



# SPRAT

THE JOURNAL OF THE G-QRP CLUB

DEVOTED TO LOW-POWER COMMUNICATION

ISSUE NR. 78

© G-QRP CLUB

SPRING 1994



The late Luke Dodds, W5HKA [Left]  
with Rudi, DK4UH, and G3RJV

ANALOGUE SPEECH RECORDER - 30m VXO TRANSMITTER - 50MHz EXCITER  
G4RGN ATU - CRYSTAL TESTER - WATTMETER CORES - TS120V MOD  
TEETER TOTTER MODS - KITE AERIALS - HW7 RIT MODIFICATION  
AF AUTO LEVEL PREAMP - CERAMIC VXO - W8MVN QRP ANTENNA TUNER  
CONTEST FILTERS - THE MALTA 40 CW TRANSCEIVER - TWO REVIEWS  
A.A.A. - CONTEST NEWS - COMMUNICATIONS FORUM - NOVICE NEWS  
WINTER SPORTS REPORT - SSB COLUMN - VHF REPORT - MEMBERS NEWS

★ WIN AN MFJ-249 SWR ANALYZER ★

IF YOU HAVE NOT PAID YOUR 1994 SUBSCRIPTION  
THIS COULD BE YOUR LAST SPRAT

# JOURNAL OF THE G QRP CLUB



© G QRP CLUB

**St. Aidan's Vicarage,  
498 Manchester Road  
Rochdale, Lancs.  
OL11 3HE. England  
Telephone and FAX  
0706 - 31812**



**Rev. George Dobbs G3RJV**

## EDITORIAL :

### LUKE DODDS W5HKA

It was an enormous personal blow to so many of us in the G QRP Club when we heard of the death of Luke Dodds, W5HKA, just after Christmas. Luke was the US Representative of the G QRP Club and was awarded the G2NJ Trophy last year for his services to the club. But to those of us who got to know him, Luke was much more than a faithful and hard working club representative. He was a gentleman in every sense of that word : courteous, dedicated and caring in everyday life and in his hobby. My own relationship with Luke goes back several years of Dayton Hamventions, three visits to his beloved Texas and his three visits to Rochdale for the mini-convention. All events made the richer by sharing them with Luke. He also accorded me the privilege of sharing his feelings after the death of his wife. One of my favourite times with Luke was a daylong car journey we shared on the West Yorkshire moors. We talked radio and QRP and he exercised his other great love by taking lots of photographs. He brought back wonder to many places that had become familiar.

Our hobby will be much poorer for the loss of Luke Dodds. We do well to mourn the passing of a lovely man and a fine radio amateur. But I will mourn my loss rather than his death.

My last word from Luke was letter to me written on Christmas Day only a few days before his death. His letter begins, "I am taking this opportunity to use up part of this lonely day. Christmas is so very bland without my wife and daughter. I seem to be unable to let go." Luke was more ready for his death than we were.

**THE MISSING SPRAT 76 SAGA:** This was finally sorted out when the company which dispatches SPRAT found several sheets of un-used address labels. We hope that everyone has now received their copy of issue 76 and regret the inconvenience.

**EDITED BY GEORGE DOBBS G3RJV**

**ARTWORK BY A.W. (MAC) McNEILL G3FCK**

**PRINTED BY SHOREHAM COPY, 3 JOHN STREET, SHOREHAM-BY-SEA. SUSSEX**

# ANALOGUE SOLID STATE SPEECH RECORDER

Paul Lovell G3YMP

18 The Lindens, London. N12 9DJ

Over the past week, I've been experimenting with a speech recorder which uses neither tape nor digital technology! It's all done with an analogue storage device - the ISD1020A from ISD Inc, of California, USA.

A message of up to 20 seconds can be recorded and stored, and will be retained for up to 100 years after the device is powered down. The message can be played back at any time either singly, or as a continuous loop. Fig 1 shows a circuit I have been using successfully, and Fig 2 is an alternative input configuration for electret microphones. The microphone input has a 20dB AGC range with the time constant set by the components on pin 19.

Frequency response extends to 2.7kHz and quality is well up to amateur communications standards. The speaker must have an impedance of at least 8 ohms, and there is a built-in audio amplifier which gives more than adequate volume for a 3-inch speaker. Do not exceed 6 volts maximum with this circuit - I got excellent results on 5V, but it's important to decouple the supply close to the IC supply pins (28 and 16). All unused pins should be left unconnected.

To record, change the R/P switch to low, with PD switch low and /CE high. Then bring /CE low and speak for up to 20 seconds. Playback involves setting PD high, then low again and switching R/P to high. Then a brief 'low' pulse on /CE will start the message playing.

Technology used in this device is similar to that of digital EEPROM chips but the individual cells are charged much more slowly. The chip has an internal clock with filters on input and output, to reject the sampling frequency. Numerous applications spring to mind such as an automatic CQ machine, or a device to test audio transmit and receive circuits, under conditions which need something more realistic than a single tone. The device could also appeal to repeater groups, and might have applications for operators who are blind. But above all it's a real fun little circuit to play around with!

The ISD1020A is available from ISD distributors in many countries, but in case of difficulty I can supply the chip at £19.95 (or \$32.00 US) fully inclusive, to Sprat readers.

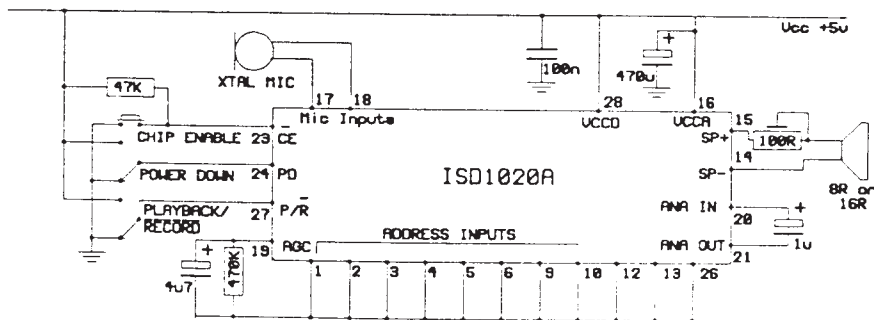


Fig. 1. ANALOGUE SPEECH RECORDER

Paul Lovell G3YMP

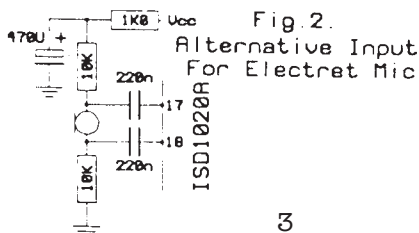


Fig. 2.  
Alternative Input  
For Electret Mic

## W6EMT 30m VXO TRANSMITTER

Roy Gregson W6EMT 13848 S.E. 10th, Bellvue. WA 98005. U.S.A.

I was looking for a simple QRP rig, something that I could put together from my "junk box". I had seen an article in SPRAT by Ha-Jo Brandt DJ1ZB that used a cheap computer crystal for a VXO in the 30 meter band that looked promising. With a little extra circuitry and a power MOSFET, the result is a simple rig with no bad habits that is stable, has good keying quality and covers the best portion of the 30 meter band. You can easily duplicate this rig using ugly construction, or vector board. A kit with a screened PCB is available mail order (see notes).

This an unusual transmitter design in that it's not only crystal controlled, but the VXO circuit gives more than 35 KHz frequency shift, most of the 30 meter band.

### The unique features are:

--Crystal control --Covers 10100 to 10135 KHz --3.0 to 3.5 watts output --Inexpensive power MOSFET PA --Oscillator circuitry uses IC for simplicity --Tuned circuits use IF cans --Simple easy adjustments Excellent keying quality --Provision for companion receiver muting & antenna switching --A spot switch for finding where you are.

I found that the computer crystal made a very stable VXO oscillator circuit. The need for matched transistors in the frequency doubler circuit led to the choice of the IC transistor array. And as it turned out, the transmitter is fairly compact without crowding. The choice of the 10.7 MHz IF's for the tuned circuits was for simplicity and ease of duplication.

The PA uses an IRF510 power MOSFET. It is inexpensive, and easier to use than some of the bipolar power transistors I have used in the past. It seems to be immune to SWR mismatches, antenna shorts opens etc. It puts out plenty of power and doesn't have a mind of its own.

The keying is clean and shaped for the best sound on the receiving end. +12 VDC keyed output is provided for the control of a relay, keying a sidetone, muting a companion receiver etc. The spot switch is necessary to put the transmitter on the received station frequency. This has a decided advantage over a QRP transceiver when a DX station is listening higher in frequency. With a separate receiver, you have wide range RIT.

It is important that a proper heatsink be provided for the PA transistor. A 2" x 2" aluminium square would be fine. But remember that the centre drain lead and the mounting tab are internally connected and are at a 12vDC and RF potential.

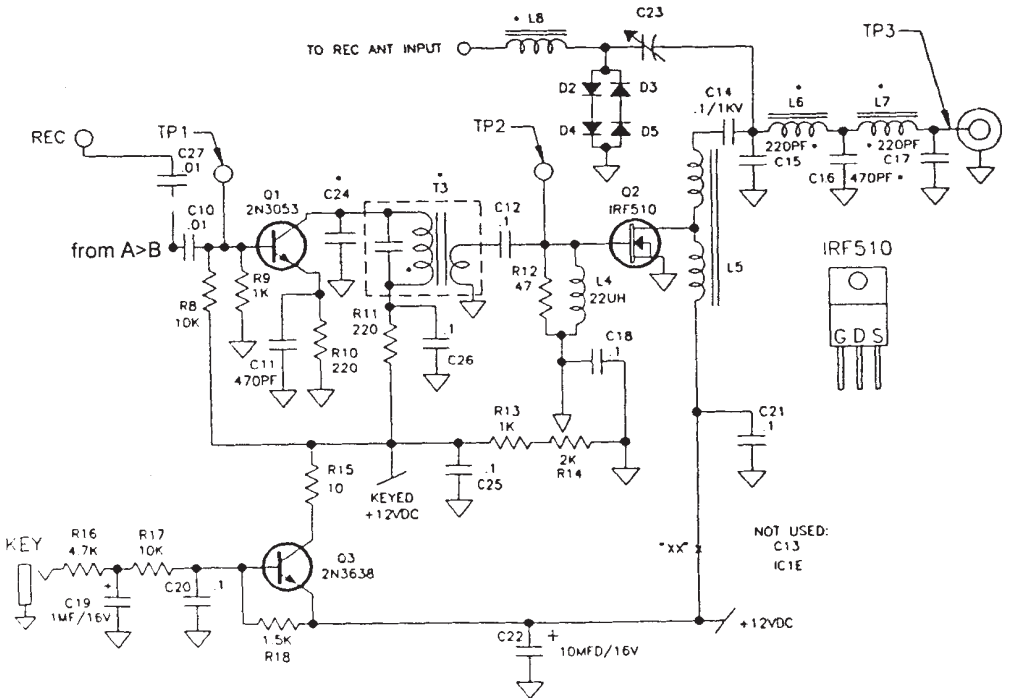
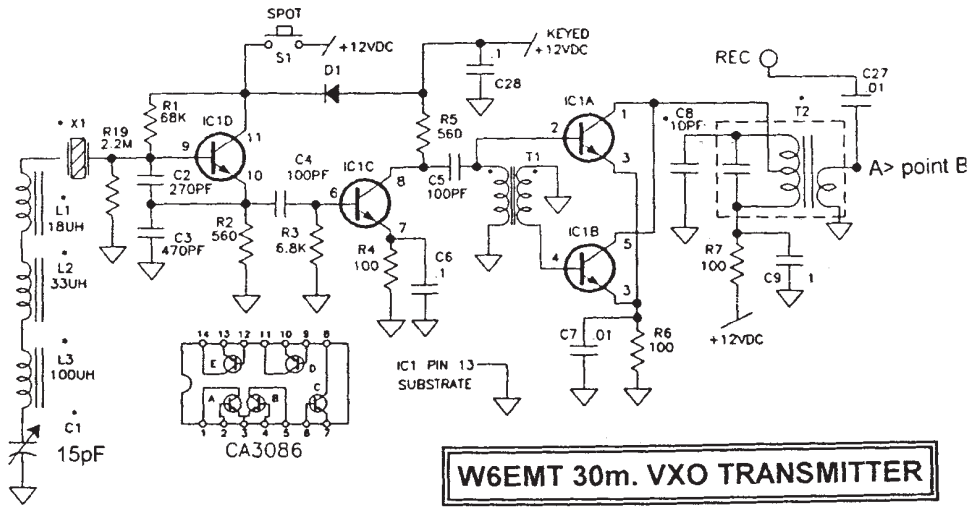
Connect a voltmeter to TP2 and ground. Temporarily connect TP1 to ground. Apply 12V, key the transmitter, and adjust R14 for 4.5 volts on the voltmeter. This sets the proper bias for the IRF510. Disconnect the voltmeter and ground connection to TP1. Connect a 50 ohm dummy to the transmitter output. Key the transmitter and tune T2 & T3 for maximum output.

It may be necessary to adjust L6 and L7 by squeezing together or spreading apart the turns to obtain 3 to 3.5 watts into a 50 ohm load.

Assuming you have interconnected the antenna circuit to a receiver, tune in a station and peak C23 for maximum volume. This completes the transmitter tune-up.

Operation is simple It's just like the old days of separate transmitters and receivers. Just tune in the station you want to call, press the spot switch and tune the transmitter to the same tone (high side, right!) You will hear your transmitter in the receiver for a side tone.

I hope you have as much fun with this rig as I have, if you hear me on 30m, give me a call....



**A PARTS KIT WITH SCREENED PCB IS AVAILABLE FOR \$29.95 FROM:  
DAN'S SMALL PARTS AND KITS, 1935 SO. 3rd W. #1, MISSOULA. MT 5901 U.S.A.  
PHONE / FAX : 1 - 406 - 543 2872**

# W6EMT VXO 30m TRANSMITTER

## Component Listing

### ALL RESISTORS ARE 1/4 WATT

R15 ----- 10 OHM  
R12 ----- 47 OHM  
R4,R6,R7 --- 100 OHM  
R9,R13 ----- 1K  
R8,R17 ----- 10K  
R18 ----- 1.5K  
R10,R11 ---- 220 OHM  
R2,R5 ----- 560 OHM  
R16 ----- 4.7K  
R3 ----- 6.8K  
R1 ----- 68K  
R14 ----- 2K POT  
R19----- 2.2MEG

### CAPACITORS

C8 ----- 10 PF DISC CER  
C4,C5, ----- 100 PF "  
C6,C9,C12,C18,C20,C21,C25,C26,C28,C6--.1 MFD  
C14 ----- .1MFD DISC CER 1 KV  
C7,C10,----- .01 MFD "  
C3,C11 ----- 470 PF "  
C2 ----- 270 PF DIPPED MICA 500V  
C16 ----- 470 PF "  
C15,C17 ---- 220 PF "  
C19 ----- 1 MFD 16V ELECTROLYTIC  
C22 ----- 10 MFD 16V "  
C23 ----- 35 PF TRIMMER  
C1 ----- 15 PF VARIABLE MAIN TUNING

### INDUCTORS

L1 ----- 18 UHY MOLDED  
L2,L4 ----- 33 UHY "  
L3 ----- 100 UHY "  
L5 ----- 7T BIFILAR FT50-43 #24  
L6, L7 ---- 18T T37-6 #26  
L8 ----- 40T #34 T37-2  
T1 ----- 7T BIFILAR FT37-61 #24  
T2, T3 ---- MOUSER 421F-128 10.7 IF'S GREEN CORE

### SEMICONDUCTORS

Q1 ----- 2N3053 NPN  
Q2 ----- IRF510 POWER MOSFET  
Q3 ----- 2N3638 PNP  
IC1 ----- CA 3086 IC TRANSISTOR ARRAY  
D1-D5 ----- 1N4148 DIODES

MISC 1EA -- 5.0688 CRYSTAL, KEYJACK, 14 PIN IC SOCKET, SPST PUSH-BUTTON SWITCH

# A 50 MHz EXCITER

Peter Brodribb G3ONL

20 Ipswich Rd. Debenham, Stowmarket. Suffolk IP14 6LB

The circuit is built around a symmetrical mixer, the S042P. This integrated circuit acts as an oscillator whose frequency, 42 MHz is determined by the overtone crystal X, and as a mixer. The second frequency, 8 MHz is determined by the VFO T1 and Buffer T2. The sum frequency, 50 MHz is passed to the tuned circuits L3 and L2 and associated capacitors. The difference frequency is rejected. The two input frequencies, 8 MHz and 42 MHz are suppressed by the S042P. The VFO frequency may be adjusted to suit other values of X but if X is more than 45 MHz the difference frequency will be more than 40 MHz and may be difficult to remove by L2 L3. The construction of L2 L3 shown in Fig. 2 lends itself to easy shielding. Alternatively two separate formers may be used spaced about 8mm to give critical coupling. Fig 3, T1 is made from two ferrite beads glued together. A suitable twin-hole bead may also be used. My exciter was constructed on Stripboard. PC board should prove equally successful. I have also used a wide range VXO with equal success (SPRAT No 72) instead of the VFO but of course with less frequency swing than the VFO. The output is about 150mV into 100 ohms.

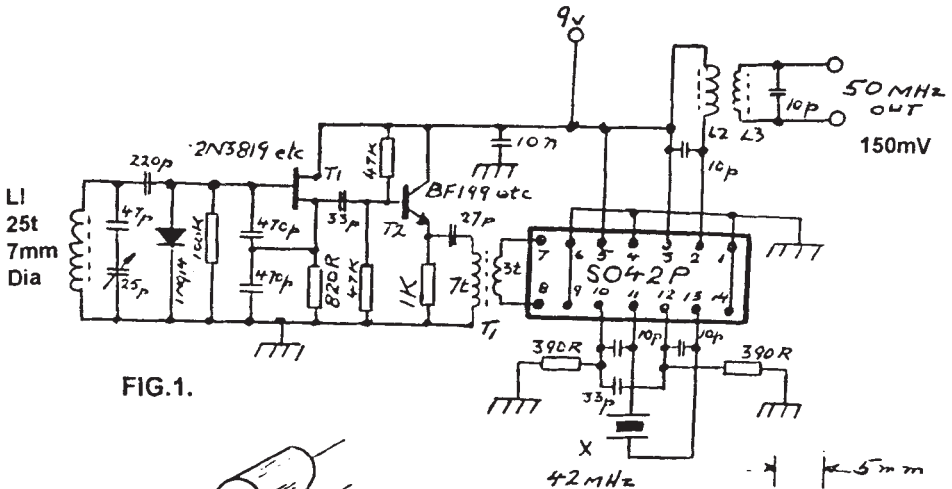


FIG.1.

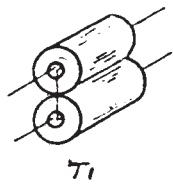


FIG.4.

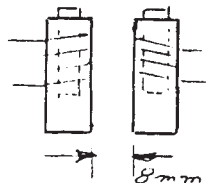


FIG.3.

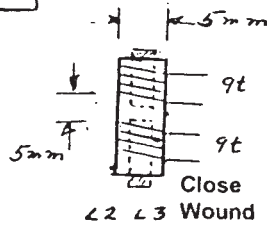


FIG.2.

50MHz EXCITER  
G3ONL

## **A REVIEW OF THE S.E.M. QRM ELIMINATOR**

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

The idea of this interference reducing device goes way back before WW2, perhaps having been introduced by Frank Jones of "Radio" fame. The theory of operation is simple. Noise or an interfering signal picked up on the main antenna is fed into a phasing circuit which also receives the same input from an auxiliary antenna. By adjusting the phase and amplitude relationship of the two antenna inputs it is possible to make them equal and opposite (or nearly so) and thus greatly reduce, or in some instances eliminate, the unwanted interference. The wanted signal will be largely unaffected except in the unlikely instance of it being exactly of the same phase and amplitude as the interfering signal. No circuit diagram was supplied with the unit, but it appears to consist of a variable gain input amplifier for the main antenna, a fixed gain amplifier for the auxiliary antenna, a phasing unit with variable controls for both antennas, and send/receive relays which release under "sent" conditions, disconnecting both antennas. An ON/Off switch and red LED power indicator are also fitted. Power required is 10 to 15 volts at 150 mA (we used 12V). Rear panel connections are provided for the two antennas, the power supply, and a send/receive control which can be connected to the linear amplifier control point on a transceiver or a manually operated switch. There is also an electronic fail safe sent/receive circuit which automatically releases the relays if rf is applied to the unit from the transceiver (see later). The unit is housed in a black metal box 150 x 55 x 60mm, not taking into account the sockets projecting from the back. Tests are carried out using the G8PG 60 x 20ft tuned loop as main antenna, and the screen of a 25 ft length of co-ax which used to feed a 10 ft beam as the auxiliary antenna. A somewhat elderly vacuum cleaner with a long lead was placed 3ft from the rig, which was tuned to 80m. When the vacuum cleaner was switched on the noise peaked over S9. With the QRM Eliminator switched on and the phase and amplitude controls adjusted carefully the S-meter reading dropped to zero and there was only about an S1 noise level audible, which could be virtually eliminated by the AF filters in the rig. When my No.1 local thermostat started up later, putting in an S9+20dB noise, it was again possible to drop the S-meter to zero using the S.E.M., and to enjoy QSOs with all but the weakest stations. Over a period of use it was found that the unit really pulled its weight but two problems were encountered. Firstly, on bands from 7MHz upwards loud BC signals could produce cross modulation and spurious signals via the auxiliary amplifier. This amplifier also did not seem to have enough gain to allow weak interference to be phased out from 14 MHz upwards. Connecting a spare ATU between the auxiliary antenna and its amplifier largely eliminated both problems, and it was found that careful adjustment of this ATU helped to further reduce noise. It was also found that FOR QRP ONLY (3/4 watts in my case) one could transmit through the unit using the fail safe circuit, there being no problem in using BK at 30 wpm. **DO NOT TRY THIS WITH QRO.** My unit was supplied by our old friends Waters and Stanton, or you can buy from S.E.M. 8, Fort William, Douglas, I.O.M. (£98.50). The unit is now an indispensable item in my shack.

## **ARCI & OK QRP Club membership / renewals**

*Members may be aware that we have a reciprocal arrangement with both of these clubs for membership and renewals. These are handled by Dick Pascoe GOBPS and all information / application forms may be obtained from him at:*

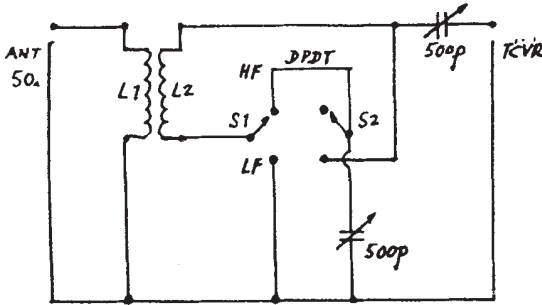
*Seaview House, Crete Road East Folkestone CT18 7EG*

*The ARCI costs £7 to join and £6 per year thereafter, the OK club is just £5 per year. Cheques should be made payable to G-QRP club.*



## THE G4RGN "ZZ" A.T.U.

Doug Gibson G4RGN Marlow, Westwell Lane, ASHFORD. Kent. TN26 1JA



This is a simple ATU which I use for QRP, and which covers 10 to 80 metres without coil taps.

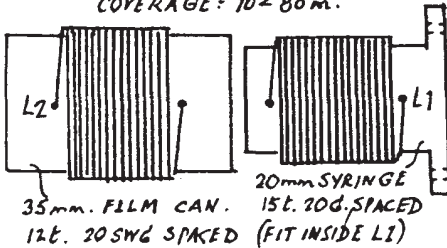
It uses a parallel circuit for 30 - 80m and a series-tuned arrangement for 30 - 10m changed by a DPDT switch.

The outer (tuned) inductor is 12 turns of 20 SWG spaced 1 wire diameter on a polythene 35mm film canister, and the inner coil is of 15T, similarly wound on a 20mm diameter hypodermic syringe body.

The only precaution needed in construction is in the insulation of the body of the TX side variable capacitor, (and mind the grub screw - even 5w of RF prickles a bit!)

The unit matches all bands on my G5RV with a 1 - 1 VSWR, and the cost was negligible.

COVERAGE: 10 - 80 m.



## G4RGN "ZZ" A T U .

## A SIMPLE CRYSTAL TESTER [100kHz - 20MHz]

Johnny Apell SM7UCZ Ekedalsvagen 11, S 373 00 JAMJO. Sweden

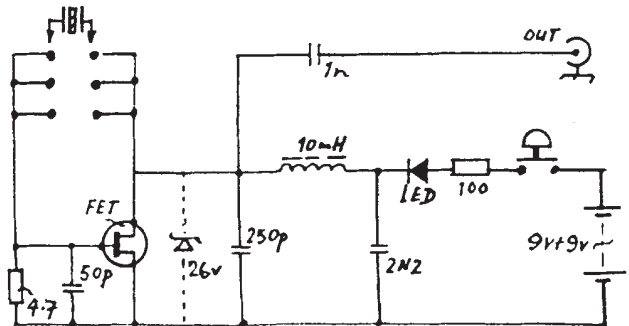
To test a crystal, hold down the button and plug in the crystal.

If the crystal is OK, the LED will dim.

If defective, the LED will remain bright.

The zener diode may be added for protection.

A counter output is also provided.



## ALTERNATIVE CORES FOR THE STOCKTON WATTMETER

Mike Czuhajewski WA8MCQ 7945 Citadel Drive, SEVERN.MD 21144. U.S.A.

SPRAT 61 (Winter 1989/90) of SPRAT, contained an interesting article on a directional QRP wattmeter by David Stockton, GM4ZNX. It uses SEI ferrite cores which are not readily available here in the colonies, so I did some experiments to see if ferrites from Amidon could be used.

I made 4-port hybrids with a number of cores, including actual "Stockton cores", and tested them from 160 through 10 meters on a Hewlett Packard 8753C network analyzer. Type 43 material performed about the same as the SEI cores, type 72 had a bit flatter frequency response (which could perhaps be attributed to slight differences in construction) and type 61 was also suitable. (Doug DeMaw used the latter in his version of the Stockton in W1FB's Design Notebook ) Just for fun I included types 63, 2, 6 and 0 all of which performed poorly in this application.

A good explanation of how a 4-port hybrid functions as a directional coupler can be read in Introduction to RF Design by Wes Hayward, W7ZOI, and the same circuit has appeared many times over the years in the ham and commercial press.

## A NO COST AUTOMATIC ATTENUATOR FOR TS120V

Dave Evans G4YND The Rectory, 8 King St. Somersham, HUNTINGDON.

The TS120V is not a good performer on 40m after dark. A recent read of the service manual explained it all. The Rx band pass filter is set up to be broad band from 7 to 7.5 MHz. A sweep with a signal source (5 watt Tx into a dummy load) confirmed this!

The Solution. Set up an 'S9' signal on 7030kHz. Now with a trimming tool adjust L6,7 and 8 for a peak on the 'S' meter. In my case, a second sweep with the signal source revealed an in band response flat to within 1 'S' point. At 7250kHz, the attenuation was measured at more than 25dB.

The whole job takes about 15 minutes and results in a significant improvement in performance.

Finally, do use a trimming tool, and NOT a screwdriver! The adjustments are quite 'broad', so a mark on the can of each inductor will permit a return to original settings should this be required at a later date.



## CLUB SALE ITEMS

### CHANGE OF SUPPLYING MEMBER

Dave Aizlewood, G4WZV, will no longer supply the Club Items listed on page 29 of the Member's Handbook. Dave requires more time for his club records role.

These items are now available from:

IAN WYE, G0OKY, NEW HOUSE, HOOK ROAD, AMCOTTS, SCUNTHORPE. DN17 4AZ.

Please send an address sticker with order. All cheques to G QRP CLUB

SPRAT BINDERS formerly supplied by G0OKY  
are now available from ADUR VILLAGE PRESS - See Page 42

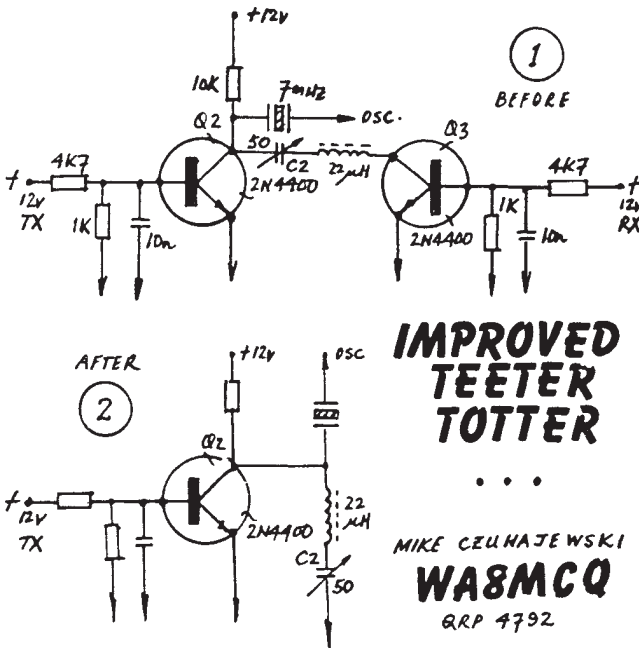
# SIMPLIFIED TEETER-TOTTER VXO FOR RIT

Mike Czuhajewski WA8MCQ 7945 Citadel Drive, SEVERN.MD 21144. U.S.A.

SPRAT 54, Spring 1988, had W1FB's "Teeter Totter LO for DC Transceivers". It was a VXO which operated "straight through" in transmit, and shifted frequency slightly in Rx for RIT. He used a pair of transistors to alternately ground two points, to either short out or enable the coil and cap used to pull the crystal in receive. Q3 grounds the right side of RFC1 in receive, and opens it during transmit. However, since the left side of C2 is grounded during TX by Q2, it matters not whether RFC1 is ungrounded. Q3 and its associated cap and three resistors can be deleted, with the right side of RFC1 permanently grounded. I built the circuit on a scrap of circuit board material to successfully prove this assumption.

Note that I also reversed the positions of C2 and RFC1 in the new circuit. This allows grounding one side of C2, which simplifies mounting.

(This circuit also appeared in Doug's October 1988 QST article, "A Three-Channel CW Emergency Transceiver.")



FOR SALE TS130V. G3YCC TELEPHONE  
0482-650410  
RADIO-S:G3RJV NOW HAVE FILE OF ABOUT  
20 PEOPLE WHO HAVE SENT ORDERS BUT  
RECEIVED NO GOODS AND WILL REPORT  
IN SPRAT WHEN SITUATION IS CLEAR.

## SOME IDEAS ON KITE CARRIED AERIALS

Oliver Borkowski, DF6MS,  
Kipfenberger Strasse 22, EICHSTATT 85072. Germany

There is no question that QRP work is more fun outside the ham shack in the open country but more often than not it is not easy to erect an effective aerial just for a couple of hours' work. Flying a kite with a random length of wire on it and trying to match it with an ATU will almost every time lead down the path of trouble. This system requires, in any case, a network of quarter wave radials (at least two for each band) or a low-loss connection to a "real" radio ground. Moreover, it is not at all an effective way to have the kite flying hundreds of feet up only to lift a poor 20m wire for quarter wave operation on eighty....

A far better way is to elevate a whole resonant "vertical Zepp" array, i.e. a 41 m radiator and an 18m open feeder as a unit. The radiating part of this aerial is well up in the air and the well-know tuning procedure allows easy multi-band operation. Of course, the wire will almost never be totally vertical but this does not seem to affect the radiation pattern at all. This simple method offers much fun and is really serviceable. With the lengths indicated, outstanding results have been achieved on 40, 30 and 20m (standard RST 589 from DL on forty, nearly every call being answered - with two watts output only!); 80m and top band are hard to work during the day, the wind usually settles in our area at sundown. (Lucky are the hams who live by the sea....)

The procedure to go on/in the air is quite simple:

- Have your radio ready for operation. Launch the kite and allow it to reach an altitude of, say, 40-50 metres. If there is no steady lift (the kite should 'like' to take line right from the reel), wait for better conditions or call it a day. There is no chance of successful operation if the wind is not strong enough; better have a number of kites ready, a light wind one for any kind of wisp, a selection of medium grade ones, and even a strong one for the worst case, hi....
- If everything is okay so far, attach the top end of the aerial wire to the kite string (with a fishing hook in a rubber ring fixed to the string; (these precautions are a must since the wire has to be released by a single jerk in case of emergency!)) Let the kite go on climbing, taking up the wire from its own reel. Then fix the bottom end of the wire to the kite line, too. Allow some slack of the wire because the kite line might stretch.
- Now fix the top end of the feeder to the string and connect one end tightly to the aerial. Reel off the kite string until the feeder is also up in the air completely. Secure both the kite string and the lower end of the feeder to the ground as close together as possible, connect the feeder to the radio and you are ready to go!
- Be sure that you can always pull down the whole wiring if something goes wrong (thunderstorm, approaching aircraft etc.) Never use solid metal or stranded wire as a part of the line itself.

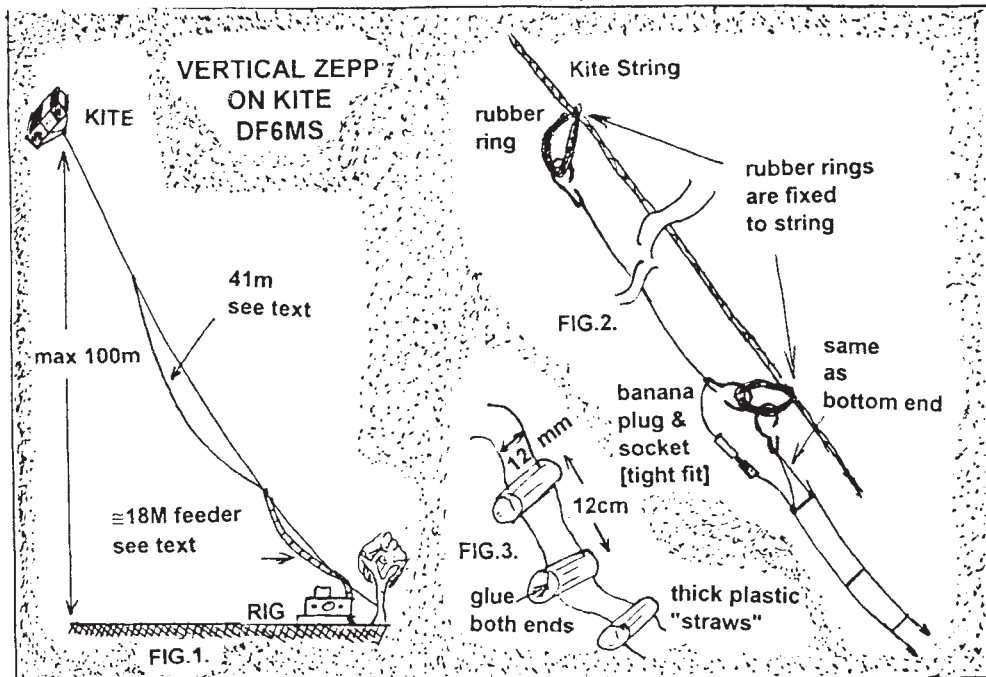
The entire aerial should be as light-weight as possible. I found thin stranded wire for both parts of the aerial most useful; the feeder made of plastic "straw" spreaders. The pictures show KL2MGP on location with one of the kites, the rig, and showing the feeder construction.

I have found the whole procedure quite easy and reliable in its results; most of the problems concerning the kite and wind conditions rather than the wires on it.

Expert kite fliers know about the troubles caused by irregular air currents, changing wind directions, unsettled conditions and many more feats which can make a kite perform most extraordinarily. The best way to escape breath-taking stunts and a damaged and broken kite is to make friends with it and its facilities. If you don't think you will be able to make a kite by yourself, ask for assistance. If you buy a

kite, try and fly it a number of times top make sure you can really control it. There are some excellent books about kites and kite making available.

I am always looking out for information concerning this topic, so far, there is but little I've found yet. Please let me know if you know something about it, especially about types of kite covering a wide variety of wind speeds. Box kites are very well in strong winds, deltas and plane-surface systems perform well in light winds - what we need is some sort of universal or multipurpose kite.



**RIGHT: Radio Kite No. VII Rhombus 50x50**

**BELOW : The Open Feeders**



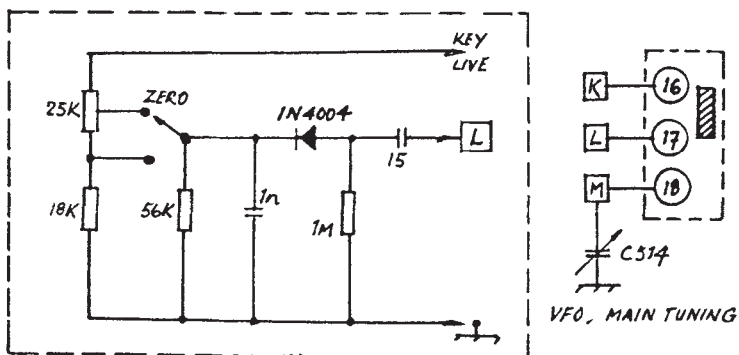
## HW7 RIT MODIFICATION

Bob Lowe, ZL1AYN, 42A Armagh Tce, Marton, New Zealand.

The complete circuit is on VERO board which is mounted on the rear of the 25K pot. The circuit is then wired to the Oscillator band change switch from the top and a small hole drilled in the PC board for the earth connection.

Make sure that the "Key Live" is wired correctly as most HW7 have the outer of the Key socket to live and the inner to ground., The RIT control is then located on the front panel between the Xtal Socket and the Tuning control.

Fit the zero switch above the RIT pot. The Zero switch can be left out but then it would require the RIT pot being zeroed every time that the set is tuned., The 1N4004 can be replaced with a similar type.



'HW7' RIT (FRONT PANEL MOUNTED)

**'HW7' MOD.**

R.A. LOWE -  
**ZL1AYN**

### A NOTE FOR YOUR DIARY

The G QRP Club  
Annual  
MINI-CONVENTION

Saturday  
15th October 1994

St. Aidan's Hall  
Sudden Rochdale

All the usual attractions

Large Social Area with  
full range junk, parts and  
kits Traders.

A Programme of QRP  
Lectures

More details in the next  
issue of SPRAT.

# AUDIO PREAMP AND AUTOMATIC LEVEL CONTROL

Dick Pattinson, VE7GC, R.R.2 Price Rd C1, GANGES B.C. V0S 1E0. Canada

The pre-amplifier will add a few dB of gain to a receiver and can easily be connected so that it will function as an automatic level controller.

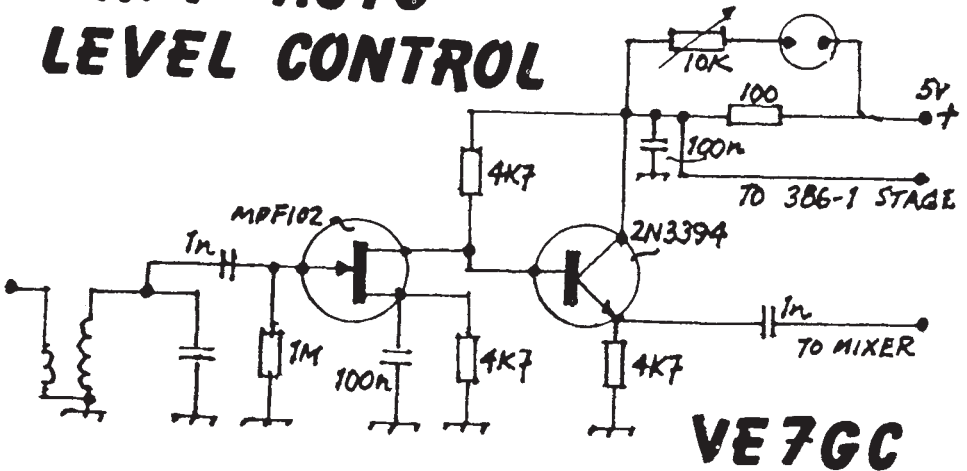
The pre-amp is operated from a five volt source through a dropping resistor of 100 ohms. It was found that should the voltage be lowered to around three volts the gain goes down to zero and the device actually operates as an attenuator. If the supply voltage for the 386 audio output stage is connected to the pre-amp side of the 100 ohm resistor then we have automatic control of the audio because as the output current tends to go up on audio peaks the voltage drop across the resistor increases. This reduces the gain of the pre-amp.

The value of the dropping resistor can be adjusted to the desired level of audio output and it will not go beyond this level. Thus the set does not require a volume control.

A further advantage of the circuit is that a simple sensitive voltmeter circuit can be connected across the 100 ohm resistor to indicate relative signal (audio) strength.

The circuit can be constructed on a small (3/4" x 11/4") piece of PCB, possibly allowing it to be installed inside the cabinet of the set.

## P.A. + AUTO LEVEL CONTROL



### TWO QUICK TIPS from Frank Lee G3YCC

TIPPEX Correcting Fluid, apart from covering up typing errors, can be useful on the workbench

- It is very useful as an Etch Resist. It comes in a bottle with a handy small brush in the lid, to assist a neat easy job. It comes off with a scouring pad under running water
- Also Tippex is also a useful and quick way to rejuvenate engraved control knobs which have become tatty. Simply wipe over the engraved parts, allow to dry for a short while, then wipe over with a cloth. It leaves the markings like new. [I use a 'Chinagraph' pencil to do the same. G3RJV]

# CERAMIC RESONATOR VARIABLE OSCILLATOR

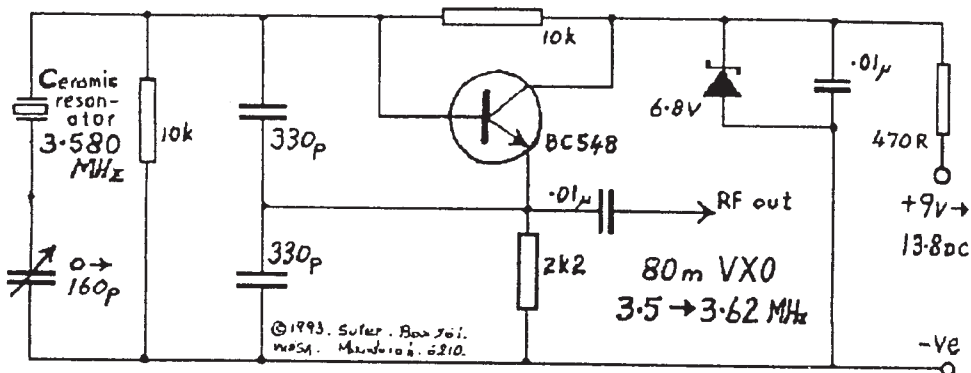
Rev Suter VK6SA

Reproduced from LO-KEY September 1993 [VK CW Operators' QRP Club]

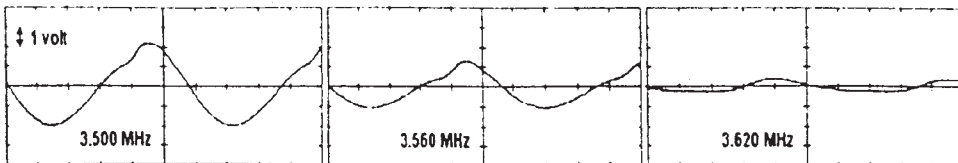
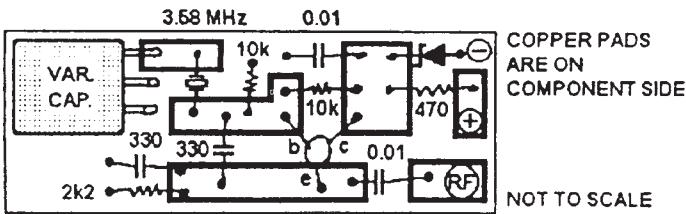
This is a modified oscillator that pulls a ceramic resonator over the 80 metre band from 3.500MHz to 3.620MHz. It appears to be a break-through because no one else has yet published any crystal or ceramic resonator pulling oscillator of much more than 20KHz or so. [Thank you VK6FKB and VK6RY]

The resistors are all quarter watt and the capacitors are disc ceramic. The advantage, other than the bandwidth, is the omission of an inductor which minimises stray propagation of radio frequency and thus cuts down requirements for shielding.

The ceramic resonators are standard 3.580MHz units and the variable capacitor is a small transistor radio type. This oscillator could form the heart of any transmitter or CW/SSB receiver.



Editor's Note: Rev sent me his prototype which I spent an hour or so testing. Without load on the RF output, other than a probe, I confirmed the 120 kHz range and obtained these waveforms:



*QRP*

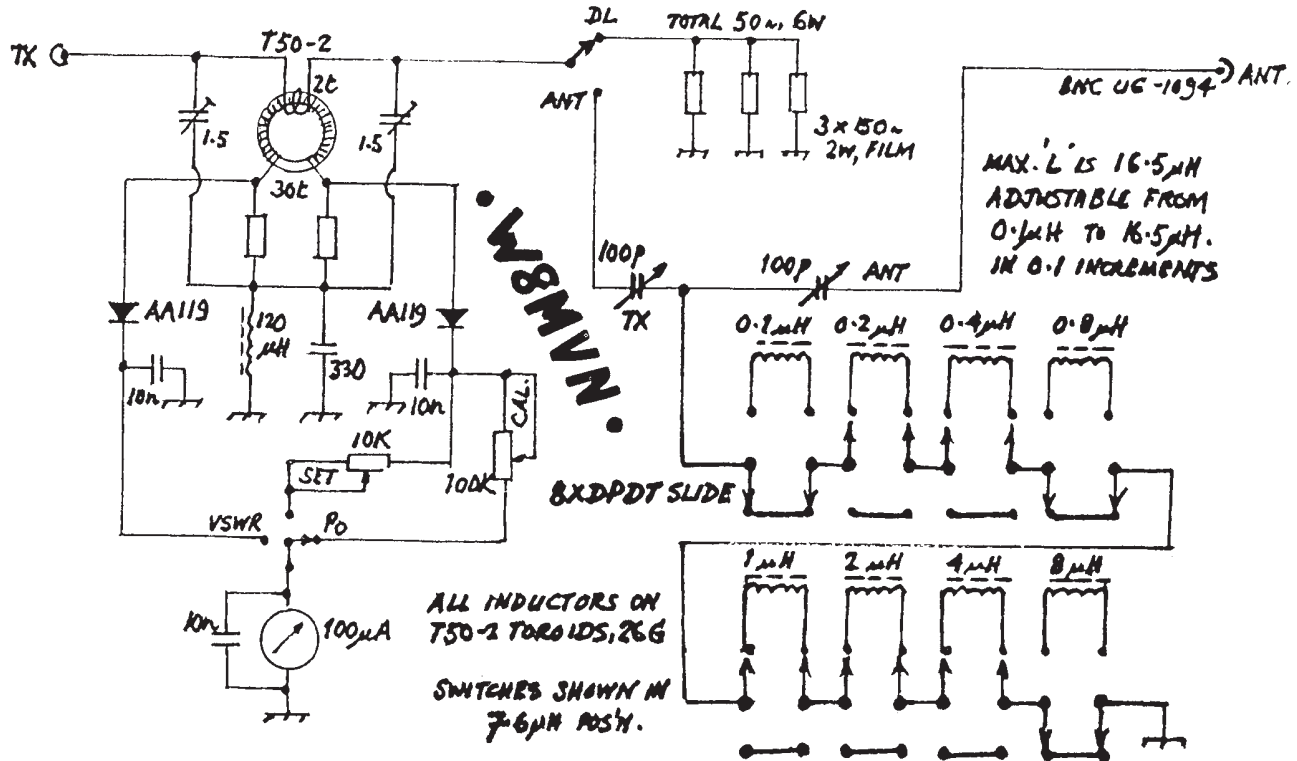


# A QRP ANTENNA TUNER Ernest M. Helton W8MVN

36 Walnut Street, Franklin, Ohio 45005. U.S.A.

A variation on the switched inductance T Match Tuner from W8MVN. The Tuner uses slide switches to obtain inductance values from 0.1uH to 16.5uH in 0.1uH steps. All inductors are wound on T50-2 toroids.

17



# QRP NEWS ITEMS

The EA-QRP CLUB founded by Migeul Montilla Guerrero, EA3EGV, G QRP Club member 3540. produces an excellent little magazine QU-R-PE. It is SPRAT style, with text in Spanish. Those who require more information about the EA-QRP Club, contact EA3EGV at PAU ABAD 15 3<sup>0</sup> 1<sup>a</sup>, 08207 SABADELL, BARCELONA.

## QRP - HAMMING BICYCLE TOUR

The second annual "QRP-hamming Bicycle Tour" along the Pacific Crest Bicycle Trail will take place in August or September 1994. The week long trip will begin at Crescent lake, Oregon and end near Mt. Shasta, California. QRP operators who have bicycle touring experience are invited to join the group. There are no fees. The group will average 50-60 miles per day in hilly and mountainous terrain, and camp and cook in campgrounds.

Last year KD6UKC, N0DA, AA7QZ and KD6JUI made the trip along the Pacific Crest Bicycle Trail from southern Washington State to Crescent lake. MFJ and Oak Hills Research QRP equipment was used on 20, 40 and 15 metres, and several of the cyclists used solar panels to charge up batteries during each day's ride.

A monthly newsletter will go to those interested in going on the trip, and an exact date will be announced later. For more information write to Bil Paul, KD6JUI, PO Box 5183, San Jose, CA 95150-5183. U.S.A. or telephone (0101) 415-345-7021.

## ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS

FOR SALE : SUPER SCAF FILTER no known faults since built, two spare ICs, Manual £60. Kenwood HS5 headphones, vgc Hardly used, Boxed £17.50. Bill GM0KMG. 041-649 - 4345.

FOR SALE : RUSSIAN R-326 RECEIVER of former GDR-Army, 1-20MHz, AM/CW, xtal filter etc. Runs 2.5v DC or Mains 127-220v. Weight 14Kgm. Complete with full set of spare tubes. £100. Famous ONER TX, ready built in case, with 3560, 7030, 10106 xtals. £15. Also other xtals HC6U, 3530, 3528 £5 both. Peter Karrais, DL1GPK, Jungbuschstr.25, D-68159 Mannheim, Germany. Tel. 0621/155413

FOR SALE : 50st AAA size NICAD packs [5 AAA in pack], Gates, 750mW, 6v each w/lead [ex-equip] from mid '92, for QRP TCVR projects, £2/pack, £7/4, £12/8, post -2/£2, -4/£3, -8/£5. top NICADS. OH6LEL, P. Restante, 60320 SEINAJOKI, FINLAND.

WANTED 7726 IC [8pin DIL] to repair clock and make my xyl happy ! or source of supply for the same. Bert GW4KUS, 44 Cecil Street, Manselton, Swansea, SA5 8QN.

WANTED HRO with coils and PSU. Ring Ivor 0297 - 444896

WANTED HEATHKIT VFO Type HG-10 as used with DX100 and DX60. Any condx considered. G4JQT, QTHR or ring [Reading] 0734 - 596806.

HELP WANTED : I cannot find these books: Clandestine Operations, P Lorrain, Macmillan. and Armement Clandestin France 1941-44. Trans by David Khan as "Secret Warfare" Orbit. ISBN 0-856773-586-0 ON7LO. Guy Lodewijckx, Eindhoutsebaan 78, B-2450. MEERHOUT Belgium.

WANTED QRP HF Transceiver [or rig capable of QRP operation] including SSB John Edmondson G0HNF. 6 Park Lee, Bradley, HUDDERSFIELD HD2 2QH Tel. 4844 24137

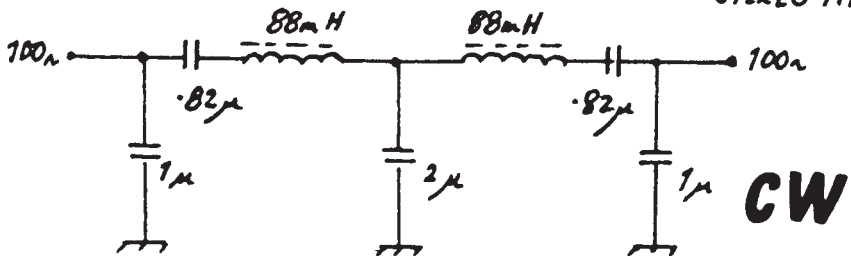
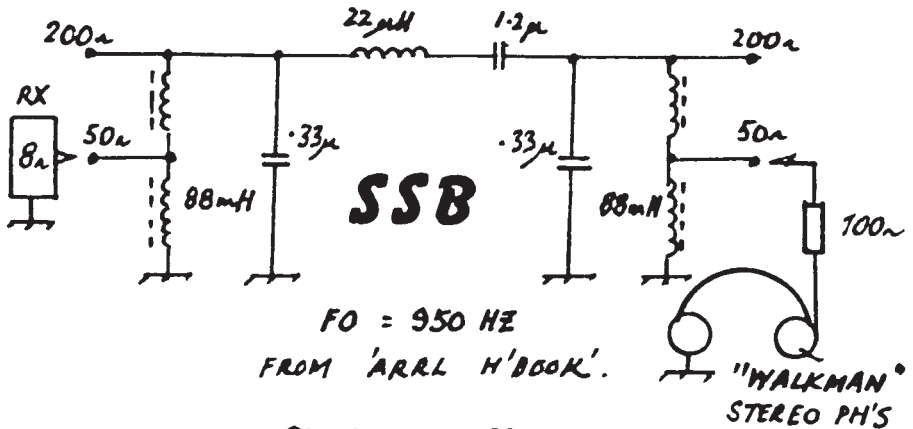
# CONTEST FATIGUE REDUCERS

'Mike' Michael W3TS

POB 593 - Church Lane, Halifax, PA 17032-0593. U.S.A.

Below are two simple Audio Filters that I use during contests. I know passive audio filters are thought to be old stuff, but they can't be beat for getting rid of a lot of hiss, hum, clicks and thumps. I use small stereo earphones because they are light and comfortable. They also have a very wide audio range and that causes them to respond to all the noises your receiver makes. These noises don't add much to operating, in fact they tend to make you tired sooner than necessary. Active audio filters add their own noises, and can't handle much power, so I tried these passive filters just before the earphones. I found that I don't like to operate for long periods without them.

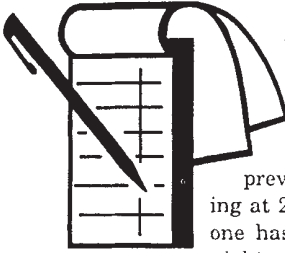
The filters are simple and of a low Q design, so that they don't ring too much and add their own "noise". Also they are not designed to add much selectivity, just clean up the noise residue of a good receiver. If you match in from a low impedance source and match out to a high impedance load the filter shape is not changed to much. So these filters are designed with a Z of 50 - 100 ohms. This is higher than the RX out of about 8 ohms and lower than a small set of phones with a series 100 ohm resistor (which helps reduce the sensitivity of the small phones, something they also need). Being passive they can take a bit of audio power, and they do a good job of "scrubbing" the noises off of the main signal.



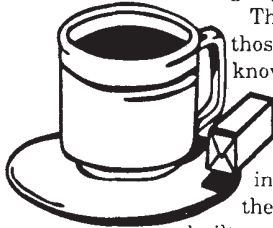
CF = 750 HZ  
FROM 'HAM RADIO'

D.A. MICHAEL  
**W3TS**

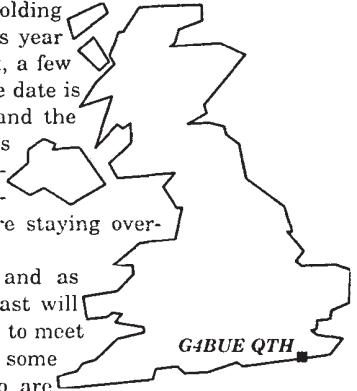
# THE 1994 SUMMER QRP PARTY



Pam and Chris will be holding their Summer QRP Party this year at their QTH in West Sussex, a few miles north of Worthing. The date is Saturday 6th August 1993 and the routine will be the same as previous years. That means starting at 2pm and finishing when everyone has gone home or those that are staying overnight go to bed!



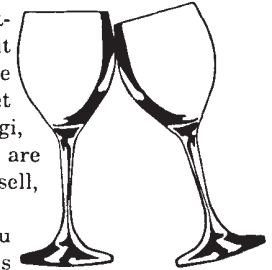
This will be the eighth party and as those who have attended in the past will know, it is an excellent opportunity to meet other Club members as well as some of Chris's local amateurs, who are



interested in QRP, DXing and contesting. K8DD and AC8W have already put their names down to attend. If you have built something you want to show off or can't get to work or want to put on the air with Chris's HF yagi, then bring it along. All items of homebrew are welcome. If you have anything you want to sell, bring it along as well.



You are asked to let Pam or Chris know you intend going so they can make sure there is enough food and drink to go round. If you live some way away and want to stay overnight, some sleeping accommodation is available on a first come and first served basis. Telephone Pam and Chris on 0903 814594, drop them a line (see Members' News) or send a message via the DX



Packet Cluster or the ordinary packet to Chris @ GB7VRB.

## SUBSCRIPTION RENEWALS IN THE U.S.A.

Following the death of Luke, W5HKA, at the moment renewals [\$12] for US members are being handled by MIKE GILGORE, KG5F, 2046 ASH HILL RD. CARROLLTON, TX 75007.

Our sincere thanks to Mike for his kindness in handling this work  
PLEASE QUOTE CALLSIGN AND MEMBERSHIP NUMBER  
MAKE OUT CHECKS TO "G QRP CLUB"

## WALFORD ELECTRONICS Kits By G5PCJ

YEOVIL SSB/CW TRANSCEIVER 80/20m [+40m option] - TINY TIM 80m TRANSCEIVER  
NOVICE 160m DSB TRANSCEIVER - FREQUENCY COUNTER - QRP BOOSTERS

SEND A LARGE SAE FOR DETAILS OF KITS AND CONSTRUCTION CLUB

UPTON BRIDGE FARM, LONG SUTTON, LANGPORT, SOMERSET, TA10 9NJ. TEL: 0458-241224

## THE MALTA 40

### A QRP CW TRANSCEIVER FOR 40 METRES

Steve Hunt G3TXQ 21 Green St. Milton Malsor, Northampton. NN7 3AT

This CW transceiver design was inspired by Rick Littlefield, K1BQT's article in the January 1988 issue of Ham Radio - you can see a photograph of Rick's transceiver on page 23 of Sprat issue 64. My 40m transceiver fits comfortably into the same sized box, but has improved receiver performance.

The receiver has a "strong front end using dual-gate MOSFET with plenty of local oscillator drive from a separate VFO and buffer. The VFO tunes 3.240 - 3.170MHz, giving receiver coverage of 7 - 7.07MHz. A Chebyshev ladder filter using low cost 10.240MHz crystals follows the mixer and has a bandwidth of 1KHz with the capacitor values shown. Next comes the usual MC1350/NE602) IF amplifier - product detector combination, with a VXO allowing the BFO to be adjusted over a wide range of frequencies.

The agc is the best design I have come across for this type of application. It is based on the circuit found in the Atlas 180 and performs very well for such a simple arrangement. The addition of R23 and C41 to the more usual circuit allows the agc to respond rapidly to noise spikes without "hanging" the receiver. R22 should be adjusted with no input signal so that IF noise just begins to quieten.

An optional audio filter and an LM386 output stage complete the Rx signal path. The receiver draws well under 100mA from a 13.5V supply.

The transmit chain produces an output of well over 5W and draws about 500mA from a 13.5V supply. The drive level can be adjusted using R31 and should be reduced until the output power just begins to drop - this keeps the output spectrum nice and clean.

A VXO circuit around U5 allows the transmit frequency to be pulled into the middle of the crystal filter passband. On key down into a dummy load, with the audio filter switched in, C56 should be adjusted for maximum sidetone signal.

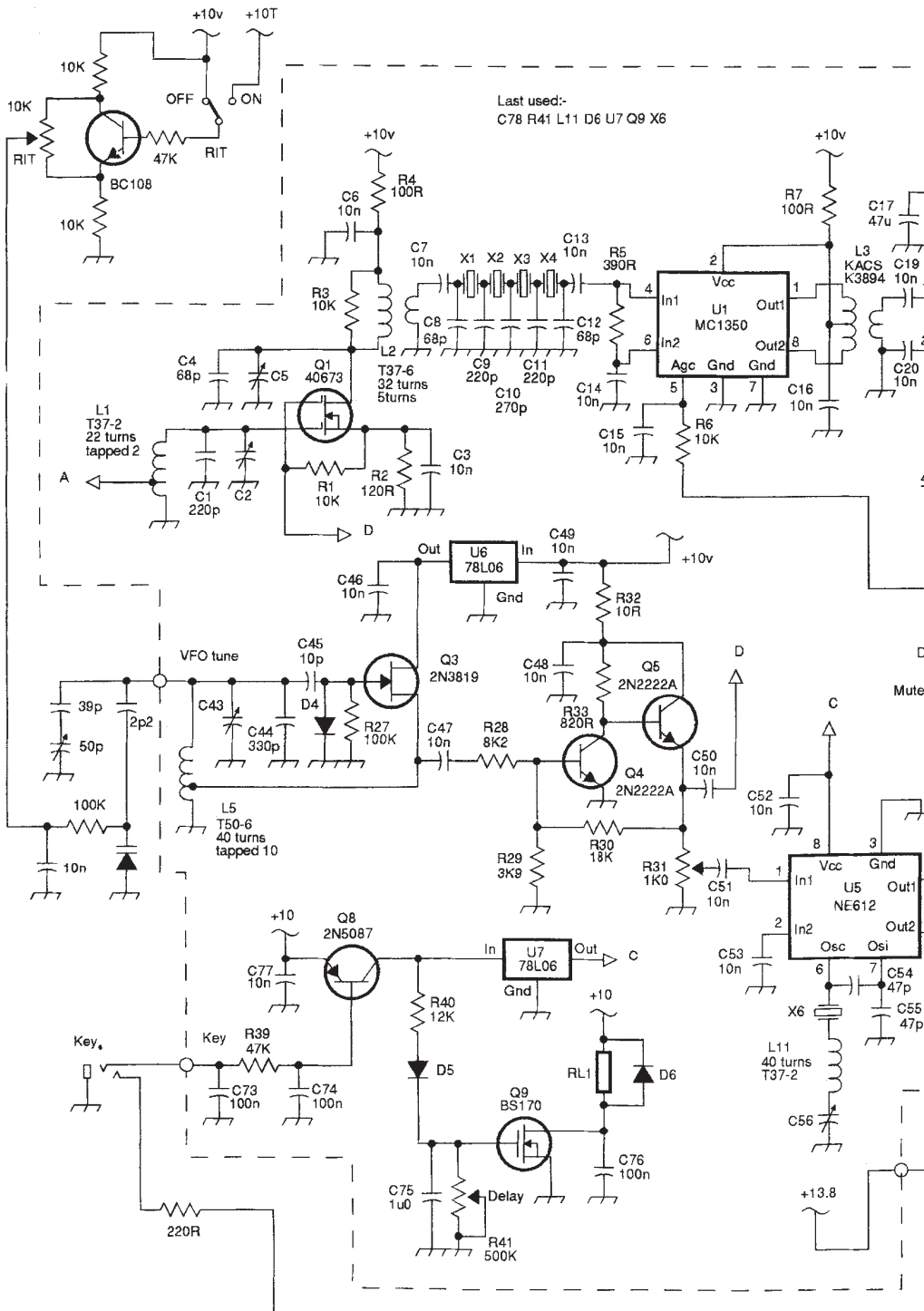
Sidetone level is adjusted with R26. Make sure that the sidetone level is being controlled by R26 and not the Rx agc circuit, otherwise there will be agc delay when switching from transmit to receive.

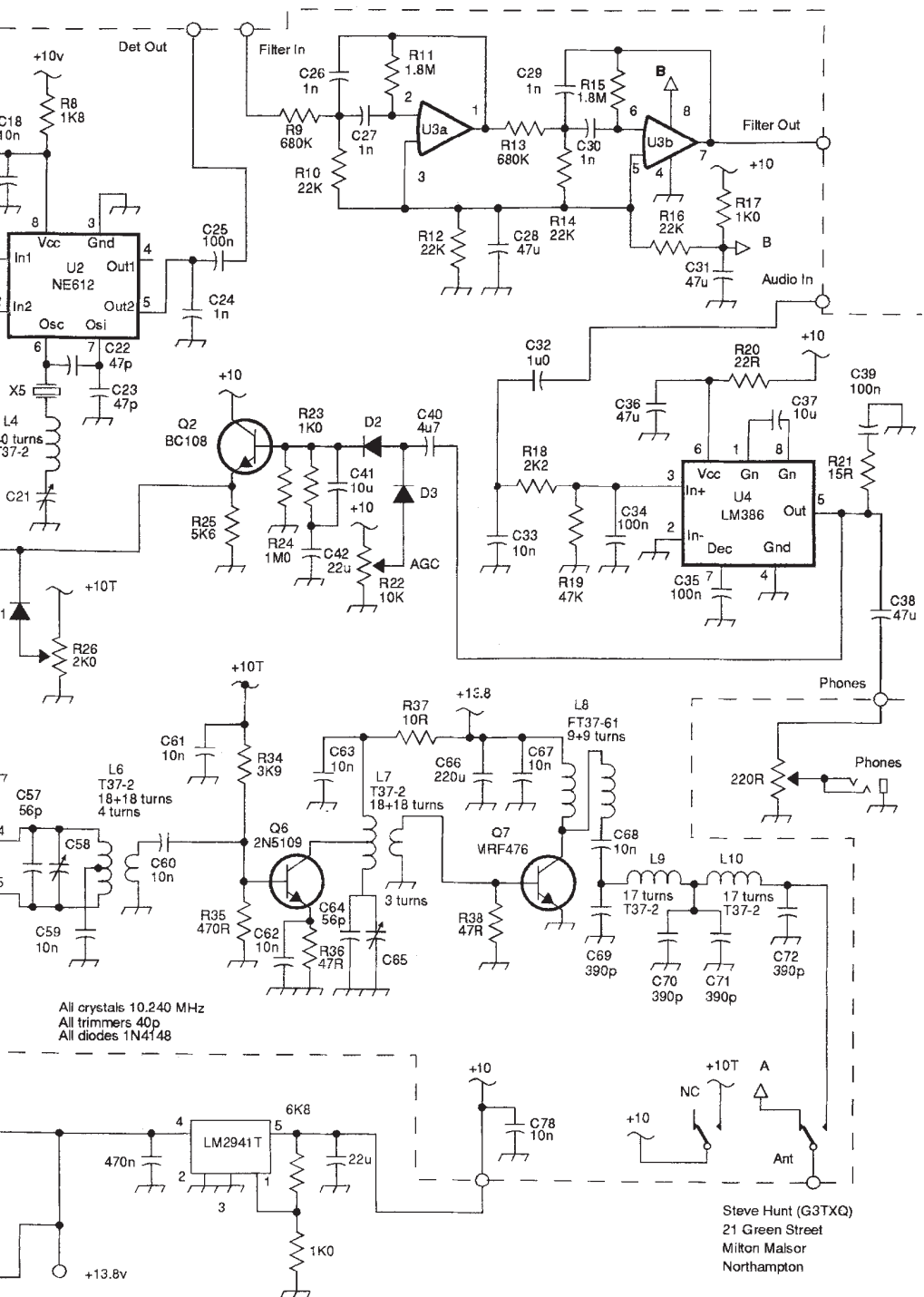
The RIT circuit components were assembled ugly style on the back of the RIT potentiometer. Almost any varactor diode can be used if the value of the 2p2 capacitor is chosen appropriately. The voltage regulator and Q7 are bolted to the rear of the transceiver case for heat sinking. The use of the relatively expensive LM2941 regulator allows stabilisation down to input voltages as low as 10.1V - very useful for battery operation.

I use a 3.5mm stereo jack for the key input - this allows me to feed power to the outboard iambic keyer (via a 220 Ohm resistor for protection). I use a similar jack for the audio output so that I can use readily available headphones.

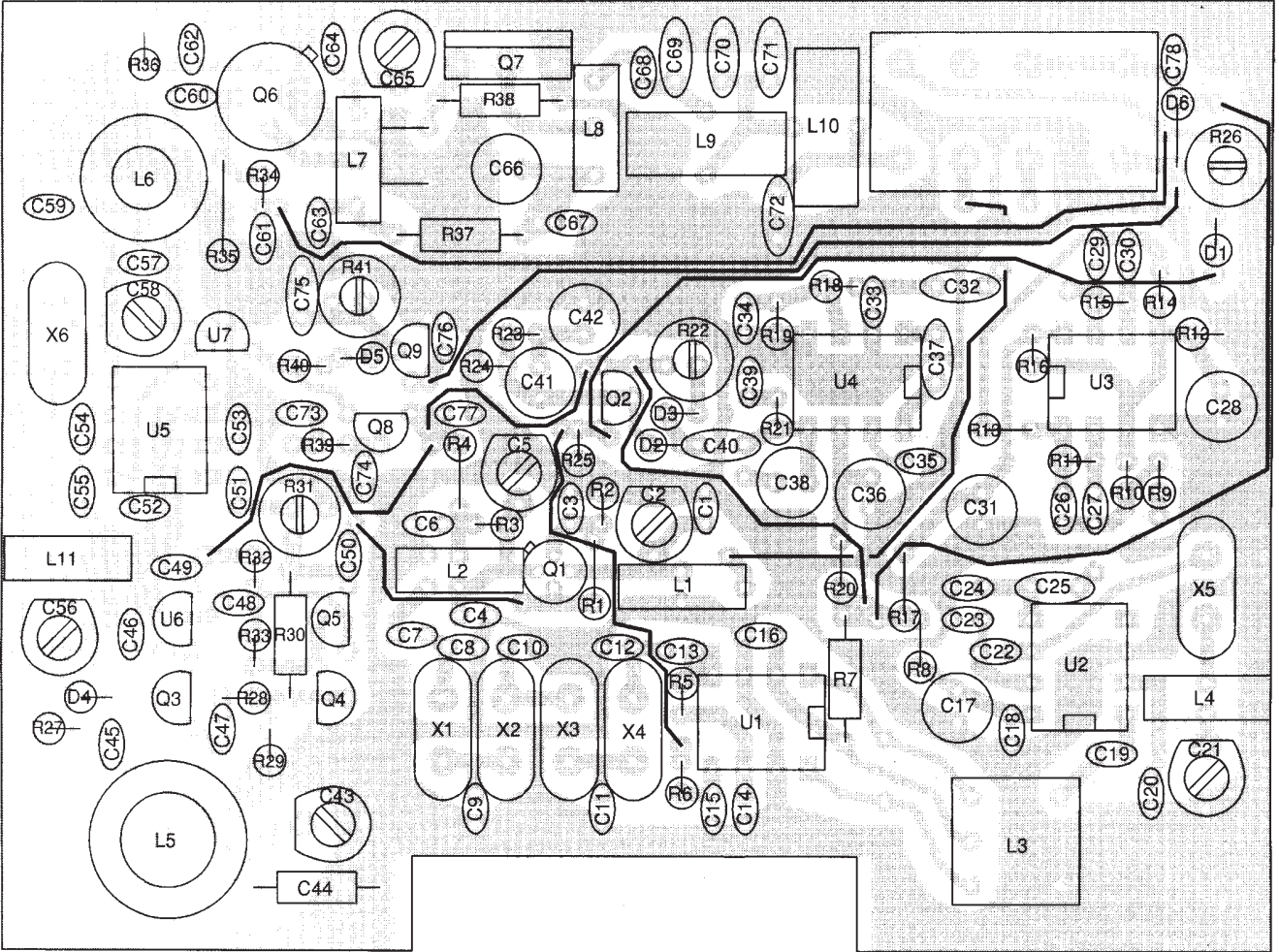
### AN INFORMATION LEAFLET ON THE MALTA 40

[including circuits, layout, component sourcing, table of voltages etc.]  
is available for a large [A5] SAE from the author at the above address

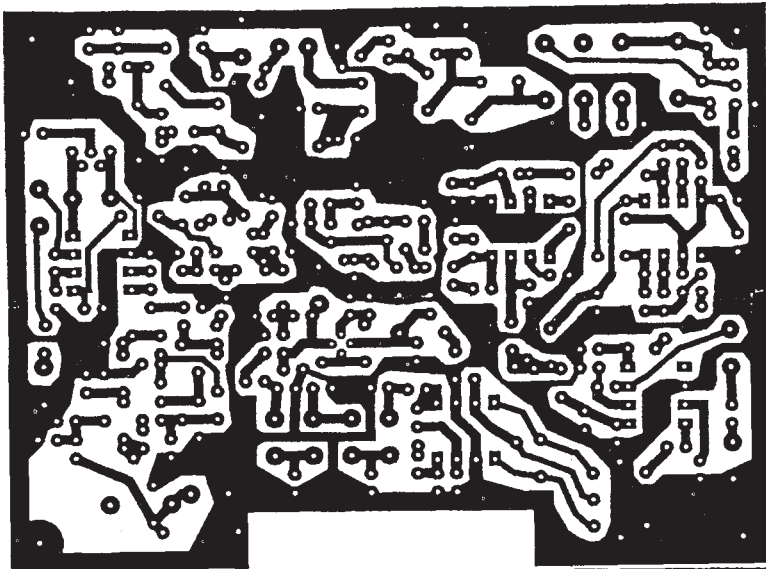




Steve Hunt (G3TXQ)  
 21 Green Street  
 Milton Maisor  
 Northampton







## SPRAT - SPACE - SIZE - A Statement from G3RJV

Avid SPRAT readers will notice that this issue has failed in the usual editorial policy of having two-thirds technical content in each issue. This was because of the large amount of text only material submitted. Even so several articles were shortened. I hope to restore the usual format for the next issue by going "technical articles first then text items where they fit". My apologies to waiting authors.

**THE RSGB AND EMC DIRECTIVE** : I have received an interesting letter from G3RZP, following my editorial in the last issue and a follow-up letter from DJ1ZB. I hoped to publish these in this issue but they occupy almost three pages. Apologies to both Peter and Ha-Jo. Perhaps next time ! Any member who wishes to see the text of these letters please send me an SAE.

# THE G QRP CLUB ANTENNA HANDBOOK

Edited by Peter Linsley, G3PDL and Ty Nicholson, GM0LNQ  
Antennas, Tuners, Accessories etc. 160 pages

The Complete Collection from SPRAT to the end of 1991

**SPECIAL MEMBERS PRICE £4.50 + £1.43 post**  
Europe £4.50 + £2.24 US/DX \$14 [Surface]

**MAIL ORDER FROM:** The Shoreham Copy Centre, 3 John Street,  
Shoreham-by-Sea, Sussex, BN4 5DL [Cheques : "G QRP CLUB"]

# THE MFJ-249 HF/VHF SWR ANALYZER

## A SHORT REVIEW EXTRACT BY G3RJV

**The MFJ-249 HF/VHF SWR Analyzer can:**

- Measure an antenna's SWR at a specified frequency
- Find the frequency at which the antenna has the lowest SWR
- Adjust an antenna for minimum SWR
- Adjust an antenna tuner
- Measure the feedpoint resistance of an antenna
- Test and tune stubs and transmission lines
- Determine the velocity factor of transmission line
- Determine the characteristic impedance of transmission line
- Test RF transformers
- Test RF chokes
- Measure the resonant frequency of a tuned circuit

**It also incorporates:**

- Frequency Counter from 10Hz to 170MHz
- A Signal Source from 1.8MHz to 170MHz

With a simple additional probe (see text) it can be a Dip Meter

I like simple instruments and my first impression, on being sent the MFJ-249 to evaluate, was that this will be a simple piece of equipment to use.

The MFJ-249 has few controls and the manual is simple. The basic operation of the MFJ-249 is measuring or adjusting the SWR of an antenna and this is simplicity itself. Connect the antenna to the unit. Set the range to the band and the tuning control to the frequency with the frequency readout. The meter gives the SWR. The tuning control can be rotated to "scan" for the lowest SWR. I tried it with several antennas all with successful results. I then pulled out all my Antenna Tuners and connected each in turn to my doublet antenna. I used to MFJ-249 to resonate a range of bands with each tuner. It was easy and told me quite a lot about the merits and otherwise of the tuners.

The MFJ-249 works by putting a low level signal [about 3mW] into the unit being tested. Obviously better than tuning up an antenna using a transmitter. What criticisms I have relate to the oscillator. The oscillator does exhibit a fair degree of warm-up drift. The tuning control is also very coarse. In practice neither of these is much of a problem because for most uses of the unit exact frequency location is not required.

### "DIFFICULT" ANTENNAS

Recently there has been a lot of interest in reduced space antennas which probably reflects the shortage of garden space in modern homes. A lot of ideas for small outdoor and indoor antennas have appeared in SPRAT and it is an area for keen experimentation. Such antennas are notoriously difficult to tune and "get right". The MFJ-249 would be a great help in such experimentation.

I have an ancient set of Hustler Whips and loading coils bought on the flea market at the Dayton Hamvention. On a cold damp winter's day in a local park the MFJ-249 enabled me to set my Hustler Mobile Whips up on any band quicker than I have every known before. This is definitely an instrument to take for portable or mobile use on the HF bands!

### OTHER USES

MFJ provide an external input socket to use the unit as a Frequency Counter. The counter is more than adequate for the amateur test bench. Its frequency range is from about 10Hz to well over 200MHz with a sensitivity of 200mV in the HF range. A worthwhile piece of equipment in its own right. The oscillator could also provide a useful signal source for the test bench. Many of the other features require the use of a few other components and are extensions of the basic SWR measuring facility.

A very interesting application is to turn the unit into a wide range Dip Meter. In an article in the QST of November 1993, "An Accurate Dip Meter Using the MFJ-249 SWR Analyzer", David M. Barton, AF6S, describes a simple add-on probe. AF6S devised a single probe [four components] which can be used to provide accurate and clear dip measurements over the whole range of the instrument. He claims that the result gives a better dip meter than you can buy.

### CONCLUSIONS

This is the most useful piece of test equipment I have found for a long time. It works well in its intended function, and very useful that is too. The bonus is that the MFJ-249 can perform a whole range of useful functions on the test bench. It could make a good starting instrument to equip a beginner's test bench.

**The MFJ-249 costs £229 and is available from: Waters and Stanton Electronics, 22 Main Road, Hockley, Essex. SS5 4QS. Telephone : (0702) 206835 or 204965.**

## WIN AN MFJ 249 FOR YOURSELF!

The review opposite is a very condensed version of a review written for Radio Communication. On returning the test unit to Waters and Stanton, they kindly invited me to offer it as a prize in a G QRP Club Competition. The rules are simple. On a postcard, or the back of a sealed envelope: Print your Name, Full Address, Callsign and Club Number and List THREE SIMPLE FUNCTIONS OF THE MFJ249. Send the postcard to G3RJV [QTH listed on inside cover of this issue of SPRAT]. The first correct entry drawn from this mail, by Waters and Stanton, will receive the MFJ 249 as a prize.

### FROM THE CLUB MEMBERSHIP SECRETARY

John Leak G0BXO, Flat 7, 56 Heath Crescent, Halifax, HX1 2PW  
Tel : 0422 - 365025

Thank you to members for prompt subscription payments. Thanks also for the extra contributions to Club Funds sent in addition by many members.

Please remember we do not issue receipts unless we receive an SAE. Your receipt is the updating of the Subscription Code on your SPRAT address label. Remember also that there is a time lag of 4 - 5 weeks between label printing and despatch of SPRAT.

We do make mistakes sometimes !! Please write if you think we have erred

**BUT PLEASE QUOTE YOUR CLUB NUMBER AND CALLSIGN**

#### CHANGE OF ADDRESS

Please remember to notify the club of changes of address. Each quarter a number of copies go astray or are returned by the Royal mail. Remember SPRAT labels are printed some weeks before publication date and changes take time to work through the system.

#### SPONSORED MEMBERSHIP

This scheme continues to work very well. If you already sponsor a member and wish to continue to do so, please send payment with the SPONSORED MEMBER'S call and club number. If you have already sent payments, you have not been forgotten - I have a record of all payments made and will inform you when your contribution is used.

#### FOR OUR BELGIAN MEMBERS

Members in Belgium can now pay subscriptions to:

**René P. Anrijs, ON4KAR [Member 3155] Fonds des Vault, 69A. B-6540 BIESME. Belgium**

#### CAPSTAN PRESS QSL CARDS [Members Handbook]

It has been reported that mail has not been answered by Capstan Press, nor is the telephone answered. If anyone knows about this company [see advert in Handbook] please contact G3RJV.

## SUPERHET QRP TRANSCEIVERS

This proven range of Transceivers designed by Rick Littlefield K1BQT  
is available in 40, 30, 20, 17 and 15 metres:

Crystal Filter Superhet Receiver - Stable VFO with Capacitor Tuning - 8:1 Reduction Drive  
Wide Range AGC - RIT - Audio Filter - Sensitive Receiver - Side Tone - Adjustable delay Break-in  
5 watts Output - Fully Buffered and Filtered Transmitter - 12 to 15 volts DC operation  
Compact Size 100x100x50 - Ideal for Shack or Holiday - Pre-punched Silk Screened Cabinet  
Detailed Manual and Diagrams - A Comprehensive Single Board Construction Kit.

**KIT FORM:- £99.95**

**ASSEMBLED & TESTED:- £139.95**

**POST AND PACKING FREE - CHEQUE, ACCESS/VISA**

**LINK ELECTRONICS, 216 LINCOLN ROAD, PETERBOROUGH. PE1 2NE**

**Tel: +44 [0]733 345731 Fax: 44 [0]733 346770**

# EUROPE FOR QRP WEEKEND 1994

The rules for this internationally recognised QRP event organised by the OK and G QRP Clubs appear below. This year the G QRP Club will provide a one year free membership for the winner from each continent as well as the usual certificates.

## RULES

1. DATES AND TIMES. From 1600 gmt 7th October 1994 until 2359 gmt 9th October 1994.
2. MODE AND FREQUENCIES. CW only on 3560, 7030, 14060, 21060, and 28060 KHz all + 10 KHz.
3. POWER. Not to exceed 5 watts rf output. Stations unable to measure output take half their dc input power (10W = 5W and so on).
4. STATIONS ELIGIBLE. Any licenced radio amateur.
5. CONTEST CALLS. Call CQ EU QRP when seeking contacts.
6. CONTEST EXCHANGES. For a contact to be valid RST, power output, and the name of the operator must be exchanged and logged.
7. SCORING. Contacts with own country do not score. European stations score 1 point for each European contact and 3 points for each contact outside Europe. Stations outside Europe score 5 points for each contact with Europe. The final score is the sum of the points obtained on each band used.
8. LOGS. Separate log sheets must be used for each band, showing for each contact date, time, call, RST, power and name sent.  
A summary sheet must be provided showing name, address and callsign (please write legibly), claimed score for each band, total claimed score, and brief details of equipment used. Logs must be submitted to P. Doudera, OK1CZ, ul baterie 1, 16200 Praha 6, Czech Republic, by 30th November 1994.
9. The leading station in each continent will receive a merit certificate and one year of free membership in the G QRP Club. Second and third in each continent will receive a merit certificate.
10. DISPUTES. In the case of any dispute the decision of the Organisers shall be final.

## CLUB TALKS IN THE SOUTH OF ENGLAND

The following members have kindly agreed to present talks on QRP to local radio clubs:

**Gerald Stancey, G3MCK**, 14 Cherry Orchard, Staines, TW18 2DF [0784-450600] Gerald has recently become the G QRP Club Communications Manager.

**Steve Hartley G0FUW**, 5, Sydenham Buildings, Lower Bristol Road, BATH, Avon. BA2 3BS. Steve is willing to give talks in the Bristol and south west area.

**Wayne Dillon, G0JJQ**, 49 Goring Way, Greenford, Middlesex, UB6 9NN. Tel: 071-589-5111 ex 3478 during office hours.

**Ken Whillock, G4ZLX**, College of Engineering Training, Civil Aviation Authority, Highfield Park, Heckfield Park, Heckfield, Basingstoke, RG27 0LD. Tel: Home 0258-455507, Work 0734-225019, FAX 0734-225050. Ken lives in Blanford Forum but works during weekdays at the above address.

## ELF BEACON

In conjunction with ITIS [Technical Institute] and Sismic Center at St. Peter's Church in Perupia a beacon has been activated on 6KHz with a schedule as follows -

1 minute continous signal -- callsign + ww locator -- switched power 1w, 10w, 100w.

The antenna is a 4 meter loop resonated at 6KHz. Please QSL to Callsign Via Buro. Reports on tape [standard cassette] welcome, a new tape will be returned for each report. [Any Club 'LowFers' ?]

# 10th YEOVIL QRP CONVENTION FUNRUN 1994

- CLUB FUNRUN STATIONS** GB2LOW at QTH of G3ICO  
G3CQR at QTHR  
G3GC at QTHR
- WHEN** Monday 2nd May to Friday 6th May,  
8.00 pm to 10.00pm UK Clock Time each evening.
- FREQUENCIES** 3560 KHz and 7030 KHz both +/- 10 KHz. CALL "CQ FR"
- CONTACTS** Contacts must be between QRP stations, maximum 5 W output.  
Stations may be worked ONCE ONLY on EACH BAND during the FUNRUN but  
FUNRUN STATION (all operating each evening randomly for one hour on each  
band) may be worked ONCE EACH EVENING on EACH BAND.
- SCORING** Each QSO with another QRP station scores 10 points.  
Each QSO with FUNRUN STATIONS G3CQR or G3GC scores 20 points.  
Each QSO with FUNRUN STATION GB2LOW scores 50 points.  
The score for each band will be the total of the four best evenings. The overall  
score will be the sum of these two..  
All duplicates must be marked and no points claimed. Points will be deducted for  
unmarked duplicates at twice the QSO value.
- EXCHANGE** RST, Serial Number (see below), Output Power, G-QRP Number.
- SERIAL NUMBER** The three figure serial number should start at a random number of your choice not  
less than 100 and must then be incremented by one for each QSO. However the  
three Club FUNRUN Stations listed above will all commence at 001 in the usual  
way.
- ENTRY SHEETS** Separate log sheets for each band, with sub-totals for each evening, preferably in  
style cover sheet stating Output Power, Rig and Aerial used.
- CONVENTION ENTRY** Bring your entries to the Convention by 1pm on Sunday 8th May, Certificates for  
the highest score on each band, the highest total overall score and to the station  
consistently using the lowest power will be presented during the afternoon.
- POSTAL ENTRY** Separate Certificates will be awarded to the top postal entries.  
Logs should be sent to G3CQR QTHR by 17th May 1994.
- NOTE BENE!** There are 540 extra points to be won by working the three FUNRUN  
STATIONS on each band evening! Good luck and have FUN!

**The Convention is on 8th May 1994 at the Preston Centre, Yeovil - admission £1.50  
Doors open 9am - GB2LOW talkin on S22 - QRP orientated trade stands.**

**A programme of four talks has been arranged:-**

- (a) Low Angle Propagation - Rob Micklewright, G3MYM
- (b) Conversion of 'Marlin' & other QRP TXs into TCVRs - Derek Alexander G4GVM
- (c) Variable Freq. Crystal and Ceramic Resonator Oscillators - Mike Hall, G3USC
- (d) A National Radio Society - Dick Biddulph, G8DPS and John Forward, G3HTA

Adjudication of the Challenge Contest will be made during the lunch break and the awards for this, the  
FUNRUN & prize draw will be made during the afternoon.

## ANTENNAS - ANECDOTES - AWARDS

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

FEEDING AN END FED ANTENNA BROUGHT INTO THE LOFT AT THE BACK OF THE HOUSE from a rig in a shack at the front of the house is a problem often raised by members. The first decision required is where to put the ATU. The answer is that it must be installed in the loft, where the antenna enters the house. The connection from the ATU to the rig must be via co-axial cable of suitable impedance. Do not try to save money by using cheap or second-hand co-ax. Use good quality new co-ax of the required impedance. To allow for multi-band operation, when running the coax up to the loft also run at least two, 3-core cables from the shack to the loft at the same time. Four of the wires in these cables will be used to provide switchable, 3 band operation from the shack, as described shortly, and the other pair to allow either a key or headphones to be used at the remote end of the cable when tuning up. One will also require three suitable ATUs, tuneable to the desired bands, and three double pole, make/break relays. Suitable ATUs are Z-match units such as those described on page 18 of the Club "Antenna Handbook", or page 12.50 of the RSGB "Communications handbook" (Fifth Edition). For QRP work up to 20 watts receiving type capacitors will be suitable in these ATUs. These can often be found in discarded broadcast receivers. The inner of the co-axial cable is commoned to one side of each of the three sets of relay contacts, and the other contact is taken to the live co-axial input connection on one of the ATUs. The antenna is commoned to one side of the other set of relay contacts, and the other side of each set is taken to the antenna terminal on one of the ATUs. Make sure that when a relay is energised the co-ax, input and antenna output connections both go to the same ATU. Next, common one of the six wires used for control purposes to one side of each of the three relay coils, and an individual wire to the other side of each of the coils. Connect a jack socket to the remaining pair of wires so that a remote key or jack can be plugged in. At the shack end, terminate the co-ax on a connector which will mate with the rig output. Connect the common wire from the relay coils to the - terminal of the relay power supply, and connect the other three wires via a suitable 3-way selector switch to the + terminal of the relay power supply. Also connect a jack plug to the remaining pair of control wires so that they can be jacked into either the key or phones socket on the rig. Make your antenna as long as you can, but not exactly resonant (60 or 70 ft rather than 66 ft for example). If possible fold around the loft floor a counterpoise for each band is use, consisting of a quarter wavelength of wire. Connect these to the ground terminal of the appropriate ATU. A simple method of tuning is as follows. Tune the RX to a busy part of the band, plug in the remote phones, then adjust the ATU for maximum signals. Then change over to the key and tune for maximum output on an rf indicator coupled to the antenna; this should produce an acceptable swr at the rig. Do this for all three bands, then one can select ATUs from the shack by means of the switch. From 7 MHz upwards it should be possible to cover most of a band with no retuning. On 3.5 bandwidth will typically be 40 to 80 KHz. The inner of the co-ax is, of course, connected to the ground of the three ATUs. (if you need a full circuit diagram send a sase plus a 19p stamp to G8PG).

**A GREAT MANY OF OUR AWARD HUNTERS ARE KEEN CW OPERATORS** but one wonders how many of them have seen a copy of the only magazine devoted entirely to morse matters, namely "Morsum Magnificat"/ Whether you are interested in operating, morse equipment old or new, different types of morse code, or the experience of morse operators. MM has something to offer you. Full information from "Morsum Magnificat", 9, Wetherby Close, Broadstone, Dorset, BH18 6JB, England.

**ONE MAN WHO KEEPS THE QRP SSB FLAG FLYING** is Byron, WU2J, who now has the magnificent total of 150 countries confirmed on 18 MHz ssb. That is real QRP DXing!

**I HAVE BEEN USING MY W3NQN 600 HZ FILTER** with my new Ten Tec Corsair for the past 5 weeks, and consider it to be the best outboard AF filter I have ever used, says Jim, G4PPG. Did all you

other guys who got this filter cheap report either direct or to G8PG?? If not, please do so. Incidentally we are currently testing another goodie from W3NQN.

**HAVING AN ANTENNA UP AT 40m** meant that Milan Musil, OK2PAW, was always a big signal in the UK during any major QRP event. Sadly Milan died on 17th July, 1993. We extend our deepest sympathy to his family. There will be something missing from CZEBRIT 94.

**SADDENING TO SEE THE TOP BRASS**, both professional and amateur, arguing about the odd microvolt of radiation from kits whilst faulty thermostats are allowed to roar away like plain gap spark transmitters. What a pity these folks cannot tackle the real interference problems faced by us ordinary people.

**ANYTHING IS POSSIBLE WITH PERSEVERANCE** as Peter, PE1MHO, has recently proved by achieving his QRP Master using voice on frequencies from 50 MHz upwards. Well done!

**THEY USED ONLY TO TAKE THE GREEN STAMPS** now they steal the QSLs as well! Recent comment on Box 88 by a Russian member, Andy, UA1AAH. In similar vein Igor, RZ3ZK (ex-UZ3ZK) sends us a little cartoon showing the postman pushing packets of QSLs through the letter box at Box 88, where they fall straight into the trash can. You have been warned! With the recent change our Russian language callbook is out of date. Anyone wants to trade for an up-to-date one (our present one came from UL7).

### **AWARD NEWS**

**OUR MAJOR TROPHIES ARE AWARDED AS FOLLOWS.** The G2NJ to Peter, G3PDL, for his work in organising our finances, the Members Handbook, and the Antenna handbook. That formally recognises an enormous amount of backroom work. The Suffolk Trophy to John, G3TDZ, for his well known White Rose QRP equipment designs. The Partridge Trophy to Tom VE3FQW, for his compact 9-band Zig-zag antenna. Congratulations to all (See WS report for G4DQP Trophy).

**NEW QRP MASTERS.** Congratulations to G4LQF, PE1MHO, and G0NEW who join the Worshipful Company, together with W2JEK.

**QRP COUNTRIES.** 150 WU2J (ssb); 100 G4MQX, W2JEK; 75 PE1MHO, G0NEZ, G4LQF; 25 G0LFX, G3BPM.

**WORKED G QRP CLUB.** 600 G2DAN; 500 ON4KAR; 320 GM4CFS; 240 G4NBI, G0KCA; 180 G3YLL; 160 G3YXK, G4ETJ; 100 DL1JGA, G0LKX; 80 G3ICO; 60 PE1MHO, G3ETH, W2JEK; 40 W5LYM, G3KCI, G4EIB; 20 2EOACP, G3JHC.

### **SAD NEWS:**

**SAM POLSON GM3RFR** [member 066] died in November. Sam lived on Baltasound [Britain's most northerly island and was well known for antenna articles in the Short Wave Magazine and [I believe] the first QRP club members to achieve a Milliwatt DXCC on SSB. Sam was trying to repeat it all with microwatts.

**ALAN CHESTER G3CCB** [member 0626] died in January. Alan is well known for his G3CCB TUNED BALUN ATU, said by many to be the best ATU design of recent years. It was featured in RadCom and SPRAT and is part of our Antenna Handbook.

**JOHN LONGLEY G0RTO** died in January. John was a keen constructor and helped many other local amateurs around Keighley in Yorkshire.

### **G4TJB QSL CARDS [Members Handbook]**

There are price revisions for the cards sold by G4TJB, please contact them before placing an order. A revised price list can be had from G3RJV for a SAE marked 'G4TJB QSLs'

## COMMUNICATIONS FORUM

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

I approach my new job with some trepidation as Gus has done such a super job it is not going to be easy match him. However my first comment is very easy to write and that is to thank Gus on your behalf for the excellent way in which he has run this column for many years.

**EUROPE FOR QRP WEEKEND 1993** produced activity from over 100 stations, but logs from only 19 of them, of whom only four were Gs. A pretty poor return considering the number of stations on the air. We know that conditions were far from good, but this is exactly the time that the organisers need maximum support. congratulations to DK5RY for 1st place, OK2PG for 2nd, and OK1FKD for 3rd. G3KKQ was 8th, G3ESP 9th, and G0JDA 11th. Full marks to BRS 88921 for submitting the first ever SWL log. The check log from G8PG would have put him in 2nd place had it been competitive. SM6BSM was 6th. UZ3ZK 10th (although he would have been pipped by UA4YAF had the log from the latter arrived in time), and PY7FNE was 12th. All other places went to OK stations, who really supported the event.

**VISITING GUEST HOUSE DD IN PRAGUE** run by OK1CZ and his XYL? Then Travellers Czech, 50 Oakfield Avenue, Harrow, HA3 8TJ can help you, offering either air or coach travel.

### AGCW-DL SUMMER 1993 QRP CONTEST

174 logs were submitted of which 25 were VLP and 112 QRP. In the VLP section LY3BA took first place and Paul G4WQW was the leading UK station in 12th. In the under 5 watt section ON6WJ/P took first place and Bob G0ADH was the leading UK station in 8th place.

### IARU REGION 1 QRP DAY Date: 17 June 1994

Rules as for the Suffolk Trophy, see p26 in 19993/4 Handbook.

If the weather is nice why not go out for a few hours and work/P, remember the leading station this year will receive a plaque.

### OTHER QRP CONTESTS

We now see that many of the major contests have a QRP section. This means that in addition to the events which we list in our calendar it is always worthwhile checking the rules of other contests to see if there is a QRP section. For the last two years the RSGB HF NFD had a QRP section. My local club has entered in both years with gratifying results. As we expected our scores were very similar to those we have achieved in the Restricted Section in previous years. We also found the station was much easier to erect. Why not suggest to your local club that this is the section in which they should compete. Even if you don't want to make a full weekend of it try coming out portable on the Sunday. You will be in great demand on 7MHz.

### A THREAT OR A PROMISE ?

A RSGB Council member recently stated that one of the most pressing problems facing amateurs was EMC and that he could see the time coming when we would all be limited to 20W output.

### PREFIXES

The present situation can best be described as fluid or anarchic. A good source of what is going is the "DX NS" Prefix-Country-Zone List. This is published by:

Geoff Watts, 62 Belmore Road, Norwich NR7 OPU. Price £1.50.

### CODE FREE HF LICENCE

Morsum Magnificat gives more details about this vote at the recent IARU Conference. REF do NOT support a code free HF Licence, they abstained because they did not agree with the wording of the motion.



It also states that the passing of the motion was warmly applauded by the delegates and this was the only motion to receive such applause.

**DIGIMODES** It was good to find the the 80m band plan for these transmissions stops at 3580 KHz and not 3560 KHz as previously reported. However we still suffer from this type of interference on 3560 KHz and according to Tony GWONSR it is audible for virtually 24 hours a day at his QTH. Does anybody know if this is an amateur station is it audible country wide?

**XX**

There is no doubt that QRP is rapidly gaining a world wide band of followers. Recent articles in QST have addressed the difficult subject of power management and have extolled the pleasures to be obtained by using simple equipment.

The growth of QRP also means that we get letters from overseas amateurs which are not written in English. I can manage to read: French, German, Spanish. If there are members on whom I could call for assistance in other languages I would be most grateful. Please let me know the language, your proficiency and which it is reading or writing.

## NOVICE NEWS [Notes from G3RJV]

**DAVID GOSLING G0NEZ**, the usual writer of this column has sadly resigned from his post as Novice Services officer for the club through increasing ill health. We thank David for his hard work and helpful service to Novice members with the wish that his health improves. A new Novice Column writer will be appointed in time for the next issue. David has supplied several letters and items of interest to novices for this issue.

**Richard Chatwin, 2W1CCK**, Group Scout Leader of the Torfaen Scouts in Cwmbran, Gwent is the club secretary of the newly formed Torfaen Scouts Amateur Radio Club, affiliated to the RSGB which is to register as a Novice Training Centre in a few months time. The club is a member [8067] of the G QRP Club under its callsign GW0UKT.

**Ronald Smith, 2E1CEY**, writes from Chesterfield as a 74 year old novice licence holder. He has been interested in amateur radio construction all his life. Ronald intends to take the morse test and get onto the HF bands with home built equipment. We look forward to hearing his cw on the bands!

Another novice member with a few turns on the coil is **Peter Wood, 2E0AGU**, who served as an RAF wireless operator in 1945. Peter works 80m with a Howes CTX80 transmitter and an ex-naval Marconi Atlanta receiver.

**John Leak G0BXO**, our Membership Secretary tells us of several members of the Halifax club working on their CW, including Ben, 2E1BBC. John is keen to work class A novices and can be found most Sundays on 10.106MHz, 0745 - 0845 local time.

**Carl, 2E0ADH**, in Darlington, lists his station as an Icom 701, MFJ Versa Tuner II, Star MasterKey MkII with a Bencher Paddle and a Datong FL2 audio filter. His main antenna is a G5RV. He offers a special thank-you to club member Costas, SV1ALM, who responded to his request in SPRAT for a Icom 701 manual only a few days after publication of that issue. Costas refused to take any payment for supplying the information.

Until the new Novice column writer is announced, you are invited to **send letters and news of novice interest to G3RJV**. Although pressure of club business does mean that he may not be able to enter into detailed discussions.

## WINTER SPORTS 1993

### What a Humdinger ! A Report By G8PG

Bad conditions? Low sunspot numbers? The QRO boys may weep and wring their hands, but as usual the QRP boys got on with the job, put more than 40 countries on the air, and broke more than one record. This time we will lift just one log after another off the pile and give you the highlights. 17CCF reports working 20 new members during his 45 QSOs which included W/VE. His new local 17FFE was also active on QRP. KD4GLC had not been on since July and only worked two countries, but one of them was on 80m with Chris, GB0QRP, who reckons it his best yet on that band! The usual enormous check log from Chris shows that he also worked W3TS, W1FMR and N4AR on 80, W3TS on 8 bands, and just about everything else going. Moving to the other extreme antennawise, DL2MFJ used his 80 cm diameter indoor magnetic loops to work two-way QRP with 9J2BO, W1FMR, N4AR, K1ZZ, N1QY, W3TS and AA2U, plus PY, 9J2 and UA9 to give five continents. OZ6ABZ worked 14 countries and W3TS. "Taking part brings back the flavour of one's first contacts" says GI4PCY. With 17 countries including PY7NE, and VE he could afford to be happy. No DX for LA7FF, but fun working 16 EU countries. Despite S9TVI in reverse\* F5JDG worked 4 countries during 8 QSOs; perseverance pays! The big thrill for G3BPM was N4AR on 80m; he also worked W/VE on 20. Despite family QRM and a low antenna GOLQE enjoyed 15 QSOs. 9J2BO, PYFNE, WX7R (Oregon) and other Ws left G4JFN laughing all the way back to the QSL Bureau! ONERS for 80 and 40 brought DL1JGA lots of contacts, but no DX. GOTYM enjoyed his first Sports and worked 8 countries. "I did better than last year and it was nice to hear so many non-members taking part" says GI4CBG. G3LQI made it with 6 W/VE members including VE3ABT and VE2KN. G4DHZ had fun working 7 countries. "Glad to meet so many old friends during my 43 QSOs" says OK2BMA. No less than 50 of the 65 QSOs made by VE2KN were with Europe, covering 11 countries. G0SFV racked up 54 QSOs with 10 countries. QRP with a difference came from the 12 tube, HB, 80m transceiver of PA0FKP, which hooked him 5 countries. (The only log with a circuit diagram of the rig!) Another newcomer having fun while working 6 countries was G0TWA. G0KCA was not unpleased to make it with QRPer W1FMR and WB2AFT. Despite his health problems The Laird of Clermiston (GM3OXX to you) managed 150 contacts with W on 4 bands and PY7FNE. The Sports would not be the same without you, George. G3ICH offers 18 countries including W, but regrets that health problems forced him to use commercial gear. QSOs with 5 Ws and 12 other countries helped G8IB to celebrate the New Year. Four W/VE out of 14 contacts is the score for GD0IFU. (Incidentally, if the same percentage of people from other countries submitted logs as did our Isle of Man members, we would need to employ a Secretary to deal with the input!). GW3SB had fun and met members. GM0GNT enjoyed it and hopes to claim some Awards soon. Another newcomer, G0TDK, filled his log with 58 QSOs to 12 countries. Early morning on 80 brought G3MJX W3TS and W1FMR, while 20 produced W/VE. "I have improved my antenna - parts of it are as much as 7 feet high now" says G0KCCJ, who made 48 QSOs to prove it. Only 6 two-way for DL6ZLG, but one was with AA2U, so no grumbles. 28 Ws and 2 VEs was the score at W4/G0FSP. With some as far away as W7 and VE4 this represents good DX. ON4UP made over 100 contacts, including 9J2BO, PY7FNE, and ten W/VE. G3BDQ (yes, the "Practical Wire Antennas" Man) rejoined us and promptly had a ball working 40 members in 16 countries including W/VE. G3LHJ put in his usual good performance, including 10 W/VE. Putting the home town of William Shakespeare on the air with 500 milliwatts GB0VLP had to contend with the fact that the QTH was a historical building so the only antennas possible were bits of wire hidden away at the back. Despite this 154 milliwatt QSOs produced 129 members including three in the USA. A great QRPP effort. The usual massive log from AA2U shows 61 two-way trans-Atlantic contacts, including GB0QRP on 80 and 40, but he regrets that not even his 12 element array could get across on 10m this time. He considers conditions down on previous years. As usual this Sportsman makes his log a check log. GM0PHG had fun with 92 QSOs including 6 W/VE members. GU4YBW submitted a magnificently presented log (hard covers etc.). His 86 QSOs included KP4, UA9, and three W QRPer. He also gave many members the thrill of a new two-way QRP country. G8PG had four W/VE contacts and also RA9CEI who on New Years Day was sending CQ greetings to all members. In QSO he said he had a problem; it may have been local electrical noise, but we are not sure. G3DNF was delighted with the amount of activity and worked some new members. Using his Up-and-Outer beam (in SPRAT soon) DL2HRP made it with 5 W/VE

stations. The usual enormous W3TS check log shows over 100 QSOs, over 90 of them two-way QRP with 17 European countries. And he says he felt activity was down this time! He could not get across on 160, but heard G3VTT, although Colin may have been QRO. PA3BHK made it with AA2U and W3TS, a 1w UB5 on 28 MHz ssb, and some local VHF boys. he suggests starting the WS on Christmas day - one can only conclude that he is an out of work divorce lawyer looking for clients! Away from home over Christmas, each operating session for our SWL Bill (No. 5300) involved a 30 mile round trip to "feed the chickens" Despite this handicap he turned in 8 typed pages of log. His excuse for the trips also shows great originality. To show his ARGO "works" DK2VJ turns in a log showing 55 QSOs with 23 countries, including 8 W/VE, and PY. As the Official Referee, G8PG has declared the 1993 World Series Championship game between AA2U and W3TS to be a draw, which is what one would hope for when two such great men compete with each other. He also publicly and officially commends Chris G4BUE/GB0QRP and George, GM3OXX for their outstanding support for the Sports over a period of 15 years. We owe a great deal to these two guys. New member DL4VAN enjoyed his first Sports. Work commitments meant only 20 QSOs for GM4XQJ, but they included 5 two-way W/VE. Local QRN meant only 6 contacts for G4CQI, but he did not give up (SEM QRM Eliminator review coming soon).

NOW TO THE AWARDS. By a whisker the G4DQP Trophy goes to Peter, G3XJS, with Jim, VE2KN, as a very worthy runner-up. The award for the best log from the European mainland again goes to ON4UP. The Difficult Location Award goes to DL2MFJ with his indoor, 80 cm loops. The milliwatt award goes to GB0VLP. The award for putting the unusual location on the air goes to GU4YBW. The award for the best beginners log goes to G0TDK. Very sincere congratulations to all these worthy winners. On a personal note, may I thank the membership for their magnificent support during the 15 years that I have been responsible for the Sports. It has been very, very much appreciated. Please give the same support next year to Gerald, G3MCK, as he takes over. I hope to see you all on the air in the 1994 event. Thanks again. Gus, G8PG.

## **GERMAN G QRP CLUB MEETING**

**KOENIGS WUSTERHAUSEN 13-15 MAY 1994**

**For Details Contact :**

**DK4UH Rudi Dell, Weinbietstr. 10, 67459, BOEHL-IGGELHEIM. Tel: 06324/64116**

## **FRIEDRICHSHAFEN : HAM RADIO 24-26 June 1994**

**G QRP Club : Hall 7 Stand Number 715**

The G QRP Club has a stand at the Friedrichshafen Convention 1994 and G3RJV, complete with caravan, will be attending. It is also hoped that several OK members, with OK1CZ, will also attend.

**Members who will be at the convention are invited to join us on the stand - to help if they wish.**

Contact G3RJV or our German Co-Ordinator : Norman Bonnett [G0NNA] DL6NEE, Weidleinsweg 14, 97222 RIMPAR, Germany

## **DAYTON 1994 Come and See Us on Booth 241**

**NATIONAL INSTITUTE OF AMATEUR RADIO** [Bangalore] present an All India Amateur Radio Convention : **HAMVENTION-94**, 9th-10th April 1994. Information from Nagesh Upadhyaya, VU2NUD, PO Box 1129, Bangalore - 560 011, India.

**OOPHS.....**

Missing from Members Handbook : 4645 Gill Parsons G0AOL

SPRAT 77 : VLF SEQUENCE GENERATOR IC1 should a a 4093 [ tnx HB8XY and others]

**SSB COLUMN : Dick Pascoe G0BPS**  
**Seaview House, Crete Road East, Folkestone. CT18 7EG. Tel: 0303 891106**

Like many amateurs I am at times also a keen photographer and a general lover of cameras of all types ( I have over 200!) A love I shared with Luke Dodds W5HKA who passed away in January. Luke stayed for a week at my house in 1991 on his first visit to the UK. There is mention of Luke elsewhere but I shall miss a friend and a fellow collector. The world is now just a little poorer.

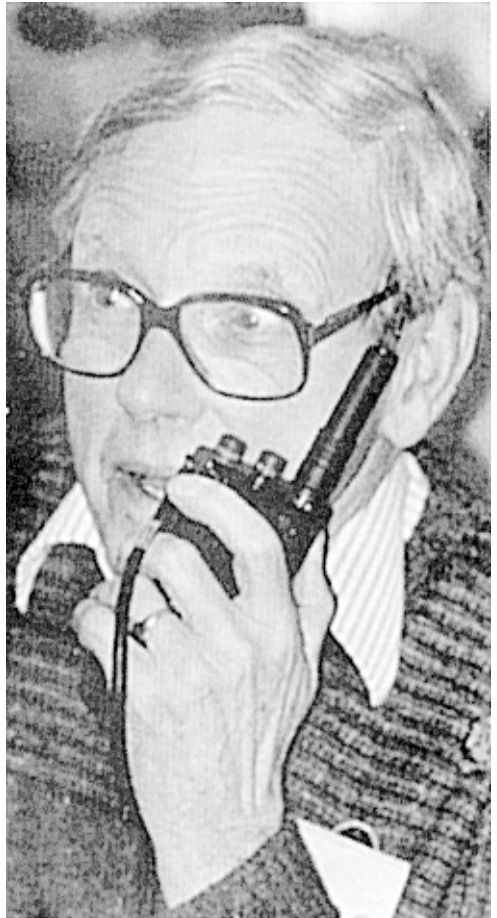
Talking of photography I offer without any apology the photo of our august CW and aerial expert Gus G8PG. Gus strongly stated at the gathering in Rochdale that he had never operated on VHF or UHF. Gus is seen working DX on 70 cms with a hand held, the other operator was Peter PE1MHO but unfortunately not at home in Holland but upstairs at the home of George 'RJV.

Back to SSB, the 10/10 club held one of their gatherings on the weekend of 5/6th February, I spent some time listening but little was heard. Randy AA2U tells me that a DXpedition has been mounted to Peter Island 200m from the Arctic circle operating from 1st February. Randy tells me that he worked them on all bands. The last contact with just 0.37W.

I have recently joined in the free for all on electronic mail. Thanks to the help from Paul (the computer expert) G1PJJ. I was amazed to find out how many QRP enthusiasts were active. There is even a dedicated "thread" for us with some very well known operators about, including Randy and several others. So how many members are on, you can find me at Kanga demon co uk. I check in every weekend and some evenings during the week. I do know of a couple of others who are thinking about it. Let me know if you are on please.

Finally, I am planning my own DXpedition. To HI and hopefully HH from May 11th to May 27th. I intend to operate mostly QRP and will spend some time on CW too. It all depends on getting the licence.

The only letter this time was from Wyn GW8AWT who has been very busy teaching novices in between replacing aerials after a two minute whirlwind broke three of his masts. Wyn lives in the (obvious) wilds of Wales and often drops me a line. His wife is an avid listener and has just started building too.



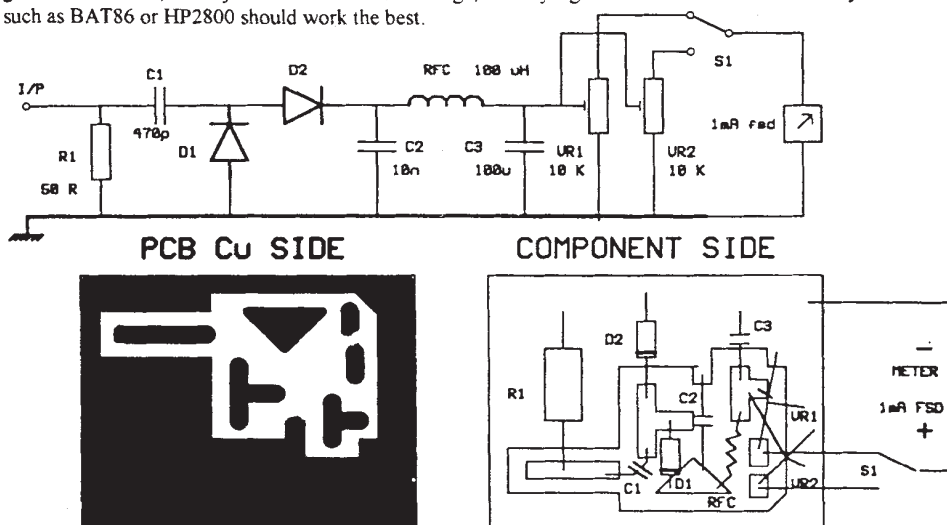
That's it for now, news and views to me at Seaview House, Crete Road East, Folkestone, CT18 7EG or via GB7RMS 72 de Dick

## VHF MANAGER'S REPORT

John Beech, G8SEQ/VK2XYD,  
124 Belgrave Road, Wyken Coventry CV2 5BH Tel. or Fax 0203 617367.

A couple of items for you this quarter. Marco IK0VSV No. 8019 has sent in a circuit for a dummy load & power meter for HF/VHF use. A circuit for a similar instrument was published some years ago in SPRAT. But newcomers won't be aware of this. (I have been using a similar instrument for some years now, made from an old multimeter, but with an external dummy load. - G8SEQ).

Marco says he finds the instrument useful for aligning Tx stages, as it has two ranges selected by S1. He says it needs to be calibrated against a known power meter: (but if this is not available, then short out C1 temporarily & measure DC volts across the dummy load.  $V \times V/R$  then gives the average power into the load; but remember this design will indicate peak power on RF. However, Peak Power =  $V \times V/2xR$ , so either can be read. The scale will be non-linear at very low powers. - G8SEQ). Marco suggests using germanium diodes, as they have a low turn-on voltage, but any signal diode will work & Schottky diodes such as BAT86 or HP2800 should work the best.



The second item is an offer of some boards from Jan G0BBL, No.4229. The set of boards consists of a receiver strip, a main synthesiser (2 x synth. chips) & a local oscillator synthesiser. The complete unit was designed to run in the 900 MHz region, using 3 KHz reference frequency & was processor controlled. Jan suggests that the boards could be used for a 23 cm rig. spectrum Analyzer, wideband scanner Rx or vhf uhf synthesiser. He is experimenting with a 68HC11 microcontroller to drive the boards.

On my initial examination of the boards, it was obvious that the LO board could be made to tune the whole of the two metre band by applying a 3 MHz VXO/VFO/VCO signal to it, thus making a QRP Tx or VHF signal generator. It wouldn't be difficult to make it produce FM. Using all the boards together, an FM Tx for 1.3 GHz can be constructed. In my particular application, a single channel packet radio system was required, so by applying a signal of around 4 MHz for the reference frequency & retuning the RF stages gave the desired result. The MC145152 IC is used on both synthesiser boards & was the chip featured in July '93 Radcom, so more extensive modification is possible, to produce a really sophisticated rig, with most of the hard work done for you.

The boards will be available to G-QRP club members from the Club Stand at Picket's Lock & later rallies this year.

# MEMBERS' NEWS



## by Chris Page G4BUE

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

Tel/Fax: 0903 814594.

Packet: GB7VRB or via the DX PacketCluster

Congratulations to the Yeovil Amateur Radio Club. 40 years ago on the 21st February 1954, the Yeovil Amateur Radio Club made, what is almost without doubt, the first long distance radio contact to be made with a transistor transmitter. On Sunday 20th February 1994, the Yeovil Amateur Radio Club station GX3CMH/P used an equivalent QRP transmitter to that used in 1954 to commemorate the 40th anniversary of the 1954 contact. The equivalent transmitter used at GX3CMH/P was on 3.560MHz and had an output power of about 12mW into a half wave dipole at a height of about 15 feet. In about 3½ hours operating, they made contact with 16 stations at distances up to 265 miles.

G3XJS has been soliciting comments about QRP frequencies for the WARC bands. As a result, Peter is suggesting we adopt 10.116, 18.096 and 24.906MHz, the same as the OK QRP Group, despite this conflicting with the ARCI QRP gang who quote 18.080 and 24.910MHz. Perhaps George, G3RJV and myself can talk to the ARCI gang at Dayton and try and agree on some common frequencies for the WARC bands. Peter also says that with the HF conditions the way they have been recently, it is a pity QRPers are not making more use of them.

Would any member like to volunteer to organise and coordinate some form of QRP activity period for the summer? We have the QRP Winter Sports in the winter and there appears to be scope for something similar in the summer, perhaps concen-

trating more on the WARC bands. Such an event should avoid existing contests, etc and will need to be publicised in the next edition of SPRAT at the end of June.

HB9AQT has been using a Ten-Tec Scout on 15 and 80 metres. When Walter first switched it on he was shocked to hear a very loud hiss. His dealer told him this was normal and that he should add an active filter to the output. He uses the Scout with a windom antenna and says listening with headphones on 80 metres is "horrible", and "after a three hour contest yesterday evening I almost lost my hearing!". Walter says there is no possibility of adding an attenuator to the RX input or to switch off the AGC. Operating on 15 metres is a bit better although "it sounds strange (spurious signals). He says the variable IF filter is insufficient for CW but quite good for SSB. The current consumption of 4.5A for QRP work with 5W is much too high and so is the price, says Walter, at least over here in Europe. Walter is now very frustrated with the Scout and is looking to change it, possibly for an Argonaut.

On the other hand G4FMH has been using a Ten-Tec Scout since November most days on 20 and 40 metres running between 5 and 50 watts. Bill is pleased with the performance on CW (he's not interested in SSB!), and says complaints are few: the tuning action is rather stiff, but more importantly it is rather awkward to vary the output power. You need to put a screwdriver or similar tool into a small hole on the underside of the cabinet to get to a small pot, (*sounds as though the pot needs to be replaced with one on the front panel*). The plus points for the rig is that it has a good variable filter, a built-in keyer, powerful internal speaker, and a digital read out keyer display. Bill thought the price reasonable compared with other rigs where the extras often nearly double the original price.

Is Walter's experience with the Scout typical or is Bill's? Does Walter just have a bad one or has Bill been lucky and got a good one? If you have a Scout, or know someone who has, please let me know what you or they think about Bill's and Walter's experience before I go to the USA on the 26th April. I shall be seeing the Ten-Tec guys at Dayton and can talk to them about it.

Congratulations to G3DNF. Gordon's efforts to obtain the basic IOTA award have paid off. He has just received the certificate with CW endorsement and says he found it more difficult to obtain than DXCC. G4WFZ, who issues the certificates, says IOTA is dominated by SSBers and Gordon

thinks there is scope for QRPers to make a name for themselves on CW. He has tried to persuade the IOTA group to issue an endorsement for QRP on their certificates, but they are reluctant saying that whereas a mode can be verified, the same cannot be said of a self-imposed restriction (like QRP) by one of the participants. Perhaps they may re-consider if more QRPers show interest in the IOTA awards.

**F6ACD** was listening for local stations on 80 metres in the middle of January with his homebrew QRP TX at the ready. Roger came across **D2EYE** calling CQ with a good S7 signal, called him (with other stations) and was most surprised when he got a reply. Roger has been working QRP for over 25 years and although he has worked DX on the HF bands with 3W, this was the first real DX QSO on 80 metres. Unfortunately, his homebrew transmitter was running 8W ("not very QRP, but on 3.5MHz...." says Roger), and his antenna was a five band vertical on the roof of his house. **G3XJS** was delighted to work **9J2BO** in the Winter sports and has ready received Brian's QSL card. Peter says Brian hopes to be QRV during **CZEBRIT 94** at the weekend.

**GØSTR** was QRV from **J3** (Grenada) earlier this year with a QRP station assembled with help from **GØJJQ**. Bill used a Mizuho **MX14S** (2W) to a zepp end-fed half wave antenna for 20 metres to work stations in **FY**, **ZD8**, **W**, **G**, **ON** and **DL** on CW and **J3**, **9G** and an **SP/MM** station on **SSB**. Three of the QSOs represented an excess of 2,000 miles per watt proving once again, says Bill, that QRP can be used to work real DX. Bill's next trip is to France in late August with a possibility of Grenada again in 1995. Club member **ON6CL** will be operating **ON6USA** on the 6th June, 2nd September and the 11th November. **ON6USA** is a special station to commemorate the 49th anniversary of 'Debarquement de Normandie' and will be located in Mons. **PY7FNE** found conditions in the Winter Sports very bad. Despite this, Carlos was able to find a few of the European QRP gang on 20 metres.

**GØTUA** has been active on the air since 1940 when he became an OWL with the Royal Canadian Corps of Signals. He obtained his **VE3AAL** call in 1953 and moved to the UK in 1974. George returned to Canada in 1980 and was issued with his present call, **VE3MMQ**. He retains a flat at Hythe in Kent and therefore acquired the **GØTUA** call for use when in England. He will be visiting the UK in the spring and bringing his Ten-Tec Scout with him (see *HB9AQT's and G4FMH's*

*experience on the previous page George*), but will welcome advice on 'invisible' and loft antennas suitable for flat dwellers. **G4EHT** has modified his 40 metre inverted vee into what he calls a 'delta dipole' for 80 metres. Bill finds it works better than his Butternut vertical.

**GØKCA** received a QSL card from **DJØPJ** for his **FY** operation recently which gave John his QRP **WAC**. John has been trying milliwatting by reducing the drive of his Stockton to 500mW and had QSOs with **OE** and **ON**. **G4YVM** has returned to "key-bashing" after a lapse of eight years because "it always gets through, doesn't it, long after voice fails". David built the Lake Electronics **ATU** and then the **DTR3** for 80 metres which has given him many inter-G QSOs, as well as a nice half hour rag chew with Markus, **DH3PAJ**. **G17IEZ** would like help from any local member who can advise him and his friend, **G14SLQ** on suitable antennas for 160 metres. John is in Armagh and can be contacted on packet @ **GB7WRI**. **EA3ADV** is using a homebrew transceiver on 40 metres and can adjust the power from 4W down to just a few milliwatts. Vincenc has worked around Europe with it and also **W4** and **W8** with only 2W. He is now building a transceiver for 15 metres with a superhet receiver and about 4W out.

**DL2BQD** recommends the 11th edition of the antenna book by Karl Rothammel as being a very useful book and worth reading. Dieter's son, **DL4NSE** has recently joined the club and is using a modified **FT 7** with a balcony antenna in his flat. Dieter used his **FT890** with the lowest power setting to a poor **FD4** antenna at 25 metres high to make 75 QSOs in the **CQ CW** contest. Best zones were 5, 18 and 33. **N2CQR/H18** has recently returned to amateur radio and is hooked on QRP. Bill put his first homebrew QRP rig on the air in September when he used his **VXO 6** (from QRP Classics) on 20 metres. He was so pleased with its performance that has built another one for 30 metres. Bill will be in HI land until the summer of 1995 and will be looking for other QRPers.

That clears the files for this time. Finally, please see the announcement elsewhere in **SPRAT** for our Summer QRP Party on the 6th August. **K8DD** and **AC8W** from Michigan already have their names down, so come along and meet Hank and Stan.

Please let me know how your spring goes, by the 20th May please.

72 & 73, Chris

# **Hands** kits for RF constructors

## **TCV series cw transceivers**

(MFJ style clone) 7 watts, fet vfo with rit, 4 pole IF xtal ladder filter 500hz or 2.4khz, 3 pole Butterworth RX filter.

7mhz kit less case £85 main board only for other bands £69

## **RTX series ssb/cw transceivers,**

2mw out for Cirkit P.A. fet vfo with rit, accepts club SHOWA xtal filter or std 8 pole 10.7 or 9mhz, crunch proof SL6440 front end, tx power control, provision for multiband upgrade. IF board £56, front end/mixer/driver amp £29, vfo + cap £18

## **RX1 series rx**

simple superhet with 4 pole ladder filter 80 or 40mtr full kit less case £45.

Our kits are designed to be a viable alternative to factory produced equipment. The kit manuals are written with the novice constructor in mind and together with our telephone help line should enable you to complete your project easily

**Hands Electronics Tegryn Llanfyrnach Dyfed SA35 0BL Wales U.K**  
**TEL 023977427.**

## **THE ANTENNA EXPERIMENTER'S GUIDE**

*(ISBN 0-9516024-0-3) by Peter Dodd G3LDO*

*200 pages and 120 illustrations on experimenting with antennas.*

*Includes material not previously published.*

Building and using simple RF test equipment.

Measurement of antenna element and feeder resonances

Measurement of impedance; the noise bridge & 3-meter method.

Electric & magnetic field strength measurements.

Antenna adjustment and performance measurement.

Modelling of HF antennas at VHF & polar diagram plotting.

Using computers in measurement and modelling.

Experimental antenna and mast construction.



**£8.90 (£7.90 to Sprat members) 80p P&P UK.**

**Overseas, £1.20 surface mail, £3.00 air mail**

**Equivalent currency or credit card**



**From: 37 The Ridings, East Preston, West Sussex, BN16 2TW**  
**Tel 0903 770804**



# A NEW SERVICE FOR RADIO AMATEURS AND SWLs

from

## ADUR VILLAGE PRESS

ADUR

THE SMALL ORDER

VILLAGE

SPECIALIST

PRESS

The Radio Amateurs' Printer (Chris Page, G4BUE)

SAE for  
more  
details to:-

- QSL cards at competitive prices and in low quantities
- 'No Obligation' offer to design your own QSL card
- New high quality call sign visiting cards
- Design your own log book - QRP number, power, etc.
- Letter headings, club magazines and news letters

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



Christopher J. Page - Member of The British Printing Society and The Association of Hot Foil Printers and Their Allied Trades. VAT 620 5819 54

## RIG BROKEN OR NEEDS ALIGNMENT?

Commercial/homebrew equipment aligned. Commercial rigs and equipment repaired.  
Ten-Tec repair specialist, spare parts ordering service available.

## Adur Communications

Phil Godbold G4UDU, Tel. 0903 879526 (West Sussex) for details (inc evenings and weekends)

# KITS

### \*\*\* NEW MODULES FOR SSB \*\*\*

Modules to build 160m or 80m ssb receivers, transmitters or transceivers are currently available. Other bands coming soon.

The old favourites are still in production (direct-conversion receivers, qrp cw transmitters and transceivers).

All modules are available separately.

AMIDON CORES:  
T37-2 T37-6  
T50-2 T50-6  
T68-2 T68-6  
FT37-43 FT37-61  
FT50-43 FT50-61  
BN43-2402  
FB73-2401

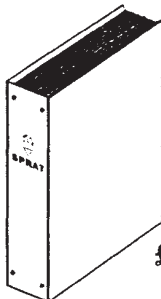
XTALS:  
3560  
3570  
7030  
14060  
KHZ

SEI toroids  
for SPRAT 61  
wattmeter

CIRKIT MODULES:  
HF LINEAR AMP.  
QRP PA. LPF SET

No minimum order. P&P £1 per order, regardless of size.

Send SSAE (9"x4" min) for latest catalogue to:  
JANDEK, 6 Fellows Avenue, Kingswinford, West Midlands, DY6 9ET.  
Telephone: 0384 288900



# SPRAT BINDERS

Holds 12 editions of SPRAT but can hold more with additional wires (10p each) due to larger spine (44mm). Covered in high quality black balacron with gold blocked logo. Matching binders available to hold other A5 magazines. Also matching A4 binders for Rad Com, PW etc and USA size for ARCI Quarterly, CQ, QST, etc.

**£3.75 each inc VAT,  
plus £1 postage**

## ADUR VILLAGE PRESS

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



Christopher J. Page - Member of The British Printing Society and The Association of Hot Foil Printers and Their Allied Trades. VAT 620 5819 54

## Morsum Magnificat

Of interest to all CW operators, veteran and novice, this unique Bi-Monthly magazine provides an invaluable source of interest, reference and record relating to the traditions and practice of Morse.

Available only by Postal Subscription, sample copy £2.20, or send for further details to

**Morsum Magnificat, 9 Wetherby Close, Broadstone, Dorset, BH18 8JB. Tel: 0202-658474**

## DC TRANSCEIVER KITS

Single Band Kits for	3.5, 7, 10MHz	£40 each inc post
	14, 18, 21, 28, 50MHz	£55 each inc post
Three Band Kit for	3.5, 7 and 10MHz	£60 each inc post
	(PCBs and construction notes only for above at £10 inc post)	
	White Rose 50 to 28MHz Transverter Kits £25 (PCB only £5)	
	Overseas members add £5 for postage. Cheques "John Beech"	
JOHN BEECH, G8SEQ, 124 BELGRAVE RD. WYKEN, COVENTRY, CV2 5BH		



## SOLAR PANELS

### SMALL SCALE SOLAR AND WIND POWER

### Sun and Wind Power at Affordable Prices

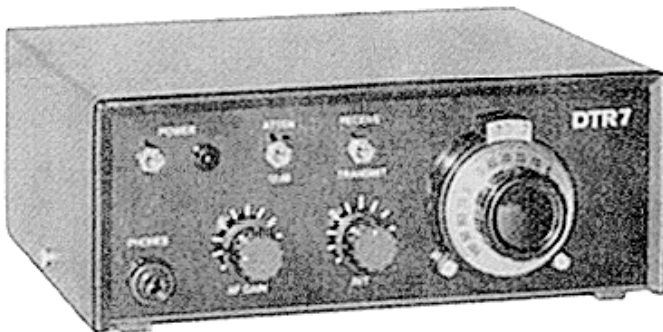
**For Information and Prices of Solar Panels, Wind Chargers  
and other Associated Products. Send an S.A.E. to**

**BOB KEYES, GW4IED**

**4 GLANMOR CRESCENT. NEWPORT, GWENT. NP9 8AX**

**10% REDUCTION ON ASI PANELS TO CLUB MEMBERS**

# NEW! DTR7 - 40m CW TX-RX



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

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

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

ALL COMPONENTS AND HARDWARE INCLUDED

**£87.50 (Kit)**

**£140 (Ready Built)**

# NEW! PM20 POWER METER for QRP

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

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

**£19.50 (Kit)**

**£28.75 (Ready Built)**

For full details of our kits, send SAE to

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



OR RING ALAN, G4DVW, ON 0602 382509



# KANGA PRODUCTS

*New from Kanga a great boon to the builder  
the **AMATEUR BAND SYNTHESISER**  
A design from Ian G3ROO and seen in RadCom  
our semi kit of parts is only £54.95*

*The ideal way to build anything is to start with a kit of parts, we have a range of almost 50 kits for you to choose from. Some of the newer ones are....*

Other new kits are the **Six Metre Converter and Transmitter**, as seen in Radcom by Ian G3ROO (no relation to our 'ROO!) The converter provides a signal on your 10m multimode from 50MHz.

The **Transmitter** gives up to a massive 100mW out on 50MHz, CW only of course, but what fun!

Our new **IAMBIC KEYS** is so small it fits in the palm of your hand. With on board relay it will key any rig. The **KIRSTA Keyer** is just great. Ideal to build inside that QRP rig too.

The **COMB CALIBRATOR** provides an output on 10KHz, 100KHz, 1MHz & 10MHz each one identified by a tone. A boon to the builder and only £15.25.

We still have all those old favourites too, the **SUDDEN** Receiver, the **LCK Superhet Receiver**, the **Kanga Crystal Set**, the **Nicky TRF** and of course the **ONER**. A total choice of 5 different Receivers.

The transmitters in our range vary enormously from the superb **LCK** to the huge amount of fun provided by the **ONER**, the **OXO**, both the single and the multi-band versions can provide hours of enjoyment.

We have a large selection (almost 50) kits for you to enjoy. Many items of test equipment such as the **Transistor Tester**, the **Two Tone Oscillator** and many other simple kits such as the tiny **DC - DC converter** and **Light Operated Relay**. And many more....

Send a Sprat sized SAE for our free catalogue to  
**KANGA PRODUCTS, Seaview House**  
**Crete Road East, Folkestone CT18 7EG**  
Tel / Fax 0303 891106 0900 - 1900 only please  
**Remember, we are closed on Mondays**