

SPRAT

THE JOURNAL OF THE G-QRP CLUB
DEVOTED TO LOW-POWER COMMUNICATION

ISSUE NR. 45

© G-QRP CLUB

WINTER 1985/86

INTRODUCING THE
ONER

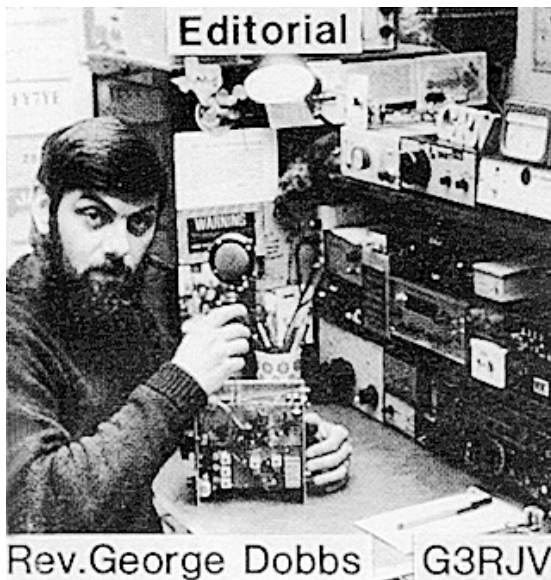


1/2" 1/3" 1/4" 1/5"

THE H.F. TRANSMITTER BUILT ON A ONE INCH SQUARE P.C.B.

THE ONER - CW CRYSTAL FILTER - 160 METRE TRANSVERTER - ATU FOR THE FOXX
PHOENIX (VALVE) TRANSCEIVER - CHEAP HEADPHONES - THE FAG BOX(O) RIG
THE LINER TWO ON CW - TOAST RACK ANTENNA - SINEWAVE SIDETONE - V.O.K.
NOISE LIMITER - TWO METRE PREAMPLIFIER, PLUS ONER KITS FOR SALE
QRP DIARY FOR NEW YEAR - AWARD, V.H.F. AND MEMBERS NEWS, CLUB NEWS, . . .

JOURNAL OF THE G QRP CLUB



© G-QRP CLUB

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

Rev. George Dobbs G3RJV

Dear Member,

The increasing amount of club activity on 80 metres is indicative of the mediocre state of the HF bands. As the sunspot cycle calmed down some of us wondered if QRP activity and interest would decline. In fact what has happened is a large increase in inter-QRP working on the LF bands. Not a bad thing at all for many of us have enjoyed chatting to fellow members on 80 metres. Judging from the type of stations I have been working, conditions have turned many members into constructors and no bad thing.

The conditions have certainly not discouraged new people from joining the club. So much so that some of our administration and services have been creaking. In this issue you will find news of the beginning of some re-organisation with the club. So we ask members to be patient as we make some changes which in the long run will benefit the running of the club. Thank you for being patient if you have been caught up in some of the problems as numbers strained our capacity.

As we go into our 11th year, I hope that the club continues to reflect the true spirit of amateur radio.

Hope to see you on the bands... 73 fer nw.  G3RJV.

Subscriptions

Renewals (rates: £4.50 or \$10 US to Alan Lake, G4DVW, 7 Middleton Close, Nuthall, Nottingham, NG16 1BX. PLEASE QUOTE YOUR MEMBERSHIP NUMBER. Cheques: G QRP CLUB. A reminder should appear in membership number sequence on the address label of SPRAT. Please ignore the reminder if you have already paid. Overseas members might like to pay by direct transfer from their bank to: National Westminster Bank plc, Town Hall Square, Rochdale, Lancs, OL16 1LL. Account: G QRP CLUB. No: 04109546. Please inform G4DVW whenever such a transfer has been made.

Q R P D I A R Y 1 9 8 6

1.1.86 AGCW-DL Happy New Year Contest - QRP section
 18/19.1.86 AGCW-DL Winter QRP Contest
 1/2.2.86 G/OK QRP Tests
 15/16.2.86 ARRL International DX SSB Contest - QRP section
 1/2.3.86 ARRL International DX CW Contest - QRP section
 29/30.3.86 CQ WPX SSB Contest - QRP section
 20.4.86 RSGB Low Power Contest (3.5/7MHz)
 19/20.4.86 ARCI Spring SSB QSO QRP Party
 1.5.86 AGCW-DL QRP/QRP CW Contest
 24/25.5.86 CQ WPX CW Contest - QRP section
 19/20.7.86 AGCW-DL Summer QRP Contest
 20.7.86 RSGB 3.5MHz Field Day
 20/21.9.86 Scandinavian Contest - class for QRP
 11/12.10.86 ARCI Fall QSO QRP Party
 19.10.86 RSGB 21MHz CW Contest - QRP section
 25/26.10.86 CQ WW SSB Contest - QRP section
 1/7.11.86 HA QRP CW Contest
 29/30.11.86 CQ WW CW Contest - QRP section
 6/7.12.86 TOPS 3.5MHz CW Contest - QRP section
 26.12.86 to
 1.1.87 G-QRP-CLUB Winter Sports
 (daily)

NOTE Not all the above dates have yet been confirmed, so please treat the list with caution.

C W C R Y S T A L F I L T E R

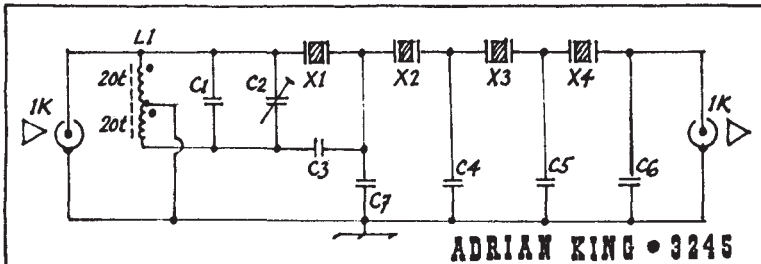
By Adrian King

This filter was originally used with the direct conversion receiver published by Elektor in 1982. The receiver has given excellent results, and may be of interest to other SPRAT readers - PCBs are available. Compact Short Wave SSB Receiver, Elektor June 1982 ff.

Specification:	Bandwidth -6dB	300Hz
	Bandwidth -60dB	1100Hz
	Insertion loss	-7dB
	Passband ripple	<1dB
	Impedance input/output	1k

Components: X1 to X4 All 2.4576MHz cheap computer crystals.*
 L1 2 x 20t 30SWG on T50-2
 C1 470pF C2 100pF trimmer C3 10pF C4 68pF
 C5 68pF C6 33pF C7 68pF

* I got the crystals for a £1 each, surplus. Watford used to charge £2 each and Circkit £3.80 each, so shop around!



ONER

THE H.F. BANDS TRANSMITTER
ON A ONE INCH SQUARE P.C.B.

GEORGE BURT

GM30XX

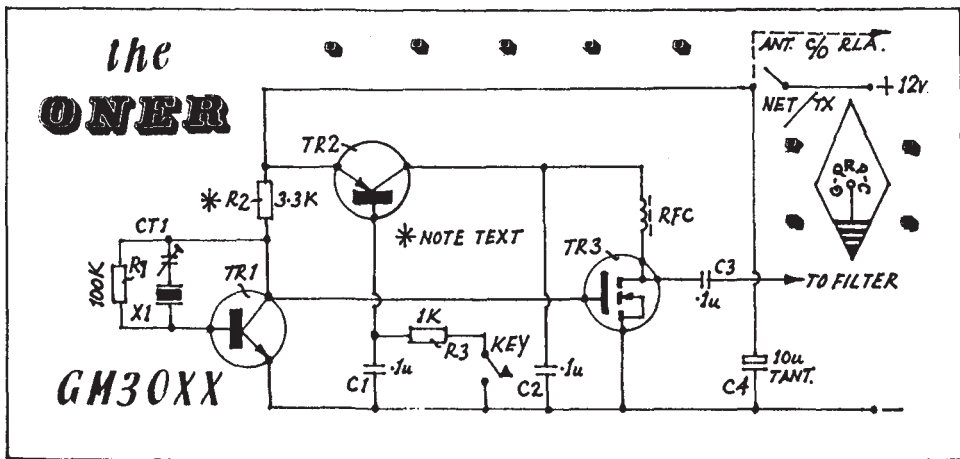


By George Burt GM30XX

The Oner is a small transmitter built on a one inch square PCB that gives at least 1 watt output to 10MHz. It is useable on 14MHz at a reduced power output of some 750mW.

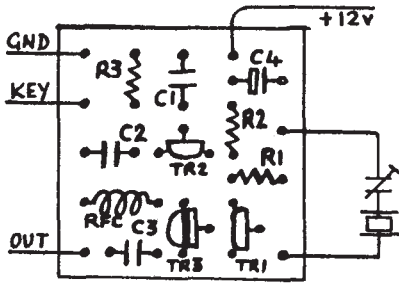
R2 (3.3K) in the circuit is the collector load of TR1, and also sets the bias for TR3. It is possible to reduce the value as low as 1K to squeeze more power from TR3, but care must be taken not to cook the PA! Beginners stick to 3.3K!! (I get well over two watts out of my Oner on 80 metres with 3.3K - G3RJY.)

Construction notes - the only real problem was pushing six veropins into such a wee board!, and trying to find the PCB after laying it down!!

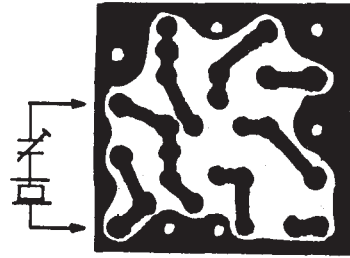


TR1 = 2TX651 TR2 = 2TX751 TR3 = VN10KM (all available from R.S.)
RFC = as many turns of 30SWG enamelled wire as will fill a small ferrite bead, usually 10 to 12.
CT1 = trimmer for frequency offset about 60pF.

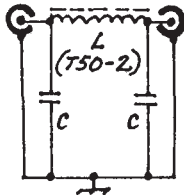
Results - with a single section filter, ATU and a 44 feet Zepp, lots of good QSOs have been had on 3.5, 7 and 14MHz. Now no one has an excuse for not getting started in QRP.



TOP PCB (ACTUAL SIZE)



BOTTOM

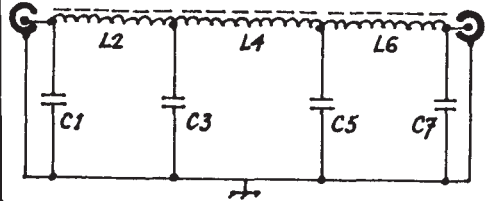


FILTER VALUES			
80m	750p	750p	21t
40m	470p	470p	14t
20m	210p	210p	12t

FILTERS AND THINGS

A simple transmitter like the Oner requires a low pass filter to reduce the harmonic output. If the Oner is used with an ATU, a simple filter like the one on the left, wound with 22SWG wire, will serve the purpose. A better solution is to use a seven element filter, designed by W3NQN from the table below. The toroid formers can be had from TMP Electronic Supplies, Unit 17, Pinfold Workshops, Pinfold Lane, Buckley, Clwyd, CH7 3PL, (Tel: 0244.549563).

Seven Element Low Pass Filters					
C1/7	C3/5	L2/6	L4	Wire	Band
470pF	1200pF	25t	27t	28SWG	80
270pF	680pF	21t	24t	26SWG	40
270pF	560pF	19t	20t	26SWG	30
180pF	390pF	16t	17t	26SWG	20
C1 = C7		C3 = C5		L2 = L6	
80 metres inductors on T-37-2 cores					
40+ metres inductors on T-37-6 cores					



CRYSTALS Fundamental amateur band CW crystals are available on the International QRP frequencies: 3560, 7030 and 14060 from P.R. Gollidge Electronics, Merriott, Somerset, TA16 5NS. £3.50 each inc. VAT and postage for G-QRP-CLUB members, £4 to non-members.

160 METRE TRANSVERTER

By Malcolm Horton G4DMH

Notes on Circuit Diagram

The 1K variable near T1 is a receiver attenuator, and is never used! The 180pF+180pF is a solid dielectric type, available from J. Birkett, and is used for the receiver preselector and transmitter peaking.

The grounded gate RF amplifier would probably not be required if using a large aerial. Adjust the 6-60pF trimmer on the 12.5MHz crystal for the correct frequency on 160 metres, tuning from 14.3-14.5MHz, (read the lower scale, .8 .9 .0), with "reverse sideband" selected for the LSB operation.

Adjust the 1K pre-set in the source lead of the crystal oscillator for 100mV input to pin 3 of IC1 and IC2. Adjust the 220 ohm pre-set associated with the 14MHz transmitter attenuator for 100mV to pin 7 of IC2 when the Argonaut is giving two watts output of CW. Adjust the 10K pre-set across the 4.7v zener diode, (Vmos bias), for a standing current of 100mA. Adjust the 4.7K pre-set in the base lead of the BC239 for the appropriate drive level, (i.e. approximately 500uA on the meter for two watts input on 14MHz). Watch out for "flat topping". The power output is approximately five watts PEP, and two to three watts CW.

General Notes

The receiver portion and transmitter driver are based on an earlier design in SPRAT, by G3ROO, who used 80 metres as the IF. I wanted a unit to match the G4DHF two metre transverter, and so a two metre IF was required. The transmitter power amplifier section is based on G3WPO's DSB2, featured in Ham Radio Today.

The construction is on two circuit boards - transmitter driver/PA, LPF and antenna c/o relay on one (etched) board, and the rest on another (veroboard) board, all housed in a case to match the two metre transverter, (9x2.5x5"), which sits on top of the Argonaut with all the other add-on units alongside. I have a "transverter switching box" which switches the Argonaut TX/RX in/out, +12v supply and the 'T' voltage to the appropriate transverter. The switch is marked "LF/HF/VHF".

The 'T' voltage of the Argonaut 515 is on the accessory socket, (which already has a plug in it for the audio filter), so a hole was carefully drilled in the back panel and a phono socket inserted. The following circuit is used. The 470 ohm resistor guards against a short circuit damaging the TX/RX switching board. The 100uF capacitor gives a delay to the relay drop-out, so that the relays do not "clatter" on CW.

* OFFERED TO G QRP CLUB MEMBERS: *
* * * * *

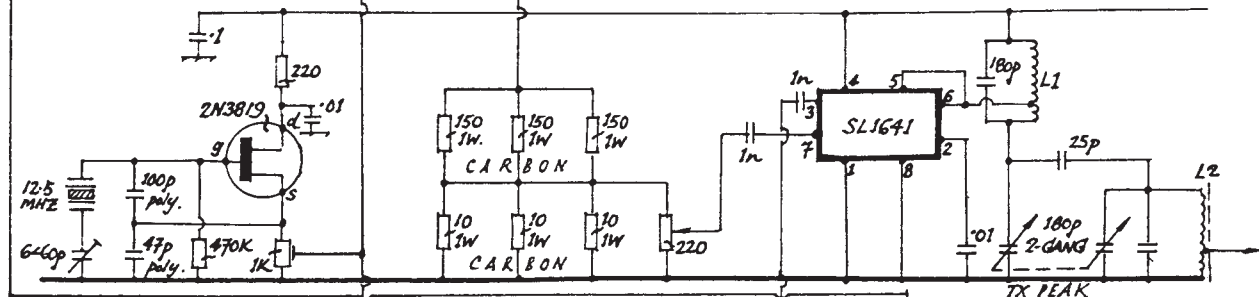
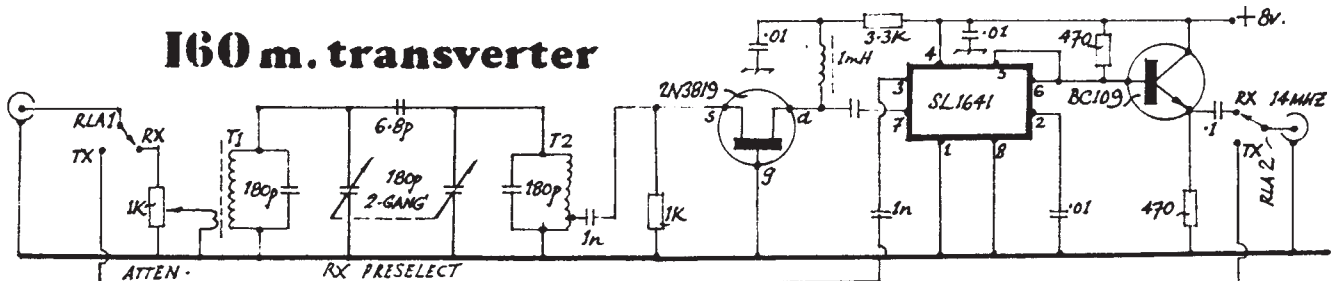
THE ONER H.F. TRANSMITTER KIT

* A COMPLETE KIT OF PARTS, P.C.B. AND ALL THE COMPONENTS (EX. CRYSTAL) *
* * * * *

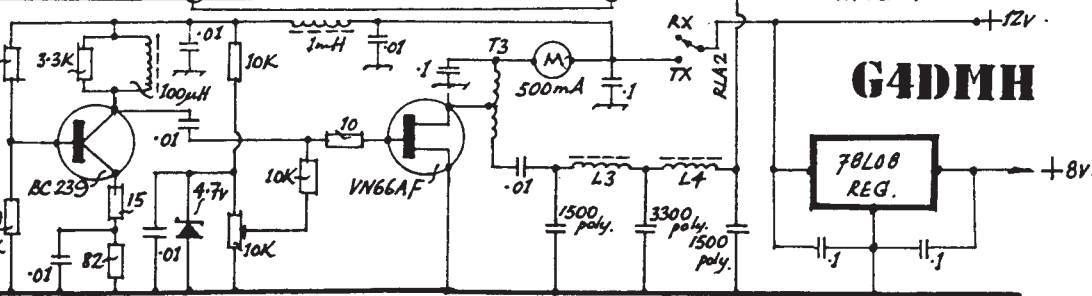
* TO BUILD THE "ONER" TRANSMITTER, FEATURED IN THIS ISSUE OF SPRAT. *
* * * * *

* ORDER FROM: G3RJY ONER KIT: £3.00 POSTAGE 20P *

160 m. transverter



T1, T2, L1, L2 : ALL
TOKO KANK 3333R
T3: 13¢, C.T., ON
'FAIR-RITE' 59-61001101
FERR. CORE
L3, L4 - 26¢, 24G
ON T30-2 CORE

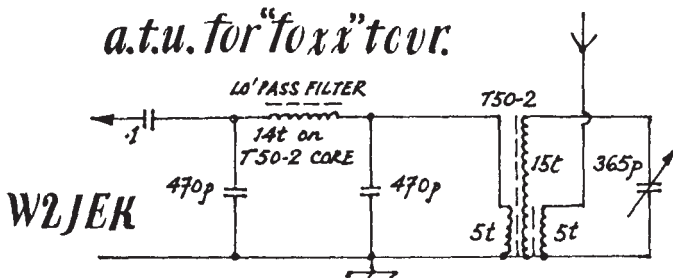


G4DMH

AN A.T.U. FOR THE FOXX TRANSCEIVER
DONALD C. YOUNGER W2JEK

After failing to cure AM breakthrough on my FOXX with a hastily built ATU, a second attempt solved the problem. The first QSO was with W3NR on 7MHz, 325 miles away in Erie, Pennsylvania. The output is only about 360mW, which is possibly due to the RFC in the amplifier, which was wound on a slug from an old TV set instead of a ferrite bead!

I built my FOXX into a 5 x 7 x 2 chassis box, and enough room remained for an ATU. The details for the ATU are shown in the diagram. I used 21 guage wire on a T-50-2 toroid core, twisting one long and two short lengths together. After winding five turns, separate the shorter wires and continue the longer one for a total of 15 turns. This was mounted on a miniature 365pF variable with plastic dielectric.



THE PHOENIX TRANSCEIVER

By Carl Wood G4XOG

I have been active on QRP for a few months now, and enjoying it very much. I have built various rigs, including the OXO, JU6 and PCB80, but having lots of valves around the shack and having the need for a VFO rig, I started looking through old magazines for some sort of transceiver using valves and not too complex. I came up with an article by M.T. Perkins, G3PNI in Radio Communication September 1978, Volume 54 No. 9. Just what I was looking for, a simple rig using valves, so I gathered all the bits and began.

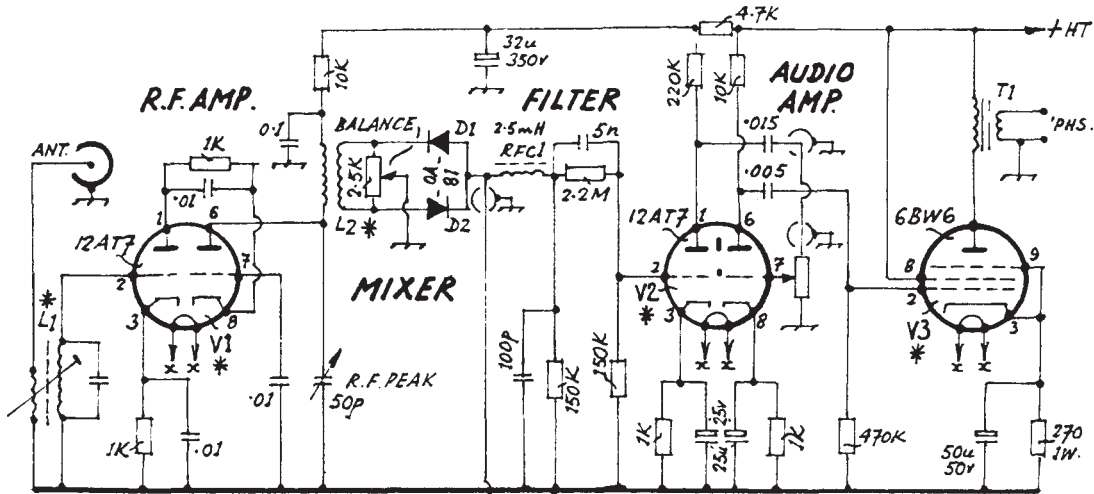
Some of the components in the circuit I had not got, so I put near valves in. Nothing seems too critical anyway. I finished the rig in two days and plugged it in and switched on, and great! It worked. In fact it works like a bomb!!

I have worked all around the continent with about 5 watts input and have now dropped the HT, and am running at 3 watts input, using a bit of wire for an antenna. I have drawn a sketch of the rig as I thought it may be of interest to others. It cost me zero to build, so it has got to be good!

- T1 Audio output transformer, 3 ohms output, primary about 3000 - 5000 ohms
- V1, V2 and V4 12AT7 V3 6BW6 V5 6BW6/5763
- L1 50 turns close wound 34SWG on 3/8" former. 5 turn link on cold end with PVC wire.
- L2 60 turns close wound 34SWG [" former. Link 11 turns close wound PVC wire.
- L3 15 turns close wound 34SWG on 3/8" slug tuned former
- L4 30 turns space wound on 1 3/8" former tapped at 20 and 25 turns.

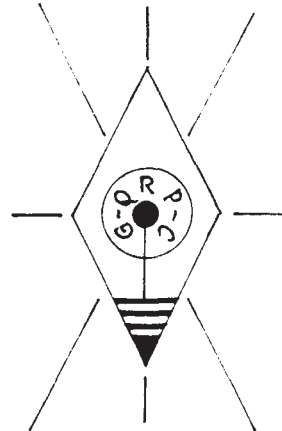
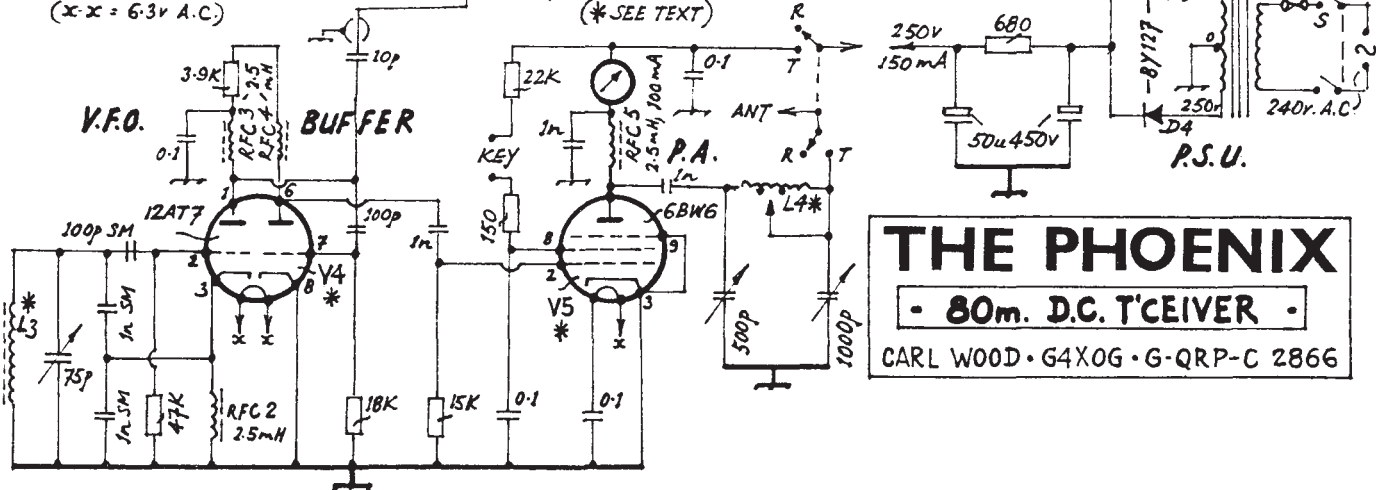
80 metres direct conversion :-

- V4A - VFO V4B - Buffer V5 - PA V1A and V1B - Cascode RF amp.
- V2A and V2B - Audio driver V3 - Audio output



(x-x = 6.3v A.C.)

(* SEE TEXT)



THE PHOENIX
 - 80m. D.C. T'CEIVER -
 CARL WOOD • G4XOG • G-QRP-C 2866

CHEAP HI - Z HEADPHONE IDEA
GEOFF POLLITT G4NPQ

Recently I required a small lightweight pair of phones for a portable transceiver for holiday use. Most of the transceiver circuits in SPRAT require high Z phones. These are not common and most of the surplus ones around are heavy and bulky.

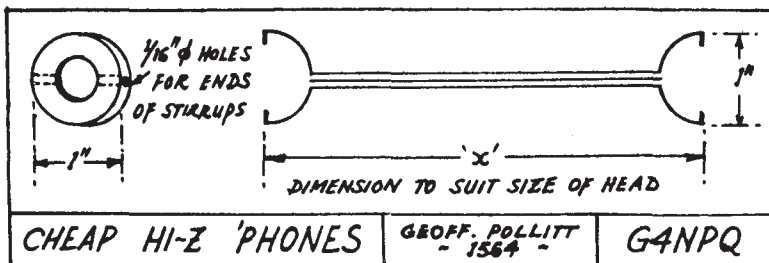
It was noticed at many of the recent radio rallies that large numbers of high Z microphone inserts were being offered, at prices between 20p and 50p. These inserts are made of aluminium, about 1 and an 1/8" diameter and 5/16" thick. They have numbers printed on the back, OL56002 and CDL 9/75. This last set of numbers varies and seems to be the month and year of manufacture. The DC resistance is about 700 ohms, and impedance is over 1K. They are, I believe, the mike/phone inserts from surplus Pye Bantam or similar transceivers.

A number of the inserts were bought and tried as earphones, and the results were very good. The audio response seems ideal for CW, and the sensitivity was good.

The headband was made by soldering three pieces of springey wire together, side by side, see the sketch. Paxolin washers, 1" diameter and 1/4" thick were cut out and glued onto the back of the inserts with epoxy adhesive. Rough up the aluminium with emery paper to provide a good key for the adhesive.

1/16" holes are drilled in the edge of each washer to take the ends of the "stirrups". The inserts are wired in series, and connections to the leads projecting from the inserts are made inside the 1/2" diameter holes in the centre of the washers. The holes are then filled with epoxy and this both insulates the connections and secures the leads.

To finish off the phones, thin sponge pads can be stuck on the front and trimmed off. Dimension x is best obtained by measuring over the head with a tape measure, "earhole to earhole". The finished item is a pair of lightweight 2000 ohms phones, costing £1 or less. The inserts are available from J. Birkett of Lincoln.



Paxolin "washer"
1" dia. 1/4" thick
1/2" dia. hole
2 off required
glue to back of
inserts

3 pieces 1/16" brass "brazing rod" or similar springy wire, laid side by side and soldered together at intervals. Centre piece cut short, and outside pieces bent to form stirrup shape to hold phones. Thread sleeving over wire before bending to pad headband.

....A SUITCASE COMPETITION ENTRY.....

THE FAG BOX(O) TRANSMITTER

By Chris Page G4BUE

When it was announced in SPRAT No.38 that there was to be a Club competition for a covert transmitter, I commenced a search throughout the house to find something in which to build it. My object was to have a spy transmitter, completely self-contained, and which could be carried in a pocket and escape a cursory search by the "enemy". My other object was to be able to use it in such a fashion so that if someone, (say the enemy), disturbed you while you were actually transmitting, you would stand a good chance of evading discovery of being a spy.

My search for a container ended when I was sitting next to a smoker in a restaurant one evening. I decided to build the rig inside a fliptop packet of twenty cigarettes, and having already decided to base the design on GM30XX's famous OXO rig, the FAG BOX(O) transmitter was born.

Having made up my mind that the transmitter, power supply and keyer would fit into the cigarette packet, Fig.1 shows how I accomplished this. I had to make up two PCBs, one for the oscillator and one for the PA, and they measured only 3/4 x 1 inch. The original keyer was simply a small push to make switch glued onto the case in such a position that when the transmitter is placed inside the cigarette packet, which in turn is placed on its side with the switch uppermost, the switch can be depressed through the side of the packet. The idea was to use the transmitter while it was inside the cigarette packet under actual spy operating conditions. The photograph shows the switch by the crystal next to the oscillator board. I later added a small strip of thin metal, just over an inch long, over the bottom of the battery, a spring like affect is achieved, which enables much better CW to be sent. I found that with this method I was able to send very accurate CW at speeds up to 15 w.p.m.

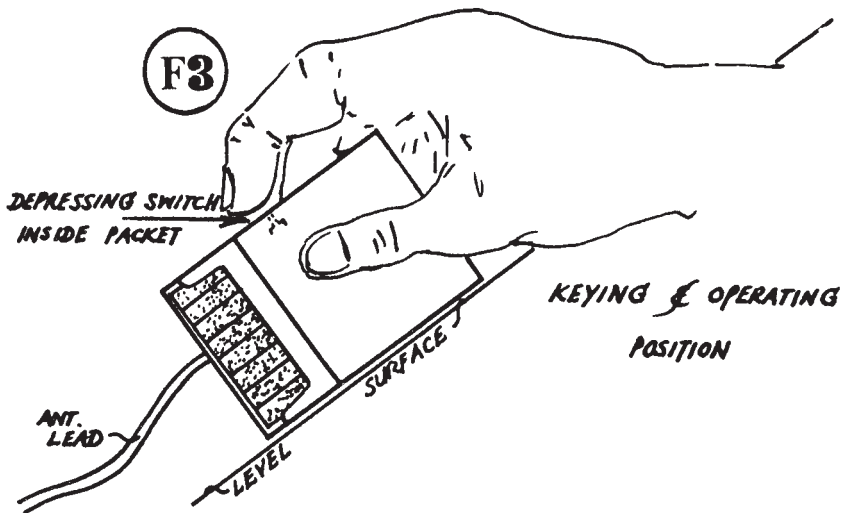
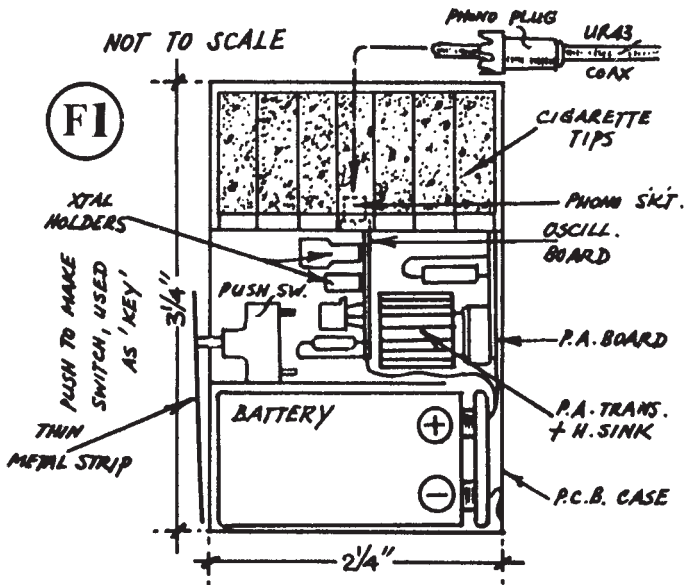
A phono socket is mounted on the top side of the PCB case, and is surrounded with the filter tip end of some of the cigarettes. This socket is for the antenna lead and is the only lead coming from the transmitter. When the transmitter is placed inside the cigarette packet, it looks like a genuine packet of cigarettes. Another bonus was that the weight of it is only very slightly heavier than a genuine packet of cigarettes.

The transmitter can be set up very quickly, by just connecting the antenna lead. If this lead went into a natural opening in the room, such as a chimney, and was on some form of spring, it would enable the transmitter to be disconnected very quickly by just giving it a sharp tug, should the "spy" be disturbed whilst transmitting. The transmitter would pull away from the phone plug on the antenna lead, which would spring away from sight into the chimney. If at the same time the "spy" was smoking a cigarette, what would look more natural than holding a packet of cigarettes in your hand?

There is no VXO, and the idea is that the "spy" would use the transmitter to transmit at pre-arranged times to his Headquarters, who would be constantly monitoring the frequency of the crystal used.

An advantage of this type of design is that when the cigarette packet becomes tatty, or you just feel like a change, you just slip the transmitter into a different packet. You cannot see it in the photograph, but the cigarette packet does not bear the usual Government health warning. This is due to the fact that the packet was purchased duty free whilst on a day trip to France. I wanted to maintain The G-QRP-CLUB's tradition of homebrewing as cheaply as possible!

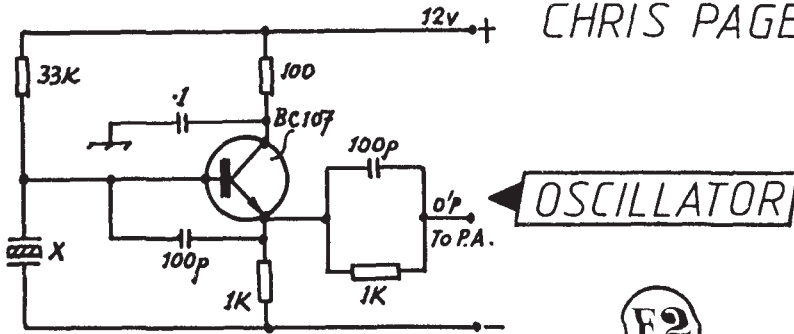
The construction is such that either large or small type crystals can be used, and the transmitter can be used on any band. I have neglected suppression of harmonics, but thought this would be acceptable, as it was a spy rig. I have used a BFY51 in the PA, and this gives approximately 500mW output, which was sufficient to work behind the Iron Curtain to Yugoslavia in mid-afternoon on 7MHz, and to UQ2 on 14MHz, with a G5RV at 35 feet.



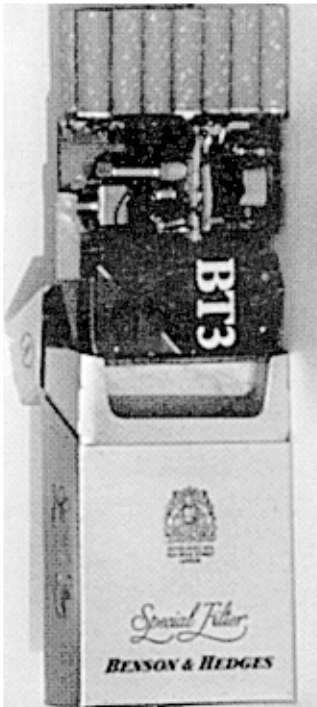
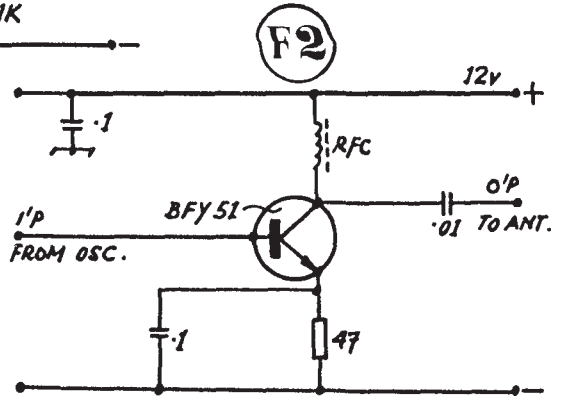
THE IFAG BOX (1)

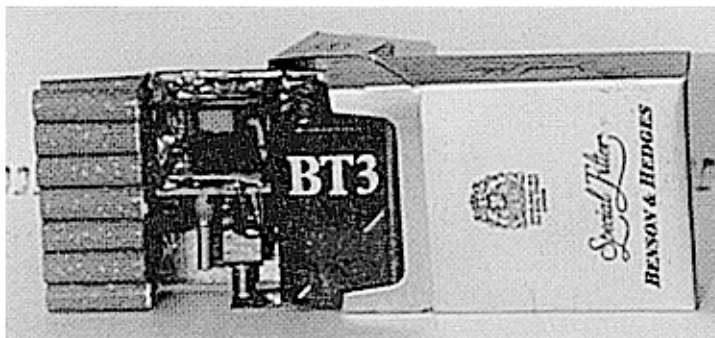
TRANSMITTER

CHRIS PAGE



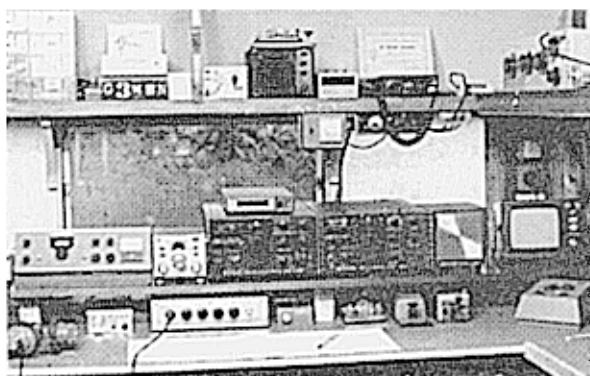
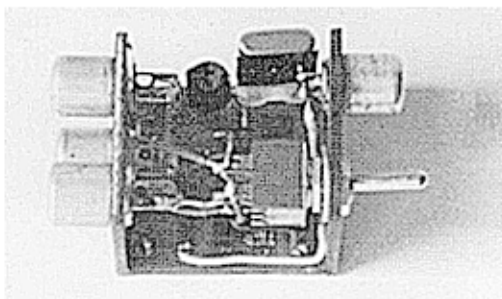
POWER AMP



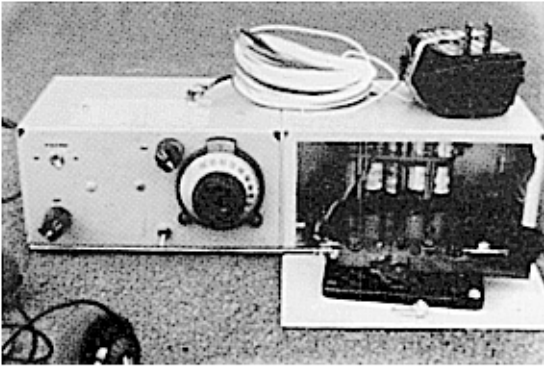


Another view of the G4BUE FAG BOX(O) Transmitter

The top view of the G3RJV version of the ONER. This is the standard board layout with front and back panels of PCB material bearing T/R switching and sockets (all phono) for key(front) antenna, receiver and 12v. This transmitter has been well used in working QRP Club members on 80 metres



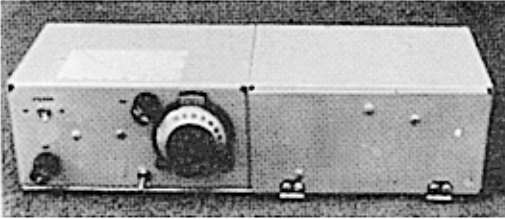
A photograph of the fine station of G3MBN. A good mixture of home built and some commercial equipment. The home built equipment includes a version of the Severn Transceiver.



Photograph of the MKII Suitcase
TSC Transceiver by "Mike" Michael,
W3TS, featured in the last issue
of SPRAT.

Mike is interested in obtaining
any circuitry or information
about WWII suitcase or manpack
sets. He would also like to
obtain a MKIII Suitcase Set.

See his small ad. elsewhere in
this issue. Contact Mike at:
D.A.Michael, W3TS. RD#1, Box 144
Lykens, PA 17048. U.S.A.



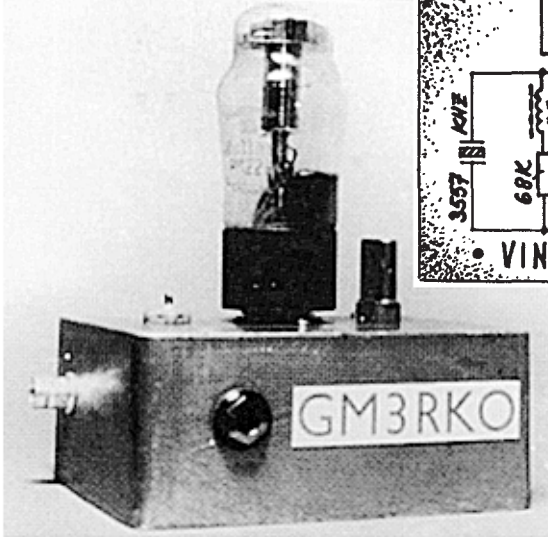
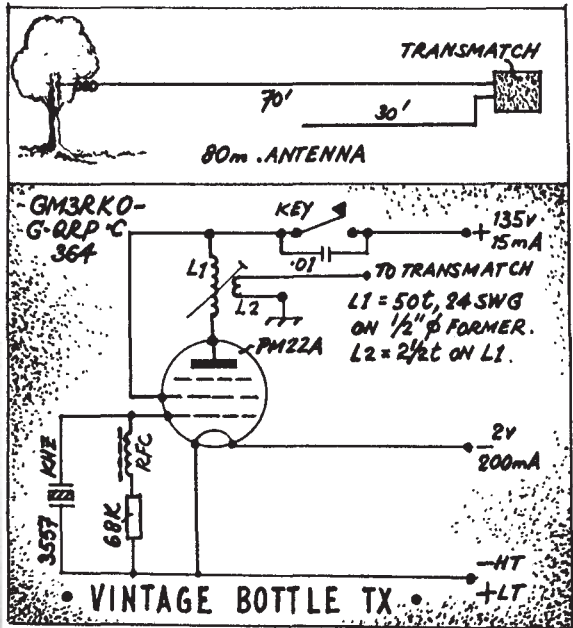
Ian, G3R00, our SSB Manager. pictured in his Dover shack during a visit from G3RJV.
Many of our UK readers will know Ian from his excellent articles in the Short Wave
Magazine.

Rumour has it that the item on the left of the bench is a QRO Linear!!

GOT ANY PHOTOGRAPHS?

Although we are limited in space in SPRAT, I am always pleased to receive prints
(pref. black/white good contrast) of members stations and items of home built QRP
radio equipment for publication in SPRAT or club display use. G3RJV.

REMEMBER THE BOTTLE COMPETITION?
 This fine transmitter was built
 and used by Nor. GM3RKO on 80m.
 The Valve (bottle) used was
 a PM22A.



Above is the circuit of Nor's transmitter.



The shack of Wim, PA3BUO.

Amongst Wim's homemade equipment is his version of the PW TEME Modular Transceiver. These are the four similar boxes in the centre of the photograph.

U S I N G A L I N E R T W O O N C W

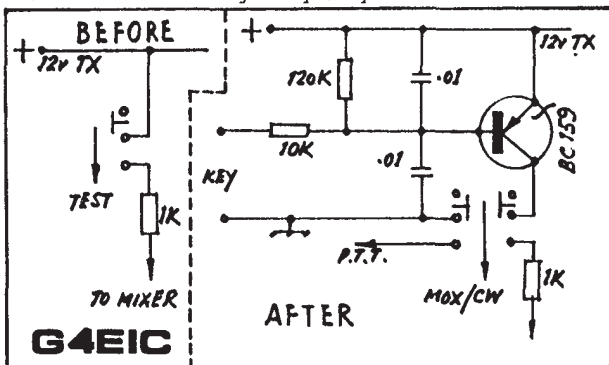
By Eric Calvert G4EIC

Thought I would jot this down to try and get a few more contacts on two metres. The HF bands have been so bad this year, I only have 20 or so entrees in my log book.

There are a lot of Liner 2 rigs on the second hand market just now, about three per Rad Com, and they are going quite cheap, (£50 or so). They cover the bottom end of two metres, unless you get a modified one, about 144.100 - 144.330. The rig covers the QRP calling frequencies for both SSB and CW.

I thought I would modify the rig to generate CW. There is a button on the front panel marked test, and this unbalances the mixer to put a carrier out for tuning purposes. The test switch is in fact a double pole changeover, so I made the circuit shown to interface my keyer, and with the second half of the unused switch put the rig to TX. To find out which side of the switch is which, put the rig to TX by the PTT on the mike, and with the test switch off, put a meter between the chassis and one side of the switch which should read +12V. A very handy place to wire the key is the external speaker jack on the rear panel. You will need to shorten the existing wires on the switch contact to keep the internal speaker going.

One point to watch out for is the power out. With my rig, the 12V rail gives three watts output on CW, but 13.8V gives about ten watts, and the note should be a good T9. If all else fails you can always change one crystal to cover 144.050 calling frequency!



MEMBERS SMALL ADS....

FOR SALE: Argonaut 509. Ex. condition, complete with manual, suitable PSU and original box. 5w SSB/CW on 80-10m. £230. Consider part exchange for Ten Tec Omni, Swan 102/103BX Yaesu FT101ZD or Trio TS520/530S. G3ZZD 01 348 9780.

FOR SALE: Ten Tec Argosy 1. Extras fitted: CW Filter, Audio Filters, Calibrator and Noise Blanker. Just Overhauled by KW. £320.
Yaesu FT77S. Extras fitted: CW Filter, FM Board, Calibrator. £310.
Phone Chris, G3TUX 0428-56255 in office hours.

FOR SALE: Argonaut 515 with CW/Notch Filter. Offers. Ring 045 36 3994

FOR SALE: Argonaut 515 in absolute mint condition. £280 or offers.
Adrian, G4GDR. QTHR or phone 0793 762970.

CORRECTION TO SPRAT ARTICLE: R.I.T. for the DSB80 Transceiver.

The following refer to both Fig1B and Fig2.B: S1a - swap the top/bottom connections. S1b - swap the top/bottom connections. (our thanks to Stuart, G3WQW)

WANTED: A schematic (circuit!) for an MCR RX and Coil Packs for Bands 2,3,6,4 and any information on suitcase sets & ground or pack sets.
Also wanted a MKIII Suitcase Set. D.A.Michael, W3TS, RD#1, Box144, Lykens, PA 17048.USA.

THE TOAST RACK ANTENNA

By Stewart GM4UTP

Way back in 1982 I designed and built the first Toast Rack Antenna, from which an article appeared in the FM News in later years. Here is an updated version that gives vertical or horizontal polarisation, using only the one coax feeder, two diodes, two leds and a resistor. In essence it is a six element quad, smaller in size than a commercial quad, i.e. 54 inches overall.

The antenna works a treat, as many of you may have heard who have worked GM1BXZ or GM4UTP. The elements are made up by bending small bore copper pipe or aluminium rod, quarter of an inch in diameter, around a bicycle wheel.

The motor to turn the driven element 90 degrees is an old windscreen wiper motor. It is modified by removing the transverse arm from its gear, and securing a 2.5 by 0.25 inch rod or tube to the centre of the same gear in the wiper gear box. To this rod is fitted a small nylon gear wheel.

The two gear wheels required were obtained from a scrap Qualcast electric lawn mower. The nylon larger gear wheel has the centre turned out to be a sliding fit over the white 1.5 inch plumbers pipe, (white pipe to be used as the grey type has been found to be useless at RF). The larger nylon gear wheel is secured to the plastic tubes, (which were obtained from a broken kids Wendy house).

The completed driven element is slipped into a slot cut in the ends of the vertical plastic tubes and then taped in place and varnished. Two plastic boss ends are cut, one being slipped over the boom and secured with three self tapping screws about 18 inches from one end of the boom. The driven element is then slipped over the boom to the first boss fitted, and is followed by the second boss, which is secured in the same fashion, making sure that the driven element is free to turn without any fore and aft play. The remaining elements can now be secured to the boom with self tap screws at the correct spacings, as given in the sketch.

The next step is to clamp the motor to the boom, making sure both gear wheels mesh. Run a twin wire from the motor to the shack, couple the coaxial cable to the driven element and tape it to the plastic vertical pipe, allowing sufficient slack on the boom for a 90 degree swing. Finish by taping along the boom and down the mast. Connect up the coax and wires in the shack and you are now ready for that rare DX, either vertical or horizontal, to come along.

At this stage I would like to thank GM1BXZ, GM1HZZ and GM3JPR for their help and assistance during the building and testing of the Toast Rack, and without whose help it would never have been completed.

Parts List

32 feet of small bore central heating pipe or half inch aluminium rod or brass pipe.
56 inches of white 1.5 inch OD plumbers water pipe.
1 elbow for the above pipe, (which when cut makes the two boss sections).
2 gear nylon wheels, (old Qualcast lawn mower).
Short lengths of plastic tube, (kids Wendy house is one source of suitable tube).
1 windscreen wiper motor, (try scrap car dealers).
1 resistor, two diodes, two leds, 1 DPDT switch.
2 BA bolts, a dozen self tap screws, tape, small fibreglass pad, glue and varnish.

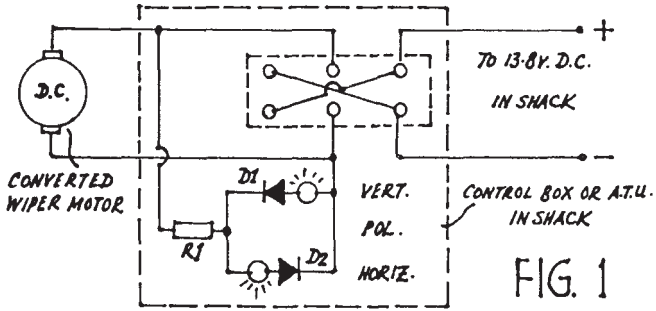


FIG. 1

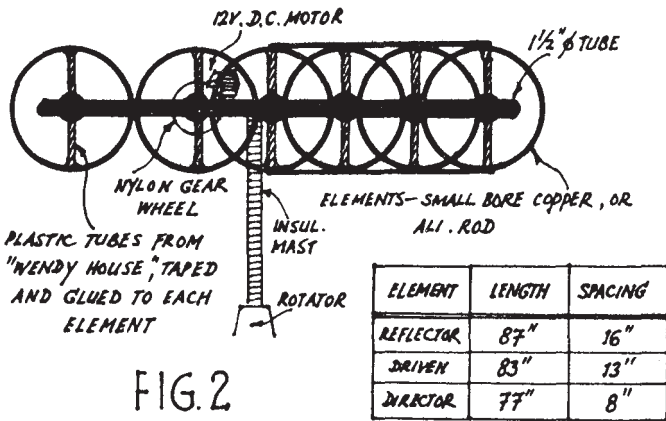


FIG. 2

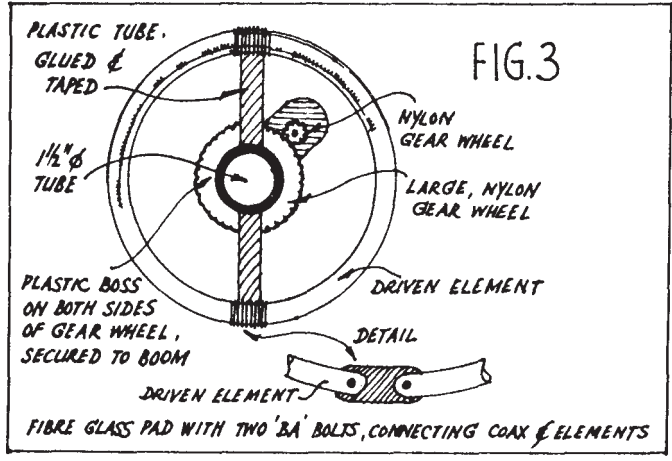


FIG. 3

THE "JAGGY" NOISE LIMITER

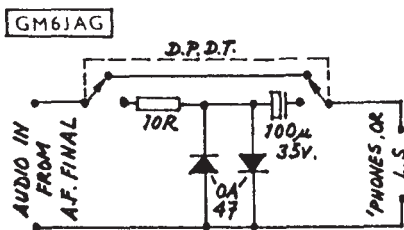
By Mel Evans GM6JAG

I built myself a Howes DC receiver for 80 metres, but found the local QRM from the power station distribution a bit too much, especially when added to the noise already existing on the band. With just four components and ten minutes work with the soldering iron, I improved the results as much as the CW and SSB audio filters I built and added into the kit. The improvement was so good that I have built another two, and fitted them to a couple of Heathkit rigs that I have.

Parts List

R1 10 ohms D1,D2 OA47 C1 100uF 35v wkg. S1 DPDT switch

Simply feed audio into one end and stick a speaker or phones on the other, easy!



· *Noise Limiter* ·

GOLLEDGE

ELECTRONICS

PETER GOLLEDGE

G3EDW


Ex- D2DW, VQ2W, 9J2W

SPECIAL "SPRAT" CRYSTAL OFFER TO MEMBERS. (PSE quote club Nr when ordering)

QRP Calling channels: HC-25/U, 30pF, 3560, 7030, 10106, 14060 kHz. Fundamental. Price £3.50 each
 21060, 28060 kHz. 3rd overtone. inc. VAT and UK post.

Also: 3540, 3550, 7025, 14030, 14040, 14050 kHz, Fundamental. and 28080 kHz 3rd overtone. Same price.

21060 and 28060 fundamentals also available at £4.75 each.



The above are normally available from stock. Further frequencies in the 10, 18, and 24 MHz bands will be added shortly. Any frequency of your choice, to the same specification, can be supplied in approximately 8 weeks at an inclusive price of £4.50. Overseas members please send the full, VAT incl., prices to allow for the extra cost of overseas despatches. PSE send SAE for lists of computer and marker freqs and filters. TEL: (0460) 73718

GOLLEDGE ELECTRONICS -- MERRIOTT -- SOMERSET -- TA16 5NS -- ENGLAND

IMPORTANT CLUB NOTICE.....

NEW MEMBERSHIP SECRETARY

FOLLOWING THE RESIGNATION OF FRED, G4HOM, AS MEMBERSHIP SECRETARY, WE ARE PLEASED TO ANNOUNCE THAT CHRIS PAGE, G4BUE, HAS AGREED TO TAKE ON THAT IMPORTANT ROLE WITHIN THE CLUB. WE THANK FRED FOR HIS WORK OVER THE LAST FEW YEARS.

FROM THIS ISSUE OF SPRAT:
MEMBERSHIP APPLICATIONS
CHANGES OF ADDRESS AND CALLSIGN
RESIGNATIONS OF MEMBERSHIP
QSL CARDS FOR THE CLUB DISTRIBUTION
ALL MUST BE SENT TO G4BUE:

C.J.PAGE,ALAMOSA,THE PADDOCKS,UPPER BEEDING,STEYNING,WEST SUSSEX.

ALL SUBSCRIPTION PAYMENTS
MUST BE SENT TO G4DVW:

ALAN LAKE, 7 MIDDLETON CLOSE, NUTHALL, NOTTINGHAM, NG16 1BX.

PLEASE QUOTE YOUR MEMBERSHIP NUMBER IN ALL THESE COMMUNICATIONS.

THE RAPID RISE IN SIZE OF THE CLUB IN RECENT YEARS HAS AT TIMES PUT ENORMOUS PRESSURE UPON THE WORKING OFFICERS OF THE CLUB. REMEMBER THAT WE ONLY PERFORM THESE FUNCTIONS AS PART OF OUR HOBBY, IN OUR LIMITED FREE TIME, WHEN WE MIGHT BE OPERATING OR CONSTRUCTING! SO PLEASE BE PATIENT WITH US AT TIMES WHEN DELAYS AND PROBLEMS OCCUR. CURRENTLY SEVERAL CHANGES ARE BEING MADE IN INTERNAL ORGANISATION AND WE HOPE THESE WILL IMPROVE THE SMOOTH RUNNING OF THE CLUB. INCLUDED AMONGST THESE IS THE WAY WE OPERATE SOME OF OUR CLUB ITEMS FOR SALE. WE REGRET TO ANNOUNCE, THAT UNTIL THE NEXT ISSUE OF SPRAT, WHEN ALTERNATIVE ARRANGEMENTS WILL BE ANNOUNCED, WE ARE UNABLE TO SUPPLY CLUB P.C.B.S AND CLUB QSL CARDS. BY THE NEXT ISSUE WE HOPE TO BE ABLE TO SUPPLY A BETTER CLUB QSL CARD SERVICE AND NOT ONLY A RANGE OF CLUB PRINTED CIRCUIT BOARDS, BUT ALSO A RANGE OF COMPONENTS COMMONLY USED IN OUR SORT OF PROJECTS. THE CLUB BADGES, KEYFOBS ETC. ARE STILL AVAILABLE FROM G4OPE.

G QRP CLUB LOGO SETS IN WATERSLIDE TRANSFERS:

A smart way to put the club logo onto equipment. 20 Club logos in two sizes in gold on black. £1.25 inc. postage

ALSO: RADIO LEGENDS IN WATER SLIDE TRANSFERS:

Add the finishing touch to home built equipment with lettering. Most common amateur radio legends in scratchproof white letters. £1.25 inc. John Kane, G4RKP, 74 Camden Mews, London. NW1 9BX. (Cheques:J.Kane).

PROPOGATION NEWS

By Gus Taylor G8PG

SPORADIC E FOR QRP

Sporadic E propogation is provided by reflection from clouds of heavily ionised gas, located just below the normal E layer. It can provide very good single hop working up to 1300 miles on 21 and 28MHz, and sometimes up to 50 or even 144MHz. As the path attenuation is extremely low, received signals are usually very strong, even when QRP is used. Peak months for sporadic E propogation are May to August with maximum activity in July.

Peak times are likely to be 1000-1200 and 1800-2000 local time. Sporadic E is not affected by the sunspot cycle, so it provides an important means of propogation for the QRP operator during sunspot minimum years on 21 and 28MHz, it being possible to have excellent QSOs all over Europe with a watt or so of power. This has been proved at G8PG during the summer of 1985. If the skip is found to be very short, with stations at around 300 miles audible, those with 50MHz capability should immediately monitor the band, as there are likely to be some very interesting openings.

Multiple hop sporadic E trans-Atlantic contacts on 21 and 28MHz have been made in the past at periods of fairly low sunspot activity, but so far no such openings have occurred when G8PG was active, although at least one G/W opening did take place in 1985. Many hours of pleasant contacts with Central and Western Europe have been provided by this mode, however.

As much more research into this type of propogation is required, QRP operators using it should note and publicise their results.

PHONING WWV

WWV propgation information is now available by telephone, a 30 second recorded bulletin giving the latest solar flux and geomagnetic activity A Index figures, together with a forecast of conditions for the next day.

The bulletin uses a female voice and is read rapidly, but the flux and A Index figures are repeated. Surprisingly, the quality of the recording is rather poor, but readable. The international number to dial from the U.K. is 0101 303 497 3235. At off peak times the cost of the call should be made for under 50p from the U.K.

At the present state of the sunspot cycle a solar flux of 80 and an A Index of 5 would indicate very good conditions, whilst a solar flux of 70 and an A Index of 13 would indicate fairly good conditions. "Good" in this sense is relative to the low sunspot numbers currently being measured.

SMALL ADS.....

WANTED: Bug Keys, any semi-automatic mechanical keys by McElroy, Lionel, Vibroplex etc. any age, any condition. Colin G3TSS would also like to hear from US Members with bugs for sale or can give him information the Telegraph Apparatus Co. of Chicago, Ill. Colin Waters, G3TSS, 1. Chantry Estate, Corbridge, Northumberland. NE45 5JH.

INFORMATION: Has any club member had succes with "stereo-code" CW filtering? If so please contact Dave, G3KMG, Rose Cottage, Castleside, Consett. Co. Durham. DH8 9AW.

WANTED: IC202 (S preferred) £100-120 available. Andrew, G8UBG. 0242 518591 (not QTHR)

WANTED: HW8 (or 80m QRP transceiver). Frank. 051 486 4816.

FOR SALE: Argosy plus PSU, Keyer, ATU and Trapped wire Dipole with supports. Handbooks. Good condx. £100 the lot. John, G4JRE. Harrogate 62833.

VHF NEWS

John Beech, G8SEQ, 14 Hollow Crescent, Radford, Coventry, CV6 1NT.
(Tel: 0203.598186)

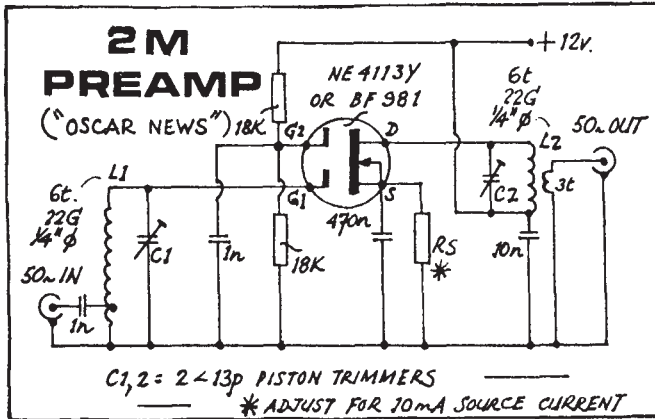
Reading the November issue of "Rad Com", I was reminded of a VHF reception mode that Heinz, OE6HS, referred to as "FLASH". This is enhanced reception of weak VHF signals. When there is a lightning stroke between you and the distant station. I wonder if any other members have had experience of this mode?

Well, QRP operators should have had a field day on VHF when the week long lift was on. The only day I got a chance to get on the air, I could hear stations all around me calling Holland and Denmark, but could hear nothing from that direction. I suspect that my little hollow was below the duct!

Perhaps I should build the pre-amp described below. It's from Bob, G4MWR, (via Dave G6VMQ), and was originally published in Oscar News. Bob says it should be built on double sided copper clad board, keeping the leads as short as possible, and using an earthed soldering iron to avoid damage to the FET. Piston trimmers should be used for C1 and C2. The source resistor should be adjusted for about 10mA to give the lowest noise figure, (I suggest 270 ohms as a starting point). Lastly, if the amp tends to oscillate, reduce the supply voltage downwards to 8 volts.

No doubt you could use the copper strip and super glue construction mentioned in the last SPRAT for this one to.

Finally the VHF Data Pack is now ready, 50p and a large SAE to the above address.



DC30P Kit Offer Double sided PCB and construction notes £6. Kit of parts less box, £35, full kit £40. These prices include U.K. postage and packing. Overseas members, please write for price quote. Also available DC40P and DC80P at same price. Three band kit covering 80, 40 and 30 metres, £55, full kit only. Send orders to John Beech, G8SEQ, 14 Hollow Crescent, Radford, Coventry. CV6 1NT.

PONTEFRACT & DISTRICT AMATEUR RADIO SOCIETY
COMPONENTS FAIR SUNDAY, MARCH 16TH, 1986, CARLETON COMMUNITY CENTRE
THE RADIO RALLY THAT HAS **NO** BLACK BOX EQUIPMENT FOR SALE, ONLY STALLS OF COMPONENTS, KITS, TEST EQUIPMENT AND A FEW SECOND HAND ITEMS OF GEAR. CATERING, BAR, TWO METRE TALK-IN STATION, THE CONSTRUCTOR'S RALLY.

THE SUFFOLK TROPHY

A member, who wishes to remain anonymous, has presented the above to the Club. On behalf of all the members we thank him most sincerely. The Committee have decided that the Trophy, which will take the form of a small memento type trophy and a book token value £15, will be used to encourage activity in the Region 1 QRP Day, which is on the 17th June each year. The details are as follows:-

Eligibility Any member of the G-QRP-CLUB

When Annually on Region 1 QRP Day, 17th June

Period Any six hours during the day, taken in not more than two periods. Start/finish times of periods to be shown in the log.

Contacts Contacts with any station in IARU Region 1 count

Form of Contact Normal QSOs, there are no special contest exchanges.

Bands Any bands for which the operator is licensed.

Power Not to exceed 3 watts RF output (CW) or 10 watts PEP (SSB).

Scoring Each Region 1 country contacted on each band counts 1 point. The claimed score should be the total of IARU Region 1 countries contacted on all bands used. For example 6 countries on 7MHz and 16 on 14MHz give a score of 23. Only 1 contact per country per band is allowed, irrespective of mode.

Entries These should give name, address, call, power and mode used, brief equipment details, and the call sign, time and band of each contact claimed for scoring purposes. A summary giving the claimed score for each band and the overall claimed score must be included.

Entries to A.D. Taylor, G8PG, 37 Pickerill Road, Greasby, Merseyside, L49 3ND to be received by 17th July. any received after that date will be disallowed.

Awards At the discretion of the Committee the winner will receive a memento trophy and a book token for £15. Second and third will receive merit certificates.

Put this one on your calendar. QRP Day is OUR day!

Congratulations to the following for the awards indicated:-

QRP Countries Award 75 OK1DKR; 50 G4MEW; 25 DL2HCB, G4SBU

Worked G-QRP-Club Award 340 GM3OXX; 200 G4JFN; 140 G4CQK; 120 G4FAI; 100 GI4MBO; 80 G3BFR, G4SBU; 20 G4MEW, GM4XQJ, WB2IPX, G4MSN, DL2HCB, G4VGA

Two-Way QRP Award 20 G3BFR; 10 G4MEW, DL2HCB, OK1DKR

NEW MASTER Hearty congratulations to Frank, G3BFR, who has qualified as QRP Master No.19. Well done OM.

CONTEST REMINDER FROM AGCW-DL

The AGCW-DL wish to remind us of their QRP Contests to be held early in 1986 as follows :-

Happy New Year Contest 1st January 1986

AGCW-DL QRP Winter Contest 18th January 1986

AGCW-DL Straight Key Party 1st February 1986

The rules are the same as for previous years, and can either be obtained from back issues of SPRAT or by writing to Joachim Haese, DL6NAK,



"Alamosa", The Paddocks, Upper Beeding,
Steyning, West Sussex, BN4 3JW

It would appear that the RSGB HF Convention, The Yeovil QRP Convention and the Leicester Exhibition provided good opportunities for Club members to meet each other. From the letters received here it is very encouraging to read that members are getting to know each other personally and building on the friendships that have been started on the QRP frequencies. This can only help to strengthen the whole QRP fraternity and the Club in general.

I was only able to attend the RSGB HF Convention this year, but it is interesting to note that of the 450 or so persons who attended almost 100 of them were members who signed in at the Club Stand. May I say a big

public thankyou to Cyril, G4PUU who helped me out on the stand. The presentations were well attended and 25 new members were recruited during the day. The sad thing was that it was held over the Late Summer Activity Week-end, but from the comments received here, the poor conditions put paid to most of the activity. Because of the bad conditions I am not arranging any activity week-ends for 1986, except the traditional QRP Winter Sports from the 26 to 31 December.

Talking of meeting members, I have had to slightly change my plans for my visit to the USA in 1986. Pam has decided to postpone her first visit to the USA until 1987, but has agreed to let me go on my own in 1986. The ARCI gang, will again be promoting the QRP scene at the big Dayton Convention at the end of April. Les, WB2IPX has already written to me about it. I have decided to go over the week before Dayton, and visit the Fresno Convention in California. Bob, W6SKQ has said he will try and arrange something so I can meet some of the W6 QRPers there. The week after Dayton I shall be going to The FOC Dinner at Danbury in Connecticut.

Those members who have written to me about being paired with ARCI members for the payment of subs, hold tight, I shall hopefully have some information for you in the next issue.

G4ETJ was a member who attended the Yeovil Convention, and reckoned about 75% of the people in the audience for G4FAI's presentation were Club members. Reg said a total of 128 members signed in at the Club stand. G3XJS said he had a good time at Yeovil. Peter won second prize in the draw and found he had won a fist mike! He has recently purchased a Drake 2B receiver which he is very pleased with. G3RJV has also got one and is equally pleased with it. It is unfortunate that the RSGB and Yeovil Conventions are so close together. I am sure they would both be better attended if there was a greater separation between them.

KN1H is moving to a new 2.5 acre QTH at 1000 feet asl! John mentions having a mini QRP Convention at the Deerfield Hamfest in New Hampshire recently with several other Club members. Still in the US, N5BA worked 3B8CF on 80 metres recently. It counted as a new country for Brian's QRO 5BDXCC, which he is now nearing completion. Down in Virginia, K7YHA has got the tower bug. Rich is putting a TA33 on a tower which he hopes will assist with the bottom part of the sun spot cycle.

GM30XX writes about the visit of G3RJV to his QTH in September. George had 25 members there and the highlight of the party was a homebrew copy of the Bencher paddle built by GM0LNP. Around the other side of the world ZL1ABS put on a QRP display at The Northshore Hamfest in September. Mike had quite a few visitors including Club members ZL1HV, BNV and ST. EA5EVS is a new member. Francisco joined the Club as a result of visiting Cyril, G4PUU in Oxford.

Two days time I am going over to the G3VTT QTH to help Colin put a TA33 on top of his tower. The new antenna scheme was planned while we were in the USA earlier this year, and those who saw the photograph in SWM and PW of my collapsed tower a little while ago would not recognise the same tower standing as steady as a rock at the far end of Colin's garden!

G4KRN is another new member, who managed to meet up with I7CCF during the Activity Week-end. Alan is QRV with a two transistor TX, (BFY51/BD139), which gives two watts out on 20, 30 and 40 metres. Talking of Felix, he tells me he is QRV on RTTY with 5 watts using a Commodore C64.

New Century 22 transceivers are being used at the G8PG and GM3MXN QTH's with both Gus and Tom reporting good results with them. W6SKQ mentions a visit that Fred, W5QJM made to W6 in August and was the excuse for the local QRPers to get together. Bob will be off on a trip to KH6 and JA by the time you read this.

Has GW3ATM worked the first VK with an OXO? Doug worked VK3MR on 10MHz recently with 850mW from his OXO, receiving a 229 report. As a result of the QSO Doug has sent VK3MK details of the OXO as Snow wants to try it on his rhombic antennas. Nice one Doug!! Hats off to another QRPer - G4XNP. Dave has recently changed from using 5 watts of SSB to 3 watts of CW. After the first station he called came straight back to him, Dave said "the next 10 minutes were a mixture of panic, rapidly deteriorating morse and chronic amnesia. Nobody tells you that its difficult to check the meter on the incoming signal while trying to decode the first over at the same time as trying to work out what to say in return, and this is only a hobby!" Dave said he enjoyed the experience and has since gone on to have QSOs with EA and I with his Argosy and Skeleton Cone antenna. I quoted Dave's words in the hope they may give encouragement to other members who maybe hesitant of coming on CW.

PA3ALM has told me about the Day of the Amateur held at the end of October in Amsterdam. Dick said it included an exhibition of homebrew QRP gear put on by members of the Benelux QRP Club. On a personal note Dick said he is QRV on 40 and 80 metres with homebrew gear having sold all his JA black boxes. G3LGX says he is a valve man. Alex uses a TT11 which is a war time radar beam tetrode. G4ELZ is using a homebrew rig on 80 metres. Jeff's rig gives 900mW from a BFY51.

GM4XQJ has been following mine and Colin's stories of our USA trip in SWM. He tells me he had built my Fag box(o) spy TX within two hours of SWM coming through his letter box! Francois was QRV as F/ONSAG whilst on holiday this summer. He managed to work several G members. DJ1ZB was also QRV whilst on holiday from EA8. Ha-Jo was on 14MHz with his Lagos QRPeter and worked around Europe with a dipole at 4 metres. He is working on a new transceiver, and passes the news that Herbert, DL1MAM has been very QRV at work to the detriment of QRP. G4OKN has worked I, YU and UA with three watts, after initially trying QRP with a wound down FT101Z.

Hope to see you in the Winter Sports, and keep an eye on 28Mz; a couple of weeks back I worked ZS3/W6QL with the Argonaut, and no other Europeans were calling the DXpedition! The first week-end in February will see the G/OK QRP tests, a first time event, so let's make it a success. Just time to wish you all the very best for 1986, and if the latest forecast that the present cycle will bottom out in August is right, perhaps it will be a good year. Let me know how your Winter goes, by 20th February please.

73,

Chris

WPO COMMUNICATIONS



micron

6 BAND 8/10W CW TRANSCEIVER

OUR LATEST TRANSCEIVER KIT, setting new standards in QRP performance. **LOOK AT THESE FEATURES** - a 6 band CW only 8/10W output rig covering the 80, 40, 30, 20, 15 & 10m bands (bottom 200kHz of each). 0.25uV sensitivity receiver, featuring AGC, with S Meter. Stable 2 speed VFO with IRT (Spot facility), 1W AF output to speaker, and 3 position LC filter + switchable attenuator. Silent solid state Rx/Tx switching with fast semi break-in and shaped keying. Sidetone facility. **Fully variable** RF power output for QRP work from OW to full power with metering. Needs +12v/14v supply.

PLUS CUSTOM punched & painted aluminium case / hardware and speaker with unique facility for **optional INTERNAL ATU** (Transmatch type) & SWR metering. **DIGITAL READOUT** option. The **MICRON** uses a compact single pcb design with easy step-by-step assembly instructions and drawings designed for the relative newcomer - minimal test equipment needed! Mostly prewound coils and transformers. High grade double sided pcb, drilled and screened with component positions.

PRICES: Basic pcb kit inc VFO capacitor/drive/enclosure, for 2 bands (state which) £99.45 - extra bands £11.75 each. Full pcb kit for 6 bands Tx/Rx £145. Case £46.20. **COMPLETE KIT WITH CASE /6 BANDS £182.50.** Optional extras - Digital readout (LCD) kit £33.56, and ATU Kit (for internal mounting) with SWR/Power metering £37.00. **COMPLETE KIT/CASE/DISPLAY/ATU - £241.00.**

Phone or write for full brochure on the MICRON or place your order now!
MAIL ORDER ONLY - Overseas please use UK prices to allow for carriage.

20 FARNHAM AVENUE, HASSOCKS G3WPO
WEST SUSSEX BN6 8NS MAIL ORDER ONLY

24hr
Ansephone

07918 6149

