up to 40 stations worked or heard on that day counting for double points. Full details of the award can be obtained by sending 2 IRCs to the EUCW Award Manager, Gunther Nierbauer DJ2XP, address as above.

SOMERSET HOMEBREW CONTEST
You will recall that the recent winner of this event, Rowland G4APO, very generously offered to donate his prize to a suitable deserving cause, to be nominated by the G-QRP Club. After much deliberation, George decided to send the 20m Minehead (from Walford Electronics) to Victor Scljarov, US7IJW. Victor is a young amateur who has no equipment of his own, and can be seen in the G4BUE pages of SPRAT 102. Tim Walford's Minehead is a single band rig, capable of up to 5 watts CW, and so I hope Victor will be now be able to work many members. Tim kindly offered an extra prize, to the 2nd place entry, G3VAJ. This was to have been a (CW) Sparkford, but as Ian's was an SSB entry, and he does not use CW, he received a two tone oscillator instead!

17th YEOVIL QRP CONVENTION
The date for next year's Convention is **Sunday 22nd April**, preceded (as usual) by the Convention Dinner on the Saturday evening.

The organisers like to have a Constructional Challenge each year, and are looking for suitable suggestions for next year. If you have any ideas, or would like to issue a challenge and carry out the adjudication at the 2001 Convention, please contact Peter G3CQR, QTHR (or via email to 'petercqr@ukgateway.net') before November 1st.

INTERNATIONAL QRP DAY (June 17th)
Perhaps because this often falls midweek, rather than at a weekend, recent support for this event has not been good. This year was no different, with just one log received. Congratulations to Valery RW3AI, who's log shows numerous QRP contacts on 20, 15 and 10m, and therefore is this year's QRP Day Plaque winner. Please make a note in your diaries, and do your best to participate next year. All entries are welcome.

How's your **Y2K** entry going? Many have already been reporting scores well in excess of the magic 2000, so I am expecting some pretty big logs to check! It's not too early to start thinking about G-QRP's Winter Sports (Dec 26th to Jan 1st inclusive) - why not plan an operation from an unusual location, or using unusual QRP equipment? In the meantime, my deadline for SPRAT 104 is the beginning of November. Have lots of **QRP FUN** ..

72 de QRPeter

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

FOR SALE: Kanga LCK 80m superhet CW transceiver. Rx board working, tx board not started building. No time to complete, so £10 donation to repeater group secures. Mark G0OIW QTHR, 0118 948 3593, bartok@cwcom.net.

WANTED: My Marconi TF2303 modulation meter has failed, anyone got a circuit to help me fault find? Ian G3ROO 01304 821588 email g3roo@gqrp.com

OFFER: Offered free due to lack of space - 80m mains operated Transceiver [CW] with PSU - 50MHz CW Receiver with built in PSU and Transmitter - 2m CW Receiver and Transmitter - G3BIK Keyer - all above with circuits. RadCom 1987-199 bound in hard covers, Wayne Kerr Component Bridge type B521 with handbook. Gordon Pope, G3ASV. 01444 - 415053.

WANTED: DEAD OR ALIVE Yaesu FT102 or any thing in the range. Renovating old line-up and need all filters, FM boards external VFO's, Tuners in any condition Ian, G3ROO 01304 821588 or email g3roo@gqrp.com

FOR SALE: HF QRP rig: Mizuho MX14 -S 20M SSB/CW transceiver, with 4 xtals, complete with speaker mike, AN-14 Telescopic Ant, Dc-Dc converter, Sagent 20M end-fed dipole, QRP random-wire ATU, instructions and case. £300 ono. Contact George (G0HSV) (020 8789 8775) .email g0hsv@qsl.net

WANTED: A set of Denco Green Coils to make an 0V0 or 0V1 for my grandson.
Also have for sale some Type 43 Bird Throughline Watt meters and modules.
Contact G4GDR on 01793-762970 or QTHR.

NOVICE NEWS Steve Ortmayer G4RAW

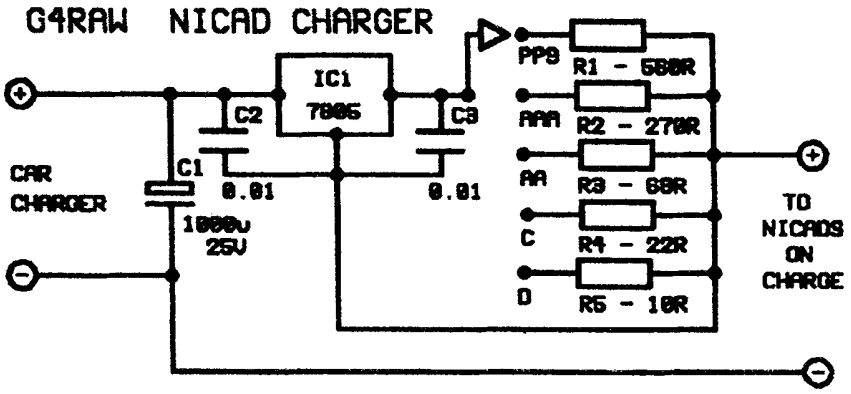
14 The Crescent, Hipperholme, Halifax. HX3 8NQ. Tel: 01422-203062

email: ortmayer@hotmail.com

Bob MacDonald 2EØATZ in Whitstable working the 10 15 and 30 metre bands with 5 watts (Ten Tec Argonaut 515 and Ten Tec Argosy II plus home-brew vertical antenna) reports DX QSOs as follows: KA1DDB, CW 2WAY QRP, WP2AIM CW, K8RNQCW, LW2DLL CW, RV6FF CW, CU2IJ CW 2 WAY QRP, LU9FLX CW, P43E CW, KG4CNZ CW, PT7BZ SSB, 8R1AK SSB, 4ZJGV SSB, VE3XN SSB and others. Bob works CW mainly on 15m with some on 10m and SSB on 10m only. He took part in the Practical Wireless 2m QRP contest but does not think he will be among the front runners!

NICAD CHARGER

I have made a constant current NICAD charger which uses the 7805 IC. The IC keeps 5v across the resistors, so by Ohms Law you can work out the current. You can use a rotary switch to select the resistors but I just used a crocodile clip and a lead. You need only use the resistors for the cells you wish to charge. The unit is powered by a 12v car battery charger.



VHF MANAGER'S REPORT

John Beech G8SEQ, 124 Belgrave Road Wyken Coventry CV2 5BH
024 76 273190 & Fax: 024 76 272709
E-mail: john8seq@discover.co.uk; Packet: G8SEQ@GB7COV

Parasitics in amplifiers.

While experimenting recently with pre-amplifiers and power amplifiers for 70 MHz, it occurred to me that the average constructor may have built something which has parasitic problems without realizing it. In the case of pre-amplifiers, it is possible to detect the presence of parasitics by carefully listening to some of the signals received. If you hear unexpected signals such as broadcast FM or TV sound, there is a good chance that parasitic oscillation at some high frequency is occurring, causing the amplifier in question to act as a self-oscillating mixer. To stop parasitics, the usual method is to thread the base lead of a bipolar transistor through a ferrite bead such as an FX1115.

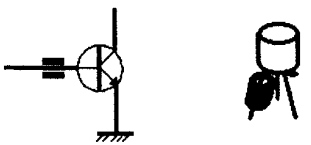
However, for dual gate MOSFETs which come in X-packages, this is not possible, so the technique is to connect a resistor of 10 to 33 ohms in series with gate 1. I find that surface mount resistors are ideal for this as they are leadless and so do not introduce any extra inductance and are easily retro-fitted. It is only necessary to make a cut in the pcb track about 2 mm wide and solder the resistor across the gap.

In the case of power amplifiers, a similar technique could be used to detect the presence of parasitics. Operate the amplifier into a dummy load with a general coverage Rx nearby; again hearing signals that you wouldn't expect or wide band noise is the give away, but remember harmonics will be present and may be strong enough to cause reception of out of band signals.

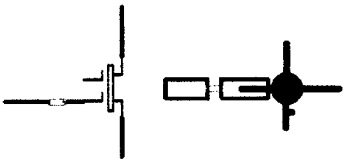
Another indication of a power amplifier producing parasitics is sudden jumps in power level as you tune the output stage. If it doesn't tune smoothly through a peak, suspect parasitics. Again ferrite beads can be used to suppress the parasitic or decouple the drive and/or collector with a small value capacitor (5 – 10 pF) to ground. Tinplate shields between stages to prevent feedback can sometimes be effective.

If you have the luxury of a spectrum analyser, it becomes all too obvious when these problems occur.

SUPPRESSING PARASITICS



Fitting a ferrite bead to base lead.



Fitting a chip resistor to gate 1 of a MOSFET

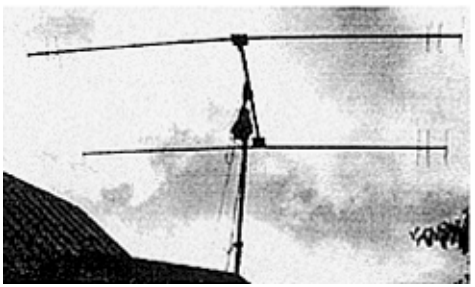
MEMBERS' NEWS

by Chris Page G4BUE

Highcroft Farmhouse, Gay Street,
Pulborough, West Sussex RH20 2HJ.
Tel: 01798 815711 Fax: 01798 813054
E-mail: g4bue@infinnet.co.uk
Packet: GB7DXS on UK DX PacketCluster

US1REO says the UR QRP Club organise an activity period every summer and winter. The Winter Activity Period is from 1000z Saturday to 1000z Sunday of the third weekend of December and the Summer Activity Period from 0000z to 2400z on the third Sunday of August, on the CW and SSB QRP frequencies. Further information can be obtained from Peter at <us1reo@urqrp.ne.cg.ukrtel.net>. **PA3ADJ** uses a pneumatic tower with a two element mini beam on (see photograph below). In the shack, Stefan uses a homebrew digital 4W transceiver (available in kit or ready built) designed by **SP3ABG** and which "works well". Stefan comes from Poland and has been QRV from there the last two summers as **SO4ADJ**, and next year plans bigger antennas.

GW4ALG says he had "a great time operating my QRP rig in NFD" and has pictures at <http://www.alg.demon.co.uk/radio/qrp/nfd_00.htm>. Steve only sent in a check log as he is not a member of the RSGB (UK amateurs have to be a member of the RSGB to participate in RSGB contests!). He was also QRV 29 July/4 August from Wengen as **HB/GW4ALG/P** with the equipment shown at <http://www.alg.demon. co.uk/radio/qrp/hb_p.htm> and made two-way QRP QSOs with **MØCVB** and **G4CKH**. From 12 June Juan was QRV as **OH2/EA5XQ** in Helsinki with his Howes DXR20/TX2000 (5W) and an indoor antenna and **LY2PX** was the first QSO on 40m. **W3ASE** is QRV again with a CSP transceiver.



DL2RM spent two weeks in Tuscany in June where he was QRV as **IK5/DL2RM** and despite very bad weather (lots of thunderstorms) he used his SEG15 (see above) and a 15m long wire to make 130 QSOs on CW (5W) and SSB (15W), including some in the Asian CW Contest. Rudi was also QRV from Dresden at the end of July with **DL6DQW**'s 500W rig and eight element log-periodic at 15m. He says "A good experience to get 59+ from ZL and VK and work the **FR/F6KPF/T** DXpedition without any trouble, whereas back home I used my 20W and Windom to work it, but with a better feeling of success".

G3UGF was QRV 8/15 July from Holy Island, Lindisfarne, Northumberland, (WAB NU14) with QRP on 80, 40 and 20m and

NRØNR (ex **AL7GQ**) was QRV 4/14 August from Ringarogy Island, County Cork, Ireland. **GM3MXN** worked EX, TI and VU for new DXCC and asks if "anyone is interested in checking how far we can work with PSK31/QRP on 2m. I don't have a beam but it is worth the challenge to work with verticals". On a different subject, Tom says "Recently I photographed an old antenna pole which held a wire for a GM3 until the house was demolished to make way for a duel carriageway and redevelopment 35 years back. The pole is still there and the Council I assume, not knowing what it was, planted a rose garden around the rusty old pole. What a wonderful way to preserve the heritage of amateur radio in the town of Motherwell".

Willi, DK6SX, using the three-band TRX at Pottenstein 2000.

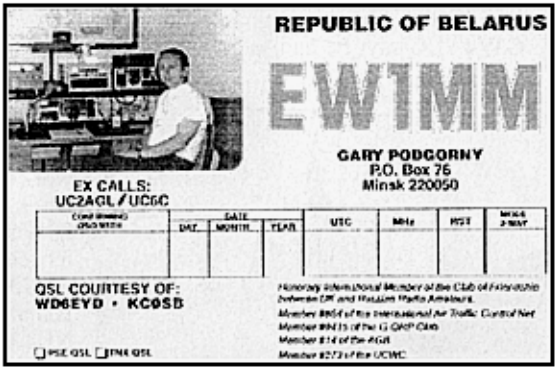
We had a surprise visit from **KC5EV** in August who was in Crawley for a few days for a business meeting. Leo is from Austin, TX and hosted **G3RJV**, **GM3OXX** and me when we visited the USA for the first time in 1983 for the ARRL Convention in Houston. We gave some presentations as part of the (first ever) QRP Forum, the forerunner which led to the ARCI organising the present QRP Forums, meetings and hospitality suite at the Dayton Hamvention. It was good to see Leo again and catch up on the QRP scene in Texas. After a year of using his Norcal 20, **MØAVN** has confirmed 67 DXCC (including 35 two-way QRP) and says the highlight is **VU2LEX**. Alan is using an end fed W3EDP antenna at 20 feet and an inverted vee at 25 feet.

NL7DS says information about the Arctic QRP Society can be found on his Web page at <http://www.nl7ds.com>. Durell says you can join from the page. The Iowa QRP Club (USA) have a Web site at <ftp://divis17.ped-gen.uiowa.edu/pub/iaqrp-l/journal> which contains the Spring 2000 edition of their newsletter (32 pages). Milos, **S53EO**; Alen, **S53MA**; Dane, **S57CQ**, and Vanja, **S59AV**, were QRV 21/24 June as **DL/S5ØZRS/P** (ZRS - Zveza Radioamaterjev Slovenije, the Slovenian Amateur Radio Association) from the Germany Hamvention at Friedrichshafen on the QRP QRGs with MFJ 9020 (3W) and Sierra (1-2W) transceivers. A special QSL is available.

EW1MM (see SPRAT 103) is a 45 year old civil aviation radio operator in Minsk and has been QRV for 25 years (**UA6LFC** in the 1970s and then **UC2AGL**). Gary likes construction and uses a home-brew 5W CW/SSB digital mode transceiver. The photograph below shows "a very tired **EW1MM** after a 12 hour night DXing".

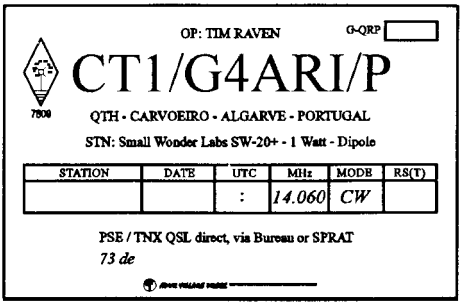
Congratulations to Club members who did well in the 1999 CQ WW CW Contest. **LY2FE** came World second in the QRP class with a very good 1,379,329 points and **G3LHJ** was World second and **GØOGN** (operating as **M2H**) World fourth on 20m. **G3VPW** was second World on 40m and **G4ELZ** had the top UK all bands score followed by **GM4HQF** who was second. **N8ET** was third in the USA all bands class.

G4FDC (**OM6SA**) was one of the Club members who met up with 52 Slovak members and other low power enthusiasts at the Radio Club **OM3KFV** in Vrutky on 13 May. Alex says "QRP techniques for de-



sign and construction were discussed, practical on the spot construction of simple and efficient antennas was performed and participants judged pieces of equipment brought by the home construction adventurers. QRPers from Zilina brought, erected and demonstrated their new design of a vertical antenna. The home-brew construction was won by **OM2ZZ** with his hand key/ QRP TX combination. Various RSGB, G-QRP-C, ARRL and CQ books, magazines and CDs were available for perusal and learning, (my arms are now two inches longer through carrying a 60lbs case full of books and magazines through the airports!), together with QRP radio bulletins of the Slovak ARA (SARA). Some enterprising component and kit suppliers were there and a wide range of interests was covered, both at HF and VHF. Even the President of SARA visited the convention to explain the latest licensing regulations and other matters. Altogether it was a great social and educational meeting"

G4ARI, was QRV as **CT1/G4ARI/P** in April (see above) from a villa in the seaside resort of Carvoeiro in the Algarve and decided to build a rig for the trip. Tim's requirement was "reliable with no moving parts such as meters (you should see the way they throw your suitcases about at airports), small, QRP, CW, 20m, transceiver operation, simple controls, built-in memory keyer, built-in SWR bridge, AF filter and IF crystal filter, full break-in without relays, good RF performance and very low power consumption. I purchased the Small Wonder Labs SW20+ (20m transceiver PCB and parts kit) from NN1G for $55, (about £40)



and a Tick4 EMB keyer kit. I planned to use a 20 metre dipole, so I didn't need an ATU, but was a bit reluctant not to take an SWR bridge. Then I saw a circuit in June 1995 *QST* by **K1KP** which used two LEDs and so I built all this into a small diecast box 15 x 8 x 5cms. The rig worked first time, although the SWR bridge took a bit of coaxing to work!

"For the Holiday, I ran the rig from eight 1.5 volt Duracell Ultra D type cells, which I measured back in the UK as giving one watt out at the end of the 48 feet of RG58 coax feeder. Now the beauty of these Portuguese villas is that a lot of them have flat roofs, with tall TV antenna poles, and that's where I hung the 20m dipole. Tuning and pruning took about five minutes, using the built in LED SWR bridge on the rig, and I was on the air! Combining radio and a family holiday with my wife and six year old daughter, meant I spent a couple of hours each day, over the two weeks, on the air, which netted 112 QSOs in 25 DXCC countries, including VK, W, VE. Of those 112 QSOs, 52 were UK stations and 33 were with G-QRP Club members. Conditions were very good; often I would be working a G stations in the evening who would tell be the band was closing, but from CT1 the band was still very lively, and never really closed at night before I did! And as for the batteries, the original set were still going strong at the end of the holiday."

Let me know how your autumn goes, by 20 November please.

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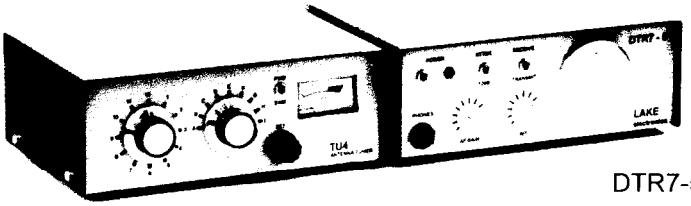

DTR7-5

TU4

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(For a completely independent assessment and an objective comparison with other QRP rigs, see Peter Hart's review in October 1995 RADCOM)

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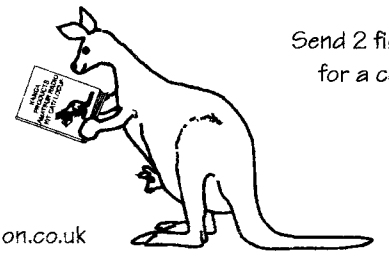

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