



SPRAT

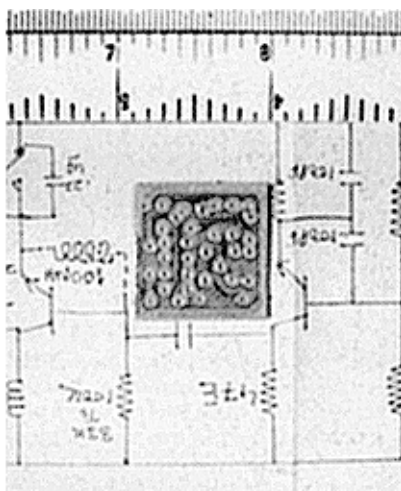
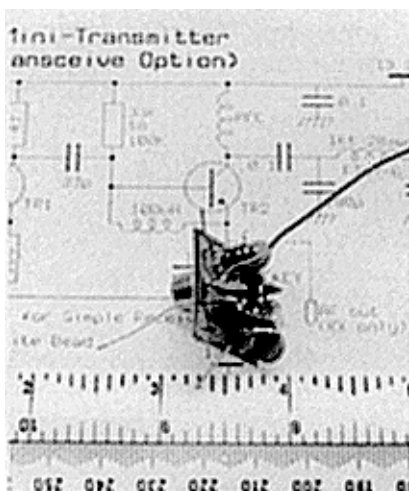
THE JOURNAL OF THE G-QRP CLUB

DEVOTED TO LOW POWER COMMUNICATION

ISSUE NR. 88

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AUTUMN 1996



SMALLER THAN THE ONER !

The VU QRP Club Receiver (Transceiver) Project
A Simple Project from a New QRP Club

The G3TDZ 73kHz Rig - VU MINI-TRANSMITTER (TRANSCIVER)
MORE PIXIE - IMPROVED ROCK-O-NATOR - NORWICH TRANSMITTER
NOTES ON GM30XX FILTER - TOUCH PADDLE - EPIPHYTE-2 UPDATE
GQ LOW PASS FILTER - ODDS & ENDS - CLUB ACCOUNTS - QRP NEWS
ANTENNAS, ANECDOTES, AWARDS - COMMUNICATIONS & CONTESTS
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Rev. George Dobbs G3RJV

EDITORIAL :

A SPRAT SCOOP.....

Or at least I think it is. As far as I know, SPRAT is the first UK amateur radio publication to feature a full CW/SSB Transceiver for the new UK 73kHz Band. Thanks to John, G3TDZ, we have another one of his excellent articles to begin this issue. What about sharing your ideas with us?

WRITING FOR SPRAT

SPRAT is what it is because of you, the member of the G QRP Club. You are invited to share your ideas and circuits with other members. You do not have to be a technical author, a sketch and a few brief notes can be made into an article or added to a column. Short text is best as we like to cram as much as possible into every issue. Mac, G3FCK, does a wonderful job preparing illustrations from sketches but he does like every component value to be marked clearly. Don't think that your contribution has to be very technical - the simplest things often appeal to the widest audiences!

If you can provide computer generated text, it can be sent on disc in pretty well any PC format (we use WORD for Windows 6.0) but a printed copy too is helpful. The club copyright sign is added to protect members. If commercial magazines wish to reproduce SPRAT articles they are invited to contact the author, via the club, and pay the appropriate commercial fee for the article to that author.

THANK YOU to all the members who sent donations, money as well as equipment, to Jo-Anna GØOWH for her work in El-Salvador. She leaves on December 28th for a six week working visit.

THIRD WORLD TRANSCEIVER KITS : We will be shipping the 20 Epiphyte-2 kits shortly to needy radio amateurs. G3RJV is still open to suggestions for the placement of a few of the kits.

72/3

G3RJV

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

The G3TDZ 73kHz RIG

An LF Transceiver for Shack, /P, or Cave Use

JOHN R. HEY G3TDZ 8 ARMLEY GRANGE CRESCENT, LEEDS. LS12 3QL

The 73kHz SSB/CW transceiver described makes use of two printed circuit boards which are already available either from The G-QRP Club or from the author. At such a low frequency, in-band direct conversion technique outweighs any idea of mixing or superhet method. It is suggested the reader flips a page and considers the frequency generation of Fig 5.

The switch shown is unlikely to be fitted; rather it indicates the choice of crystal or VFO control. Here the two uses of the new band can be chosen: as an ordinary amateur communicating system, or as a fixed frequency caving radio transceiver.

The VFO is lifted from, the G3TDZ HF phasing transceiver modified for operation about 4.66MHz. Very stable in itself, when divided by 64 becomes as amazingly stable signal source. It is much easier to build an HF VFO than to wind a huge coil for direct 73kHz operation.

Where the VFO is chosen, R31, C13 and C13 are omitted.

For the CW only enthusiast where the complexity of the SSB transmitter is shunned a 73kHz output on pin 4 of the 4060 allows U6 the 4013 to be omitted. At this frequency, a simple DPDT switch after the signal source enables sideband switching; the switches in both receiver and exciter avoided.

RECEIVER

Battery operation rather than mains is chosen to allow portability; a 12v jelly battery works well. In place of the cascode RF stage on the main board and the VFO amplifier circuitry which isn't required, a simple op-amp using the low noise HF OP-37 is mounted on a small piggy-back board. A single tuned circuit using a Toko coil forms with the loop aerial to be described later a bottom capacitor coupled double tuned pair.

The remainder of the receiver follows the previously described phasing receiver circuit. In the special case of a caving radio, the S meter and CW filter may be omitted by not fitting U9 and its associated components and omitting C36 and C37. The sideband switch may be omitted and the connection to R75 permanently connected with a piece of wire from U5b pin 7 under the board. Likewise where the CW filter isn't required, U5d pin 14 may connect directly to R91 input.

The pre-set RF gain pot on the piggy back board may be replaced by a wired front panel control on the more ambitious receiver.

TRANSMITTER

In the exciter, again the VFO amplifier and RF phase shift network are omitted, as is the output converter stage. A small piggy-back board houses the oscillator divider and quadrature generator. The I and Q excitation signals connect via the DP switch; 'A' then connects to 'A' and 'B' connects to 'B' by modulators are terminated and tuned by L1, C26 on the power amp board.

Treasured notions about all things RF being at 50 ohms and everything matched to everything else may now be forgotten and the mind more focused on audio technique. When did we ever impedance match anything in audio? Anyone saying "Loud-speakers" will be taken and shot.

A car radio audio chip TDA2003 is capable of 10W into 1.6 ohms, and works very well in this application. A series tuned aerial loop has a very low resistance, and a very high Q. Its resonating capacitors must handle high voltages: four Philips polycarbonate 10n 1600V capacitors are wired in series parallel. (A single cap went red hot!)

AERIAL

The loop aerial is made by winding 13 turns of the thickest wire you can find to a diameter of 1m and anchored to a wooden frame. The prototype used 7029, but 7036 would be even better.

As it stands, and fed from 2m of 50 ohm coax, the loop is a splendid receiving antenna, outperforming even a very long wire. It will not however transmit an E wave further than its own

diameter. As the electric wave is suppressed, the magnetic field is enhanced; the loop is all that is needed for a cave radio system. If mounted on Terry clips, the loop can be collapsed in order to pass through tight cave passages.

For the radio amateur who wants to transmit the E wave, a tap four turns up from the earthy end may be connected to a long wire - the longer the better.

SETTING UP

With a frequency counter, check either the I or Q oscillator drives and with the tuner set to midway, tune slug for exactly 73kHz. It will be found the coverage is about 71 to 75kHz.

Place an oscilloscope probe or other indicating device on pin 12 of U11 in the receiver and adjust VR1 for minimum waveform. Repeat for pin 12 of U2. Apply an audio or RF generator set to about 73kHz to the aerial socket and tune till a loud heterodyne is heard. Reducing the signal level progressively, tune L1 for loudest signal. Reduce signal to a point where the signal is just audible and where fitted, turn the RF gain pre-set. At a point near to maximum gain, it will be found the signal to noise ratio is about equal. With the manual RF gain, this is at the operators discretion.

Raise the level for a good volume but not to a point where limiting is obvious; switch the USB/LSB switch. The signal should almost disappear. If it is realised the wrong sideband is selected against your front panel markings, change over I and Q to the receiver only.

Transmitter alignment is also very simple. Place an oscilloscope probe at VR5 top. If a waveform is present, adjust L1 for maximum. Adjust VR2 for minimum signal. Adjust VR4 for minimum signal, then repeat the last two operations over again till only a line remains or what remains is the lowest possible. Feed an audio tone of say 1 kHz into the mic. Input; a signal will reappear at VR5. Turn up to say a signal of 200mV is seen and inspect the quality of the sinewave. Adjust carefully VR1 and then VR3 for purest waveform., that is with minimum traces of fuzziness.

If a two-tone generator is available, feed this to the mic. Input, adjusting VR1 and VR3 for sharpest two-tone waveform. Fit the microphone to be used. Place the probe at the aerial output allowing sensitivity of say 1V/div. Speaking into the mic. In a normal operating voice, raise VR5 to a point where the SSB peaks just begin to flatten. This concludes the alignment.

As relays usually come in either 2 pole or 4 pole, the latter is chosen. Use the fourth set of contacts to mute the receiver audio while on transmit by connecting the volume slider to earth. It will have been noticed there are no low-pass filters in the output. At an impedance of only about two ohms the insertion loss would be unacceptable but the high Q of the loop is sufficient to turn a square wave into a sinewave. Depending upon loading, the Q on transmit is around 60 or even 80. This should severely limit the audio but in practice the received audio quality is remarkable.

Where an S meter is fitted, this is adjusted as the receiver is aligned. Increase the signal generator to a level where limiting, that is the audio AGC becomes evident; further drive doesn't increase audio level; adjust VR3 to read S9.

Fit the aerial loop and you are on the air. It will be found the loop can be rotated to null out powerful beacons. There is a shocker on 73.3kHz.

In Fig 3 a simple keying circuit is shown. It might be better however, for it is always easier if the tone can be heard, to make up a keyed audio oscillator to feed the mic input.

When marking your tuning dial, make band edge marks at 71.6kHz and at 74.4kHz. At the lower mark, you can transmit USB and LSB at the higher mark. With such a small coverage, a digital display seems pointless and a small mechanical dial is easy to fabricate.

PRINTED CIRCUIT BOARDS FOR THIS PROJECT

The original White Rose Phasing Receiver (SPRAT 71) PCB £5.58 inc. Postage

The original White Rose Exciter Board (SPRAT) PCB £3.75 inc. Postage

Cheques to "G QRP Club" - a self addressed sticker is also helpful - Orders to :

Ian Wye, G0OKY, New House, Hook Rd., Amcotts, Scunthorpe, DN17 4AZ

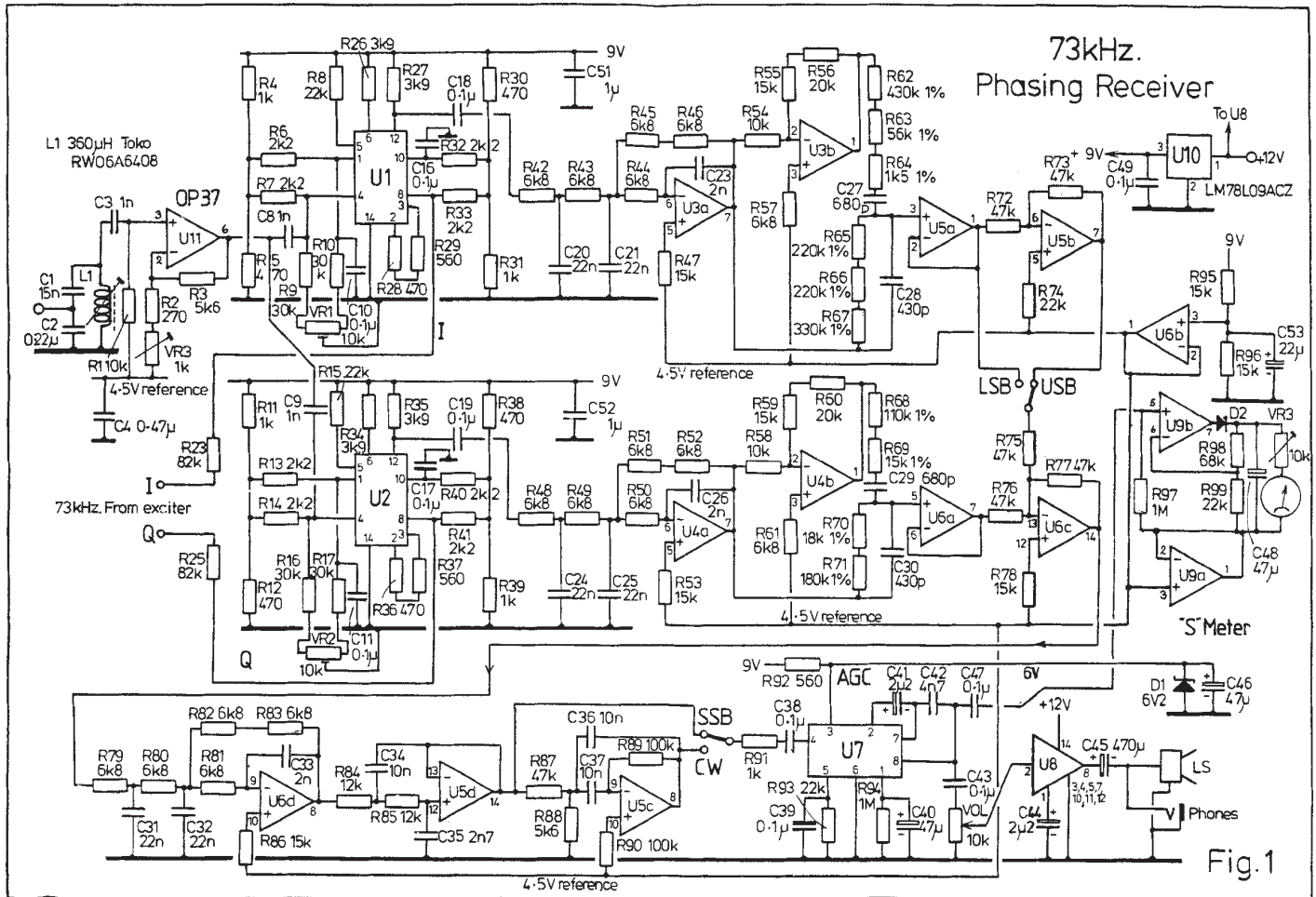
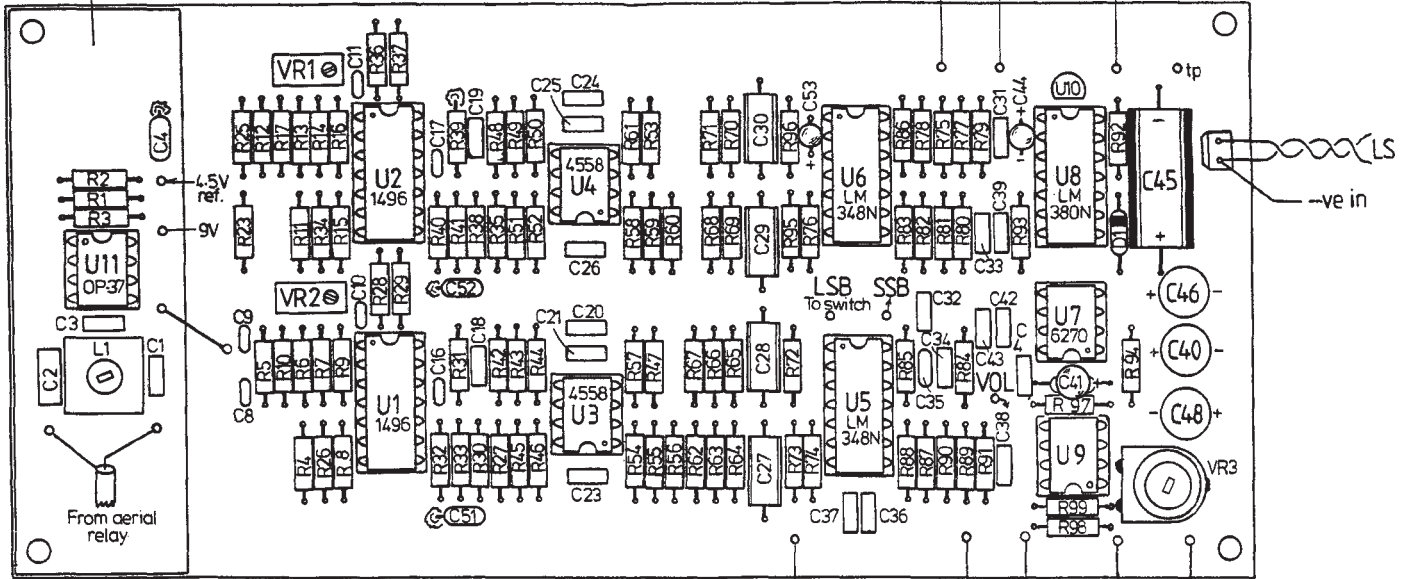


Fig.1

RF Amp.
Piggy back board.



73kHz.
Phasing receiver

Fig.2.

G3TDZ 73kHz Transmitter

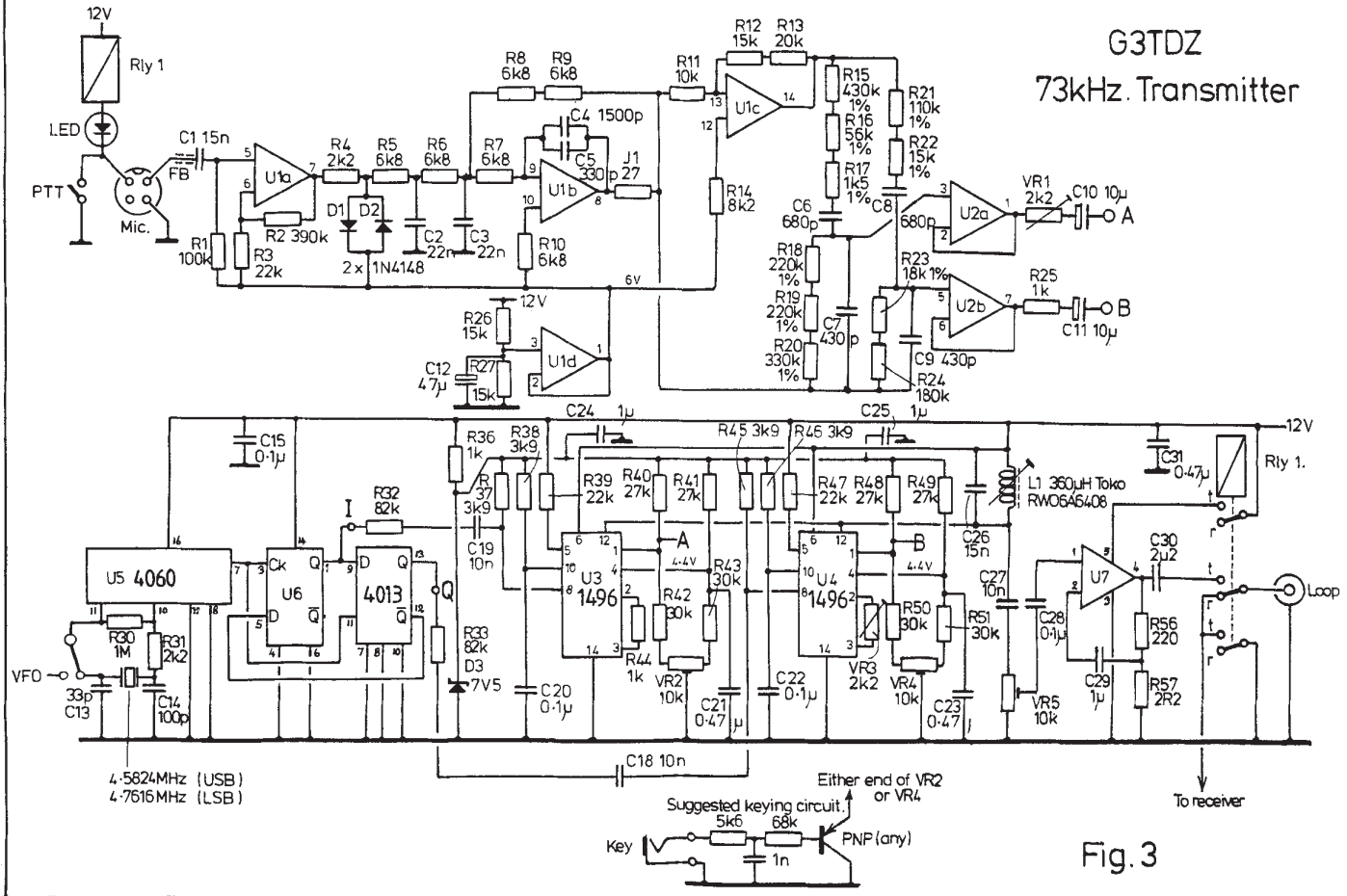


Fig. 3

73kHz Transmitter pcb component plan. G3TDZ.

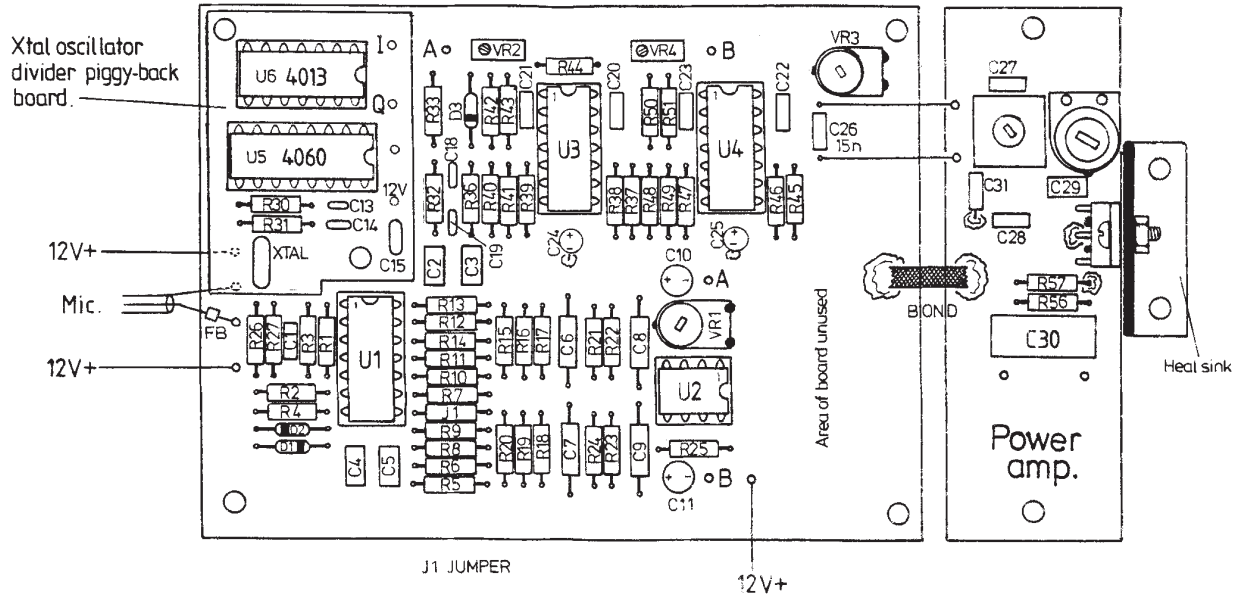


Fig.4

73kHz. SIGNAL SOURCE

G3TDZ

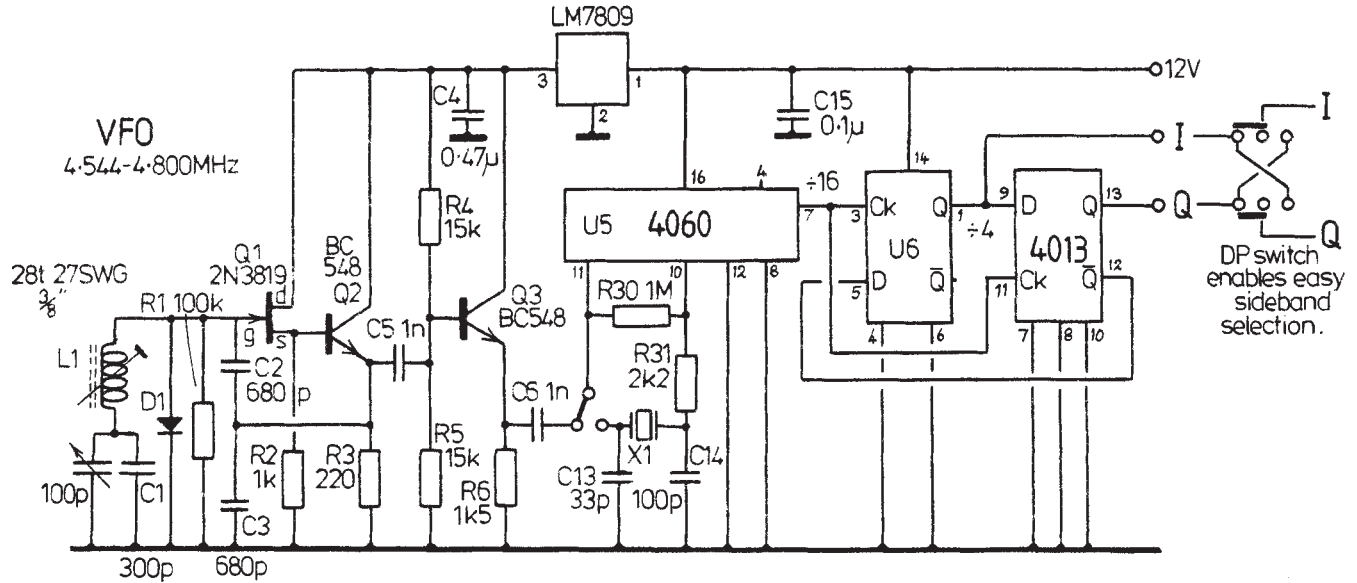


Fig. 5.

G3TDZ Loop

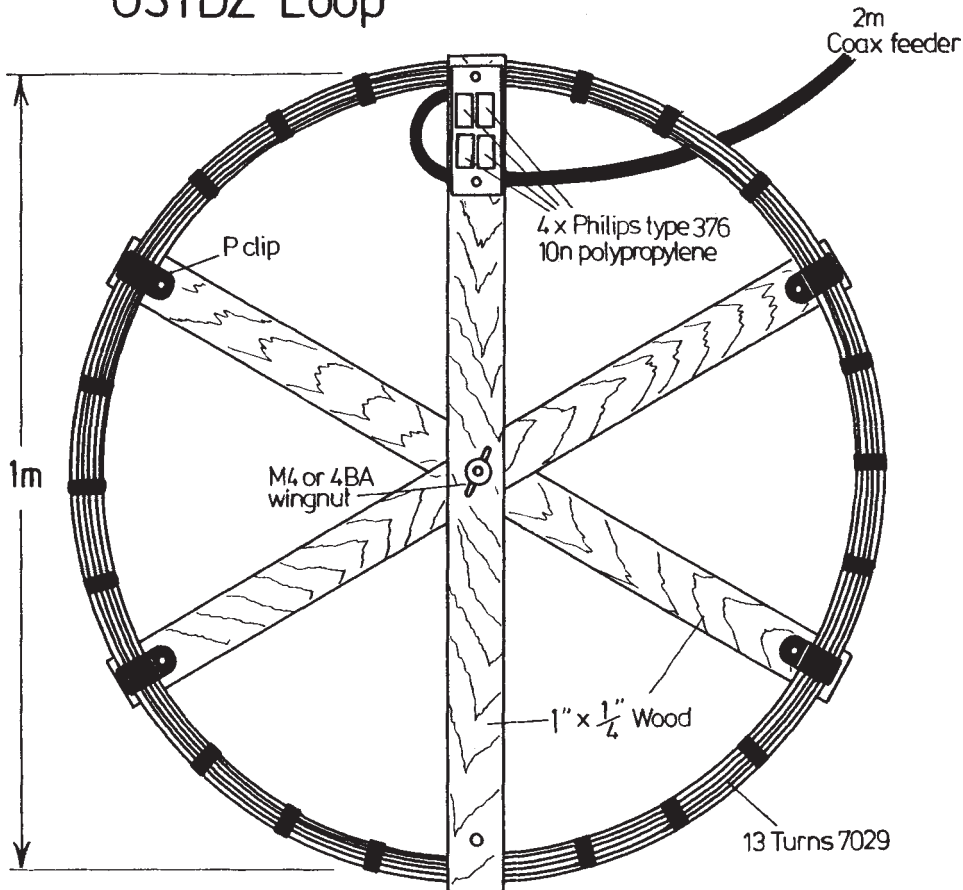


Fig. 6 Loop construction

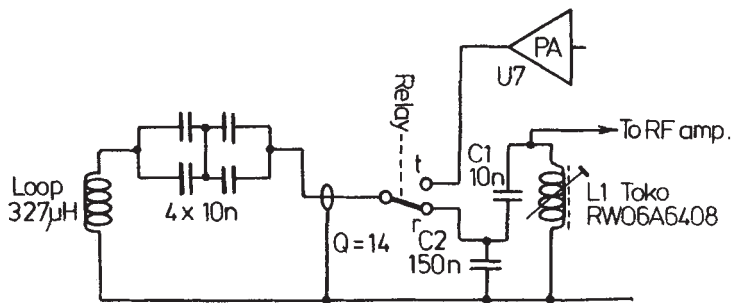
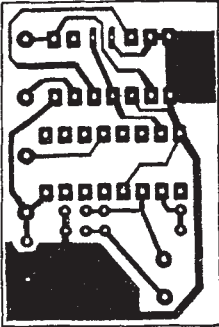


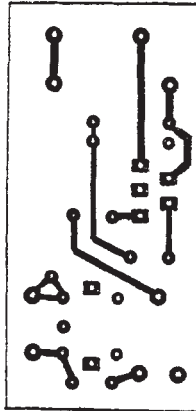
Fig. 6b. Signal routing in Transceiver

**ADDITIONAL PRINTED
CIRCUIT BOARDS**

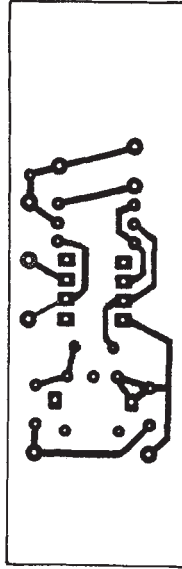
Full Sized copies of all the drawings for this article are available by sending a "SPRAT sized" stamped addressed envelope to G3RJV. Mark the envelope "G3TDZ 73kHz Rig"



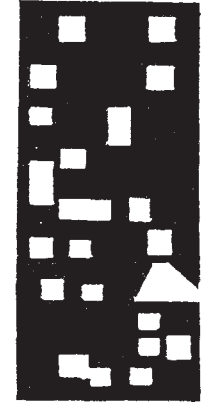
Oscillator divider
piggy back board.



Power amp.



Receiver RF Amp.



The VU MINI-TRANSMITTER (TRANSCEIVER) For 20m.
A VU-QRP Club Project that is smaller than the ONER Transmitter
K.P.S. KANG, VU2KLA, 301/2 NANDI COLONY,
KHANNA 141401. PUNJAB. (NORTH) INDIA.

This project has been developed by the VU - QRP Club. It follows the ideas from the RV3GM "Micro-80" Transceiver, which later appeared in the various forms of the PIXIE Transceiver. See elsewhere in this issue for the PIXIE circuit.

The Transmitter

The main transmitter section has been fitted on to a printed circuit board measuring only 0.8 x 0.8 inches. TR1 is a VXO controlled oscillator feeding a Class C PA, TR2. The suggested variable capacitor value is perhaps a little high but the value is open to experimentation. The original named transistors are BC547B for TR1 and 2N3553 for TR2.

A Receiver

The tiny transmitter board can be converted to a transceiver (Micro-80 style) by adding an audio amplifier. Opening the key allows TR2 to act as a mixer, with the lowpass filter providing some input tuning. The oscillator, TR1, runs the whole time.

The audio amplifier stage using a BC517 Darlington Pair transistor and a two stage directly coupled amplifier. The audio output requires high impedance headphones. This rudimentary receiver does not have any form of gain control.

Editors Note : G3RJV

The author was kind enough to send me a prototype printed circuit board and I built the transmitter. Using the following combination.

TR1 : 2N2222A, TR2 : 2N3866, R5 : 47K RFC1 : 10t 34 swg on Ferrite Bead
and a pre-moulded axial choke for RFC2.

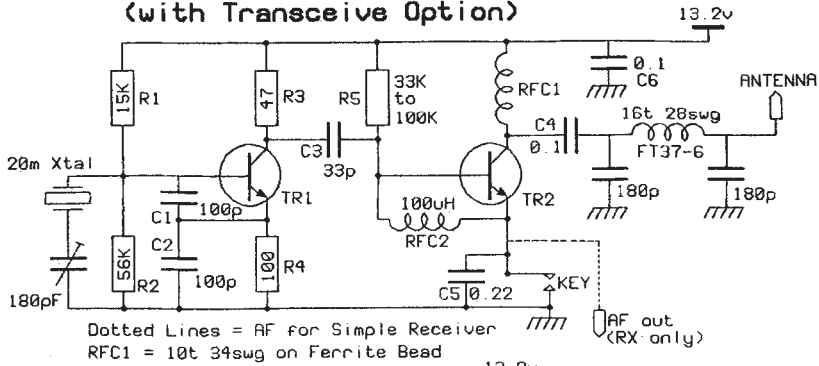
The transmitter produced a little more than 500mW on 14060kHz.

The printed circuit board layout offered here is a G3RJV version of the printed circuit board sent from India. Note that TR2 is mounted on the foil side of the board and C4 is an external component leading to the external Low Pass Filter.

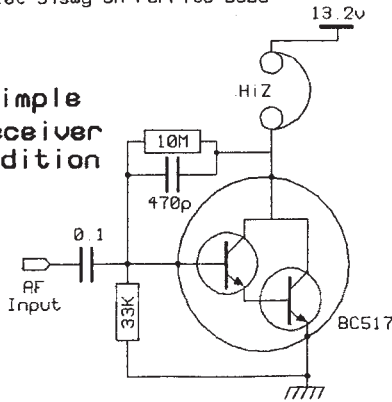
A Possible Kit Version

Currently, Dick, GØBPS, of Kanga is studying the circuit with a view to providing a PCB and kit for the project. All enquiries to Kanga Products - see back page.

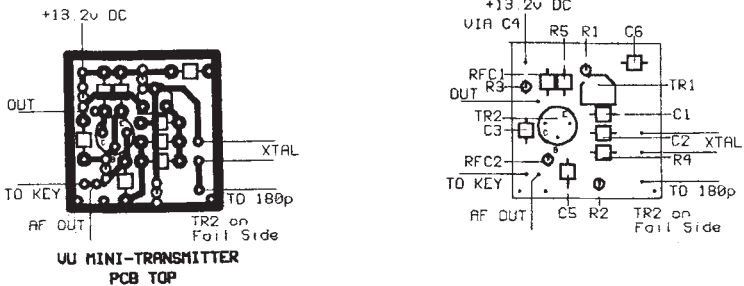
The VU Mini-Transmitter (with Transceive Option)



Simple Receiver Addition



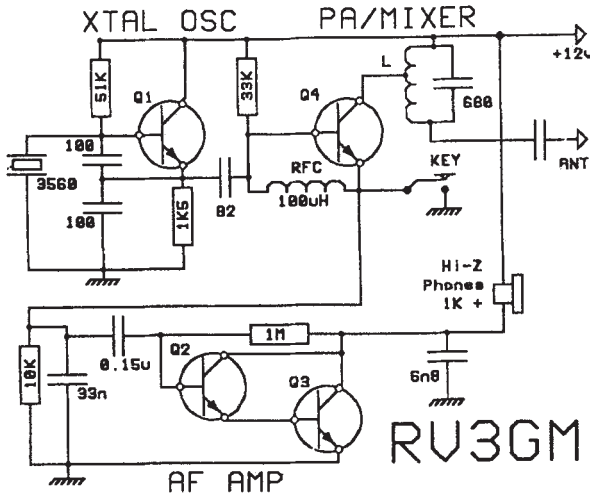
CIRCUIT OF THE VU-QRP CLUB MINI-TRANSMITTER / TRANSCEIVER



PRINTED CIRCUIT BOARD LAYOUT (G3RJV Version)

Printouts of the PCB available for a self addressed stamped envelope

The PIXIE Goes On..... more on a popular idea
Derrick Webber G3LHJ, 43 Lime Tree Walk. MILBER, Newton Abbott. TQ12 4LF

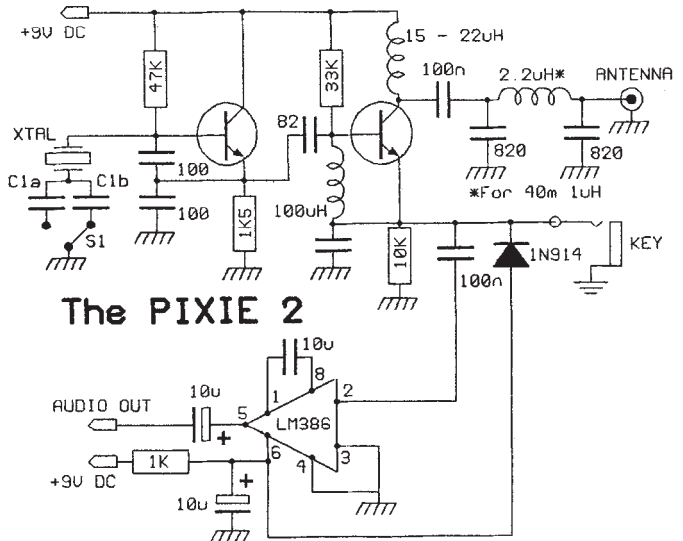


Historical Note: SPRAT 72 (Autumn 1992) contained a very simple transceiver circuit, The MICRO-80 by Oleg Borodin, RV3GM. The idea has undergone several incarnations. One of the latest being the VU-QRP Club Mini-Transmitter in this issue. The PIXIE 2 a Californian version of the circuit.

I built my Pixie after hearing George G3ICO and the two Pixies met and were compared at the Yeovil QRP Convention. I have been having good fun with it. When I first put it on the air there was a problem in that everyone was coming back to me nearly zero beat. This made copy difficult so I made some modifications.

I lifted the ground end of the crystal and with a STDP switch on the front panel (marked [T]ransmit and [R]eceive) selecting two capacitors, 1000pF and 40pF. This gave me my 600Hz offset and all was well. See the drawing. I use an internal PP3 battery but backed this up with an outboard power socket.

The G3LHJ Version of W6BOY's PIXIE 2 from QRP of June 1995

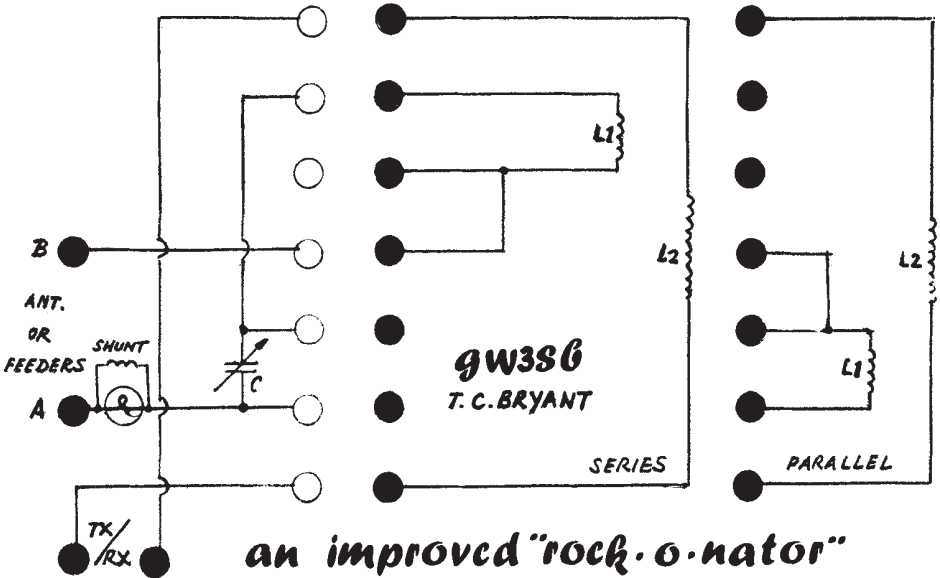


I could not find a mustard tin for mine so I made a home for the Pixie. It is a simple base plate with bent up front and back panels. The size is 3" x 1 1/4" x 3 1/2" deep. Total QSOs to date is 18 and the best DX is G3JNB in Norwich.

An Improved ROCK-O-NATOR ATU

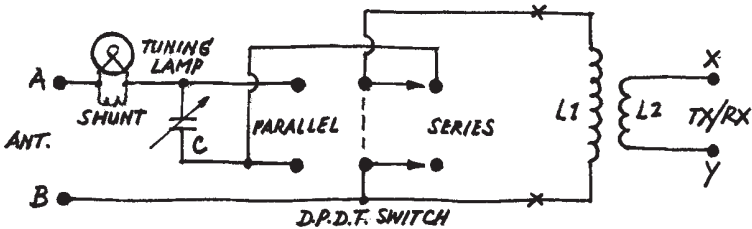
Chas Bryant GW3SB, Maes-y-Crynwyr, LLWYNGWRIL, Gwynedd. LL37 2JQ

I have been using W9SCH's circuit for an ATU for many years and I have built several during that time. Although excellent as a circuit, the size of the switch used for changing from parallel to series tuning has always worried me. It is as large as a small rig and it seems inappropriate in a QRP station. The circuit which I now use does not have any switch and the changeover is accomplished by reversing the coils. Incidentally, if difficulty is experienced in obtaining very low SWR, it may help to include a 300 pF variable capacitor in the "live" lead from the TX.



The original Rock-o-Nator (see below) appears in the G QRP CLUB ANTENNA HANDBOOK. Suggested values for the coils are:

Band	160	80	40	20	15	
L1	50t	25t	10t	5t	5t	[L2 wound over centre of L1] [2" dia fomer 160-20, 1/2" former for 15]
L2	5t	3t	2t	2t	1t	[18-20 gauge pvc covered wire for all coils]



The NORWICH TRANSMITTER

A High Quality CW/AM Valve Transmitter for 160m

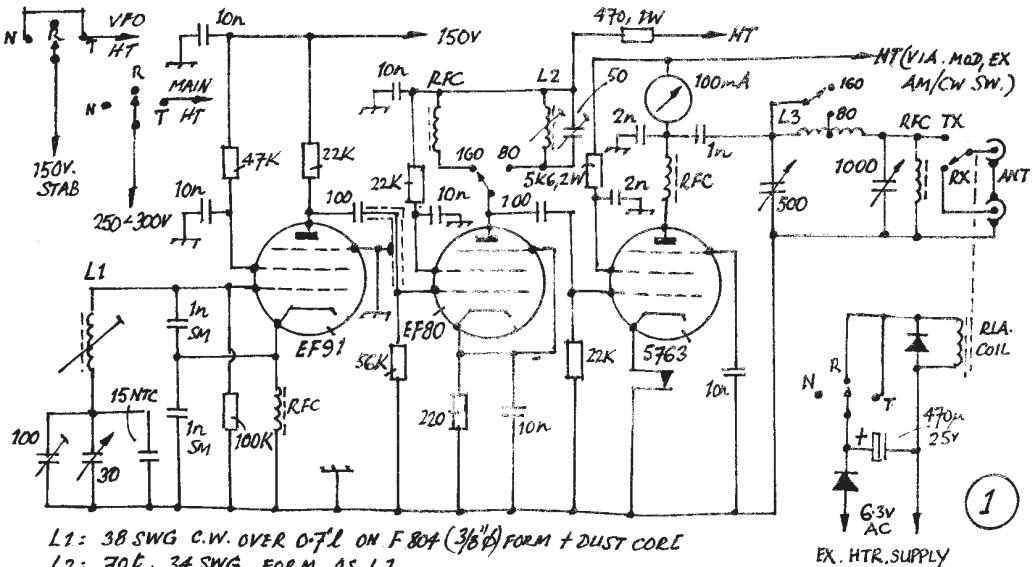
Bruce Edwards G3WCE 232 Earlham Road. NORWICH. Norfolk. NR2 3RH

In the 1960's, I couldn't wait to replace my AM equipment with a KW transceiver (State of the Art, and amazingly, made in this country) and everything had to go to pay for it. I still have that transceiver, but am no longer interested in state of the art equipment. Over the years, I became more of a home constructor than an operator, and built many SSB transceivers. More recently, my thoughts turned to AM. I noticed that I was hearing it again on 160 Metres, (my favourite band) and needed no more encouragement that that to start planning a transmitter. But I didn't get it right first time. I built a copy of the once popular and widely used Codar AT5 and power supply. This was not without shortcomings. The AT5, when used on 80m, tended to radiate a strong signal on 160 m. This was because the bandswitching arrangement was a compromise. There wasn't enough space to do the job properly. My TX was a copy, and suffered from the same problem. Also, I had been unable to find a Modulation Transformer small enough to fit, that would give the performance I wanted. But the problem was solved when I acquired a Woden UM0 transformer. I would build a new transmitter using this quality component, and to do it justice, there would be no compromises. Of course, anyone wanting to build this transmitter doesn't have to use a Woden Modulation transformer. Various types turn up at rallies and car boot sales; and many old timers have suitable components at the bottom of their junk boxes.

A common problem with many home built top band transmitters was RF from the PA getting back into the VFO and causing a shift in frequency. On CW, the frequency would change on key down, on AM there would wander about as the PA was turned. The transmitter to be described shows no sign of this defect.

RF Section

This circuit is fairly straight forward, but, perhaps, more attention to detail than is usual in a transmitter of this sort has been paid.



The VFO is built in a diecast box. Originally, it had been intended to use an EF80, but the small gap between the rear panel and VFO box would have made it impossible to replace this value without removing the rear panel, so an EF91 was used instead. The tuning capacitor is a twin bearing polar type with some vanes removed to give the required swing, but other types could be used. The 15pf NTC capacitor is desirable but not essential.

Output from the VFO is taken to the Buffer/Doubler via a short length of miniature COAX. The buffer is bandswitched, an RFC is used on 160 Mtrs and a tuned circuit on 80 Mtrs.

The PA is fairly standard, using a bandswitched pi network output circuit. Cathode keying is used: if an electronic keyer is to be used with this transmitter, it should be connected via a keying relay. I use a small 6v. One taped to a 6v battery with a socket for the keyer and a trailing lead to the transmitter.

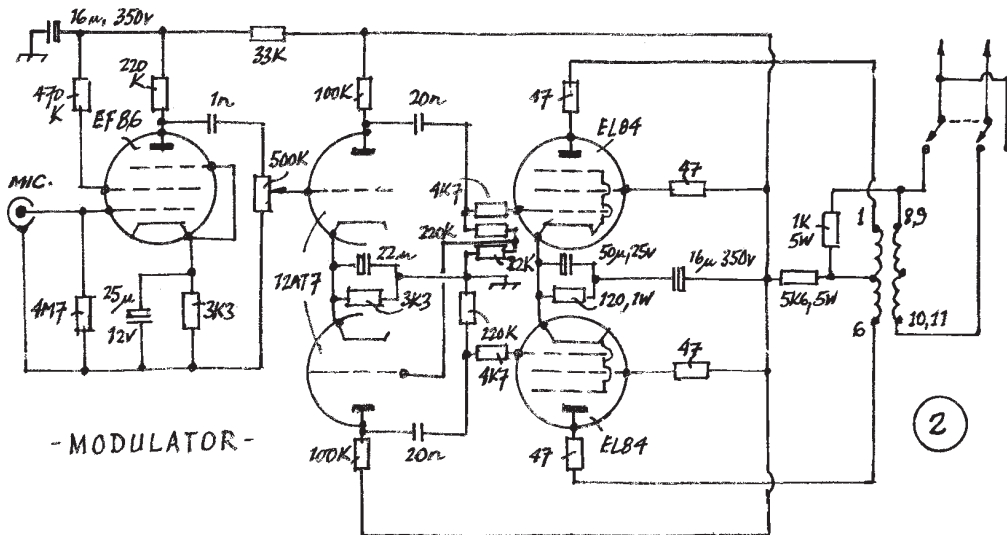
Antenna changeover switching is provided via a relay. This is powered from the heater supply via a rectifier and smoothing capacitor.

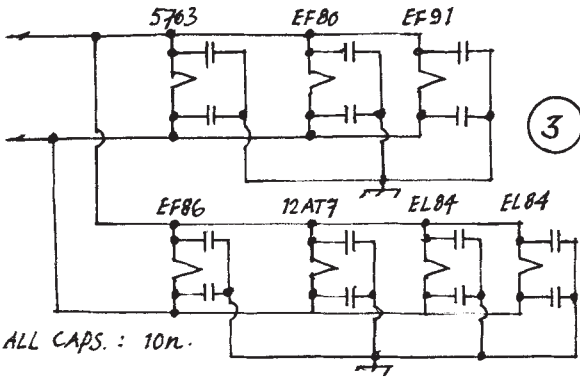
MODULATOR

Again, not compromise. This is a standard circuit from the RSGB Handbook, 4th Ed. What is probably non-standard is using it in a 160/80 Mtr QRP transmitter. In the 1960's many people would have found this way over-the-top and wasteful. After all, it uses four valves when two would do, and a quality modulation transformer when my old push/pull audio output transformer would work.

But, as far as I am concerned, the results fully justify the extravagance. The circuit as shown is easily capable of 10 watts output, so is always idling along. With the AF gain control in the 9 o'clock position, modulation is 100% and reports of 'BBC quality' are frequently received.

The circuit is intended for use with a high impedance microphone. The tapings on the transformer were found by experiment as no data was available.





HEATER WIRING

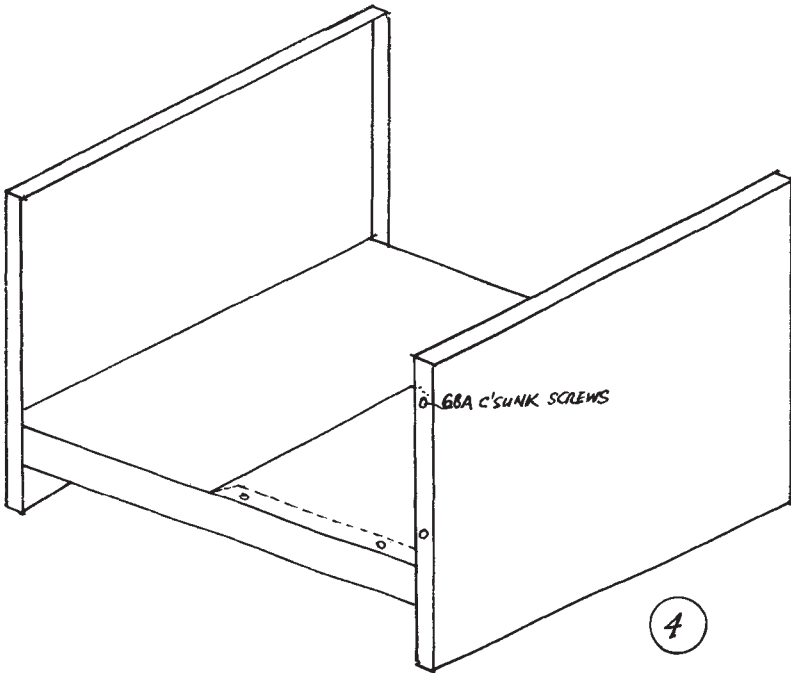
This is unusual in that one side is not connected to Chassis, a practice that leads to some fairly large currents flowing through the metalwork. I have very occasionally had problems caused by this. The trouble is, it is impossible to rule out when problems do occur without rewiring, which can make a rat's nest of a carefully built piece of equipment. So, better to take a little extra time and do it from the start.

LAYOUT

Largely governed by the decision to use ganged bandswitching.

METALWORK

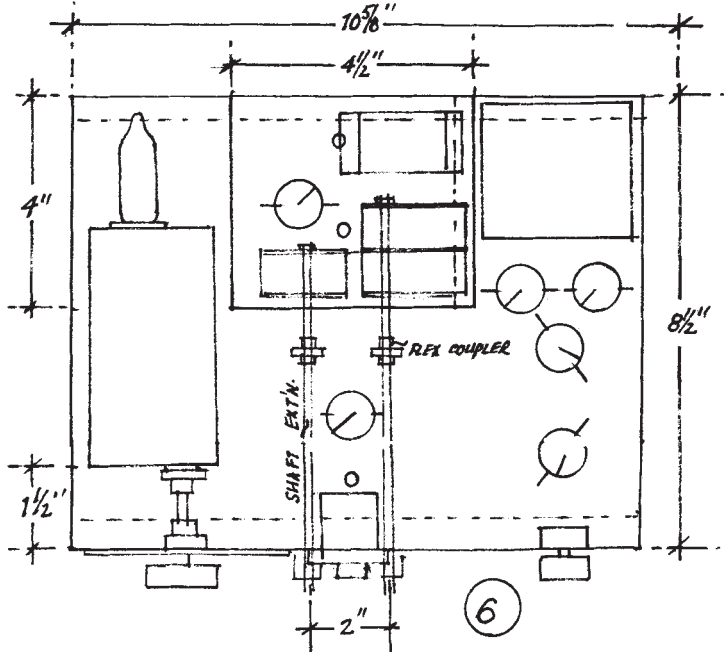
If anything, this is 'over engineered', but, I think, wellworth the effort. 16 swg aluminium is used for chassis and panels. The front panel is sprayed, rub-down lettering applied, followed by a coat of clear varnish. The wrap-around case of perforated sheet steel is secured with self-tapping screws after the Hammerite paint has set. A base plate of aluminium sheet is secured with self-tapping screws, and four stick-on feet applied.



METALWORK

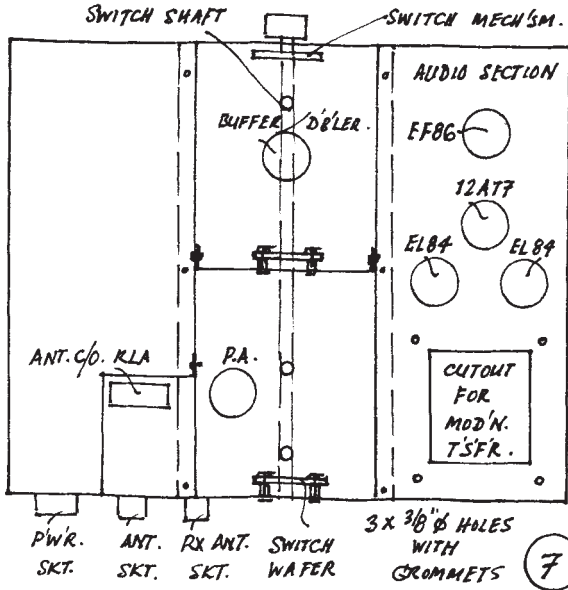
Maplin supply a very effective sheet metal folding machine which is excellent value for money. Catalogue number is GK13P.

Some years ago I bought a hand operated guillotine from Badger Boards. This will accurately cut aluminium, mild steel and PCB material. A very worthwhile investment.



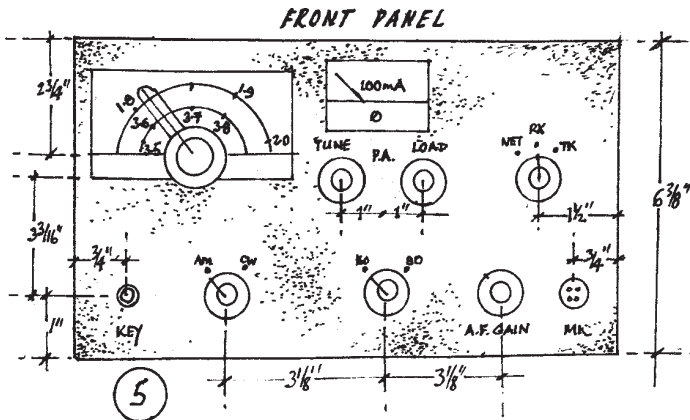
ABOVE CHASSIS

UNDER - CHASSIS



OPERATION

The transmitter will work happily with an FT supply of 250-300 volts. I use it for AM working and also QRP CW on both bands. For QRP working, the output power must be limited to 5 watts. This (assuming PA efficiency to be 70%) corresponds to an input of 7 watts, or a OA current of 28 mA with a HT of 250V.



NOTES ON THE GM30XX CW FILTER

Walter Farrar G3ESP, 1 Barnsley Rd. Ackworth, PONTEFRACT. WF7 7BS

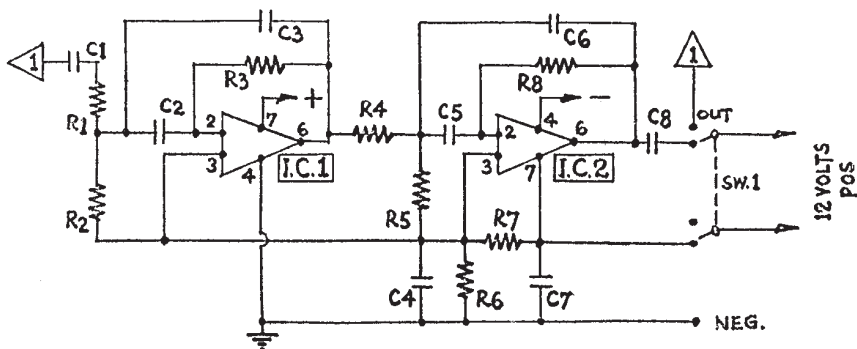
I recently built the CW Audio Filter exactly as described by GM30XX in the G QRP Club Circuit Handbook. On putting it to use, between the receiver output and my 8 ohm headphones, an S9 signal could just be heard with the filter switched in - so something was amiss ! The circuit, as printed, showed on the output a series capacitor of 0.1uF (C8) which calculation showed has a reactance of about 20K at 800Hz - and this was in series with my headphones. I changed it for 100uF which made the filtered signal louder than the non-filtered. I finally settled for 10uF, and the strengths are now about equal. What a difference it makes on a crowded band ! How have I managed for 47 years without one?

One problem remained : on keying the FT7 the sidetone with the filter switched in turned to a loud raucous squawk; but not when the output was fed into a dummy load. RFI then ! a 0.1uF across the filter input had no effect, but another across the earphone jack solved the problem.

Component Values:

R1, R4	680K [1%]	C1, C8	0.0uF	SW1	DPDT
R2, R5	24K [1%]	C2, C3		IC1	
R3, R8	1M8 [1%]	C5, C6	0.001uF	IC2	741
R6, R7	27K	C4	10uF 10v tant		
		C7	100uF 16v tant		

AN ACTIVE FILTER • by • GM30XX



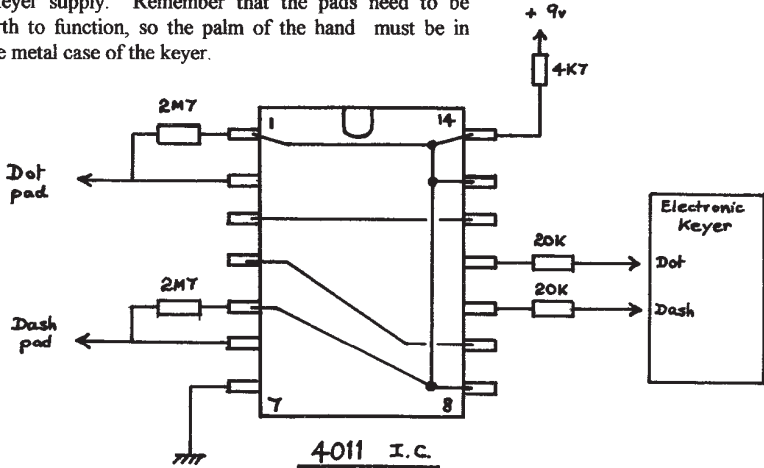
A Simple Touch Paddle

Dave Lunn G3LSL, Thornfield, Mount Carmel Road.
Palestine Grately, ANDOVER SP11 7ES

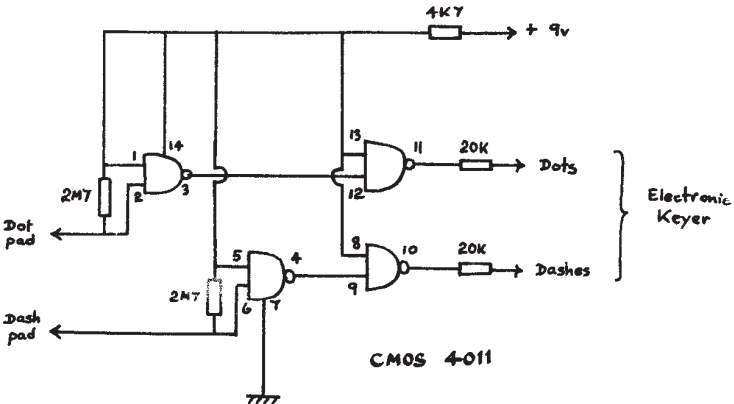
I recently decided to try out a "touch key", as it would be a useful device for portable operation. I remembered seeing a circuit in SPRAT and eventually found it in issue no. 76, (I've got a long memory!). Unfortunately I couldn't get it to work and realised that there was a wiring error on the diagram. Even with this corrected it still wouldn't operate my electronic keyer, which is a conventional circuit requiring the paddle leads to be earthed to initiate dots or dashes.

I decided to use FINZY's original idea but to modify it to suit my keyer; the result is shown below. It worked well, once I'd mastered the technique of using my first and second fingers on the touch pads. Using "ugly" or "dead bug" construction, the circuit can be made very small and will probably fit inside most keyer cases or QRP rigs. The only problem I experienced was that the circuit will not work if one's fingers are dry and therefore non-conductive. I solved this by smearing a little conductive grease on the two finger tips before using the keyer.

I used the Maplin touch pads, order code HY01B, and powered the IC from the keyer supply. Remember that the pads need to be returned to earth to function, so the palm of the hand must be in contact with the metal case of the keyer.



Pins viewed from above



EPIPHYTE-2 UPDATE Derry Spittle VE7QK

A couple of discrepancies between the Parts List and the Circuit Diagram for the EPIPHYTE-2 80M SSB Transceiver have been drawn to my attention. These appeared in both QRPP (March 1996 issue) and SPRAT (Winter 1995/96 issue).

1. While the Diagram and the Component "values" displayed thereon are correct, there is an anomaly in the numbering. There are two capacitors designated "C-8" and no "C-7"!

Change "C-9" (330pF cap to the 1st mixer) to read "C-7" Change "C-8" (330pF cap to the 2nd mixer) to read "C-9"

This will then eliminate the duplication and agree with the numbering in both the Parts List and on the Parts Layout.

2. The value shown for "C-6" on the Schematic is "56pF" whereas it appears as "24pF" in the Parts List. Since the output of the oscillators varies from one board to another the values of C-5 & C6 may be changed to equalize the RF voltages at pin 6 of the mixers. I had started with 56pF and subsequently reduced this to 24pF.

The correct RF voltage to apply to the buffer (pin 6) of the NE602 from an external source is somewhat confusing. In its Application Notes, the manufacturer states "it is acceptable to capacity-couple 200 to 300mV". I have always assumed this to be an RMS value. In the Data Sheet "at least 200mVp.p." is specified. The value specified in the article, 140mV RMS +/-25%, seems to work OK.

Since eliminating the ground loop in the PCB (see article in the current issue of both QRPP and SPRAT) I have been completely happy with the performance of the EP-2. Reports on both signal strength and audio quality have been complimentary. Nightly schedules are maintained with K17KW in Portland, ORE, - also running an EP-2.

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

FOR SALE : HOWES 80m TX & RX in cases (separates) £17.50 pair. KANGA Sudden RX and OXO TX (provision for 5 xtals, fitted one on 7030) £20.00, in Maplin case. Choice of 2 HRO RX with Coil Packs (some bandspread), Ring or call & discuss fair offers. G3LYU, QTHR or 0116 2876459

FOR SALE : Yaesu FT290R II, as new and unmodified, manual, mic, carry strap, helical ant, Excellent 2m QRP multimode for base station or portable use. £225

Hitachi V-212 20MHz double-beam oscilloscope, Excellent condition. Manual & x10 probe. £120
Ring Dave G3LSL Andover (01264) 889579 after 6.30pm.

FOR SALE : Ten Tec 509 Argonaut - Ten Tec 206 CW Filter - Ten Tec 206A Crystal Calibrator
Ten Tec 405 Linear - Ten Tec 210 1 amp PSU - Ten Tec 261 PSU and Speaker. £325 all items. The above are all in reasonable condition and I could deliver to most places south of the M62. Nick Ward G4OOQ, 8 Meadowview Road. Kempston. Bedford MK42 7BE. Tel: 01234 855 944. Mobile: 0831 310 870. Email: nickward@cix.computlink.co.uk

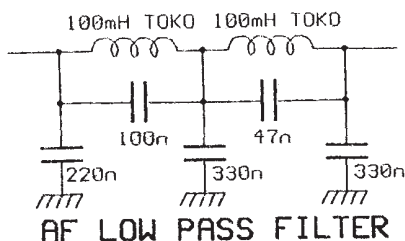
FOR SALE : TS130V, 500Hz CW filter. £330. FT290 Mk1, Mutek front-end, nicads, charger, case. £220.
Lowe HF150, keypad, nicads, charger/PSU, active aerial. £330. 29 MHz FM 4 watt transceiver. £25.
25 watt 27-30 MHz amplifier. £10. Class D Wavemeter. Mains powered. £5. Microwave Modules 30 watt linear/pre-amp. Switchable. £70. Martin Peters(G4EFE) 01734 418586. 11 Filbert Drive, Reading. RG31 5DZ. Martin_Peters@mon.bbc.co.uk

FOR SALE : Ten Tec Century 22 with in-built keyer and crystal calibrator, superb 6 band transceiver with graduated output to 2 watts £245. Matching power pack £25. Howes CTU30. Kent straight key £15. Kent single paddle £20. Also: 12 volt output trickle charger £7. Variable DC output QRP power supply £18. Super speedscope mini electric soldering tool inc. transformer £9. AKD HF WA3 Wavemeter £25. Stabilised 5 - 12 volt PSU output current 1 amp £5. Call and try before you buy: John Windebank, G0KJN, 16 Priory View, Little Wymondley, Hitchin, Herts. SG7 7HG. 01438-362795

FOR SALE : Howes QRP ATU. Constructed with the following : CA30M - CTU30 - SWB30 - CT2, all construction manuals. £55. George G4DKLK. Taunton. 01823-336897.

AF Low Pass Filter for the GQ Transceiver (or others)
Wolf Schwarz, DK4RW, Krummwiese 4, GEISLITZ. D 63 589. Germany.
Described by Peter Barville - from GQR-P Internet list

At the suggestion of Wolf, DK4RW, I have added a low pass filter into the low power audio stages of the GQ-20. The filter removes most of the fairly high hiss level from the MC1350 chip, which otherwise tends to mask the desired signal. The mod will be useful on other rigs as well, and so you might like to see the original details from Wolf.



In order to improve the sensitivity of your GQ-20 you might consider adding an AF low pass filter between R20 and C40. In my GQ-40 I used a two stage elliptical filter:

A 0.2uV RF signal yields a S/S+N ratio of 3.5 dB in my unmodified GQ-20. With the filter and the same RF signal the signal to noise ration improved. To 10.5 dB. This improvement might not look very impressive but it makes a significant audible difference. The filter removes nearly all the high frequency hiss which I found rather annoying in the original version.

Not only does it reduce the unwanted noise in the GQ-20, but (I believe) makes the recovered audio nicer to listen to. Thanks to Wolf for this useful idea.

PRINTED CIRCUIT BOARDS MADE to your design (single sided type only) All fibre glass and all component holes drilled to your specification. SAE for details :

Gary Fisher G0WTL, 6 Totternhoe Road, Dunstable. Beds. LA6 2AG.

WANTED : IFT1 465 IF Transformer, or suitable alternative centre tapped IFT for eddystone EC10 Receiver. Wilf Corkish, GD0IFU, Tel: 01624 - 629455

WANTED - Donated radio equipment (144, 432, 70, PMR) or older HF for School radio club. John Allsopp G4YOM, 0191 - 4162606

WANTED by wheelchair based member - a receiver to monitor 14 or 28MHz at a reasonable price. Contact R.Lee Jones G0CJM 161 Barrowcliff Rd. Newby. SCARBOROUGH. YO12 6EZ

WANTED : A copy of "Amateur Radio Techniques" by G3VA (pref. Eds 1980-90) Offers? To SALIM S. A-4, Aiswarya Gardens, Pulikuzhy Lane, Kumarapuram, Trivandrum - 695011, INDIA. Email on siby@iitk.ernet.in.

WANTED : Copies of the 73's Oct '94 article about the Quickie Cheapie Tener 10m TX. Expenses refunded. Alexander Schrey, DL2EAS, Ruhrstrasse 24, 58332 Schweim, Germany.

WANTED : RX Unit for a MK 123 Set or any parts of the same. Also wanted power output / input lead. Ian Haggart G3JQT, 22 Alnwick Road. Newton Hall, Durham. DH1 5NL.

WANTED : Valve BFO/VFO circuit for clarifying SS in the range 26 - 30MHz. Tel: 01772 - 423329

BACK SPRATs required : Nos. 40, 42, 43, 44, 46, and 47. David D. Meacham, W6EMD, 206 Frances Lane, Redwood City, CA 94062. U.S.A. email on ddm@datamers.com

THE G QRP CLUB ANTENNA HANDBOOK

SPECIAL MEMBERS PRICE £4.50+£1.43pp EUROPE £4.50+£2.24pp US/DX \$14 Surface
 Mail Order from : Shoreham Copy Centre, 3 John St. Shoreham-by-Sea, Sussex. BN4 5DL
 Please make out all cheques to "G QRP CLUB"

QRP ODDS AND ENDS.....

G4WIF SPECTRUM WAVEMETER [SPRAT 87]

Author's ammendments : D3 should have been OA91 (or similar) . I should have shown a connection between the top of resistors R1,R3,R4,R5 and the 12v. Supply.

Other changes : C9 was changed to 270pF (better response) and R11 was removed, but still listed.

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.)

SWLS AND QRP

John Noble, SWL and member number 9154, would like to contact fellow SWL members who are not interested in the RAE but are interested in QSLing. He would also like to contact HF9 builders.

1 Mierscourt Cottages, Mierscourt Road. Rainham, Kent. ME8 8PJ

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 2 days delivery)

Another G QRP Club Bargain Offer to Members

SBL-1 Passive Mixers Only £4.00 each (Usual Price £7.07)

£4.00 + 50p postage + Address Sticker (Cheques "G QRP Club")

Ian Wye GØOKY, New House, Hook Road, Amcotts, Nr. Scunthorpe. DN17 4AZ



UK QRP WEB PAGES ON THE INTERNET

KANGA HAVE A NEW QRP WEB PAGE ON : <http://www.kanga.demon.co.uk/gqrp.htm>

ENJOY THE G3YCC QRP WEBPAGE ON: <http://homepages.enterprise.net/g3ycc/>

G3VML QRP CW TRANSCEIVER

Commercial grade printed circuit boards now available to build the single band version, of the transceiver published in *RadCom October 1995*. For further details send an sae to
PALLETT ELECTRONICS 38 Hayley Bell Gardens, Bishops Stortford, Herts, CM23 3HB

THE NEW G-QRP CLUB MORSE TRAINING TAPES

A new series of studio copied tapes, with material kindly provided for the G QRP Club by MEGS (the Morse Enthusiasts Group Scotland). These three tapes provide a complete course suitable for the UK Class A and Novice Class A Morse Tests.

Tape 1 : Spoken Instructions for Learning Morse Code - Morse Practice at 3 wpm

Tape 2 : Plain Language QSOs at 5 to 14 wpm - 5 wpm Mock Novice Tests

Tape 3 : 10 wpm QSOs - GB2RS at 20 wpm

ANY ONE C90 TAPE FOR £3.00 ALL THREE C90 TAPES FOR £8.00 POSTAGE 25p

Send the fee plus 25p postage, [cheques G QRP CLUB] your name, address and club number to
Colin Turner G3VTT, 105 The Everglades, Hempstead, Gillingham, Kent, ME7 3PZ



G-QRP CLUB ACCOUNTS 1995-6



INCOME	£	EXPENSES	£
Bank interest	393.36	Artwork & drawings	38.98
Donations	4.00	Awards and trophies	30.00
Sales at rallies etc.	665.95	Bank charges	1088.14
Sales by post	10517.99	Books	503.35
Subscriptions	22098.03	Capital expenditure etc.	967.58
TOTAL INCOME	33679.33	Components for kits/sale	7825.39
		Duplicating & copying	303.72
		Miscellaneous expenses	277.78
		Officers expenses	810.38
		Postage	1723.40
		Rally costs etc.	716.49
Bank b/f	18971.92	SPRAT mailing costs	8248.40
Bank c/f	21044.97	SPRAT printing	8292.00
		Stationery etc.	780.67
Income - expenses	2073.05	TOTAL EXPENSES	31606.28

Once again the club has held its head above water. The very large turnover in sales was due to the club arrangement to sell the first of the GQ40 kits (they were sold before the kits were available). The figure includes payments made for postage of goods as it would be very time-consuming to separate them. The reduced sales at rallies may be a reflection of the changing nature of rallies (are they radio or computer shows?) and perhaps because we have had fewer special offers on club stands this year. There are plans for next year

No changes in subscription rates are planned for the immediate future. 67% of subscriptions continue to be paid by cheque or cash, 23% by standing order, 9% by credit card and 1% by direct transfer. Of these standing orders are the easiest to handle and cost us the least. Credit card facilities have made payments from some countries much easier, and permitted renewals via e-mail, but we lose 4.8% in charges (and do a lot more work). I am making another plea for more subscriptions to be paid by standing order if possible - we collect more and John, GØBXO, and I get more time on the bands!!

Our overseas representatives contribute a great deal to the smooth running of the club. At the end of the financial year we hold in accounts abroad: DM8458.20, U.S. \$8138.52 and NZ \$415.46. Grateful thanks are due to DK4UH, KG5F, ZL1ABS, PE1MHO, F5OQO, ON4KAR and OE6JAD for all their work during the year.

Our biggest expenses are in connection with the printing and mailing of SPRAT and as postage rates have just risen again in U.K. we can expect mailing costs to increase by 5% or so next year. Printing costs are heavily dependant on the current cost of paper.

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

G3PDL, Hon. Treasurer. August 1996

ANTENNAS - ANECDOTES - AWARDS

Gus Taylor G8PG 37 Pickerill Road, Greasby, Merseyside, L49 3ND

LA ANTENNE VERTICALE BOBINEE (7 MHz) DE ON5UP

Andre Tart, ON5UP, Rue du Tige 37, Drehance, B-5500 Dinant.

(Illustrations ON4KAR. Translation ON4KAR/G8PG)

This portable antenna (Fig 1) is approximately 4.7m high. It can be rapidly assembled/dismantled, is self-supporting, and can be carried in the boot (trunk) of a car. It is fed via 50 ohm co-axial cable, and when used with the atu described covers 7.0 - 7.2 MHz with an swr below 1.1:1. The main antenna consists of 4, one metre lengths of 32 mm diameter plastic plumbing pipe. Each length is wound with 5 metres of 1.5mm enamelled copper wire (16 swg), the turns being spaced 2 cm apart. The turns are held in place by giving them two coats of the special glue used for cementing plastic plumbing items together. The pipes are slotted together with the aid of female-to-female pipe connectors (M in Fig1). The lower half of each connector is glued to the top of its associated pipe, and the top half is left unglued so that the pipe above can be slid into it. An exception is the top pipe (A in Fig 1) which has a plastic screw cap fitted to its top end (J in Fig 1). This cap is drilled to take a 63 mm length of thick. h.d. copper wire or a metal welding rod of this length. Each pipe winding is provided with a fixed connector at the top, and a flying lead and connector at the bottom. The 63 mm extension is also provided with a flying lead to connect it to the top of coil A. In the ON5UP design slide-in connectors as used in car electrics are employed: wander plugs and their associated sockets would be equally suitable. See Fig 2. The base plate consists of a piece of aluminium at least 2 cm square, and preferably larger, and 4 mm thick. Holes at each corner of the aluminium square are drilled to allow four, 10m long radials to be connected to it. A hole is drilled in the centre of the plate to take a 40 cm long stainless steel rod , threaded for 12 cm at one end, and pointed at the other. This is secured as shown in Fig. 3. A 25 cm long wooden spindle of suitable diameter to fit snugly inside the lower antenna pipe has its lower end drilled so as to fit over the short end of the steel rod, and is securely cemented into place. Make sure it is really strong, as it is the main support for the antenna. A bracket and SO 239 connector are then fitted to the base plate, the centre terminal of the SO 239 being fitted with a connector to allow the flying lead from the antenna to be attached to it. The atu shown in Fig 4 is used at the rig end of the co-axial feeder. C1 and C2 are both 350 p. L is 44 turns of 50/100 enamelled copper wire (24 swg) tapped at 8,12,15,19,23,26,28,32,35,38 and 41 turns. To set up the antenna, couple a dip oscillator to its base, and trim the length of the 63 cm top section to give resonance near 7030 kHz. Then connect to the rig, and adjust the atu for maximum signal. Apply power and make any small final adjustments for minimum swr. In the first two hours of tests the antenna produced QSOs with 11 stations in 7 countries. Although he has not tried the antenna on other bands, ON4UP has computed winding lengths etc for the bands above 7 MHz. These are shown in Table 1.

NOTE. Il y a aussi un version francais de c'article disponible de G8PG pour 2 IRC.

TABLE 1

Band	Computed wire length	Antenna construction
10.1	14.336 m	Sections C & D of Fig 1 + new pipe with 4m wire. E = 35 cm
14	10,315 m	Sections A & D of Fig 1. E = 32 cm
21	6.866 m	Section D fig 1 + new pipe with 1.5 m wire. E = 39 cm.
28	5.16 m	Section D of Fig 1 . E = 17 cm

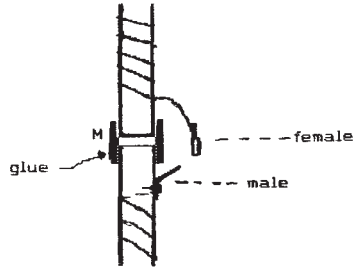
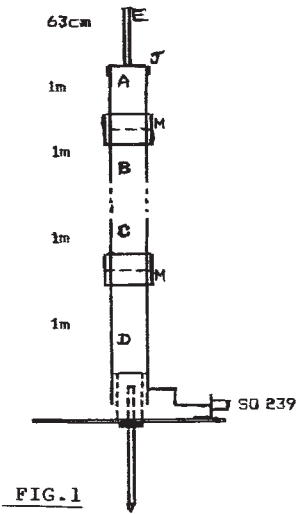


FIG.2

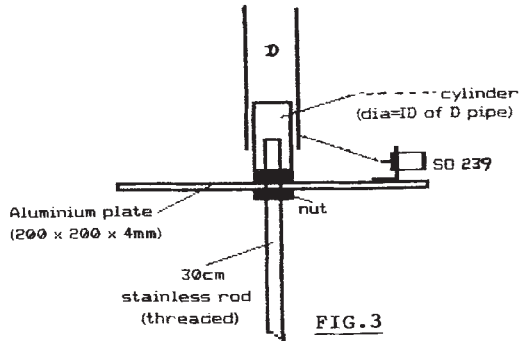


FIG.3

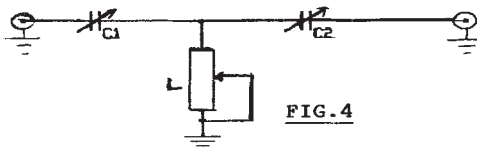


FIG.4

OUR FIRST MENTION OF THE ISOTRON RANGE OF MIDGET HF ANTENNAS was in SPRAT No. 68, back in 1991. At that time no member had given us an independent report on how the antennas perform, and there was no European supplier (the makers are the Bilal Co, 137 Manchester Drive, Florissant, CO 80816, U.S.A.). Now both these deficiencies have been remedied. Antenna enthusiast Max, DJ7RU is using Isotron antennas for 80,40 and 20 metres, mounted 24 feet above ground. He reports excellent QRP results with them when using both cw and ssb. These antennas are very compact, even the 80 metre version having no more visual impact than a satellite dish. Several of them can be fed from a common co-ax feeder. They are, of course, single band antennas. These antennas are now available in Europe from our member Sigi Hari, DK9FN (P.O. Box 1224, 63488 Seligenstadt, Germany). With the currencies involved prospective purchasers would do well to check the cost from both the sources quoted, taking into account any duty or tax that may be payable.

AWARD NEWS

Hearty congratulations to the following on their Awards.

QRP COUNTRIES. 25 GoTHA, DJ7RU, DF7IS.

WORKED G QRP CLUB. 1180 GM3OXX (What can one say !); 800 G2DAN, 680 GoIFK;360 G4NBI;180 G3ZHE;160 GoKJN;120 GoTHA 100 G3PBQ; 60 F5SJB;40 ON4AGY

TWO-WAY QRP. 40 G3FCK; 30 GoKZO,DF7IS;20 GoKRT,F5LUX.

OVER THE YEARS JO-ANNA DOBBS (GoOWH and Mrs G3RJV) has been of immense help to our Club. If you read paragraph 1 of the Editorial in the Summer 1996 SPRAT you will see that her work extends far beyond the boundaries of Rochdale. So how about giving her some support by sending the cash or cheque along to the Vicarage to help her in her efforts for the poor of El Salvador ? Jo-Anna will probably beat me to death with a rolling pin for making this appeal, so at least send along enough cash to let me die happy !!

I HEARD A STRONG CQ FROM G3KVT, so I called back to him, heard "QRZ? Mo ???" and so off I went on my first ever QSO. I must admit I was shaking like a leaf, but Tony, G3KVT seemed to read my scratchy CW OK , and gave me a 569 report. This QSO was followed by a lot of jumping around by me, and then a cup of tea as I tried to slow down my heart rate. I wonder how many newcomers can tell a similar story ? Most I Bet ! so says Mike MoAAB. Congrats to him, and also to G3KVT . It is a wonderful thing to help a beginner.

IF YOU HAVE TO FOLD A DIPOLE TO FIT IT INTO A CONFINED SPACE remember firstly that up to one sixth of the length of each half can be folded downwards or sideways with no real effect on efficiency. If space is even more limited half the length of each side can be folded with only a 30% decrease in radiated power. Folding shortens the length needed for resonance, so dip and trim as required.

A NUMBER OF MEMBERS STILL SEND AWARD APPLICATIONS TO G3MCK. PLEASE SEND ALL APPLICATIONS DIRECT TO G8PG. FAILURE TO DO SO CAUSES DELAY AND EXTRA WORK FOR G3MCK AND G8PG.TKS OMS.

COMMUNICATIONS AND CONTESTS

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

Vale GNI1

I know many people have for some time used GNI1 (3517 kHz) as an indicator of propagation. However as part of the advance of progress it has now been closed down. In some ways it is like losing an old friend but anything that removes non-amateur stations from the band must be good. Another benefit is that people now seem to operate down to the start of the DX window (3510 kHz) whereas before GNI1 seemed to put an effective lower limit to the band. For those who like to be able to take a check on band conditions the following are still QRV:

Call	Frequency	Location
GKE1	3543.4	Rugby
GKZ1	3608.0	Mablethorepe
GKY1	3616.0	Rugby
????	3485.0	Gander Radio on USB

As usual this information is given in good faith. If anybody knows better or can tell me what power, antennas, etc. are being used I will be most grateful.

How good are your procedures?

I ask the question as the other evening I had to terminate a rag chew to attend to some pressing domestic duties. I apologised to the other amateur and signed off ending with CL which means "I am closing down". Another station then called me but I ignored him as it would have been most rude to my previous contact to have started another QSO having prematurely terminated the one with him. I had clearly stated my intention of going QRT by sending CL so by calling me the other station only created some unnecessary QRM.

Correct use of procedures Q-codes and makes life easier for all of us. At times we all get sloppy in our habits but a good QRP operator should all the time try to keep his skills on top form. That way he will get more and better QSOs.

Food for thought. How many Q-codes do you know and use regularly and could (should) you make more use of them? For example QRJ - your signals are very weak. Also what about the Z-codes? These are a very neglected set of codes which contain some most useful phrases. How about ZAN - I have received nothing, or how many times would you like to send ZCL - send you call sign intelligibly!!

1997 QRP Contests

If you want me to include details of your QRP contests and events in the 1997 Calendar I need to have the details by the beginning of November 1996.

Also I am always happy to publicise events on an ad hoc basis but my deadlines are the beginning of: February, May, August, and November.

IARU QRP Day June 1996

This contest was very poorly supported. The winner was G4MQC with G3ESP, who is a stalwart supporter of all our contests, being the runner up. It has been suggested to me that it should be moved to be on the Saturday nearest 17 June; what do you think about this?

Somerset Home-Brew Contest

Tim Walford (G3PCJ) has very kindly offered to sponsor this contest again, see rules published in this issue. We have changed the rules for 1997 to make it easier to enter. Surely these cannot be many QRPers who don't have a Oner or OXO to use with the RX part of the main rig and a couple of hours or so to spare. Remember there are valuable prizes to be won.

Last year's winner was Binu, VU2NGB, who is a recently qualified electronics engineer. As we know, many of our overseas friends live in countries where the only type of amateur radio possible is home-brew QRP and it is most inspiring to read Binu's letter to see how well he has done on 40m QRP using a simple BC receiver with no filters. He has worked 62 DXCC countries, the best DX being KH6. There is no doubt that last years prize has gone to a worthy winner and a good home.

RULES FOR THE SOMERSET HOMEBREW CONTEST

This contest is sponsored by Walford Electronics who have kindly donated two prizes. By entering the contest you are agreeing that copies of your entry can be supplied to Walford Electronics.

1. This contest is open to all single operator QRP stations using home made or kit equipment. Either or both the RX or TX must be home-brew or kit. It is not necessary for you to have built the equipment yourself. QRP is less than 5W CW output or 10W SSB pep.

2. Activity: Centred around the QRP frequencies in the 80m band only. Any mode can be used and cross mode QSOs are permitted.

3. When: Any continuous four hour session on 29 March 1997.. It is suggested that European entrants operate 1900 - 2300z.

4. Call CQ HBC

5. Exchange.. RST, Serial (starting at 001), Power, e.g. 579 047 5W

6. Scoring

Points	QRP/QRP	QRP/QRO
Within own continent	5	1
Outside own continent	10	2

The final score is the total points. There are no multipliers. A station may be worked once only but cross mode QSOs are allowed.

Unmarked duplicates will be penalised at 11 times the claimed score.

7. Entries by 30 April 1997 to:

G P Stacey G3MCK
G-QRP Club Contest Manager
14 Cherry Orchard
Middlesex TW18 2DF England

8. Entries to consist of station details including power, log sheets, showing: date, time (utc), band call worked, exchange sent, exchange received, points claimed, and a declaration that the station was operated QRP in accordance with the spirit of the contest.

NB!!

To encourage all Home-brew contest operators to submit logs, all complete entries will qualify for the second prize by including answers to the following questions with their entry.

- A. What bands and modes does the rig use in the contest cover.
 - B. Give brief details of design and if a commercial kit, make and model.
 - C. What other band/modes would you like to see available on a kit transceiver?
 - D. What do you consider is a reasonable price for the kit implied in (c)?
 - E. What is the most complex piece of test gear that is available for your use?
9. Prizes.
First, for the highest scorer, a FROME RX for, the band of your choice.
Second, all entries received with complete answers to the five questions (8a to 8e) will go into a draw, the prize for which will be a Pitney RX.
10. The organisers decision shall be final.

CQ CONTEST HA - QRP From Radiotechnika

The editorial of the magazine "Radiotechnika" on the commission of the "Hungarian Amateur Radio Society" organises the HA-QRP Contest. The aim is to demonstrate that it is possible to make two-way contacts with low power equipment. Regarding the interest of foreign stations, we make our contest international this year too, and amateurs all over the world are invited to take part. We hope that our contest will be welcomed by amateurs at home and abroad and that more and more amateurs will participate. Our editorial wishes good results to the participating stations.

DATE OF CONTEST: The contest will take place from 1 November 00 UT to 7 November 24.00 UT.

FREQUENCY: 3500 - 3600 kHz.

TYPE OF EMISSION: CW only.

CALL: CQ test QRP

CONTACT: The contest exchange shall consist of both callsigns, RST reports, both QTH and names of the operators. The time difference, fixed in the log, should not be more than 3 minutes between the two stations.

SCORING: For every complete two-way contest QSO with own country 1 points, with EU and DX stations 2 points. Contacts with the same station can be taken into account during the contest once only.

EVALUATION: The sum of the points must be multiplied by the number of the reached DXCC-districts.

TECHNICAL CONDITIONS: The PA of the transmitter used in the contest should have less than 10 watts input power.

THE LOGS HAVE TO CONTAIN:

- the date and time of the contacts, reports.
- the callsign, the QTH, and the name of the operator of the station worked.
- the type of the active element of the PA

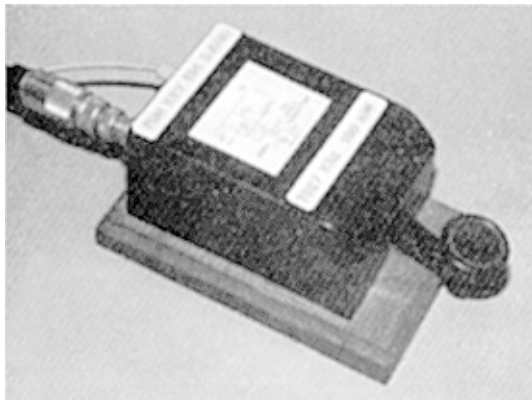
A copy of the logs must be sent to the following address postmarked not later than 21 November.
Address: Radiotechnika szerkeszstosege, Budapest, Pf. 603, H-1374 Hungary.

AWARDS: All contestants who send logs will receive a Special Participating Award as a memory of this Contest, and the outstanding scorers will receive the magazine "Radiotechnika" free of charge for one year.

NOVICE NEWS Steve Ortmayer G4RAW

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

NOVICE FREQUENCY ALLOCATION Still no news I am afraid. I have had a long letter from Phil Mayer GOKKL the RSGB Project YEAR Co-ordinator. Phil explains the bureaucratic problems of the several RSGB Committees locked on this matter but no progress seems to be made. Please let me have your views on this subject. I am clear that it would be a big encouragement to the Novice students and instructors if there was a 2m allocation for Novices and the NRAE gave a credit against the RAE.



TEN MINUNTE TX FOUND HIDING IN A GERMAN MORSE KEY

Peter DJOGD has sent a photo of 10 Min Tx built into the case of a Morse key. Peter worked G4AWT who was using a 10 Min Tx on 40m. Peter has used 100mW from the little transmitter to work a YU in Belgrade 1200km away. This a quite amazing as Peter only has an indoor dipole!!

HANDY HINTS FOR A HAPPY SHACK

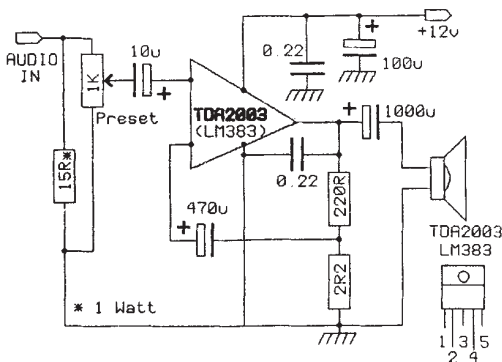
Brace yourself for a good tip. When drilling holes in aluminium sheet it is common good practice to drill a pilot hole and enlarge the pilot with a reamer. A reamer is quite slow and hard on the fingers so I use a large twist drill in a carpenters brace. This works fine and is much easier than the reamer.

AUDIO BOOSTER FOR A HANDY

If you use your little hand held rig in the car the audio output from the small speaker is often drowned by traffic noise.

I have made a booster which plugs into the phone socket on the Handy and drives a bigger speaker. The 15R resistor ensures a constant load for the Handy adjust the 1K pre-set so that the Volume control on the Handy gives a suitable range of volume.

That's all for now please send me any news or views on Novice matters.



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SSB COLUMN : Dick Pascoe GØBPS

Seaview House, Crete Road East, Folkestone. CT18 7EG. Tel: 01303 891106

Email : Dick@kanga.demon.co.uk.

via packet to GB7RMS

Well, the visit to Dayton went well. We had less help on the stand this year from the locals, as N8ET and WS8T had their own stand. Graham G3MFJ and Tony G4WIF came with us this year and thoroughly enjoyed themselves. The expression on their faces when they saw the flea market was a delight. Such was their enthusiasm, they have already booked for next year!

Frederichshafen also went very well with the G-QRP stand being shared by four this year, Roy W7EL was there with his well known antenna modelling software and he did very well. Sheldon from Hands electronics had a queue for the GORP club project the GQ40. He only took two and sold them in the first hour! Kanga did equally well bringing a list of orders home. The club did best of all. Selling out of many items. It was obvious that the recession has left Germany. The couple of German speakers helped enormously, but the range of languages heard is amazing. We saw visitors from all over Europe and further afield. Luckily most speak a smattering of English. The only down from the trip was my own very long trip home. 12 hours on a coach is NOT my idea of fun. Even if it was enhanced by two nice ladies from the RSGB.

Back to the SSB. The 2m station here has been doing well with a 700mW contact into Germany. DJ9JJ was running 500mW and we still managed to maintain the contact on a very flat band. PA, F, ON and also a venture in EA on 70Cms. Ian G0SVX has been doing even better. He has been keeping skeds with Graham 9G1YR who is working in Ghana. Their, three times a week skeds have been kept by using an ANV20, they say that "G0CEB has regularly worked Graham on just 9 watts from the ANV", getting varying reports from 4/4 to 5/7. They report that they have only failed a couple of times to maintain the contact. The antennas were a G5RV or a cobweb. Ian is thinking of changing to an R5 antenna. Comments welcome.

News and views to me at the address above TTFN ...

INTRODUCING QRP

A new book from Dick Pascoe GØBPS

The first book dedicated to the UK QRP operator with chapters on, 'What is QRP', 'The history of QRP' and 'A typical QRP station'. Introducing QRP is just £6 95

PASCOE'S PENNY PINCHERS

A collection of simple wire antennas from Dicks articles in Practical Wireless. Ideal for the novice or those who need a few ideas on hidden antennas. Pascoes Penny Pinchers is just £4 95 (post & packing is £1) Cheques payable to R. A. Pascoe please, Seaview House, Crete Rd East. Folkestone. CT18 7EG

NEW QRP ARCI SUBSCRIPTION RATES FOR OVERSEAS MEMBERS

The QRP ARCI have announced new rates for subscription. From **1st July 1996**, renewal rates for DX members will be **\$25.00 per year**. The QRP ARCI point out that they have been losing money on overseas members for the past year.

PLEASE NOTE: UK members of the QRP ARCI were formerly able to renew their subscriptions via Dick Pascoe, GØBPS. But as from now this facility will no longer be available via Dick. Enquiries about membership can be made via the Membership Secretary :

Mike Bryce, WB8VGE, 2225 Mayflower, N.W. Massillon. OH 44710. U.S.A.

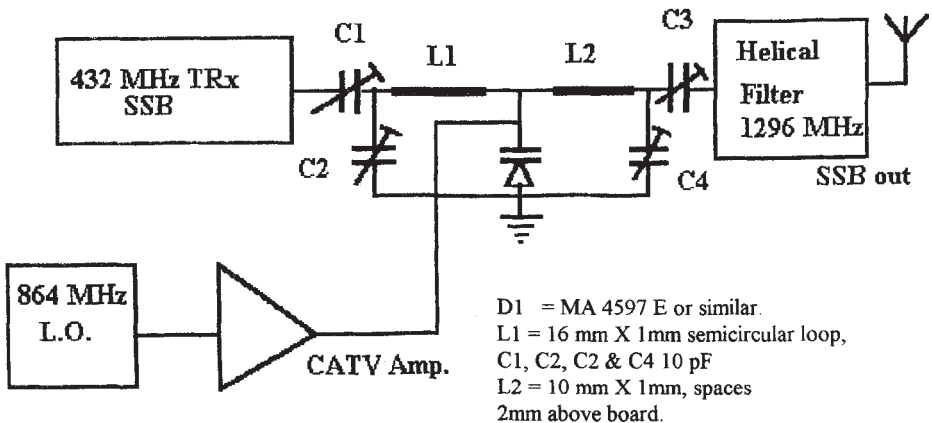
VHF MANAGER'S REPORT

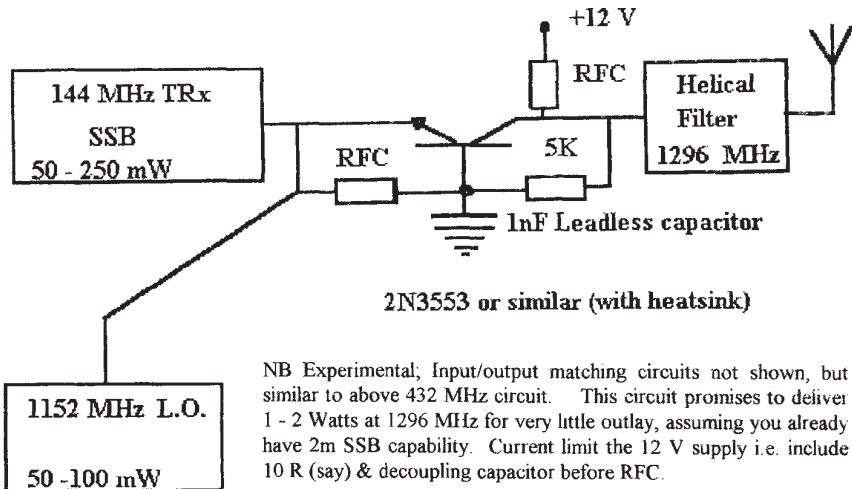
John Beech, G8SEQ 124 Belgrave Road, Wyken Coventry CV2 5BH
Tel. or Fax 0203 617367. Packet Homebbs : GB7COV

It is difficult to know what to include in the way of news items, since by the time it gets to you it is no longer new, so this issue I have gone back into history and resurrected an old technique, which is still valid. (I haven't gone quite as far back as vacuum tube technology, but...) I ordered a back issue for a circuit using a "lossless feedback" technique, with a view to improving the VHF (70 MHz) performance of the G3TDZ converter for the White Rose, but at the very front of the issue was a more interesting article on linear power mixers at SHF. The article by H. Fleckner DC8UG is very well written & you should read it if you are contemplating experimenting with this type of circuit. It is in the Spring Issue of VHF Communications 1978 Volume 10 which is still available from KM Publications or Mike will photocopy just the article for you.

Basically the method offers a cheap and easy way of getting onto 23 cms at low power SSB using either a 2m or 70 cm Transceiver. DC8UG's technique uses a varactor diode as a high level transmit mixer (it will also work on receive). The snag is, back in 1978, you had to build an oscillator chain and power amplifier for the local oscillator source. In 1986, it has all become a little easier - Mainline Electronics can supply for about £4 a VCO module which gives about 50 mW u/p and tunes over the range 700 - 1000 MHz. By putting a very stable DC tuning voltage on these, the frequency can be set very accurately to 854 MHz, allowing a 432 Trx to be used. (This turns out to be about optimum frequency for this technique). If you only have 2m SSB available, then a little more effort is required. The VCO needs to be modified by removing the VCO Ceramic resonator & grinding it to make the oscillator go to 1152 MHz (or purchase the correct resonator from Siemens).

What about the watt or so local oscillator drive? The easiest solution is to but a CATV amplifier from a rally for a fiver. These have 1 watt LINEAR u/p from 47 Ghz to 860 MHz, with 33 dB gain, I suspect that they will still have useful gain of about 20 dB at 1152 MHz BUT: another technique is available. Instead of using a diode as a mixer, use a VHF power transistor e.g. 2N 3866 or 2N3553 in common base mode. This technique was used like a varactor multipliers for generating SHF from VHF with relatively low Ft transistors, but with GAIN. Applying this technique to linear mixing it should be possible to reduce the local oscillator drive level at 1152 MHz. (I haven't tried this as yet, because I don't have an 1152 MHz source immediately to hand.)





This circuit is unlikely to work very well as a receive mixer, because it is not really bi-directional. It may be possible to switch the DC bias to the emitter & use this as the collector and the collector as emitter. Or alternatively switch to another mixer for receive e.g. a Schottky diode ring.

DLØVLP is a club station of the G QRP Club German Section. The licence holder is Rudi, DK4UH. It is intended that the station should be used by other members of the club in Germany. The only requirement is that Rudi must announce the change of QTH to the B.A.P.T. at least 14 days before the change for their approval. Rudi is the German Representative of the G QRP Club. The first activation of DLØVLP was by Hans, DL1ZQ [June 29 - July 31] on 80, 40 and 20. During thos period 1121 QSOs were achieved using 4 watts out from a Heath HW9 with dipoles and a 3 el. Yagi - all on CW.

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MEMBERS' NEWS



by Chris Page G4BUE

"Alamosa", The Paddocks, Upper Beeding,
Steyning, West Sussex BN44 3JW.

Tel: 01903 879750

Fax: 01903 814594

E-mail: g4bue@pavilion.co.uk

Packet: GB7DXS on UK DX PacketCluster

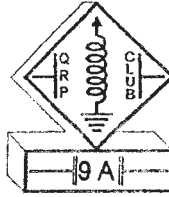
Chris, G3TUX, reports 60 members attended his first Summer Party on 3rd August at Haselmere. Everyone appeared to enjoy themselves and I regret that June and I had to cancel our plans to attend at the last moment. Chris is already thinking about the date for 1997. Well done Chris and a big thank you from everyone who attended.

George, G3RJV, spoke of the generosity of QRPers in his editorial in the last SPRAT, and I am pleased to report more QRP generosity. After reading GM6JAG's request for tips and mods for the HW9 in *Members' News* SPRAT 87, W5QJM, sent me (by air-mail) 15 double sided pages of HW9 modifications for Mel. Fred also offered to help Mel acquire any components he needs to carry out the mods, as what is left of the Heathkit Company in the USA is still selling a few components by mail. Thanks for your generosity Fred and I have passed the articles on to Mel. DL2FI invites Internet users to visit the WWW homepage of DL0AQB, the Activity Group QRP of Berlin at:- http://ourworld.compuserve.com/homepages/Peter_DL2FI

Have you tried our new amateur band yet? G0DJA would like to hear from anyone hearing UK amateurs on the 71.6 to 74.4kHz band, where the maximum effective radiated

power is 0dBW (1W) on CW, telephony, RTTY, data, facsimile and SSTV. Dave would also like to hear from UK amateurs who have made QSOs on the band.

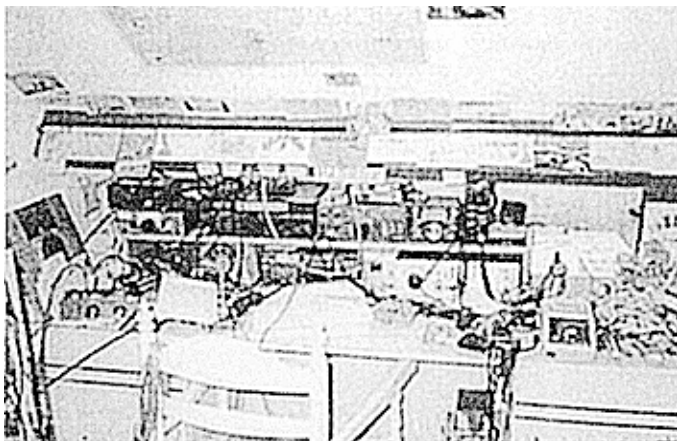
G0CJM, who is now confined to a wheel chair suffering from diabetes mellitus and ME, wants to get back on the air and buy a simple transceiver for the HF bands at a reasonable price. Please help Ven if you can. Further to the note from G4VPM in SPRAT 87, Andy confirms his Maldives operation on 8/22 September as 8Q7AS with an Argonaut 535 and R7 antenna.



Mladen, 9A3FO, sends details of the 9A QRP Club, which was formed in April 1994 and is open to membership throughout the world who use a maximum of 5W CW or 10W PEP SSB.

The membership fee of £10, US\$13 or 15DM is for life and club numbers will be issued. The club organise an annual QRP Championship in December and have an extensive awards programme. The address of the club (including applications for membership) is 9A QRP Club, Franjevačka 5, 42220 Novi Marof, Croatia. The officers of the club are President and Chairman, 9A3FO; Vice President, 9A3ZL; Secretary, 9A3CY; Technical Manager, 9A2OU, and Awards and Contest Manager, 9A3ZG.

PA3BHK says the fishfone QRM on 3560kHz sounds Danish to him. Robert says some Dutch fisherman also prefer to operate in the CW portion of 80 metres but he has not heard any of them around the QRP frequency. GM4XQJ is pleased with the response from G3HTA (RSGB HF Manager) after bringing to his attention the spread of digital modes down to 14060kHz. G3HTA is considering the best way of raising the matter at IARU. Brian says the February 1996 edition of the USA publication *Digital Journal* contains a plea to members from N2HOS, the editor, to avoid all the international QRP frequencies, and that PA0VDV (VERON HF Manager) has caused a similar plea to be published in *Electron*. Well done Brian and thanks for your efforts.



PA3BHK, Robert's attic shack.

GM3MXN has a useful tip for QRP Plus users - "7 dollars to Index will give you an eprom (including shipping). For those with the Mark I Plus, the eprom makes a big difference with the keying steps of 1wpm up to 34wpm and thereafter in 2wpm steps. It cures the troubles after 30wpm and stops the clipped CW. The Eprom is easy to fit and the QRP Plus is now a pleasure to use." Tom is using a WARC multi-band doublet antenna designed by G3TKN from a 1993 *Rad Com* article and says the SWR is good on all three WARC bands. **PY7FNE** is using a QRP Plus and apart from noisy audio output, thinks it is a great rig. Carlos uses a small electret mic used in multimedia sound cards for SSB.

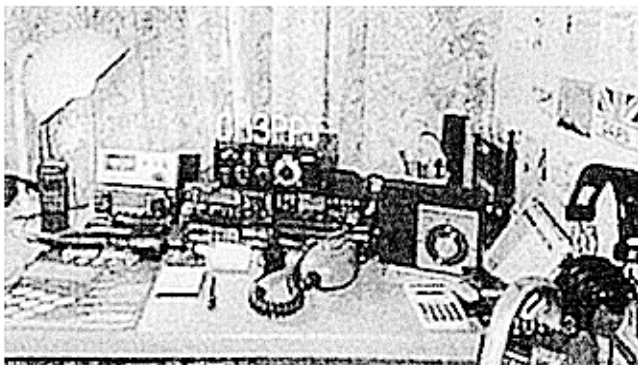
G3XJS worked Terry, operating as **OX/G3WUX**, as part of the Trans-Greenland Expedition, on two-way QRP in July and is wondering if they can claim the first two-way QRP QSO between OX and G? Peter also worked **EA9AI** on 9 July on two-way QRP on 14060kHz. Java was using 5W to a GP and Peter thinks he is quite active to boost your two-way QRP country score.

Cam, **HP1AC**, was spotted on the DX Packet Cluster at 2218z on 17 July on

14014kHz using 5W and a three element yagi. **FY/DJØPJ/P** has been QRV on 17 metres (18080kHz) in addition to 20 and 30 metres. **ON5UP** will be QRV from the island of Noirmoutier (IOTA EU-064) with QRP as **F/ON5UP/P** during the mornings and evenings between 28 October and 2 November around 7030kHz. André will use his homebrew Malta 40 (4W) and a homebrew helically wound vertical antenna.

G4FMH had a unique experience in April. Bill had previously worked the occasional /M and /MM station but within three weeks had two CW QSOs with /AM stations. The first QSO (3 April) was with Alex, **UT1LC/AM**, who was 13,000 feet above Kiev, and the second (22 April) was with **UX1LL/AM** who did not give her position in Russian airspace. Bill was using his MFJ 9020 at 3W to a low dipole and both stations gave him 569 reports.

G4GUN (grahaml@libbpw.it) is building the EP-2 80m rig but is having trouble finding a source for the CA3020A. Graham welcomes suggestions. **GØVLJ** bought a Lake DTR7 and TU2 for L50 at the Wimborne Hamfest in August to be QRV on 40 metres. Gary does a lot of trav-



Harry, GM3PPJ's, "nice and cosy shack".

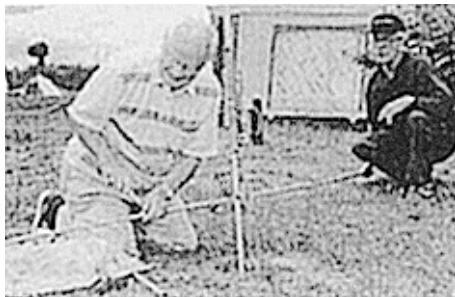
elling and his next project is to build a 20 metre transmitter for his briefcase to go with his Sony 100E receiver.

GØWXM recently upgraded from G7VXO and QSOd US3IBF on 40 metres with a dipole and 5W for his first HF QSO. Subsequent QSOs have been made around Europe. Alan is 68 years old and only took up amateur radio in his retirement. He was initially 2E1BUL after completing a Novice course. Congratulations also to **GØXON** (53 Overdown Rise, Portslade, East Sussex BN41 2YF), after upgrading from G7SRS and who is QRV on 14060 and 3560kHz between 2000 and 2200z most days with a TS-520E and 70 feet end-fed antenna bent into his garden. Gary modified his TS-520 for QRP and thanks KA8EGS (SPRAT 86), and is planning a similar mod for 10W SSB, but is finding it difficult without a manual for the TS-520. Can any member help by lending him one or copying, etc? Gary will pay expenses.

PAØRBO says that when using his QRP Plus through an ATU to an end-fed wire connected to a kite flying about 80 metres high in Field Day this year, the front-end SBL-1 diode ring double balanced mixer was damaged causing loss of output power, loss of sensitivity to the receiver and spurious signals across the whole frequency spectrum on each band on receive. Robert says neither the QRP Plus or the ATU were HF grounded but an isolated electric wire (about 20 metres long) was connected to the earth terminal of the ATU as a counterpoise lying on the ground. It was noticed that while disconnecting the kite antenna from the ATU that static electricity had accumulated on the antenna wire (twisted copper wire with insulation), and the person disconnecting it felt a considerable electric shock discharging to earth via his body. There had also been two QRO HF transmitters operating in the direct vicinity of the QRP Plus. Robert is not sure if the static electricity or the close proximity of the QRO stations, or a combination of both, caused the damage. He replaced the SBL-1 with a new one and the QRP Plus is now working properly again. Robert advises making sure you have a good HF earth, via a HF choke, when us-

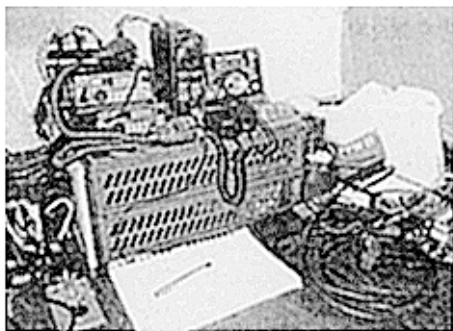
ing kite antennas and to be careful when using a transceiver in the close proximity of antennas with QRO power.

GM3PPJ recently had his left foot amputated and has not been so active on 7030kHz as he has been recovering. Harry is also QRV on 6 metres with an IC706 and a loft dipole. **EW2EO** is compiling a photo-album of world-wide QRPers and would like your photograph to include in it. Please send it to Valery at Pravilov Valery, P.O. Box 221, Borisov - 8, 222108, Belarus Republic. **GØAYD** (3 Townsend, Wylye, Warminster, Wilts BA12 0RZ) is using a G3TSO six band transceiver with a matching ATU, G4KUC PSU and a G3WPO SWR bridge. Dave is anxious to continue the home-brew theme of his station and asks for help in finding a good circuit for an electronic keyer with a weight control.

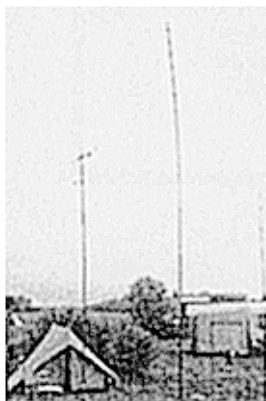


Wim, PA3BUO, assisted by SWL Gerben, setting up his vertical antenna at the Belenlux QRP Club camping weekend.

After 60 years of using QRP, **G6NA** recently had a two-way QRP QSO with **G4GJE**. What so marvellous about that, you ask? Spenny and Dennis were both using just 10mW! Dennis called CQ with 100mW, Spenny answered with 200mW, and after exchanging reports suggested they both tried reducing power. They progressively did this down to 10mW which gave copy without struggling, but as RF measurements below that could be unreliable, they did not try lower power. Spenny did not say on what band the QSO occurred, but his QTH is in Swanage in Dorset and Dennis is in Walsall, West Midlands. **DL2BQD** spent his holiday in the Yorkshire Dales and used a 9 metre fibre mast to erect a pyramid



Robert, PA3BHK's, shack at the *Benelux QRP Club* camping weekend.



PA3BHK's portable antennas (6m dipole, 70cms 6 ele yagi, 2m 3 ele yagi, G5RV and GP for 2m and 80m) and tent at the *Benelux QRP Club* camping weekend.

antenna for /P use. Dieter had a two-way QRP QSO with Joe, DK6AJ, who was running 3W. He visited GØKDZ and used Mike's station to make more QSOs at night.

V K 3 K M U has only been using QRP since November 1995, mainly 15 metres SSB, and his log is very impressive with many European stations, (UA, SP, I, PA, DL, OK, OH, G, F, EA, LZ, HA, OM, 9A, plus 5B4), being worked with 1W and a four element dual band yagi at 50 feet. Adrian will soon be "firing up" on 80 metres with a sloper, the only 80 metre antenna he can fit into his QTH apart from a vertical. ON5KN, ON5KZ and ON5UP are all building the noise bridge from the 1993 ARRL Handbook, ON6GW is building the Malta 20 and ON4YC, ON5UP and ON5KZ the Malta 80.

The *Benelux QRP Club* held their annual camping event between 19 and 23 June and although they suffered from global warn-

ing (with temperatures hardly reaching 15°C), PA3BHK says everyone enjoyed the experiments with antennas, etc. Robert says it was great to be able to put up wires as you please, but not so great battling through the QRM from the six other stations on the site as he tried to make QSOs! ON4YC, ON4KAR, ON5KZ, ON6GB, ON6GW and ON5UP, all members of *W-QRP-Club*, met for the day on 8 July when they were active with QRP on 40 metres with all homebrew equipment. ON4YC was the organiser and André, ON5UP, wishes to publicly thank Claude on behalf of all those who attended.

G3XJS built the GQ-20 at the end of July and his first QSO was with OH5RM on two-way QRP. Peter's eighth QSO was with FY/DJØPJ and the ninth with KB1FK to complete two-way QRP QSOs with four continents. He says the rig works fine but thinks it needs a pre-amp, at least on the 20 metre version.

G4EDX recently bought a book which may be of interest to other QRPers. It is *The Ultimate Spy Book* (ISBN 0 7513 0256 2) and contains lots of illustrations of war-time and post-war covert radio equipment, along with cameras, weapons and the other accessories for spying. John says there aren't any circuit diagrams in it but there are some photographs of the inside of transceivers. It is an A4 size book with a white, illustrated cover, and John says is definitely worth having a look at the next time you are in a bookshop.

Let's hope we soon start experiencing better HF propagation as we go into the autumn, which in turn should lead to better QRP DXing, in particular more two-way QRP DX contacts. Did you notice the WWV solar flux figures dropped to 65 on 18, 20 and 21 July, the first time they had ever gone below 66? The software for the DX Packet Cluster will now have to be rewritten as it doesn't allow a figure of lower than 66 to be recorded!

Let me know how your autumn goes, by the 20th November please, and don't forget to continue sending in your photographs as they help to make this column more interesting. Remember the old saying that a picture is worth a thousand words?

Hands kits for RF constructors

RX2 six band receiver High performance amateur band rx* SL6440 high level mixer 6 pole half lattice crystal IF filter* PLL vfo* 80/20 mtr starter kit at £95.50

RTX 206 ssb/cw tcvr High spec hf transceiver* 6 band* accepts club SHOWA 6 pole xtal filter* power control to 16 watts* SL6440 switching mixers modules from £30

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RTX 3.5/7/14 Monoband ssb/cw tcvr. milliwatt driver £98.50* 16watt pa £39.50

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***** **RTX 210** ***** full 10 band ssb/cw tcvr* DDS vfo with MPU controller

std knob tune/keypad or RS232 via your pc* 2X16 lcd data/freq display* lambdaicr keyer* full cw QSK*pin diode ant c/o* narrow band tuned IF strip with Showa discrete xtal filter* passive audio filter,* hi-fi at amp 20 watt dissipation!

***** **TCX /206 /210** ***** 6 or 10 band CW QSK tcvr* 500hz 9mhz commercial cw filter* listen thru side tone* SL6440 mixers xxx passive audio filter.* hi-fi at amp 20 watt dissipation!

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Hands Electronics

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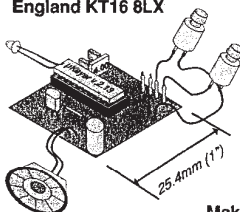

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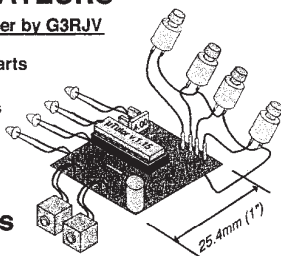
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see March 96 RadCom for review of μ Keiver by G3RJV



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Somerset Range Latest News

The Taunton - The two band plug-in card is now available. Any two switch selectable bands 160 - 15m on each card, £37. With a single band card, the 5 W HF phone TCVR is £96 to **G QRP Club members** only or with a two band card £128. The Optional Extra kit adds IF amp, S meter, RIT & matching bridge for £25. CW kits from £17.

The Pitney - Simple regenerative TRF RX, ideal for novice builders. Covers 1 - 7.5 MHz. No ICs! 5 Stages. Copies AM, CW, SSB. Built in 2 - 3 hours! With hardware £27.

The Bruton - Any single band 5 Watt phone SSB TCVR, 160 - 20m by coils and caps fitted during building. £84. Single 100 x 160 mm PCB. Easy to get going. CW kits from £17.

P & P £1. For details of these and other kits send a SAE to

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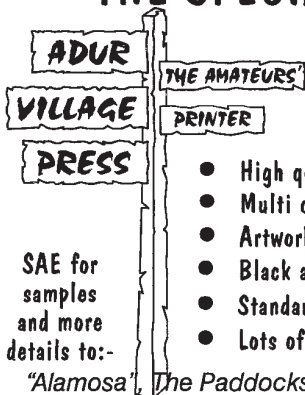
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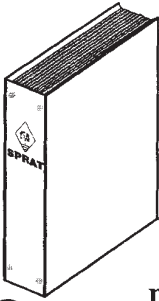
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Morsum Magnificat



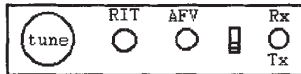
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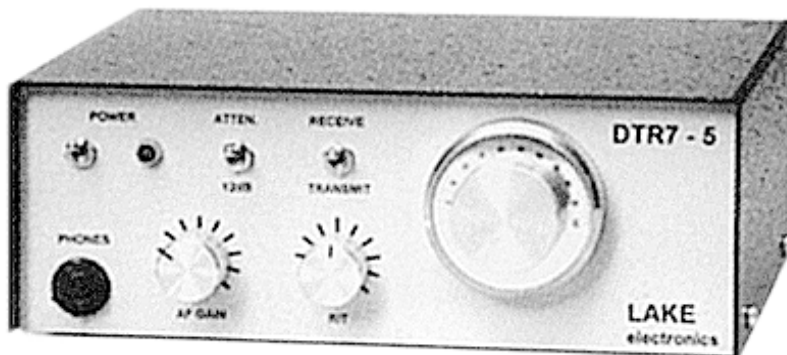
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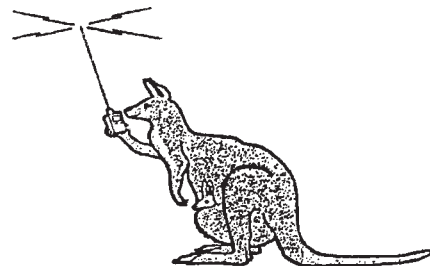
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