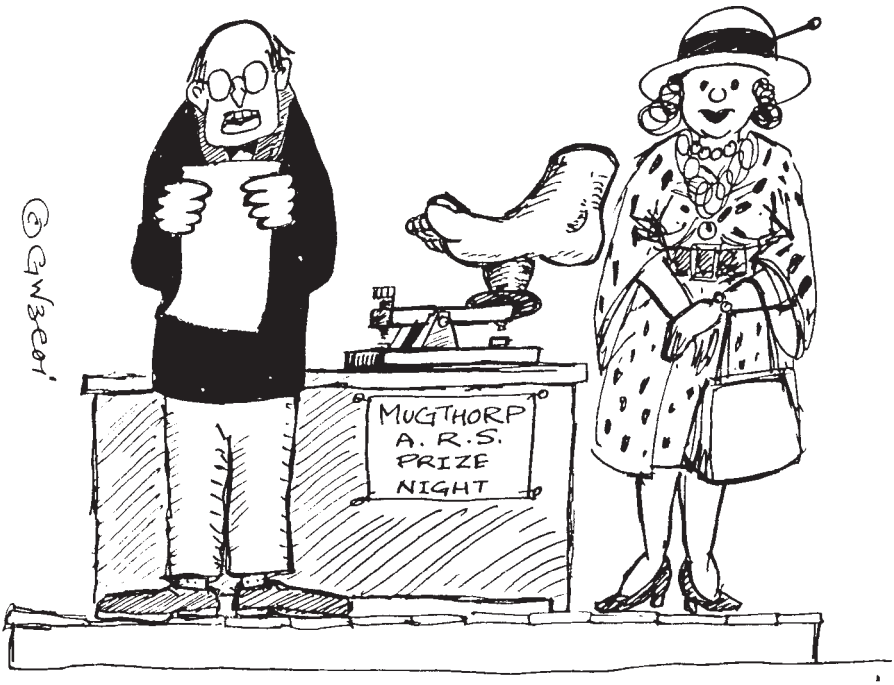
SPRAT

THE JOURNAL OF THE G-QRP CLUB

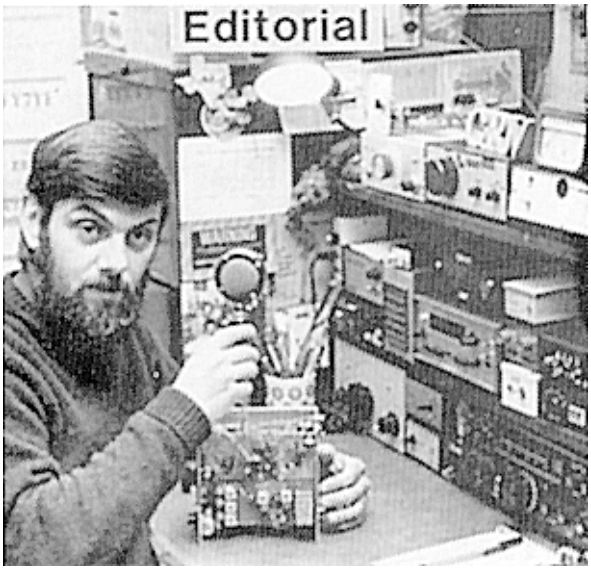
DEVOTED·TO·LOW·POWER·COMMUNICATION

ISSUE NR. 74 | © G-QRP CLUB | SPRING 1993



"...AND NOW MY WIFE WILL PRESENT THE CLUB'S POOREST - OPERATOR - OF - THE - YEAR AWARD..."

GOOD NIGHT ON 40m - WHITE ROSE LINEARS - 8044 TOUCH PADDLES
MULTIBAND VALVE TX - SIMPLE CHANGEOVER - SHORT 40m DIPOLE
THE PUFFER - VXO FOR 15m - 20m SUPERHET - SIMPLE Q METER
OSCILLATOR IDEA - UNIVERSAL HF CONVERTER - CHATTERBOX MODS
SOLDERING AID - ARGO 509 IMPROVEMENT - PCB PAD CUTTER
G3ROO CONSTRUCTION - NOVICE NEWS - VHF NEWS - SSB NEWS
CONTEST DETAILS - QRP COMMUNICATIONS FORUM - MEMBERS NEWS



© G-QRP CLUB

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

Rev.George Dobbs G3RJV

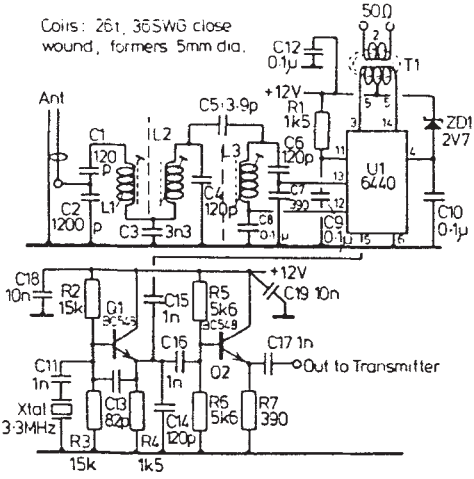
A request for a little help. As usual, we hope to run a club stand at the RSGB National Convention at the NEC in Birmingham. It is on the weekend May 15/16th although, as yet, I have heard nothing from the RSGB about the Convention. This year I will not be attending because it is very close to my visit to HamCom '93 in Arlington, Texas. Norman Field, G4LQF will co-ordinate the club efforts. If you hope to attend and would like to give a little time on the club stand, please let me know and I will pass the names to Norman.

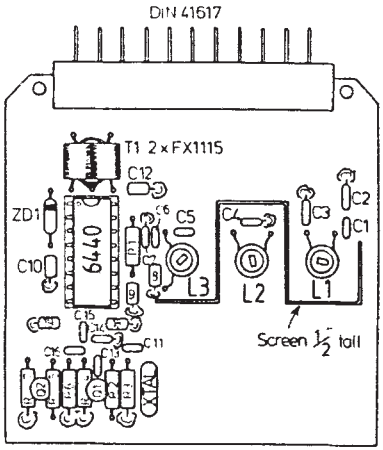
We have a policy that each issue of SPRAT is two-thirds technical content. This time I have failed ! There was so much textual and news copy that some of the circuits, projects etc. have be pushed aside, even although I shortened some of the text. Next time I hope to return to the normal balance. Please keep sending in your items for SPRAT. Remember that we do not require anyone to be a technical author - all we ask for are drawings [or sketches] with simple brief notes. Please help us by including all values on circuits. All SPRAT material should be sent to me at the address above.

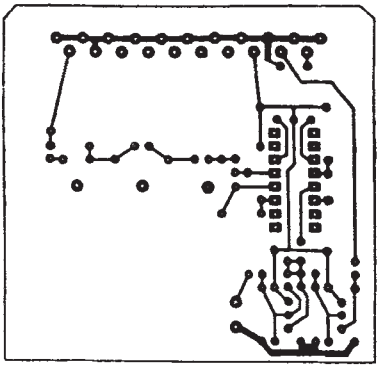
72/73 fer nw

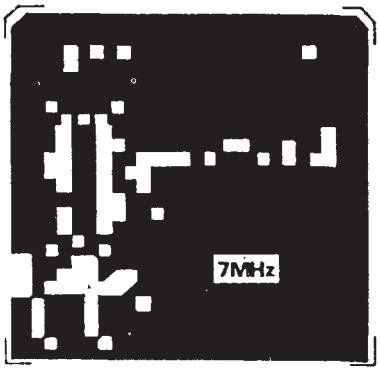
GOOD NIGHT on 40m

A Superior 7MHz Converter for the White Rose or the G3TDZ Phasing Receiver.









The acid test of a receiver's dynamic capabilities has to be how it handles the 40m band at night; many a receiver's daytime performance whilst quite adequate, is put under strain after dark. The White Rose Receiver suffered a degree of mushiness under these conditions; an attenuator in the form of a 5k pot in series with the aerial lead to the converter worked wonders; however a front end capable of handling the worst conditions seems a better design aim.

In this new circuit there is no RF stage, but a triple tuned input circuit directly feeds the 6440 high level mixer. Injection is from a simple fundamental mode crystal oscillator; a buffer then feeds the transmitter exciter, L1, L2 are bottom capacitor coupled, L2, L3 top capacitor coupled; capacitor taps at each end avoid either link windings or tapped coils.

5 Watt Plug-in Linear Amplifiers for The White Rose Project

John R. Hey G3TDZ, 8 Armley Grange Crescent, Leeds, LS12 3QL

When are we going to have a power amplifier? They have all been asking. Here then is a 5Watt linear plug-in power amplifiers for use with the White Rose SSB exciter (Sprat 66).

After an input frequency selector L6, C36, C37, the popular 2N3866 driver is transformer coupled to the output pair of CB transistors 2SC1969. Quiescent current is set by VR5; the temperature sensing transistor Q5 super-glued to the heat sink, and Q6 control working current. Following the output transformer, a low pass filter which has notches at the second and third harmonics, leaves a very clean SSB signal.

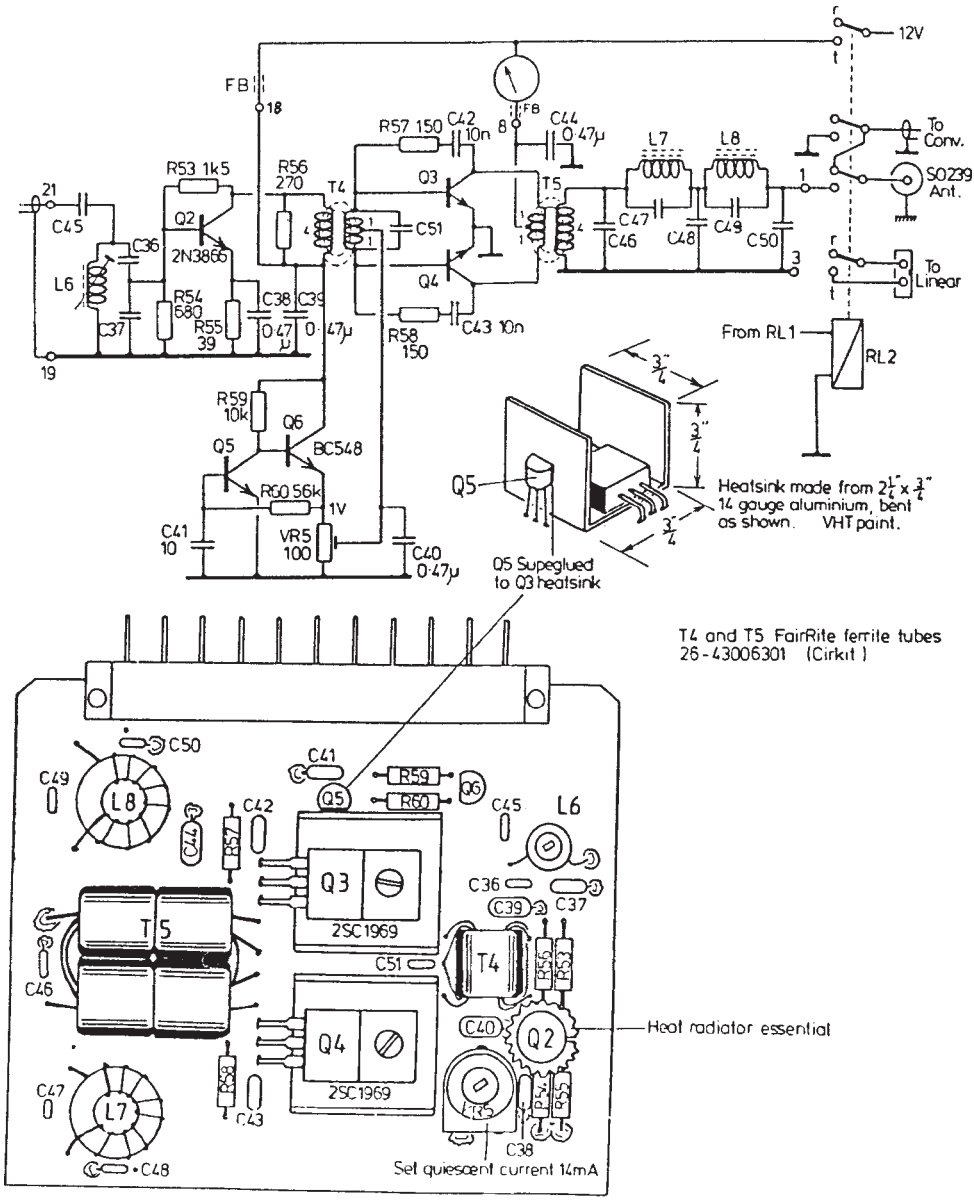
With so few turns, the driver and output transformers are very easy to wind. For convenience, the four ferrite tubes of T5 may be held together with masking tape. Component values are as follows:

G3TDZ 5W LINEAR AMPLIFIER PCBs ARE AVAILABLE FROM
Mr. David Aizlewood, 36 King Street, Winterton, Scunthorpe, Sth Humberside, DN15 9TP
For £3.25 each including postage
Please send a Self Addressed Sticker with your order

Component values for G3TDZ plug-in Power Amp.

	160m	80m	40m	20m	15m	10m
L6	63t 40SWG	44t 40SWG	31t 36SWG	22t 30SWG	14t 28SWG	12t 26SWG
C36	390p	220p	120p	56p	39p	27p
C37	1n5	1000p	470p	220p	150p	100p
C45	56p	68p	100p	56p	39p	27p
C46	1000p	470+68p	270+100p	180p	100+15p	47+16p
C47	100+39p	68+10p	27+3·9p	15p	10p	8·2+2·7p
C48	2000p	1000p	680p	330p	180+27p	100p
C49	330+27p	180+33p	39+39p	39p	15+15p	33+22p
C50	1000p	330+120p	330p	120+39p	100p	39p
C51	——	not fitted	——	330p	330p	330p
L7	33t T50-2	23t T50-2	19t T50-2	15t T50-6	12t T50-6	9t T50-6
L8	31t T50-2	21t T50-2	18t T50-2	14t T50-6	11t T50-6	8t T50-6

Toroids L7, L8 are wound with 24SWG enamel.

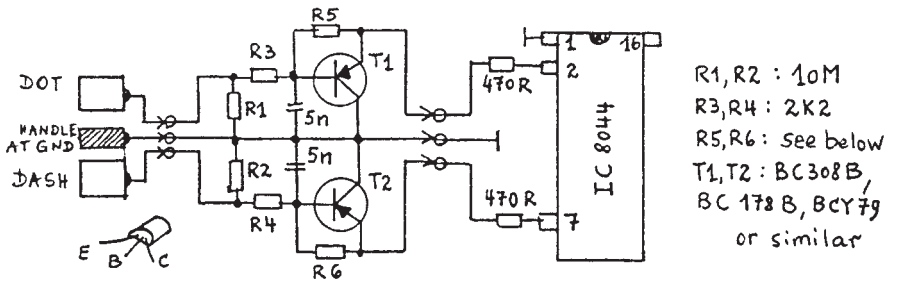


G3TDZ Power amplifier

Cheap'n Easy Touch Paddles for the Curtis 8044 Chip

Bernhard Szymaniak DL7GK, Fritz-Remy-Str.9, D-6050 Offenbach/M

The 8044 apparently was not designed to be operated by touch-paddles. To get rid of that heavy clattering mechanical twinlever squeeze-paddle, I tried the following circuit with a few parts from the junk-box with success:



The circuit does not require any extra power-supply. It gets the operating voltage from pins 2 and/or 7 of the 8044. Unlike other, capacitive working touch-paddles, this one works on a resistive basis. Touching the paddles, places the skin-resistance in parallel to R1/R2 and starts the keyer. It can be used in a squeeze manner. Almost any PNP-transistors will work but they should have high current - gain. Remaining part-values were found by solder-and-try, where R5/R6 depends highly on the voltage applied to pin 16 of the 8044 and the BJT's beta.

Voltage on pin 16	R5/R6 each	Quiescent Current	key-down
5 - 6 V	680 k	1.5 µA	3.5 - 5 mA
7 - 9 V	330 k	2 - 3 µA	7 - 9 mA

Currents measured from pin 16, side-tone-amp turned off. To obtain these low quiescent currents determine the exact values of R5/R6 by using temporary two 1 M-variable resistors instead. Adjust the variables slowly until the current is set. Then measure the adjusted resistances and replace them by fixed resistors of next appropriate standard values.

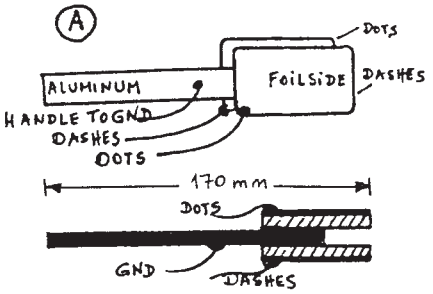
For even lower supply voltage, the parts values were slightly changed. PNP-Darlington-Transistors BC 516 were used. Among US-Type transistors MPS-A62 and MPS-A64 should work well. R1/R2 were lowered to 7 M 5. Operating conditions were:

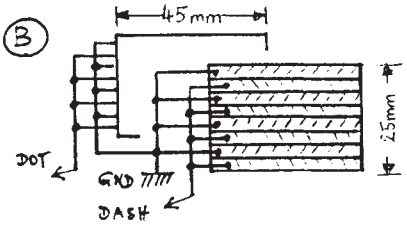
Voltage on pin 16	each R5/R6	Quiescent Current	Key-down
3,6 - 4,5 V	1 M 5	3 µA	2 mA

Exact values for R5/R6 were found by using 2 M-variables and following the method described above. In general: The larger R5/R6 and the higher the supply voltage, the more sensitive the paddles will react, with rising quiescent current at the same time. According to the Data-Sheet, the quiescent current can rise up to 50 µA at 5 v.DC while the total operating current can reach 30 mA key-down.

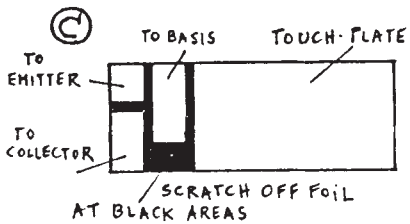
After a couple weeks of operation, no deficiencies or mal-functions occurred. Even a test-run of over one hour key-down (without TX of course) didn't any harm to the 8044.

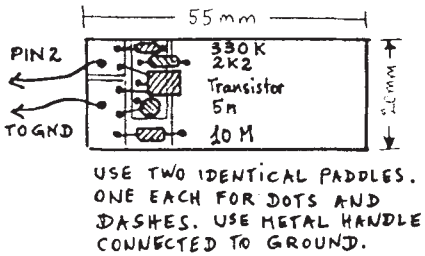
I use hand-held touch-paddles for they are very lightweight and resistant for bad treatment. I made them from scratch. The simplest one (Fig.A) consists of a piece of Aluminium which is the handle and two pieces of single-sided glass-epoxy board, glued to the handle with a drop of super-glue. The handle is connected to ground. A second one (Fig.B) was made from a piece of solid plastics as a handle with two pieces of a perforated experimentation board with strip-lined foil-side. Every second stripe is backside wired together and connected to ground. The stripes in between are wired also and connected to the Hi-Z-inputs of R1/R2 respectively.





Finally, a third paddle was made with all the components on board. (Fig.C) This is of advantage where the additional parts can't or shouldn't be incorporated into the TX. It is possible to just "plug in" the completed touch-paddle. It is made from a metal handle which is connected to ground and two pieces single-sided glass-epoxy. See sketch for parts-mounting.





In all cases I used shielded wires from paddles to keyer. No RF-side-effects were detected with power levels up to 100 W. One has to care for the touching-plates. Dirt, sweat e.g. can reduce the conductivity. Sometimes, the copper foil of PCB's oxidise. I found touching-plates made from tinned sheet-metal and glued to a piece of solid plastics a good choice.

A MULTI-BAND VALVE 10w QSK TRANSCEIVER

Igor Grigorow UZ3ZK, BOX 68, BELGOROD 15, 308015, Russia.

I built the G0ILL Tube direct conversion receiver in SPRAT67 and desired to turn the receiver into a transceiver. I made several versions the final one being on a PC Board 150x200 mm with plug-in inductors in old tube sockets. The stability is not good on 24 and 28MHz but good on the lower bands. I used Soviet tubes, but alternatives are given.

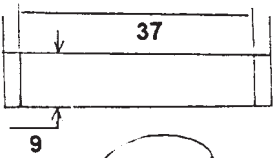
Inductors for Transceiver

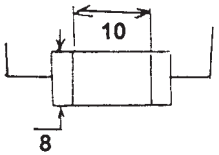
Band MHz	1.8	3.5	7	10	14	18	21	24	28
L3 *	- 120/30	- 70/20	28 -	18 -	15 -	15 -	14 -	11 -	11 -
C3	1000	800	600	600	500	400	300	300	200
L2, L5 L6, L7*	- 120/20	- 60/20	25 -	19 -	15 -	14 -	11 -	10 -	10 -
C4,7,9, 18	200	200	180	150	120	100	100	91	62
L8*	53/45	27/45	14/40	10/45	8/45	7/45	7/45	6/45	6/45
C31	150	150	120	120	100	100	80	50	30
C32	2000	2000	1500	1200	100	600	600	500	300
C26	1500	1000	1000	1000	470	470	390	300	300

* First column : number of turns, Second : Length in mm, ** dia. of L8 is 34mm.

Possible Alternative Valves [G3FCK]

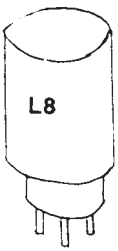
V	Russian	B7G	B9A	Int. Octal
1	6*1N	-	EF50, EF80	6F6, 6J7, 6AG6
2	6*2N	6AU6,6AK7,EF91	EF50,6BW6,EF80	6J7
3	CT1N	0A2	-	VR150/30
4	6H2N	6J6	12AX7,12AT7,6BQ7A,12AU7	6N7,6AS7,6SL7,6SN7
5	6*2N	ALL	AS FOR	V2
6	6N15N	6AQ5	6CL6,6BW6,5763,EL84	6F6,6AG6,6V6,6L6
7	6H2N	ALL	AS FOR	V4





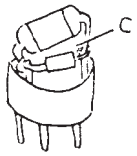
Version 1: The Inductors wound on ceramic resistors type MAT

Version 2 : wound on type BC2 [Russian Resistor Types]



Base from Old Valve

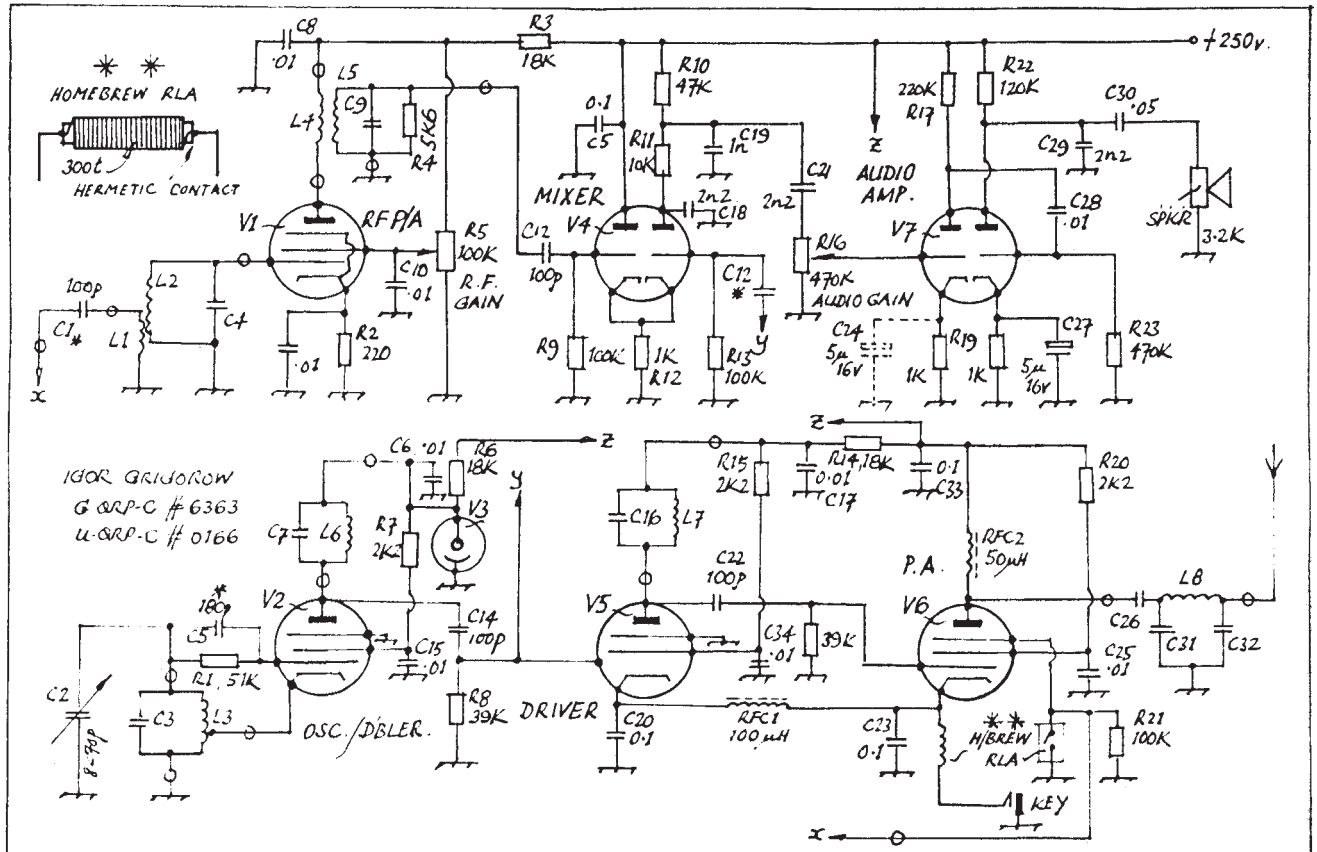
Socket from Old Valve



UZ3ZK PLUG-IN INDUCTORS

L5,L6,L7
L2,L3

International Readers : For 'Valve' read 'Tube' !



UZ3ZK 10WATT QSK TRANSCEIVER

A Simple Change-Over System For Novice Use

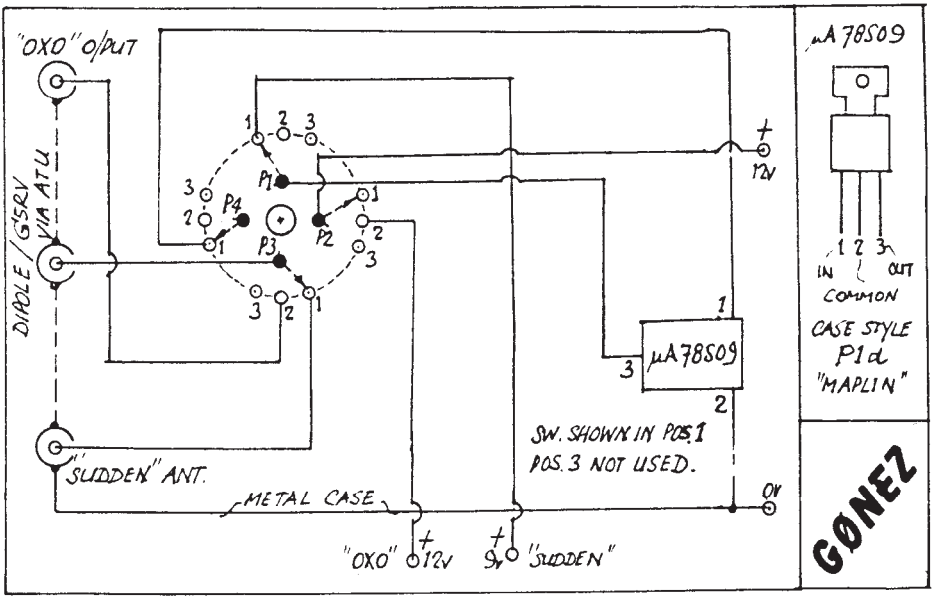
DAVID GOSLING G0NEZ 31 Semphill, Hemel Hempstead Herts HP3 9PF
and Paul-Pierre Bel, FB1MQO, 14 Ave. de Rodez, CARMAUX 81400, France

A simple, cheap, yet effective station combination can be a VXO Transmitter, such as the OXO or ONER and a direct conversion receiver like the Sudden. A circuit idea from Louis, F6CVX, was used by Paul, FB1MQO in his column 'G QRP Club News' in Radio REF, November 1992. G0NEZ, with G0NNI repeated the idea using a wafer switch in place of relays

PARTS LIST:

4 pole, 3 way, Switch [Maplin FH45Y], 9v Regulator uA78509 [Maplin UJ55K], Sockets as required. Mount the Regulator on a heatsink.

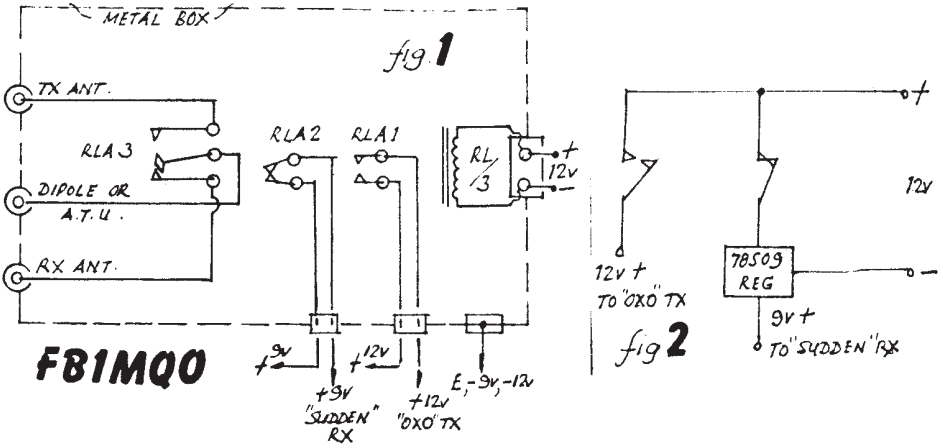
SWITCH POSITIONS: Pos.1: 9v to Sudden, 12v. to OXO off, Antenna to Sudden
Pos.2: 9v Reg. off, 12v. to OXO, Antenna to OXO.



THE ORIGINAL F6CVX CIRCUIT FROM RADIO REF

Louis uses an OXO transmitter and Sudden Receiver for a portable station. In in switch box when RA/3 is released the Sudden is switched on via contact RA2 and the antenna is connected to to the RX via RA1. In the SEND condition, the RX is switched off, 12v. connected to the OXO via RA1, RA3 changes the antenna to the OXO

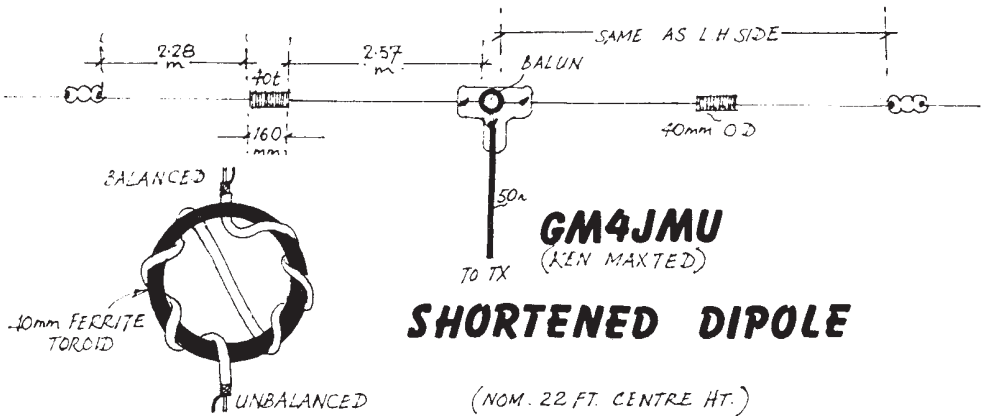
Fig.2. shows a modification, with a 9v. Regulator, to run both the TX and the RX from a 12v. supply.



The GM4JMU Shortened 7MHz Dipole

Ken Maxted GM4JMU, 18 Castleton Ave, Newton Mearns, Glasgow

To construct each side of the antenna proceed as follows. Cut a 10.25 metre length of 24/0076 insulated wire, and a 160 mm length of 40mm o.d. plastic tubing (used 1 1/2" diameter "white plumbers tube" bought from B & Q). Measure of a 2.57m portion of wire, and attach the wire to the plastic former at this point. Wind 40 turns onto the plastic former, and firmly secure the end of the winding. Make the other half of the antenna in the same way. Attach the ends of the 2.57m sections to a suitable centre insulator which should also mount the choke balun, connect the 50 ohm co-ax, then carefully waterproof the whole assembly. The choke balun is as described on page 334 of "Amateur Radio Techniques". Its construction is shown in the diagram; the co-ax used in it is RG174AU. Once the antenna is erected adjust it to resonance at 7030 KHz by folding back the ends as shown, and adjusting the length of the folded sections to provide minimum swr. (Editorial note. This antenna puts out a potent signal. By substituting tuned feeder for the co-ax it becomes a multiband antenna. The idea could also be used to make a shortened, multi-band "up-and-outer". The coils can be made weatherproof by covering them with self-sealing polythene tape.)



THE PUFFER

Walter Farrar G3ESP
1 Barnsley Road, Ackworth, Pontefract, WF7 7BS

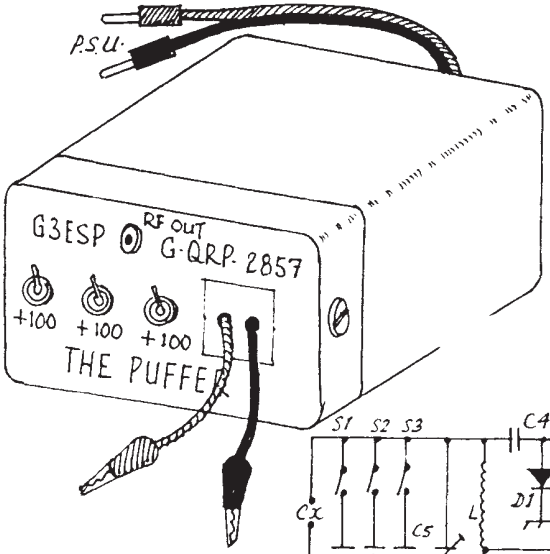
Do you have a number of trimmers and tuning capacitors with no markings? Have you pondered on how to measure them? Read on, and you will soon have all your puffs sorted out!

You need a stable VFO, designed so that the upper frequency limit is around 4 KHz, and with an extra 100pF added comes down to around 3.5MHz. The signal is picked up to an adjacent receiver (without antenna) and by adding 1% tolerance capacitors up to 100 pF various dial readings or frequency displays are noted from approx. 4 MHz to 3.5 MHz. A graph is drawn of capacitance vs. readout and from this a chart can be made giving the readout at 1 pF intervals between 0 and 100. In use the initial readout is set to a predecided number by adjusting the receiver RIT/Clarifier, apply your unknown capacitor, retune and read off the capacitance from your chart.

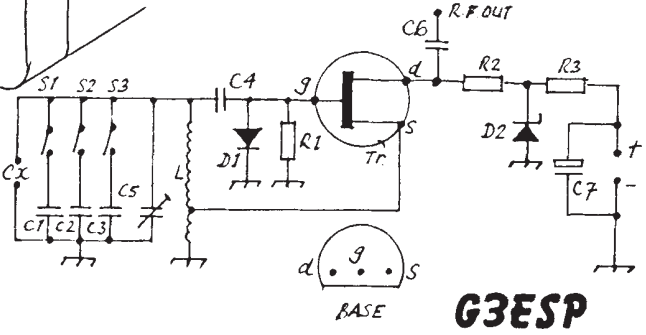
The circuit shown does an excellent job. The coil is wound on a T50-6 (yellow) core because this is said to be more stable than the T50-2, and my VFO is very stable. The three padding capacitors (100pF, 1%) can be switched out as required and added to the chart capacitance when dealing with capacitors up to 400 pF.

The calibration points fall on a very gentle curve. I used 15, 30 (2x15 in parallel), 50 (2 x 0100 in series), 82 and 100 pF, which with the zero gives an adequate number of points for the graph. If you are not skilled in drawing curved graphs, include an extra 1% capacitor of 68 pF and join successive points with straight ruled lines. The subsequent error will be less than 1 pF at any point.

In my case the dial readings went from 510 (0 pF) to -4 (100 pF). The coil winding was decided by calculation, but I found that the trimmer had to be set to minimum. So, if need be, one turn could be removed from the top of the coil. My unit is built into a 4 oz. Colman's Mustard tin, but it would go into half the space. Although I fitted an RF OUT socket, I got adequate pick-up without any antenna.



C1,2,3 - 100pF 1% poly
C4 - 47pF poly
C5 - 60pF Trim
C6 - 10n min. cer.
C7 - 47u, 25v
S1,2,3 - min toggle
D1 - 1N914 [or sim]
D2 - 9v1 zener
R1 - 100K
R2 - 100
R3 - 220
TR - 2N3819 [or sim]
L - 4.624uH 34t 26swg, T50-6 [tap 9t up]



NEW G QRP CLUB LOGO ITEMS !

Screen Printed with the G QRP Club Logo

Printed Sweatshirts at £8.75

S/M/L/XL Black/Burgundy/Bottle/Lt. Grey/Charcoal

Printed Tee Shirts at £5.50

S/M/L/X L Black/White/Burgundy/Bottle/Yellow

Printed Polo Shirts at £6.50

S/M/L/XL Navy/Lt. Blue/Red/White

Large Print (Whole Chest) Small Print (Left Breast)

CALLSIGN (Iron-On in Red) at 15p Per Letter

CLUB TIES (with Club Logo) at £3.00

Navy/Bottle/Black/Brown

MAIL YOUR ORDER TO:

PEOPLEPRINT, Ann Street/Dowling Street

Rochdale Lancs OL11 1EX [0706-30364]

Name____________________**Callsign**__________

Address______________________________

________________________**Postcode**________

Telephone________________**Club Number**__________

I WISH TO ORDER THE FOLLOWING:

>	NUMBER	COLOUR	SIZE	PRICE
SWEATSHIRTS				
TEESHIRTS				
POLOSHIRTS				
TIES				

CALLSIGN AT 15p PER LETTER [In Red]
PLEASE ADD POSTAGE AND PACKING
Sweatshirts - £2.00, Teeshirts - £1.75, Ties - 95p
>>> TOTAL:

ALL CHEQUES TO "PEOPLEPRINT"
COMPLETE THIS FORM AND SEND, CASH WITH ORDER, TO PEOPLEPRINT
PLEASE ALLOW UP TO 28 DAYS FOR DELIVERY

Hooded Sweatshirts/Caps - Other Colours/Sizes - Please Ring

A 14MHz Superhet Receiver

Frank Lee G3YCC,8 Westland Rd, KIRKELLA, Hull, N. Humberside

The majority of receiver designs featured in Sprat over the years have been for DC sets. I thought it may be of interest to build a cheap but effective superhet, using readily available components. The band I decided on was 14 MHz, and the receiver is intended for reception of CW, the filter being rather narrow for SSB reception.

The Circuit

Four commonly used IC's are employed, two NE602's, one as mixer/VFO, the other as product detector/Carrier Insertion Oscillator, a SL 1612 IF amplifier and LM386 audio amplifier.

14 MHz Signals are passed through a band pass filter to IC1, where mixing with the varicap tuned VFO on 2.845+ MHz produces an IF of 11 MHz. Two 11.155 MHz crystals are used in the simple and cheap filter, FL1, followed by amplification by IC2 and on to the PD/CIO IC3, using a third 11.155 MHz crystal as CIO. The crystals used are commonly found in PMR gear, but if it was necessary to purchase crystals, 11.000 MHz items are available cheaply, with only minor VFO frequency adjustment. There is scope for experimentation with the filter if required, perhaps trying different value capacitors and terminations, the one described was the result of my own efforts. Sufficient audio is supplied by IC3 to drive a small speaker or 'phones. Selectivity is excellent, despite using a simple filter, and although no precise measurements have been made on filter performance, tuning is pretty sharp and is perfectly adequate for CW, RTTY and Amtor reception. The Rx is fairly sensitive, a whip aerial will bring in may signals, but an outside aerial, such as a dipole, will of course improve reception. The varicap diode (about 80 pF) used was a junk box-one from a friend (thanks Steve, G0AQP), and provided coverage from 14.000 - 14.110 MHz, again experiment with different ones available. The resultant Rx can be small and compact and is a useful little set for use in the garden, shack, caravan etc.

ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS

FOR SALE : **Ten Tec ARGONAUT II** [535] with Ten Tec 290 Power Attenuator for milliwatting. I am just guilty about this much money on my bench! £650 + Carriage. G3RJV. Tel: 0706 - 31812

WANTED : CW Filter YK88C for TS120, FOR SALE : FT75 with VFO, mains and Batt. PSU. Brian, G3KJX. Tel: 0609 772702.

FOR SALE : Kenwood TS530SP in mint Condition, with 500Hz and 1.8KHz filters, with original box and mauual. Used mainly at QRP levels. Offers at £400. Keith, G0LUP, Tel: 0482 - 841713
WANTED : HW8 in good condition, Postage Paid : contact G0LUP as above.

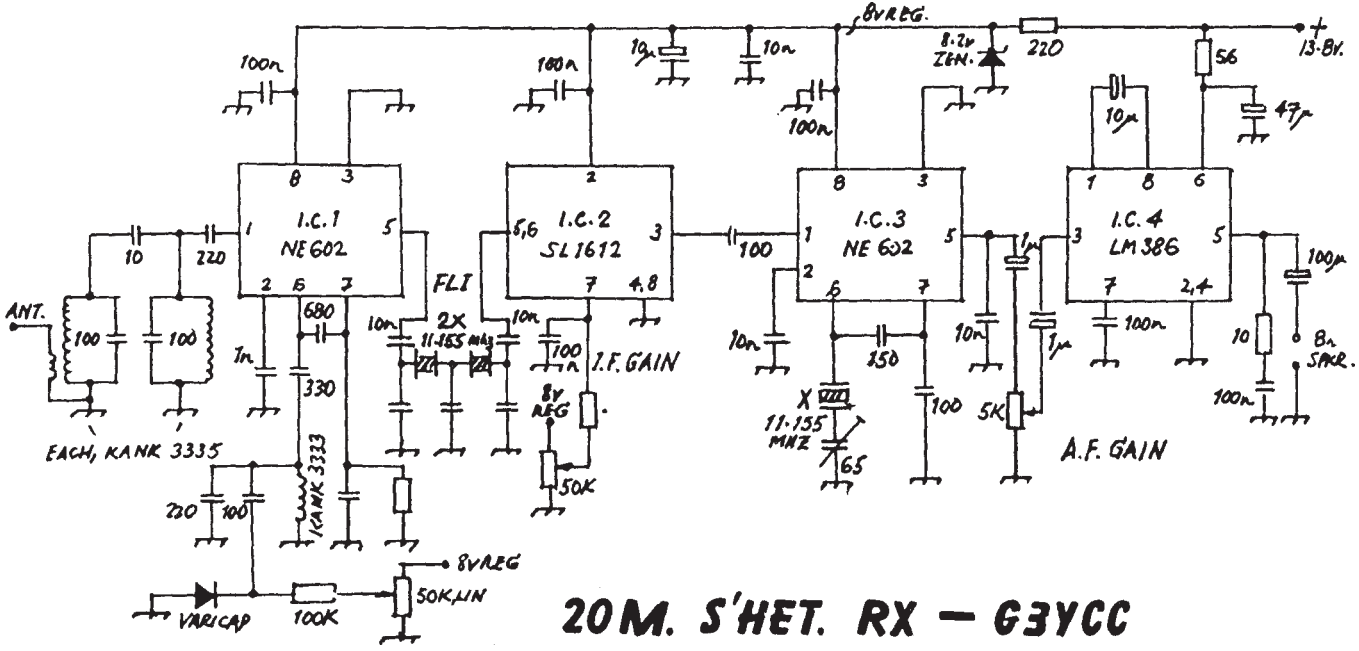
FOR SALE : Howes 40m. Rig in Howes metal case with sig Strength meter, Filter, VFO, sidetone OSS TX & RX, in GWO nice rig for £60
Howes 80m Rig in own homebrew case, as above, less filter, £48 ono. John. Tel: Lowestoft 518745.

FOR SALE : Argonaut 515 with 210 PSU, Mic & Key £285, G3UOV, Tel: 0424 - 32583

WANTED : Copy of the Hot Water Handbook. Tony, G3MJX, Tel : 0223 - 832871

WANTED : Medium sized Rotator KR400RC or very sim. inc. control box etc. Must be in very good working order. Please ring Bev, GWOSQ on 0495 - 757221.

WANTED : QRP Transceiver, poss. HW7,8 or 9. Graham Williams, GW0SXE, Alltwen, 44 Mayfield Drive, Buckley, Clwyd, CH7 2PN.



20M. S'HET. RX — G3YCC

Q-Meter or Simple Coil Measuring Circuit

Jan-Martin Noeding LA8AK, Voileia 39B, N-4623 Krsands, Norway

The circuit shown on figs 1 & 2 is meant to be a simple solution for measuring coils. Xtal oscillator on parallel frequency mode in a suitable and reliable circuit may be some of the easiest tasks for a new comer. This one is operated on 80m, a band which it is easy to start experiments on. If no large scale production is needed, there is no need for a PCB. It is very simple to build on a 0.5mm tinned iron plate, or PCB laminate sized about 45 x 60mm. The few components used are mechanical stable enough using 'deadbug' arrangement. Oμ15 capacitor is used as stand-off supporting point. A piece of PCB material is mounted upside down to connect coils, tuning-capacitors and output circuit. On this board the copper clad is cut with a hacksaw into 4 connection points. An M3 x 15 mm screw and nut hold the PCB down to the mounting plate. Do not rely on the screw as grounding device, so solder a wire to connect the two ground places together. The tuning capacitors are connected to this board. Everything may be built on suitable wood. It is always a question of how often a device is needed so unless you need this circuit very often, a simple, but perhaps less operable way of mounting components is useful. An 80m receiver is used for level indicating instrument.

A cheap Xtal is used, although it makes Not The Same Colour on TV, this is a good choice here. In the original circuit 2 - 40uH can be measured. Highest value depends on minimum capacitor including spread capacitances, so it may be important not to use too long wires in the tuned circuit. A capacitor meter should be used to calibrate the scale with combinations of switches S1 and S2, then the coil value may be calculated from the formula.

The ratio of C9 to C10 should be chosen for suitable reading on RX S-meter.

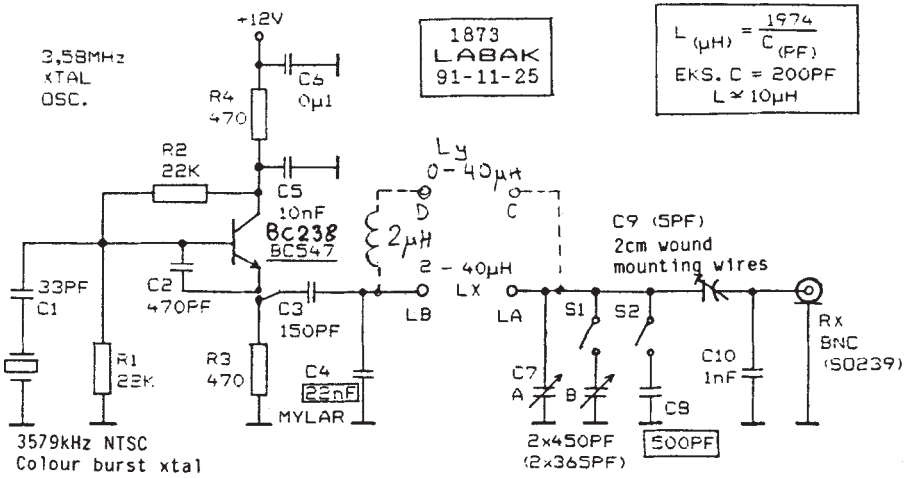
The instrument may be used to find a capacitor value which will tune with an available coil on 80m, often L/C ratios are not too important. There is another cheap computer Xtal for 14320MHz available, so this may be used to select a coil/capacitor to use for 20m band. The xo may not operate on 20m as shown, so two capacitors may need to be changed, suggested values are C2=220pF and C3=100pF.

It is suggested a possibility to change the instrument for possible range 0-40uH. A 2uH coil is added (dotted lines) in series with the coil under test. The magnitude of Q is no longer correct, since total Q-value depends on Q-value of either coils. The correct value of this extra coil is not important if the instrument can only be used with this coil, however it upsets the measurement comparison between the two different connections for coil measurements if it has not a close value to 2uH. It is important that the extra coil is screened, that it cannot be seen from the "coil under test", Amidon iron dust core may be a good choice.

A CHEAP OSCILLATOR IDEA

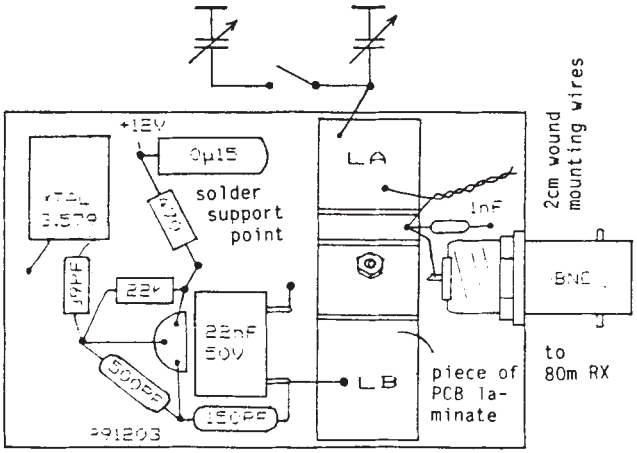
Derrick Price G3LYU 16 Dorset Ave, Glenfield, Leics, LE3 8BB

Faced with the need for a test oscillator to check some crystals to be moved up into 7MHz, my eyes lighted on a mechanically defunct small battery alarm clock. It took a few minutes to remove the oscillator board and, applying 1½ volts [in the right places!] I found a strong signal on 4.194MHz.
The existing crystal was removed and a suitable socket [FT243] was installed and all my surplus crystals went off quite happily.
As an afterthought, an adapter was used to accept FT241 crystals and all 10 I tested chirped away very nicely.



COIL-TESTER (Q-meter) for beginners and others

SUITABLE : BC237, BC238, BC547, BC548, 2N4401, 2N3904, MPS2926, MPS3394



0.5mm tinned ironplate Size: ca. 45x60mm

A SIMPLE UNIVERSAL HF CONVERTER

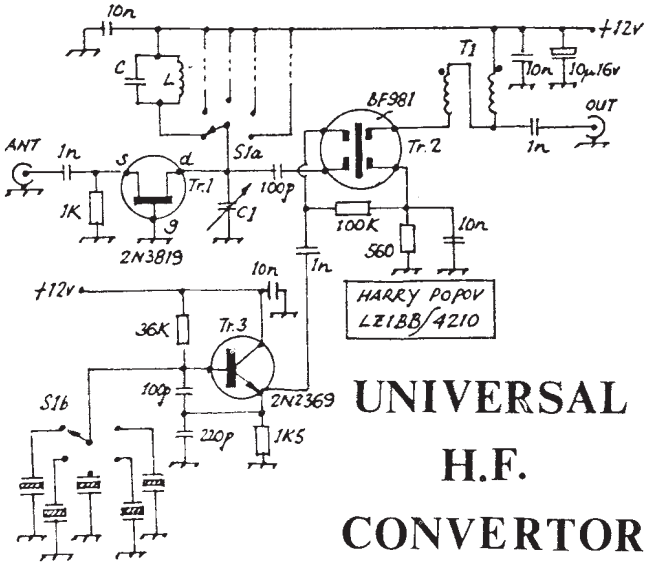
Harry Popov LZ1BB P.O. Box 87, Sofia - 1618, Bulgaria

This will help you if you have a receiver which needs more bands. L and C should be tuned in the centre of the desired band, with C1 in centre position. If coil formers with slugs are used, C1 could be omitted. For a single band conveter omit S1, or use a cheap two pole switch for a couple of bands.
One disadvantage is that all crystals must be fundamental. But you can use a third overtone crystal excited in its fundamental mode. i.e. if you require 10.5MHz a third overtone crystal of 31.5 MHz may be used.
I used the converter with a simple DC receiver similar to the 'Alpha' receive section. The results were good. Perhaps it could be tried with a White Rose Receiver [6-6.5MHz]. I would be pleased to hear of results from other builders using this circuit.

SOME EXAMPLES OF CRYSTALS USED WITH RECEIVER COVERAGES:

RX : 3.5-3.6MHz	BAND:	7	14	21	28						
	XTAL:	10.6	10.5	17.5	24.5	MHz					
RX: 5.0-5.5MHz	BAND:	1.8	3.5	7	10	14	18	21	24	28	
	XTAL:	7.0	9.0	12.5	5.0	9.0	13	16	19	23	MHz

T1 - 2N3819
T2 - BF981
T3 - 2N2369
C1 - 50pF
T1 - 10 turns Bifilar
Ferrite Ring u=1000



NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS

10 METER QRP SSB FREQUENCY: Following some letters to RadCom, Dick reminds me that the 10m SSB Calling Frequency was recently moved to 28.360MHz

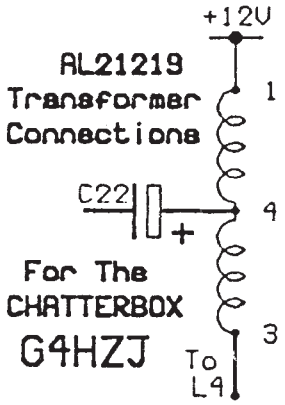
THE LEM BRASS MORSE KEY
To those members whose orders for the key were returned: please accept our apologies, we regret any disappointment. Due to an unfortunate typing error in the Autumn SPRAT, the price shown,£27.95, should have read £37.95. Then in the Winter issue, due to a printers error, the advert was repeated. For the time being **no further orders can be taken**.

FE1MOG KEYER [SPRAT 69] pins 4, 7 & 8 ON IC2 are shown earthed - it should also show pins 9 and 12 to earth, if not it only makes dashes [Ron Wilson G3DSV]

Chatterbox 160m AM Transmitter Modifications & Ideas

Les Jackson G4HZJ, 1 Belvedere Ave, Atherton, Manchester

The Chatterbox [Practical Wireless, August 1991] is probably one of the most popular circuits in Top Band Tx design ever published. However, there have been several attempts to improve the modulation transformer, such as adding extra turns, in order to make it easier to attain the level of modulation required and prevent the transformer from 'singing'.



My approach has been to replace the transformer with a modulation transformer from a Pye Westminster (W15 A.M.) which was surplus to requirements. The transformer identification number is AL21219. Its physical size is similar to the original RS. core and it can easily be mounted in its place, using short lengths of wire to make the connections from the PCB. Reports received confirm a definite improvement in modulation quality, while at the same time curing any tendency towards instability, such as "Motor-boating".

What about the remains of the "Wessy"? Strip it of PA. stage etc., leaving IF filter, IF stage (455Khz), squelch board and AF stage. Add a simple converter. I use a VFO version of the Hertzverter - Sprat) and a simple BFO if CW/SSB reception is required. This makes an ideal 160m receiver with squelch! I use this to monitor 1963Khz without having to listen to the continuous din of top band domestic appliance interference.

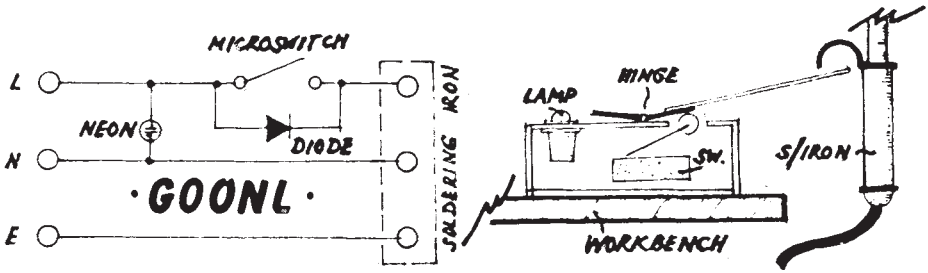
I have also made transmitters using the complete Modulator stage of a "Wessy" in conjunction with a Chatterbox type PA and VFO.

The main purpose of this article is to show what can be done with old PMR equipment, which is conveniently 'Modular' in construction, and to encourage experimentation. How about putting that old cordless telephone on 160!

*Hertzverter builders - Note error in pin numbering of NE602. Diagram in Sprat shows top view of chip. Ignore numbering of pins 5 to 8. (Sprat 72).

A SIMPLE SOLDERING AID Peter Brodribb G0ONL

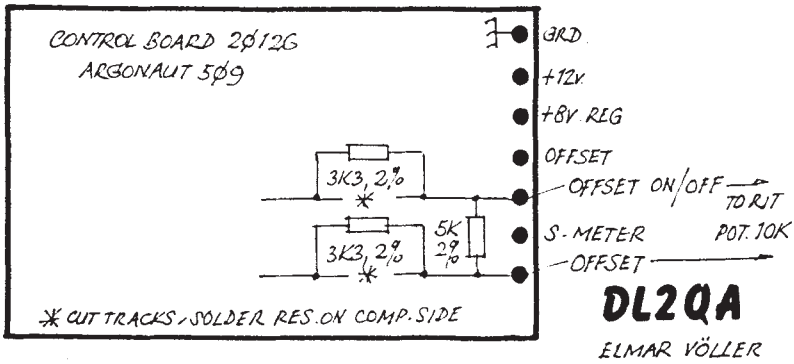
This aid will greatly prolong the life of an element. It merely places a diode in series with the iron when the iron is resting and allows normal temperature in use. There is no noticeable delay between resting & working temperature. The switch is an SPDT microswitch using 'normally closed' section. The weight of the iron opens the switch. The diode is 1N4005 [etc] the optional neon reminds me to switch off the iron!



ARGONAUT 509 RIT IMPROVEMENT

Elmer Völler DL2QA Kielsberg.str.8, 6430 Bad-Hersfeld, Germany

Several months ago I bought a defunct Argonaut 509 at junk price. After repairing and alignment the rig works well on all bands but the RIT tange is much too broad for fine tuning. In may copies of SPRAT and other magazines I could not find any mods. My solution is very simple and may be of interest to other members.



NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS

IN MEMORIAL STATION: During WW2 a Lancaster Bomber returning from mission was shot down over Philippeville in Belgium. The aircraft manned by seven Scottish personnel came down in a water filled old iron quarry. On Saturday, 17th April, 1993, fifty years later, a monument will be unveiled. To mark this event the AR Club of Philippeville [**ON4RAF**] will activate an HF [and perhaps VHF] station between 0500 and 1600 UTC - a special QSL card is to be printed. QSL via bureau or via ON4KAR, Fonds des Vaulx, 69A B-5640 BIESME. Details of the aircraft and airmen can be obtained from Guy, ON1KNI.

THE W3TS SUPER TEE ANTENNA TUNER [SPRAT 72] Mike's article describes his variant of the DJ2LR Tuner and quotes QST and Electronic Design as source material. There was a good write up on the original design in G3VA's Tech. Topics in RadCom. Dec. 1975
This could be of particular interest to QRPers : the original design was specifically for end-fed wires. It is said to work from 1.8 - 30MHz and provide a very wide range of output impedances. Equally of interest is that it has a single [unambiguous] setting. [described by G3VA]. It is also said to be suitable for use with whip antennas [G3AVQ]

ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS

FOR SALE : Yaesu FT290 RII Multimode, c/w nicads and charger £300. Trio R600 RX, 500KHz to 30MHz £200, both mint and boxed. IC240 2m Mobile £100. Transcom CB [same as Amstrad], Spectrum Conversion, Repeater shift plus Linear and LPF. 25 watts on 10 FM £40.
Mark Palmer G0OIW, Reading, Tel: 0734 483593

FOR SALE : Argonaut 509 + matching PSU £250 Andy, G4VPM, Tel: 0458 73906

THE R.S.G.B. INTERNATIONAL HF CONVENTION.

Friday 24, Saturday 25, Sunday 26 - September 1993

The Beaumont Centre, a few minutes from Heathrow Airport, the M25 and Windsor

Look for Details to follow in Radcom

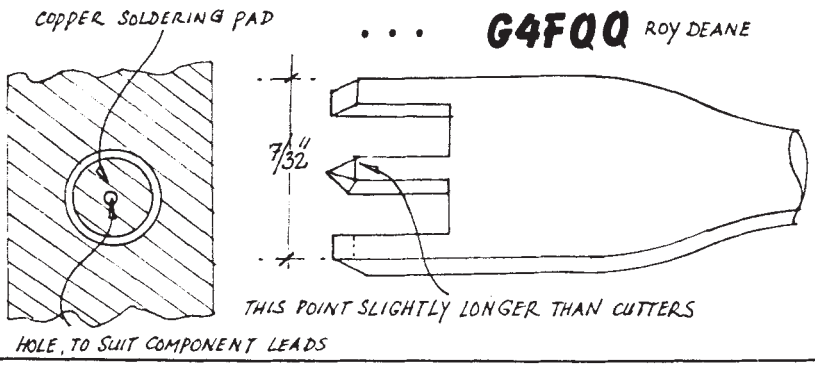
A PCB Pad Cutter

Roy Deane G4FQQ, 11 Park Hill, CARSHALTON, Surrey, SM5 3RS

Having isolated copper islands on a PC board much simplifies component mounting when building in "dead bug fashion" and these may quite easily be made with a screwdriver modified in the manner shown. My screwdriver was about 7/32" wide on the blade which is just about right. I cut the blade with a junior hacksaw and finished off with needle files. The angle of the cutters is not critical, only a few degrees being necessa;ry. Ensure that the centre point is slightly longer than the cutters.

To use, drill a small hole in the board and using this as a guide for the tool centre point, rotate it a few times until the copper is removed. The centre hole may be made of a size to take two or three component leads if required. Three islands made so that they cut into each other make a suitable mount for a transistor.

If you are able to harden the tool it will last a lot longer on fibre glass PC substrate.



NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS-NEWS

CORRECTION To SPRAT 72, p.21 : Meter Internal Resistance. Many people have written with the same points, I quote from G4SYC [shortest text]
Set RV1 such that the meter is around full scale, on some convenient calibration mark, then connect resistors or a variable across the meter until it indicates exactly half the initial setting. Obviously there are then equal currents in the meter and the resistance across it, as the same voltage is across both, the external resistance [R1] and the meter resistance are of the same value.

THE CURTIS KEYER CHIP : 8044
Contrary to some statements the 8044 chip is still available as a replacement part. Order direct from Curtis-Devices Inc , Box 4090, Mountain View, CA 94040. Price for model 8044 and 8044M is $19.95 plus $5 Airmail, in single lots. One IRC plus SAL bring you an Application Note on request.
Bernhard Szymaniak, DL7GK

HELP WANTED FOR NOVEL KEY
Because my Opto Hand Key [QST, Feb. 1992] may be of use to handicapped Hams, as well as newcomers and old timers, I should like to explore the potential for commercial kits and/or finished unit production. Changing the oak case to something injection moulded, with custom board holding all parts, may be feasible. I welcome any correspondence on the matter. L.B. Cebik, W4RNL, 1434 High Mesa Drive, Knoxville, Tennessee 37996-4443 USA. [Copies of QST article available from G3RJV for SAE]

AGCW-DL SERVICE MANAGER'S NEW ADDRESS: For all Awards - Tom Roll, DL2NBY, Richrad-Wagner-St.11, D/W - 8502 Zirndorf, Germany.

G3ROO's CONSTRUCTION COLUMN

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

At the moment construction at ROO is at an all time low, It was inevitable that I had to slow down at some time but any updates on the Kitten had to be shelved as I was asked to do a construction based column for Rad Comm, The Novice Notebook alongside Esde Tyler's Novice News. Of course I have had to rush to get several months ahead of myself and hope that I can now get down to finishing my latest Kitten Project. I was hoping that I would get feedback from the many constructors that I know that are building the Kitten, but this has been very sparse indeed!

The CSP Transceiver

I have, however, got feed back on the CSP and the two errors on the top screen of the board do cause some problems! George, G4KDL has written to point out that there is the short on the trimmer capacitor for T4 where the groundplane was not etched away from one of the pins, the other point is pin 3 of Ic1 which should be grounded, the screen was etched away here!! These two have been covered before, but George has found another one, pin 3 of Ic5 not earthed, now this is a new one to me as it IS earthed on my board, a problem must have occurred in printing that set of boards!

With the CSP it is imperative that you do not overdrive the Tx mixer as the products can soon become unacceptable. On CW adjust Rv2 for an output of 1v p/p at the Tx out pin and adjust R7 on the DSB generator board for the same level on SSB.

VFO's

John, G8SEQ has written raising the use of diodes in the gate circuit of VFO's. My view is that the stability problems they cause outweigh the advantages they give.

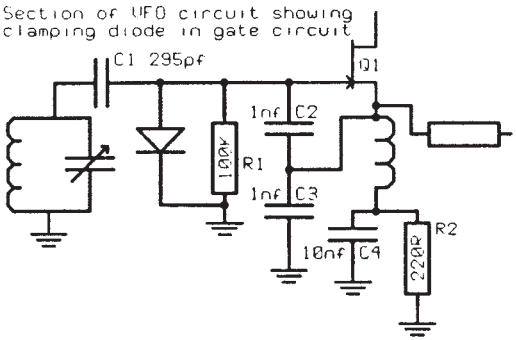
John points out that the diode acts as a bias clamp which will restrict the transconductance. It will improve the signal to noise ratio of the oscillator by preventing channel conduction but for best results schottky diodes should be used as they have a lower turn on voltage than the gate junction. As a final point if the J-FET junction is used for clamping it will only be effective if the source is grounded.

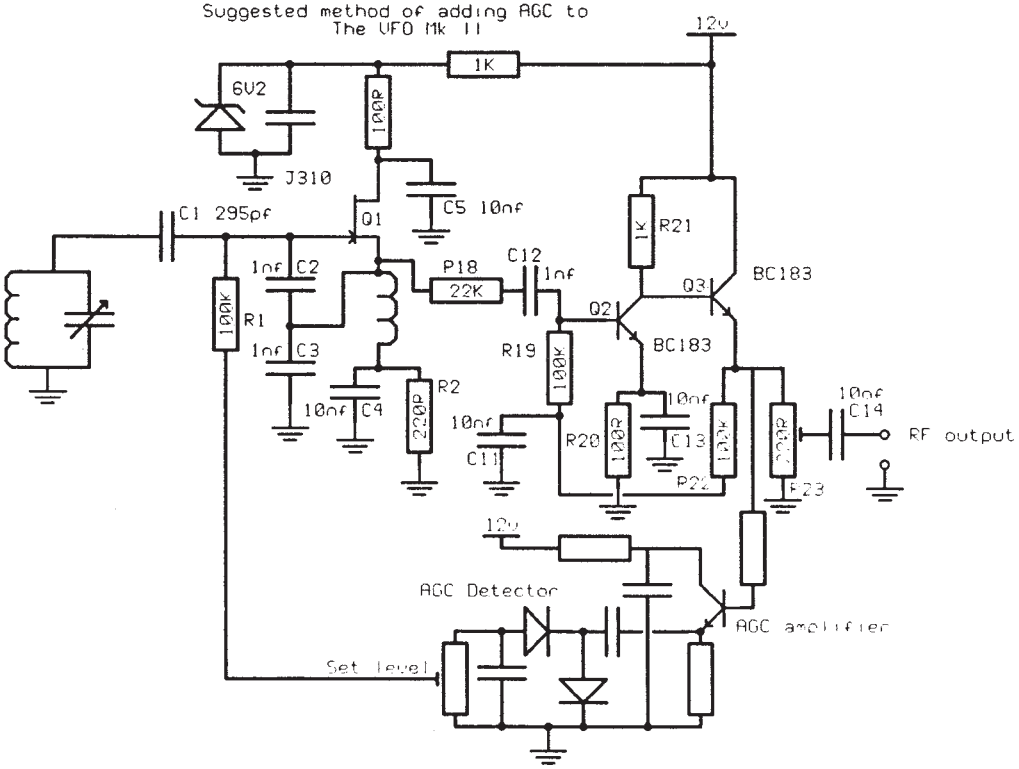
I agree with John on these points but with reservations I have formed over the years. I have always found that long term drift of a VFO fitted with a diode is far worse than when the diode is removed, and in most amateur applications I feel that this is more important, especially with simple equipment. These problems that John has raised could be overcome more effectively by an amplifier and detector to apply AGC to the oscillator.

Commercial Gear Hints

Finally I had a phone call from one member whose name I now forget who had an FT707 which would not transmit on the WARC bands. He had bought this set from a CB'er and had changed the crystals for 10m but could not find the WARC band inhibit. These diodes numbers depend on the RF board fitted to your set. for PB-2093 they are D21,D71,D72 and for PB-2201 they are D46,D47, D48.

This made me think about doing the same for my TS680 which is general coverage receive but amateur band Tx. The advantage being that I would have an exciter for transverter use over the whole spectrum. After considerable tracing through the circuit I had to give in and phone a friend in the trade! It turns out to be D31 must be cut on the Control Unit PCB X35-3100-11, this applies equally to the TS140 as this uses the same PCB. When I found this diode on the board there were places for four programming diodes..... I wonder what they are for? Any one know?


Section of VFO circuit showing
clamping diode in gate circuit
C1 295pf
Q1
1nf C2
100K R1
1nf C3
10nf C4
220R R2


Suggested method of adding AGC to
The VFO Mk II
12v
1K
6V2
100R
J310
C5 10nf
C1 295pf
Q1
1nf C2
100K R1
1nf C3
10nf C4
220R R2
P18
22K
C12 1nf
1K R21
Q3 BC183
Q2
BC183
R19 100K
10nf C11
R20 100R
10nf C13
100K
220R
10nf C14
RF output
P23
12v
AGC Detector
AGC amplifier
Set level

CLUB ACTIVITIES IN GERMANY — Rudi Dell DK4UH

The club has gained 130 new members in Germany in the last 2 years showing the DL support of the 'QRP idea'. In April 1991 some members met for a 'round table talk' at Pottenstein near Nuernberg to discuss how more club activities could be developed. From this meeting it was agreed to write to all club members and invite them to a meeting in Pottenstein in May 1992. The choice of venue was easy as Pottenstein is a small romantic holiday village with good pubs and small hotels. Many members came with their wives and children; meeting for the first time although they had been in contact via radio. It was wonderful to see members from the former East of Germany. There was lots of lively discussion over homebrewed rigs brought to the meeting. Sunday took the form of a fieldday on a local hilltop, where contact was made with club members in G Land. [Pottenstein is in a steep sided valley, which may well act as a wave guide as it defeated all attempts to produce any contacts on Saturday!]

We had the chance for another meeting on October '92, this time at Koenigs-Wusterhausen near Berlin. This time in the very comfortable conference rooms of the Training Centre of the Central Radio Technical Training department of the German Teledyne. Here we listened to interesting talks: by Ha-Jo, DJ1ZB on Adapting Aerials and Helmut DL2AVH on Transistor Amplifiers. In the ground of the centre are the short wave transmitters of 'Deutsche Welle' [not QRP!] which we were able to visit. All members were enthusiastic about this meeting

It has been decided to meet, once again in Pottenstein on May 15 and 16 1993, and **we would like to invite our fellow QRPers from neighbouring countries**. Pottenstein is very near the A9 auto-bahn, from Berlin to Munich, and links well with the rest of the auto-bahn system. Further information about this meeting can be obtained from **DK4UH, Rudi Dell, Weinbietstr. 10, w 6737 Boehl-Iggelheim.**

Tel: 06324-64116 or 0621-6071098 QRL.

[Text translation by Norman, G0NNA/DL]

ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS-ADS

WANTED : Mizuho [Jim] 20m handheld cw/ssb Transceiver, also Datong Morse Tutor D70. Walter, GD0BCM, Tel : 0624 - 621720.

WANTED : Operating/service Manuals for ICOM 701 HF Transceiver, or photocopy. Will gladly pay all expenses. Ring Carl, 2E0ADH on 0325 - 468411.

WANTED : SPRAT issues 43 and 44 in good condition, pay reasonable price. Mike, G3ZJJ, Tel: 0380 - 812779

VALVES AVAILABLE : A number of loose valves to dispose of ranging from Acorns to VT4Cs and VHF types [RX types 50p +p.p. TX types £2-5 + p.p. - for club funds] Also FT243 Xtals. SAE with all enquiries. Norman, GW3DEX, 7 John Lewis St. Hakin, Milford Haven, Pembs. SA7 3HT.

HELP - HELP - Please help the Amateur Radio Club situated in a remote area to promote this fantastic hobby in its region. Send damaged equipment, components as well as amateur radio books and magazines even if damaged. Arshad H. Quadri, AP2AHQ, President, Larkana Amateur Radio & SWL Club, No. 1989/A, 1 Shaikh Street, Karma Bagh, Larkana - 77150 [Sindh] Pakistan.

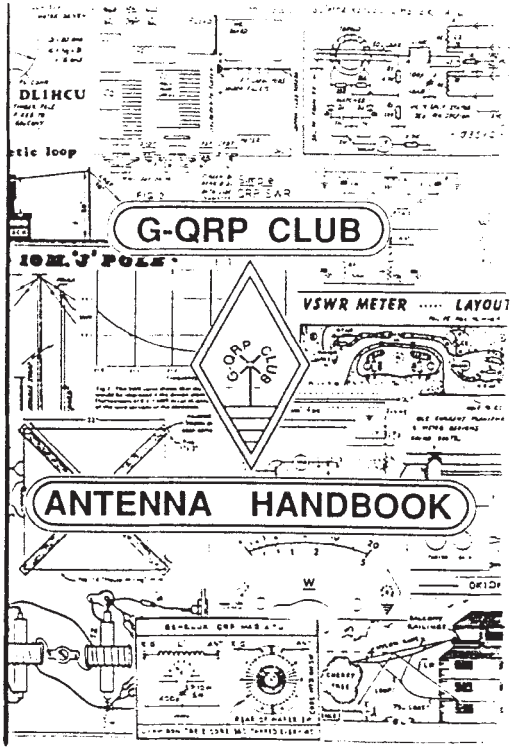
QRP AND NOVICE MEETING

The Garham Centre, United Reform Church, Gorleston, Great Yarmouth

SATURDAY 24th APRIL at 2pm

Details from David, G3OEP, on Great Yarmouth 662323

THE LINCOLN HAMFEST : Help wanted for a Club Stand. Contact G4WZV. 0724 - 732268



HOW DO QRP OPERATORS WORK DX
THE BOOK THEY ARE ALL BUYING
HAVE YOU GOT YOUR COPY YET ?

THE G QRP CLUB ANTENNA HANDBOOK

Edited By Peter Linsley G3PDL and Ty Nicholson GM0LNQ

Antennas, Tuners, Accessories etc. The Complete Collection from SPRAT From Issue 1 to end of 1991. 160pp.

SPECIAL MEMBERS PRICE
£4.50 + £1.43
NON-MEMBERS £5.00 + £1.43 post
Europe £4.40 + £2.24
US/DX $14 [Surface]

ORDER YOUR COPY FROM:
Shoreham Copy Centre, 3 John Street
Shoreham-by-Sea, Sussex, BN4 5DL
[CHEQUES : "G QRP CLUB"]

OVERSEAS SALES : The book is available in France, Germany, Holland and the U.S.A. The price depends upon local postage and the initial cost to ship the books. Please check with the local representative :

FRANCE: Paul P. Bel, FB1MQO, 14 Avenue de Rodez, 81 400 Carmaux. France
HOLLAND: Peter Halpin, PE1MHO, Ch.Kohlerst.69, 7558 VB Hengelo. Tel: 074 771832
GERMANY: Rudi Dell, DK4UH, Weinbietstr.10, W6737 Bohl-Iggelhiem. Tel: 06324 64116
USA: Luke Dodds, W5HKA, 2852 Oak Forest, Grapevine, TX 76051. Tel: 817 481 3805
or Kanga US, N8ET, 3521 Spring Lake Drive. Findley, OH 45840. Tel: 419 423 5643

AGCW - DL - QRP/QRP PARTY

Each year on May 1st 1300 UTC to 1900 UTC open to all licenced amateurs and SWLs.
Frequencies : 3510 to 3560KHz and 7010 to 7040KHz Call : "CQ QRP"
Classes: A: max. output 5w (input 10w)
B: max. output 10w (input 20w)
C: SWL
Report : RST + QSO number/Class (number irrespective of band)
Example : 579002/A
Points : Every QSO with own country - 1 point, Other countries - 2 points.
Each QSO with a Class A station counts double. Each station can only be worked once per band. SWL logs : Both callsigns plus at least one report.
Multipliers : Each DXCC Country counts as one multiplier
Scoring : The sum of QSO points multiplied by multiplier points' sum.
Results : If results are required send an SAE and an IRC.
Deadline : 31st May. Sending all logs to : Stefan Scharfenstein, DJ5KX,
Himberger Str. 19a, D/W-5340, Bad Honnef 6. Germany

THE YEOVIL QRP CONVENTION FUNRUN 1993

FUNRUN STATIONS:	GB2LOW [at G3GC] - G3CQR - G3ICO
WHEN	Monday 3rd May to Friday 7th May, 1900 to 2100 GMT each evening
FREQUENCIES:	3560 and 7030 both ± 10KHz
CONTACTS:	Contacts must be between QRP Stations, Maximum 5 w output Stations may be worked ONCE ONLY on EACH BAND during FUNRUN but FUNRUN stations may be worked ONCE EACH EVENING on each band.
CALL:	"CQ FR"
SCORING	Each QSO with another QRP station scores 10 points Each QSO with FUNRUN STATIONS G3CQR or G3ICO scores 20 points Each QSO with FUNRUN STATION GB2LOW scores 50 points. All duplicates must be marked and no points claimed. Points will be deducted for unmarked duplicates at twice the QSO value.
EXCHANGE	RST, QTH, Name, Output Power, G-QRP Number.
ENTRY SHEETS	Separate log sheets for each band, with sub-totals for each evening, preferably in RSGB format. Also a separate signed RSGB style cover sheet stating Output Power, Rig and Aerial used..
CONVENTION ENTRY	Bring your entries to the Convention by 1pm on Sunday 9th May. Certificates for the highest score on each band, the highest total overall score and to the station consistently using the lowest power will be presented during the afternoon.
POSTAL ENTRY	Separate Certificates will be awarded to the top postal entries. Logs should be sent to G3CQR QTHR by 24th May 1992.
NOTE BENE!	There are 720 extra points to be won by working the three FUNRUN STATIONS on each band each evening! Good luck and have FUN!

FRIEDRICHSHAFEN 1992

Norman Bonnett G0NNA/DL Weidleinsweg 14, 8709 Rimpar, Germany

Living in Germany it was a golden chance last year to visit the Friedrichshafen Amateur Radio Show; it was made simple by the fact that my sister-in-law lives nearby, a family visit coupled with some amateur radio doesn't lose Brownie points-hi! I could also deliver the copies of the Club's "Antenna Book" to Rudi DK4UH.

I arrived with my mobile home on Friday evening expecting to find a few other hardy souls like myself then, I was wrong. There was an atmosphere like a big party, 2-3 acres of tents, caravans buses and mobile homes, all spouting aerials of every description. People had travelled from Scandinavia, the Iberian peninsular, Italy, Greece, France and from all over the former Eastern Europe. As this was the night of the 92 European cup final there was of course one very happy group from OZ. A quick shout on 2m (yes, people do still use the band John) brought local contacts with about 10 DL/calls from the whole of Europe.

And this is what makes Friedrichshafen a great event, while it is organised by the DARC it is a European event. The stands and exhibitions were enormous and in the flea market you could buy everything from an LED to a Rhode and Schwartz impedance measuring set featuring some very nicely made and competitively priced transceivers from the CIS.

Friedrichshafen itself is in a part of Germany which gives easy and rapid access to both Switzerland and to Austria, so if you haven't fixed this year's holiday.....

[Note from G3RJV : I hope that the G QRP Club may be able to run a stand at Friedrichshafen 1994....]

THE ROCHDALE QRP MINI-CONVENTION 1993

BOOK THE DATE NOW : SATURDAY 16th OCTOBER

FROM THE CLUB MEMBERSHIP SECRETARY

John Leak G0BXO, Flat 7, 56 Heath Crescent, HALIFAX, HX1 2PW

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

Please remember that we do not issue receipts unless we receive an SAE. Your receipt is the updating of the subscription code on your 'Sprat' address label. Remember also that there is a time log of 4 - 5 weeks between label printing and despatch of the magazine.

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

BUT PLEASE QUOTE YOUR CLUB NUMBER AND CALLSIGN.

Whilst referring to mistakes, I'm sorry that some members have acquired spurious extra initials to their names (myself included). This has happened as an effect of the transfer of data to the new computer system. We are trying to spot the errors - again please write if you are unhappy

Sponsored Membership

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

For our Austrian Members

Members in Austria can now pay subscriptions to:

Johann Auerbaeck OE6JAD, Kirschenhofersollg. 120, A8241 DECHANTSKIRCHEN, Tel: 03338/23335

He has opened a file on packet mailbox OE6XYG for club news. The filename is "G-QRP".

Finally, many thanks to all those members who sent Christmas cards and greetings.

SSB COLUMN

Dick Pascoe G0BPS 3 Limes Road, Folkestone, Kent, CT19 4AU

DUE TO MOVING HOUSE, THERE IS NO SSB COLUMN THIS ISSUE. IT WILL RETURN NEXT TIME.

PLEASE KEEP YOUR LETTERS, REPORTS AND COMMENTS COMING TO G0BPS.

OUR FIRST GW QRP MASTER

Bev West, GW0OSQ, pictured here with his son has just been awarded the first QRP Master Award to go to Wales.

Bev says if had not been for QRP he would have given up radio a couple of years ago.

WANTED.... Century 22, Mint without options, for SP5SDA.
Contact GM3OXX
1/5 Essenden Terrace, Clermiston, Edinburgh EH4 7HD
Tel: 031 339 8448

EUROPE FOR QRP WEEKEND 1993

Dates and times. From 1600 UTC on 1st October 1993 until 2359 UTC on 3rd October 1993

2. Mode and frequencies. CW only on 3560, 7030, 14060, 21060, and 28060 KHz, all ± 10 KHz.

3. Power. Not to exceed 5 watts rf output. Stations unable to measure output take half their dc input (10w input = 5w output and so on).

4. Stations eligible. Any licenced radio amateur.

5. Contest calls. Call CQ EU QRP when seeking contacts.

6. Contest exchanges. For a contact to be valid RST, power output, and name of operator must be exchanged and logged.

7. Scoring. Contacts with own country do not score. European stations score 1 point for each European contact and 3 points for each contact outside Europe.
Stations outside Europe score 5 points for each contact with Europe.
The final score is the sum of the points scored on each band used.

8. Logs. Separate log sheets must be used for each band, showing for each contact date, time, call and RST, name, and power received and sent. A summary sheet must be provided showing call, name and address, claimed score for each band, total claimed score, and brief details of equipment used.

9. Submission of logs. Logs must be submitted to P. Doudera, OK1CZ, U1 baterie 1, 16200 Praha 6, Czech Republic, by 15th November.

10. Awards. Merit certificates will be awarded to the three leading stations from each continent.

11. The judges decision is final in the case of dispute.

Event organised jointly by G QRP Club and OK QRP Club.

G QRP Club
37 Pickerill Road
Greasby,
Merseyside L49 3ND
England

OK QRP Club
U1 baterie 1,
16200 Praha 6,
Czech Republic

THE U-QRP-CLUB (Russian) CONTEST

An open QRP Contest from July 25th 1200 UTC and 26th July 1299 UTC.. Frequencies (all ± 5KHz)
SSB: 7090, 14285, 21385 KHz. CW: 3560, 7030, 14060, 21060 KHz.
Power Output : QRP - 5 watts or less, QRPp - 1 watt or less.
Call : "CQ U-QRP-TEST", Exchange : RST + serial Number + name of QRP Club (if a member)

Groups : A: Members of U QRP Club B: Members of QRP Clubs
C: QRP Stations D: QRPp Stations

Scoring : QSO with group A - 5 points
QSO with group D - 4 points
QSO with group B - 3 points
QSO with group C - 1 point

New Region "P-100-0" - 1 point, New DXCC Country - 2 points, New Continent - 3 points. Multiplier 1.5 for QRPp stations

Logs must be submitted to U-QRP-Club (RA4UAP), P.O. Box 100, Saransk- 31, 430031, Russia.
Enclose a dollar or 2 IRCs for a result sheet.

SILENT KEYS: We regret to announce the deaths of the following members : Peter, G4VEM, 2937, and Frank, G4NRN, 6183

VHF MANAGER'S REPORT

John Beech G8SEQ/VK2XYD
124 Belgrave Rd. Wyken, Coventry, CV2 5BH. Tel & FAX 0202 617367

First my apologies for missing the last two SPRATS. This was due to a communications hiccup between George & myself....like I would phone up to find out when the next deadline was only to find out I had missed it by 2 or 3 days! Not to worry, I hadn't got a lot to report anyway. Most of my own projects are only at the halfway stage & others haven't been up to much judging by the dearth of articles sent to me.

However, since the last issue, I have had some interesting letters. Heinz, OE6HS #2428 wrote asking for help obtaining some hard to get bits for an 80m project and told me of some of his experiments with direct conversion VHF Rx & He/Ne lasers. (Best Dx 15km with 1.8mW). I have also been experimenting with optical comms. at 680 nm & 800 nm (infra red) though over much shorter distances. Not strictly amateur radio, but interesting just the same. {I'm not sure what the current position is with optical communications, but I know we are restricted to frequencies below about 240 GHz; 680 nm is 440 000 GHz for reference!}

Paul, G0MEK sent me an auto tone burst circuit for opening UK repeaters, which may be published in a future SPRAT. If you are interested he has some PCB's available at £3 inc. from 37 Bushel Lane, Soham, Ely, Cambs. CB7 5BY. He also runs an A.R. Information Technology User Group.

Robert, PA3BHK, my counterpart for the BENELUX QRP Club has written me a couple of long letters. He pointed out to me that 2m can often outperform 80m for inter-G inter-Europe wkg at QRP levels (same dx for less QRN). He also sent a circuit for a varactor tripler for 144 - 432 MHz, which I may publish at a later date.

Dave, G0DJA wrote most recently, including an article on "how to do it -- 2m, 3W & Aurora"originally written for VHF/UHF DXer Newsletter. A bit too long to reproduce much of here, but in a nutshell "if you can hear 'em you can work 'em" Dave refers you to Charlie Newton's Book "Radio Auroras" (RSGB 1991)

If you have got 6m it generally works better with aurora than 2m with colossal signals & less distortion. So give it a go!

And finally, HELP! Does anyone have a handbook/manual for an X-Y plotter, Model HP 7221C they can loan me? G8SEQ.

FREQUENCY MULTIPLIERS by John Beech G8SEQ.

Having had some experience of designing frequency multipliers both professionally and for amateur radio in the range 10 to 3000 MHz, some of you may benefit from the results of my experimentation. Having read most of DeMaw's articles on the efficiency of transistor multipliers, I came to the conclusion that class A biassing is no good. Class C (or D) is much better at producing harmonics.

Snag: low level drives from xtals & VFO's won't turn on a

Class C stage (I haven't tried FETs)

Solution: Bias to near saturation (REM anode bend rectification?).

There are a number of reasons for doing this:

1) The clipping action produces lots of harmonics.

2) The DC bias on the base collector junction causes this to act as a varactor diode.

By adjusting the bias voltage experimentally for each device this can be used to maximize o/p at a particular harmonic, provided the inductance in the collector lead is about right. 3) The transistor junction runs hotter because it is on most of the time, thus increasing the gain. This may be a dubious advantage, so some current limiting should be included in the emitter or collector circuit. The 10 R in the collector should be OK for a BSX19 transistor.

Some of you may recognise my circuit as a parametric multiplier, though all the previously published circuits I can remember use the transistor in grounded base configuration, (days of low Ft).

I have a tried and tested 8.3 MHz to 25 MHz tripler; 25-50 doubler; 7 to 14 MHz doubler; 7 to 21 MHz tripler; 9 to 18 MHz doubler; 9 to 24 MHz tripler and 9.3 to 28 MHz tripler, as well as a 111-

222-444-888 Mhz chain-- this could be adapted to give 432 MHz.Also a VLP (qQRP) 145 - 2.3 GHz signal source for Rx alignment (uses a hand held 2m rig as driver-very simple), has been made. All the HF circuits were based around a VFO, using a FET oscillator, FET buffer and a bipolar multiplier stage. The VFO's all tuned over a fairly narrow band, hence there were no problems in trying to track the multipliers over a wide band. Xtal oscillators or VXO's would work equally as well with the multipliers. They all incorporate a band pass filter in the multiplier stage to a) reduce fundamental breakthrough and b) suppress higher order harmonics. If such circuits were to be used in a transmitter chain, I would anticipate further filtering to be used.

In tuning the multipliers, I have always tuned them to maximize the output at the wanted frequency & checks with a spectrum analyzer have shown that this generally results in the greatest ratio between the wanted and unwanted harmonics. If the VFO/multiplier combination is to be used in a high performance receiver, it may be prudent to tune the multiplier to produce a lower absolute value of a particular harmonic at the expense of the wanted frequency, though how to do this is beyond the scope of this article

Fig (i) shows the general arrangement of the VFO I used and the multipliers for HF use.
The output power levels of these are in the region 20 - 50 mW
into 50 ohms.

Table (i) shows the inductor combinations used for the various frequencies.

Fig (ii) shows the multiplier chain to produce 432 MHz. (In my original circuit a varactor diode doubler was used after this to produce a signal at around 900 MHz). The output level is of the order of 20 mW.

Fig (iii) shows a 2.3 GHz source. This was knocked up during VHF NFD one year to provide a strong local signal after the 9cm Rx had been grossly misaligned whilst tuning it to a distant beacon. Although the phase noise from the PLL didn't allow a clean signal to be produced, it was good enough to put the Rx in the right ball park and allow a final tune-up on the beacon!

All the filtering is done by the resonant antenna formed by the diode leads... it just so happens that the uncut leads of a BAT 86 diode are just the right length for the 9cm band.

The output power was never measured, but I guesstimated it to be of the order of 0.1 to 0.5 mW.

PASSIVE MULTIPLIERS USING DIODES

I have used three types of these. The first being the back to back ("Russian Mixer") pair which acts as a frequency doubler and mixer. This has the advantage of a) reducing AM breakthrough from broadcast stations and b) allowing one less stage in a multiplier chain. Myself I have only used them to 50 MHz, but I have seen equipment intended for 1.3 GHz using this technique.

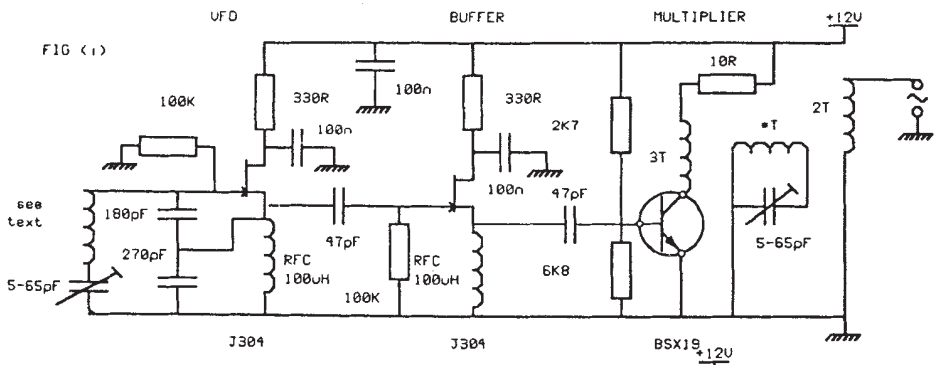
The second type is the push-pull or balanced multiplier which is basically a full wave rectifier with a flywheel circuit at 2f instead of smoothing components. These circuits have the advantage that they cancel out odd harmonics.

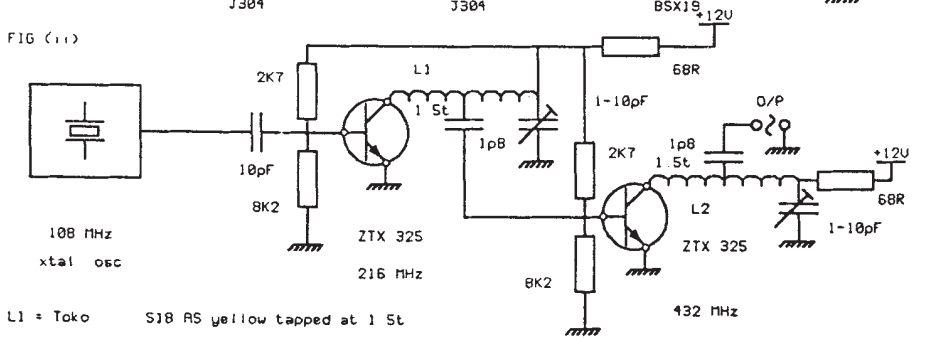
The third type of circuit is the varactor diode multiplier which generally uses the diode in shunt configuration. I have found in practice that they can be quite tricky to set up, since the inductances in the input and output circuits are in series and adjustment of the capacitors tuning the input & output circuits interact. The capacitance of the diode also varies with power delivered to the output load which fuurther affects the tuning.

I have only ever used them at the higher UHF frequencies and only then when I have had access to a spectrum analyzer to tune them. They always had band pass helical filters between them & the output. Small tuning varactors such as the BB205 have been succesfully used to generate 100 mW in the 1 GHz region. (See fig (iv) to (viii) for circuit details).

So if you want to put that Tx on a different band, try your xtal/vxo/vfo & a multiplier stage; remember most of the QRP calling frequencies are harmonically related anyway. 72 & 73 John.

References" Solid State Design for the Radio Amateur" by Hayward & DeMaw. Page 41-44
"Practical RF Design Manual" by Doug DeMaw Page 72-74
"Radio Communication Handbook" (RSGB) Section 6
"VHF/UHF Manual" (RSGB) Section 5.20
"The UHF Compendium" Karl Weiner DJ9HO Section D3





L1 = Toko S18 AS yellow tapped at 1 5t

L2 = Toko S18 AS red tapped at 1 5t

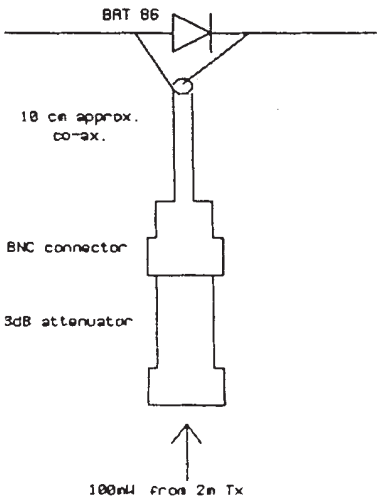


FIG (iii)

VFO	8.33	9.33	8.00	7.00	9.00	7.00		25	MHz
O/P	25	28	24	21	18	14		50	MHz
L1	35t	31t	36t	40t	33t	40t		-	core Amidon T-50-6
*T	3t 14t 2t	3t 12t 2t	3t 14t 2t	3t 17t 2t	3t 22t 2t	3t 26t 2t		-	core Amidon T-50-6
			→	2nd	steps	doubler		2t 7t 2t	core Amidon T-37-6

NOVICE NEWS

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

Well done to the first "Class A" Novice (2M0ACT) who attained his Award with accompanying Certificate recently. Keith - 2M0AT - is the son of Stuart GM0CAQ - both are Club Members. During his award chasing Keith managed (I am told) 7 contacts with W/VE, 2 with YC, and a grand total of 12 DXCC Countries. A full report has been sent to Practical Wireless: Short Wave Magazine: Morsum Magnificat: and RadCom. So far at 31/01/93 the only acknowledgement has been received from the RSGB. Thank you Esde. ("MM" Have printed a report.)

Technical News

You may recall my plea for Novices to send in details of their HF/QRP Stations (or successful VHF/UHF Stations as well); and I was very pleased to receive three reports.

1. 2E0ABC Jenny QTH Liverpool; runs 3 Watts from a shared TS530S and also a Lake DTR3 80M Home Built Rig. Jenny says that the DTR3 cannot cope with too much QRM (especially Fish Fone) and is building an add on Narrow Band Audio Filter. Being very active on said Band here I know what you mean hi!! One day - maybe they'll let us have 80 all to ourselves?

Jenny is among a great big band of Family Amateurs, her Dad Brother, Grandpa, and Grandpa's Brother are all Radio Amateurs!!!

2. Phil 2E0ABI writes in the same vein to say that he is also keen on 80m and runs QRP with a Yaesu FT77 into (1) a Windom for 80M (2) a Dipole for 10Mhz and 21 MHz Novice Sections. For UHF, Phil uses for Local QSOs; a Slim Jim @ 45Ft AGL using an FT73R. You may well have seen Phil's face in the RadCom features last year.

3. 2E0ADH Carl whose location is Darlington (Nr 7410) writes asking for information regarding a Meeting between various bodies associated with our Hobby and more closely; the review of the Novice Licence. So far the situation is that we know that a review has occurred; and as far G0NEZ is concerned I know as much as you! I would not have even been consulted had it not been for G8PG and G3RJV. We made our collective Committee views known, and feel assured they are in your favour. As soon as we receive anything we can Print in Sprat feel sure it will appear at the earliest chance. At least RSGB are now talking to us and that alone can be regarded as a result of all the work done down the years by the efforts of our long term Officers.

John Hemming Club Nr 7152 QTH Northfied Birmingham - sends in a very detailed Novice DX Report which I have passed to Chris Page G4BUE our Members News Editor. I will, however, say that John has worked into Australia (first Novice into VK?) VK3VKP @ 25 Watts for a 2 way Novice QSO. John sent me a list of QRP Novice CW QSOs literally as 'long as your arm' so they have been duly passed to Chris. John mentions a lot of "listening"; I cannot this emphasis this aspect of QRP too much. Spend a lot of time on Rx and you'll do well - I promise - and also don't expect more than about a 50% return rate on your outgoing DX QSLs. Sorry - its a fact of DX life! I suffer too we all do. But we need confirmation otherwise its useless transmitting. There are a FEW Pirates - I know - my IRCs are some times wasted.

THE DOUBLET ANTENNA

There has been some mention recently here and there re the Doublet. I have one in continuous use, all Bands 160 to 10 Metres at G0NEZ and am well pleased with it. It is 86 feet across the top, and fed with 43 feet of open wire feeder. Note that the feeder length is crucial, as it is half the length of the top. That, in essence, is the Doublet. Not 86ft by 43ft. It can be any combination, the thing to remember is the relationship between Top element, and feeder; i.e. feeder is half the top. Use a good Z Match ATU and it should operate with success on most bands.

From Novice to Experience

Michael G3GVY (Harrogate) writes in with much interest in our new ones and reports QSOs with ; 2E0AAF/2E0AAU/2E0ABI/2E0ABU (watch out for him he is ex RN at about 30 wpm hi!) 2E0ACY/2M0ABN/2M0ACT. Thanks for all sent Michael.

A nice 2 way QRP QSO with Spenny G6NA; prompted a 2 way letter QSO and I was very pleased with what Spenny had to say about our "Adopted Club Antenna" i.e. the W3EDP/ATU. Many thanks for all the info OM and I'm in the process of presenting it to our Radio Club here in Hemel. Its new, and called DARTS (Dacorum Amateur Radio Transmitting Society). About 50 Members so far and going great guns. QRP, Morse and dare I say it "Real Amateur Radio" features strongly in our outlook.
It seems rather a kind of "Amateur Radio Deja Vu" that both Spenny and I are working for the "Master Award with the same number confirmed and also have 260 odd Members, and WAC hi!...and yet the Call sign difference is 1928 to 1990. How wonderful it is that this; the greatest hobby of all; brings one and all so close - with a common aim.

Gremlins, Errors, Whatever.
I made a complete mess in Sprat Nr 72, when I described G4IYR as CTO President. He should of course be G4IYB, and many thanks to the club Member who corrected me. Apologies of course to Bill.

Look out for our friend Al KN1FK (Snapshot enclosed) who'll be more than pleased to work any of our Novice Members on the 21.100 - 21.150 slot on the 15 Metre bend. Al is a really great Guy - Gus and I have worked him many times and I recommend you to put out a CQ CQ CQ KB1FK de (your call) about 5 or 6 times over (remember we are QRP hi!). Thanks for the nice QSL/QSO Al.

Jim - G0FVS asks " is it OK to call" CQ for Novices". Yes and please will all Club Members try to put out a CQ Fer Novice Call at least once per week. From experience; best results (UK) are 3.570 +/- or if one possesses a real good ATU/ANT then 1.960 plus (CW/PHONE).For those outside UK; 21.100 - 21.150 is a good frequency if open which at present seems to be up 'till about 1700 GMT. 10Mhz is a good one - trouble is - its good for the commercial blokes often heard around there, Still - having said that - many good Novices are reporting DX QSOs using 3 Watts there. Tell me what you find?

LATE NEWS;

Apparently a press release from the RA tells us the

1. The 80m Novice Frequency is extended down to 3.560 MHz
2. The 10m Novice Frequency is also extended to 28.060
3. Their is some alteration to the 430 MHz allocation but I do not know what it is
4. The Novice Power Limit of 3 Watt (three watts) remains the same.

Regrettably the RA do not seem to consider 'Novice News' in "Sprat" worthy of the press release (or any other contact for that matter) so I thank Tony Smith G4FAI for the details. Tony is editor of Morsum Magnificat.

Thank you to all who have sent in copy for the Novice QRP Column. If YOU are a Novice QRP operator, please send something for the column.
Best 73/72 Dave, G0NEZ

QRP COMMUNICATION FORUM

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

AWARDS OF CLUB TROPHIES

CONGRATULATIONS TO LUKE DODDS AND HA-JO BRANDT . Luke has been awarded our premier Trophy, the G2NJ, for long service to the cause of international QRP. Operating as W5HKA, and serving as Secretary/Treasurer of QRP ARCI, Luke has made great contributions to Anglo-American QRP co-operation, and had shown his loyalty as a G QRP C member by his regular attendance at the Rochdale Convention, and his assistance to our work in the USA. Ha-Jo Brandt, is awarded the Suffolk Trophy for his excellent technical articles published in SPRAT during 1992, these forming just a part of the many excellent articles covering a variety of subjects that he has provided for us over the years. It says something for the current standard of international QRP when the Chelmsley Trophy has to be decided on 7 MHz DX and the number of exotic two-way QRP prefixed worked (they included BV2, PP.W.5B4, 4X4,UA0, VE, W and ZS), but this proved the case this year. In the end Henry, DL6ZLG (ex-Y26SW) made it be a whisker over Mike G0iFK. Really excellent work by both. At milliwatt level, John, G3EDOP, receives a special certificate for working 57 countries entries when running 200 mW or less, including 46 Ws.

BY MUTUAL AGREEMENT THE NEW CZECH AND SLOVAK REPUBLICS came into being on Ja nuary 1st, 1993. At the moment the former appears to be using the OJK1 and OK2 calls, and the latter OM3. To mark our long association with the OK gang, we are pre-empting the ARRL DXCC Committee and allowing contacts make with the two Republics on or after January 1st, 1993 to count for Club awards.

TWO FUTURE QRP MASTERS may have appeared in the shape of 2M0ACT and 2E0ADH, who became the first Scottish and UK Novice, and the first English Novice respectively to qualify for the Class A CW Novice award which we issue on behalf of EUCW.. Two facts about 2MOAT are noteworthy. Firstly, his log showed DX contacts as far away as YC, and secondly, he is exactly 12 years of age. So much for the "too difficult" morse test!!

FEEDING A DOUBLET WITH TWO LENGTHS OF CO-AX instead of conventional open-wire line has raised some interesting responses. As stated in the last SPRAT, it worked well for Peter, DJ0GD. Another Peter, G4LEG, says the method was used to overcome a problem at G3CRS, the club station at the RN Weapons Engineering School. Here the antenna was on out side of a large building and the shack at the other, so the run from the antenna to the building was made from conventional open-wire line, and the run through the building was made from two equal lengths of co-ax cable, these being taken right up to the shack ATU. Peter makes the point that the two outers may form an earth loop which can pick up noise, and this can be cured by breaking the connection between the two sheaths at the antenna end. Johan, LA7FF, says he tried an extended centre fed Zepp using this type of feeder, but it did not work as well as a co-ax fed dipole, but in this case the top ends of the two sheaths were connected together, and a balun was used between the feeder and the ATU. In an article in "CQ" Magazine (January '93) Lew McCoy, W11CP says that certain feeder lengths may produce a resonant loop on one or more bands, which can absorb rf. He suggests grid dipping and if necessary altering feeder length to avoid this, but one feels that removing the top connection between the sheaths should remove the problem. Finally, yet another Peter, this time DL1GPLK, intends to experiment with this antenna, and has been asked to report on his findings. Our thanks to Fred, W5QJM for the W1ICP information.

HAVE YOU A CIRCUIT DIAGRAM OF THE FT7 ? If so please send a photo copy to G8PG, who will refund expenses. It is urgently required by a member in France.

CROATIA, 9A, SLOVENIA S5, and SERBIA, YU1, can be counted as new, separate countries as from 26 June, 1992. Contacts with any of these areas prior to that date cou nt as the single country of Yugoslavia. The position of other areas such as Montenegro is not yet clear, nor is what method one can use to obtain QSLs until such time as the shooting stops.

THE DARTS ARC of Hemel Hempstead would like to add more QRPers to its membership. If interested ring John, G0FSP, on 0442 66787.

DURING HIS RECENT CT1/G3KJX operation Brian used a form of up-and-outer consisting of a 26 ft vertical rod and a 26 ft wire running at an angle from it, centre fed with 300 ohm ribbon. The base was about 20 ft above ground. Half a dozen QRP cw QSOs with VK5FE on 14 MHz, and a QRP ssb QSO with ZD8GM on 28 MHz showed how well the system worked. Brian hopes to be CT1 again for a couple of weeks in May.

A 200 KHz MECHANICAL FILTER WITH A 500 Hz BANDWIDTH and very steep skirts sounds ideal for QRP cw. Of course its bandwidth covers one sideband of the QRO BBC if transmitter at Droitwich, but if one uses a double superhet with a 2 KHz, 10.7 MHz filter in the first if, places a high Q 200 KHz rejecter circuit at the antenna input, and carefully screens and decouples the 200 KHz if module there should not be any Droitwich breakthrough. Such filters, made to military standards and complete with coupling capacitors, are sold by Rainer Fortig Electronic Bahnhofstr 77, W-6101 , Bickenbach, Germany at around Dm 22 each. Maybe our Traders might like to look at this one. Many thanks to Peter, DL1GPK, for this information.

HELEN, SISTER OF ANDRE UA1AAH, had a birthday party on January 10th. Thanks to QRP radio one was able to wish her may happy returns, to hear of the lovely cooking smells coming from the kitchen, and of the arrival of guests, and finally to wish them all bon appetit. Is not QRP radio communication a wonderful hobby! Still on the Russian scene, congratulations to Alex, ex-UA6YAV, who celebrated the end of his military service by obtaining a 1st Class licence and the new call RA6YY. He promises QRP activity on all hf bands.

HEARTY CONGRATULATIONS TO CLUB RECORD BREAKERS GM3OXX, AA2U, AND G3XJS who have recorded the following firsts. GM3OXX, one thousand members confirmed on cw. AA2U three hundred countries confirmed using mixed mode QRP. G3XJS two hundred and twenty-five countries confirmed on QRP cw. Great work fellows!

AWARD NEWS
QRP MASTER. Congratulations to the following new Masters. KB1FK, G3JZO, DL8KAZ, AA2U, GW0OSQ.
QRP WAC. KB1FK, S M6YF, DL8KAZ, SM7RRO.
QRP Countries. 300 AA2U, 225 G3XJS, 100 KN1FK, 75 G3JZO, DL7GK, PE1HMO (vhf), DL8KAZ, GW0OSQ, 50 SM6YF, 25 GM4EWM, PE1LIF, DL2SDA, Y24XO, W7JH, G3CIO.
WORKED G QRP CLUB. **1000** GM30XX, 700 G3XJS, 480 ON4KAR, G0IFK, 400 G3;YCC, 340 G4XVE, G3INZ, 300 G3FCK, G2HLU, 260 G0NEZ, 240 G4WZV, 200 SM6YF, 180 G0KCA 160 G4JZO, 140 G3MJX, G4VGS, 120 G0BOP, 100 G0KJN, DL8MTG (ex-Y24TG), G0IFM, DL8KAZ, AA2U, 80 KB1FK, GW0OSQ, 60 G4ICP, G4GJU, 40 GDOLQE, 20 GM0PQV, PE1HMO (vhf), 30 G4JZO, 20 KB1FK. DL8KAZ, AA2U, GW0OSQ, 10 W7JH, G0FRD. **Great Work By All !!**

WINTER SPORTS 1992 - A FUN AND FRIENDSHIP EVENT!

5B4 active. G4DQP Trophy goes to Scotland.
There was great activity (more than 40 countries active) and although conditions did not seem brilliant, one never seemed short of interesting two-way QRP contacts. This time, let us start with the Big Brotherhood, namely Randy, AA2U, Mike W3TS, and Chris (G4BUE) operating as GB0QRP. Between

them these lads racked up 180 two-way trans-Atlantic QRP contacts. Mike checking in with 90, Randy with 58 and Chris with 34. Eighty proved difficult this year, the only reported contacts being between W3TS, AA2U and GB0QRP. Forty produced one GB0QRP contact for W3TS, while AA2U made it with G4ETW, GKLQ, and GB0QRP. Mike worked European QRPers in 18 countries, and Randy 14. But this year a Scottish Big Gun emerged. Not George, GM3OXX, but our good friend Chris, GM4YLN, who worked a total of 33 countries on two-way, including 30 DX contacts covering FP8, KP4, 5B4, W and VE. At the other end of Europe, Stan EA6ZY, was doing his usual great job, giving EA6 to 17 countries, including 12 W/VE contacts. As Stan says "A lot of QRP stations need EA6 and there are not many of us on cw. So hope EA6ZY spread a little Christmas cheer the QRP frequencies!" (You did OM!). "One of my New Year resolutions is to spend more time on QRP". Still talking frequencies, PA3BHK turned in a log showing contacts on ten bands between 1.8 and 430 MHz. For vhf/uhf he was using 3w cw or 10w ssb. Next door in Belgium ON9CJP worked 8 countries two-way cw, but says his big thrill was when 5w of ssb raised a K2. His local, ON5UP, had a ball, working 18 two-way, including three W/VE. Over in Ireland Noel, EI4DZ was doing his usual great job with 18 countries and three W/VE. Down the road in Ulster GI4PCY missed out on DX but worked lots of EU. He says we should use 10 MHz more. Despite having his fun ruined by a computer game next door, G0IFK raised 15 countries and some DX. GM3KPD says he does not do long stints on the air now, but worked 17 and some DX. The latter included Betty, KC4DWT, XYL of Bill, N4AR, who gave several of us the pleasure of a QSO. G3XJS was another who hooked 5B4 (twice) and KP4, together with six north Americans. Serge, RA9CEI, seems to have found it tough going this year, but he is known to have worked at least four UK stations including G8PG. Despite being limited to a 40 ft sloping doublet GD0IFU was happy to work three QRP Ws. Another with three Ws amongst his 19 countries was G3LHJ. No cold Christmas for N4/GOFSP, who in a few short operating spells on 21 KHz hooked GM4YL, GB4QRJP and a dozen north American QRP chaps. No GB4QRP is not a misprint, but another special event QRP station, this time run by the Leicester Radio Society, with G0IFM doing a lot of the operating. A great idea and many thanks. HB9CKR was limited to a 3m high dipole and 2w, but still had fun working members. G3YYF was happy to wk four of our W members. Remember the Grandpapa of all the Ten Tec Line, the PM2AA ? PA3EKK was actually using one with considerable success on 7 and 14 KHz during the Sports. Others who bridge the Atlantic two-way include G3YYF (5), GW3SB (2), and G4WQW (1). G4XAF worked members on 2m and also 6 QRP Ws on hf. Despite a dipole only 3m high HB9CKR managed six countries. The log from OK2BMA is the first from the new Czech Republic (nice stamp No Ws, but Pavel did manage 5B4 two-way. Eighty metres only for G3ZHE, but lots of fun just the same. VE2KN did a great job for Canada, assisted by VE3KKO and a couple of non-members VEs. After some crafty negotiations with Grigoris, the hotel electrician, power became available for the 5B4/G4VPM Argo. During the Sports 16 countries were worked, including VU2LID/qrp, ten G/GM members, and the only reported QSO with TF3BGN. The tragedy was an January 1st, when after a long wait to tail-end AA2U on 21 the band went out at the crucial moment. Another to add vhf to hf was G0DJA whose vhf included PA3EHP Despite arthritis, a permanently dislocated thumb, and just being out of hospital, G4KNE managed cw QSOs with G and GM members (teenagers who find morse "too difficult" please note). G4DHZ was thrilled to work milliwatters DJ6LC and LZ1SM before a flu germ sent him to bed; not bad with 3W to 5m of wire hung on the curtain rail! LA7 kept Norway in the tame, but what happened to the logs from the SMs? If your log is not mentioned above bear with us, there were just so many of them. So now to the Awards. The G4DQP Trophy goes to GM4YLN for his outstanding log. The runner-up is G3XJS (a change from all those TV credit tiles!) The Sportsman certificate goes to W3TS. Best European mainland award to ON5UP. The award for putting a new QRP country on the air goes to 5B4/G4VPM. Best difficult location work was adjudged to be that of G4DHZ with his curtain rail antenna. Nothing from FOC members trying QRP for the first time, but an "I forsake the sherry for the Sports" award goes to EA6ZY. Hearty congratulations, chaps, and sincere thanks to all who helped to make 1993 a vintage Sports year.

Not least, of course, the Big Brotherhood, mentioned earlier, who all sent in logs marked "check log". Great Sportsmen all!!

MEMBERS' NEWS

Chris Page G4BUE

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

You have all had 'got aways' I am sure, but let me tell you about mine, as I think it might give you a chuckle. While the Winter Sports was going on, DK7PE was very QRV as 9F2CW from Ethiopia and Rudi, being the good operator that he is, often took time off from the pile-up to work only QRP stations. He did this one morning on 21MHz and I tuned the Argonaut up and called. I heard him work several genuine QRPers, including G3XJS and some others who I suspected were running QRO. So did Rudi, as he asked how much power they were running, and when they said 100W, or whatever, he refused to put them in his log.

When the QRP pile-up dwindled he finally answered me and told me quite sharply that I shouldn't have been calling him as he was listening for QRP stations only. I told him I was running 5W QRP and he said that was impossible as I was 20dbs over S9! He then called QRZ and the QRO pile-up swamped me.

Later that evening I worked Rudi on 40 metres (with QRO) and explained that I really had been running 5W on 15 metres that morning. He said he remembered the QSO, was sorry but I wasn't in the log and better luck next time! We all know that a QRPers life can be tough, but this is the first time I have been penalised for being too loud with QRP! Anyone know how I can work Ethiopia on QRP please?

8P6SM had been running RTTY 12W for many months but at the end of December he adjusted the output of his IC735 to 4.5W. Using an R7 vertical, Angus's first attempt at a 'real QRP' RTTY QSO with a CE station was a dismal failure. Things have got better since, and QSOs have been made with 36 USA States and 27 DXCC. Angus says his CW has improved from 'atrocious' to merely 'dreadful' but it was good enough for him to work **G4TNI** on two-way QRP and then to find out that Del was a fellow G-QRP-Club member. **ON4CJP** worked 6 states on 80 metres in the ARRL CW Contest with 5W and a 20 metres long wire just 3 metres high. Patrick will be QRV in the WPX Contest as he thinks his ON9 call will be quite rare. I think he's right!

G4APO finds the Jones filter of his Argonaut II seems to alter its band pass frequency when narrowed and he brings it back by decreasing the tuned frequency by altering the RXO. On quiet levels in the afternoon Rowland can hear very weak broadcast stations and assumes this is IF breakthrough as the stations do not alter in frequency when the main VFO is altered. He would be pleased to hear from others who may have experienced either of these problems as I haven't.

GØNEZ, our Novice Manager, is modding his homebrew 2W 40 metre superhet transceiver for RIT and an attenuator to deal with night time QRO BC QRM. Dave says that many experienced HF QRP club members are continuing to report that they haven't even heard a novice, let alone had a QSO with one. He says the reason is that they are still light on the ground and it requires a good deal of listening to copy their inexperienced 3W. My first novice QSO was while I was operating from **N4AR** in Kentucky during the ARRL 28MHz Contest in December. I was visiting Bill for a week which coincided with the contest and so we decided to do a multi-single entry. It is certainly different operating a major contest from that side and it made my day when a 2E0 called me while I was operating on 28MHz on the Sunday. It was also nice to get **G4MQC** in the **N4AR** log with his 3W to a folded dipole.

GØPVN says club station **GX5YC** is up and running again from University College in London. They are using a TS440 and a new Heatherlite amplifier for HF to a 4 element tri-band yagi and an FT290 plus amplifier and 8 element beam for VHF. Chris has been appointed Chairman and they had 4 students pass the RAE recently.

G3XJS suggests we change the 10.106MHz QRP frequency to 10.116MHz, as the existing one is too near the bottom band edge and rarely useable for QRP. What do you think? **PY7FNE** thanks **G4JQT** for his article on improving the overload characteristics of the HW9 in SPRAT 72. Carlos did the mod to his HW9 and says it now works fine. **SP9TNM** is now QRV on packet @ SP9ZDN. **SM5LWC** finds the DTR-7 works well especially in the early hours. Gert is a student at Linkoping University.

PA3BHK has been enjoying tropo conditions on 144MHz and 432MHz. Robert worked GM, GW, ON, F, DL on two-way QRP on 2 metres and some Gs on 70cms with his 2W. The Benelux QRP Club organise a QRP camping week-end every year and they would love to see some UK QRPers attend. Give Robert a call if you are interested (tel: 2522-11090). **G4MQC** has joined ARCI and has been working towards WAS QRP. Stan has worked 43 states so far of which 28 are with two-way QRP, the latest being Bob, W6SKQ in California who was running 2W.

GWØMOH is a student at Liverpool University and has been 'reduced to' homebrew as his FT101 blew up! Rob enjoys 80 metres CW. While in Scotland recently he joined the Dunfermline & DARC and met up with QRPers **GM4ZNX** and **GMØGNT**. **OK1NR** bought a TS820 while in Sweden recently and is very pleased with it.

The Leicester Radio Society aired the GB4QRP call during the Winter Sports but unfortunately I never found them with my GBØQRP call! How about more of you applying for QRP calls for the 1993 Winter Sports? It all adds to the interest. Colin, **GØIFM** says they used a very long wire (about 250 feet) on 40 metres and a yagi on 15 metres. Using his own call, Colin started the new year with a QSO with CN8HA for a new DXCC and is hoping that will prove to be a good omen for this years DXCC chase. **OH6MIL** uses an IC735 for QRP work and asks if there are any IOTA chasers in the Club? Pekka will be operating at weekends from Skarporen Island (EU101) this summer and may also visit OHØ.

G3LYD bought a new Argonaut II (serial 90A10152) while in the USA in November and says it differs in some respects from earlier versions in that it is additionally provided on the rear panel with a serial input, extension speaker socket and an eight pin accessory socket similar to J1 on the Delta. Ellice says according to the manual, with the Model 305 serial interface level adapter, this unit translates the transceiver TTL levels to RS-232 level computer signals enabling computer control and, via additional two wire sockets on the interface, simultaneous control by the Argonaut of other compatible transceivers such as the Omni VI in a mode referred to as Matrix code. He has found the Argonaut "delightful to use with good sensitivity and resistance to strong signal overload. A variety of very low level spurii exist but do not detract in normal operating practice."

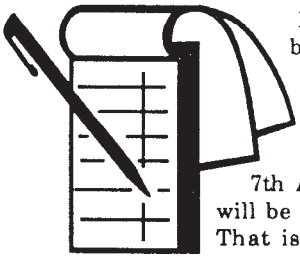
Many thanks to **GØKJN** and **GØRJT** for sending details of the circuit for the Century 22 crystal calibrator requested by **GØSBN** in SPRAT 73. **DL2RM** has worked al of Europe with 3W and "only some metres of random wire". Rudi uses an Argonaut II but has also been experimenting with single transistor crystal controlled transmitters. He has also been using an SEG15D military transceiver manufactured in 1990 and used by the ex-GDR (DDR) Army. **W3TS** is working on a 'Three Fer' transmitter as a progression from the sucessful, 'Two Fer'. Mike says it uses an NE602 as a mixer, has a 5MHz VFO with a crystal oscillator at 2 or 9MHz for 80, 40 and 20 metres.

AA2U has been 'milliwatting' lately and has worked OK on 40 metres with 0.009W, HA on 10 metres with 0.004W and AH1A on 20 metres with 0.34W. Randy has found that good antennas are the secret to QRP working generally and especially for 'milliwatting'. **G3XJS** worked **KP4DDB** and **G4VPM/5B4** for two new ones on two-way QRP and 5X, ET and 7P for new DXCC ones. Peter is the Club's QRP Expedition Information Officer and asks that members who wish to receive information should lodge two SAEs with him. Those who did received information about G3XAQ/6Y5 in December. Peter also asks that anyone with any knowledge of QRP dxpeditions to please let him know.

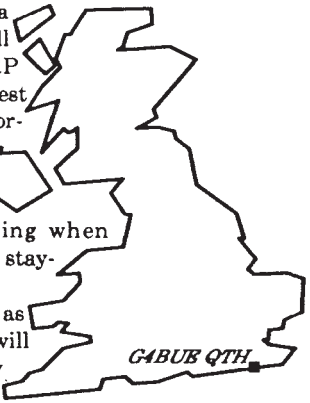
Finally, in anticipation that I will be able to finish landscaping my back garden in time, Pam and I intend holding our Summer QRP Party again this year. We were sorry to miss out last year but the garden was like a building site at the time! The date is Saturday 7th August and please see the announcement elsewhere in SPRAT for further information.

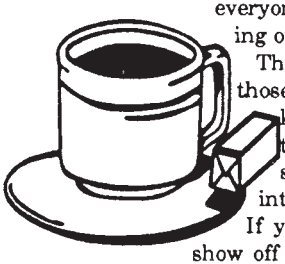
Let me know how your spring goes, by the 20th May please. 73, Chris

THE 1993 SUMMER QRP PARTY

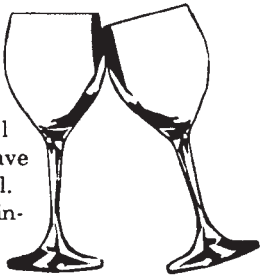


Please make a note that after a break last year, Pam and Chris will be holding their Summer QRP Party this year at their QTH in West Sussex, a few miles north of Worthing. The date is Saturday 7th August 1993 and the routine will be the same as previous years. That is starting from 2pm and finishing when everyone has gone home or those that are staying overnight go to bed!





This will be the seventh party and as those who have attended in the past will know, it is an excellent opportunity to meet other Club members and some of Chris's local amateurs, who are interested in QRP, DXing and contesting. If you have built something you want to show off or can't get to work or want to put on the air with Chris's HF yagi then bring it along. All items of homebrew are welcome. If you have anything you want to sell, bring it along as well.



You are asked to let Pam or Chris know you intend going so they can make sure there is enough food and drink to go round. If you live some way away and want to stay overnight, some sleeping accommodation is available on a first come and first served basis. Telephone Pam and Chris on 0903 814594, drop them a line (see Members' News) or send a message via the DX Packet Cluster or the ordinary packet to Chris @ GB7VRB.

ANDY STAFFORD G4VPM/5B4

24th December - 7th January. Rig Argonaut 515 228 ATU CW/Notch Filter 208A. Antenna: Wire running round room for first 3 days, then a 150ft wire only about 8ft above gnd. S51XL and UA1AAH wkd on Christmas Day. Winter Sports QSOs inc. GB0QRP and G3XJS on 3 bands. W3TS and AA2U both heard. All QRP contacts came from calling stations/taili ending none from CQs. A total of 32 contacts with club members

Hands Electronics

Kits for RF Constructors

A NEW RANGE OF KITS

Receivers - Transmitters - Transceivers

A Stamp or I.R.C. Brings You Our Free Catalogue

Hands Electronics, Tegryn, Llanfyrnach, Dyfed, SA35 0BL

Telephone : 023977 427

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

Available only by postal subscription, sample copy £2.20, or send for further details to

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

THE ANTENNA EXPERIMENTER'S GUIDE

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

200 pages and 120 illustrations on experimenting with antennas.

Includes material not previously published.

Building and using simple RF test equipment.
Measurement of antenna element and feeder resonances
Measurement of impedance; the noise bridge & 3-meter method.
Electric & magnetic field strength measurements.
Antenna adjustment and performance measurement.
Modelling of HF antennas at VHF & polar diagram plotting.
Using computers in measurement and modelling.
Experimental antenna and mast construction.

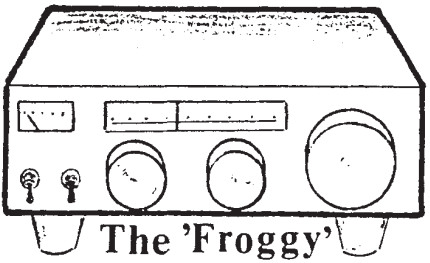
Access VISA

£8.90 (£7.90 to Sprat members) 80p P&P UK.
Overseas, £1.20 surface mail, £3.00 air mail
Equivalent currency or credit card

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

RADIO·S

PRESENT:



The 'Froggy'
CW/SSB-1W

The kits:

'Micro-80' TRCVR	- 15
'Cricket'-80 RX D.C.	- 15
'Bug' xtal CW TX	- 10
Speech processor	- 8
Ant'ampl. for RX	- 8
	US $ (or eqvl.)

▲ the ready built phase D.C. TRCVR, any band you like, 12 V D.C., RIT, speaker, 200 x 60 x 160 mm, 50 $.

Oleg V. Borodin RV3GM
P.O.Box 229, Lipetsk, 398043 Russia

KITS

*** NEW MODULES FOR SSB ***

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

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

All modules are available separately.

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

XTALS:
3560
3570
7030
14060
kHz

SEI toroids for SPRAT 61 wattmeter

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

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

Send SSAE (9"x4" min) for latest catalogue to:

JANDEK, 6 Fellows Avenue, Kingswinford, West Midlands, DY6 9ET.

Telephone: 0384 288900

QRP CALLING FREQUENCY CRYSTALS

Please note that from now on GOLLEDGE ELECTRONICS
are no longer able to supply individual crystals to members.
They are now solely dealing with wholesale trade.
(We thank Peter Golledge for his long association with the Club)

THE QRP CALLING FREQUENCIES

3560 - 7030 - 10106 - 21060 - 28060 KHz

HC25U/U Fundamental 30pF cap. HOLDERS ALSO AVAILABLE

CAN NOW BE SUPPLIED BY KANGA PRODUCTS

(Dick hopes he may increase the range in line with demand)

KANGA PRODUCTS

KANGA PRODUCTS 3 LIMES ROAD FOLKESTONE KENT CT19 4AU
TEL/FAX : 0303 276171 or 0860 363915 [0900-1900]

DC TRANSCEIVER KITS

Single Band Kits for	3.5, 7, 10MHz	£40 each inc post
	14, 18, 21, 28, 50MHz	£55 each inc post
Three Band Kit for	3.5, 7 and 10MHz	£60 each inc post

(PCBs and construction notes only for above at £10 inc post)
White Rose 50 to 28MHz Transverter Kits £25 (PCB only £5)
Overseas members add £5 for postage. Cheques "John Beech"
JOHN BEECH, G8SEQ, 124 BELGRAVE RD. WYKEN, COVENTRY, CV2 5BH

SMALL SCALE SOLAR AND WIND POWER

Sun and Wind Power at Affordable Prices

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

BOB KEYES, GW4IED

4 GLANMOR CRESCENT. NEWPORT, GWENT. NP9 8AX

10% REDUCTION ON ASI PANELS TO CLUB MEMBERS

NEW! DTR7 – 40m CW TX·RX

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

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

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

ALL COMPONENTS AND HARDWARE INCLUDED

£87.50 (Kit) **£140 (Ready Built)**

NEW! PM20 POWER METER for QRP

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

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

£19.50 (Kit) **£28.75** (Ready Built)

For full details of our kits, send SAE to

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

OR RING ALAN, G4DVW, ON 0602 382509

KANGA PRODUCTS

Firstly a big thankyou to all customers who waited so patiently for your orders. Our move was delayed by a month! So instead of opening on 15th January, we only moved in to start building the workshop on 11th January.

Some new things to tempt you...

RGN Inductance bridge, **check out all those unknown coils, a must for the serious builder, Requires variable capacitor and the box...** ***£13.95***

The Crystal set, **bring back all those memories with this very simple crystal set.** ***a must for the kids.. £4.95.***

The Multi-Band OXO, **now the OXO goes multi band. The new PCB has facilities for up to four crystals, switch them as you wish.** ***The Multi-band OXO is £8.50***
(Crystals and holders are available)

Send an A5 (Sprat sized) SAE for our FREE catalogue

KANGA PRODUCTS

Seaview House, Crete Road East, Folkestone CT18 7EG
Tel / Fax 0303 891106

Please note: As we will be representing the Club at Dayton once again we will be closed from April 16th until May 3rd. We are sorry for any inconveniance caused.