SPRAT

THE JOURNAL OF THE G-QRP CLUB

DEVOTED·TO·LOW·POWER·COMMUNICATION

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HAPPY FACES AT THE G4BUE SUMMER QRP PARTY [Photo:G0FAH]

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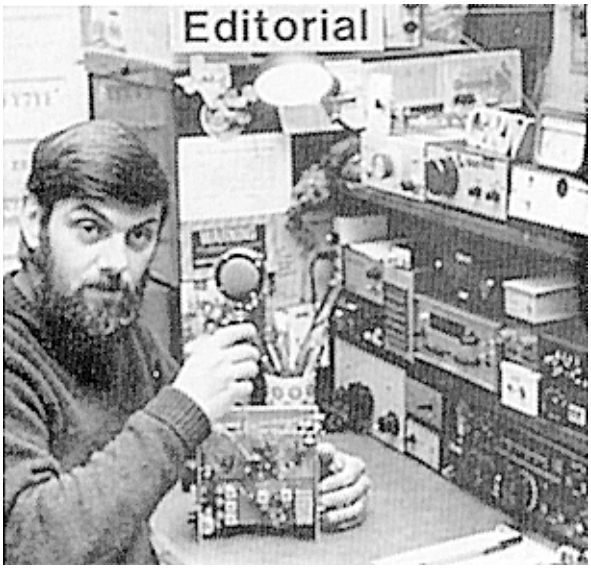
JOURNAL OF THE G QRP CLUB

Editorial



Rev.George Dobbs G3RJV

St. Aidan's Vicarage,
498 Manchester Rd
ROCHDALE,
Lancs,
OL11 3HE.
Rochdale [0706] 31812

Dear Member,

You will notice, following the improvement in typeface in the last issue, we are now printing SPRAT on a gloss paper. This is slightly more expensive but should ensure better clarity of both text and drawings and an improvement in photograph quality.

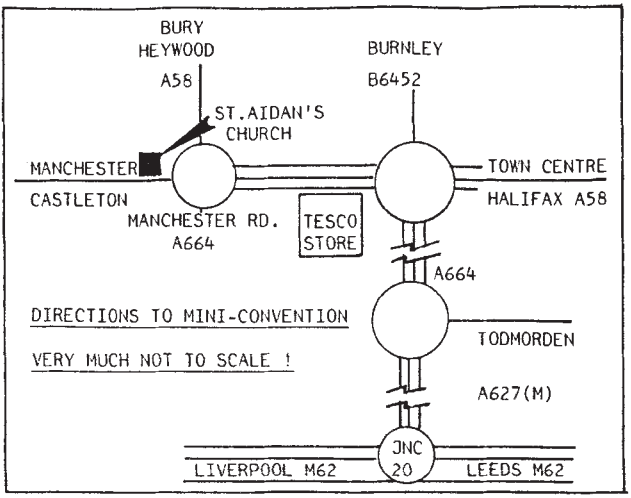
It is now confirmed that the President of the QRP ARCI, Paula Franke, WB9TBU and the Secretary, Luke Dodds, W5HKU, will both be present at the QRP Mini-Convention in October. We have had good links with the QRP ARCI over many years and their visit will help to strengthen the bonds between the two major QRP organisations.

We have a fast growing overseas membership many of whom seek QSOs with UK members on the QRP calling frequencies, so please listen or call "CQ QRP". My two most enjoyable two way QRP QSOs this summer were with members FY/DJ0PJ and PY7FNE both of whom were calling "CQ QRP" on 14060, seemingly with few members around to work them. Why not make it automatic to check, and try a call, on the QRP Frequencies every time the rig is switched on.

The club has already booked space for the LONDON RADIO SHOW next year and we hope to be present at other events. Helpers are always required for our display and stand efforts, please let me know if you would like to assist and I will "put you on the list". I would also be glad of helpers during the day of the Mini-Convention.

73 fer nw G3RJV

G QRP CLUB MINI-CONVENTION



THE NORTHERN GATHERING
FOR G QRP CLUB MEMBERS

ST. AIDAN'S CHURCH HALL
MANCHESTER ROAD
ROCHDALE LANCS

SATURDAY OCTOBER 20th

10am to 5pm

Large Social Area * Full Lecture Programme

Equipment Display * Food and Drinks

Bring/Buy/Swop Stall * Component/Kit Stalls

Test Bench * QRP Circuit Archive

HF QRP Station * S22 Talkin

Admission £1 : You can book in advance to G3RJV or just arrive
Bring your items to sell or swop : From equipment to just junk
Bring your Homebuilt Equipment for display with prizes awarded

ROCHDALE MINI-CONVENTION ACCOMMODATION
Some members have been enquiring about suitable accommodation for the Mini-Convention on October 20th. A new Guest House, TUDOR HOUSE, has recently been opened quite close to the venue. We have been to see it and it seems a well above average Bead and Breakfact for £16.50 a person per night. To book contact Catherine Traynor on 0706-861103.

NOTES:NOTES:NOTES:NOTES:NOTES:NOTES:NOTES:NOTES:NOTES:NOTES:NOTES:NOTES

ABLE-LABELS GO AMATEUR RADIO
Ted Collins, G4UPS, informs me that Able Labels, the self adhesive label service now do a full range of Callsign and Callsign/QTH stickers, ideal for converting postcards to QSLs etc.
Typical price is £5.75 for 500 labels printed black on white.
Details: Steepleprint Ltd. Earls Barton, Northampton, NN6 0LS.

TWO NEW QRP BOOKS
The ARRL have just announced a new publication QRP CLASSICS, an anthology of QRP articles from QST.
The ARRL is also to publish, this autumn a new book by Doug DeMaw, W1FB in the form of a Circuit Notebook.

A 10 FOOT LONG ANTENNA COVERING SEVEN HF BANDS

GUS TAYLOR, G8PG

This antenna has been designed as a result of many enquiries about antennas for use in restricted space areas. It is ten feet long, has a 300 ohm or open wire balanced feeder 15 feet long, and can be used on all amateur bands between between 7 and 28 MHz, erected either vertically or horizontally. It is non-critical in adjustment, all tuning being carried out with the aid of a balanced output Z-match coupler at the end of the feeder.

The antenna makes use of non-inductive end loading. This idea has been around since early this century, but was brought to the attention of the amateur fraternity by G2MQ in two RSGB "Bulletin" articles many years ago, and was also discussed by G8PG in SPRAT Number 2 back in 1975. All these articles dealt with the improvement in efficiency that could be achieved in short Marconi (monopole) antennas by using non-inductive end loading. The method was simple; to whatever length of wire that could be erected was added a further quarter wavelength of wire, wound in a series of narrow U shapes, so that its radiation cancelled out. This is shown in Fig.1. Adding this non-inductive loading to a monopole produced two important results. Firstly the current maximum appeared at the far end of the wire, out in the clear, and secondly the radiation resistance of the wire was increased, sometimes dramatically. For example at 1.8 MHz the radiation resistance of a 15 foot wire should be increased by a factor of 14, and that of a 66 foot wire by a factor of 4. Both these increases would produce significant improvements in radiated signal strength. When considering operation from a restricted size location such as an apartment block there is one great problem, however. The final efficiency of a monopole depends upon the ratio of radiation resistance to loss resistance, and the latter consists almost entirely of the resistance of the earth and/or counterpoise system which must be used with a monopole. This may often be very high (100 ohms or so) and providing a lower resistance earth in restricted locations is often impossible. In considering this problem a simple solution presented itself. If one replaced the earth connection with a second, similar loaded monopole one would have a dipole which would function without being earth connection dependent at its design frequency, and also function as a tuned doublet on all bands above that frequency and, depending on feeder length, some bands below it. As operation was now as a dipole at the design frequency a modification could be made to the amount of wire required. Each half need only now be a quarter wavelength long, with the surplus wound non-inductively.

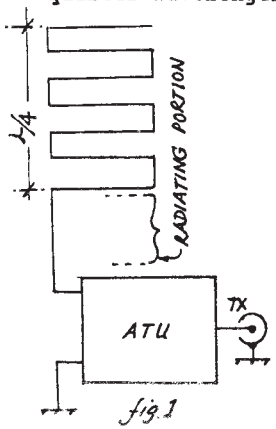


fig.1

To prove the design it was decided to construct an antenna with a design frequency of 14 MHz, and an effective radiating length of 10 feet. Two 16 ft 6 inch lengths of wire were cut, all but 5 feet of each length was folded non-inductively on suitable formers, and the free ends of the 5 foot sections were soldered to separate tags on a small tag strip which acted as centre insulator. The ends of a light weight 300 ohm feeder, 15 feet in length, were also soldered to the tags, thus completing the construction. For the experimental model a shallow cardboard box and its lid were used as formers for the two non-inductive windings, 9 holes, 1 inch apart, being punched at each end, and the surplus wire being wound in a series of narrow U shapes about 1 inch wire and 14

inches long. Cardboard is satisfactory for indoor use, but sheets of plastic or a rectangular plastic frame would be required for outdoor use. One unexpected bonus was that the box lid was fairly loose fitting, so the radiating portion and feeder could be coiled inside the box and the lid put on when the assembly was stored! The wire used for the antenna was 7 x 0.2 mm plastic covered, which is very flexible. The feeder was light, 300 ohm plastic ribbon, although for permanent outdoor use open wire feeder spaced 2 or 3 inches would be more satisfactory. Figure 2 illustrates the set-up. Coupling the antenna to the rig is achieved by means of a Z-match with a balanced output. The basic Z-match is shown in Fig.3. The GM3OXX version appears on page 66 of the G QRP Club Circuit Handbook, and an all band version with minimum switching requirements on page 12.50 of the fifth edition of the RSGB Radio Communication Handbook. The latter version was used when testing the antenna described above.

When operating at 14 MHz and above the antenna acts as a conventional centre fed doublet. on 10 and 7 MHz it acts as a short doublet with the feeders making up the missing length. On 10 Mhz the current maximum will be about 5 feet down the feeder, and on 7 MHz at or near the bottom. Incidently do not coil up any surplus feeder length. Bring it down to the rig in gentle curves or Z shaped bends.

Tests were made with the antenna horizontal in my first floor shack (about 17ft above ground) and with it hanging vertically from the shack window. The first surprise was 7 MHz, with may good QSO's around the UK in both the horizontal and vertical modes, and other contacts well into Europe in daylight. 10 Mhz also produced daylight contacts with Europe. The hf bands produced good contacts at distances of up to around 3000 miles. The tests were made during the summer, conditions were far from outstanding and very hot weather had certainly lowered activity, so they show that despite its small size and simple construction the antenna can put out a signal. Reports were about 1 to 2 S-points down on my loop (with 180 ft of wire in it), but still quite good. The large antenna was taken down during the tests to make sure there was no re-radiation from it.

The design presented is regarded as about the smallest which will provide seven band operation. Larger versions could be made which would have higher efficiency and greater frequency coverage. Using two 33 ft wires, each with a 10 ft radiating system, and a 30 ft feeder would allow operation from 3.5 to 28 MHz. Two 66 ft wires each with a 20 ft radiating section, and a 60 ft feeder would allow operation on 1.8 to 28 MHz.
It is hoped that this article will be of assistance to those who have to operate from restricted space locations. Also that it will encourage members to experiment with the ideas outlined. Do please report your results so that we can build up more data on this type of antenna. All the tests were of course made with QRP, using 3w of CW.

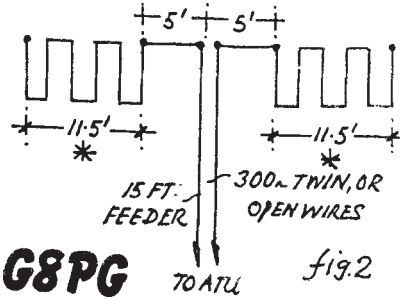


fig.2

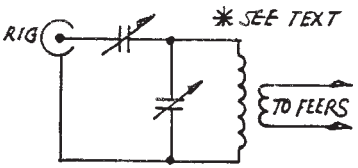
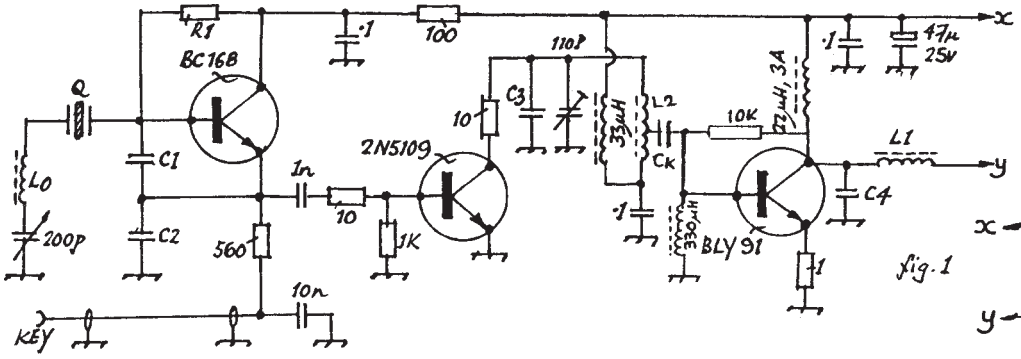
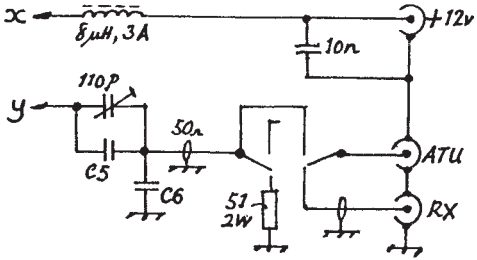


fig.3



DJ1ZB



The FO Transmitters

FO TRANSMITTER VALUES												
Mhz	Q	Lo	L1	L2	R1	C1	C2	C3	C4	C5	C6	Ck
14	21060* 7030	max 33u	T50-6 20T	T37-6 4+5T	120K	680p	220p	270p	330p	-	330p	390p
18	27135* 27165	max 22u	T50-6 18t	T37-6 4+5T	180K	470p	150p	120p	240p	-	270p	330p
21	10522	10u	T50-6 15T	T37-6 3+4T	82K	470p	150p	150p	200p	-	220p	470p
24	37360* 37390	3,3	T50-6 15T	T37-6 3+3T	180K	390K	120p	120p	120p	-	180p	160p
28	28045	22u	T50-6	T37-6	82K	470p	150p	100p	100p	-	150p	160p

NOTES: Q - KHz. * Q = Third overtone, excited in the Fundamental Mode.
L2 : The higher number of turns always at the cold end

FO TRANSMITTERS

Ha-Jo Brandt DJ128

The first FO transmitters (14 and 21 MHz) have been built for my voyage to Tahiti. As the FO Receiver (SPRAT Spring 1990) now covers all bands from 14 to 28 MHz, identical transmitters for the other bands were constructed for a recent vacation on the Isle of Margarita, Veneuela, where also a licence 8(/YV7) could be obtained. The circuit is shown in Fig.1. The frequency dependant components are listed in the table.

Like the Lagos QRPeter (SPRAT Summer 1980), the transmitters employ the VXO/FD/PA scheme. However, as aerial tuning is now done by the Mini ATU (SPRAT Winter 1988/89), the transmitter output has been designed for a fixed 50 ohms load. So the tx has just two controls; VXO knob and transmit-receive-switch. For spotting into a separate receiver, the tx output is loaded by a 51 ohms 2 watts resistor during receive. As usual, excitation is determined by the VXO base resistor R1.

Almost any silicon n-p-n transistor will work in the VXO in the VXO. The 2N5109 will give excellent performance in the doubler stage. For the PA, several no-name samples in the old TO-60 case were available, which obviously contain the Philips BLY91 chip, an improved 2N3375 version. Therefore the output is not limited to 2 watts, if drive and PA tank are changed accordingly.

COUPLING BETWEEN DOUBLER AND PA

In order to simplify the coupling between doubler and PA, inductive coupling was tried first on the bands 14 to 21 MHz, using 9 turns to 2 turns on a T37-6 core, and the necessary capacitive tuning (Fig.2). However, the transmitters then were very sensitive against detuning of either the doubler and/or the PA tank circuits, generating spurious emission1 Obviously, the crystal frequency was not just doubled but also divided by two or three, a mechanism which can be traced to varactor effects of the PA base input. With a 7 MHz crystal for instance, the output spectrum contained 3.5, 7, 10.5, 14, 17.5, 21, 24.5, 28 MHz lines. This problem has never been encountered before, always using the coupling scheme of Fig.3, and was also unknown to the FO transmitters for 24.9 and 28 MHz.

Parallel (82 ohms max) or series)1.8 ohms min) loading of the PA base input seemed to solve the problem of Fig.2, but when varying the operating conditions such as supply voltage or drive it became evident that the problem was still under the surface. Possibly heavier loading would have cured the instability completely, but would have wasted an essential amount of the available driving power, and would also have decreased the selectivity of the doubler tank circuit. Therefore this coupling scheme was finally discarded, to get rid of the continuing danger of spurious emissions.

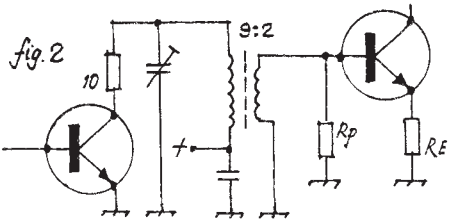


Fig.2 Parallel Resistor loading the pa base input to stop the generation of spurious frequencies.

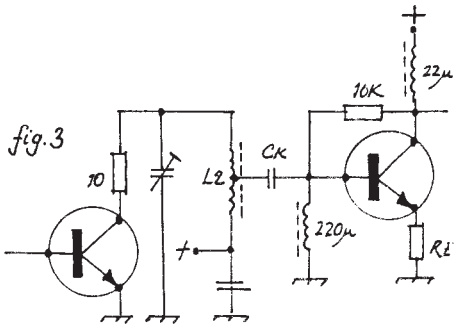


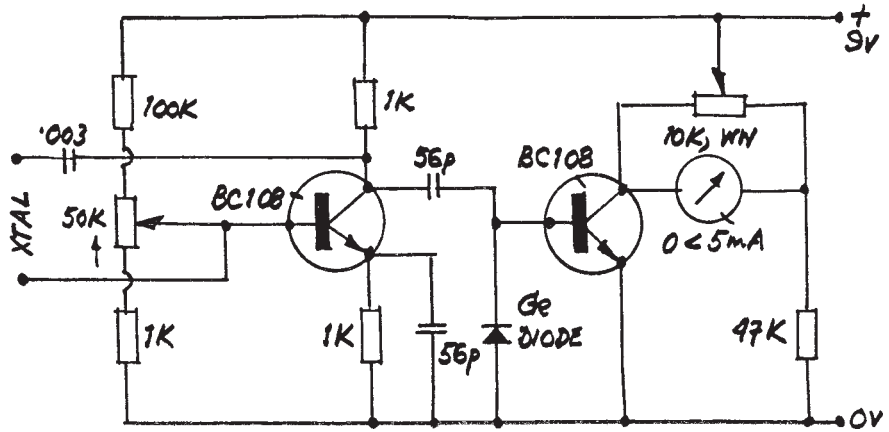
Fig.3 Coupling to the pa base input by a transforming capacitor Ck. Using a tap on the coil introduces some inductivity to avoid a vhf line resonance between tuning capacitor C3 and the base input capacitance. Ck, which always is much smaller than the base input capacitance, obviously minimizes any variations of the in;put capacitance, thus minimizing varactor effects.

In this circuit, the base choke must always have much higher inductivity than the collector choke, so that the parasitic low frequency resonances of base and collector circuits are well separated.

CRYSTAL CHECKER

MARTYN LINDARS

This began life as a pnp model with faults : its didn't work! After a rebuild in pnp it worked well. Potentiometers are set such that the best specimen crystal gives FSD on meter. Since building this I have discovered a similar circuit in the Amateur Radio Circuits book. However this version works well.

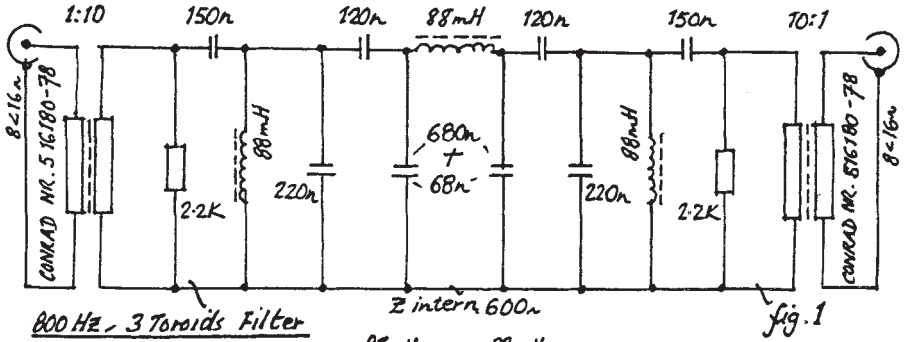


PASSIVE 800Hz FILTERS USING 88mH TOROIDS

HA-JO BARNDT DJ1ZB

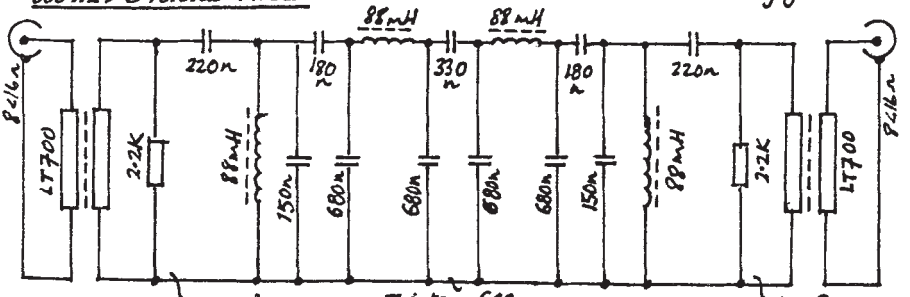
DJ5QK has asked me to design some AF Filters with 88mH toroids for 800Hz, following my earlier designs for lower frequencies, because most receivers are designed with this frequency to be used in CW. These filters will be published in AGCW Info 1/1990 and may also be of interest to SPRAT readers. I have tried to employ capacitors of normal values wherever possible. The 2,2 K Ohm resistors may be necessary on some transformers which tend to broaden the filter response, obviously due to internal resonance.

NOTE : CONRAD NR.516180-78 : Try LT700 as suggested in Fig.2.



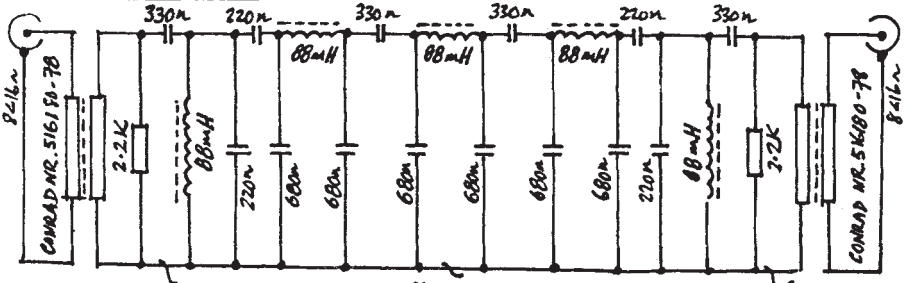
800 Hz - 3 Toroids Filter

fig.1



800 Hz - 4 Toroids Filter

fig.2



800 Hz - 5 Toroids Filter

fig.3

— DJ1ZB —

A TWO ELEMENT 50mHZ BEAM

BRIAN BOOTH G3SYC

For the past three years, the consuming amateur radio interest has been 50 MHz. As the 50 MHz equipment centered about a Yaesu FT690/2 some portable operation seemed natural. However on the occasions when such activity was undertaken the antenna system used was a dipole. Whilst useful contacts resulted antenna limitations and indifferent conditions did not give especially memorable experiences. This spring renewed interest in /P required that a better system be provided.

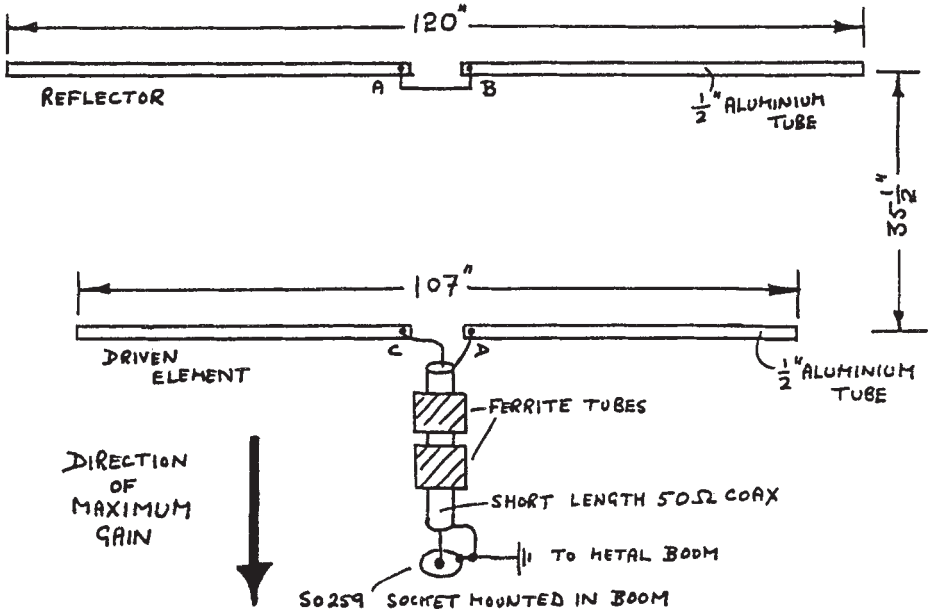
The following needs were to be satisfied:

1. Useful gain.
2. Reasonable back to front ratio.
3. Good matching to 50 ohm coaxial feeder.

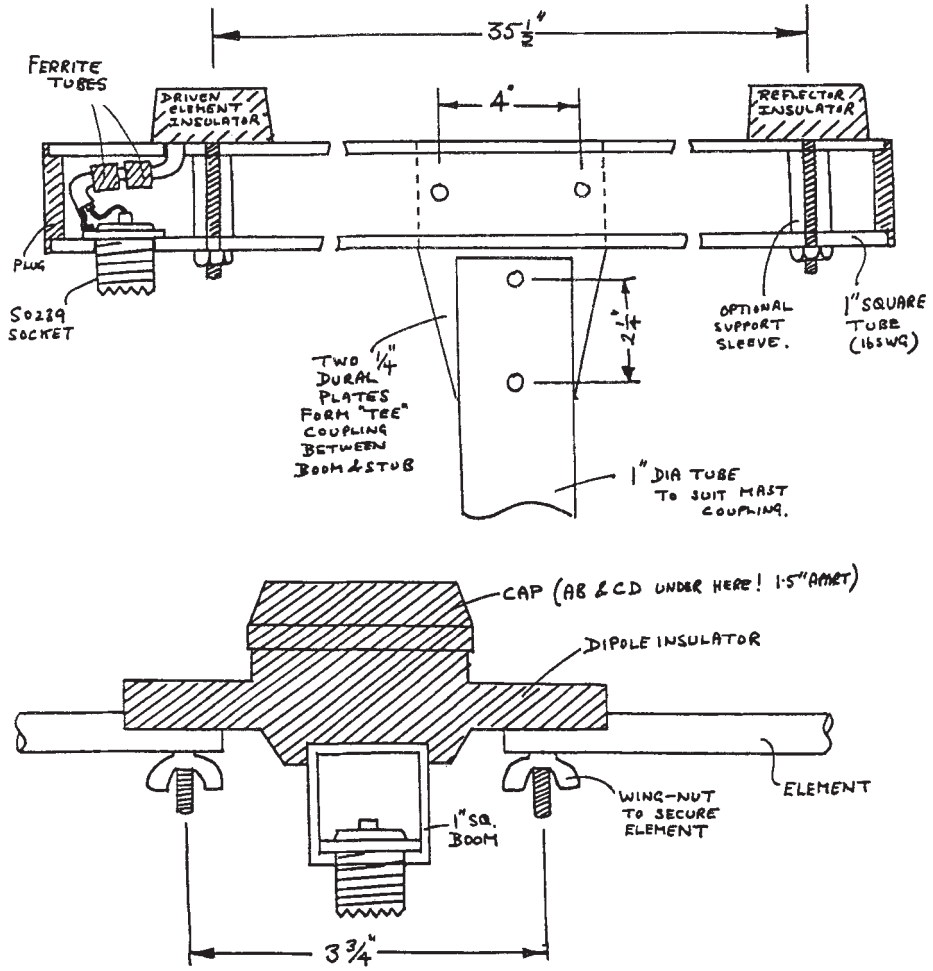
4. Easy to erect etc. and robust.

The resulting two element parasitic beam is considered to meet the above requirements rather well. Its performance literally in the field has been pleasing.

Construction was based on generally easily available plastic dipole centres and aluminium tubing procured from the usual sources. The diagrams with this text are intended to be more or less self explanatory and where necessary further comment is provided. Plumber's delight construction is avoided by the already mentioned plastic dipole centres for both the driven element and the reflector to suit item four above and in the authors case, patently better performance.



AB and CD represent the gaps in the centre of each element (1.5 inch) due to the insulators. In the case of AB this is bridged by a piece of brass strip, CD being connected to a short piece of 50 ohm coax. This latter item being threaded through ferrite tubes to form a sleeve balun. The other end of the coax being terminated at a SO239 socket mounted in the metal boom (1 inch square tube) near the driven element. The ferrite tubes were of unknown origin but they had been used for the same function on some salvaged UHF cables. The holes through the tubes were such that the "stripped" braid just fitted comfortably.



The boom was connected to its mast with the aid of a short tubular section using two dural plates and suitable bolts. The removal of one bolt allows the tubular section to be folded along the boom helping storage. The reader will have to devise a suitable transition to the mast to be used.

Wing nuts provide easy assembly/knock down features. When folded with elements left on the insulators the overall length measured 75 inches.
Aluminium plugs were provided at the inboard end of each element to prevent crushing upon tightening the wing nuts, the plugs being secured by a smear of Araldite adhesive.

An initial test with G3KNU showed an excellent match to the feeder plus a substantial back to front ratio. The physical removal of the reflector leaving it as a dipole only, indicated a very respectable gain for the beam.

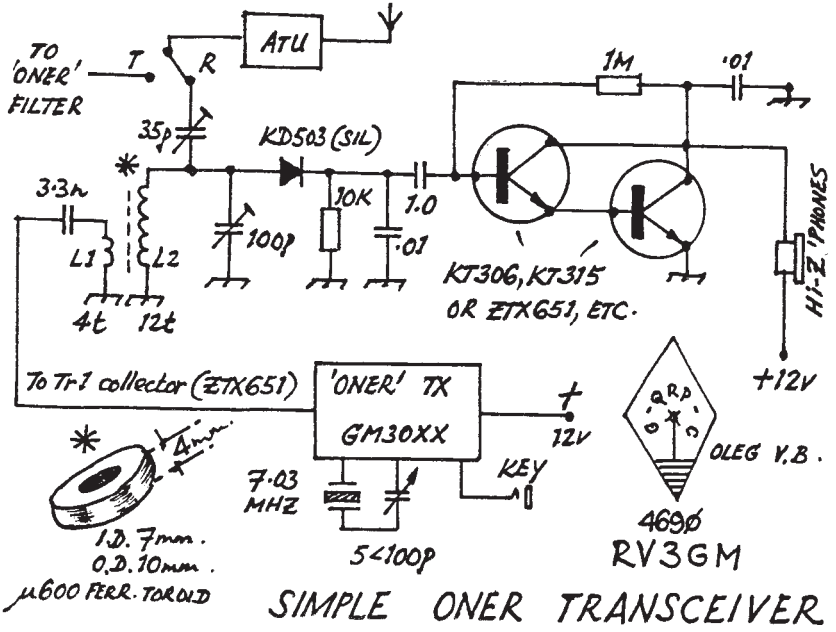
Further field experience with this beam and powers from 0.25 to 10 watts has been interesting and quite rewarding. Many European countries have been very easy to work at excellent signal strengths. A sceptical G4HBA was persuaded to take a second version of this antenna to his new QTH in Devon to provide some continuity to his 6m. activity. With this beam at low height, one of his first contacts was with Z23JO.

In conclusion it would appear that quite a useful portable beam has resulted. The original aims have been very substantially realised not the least being portability and robustness. This beam is worthy of consideration by intending /P operators.

SIMPLE 40 METER ONER TRANSCEIVER

OLEG BORODIN RV3GM

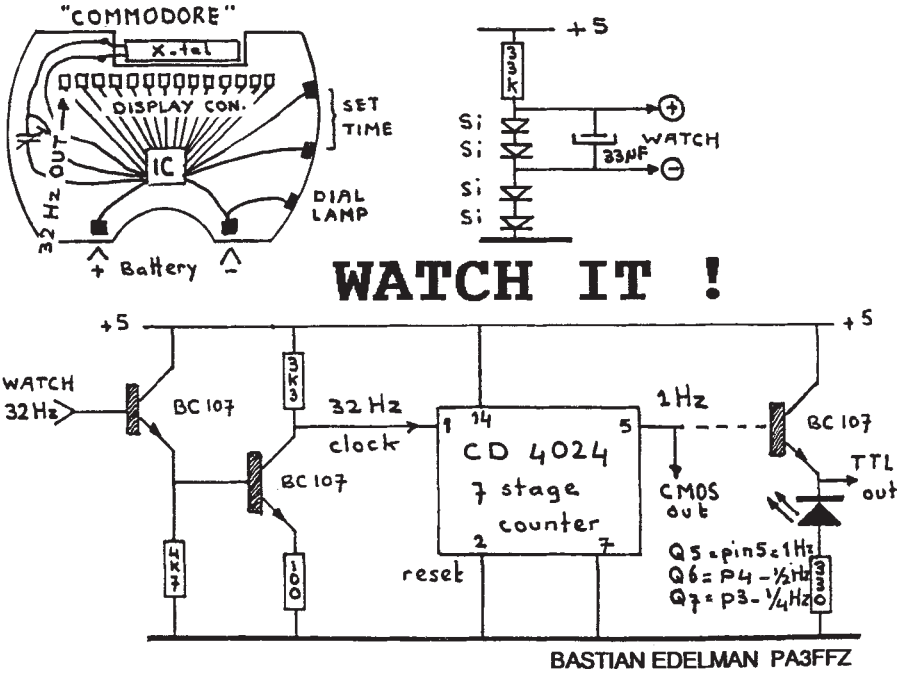
A very simple transceiver built around the famous GM3OXX "ONER" transmitter design. In the RV3GM version L1 and L2 were wound on a ferrite former as shown. This simple circuit has worked all over Europe on 40 metres.

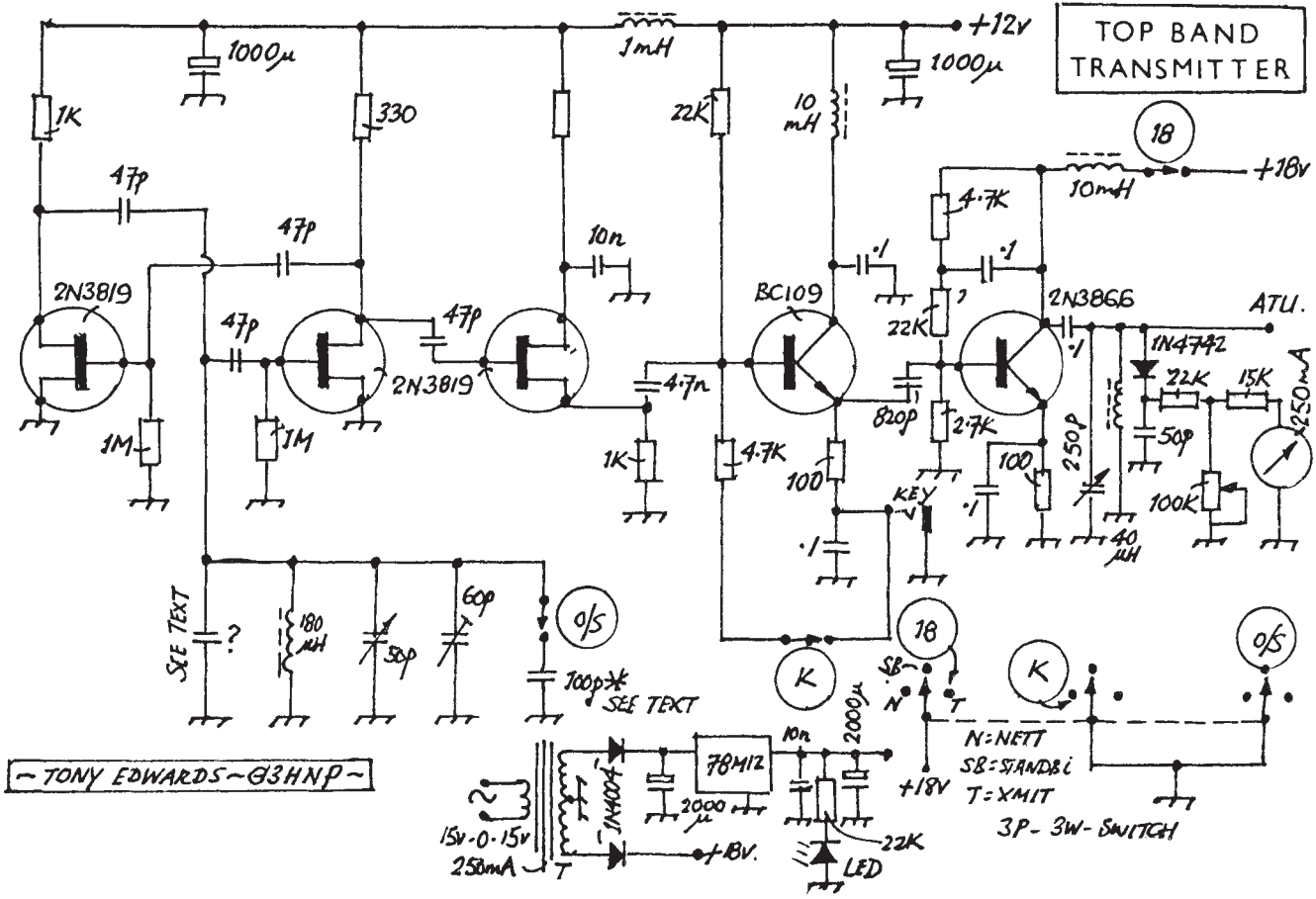


WATCH IT - HUFF & PUFF REVISITED (2)

BASTIAN EDELMAN PA3FFZ

In Sprat Nr 63 STEF NIEWIADOMSKI revisited the Huff & Puff stabiliser designed originally by PA0KSB about 20 years ago. Stef did a fine job.... it sure is a beautiful circuit.
In my junk-box I collected several of those cheap watches you get free with powdered soap, petrol. etc.
You may use them to show you the exact time, but they make very stable oscillators too!
At first I tried to tap the display's flashing colon (1/2 second rate).... no result due to the matrixed display control.
However the left LCD - connection gave 32 Hz pulses (omit display for ease of soldering). I found out that all the watches I have all use the same printed circuit lay-out (see diagram). A 7 stage ripple counter (CD 4024) divides these pulses down to 1Hz (Q5), 0.5 Hz (Q6) or 0.25 Hz (Q7).
We might replace IC1 and IC2 (Sprat 63) by the watch and a CD4024 - (8Hz at Q2 - pin 11)
The watch is powered by the 5 volt supply-line via a 33k resistor and paralleled by two silicon diodes to create about 1.3 volt. In order to give the matching/amplifying transistors their proper bias, the watches ground has been pulled up by two further diodes.
TR3 is optional for LED and/or TTL drive. The LED has been used in the experimental set-up to check the watches frequency As the watch-coupled CD 4024 gives us nice 1 second pulses at Q6 (pin 4 - 1/2 Hz) it may be worth while considering to install a chain of 2 divide by ten" counters in order to create digital frequency read-out of the stabilised oscillator.




TOP BAND TRANSMITTER
+12V
1mH
1000µ
1K
330
22K
10 mH
18
+18V
10mH
47p
47p
10n
2N3819
47p
47p
2N3819
BC109
4.7K
.1
.1
2N3866
ATU.
22K
1N4742
22K
15K
250mA
820p
2.7K
50p
100K
4.7n
1K
4.7K
100
KEY
.1
100
250p
40 µH
1M
1M
SEE TEXT
?
180 µH
50p
60p
0/S
100p*
SEE TEXT
K
2000µ
18
SB
N
T
K
0/S
N=NETT
SB=STANDBY
T=XMIT
3P-3W-SWITCH
+18V
10n
78M12
2000 µ
1N4004
15V-0-15V
250mA
T
+18V.
22K
LED
~TONY EDWARDS~G3HNP~

TOP BAND CW TRANSMITTER

Tony Edwards G3HNP

The little rig described here was built to enable the author to get in on the local net by using readily available items and with a minimum of expense. The only item you may not have in your possession will be the 250uA meter to monitor the output, but this item is really an extra to the main circuit.

The first difference you may notice is that it employs a Franklin oscillator (at one time very popular with home constructors) and this gives a very stable signal after initial warm up of say 15 minutes. The values shown are the smallest found to give reliable operation. The 180uH coil is obtained by connecting pins 1 & 3 of a TOKO YXRS 17065 (CIRKIT Stock No 35-70650). Pins 2,4 & 6 are not used, 4& 6 being earthed. The oscillator runs continuously and on STAND-BY the 100pf capacitor marked * places the oscillation outside of the band.

The oscillator is followed by a source follower buffer stage feeding into a keyed driver stage. When the switch is placed in the NET position the keying contacts are shorted out thereby loading the osc/buffer stages whilst netting is taking place. The values shown suite a BC109 and should you decide to use an alternative transistor these values may have to be altered.

The PA is fairly straight forward, the 0.1uF feedback capacitor providing a small amount of stability to the stage. The PA tuned circuit inductor is approximately 40uH and can be obtained by winding 100 turns of 24 swg enam. a wire onto a piece of plastic piping one inch in diameter. The coil will be 2 1/2" long. Feed to the ATU is taken from the top of this coil (I found little advantage in tapping down the coil) but an alternative method of taking off the RF would be to wind about 10 turns of 20swg over the earthy end of the PA coil.

A small amount of RF is rectified by the meter circuit and charges the 50pF capacitor. A suitable voltage divider is then provided to tap off a small amount to operate the 250uA movement.

On the prototype the RF output off load was found to be 9.5V RMS giving an output of 0.5 watt into a 50 ohm load.

Finally, returning to the oscillator. The capacitor marked with a '?' is only included in the circuit to ensure the lowest frequency is obtained with the trimmer set at mid-point. You may find it unnecessary.

A TIP FOR CROSS HEADS

G3DNF

Low profile round head screws found on modern electronic equipment are easily damaged by using a conventional cross head screwdriver, even if the greatest care is taken.

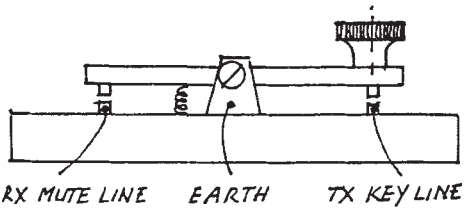
Keep a "doctored" screwdriver for this type of screw. the tip should be carefully rounded by grinding until it fits snugly into the recess in the screw head, without backlash or rocking. Take an impression of the recess using a small, wetted piece of soft wax, as a guide to the correct shape.

A suitable cheap screwdriver for this purpose is the "OB1", Size 1 (5x75mm) sold by Homebase and other stores.

QSK IDEAS

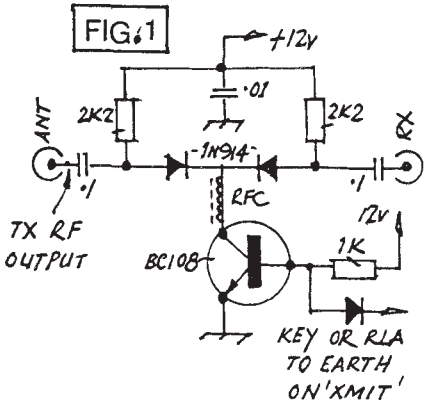
BILL LEASK G4CEO

Full QSK, that is the ability to listen to the frequency on which you are transmitting between individual dits and dots of the CW code, is easily attainable.
Despite the folklore that surrounds it that QSK is only available on expensive commercial rigs and that it requires a microprocessor to achieve is just that - folklore.
QSK is easily attainable by sequential keying, which is a posh name for saying that things happen in the correct order.
On touching the key, the receiver should be muted, the aerial changed from RX to TX, and the TX keyed in that order.
On releasing the key, the reverse has to happen.
Ensuring this all happens correctly, is simple and requires little thought.
Consider muting the RX. I use the back contact on my small keying relay, although the back contact on a pump key achieves the same thing. Relay, or pump, make sure the arm is earthed, the front contact to TX keyline and rear contact to RX mute line.



It can be seen that, as it stands, the back contacts allow the RX to operate through the mute line being earthed. Depressing the key causes the rear contacts to break, muting the RX before the front contact keys the TX. This is sequential keying, and it really works.

I have an extra pot in the RF gain circuit to monitor the out-going signal on TX. No sidetones here.
the aerial changeover can be solid state, no relays required.
Consider the circuits below.

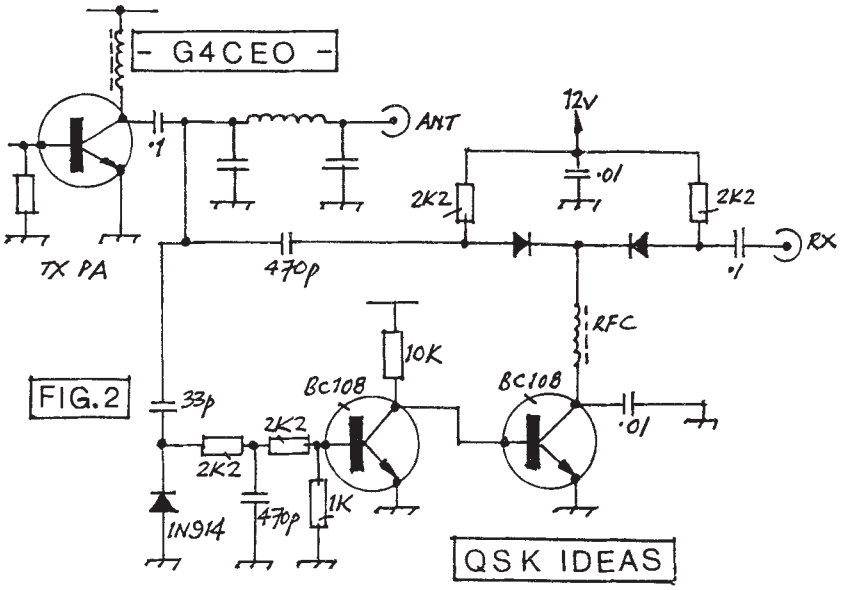


In Fig. 1 -

Ref p85, GQRP Handbook, G3VTT

RFC can be virtually anything:

Old if transformer, 20+ turns on a toroid, etc



In Fig. 2 - Ref Solid State Design P179

Both circuits can be used and insertion loss is virtually nil - forget it.

I prefer to use Fig 2 and leave the key in other parts of the TX.

FROM THE MEMBERSHIP SECRETARY

G4HYY

This year, for the first time, we decided to try a reminder to members who had not renewed their subscription for 1990. A post card was prepared and sent out. It has been a successful exercise as my secretary (G8WWO) tells me that she has counted over 100 replies and renewed subs!

I must apologise, however, to the members involved, as they will not be included in the lists in the members handbook for this year. The listings for the handbook had to be completed before replies were received from the postcards. Next year we will try again but intend to send the reminders out earlier so that records can be updated before the handbook listing is produced.

I have been notified of the deaths of the following members.

1446	G3HWI	Richard
2335	G2HNI	Bill
4563	G3HVU	John
4678	G0BWA	Richard
4973	"	"
5109	G4FKZ	Arthur

COIT AUDIO AMP

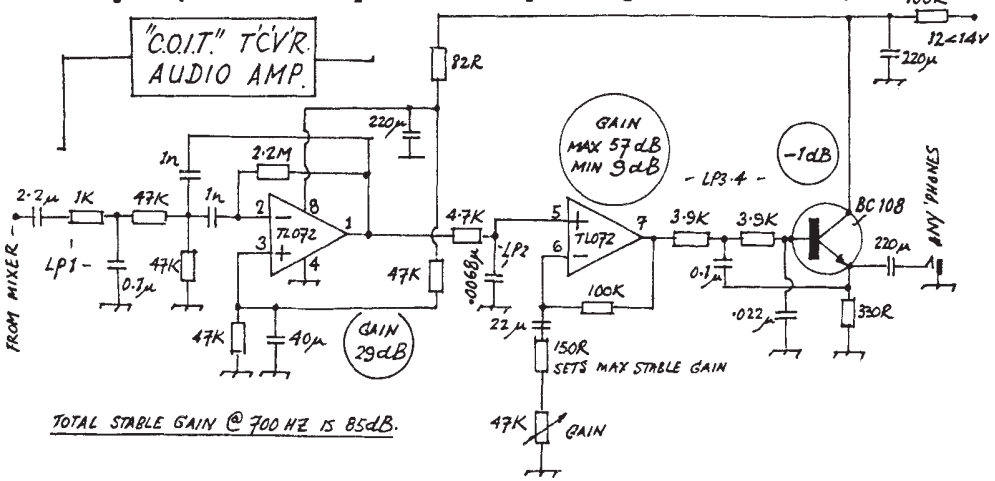
MIKE KING G3MY

This is the rather unusual Audio amplifier in my new "COITT" transceiver. (The name derives from Conglomeration Of Ideas Thrown Together.) I set about looking at the Mathematics of audio filters and the use of the Low noise BIFET series of OP. amps. The idea was basically to do away with the need for any low noise preamp ahead of the Bandpass filter and also to make maximum use of the highgain, low noise possibilities of these devices.
The whole amplifier is based on a single TL072s dual OP. AMP (price about 0p.). and to enable me to feed Low Z phones, I have followed with a simple emitter follower using a BC108.

The Bandpass filter is centred at about 700 Hz. and has a Q of 5 which gives a well defined peak and enables me to get a gain of 29 db from the stage. Direct coupling to the second stage is via a first order lowpass net. The second stage can give a stable gain of 57 db, set by the fixed resistor in the negative feedback chain. Overall gain of the amplifier is controlled by the negative feedback in the second stage and as a result noise goes down as gain is reduced. Direct coupling is again used into the emitter follower and is via a second order low pass network.

The overall Fourth order low pass filtration overcomes the rather poor High frequency skirt selectivity of the bandpass filter in a most dramatic manner, whilst at the same time, the filter has a reasonable response down to low frequencies, making it easy to Zerobeat a station and then to tune him into the 700 Hz. peak using the RIT.

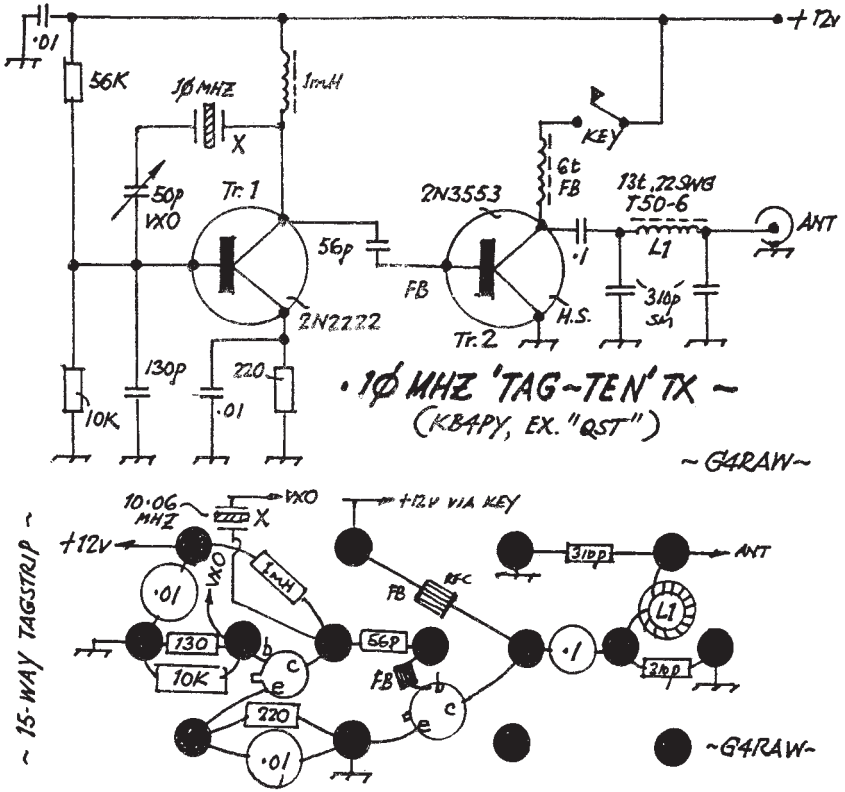
Selectivity is impressive indeed for such a simple circuit, being minus 40db + at 1.5Khz and better than minus 60 db at 3.0 Khz, and beyond this signals have disappeared. They just seem to "fall off" the high frequency edge. The receiver tunes like an expensive commercial superhet with a narrow CW filter switched in.
Overall noise of the receiver is governed by the mixer and band noise, and gain is sufficient to be uncomfortably loud in the headphones.
Decoupling must be adequate if the the full potential of this simple circuit is to be achieved hence the rather higher than usual values of the bipass capacitors used and any reduction of these will lead to motor boating. As described it is quiet and completely stable up to full gain (which can only be used in quiet daytime conditions.)



10MHz TAG TRANSMITTER

STEVE ORTMAYER G4RAW

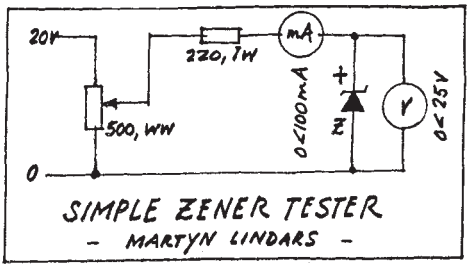
Another "tag" transmitter. The circuit shown was built an a 15 way tagstrip. The sales of Ferric Chloride must be falling ! It is based upon a QST circuit from KB4PY.



SIMPLE ZENER TESTER

MARTYN LINDARS

Start with pot at zero and gradually increase with an eye on the milli ammeter. A point will be reached when the voltmeter settles at the zener voltage. 100mA FS will usually suffice for meter. If current and volts keep going up, you have an ordinary diode! It should not when corrected reverse polarity.



THE G3HQR 9-BAND HYBRID LOOP

Alec Anderson, GD3HQR

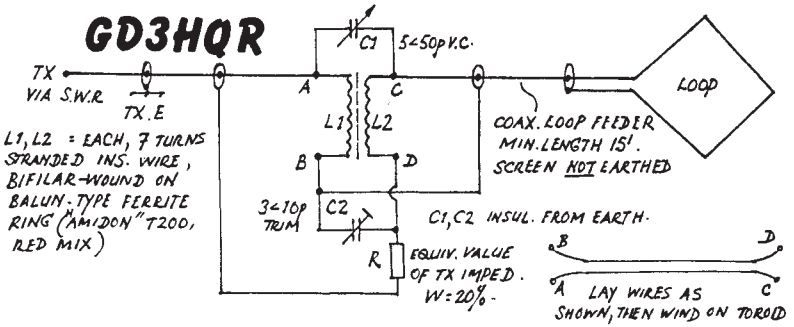
This is my variation on the Crossed Field Antenna (Electronics and Wireless World, March 1989). Instead of the short cylindrical form suggested in that article the radiator is a loop, thus considerably simplifying construction. Loops of various sizes from 2ft square to 12ft square have been used during tests, and all worked, but the larger loops, not suprisingly, gave the best results. Increasing the height of the loop also gave a considerable improvement. Changing from a 12 ft square loop in the loft to a 2 ft square loop in the shack typically gave a signal drop of 2 S-points.

As can be seen from the diagram, construction of the phasing unit is fairly simple. Use of a different ferrite ring may affect the value of C2, which in any case is of very low capacitance. If a capacitor of small enough value is not available use two stiff insulated wires twisted together. Minimum co-ax feeder length must be 15 feet, but the slack can be coiled up if necessary.

Tuning is carried out as follows. With the transmitter tuned for its normal output impedance, pick (say) an if band such as 7 MHz. Adjust C2 in small steps, at each step adjusting C1 for lowest swr (C1 tuning is very broad). Check swr on the other if bands, and if necessary make slight adjustments to give the lowest average swr over the If bands in use. In my version this does not exceed 1.5:1 on any band. Then choose an hf band (say 14 MHz) and carry out a similar process, then check the remaining hf bands and if necessary adjust for the best compromise swr. Once again this should not exceed 1.5:1. Note particularly that C2 requires less capacitance on the If bands and more capacitance on the hf bands.

My loops were made from standard antenna wire, electricians earth wire, and 300 ohm ribbon with the conductors connected in parallel. They have all worked with powers up to 50w rf.

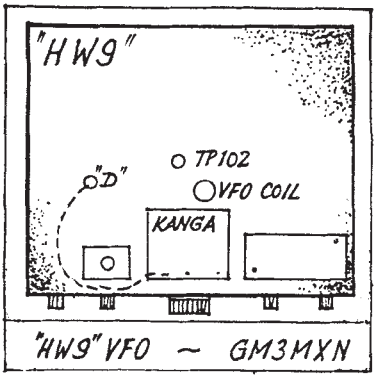
This is an antenna set-up for the experimenter rather than the beginner, but it is capable of giving excellent results. The antennas tried so far work in either the horizontal or vertical place. The 12 foot loop is bent at the ends to fit into the roof space and works well in the horizontal position. Tests at ground level show better performance with the small loops mounted in the vertical plane.



9 BANDS HYBRID-PHASED LOOP

CURING HW9 DRIFT

TOM SORBIE GM3MXN



A cure for the drift in the HW9 is to isolate the Heath VFO and forget about it, and replace with the Kanga VFO. The Kanga VFO board fits on top of the metal VFO cover on the Top side of the rig fixed on with sticky fixers. My former is ceramic (windings as per Kanga details) removing the turns, (the frequency is 57493KHz to 59993KHz) to up the frequency from Kanga (5.5MHz).
By using the existing heath capacitor, and 75pF Silver mica capacitor across the coil, one can tune 150KHz which is an improvement in bandspread.
A new calibrated plastic dial being made to replace the Heath dial.] New VFO coil is super glued beside the Kanga board and the mini coax from the Heath Capacitor is connected.
Power for new VFO from HW9 power switch 12v.
Kanga output goes to TP102 offset 8v to use Heath RIT control.
Wire from above link to "D" on HW9 Board Violet wire.
If the HW9 has 24MHz you will require to change xtal frequency.

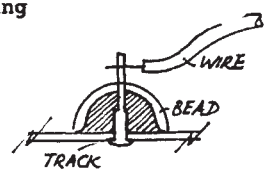
The outcome very stable VFO normal RIT control full output for a simple modification.

NEAT AND UGLY

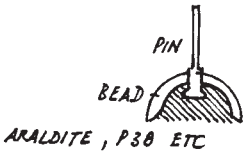
G3MNO

Many PCB constructors, particularly if using a modular approach, will use terminal pins for the "off board" wiring

These pins can be re-inforced, tidied and made more visible if a fish spine bead is stuck to the board with Araldite



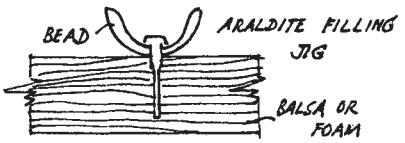
A small bag of these beads will cost pence and do lots of boards



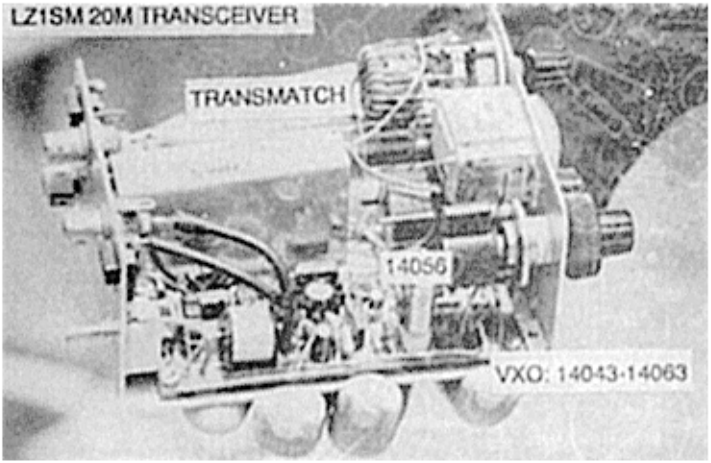
An "ugly" variant is to find a tag that will fit inside the bead to make a stand-off insulator for ugly construction

These can be mass produced by pressing the pins into a piece of balsa or foam.

These tags can be stuck readily in place on tinplate tobacco tins and reasonably well onto copper board.



MEMBERS PHOTOGRAPHS



A Photograph of the compact and neat VXO 20 M Transceiver by Angel, LX1SM.

The single VXO crystal is on 14056 and can be shifted from 14043 to 14063 by means of a single front panel control.

A Transmatch forms part of the total size of the small transceiver.

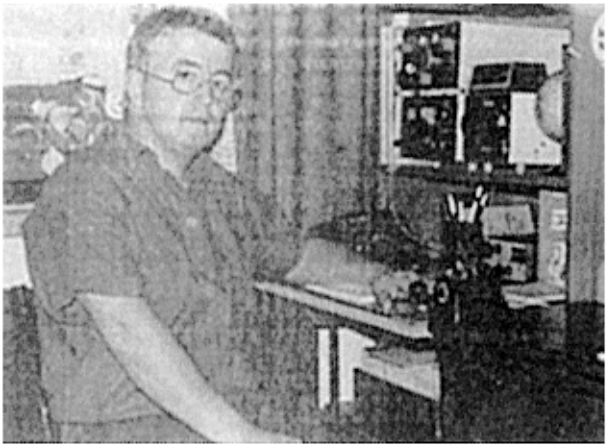
THE LZ1SM 14MHz TRANSCEIVER

JUERGEN, Y27BH, WITH HIS HOMEBUILT STATION

Juergen, Y27BH, one of our first East German members in his shack.

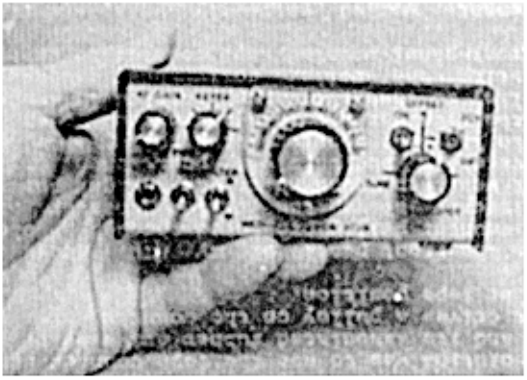
The top shelf holds his 80m CW/SSB rig which runs 5 watts of RF Output.

Behind the key is a small DC Transceiver for 80m which runs 3 watts out on 80m.



QRP-CW Y27BH

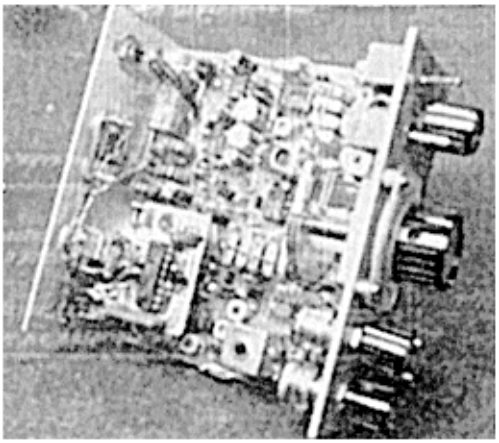
The W6ZH 20M QRP TRANSCEIVER

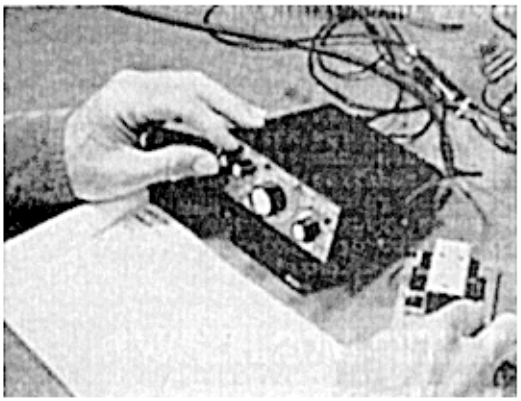


Pete, W6ZH, shows his version of the 20m rig designed by K1BQT and featured in HAM RADIO January 1988. Pete's rig is built around from the RadioKit version with the addition of a Curtis Keyer on Perf Board. A superhet using a 10MHz ladder filter with 3 NE602s as main active devices, the small transceiver produces an output of 3.7 watts. The final is a MRF-476.

In addition to the Curtis Keyer, Pete has added relay switched varactors for RIT and XIT and a "spot" switch. The transceiver can operate DX "spilt-mode" to about +/- 4KHz.

The transceiver is powered by Gel-Cells and the paddle is from the Galbraith Branch of the NZART.





In a 9,000 mile trip across the USA after the Dayton Hamvention this year, Pete worked from each of the 10 US call areas.

Antennas are a dipole to throw up wherever possible and a collapsible 12 foot centre loaded whip which is loaded against throw out counterpoise wires.

Pete also runs a 10 watt homebuilt portable rig for his other interest : working portable from islands around the world.

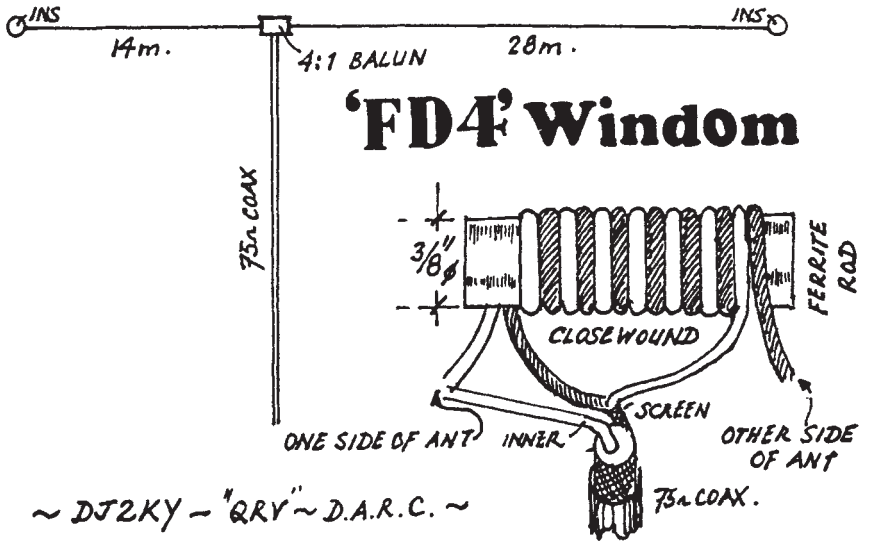
THE FD4 WINDOM

TOM SORBIE GM3MXN

This antenna originated from DARC QRV Magazine December 1971, and should be attributed to DJ2KT. It is the FD-4 and it is all it is claimed of it.
The match on 4 band has a low SWR on 80, 40, 20, 10m and can match without an ATU and is claimed to out-perform the other multi band ants.
It is based on the "Windom" principle in that the feed pointon 80, 40, 20, 10m all coincide one third from one end of a 42m long antenna. It could be matched with 300 ohm ribbon at that point.
However DJ2KY matches witha balun 4:1 for 75 6:1 for 50
Step up unbalanced coax to balanced antenna.

I have found it works exactly as stated and is a good antenna, unfortunately it does not match on 21MHz.
At far as the WARC bands are concerned 10MHz is a poor match but 18MHz, 24MHz are acceptable. I have used an ATU on 21 and 10.1MHz with good reports.
If QRO is put into a mismatched balun it will heat up. "So stick to QRP".

A balun is easy to make (4 to 1) as in Rad Comm G6XN, December 1989, Page 57 made from scrap ferrite rod.
I used twin coloured wire grey and black wound together six turns.
Coax screen to join of black and grey coax inner to either black or grey which is connected to one side of antenna I have taped the balun to a large insulator. My antenna is bent down at one end.



MINI T-PIECE FOR DIPOLES

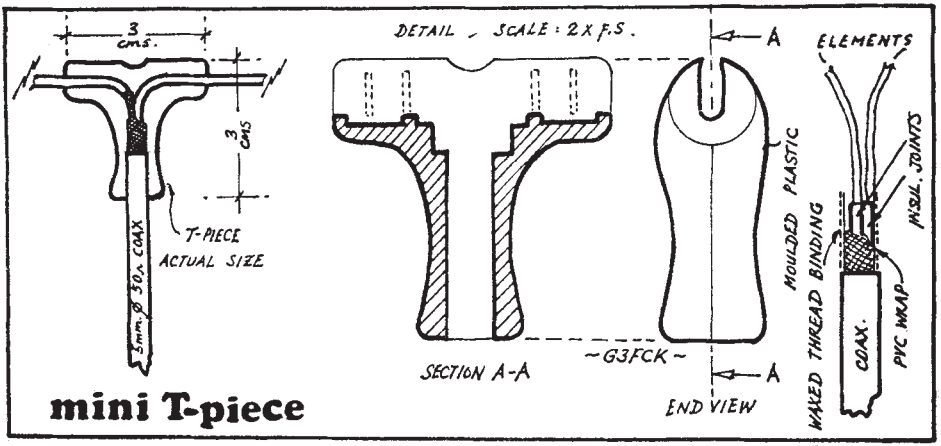
G3FCK

With purpose-made, ceramic T-pieces almost unobtainable nowadays, and heavy to boot, a lightweight, strong, small and cheap alternative can be adapted for those using small diameter coax cable of 31/2 or 5mm diameter.

The units used are sold in packages of six and are type RTT6 Garden Mesh Supports, manufactured by "Rainbow" (Gardener's Workshop).

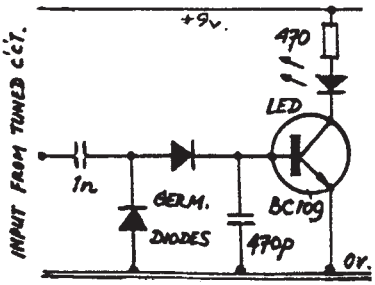
After baring coax leads, and soldering to elements wires, they should be wrapped in plastic insulating tape, then bound with heavy-gauge wax thread. The joints should then be a tight fit inside the T-piece. The exposed top end can then be sealed with waterproof "Bostik".

Stockist are Woolworth, and similar gardeners' suppliers.



AN OSCILLATION INDICATOR FOR REGENERATIVE RECEIVERS

Rodney Seymour G1TNE



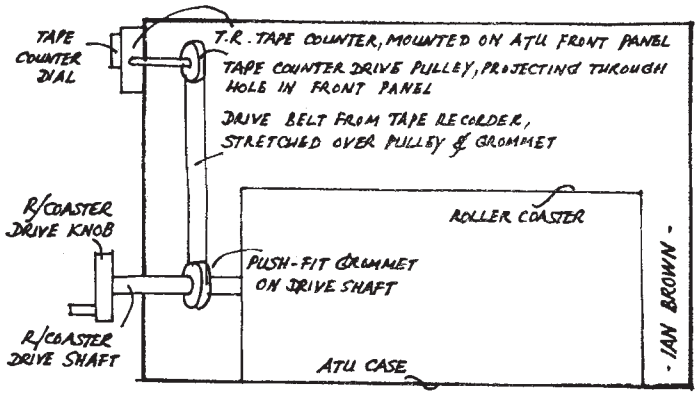
This circuit was adapted from a design for a crystal tester appearing in "Amateur Radio Techniques". I use it with regenerative radio circuits to give a visual indication when the detector goes into continuous oscillation, as this is not always apparent in the headphones. The brightness of the led also gives an indication of the relative strength of oscillation. Unfortunately, the circuit loads the preceding stage quite heavily, but this can be overcome by turning up the regeneration control.

I have had the best results from connecting the input to a tap near the earthy end of the regenerative detector's tuning coil.

I have used the circuit successfully at 1MHz and 100 MHz.

ROLLER COASTER TURNS INDICATOR

IAN BROWN G3TLH



"Turns Counter" for roller coaster coils are available, at a price. These indicate the number of coil turns in circuit. Having recently built a new ATU using a roller coaster, which proved very successful, I wanted to add a turns counter. It occurred to me that all that was required is some means of resetting the roller coil to the correct position for each band, and the number of turns in circuit is somewhat academic. My solution was to use the tape counter from a discarded cassette recorder and its associated rubber drive belt. In the tape recorder, the belt drives a pulley on the counter which then gives a 3- digit indication of tape position.

I fitted the tape counter on the front panel of my ATU, above the roller coaster. The tape counter pulley projected through a hole in the panel so that it was directly above the roller coaster drive shaft. A rubber grommet was then found which was a tight push-fit over the roller coaster drive shaft, and this was positioned on the shaft so it was in line with the tape counter drive pulley above it. The rubber drive belt from the recorder was then stretched over the rubber grommet and the pulley so that the latter rotates in sympathy with the roller coil. Rotating the roller coil thus causes the numeric indication on the front-panel mounted tape counter to change.

Mechanically, this arrangement, worked extremely well, and rather better than I expected it to. A little experimenting showed that the tape counter changed by an indicated count of 38 when the roller coaster sliding contact moved from one end of the coil to the other, with rotation of its drive shaft. A little manual rotation of the tape counter pulley then arranged things so that the tape counter indicated 38 with minimum turns in circuit, decreasing as more turns are brought in, down to an indication of zero with maximum turns in circuit. Thus the counter reads "backwards" and bears absolutely no relationship to the number of turns in circuit! Who cares? I can now reset my ATU to pretty near the required settings for each band just by dialling up the previously-logged numbers on the tape counter (together with logged settings for the variable capacitors). If I wanted to know the actual number of turns in use, a simple chart relating tape counter dial numbers to number of turns could be prepared. So far I have not felt the need to do this. In any case, I soon got a feel for the position of the roller coil for different indicated numbers.

MORE ARGOSY II MODIFICATIONS

NEIL MACKINNON G4WAZ

Having recently acquired an Argosy II, I decided to improve both SSB and CW reception with the add-on filters but a phone call to KW brought home the effect of the exchange rate. A simpler solution was sought.

Looking around the shack I noticed a C.M. Howes 20m receiver built a couple of years ago, to which I fitted their excellent CSL4 SSB/CW Filter. If you do not have the 224 CW Audio Filter fitted to the Argosy, then the filter controls on the front panel can be used. The CSL4 fits into the space provided for the 224, with space to spare, and is wired directly into connector 21, as detailed for the 224 board in the handbook. A +12v. supply must be taken from the regulator board, as the CSL4 is not keen on the +8v. found on connector 21.

I have found the performance very pleasing as a large amount of the noise on 40 and 80m is filtered out on SSB and CW has a bandwidth of 300Hz.

A second modification I have made, I have seen mentioned in SPRAT, but I feel it is worth explaining again. The front panel AF switch on the Argosy switches 240v mains and it is possible to get "bitten" even when the switch is off - I speak from experience. I de-soldered the mains wires to the Argosy. A link was made between the two terminals which isolates mains to the PSU only. In the Argosy, I removed the +12v pin and both mains pins from the ribbon socket at the rear of the rig. I then put one of the mains pins into the +12v position and soldered the other two wire together. I now feel much safer when removing the covers from the Argosy.

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TRADE MORSE KEYS : I would like to Trade American Parts (I can obtain just about anything made in the USA - 602 612 SMT parts etc.) for Strange or Old Morse Keys. I would like a sideswiper from Europe. Stan Wilson, AK0B, P.O. Box 1174, St. Charles, MO 63302, USA.

MEMBER REQUIRES urgently cw/ssb transceiver up to 10w. Must be commercial, pref built-in psu, valved rig not objected to, must be operational all QRP QRGs, fully operational, Price not in excess of £200. Offers please to Reb Lee Jones radiocellnet 0860-502964 anytime

NOTES:NOTES:NOTES:NOTES:NOTES:NOTES:NOTES:NOTES:NOTES:NOTES:NOTES

MALSOR KITS

Some members will have seen the range of Malsor Kits which have been avilable for some time. The kits include:

QCT40 40 QRP CW SUPERHET TRANSCEIVER

The receiver (QCT40R) features 4 pole filter, strong front end and an hang agc system. The 3 watttransmitter (QCT40T) has semi-breakin, solid state changeover and true "transmit" sidetone. The receiver kit is £39.50 and the transmitter £29.50. (Cheques "S.E.Hunt") Boards for either are £8.50 each.

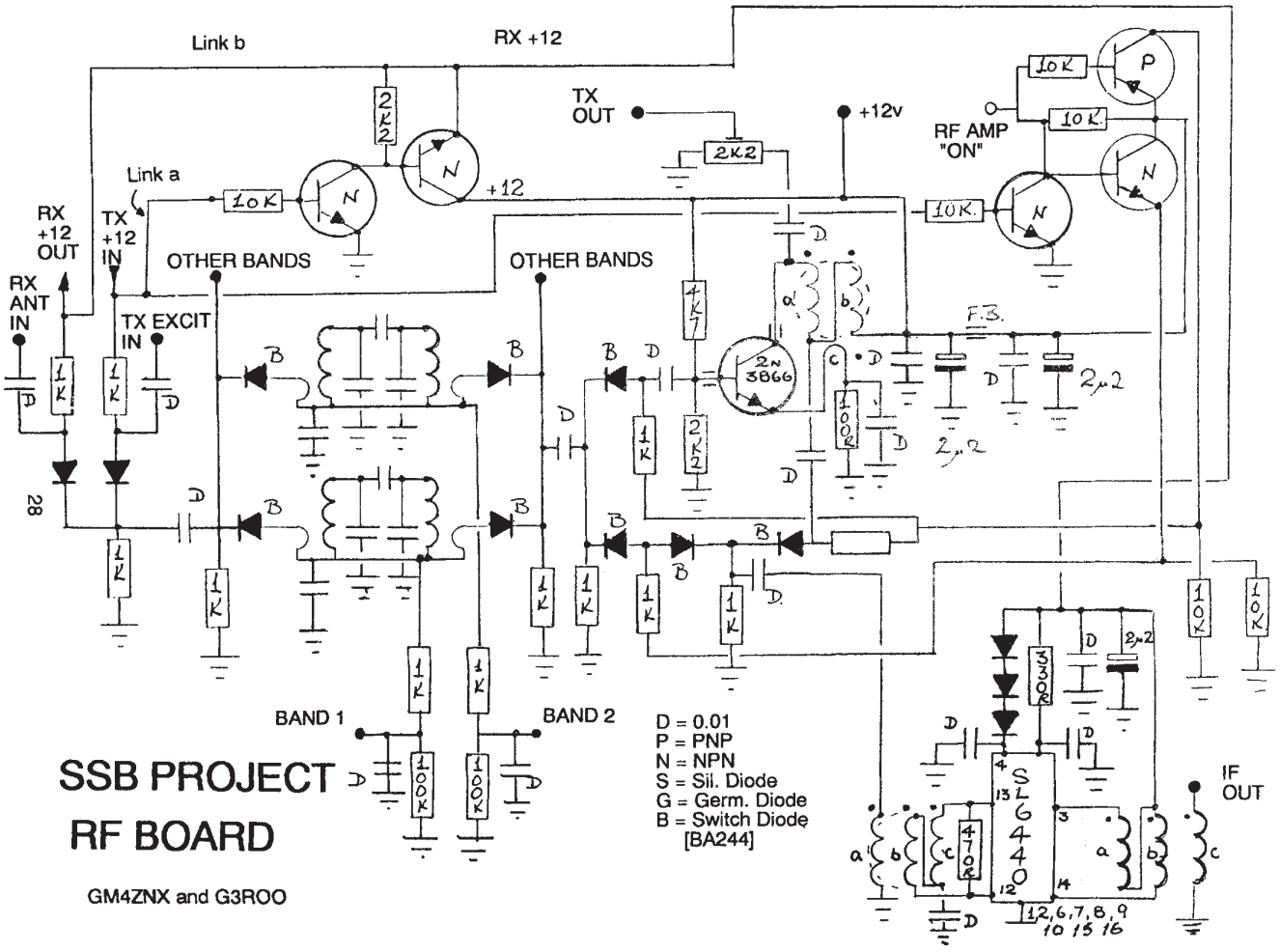
OTHER KITS

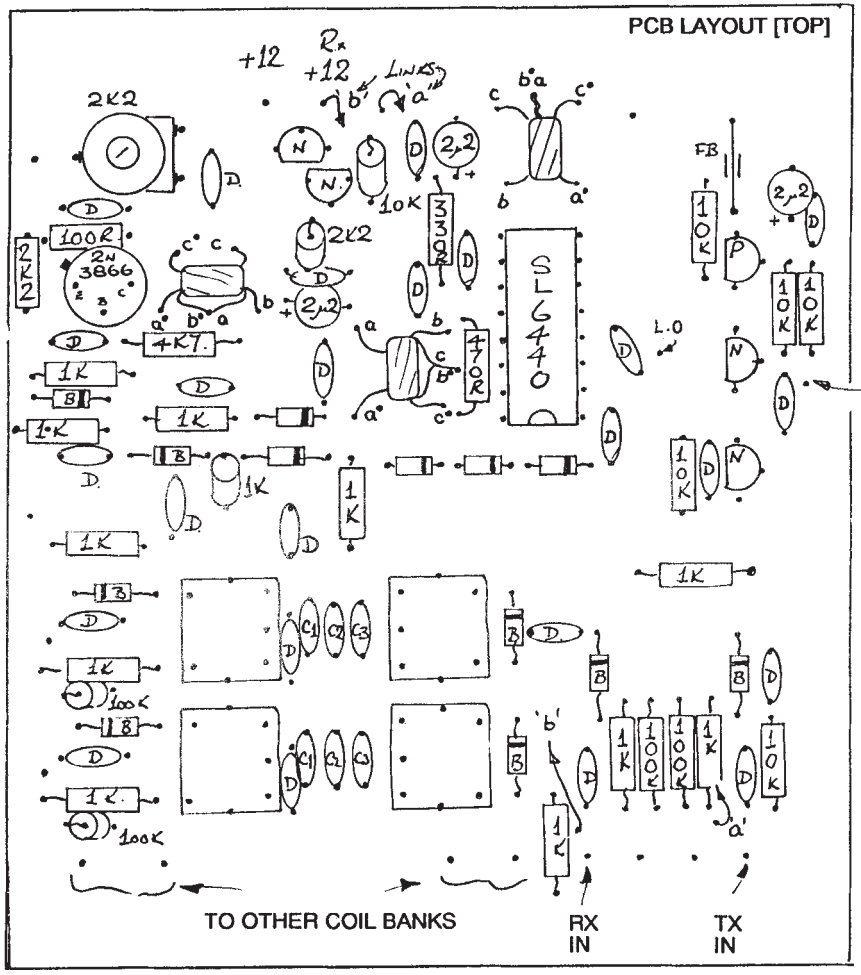
UC1332 UPCONVERTER : 1-33MHz to 2m converter

DSM1100 DIRECT READING SWR/POWER METER : 100mW-10w or 1-100w inc PEP

HFL TUNED LOOP RECEIVER ANTENNA : 36x36" 3 - 28MHz

Details (SAE for information) to MALSOR KITS. 21 Green Street, Milton Malsor, NORTHAMPTON. NN7 3AT. 0604-858090 (Evenings)


Link b
RX +12
TX OUT
+12v
RF AMP "ON"
Link a
+12
RX +12 OUT
TX +12 IN
OTHER BANDS
OTHER BANDS
RX ANT IN
TX EXCIT IN
F.B.
2N 3866
BAND 1
BAND 2
IF OUT
SSB PROJECT
RF BOARD
GM4ZNX and G3ROO
D = 0.01
P = PNP
N = NPN
S = Sil. Diode
G = Germ. Diode
B = Switch Diode [BA244]



D = 0.01
P = PNP
N = NPN
S = Sil. Diode
G = Germ. Diode
B = Switch Diode [BA244]

RF AMP "ON"

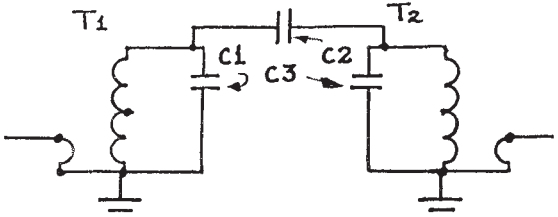
SSB PROJECT

RF BOARD

PCB LAYOUT [TOP]

SSB PROJECT : RF BOARD

GM4ZNX and G3ROO



INDUCTORS T1 & T2 TOKO "KANK" RANGE COILS

BAND	T1	C1	C2	C3	T2
160	3333	220pf	22pf	220pf	3333
80	3333	56pf	5p6	56pf	3333
40	3334	100pf	10p	100pf	3334
30	3334	47 pf	4p7	47 pf	3334
20	3335	100pf	8p2	100pf	3335
17	3335	68pf	5p6	68pf	3335
15	3335	56pf	5p6	56pf	3335
12	3335	33pf	3p9	68pf	3335
10	3335	33pf	3p9	33pf	3335

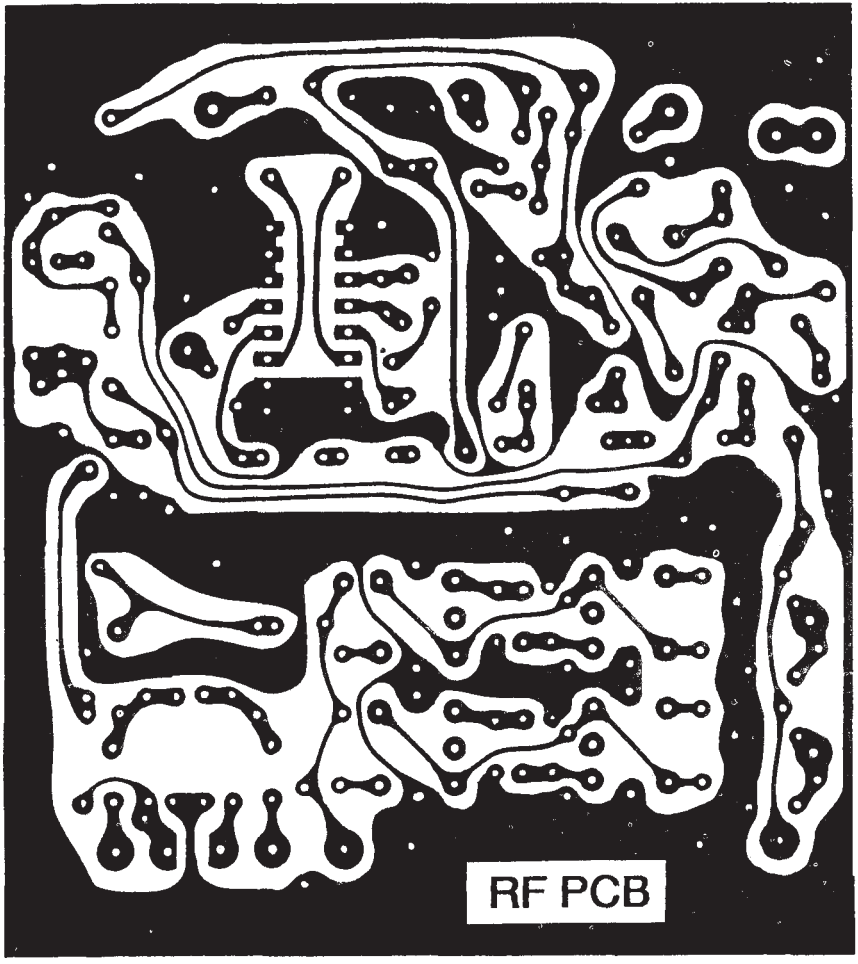
R.F. PRESELECTOR COILS

OOOOPS!!!
Erratum to page 30.....[SPRAT 63]
Mike G4JXX built the AF amplifier only to fine an error in the component layout! The effect of this fault was no output, the power transistors getting hot and no control over the standing current.
The fault lies with a transistor in the wrong way round! On page 30 locate the bottom 1000uF 40 volt capacitor, just above the right hand edge of this capacitor and between two 33R resistors is a transistor marked "p".... Please invert it!
Wrist slapped... let us begin the RF board!!

THE RF BOARD

The aerial signal or the dirty Tx signal is fed to the board via a pin diode gate (D1, D2). These is are selected by applying 12V on Tx to the Tx pin, This removes the 12 on receive to on D1. The incoming signal is filtered by the bandpass tuned circuit, the output of which is fed to two other diode gates. D3, when enabled, passes the signal to the RF amplifier, and D4 and hence D5 bypass the RF amplifier, D6 is enabled along with D3 for "RF AMP ON".

Switching of these two switches is a little complicated as we wish to be able to switch the amp at will on received but to have it on at all times on transmit. Positive supply is switched to the "AMP ON" and "AMP OFF" lines using TR3 and TR4 which is controlled by a switch on the front panel, earthing the line turns the amplifier on. On transmit +12Tx is fed to the board and this is used to turn on TR2 which earths the "AMP ON" pin during transmit.



From the TR Control board we only have a +8Rx available so we use the +12Tx line to turn off a series transistor to the mixer stage supply so "making" a +12Rx line, this is available on the edge of the board in case we need it in another part of the circuit.

Output to the PA board is directly from the collector of TR1 via a 2K2 preset, switching was not included in this line as it has not been found necessary in the past and the amplitude of the signal present on the collector could cause problems with any diode switch, so not worth the risk.

There are two RF input tuned bandpass filters on the board which are diode switched. The switch lines are brought to the edge of the board so that a daughter board can be added so increasing the number of available bands to that required by the individual constructor.

THE G QRP CLUB QSO BURO

DAVE AIZLEWOOD G4WZU

Since taking on the job of the buro the quantity of cards has greatly increased. Accurate calculation of the numbers of cards involved is not possible but I estimate that over the period from January to June 1990 at least 7000 to 9000 cards have been processed. The new system of sending out cards in envelopes has increased the amount of mail but has made the job of the Dispatch Team easier and meant that Sprat can be posted without the delays involved with getting the cards into the right magazine.

A few notes on how the buro is operated may help members understand the operation. Mail, which arrives every day, is usually opened every day unless family or work commitments cause delays.

The buro is actually a 6-drawer card index filing cabinet in my shack. The top drawer is used for sorting the cards and next 3 contain the envelopes in numerical order. I have an envelope for every paid-up member and the first batch of cards come paid for by the club, after that members sent labels and stamps which I stick onto envelopes for further batches of cards. The C6 envelopes are colour coded, brown for UK members and white for non-UK. members, which enables the 'DX' cards to be extracted easily as these still usually go out 'via Sprat'. I prefer labels to envelopes as any non-standard envelopes may not fit into the file or may not conform to the colour-coding system.

Incoming cards are put unsorted into one side of the top drawer and sorted a few each day if possible into the other side of drawer. This 'pre-sort' holds about 2000 cards and when this becomes full the cards are transferred to envelopes. Where envelopes are ready for dispatch they are posted immediately, the post box fortunately being only 10 yards from my front door. The number of cards contained will vary according to quantities being received or special instructions.

As Sprat deadline day approaches the 'DX' (Non-UK) cards are extracted. Most of these are sent by recorded delivery to the Dispatch Team to arrive in time to go into Sprat. A few large user DX members get their cards direct by mail as there are too many to safely include with Sprat, this is only about a dozen or so each quarter. By the time cards have been dispatched there will already be more cards arriving daily and the process goes on, this being one cause of my almost blank log-book.

Most members are very good and help me greatly by sorting their cards into ascending numerical order but there are a few who still forget to put numbers on the cards. Cards with no numbers are checked in the Members Handbook (which is very time consuming) and if not found returned to sender. Where a new member has been worked and no number obtained I have no means of getting the number and the card will have to be returned. Thanks to all who help the system to run (fairly) smoothly. If anyone with experience in this field has any suggestions please let me know.

EUROPEAN CW ASSOCIATION

The European CW Association's Annaul FRATERNISING CW PARTY will be held on Saturday and Sunday, November 17-18th 1990. Although mounted within a contest style framework, participants are free to treat the event how they wish. It is the EUCW major event of the year and intended to bring member club (inc. G QRP Club) together for a weekend of enjoyable CW Activity. Further Details, for an SAE, from :
Tony Smith, G4FAI, 1 Tash Place, London, N11 1PA

QRP CALENDAR FOR 1991

1st January	**Last day of 1990 Winter Sports (Logs to G8PG)**
9/10 February	**OK/G QRP weekend. Work OKs.**
	Recommended Frequencies/times.
	3560 04-0700 and 20-2400 gmt 7030 05-0700 and 17-1900 gmt 10106 06-1000 and 14-1800 gmt 14060 0801700 gmt 21060 11-1300 gmt
	Logs to G8PG by 15 March. Use the best band open to you. 18/24 MHz skeds best 11-1300 gmt
15 February	**Last date for w.s., Chelmsley Trophy, G4DQP Trophy logs**
15/17 June	**Summer Ramble. 17 June is International QRP Day and the day you can win Suffolk Trophy.**
17 July	**Last day for Suffolk Trophy logs**
27/29 September	**East to West QRP weekend.** Rules in SPRAT later.
26 December	**Winter Sports. Please leave** 3560 clear for QRP DX work 0600-0800 daily (move up around 3570 for local work). Otherwise maximum activity all QRP frequencies. G4DQP trophy and merit certificate awards. Logs to G8PG by February 15th 1992.

NOTE : Rules for Trophies appear in the Members Handbook

ADS:ADS:ADS:ADS:ADS:ADS:ADS:ADS:ADS:ADS:ADS:ADS:ADS:ADS:ADS:ADS:ADS:ADS

FOR SALE : YAESU FT 7 TRANSCEIVER 80/40/20/15/10 SSB/CW. Added Drive Control (concentric pot : so original front panel) for 1 to 10 watts output. Plug-in 3 pole audio CW filter. In excellent working condition : the receiver performs better than my Argonaut 515. £250 Contact G3RJV (0706) 31812.

FOR SALE : Twelve copies PRACTICAL TELEVISION 1956/57 : Offers Heathkit HW8 and Matching HWA-7-1 Power Supply, Excellent Condition with Manuals : Offers to E. McLean, Woodside Cottage, Longmorn, Elgin, Grampian, IV30 3SE

FOR SALE : Pair S.G. Brown Type A Headphones (one owner) Jackson Bros Variable Capacitors, Ceramic end plates, Silver Plated Vanes, .024" spacing : One Type C12 (5021-4) 11 - 250 pF, One Type C1255 (Split Stator) 11 - 300 pF per section. Hallicrafters Sky Buddy "Airplane" Dial and 2x500pF variable caps Also Vaious Vintage Textbooks, Terman, Ladner & Stoner, Admiralty Hanbooks etc. Offers to G3BFR (0453) 763994.

QRP COMMUNICATIONS FORUM

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

CEPT OPERATION AND AWARDS. The situation is as follows. If you have previously worked the station under another call (say his home call) you cannot claim him for worked G QRP Club, but if his country or continent is new you can claim him for QRP Countries, Two-way QRP, or QRP WAC. As far as the member operating under CEPT conditions is concerned, if he has the right cards he can claim a new set of awards under his CEPT call, these being quite separate from those claimed under his home call. (Yes, this was brought on by the recent spell of operation as F/G8PG/P by your contributor!) Note that to claim a separate award all contacts must be made from the same CEPT country.

POOR NETTING LOSES MANY CONTACTS FOR QRP OPERTORS. Do make sure that your transmit/receive offset is properly adjusted, and that when calling another station you are tuned to the correct sideband. Despite previous information is this column too many operators are still getting it wrong.

SOME RECENTLY LICENCED MEMBERS may not realise that EA8, EA9, and CT3 all count as Africa for WAC. A timely reminder of this fact helped John, G0KCA find his sixth continent.

THE USE OF /QRP BY UK OPERATORS IS ILLEGAL, so please do not do it. If you wish to indicate that you are QRP to another operator send own call, QRP, own call and K, for example G8PG QRP G8PG K. Do not do this when calling rare DX in a pile-up, or during QRO contests. Just send your own call once or twice; if the other station hears it he will answer. The only exception is if the rare station sends QRZ QRP? It is of course quite legal to call CQ QRP when wishing to work other QRP stations. One hopes that all members, not just those in the UK, will note the above.

REMEMBER THE WINTER SPORTS 26th December to 1st January. Maximum QRP activity bands. Logs to G8PG. Keep 3560 clear for DX 0600 - 0800 daily; move up around 3570 for local work between those times.

ALSO remember the OK/G QRP weekend, 9/10 February, 1991. See the QRP Calendar elsewhere in this issue for details.

THE OK QRP CLUB is now firmly established and has published the first issue of its Journal "OK QRP INTO". This mainly in Czech, but has some items in English. Issue 1 includes an interesting 14 MHz transceiver by OK1DZO. Membership for overseas amateurs costs 15 ircs (January to December). They should be sent to Petr Doudera, OK1CZ, U1 batterie 1, 16200, Praha 6, Czechoslovakia. So all send best wishes to the new Club.

WHEN YOU HEAR THOSE T7, CHIRPY signals from countries to the east of the UK it may not be the fault of the operator. In may of these countries components and items of equipment that we take for granted in the west are often unobtainable, and finding the bits to build even an inferior transmitter can take a great deal of time effort and money. Even when you do build up a station it may be taken away from you overnight and never returned, as happened in Poland some years ago when martial law was imposed. Behind the scenes our own Club works to help equip our members in these areas, and we will continue to do so in the interst of spreading QRP operating on an international basis. Perhaps the most poignant silent comment came when out member Bob,

NM7M, wrote to ask a UA contact what computer he was using. In return he received a small parcel containing a little wooden abacus!

THE SUFFOLK TROPHY once again goes to Glynn, G4CFS, with a score of 50 points; well done. It is nice to see the runner-up spot taken by Lithuania in the shape of Vit, LY2BFE (ex-UP2BFE) with our first ssb entry (collapse of Ian with shock) from G4MET, who despite "finding it very lonely" scored 17 points by keeping on plugging away. He receives a merit certificate. Well done all.

THE NEW W3NQN 550 Hz Filter is now under test by the Project Frequency Band team, and is proving a really outstanding design. It seems to have been made for the Century 22, and matches both the output impedance and the inbuilt af filter frequency of 22. The circuit will appear in SPRAT when the tests are completed.

THE CLUB MORSE TAPES have recently brought further morse test passes to successful candidates in the December RAE. Would-be novice instructors should note that the first tape should qualify their students for the 5 wpm novice test, and the second for the Class A licence test. Those already reading 12 to 14 wpm should use the Club Morse Improvement tapes to help them achieve 18-20 wpm. Several hundred people have already found success with the aid of these tapes. We must thank Norman, G4LQF, for the work he does in producing copies of them in quantity.

THE STEADY INCREASE OF DAYTIME QRP on 7 MHz has been a pleasant feature in recent months. With high sunspot numbers the band is ideal for inter-G working on most days, and it is good to see so many members, old and new, taking advantage of this. D Region attenuation is lower, and antenna efficienty higher than on 3.5 MHz, so signals are considerably stronger and contacts that much easier. It seems sensible to take account of such factors while the sunspots are high.

ANTENNA AND OPERATING QUERIES continue to be received, and one is very happy to deal with them. For antenna queries try and include a simple plan awith dimensions, and also a note of what bands the antenna is to operate on. Also please enclose an sase with all queries. Restricted space operators please note an interesting compact antenna is undergoing tests at G8PG. Details in a later SPRAT we hope.

CONGRATULATIONS TONEW QRP MASTERS GM3XQJ, G2DAN, AND GOIFK (First Go). Well done! Before too long we may have our first Lady Master. She is making steady progress.

AWARD MEWS
Congratulations to the following on their awards.
QRP WAC. Y24TG, GM3KPD
QRP COUNTRIES. 75 G2DAN, GOIFK; 25 GOBOP, G3INZ, GWOLBI.
WORKED G QRP CLUB. 400 G8PG; 260 GOIFK; 220 G4XVE; 200 GI4PCY; 160 G3FCK; 120 LY2BFE; 80 G3ROO; 60 GOKCA, G4CZL; 40 G4AWT, GOKAT, 20GOKZO.
TWO-WAY QRP. 30 G4XVE, G4CFS, 20 GM40SS, G4WUS, G3INZ, GOIFK; 10 GOBOP, G4VPF, GOFTO, GWOLBI, DF2OF, GOKZO.

This all for this issue. Keep your award applications and letters coming. They are always welcome here.

G QRP CLUB WINTER SPORTS 1990

DECEMBER 25TH 1990 - JANUARY 1st 1991
A CHANCE TO WORK FELLOW MEMBERS : ALL BANDS EVERYDAY
3560 - 7030 - 10106 - 14060 - 21060 - 28060 - CALL "CQ QRP"
0600 - 0800 GMT DAILY LEAVE 3560KHz FOR DX WORKING

ANNUAL TABLES CLAIMS FROM 4/90

C/S	CW	SSB	SPRAT
1990 COUNTRIES WORKED, HF			
G8PG	58	0	65
F/G8PG/P	35	0	65
G4MET	0	27	64
G4EZA	25	0	63
G0KZO	20	0	64
PE1MHO	0	20	65
GODJA	15	0	64
GM7ECN	0	10	65
ALL TIME COUNTRIES			
VHF			
AA2U	12	28	62
GODJA	12	0	64
PE1MHO	1	32	61
HF			
AA2U	225	226	62
G8PG	151	0	65
F/G8PG/P	35	0	65
G4EZA	25	0	63
G0KZO	14	0	62
G4YIR	13	1	62

SSB NEWS

Ian Keyser G3ROO
Rosemount, Church Whitfield
Dover, Kent.

Gus, G8PG re enters the table with a CEPT entry, just to be different! Regarding CEPT entries I will hold them in the tables as long as space permits, this will enable other 'holiday' operators to compare scores.

Dave, GODJA (3247) writes to say that HF is a no go area now that he has had to return the borrowed TS520. A house and job move will be occupying his time but as soon as possible he hopes to be on VHF QRP. 50 MHz has been alive during the summer months and Dave has had fun up there.

Peter PE1MHO (2543) writes with his score for 50 MHz with a very nice list of 2 way QRP QSO's. The really nice one is KG4SM using a half wave vertical.... shows what can be done on 50 with the band open!

GM7ECN enters with a claim for 10 SSB on 50, gained in one 2hr 15 min period of operating! I will fire up 50 again!!!!

CORRECTION

HUFF AND PUFF circuit [SPRAT 63] : Tony Edwards, G3HNP, has built the circuit and pointed out the following circuit error:
IC2 - 4520B : To ensure the correct frequency division at all times, pins 2 and 10 (enabling pins) must be connected to the +5v supply as for pin 16.

FOR SALE : EDDYSTONE 1964 Communications Receiver, 1.6-20Mhz in ten channels. AM, LSB and USB Modes inc. Handbook. : £45
AJAX 1.6 to 3.8 MHz tx/rx inc Handbook : £40
REDIFON WK2182 kHz Receiver with Handbook : £15
DYMAR VHF FM QRP Transceiver inc Handbook and mod details : £15
Easy and cheap to get working on 2 metres.

TRADE FOR RUSSIAN ITEMS : Wanted to trade a QRP Transceiver, like Argonaut, Century 22 etc. for Russian souvenir items , such as a SAMOVAR etc. Contact: Oleg Borodin, P.O. Box 229, Lipetsk - 43, USSR.

WANTED : AN RAE TUTOR for Milton Keynes area : Contact David Jenkins, G4VXY, 0908 - 317129

SWAP : QR666 PLUG-INS - Coil Pack, RF Unit, IF/Demod/CIO, plus AF/PSU from another set, all working order, with sockets, other parts and speaker. Ideal for a QR666 rebuild or complete receiver project, complete with QR666 circuits, project notes, packed for mailing.
WILL TRADE for working Codar CR45 TRF Receiver (the one with two dials) with full set of Denco green coils. RF Unit alone worth £30 as spare part - try an offer if you don't have a CR45, but make it good!
ALSO WANTED : Ferrite Rod Aerial for a DX3000 (Tandy) Receiver - Radio Shack number CA0676 (Makers number 12BNA143)
G4LEG 0293 (Crawley) 32825

FOR SALE : ARGONAUT 509 and HW8 in as new condition.
Cobra 146GTL SSB converted to 10 metres
WANTED : 1850 Dolomite overdrive gearbox, damaged OK, need lay shaft.
Gordon, G4XBD, 0438 - 362554

FOR SALE : ARGONAUT 515 with Ten tec PSU : £350
Icom 202S CW/SSB 2 Metre Transceiver + mic, not batts : £100
"one Valver" CW/AM TX for Top Band with Mic : £35
Cash and Carry Please TEL: 0827 (Tamworth) 898024

FOR SALE : C.M. Howes SWB30 Dummy Load, Attenuator, SWR and Power Indicator, Fully Assembled : £15
Howes DXR10 15/12/10 Metre SSB/CW Receiver, Fully Assembled : £35
RSGB RC14 20 metre Receiver, Fully Assembled : £25
Pre-Used Half Sized G5RV Antenna - Has gained 559 report from VE2KN on £w on 28MHz : Great Buy for £7. All Items P & P At Cost
John Windebank, G0KJN, 16 Priory View, Little Wymondley, Nr. Hitchin, Herts, SG4 7HG. TEL: 0438 - 362795

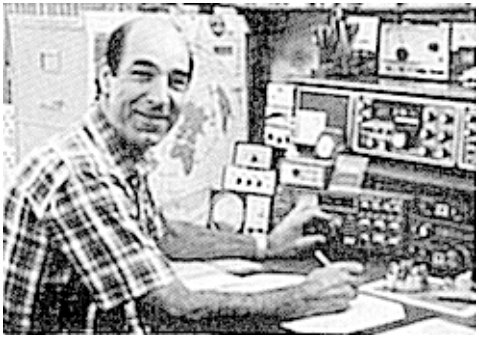
FOR SALE : TEN TEC ARGONAUT 515, AUDIO FILTER, AC PSU : £325
TEN TEC/KW ATU / SWR METER : £50
LARGE NAVY MORSE KEY
Brian, G3MBN, TEL: 0225 (Bath) 810621

FOR SALE : HOWES Homebrew Transceiver : AT160 + MBRX, CS44, SWB30, MA4, Plus variable caps etc. All in one box, may need bit of attention £80 from B. Tuffrey, G0LHM, 53 Sheffield Rd. Warmsworth, Doncaster, South Yorks. DN4 9 QR. TEL: 0302 - 859451

WANTED : B2 in restorable order to rebuild, all and any bits and pieces awaited eagerly, your price for bits or will swap if I have what you require. D.T. Price, G3LYU, QTHR or Tel: (0533) 876459

WANTED : The following British tubes (valves!) : EBC41, ECH42, EF41, EL42, EZ41 to restore a PYE automobile radio. A enormous stock of American tubes are available for swops if required. Vern A. Weiss, WA9VLK, 4259 Park Place. R.R. 5. Crown Point. IN 46307. USA.

MEMBER'S NEWS



Chris Page G4BUE

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

The tradition of hot sunny weather for our annual Summer QRP Party almost broke this year. Despite the dull weather we had over 40 members here including PA3AQO, PE1MHO, PA3DUV, YL Petra and PA3BHK, to whom I'm indebted for the photographs included in this column.

The latest edition of the Yeovil ARC's magazine contains a report of their QRP Convention in May. There were 183 visitors, four lectures, the GB2LOW station, good food, lots of traders and a G-QRP-Club stand run by GM3OXX, G4CFS and G4JFN. Obviously a recipe for success and next years convention will be on 12th May. The "Funrun" was won by G4PRL on 80m and G3BPM on 40m with G0IDE winning the 40m postal entry.

G3PDL had fun in the RSGB LP Field Day in June. Peter was parked on the roadside near Market Rasen with a 9m glass fibre fishing rod as a mast holding an 80m doublet. Not a big score but he got some visits from an ex-member and some CBers! DJ4SB finds the W8UR 500mW beacon on 21285, mentioned in my last column, very useful, and has received it several times. He is now looking for the N8KHE one at 50mW. G0EBQ has been "milliwatting" on 20m by working UL and UA9 stations at 200mW. Nigel is using a new rig based on the SCD with additional bits from the Solid State Design Handbook, and is "milliwatting" because he can only get 200mW out of it! He has chopped the open wire feeder from 33ft to 16.5ft on his G5RV sloper as he thought it was radiating. This has resulted in many more QSOs to Asiatic USSR but less on short skip. GW3SYL is using a stepped attenuator for "milliwatting" like I do, and worked UV6LHJ at 500mW for his first milliwatt QSO. Since then Roy has made other QSOs including a 5w two-way QSO with a W4.

G0NMD is building the PW Irwell to use with his new call. Les appreciates the morse tapes and advice he received from Gus, G8PG. FY/DJ0PJ was very QRV on 14060 until July and worked many members in Europe. Do you remember the challenge for fast WAC's? G4CFS offers one in 56 minutes on 15m on 23rd May when he worked 7X, LU, V4, VU, DU and RC2. Glyn enjoyed the Yeovil QRP Convention very much. Tom Hood, a disabled SWL would like to buy some second hand QRP and test equipment. If you can help or live near Mitcham, Surrey and can offer advice, please call Tom on 081.640.3171.

Dick, PA3DUV really getting down to reading that book, watched by Petra and Gary

GM3MXN worked FY and VU to bring him up to 120 DXCC recently. Tom asks what members think about the increasing habit of cw operators who drop the "DE" between call signs. He thinks it is lazy, bad practice and can cause confusion, especially to new amateurs trying to take up the code. I will help spark the debate by saying I entirely agree with you Tom.

Congratulations to Peter, OK1CZ on being appointed Chairman of the OK QRP Club and Editor of their magazine OK QRP INFO. Membership is now around 50 and is open to amateurs outside OK provided you can make 300 points, (1 for each QRP QSO, 5 for QRPp QSOs and 70 for each part of the rig the applicant has built). Subs are 15 IRCs and can be sent to Peter. G3XJS was

Apart from those in the photo, does anyone know what's going on here ? Can it be a new form of loop antenna for QRPers that Peter, PE1MHO is working on. Whatever it is, it is drawing a crowd.

trying out a /M rig for 20m for his holiday in France when he wrote. Peter worked a W4 on the way to my QRP Party and I saw on the DX Cluster a couple of days ago he was working into 9L as F/G3XJS.

One morning at the begining of August DL1GPK was testing a new antenna, (a 2 x 23m centre fed in his attic) on 20m when he heard W2JAJ (5w to a ground plane) in QSO with a ZL. About an hour later he heard the W2 again, this time calling CQ. Peter called him using 100w and got a 559 report and then switched to 5w and received a 529 report to make his first two-way QRP trans-atlantic QSO. G4JFN recently worked EK9QRP, (5w and QSL via UW9CX) and HR2BDC who was running 2w on 14060. Nice one Bob!

G4CEJ has become a "born again" amateur after 12 years in the wilderness. Ray is surprised by the apparent apathy and disinterest in experimentation and dabbling that goes on and finds that SPRAT seems to be the only literature that helps and encourages this. Ray lives in Cumbria and would lke to get in touch with members who have experimented with PLL synthersizers and made mods to either CB or commercial equipment, such as marine gear.

The WPX Contest at the end of May attracted DJ4SB with his 5 watts on 15m. Gerd made 38K points including QSOs with ZL, FR, LU, PY and VU. Desite what I said in my last column none of you would have worked me in the contest as GB0QRP as I decided to use the other call I applied for, (GB0DX) on QRO to test my 40m Butternut array. Although it worked well, it caused me to have a re-think, as a result of which I put up a new array for 40m, (W1CF Four Square array) just before the WAE contest in August. I used 5w to check it out and after contest QSOs with UL, UA9 & 0, ZD8, CN, VK, EA8, PY, ZL1 & 3, OA and the usual W's, decided it was working better than the old one. AI2H has been posted to RAF Chicksands, Bedford for two years and wants to meet fellow Club members. Barry is bringing his HW9 with him and five helicoil verticals which he was using as a vertical steerable array in the USA, (similar to my 40m array?).

We even had magic at this years Party! Have you ever seen a QRPer with three hands? Look at Gerald, G3MCK. He has one in his pocket, one holding his drink and a third on the shoulder of the person seated!!

Can anyone help G4RGN? Doug is looking for scrap Spectrum or Spectrum Plus computers and parts. He wants to make up workable units for local newcomers to run cw teaching programs on. He will refund postage if you contact him on 0233.621208.

G7FCQ recently went /P on the Downs outside Brighton with his FT290R2 and rubber duck antenna. Using just 500mW on 2m FM Dave worked FC1AMZ in Dieppe, receiving a 55 report. PA3BHK recently worked G4ATA/P at The Lizard in Cornwall (425kms) with 15w DSB on 2m. G0DRT is still looking for skeds with his old Collins TCS12 WW2 transmitter. Peter's telephone number is 0795 876277 and not as shown in my last column!

G4ZHI visited Durban last Christmas and was QRV as ZS/G4ZHI. Using 3w of SSB he worked ZS1JS and Z21AA both at 1300Kms. Bryan was using a DSB2 and a dipole strung up in an advacado tree at just 12ft! Back home Bryan uses a folded Marconi made out of 300 ohm feeder and counterpoises strung around the garden fence. Look out for VE7PCC on the QRP frequencies. David has just passed the examination and got his licence.

Ted, G2HKU (foreground) and Chick, G8TOZ (background) both listening intently. (Can anyone tell me whose talking to them, as I can't see faces?)

PY7FNE writes a regular QRP column (two full pages) in the "Antenna Electronica Popular" in Brazil. Carlos has also been coordinating the Grupo QRP do Brasil. He is using an HW9 and has now reached 167 DXCC with 27 on two-way QRP. Carlos will be looking for European QRPers between 2000 and 2400z at week-ends on the 40, 20 and 15m QRP QRG's. DF1OY is still using his magnetic loop (80cms dia.) inside a concrete house. Fritz asks if any members are interested in experimenting with QRP in digital modes and exchanging software?

K7YHA has recently got back on the air with a Butternut Butterfly beam and an HW9. A QSO with 9X5HG sparked off Rich's interest in dxing again and now he is country chasing. He commends the second edition of W9KNI's book "The Complete DXer", and says it should be mandatory reading for all QRPers. G3TPI wants to know if anyone has built the Malsor rx/tx? Ted saw one working at the Elvaston rally and says the rx was brilliant. G4WPI is building a transceiver based on the G3TSO rig. Jim has been on packet for three years and welcomes the extension of this mode into QRP. GW0MOH is building a valve tx for 40m using a Plessey valve. Robert was pleased to receive his CW Novice Award from Gus recently. G0BWG is hoping to be on 80m with a PW Peanut soon. G4BCY had two major operations last year which kept him away from the QRP scene. John is now experimenting with verticals.

Finally, an updated list of Club members who are active on packet:-

G0BPS	@ GB7SEK	G0BWG	@ GB7GBY
G0DCL	@ GB7ESX	G0GQF	@ GB7BST
G0JHC	@ GB7BPL	G0LGX	@ GB7ZAA
GW0MOH	@ GB7ABC	G1HDQ	@ GB7TXA
GM1BEA	@ GB7CQV	GM1OQZ	@ GB7MAC
G3CJ	@ GB7DXC	G3TPI	@ GB7FLG
G4BCY	@ GB7TXA	G4BUE	@ GB7VRB
G4GIY	@ GB7GBY	G4GJA	@ GB7SEK
G4GHU	@ GB7GHU	G4SCT	@ GB7WNM
G4SXH	@ GB7TCM	G4WPI	@ GB7SIG
G6YBC	@ GB7CRG	KA1CZF	@ N1DCS

Please help me to keep this list updated by sending info to G4BUE @ GB7VRB or GB7DXC.

Don't forget the DX Packet Clusters. I never come in the shack without connecting to GB7DXC (Wokingham). There are DX Clusters in other parts of the country and more are being planned. They will eventually all be linked together and already we have had three DXCC countries connected at the same time, (G, GW and GM)!

That clears the files and my local BBS. Let me know how your autumn goes, especially as we go into the contest and LF dxing season, by 15th November please.

73 de Chris

GLOUCESTERSHIRE ITEC
is newly involved with Project YEAR and the Novice Licence. This well equipped centre is seeking the help of radio amateurs. Details can be had from David Griffin, G0HUX, Gloucestershire ITEC, Larkhay Road, Hucclecote, Gloucester. GL3 3NT.

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