



# SPRAT

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DEVOTED TO LOW POWER COMMUNICATION

ISSUE NR. 70

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SPRING 1992

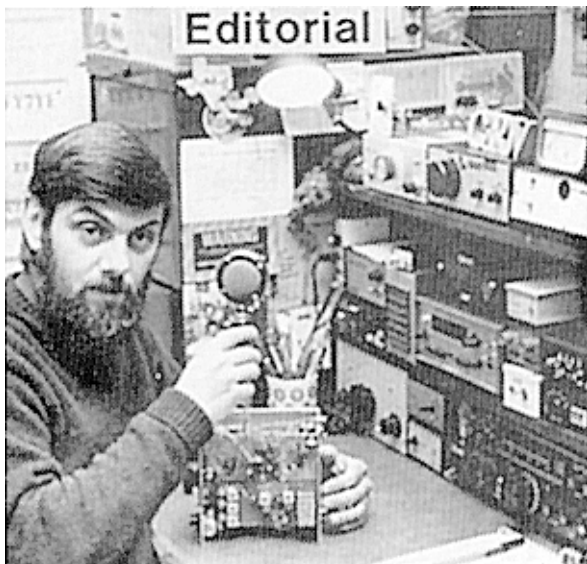
|   |                       |  |
|---|-----------------------|--|
| <b>QRP</b>  | <b>CZECHOSLOVAKIA</b> | <b>QRP</b>   |
| <b>BEACON</b>   | <b>OKØEN</b>          | <b>3600 kHz</b>  |
| PWR: 150 mW<br>ANT: Corner dipole (E-W)<br>QTH: near KLADNO<br>LOC: JO70AC<br>MODE: A1A |                       | QSL MGR: OK1DUB<br>ADR: Mirek Najman,<br>Karlovarská 346<br>Kamenné Žehrovice<br>CS - 273 01 |
| TO RADIO <b>G8PG</b>  | <b>4.1. 1992</b>      | QSL NR. <b>41</b>  |
| TKS FOR UR RPRT DATED   |                       | AT <b>22:46</b> UTC  |
| <b>ON AIR SINCE SEPTEMBER 9, 1991</b>   |                       | <b>V93! Mirek</b>  |

HOW GOOD IS YOUR 80m RECEIVER?  
 HAVE YOU HEARD THE OKØEN BEACON

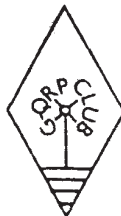
**NICKY'S TRF SIMPLE 160-10 LINEAR DESOLDERING PUMP  
 LZ1SM 14MHz TRANSMITTER POTTENSTEIN RECEIVER  
 SIMPLE CW FILTER ONE ANTENNA FOR EVERY BAND  
 UA3ZNW TWO BAND TRANSCEIVER WIDE RANGE 80m VXO  
 SIMPLE HW9 MODIFICATIONS THE G3ROO 'SYNTH'  
 THE G QRP CLUB ANTENNA HANDBOOK CONTEST NEWS  
 AROUND THE WORLD IN 40 DAYS QRP NEWS ROUND-UP  
 NOVICE NEWS COMMUNICATION FORUM SSB COLUMN  
 VHF NEWS MEMBERS NEWS THE GB0QRP STORY**

Have You Paid Your Subscription : If Not This Could be Your Last SPRAT

# JOURNAL OF THE G QRP CLUB



**Rev. George Dobbs G3RJV**



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

Dear Member

In this issue of SPRAT, we are pleased to announce the publication of the G QRP CLUB ANTENNA HANDBOOK. Thanks to the research of Peter Linsley and the many hours on a DTP by Ty Nicholson we have managed to produce a book over one and a half times the size of the CIRCUIT HANDBOOK, crammed with antennas and antenna related items. It is a complete collection of the SPRAT material from issue one to the end of 1991 : a real gold mine of information and ideas. The club is publishing, and funding, the book and we hope that members will want to order a copy and encourage their non-member friends to buy a copy. We think you will like it.

I look forward to meeting members during the major radio events of this year. Please keep your ideas coming for SPRAT. Remember we like simple ideas as well as full projects and brief notes and clear sketches are all that we require.

72/73 *George Dobbs G3RJV*

## CLUB MEMBERSHIP MATTERS

With Apologies for missing it last time, the address of the NEW ENROLMENT OFFICER is:

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

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I wanted to build a simple shortwave receiver for my son (to stop him playing with my knobs and switches). A circuit was seen in Technical Topics for October 1987 and one was built using this as a basis. It has turned out far better than expected.

TR1 is an aperiodic stage that decouples the detector stages from the aerial. A low impedance input is provided through T1, with a step up ratio of 5:1. As TR1 is a source follower the voltage gain is less than one but there is still some net gain before the detector. The high impedance input is through a 27pF capacitor to the gate of TR1, with this input there is a loss through TR1 but this is no hardship.

The detector consists of TR2 and TR3. TR3 is an infinite impedance detector, with the audio being developed across the 27K source resistor. The tuned circuit is lightly loaded in this form of detector so the Q is high, which means the selectivity is good. TR2 is a Q multiplier which, by adjustment of the base bias with VR1, can be made to oscillate allowing reception of CW and SSB. The connection between the tuned circuit and TR2 is by a 39pf capacitor, which could perhaps be made smaller to reduce even more the damping effect on the tuned circuit. The reaction control is shown as a ten turn pot, these can be bought quite cheaply at rallies and it is worth the expense. The control that this gives over the regeneration is quite a revelation, the "length" of control is a few turns and the circuit can easily be held just short of oscillation for reception of a.m. short wave stations. As the point of oscillation neared the "sharpening" of selectivity is noticeable. Because of the loose coupling and low loading on the tuned circuit the stability is very good and a CW signal can be easily held at the required beat note or a SSB signal resolved for long periods. If a station is tuned in, regeneration set, and then switched off; on switching back on the signal returns into tune even on the 15MHz broadcast band.

TR4 is a simple audio amplifier which is followed by a 5 pole chebeshev low pass filter with a cut-off at 4KHz which is better than 50dB down at 10KHz. This used for broadcast listening, one with a cut-off at 2.4KHz and is 50dB down at 6.5 KHz is used for SSB listening. Any filter can be inserted between the output of TR4 and the volume control. The output of the filter drives an LM386 low power audio amplifier. This is used with either 8 ohms headphones, or high impedance "walkman" types but the gain is noticeably lower with the latter.

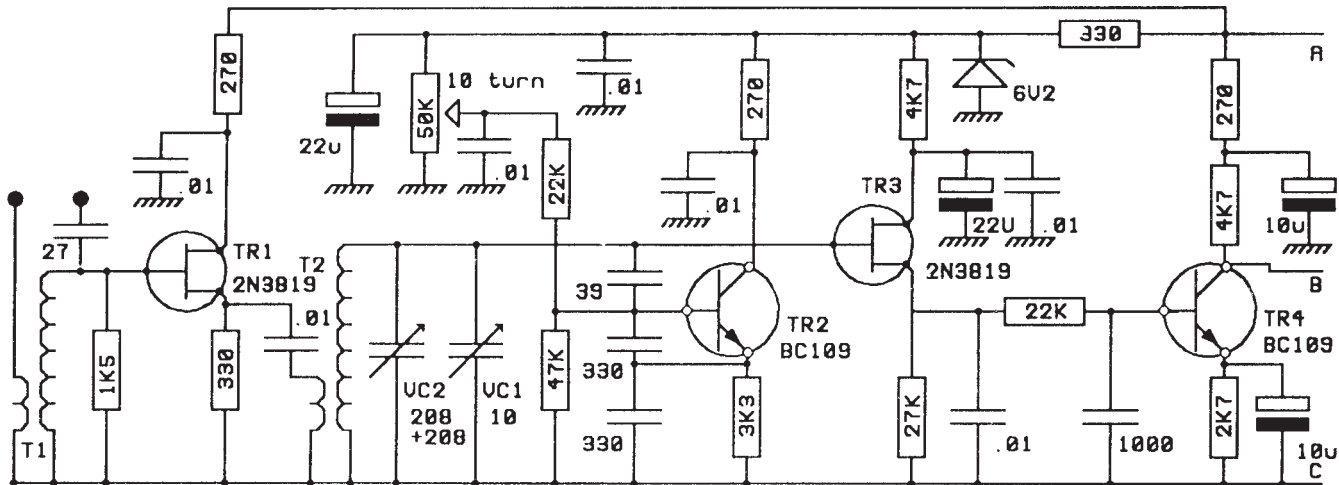
The values given in the circuit diagram tune from 6.9 to 16 MHz, an additional capacitor of 220 pf can be switched in to give a lower range of 5.6 to 7.1 MHz. If other bands are wanted the coil, overwind, C1, C2 and C3 must be changed (Perhaps the values for a Colpitts VFO on the required bands could be used with an overwind on the coil) Better selectivity could be obtained on the higher bands by making use of an airwound coil.

The receiver is built on a homemade chassis(PCB soldered together) and a PCB front Panel, no hand effects can be noticed even without an earth connection, this may be due to the use of a toroidal core.

Now for the important part, the results, these have been quite amazing; with 10ft. of wire draped across the living room., Broadcast stations from all over the world have been heard. Most of Europe on 40 metres and the USA on twenty. G4BMH borrowed it and on the same wire heard VK6. This lead to the receiver being put on a Marconi 2022 signal generator, with 8 ohm earphones a CW signal of 0.1 uV (!!) can be heard, with walkman phones this fell to 0.5 uV, a.m. is 1.5 to 2 uV. These measurements were made into the low impedance input, none were made in the Hi Z input.

One fault is that the detector can be overloaded, no frequency pulling can be noticed though; to get over this a simple attenuator in the aerial lead allows weak stations to be easily tuned in next to strong signals.

Final thought TRY-ONE! 4 controls, no images, clean sounding signals and great fun. Its no longer Nicky's Radio - both of us enjoy listening on it.



# NICKY'S TRF

T1 = Pri 2t Sec 10t 36ewg  
on 2 Hole Balun Bead

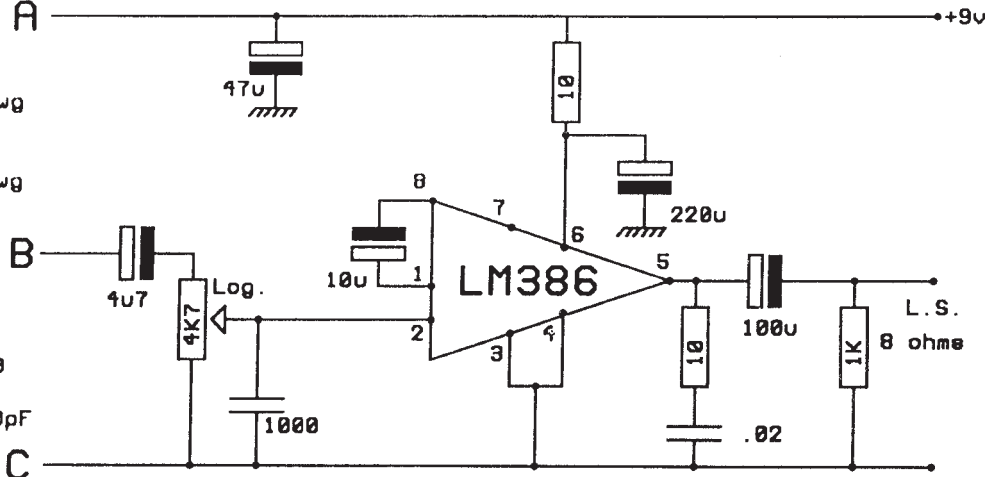
T2 = Pri 2t Sec 17t 20ewg  
on T68-2 Core

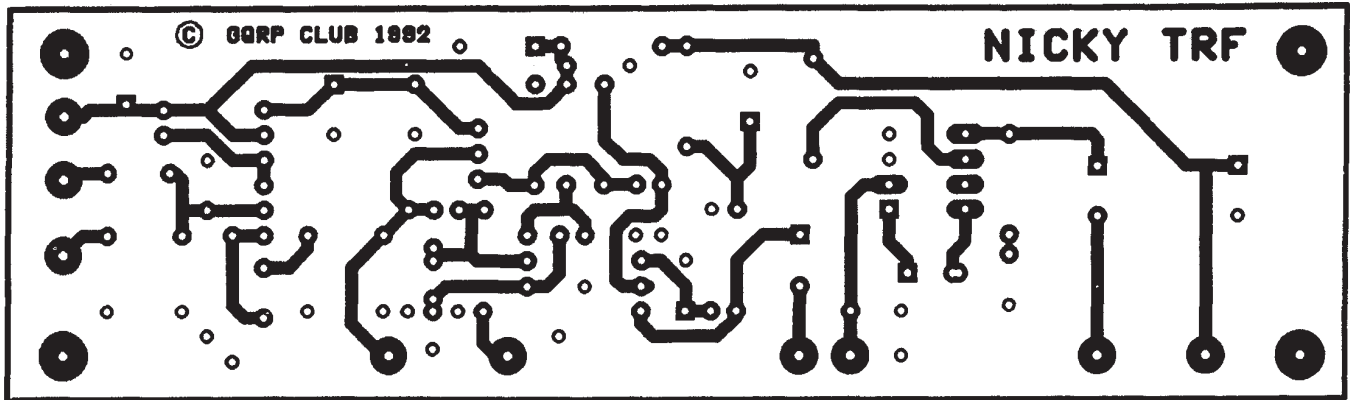
UC1 2x200p in Parallel

UR1 = 50K Ten Turn Pot

TR1 = 2N3819, J304, J309

UC2 [Bandspread] 5 or 10pF



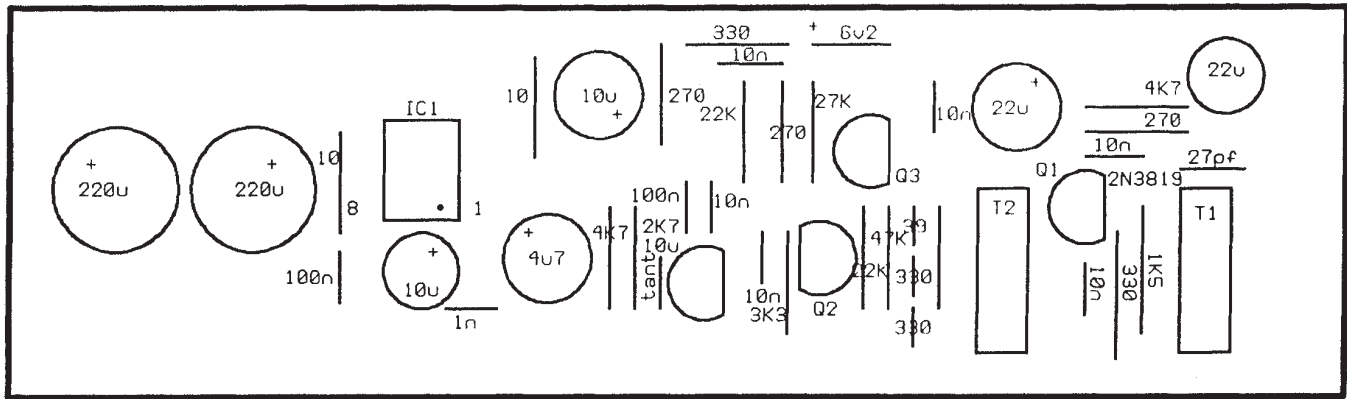


Doubled Sided PCB

### NICKY'S TRF FOIL SIDE

Make Grounds and Clearances on Top Foil

03



IN/LO IN/HI REACTION  
SUPPLY +

9U

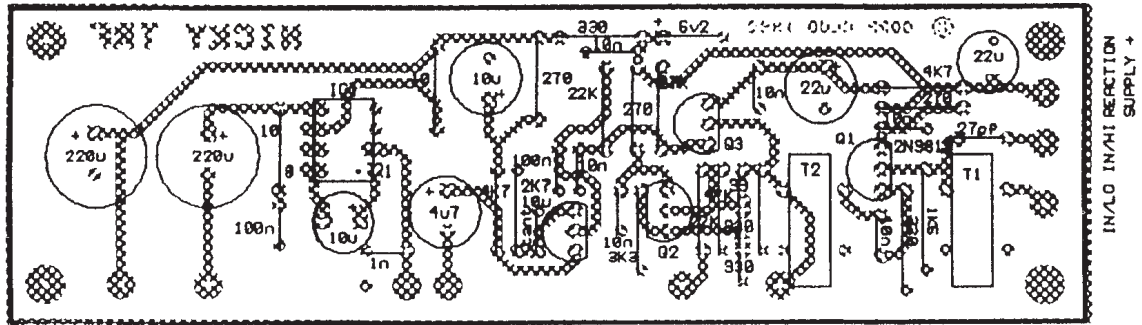
O/P

VOLUME

REACTION

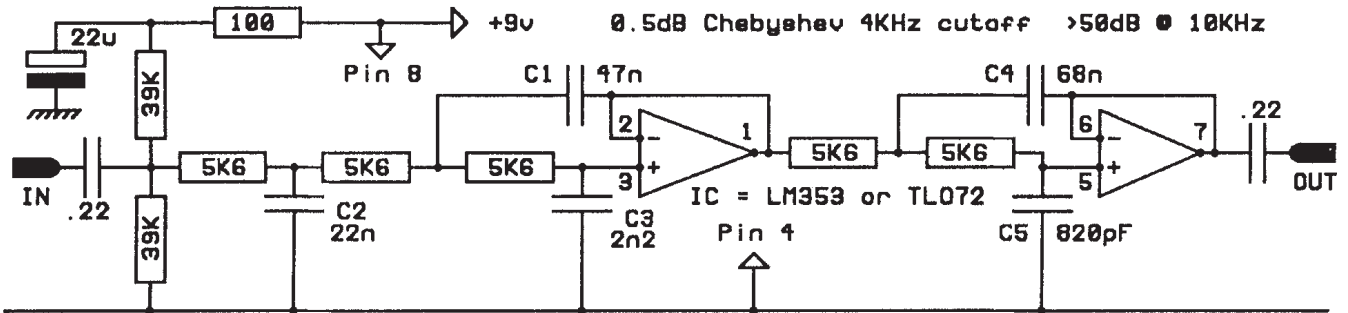
TUNE

### NICKY'S TRF LAYOUT



NICKY'S TRF LAYOUT

## FILTERS FOR TRF G3VMU



FOR 2.4KHz cutoff > -50dB @ 6KHz

Change all 5K6 Resistors to 10K

Capacitor Changes: C1, C2, C3 : No Change

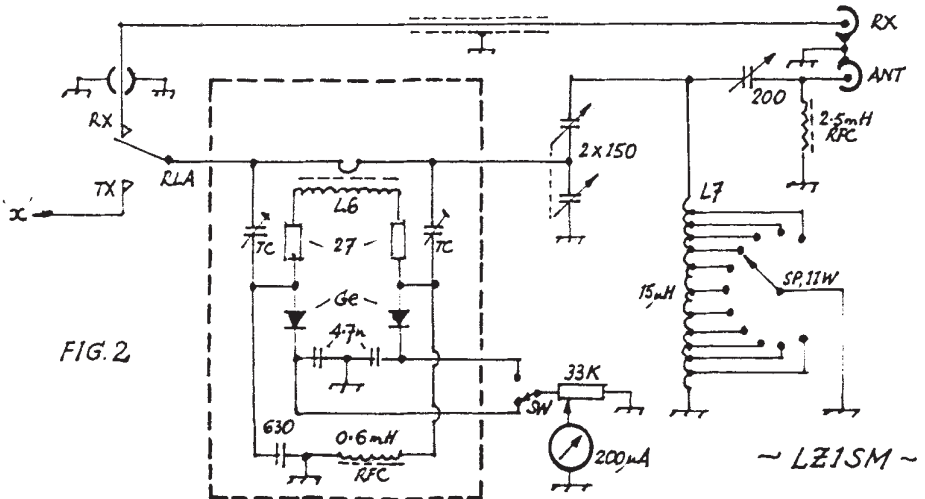
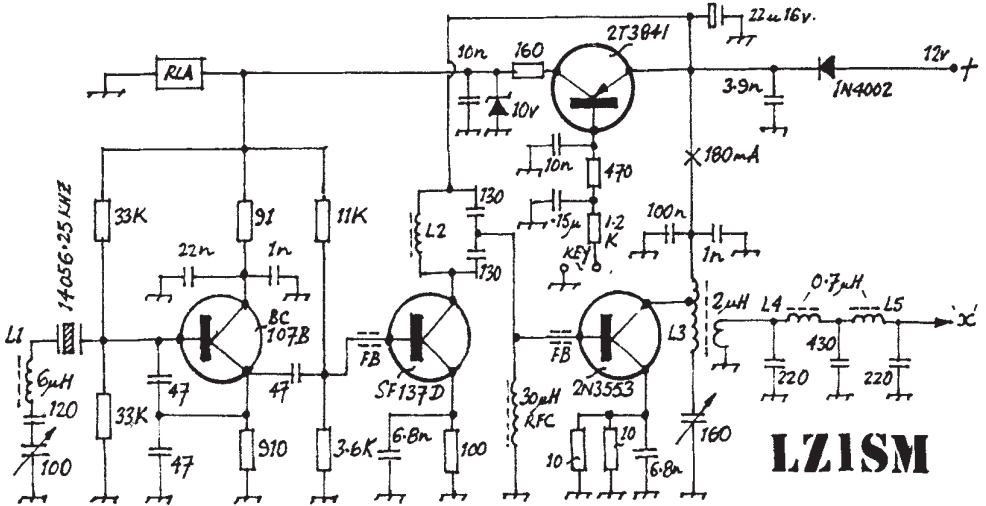
C4 = 47n parallel with 15n C5 = 750pF



## THE LZ1SM 14MHz VXO TRANSMITTER

Readers may recall the photograph of the compact 14MHz Transceiver, built by Angel, LZ1SM, in SPRAT 64. Reproduced below is the circuit of the transmitter section. Some substitution of devices and inductors may be required to suit local components. Fig.1 : Transmitter VXO 14043-14063, Fig.2 : SWR Meter/ATU.

FIG.1



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David Hazelwood, G4WZV, 36 King Street, Winterton, Scunthorpe, DN6 9TP



This direct conversion receiver covers the cw portions of the 3,5/7/10 MHz bands. It has been demonstrated first on a meeting of a small group of DL and Y2 QRP operators at Pottenstein (English read Pottenstine), north of Nuremberg.

The a.f. section has been taken from the FO-Receiver (SPRAT Spring 1990) which covers the bands 14 to 28 MHz. The mixer stage, however, employs the 74HC4066B, a quad FET switch from the line of fast CMOS circuits, as outlined first in SPRAT Winter 88/89. Here, the simple, unbiased circuit version is used.

The two rectangular oscillator signals with a phase difference of 180 degrees are generated by a 74HCOO. Its r.f. input voltage should be 1.5 to 2 V rms for good symmetrical limiting. Therefore, some form of amplification (not necessarily a dual-gate FET) is necessary between the oscillator and this IC. A counter may be connected to the penultimate section to realize a dial indication. The oscillator section and the first af stage are powered by a 78L05 voltage regulator. It may be replaced by the new low drop regulator LM2936.

The oscillator band switch is a miniature DPDT switch with an open middle position (for 10 MHz). The rf input circuit covers all three bands, but it may be necessary to adjust the number of turns of the coil so that the 3.5 MHz band is tuned just before the capacitor plates are fully meshed.

#### AF Amplifier notes

The original four stage a.f. amplifier of the FO-receiver has been designed with BC168A transistors. Reproducing this circuit for the Pottenstein RX with BC548C (highest amplification class), including the redesign of the base resistors for half the supply voltage on the collectors, led to an unnecessary high amount of af amplification. However, just omitting one stage gave the impression that the gain could be too low under critical receiving conditions. Therefore, the four stages were maintained and class A transistors employed in the last three stages. This immediately reproduced the same characteristic as with the FO-receiver. The low noise type BC549 is available in class B or C only, but this does not matter. From these experiments it may be conducted that three high gain or four low gain transistors are the practical limit in an af amplifier for dc receivers, driving headphones.

#### Mixer comparisons

Occasionally some slight am breakthrough has been noted on 10 MHz (never in conjunction with the mini-atu), where the tuning capacitor is almost at minimum. Therefore, comparisons have been made between the FO-receiver, employing a SBL-1 type mixer, and the Pottenstein RX, using a signal generator with 100% am. Surprisingly, on both receiver am breakthrough became noticeable at a carrier level above 10 mV. This seems low compared to the high dBm figures published in normal intercept point measurements. But it also shows that in a d.c. receiver the slightest tendency of nonlinearity is made audible by the high amount of a.f. amplification.

This comparison also shows that the 74HC4066B mixer circuit (even unbiased) is a cheap but equal substitution for bipolar diode mixers, especially for the lower bands. Due to the multi stage oscillator section, pulling of the oscillator frequency by strong nearby signals has never been observed, and the receiver may be used to monitor the own transmitter signal.

#### Construction

As the FO-RX, the Pottenstein RX consists of a small and a larger metal case screwed together. The larger case contains the r.f. input circuit, the mixer IC, the a.f. amplifier and the 5 V regulator. The oscillator



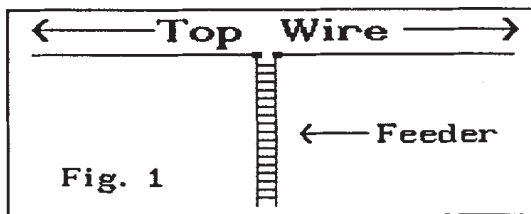


# ONE ANTENNA FOR EVERY BAND - ALMOST !!

BILL WRIGHT G0FAH

One antenna for every band? Well, yes it is possible to get one piece of wire to load up easily on every one of the nine HF bands from 1.8 to 30 MHz. (I cheat a bit for top band!)

Take 29.3 metres of wire, and feed it in the middle with 11.5m of 300 ohm slotted ribbon feeder. What do we have? Well, we have an antenna system that matches very well for the 3.5, 7,14,18,24, and the 28 MHz bands. What about the 10.1 and 21 MHz bands? The match is poor with a SWR of about 70:1 for these two bands. If, however, we change the feeder length to either 8.8m or 14.9m we can now get a good match on both of these bands. Oh, for top-band, strap the feeder wires together and feed the whole lot from the tuner as a top loaded vertical. Fig. 1 shows the general set-up.



This system was designed with the help of a computer program that calculates the impedance at the centre of the top wire and then the resulting transformed impedance at the bottom end of the feeder. The program was based on information from an article in RadCom August 1985 by Brian Austin, G0GSF.

A computer search was made to see what combinations of antenna wire and feeder would produced a system that would match on as many bands as possible. Table 1 shows the results for every HF band except 1.8 MHz which was outside of the range of the program. Note that the frequencies shown are for the (important!) QRP/CW ends of the bands but similar results will be obtained further up-band.

Top wire: 29.3 metres. Feeder: 11.5 metres of 300 ohm slotted ribbon

| Frequency | Resistance | Reactance | SWR (into 50 ohms) |
|-----------|------------|-----------|--------------------|
| 3.56      | 6.7        | -4        | 7.6                |
| 7.03      | 35         | +28       | 2.1                |
| 14.06     | 40         | -3        | 1.2                |
| 18.07     | 39         | +69       | 4.3                |
| 24.9      | 98         | +81       | 3.5                |
| 28.06     | 46         | -31       | 1.9                |

Change the feeder length to 8.8 metres to get this result:-

|       |    |      |               |
|-------|----|------|---------------|
| 10.1  | 27 | +234 | 1.8 see below |
| 21.06 | 24 | -4   | 2.0           |

or with the feeder 14.9 metres long we get the following:-

|       |    |      |               |
|-------|----|------|---------------|
| 10.1  | 52 | -422 | 1.0 see below |
| 21.06 | 24 | +3   | 2.0           |

Negative reactance is capacitive (and positive is inductive) in series with the resistive part of the impedance. So to get a good match on the 10.1 MHz band we need only to tune out the series reactance. With the 8.8m feeder we can do this with a 130 pf capacitor put in each leg of the feeder - right at the bottom end. If the longer 14.9m feeder is used then inductors of 3.3uH should be used in each leg instead. The SWR figure shows how well each band will tune to 50 ohms; below 10 is OK, below 3 is very good and less than 2 is excellent - no tuner required!

Now all this may seem a bit complicated. After all, any length of wire fed with low loss feeder and a widerange tuner will radiate your signal. That is true, but if we can get near to a good 50 ohm match then either we can do away with the tuner, or maybe use something simple like a 1:1 balun followed by a "L" tuner. The bandwidth is wide so there is little need to re-tune when QSYing and the efficiency of a "L" tuner is very high; no more than 4% loss when coping with mismatches up to 20:1 vswr. If a balun is used it will do its job better at a low swr. (see RadCom March 1982 for a very good balun design) Finally, this is a balanced antenna system (i.e. fed in the middle) which I have found pick up less local noise and is TVI resistant.

Several other combinations of top wire and feeder lengths produce good matching on several bands simultaneously. These are shown in table 2.

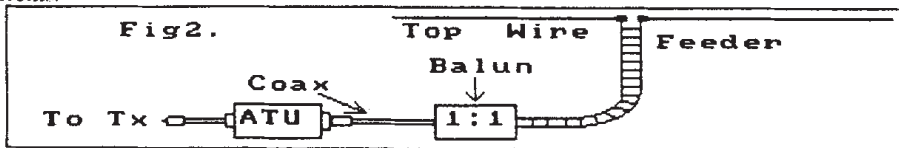
Table 2. Some other multiband doublets

| <u>Top wire</u><br>(lengths in metres) | <u>Feeder</u> | <u>Frequencies in mHz (same as table 1)</u> |     |     |     |     |     |
|--|---------------|---|-----|-----|-----|-----|-----|
|  |               | 7   | 14  | 18  | 21  | 24  | 28  |
| 29.1                                   | 2.7           |   | 1.5 |     | 2.3 |     | 1.4 |
| 21.75                                  | 11.2          |   |     |     | 2.2 |     | 2.0 |
| 21.75                                  | 13.3          | 7.8   | 3.0 |     |     | 3.6 |     |
| 19.7                                   | 10.0          |   |     | 3.0 |     |     |     |
| 19.7                                   | 11.4          |   |     |     |     |     | 1.6 |
| 19.7                                   | 13.5          |   | 2.7 |     | 1.2 | 1.7 |     |
| 14.2                                   | 15.0          |   | 2.1 |     | 2.9 |     | 2.3 |
| 8.5                                    | 2.8           |   | 2.6 |     |     |     | 1.7 |

Figures shown are the SWR at the end of the feeder for the bands that can be matched easily. (try using a good tuner to match the other bands)

I have used all of the designs shown and they all produced measured figures that were very close to the computer predictions however, there are a few tips that will help in achieving good results:-

- Try to get at least half of the top wire up high and in a straight line in the clear. The end sections can bend down.
- I fitted two-pin plugs and sockets to the lengths of ribbon feeder so that extra sections could easily be patched in and out as required.
- The feeder is the grey slotted 300 ohm ribbon variety which has a velocity factor of 0.85. Coat the ribbon feeder with wax polish or flame polish it (carefully and very quickly over a low gas flame) to waterproof it and so minimise SWR changes in wet weather.
- The 300 ohm slotted ribbon is now becoming a little difficult to obtain but you could make your own from the non slotted variety that is used for FM radio feeder. There is also now available 450 ohm slotted feeder imported from the USA which has a velocity factor of 0.9. This can be used if the feeder lengths are increased by about 5%.
- You can trim the ribbon feeder to optimise the match although the calculated lengths given turned out to be the best at my QTH. Obviously, you would have to make the feeder a bit longer first and then trim 10cm at a time while measuring the SWR on the highest frequency band. For example with the 8 band antenna, cut a 12 metre length of feeder and reduce it to get the lowest SWR on 28 MHz then add say 3.5 metres more ribbon and then reduce this to get the best match on 21 MHz. Be accurate when measuring the top antenna wire and feeder.
- A balun can be used at the lower end of the ribbon feeder to provide an unbalanced coax feed for a tuner and the transmitter (Fig2). There seems to be differing opinion about the usefulness of a balun for this type of antenna; you could just coil up some of the coax to choke off any outer-screen currents.



- Finally, if, when you put up a new antenna, you get much better results, check that it is not a contest weekend! On the other hand if the performance is worse, wait a few days ..... poor band conditions may be to blame!



# A TWO BAND TRANSCEIVER

IGOR GRIGOROW UZ3ZK

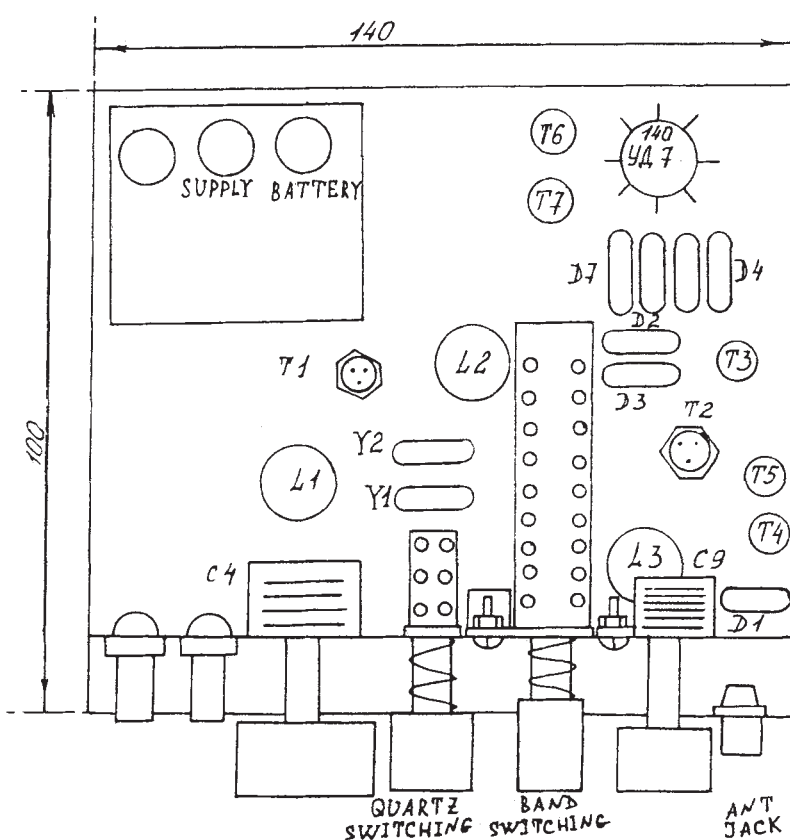
This Two Band Transceiver circuit by Igor is offered as a circuit idea for member's own experimentation.

Devices and some components may have to be substituted by locally available parts.

## UA3ZNW [UZ3ZK] TRANSCEIVER

| Band I | Band II | L1                  | L2                   | L3   | L4 | L5                   | C1/C3     | C2  |
|--------|---------|---------------------|----------------------|------|----|----------------------|-----------|-----|
| 3.5    | 7       | 50t<br>25mm<br>Long | 50t<br>25mm<br>Long  | 2-3t | 5t | 50t<br>25mm<br>Long  | 200<br>50 | 200 |
| 7      | 14      | 50t<br>25mm<br>Long | 28t<br>10mm<br>Long  | 2-1T | 3t | 28t<br>10mm<br>Long  | 110<br>27 | 27  |
| 14     | 28      | 50t<br>25mm<br>Long | 11t<br>7.5mm<br>Long | 2-1t | 3t | 11t<br>7.5mm<br>Long | 100<br>27 | 27  |

1 USED POLYSYRENE ROD FROM COAX CABLE (Dia 10mm)



A newcomer request for a simple QRP TX initiated me to tackle the problem of a 80 m VXO. On the higher bands I have never found it difficult to obtain a sufficient pulling range; it had also been possible to pull the popular 5.0688 MHz crystal, doubled in frequency, over the most important CW portions of the 10 MHz band, down to 10100 kHz, but for unknown reasons 80 m seemed to behave differently.

I started with my TTL oscillator circuit (SPRAT Nr 51, Summer 1987) with a 3.579 MHz HC-18/u crystal, and inserted a variable 200 pF foil capacitor and a series inductor in the form of molded r.f. chokes. Obviously a rather high inductor was needed to achieve a reasonable pulling range. But single chokes of 220 uH or more did not work, perhaps due to low Q. Finally, with a series of three 100 uH chokes, I got a pulling range from 3579 to 3568 kHz! Next, I built a 300 uH high Q coil, employing a Siemens 80K1 pot core. But this coil did not work. Measuring the self resonance frequency of this pot core coil showed a value of about 2.1 MHz. Therefore, at 3.5 MHz this coil must have acted like a capacitance! So it became clear what the real need for a 80 m VXO coil was: A high inductance with very low parasitic capacitance! Surely you have to sacrifice some space to achieve this, and it became evident why the series connection of small coils only really worked.

Then I added two 22 uH chokes in addition to the three to 100 uH. The pulling range increased from 3579 to 3557 kHz. This seems to be a way to trim the pulling range to personal needs. However, as the effects of very small parasitic capacitances will influence the pulling range, you may not wonder if you may need different choke values. Also, a 3579 kHz crystal in the HC-6/u case, or HC-33/u with wire leads, will need less inductor, about 250 uH. Besides the need for small parasitic capacitances, the Q of the choke is still of some importance, and physically larger coils, in the form like a 0.5 to 2 watts resistor are to be preferred, especially for the higher inductance values.

Finally the oscillator scheme of Fig. 1 was worked out. The rotor side of the variable capacitor was connected to the low impedance TTL output. Also, with this capacitor at its minimum value, some resistive loading of this point (1 nF, 680 ohms) improved the starting of the oscillator when the supply voltage had been applied.

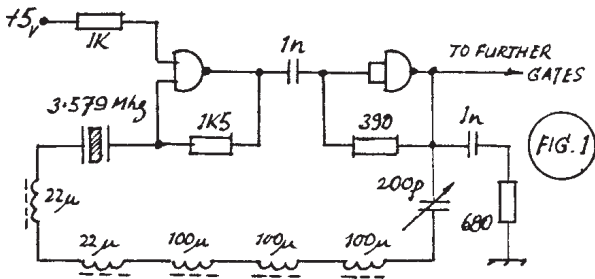
After these TTL experiments the knowledge gained was also applied to a VXO with discrete transistors (Fig 2). The p-n-p transistor, incidentally at hand, had been employed as a buffer stage between VXO and frequency counter. The same pulling range as with the TTL oscillator could be achieved. After the capacitance C2 had been reduced to 390 pF, the supply voltage could be reduced to 5 volts, maintaining the full pulling range.

Regarding the availability of the 3579 kHz crystal, these VXO circuits will also be of much interest for the new Novice Class in the UK.

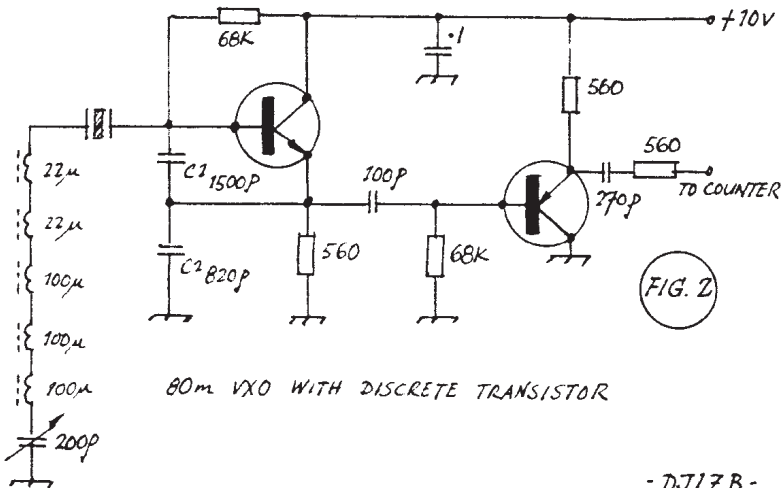
#### Higher bands TTL VXOs

Again referring to my former article on TTL transmitters (SPRAT Nr 51, Summer 1987) I like to withdraw my former statement that it was impossible to build TTL VXOs with large pulling ranges. If one finds that when tuning the VXO the frequency suddenly jumps to an entirely different frequency, the trick is to load the VXO coil by a parallel resistor that limits the Q to about 3 to 5, on the wanted operating frequency. In other words, the resistor value must be 3 to 5 times the reactance of the coil (Fig.3). However, when comparing TTL circuits to discrete transistors, the buffer action of a linear element will always be superior to that of a saturated stage.



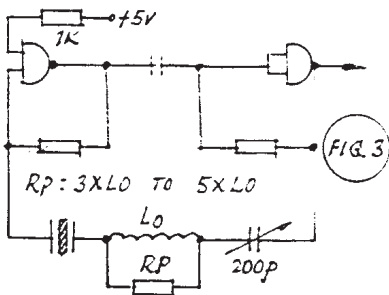


80m. VXO WITH TTL GATES ————— DJ1ZB



80m VXO WITH DISCRETE TRANSISTOR

- DJ1ZB -



HIGHER BANDS TTL VXO

**Reverse-Polarity Protection.**

I use old fashioned banana-plugs to connect my HW 9 to the PSU. This makes it easy just to slip on a pair of alligator clips when using dry-cells or car-batteries. To prevent damage to the XCVR by erroneous revers-polarity, a 3 Amp diode type 1N5400 and a fast acting fuse 1,25 Amp. was added. The fuseholder is mounted inside rear panel above S1. Locate the heavy red wire running from T/R-Board-12 V/IN to SW 2/lug 2. Desolder from lug 2 and solder to one side of fuseholder. Insert a new piece of heavy wire and solder to other side of fuseholder and SW 2-lug 2 respectively. See sketch. Two capacitors were added, a 68 nF ceramic and a 220 uF elect to reduce RF - or LF-pickup by the 12 v. line.

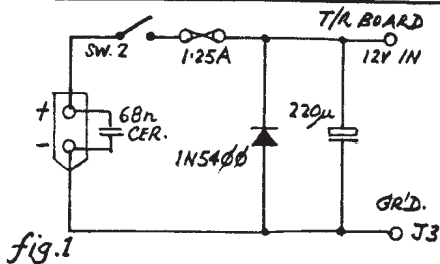
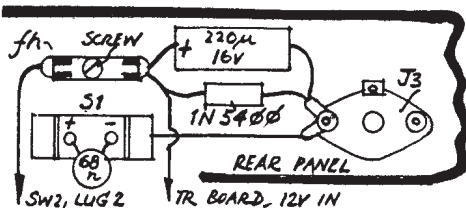
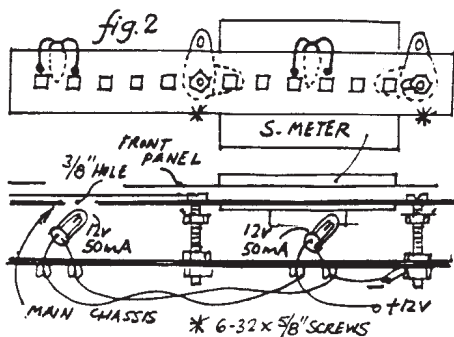


fig.1

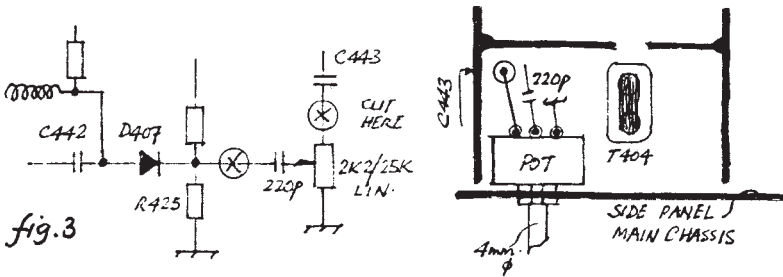
**Panel lights**

The space between front panel and main chassis is too small to fit in mini-lightbulbs, so two pilot lamps were placed inside the cabinet. Remove all knobs, the dial and the front-panel. Secure the S-meter to the main chassis by sticking a piece of self adhesive tape across. Drill a 3/8" hole exactly above the vernier drive assembly H2. The hole should be placed ca.3/4" below upper edge of main chassis. Don't try to make "a hole in one", this would ruin the chassis pretty sure. Use a 1/16" drill bit to drill a leading hole, then go step by step by using slightly larger drill bits until a 3/8" hole is made, beurr it gently. Now prepare a tagstrip of solder lugs, about 4 3/8" long, remove all but 4 lugs to hold the pilot lamps, refer to sketch. Solder a 12 V/50 mA pilot lamp on left end to illuminate the dial and 12 V/30 mA lamp to right lugs for the S-meter. Replace the two original screws 6-32 x 1/4" by two of about 5/8" length. Fasten the S-meter, slip the strip with pilot lamps on and fasten it. Use extra spacer or nuts to get the right distance to main chassis. If properly mounted, one of each lamps is placed behind the 3/8" hole and S-meter. Don't push the lamps against the dial or S-meter, the heat could cause damage to the plastic material. A mini-switch was mounted on backpanel to save energy when battery-operated.



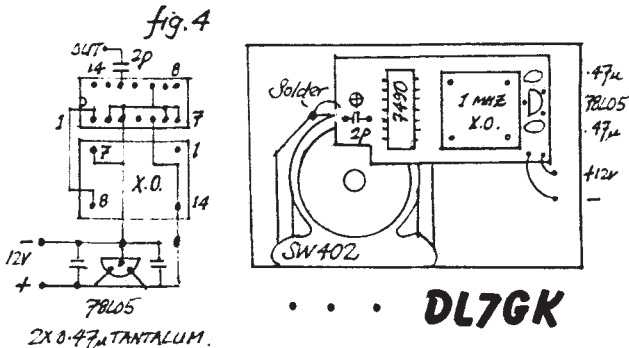
### RF-Attenuator

Living in an area with several nearby and very strong BC-TV- and Commercial stations, these mega-wattors often over-ride the receiver especially when using high-mounted RX-antennas. To reduce unwanted signals a 2.2 K pot with 4-mm shaft and 1/2" diameter, and a 220 pF ceramic C was added to the RX-path. This can be done without removing the PCB. The value of this pot is not critical [2.2K -25K will do]. First drill a hole into the side of main chassis to fit the pot. Next drill a hole into the of lower cabinet shell, make sure it coincides with chassis hole so the bottom shell can be easily installed after the pot is built in. Now refer to Illustration Booklet page 34 T/R-circuit and schematic diagram. Locate ceramic C 443 which is mounted upright in the upper left corner of the little screening box. Cut the upper wire of C 443 very carefully so a small piece of wire is left on C 443 as well as on the PCB. Now solder an insulated short piece of wire to C 443 and a ceramic 220 pF C to the "wirepin" looking out of the PCB. Install the pot, solder the wire from C 443 to the hot end of pot and 220 pF ceramic from "wirepin" to the pot-arm. Finally solder cold end of pot to ground. The modification didn't affect the bandpass adjustment or power output. Perfect receiving even under rough 40 m conds in the evening is no problem with this.



### Marker Generator

It is sometimes impossible to adjust all the mixer-crystals so that all bands starts at dial-zero. Beside this, the tuning capacitor is not frequency-linear as the dial is. That's why I built in a marker. From the lots of known circuits, I choose that one using a 1 Mhz-TTL-Crystal generator and a TL 7490 N. The whole thing fits on a piece of perf-board of a size 16 x 9 holes or ca. 1 3/4" x 1". A voltage regulator 78 L 05 and two tantalum-elyts were added to provide 5 V-DC. Marker output is a symmetrical 100 kHz signal. The marker is coupled to SW 402 by a 2 pF ceramic C, see sketch. Assembling is easy, no adjustments are necessary, and it worked at the first stroke. The marker shows an accuracy of + 10 Hz, gud enuf I guess.



## G3ROO's CONSTRUCTION COLUMN

Ian Keyser G3ROO, Rosemount, Church Whitfield, Dover, Kent. [0304-821588]

Firstly for the sackcloth and ashes bit! Mike Hadley, G4JXX, has advised me that there were a few errors in the preamp circuit details.

1. Cut link between pins 6 and 7 of Ic1
2. 2u2 on pin 2 Ic2 should be 100nF
3. Select pins on circuit diagram inverted, 4 reads 1, 3 reads 2 etc.

Having done that, onto the rest!

Well, the Kitten in its original form is basically complete. I have left a lot to the individual to determine, but if you have any problems please contact me, by phone or letter but if by letter please leave room on you paper after each question for the answer. PLEASE ENCLOSE AN SAE FOR ANY REPLY THAT IS NEEDED.

### THE SYNTH

Of course since the kitten was built two years ago I have made many alterations, some that I have since scrapped, and others that have been an improvement. Two notable alterations have been the rebuild of the RF board using diode switching that does make life a little easier on laying out the chassis but the performance of this new board is not as good as the original design. It does however have all the input passband filters on the board as well as a transmitter mixer to make life more easy for any constructor using the MLX (SG9) IF sub-system.

Another alteration has been to the Xtal Mixer PCB. This board is not easy to set up without test gear and so I decided to build a synthesizer to go with the new RF board. This board has been a great success, costing less than the original board and far easier to set up.

### THE SYNTH

The synthesizer generates the local oscillator signal to be fed into the transceiver receive and transmit mixers to convert the signal frequencies to the IF frequencies. In the old kitten design we mixed a VFO signal with a crystal oscillator signal and then filtered out the signal required from the many products produced. The performance of the crystal mixer system depended on the correct setting up of many presets and the quality of the filters used. I decided that the variables of this system were rather excessive for the average amateur workshop and perhaps a synthesizer would be easier to set up. The reason for the complexity is all a matter of stability, the higher the amateur band we wish to operate on the higher the frequency of the local oscillator as for many reasons we should always use the local oscillator HF of the signal frequency (this was covered in the design notes of the Xtal mixer VFO in SPRAT 65).

The block diagram may help understanding. A Voltage Controlled Oscillator is designed to run at the required local oscillator frequency and it is possible to tune this using a varicap diode with a DC voltage. There are three outputs from this oscillator, One to an onboard mixer and two others to high isolation buffer amplifiers with outputs to J1 and J2, these are used by the Tx and Rx mixers and the digital dial if used. The signal is mixed with the output from a crystal oscillator to give an output from the mixer in the range of 5 to 5.5 MHz when the VCO was tuned by the varicap. This 5Mhz output component is filtered from the other rubbish from the mixer in a low pass filter with a cut off at about 7 MHz and is then fed to the Phase

### Setting up

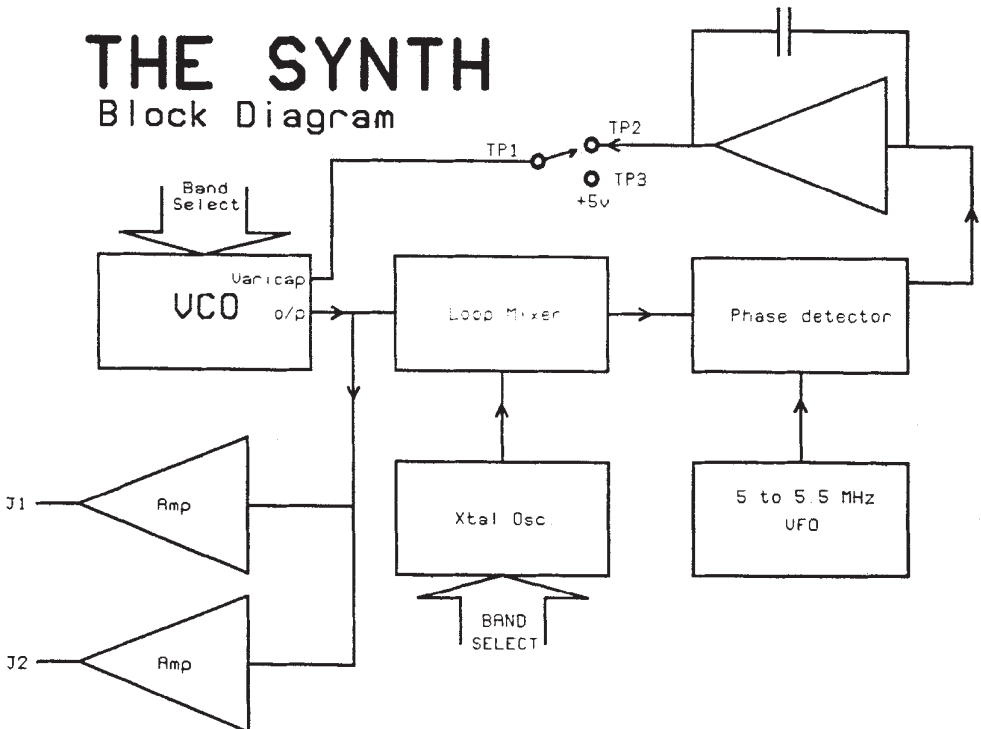
Firstly do all the visual checks, then apply +12v to the supply pin and check all the voltages are correct. Now connect the supply to one of the band select pins... say 160 to start with and a frequency counter or GC receiver to one of the outputs J1 or J2. and connect TP1 to TP3. This puts +5 volts onto the varicap tuning line and so sets the tuning of the oscillators to near centre of their ranges. adjust the core of L12 so that the output frequency is near 10.8 MHz. Now move the +12 volts to Band pin 80 and tune L11 to 12.8 MHz and continue for each band.

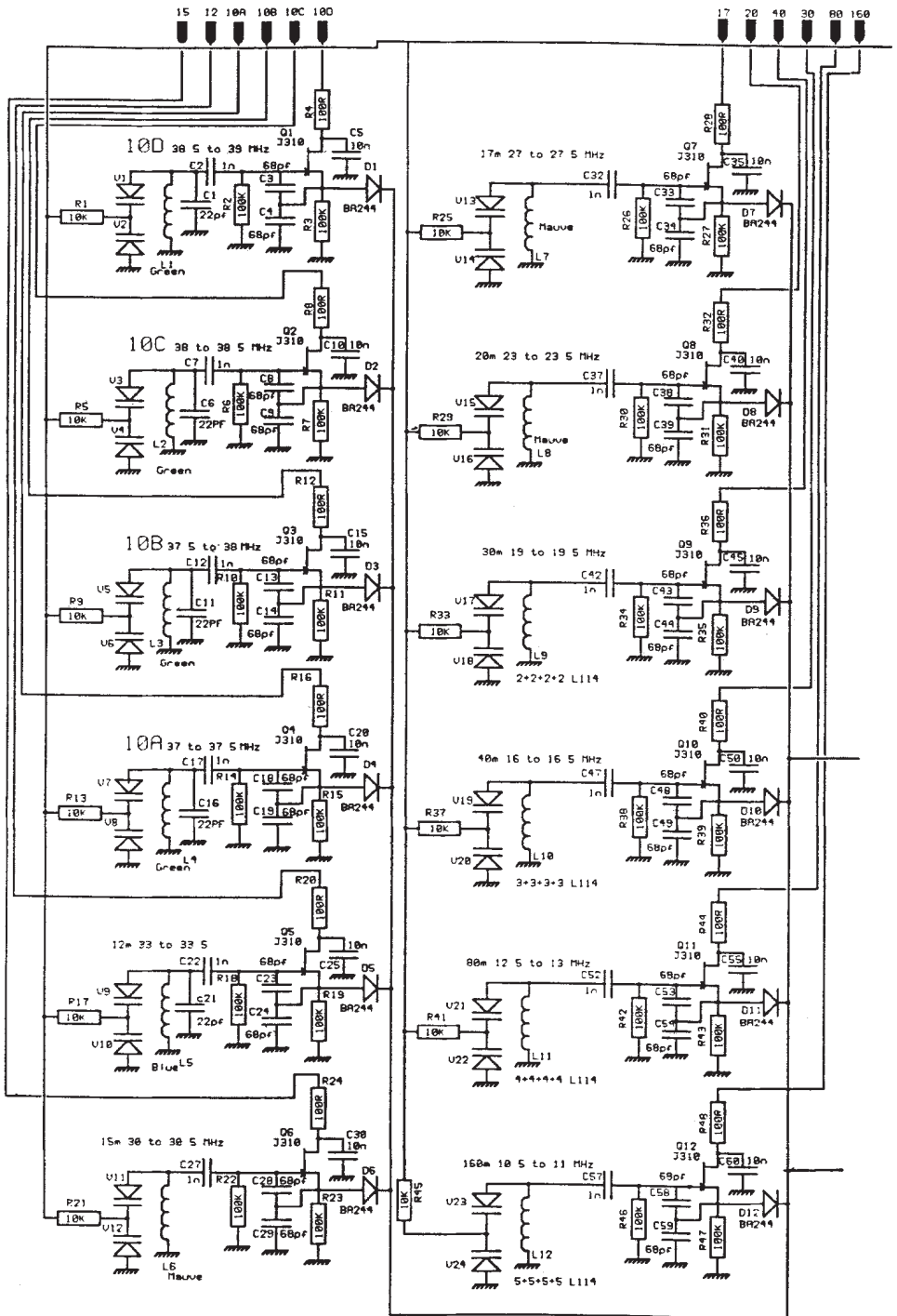
Having completed this operation connect TP1 to TP2, connect a high impedance voltmeter (20K p V) and select 160 metres. Tune the VFO and notice that the voltage varies. This indicates that the loop is in lock and all is well. If it does not vary check that the VFO and Xtal osc frequencies are correct and present.

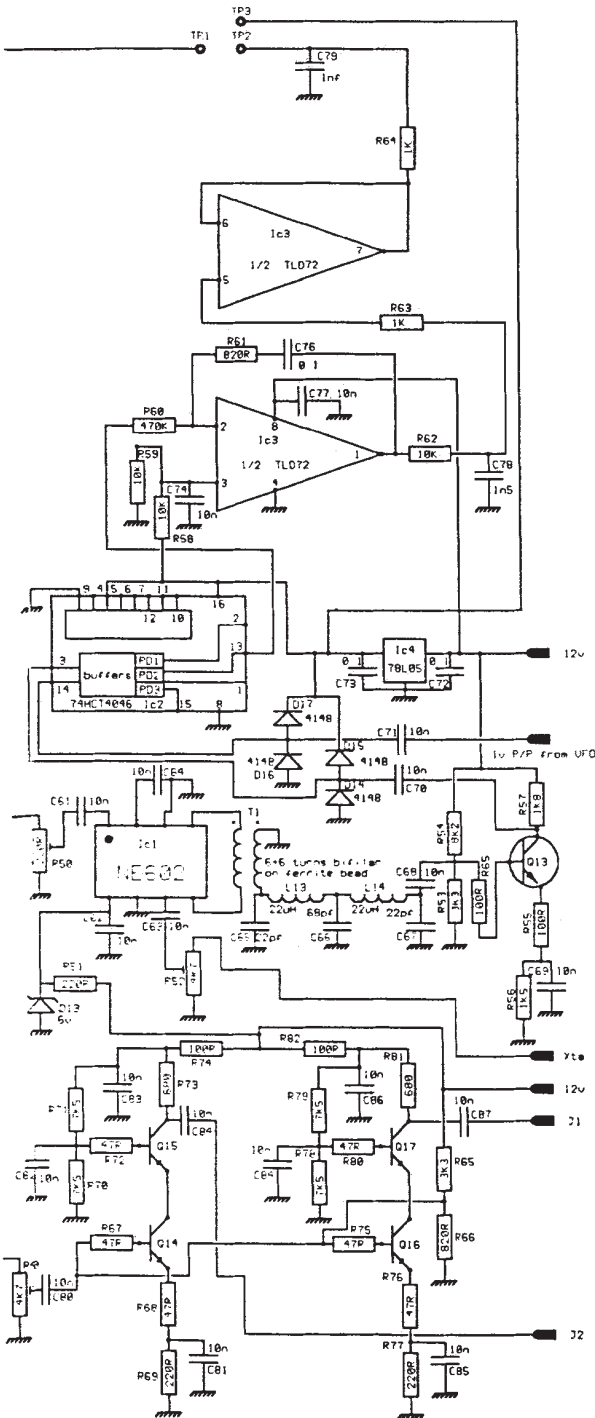
Now tune the VFO to 5.5MHz and adjust the core of L12 so that the voltage on TP1 is about 2 volts, now tune the VFO to 5.0 MHz and check that the voltage does not exceed 8 volts.

Now select 80 metres and repeat the operation, complete for all bands and the synth is ready for use.

NOTE by G3RJV: Shortly we hope to be able to offer the following mixer crystals : 21.5MHz, 28.5MHz, 35.5MHz and 43 MHz, at £1 ea. which will go a long way to making the crystal oscillator board. We may also be able to offer some cheap 'digital dials' suitable for the project. Watch this space !





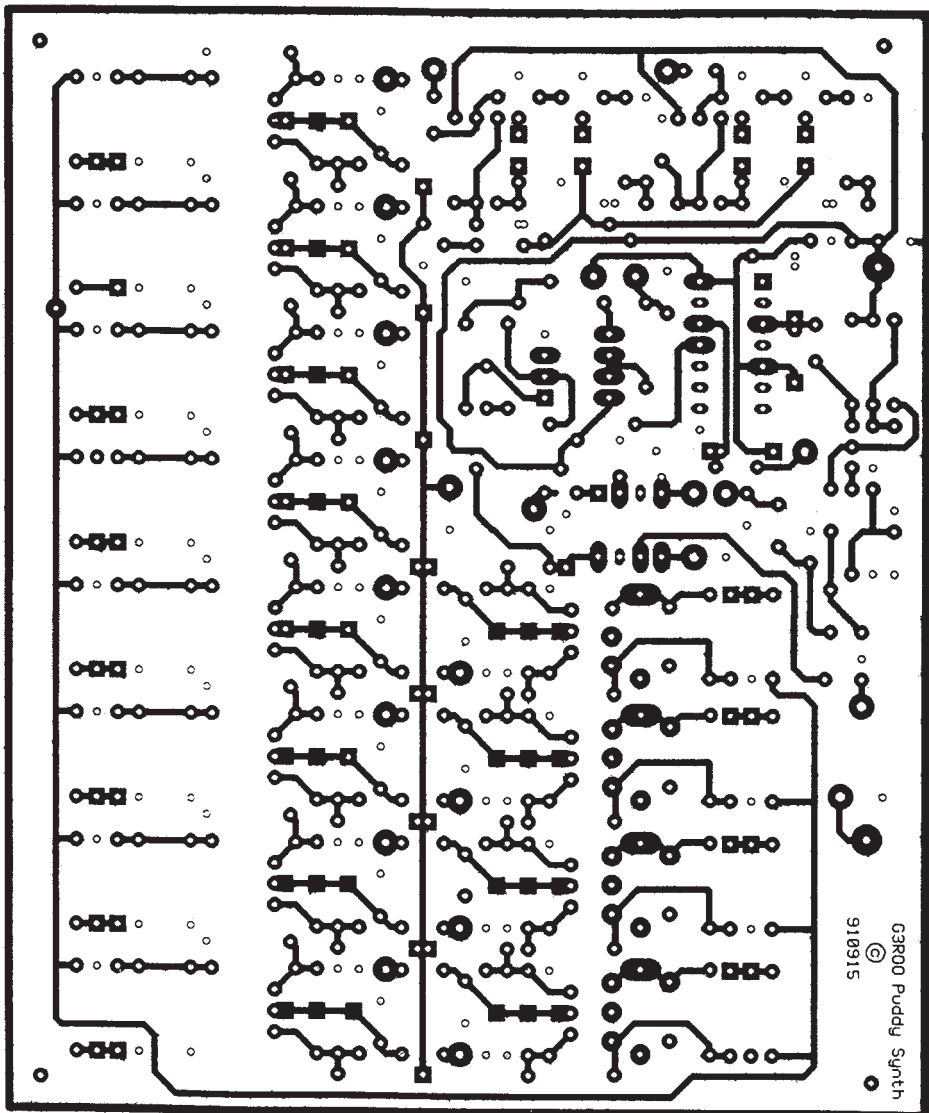


**THE SYNTH**  
 A SYNTHESIZED HF  
 MULTIBAND MIXER  
 IAN KEYSER G3ROO

**THE SYNTH CIRCUIT**

This circuit diagram of the G3ROO 'Synth' is more complex than those usually appearing in SPRAT and will be difficult to read. It should be possible to enlarge it on a suitable photocopier. A Full Sized set of drawings on A3. paper is available from G3RJV. These include the Circuit, Block Diagram, Tables, PCB and Component Overlay. Please send a Large Addressed, Stamped, Envelope plus an extra 1st Class Stamp.

PCB FOIL  
3 Inches



Doubled Sided PCB : Make Grounds and Clearances on Top Foil





# THE SYNTH Inductor Table

| Band        | Synth Output | Xtal | Coil data  |
|-------------|--------------|------|--|
| 1.5 - 2.0   | 10.5 - 11.0  | 16.0 | Wound on scrap 10K formers<br>Such as L114 from Kanga Products 5+5+5+5 Turns |
| 3.5 - 4.0   | 12.5 - 13.0  | 18.0 | Wound on scrap 10K formers<br>Such as L114 from Kanga Products 4+4+4+4 Turns |
| 7.0 - 7.5   | 16.0 - 16.5  | 21.5 | Wound on scrap 10K formers<br>Such as L114 from Kanga Products 3+3+3+3 Turns |
| 10.0 - 10.5 | 19.0 - 19.5  | 24.5 | Wound on scrap 10K formers<br>Such as L114 from Kanga Products 2+2+2+2 Turns |
| 14.0 - 14.5 | 23.0 - 23.5  | 28.5 | TOKO S18 coils Mauve   |
| 18.0 - 18.5 | 27.0 - 27.5  | 32.5 | TOKO S18 coils Mauve   |
| 21.0 - 21.5 | 30.0 - 30.5  | 35.5 | TOKO S18 coils Mauve   |
| 24.5 - 25.0 | 33.0 - 33.5  | 39.0 | TOKO S18 coils Blue  |
| 28.0 - 28.5 | 37.0 - 37.5  | 42.5 | TOKO S18 coils Green   |
| 28.5 - 29.0 | 37.5 - 38.0  | 43.0 | TOKO S18 coils Green   |
| 29.0 - 29.5 | 38.0 - 38.5  | 43.5 | TOKO S18 coils Green   |
| 29.5 - 30.0 | 38.5 - 39.0  | 44.0 | TOKO S18 coils Green   |

T1 consists of 6 + 6 turns bifilar on ferrite bead  
L13 and L14 22uH Toko 283AS/220J Bonex 437220

## EUROPE FOR QRP WEEKEND 1992

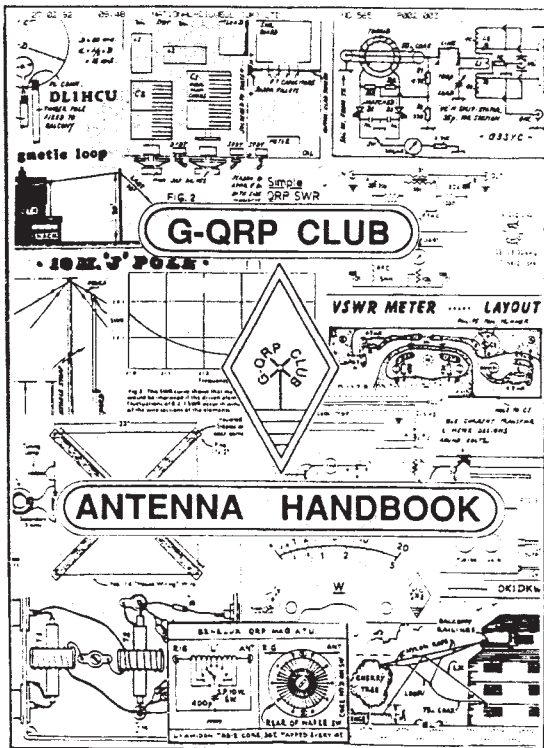
- Dates and times. From 1600 UTC on 2 October 1992 until 2359 UTC on 4th October 1992.
- Mode and frequencies. CW only on 3560, 7030, 14060, 21060, and 28060 kHz, all  $\pm 10$  kHz.
- Power. Not to exceed 5 watts rf output. Stations unable to measure output take half their dc input (10w input = 5w output and so on).
- Stations eligible. Any licenced radio amateur.
- Contest calls. Call CQ EU QRP when seeking contacts.
- Contest exchanges. For a contact to be valid RST, power output, and name of operator must be exchanged and logged.
- 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 scored on each band used.
- Logs. Separate log sheets must be used for each band, showing for each contact date, time, call and RST, name, and power received and sent. A summary sheet must be provided showing call, name and address, claimed score for each band, total claimed score, and brief details of equipment used.
- Submission of logs. Logs must be submitted to P. Doudera, OK1CZ, U1 baterie 1, 16200 Praha 6, Czechoslovakia, by 15th November 1991.
- Awards. Merit certificates will be awarded to the three leading stations from each continent.
- The judges decision is final in the case of dispute.

Event organised jointly by G QRP Club and OK QRP Club

## FOR SALE : Still clearing shack to buy Spectrum analyzer!

Ian Keyser G3ROO, Rosemount, Church Whitfield, Dover, Kent. [0304-821588]

FT757 +BNOS 30A PSU £500, FT101ZD vgc £400, FRG7 vgc £100, Heath ET3100 + Hbks Electronic experimenters kit £40, SOAR FC842 DFM £40, Heath HG102 Signal Gen. 320KHz to 220 MHz £25, MLX 9MHz SSB Board £30, CWR610 morse and RTTY reader £25, All plus P+P.



# AN EXCITING NEW BOOK THE G QRP CLUB ANTENNA HANDBOOK

Edited By Peter Linsley G3PDL  
Published By The G QRP Club

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Cheques to "G QRP Club"

## MEMBERSHIP MATTERS G4HYV

Thanks for the prompt manner in which most members have renewed their subscriptions. Also for the many kind messages following my 'retirement'. It has been a pleasure and fun to do the job, but now I may be able to get back to construction and maybe some operating.

A few requests [from my heart!] on behalf of myself [currently maintaining the database] and John, G0BXO, the new membership secretary.

PLEASE ensure that your CLUB NUMBER is given with correspondence and written on the back of cheques, without it we cannot guarantee correct updating of records

PLEASE CHECK your membership number on the SPRAT address label. A surprising number of members give the incorrect numbers - in QSOs also ?

For those members using STANDING ORDERS, please ensure your form is correctly completed. There is a space for CLUB NUMBER, but in some cases we have been given callsigns, names, subs status codes and even our bank code. All these waste our time and involve us having to write to your own bank.

ADDRESS CHANGES: If you move house, Please arrange mail forwarding with the Post Office and also inform us. But remember that changes notified less than 5 weeks before the SPRAT publication dates (end of March, June, September and December) will not reach your address label before the next issue. A number of SPRATs go astray each mailing because of address changes.

## A SPRAT INDEX FOR ISSUES 1 to 68

is now available, thanks to Ted Avery G3WBB. Send two 1st Class Stamps with an Address Label [\$2 plus Address Label for overseas members] to Dave Hazelwood, G4WZV, 36 King Street, Winterton, Scunthorpe, DN15 9TP. We hope to update this index each year.

## AROUND THE WORLD IN 40 DAYS by Peter Dodd G3LDO

The original plan was for my wife Erica and myself to visit relatives in New Zealand over Christmas and the New Year, stopping off at a couple of places on the way to break up the journey. No Ham Radio was to be involved. Things turned out very differently.

The plans became more ambitious as they evolved over the year preceding the trip, with the destinations finally decided on being Tahiti, Rarotonga, Auckland, Brisbane and Bangkok. To stay within budget all hotels at the stopover locations had to be as cheap possible and were booked directly from information gleaned from back-packer type travel books from the library. I also planned lectures and sales of my antenna book (see advert in this issue) to defray expenses.

The first stop was Tahiti. The hotel Mahina-Tea belonged to the category described above, located in a valley the behind the capital, Papeete. We found Tahiti enchanting, with stunning scenery and the variety of trees, plants and flowers gave the impression of living in a botanical garden. Tahiti has special ambience created by a mixture of French colonialism and the South Sea Island environment. It was all in sharp contrast to the grey cold of an English December the previous day.

Five days in Tahiti was far too short and we departed with some regret. We were met at the airport at Rarotonga by the owner of the motel, plus minibus. On the journey to the hotel I tentatively asked if there was anyone near by who might be a radio ham. Well yes, there was Victor (who had a big aerial by his house), some 15 minutes walk up the road from the hotel. Later that afternoon we went antenna spotting and found a house with a 3-element beam protruding from above the palm trees. Victor ZK1CG was very friendly and took us into town next day, showed us where to get a driving licence, and even more important where to get a ham radio licence. Victor loaned me his shack and rig so I was on the air for three days as ZK1XE, I couldn't believe my luck. Operation from a spot that has no short skip QRM is an experience. In the middle of the day, when there is very little long skip the band is almost flat. During the evening the first DX openings occur to the USA and the pile-ups build up quickly as the packet grapevine announces ones presence. These USA openings were good fun, with good conditions and pile-up discipline. The band opened up to Europe on the short path on two of the evenings but I was unable to work any G-stations. I regard Rarotonga is the ideal place for a QRP-DXpedition. Accommodation is cheap, with electricity. Cheap hotel buildings are usually set in a large open spaces with conveniently placed palm trees and the licence is easy to obtain. Furthermore I don't think that there is any CW DX operation from there.

We spent a wonderful two weeks in New Zealand over Christmas and the New Year with daughter, Ann, and son-in law, Kenny, and family. We met the local radio hams at the Whangaporua radio club, organised by my daughter and Jumbo ZL1HV and Eric ZL1BDO. I was allowed to borrow the club VHF transceiver, which enabled me to meet other radio hams in the vicinity. I was loaned an overhead projector and, because I just happened to have my overhead projector slides with me, was able to give my standard G-QRP antenna lecture and sell a few books. We also travelled around the North Island and visited Rotorua. While there we also visited ZL1AV Dave and XYL Humi. I had worked Dave on a few occasions from the UK, his magnificent QTH overlooking Lake Tarawera partially explains the strength of the ZL1AV 14MHz signal into the UK.

The next port of call was Brisbane. We stayed at a small motel at Wynnum on the coast and were very well looked after by Keith, VQ4TT, showed us around Brisbane and the surrounding area. We were also invited to dinner and met XYL Val. A meeting had been arranged for us to meet members of the Bayside District Amateur Radio Society by club secretary, Ian Campbell, VK4TK and G-QRP Club member Allan, VK4MAS. This club event was quite special: a hall had been hired for the occasion and we all enjoyed a barbecue before club event. We felt quite honoured. An overhead projector was provided so again I was able to give my G-QRP standard antenna lecture.

Bangkok is very hot and crowded and full of traffic jams, and the traffic cops wear smog masks. In amongst it all are oasis of pagodas, palaces and temples of the most exquisite architecture. We went on a trip up country to near to the Burmese border. The journey was part by minibus and part by train (which traverses the famous River Kwai bridge and the death valley viaduct built by the prisoners of war in WW2) and part by river on a long-tailed boat (a Thai version of a speedboat, lightweight, flatbottomed and propelled with a 50 hp lorry engine!).

As for ham radio, I had been given some names to contact by ZL1HV. As a result a meeting was arranged with John Vajo W2ZZW, HS0ZAA at the RAST (Radio Amateur Society of Thailand) club station HS0AC in Bangkok. At this time reciprocal licensing arrangements exist only with the USA, Consequent Americans are the only foreigners with HS licences (identifiable by commencing HS0X). Most ham radio operation in Thailand is on VHF with very little activity on HF. John writes a column in Thailand CQ Magazine to encourage HF operation. His favourite band is 7MHz CW so look out for HS0ZAA around midnight our time.

Lack of space precludes me from thanking all radio hams we met who made our holiday a wonderful experience (I blame it on George, he only allowed me one page).

# QRP NEWS ROUND-UP

## EIGHTH YEOVIL QRP CONVENTION

The Preston Centre, Monks Dale, Yeovil, Somerset [via Preston Rd & Larkhill Rd]

**SUNDAY 10th MAY 1992,**

**DOORS OPEN AT 9am, ADMISSION £1.50 [inc Prize Draw]**

**GB2LOW 2 Metre TALK-IN FROM 8.30am ON S22**

### ATTENTION MEMBERS IN SLOVAKIA AND CZECHLANDS

You may pay G QRP Club subscriptions in Slovak Currency at the rate of 370 Crowns per year to: Mr. V. Chilo, OK3WBF, Mierova 8, 038 61 VRUTKY, Slovakia Republic, Czecho-Slovakia. These fees will then be paid in £UK by Alex Korda, G4FDC.

### "YO-QRP" : The Club of Romanian Radioamateurs Using Low Power

was founded on June 1st 1991, affiliated to the Romanian Radioamateur Federation, and its headquarters at the Central Radio Club in Bucarest. Membership is open to all licenced radio amateurs worldwide who wish to develop radio communications using low power : CW - 5w RF or less, SSB - 10w pep or less. The subscription is 20 IRCs for the 1st year and 15 IRCs for each following year. The club issues several awards. Co-ordination of the club's activities is carried out by a team including YO3CR, YO3RT and YO3CDN. Application Forms for membership may be obtained by request with SAE + 1 IRC from one of the following

**Vasile Ilias YO3CR, or Traian Razor YO3RT, or Aurel Baciu YO3CDN,**

**c/o PO Box 22-50, 71100 Bucuresti 22, Romania**

**PRINTED CIRCUIT BOARDS FOR PROJECTS FROM THE USA**, including those in QST, ARRL Handbooks, W1FB Books, CQ and 73 can be obtained from FAR CIRCUITS, 18N640 FIELD CT. DUNDEE, IL 60118, USA. FAR supply a full catalogue list of all their PCBs

### \* \* KANGA KITS IN THE U.S.A. \* \*

KANGA US Supplies all the Kanga Range of kits in the USA and is operated by Bill Kelsey, N8ET, a long standing G QRP Club member. Bill supplies a catalogue [send him some postage] , telephone support and the same non-satisfaction return policy as Kanga UK. Orders by check, also VISA/MC on telephone.

**KANGA US, 3521 SPRING LAKE DR. FINDLAY. OHIO 45840**

CONGRATULATIONS TO OUR FRENCH REPRESENTATIVE, PAUL- PIERRE BEL, FB1MQO, WHO HAS ENROLLED HIS 200th MEMBER OF THE G QRP CLUB! WELL DONE PAUL

### INFORMATION FOR GERMAN MEMBERS : RUDI DELL DK4UH

After a Round-Table-Conference by a few German members in Spring 1991, the German Club members plan a meeting in the Nuernberg area in May 1992. For further information, contact the club representative in Germany : Rudi Dell, DK4UH. Phone 06324-64116, after 1900H

## THE U QRP CLUB

The U QRP Club has been re-organised. The club now has 70 members in five countries and now produces a journal called the U QRP CLUB NOTEBOOK. The new contact address is

**THE U QRP CLUB P.O. BOX 100  
SARANSK - 31. RUSSIA , 430031**



## NOVICE NEWS

DAVID GOSLING G0NEZ 31 Semphill, Hemel Hempstead Herts HP3 9PF

G QRP Club Novice Operation is now up and running!! We are now well and truly off the ground over the Christmas period, with our Winter Sports giving us a helping hand.

Bob G0FTO (3785) had a great 2 way QRP with Martyn 2E0ABA on 3.566 and wants your QTH details for a QSL Martyn please. G0NEZ had QSO's with 2E0AFF (Paul) and 2E0AFA (Rob) both who have very recently passed the Morse Test. No doubt others will have worked some Club Novices, so pse QSP your into to me for Sprat.

From Novice to full Licence - Chris Fleet - (6391) mentioned in the last Sprat, says his call is now G0PVN. With lots of help from the Club, Chris became operational over the WS using a bought Century 22 plus Club Novice Antenna/ATU. Chris worked many Clubs QSOs and not into Europe well with QRS CW.

Chris plans to transfer his outdoor Shack, and to activate the built in Ten Tec Keyer by means of a new Paddle Key.

### STRAIGHT KEYS

Beginners to Morse Code almost always use a straight key; indeed the SK is the only type allowed for the UK Morse Test, whether Novice or Full Class at 12wpm. There is very little information given on the setting up of these keys which if done correctly, can be a joy to use. Trouble is, most get through the Test with an 'orribly set-up key; all jerky and glitchy; somehow manage to pass, and never go back.

There is nothing in the RSGB RadCom Handbook; or their Operating Manual (can you believe that?) and most manufacturers; good though their products are; do not include any setting up advice. When I first became Licensed; I wrote to George G3RJV who kindly helped me; and a local, John G0FSP who called round to have a look.

The following piece is an attempt to set the key straight. It is loosely based on the Kent Key which is probably the most popular UK Key. Firstly place your assembled Key "side on" to your operating position with the knob at your right.

Loosed off the Contact Gap setting bolt and lock nut. Loosen the spring loaded stop return bolt. Adjust the front stop contact until the Straight Brass Bar is Horizontal, completely so. When you depress the knob the bar should return to the horizontal position. Tighten and lock the knurled nut in the positioned, and then refit the contact gap setting bolt and locknut. Once again, check that the horizontal bar returns to that position (horizontal) when you let go of the knob.

The contact gap can be adjusted to your own preference, as can the spring tension; just forward of the bearing, but for now, use a piece of ordinary writing paper and adjust so that you can just slide the sheet in and out. Try to have the key so that it is not too stiff in use nor too slack.

You'll very quickly find your own feel for the key, and that contact gap will be much reduced within days!

When in use, make sure that the action for sending comes from your wrist and not the arm/shoulder. Rest your forearm on a short table top for example, and just use the wrist to send. You'll soon get the hang of things - enjoying Morse Contacts all around the World using Low Power Morse Code!!

Bosse SM6SLC has written offering help for Novices via Scag QSOs but regrettable the SCAG frequencies fall outside the Novice Band Plans. Thanks for the offer though Bosse and always nice to QSO. (There is of course nothing to stop Novices from listening to the Scandinavian Activity Group QSOs; listening to good Morse is a good way as any of learning. In future issue, I will get together a decent list of Slow Morse Stations (there are many).

My thanks to those who have written in with suggestions, offers of help etc. we deal with many and varied enquiries from CB'ers thro SWL'ers Novice Class A & B Full Licence Class A & B to the guy next door who heard me when I was QRO "on his telly", and since I "went CW QRP", asks are you still a Radio Amateur. Hi!

72 es 73 few nw

### Late News Novice News

G0NEZ worked his first CW Novice Operator on 26.1.1992 on 3.701 Mhz at 19.10 UTC - 1930 UTC Trevor was a really good Novice Opr and his CW excellent. If you are reading this, Trev, a QSL Card has been sent to both RSGB and G QRP Club Buros. I did send all my details at slow speed but there was a lot of DL QRO QRM during the evening. Again, well done. Novice operation now seems to be gaining momentum; and now that all the "Fuss and Bother" in the press has passed perhaps we can get down to the nuts and bolts of Novice Qrp Amateur Radio i.e. Experimentation Construction, Operations etc.

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

FOR SALE : TEN TEC ARGONAUT 515 complete with Ten Tec Audio Filter & Notch. Good Condition. £330. Tom Hamilton, Tel: 0276-24482

WANT LOUDSPEAKER OUTPUT? The Archer 200mW Audio Amplifier Speaker unit can add extra audio to a Sudden etc or even provide the audio for a project. SPRAT Price : £9.50 inc. postage from Link Electronics, 228 Lincoln Road, Peterborough, PE1 2NE. Mike Bowthorpe, G0CVZ.

FOR SALE : TEN-TEC ARGONAUT 2, Boxed, mint condition, hardly used, Reluctant sale but I need the cash! £950 ono. Will Deliver. Tel: Geoff, G4OWH, 0761-431198.

FOR SALE : Ten-Tec Argosy II, Model 525D, good condition and working order but surplus to requirements. £290. Stuart Gordon GM0CAQ, Tel: 0261-33298

FOR SALE : YAESU FT77 Transceiver, 0-100w, 8 bands, CW Filter, FM Board, Mic, Boxed, Excellent Condition, £340. FL110 160-10m Solid State Amplifier (10w input). G4ENA 160m Mobile SSB Transceiver. G3XJS 0494-712344.

FOR SALE : TRIO TS120V, 10w Transceiver plus SP430 Trio Speaker, Boxed and Manual. £275. VHF Rotator and Control Box by Tama. £15. Buyer collects or pays carriage. Brian G0NSL, 0928-565319

FOR SALE : YAESU FT707. £325. or might part exchange for FT757GX. Tel: Len GM0ONX, Kilmarnock 0563-34383 [QTHR as GM6JIC]

FOR SALE : LAKE DTR3 80m TCVR Kit, exactly as received and untouched £50. HOWES MTX20 20m TX Kit with 3 xtals, untouched, £15. Roy Storey, G3LBT, 0268-412177.

FOR SALE : WELTZ SP220 SWR/Power Meter £20, SEM Z Match 1.8-30MHz £50, 2 Kenwood LF30A Low Pass Filters £15 ea, H/B 2 to 8 watt PA £10, H/B Memory Keyer £15, Ex RAF Brass Key £10, H/B VHF Converter RX 118-146 to 2-30MHz £5, CB Reg. Power Supply 13.8v 5a £10, CB 20w Amp 26-30MHz £5, H/B Digital Frequency Meter to 30MHz £10, Sapphire X4000 Converted CB Rig 10 10FM with mods & squelch supplied £25. All in GWO money back guarantee. G4MYX Tadcaster 0937-832061.

*Morsum  
Magnificat*

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

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## QRP COMMUNICATION FORUM

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

**PLEASE, DURING THE PERIOD 25 May to 20 June, 1992,** do not send any award applications or other correspondence to G8PG (but please listen for F/G8PG/p 4 - 15 June)

### WINTER SPORTS 1991 - OR "WHO NEEDS QRO?". Preliminary Report.

Once again the bands hummed with environmentally friendly QRP signals from some forty countries, including car loads of W and VE, plus VK, FP, KP4, 9J2, RA9 and so on. In FP-land VE1KM actually changed from QRO to QRP join in the fun. Unluckiest man was OZ3AAA; he had just raised VK4XA/qrp when his local mains supply was cut off. With his HB vxo rig and modest loop EI4DZ was one of those who raised KP4DDB/qrp. G3YYF apologises for his "modest log"; it only included 9J2/qrp and a load of Ws. GI4PCY made it across a couple of times. GM4XQJ was one of the few to work VUITT/LID/qrp - who is quite genuine! A leisurely 3.5 MHz effort brought G3MCK 8 countries. Another nice log from G3LHJ who made it across the pond 18 times. G3DOP was using an ancient KW2000 modified for QRP. DL1GPK did it the hard way with an indoor antenna on 3.5 MHz, but still managed to raise 6 countries. At the other end of the scale, DL0GD hit the jackpot with EP/HA5BUS/qrp, 9J2BO/qrp, VK4XA/qrp UA9s, and lots of W/VE. G4JFN was another who raised VU2ITT/LID/qrp, and also lots of Ws. Despite his city centre location G4KKI also did well across the pond. G3CQR was another who raised VK4XR then lost him. GM4BKV worked 26 members, which made him happy, and GM3KPD had fun working the W/VE gang. PA3BHK was working WS hf, and is also the only station to show some two metre contacts in his log. KB1FK had a ball working European QRPers. LA7FF made it two-way with W7. G4RVW reports lots of contacts with his ONER. Although only able to operate for a short time W2JEK added GD and TF to his two-way QRP score. SM5CBC was happy to push up his members worked score. G3XJS worked some nice DX, and was one of the few to raise EA6ZY this year. G0IFK worked 27 countries in three continents, with a total of 99 contacts. G0DIA only made 7 two-way contacts, but they included W and VE. OH6MPV and OH6MIL were there raising the QRP DX, and OH9VL was heard working VKBLW when running 800 mW. Long-time supporters I7CCF and DK5RY were there and enjoying themselves. LZ1BB was there as was LZ1SM with his famous 1 watter. Another with QRPP was UA1AUT with his 600 mW. YO6HQ was also around. Siberia, in the shape of RA9CEI, was workable daily. His log has not yet been received, but it must be a good one. W2JEK was not unhappy to add GD and TF to his two-way score! The OKs as always, were too numerous to mention, and the HB gang, lead by HB9DCL and HE7AMZ, were out in force, as were the F and ON members such as F1EMT, F6CZL, FE1OGJ, and ON5AG/ CT4RL/p was, as usual, enjoying the sun by the sea, and SP5SDA kept the Polish eagle flying. The GB0QRP (G4BUE undercover) story is told elsewhere, but we can say that he made 476 two-way QRP contacts with 34 DXCC countries in 5 continents, and worked 238 different members. American stations making two-way QRP contact with GB0QRP on the 8 bands 3.5 - 28 MHz were NGIG, AA2U, W3TS, and N4AR. NGIG worked two-way QRP with 15 countries including FP and KP4. AA2U submitted an enormous check log, having worked just about everything; thanks Randy. W3TS worked 16 countries on two-way, and had a massive total of trans-Atlantics. If your call does not appear above, do not think that your log was not appreciated. It is hearing from members, and above all hearing how much they enjoyed themselves, that makes organising this event so much worth while, but it you, the members, who make it such a success. One very satisfying factor is the steady increase in trans-Atlantic working, and the ever closer liaison with our friends in North America. Here one must not forget the very real contribution made by Canada, and the work of members such as VE2KN and VE3EWS. Like QRP itself, the Sports grow constantly bigger and better supported - thanks to you, our members. (as a postscript, if you wondered why VS6DL and VS6VT were not active, the answer is that they both returned to the UK during 1991, and now operate under their UK calls.)



**DAYTON ONCE A YEAR IS NOT ENOUGH** say a number of QRP ARCI and G QRP C members in the New England States, so they have formed the New England QRP Club, which will meet four times yearly in some part of New England. Sixteen QRPers attended the inaugural meeting, and many HB QRP projects were displayed. For further details contact NN1G. He reports an explosion in QRP the USA, partly due to ARRL publishing such excellent QRP HB projects and information. RSGB please note!

**SINCERE CONDOLENCES** from us all to the VK QRP CW Club on the loss of their Organiser, Max Brunger, VK50S, who died last November. A well known constructor and QRP operator, his loss is a sad blow to our Australian friends and to his family.

**THE BILAL ANTENNA.** A word processor hiccup dropped a line in the last Sprat. Prices range between 150 dollars for the 3.5MHz version to 39 dollars for the 28 MHz version.

**OFFICIAL RESULTS OF THE 1001 UA QRP CONTEST** are Class A, UF6VAI, RV3GM and UA3GCU; Class B G4JFN, G8PG, and G4MQC. The next one is 22 to 23 August, 1992. Rules elsewhere in this issue.

RV3GM is now doing business management course; good luck Oleg.

**IS YOUR 3.5 MHz RX REALLY GOOD?** If so you should already have heard "OKOEN beacon QRP" on 3600 kHz. This beacon runs at 150 milliwatts output, so it should be a good guide to 3.5 KHz conditions. Reports to OK1DUB, Karlovarska 346, 273 01 Kamenne Zehrovice, Czechoslovakia. Call sent every 8.5 seconds. (Audible at G8PG).

**OM5MCP WILL OPERATE** during 1992 to commemorate radio operators of the WW2 Czech Resistance, 12 of whom gave their lives. Actual WW2 equipment will be used on occasion. QSL via OK1HR for a historical commemoration card, sending 2 IRCs. Entrants to OK/G weekend 1991 will all receive a special card.

**EUROPE FOR QRP WEEKEND 1991.** This was a great success with no less than 50 logs being submitted. These were from 17 countries in three continents. The leading scorers were Europe G4JFN, HB9DAK, and OK3CUG; DX; RA9CEI, VU2ITT.LIDm WN2V. These calls indicate the world wide support for the event. An EQ contest on the Sunday caused some problems, but did not stop contacts being made. The OK boys tackled a milliwatt contest on to the event in which the first three were OK1HR, OK1DEC, and club station OK5SLP. with his 300 mW OK1HR, also took eighth place in the main event. WN2V says he heard and called many G, GM, and SM stations who did not answer. VU2ITT/LID was operated by out member VU2LID from the Indian Institute of Technology. LA3CG used solar power for much of the time. EI4DZ and G3XJS were not unhappy to work VU2ITT! RA4PC was just on the wrong side of the border to qualify as Asia. Everyone says how much they enjoyed it. CU AGN 2-4 October.

**AIR TESTING A 1W 21 MHz TRANSCEIVER** for a member recently I was impressed by its sensitivity and the ease with which the 1w got across the Atlantic, but my operating pleasure was spoiled by the lack of RX selectivity. This could easily have been remedied by incorporating a peaked at filter either fitted into the rig or used outboard. If you do not have such a filter associated with your dc RX you are missing a lot. A couple of suitable filters for fitting within a receiver appear in SPRAT 67 (pages 19 and 26). For an outboard filter, the W3NQN 530 Hz LC filter is superb, although some of the components may take a little finding in the UK. I certainly would not be without mine. So if you use a dc RX and do not have a peaked at filter, start investigating the subject. It may help you to get a lot more contacts, and to hold them.

**WELCOME TO THE NEW YO QRP CLUB** which already has 45 members and is growing fast. There is a yearly QRP competition in Romania, and it is from this that the Club has grown. Apparently there are many QRP operators in the country. The contact address is V. Ilias, YO3CR, c/o C.R.C., PO Box 22-50, R-71100, Bucharest, Romania. They have asked us for technical and other help, which we are supplying.

#### **AWARD NEWS**

**QRP MASTER.** Congratulation to SM6SLC and DL0GD on making the Master Roll. DL0GD did it with just one application for the right Awards!

Congratulations also to the following.

**QRP WAC GM0DHD, WJ7H, UA3APV, SM6SLC, WB4KLT**

**QRP COUNTRIES.** 150 DL0GD (well done!); 100 G4CFS, UA3APV;

50 WB4KLI; 25 UB4JHE (all 1.8 MHz), GM4OSS, G0NOI.

**WORKED G QRP C.** 880 GM30XX (Wow!); 460 G2DAN; 400 G3DNG; 360 G01FK; 260 G3INZ; 160 SM6SLC; 120 WN2V, GM0DHD; 100 G0DGN; 60 G0KZO, G0KJN, G0IFM, DJ0GD; 40 G4LAV, LA7FF, F6EQO; 20 G3SOX, WJ7H, G0NAD, G0DXT, G4ICP.

**TWO-WAY QRP.** 30 PE1MHO (all 50 MHz!); 20 LA7FF, G0KJN, DJ0GD; 10 G0DGN

#### **RULES FOR THE RUSSIAN QRP CONTEST 1992**

**IMPORTANT NOTE.** Owing to the recent sweeping political changes station outside Russia must only work stations within the Russian Republic, but each prefix within the Republic which is worked counts as a multiplier.

**Dates** 22 and 23 August 1992

**Times** 1500 gmt to 1500 gmt

**Power** Five watts or less

**Frequencies** All QRP frequencies + QRM

**Calls** Call CQ R QRP Test

**Exchanges** RST/serial number/power. Milliwatt stations use 01 (100 mW), 02 (200mW) and so on.

**Scoring** HQ Station RV3GM 10 points. Russian stations in own continent 1 point. Russian stations outside own continent 3 points.

**Multipliers.** Each Russian prefix contacted, RA1, RA3, RV1, RV3 and so one, counts as a multiplier on each band.

**Total Score.** This consists of the total points for all bands multiplied by the total number of multipliers.

**Logs.** Separate sheets for each band, together with a summary sheet showing score, stations details, and name/address. Logs must be sent to U QRP Club, P.O. Box 229, Lipetsk, 398043, Russia, within 30 days of the contest. Stations enclosing a one dollar US bill receive a special prize. Leaders will receive certificates.

#### **AGCW - DL QRP/QRP PARTY**

**Date & time :** May 1st of each year, 1300 - 1900 UTC. **Frequencies :** 3510 - 3560 KHz, 7010 - 7040 KHz

**Mode :** CW Only. **Participants :** Any licenced radio amateur and SWL

**Classes :** A: input max. 10 watts or output max. 5 watts.

B: input max. 20 watts or output max. 10 watts. C: SWL

**Call :** "CQ QRP" **Exchange :** RST + QSO number/Class **QSO Number** starting at 001. eg. "579 021/A"

**Scoring :** 1 Point per QSO with one's own country. 2 Points per QSO outside one' country

Each QSO with Class A station counts twice. Each station may only be worked once per band

SWL logs must show both call signs per QSO heard - plus at least one complete QSO report.

**Multipliers :** Each DXCC country + 1 point per band. **Band results :** QSO points x multiplier

**Total Score :** Sum of Band results. **Logs :** to be submitted by May 31st (postmark) to:

Stefan Scharfenstein, DJ5KX, Humberger Str. 19a, D/W-5340 Bad Honnef 6, Germany.

Enclose a SAE plus IRC if a list of results is required.





# MEMBERS' NEWS



## Chris Page G4BUE

Alamosa, The Paddocks, Upper Beeding,  
Steyning, West Sussex, BN44 3JW.  
(packet: G4BUE @ GB7VRB  
or via the UK DX PacketCluster)

Many thanks to those who have sent information about the new Argonaut II and your experiences with it. You may have seen the ARRL review of it in January QST. G3RJV and I will be writing a review, incorporating your comments in the next SPRAT. This will give us an opportunity to chat to the Ten-Tec people about the rig at Dayton. I have two Argonaut II's here at the moment and have been testing one against the other. I will tell you what I'm doing with two in the review next issue! Please continue to let me have your views about the new Argonaut.

Y24TG recently received QSLs from LX and JA to bring his two-way QRP DXCC to 23. PA3BHK gave 144.060 a check during the Winter Sports and found G4SWX in Ipswich who told Robert he had heard me running GBØQRP. I didn't spend much time on 2mas no one answered my "CQ QRP" calls! Robert caught a 2m opening on 11th January when he worked three SPs. F1NZY is building the 40m OSTs by GØFRD and will then build the GØFUW receiver. Steve asks me to pass on his thanks to all the technical authors who write in SPRAT. I think we all owe them a big vote of thanks don't we? GØKYA (@ GB7LDI) says how good the W3EDP antenna is. Steve just slung up one over the roof and has worked around the UK with it with 10w SSB, including breaking the pile for GBØCIN (Children in Need).

GØAAA says his favourite band is 40m, (join the club!) where he's worked 69 DXCC. Mike says the best time to work DX with QRP on 40 is between midnight and 0200z. He uses a sloping dipole from 30 to 8 feet,

so you don't need a high antenna to get amongst the DX. G3NKS has returned to QRP after a break of several years and has worked the USA on 80m with his 4w. Derek dusted off his OXO and made sure it still works on the LF bands.

VU2LID is regularly on the HF bands from the VU2IIT club station where he uses a TS130 and a fixed wire 13 element log periodic antenna pointing towards Europe. Salim recently got a military QRP transceiver from the junk market at Agra. It's called a GE-524, is SSB, CW and AM, covers 2-30MHz with 7½ watts output and Salim would like to know if anyone knows of it. F1NZY thanks the good ears of Raund, OH6N:PV for hearing his 100mW on 10m. Fame at last for me! KA1CZF (@ N1DCS) says I was "spotted" on the YCCC Packet Cluster whilst I was running GBØQRP on 160m by K1KI. Tom has put up a 2 element yagi at 30 feet for 10m and used it to make 500 QSOs in the 10M ARRL Contest.

G3RYZ is an RTTY QRPer but says it is hard going! HB9LBX, Heinz (@ HB9OS) would like to receive information about homebrew transmitters as he enjoys building. SMØGKF is an SSBer and has 239 DXCC and WAZ on QRP. Rune uses power levels between 500mW and 5w. Congratulations to Steve, G1XEI who is now GØRFA. GØHGA has been suffering with a local noise which started when a nearby beauty parlour opened! Angie apologises to members who may have called her and not got a reply. She has been having problems with her receiver and is aware that she has been unable to hear everyone who has been calling her. Hopefully things will get better for her as she has been able to make some antenna improvements.

DL1SDZ has purchased a new Argonaut II, is having a lot of fun with it and says "it is a lot better than the 515". I have been putting mine through its paces in the contests. In the recent ARRL CW Contest I made 916 QSOs with it, including 128 in 33 states on 40m. In the ARRL 10 Metre Contest I made 501 QSOs (all CW) and a mult of 100. I ran the NA contest logging program for the first time; I usually use K1EA's CT. Next weekend I'm trying the ARRL SSB Contest, yes SSB! (strictly for reviewing the Argonaut II you understand!). G4JZO has recently "discovered the joys of contesting," and is considering buying an Argonaut II. Martyn wonders how it performs on the data modes of amtor and packet.

SP5SDA sends details about the new SP-QRP-CLUB with about 50 members and will be organising some activity for the 1st/3rd May. Zen asks if members have any spare components they can send to him for the Club to encourage homebrewers. Evidently parts are very difficult to get in Poland. Details about another new

QRP club come from W1FMR. Jim says The QRP Club of New England started in December with 16 members from MA, NH, VT and CT. NG1G is Membership Secretary and KN1H is Technical Editor.

K2PGB (@ W2EMU) is spending so much time on packet and RTTY that QRP has been put on the back burner - that's serious Chris! GØKCA worked DL7ATW recently who was using a new Argonaut II and a mag loop antenna. GØFPV has just found QRP and operates on 80, 40, 30 and 20m with 2w from a TS940 with reduced drive to a G5RV which tunes nicely as a Tee on 30m. WA4DQU says "I am going to have to slow down. You guys have got me started on so many projects, I can't keep up. I will have to pick one and finish it, but I am having a lot of fun anyway."

My apologies to G3OEP who called me 600Hz off my frequency when I was running GBØQRP in the Winter Sports. Dave says the Argonaut II must be too selective but if that's so then I, (and others using the Argonaut II), must learn to tune wider after calling a CQ. All 5 of Dave's novice students passed their exams at the first attempt and one has since passed the CW test. G3YLA (@ GB7TLH) says that a group at the Norfolk ARC fielded a QRP team for AFS on 80m this year. What about the new QRP section in HF Field Day in June, Jim? I can promise there will be at least one entry from Sussex making a serious effort to win it!

If OK8ATX calls you it will be SP9TNM in disguise! Pete will be going to OK land several times this year in between taking exams. G3DNF enjoyed the AGCW January QRP Contest despite being plagued by S9 pulse QRM on all bands from a faulty street lamp about 20 yards away from his QTH! Gordon is getting close to his 100 for IOTA which has set him wondering if there is any scope for persuading the RSGB to allow a QRP Class in this award. He reckons getting the 100 for IOTA is more difficult than DXCC. Are there any other members who have been chasing IOTA with QRP? Y26SW recently worked OE6WTD on 20m using 500mW. Dieter reduced his power to just 20mW and Henry was still able to copy him at 439. Henry's call is now DL6ZLG.

PA3ERV (@ PI8APN) is using a Corsair II at 3w and FT290 for VHF. Martin has just moved into a new house and is using a magnetic loop antenna with "remarkable results". G3LHJ (@ GB7GLP) stuck to 20m in the CQ CW Contest to make 210 QSOs with 55 countries, including ZL and VK. Derrick picked up three new countries to take him to 104 DXCC overall. G4VPM is now on packet @ GB7GLP.

Y24TG (@ Y71G) has just got onto packet and his first contact was with the Dragon Slayers QRP Group in

the Netherlands in the shape of Harm, PA3AQO; Marinus, PE1LIF and Marcel, PA3FGI. FE1JBX (@ FE6BIG) is looking for documentation about a 20m rig designed by K1BKT and featured in Ham Radio in January 1988. Pierre hopes members may be able to help him. UA4-156-1538 (Russia, 400048, Volgograd, Istoricheskya 119-31) would like to hear from members who can help with technical advice. Vladimir (Komarov) hopes to have a call soon.

GØDJA is now using an IC202 on 2m at 3w and worked GIAXSO direct and via aurora in November. He also worked three PAs, a DL and an F station. Dave has bought a TS830 for HF and is using it with 40 and 80m dipoles and an ATU. He often checks 10.106 and queries whether we should have a QRP frequency on 18 and 24MHz. Any suggestions? RA9CEI has been using QRP for two years. Serge prefers 15 and 20m (especially 21060 between 0800 and 1200z), to inverted vees.

Don't forget the Yeovil QRP Convention on Sunday 10th May. Full details from G3CQR (0935 813054). GØFYP appreciated the plaque he won in the postal section of the 1991 Fun Run. Unfortunately, I don't return from the USA until the Thursday before and won't be able to make it again this year. Talking of the USA, I'm looking forward to meeting our USA members again at Dayton and will be taking over four special GBØQRP QSL cards for NG1G, AA2U, W3TS and N4AR, who I worked on 8 bands in the Winter Sports - great going guys!

G3GVY returned to amateur radio in 1989 after being QRT for 37 years and was delighted to find the G-QRP-Club. Michael is using a 509 Argonaut and a "sky-hook" in his tiny garden. He sends his thanks to all those members who have one or more of the following: good antenna, good receiver, good hearing and patience. His success with QRP depends on them! GØOXT is using a homebrew 80m transceiver and the FT77 on 20 and 40m. G8PG worked ZS6ME on two-way QRP in January for DXCC No.56 on two-way QRP. G3DOP tried milliwatting this winter and worked 44 DXCC in 4 continents with 200mW. John made 18 QSOs with USA and VE in the ARRL CW Contest with his 200mW and said he received some surprises when he gave them his power!

OE6HS has been doing some interesting tests with 1 to 2mW HE/NE-lasers and diode lasers on 670 nanometers. Heinz has worked 5 to 15km line of sight paths, on CW of course. That clears the files. I've changed the font to enable me to get more text into my two pages! Please keep your news coming and let me know how your spring goes, by 20th May please.

# THE 1991 QRP WINTER SPORTS AND GBØQRP

## by Chris Page G4BUE

The chances are that those of you who took part in the 1991 QRP Winter Sports worked GBØQRP. The reason I say that is between the 25th December 1991 and the 1st January 1992 I made 645 "proper" QSOs of which 476 were two-way QRP with 231 different members. If I missed you or you called me and I didn't hear you, then I'm sorry, but QRX for the 1992 Winter Sports and I will try and put GBØQRP on the air again.

I had first used the special call of GBØQRP during our HF NFD last year and thought at the time it would be fun to use it in the Winter Sports. As this was the 14th year of the Winter Sports I applied for GB14QRP with the idea of applying for GB15QRP this year, GB16QRP in 1993 and so on, but the RSGB would only give me GBØQRP! I guess they decided the 14th anniversary of the Winter Sports didn't warrant celebrating to the extent of issuing a unique special call for it. Perhaps they may recognise the 25th or 50th anniversaries of the Winter Sports and I will be able to get GB25QRP in 2003 or GB50QRP in 2028!

GBØQRP made its debut on the QRP frequencies at 0757z on Christmas Day with a QSO on 40 metres with Leif, SM7KWE. Over the next few days the call sign was used on 11 bands (1.8, 3.5, 7, 10, 14, 18, 21, 24, 28, 50 and 144MHz) to make the 476 two-way QRP QSOs. 62 DXCC countries were worked including 8P, BV, HI, J7, JW (7MHz), KL7 (10MHz), KP4, SU (10MHz), VP5, VS6, VU and ZA. Individual band DXCC scores were 13 on 1.8MHz, 18 on 3.5MHz, 19 on 7MHz, 14 on 10MHz, 27 on 14MHz, 13 on 18MHz, 19 on 21MHz, 2 on 24MHz and 20 on 28MHz.

A total of 34 countries were worked on two-way QRP which included KP4, UA9, VK (on 21/28MHz), TF and VU (on 14/21/28MHz). Best bands for two-way QRP DXCC were 17 countries on 3.5MHz, 20 on 14MHz and 14 on both 21 and 28MHz. As you can tell from the band/scores, conditions were quite reasonable on all bands, although they varied from day to day.

The early morning sessions on 3.5MHz between the USA and Europe were a little disappointing this year compared with previous years. First trans-atlantic QSO on 3.5MHz was NG1G on the 27th December followed by W3TS and AA2U. Nil on the 28th and N4AR on the 29th. W3TS again on the 30th and I heard but couldn't raise W1FMR. This later turned out to be very frustrating as Jim and I worked on the other 7 bands. Nil on the 31st and W3TS again on the 1st.

Four members were worked on 8 bands (3.5 through 28MHz) on two-way QRP. They were AA2U, NG1G, W3TS and N4AR in Kentucky. This was a terrific performance from Bill considering the very high static levels he experiences on the LF bands and his QTH being almost 1000 miles west of the East Coast gang.

1.8MHz had some excitement this year in the form of a five hour period early in the morning of the 1st January when I worked RA9CT, K1KI, EA8QO and OY9JD in four continents.

On the 1st January 50MHz opened up with sporadic E to Scandinavia when Club member OH5NR was worked, but unfortunately Jaakko was using 25 watts! I had already worked GØGZN on the 30th December running 2 watts in Bognor on 144MHz for the first GBØQRP VHF QSO, but unfortunately Lindy is not a Club member.

I used my new Ten-Tec Argonaut II at 5 watts for all the GBØQRP QSOs (except the VHF ones) and this enabled me to give it a very thorough check out. Look for a detailed review in the next SPRAT. I would be grateful for any comments about it or the quality of my signal.

On 1.8MHz I used an inverted L with the top at 40 feet, an inverted vee at 45 feet fed with open wire feeder and an ATU for European QSOs and a full wave loop for DX QSOs on 3.5MHz, a phased vertical array for 7MHz, and a TH7 at 56 feet for the HF bands. The 7MHz vertical array also loads up on 10, 18 and 24MHz! There is no doubt that some of those antennas helped achieve the high number of QSOs, but very many of the other stations (especially DX stations) I was working were only using low wire or indoor antennas.

The whole seven days was very exciting and a lot of fun. It was nice to chat with old friends and meet new members for the first time. The amount of QRP activity was great and at times, especially on 3.5MHz, it was very difficult to find a spot to put out a CQ. I have sent special QSL cards for every QSO with Club members to G4WZV, except the 8 banders with AA2U, NG1G, W3TS and N4AR. They will have to wait until Dayton to receive their "special" QSL cards for working GBØQRP on 8 bands on two-way QRP. Well done Randy, Mike, Jack and Bill.

If all goes well, look for GBØQRP in the 1992 QRP Winter Sports. How about one or two other members applying for special calls? It all adds to the interest and fascination of this unique event.

**80 metre Phasing Receiver [SPRAT 69] ERRATUM**

**John Young G7BCJ**

The base resistor of the 2N2222, which determines the triggering of the 7474 phase shifter, was incorrectly shown as 12K, and should be 220K. A value of 220K permits the use of a SN74S74. The same resistor should be connected to +5v, not +12v [ie. move 390 on circuit to the right of the 220K]. Note also in the sideband select switch section of the circuit, the top left 10K should be joined to the drain of the top 2N3819, not the source. On the AF amp, add + volts at pin 6 and ground pins 2 and 4 on LM386.

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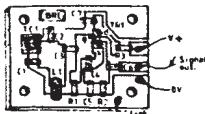




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