



SPRAT

THE JOURNAL OF THE G-QRP CLUB

DEVOTED TO LOW POWER COMMUNICATION

ISSUE NR. 86

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SPRING 1996



Impressive Home Built Station by DL2AYI

Everything, even the clock, is homemade! Left to right:

Desk mic with processor, Power Supply with Speaker/Clock

Nine Band SSB/CW Transceiver, Antenna Tuner, Memory Keyer

On top is an 80m SSB/CW Transceiver. All by Dieter Albin DL2AYI.

3 BAND VFO + 3X3 RECEIVER - PINK RECEIVER - OPTIMER TRANSCEIVER
G4OPE KEYS - 6MHz IF SYSTEMS - LYNX - MICRO-TUTOR - EP2 MODS
Z MATCH IDEA - TS50 ON QRP - CRYSTAL MONITOR - XTAL OSCILLATORS
NORCAL-40 MODS - FUN PADDLE - QRP PLUS EMPROM PATCH - FROTH TX
FLOAT BATTERIES AS PSU - INSECT FILTER REPORT - QRP ON FT990
CURING PSU HUM - 4 DAYS IN MAY - ANTENNAS, ANECDOTES, AWARDS
COMMUNICATIONS & CONTESTS - VHF REPORT - NOVICE - MEMBERS NEWS

THIS COULD BE YOUR LAST SPRAT - HAVE YOU PAID YOUR 1996 SUBS ?

THIS IS OUR TWENTY FIRST YEAR

JOURNAL OF THE G QRP CLUB



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Rev. George Dobbs G3RJV

EDITORIAL :

HOW SPRAT WORKS : The editor of a well-known amateur radio magazine suggested to me that being the editor of SPRAT for 21 years must be something of a record in the current history of amateur radio literature. My reply was that I am not so much an editor as a compiler. Material comes to me from members and it is rich in its diversity. Everything from a full article on computer disk, complete with graphics files for illustration, to a few notes and a rough sketch on a scrap of paper. That is the pleasure of working on each issues of SPRAT.

Anyone can write for SPRAT because we accept anything..... almost..... that is submitted. So if you have a favourite project, a good idea, a modification of piece of equipment, you can share it with others. You do not have to be an author nor a graphic artist. A simple sketch (but please add all values of components) and a few notes is fine. We accept hand-written notes, typed text, text on most PC formats, text sent by email or fax or just a drawing with a few words scribbled around it. About 5,00 people get to read it, including the editors of every English speaking amateur radio magazine we know about! So - what are you making, using, modifying, trying out ?

G3RJV

REMINDER:

**AS ANNOUNCED IN THE LAST ISSUE TO AVOID THE LEICESTER RALLY
THE ROCHDALE QRP MINI-CONVENTION
IS NOW ON SATURDAY 12th OCTOBER - SEE PAGE 39**

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

A SIMPLE THREE BAND VFO & 3X3 RECEIVER

Ian Macpherson, GM3RXU, 12 Howick Ave. Paisley. PA2 9LD

A balanced mixer has a number of uses - not just as a direct conversion receiver front end. A number of SPRAT circuits make use of the NE602 balanced mixer IC as a modulator in transceiver circuits. If however an oscillator is fed into both input ports of a balanced mixer the sum and difference frequencies are still produced - see Fig 1. The DC and $2 \times f_1$ frequency are easily separated by the tuned circuit, L1/C1, giving a nice frequency doubler.

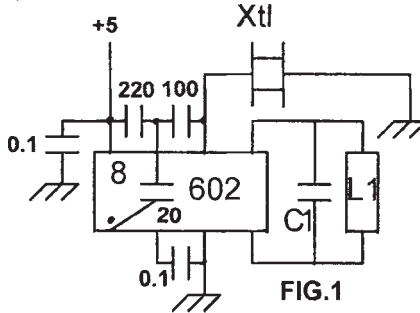


Fig 1.

The use of ceramic resonators has been frequently described in Sprat both in transistor oscillators and in the oscillator section of the NE602. Unfortunately these useful resonators are only readily available in a limited number of frequencies and of these the only one sitting conveniently within an amateur band is the 3.58 MHz unit. Fortunately this is easily tuned between 3.6 and 3.5 MHz.

Using the NE602 oscillator and balanced mixer elements along with the 3.58 MHz ceramic resonator a neat VFO can be made covering the ranges 3.5 - 3.6 MHz and 7.0 - 7.1 MHz by adding a single feedback capacitor, C, between the oscillator and the RF input, pin 1, or, better, the decoupled input at pin 2 since there is still feedback available and the output is cleaner, Fig.2.

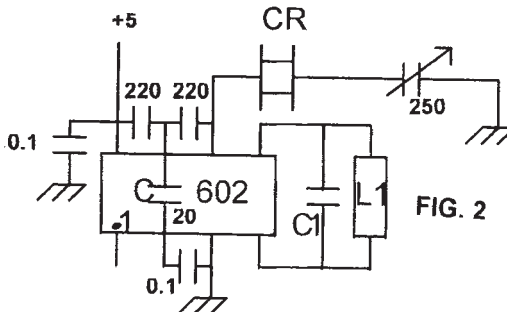


Fig. 2.

Output at pins 4 and 5 contains a strong 7MHz VFO signal which can be cleaned up easily by a simple LC filter. In practice the frequency quadrupled signal at 14 MHz is also fully useable so that a simple 3-band VFO with good frequency stability is easily constructed. The value of the feedback capacitor, C, determines the purity of the signal but in practice something between 5 and 25pf seems to serve quite well.

In use, the VFO can be used to replace a conventional oscillator in a DC receiver.

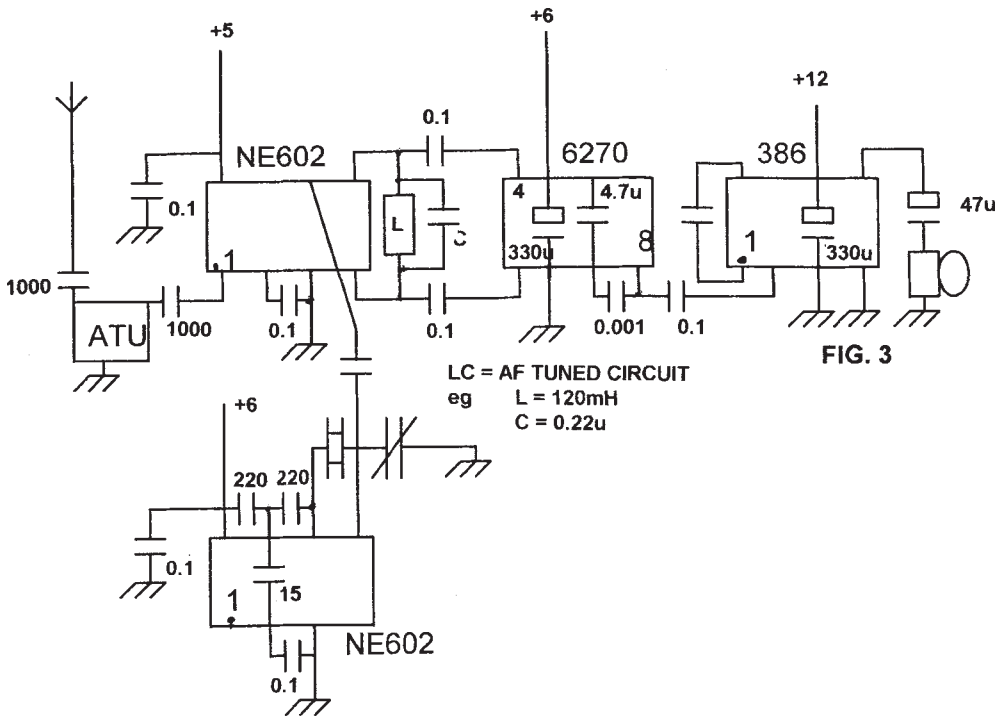


Fig 3.

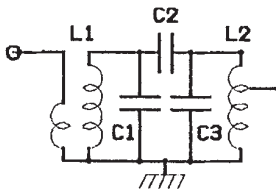
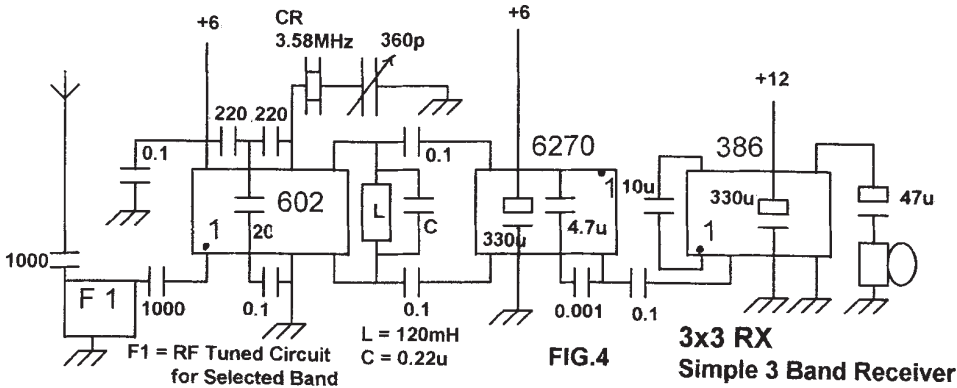
In practice very good results have been obtained on 3.5, 7.0 and 14.0 MHz without any filtering between the VFO and the mixer and with only an ATU attached directly to pin 1 of the NE602 via a capacitor. The audio LC tuned circuit across pins 4 and 5 of the mixer give quite good immunity to AM breakthrough and the 6270 amplifier does a good job in this circuit (AF AGC is available if needed from pin 1). Note that the 6270 is put into the circuit the reverse way from the NE602 to take full layout advantage from the pin configuration. If additional AF filtering is required then another audio LC pair between pins 7 and 8 of the 6270 provides convenient additional audio selectivity.

QRP enthusiasts normally try to get more out of less and I am no exception. The RF amplifier, oscillator and mixer are all still present in the NE602 which can be worked a bit harder without too much degradation in performance. All the RF functions can be compressed into single chip. Connection of both antenna and oscillator feedback capacitor to pin 1 is not good practice and in this case even though the oscillator level is very low, interaction with the antenna should be avoided. Fortunately there are two inputs to the NE602 and the feedback capacitor can be connected to pin 2 of the decoupled input at pin 2. The receiver circuit can be reduced to three chips as in Fig 4. with a switched antenna filter, F1.

Fig 4.

The feedback is sufficient to give good frequency multiplication without significant deterioration of the detector. Antenna filter switching is all that is required for 3-band operation.

Result - a pretty good DC receiver for 3.5, 7.0 and 14.0 MHz -

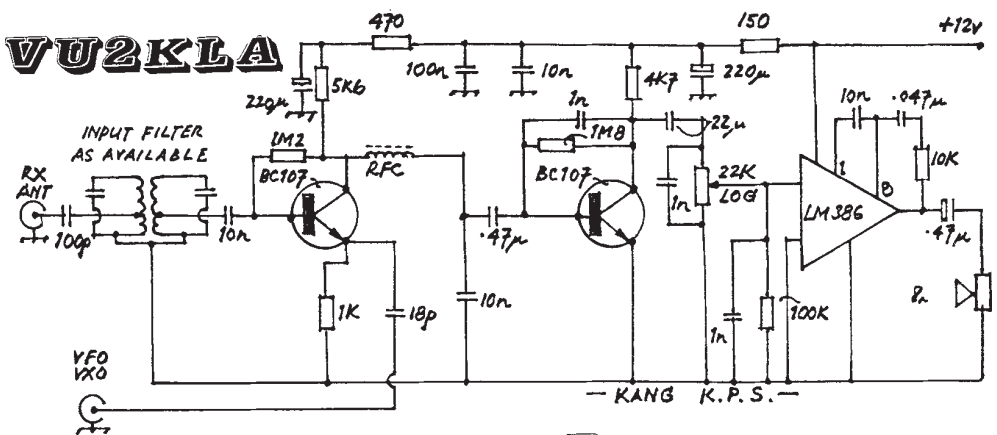


Suggested Bandpass Filter [F1] Values from G3RJV			
BAND	L2 and L2	C1 and C3	C2
80m	KANK3333	39p	3p3
40m	KANK3334	100p	8p2
20m	KANK3334	22p	3p3

THE PINK RECEIVER

Simple DC Receiver for use with the OXO or other transmitters
K.P.S. KANG, VU2KLA, 301/2 NANDI COLONY, KHANNA 141401. PUNJAB. INDIA.

This receiver was built for some simple QRP work during my vacation. Only three active components are used. It was used with the OXO transmitter. The results were surprising, pulling in six DX QSOs during the first hour of use with a G5RV antenna. The circuit uses all standard parts and was built of a piece of veroboard. The RF choke is about 150 turns of thin enamelled copper wire on a piece of ferrite core. It is a "components at hand" project.



THE OPTIMER QSK K.I.S.S. TRANSCEIVER

Tony Bowmaker, G0EBP, 1 Hestham Drive, Morecambe. Lancs. LA4 4QD

I wanted a small full-breakin audio for 80 metres to use in the field and at different locations. I tried designs where the transmit PA is used as a mixer on receive - but there was always oscillator energy getting into the antenna on receive causing common mode hum. So I developed this circuit over time.

Toko coils are used to good effect throughout (in the TX also). The VFO coil, L4, is adjusted to give +/- RIT and listen through of TX signal for sidetone, A buffer was not required, perfect isolation was realised through the LOW 'Z' winding around L4 and the 1K resistor. Various keyed oscillators were tried for the TX but this idea inspired by a GM3OXX design gave nice keying characteristics and no 'chirp' PWR out is around 1 watt.

TR1 performs as a keyed power oscillator with twin Bandpass Filter. With xtal installed and the 10k bias pot at about 3/4 of the way from Ov, alternate between the cores of L2 and L3 until maximum r.f. output is obtained. The redundant Low 'Z' winding around L3 can be used for a 50R power check. Small readjustments of all parameters maybe required to give fast start-up on keying.

L5 and associated components make a simple, effective and crunch proof product detector. With keydown adjust the core of the VFO coil L4, until sidetone is heard. With key-up, adjust L5 for maximum received signal, with antenna connected. The radio is now set-up! IC1 gives the required gain and includes tailored audio from a bandpass filter in the phones line. (This filter can be omitted.)

The Muting/Antenna switching is simple. On keydown TR3 mutes the audio-amp IC1, with a short hang-time response, enabling the TX signal to be monitored for sidetone. Diodes perform antenna the change-over.

For a simple design I found it works well and gives quiet full break-in. An AF filter and pre-amp would help, but I can hear QRP activity without them.

Notes:

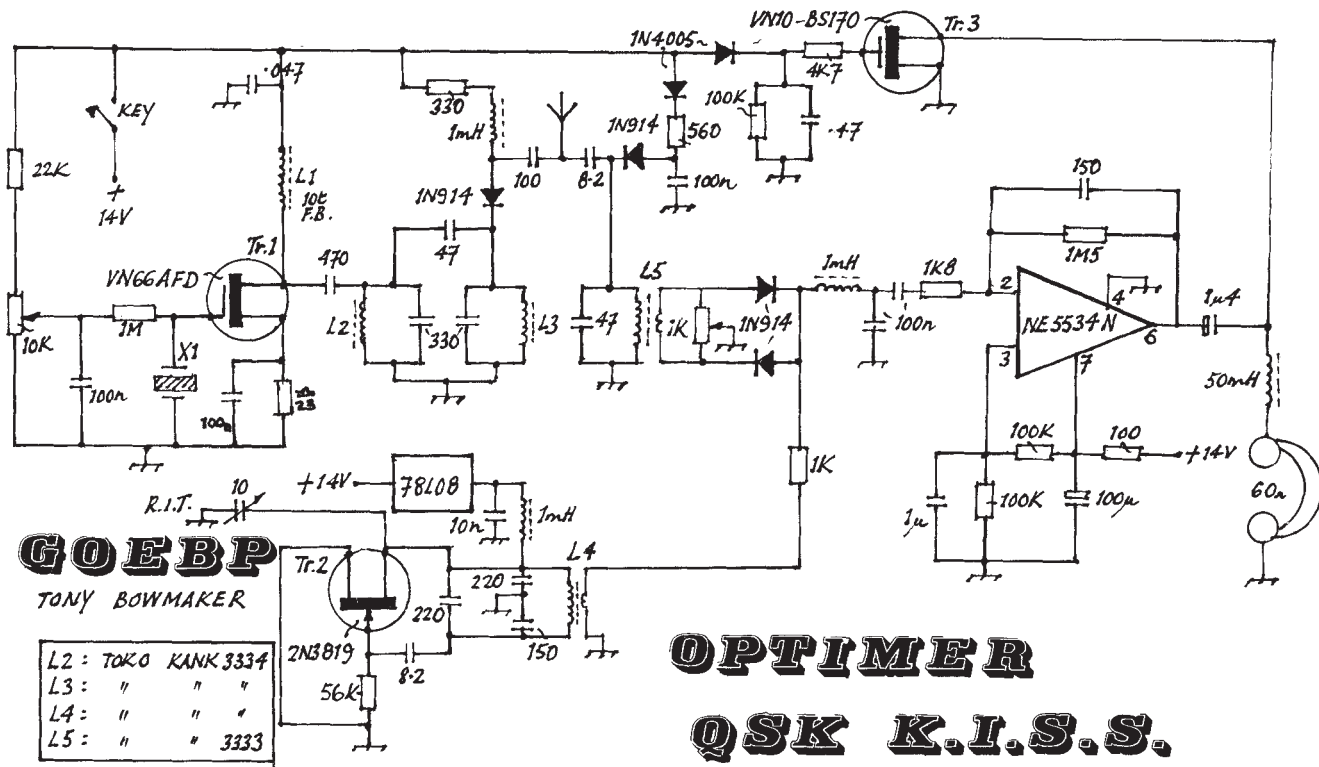
1. The VFO/mixer section should be screened from any TX radiation thus not spoiling the sidetone signal.
2. The 23 ohm resistor in TR1 source is 2 x 47R in parallel. This gives 150mA in the drain to get 1 watt out, around 50% efficient.
3. The capacitor on pin 6 of IC1: This is 1uF with 0.47uF in parallel, but in my original test jig there was an electrolytic as well (part of original circuit before the phone filter was added), in series with the added filter. It may be best to adjust the value to ones personal taste between say; 1uF and 2uF (2 x 1uF poly paralalled).

THE SPRAT INDEX

Trevor, G0TWE, 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, G0TWE, The Rectory, Binbrook, Lincoln, LN3 6BJ.**

THE SPRAT INDEX ON FTP

The Index to SPRAT issues 1 - 85 is available via the ftp facility at Lehigh.edu on the GET command. For QRP-L subscribers, the address is: LISTSERV@LEHIGH.EDU and the command message is GET QRP-L/BOOKS SPRAT.INDEX.



THE G4OPE IAMBIC KEYER WITH MEMORY

Mick Hodges, G4OPE, 40 Ennersdale Rd. Coleshill, Birmingham. B46 1EP

This keyer was developed using a PIC microcontroller. It offers full iambic keyer facilities and a single memory.

Features.

- Small size. (Small enough to build inside QRP rigs).
- Dot and dash memories. (Suitable for single or twin lever paddles).
- Message record and send facility.
- High immunity to RF fields.

Weight control.

The weight control is by means of a four position DIL switch and sets the dot/space ratio with a choice of 16 settings as follows.

RB3	RB2	RB1	RB0	
1	1	1	1	Long spaces (approx. 1.5 dot length).
1	0	0	0	Equal dot space ratio.
0	0	0	0	Short spaces (approx. half dot length).

Switch closed = 0 Switch open = 1

The switches can be set while sending some Morse to get the feel of the weight.
The dot/dash ratio is fixed at 1/3 for all settings of the weight switches.

Recording.

Put the keyer in record mode by closing the record switch and send some Morse. When in record mode, the keying transistor is switched as normal, but the Morse being sent is stored in memory. Any previously stored message is overwritten.

If the message is too long and the buffer is full, input from the paddle is ignored until the record switch is opened. (The buffer can store a typical 2 x 2 CQ call or about three callsigns).

Open the switch and the keyer is back in the normal mode.

Note - After throwing the record switch, the PIC does not start storing Morse until the first dot or dash is sent. (The buffer doesn't fill up with spaces).

Once recording has started, a pause of more than two spaces is interpreted as an inter-character space,(3 dots long),and a pause of more than four spaces as the end of a word. Any pause longer than four spaces will be stored as a single inter-word space,(7 dots long).

When the record switch is opened, an 'end of message' code is stored to prevent the tail end of a previously recorded message being sent.

Sending.

Once a message has been stored, and the record switch is open, simply press the send switch to transmit the message.

To abort transmission part way through sending a message, hit the dot or dash paddle. (Useful when using QSK).

The stored message can be sent as many times as you wish and remains in memory until the power is removed.

Speed control.

The 47k variable resistor is used as the speed control by adjusting the clock frequency of the PIC. Speed can be set between approx. 13 and 38 wpm when a 27k resistor is used in series with the pot. This value can be adjusted to suit individual preferences, using a smaller value for faster Morse.

Note - The weight setting will stay the same regardless of speed.

Keying.

RB7 and RB6 both follow the Morse code, high for dots and dashes, low for spaces. The circuit shows RB7 used to key the transistor while RB6 is used to light a LED.

RB5 is switched high when the record switch is closed and RB4 is high while a message is being sent. The circuit shows two more LED's connected to these pins.

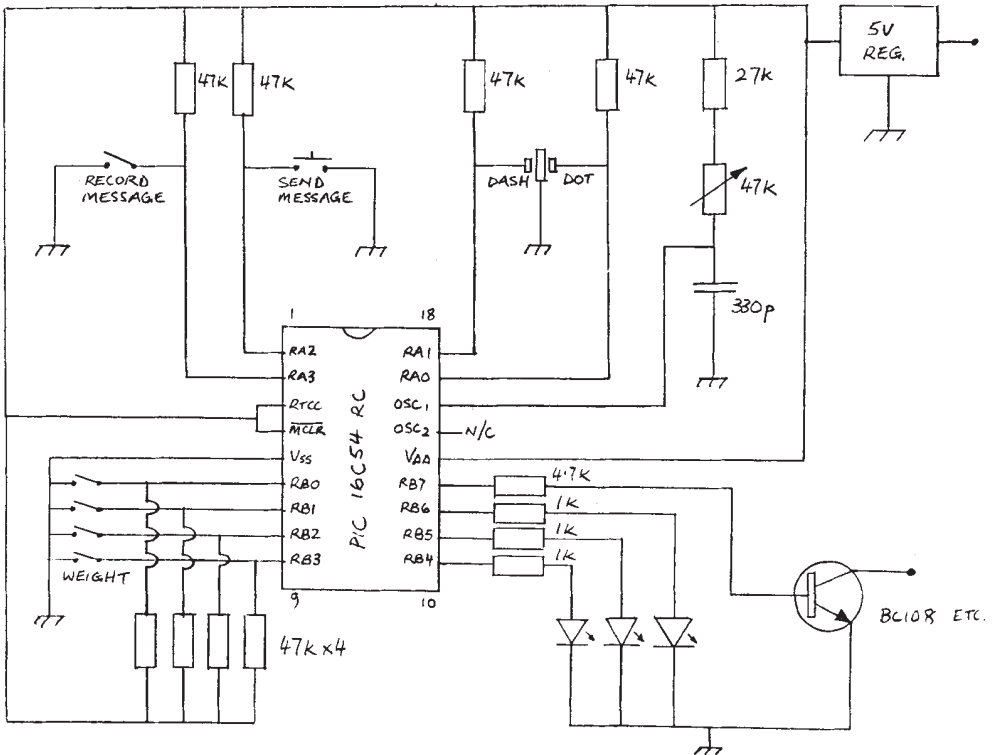
G QRP CLUB PART KIT OFFER : PCB + programmed PIC CHIP

Complete printed Circuit Board for all options plus a programmed PIC chip : £10.50 inc UK postage.

For overseas orders £11.00 (EU) £12 (DX) Include an address sticker with order.

Supplied with circuit, layout drawings and parts list. All cheques to be made out to G QRP CLUB.

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



6MHz IF SYSTEMS

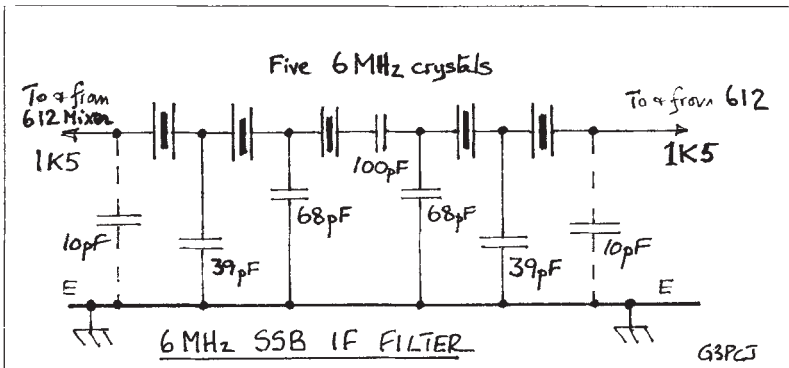
Tim Walford, G3PCJ, Upton Bridge Farm, Long Sutton, Langport. TA10 9NJ

The use of 6 MHz for the IF of a superhet rig has many advantages. I have adopted it in the Taunton multi-band TCVR for the following reasons:-

- it is sufficiently high for image problems to be avoided by reasonably simple RF filters throughout the HF bands up to medium VHF,
- effective ladder filters can be built with cheap common 6 MHz crystals,
- no special CIO crystals are needed, 6 MHz ones can be easily pulled + or - 1.5 KHz.
- the IF frequency is not so high as to need difficult circuit techniques,
- is suitable for bi-directional rigs with the IF filter placed between NE612 mixers,
- keeps LO frequencies low for stability in the lower HF and MF bands, or
- lends itself to local oscillator crystal mixing schemes using other standard crystals.

IF Filter Design

The main objective was a 6 MHz IF filter for SSB use (implying a bandwidth of about 2.2 KHz) for use on either sideband and to match the NE612's input and output impedance of 1K5 on both ends of the filter. With 6 MHz crystals available at £1 or less, five crystals in a ladder filter provides a good compromise between cost and performance. The following circuit performs well:-

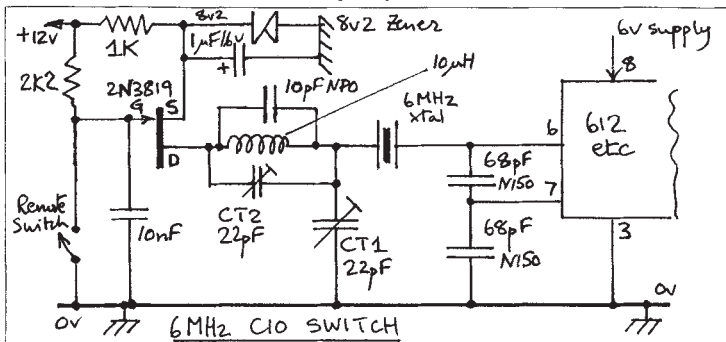


Good quality 2% low K disc ceramic capacitors should be used. The small capacitors at each end are shown dotted as they will only be needed where there is little stray capacitance associated with the circuits at each end; in a bi-directional rig, the filter is connected through integrated circuit switches to the mixers at each end - the strays of those switches provide the end capacitance and the capacitors shown dotted can be omitted. As this circuit operates at a relatively high impedance it can be prone to unwanted broadcast signals at 6 MHz so it is important to build it close together on double sided PCB and to earth the crystal cans by soldering them to the topside ground plane. (This also keeps them rigid! Solder the cans carefully in one spot only as prolonged heat doesn't do them much good.)

Carrier Insertion Oscillator

My rigs use the oscillator section of a NE612 as CIO but the technique is applicable to other Colpitts Oscillators. These crystals need a load capacitance of 30 pF to run at 6 MHz but a trimmer in series (CT1) with the crystal will easily increase the frequency to 6001.5 KHz for upper sideband. For lower sideband at 5998.5 KHz an adjustable inductor is usually added in series with the crystal but such components are not user friendly! Instead a fixed inductor with parallel trimmer CT2 will suffice. These can be brought into circuit, under remote DC

control, with a 2N3819 JFET acting as a switch. At small amplitudes, the JFET is bi-directional and does not need a DC drain supply in this circuit. When the gate is grounded, the JFET switch is off with good isolation to reduce its unwanted capacitance. When the gate is allowed to rise towards 12 volts, it draws gate current and the JFET turns on hard. It is necessary to set CT1 first for 6001.5 KHz with the JFET gate grounded, then adjust CT2 for 5998.5 KHz since both trimmers effect frequency when the JFET is on.

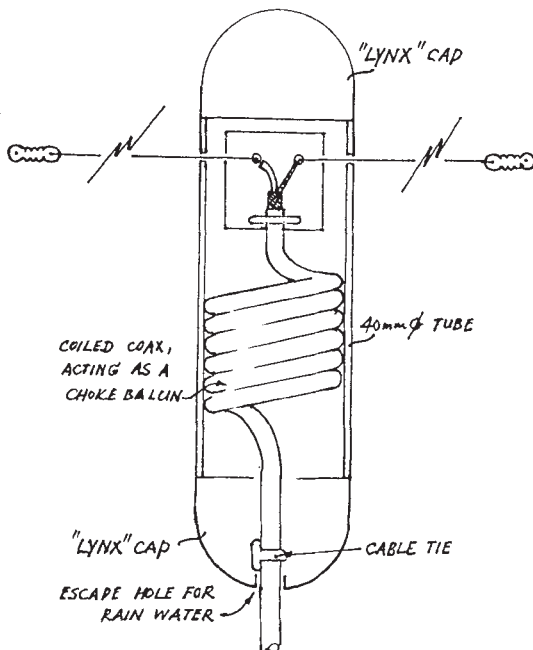


Editorial Note: The Taunton 5 watt multiband phone superhet Transceiver is available in kit form to G QRP Club members at a special price - see Walford Electronics' advert later in this issue.

A LYNX CENTRE PIECE

M.A. Eales, G7SGF,
137 Heron Way, UPMINSTER, Essex.

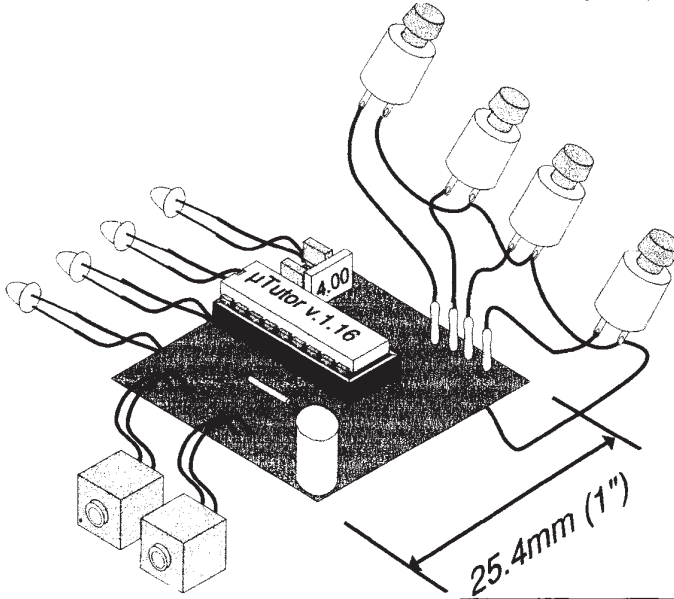
The domed plastic (black) cap from a "Lynx" deodorant can, is an exact fit on 40mm, white, waste water pipe (as used as an outlet from sinks etc.). The cap is unusually well made from 2 concentric tubes and the waste pipe fits exactly between the 2 tubes and with a smear of Evostick or silicone rubber makes a good waterproof cover. Two caps and a short offcut of pipe can make a good trap container or a dipole centre



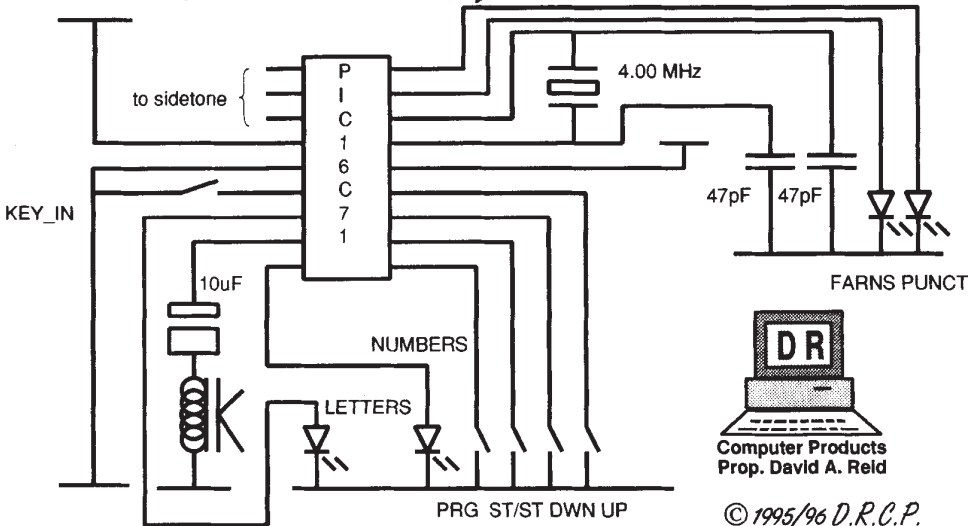
The μ Tutor : A Morse Tutor on a 1" PCB

Dave Reid, G0BZF, 5 Bridge Court, Chertsey, Surrey. KT16 8LX

Following up the Micro-Keyer (SPRAT 85) the Micro-Tutor is a PIC controlled Morse Tutor contained on a 1" square printed circuit board. The user can choose Letters, Numbers Punctuation/Abbreviations, or any mix of these over a speed range of 5 to 50 wpm. Others features include : "Farnsworth Spacing" available as push button option, Variable Sidetone, Low ($\cong 1\mu\text{A}$) standby current, Wide voltage range (4-15v) and a Built-in audio oscillator for sending practice. There are only 16 parts on a easy to build PCB. Details of an available kit can be found elsewhere in this issue of SPRAT.



**THE MICRO-TUTOR
IS BUILT ON A
ONE INCH SQUARE
PRINTED CIRCUIT
BOARD**



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MODIFICATIONS TO THE EPIPHYTE-2 TRANSCEIVER

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

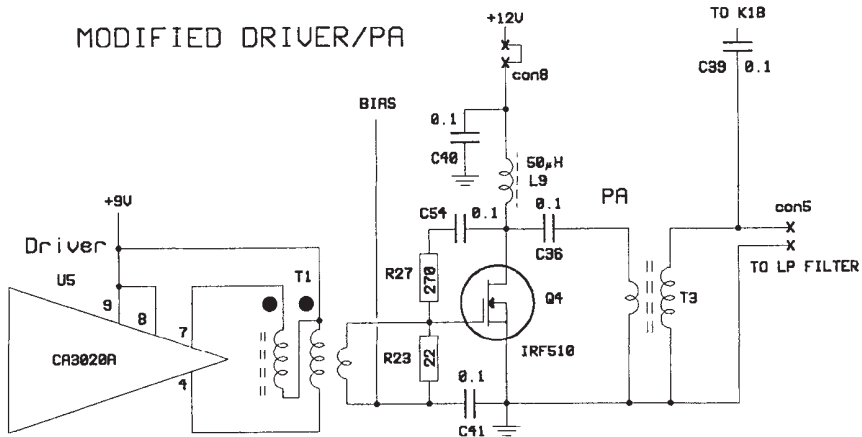
Since my construction article was published in the the last issue of SPRAT I have found the T- match to the antenna somewhat intolerant of any inductive load such as a LP filter or tuner. Changing to a more traditional broadband transformer eliminated the problem. In addition, the input resistance at the gate of the IRF510 has been reduced, the drive transformer (T1) modified to effect a better match and some shunt feedback added. One correction. L5 (1mH RFC) on Sheet 1 of the Schematic should have been numbered L4.

Anyone who has already made a PCB from the printout in SPRAT may effect these modifications using existing pads and traces and drilling only a couple of additional holes. To avoid removing and rewinding T1, the unused winding may be left in place and the new 2t. coupling wound over. Those ordering boards from Hands Electronics will find the PCB has been modified to accomodate these changes and a revised Parts Layout is available.

The EP-2 gave a good account of itself in the recent ARCI QRP SSB Contest. Despite poor band conditions, 45 daytime contacts were made on 75M throughout BC, Washington and Oregon using an inverted-Vee antenna 25ft high at the apex.

EPIPHYTE 2 OFFERS : REPRINTS and PCBs

A Reprint of the modified EP2 circuits is available from G3RJV for a self addressed, stamped, envelope.
PRINTED CIRCUIT BOARD (including the above modification and corrected circuit + layout)
£7.00 including postage (£7.50 EU, £8.00 DX)
HANDS ELECTRONICS, TEGRYN, LLANFYRNACH, DYFED. SA35 0BL



COMPONENTS CHANGED OR ADDED

- C37, C38, C42 & L7 ELIMINATED
- T1 MODIFIED (5 bifilar t. + 2t. sec.)
- R23 REDUCED TO 22 OHMS
- T3 ADDED (2t. prim., 5t. sec. on Amidon BN-43-202)
- R27 (270 ohms) & C54 (0.1µF) ADDED

Another Z - Match Robert Van Der Zaal PA3BHK Parklaan 89, 2171 Ed Sassenheim, The Netherlands

Through the years, aerials and antenna-tuners have been food for thoughts in the world of Amateur Radio. The Dutch gang on 80 spent many hours discussing these subjects and in "The Dutch Pub" on 3.777 MHz they still appear to be popular items. Many seem to prefer the use of a doublet combined with a Z-match.

In a tuner that is commonly known as a "Z-match" the open feeders of a doublet are coupled with a tuned circuit. In fact, there are two of these circuits. One for a "higher" frequency range and one for a "lower" (fig.1). The coils are supposed not to be "seen" by frequencies for which they are not used as they either work as a short circuit or as a choke. The "split stator" variable capacitor either resonates with one coil as a pair of variable capacitors switched parallel or with the other as a pair in series.

A first modification was made by Louis Varney, G5RV, who called the output circuit via a capacitor to the hot end of the resonating coil a matter of "bad engineering" (ref. 1). OM Varney suggested to make taps on relatively cold ends of the coils, either near the hard ground of one coil or near the virtual ground of the other (fig.2).

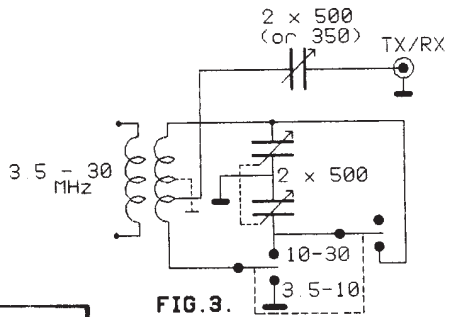
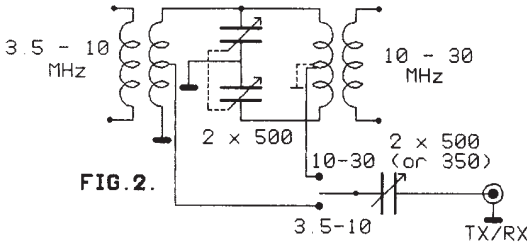
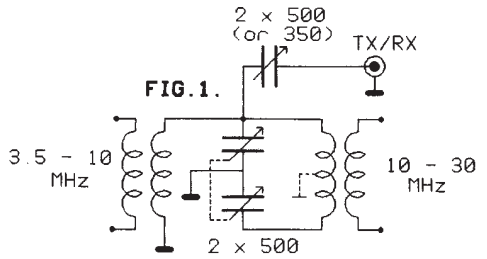
Personally I do not really enjoy the winding of coils. For HF I consider them to be large lump things that are a chore to make. When related to a "standard" Z-match, this feeling is enhanced by the fact that I don't like the idea of coils that are not "seen" by certain frequencies. Though used as such by many hams I think the coils are too much alike to use this principle. So I restricted myself to one tuned circuit and a 2 x 500 pF split stator. The DPDT switch gives the tuned coil a hard ground and switches the two sections of the split stator parallel for the frequency range between 3.5 and 10 MHz. For the frequency range from 10 to 30 MHz the sections of the split stator are in series and the tuned coil has a virtual ground. Use a dipmeter to check whether the whole range from 3.5 to 30MHz can be tuned. Using a 32mm PVC tube as a former, I needed 10 close wound windings of thick insulated single core electricity wire for the tuned circuit and 8 windings of similar wire with the insulation removed wound around the first coil for coupling. The coil is tapped at 3 windings from the hard ground for 3.5 to 10 MHz which means 2 windings from the virtual ground when used between 10 and 30 MHz. This way we only need one pair of coils and have a more appropriate output circuit.

Now we are left with one burning question: DOES IT WORK? The answer is quite diplomatically: usually it does. But the range in which a Z-match can actually match the complex impedance of an aerial and its feeders to the usually required 50 Ohms is limited. My doublet that is based on a G5RV dipole causes no problems and can be matched quite easily with an SWR better than 1.5 on all bands including the WARC bands. But my "small" horizontal V- dipole (2x4 m) for the "DX - bands causes difficulties on 14 and 28 MHz. One way to match it on these two bands is by changing the length of the feeders until the tuner works. It is a good thing that these days we have chocolate blocks and slotted ribbon feeders!

Some experimenting resulted in a jack of all trades and a master in many. The tuner can be build in a small box which seems ideal for portable QRP experiments. However, it might cause difficulties with some aerial systems. If your aerial system gets along with this Z-match, you will find it a handy tuner with only two controls and a switch. In the high range tuning becomes quite sharp so the use of a reduction drive is recommended. Who continues experimenting with this popular tuner? I look forward to reading about it in future issues of SPRAT

Reference:

- 1 John D Heys, G3BDQ: Practical Wire Antennas, 1989
RSGB, London, UK



100K		E.G.		5K6			
1	BROWN	1	BROWN	1	GREEN	1	GREEN
0	BLACK	0	BLACK	0	BLUE	0	BLUE
0	YELLOW	0	BLACK	0	RED	0	BLACK
0		0	ORANGE	0		0	BROWN
	TOL.		TOL.		TOL.		TOL.
	EX.		NEW		EX.		NEW

**WATCH OUT
Mac McNeill G3FCK**

A warning to constructors. Some manufacturers are using a 4 band colour code to replace the 3 band code. It works out as shown. Not easy for us old hands !

ADJUSTING THE POWER OUTPUT OF THE TS50

Duncan Cadd, G0UTY, Dorpsstraat 38, Bus9, B-3590 Diepenbeek, Belgium.

The following was culled from the GQRP-L list on Internet - see elsewhere this issue on how to subscribe

The TS50 has three pre-set power levels, as delivered these are 100W, 50W and 10W. My TS50 gave 18-19W at the so-called 10W level, and via Smitty, NA5K on the US list I received a mod to readjust the medium and low power levels. Just days later, Al Brogdon K3KMO posted a mod to reduce the high power level, and Bob Gobrick V01DRB/WA6ERB/VE2DRB posted a cautionary tale. I will try to squeeze the best of three.

I have now set my TS50 at 25W, 10W and 5W o/p, but for the dyed-in-the-wool QRPer it ought to be possible to set high power at say 5W, and medium and low at say milliwatts!

To readjust the settings, remove the top cover. Look at the rear edge of the main TX/RX PCB, right up against the PA heatsink. In the approximate centre of the edge of the PCB is a multi-wire connector carrying several leads, a small vertical PCB attached to the main PCB, and adjacent to both these is a small white plastic preset potentiometer. On the schematic this is labelled VSF and you will find it on the TX/RX circuit regulator IC10. Turning this pot counter-clockwise reduced all three power output levels. To get 25W, I had to set the pointer of this pot just less than the 12 o'clock position.

CAUTIONARY NOTE FROM BOB GOBRICK - this pot may have (unconfirmed) 360 degrees travel and setting the high power level to say 1W or less may be suddenly followed by a burst of more than 100W as the pot skips the break in the track to the high power end of its setting! **BEWARE**

Having set the high power level, the medium and low settings can now be fixed relative to this. Just to the left of the piggy-back IF filter board, centre front-ish of the main TX/RX PCB, are two minuscule surface mount potentiometers and you will need a **VERY** small screwdriver (jeweller's type) to set them. They are VR16 (medium power adjust, closer to the back of the board) and VR15 (low power adjust, closer to the front of the board). On the schematic, look at the TX/RX circuit diagram again, at about the same level as VR14 but maybe 8 inches to the right (!) there is an op-amp IC14 and just to the right of that are VR15 and VR16 labelled **LOW** and **MED**, both 10k pots. Turn them counter-clockwise to reduce the settings or vice-versa as needed. I have not found any anti-social behaviour whilst adjusting these pots, but yours may differ - **BEWARE!**

And that's it! My thanks to Smitty, NA5K Al Brogdon K3KMO and Bob Gobrick V01DR/WA6ERB/VE2DRB for this information. A very useful modification indeed!

NOVEL CRYSTAL GRINDING MONITOR

Jim, NØOCT, via Duncan, ON9CHU on the GQRP-L List

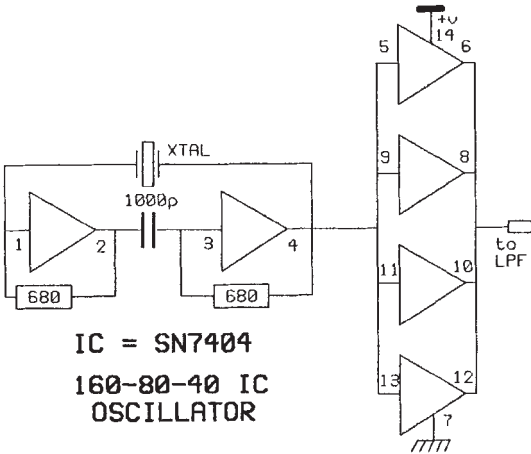
Take a flat piece of aluminium or copper about 6" square, and connect it to your receiver antenna terminal using a short lead. Place the Plate Glass on which the crystal is to be etched on top of this sheet. You can tune the crystal frequency on the receiver by the scratches you hear.

This does work! Matt, NØXEU has performed this with good results. Depending upon the receiver, you are in the ball park. He has ground crystals (FT-243's) "spot on" his target frequency with this method. He didn't go as far as to hook up the receiver to the aluminium. He just placed the lead from the antenna terminal in very close proximity. Try it and see!

Two Simple HF Crystal Oscillators

Marco Eleuteri, IK0VSV, Via Paolo Rolli 18, TODI, 06059 (PG). Italy.

The following circuits offer easy to build crystal oscillators with a wide frequency range.



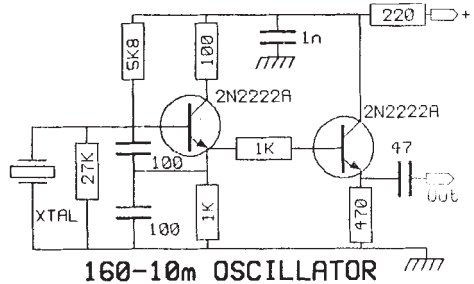
IC = SN7404
160-80-40 IC
OSCILLATOR

IC Oscillator:

This works well on 160-80-40 and works on 30m with some crystals and ICs. I used it with my mW transmitter with good results. Power output is about 100mW and the CW note very clear and keying well. The applications are for a local oscillator in receivers or to drive a simple transmitter. A good low pass filter is required because the square wave output generated by the IC is rich in harmonics.

TR Oscillator:

This oscillator works well over the complete range from 160-10M. It generates a clear signal right up to 28MHz. It is ideal for breadboard or ugly construction. The oscillator will run with most UHF transistors and fundamental crystals.



160-10m OSCILLATOR

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.)

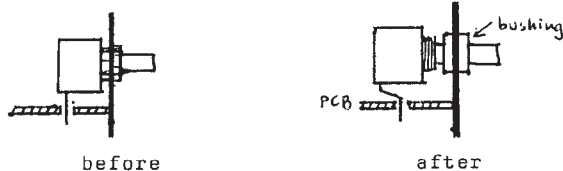
G QRP CLUB DIY QSL CARDS

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.

NORCAL 40 - MODS AND ADDITIONS

Bernhard Szymaniak, DL7GK, Fritz-Remy-Str.9, D-63071 Offenbach, Germany

I was lucky to catch one of the partial kits sold by GQRP. Getting the parts was no problem except for the MRF 607 which was replaced by a MRF 237 and the 1N5819 (D7) where a SB130 Schottky diode was used instead. One problem arose from X6. The TX mixer Crystal was far off the IF frequency and couldn't be pulled enough by following the handbook instructions. Changing L5 from 15 uH to 68 uH solved the problem. Another malady was R17, the VFO tuning pot. These mini pots are usually of very poor quality and hardly suitable for tuning purposes. The VFO frequency had jumped a little at the least touch of the tuning knob. I cured this simply by bending the pot pins a couple millimetres toward the front panel before soldering. This sets the pot a bit back inside, leaving the thread of the pot "floating". The shaft is now held in place by a slide over plastic bushing which is pressed into the appropriate 7 mm front panel hole. Correct tuning is now possible.



Apart from this, the rig worked fine. After a close look I found the case to be quite spacious inside. For I wanted to have a complete "self-contained" rig, I decided to put inside a 12 v powerpack consisting of 10 AA Nicad cells of 850 mA max. Current. The RCA connector J2 was replaced by a 2.1 mm ID DC power jack from an external PSU. When the plug is pulled, the rig switched automatically to the internal accu pack. A little mini-voltmeter mounted on the upper left edge of the front panel serves as a battery checker. A DPDS slide switch mounted on the rear panel disconnects the rig from all DC power and provides the possibility of changing the NiCads via J2 without the need to take them out. The power pack is fastened to the top cover and fits nicely between the right stand-off and the main switch S11 after the case is closed.

Of course, some parts have to be mounted in a different way to clear the height inside. Caps C15 and C41 were mounted horizontally flat against the PCB. Elect caps C23 and C24 were replaced by small tantalums (+ leads to pin 1 and pin 7 resp.). R 8 and R13 are round mini resistor trimmer of 1/4" OD. Last not least X5 and X6 are flat-pack crystals in HC 49/4H-case.

Next addition was a Curtis 8044 chip keyer modified for touch-paddle use. The little circuit board, along with the speed-adjusting pot and an extra jack for the paddles was mounted behind the front panel

The tuning range was set to the European CW-band from 7000 to 7040 KHz. A simple plastic dial was home-made. RX current is 14 mA (No signal) and 20 mA (With signal) TX current is 270 mA at 11 vDC and 2.1 W output, 320 mA at 12.6 vDC and 3W output and 380 mA at 13.8 vDC and 3.2W output.

Oh yes, frontside I use hinged feet 30 mm high so I can look at the rig "face-to-face" when operating. Folded back, the case is as flat as before. Hmmm, I think there is still some space left inside the cabinet, maybe.....(I'll think about it!)

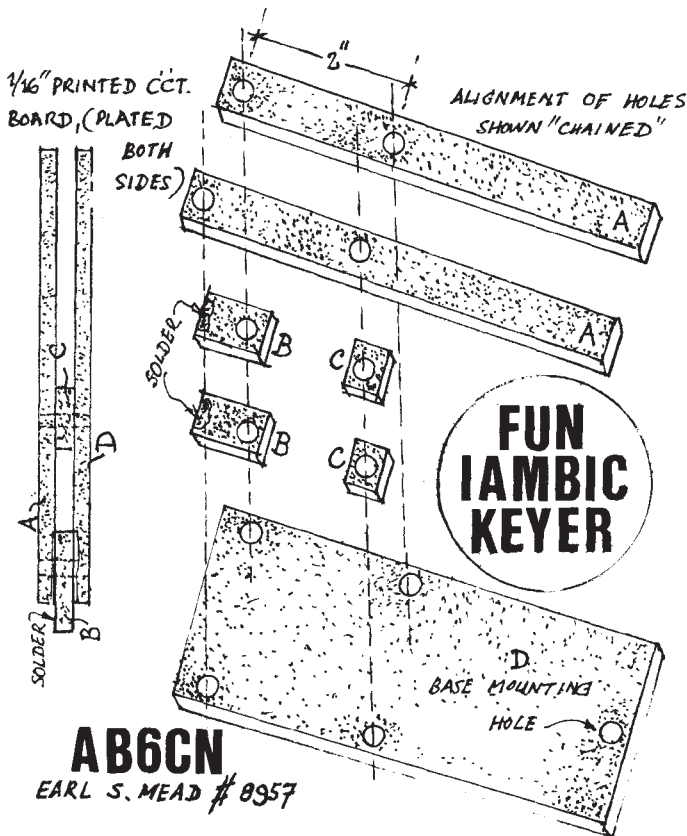
A FUN IAMBIC KEYS PADDLE

Earl Mead, AB6CN, 4275 Sloan Drive, North Highlands, CA 95660. U.S.A.

The drawing shows an "Iambic" key I made from Printed Circuit Board. I drew the outlines of the parts on a printed circuit board (copper plated on both sides), made holes at the appropriate places and cut the parts from the circuit board. Emery cloth was used to smooth the edges of the holes and parts and remove the jagged edges to prevent cuts or scratches. I assembled the key according to Fig. 1. and used brass screws to mount the key on a wooden base.

I then soldered a two-wire cable with shield to the key. One wire was soldered to the top of one spacer (part B) and the other wire was soldered to the top of the other spacer (part B). The shield was soldered to the base (part D). A stereo plug was soldered to the other end of the cable. I use my right hand to send CW so I selected the left lever and index finger for dots and right lever and middle finger for dashes. The stereo plug ring is soldered to the wire from the right lever and the case of the stereo plug was soldered to the shield.

When each lever (part A) is depressed and makes contact with the base (part D), a momentary contact is made completing a circuit within your electronic keyer forming dots or dashes. To form the complete characters, you depress the appropriate lever in the proper sequence (which is similar to the action on a standard "Iambic" or "Squeeze" key). The key is very easy to build and it has provided me a great amount of pleasure and satisfaction in its use.



HOW TO PATCH THE QRP-Plus EPROM

Copyright 1995 (C) Dr. Andreas Tomiak, DH7ADR

AX.25: DH7ADR@DB0GR.#BLN.#DEU.EU

Email: tomiak@hmi.de

No warranty, All rights reserved. Non-commercial use granted. Version 1.0, 18. August 1995
All patches are in hexadecimal notation of numbers

Patch #1 : Removal of the lock for transmissions out of the amateur radio bands

Address	Value (orig)	Value (new)
\$4A5	\$83	\$00

Patch #2 : New keyer speeds (twice as before, improved scaling). 16 speeds, 6 to 26 WPM

part 1: time constants

old	\$550 78 78 50 50 3C 3C 30 30 28 28 22 22 1E 1E 1B 1B
new	\$550 C8 AB 96 85 78 6D 64 5C 56 50 4B 43 3C 37 32 2E

part 2: values for display

old	\$BB6 10 10 15 15 20 20 25 25 30 30 35 35 40 40 45 45
new	\$BB6 06 07 08 09 10 11 12 13 14 15 16 18 20 22 24 26

If you want to choose your own time constants: time constant = 6000/WPM = 1200/BPM.
The displayed values will be the BCD values of the time constants.

Patch #3 : Your call sign as power-on display

The content of the display after power-on is stored backwards into 6 bytes from \$30 in a special display code. All 6*7 segments are freely programmable. You have to experiment here a little bit, because of the limited number of possible alphanumeric characters on 7 segment displays.

Display-Code:

6	---	
		Every segment is assigned to one bit:
1	5	
	0	segment number
---	---	e.g. 76543210
		00111101 \$3D d
2	4	00111011 \$3B H
		01110000 \$70 7
---	---	01110111 \$77 A
3		00111101 \$3D d
		00000101 \$3B r

The resulting call dH7Adr will be stored now as follows: \$30 05 3D 77 70 3B 3D
A Table with numbers from 0-9, C and a two-part W is stored at address \$184 to \$191. This table will be used for general display.

From G QRP-L list on Internet via Peter Zenker DL2FI

The FROTH 10MHz 1 Watt Transmitter

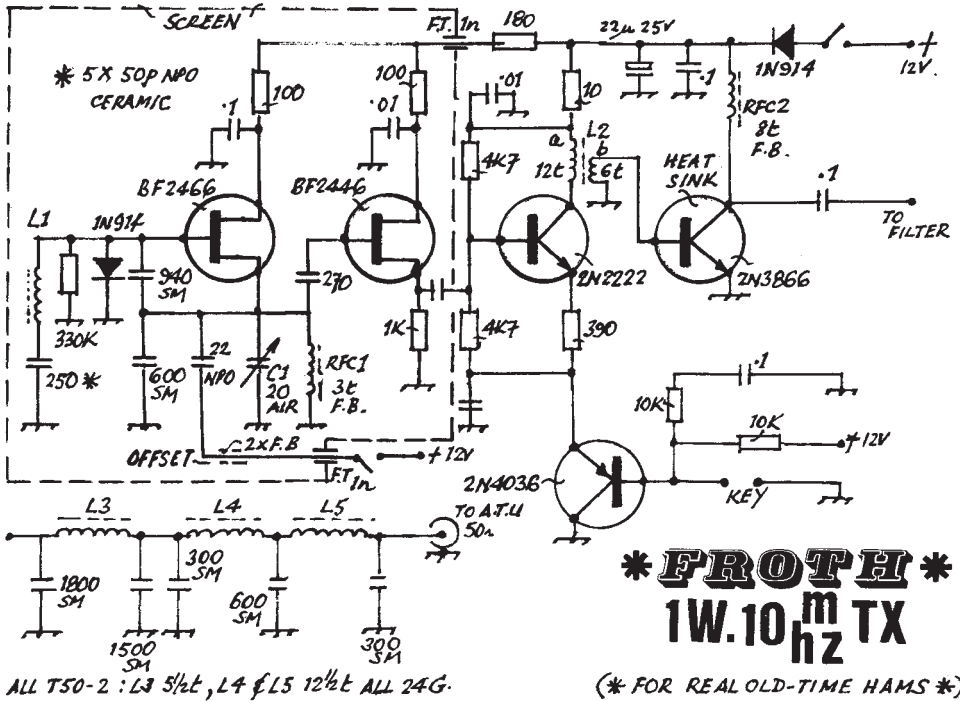
Owen Davies G4VPF, 16 Central Way, HORNINGLOW, Burton -on - Trent

Following failures with other QRP transmitters, this circuit, drawn heavily from K8IF and W1FB, has proved successful. The offset circuit looks rather naked but it worked for my version. It gives an offset of some 5KHz when used with my R-600 receiver.

The only problem in the construction was adjusting L2 for the required PA output. Adjusting L2 should produce at least 1 watt of output. The prototype was built on a double-sided PCB breadboard divided into 20 squares.

As I live in Burton-on-Trent, brewing town, it is called the Froth.

- L1 - 9 turns 24swg on 1/4" dia. slug tuned former
- L2a - 12 turns 26swg PVC covered wire 1/4" dia slug tuned former
- L2b - 6 turns 26swg PVC covered wire over L2a



LOOK OUT FOR G QRP CLUB OVERSEAS

The Club will be at Dayton and Friedrichshafen

The G QRP Club will have a booth at the **Dayton** Hamvention with G3RJV, G0BPS, G4WIF and G3MFJ. We will also be present at **Friedrichshafen** with G3RJV and special guest W7EL. Come and find us at both events. Offers from members to work for a little time on the G QRP Club stands at these events would be welcomed by G3RJV.

FLOAT CHARGED BATTERY AS A POWER SUPPLY

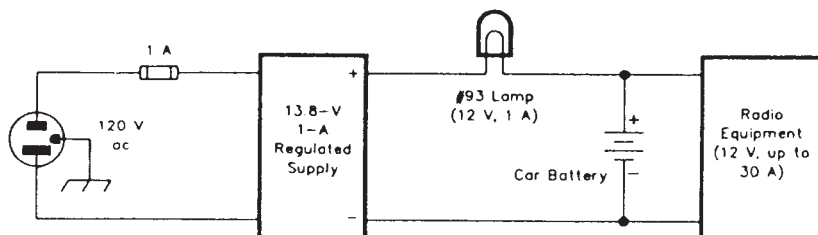
Michael Covington N4TMI (From QST March 1992)

You can safely float-charge a 12-V lead-acid battery indefinitely. This keeps the battery fully charged without overcharging it. Because float-charging doesn't require nearly as much current as a 100-W MF/HF transceiver, you can power such a transceiver from a battery that's float-charged by a supply incapable of running the transceiver on its own. Wanting to avoid having to disconnect my charging supply every time I operated my rig from a battery, I needed a circuit that would automatically ensure that the battery supplied the additional current demanded by the radio. In other words, needed a current limiter between the power supply and the battery. I spent a couple of evenings trying to design a solid-state current limiter. (The foldback limiting built into 7800-series three-terminal-regulator ICs won't do, because it actually cuts off output current. I needed a circuit capable of limiting current at a safe, constant value greater than zero!) Finally, I realised that a component with this characteristic already exists: an incandescent lamp!

The resistance of a #93 automotive bulb is 0.8 ohms cold, 7 ohms hot. As long as the current flowing through is small, the lamp's filament exhibits very low resistance. When the current increases, the filament heats, and its increasing resistance limits the current-in m application, where the source is a regulated supply-to about 1 A. The battery recharges when the radio doesn't draw much current.

Fig A shows the simplest possible circuit, and Fig B shows the circuit that I built for the WA4BKF repeater. Two metal-oxide varistors (MOVs, Z1 and Z2) protect the repeater from lightning-induced surges. A silicon diode (D1) keeps the power supply's bleeder resistors from discharging the battery in the event of a prolonged power outage. To compensate for the diodes 0.6-V drop, I adjust the power supply output to 14.4 V. At this voltage, two #93 bulbs in parallel (DS1 and DS2) limit the maximum current into a dead short to 2.1 A.

In normal use, the lamps do not pass enough current to light up, so they should last practically forever, (When they do light, though, you know they're doing their job!) Rather than use sockets, I soldered them in place to keep system resistance to a minimum.



A User Report on the "Insect Filter"

Gus Taylor, G8PG and Peter Barville, G3XJS

At the request of its designer supplier, Stuart Dodson, G3PPD, G3XJS and G8PG, members of the Project Frequency Band Team, each built and tested the device

The CW version consists of an input matching device, stepped attenuator, variable bandpass electronic filter, output attenuator, amplifier, and output matching device. Switched input/output impedance of 8 or 600 ohms is provided. As supplied the operating range is 750 to 850 Hz. By wiring a small 50K linear pot. In series with the existing frequency control this can be extended down to about 450 Hz, allowing the unit to be used with the W3NQN LC filters. The bandwidth can be controlled between 100 Hz and 10 Hz, although the circuit may sometimes ring below 25 Hz. Power requirements are 12V dc at 100 mA. The kit supplied is very comprehensive, including hardware and an 8x3x6 inch signwritten cabinet. The only thing missing was a stocklist, but this is being attended to. The assembly instructions were somewhat voluminous, but this again is being looked at by the supplier

As far as commissioning the unit is concerned, three options are available, namely to buy the unit fully assembled, to assemble the PCB then return it to G3PPD for commissioning (at no extra cost), or to commission the unit oneself, which requires test equipment. G8PG had the PCB commissioned by G3PDD, and G3XJS commissioned it himself, using his test bench. The one problem with this unit is that it has been wrongly titled. Although it has a fairly sharp peak in the narrow position, the skirt selectivity is quite broad compared with (say) a W3NQN filter. Its function is thus that of a signal enhancement device rather than a very selective filter. Used for this purpose it will often lift very weak signals out of the noise and let them be read comfortably. Despite this G3XJS was not too impressed by the "Insect" feeling that it will be overtaken by the new generation of digital filters (which cost 3 to 5 times as much as the "Insect"). G8PG on the other hand used it after a W3NQN filter and has been very satisfied with it. Others have given the device some very good reviews, especially in Germany, and many have been sold in mainland Europe. The latest twist is that at least one American customer is using it after a digital filter to improve the performance of the latter!

One feels that in submitting his device to the Project Frequency Band team for tests under two-way QRP conditions Stuart was putting it to the ultimate test, and the "Insect" met it, with the proviso that it is used after a good sharp filter such as the W3NQN. One big deficiency of the unit is, however, the fact that one has to switch it out manually when going from receive to sent, and that if you forget to do this when wearing phones you almost have your head blown off by your own signal. Stuart is currently working to overcome this problem.

Prices are CW kit £50, CW fully built £65, computer kit £60, computer fully built £75, plus £5 postage UK, £8 postage Europe, £12 postage elsewhere.

Orders to G3PPD, The Haven, Lound Rd, Blundeston, Lowestoft, NR32 5AT.

USING THE FT990 ON QRP

Rick Kerr, KA8EGS, 1516, Broad Blvd, Cuyahoga Falls, OH 44223. U.S.A.

Owners of the Yaesu FT990 who would like to run QRP can use one of these two options. As shipped from the factory, the lowest power setting is about 10 QRO watts.

OPTION-1:

For operators who would like to run QRP SSB or AM, record the setting of the MIC GAIN control in each of these modes at full RF power. On my rig, these settings are at about 11 o'clock for SSB and 9 o'clock for AM. Microphone gain for the FM mode is preset at the factory. At reduced power, ALC voltages will increase and cause the meter, in the ALC position, to reflect beyond the ALC range. This is normal. Do not readjust MIC GAIN after reducing power. The RF speech processor (FSP) can be touched up when operating at QRP. Now remove the top cover of the FT990. This involves removing 8 screws on the cover plus 2 screws holding the carrying handle. This is the most difficult step in this modification. Even after removing the screws, the top cover fits very snugly into the front face plate of this rig. All FT990 owners who have removed this cover to install the optional IF filters will be aware of this problem. Once the cover is removed, locate the RF board, which is next to the speaker. Now locate potentiometer VR-10717 FWD, on the top of this board. Rotate this pot full clockwise. This puts the radio's output into a range of about 1.3 to 13 watts. Although this is not totally in the QRP range, it does make the radio QRP manageable. It will also save those QRP wattmeter movements and cut down on burning holes through the ionosphere with 100 QRO watts.

OPTIONS-2:

(This option from C.H. Margelli, Customer Service Manager, Amateur Products Division, Yaesu USA)

All factory adjustments stay the same, but by changing one resistor on the RF board, the rig will now operate in the QRP range and still return to 100 watt full output. Remove the top cover as mentioned in option-1. Remove the RF board and locate resistor R-1166 on the chip/components side of this board. Change R-1166 to a smaller value (it currently is 1000 ohms, and you'll want to change it to about 270 ohms or thereabouts, depending on the exact low power limit you want). You can use a 1/8 watt carbon operation.

I would advise all QRP operators to drop Yaesu or anyone of the other manufacturers a letter encouraging them to produce some of their favourite rigs in QRP format.

CUTTING HUM IN THE HWA7-1 POWER SUPPLY [AND OTHER SUPPLIES]

Fred Bonavita, W5QJM, PO Box 2764, San Antonio, Texas, 78299.

Here is a cheap, easy and effective way to reduce the common-mode hum problem associated with the venerable HWA - 7 - 1 power supply that Heath sold years ago for its popular HW-7, -8, and -9 series of transceiver kits.

Many of these simple power supplies, which were an optional item for the transceivers, are still in use in fairly large numbers, and it's not uncommon to see an HW-7 or -8 for sale with the matching HWA-7-1 power supply. Heath used essentially the same circuit but in a different package for the HW-9 transceiver before the company quit making ham radio kits a few years ago.

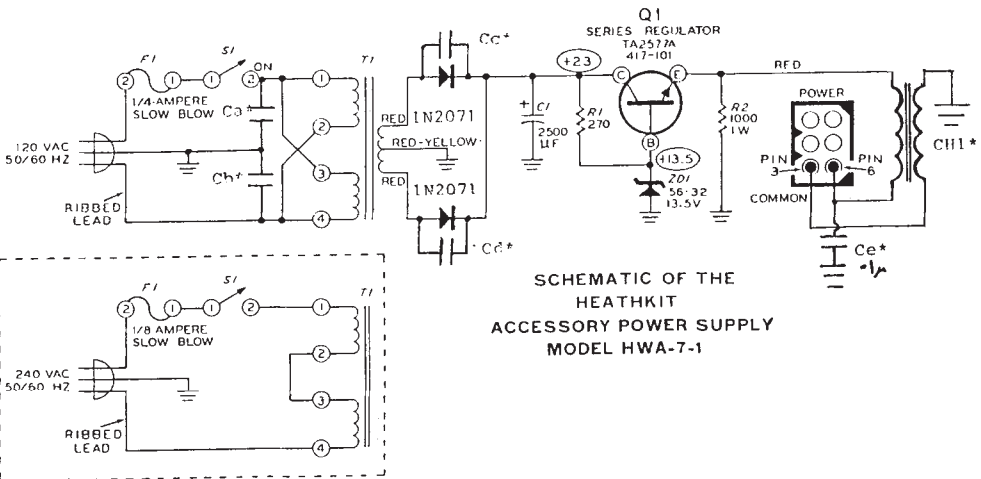
Because of its compact size, light weight and adequate capabilities (about 1 ampere can be pulled from it without straining the components or hurting the regulation), the HWA-7-1 is an ideal power supply for the QRPer. However, as can be the case with ac-operated power supplies for transceivers with direct-conversion receivers, common-mode hum can be a major problem.

I claim no originality for this approach to curing it. Rather, it is a variation on a repeated theme by Doug DeMaw, W1FB, and first encountered in his "QRP Notebook" (1986, ARRL) at page 42. It contains a complete explanation of what is being done and why, and it is recommended reading.

The improvements I made required only a handful of components, the most expensive of which is the FT-114-43 ferrite toroid core from Amidon at \$2.25 each. DeMaw recommends the slightly small FT-82-43 ferrite toroid in the filter of a 3-amp power supply, and there's no reason that could not be used here. The wire in that case is a bifilar winding of 12 turns of No. 18 enamel. See W1FB's "QRP Notebook" (ARRL, 1991) at page 153.

The 1,000-volt rating on Ca and Cb is to cope with possible line-voltage transients. If the original 2N2071 diodes need to be replaced, 1N4001s or 1N4002s should work.

* New Components: Ca, Cb = 0.01, 1000v, Cc, Cd = 0.01, 100v, CH1 = Parallel Winding 20t of # 20 enam. on FT-114-43 core



LOOK AT YOUR ADDRESS LABEL: It will end with a number - if that number is "96" you are paid up to date... if not, this will be your last SPRAT! If it says "1996" it means you are paid BUT have only paid at the old rate (£5) The new rate is £6, so please send us the extra £1.

"FOUR DAYS IN MAY" - UPDATE

"QRP Amateur Radio Club, International (QRP-ARCI) proudly announces the first annual QRP symposium to be held on Thursday, May 16 1996 - 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."
(SPRAT 85)

The first annual QRP Amateur Radio Club, International (QRP-ARCI) sponsored "Four Days in May (c)" QRP Symposium is shaping up to be the Top QRP event for 1996. From our first announcement in November 1995 the FDIM committee is happy to announce the following exciting updates:

- **EXCLUSIVE:** The Four Days in May (c) Committee has secured exclusive rights for the premier of a new and exciting QRP Technical Book. We don't want to divulge more at this time but let it be said that this book will become a classic in the QRP community. To augment this book introduction we have booked a special Symposium presentation by the author and the sponsoring QRP club publisher. ALL "Four Days in May (c)" attendees will receive an autographed copy of the new book as part of their registration fee. Again, this offering is an exclusive to the QRP Symposium attendees.
- **QRP SYMPOSIUM PRESENTERS:** Bruce Muscolino W6TOY/3, our FDIM Technical Paper Chairperson, has commitments in hand from seven dynamic and talented QRP presenters. You will not want to miss these presentations. Although the QRP Symposium Proceedings will be available for sale after the event there is nothing like the live presentation with the spirited question-and-answer period. The FDIM attendees will receive a special copy of the QRP Symposium Proceedings as part of their registration fee.

On a separate note, Bruce is still looking for additional authors and presenters to fill the roster. If you are unable to make a presentation but would like to have your paper considered for publication in the QRP Symposium Proceedings please contact Bruce at his email address: BRUCE3900@delphi.com. Author "kits" are now available from Bruce and will be mailed out to all potential authors.

- **LUNCHEON SPEAKER:** Paulette Quick N9OHU, our FDIM Registration Chairperson has lined up a scrumptious luncheon for ALL QRP Symposium attendees. This will be a sit down affair complete with a surprise luncheon guest QRP speaker. We aim to fill each Symposium attendee with some QRP "food for thought". Once again, the luncheon is an exclusive for the FDIM attendees and the cost is included in the registration fee.
- **REGISTRATION FEE:** Registration for the QRP Symposium will be \$30 if prepaid to Paulette N9OHU by May 1, 1996 and \$35 if paid after that date or at the door. We may have to limit May 16, 1995 at-the-door registration if we are sold out of facilities. So please register early to guarantee a seat at this not-to-be-missed QRP event. Registration will cover a full day of QRP Symposium activities which include the QRP presentations, the exclusive autographed QRP Technical book, the QRP Symposium Proceedings, the scrumptious QRP luncheon and finally an endless QRO coffee pot.

Please send your \$30 (US cheque, money order) FDIM QRP Symposium Registration fee by May 1, 1995 to: Paulette Quick, N9OHU, FDIM registration, P.O. Box 145, Madison, WI 53701-0145. U.S.A.

"THE STORY OF THE KEY" Louise Ramsey Moreau W3WRE. (The Best of MM - Volume 1)

An authoritative 6 part series reprinted from *Morsum Magnificat*, the Morse Magazine. Louise Moreau, a highly respected telegraph historian and collector of keys, died in 1994 and this book is dedicated to her memory. The book describes the development of the Morse Key beginning with Alfred Vail's "Correspondent". The book also includes an alphabetical list of *American Telegraph Instrument Makers from 1837 to 1900*. The book is an invaluable source of reference to key collectors and key users.

60 pages xA5 soft cover format with over 75 indexed photographs. Available direct from: G.C. Arnold Partners, 9 Wetherby Close, Broadstone, Dorset. BH18 8JB. UK. £3.95 post free to UK address. \$4.25 to Europe, rest of the World £4.25 surface mail or £4.75 airmail. Orders by Credit Card - Access, Eurocard, Mastercard or Visa - phone or fax to 01202 658474 (overseas +44 1202 658474)

STOP PRESS - To be available on the G QRP Club Booth at Dayton

The QRP Fun Run 1996

In conjunction with the 12th annual Yeovil QRP Convention.

Tuesday 7th May to Friday 10th May. 8.00pm to 10.00pm UK clock time

Frequencies : 3560 and 7030 kHz +/- 10kHz

Contacts must be between QRP stations (5 watts RF out or less)

Call : "CQ FR" Exchange : RST serial number, output power, name.

Serial Numbers : a three figure number must start at a random number of your choice over 100 and incremented by one for each QSO throughout the whole contest.

Scoring: Each QSO with another QRP station counts as 10 points, each QSO with Fun Run "bonus stations" G0KZO and G3XUO scores 25 points. Each QSO with the Yeovil Club Fun Run station, GB2LOW, scores 50 points. All duplicates must be marked and no points claimed. Points will be deducted at twice the QSO value for unmarked duplicates.

Entry Sheets: Separate log sheets for each band, with sub-totals of each evening, preferably in RSGB format. Also a separate signed RSGB style cover sheet stating output power, rig and antenna used. Send entries to : G3CQR, 9 Quarr Drive, Sherborne, Dorset. DT9 4HZ to arrive not later than Thursday 16th May 1996.

Awards: certificates for the highest score on each band, the highest overall score, and the station consistently using the lowest power will be presented at the convention on 19th May.

SW Listeners: the club will award a certificate to the SWL who submits the most comprehensive report.

Note : in addition to the GB2LOW bonus station, this year's other two bonus stations were selected from amongst last year's leading stations. This provides variety and geographical spread of bonus stations and will be continued in future years.

The Yeovil QRP Convention is on Sunday 19th May at Digby Hall Sherborne.

Details may be had from G3CQR at the address above on 01935 813054.

CAN YOU SCAN IN SPRAT?

Recently we have had an offer from a member for the possible transfer of the whole collection of back issues of SPRAT onto CD ROM. The simplest approach would be to scan all the back issues and save them in a PC format. Is there a member who has the facilities to do this? If so, could you please contact G3RJV and we can discuss method, expenses etc.

G QRP CLUB MEMBER WINS TECHNICAL AWARD.

Chas Fletcher, G3DXZ, was awarded the Courtney Price Cup by the RSGB Technical and Publications Committee for the most outstanding technical article in RadCom for the year ending June 30th 1995. The article was "80 - 30 metre Switch-Mode CQ PA".



THE QRP CLUB OF IRELAND : EI2QRP

A NEW AND GROWING QRP GROUP

WHICH INVITES NEW MEMBERS WORLD WIDE

FOR DETAILS OF HOW TO JOIN WRITE TO.

Bill Ryan, EI8BC, c/o Marino Institute of Education,
Giffith Avenue, Dublin 9. Ireland

THE G QRP CLUB ANTENNA HANDBOOK

HOW QRPERS WORK THE WORLD WITH UNDER FIVE WATTS

THE COMPLETE COLLECTION FROM SPRAT - HAVE YOU BOUGHT YOUR COPY YET?

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"

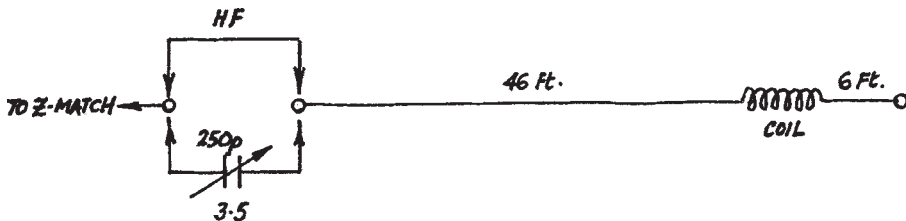


Figure 2.

TEN THOUGHTS ABOUT ANTENNAS

1. It is the current that does the work. Always try and get the high current portion of an antenna as far above ground as possible, and avoid bending it.
2. A coaxial fed half wave dipole should always be carefully resonated with the aid of a dip meter. An end fed half wave, on the other hand, should be made a metre or so longer or shorter than the resonant length, as this provides an easier feed point impedance.
3. At DX the signal from an antenna 20m high will normally be at least 6 dB up on an antenna 10m high. (This should be compulsory learning for all planning officers and XYs !!!)
4. If you want to get the maximum amount of wire into a given area try a loop.
5. A doublet will only be truly balanced if each half is individually trimmed to the required frequency.
6. This also applies to a groundplane. Connect each radial individually to the top and resonate the system, then connect all four to the top.
7. If you want to get the current in a vertical as far above ground as possible, use a T antenna fed at the bottom via an atu.
8. A simple, end-fed, multi-band antenna which requires no ground connection and matches easily is the W3EDP (84ft with a 17 ft cps.)
9. If you find any antenna giving "rf in the shack" on a particular band, cut a quarter wave counterpoise wire for that band, and connect it to the ground terminal on your rig or atu.
10. Be proud of owning and knowing how to use a good atu such as a Z-match. This will allow you to load a whole range of antennas with maximum ease.

BT MIGHT LIKE TO KNOW that their 3.5 MHz stations GKEL and GKY8 are being regularly received in the Mid-west of the USA. One feels they could profitably reduce power a bit.

GOOD WISHES TO THE NEW VU QRP CLUB. (Secretary K.P.S. Kang, VU2KLA, 301/2 Nandi Colony, Khanna-141 041, Punjab (North), India.)
We are already supplying them with technical advice.

MOA SHORT SLOPER - ADDRESS CORRECTION. Amend street and number to read Pfaelzerwaldstr 61. Max's first QSO of 1996 was with G8PG who was able to sample the big signal from the Short Sloper. It really does work well !

APOLOGIES TO Gwovwm converted to GMOVWM in a recent Award announcement. Sorry OM.

OUR THANKS TO GARRY , GM3MQO for providing the Collins receiver circuit info requested by Angel, LZ1SM.

THE ABSENCE FROM THE AIR OF MEMBER 002, Nick, G2NJ, has been caused by a broken wrist. Despite being probably our most elderly member Nick hopes to be back soon, and is doing much listening to keep up his morse speed. We all say "Get well quickly,Nick!"

ENAMELLED COPPER WIRE for coil winding or making "invisible antennas" is hard to find. If anyone knows of a reliable supplier please let G8PG know so we can publish details.

AWARD NEWS

QRP MASTER.We welcome DL9GTI and DL9CE to the Worshipful Company.

QRP WAC. UU4JMJ (ex-UB5JMJ).

QRP COUNTRIES. 150 G8PG; 125 G2DAN; 75 DL9GTI,DL9CE;50 SP9NLI; 25 GOTUE, ON5SE, OZ1BXM.

WORKED G QRP CLUB. 360 GOTDK; 340 GoNEZ; 320 G4NBI,GoKCA; 200 GW3SB; 160 GoKZO,G3HZE;100 G3KCJ,G4EIB,GoSWU.60 WJ7H, GoRVT,Gi4SRO; SP9NLI, F6EQO,40 G3YHF,Gwovwm,GoWOU, 20 IKoVSV, DHoJAE, GW3VLU.

TWO-WAY QRP. 60 G4MQC. 30 G4NBI,.20 SP9NLI,G3YHF,G4GJY,G3BMO. 10 ON5SE,Gi4SRO, Gwovwm.

CW NOVICE. Issued to date 117 Class A, 209 Class B,total 326. Joint EUCW/G QRP Club Award. Work 50 different stations on cw during first six months of holding licence. Send log extract certified by another licenced amateur to G8PG with three 1st class UK stamps or 3 IRCs. Class A 5W or less (needs power declaration.)Class B any licenced power.

MORSE SPEED IMPROVEMENT TAPES (FOR THOSE WHO HAVE ALREADY PASSED THE TEST) Can be supplied in small quantities. Send two C90 cassettes and adequate return postage to G8PG. offer applies to EEC countries only. Tapes cover 14 to 20 wpm. If you have any morse learning problems G8PG may be able to give you advice.

WE ARE NOW AT THE VERY BOTTOM of the sunspot cycle. Conditions are not good, but any future change should be upwards. This part of the sunspot cycle separates the men from the boys. Happily most QRP ops fall into the former category !

COMMUNICATIONS AND CONTESTS

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

WINTER SPORTS

George has kindly given me more space so that I can do justice to our premier activity event. Thanks to all who participated especially those who sent in logs. I particularly enjoyed reading your comments and kind remarks and I hope you will accept this as my thank you letter.

Just to repeat, this is not a contest but a fun get-together, hence there are no rules. However we do like to recognise people who we feel made a special contribution to the event. Therefore certificates have been sent to:

EA7/EA3FHC for the log with the most contacts, 60 QRP and 20 QRO QSOs. Miguel as you may know is a driving force behind QRP activity in Spain.

G3LHJ. For giving a lot of people a lot of pleasure.

W3TS. For the highest scorer in N America and for his continual support of WS.

HP1AC. For support from S. America.

OK1DZD. For his milli-watting activity.

GOPCF. For SSB activity.

Some explanation about the results table. (*See next page*) It is in order of claimed scored and includes QSOs with QRO stations. This good ambassadorial work and of course is a tribute to your ability to work stations. While this is QRP event, and everyone plays the game by trying to work other QRP stations, due tribute should be made of the fact that in the course of normal operating one does work QRO stations.

The power column shows the typical power used. Some people used differing levels, I have chosen the one that seemed to describe best their activity. I hope this does not cause any upset. If you just said QRP the column is blank.

Countries worked. I have divided this between European and American logs and to make it more meaningful I have given prefixes where appropriate.

Equipment used. This covered the whole range from home brew through to QRO with the wick turned down. However the HW-8 appears to be falling in popularity. As usual most people were using simple aerials.

I very much regret that no SWL logs were received. Bill who is a stalwart wrote to me to explain that personal circumstances kept him away this year but promises to be back next year. I have had my ear bent for not stressing that SSB is also part of WS. Apologies for this and also for not including VHF. To date these are areas where there has not been too interest but we are considering them.

CHELMSLEY TROPHY

Very few entries but all of high quality. The very worthy winner is GM4CFS with 1318 QSOs. He also managed to get on the air from Sicily, Gibraltar and the Falmland Islands. It is good that we have such roving ambassadors for QRP.

DROWSY BEACON

A number of people have commented about QRM from this source. We have taken this up with DARC who tell us that the beacon can be shut down at times of high band activity. We have asked them for the procedure to make this happen for our contests.

QRP CONTESTS AND ACTIVITY

I have been asked why I have not included certain contests in the QRP Calendar. The answer is simple, nobody told me about them!! I am always happy to publicise QRP events. However please note I have deadlines. To get it in the QRP calendar I must have the information by the end of October. Other deadlines are start May and start July. Where possible I will give brief details to enable interested parties to participate.

OK-QRP ACTIVITY

The third Friday in the month 2200-2400z.

WINTER SPORTS 1995

CALLSIGN	TOTAL	160	80	40	30	20	17	15	PWR
EA7/EA3FHC	80				8	72			3
G3LHJ	60		33	2		25			1
G3XUO	54		39	4	5	6			5
G3JNB	54		24	15	3	12			
DL1VAN	53		51	2					3
GI4PCY	52	1	39	3		9			4
GW3SB	48		32	3	12	1			
W3TS	47	1		1		43	2		5
PA3BHK	46	2	21	13	4	5	1		3
G3XJS4S1	41		15	5	4	17			3
SP9NLI	41					41			
DL1JDT	37	1	25	9	1	1			5
SP6GB	36	11	4		2	19			3
K2JT	36	1	3	3	11	11	6	1	5
I7CCF	35					35			5
LA3CG	34		8	7		19			5
G8PG	32		19	2		11			3
GM4XQJ	29		1	9		19			3
OK1DZD	27		9		3	15			0.98
G3ZHE	27		27						5
G3BPM	27	17	10						3
G3MWF	26			25		1			5
G3HBN	24	1	5	8	6	4			5
OK1BMA	23		13			10			
G3KKQ	22		14	1		7			4
HPIAC	22					22			
G0TYM	22		7	3		12			4
PA0RBO	21		21						2
W2JEK	21	1	4	4	2	6	2	2	2
G4JFN	19		19						5
IK0VSV	18					18			3
W4/G0FSP	18					18			5
I7FFE	18					18			2
VE3ABT	18					18			
GMOGNT	17		5	6	6				
G4ZME	16		1	15					
G3ESP	15		12	2	1				4
G0KRT	10	1	6	3					5
G0ILN	10			10					5
G0PCF (SSB)	7		6	1					
IK7MXD	6		1	1		4			
EA7HDW	6					6			4
TOTAL (43)	1291	21	484	178	71	515	18	4	

Prefixes appearing in European logs: 4N1, 8P6, 9A, 9H1, CT, DL, EA, EA6, EA8, EA9, EI, ES, F, G, GD, GI, GJ, GM, GU, GW, HA, HB, HP, LZ, I, LA, LY, OE, OH, OH0, OK, ON, OZ, PA, RZ9, S5, SM, SP, SV2, T91, UA1, UA2, UA3, UK8, UR5, VE2, VE3, W1, W2, W3, W4, XM3, YO, YT7, YU.

Prefixes appearing in American logs: 8P6, DL, F, FM5, G, GI, GM, HB, HP, I, LU, OA, OE, OK, ON, PA, SM, VE2, VE3, VO, W1, W2, W3, W4, W5, W6, W7, W8, W9, W0, ZF2.

YEOVIL

Don't forget, the Fun Run, Convention, and challenge.

AGCW-DL-QRP PARTY

Yearly on 1 May, 1300-1900z, 3510-3560, 7010-7040 kHz.

Exchange RST, Serial/A, e.g. 579 023/A

Send me SAE for full details.

LITHUANIA 1996

The Baltic DX Group will be operating from Palanga in July.

Estimated cost £200 for 10 days including room and three meals/day. If you want to have a low cost holiday and enjoy some radio contact Dave G0BZF, QTHR, Tel: 01932-566435 for more details.

10 MHz QRP FREQUENCY

Thanks to G0BZF I have been getting a lot of Internet comments about 10.106 MHz.

Please re-read my comments in SPRAT 85. There does not seem to be any problem with operating just HF of 10.106 MHz.

72 : How and What ?

After the Winter Sports, several newer members asked about the origin and meaning of "72" exchanged between QRP operators. As I recall the idea came from a Russian member who suggested that 72 in place of 73 was a suitable goodwill greeting between *those who need less*.

NOVICE NEWS Steve Ortmayer G4RAW

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

G QRP Club member Walt N1CJB in Meriden CT USA is looking for skeds with UK Novice Stations so if you fancy crossing the "Pond" here is your chance. Walt is at PO Box 3111 Meriden CT 06451 or Packet N1CJB @ WINRG, CT, USA, NA.

Still no news about the extra frequency allocations for Novices. The Beaucroatic wheels seem to grind very slowly. Jim G0FVS would like to see Novice Morse training on 2M Jim would like to help novice members improve their Morse with QSO's on 2M. So let's hope for some action on this matter soon.

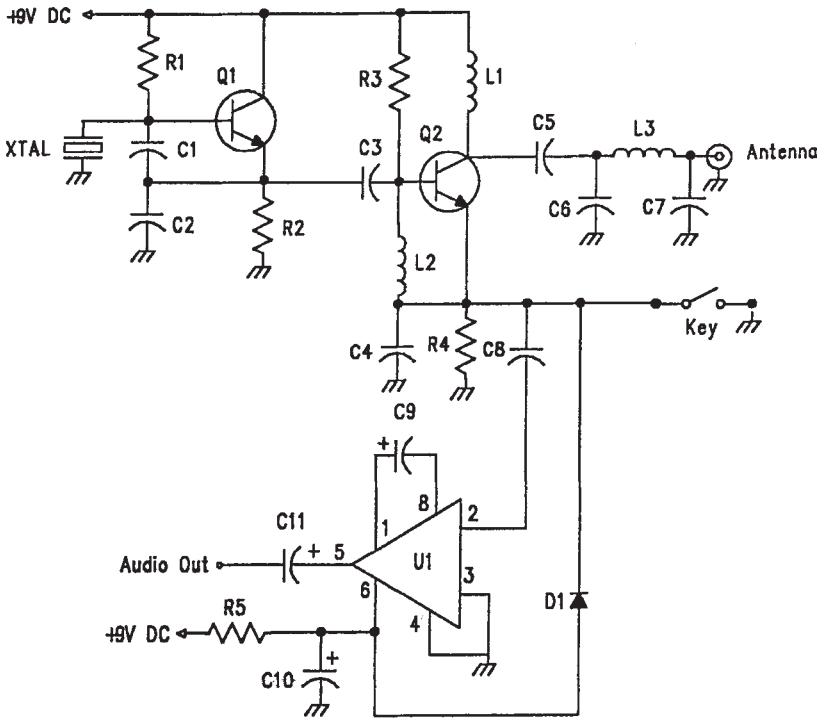
Yeovil Amateur Radio Club are holding their QRP convention on 19 May 96 and as last year there will be a Novice stand so why not make a trip to the Convention or better still contact the Yeovil Club and offer to help! Under 18's in full time education are free. Details from George G3ICO Tel 01935 25669.

John was 2E0AJN and in now GOWUV so well done John I hope you enjoy your new call. John asks about building simple transmitters like the Universal QRP TX and not getting much power out. John has checked the Xtal Osc' and that is OK. I would suggest trying different PA transistors (providing the wiring checks OK) I have always been surprised how you can have two similar transistors and one will give very little RF and one a healthy amount in the same circuit.

Pixie 2... I have just had two QSO's on 80m with Pixie 2 a very simple microtransceiver I found in OK QRP INFO the journal of the OK QRP Club. The design comes from the NorCal QRPP Journal by WA6BOY. For Q1 I used a plastic 2N222A and for Q2 a 2N4400 for L3 I used 27 turns 28 swg on a T37-6 Toroid. The little rig gave 500mW out and my first QSO produced a 579 report from Oswestry!!
(The Pixie is based on the Micro-80 by RV3GM in SPRAT 72 - G3RJV)

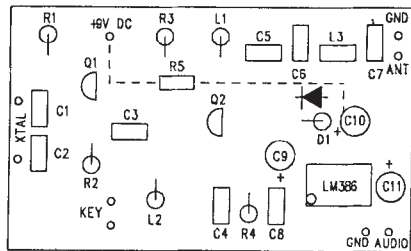
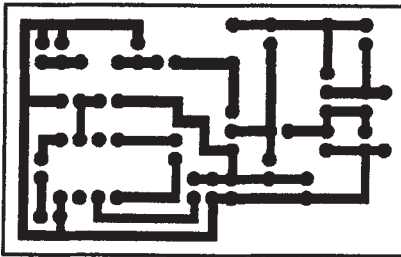
Is this the end of civilisation as we know it?? I heard a trader at a recent rally say "I don't bring components anymore nobody buys them!

That's all for now please keep sending me your news and views.



Parts List					
C1,2	100pF	C9,10,11	10uF/25V Elec	R1	47K
C3	82pF	D1	1N914	R2	1.5K
C4	.05uF	L1	15 - 22 uH Choke	R3	33K
C5	.01uF	L2	100 uH Choke	R4	10K
C6,7	820pF	L3	40M - 1uH	R5	1K
C8	0.1uF		80M - 2.2uH	U1	LM386

Fig. 1 Pixie 2 Schematic



The PIXIE 2 : An Update by WA6BOY

Reproduced from QRPP June 1995 (Northern California QRP Club)

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

The SSB news has been rather lacking in the past couple of issues, this is based on the amount of news I get from you the members, Since the autumn - nothing at all has crossed the desk. To offset this lack of activity I suggest that we have an activity time. A contest, of which the rules are very simple

S S B A c t i v i t y T i m e

Every **last Sunday in the month**, operate for **any one hour** on SSB at QRP levels, i.e. **10 watts out**. The hours activity can be any one hour during the day. But no splits. Any band, no restrictions other than mode and power. Exchange reports, club membership number, name and location. i.e. town, village etc.,

Scoring is going to be difficult at 10 points for a two way QRP contact with another G-QRP club member. 7 points for a two way QRP contact with a member of another recognised QRP club. 5 points for a two way QRP contact with a non club member and 1 point for a contact with any QRO station. (if the other station is a QRP club member but at QRO levels only 1 point can be claimed.)

The contest will run from the last Sunday in April (you should have this by then until the last Sunday of December, a new contest will start in January. Entries to me by the end of January 1997. The judges decision will be final.

Your comments on activity, stations worked will be welcomed.

Just to remind you of the SSB frequencies: 1910, 3690, 7090, 14285 & 28365 Try calling CQ-QRP often.

Hopefully this will generate a bit more interest on the mode, I hope to join you soon but have just sold almost the complete station to buy some land. An HW9 remained though.

News and views on any SSB matter to me please at any of the addresses above

VHF MANAGER'S REPORT

John Beech, G8SEQ

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

This last quarter has seen a rather mixed mail bag. Firstly there has been an exchange of ideas between Gerald, G3MCK; Dave, GØDJA, myself and Dick GØBPS about contests. Dave was wondering why the Winter Sports is restricted to CW & HF only. Gerald seems to think it is historical and I would agree.

Dave pointed out that this excludes a lot of novices who are not allowed access to some of the bands and of course all Class B's. Gerald thought that scoring might be difficult if VHF were allowed, but I don't see that as much of a problem - just score VHF the same as HF. The 2m band is comparable with 3.5/7 kHz (in daylight hours anyway) and if there is a good opening, 6m will outperform nearly all the HF bands. I wonder what the rest of you think? If you want a contest/sports/fun run I don't mind organising and adjudicating it, as long as you tell what your preferred format is.

Talking of 6m, Chris G3TUX has some Wood & Douglas end of lines to sell. They are ready built modules:

RX converter 50 - 28 MHz	6XR2A	£24.50
RX pre-amp 50 MHz	6PA4A	£10.00
TX Power Amp 50 MHz	50FM10A	£24.50

The latter are minus the heatsink and are 12W out for 1W in FM/CW only, but having looked at the circuit and a sample it wouldn't be too difficult to make them into a 10W linear for SSB use. The modules are available from: G3TUX, The QRP Component Company, PO Box 88 Haslemere GU27 2RF. Tel. 01428-641771, Fax - 661794.

Still on 50 MHz, I have just received a batch of QSL cards, most of which were for 50MHz SSB contacts some over 2 years old! Dave G0DJA informs me that there is an occasional beacon on 50.275 MHz transmitting on the hour, every hour from 20.00 Fri to 20.00 Sun, sending time of TX e.g. 14z de G4IFX 14z de G4IFX. This beacon is operated by Chris from Darlington, NE England.

TIP FOR THE NEWCOMER: Well my antennas seem to have survived the recent snow storms and high winds, but as soon as the weather gets better I will check them for corrosion. For waterproofing dipole centres on VHF/UHF antennas I use battery terminal grease or Vaseline, though it tends to ooze out in hot summers. If the antenna is on the ground, it is probably better to run in some beeswax with a blow lamp. I also grease the mating surfaces where the antenna elements are clamped to the dipole centres. A light smear of grease on connectors before wrapping them in tape is worth while, because if water gets into the coax, you may as well scrap the whole length.

FROM THE MEMBERSHIP SECRETARY

John Leak G0BXO, Flat 7, 56 Heath Crescent, Halifax. HX1 2PW. Tel: - 01422 - 365025

Thank you to members for prompt subscription payments. Thanks also to those members who sent extra contributions to club funds.

Please remember that we do not issue receipts unless we receive an SAE. Your receipt is the updating of the subscription code on your SPRAT address label. For example, the code '96' means that your subscription is paid until the end of 1996.

Please remember also that there is a time delay of 4 - 5 weeks between the printing of the address labels for SPRAT and the despatch of SPRAT.

Please write or telephone if you think we have made a mistake

BUT PLEASE QUOTE YOUR CLUB NUMBER AND CALL SIGN

CHANGE OF ADDRESS

Please remember to tell us if you change your address. Each quarter, a number of copies of SPRAT are returned to me by the Royal Mail as undeliverable because the addressee have moved. Please remember changes take time to work through the system.

STANDING ORDER PAYMENTS

Some members have still not changed their standing orders to take account of the new subscription rate of **£6** introduced in 1995. If you wish to continue in membership please amend your standing order for 1997.

Don Watson GW3RJJ : We regret to announce the death of Don, active in radio since 1923, after a life devoted to radio and electronics and making it for himself. I well remember Don manning the G QRP Club stand in Dayton and, although then in his eighties, refusing to take breaks when we younger people took every chance to stretch our legs and calm our minds. He will be much missed by his many friends.

Bert Lawrence G4HTM : Dawson, G3AHS, has informed us of the death of Bert who will be sadly missed by his many radio friends

The New QRP PLUS Transceiver

Index Laboratories have announced a completely re-engineered version of the QRP PLUS Transceiver. With a US price of \$695, the new version has a new receiver design using a custom mixer from Synergy Microwave Corp. for better dynamic range. RF speech processing, improved ALC, wide range AGC, IF noise limiting, improved break-in and iambic keying, general coverage receive from 1.8MHz to 30MHz SSB and CW and all band transmit from 160-10m, SCAF filters (100Hz-2400Hz) low power drain 180mA at 12v and 20 memories...etc. A leaflet can be obtained for an SAE from:

THE QRP COMPONENT COMPANY, PO Box 88, Haslemere, Surrey. GU27 2RF.

G QRP CLUB ON THE INTERNET

If you have an email address and have not indicated this to the club, please send your address to:

Brian@brimar.demon.co.uk

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

My apologies to any of you who may have sent information after the 11th February and are wondering why I haven't used it. I had to write this column earlier than usual as June and I are flying to New Zealand next Tuesday (13th February) and we will not be back home until the 25th March, too late for the SPRAT deadline.

Amongst others, we shall be staying with Mike, ZL1MH, one of the first ZLs to join the G-QRP-Club. In addition to sharing an interest in QRP we are also members of FOC, and so I am really looking forward to sharing Mike's shack for a few days. Mike will be visiting the UK in October and, of course, staying here at Alamosa for some of the time.

Congratulations to GØWOU who has just changed his call from 2EØALN. David has been plagued by the 'fish phone' interference on 3560kHz and asks if other members have been suffering from it, (596 Wolsley Rd., St. Budeaux, plymouth, Devon PL5 1UX.)

Congratulations also to GØWTL on recently obtaining his call after being G7VWK since May. Gary used G8PG's tapes to help pass the Morse test. He has been on the air since the middle of January with a SCD one watt 40m transceiver and W3EDP antenna, and is planning 20 and 80m activity soon.

G4DTI is on the air with a Hands TCX14 CW transceiver and is delighted with it. Fred is only using a dipole at 15 feet and is able to work well into Europe with the 5-6 watts and hear the USA at times. He would like to get in touch with others using thje TCX14, (2 Oak Close, Lyndhurst, Hants SO43 7EF). N1CJB is using an Argonaut 556 and a ground mounted vertical. In December Walt worked PJ2, ZS, LX; GM, F, G, DL, EA8 with five watts and EA, VE and HP on two-way QRP, as well as members G3LHJ and W4GØFSP.

VE7PCC says his local QRP group is closely affiliated with the NORCAL QRP Group and centre mostly around 80m SSB activity. David is working with Laura, VE7LDA, on a direct digital synthesised multi-band rig with LCD display and micro-processor control.



Mladen, 9A3FO, operating from his shack
in Novi Marof, Croatia.

W6ZH has done a lot of mods to his QRP Plus and also on AB6DG's QRP Plus and says they all work well. Pete has discovered a new problem in that using the external keying jack, the rig cannot be keyed at over about 30wpm! At that level it starts to perform erratically, and on both his and AB6DG's, ceases to key at all at 33wpm. The internal keyer (old or new firmware) is still good up to 45wpm. Index Labs have told Pete that the problem will be fixed "very soon now". Internet users are able to contact Pete at w6zh@ix.netcom.com or on compuserve at 73500,313.

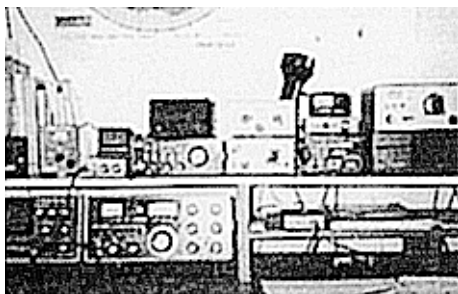
SMØSTM finds the same problem occurs with his external keyer above 27wpm. Per

says the keying is too hard and he has heard clicks from several QRP Plus's he has heard on the air.

A message from **AB7JX** on the Internet at the end of January said, "In a few weeks a new and improved model of the QRP+ will be out. The new price will be \$695 + \$10 s&h. The new model will have a hotter receiver, better AGC and a speech processor along with new firmware. There are probably other improvements and some of the boards have been redesigned. Cost to upgrade an existing QRP+ will be about \$250." Russ says he obtained the information when he telephoned Index Labs.

K8EGS has details of QRP mods for the FT990 and one for the TS520, which makes it into a QRP friendly rig. Rick offers copies of the mods to members (*1516 Broad Blvd., Cuyahoga Falls, OH 44223-2435, USA*).

G4UDG would like to exchange ideas with anyone building the G3TDZ phasing transceiver or the Hands 10 band CW transceiver (*31 Burland Road, Waterhayes Village, Newcastle, Staffs ST5 7ST*). Referring to **GØTXL**'s request for a low power mod for the FT990, Chris spoke to Yaesu who told him it couldn't be done! Chris has devised his own as follows: locate RF unit and remove; locate R166 1K Ω (surface mount) and fit a 560 Ω 1/4W in parallel; replace the board. Chris's FT990 now produces 3-100W and is fit for QRP use, but he warns of invalidating your guarantee!



The shack of **G4UDG**. Chris says that the homebrew equipment is slowly taking over from the black boxes!

Of particular attention to members not able to use beam antennas but who enjoy DXing, **DL2EAS** says he is delighted with the efficiency of his homebrew indoor magnetic loop, which he has used to work lots of Europeans in the CQ CW Contest, even at microwatt power levels, i.e. **LY2BW** with 100mW. It took Alexander 20 minutes "to struggle with the pile-up and work **3V8BB** with 2W while the loop was standing on the floor of the shack".

VK8PN built the **GQ20** and the new superkeyer from the August 1995 edition of *QST*. Paul says it is "the best keyer I have built by far and just the ticket for calling CQ while still soldering, its flexibility is outstanding". He is on 14060kHz most days between 1300-1400z calling CQ.

VE6GK built the **FOXX** transceiver which he found in a 1985 Canadian amateur radio magazine! Much to Rick's surprise "it worked without smoke and cheerfully puts out about one watt on 20 through 80m". Tom, **WA1GUV**, is using an Oak Hills Explorer on 20m to a 130ft long wire and having great results with it.

WA3JPG is gathering mods for the Ten-Tec Argonaut, 505, 509 and 515 models with a view to publishing them. Clark would welcome ideas and suggestions from members (*Department of Info. and Computer Science 1514 Verano Place Irvine, CA. 92717, USA*).

N5EM was impressed by **PA3BHK**'s article in *SPRAT* 85 and wonders if other members have "had experience of working DSB to DC in real life?" Ed is interested to know whether this combination of techniques is actually feasible. For many years **VE7QK** used a DSB/DC combination to check into the daily British Columbia Public Service Net, both at home and when hiking. Derry's design was published in *SPRAT* 50

After a long break **G4EDX** is back on the air with a modified **HW7** into a "droopy 'invisible' end fed wire down the garden" for 40m. John asks if anyone has information on, what he believes, is a **WS128**. It consists of a separate transmitter and receiver in two black boxes covering 2.4-4.8MHz and uses battery valves.

DL1SDZ says the TUE-QRP Net from Tuebingen using DFØUT started on 16th January on 10123kHz. Hajo says the net starts at 2100z every Tuesday and Thursday. DK6TP is the first operator and he is the second operator and the speed of the slowest operator will set the limit. Everyone is invited to join in but minimum power should be used.

Here's hoping I manage to QSO some of you as ZL/G4BUE in the next four weeks. Let me know how your Spring goes, and don't forget any photographs suitable for publication, by the 20th April please.

SPRAT NUMBER ONE

SPRAT is 21 years old and thanks to the work of a member (I regret to say I have lost his original letter - please write so I can tell other members who you are) we have a reproduction of SPRAT issue one available to members in printed form or PC WORD format.

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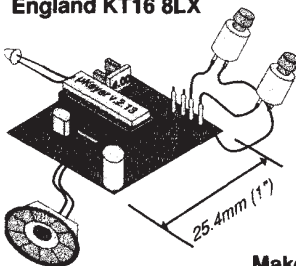


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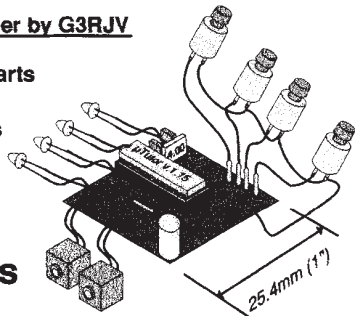
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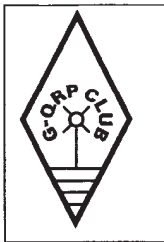
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PEN FRIEND : Dinesh Kumar is a 22 year old Msc Electronics Student and radio amateur who would like to have a pen-pal (either sex) in the UK. If you are an approximate contemporary please drop him a line at K.N. Dinesh Kumar, IV SEM, MSc Electronics, Dept of Electronics, Cusat, Kochi - 22, Kerala, South India, DIN-682 022.

Attention all ex- TOPS members

Please contact G3AWR as soon as possible

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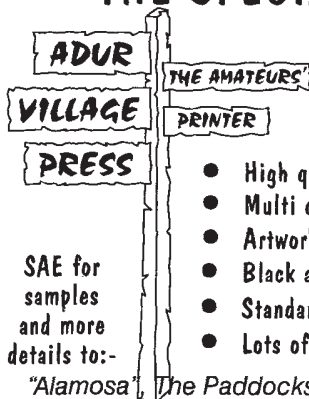
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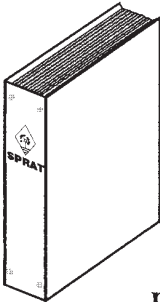
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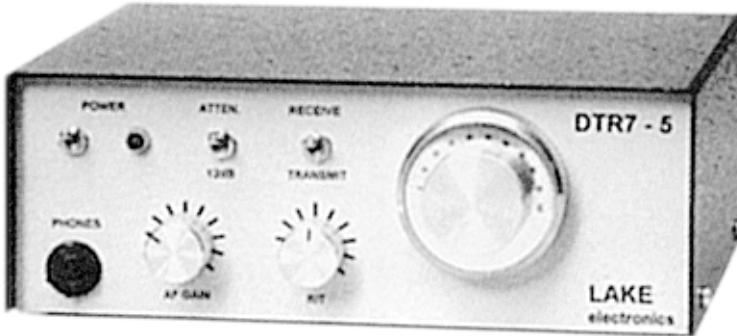
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