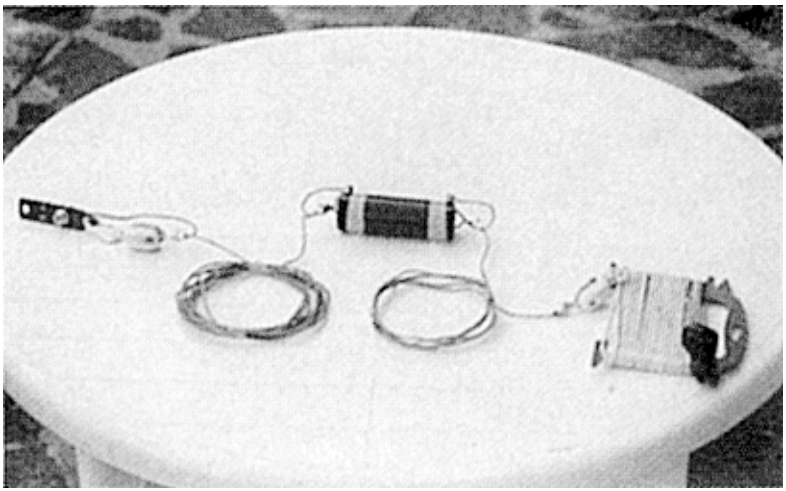
SPRAT

THE JOURNAL OF THE G-QRP CLUB

DEVOTED·TO·LOW·POWER·COMMUNICATION

ISSUE NR. 85 | © G-QRP CLUB | WINTER 1995/6



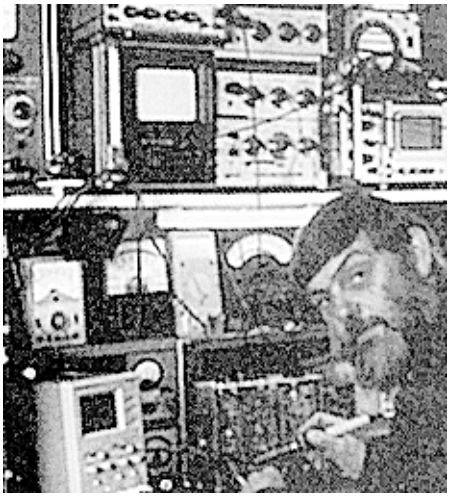
The MOA Short Sloper by DJ7RU

See A.A.A. in this Issue

RF DECIBEL METER - EP2 PORTABLE SSB TRANSCEIVER - PL259 TESTED
HARMONIC OSCILLATOR IDEA - MICRO KEYER - THE LCK ON 20 METERS
RF AMP FOR HF9 RECEIVER - THE ROCK CRUSHER - MIC & VOGAD UNIT
IMPROVED MIXER FILTER - ALTERNATIVE KEYING - DC SIDETONE
4 DAYS IN MAY - MEMBERS ADS - PA3BHK 80M DSB/CW RIG
QRP NEWS - QRP CALENDAR FOR 1996 - ANTENNAS, ANECDOTES, AWARDS
COMMUNICATIONS & CONTESTS - VHF REPORT - NOVICE - MEMBERS NEWS

NOW ENTERING OUR TWENTY FIRST YEAR

JOURNAL OF THE G QRP CLUB



Rev. George Dobbs G3RJV

St. Aidan's Vicarage,
498 Manchester Road
Rochdale, Lancs.
OL11 3HE. England
Telephone and Fax : 01706 - 31812
(overseas : +44 1706 31812)
Internet : g3rjv@gqrp.demon.co.uk

EDITORIAL :

I know whenever SPRAT is running late from the number of letters and phone calls I receive from members enquiring about their issue ! It is very flattering to know that members await their copies with fervour. My general advice, if your copy, is late is **don't panic**. The late arrival of your personal copy should not undermine your possibility of buying items offered for sale because everyone else should have a late copy. The Post Office collect the copies of SPRAT for bulk posting. With the exception of first class posted copies which go to club officers, all copies are posted at the same time to giving members equality in special offers and adverts. We do have a publishing plan for SPRAT with release dates set at March 31st, June 30th, September 30th and December 24th but these can be little more than target dates. In practice SPRAT relies on the work of people who give their spare time freely and the *true* publication date is *when it is ready*. Flogging willing horses is rarely a useful pursuit.

We now enter our 21st year as a club - so may I use a little space to sincerely thank, on your behalf, all of those who have given their spare time to the club over these years - some from the very beginning. It is always inspiring to work with a group of people who are radio amateurs in the literal meaning of the word. [**Amateur** *n.* One who cultivates a particular study or art for the love of it, and not for professional gain. Fr., - L. *amātor*, a lover - *amāre* - to love]

Long may it be that way. A very happy and contented new year for 1996

G3RJV

EDITED BY GEORGE DOBBS G3RJV ARTWORK BY A.W. (MAC) McNEILL G3FCK
PRINTED BY SHOREHAM COPY, 3 JOHN STREET, SHOREHAM-BY-SEA. SUSSEX

AN R.F. DECIBEL METER

Phil Stevens, G3SES, 20 Abbots Park, Chester. CH1 4AN

I have an interest in building crystal filters for home-made receivers. I have also collected a large number of surplus filters from rallies. These filters tend to range between 1.4MHz and 10.7MHz.

Test gear was needed to make measurements on single crystals and complete filters. At first a signal generator was built covering 1.1 MHz to 12 MHz based on the circuit in Solid State Design. Automatic sweep was added to be used with a digital storage scope.

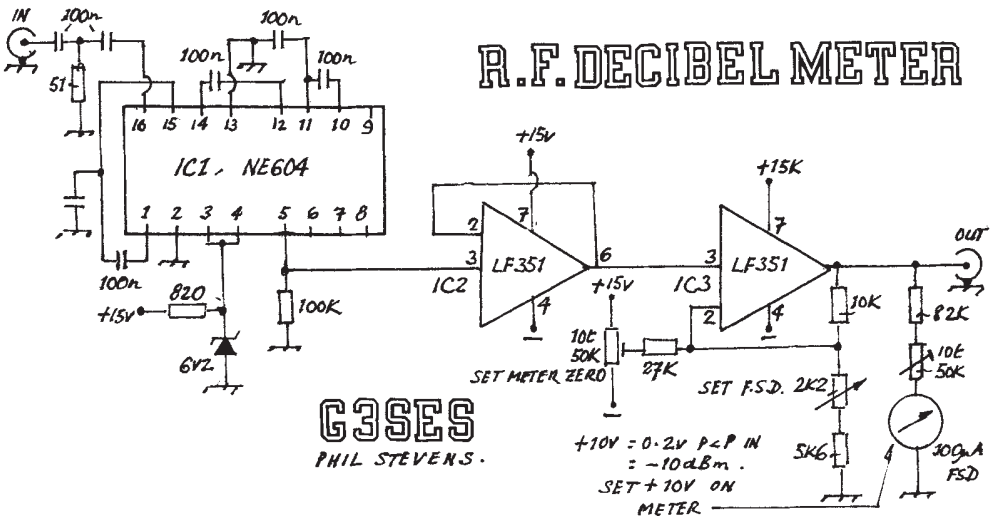
A detector was needed to measure filter response over 60 dB. Attempts to use the LM3189 chip gave poor response below 5MHz but would accept 0dBm before gain compression. The NE604 was found to have a much wider bandwidth but would only accept. -10dBm before compression.

The circuit shown enables a meter to read -65dB to 0dB where 0dB is -10dBm and a full scale output of 10 volts. A 10 dB attenuator on the input would enable the instrument to be calibrated in dBm.

Input impedance is 50 Ohm. Calibration was achieved using the signal generator, an attenuator and an oscilloscope. With no input the meter was zeroed. Then 0.2vpeak to peak was fed into the input (-10dBm) and the set FSD pot adjusted to give +10v at the output socket. The meter trimmer was then adjusted to give full scale. The meter scale was calibrated every 5dB to improve on the +/- 5dB linearity over the range. The output can be connected to the Y input. A slow sweep speed is necessary for narrow filers to prevent ringing.

Power requirements are a dual polarity regulated supply of +/- 15v at less than 50mA.. Good decoupling is necessary as is RF wiring techniques around the NE604.

Any queries about this circuit should be sent with an SASE to G3SES (Address Above)



THE EP-2 PORTABLE 75M SSB TRANSCEIVER

Derry Spittle, VE7QK, 1241 Mt. Crown Rd., N. Vancouver, BC, V7R 1R9, Canada e-mail: jds@freenet,vancouver.bc.ca

Construction articles for the original Epiphyte[1] were published in the Fall of 1994 and further articles for a 5W amplifier and VFO[2] appeared shortly thereafter. The Epiphyte-2 includes both these features without increasing the size and without compromising the original objectives of simplicity and minimum power consumption

THE DRIVER STAGE is a CA3020A differential amplifier (U5) and replaces the original pair of VN10s to make room for a power amplifier. Operating from a 9V supply this stage has a power gain of 60dB, an idling dissipation of 200mW and an output of 500mW. It is matched to a 47 ohm resistive load (R23) at the gate of the final amplifier with a trifilar wound 4:1 broad band transformer (T1).

THE POWER AMPLIFIER (Q4) is an IRF510 Mosfet with an RF output of 5W PEP. An LCC circuit with Q of 10 matches this to a 50 ohm load. The low resistive input at the gate ensures unconditional stability. A low pass filter may be inserted in the antenna feeder.

THE VFO is a varactor tuned Vackar circuit and replaces the 4.19MHz ceramic resonator (VXO). The inductor is a Toko 3.3uH variable coil.

THE RF BANDPASS FILTER uses the same Toko 4.7uH coils but has been re-modelled in a series-tuned configuration using W7ZOI's GPLA program. It has a reasonably flat response over some 200kHz and sharper roll-off on the high frequency side to improve rejection of the image frequency. It has an input impedance of 1500 ohms to match the NE602 mixer and terminates in a 100 ohm resistive load to ensure stability in the driver. Fixed capacitors are "standard" values.

THE MICROPHONE input is a 2-pin Molex connector (con6). R19 provides the polarizing voltage for an electret microphone (2-terminal type) and should be omitted if a dynamic microphone is used. The value of R20 should match the impedance of the microphone. The speech amplifier (U6) gain may be adjusted by changing the value of R17.

ASSEMBLY is fairly straightforward but here are a few suggestions:-

Some fairly large value polystyrene capacitors are specified. Their physical size should be ascertained before ordering if they are to fit comfortably on the board. Ensure that the Toko coils (L3, 5, 6 & 8), filter (F1), ceramic resonator (X1) and trimmer cap (C10) fit the PCB; enlarge the holes if necessary. Install the CA3020A (U5) first; it is easier to align the twelve pins without other components in place. Be sure to solder in the two jumper wires before installing the socket for U1. Remove the center pin before mounting the IRF510 (Q4) and heat sink with a 4-40 machine screw, nut and star washers. Remove unused terminals from the relay socket. Finally, don't bother soldering the three unconnected pins on the Toko coils to the ground plane; you may need to remove the coils one day!

ALIGNMENT AND TESTING must be carried out with the single-sided PCB fastened to a ground plane with four metal stand-offs.

1. **REMOVE BOTH METERING JUMPERS.** Install the Relay (K1) and PTT switch if not built into the microphone. With all ICs removed connect to a 12-14V **FUSED** supply. Verify that VR2 is delivering 5V and that VR1 is delivering 9V on transmit. With an RF probe check that both oscillators are functioning.

2. Set the LFO to 453khz with the trimmer (C10). Change the padder (C11) if necessary.

3. Adjust L3 and R24 to set the tuning range. Bandspread, with the 10-turn potentiometer (R25), should not exceed 20KHz/turn or tuning will be too critical. Shorten the slug in L3 so that it sits flush with the top of the can and fix with beeswax or sliver from a rubber band.

4. Install all ICs. Connect the antenna, speaker, volume control. Test the receiver and adjust L8.

5. The RF voltage at pin 6 on each of the two mixers should read 140mV +/- 25%. If necessary, change the value of C5 and/or C6.

6. Set the RF drive control (R15) to minimum. Measure the transmit standing current in the driver (U5) at con7. If this is not 25mA +/- 10% the trifilar wound transformer (T1) or the driver (U5) has probably been incorrectly installed.

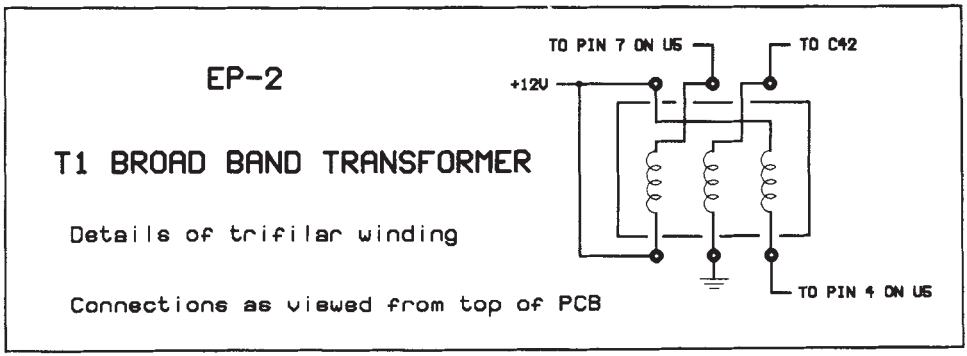
7. Adjust R3 to set the transmit idling current in the power amplifier (Q4) to 10mA at con8. **ONLY AT THIS POINT MAY BOTH METERING JUMPERS BE INSTALLED.**

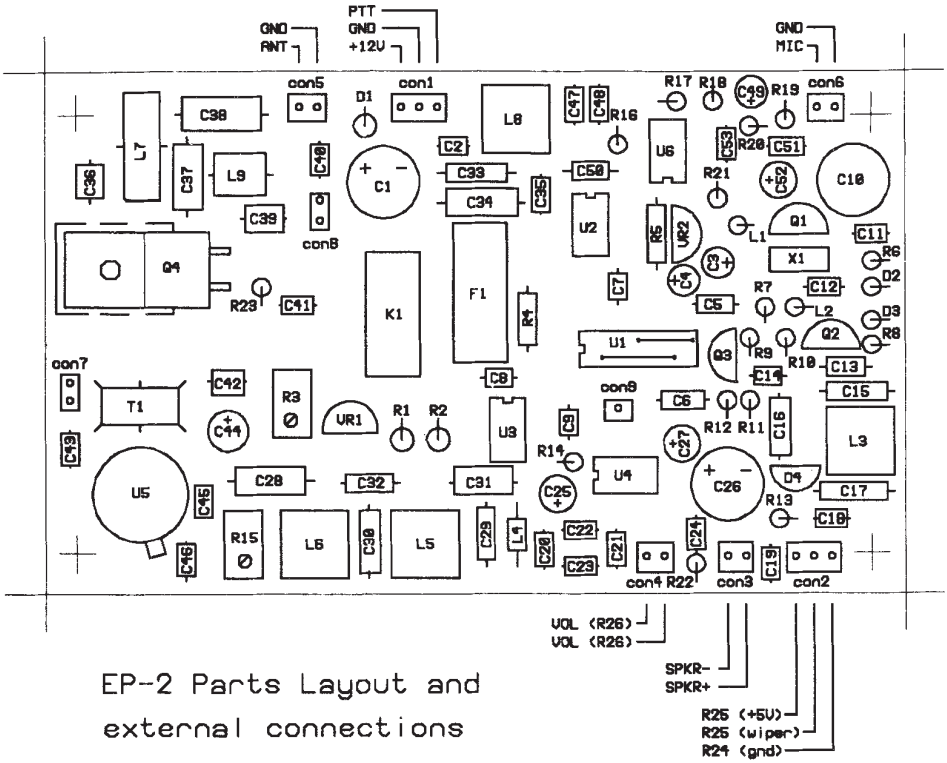
8. Advance the RF drive (R15) and until RF voltage appears across a 50 ohm dummy load while modulating with a tone (whistle!). Adjust the bandpass filter (L5 & L6) to maximize. Continue increasing the drive until it peaks to around 16 volts. The driver current should rise to 60 or 70mA and drop to around 25mA with no modulation. The IRF510 current should rise to 300 or 400mA and drop to around 10mA with no modulation. Monitor the signal on a receiver and/or oscilloscope. The "average" current with normal speech modulation will, of course, be considerably less. This completes the alignment.

The 2.9" x 4.75" PCB and a digital display fit comfortably into a 5" x 4" x 2" TenTec enclosure (Model TP-20). The Molex type connectors permit a great deal of flexibility in packaging.

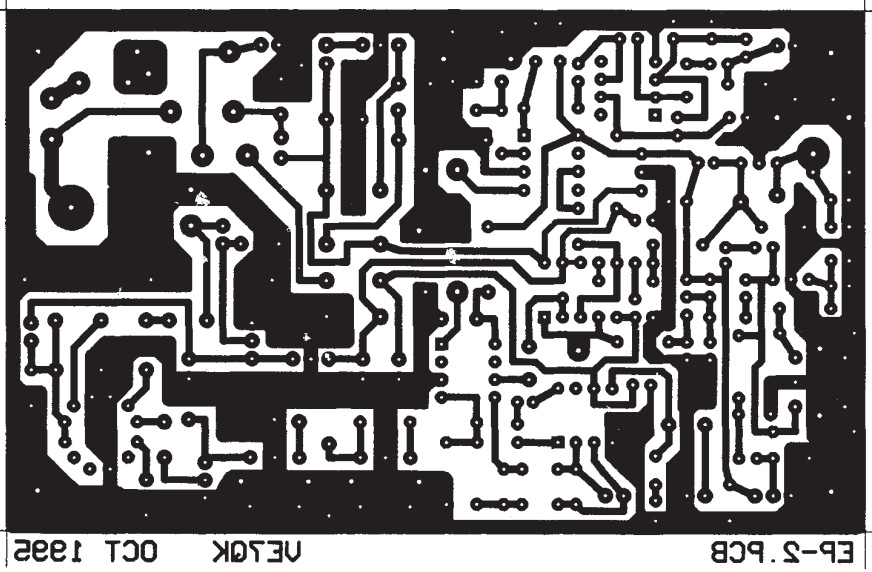
Have fun. Feedback is always welcome. 72 Derry VE7QK

[1]QRPp Sep 1994 pp. 29-38. SPRAT 81 (Winter 1994/5) pp. 3-12.
[2]QRPp Dec 1994 pp. 44-52. QRPp Mar 1995 p. 66. SPRAT 82 (Spring 1995).





EP-2 Parts Layout and external connections



EP-2 PARTS LIST

C1 100 mF (elec)
C2 0.1 mF (mon cer)
C3 1 mF (tant)
C4 1 mF (tant)
C5 24 pF (NPO)
C6 24 pF (NPO)
C7 330 pF (disc cer)
C8 0.1 mF (mon cer)
C9 330 pF (disc cer)
C10 100 pF (trimmer)
C11 50 pF (NPO}
C12 1200 pF (cer)
C13 100 pF (NPO)
C14 24 pF (NPO)
C15 2200 pf (ax poly)
C16 820 pF (ax poly)
C17 1000 pF (ax poly)
C18 0.1 mF (mon cer)
C19 0.1 mF (mon cer)
C20 0.01 mF (mon cer)
C21 0.01 mF (mon cer)
C22 0.1 mF (mon cer)
C23 0.1 mf (mon cer)
C24 0.1 mF (mon cer)
C25 4.7 mF (elec)
C26 100 mF (elec)
C27 10 mF (tant)
C28 2200 pf (ax poly)
C29 470 pF (ax poly)
C30 5600 pF (ax poly)
C31 2200 pF (ax poly)
C32 470 pF (NPO)
C33 470 pF (ax poly)

C34 2200 pF (ax poly)
C35 15 pF (NPO)
C36 0.1 mF (mon cer)
C37 150 pF (ax poly)
C38 150 pF (ax poly)
C39 0.1 mF (mon cer)
C40 0.1 mF (mon cer)
C41 0.1 mF (mon cer)
C42 0.1 mF (mon cer)
C43 0.1 mF (mon cer)
C44 1 mF (tant)
C45 0.01 mF(mon cer)
C46 0.01 mF(mon cer)
C47 1200 mF(disc cer)
C48 0.1 mF (mon cer)
C49 1 mF (tant)
C50 1 mF (non-polar cer)
C51 150 pF (disc cer)
C52 1 mF (tant)
C53 1mF (non-polar cer)

R1 4.7K
R2 4.7K
R3 10K (10t. trim pot)
R4 47
R5 2.2K
R6 1 M
R7 100
R8 100K
R9 22K
R10 10K
R11 22K
R12 2.2K

R13 10K
R14 100
R15 100 (10t trim pot)
R16 1K
R17 33K
R18 10K
R19 4.7K
R20 400
R21 10K
R22 10
R23 47
R24 4.7K
R25 10K (prec 10t. pot)
R26 20K (vol. control)

VR1 78LO9
VR2 78L05

U1 MC14066
U2 NE602A
U3 NE602A
U4 LM386-4
U5 CA3020A
U6 MC1741

Q1 MPF102
Q2 MPF102
Q3 2N3904
Q4 IRF510

L1 1 mH choke
L2 1 mH choke

L3 3.3 uH var coil (Toko BTKANS9445)
L4 1 mH choke
L5 4.7 uH var coil (Toko 154AN-T1005)
L6 4.7 uH var coil (Toko 154AN-T1005)
L7 6uH (33t on Amidon T50-2 toroid)
L8 4.7 uH var coil (Toko 154AN-T1005)
L9 RFC (7t on Amidon FB43-801)

T1 4:1 broadband transformer (5 trifilar t, on Amidon FB-43-2401)
T2 2 t. on Amidon FB-43-2401

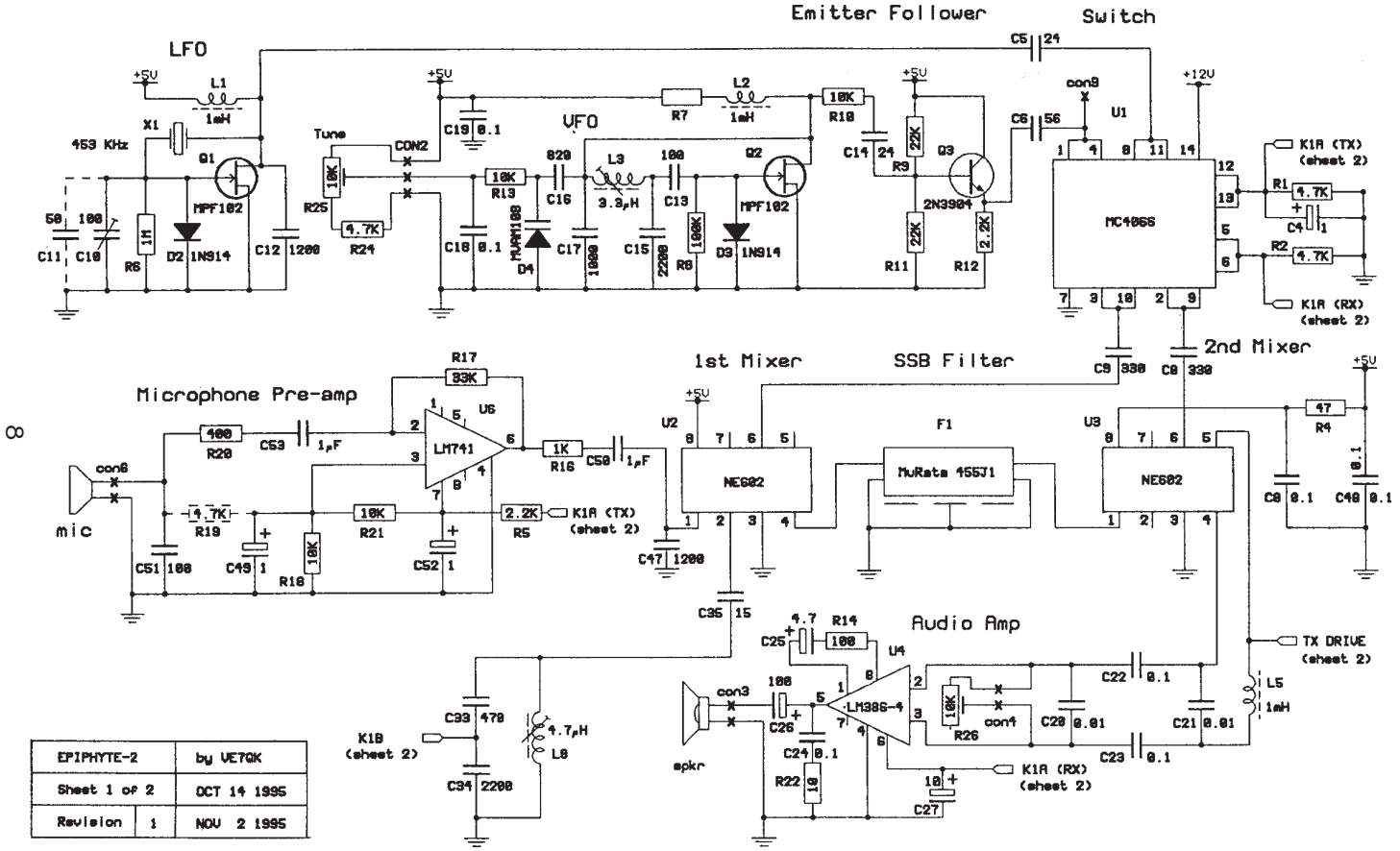
F1 455KHz SSB filter (MuRata 455J1)

K1 miniature DPDT relay

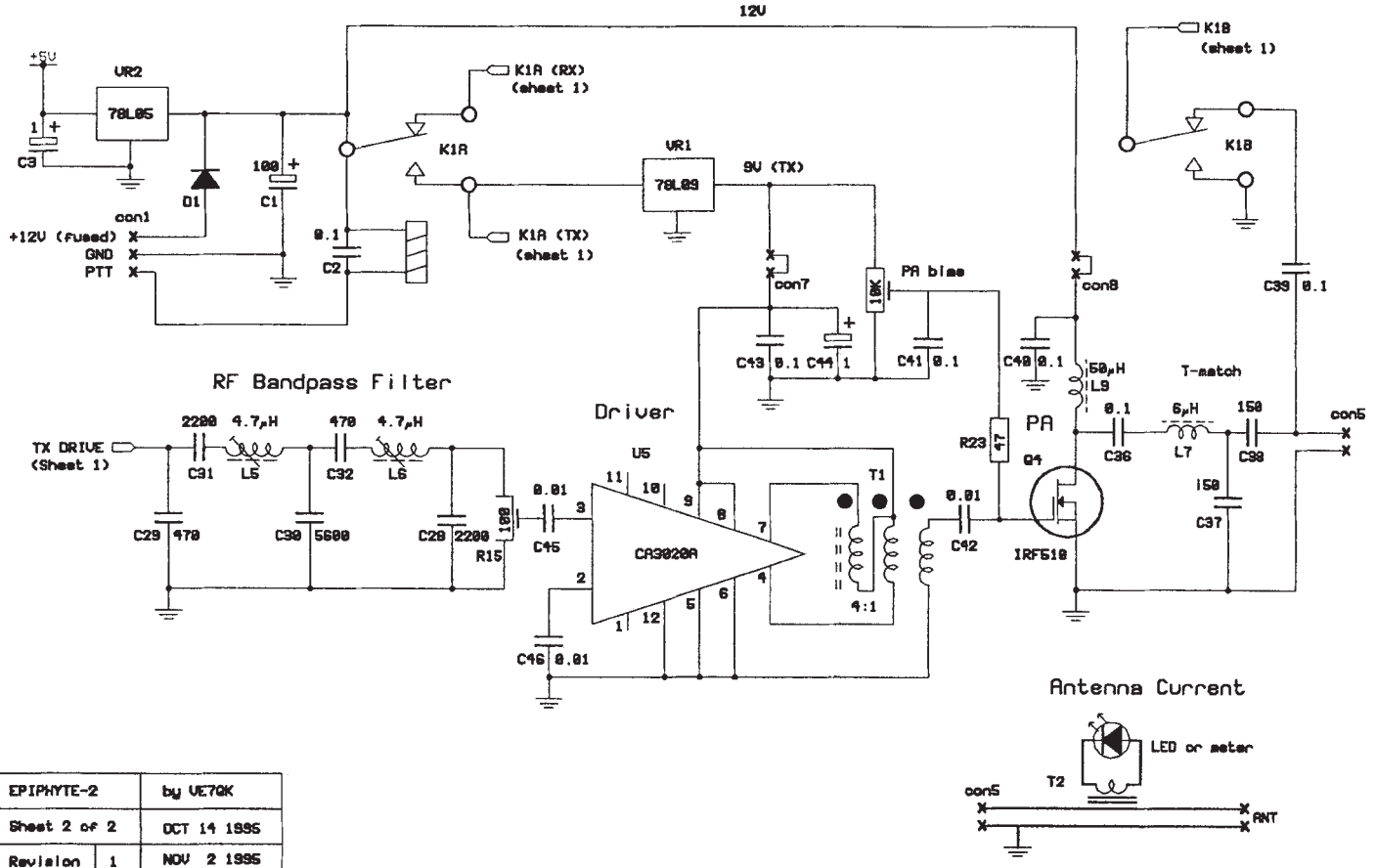
X1 455KHz ceramic resonator
2 x 3-pin & 4 x 2-pin (Polarized Molex Terminals)
2 metering jumpers & terminals
1 x 1-pin test point

D1 "idiot diode" (optional)
D2 1N914
D3 1N914
D4 MVAM108 tuning diode

Heat sink (Q4)
4 x 4-40 metal stand-offs (3/16" x 1/4"H)
LED or meter to monitor antenna current
4 x 8, 1 x 7 & 1 x 8-pin chip sockets



EPIPHYTE-2		by VE7QK
Sheet 1 of 2		OCT 14 1995
Revision	1	NOV 2 1995



EPIPHYTE-2		by VE7QK
Sheet 2 of 2		OCT 14 1995
Revision	1	NOV 2 1995

PL259's AT VHF : PUT TO THE TEST

Peter Chadwick G3RZP, Three Oaks, BRAYDON, Swindon. Wilts

I looked at PA3BHK's article (SPRAT 84) on the BNC to PL259 adapter, and it struck me that we all know how bad PL259s are at VHF, don't we? I realised that I only knew what people said about them, not what they actually did! So I figured it was time to find out.

On 2 metres, feeding a reasonable quality load through the Bird 43A wattmeter, the SWR was under 1.07 to 1. Inserting an adapter consisting of an N female to N female barrel, followed by a N male to UHF female adapter, followed by a UHF male to N male adapter, sent the SWR up - to under 1.1 to 1.
Repeating the exercise on 432 kHz led to very similar results - 50 watts forward, less than 0.1 watts reverse. How about through loss? Adding that same N-UHF-N adapter chain before the wattmeter caused a less than 1 watt change in 30 - under 0.15dB!

Now I'll accept that these tests aren't exhaustive. When you consider the length of a mated PL259 assembly, it does only represent about 0.01 wavelength at 2 metres, so I suppose that the result isn't too bad. Measuring up a PL259, I figured that depending upon the dielectric, it was somewhere between 1000 and 150 characteristic impedance. Plot that on a Smith chart for a .01 wavelength line, and it ties in reasonably well.

Where does this leave us? Are PL259s so bad? Probably if I'd measured a pair of connectors on a cable, it may have been worse, but I don't think I can subscribe to the idea that a PL259 is a total disaster that will throw away all the power.
These measurements are on high quality PL259s. The use of PL259's other than the PTFE insulated, silver plated variety with 4 solder holes may well lead to higher losses, especially in view of the difficulty that can be found in correctly attaching the cable.

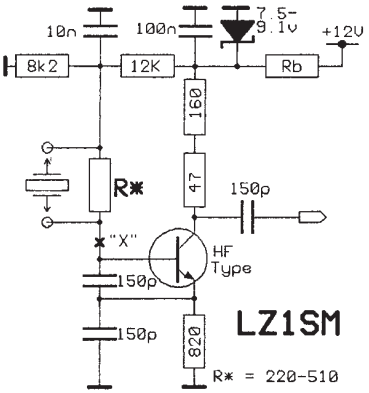
Further, the losses in attaching RG58/U cable as opposed to RG213/U or URM67 will almost certainly be greater, and quite possibly far worse in SWR..

MORAL: Use decent plugs and the good quality thick cable.

HARMONIC OSCILLATORS WITHOUT INDUCTORS

Angel Gerasimov, LZ1SM, BL.234 WH.2. Mladost - 2, 1799 SOFIA. Bulgaria

On the 10m band I use a capacitive feedback oscillator without the traditional LC circuit in the collector of the transistor. The most important element of this circuit is a resistor shunting the crystal. The crystal inserts losses in the crystal resonator
I have tested the third harmonic crystal oscillators from 18 to 40 MHz setting the shunt resistors between 220 and 510 ohms. Only the third harmonic appears on the output of the oscillator. When the shunt resistor is removed only the fundamental frequency appears. I have also tried crystals on 9400kHz and they also swing on to the 10m band.
Note: It is possible to change the frequency by putting an inductor of 0.4uH at point "X".



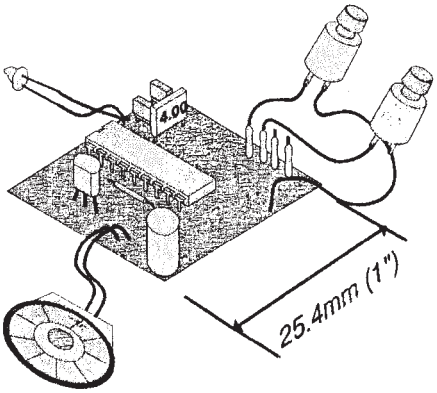
GQ TRANSCEIVER UPDATE

The Latest Updated Manual is available from HANDS ELECTRONICS, TEGRYN, LLANFYRNACH, DYFED. SA35 0BL. Send £2 in stamps to cover costs. The GQ Kits are still available from Hands Electronics.

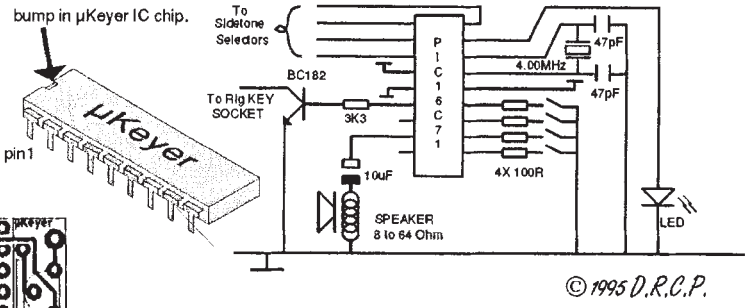
The GØBZF µ Keyer : An Iambic Keyer on a 1 Inch Square PCB

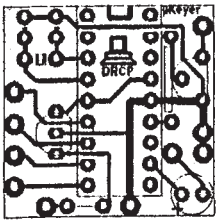
Dave Reid, GØBZF, (#3677) 5 Bridge Court, Chertsey, Surrey, KT16 8LX

PIC Microprocessor Technology Circuit
Very small PCB : ideal to fit inside a small rig
5 to over 50 wpm speed controlled via paddle input
Dot/Dash memories and sidetone
Very low Standby Current : about 1uA
Tune button for keydown : 10 sec or own choice
Wide range of Operating Voltage : 4 to 15 volts
Only 11 components on the printed circuit board
Choice of Sidetone Frequencies.
Option memory message personalised to user:
"CQ CQ DE <CALLSIGN><CALLSIGN> AR PSE K"
Easy to Build and Use with Full Manual.
Special Introductory Offer for Club Members



The Micro Keyer is a microprocessor controlled Iambic Electronic Keyer which through the use of a PIC microcontroller by Arizona Microchip Technology fits onto a 1" (25.4mm) square printed circuit board. It is ideal for mounting inside a compact transceiver. The low standby current also makes it suitable as a separate unit , perhaps mounted on the back of a paddle key. There are no large controls to make the unit physically larger.





MICRO KEYER INTRODUCTORY KIT PRICE £20.00 (BUILT £26.00) + £1.00 P & P

Send your order - Payments to D.R. Computer Products - to:

D.R. Computer Products, 5 Bridge Court, 100 Bridge Road, Chertsey, Surrey, KT16 8LX

Include your Callsign with the order if you wish to have the memory message added to the kit

Mention your G QRP Club Number and we donote 10% of the price to the G QRP Club Funds

CONVERSION OF LCK FOR OPERATION ON 20 METRES

David Rowlands, G6UEB, Jashoda House, Appt 4,Connaught Mews, Grand Depot Road,WOOLWICH SE18 6SU.

As the 20 metre LCK is no longer available, with many grateful thanks to Ian Keyser G3ROO for his invaluable assistance, I have set out details here of how to convert one to this band. The original design for 160 - 40 metres uses a VN66AF transistor as the PA. This is fine up to 40 metres, but above that, the RF output power falls whilst the transistor still draws the same current from the supply. A future article will cover the full conversion of the LCK to offer SSB/CW capability.

The resonating component values to be fitted for 20m operation are as under:
Rx: C1 & C3 100pf, C2 3.3pf, C4 & C5 220pf, C6 68pf. T1 & T2 KANK 3335, T3 & T4 KANK 3334
Tx: C13 & C15 100pf, C14 3.3pf, C16 & C18 220pf, C17 390pf. T5 & T6 KANK 3335, L3 & L4 11Turns.

Although the LCK was originally envisaged as giving limited coverage of the band, with a suitable variable capacitor for the VFO it will quite happily cover the full band on both transmit and receive without any significant degredation of performance at the band edges. The experimentally minded may wish to suitably adjust the capacitor values above (the ferrite slugs in the inductors will of course also have to be readjusted) for operation on the 17 metre band. It should be noted that the output power from the transmitter may well be lower on 17m than on 20m. The power output from the LCK transmitter on 20m is about 750 milliwatts.

Apart from fitting the resonating capacitances and inductances shown above, some other basic changes are necessary. After removing the VN66AF and the 220R resistor connecting the gate of the VN66AF and the emitter of the BC182 to ground, firstly, cut the track that joins the gate of the PA to the top of the 220R resistor and the emitter of the driver. Next, replace the 220R resistor with a 220R skeleton preset pot (the existing pcb holes may well need to be enlarged whilst an extra hole could be drilled for the centre contact). The centre contact of the preset pot goes to the gate of the PA transistor via a 10k resistor. The PA becomes a VN10KM instead of the VN66AF. Make sure that it is installed the right way round! A 0.1uF capacitor connects the emitter of the driver to the gate of the PA.This can be a small disc ceramic mounted under the PCB It is strongly recomended that a small piece (say 1 inch square) of unetched PCB is soldered to the tab of the VN10KM to act as a crude heatsink. Fig 1 shows the relevant part of the PA circuitry in its modified state.

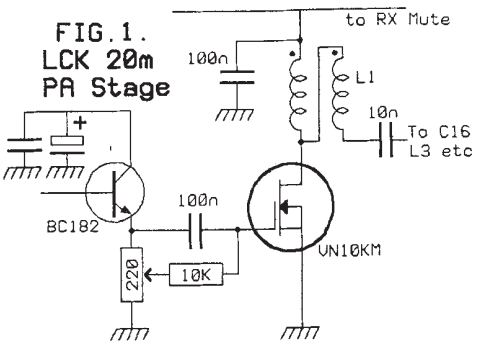
SETTING UP & ADJUSTMENT

Receiver:-

The VFO will need to operate at around 9.5 mhz for 20 metres. Connecting a frequency counter to the buffered VFO output will greatly assist in setting this up. All other adjustments on the receiver are as per the standard instructions.

Transmitter:-

First make sure that the wiper of the 220 R preset is at the ground end. Connect a multimeter capable of reading 1Amp into the positive supply line of the LCK Tx unit. Connect the key terminal to ground. Without the VFO being connected to the transmitter, adjust the pot until the current drawn by the Tx unit increases by 20 milliamps. Leave the set in this state for a few minutes to check that the current does not alter. If the current does change slightly, readjust the preset accordingly. If the current has altered by more than a few milliamps, fit the heatsink suggested above, it can make all the difference. Again, all other adjustments on the transmitter are as per the standard instructions.



SSB RECEPTION FOR 20 METRES (& POSSIBLY ABOVE)

After the Rx has been set up, the following modification will need to be undertaken to enable reception of USB signals. Simply replace the trimmer capacitor VC1 with a 47uH RF choke. If adjustability is required, cut the PCB track between the crystal and the trimmer VC1 and mount the inductor beneath the PCB. A higher inductance (try 82 uH) would then be required. Some experimentation may be necessary here.

ADD-ON RF AMPLIFIER FOR THE HF9 RECEIVER

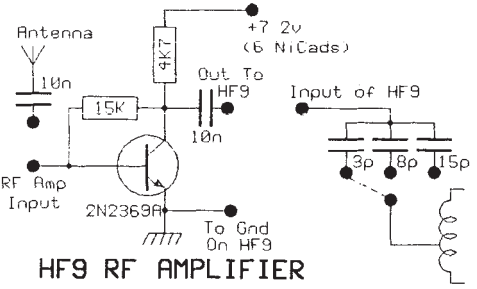
Keith Ranger, G0KJK, 28, Charter Road, ALTRINGHAM, WA15 9RL.

The four transistor HF9 TRF Short-Wave Receiver seems to have been successfully built by a number of G-QRP Club members. Several members have commented that the receiver might be improved by the addition of a suitable RF stage. Theory suggests that a tuned RF stage will improve both sensitivity and selectivity: experience proves that difficulties in the form of critical coupling and detector "pulling" are likely to be encountered it the add-on circuit is not very carefully thought through. Either a tuned or non-tuned RF stage will reduce regeneration radiation from the aerial - so what about the following circuit for sheer simplicity and excellent performance? Incredibly, it only requires five components - including the transistor!

Because the FET detector stage in the HF9 has a very high impedance input, added to which it is in Common Source configuration with the aerial tapped down on the tuning coil, the added complication of a separate tuning control or a twin gang tuning capacitor with accompanying already selective detector circuit will simply not produce a major improvement in the overall selectivity - and it will certainly not make the receiver easier to operate.

Far, far simpler and much, much better is an untuned RF stage built around a single 2N2369A transistor.

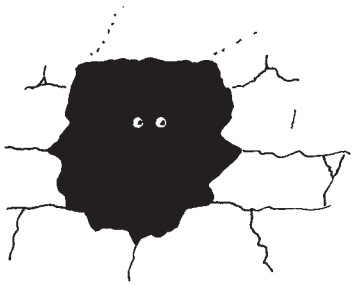
I tried a two stage circuit using a 2N2222A feeding the 2N2369A and found that the resulting amplification was much too high - in fact nothing was audible apart from a tremendous hiss because the whole receiver was terribly overloaded. The 2N2369A stage by itself proved superb. Built as the exceptionally simple circuit below, and fed into the 3pF coupling option in the HF9 tuning coil, an indoor 3 metre long aerial produced comparable performance to a 20 metre outside wire that did not use the RF stage.



HF9 RF AMPLIFIER

In poor conditions, stations not strong enough to be received clearly on the outside aerial became immediately readable when the RF stage was used. At times, sensitivity improvement in an already sensitive detector stage was discovered to be little less than dramatic. It is suggested that the RF stage is built to used used as conditions dictate. Overload of the detector when conditions are really good should be avoided by non-use.

The 2N2369A is a cheap and readily available RF transistor that amplifies powerfully throughout the HF bands spectrum because it has a cut-off in the region of as high as 500MHz. My RF stage is built into a small plastic and aluminium Maplin 100 by 50 by 40mm enclosure (4 by 2 by 1 1/2 inches). The battery consumption is very low - in the region of perhaps 1mA (easily borrowed by an appropriate connection from the battery power source of the HF9 itself). The circuit is in no way critical in it's layout apart from keeping input and output connections reasonably apart. A small tag-strip will be a robust and simple construction base - no need for a PCB. Unless you like to design one! I am too lazy: for me "ugly construction" always suffices.



The ROCK CRUSHER

John Hey, G3TDZ,
8 Armley Grange Crescent,
LEEDS LS12 3QL

The circuit offered while not being strictly amateur radio, is QRP, about 5W and is SSB, but not quite radio either. This project is interesting in that there are no inductors in sight, so there are no coils to wind. All Components are off-the-shelf industry standard. It is offered to allow constructors a glimpse into LF and VLF radio circuitry, and for those into such things, a cave communication system.

Observant Sprat readers will recognise the TX microphone amplifier and phase shift components are pinched from the G3TDZ phasing exciter. In place of the two 1496 balanced modulators, a much multiplexer C-MOS multiplexer offers useful savings at the working frequency of 87kHz. A further 4053 acts as transmit receive routing switch.

In place of tuned circuits or filters, a state variable filter using three LM318 op-lamps is switched in after the TX modulators on transmit, and on receive provides both selectivity and gain as RF stage. A crystal oscillator and divider 4060 drives a 4013 'D-type to generate the two quadrature signals required by a phasing system. Power output is from a domestic car radio chip TDA2003V at about 5W.

On receive the amplified RF signal passes to a section of the 4053 as mixer or product detector, after which a three pole low-pass filter cleans up the audio before the audio amplification. As with the old White Rose Receiver, the 6270 VOGAD chip is used as audio gain and AGC to drive the volume control, then an LM380 audio power stage.

In this application, a loop aerial is normal. A loop of more than one turn does not radiate an E-M wave past its own diameter, only an alternating magnetic field enhanced by the multiturn loop Again unlike real radio, the signal is subject to an inverse cube law so DX is unthinkable.

The frequency of 87kHz was chosen for no better reason than other cave systems use it. A 5.568MHz crystal is required and care in waterproofing essential if it is to be put into its intended use. The aerial has 12 turns of either 16-18SWG enamel, or better still, 6A PVC flexible mains wire. A one turn link winding couples the transmitter; on receive the whole winding feeds the RF stage. A 10n capacitor resonates the main coil.

In trials, one drawback has been identified: There are in some districts powerful beacons fairly close to our frequency. To avoid these, a lower popular frequency of 40kHz can be chosen; the modified values are shown below.

At the working frequency of 40kHz, the crystal should be 2.560MHz; R34 and R36 made 12k; R35 and R37 56 ohms; C14 and C15 at 330p. The aerial will have 16 turns and resonated with a 22n: a one turn link coil as before, wound in amongst the main tuned winding. As 10n and 22n capacitors tend to not be madly accurate, some playing may be necessary to achieve resonance on the nose.

It is hoped this unusual circuit has stimulated some interest if only as a "secret" radio telephone.

A Special Interest Project **This project from well-know SPRAT author G3TDZ is offered to members for their interest in the circuitry and approach to a particular problem. Readers who may wish to take this project further can obtain copies of a printed circuit board component listing and board layout by sending an SAE to G3RJV - mark envelope "Rock Cusher"**

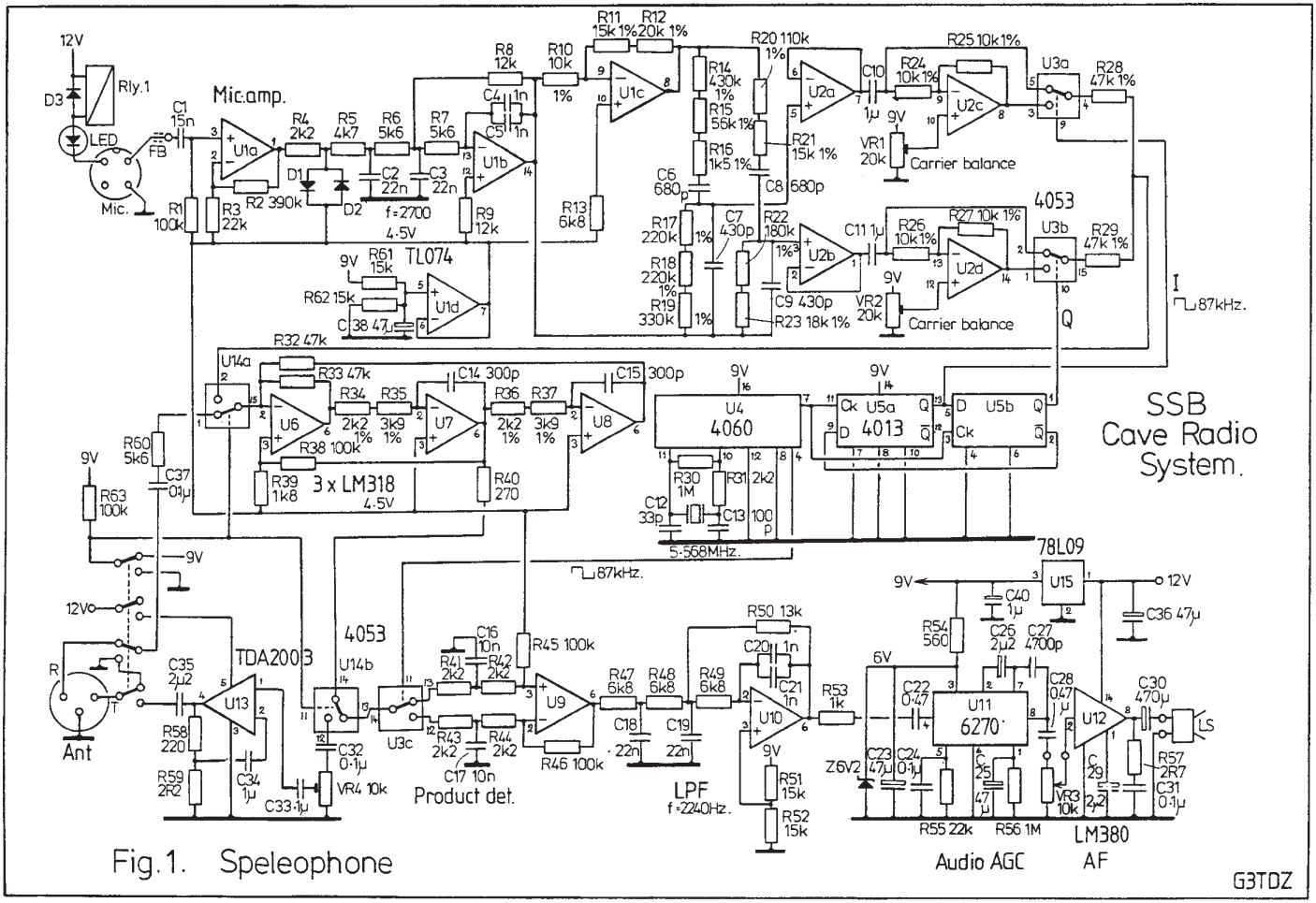
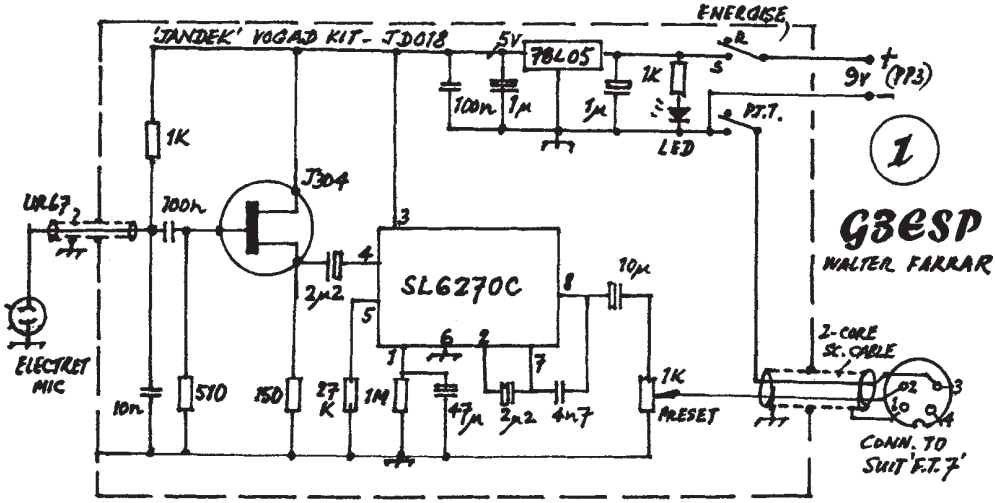


Fig.1. Speleophone

ELECTRET MICROPHONE AND VOGAD UNIT

Walter Farrar G3ESP, 1 Barnsley Road, Ackworth, Pontefract, WF7 7BS

The Microphone Insert came from a defunct modern telephone. On speech peaks, the panel meter on my FT7 swings noticeably further than it does with the supplied microphone (without vogad).



AN IMPROVED MIXER OUTPUT FILTER

Tony Langton, GM4HTU, 71, Gray Street, ABERDEEN. AB1 6JD.

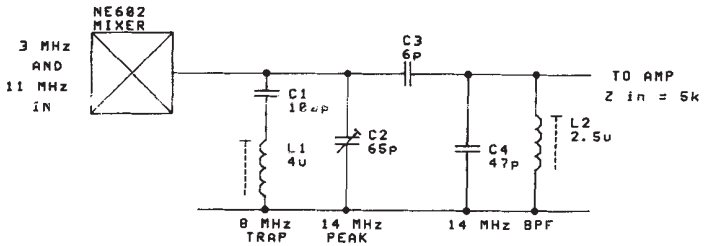
The VFO in my transceiver gives out 14 MHz, derived from a variable 3 kHz and an 11 MHz crystal: an NE 602 is used for this. This also gives 11 - 3 = 8 kHz, which I do not want. The series/parallel output circuit notches the unwanted 8 kHz and peaks the required 14 MHz. It is an analogy of a crystal response, plus an extra tuned circuit.

Choose C1, L1 to resonate at the unwanted frequency. Above this the pair appear inductive. Work out what this is at the frequency you do want.

$XC = 1/\varpi C$

$XL = +\varpi L$

Tune this with a capacitor having the equivalent but opposite reactance.

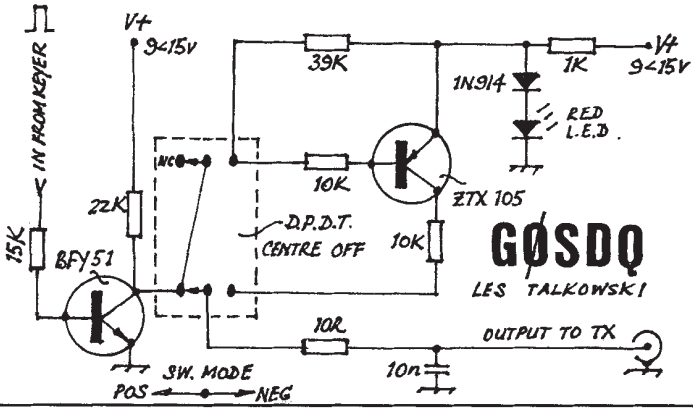


AN ALTERNATIVE KEYING ARRANGEMENT

Les Talkowski, G0SDQ, 83 Church Road, Peasedown St. John, Bath BA2 8AB.

The normal keying method used with many transmitters is derived from the positive rail, as in most QRP home brew transmitters such as my Malta - 40 or the G3TXQ 3 - band TRX.
In the case of commercial rigs as the TS - 530 or TS - 830 then you need a negative keying facility from the keyer you use. Having already made three solid state keyers and two G3BIK (E. Chicken) Mk3 design from the Oct. 94 RadCom, the need to switch the output of my positive controlled keyed to operate the negative potential of -65 V without relays inspired me to produce this design.

Additional information
1. All resistors 1/4 w
2. + volts = 9 - 15V
3. Double pole switch in 'positive' mode shown on the circuit (N.B. I use one with centre off position model : 152 - 270 from FARNELL.)



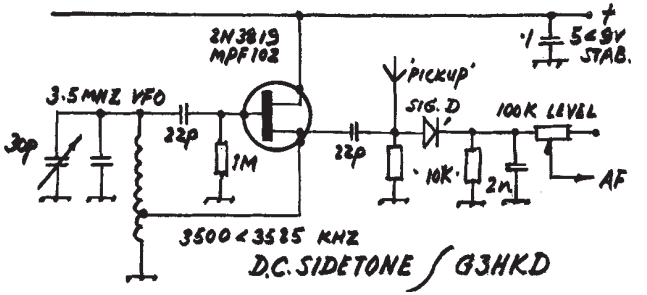
DIRECT CONVERSION SIDETONE

Derek Money, G3HKD, 125 Wroxham Road. NORWICH. NR7 8AD

Here is a simple sidetone that enables you to monitor the outgoing signal; keeping track of clicks, chirps tone and other nasties, giving a "feel" to the signal in a way the usual audio oscillator sidetone can never do. The idea is not new but effective.

I used a 3.5 MHz VFO for the DC sidetone; for a transceiver on 7MHz and it will obviously work on any harmonically related band thus being of use in a multi band transceiver.
On receive my VFO (DC) uses an offset but it could be just switched off on receive. The pick-up wire is a short piece just dangled near enough to the PA to get adequate sidetone and is not critical. Output is taken to the final audio stage of the transceiver; HT to proceeding AF stages being switched off a transmit. The whole circuit is in a small tin inside the transceiver, the tuning control taken to the front panel, no reduction drive is used. The 100K trimmer just gives a small adjustment over level of sidetone. One extra bonus is that the side tone pitch is of course variable and quite pleasant to listen to.

This little sidetone works well for me and I'm certain now of the output quality of the CW



FOUR DAYS IN MAY (c) - The North American QRP Event of 1996

QRP Amateur Radio Club, International (QRP-ARCI) proudly announces the first annual QRP symposium to be held on Thursday, May 16 1995 - the first day of four festive days of 1996 Dayton Hamvention QRP activities. Mark your calendars and get your hotel reservations in early for this not-to-be missed QRP event of the year.

Conference presentations, meetings and workshops on everything you wanted to know about amateur radio QRP will all be part of this full day Thursday event to be held at the Days Inn Dayton South (513-847-8422). QRP-ARCI Symposium attendees will start their day with a wake-up coffee social and then plunge into a morning of multimedia QRP presentations by renowned QRPers and QRP equipment manufacturers. A short break for a catered lunch and some special QRP door prizes and then back to an afternoon of more exciting QRP technical presentations. And if that is not enough, then come join us for a Thursday evening of QRP break-out session tutorials. The 1996 QRP-ARCI Symposium will be the talk of the Dayton Hamvention.

QRP-ARCI continues the "Four Days in May" QRP extravaganza with nightly hospitality suite sessions, were QRP projects from around the world are displayed with a pride that only a QRPer could appreciate. "Four Days in May" QRP-ARCI week culminates with the annual QRP-ARCI Friday Night Banquet honouring QRP dignitaries for their service to the amateur radio community.

Your 1996 QRP-ARCI "Four Days in May (c)" Symposium Committee:
Bob Gobrick VO1DRB/WA6ERB, public relations chair (rgobrick@public.compusult.nf.ca),
Bruce Muscolino W6TOY/3, technical paper chair (BRUCE3900@delphi.com),
Paulette Quick, N9OUH, registration chair (plquick@facstaff.wisc.edu); P.O. Box 145, Madison, WI - USA; 53701-0145; (608) 263-9326 (work phone)

"Four Days in May (c)" - Call For Papers

Technical seminars will be the largest part of "Four Days in May (c)" - the first annual QRP-ARCI QRP Seminar. The seminars will consist of technical papers, written by QRPers for QRPers.
Papers will be both invited and submitted -- the only criteria for acceptance of a submitted paper is that the topic be of interest to QRPers and the author be able to deliver camera ready copy in time for publication prior to the event.
A detailed guide to topics and submitting papers can be had from G3RJV (SAE) or from Bruce Muscolino W6TOY PO Box 9333 Silver Spring, MD 20916-9333 USA

ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS

WANTED : Any SSB Single Band Icom Transceiver type IC502 (6m) or IC402 (70cm) at sensible price. Write to Michel Monteil GJ6WDK 72 Rue Philonarde, 84000 AVIGNON FRANCE. Or Fax (33) 67.92.14.52

WANTED : Heathkit HW8 or 9, working (non working accepted if complete & unmodified) Price please to Geoff, 2E1CSR, Tel: 01202 - 698142.

WANTED : 10 watt Linear Amp P/N PL-7S for Mizuho 40m TX, also any QRP SSB Transceiver. G0VTW, Tel: 01482 - 352593.

WANTED: A13 or A14 Transceiver, Type 76 Sender, R209 Receiver. PeterBonson G4FUY QTHR 01734-733633

WANTED : Information required on the Zenith Supersport 286 Lap Top Computer, in particular owners handbook, charging details and socket connections. Jack Corston, G2BCY, QTHR Tel: 0191-2654780

WANTED : Swedish Bug 140, German Bauer, Junker or Novoplex and Italian Vibrax bug keys wanted. I have keys to trade including Eddystone, Vibroplex and McElroy. Colin Waters, G3TSS, 1 Chantry Estate, Corbridge, Northumberland. NE45 5JH.

WANTED : Heathkit SB301. Jerry, G0AED, Tel: 01485 - 543074

WANTED : Argonaut 515 or 535 : Ted G3TPI. Tel: 01509 - 26103

WANTED : RAF Type D Key Good Condition. John G0KCA. Tel 01843 - 863795

THE PA3BHK 80m DSB/CW TRANSCEIVER

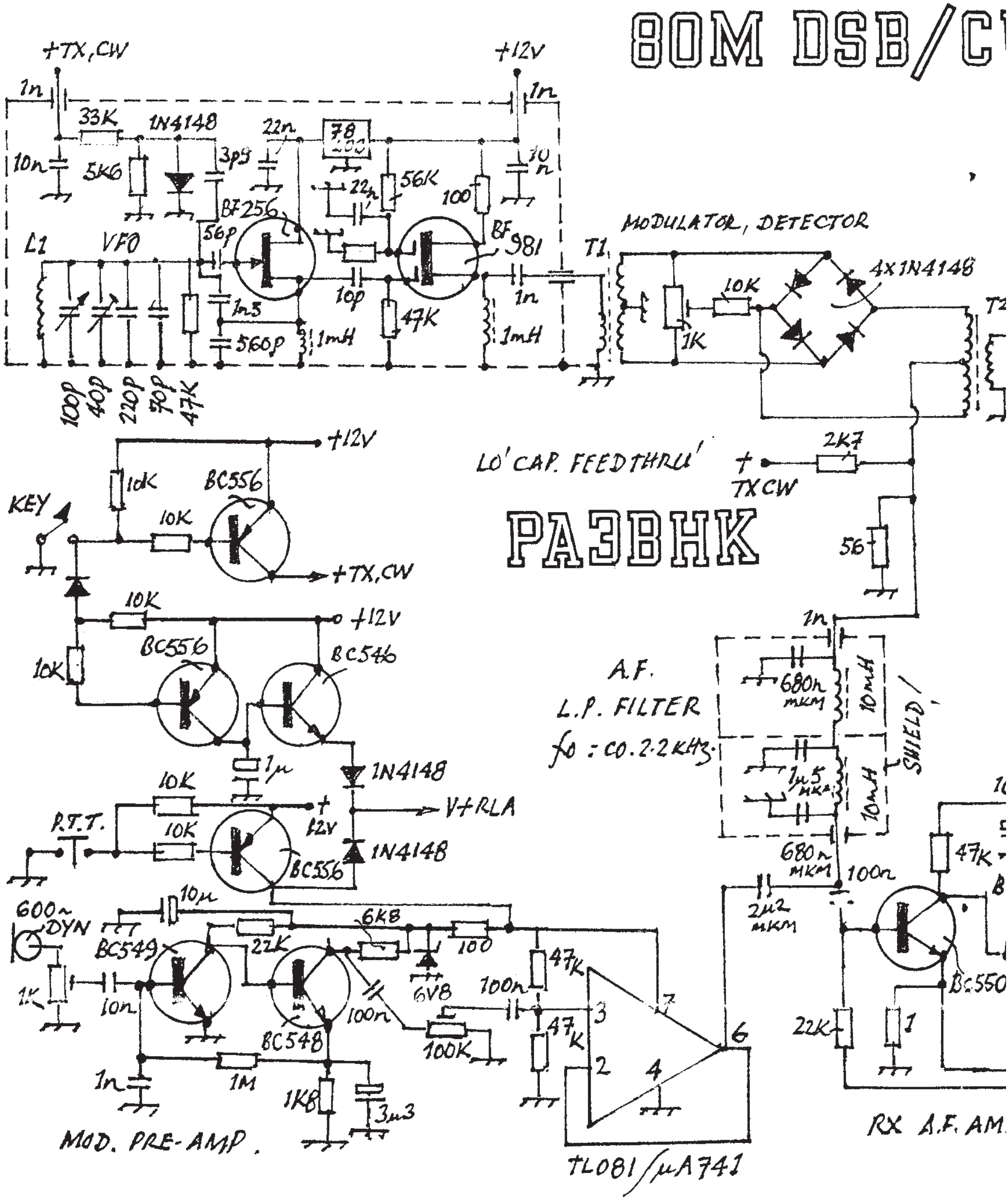
Robert van der Zaal. PA3BHK, Parklaan 89, 2171 Ed Sassenheim. Netherlands

It must have been in 1972 when I first met Ham Radio. In our secondary school we had a station allowing pupils to practice their foreign languages. With England right across the North Sea and France and Germany nearby 80 was the most appropriate band. After the first few QSO's on 80, supervised by the responsible operator (a licensed biology teacher), a new ham was born! Soon I was an active SWL at home. And came my interest in Direct Conversion. Still being a schoolboy the first ideas came to use a similar principle to build a DSB transmitter or even a simple transceiver. In 1982 I started using DSB on 144 MHz and in 1985, after being inspired by a design by G3WPO, the first contacts were made with the rig I describe in this article.

The heart of the radio is a VFO from 3.5 to 3.8 MHz so it covers the entire Region 1 allocation. Its output of about 10 mW drives a diode ringmixer. When the rig was built I was a student and could not afford custom made diode mixers. So I used a pair of two hole cores (called "pignoses" in The Netherlands) and four 1N4148 diodes (replaced by HP2800 later) to make the mixer myself. The mixer is used in both ways so is the lowpass filter with a cut off frequency of about 2.5 kHz. This might seem a bit narrow but it limits the total bandwidth of the DSB- signal and the receiver to about 5 kHz. The 10mH coils are custom made by e.g. TOKO or Neosid and look like small electrolytic capacitors. With a 1N4148 used as a capacitive diode an offset of about 800 Hz is introduced in the VFO frequency while transmitting CW. Of course this can be modified to make a RIT - control or clarifier.

To modulate I use a microphone pre-amplifier as designed for a small FM transmitter. The pre-emphasis makes the audio sound very clear and "flat-topping" of the audio forms a simple clipper. The DC value of the collector of the BC548 should be adjusted to 3.4 V. The op-amp functions as a signal follower with a low output - impedance driving the modulator. With a carrier suppression of at least 40 dB, after some fiddling with the trimmer in the mixer optimised to 60 dB, my DSB signal always got excellent reports. CW is made by "modulating" the mixer with a DC current. With the CW offset and a good carrier suppression this is a very effective way of making CW. Transistor switches are used to drive various stages so the rig can be operated "semi break-in". The power amplifier was designed by G3WPO ("A low cost DSB/CW transceiver to 80m", Ham Radio Today, March 1983). A BC 548 (or any other universal NPN) is used as a voltage amplifier that drives a VN66AF, a power FET. The output of the PA will be around 3 Watt. More that enough for comfortable CW QSO's up to over 1000 Miles and usually enough for a local phone QSO. The bandpass filter is used bi-directionally and gives a harmonic suppression of at least 40 dB. Possibly a low pass filter will function just as well. The two anti-parallel diodes protect the rig from static.

The amplifier used for receiving is another design by G3WPO (same article). The double potentiometer (a linear one!) not only reduces the output of the pre-amplifier but also its gain, making strong local stations less likely to overload pre-amp. The CW filter is extremely simple yet very effective. G3RJV showed it in SPRAT quite a number of years ago. One of my friends was much impressed by the filter and started modifying all his radios! The high-gain amp could start oscillating Careful decoupling of supply-voltage, use of shielded DC leads and careful placing of the loudspeaker cured my radio.


80M DSB/C
+TX,CW
+12V
1n
33K
1N4148
22n
78
10n
5K6
3p9
22n
56K
100
10n
BF256
L1
VFO
56p
BF981
T1
MODULATOR, DETECTOR
10K
4x1N4148
10p
1n5
47K
1mH
560p
1mH
1K
100p
40p
220p
70p
47K
+12V
LO' CAP. FEEDTHRU'
+
TXCW
2K7
KEY
10K
BC556
10K
+TX,CW
PA3BHK
56
10K
+12V
1n
10K
BC556
BC546
A.F.
L.P. FILTER
fo : CO.2.2KHz
680n
MKM
10mH
SHIELD
1μ5
MKM
10mH
1μ
1N4148
10K
+
12V
V+RLA
P.T.T.
10K
1N4148
BC556
680n
MKM
100n
47K
10μ
600~
DYN
6K8
2μ2
MKM
BC549
22K
100
47K
1K
10n
6V8
100n
BC550
100n
3
7
22K
1
47K
BC548
100K
6
2
4
1n
1M
1K8
3μ3
MOD. PRE-AMP.
RX A.F. AM
TL081/μA741

SUBSCRIPTIONS FOR 1996 ARE NOW DUE

Your SPRAT label tells you your current status. Your receipt is the updating of your status code on your SPRAT address label. We do not send receipts unless we receive a stamped self-addressed envelope with your payment. The labels for your SPRAT are printed 4/5 weeks ahead of publication so there may be a time lag before your code is updated

SUBSCRIPTIONS FOR 1996

UNITED KINGDOM	EUROPE	DX
£6.00	£6.00	$14.00
Cheque / standing order	Cash or Eurocheque in £	Cash or check paid in UK

All payments by MASTERCARD / ACCESS or VISA to GØBXO only

*Direct transfer information is in the Members Handbook. Please note that there are special arrangements for members in North America, Austria, Germany, France, The Netherlands, Belgium and New Zealand to pay their club representative **in their own currency** if they wish.*

UK members can use the form provided overleaf if they would like to pay by standing order or to ammend their existing standing order to the 1995 subscription rate of £6.00.

All cheques must be made payable to "G-QRP CLUB"

Please do not make cheques payable to individual club members

Please enclose this form with your payment
write your name & number on the cheque
do not staple your cheque to this form

Membership Number _____ Callsign _____

Name _____

Number and road _____ Name used on air _____

Town _____ Post code _____

Country _____

Changes or additions - *please check your SPRAT label & handbook entry*

. . . . . .

VISA ☐ Please print number clearly

☐ Expiry date / Signed

Send to: John Leak, GØBXO, Flat 7, 56 Heath Crescent, Halifax, HX1 2PW, England. Tel: 01422 365025

UK MEMBERS : PAY BY STANDING ORDER
FORGET ABOUT YOUR RENEWAL BY USING THIS FORM

HOW TO COMPLETE THE FORM:-

1] WRITE IN THE NAME AND BRANCH OF YOUR BANK WHERE IT SAYS
"---------- Bank"
"---------- Branch"

2] GO TO THE BOTTOM OF THE FORM AND ADD:
NAME OF YOUR ACCOUNT IN THE BOX: "Account to be debited"
NUMBER OF YOUR ACCOUNT IN BOXES "Account Number"
ADD THE DATE AND SIGN (BOTH Signatures for a joint account)

MOST IMPORTANT:-
PUT YOUR CLUB NUMBER IN THE BOX MARKED "Quoting the Reference"

TAKE THE FORM TO YOUR BANK

To National Westminster Bank

Bank

_____ Branch

Standing Order Mandate

Please pay

Bank	Branch Title (not address)	Sorting Code Number
National Westminster Bank	ROCHDALE	01 — 07 — 44

Beneficiary's Name	Account Number
for the Credit of **G QRP CLUB NUMBER 1 ACCOUNT**	0 4 1 0 9 5 4 6

Amount in Figures	Amount in words
† the sum of £ **£6.00**	**SIX POUNDS**

Date and amount of first payment		Due Date and Frequency
commencing **15/1/95**	£ **6 - 00**	and thereafter every **ANNUALLY ON JANUARY 15th**
Date and amount of last payment		
*~~until~~ ----------	£ ----------	* until you receive further notice from me/us in writing
quoting the reference **G QRP NUMBER:**		and debit my/our account accordingly

Please cancel any previous Standing Order or Direct Debit in favour of the beneficiary named above under this reference

Special instructions

Account to be debited	Account Number

Signature(s) _____ Date _____

* Delete if not applicable

Note: The Bank will not undertake to:
(i) make any reference to Value Added Tax or other indeterminate element
(ii) advise payors address to beneficiary
(iii) advise beneficiary of inability to pay
(iv) request beneficiary's banker to advise beneficiary of receipt

† If the amounts of the periodic payments vary they should be incorporated in a schedule overleaf

NWB1320 Rev Feb 85-1

OVERSEAS SUBSCRIPTIONS FOR 1996

U.S.A.

Mike Kilgore, KG5F,
2046 Ash Will Road,
CARROLLTON,
TX 75007. U.S.A.
$12.00

FRANCE

J. M.Yeromonahos, F5OQO,
2, Allee d`Hamadan,
91400 ORSAY.
France.
60.00 fr

GERMANY

Fuer Mitglieder in Deutschland: Der Clubbeitrag ist DM 18,–
Ueberweisungen bitte bis spaetestens 31. Januar unter Angabe Ihres Rufzeichens und Ihrer G-QRP-Nr. auf das Clubkonto
Postbank Ludwigshafen
BLZ 545 100 67
Konto Nr. 232491 672
Bitte keine Schecks und kein Bargeld senden!
Fuer weitre Infos und Aenderungen z.B. der Anschrift oder des Rufzeichens zuständig: Rudi Dell, DK4UH, G-QRP-Nr. 2901, Tel 06324/64116

Rudi Dell, DK4UH,
Weinietstr. 10
W 67459 Bohl-Iggelheim
Germany

THE NETHERLANDS

Nederlandse leden kunnen hun Lidmaatschapsgelden stortenop:-

Postgiro 2730858 T.N.V. HALPIN, HENGLO

ALTYD Uw call and Lidmaatschapsnummer Vermelden

De contributie Voor 1995 is vastgestelo op HFL 21.50

LET OP!!! Stort Uw bydrage voor 30 January 1995, geld ontvangen NA deze datum en/of stortingen zonder vermelding van call and EN lidmaatschapsnummer worden onder aftek van gemaakte kosten teruggestort.

Voor meer info. bel Peter, PE1MHO. 074 771832

BELGIUM

Vergeet niet Uw roepteken en clubnummer te vermelden!
N'oubliez pas d'indiquer votre indicatif et votre numéro de membre!
Contributie/cotisation: Bef 350.00, - voor/avant le: 31 Jan 95 op nummer/ au numéro: 250-0062335-49.

Rene Anrijs, ON4KAR,
Fonds des Vaulx 69a
B-5640, Biesme-Mettet
Belgium

AUSTRIA

Johann Auerbaeck, OE6JAD
Kirschenhofersolg. 120,
A-8241, DECHANTSKIRCHEN
Tel: 3339-23335

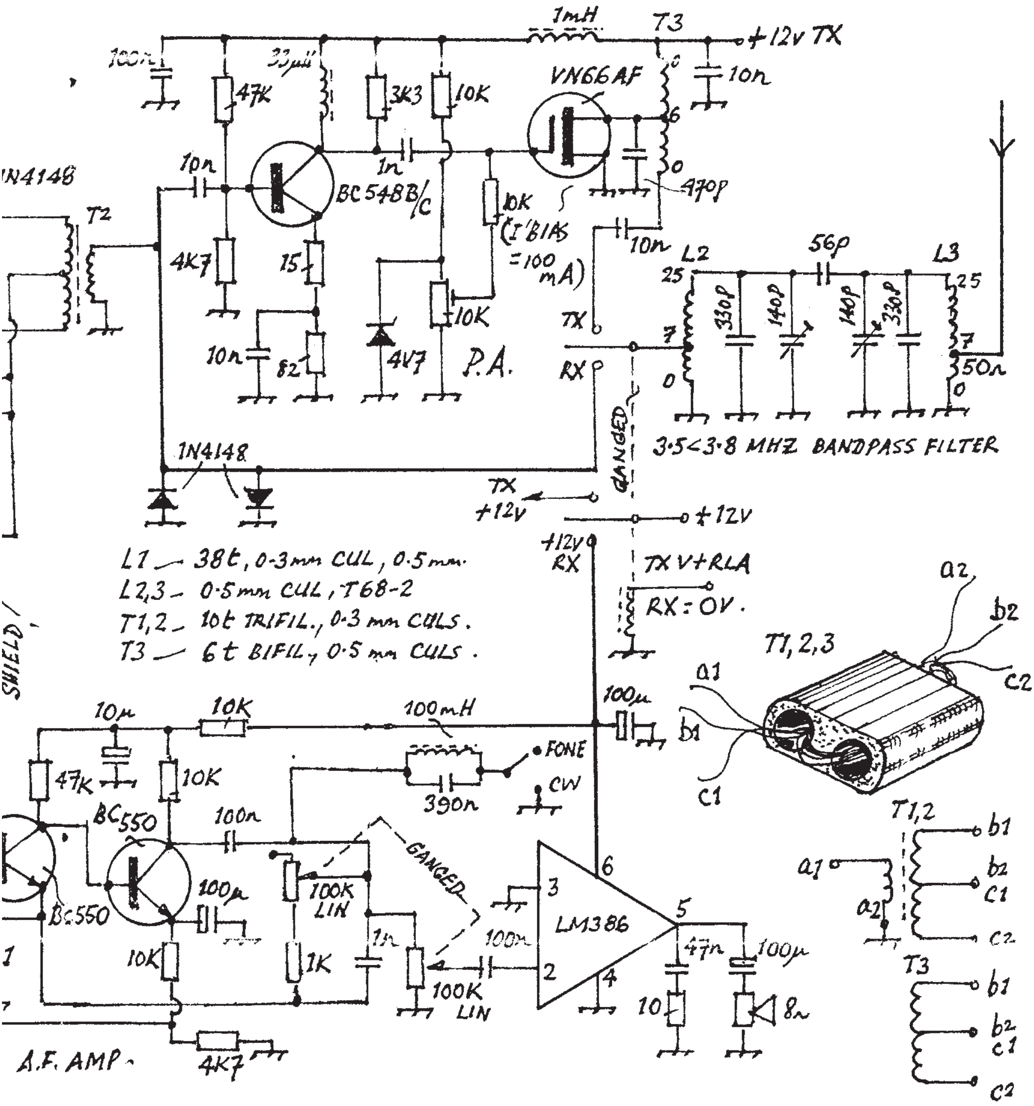
NEW ZEALAND

Mike Sheffield, ZL1ABS,
Albany Highway
AUCKLAND
1 R D Albany
NZ$15.00

OVERSEAS MEMBERS CAN PAY BY MASTERCARD / VISA TO GØBXO ONLY

ALWAYS GIVE YOUR G-QRP NUMBER AND CALLSIGN PLEASE

/CW T'C'V'R.



1mH
T3
+12v TX
100n
47K
33µH
3K3
10K
VN66AF
10n
1N4148
10n
1n
BC548B/C
T2
4K7
15
10K
(I'BIAS =100 mA)
470p
10n
L2
56p
L3
25
25
330p
140p
140p
330p
TX
7
7
10n
82
4V7
P.A.
RX
0
50Ω
0
10K
GANGED
3·5<3·8 MHZ BANDPASS FILTER
1N4148
TX +12v
+12V
+12v RX
TX V+RLA
RX = 0V.
L1 — 38t, 0·3mm CUL, 0·5mm.
L2,3 — 0·5mm CUL, T68-2
T1,2 — 10t TRIFIL., 0·3 mm CULS.
T3 — 6t BIFIL., 0·5 mm CULS.
SHIELD
T1,2,3
a2
b2
a1
c2
b1
c1
10µ
10K
100mH
100µ
47K
10K
FONE
CW
390n
BC550
100n
GANGED
T1,2
b1
a1
b2
c1
a2
c2
100µ
100K LIN
3
6
BC550
1n
LM386
5
10K
1K
100n
47n
100µ
2
4
100K LIN
10
8Ω
T3
b1
b2
c1
c2
A.F. AMP
4K7

THE CLUB MORSE TRAINING TAPES

As listed in the Members Handbook for 1995/6, Colin Turner, G3VTT, has moved and now lives at 29 Barncroft Drive, Hempstead, Gillingham. Kent ME7 3TJ

PLEASE NOTE: The CW Improvement Tapes are not currently available

USEFUL CRYSTALS - HC25U Close Tolerance [10ppm] PMR Spec Xtals.

Fundamentals at 4.4890625 or 4.4953125, suitable for ladder filters or simple superhets [e.g. "Ben", the little transceiver for ten]. 3rd overtones at 48.0125 or 48.0625 - these multiply up to into 2m, 70 or 23cm and are useful for 50 - 144 MHz conversion if doubled. Also some 8MHz timing xtals, same size with short wire leads. 50p per xtal plus 50p post & packing. Please remember to state which frequencies and quantities required. Paul Gaskell, G4MWO, 131 Greenfield Road, St. Helens, Merseyside. WA10 6SH.

HIGHLIGHT YOUR QRP CONTACTS by attaching a "**Two Way QRP QSO**" label to your cards. Black lettering on gold with club logo. 200 labels £2 inc post (overseas plus 30p) For Order Form (or to order now) M.L. Prickett, G3BSK, 260 Haslucks Green Road, Shirley, Solihull, West Midlands, B90 2LR. Cheques: M.L. Prickett. (The G QRP Club benefits from each order.)

THE SPRAT INDEX

Trevor, GØTWE, is able to supply the SPRAT index (articles since Issue 1) on Disk Format for PC for the cost of postage and on receipt of a blank, **formatted,** disk. He can supply in Text or Word 6 for Windows format on either 3.5 or 5.25 disks. Order from **Revd. Trevor Walker, GØTWE, The Rectory, Binbrook, Lincoln, LN3 6BJ.**

G QRP CLUB DIY QSL CARDS

These are a "Do It Yourself" design, just add your callsign etc (Able labels, Rubber Stamp etc). Price including postage and Packing (UK) is £2.50 for 100 cards, Airmail extra. S.A.E. for sample. Please make cheques payable to G QRP Club. Orders to Frank Lee, G3YCC, 8 Westland Road, Kirk Ella, Hull. HU10 7PJ. (Allow 28 days delivery) Also for sale at Rochdale Mini-convention.

THANK YOU FROM ANNE (of QSL Buro Fame)

My sincere thanks to all members who sent letters, cards and telephones, during my recent spell in hospital. I am pleased to say that I am well on the road to recovery. **Ann Huson G4VAH 4836**

SPRAT LABEL MISPRINTS : A printer slip resulted in some labels being misprinted on the last SPRAt mailing. A few members had their club number pushed off the edge of their labels and printed on another member's label. We are sorry if this has caused confusion.

SPRAT DIGEST ON AUDIO TAPE

We have had an offer to produce a taped digest of SPRAT for visually impaired radio amateurs. In order that this may take place we need to know the possible take up. If you know of someone who would like to receive extracts from SPRAT on tape, please write to G3RJV.

The G QRP Club Logo on File.

The G QRP Club Logo used in club publications is a PCX file. Members can obtain a copy of the club logo graphics file in the following formats PCX, GIF, JPG, MAC, PIC, RLE, TIF, WPG, BMP, IMG, TGA (You get the lot !) by sending a formatted 1.44 disk, with a return stamped and addressed label to G3RJV.

INTERESTED IN AMATEUR RADIO AND CARAVANNING OR CAMPING?

Details of the AMATEUR RADIO CARAVAN & CAMPING CLUB (R.C.C.) can be had from John Brock, G3KDQ, 147 Wollaton Vale, Wollaton, Nottingham. NG8 2PE.

GERMAN G QRP CLUB MEMBERS MEETING IN MAY 1996

For More information please contact: Rudi Dell DK4UH,
Weinbietstr. 10. W-67459, BOEHL-IGGELHEIM. Tel: 06324 - 64116. PR via DB0GV

German Members - Please Note :
An error in the 1995/6 Members Handbook. The Subsciption Rate for German Members is DM 18

The PCIM 177 LCD FREQUENCY DISPLAY MODULE (Direct up to 4MHz input, Five digit readout - formerly sold by CirKit) has not quite disappeared. The last 100 units are in stock from : Hero Electronics Ltd. Dunstable St. Ampthill, Beds. MK45 2JS. Tel: 01525 - 405015.
(Information Supplied by G3PVG)

We regret to announce the death of the following members:
Fred Day G4BXL Les Bacon G2DUP Ken Fillmore GI4IBD

MISSING FROM MEMBER'S HANDBOOK : N1UCF - 8894 - JEFFREY

QRP PLUS OWNERS

Index Laboratories will ship an updated EPROM (smaller keyer increments and retains mode on switch-off) anywhere in the world for $US 6.00. Please state the serial number of your transceiver and return the old EPROM. Index also announce that the backlog is cleared and the QRP PLUS is now being shipped from stock.

ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS

FOR SALE : Yaesu FRG7 receiver good general coverage receiver £130 ono. Codar AT & TX & PSU - Offers, MM 2m Converter 4-6MHz IF £10. GM3ZLL 0141 - 771 - 2913

FOR SALE : All in very good condition - Trio TS830S, Kenwood ATU 230, VFO 230, SP 230. G0LHM B. Tuffrey, 53 Sheffield Rd. Warnsworth, Doncaster, DN4 9QR

FOR SALE : FT747GX HF Transceiver with FM, Manual, Mike, Hardly Used. £450. Ernie, G0GPD, 312 Fairfield Rd. Droylesden, Manchester, M43 6AN.

FOR SALE: Two (yes two!) XT/PCs by Compaq. Probably all you need for use with a Packet TNC. Offered with a wealth of spares amd manuals for £225, or may split (without extras) £95 each, but only if customers for both! Please collect because of weight and bulk. Keith G0OZK QTHR (Stockport)

FOR SALE ; Stockton Power Meter built in case with two meters unused £20 inc posrage. Mobile Mount for FT290R as new £12 inc postage. Neville Hall G0DWJ Tel : 01926 - 422754

FOR SALE : Argonaut 515 with matching ATU and audio filter plus shure 444 mic and PSU. All units in mint condition. £300. Tel Brian on 01840 - 770344 evenings (Not Wed)

FOR SALE: due to shack clearance: Howes dual band 10 & 15 metre SSB/CW transceiver including DXR10, HPA10, DS2, HTX10, VF10,CSL4 VOGAD Mike, ordinary mike and all paperwork. The unit has S- meter and SSB/CW dual bandwidth filtering and is of course cased. The Tx gives up to 10 Watts PEP and has had good contacts despite sunspot minimum. It covers the complete 15 metre band and all bar the FM part of 10 metres £140 ono. Hornby "Zero One" model train controller with four locomotive modules £25 ono. Small Medium Wave radio which could be converted to Top Band with notes £2.50. Infra-red stereo transmitter receiver for listening to HiFi or TV from the other side of the room without wires just £10 ono, Wireless Doorbell just £2.50 ono, Car radio aerial £2.50 ono, Call David on 0181-317-2223 eves and weekends.

WANTED : Capco Loop for the LF bands. Would prefer 160/80, but would consider 80/40 loop. Regret cannot collect. May consdier a swop for the Pcs in the For sale items. Keith G0OZK QTHR (Stockport)

WANTED : Loan or Copies, manual, alignment information, circuit details and modifications to help me bring REALISTIC DX-302 Receiver up to scratch. John Piggott, 32 Eastview, Bargoed. CF81 8LU. Tel : 01443 - 834055.

WANTED : R-1155 Receiver - Dong-Hyun Cho, Biology Dept. Kang Won National Univ. Chun Chon 200-701, Korea (South)

QRP CALENDAR 1996

1 Jan.	Last day of 1995 Winter Sports
6 Jan to 7 Jan	15500z AGCW DL QRP 1500z QRP Contest (1)
7 Feb	Last day for Winter Sports logs to G3MCK
23 Feb to 25 Feb	1600z CZERBIS 1996 2359Z Rules in this issue of SPRAT
30 Mar to 31 Mar	1200z Somerset Contest 1200z Rules SPRAT 84
7 May to 10 May	Yeovil Fun Run Rules SPRAT 86
18/19 May	Yeovil QRP Convention
17 Jun	IARU Rerion 1 QRP Contest
20 Jul to 21 Jul	1500z AGCW DL QRP 1500z QRP Contest (1)
17 Jul	Last day for International QRP Day logs to G3MCK
27 Sep to 29 Sept	Europe for QRP
19 Oct	Rochdale QRP Convention
11 Nov	Last day for Europe for QRP logs to OK1CZ
17 Nov	1300 - 1500z AGCW DL HOT Party (1)
26 Dec to 1 Jan 1997	G QRP CLUB Winter Sports Maximum activity on all QRP frequencies Logs to G3MCK by 7 February 1996 G4DQP Trophy and Certificates

Notes 1: Information - Dr H Weber DJ7ST, Schlesierweg 13, D-38228 Salgitter, Germany

ADVANCED NOTICE FOR YOUR DIARY : SUNDAY 19TH MAY 1996

THE YEOVIL QRP & CONSTRUCTION CONVENTION

The 12th Yeovil QRP Convention Construction Challenge

This year's challenge is environmentally friendly in that it has to be achieved without any source of DC power. (Solar, wind, hydraulic, chemical, or biological), and has to operate solely from electromagnetic radiation.

The requirement is to build a CW receiver for the 80m band, complete with antenna, using no more than 12 components. The receiver and antenna together must not exceed 0.5 metre cube. The winner will be the Receiver giving the highest DC output voltage measured across a 10Kohm load when stimulated with out 80m Transmitter.

The stimulus will be a 80m Transmitter with an output power of 1 Watt CW into a short vertical antenna at a distance of nominally 12m (40ft).

Other Rules:

1. Packages containing multiple devices will count as multiple devices.
2. The mandatory antenna will count as one component.
3. The DC output will be measured using a digital multimeter.
4. A circuit diagram is to be supplied with the contest entry.
5. A half metre cube, does not mean half a cubic metre!!

RULES CZEBRIS 1996

1. When. 1600z 23 February to 2359z 25 February 1996.
2. Modes and frequencies. CW only on 3560, 7030, 14060, 21060, and 28060, all +/- 10 kHz.
3. Power. Not to exceed 5 watts RF output. Stations unable to measure their output take half DC input power to PA, i.e. 10W DC = 5W RF.
4. Stations eligible. Any licensed amateur.
5. Call CQ QRP
6. Contest exchange. RST, power and name of operator.
7. Scoring:
   Stations worked once per band
   Only QRP/QRP QSOs score
   Points score as follows:

QRP STATION LOCATED IN	QSO WITH QRP STATION IN			
	UK	OK / OM	EU	NON - EU
UK	2	4	2	3
OK / OM	4	2	2	3
EU	4	4	1	2
NON - EU	4	4	2	1

No Multipliers. Final score is the sum of points obtained on each band.

8. Logs. Separate log sheets for each band showing for each QSO, date, time, call, exchanges (RST, power, name) sent and received. Also a summary sheet showing name, QTH and call-sign, claimed score for each band and brief details of equipment used must be submitted to:

   For UK stations to G P Stancey G3MCK, 14 Cherry Orchard, Staines, TW18 2DF, UK
   All other logs to P Doudera OK1CZ, U 1 baterie 1, 16200 Praha 6, Czech Republic.
   All logs to be received by 15 April 1996

9. The leading three stations in each continent will receive a certificate.
10. Disputes. The decision of the organisers will be final.

EUROPE FOR QRP WEEKEND : RULES 1996

1. Dates and times. From 1600Z on 27 September 1996 to 2359Z 29 September 1996.
2. Modes and frequencies. CW only on 3560, 7030, 14060, 21060, and 28060, all +/- 10 kHz.
3. Power. Not to exceed 5 watts RF output. Stations unable to measure their output take half DC input power to PA, i.e. 10W DC = 5W RF.
4. Stations eligible. Any licensed amateur.
5. Call CQ EU QRP.
6. Contest exchange. RST, power output, and name of operator.
7. Scoring. Only QRP/QRP QSOs count. Contracts with own country don't count. European stations score 1 point for each European QSO and 3 points for each QSO outside Europe. Stations outside Europe score 5 points with each contact with Europe. Final score is the sum of points obtained an each band.
8. Logs. Separate log sheets for each band showing for each QSO, date, time, call, exchangers (RST, power, name) sent and received.
   Logs to:
   P Doudera OK1CZ, U1.. baterie 1, 16200 Praha 6, Czech Republic
   All logs to be received by 11 November 1996.
9. The leading three stations in each continent will receive a certificate.
10. Disputes. The decision of the organisers will be final.

>>>> THE MOA SHORT SLOPER <<<<

By Max O. Altmann, DJ7RU, Pfaelwaldstr 16, 81538 Munchen, Germany.

This antenna consists of a loaded wire approximately 7m long, which is worked against a ground rod, two 10m radials , and one 7m radial. The antenna is normally sloped at an angle of 45°. With this slope there will be 3dB of gain in the direction

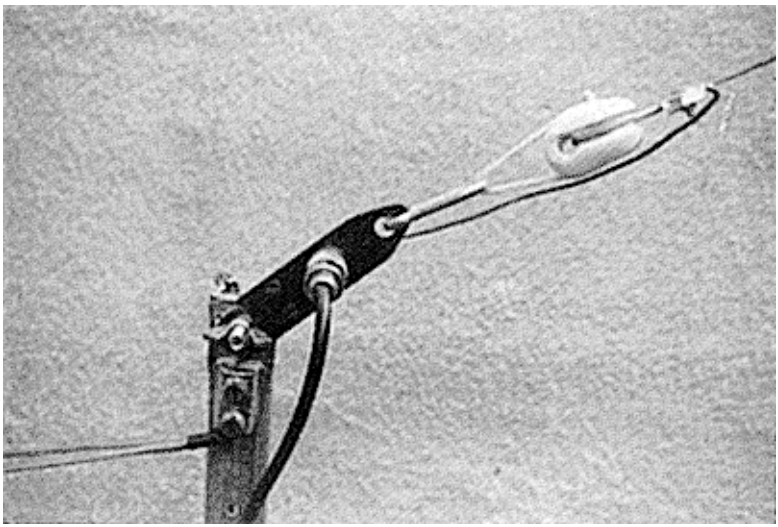


Photo 2.

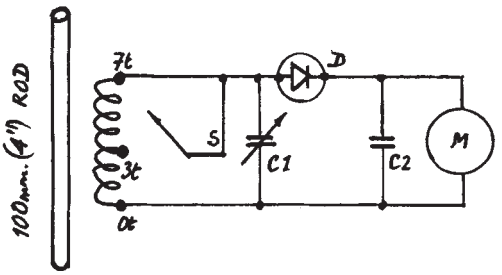
of the radials, which are set out facing away from the low end of the antenna. On 14 and 3.5 MHZ the radials can be adjusted to give an swr not exceeding 2.1:1; this can be reduced to 1:1 with a sutable atu. Using such an atu it is also possible to load the antenna on on 18,10 and 7 MHZ with an acceptable swr.The design described is suitable for powers up to 100 W. Bandwidth is about 50 kHz on 3.5 MHZ and 100 kHz on 14 MHZ. The antenna consists of a 4.55m length of 13/0.109 BWG insulated wire, a coil consisting of 70 turns of 0.5mm (25/0.020 BWG) enamelled wire wound on a 40 x 150 mm plastic former, then a further 2.3m of the antenna wire. These items are shown in the photo on our front cover. Insulators

insulators are fitted to the free ends of the antenna, a tail beig left at the end of the 4.55m section to allow connection to the co-axial socket. This socket is mounted on a piece of copper sheet 100x25x3mm. A hole at one end of this piece of copper allows the cord from the lower antenna insulator to be fastened to it via a quick release hook. The co-axial socket is fitted in a hole drilled in the piece of copper at its centre, and a hole at the other end allows piece of copper to be firmly bolted to the top of a 1.2m galvanised ground spike . The ends of the three radials, which are made from the same wire type as the antenna, are soldered together, then firmly bolted to the earth spike immediately below the point where the copper plate is attached. As already stated, two 10m and one 7m radials are used. When erecting the antenna drive the ground rod into the ground until it is far enough in to keep the radials 0.6m above ground (see photo 2). The far end of each radial is terminated on an insulator which is connected to a peg long enough to keep the radial 0.6m above ground. The 7m radial is erected in line with the antenna, and the others on each side of it at 45° to the run of the antenna. The radial lengths may need trimming for best swr; it should be possible to make fine adjustments by slightly altering the height above ground of one or more radials.For a permanent installation weatherproofing is important. The co-axial connector can be weatherproofed by embedding it in "Plasticine" (R) modelling clay; the coil should be thoroughly weatherproofed with a suitable insulating material. After soldering the copper plate should be laquered and and the connections to the ground stake should be painted over.This antenna has been erected and used in various exotic African and Asian locations over the years, and has always given good results. At a fixed location with enough space it should be possible to increase efficiency by using more radials. I have also used it "upside down" with the radials on a roof and the antenna pointing downwards. It worked very well !

>>>> THE LOOPSTICK RADIATION METER/ABSORPTION WAVEMETER <<<<

By; AAA Technical Staff

The circuit is shown in Figure 1. The 7 turn coil is of 26 SWG enamelled copper wire,tapped at the third turn and wound on a



4 inch ferrite rod (loopstick) salvaged from a discarded b.c. receiver. C1 is 500p,C2 1000p,and D a germanium diode.The meter used was 0-200 uA, but with tight coupling to the rf source meters up to 0-1mA should work. IMPORTANT CONSTRUCTIONAL NOTE :- build the circuit in a plastic or wood case, as the signal pick-up is entirely via the ferrite rod. In our model the range with S1 closed was 28-10 MHz and with S1 open 10-3.5 MHz. Other ferrite rods may produce a slightly different result. For maximum coupling to the rf source point the end of the rod with the coil on it at the source. If the meter goes off scale increase the angle between the source and the rod. With the rod at ringhtangles to the source (say an antenna wire) the rf pickup is virtually zero. The meter can be calibrated with the aid of a dip meter, calibrated TX, or other calibrated rf source.

>>>> AWARD NEWS <<<< Congratulations to the following on their Awards.
QRP COUNTRIES. 25 G3YHF, F5SJB.
WORKED G QRP CLUB. 1140 (Yes,1140 !!) GM3OXX; 750 G2DAN; 600 GoFYP; 360 G3FCK; 300 G4NBI; 200 DL1JGA; 100 G0TUE, G3JNB; 60 F6RQO; 40 HA5CIU, GoOIW; 20 G3YHF, F5SJB;
TWO WAY QRP . 30 GoTUE, G3JNB; 20 DL1JGA, GoTYM,SM5DQ;10 F5NZY, IK3VZK, HA5CIU, GoNCS, G4UDG, F6EQO, IK0UXK,G3YHF,F5SJB.

>>>> DO YOU NEED AFRICA ON TWO-WAY QRP ? <<<<

If so, listen for EA8QJ/m/qrp with 4 watts from the slopes of an extinct volcano on Tenerife Island, around 14060 kHz.

>>>> WANT A DIRECT QSL FROM GD ? <<<<

If you do, remember UK mainland stamps are NOT accepted by the IOM Post Office, so send an IRC instead. Info from GD3FXN. Note that this also applies to QSLs from GU and GJ as they too issue their own stamps.

>>>> OUR CONTINENTAL FRIENDS <<<<

At the moment conditions on 7 MHz rarely allow inter-G QSOs, but they have been excellent for providing contacts with our many members in F, DL and EA (daylight contacts with stations as far away as Barcelona). Those who have been able to take advantage of these conditions have not only met many keen QRPers, but have also been able to up their score of members worked quite appreciably.It was particularly nice to hear and work Pat, F6ACD, a QRPer first worked over 20 years ago, and to hear he is now a G QRP C member. Keep up the good work my friends !

>>>> THE MIS-USE OF OPERATING SIGNAL SK <<<<

SK (some prefer it VA) is the most mis-used operating signal in amateur radio. Its official meaning is "end of work" indicating that communication with a particular station is finished, and that the station sending it is clear for other calls. It does not mean " I am listening for your final and will then acknowledge it"but many, many stations use it in this way, then complain when other stations call them while their original contact is sending his final to them .Please use this signal correctly or, if in doubt, do not use it at all.

COMMUNICATIONS AND CONTESTS

Gerald Stancey G3MCK 14 Cherry Orchard, STAINES, Middsx. TW18 2DF

EUROPE FOR QRP

A very disappointing event with only one (check) log submitted, thank you G8PG. Is there something wrong with this contest? If so then please let me know and I will try and improve matters.

RSGB HF NFD

Congratulations to G6UQ/P who won and thank you to G0LFS/P and G3LHP/P who also flew the flag for QRP.

CONTEST REMINDERS

Winter Sports. This year George has very kindly given me an extra page to fully report on this event. I am looking forward to receiving your logs.

Historically 80m has been the most popular band and at times 3560 kHz has sounded like a DX pile-up. If you can please spread out +/- from the all the QRP frequencies. On 80m also check 3570 and 3579 kHz as many people have crystals for these frequencies. Don't forget that in the USA 7040 kHz is the recommended QRP frequency. Also crystals for this frequency are readily available from KANGA..

Somerset Contest. Rules in SPRAT 84

Chelmsley Trophy. See SPRAT 84 for the easier way of entering for this award. Yes I know it says something else in the Handbook but we made a last minute change to try and get more entries and save you work.

SWL. Sadly very few SWLs sent in logs. Please remember they are always welcome for any of our events.

EA QRP CLUB

This is a very fine club so are going great guns in Spain. You will find many of their members QRV 7030 kHz +/-. Membership is $12 Europe and $15 outside Europe per year and members receive four issues of QU-R-PE. All applications to: Milguel Montilla EA3EGV, Pau Adab 15 3 1, 087207 Sabadell, Barcelona, Spain.

QRP FREQUENCIES

I had my ear bent by some members at Rochdale on this subject. Nobody owns any specific frequencies in the bands but it is convenient for certain interest groups to nominate "club" frequencies and most amateurs respect these frequencies. Our frequencies are well established. They should be viewed by us as areas of QRP activity, not calling channels. Hence there is nothing to stop anyone from using QRP anywhere in the band and many people do this. Two main problems were identified to me. Firstly on Top Band. Here there is often QRM from DX hunters and the frequency lies outside the novice band. May I suggest that you find holes near 1843 kHz or move up into the novice segment if you wish to work novices. Secondly 10.106 MHz was criticised. Again please think of this as general area in which to look for QRP. If you are rock bound experiment with VXOs.

I am aware that the above comments may not satisfy everybody. However I was involved in re-evaluating the QRP frequencies a few years ago and just about every unique kilohertz in every band was favoured by somebody. I believe that the key to successful QRPing is to look about the designated frequencies and not to regard them as the only points on the dial for QRP.

As always I am delighted to receive suggestions but believe changes should only be made where they will definitely yield an improvement.

CEPT PORTUGAL

Rogerio, CT1ETT, tells me that special authorisation for 10 metres is needed but that it is readily given. Also 4 metres is not allowed and 6 metres needs special permission which is not easy to obtain.

VHF MANAGER'S REPORT

John Beech, G8SEQ
124 Belgrave Road, Wyken Coventry CV2 5BH Tel. or Fax 0203 617367.

First of all, my apologies for not meeting last SPRAT deadline. Out family holiday was late this year and consequently my copy wasn't ready in time.

While on holiday there was an interesting opening on 6m. I was for virtually all day on Friday 18..8.95. I could hear stations to the East, North and South of me. I managed to work OZ, SM and IS and heard the Faroes and two Scottish beacons but could raise no G*- stations at all. Admittedly it was a nice sunny Friday and I couldn't hear the Buxton or NHQ beacons. Ah well ce la vie!

While on the subject of 6m, Brian, G3KJX, wrote to me to see if I had any ideas of getting his MEON going. Well I gave him a few pointers and eventually he wrote back to say he had worked it out (finger trouble?). He managed to hear the Azores beacon, PA, OZ, I, HB S51, GBBUX, GB3NHQ, GB3MCB, LX, 4Z AND MONITORED QSO's while on holiday in Portugal, with just the RX section working. Since returning home he has managed to get 200 mW out of the TX and can regularly hear the ZB2 and CT beacons. He is now working on a small PA. Brian says: "It just shows that simple gear will will produce good results.."

I have been a little more active on 2m lately as well. The local club, CARS, runs the Alphabet Contest during September in which we try to work through the alphabet (in any order) collecting the initial letters of the QTH name. Anyone live in a place beginning with X? During that time and October I heard a few weak stations in Holland, but got no replies.

Doug G0KKK (Bristol) is busy building for HF at the moment, but is threatening to build something for 2m CW. He also says he will be on Packet soon.

Lastly on the design and construction front, I have been busy with a 6m to 2m transverter with some novel electronic switching. It gives about a watt out. Boards and kits of parts are available from "SEQUENCE ELECTRONICS" (See back of this issue).

Email and QRP

Two QRP email mailing lists exist :

The American QRP-L and our own GQRP-L

To join the QRP-L list send mail to **listserv@Lehigh.edu** with the message "subscribe qrp-l [name] [call]"

To join the GQRP-L list send mail to **Majordomo@blacksheep.org** with message "subscribe gqrp-l"

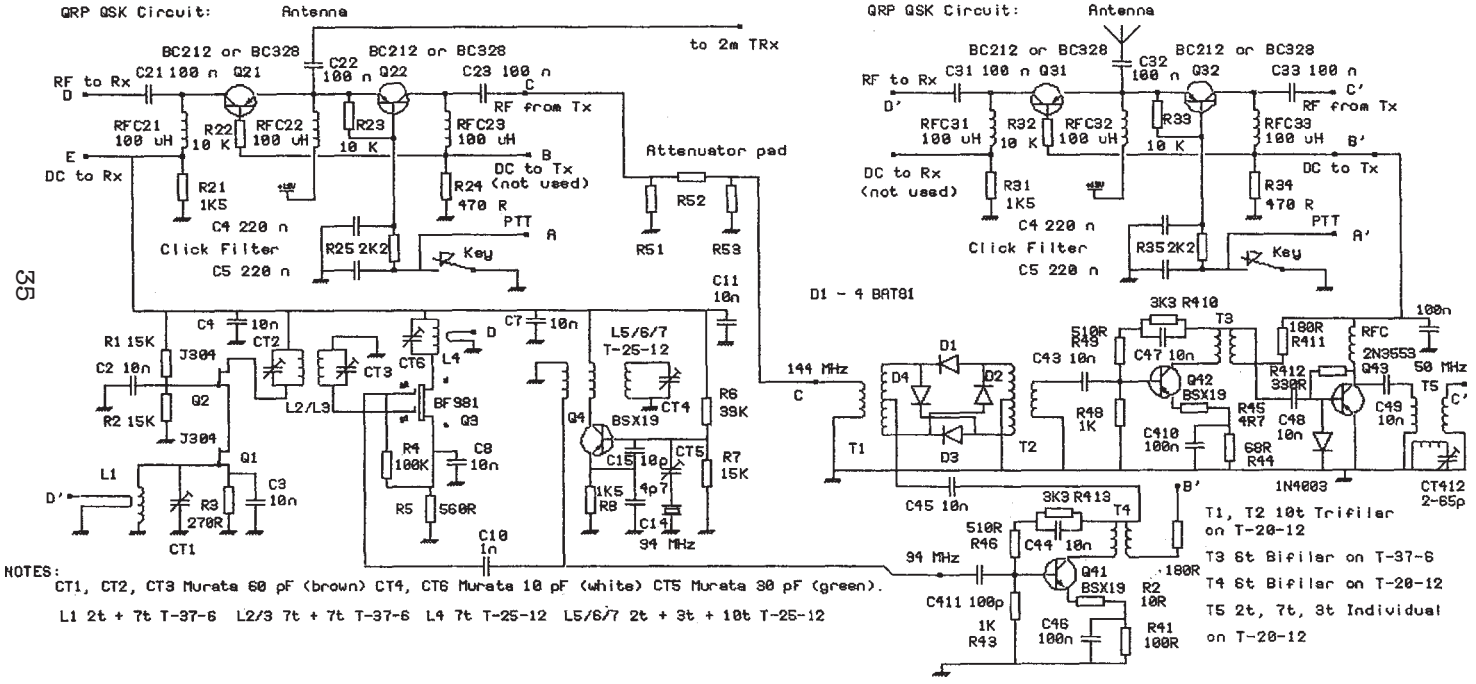
Neither of the above require anything in the subject line and the instruction must appear in the body of the message. Both lists send an initial welcome message explaining the aims and procedures of that list.

Members on Email

Brian Gibbs, G3MBN, is taken over the list (that G3RJV began - just about!) of **MEMBERS WITH EMAIL FACILITIES**. If you are on email please send a message with your Name, Call, Club number and Email address to Brian at:

brian@brimar. demon.co.uk

6m to 2m Transverter



NOVICE NEWS

Steve Ortmayer G4RAW
14 The Crescent, Hipperholme, Halifax. HX3 8NQ. Tel: 0422-203062

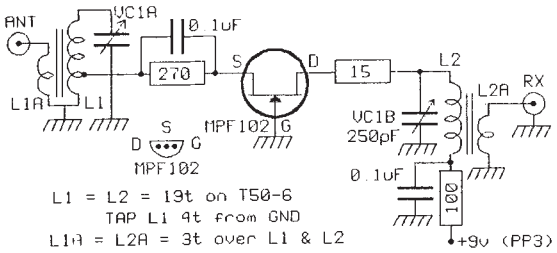
A day in the life of a novice member ..... John 2EOAJN has sent his log for a day in August. John starts at 08.01 GMT to 00.41 GMT next day. During this period John worked 10 Stations at powers from 3W to 10mW yes 10mW!! All near 3560kHz. What a fantastic day John had on 80m with such low power. Modest John says "I know it has been done before". Well I have not hear of such low powers on 80m which can be very noisy even on a good day.

I have been asked about the 2SC2078 transistor used in the RF Amp' (Sprat 84). Tt can be obtained from Cricklewood Electronics 40 Cricklewood Bdy NW2 3ET for £1.50.

A.R.Hartland has asked if the Yeovil Receiver would be useful for QRP Contests. I am sure it would, I have had good fun in contests with very simple equipment. During the big USA contests when the band is failing into Europe the USA stations can still be heard calling in the UK and I have worked a whole string in a short time. You need to know the best time to listen so go to your local club and seek out the HF DXer members. I did this and was told "Listen at 18.00 next Sunday lad on 21MHz" and sure enough there were USA stations waiting to be worked.
Les 2E0ADM has sent details of how he has modified his 1/2 size G5RV to work as a top loaded vertical on 80m and 160m. If you would like a copy of the details please let me know,

HANDY HINTS FOR A HAPPY SHACK
Here is a hot tip!! A lot has been written on how to make good soldered joints but the most important thing is to pick up the soldering iron by the part that is not hot! If you do burn your fingers the recommended first aid treatment is to run the effected part under cold water. My shack is remote from a cold tap so I keep a small garden spray of water in the shack to spray on burns while I remove the patient to the tap.

Novice Band Allocation! I have had a long letter from Phil Mayer G0KKL the RSGB Project Year Co-ordinator. The wheels are still turning on possible extra frequencies for Novice Licence holders but it still seems some way off. There is a plan to let Novices use some parts of 2m. Please let me have your views on this.



HF PRESELECTOR

This preselector tunes from 7.5 to 28MHz and is a big help in front of a simple receiver.
VC1A and VC1B are the two sections of Polyvaricon variable capacitor

That's all for now. Have a happy Christmas and I hope to meet many Novice members during the Winter Sports.

MEMBERS' NEWS

by Chris Page G4BUE

"Alamosa", The Paddocks, Upper Beeding,
Steyning, West Sussex BN44 3JW.
Tel: 01903 879750
Fax: 01903 814594
Internet: g4bue@pavilion.co.uk
Packet: GB7DXS on UK DX PacketCluster

DL7BQD made QSOs with several members during the Marconi Activity Month (September) organised by the AGCW-DL and in answer to **DL2RM**'s question about antennas, Dieter says he has never used anything other than an FD4 for QRP. **G3TUX** finds the FD4 antenna very good for 80m UK/EU QSOs but down on 40m when compared with some of his locals using the G5RV. Chris was amazed to find the FD4 also has resonances on 160, 17, 12 and 6m.

G3RHP has been using a QRP Plus mobile on 20 and 80m and was able to work well into Europe on 80m when parked near the sea at Harwich. John hgas started building the Hands 6 band CW transceiver and would like to get in touch with others building it.

DJ7PO is interested in making contacts with his Pactor-PTC-II running 24 hours a day on 14.079. Joe can switch to 80, 40 or 30m on request. He is a teacher at a school in Offenburg and welcomes messges from other teachers and/or schools that he can QSP to his pupils. Joe would also like to hear from any Borhemwood/Elstree radio club members, their partner town.

DL2RM has a new QTH and has been using temporary antennas. Rudi has bought an ex Russian Army R130 radio covering 1-12MHz and adjustable power from 100W to 100mW. It uses the miniature valves and he says it is a joy to listen to on 40 and 80m in the evenings with this "superb receiver". It has an ATU which can match anything and Rudi tested it with a 1m piece of wire which he loaded on 40m and then made some QSOs with 5W! The downside is that it weighs 40kg!

GWØTQM has a briefcase in which he keeps a block of nicads (12v about 2Ahr), a DTR7 40m rig, a small ATU, a tiny SWR meter that hardly moves with 2W applied and a large roll of ex-military antenna cable (sort of rope platted with wire). Carl went to Sherwood Forest in October, threw the wire over a tree, and with a small morse key (so small it comes with a knee strap to hold it still) worked into Sweden. **GØTXL** asks if anyone has managed to reduce the power of the FT990 to less than 5W without using an attenuator? Paul is sure it would make a good QRP rig if it didn't insist on producing 8W minimum!

HB9ANW was in South Africa recently and from his 15th floor Durban hotel room looking right onto the Inidan Ocean, worked KC7EM in Oregon on long path, 22,000km away on 40m with 2W! Dick was using a 20m long wire pushed out of the window on a 6m fibreglass fishing pole with 14m just dangling in space (the hotel manager did not object!). KC7EM was using 3/3 stacked three full sixe element yagis and 1.5kW and when Dick said he was QRP with a piece of wire, WSteve almost fell out the chair! Dick says the ZS licence is easy to obtain from SARL, but take your alkaline cells with you because you won't find any in town.

GØKCA is now 100% QRP and has a QRP Plus as his main rig. John likes the rig but finds that if he rocks the tuning knob when tuning in a CW station, the note changes sharply from a low to a high pitched note. John praises Gus's *Jailhouse Special* antenna which he built and found to work very well. **DJØPJ** has been QRV with QRP from FY again and has been worked by G3RHP with his new GQ-20 kit trabnsceiver. **G3XAQ** was planning to be QRV from 6Y5 with a QRP Plus at the beginning of December.

DL2EAS was QRV for three weeks on Baros Is as **8Q7AS** in September/October and made about 200 QSOs with his HW9 and a 22m long wire hanging between two palm trees about 5m asl. Alexander worked a lot of Europeans among the 36 DXCC but the only (lucky) member to get in his log was **OE6RAG**.

OH6UP has changed his call to **OH1LVR** and now lives in Raisio, near Turku. Erkki is on 14060kHz most days from his new QTH. **VE1HDW** regularly monitors 10106kHz with his OHR Explorer 30 and vertical. Harvey

uses 2W and has heard G stations, but no QSO yet. Kris, **OA4DBO** says he will also be monitoring 10106kHz around 0100z with QRP but will go QRO (20W) at 0115z if no results.

DL7BQD attended the QRP-DL meeting in Pottenstein and in October visited London and *HMS Belfast*. Dieter will be in Yorkshire next summer on holiday and is building a 30m Oak Hills Research rig to take with him to activiate some rare WAB squares.

JA1AA (pictured above) was introduced to the club by **JR4CLN**. Hisao (who is 77) was first licensed as J2IB in 1938 and has been JA1AA since 1952. He organised the JA QRP Club in 1956 and enjoys working DX with QRP. **VE7QK** attended Pacificon in California in October with 3,000 other amateurs including 300 enthusiastic QRPers.

2EØADM has adapted his half size G5RV into a top loaded vertical and finds it works a little on 160m, better on 80m and very well on 30m. Les found the adapter switch cost him 1dB, not good when you're only using 3W.

G4FMH made over 100 QSOs (including the USA and Arctic Circle) with 3W from the MFJ 9020 to a dipole just 13ft high in October. Bill says the rig is ideal for CW buffs and beginners alike, especially with the optional audio filter and keyer module fitted. The front end is much quieter that his Ten-Tec Scout and appears to keep out the crud better. However, the internal speaker requires the volume control to be fully clockwise, but a pair of 8Ω headphones gives adequate volume with the control backed off to the 12 o'clock position or less.

G4FDD has been using an inverted L (total length 66ft) tuned against a fence wire counterpoise. It is ok on 40-10m but no good on 80m due to ground losses, despite bonding lots of his neighbours' fences together! John turned it into a loop by adding about 100ft of wire from the top of the L, down to the ground, and back to the feedpoint into a mostly vertical loop about 20 ft high by 60 ft long. The difference on 80m is enormous (about 3 S points) and he is now converted to loops. It is much better than a low dipole and is half the length. John would like to hear from others who have tried this.

GM3MXN had a nice surprise recently when a 9M2 station came back to him with a 529 report. Tom was using 3W and a 2 x 19m doublet. He also worked R1FJZ (FJL) and 3V8BB. Tom is getting fed up with the QRM on the QRP frequencies most weekends, especially on 80, 40 and 20m and wonders if anyone can identify the the digital modes there (see the paragraph below from **G3UGF**). **G3YCC** found conditions good at the end of August culminating in a two-way QRP QSO with KB1FK on 20m.

G3RHP built the 20m version of the GQ-20 kit and couldn't find the values for C99 and R56. John also had a problem with the RIT switch. **GØUBV** offers a list of the bugs that he and John discovered in the board, circuit diagram, instructions and components for the GQ kits, including C99 is 82pF and R56 is 10k, (tel: 01482 572165 or e-mail: *ptuton@ptuton.demon.co.uk*.

ON9CHU/GØUTY asks if any of the UK crystal grinders still provide 10X crystals? Duncan is looking for something which "will take a bit of welly if called upon to do so!" **GØLOJ** is designing a QRP rig for mobile use when on holiday. Chris is thinking it should have a built-in keyer, LCD frequency readout, DC receiver and built-in self-adjusting ATU (the tricky bit!). He welcomes other ideas and suggestions.

W1HUE/7 says a new eprom is available from Index Labs for the Index Plus. The keyer speed is variable in 1wpm increments to 36wpm and then by 2wpm increments to 44wpm, and it remembers the last mode used when powered on/off. Larry says the price is US$5 plus shipping and it can be replaced without removing any boards.

GØLCQ has been using the QRP Plus for the past year, almost all CW, because he cannot get more than 2.5W out on SSB and is using his bedroom window frame for an antenna! Glenn says the few SSB stations he has worked have said the audio quality is not great. He would like to hear if other users have had similar problems and what type of microphone they are using.

Congratulations to Glenn on a super DX QSO recently. He was listening on 10117kHz

and heard T32BE start calling CQ EU, answered and received the usual 599 report. Glenn said the whole world then descended on the frequency!

EI6IF is QRV on Top Band with his version of the Skeleton Cone antenna from the Club Antenna Handbook. Denis says his is 47ft tall and he has tied 300Ω feeder to the base of the pole and fed it via an L match network to get it on 160m. It seems to work well around Europe with QRP (CW and SSB) with a 589 report from a UA4 as proof. The Internet QRP Mailing List recently gave the following address for the source of the famous Denco coils: *Denco (Clacton) Limited, 259 Old Road, Clacton On Sea, Essex CO15 3LU.*

G3OEP organised the *QRP Beside the Seaside Meeting* in Great Yarmouth again this September but was disappointed that only 31 people turned up. David says the guests of honour were **GØKKL** (Chief Novice Instructor) and G5WW, MBE (awarded for ascending the radar towers during the Battle of Barking Creek). The highlight of the day was an exhibition of QRP gear by Hazel, **2E1BMP** (aged 12) and her brother Alec, **2E1EIY**, aged 7½ years. Phil, **GØKKL**, gave an interesting talk followed by a vote of thanks for G5WW, who joined the RSGB in 1931.

ON5HF uses a TS120V and half-size G5RV but is building the Malta 40 rig from **G3TXQ** and the GQ-20 kit. Michel uses both modes; his best SSB QSO is with HFØPOL in the South Shetlands with 8W and on CW with VK twice with 5W.

G3YCC says Sheldon Hands has a new modular CW only QRP transceiver available with many great features, including high spec superhet, microprocessor control, digital readout, QSK, all bands or add as many as you need. **N8ET** says QST will be publishing a four part article on the rig and it is an updated version of Sheldon's six band kit

G3UGF suggests it is time we review the QRP frequencies and become a little more political/militant about the frequencies we have. Richard says Top Band is ideal for QRP and has a long history of esceptional results against all the odds. He says 1843kHz has been hi-jacked by European DX fanatics using high power and you cannot work novice stations there.

Similarly, Richards says, 10106kHz is unusable most evenings due to high power commercial data and despite 10116 being suggested several times, nothing has been done. Richard suggests the G-QRP Club should press for novice allocations on 7030 and 14060kHz. What do you think about **G3UGF**'s suggestions? Please send your comments and ideas to Richard at *The Old Exchange, Burnely Road, Mytholmroyd, Hebden Bridge, West Yorkshire HX7 5PD.*

The QRP-ARCI proudly announce the first annual *QRP Symposium* to be held on 16th May 1995 - the first day of four festive days of 1996 Dayton Hamvention QRP activities. Mark your calendars and get your hotel reservations in early for this not-to-be missed QRP event of the year. More information from Bob Gobrick, VO1DRB, (e-mail: *70466.1405@compuserve.com*)

Finally, a very Happy New Year to you and your families and all the best in 1996, particularly to **G3TUX** on his new venture with the opening of the *QRP Component Company* shop at 7 Kings Road, Haslemere, Surrey GU27 2QA. Information on opening hours, stock, etc. from Chris on 01428 641771 or fax on 01428 661794.

Let's hope that 1996 proves to be the year that Cycle 22 finally bottomed out and HF conditions start improving. Let me know how your Winter goes, by 31st January please (earlier than usual as June and I shall be in New Zealand in February).

73 de Chris

STOP PRESS NEWS

ROCHDALE MINI-CONVENTION 1996 :
Because the Leicester Exhibition has been moved to the 3rd week in October, the Mini-Convention will now be on
Saturday 12th October 1996

DDS CONTROLLED MULTIBAND KIT : The new Hands Electronics **RTX210** project (see note from G3YCC in Member's News) will be published in the December issue of **QEX**, not QST. Production is planned following that article

NEW! DTR7 – 40m CW TX·RX

The DTR7 is building on the success of its companion, the 80m DTR3. Featuring module construction, with no less than five PCB's, the rig incorporates all the essential features of a transceiver without indulging in expensive gimmicks.

Covering the entire 40 metre band – 7.0/7.1 MHz – the Transmitter produces a clean 2 watts of CW. It requires only about 350mA at 13.8V (key down), which, combined with its compact size and light weight makes it ideal for portable operation.

The Receiver section (Direct Conversion), can resolve signals of less than 1uV. Selectivity is around 250Hz @ 6dB.
AF output, up to 1/2 watt, is for 8 ohm 'phones or speaker.
Sidetone and RIT (plus and minus 4kHz shift!) are built in.

ALL COMPONENTS AND HARDWARE INCLUDED

£87.50 (Kit) **£140 (Ready Built)**

NEW! PM20 POWER METER for QRP

The PM20 is a combined 50 ohm Dummy Load and direct-reading milliwatt meter. Designed specifically for the QRP enthusiast, it accepts any frequency from 10kHz to 150MHZ. VSWR is less than 1.5:1 at 150MHz, about 1.1:1 at HF.
A dual range instrument – 20 watts or 1000 milliwatts FSD – it permits readings down to 25mW to be made easily.

ALL parts (Yes! Case AND meter!) are included.

£19.50 (Kit) **£28.75** (Ready Built)

For full details of our kits, send SAE to

LAKE ELECTRONICS
7 MIDDLETON CLOSE, NUTHALL, NOTTINGHAM NG16 1BX

OR RING ALAN, G4DVW, ON 0602 382509

VISA Access