



SPRAT

THE JOURNAL OF THE G QRP CLUB

DEVOTED TO LOW POWER COMMUNICATION

ISSUE Nr. 113

© G-QRP-CLUB

WINTER 2002/3



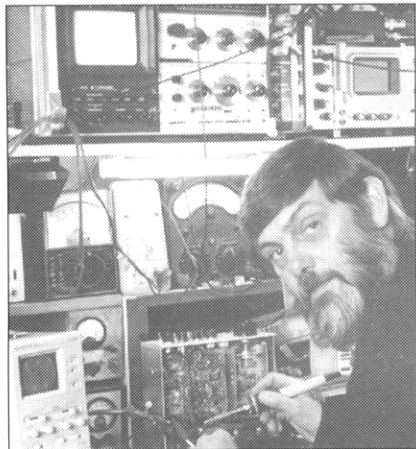
WHERE SPRAT IS PREPARED

Ian, G3ROO, at the G3RJV computer, watched by [left to right]
Dick GØBPS, Peter PE1MHO/M3ECN and Chris G3TUX

Super-Sixty Transmitter & Receive Converter for 5MHz
Lowpass Filter to 5MHz ~ Simple Modular DSB Transmitter
Digital Modes for Free ~ Lambda Regenerative Receiver
Pixie 2 Improvements ~ Receiver CW Filter ~ New Book
Club Sales ~ QRP Calendar 2003 ~ Antennas-Anecdotes-Awards
Communications & Contests ~ SSB & Data News ~ Member's News

It is now time to Renew your Subscription

JOURNAL OF THE G QRP CLUB



© G QRP CLUB

St. Aidan's Vicarage,
498 Manchester Road
Rochdale, Lancs.

OL11 3HE. England

TEL & FAX: 01706 - 631812
(overseas tel: +44 1706 631812)
Internet : g3rjv@gqrp.com
Homepage : www.gqrp.com

Rev. George Dobbs G3RJV

Welcome to SPRAT 113,

Subscription time is here again – please follow the instructions in the centre pages. Can I echo the remarks by GØBXO and ask every UK member to consider paying by Standing Order. This not only makes it simpler for us but also saves money for the club. If the postal services manage to get this issue to you before it occurs – I hope I may see some of you in the Winter Sports – see page 32 for details.

Don't forget to keep the articles coming – let me know about your latest project. We can accept material in almost any format; brief notes, diagrams and parts lists are all we require to make a SPRAT article.

 G3RJV



The W1FB Memorial Award 2002

The winner [once again] is Milan, 9A9RA, for his Simple CW Transmitter. For those who want to challenge Milan.....

For 2003, the project is to

**Design a Superhet Receiver [simple if possible]
for one or more amateur bands**

Please submit your design to G3RJV as soon as possible, with circuit sketch, all values and brief notes. The project will be published in SPRAT and the winner will receive an engraved plaque.

EDITED BY GEORGE DOBBS G3RJV ARTWORK BY A.W. (MAC) McNEILL G3FCK
Printed & Distributed by G QRP Postal Mailing

L1 – 14 turns, 26 SWG enamelled copper wire on T50-2 ring core.

L2 – 19 turns, 26 SWG enamelled copper wire on T50-2 ring core.

L3 – 20 turns, 26 SWG enamelled copper wire on T50-2 ring core.

L4 – 19 turns, 26 SWG enamelled copper wire on T50-2 ring core.

T1 – 14 bifilar turns, 22 SWG enamelled copper wire on T68-2 ring core. Twist two wires together at about one twist every 15 mm. Wind 14 turns on the ring core, and label each of the two wires at the start of the winding with the identification numbers 1 and 3. Then label the other end of each wire with 2 and 4, respectively. (In all cases, one pass through the centre of the ring core counts as one turn; two passes as two turns, etc..)

The VXO stage was screened from the other stages within the diecast box using 'walls' of copper-clad board soldered to a 'floor' of the same material. Earth (or 'ground') connections were made directly to the floor, keeping all earth connections as short as possible – especially around the driver and PA stages. If this is done consistently, Mr Murphy will be more forgiving if you end up with longer connecting wires elsewhere. Each PA transistor draws 400 mA on key down. This can be checked by measuring the voltage across one of the 1 ohm emitter resistors: 400 mV corresponds to a current of 400 mA. Increasing the value of the 10 ohm emitter resistor in the driver stage will reduce the drive level to the PA.

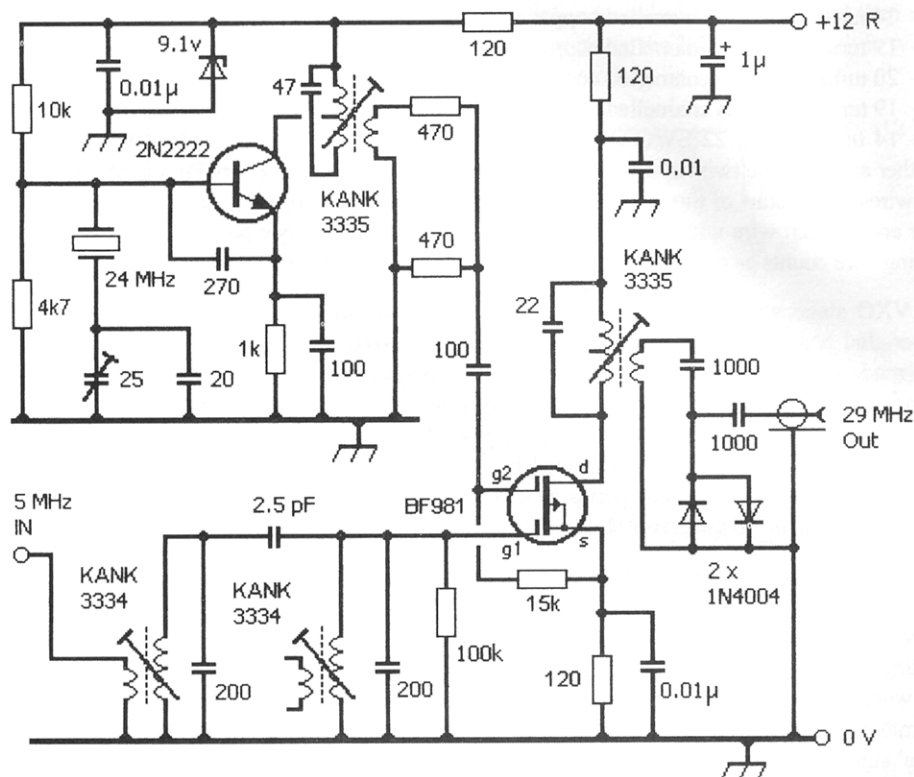
The 'RX' antenna terminal should be connected to the 5 MHz input terminal of the receive converter. Alternatively, the 'RX' terminal may be connected directly to a separate 5 MHz receiver. The neat thing about using a switched receive converter is that you don't have to keep winding back every gain control on the main receiver each time you switch to transmit. It's well worth the trouble of incorporating a receive converter for that reason alone! When using a separate 5 MHz receiver with the *Super-Sixty*, the '+12 R' line could be used to generate a 'mute' signal for the receiver.

Although I made over 30 contacts using the first prototype without fitting heatsinks to the PA transistors, these devices will require a small heatsink to survive extended periods of key-down. Note that the tab of the 2SC2166 is internally connected to the collector, so be sure to use a TO220 insulating kit! Although the driver transistor does not need a heat sink, I found it convenient to mount all three 2SC2166s on the inside wall of the diecast box. Initially, the VXO coil was tuned for maximum signal, and then off-tuned very slightly (to a point where adjustment of the core had less effect upon oscillator frequency). The top of the adjustable core ended up being about 2 mm below the top of the coil former.

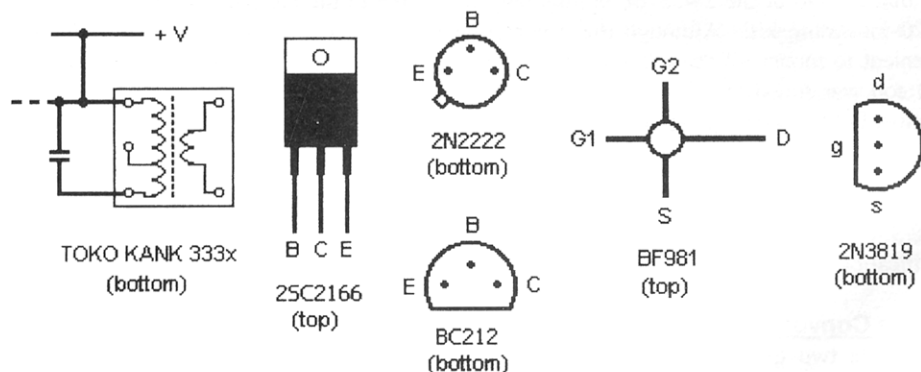
Suitable HC25 crystals and sockets can be obtained from QuartSlab Marketing Limited (Tel: 01322 330830). The 5.25900 and 5.27900 MHz crystals were manufactured to QuartSlab 'Specification E'. Most of the other parts can be obtained from Sycom (Tel: 01372 372587).

Receive Converter

This simple two transistor design is similar to one that I have used for many years in a homemade 80 m transceiver, and performs very well indeed. I have included some modest protection at the output (the pair of 1N4004 diodes), in case the associated 29 MHz rig is keyed accidentally. To align the converter, initially set the top of all adjustable cores about 2 mm below the top of the coil former. Then, using a weak off-air signal, peak all coils. As with the VXO, I suggest off-tuning the 24 MHz oscillator coil very slightly.



Pin-out Diagrams



Support

Those needing help with the construction of the *Super-Sixty* are welcome to write to me, enclosing an SAE. Updates and useful tips from other constructors will be maintained on the GW4ALG web site at: <http://www.alg.demon.co.uk/radio/qrp/equip.htm>

FROM THE MEMBERSHIP SECRETARY

John Leak, GØBXO, Flat 7, 56 Heath Crescent, HALIFAX, West Yorkshire. HX1 2PW

Tel:- 01422-365025. Email:- gØbxo@gqrp.com

SUBSCRIPTIONS 2003

Subscriptions for the year 2003 are now due. Please see the centre pages of this issue of SPRAT for details of methods of payment. I can accept payment for more than one year at a time. If you wish to do this, please show clearly how many years you are paying for.

It is a very great help to me in processing payments if members respect the following procedure. If paying by cheque, please write your membership number and callsign (if any) on the back of your cheque. I list cheques on bank payment slips under your membership number so that I can trace a cheque in the event of a query. The callsign serves as a check.

Please make cheques payable to "GQRP CLUB" not to me personally, nor to SPRAT. I will return cheques made out to SPRAT and cheques made out to me.

If you pay by credit card, please quote ACCURATELY, the card number and expiry date.

STANDING ORDER PAYMENT

IF YOU ARE A UK MEMBER AND DO NOT ALREADY PAY BY STANDING ORDER, PLEASE CONSIDER DOING SO IN FUTURE. THIS METHOD OF PAYMENT IS THE CHEAPEST FOR THE CLUB AND IS THE EASIEST FOR US TO PROCESS.

A STANDING ORDER MANDATE IS INCLUDED IN THE CENTRE PAGES OF THIS ISSUE OF SPRAT.

SIMPLE TEST EQUIPMENT FOR THE QRPer

"A wonderfully useful little book by G3MFJ and G4WIF, full of constructional articles describing simple but effective test equipment that will help get a QRP project working. Every project is of practical interest to the QRP constructor and comes complete with circuits, parts list [and sources]. I think this is a most for any QRP library.....in fact, I wish I had written it!"

G3RJV.

Twenty articles in a 58 page book bound in a 'lie flat' heavy cardstock cover.

The U.K. price is £6.00 post paid to the U.K.

The E.U. & DX (surface mail) price is £6.50 post paid.

For airmail DX orders please add an extra £1. (i.e. £7.50 post paid).

E.U. and DX orders please only International Money Order in pounds sterling

Please make all cheques or money orders payable to "G. Firth" and send payment to:-

Mr. G. Firth, 13 Wynmore Drive, Bramhope, Leeds. LS16 9DQ. UK.

US Orders to Doug Hendricks [Attn: QRP Book] 862 Frank Ave. Dos Palos, CA 93620.

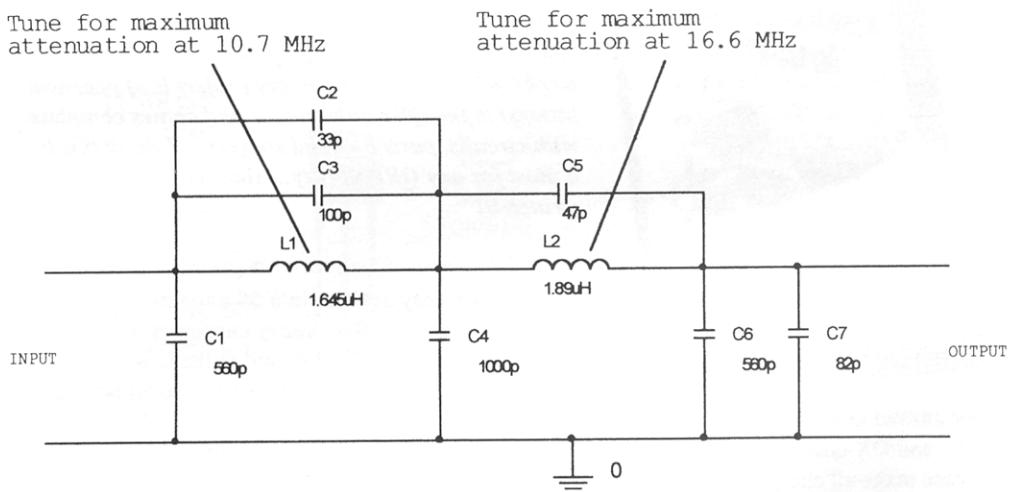
Price \$12 postage paid for the US and Canada. Please make all checks and money orders out to "Doug Hendricks".

Low-Pass Filter for 5MHz Band Transmitters

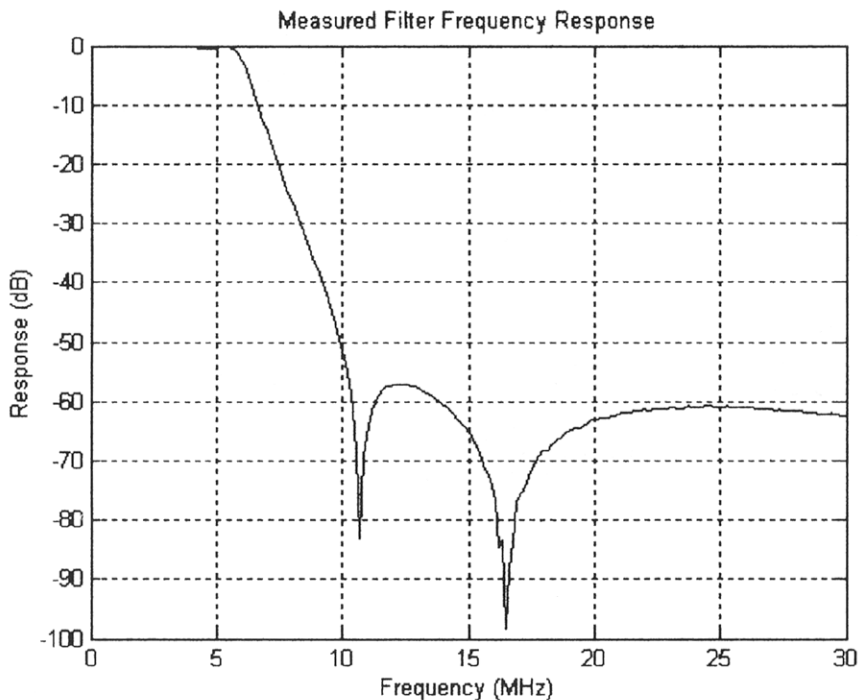
Tony Lymer, GM0DHD, 16, Gerson Park, Greendykes Road,
Broxburn, West Lothian, EH52 6PL. tony_lymer@agilent.com

With the advent of the temporary 5MHz allocation, various members will no doubt be interested in building new equipment or adapting existing transmitters or transceivers for this band. Unfortunately, a low-pass filter designed for the nearest band (7 MHz) is unlikely to give much harmonic attenuation at 10.8 MHz, the second harmonic of the new band. There is a need for a filter designed specifically to attenuate the second, and higher harmonics of the new band. Here is a simple filter design with the inductors resonated with capacitors to increase the second and third harmonic attenuation. The inductors are 15 turns on a T-50-2 toroid for L1 and 19 turns for L2. The wire size is not particularly important, about 22 s.w.g. will do fine. The capacitors should preferably be silvered mica, although disc-ceramic or polystyrene capacitors will be fine, provided the working voltage is high enough for the power applied, with a generous margin for antenna VSWR 'mishaps'. For 5 watts, 50V working ceramic capacitors are barely sufficient; as there is about 34V across C2, C3 and C5. 100V working, or greater, would be much better. The frequencies of the pass-band notches are at 10.7 MHz and 16.6 MHz and these frequencies can be used to align the filter. Connect the between the antenna and a receiver tuned to a strong signal around 10.7 MHz. Adjust the width of the windings on L1 for the best null on the signal. Repeat the process at 16.6MHz with L2. The measured pass-band loss of the filter was 0.22dB.

Filter circuit diagram



5.4 MHz Low-pass Elliptic Filter for 50 ohm systems



Press-n-Peel PCB Transfer Film (Blue).

Sheet size = 8.5in x 11in. Using a laser printer or photocopier to lay the design onto the film then use a household iron to transfer the image to the board. After allowing it to cool just peel off the film and the pattern is left on the board. Etch as normal.

Maplin - when/if they have it in stock - charge £14.99 for a 5 sheet pack.

CPC charge £12.50 + VAT = £14.68 plus delivery for a 5 sheet pack.

I can offer this at £1.50 per sheet - NO minimum/maximum order. p&p free to UK club members - Europe P&p £2.00. Rest of World £3.00. - include GQR number with order

An instruction sheet will be included with each order.

See Radcom October 2002 for the result you can get with laser film.

Send UK cheque/postal order or (well wrapped) Euro Notes [Conversion rate £1.00 = Euro 1.55.] notes to: Ron Satterthwaite G6BMY, 47 Aberford Road, Baguley, Manchester M23 1JY

Multiple Callsigns – from the Club Records department G3MFJ (and W3MFJ)

Some members may already know that it is possible to have more than one callsign in the member's handbook. If you hold more than one call, then please let me know and I can add an additional entry to the database. Sorry, this means that you still only get one Sprat – but you also only have to pay just the one subscription. As folks nowadays seem to have more than one call, this may help the "member hunters!"

Correction: SPRAT 112, page 19 – PP2 Transmitter.

GM3OXX says, "there is a wee mistake in the PP2 circuit - there should be a 2.5mh choke from each of the grids on the acorn valves to ground."



A Simple Modular DSB TX

Jack Ponton GM0RWU, Legerwood, EARLSTON, Berwickshire,
TD4 6AS

There are many designs for simple and effective CW transmitters. There are rather few for simple phone transmitters of any kind. (Some novel designs can however be found on JF10ZL's Web page.)

The simplest way of getting on the air with phone is to convert a single transistor crystal controlled TX into an AM transmitter by putting a carbon mike in series with the power supply. This is illustrated by a design in the G-QRP Scrapbook (p??). There are several disadvantages to this approach, the main practical one being that depth of modulation is very low, I would estimate about 15%, and so the effective audio power is only going to be a few milliwatts. It does work after a fashion however, and short distance contacts can be made.

A more elegant approach is to use DSB. At QRP levels this is a perfectly respectable mode even on narrow bands such as 40m and 17m. It is more efficient than AM and not that much harder to construct.

Alternative Approaches

All methods of generating DSB follow the same principle, viz a mixer with local oscillator at the signal frequency and audio input. However, there are two rather different approaches in practice.

High level modulator

A diode mixer, which can be anything from a single diode in an unbalanced arrangement (which would give very poor carrier suppression) to a commercial 4 diode-packaged unit such as the SBL-1, is fed with audio and carrier at some tens of milliwatts. There is typically 7-10dB of loss in the mixer. A milliwatt level TX can be made by feeding audio to a diode mixer either from a carbon microphone circuit or an audio amplifier such as the LM386. The lowest active component count for such a transmitter is one transistor. See JF100ZL's design.

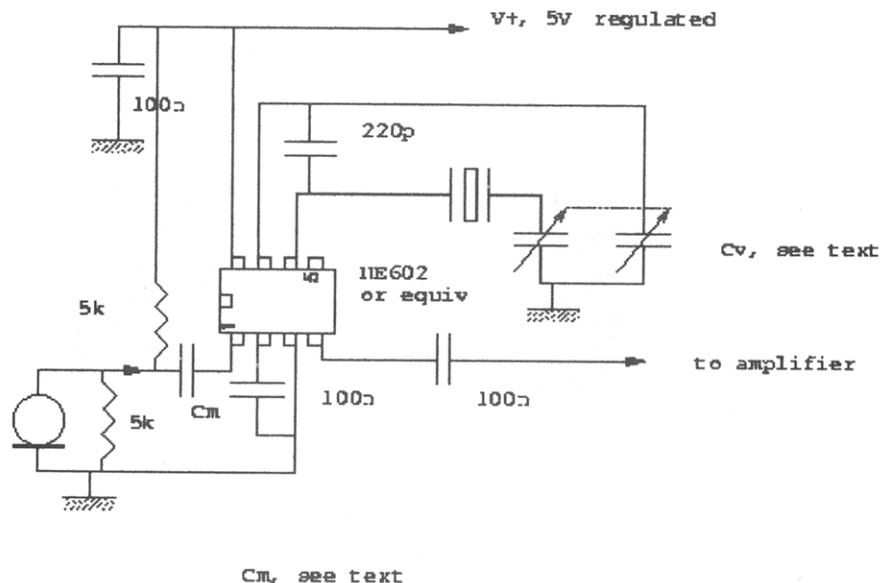
However, less usual components such as carbon microphones and transformers are likely to end up being more expensive than semiconductors or even ICs, so a low component count does not necessarily lead to a cheap rig!

A more conventional design was given in Sprat by ZL2BMI. Although this uses a carbon mic a dynamic or electret mic may be substituted.

Low level modulation

An active mixer of the 602/612 family can be driven directly with a microphone and has a built in oscillator. It has a typical gain of 17dB and so should be capable of providing a milliwatt level single chip TX.

The design below uses a ceramic resonator, either 3.395MHz or 2MHz for 160m, which can be pulled over a useful portion of the respective bands.



Cm acts as a high pass audio filter. A value of 1microF is suitable, but can be between 100nF and 10microF.

The 'crystal' is a ceramic resonator, either 3.695MHz for 80m or 2MHz for top band. For top band a 22 microH series inductor should enable the oscillator to cover most of 1.9 to 2.0MHz. Cv is any conveniently available twin gang capacitor. A large airspaced 2 x 500pF device will give coverage of much of the 80 phone section, typically from 3.6 to 3.74MHz, a compact 'polyvaricon' rather less.

Linear Amplifier

The amplifier is a straight copy of ZL2BMI's circuit in Sprat 83. With drive direct from the NE612 I can get about 300mW out, adequate for 'local' qsos, and maybe a bit more if conditions are good and you're persistent!

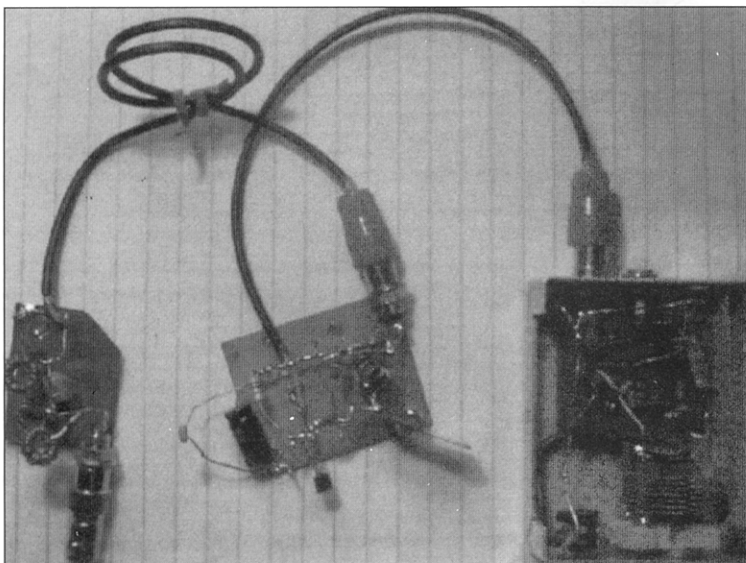
The filter values are for 80m. In fact I used a 5 pole filter since I have one made up.

Construction

I built this in 'modules', see photos, starting with the exciter. This is best in a screened box to ensure carrier suppression. It was built on a piece of perforated board. The version in the picture uses only a single variable capacitor (the left hand half of Cv) which gives only about 40kHz of pulling range, but was what I had to hand.

The amplifier was built using (very) ugly construction. The BD135 heat sink is a piece of thin copper sheet (all metal, not pcb material) fixed with a suitable bolt. This must NOT touch an earthed case or ground plane.

Everything is linked up using phono plugs and sockets. A beginner can build the exciter, connect up the microphone, put a short piece of wire on the output, tune in on a receiver and hear himself speaking. In fact, this constitutes a single chip TX with an output of a few hundred microwatts. It should be possible to use it very short range qsos!

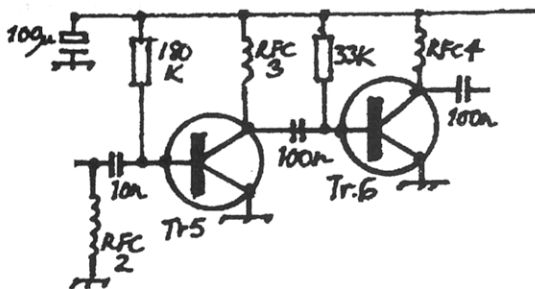


Further Development

The amplifier is capable of 1-2W output on 80m if the drive were increased. Another driver stage could be used. It may also be possible to increase the output from the NE602/612 by putting DC bias on pin 1, an idea just seen in Sprat 110.

One thing I'd particularly like to do is to make a 12m version. This idea arises from some experiments with two 25MHz crystals in parallel (and they're cheap enough!) along with a series inductor of about 2.2 microH. This will pull over the whole of this narrow band. However, the current linear amplifier runs out of puff well below these frequencies and I have yet to get round to finding or concocting a more suitable design.

I definitely must get round to this, because there aren't many simple designs for this band, and it is one on which QRP phone can be very successful.



APPENDIX ZL1BMI PA FROM SPRAT 83

RFC2/3 = 10t through ferrite bead.
RFC4 = 2½t through 6 hole bead
[approx. 15uH]
TR5 = BC338 or sim
TR6 = BD139

Digital Modes for Free !

Paul Court G1ROK / M3ROK, 29 Chaffinch Rd. Beckenham, Kent. BR3 4LT

Free as long as you have an FT-817, a PC and a small workshop anyway !!!

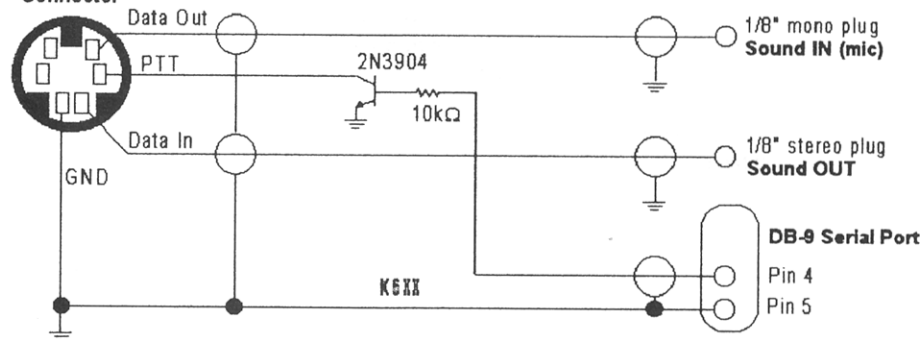
Thought I would put pen to paper (or at least fingers to keyboard) to tell you about the ease with which I managed to get on to the digital modes using nothing but junk from the junk box and about an hour of my time – much to my surprise the whole thing worked first time too !. (Apologies to the people selling interfaces but this is what Amateur Radio is all about)

I have recently purchased the marvellous FT-817 and have been playing with as many aspects of this brilliant QRP rig as I could. In all the years I have been a Ham I have Never owned a rig that had more than 5 watts output so when I got my M3 the 817 had a natural attraction. (Thanks to G3ROO of the G-QRP Club for the Morse training and the 817 Demo)

While reading one of the on-line forums I came across some very basic details of a soundcard interface for PSK31, RTTY, SSTV etc. and this started me thinking.

FT-817 AFSK Cable (for PSK31, MFSK, Baudot, etc. with PC Sound Cards)

FT-817 DATA Connector



Looking at the back of the Rig and coming from a computer background, two things struck me. Firstly, the connectors on the 817 All appear to be derived from the Computer world (For cheapness I assume) and secondly the fact that a lot of people would have most of the bits needed to construct an interface lying about the shack, not convinced, then read on..

The first thing I looked at was the 817's "DATA" socket, this is the socket that is used for the above modes and it looked strangely familiar.

A quick hunt around produced a moulded PC Mouse lead, this was offered up and much to my delight fitted snugly, these leads should be readily available, ask anyone who has been into computers for more than 5 minutes and chances are they could produce at least one dead mouse. Mouse/Data plug and 1 meter of cable duly place on the bench in preparation – Problem one solved.

The next item was the DB-9 serial connector for the back of the PC.

This is used to allow the PC to key the transceiver. Some people have used the VOX setting of the 817 to alleviate the need for this item but I thought I would use it for completeness.

Another little hunt round produced an old Modem lead complete with the appropriate plug, this was added to the items on the bench – Problem two solved.

Next to the audio leads. The input and output on a standard PC sound card is Stereo while the rig is obviously Mono.

This is not too much of a problem for the PC Mic or Line input as the lack of signal on one line does not matter to the PC in the least, My concern was for the Speaker Out connector. If a Mono lead were used here we would affectively short one channel of the card to earth with anyone's guess to the consequences, this lead Needed to be Stereo.

Back to the junk box (Junk Draw in this case) produced a pair of old Walkman headphones from an aeroplane complete with a long lead and a 3.5mm (1/8") Stereo plug.

Also lurking in the draw was an old plug-in PSU with a 3.5mm Mono plug on what looked like small bore audio coax, these item were added to the ever increasing pile of bits - Problem three solved.

Next on the list was the two components needed to construct the interface board.

The first is a 10k resistor, this component is so widely used you should be able to find one in most pieces of junk equipment (at least the ones that used "Real" components)

I happened to have a couple of new ones in my components box but Maplin sell them for a few pennies if one can't be found.

The Transistor is a small signal NPN type and almost any of the standard types will do. Pin outs and general information for salvaged transistors found lying around in junk boxes and old bits of kit can be easily found on the internet. I used a BC549 again because that's what I had in the junk box.. – Problem four solved.

The last items to be retrieved were an 1 inch by 1 inch piece of Vero board and a small plastic case from a defunct low voltage lighting transformer. – Problem five solved.

Soldering Iron plugged in, Cup of tea to one side let's go.

First on the agenda was to strip back and "Buzz Out" the all of the cables using a multimeter – one word of advice, Draw a picture of the plug and write down the colours of the cables going to each pin, the brain has enough to do without trying to remember which colour was which pin.

The Mouse (DATA) plug I was using was moulded with the cable being an integral part of the plug. It did not have a wire going to the pin marked GND, it did however have a wire going to the metal shell of the plug.

A quick look with the multimeter shows the 817 to have a direct connection between this pin and the shell so I used this for the GND.

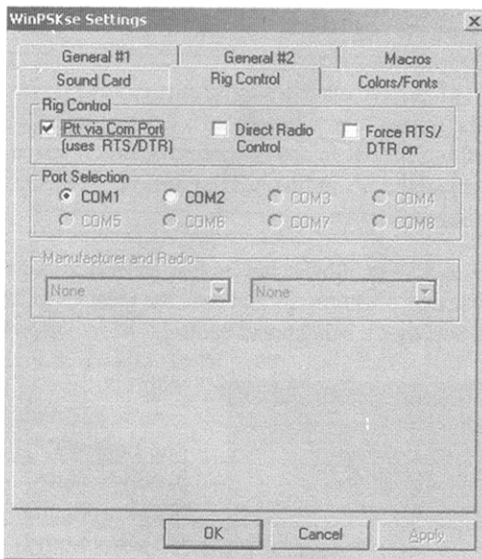
I started by soldering the required wires from the Mouse/Data lead to the piece of Vero, this was a good a place to start as any.

Next I mounted the Resistor and Transistor, this lead me to the DB-9 which was duly added to the mix.

Onto the Mic (Mono) cable followed by the Speaker Cable, Leave the middle ring of the 3.5mm plug unconnected.

Another quick look round with the Multimeter confirmed all to be in order so I carefully shoehorned the whole assembly into the case and connected everything up to the PC and the 817.

Another little look around the groups came up with the suggested starting mode of PSK31, this mode is supposedly good for QRP and the software is readily available.



I went for a shareware program called WinPSKse 2.23 (<http://www.winpskse.com/>) which seemed to fit my intended use – Windows 2000 with serial line control of the TX.

The software installed without a hitch and on firing it up was ready to go.

First stop was the “Settings”, ”General Setup..” menu.

I only changed two things, on the first page I entered my Call Sign and on the Rig Control tab I checked the box marked “Ptt via Com Port”. See Diagram.

Once you are ready to roll I would suggest pointing the rig to 14070.150khz and the “Mode” to “DIG”, you should also go into the 817 menus and select “DIG Mode” of “PSK-U”.

The FT-817 manual pg 39 describes this very well so I wont reinvent the wheel here. You do need to ensure that you are in the DIG mode and that you have set up the radio following the steps on pg. 39. Most PSK31 uses USB so keep that in mind when setting this up.

On the WinPSKse main screen (At the Bottom) select BPSK, this is the default mode for most PSK transmissions... Select the Water Fall, click on the blue streams and watch for a while taking in what’s going on. With the WinPSKse software it is possible to watch two conversations at the same time, this can be very confusing !

Other than the advice above I would strongly suggest taking a few minutes to review the documentation as there is quite a lot going on here. You will need to pay special attention to the sections on setting the audio levels, while this is not that time consuming it is the key to success.

Once you’ve got the hang of PSK31 I would strongly suggest RTTY is a must and SSTV is good fun too. A word of warning, the duty cycle of theses modes will kill the internal batteries very quickly, I would suggest an external power source at all times...

And lastly, what’s the difference between this unit and one of the commercial ones – to be honest not a lot. Some of the commercial ones appear to have isolating transformers to isolate the PC from the radio (Could be added if you had some lying around) and some of them come with bundled software (Loads of software available on the Web)... I personally think it’s nicer to have built the unit yourself with or without isolation.

While I won’t be held responsible for any damage to your Rig / Computer / Self I will end by saying I have used this interface for a couple of months now without a problem.

Now where have I seen that “ACC” socket before – Watch this space !

Lambda Regenerative Receiver

Bozidar Pasaric 9A2HL, Kataliniceva Str. #6, 51000 Rijeka Croatia
bpasaric@mac.com

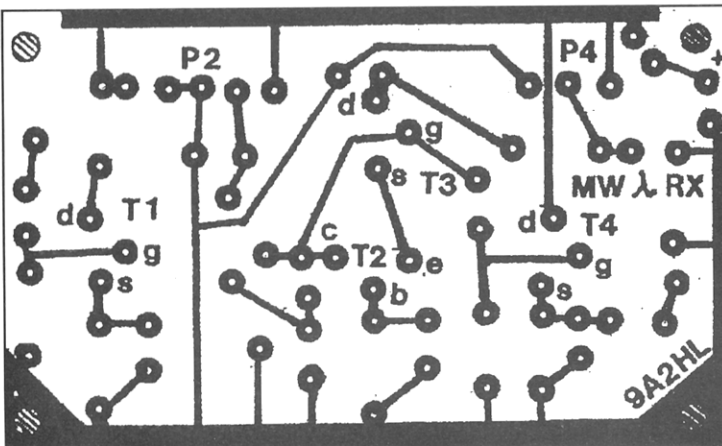
On the basis of the Lambda Oscillator (SPRAT 111) I have made a simple regenerative receiver for beginners and it works very well. The feedback is very soft, so it can be turned to the edge of its selectivity. I have never seen anything similar in any magazine before. I tested the receiver when I led a practical course for beginners in my radio club last Spring. It was successfully reproduced by 12 people. The circuit is as shown.

The receiver is excellent for broadcast stations from LW to 30MHz but its frequency is voltage dependant. It requires more skill and care for CW and SSB use. In that case the receiver must oscillate and the regenerative potentiometer, P4, becomes a bandspread control.



A practical course building the Lambda receiver at my local radio club – 10 school boys and 2 retired people [all beginners] constructing the receiver. Instead of the AF amplifier, I applied an external PC amplifier with

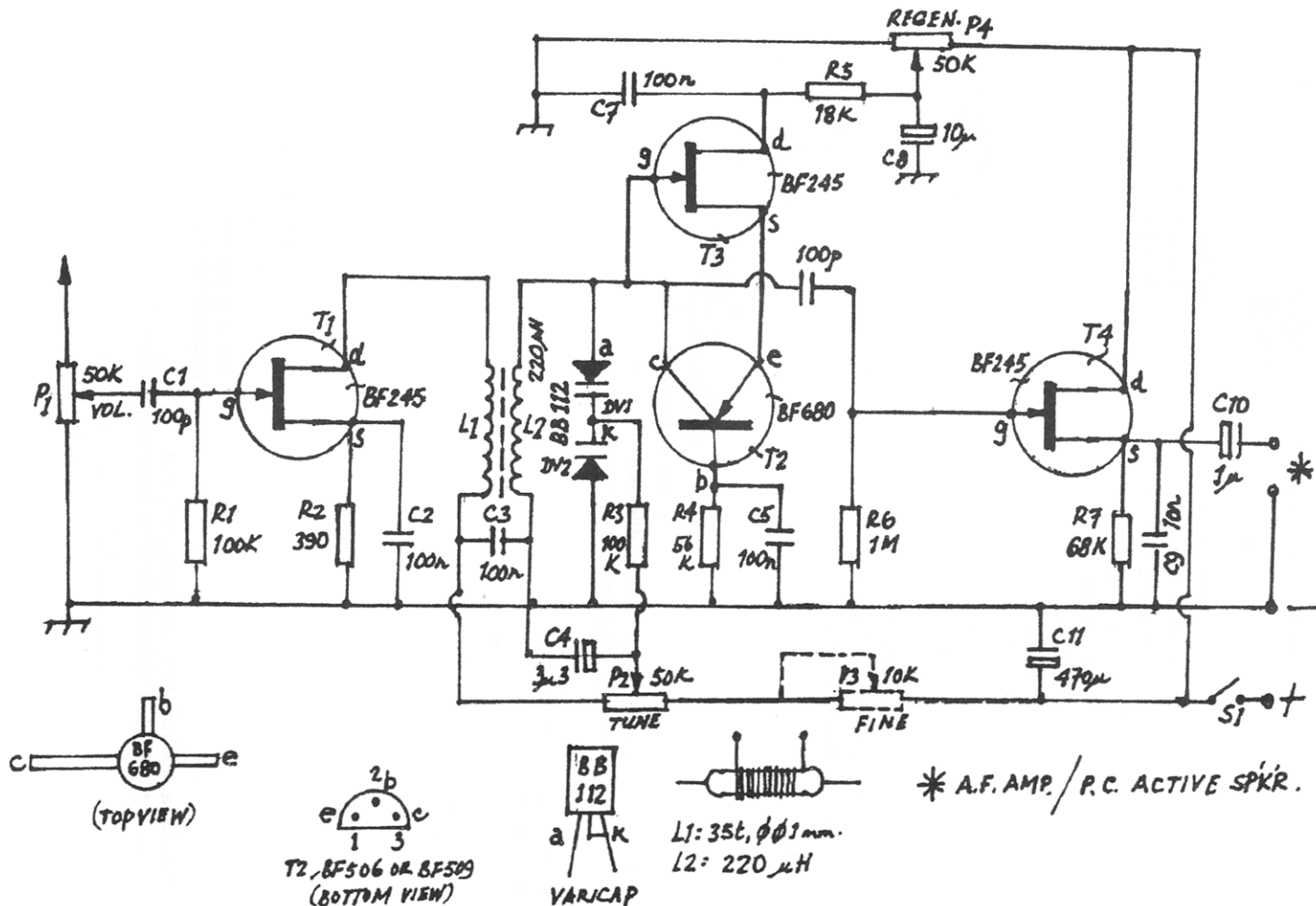
two small loudspeakers, which can be bought for about £8 here.



Printed Circuit Board

Foil Side

Actual dimensions
100mm x 60mm



Using pin 7 of the LM386 to reduce BCI and add side tone to Pixie 2
Sverre Holm, LA3ZA, Dæliveien 1, NO 1383 Asker, NORWAY.la3za@qsl.net

The Pixie is a full break-in transceiver which is attractive for its simplicity, yet it performs well enough to be used for real contacts. The idea of using the power amplifier transistor as a mixer comes from George Burt - GM3OXX – whose FOXX was described in 1983 in SPRAT. The basic design of the oscillator, PA/mixer and the simple keying has been more or less unchanged since RV3GM – Oleg Borodin - described the Micro-80 in 1992 in SPRAT (Pixie 1). The LM386 audio amplifier was introduced by WA6BOY - Dave Joseph - in the Pixie 2 (QRPP 1995). Most subsequent versions are variants of these designs. In parallel the FOXX has evolved into the FOXX-3.

I built the Pixie 2 and have had a lot of fun with it. I was lucky during testing as it happened to be a very active contest weekend, so now I have had contacts with 15 different countries with it. In addition to the side tone modification described later, my Pixie also has increased gain and some filtering. Also, the crystal was replaced with a 3.59 MHz ceramic resonator in series with a variable capacitor, so that the frequency could be pulled all over the CW portion of the 80 m band. Frequency agility is the key to obtaining many contacts with QRPP equipment, in my experience. The ability to tune is much more important than higher power. The usual mode of operation is to answer a call, and being locked to a single crystal's frequency severely limits the number of contacts.

I do not remember where I first learnt that the bypass pin of the LM386 (pin 7) both can be used both for muting and as an input, but I cannot claim that I have discovered it myself. However, it is my hope that the combination with the Pixie is new to readers of SPRAT, and also that it will give some ideas for other rigs using the LM386.

Reduced Sensitivity to Broadcast Interference

The main cause of broadcast interference (BCI) in the Pixie is nonlinearity in the LM386 so that it detects strong signals like a crystal detector. The root cause of this seems to be the way the LM386 is fed from the power supply. In order to accomplish muting, the power supply is fed to pin 6 via a 1k resistor (see Fig. 1), but this starves the amplifier for current and causes nonlinearity. At my location I can easily hear how the interference decreases and often disappears as I short circuit the 1 K resistor.

Two Way QRP QSL Labels and Blank G-QRP QSL Cards

QRP Labels: Black Lettering on Gold with Club Logo : 200 labels £2. Post inc.

Blank QSL Cards: You complete your address and call. Blue lettering on white card, 5.5" x 3.5". 100 cards £4. Post inc. Sample from : **M.L. Prickett [Max] G3BSK, 260 Haslucks Green Road, Solihull, West Midlands. B90 2LR.**

Cheques: "M.L. Prickett" [The G QRP Club benefits from each order]

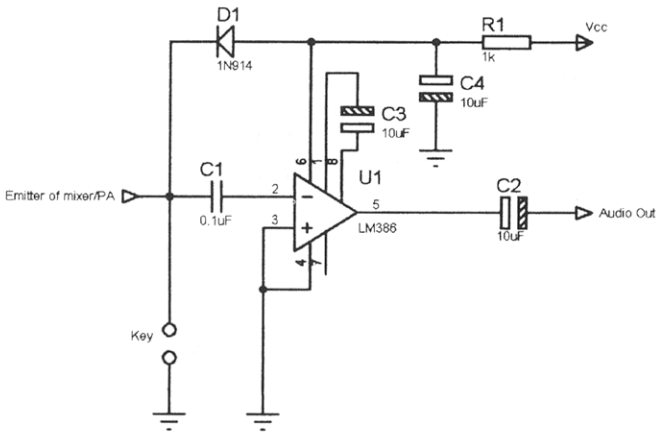


Figure 1 Audio section of Pixie 2

The fix is to use the under-utilized pin 7 of the LM386. It is designated as a bypass connection, but it can also be used for muting. Both grounding and connection to Vcc will mute the amplifier. The fix for the Pixie is to feed pin 6 via a small resistor say 10 - 100 ohms, disconnect the positive side of the diode from pin 6 to the key and move it to pin 7, see Fig. 2. By the way, I have used 1N4148 instead of 1N914 without any problems, and often R1 can be omitted, but at the risk of oscillation.

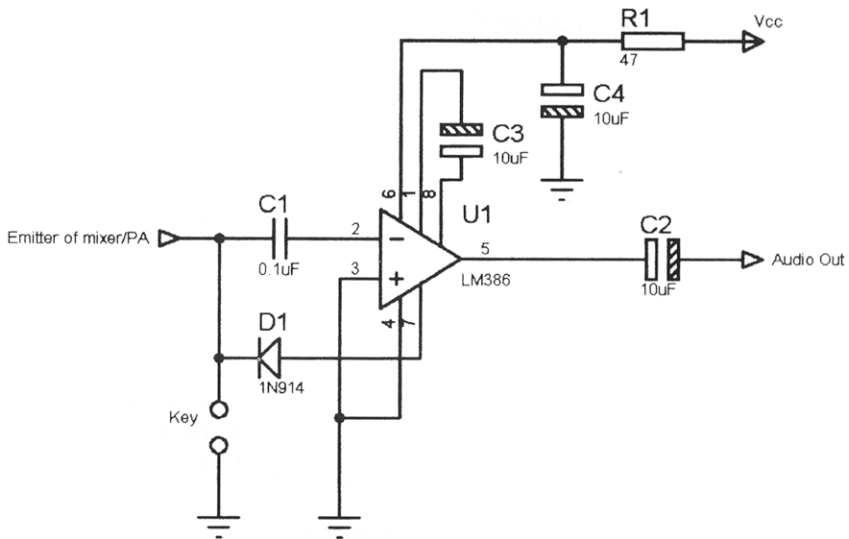


Figure 2 Audio section with improved muting

Side tone circuit

The second shortcoming of the Pixie is the lack of side tone. I have borrowed G4GVM's circuit for the FOXX-3 in SPRAT 98 and adapted it for use in the Pixie, see Fig. 3. The transistor can be any general purpose NPN type with a fairly high current gain like BC109, 2N2222 or 2N3904. The variable resistor sets the level, start with it in the mid position and adjust for a comfortable level.

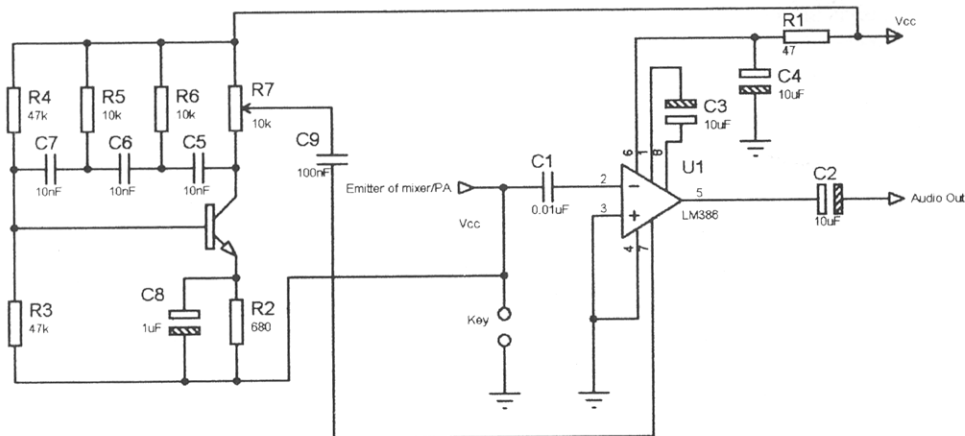


Figure 3. Audio section with sidetone circuit

In this circuit pin 7 is used as an input. The original Pixie 2 has pin 7 free, but in some variants, pin 7 is bypassed with a capacitor to ground. If it is only 0.1 uF as in the Knightlite SMiTe version of the Pixie, the side tone input will work anyway (and also the muting circuit of Fig. 2). In Fig. 3, the mute circuit is completely removed since the LM386 needs to amplify the side tone during transmission, and therefore this circuit also has increased BCI immunity. The original Pixie circuit uses the charging/discharging of the input coupling capacitor C1 (0.1 uF) into the 50 k input resistance of the LM386 as a primitive source for a side tone. With a real side tone, these clicks are in my opinion more annoying than useful, so optional click reduction can be achieved by reducing C1 to 0.01uF.

In conclusion, two simple modifications to the Pixie 2 have been shown. The first one reduces sensitivity to broadcast interference, it has no side effects and it is accomplished without increasing the number of components. The second circuit also adds a side tone circuit. Both of the modifications use pin 7 of the LM386, either for muting or for input.

FOR SALE: Morse Training Tapes (ARRL) 10-15 wpm and 15-22 wpm. 2 cassettes each speed 90 mins with booklets, as new £4.50 post free per speed. Max, M.L. Prickett, 260 Haslucks Green Road, Shirley, West Midlands. B90 2LR.

FOR SALE: Heath HW9 with H/B PSU and H/B mini Z-match & many spares. £150. This combo has worked USA & UK lots of times from EA6 on 80metres QRP. Pete G2NN Norfolk, Phone 01842 878 326

Sprat 113 – Winter 2002/3

Pages 21 to 24 are the renewal form
and have not been scanned

South Normanton Alfreton & District ARC in association with G-QRP Club

Junction 28 QRP Convention

Saturday 22nd March 2003, Village Hall Community Centre,

South Normanton, Derbyshire. [5 mins from M1 J28]

Derbyshire's foremost Traditional Amateur Radio Event

Components - Kits - Radio Surplus - Bring & Buy - G-QRP Club Stand

Guest Lectures - Hot & Cold Food & Drinks - Licensed Bar - Free Parking

Talk in GB0LOW S22 - Doors open 10.00am - Admission £1.00

Further details Duncan G4DFV 01623 465443 or e-mail pentode@ntworld.com

6th RED ROSE QRP FESTIVAL - Sunday 26th May, 2002,
11am to 4pm. Formby Hall, Alder Street (off High St), Atherton, Manchester.
To promote interest in low power operating and home construction.
Trade and club stands, including RSGB, GQRP, FISTS, etc.
Low cost "Bring & Buy". Hassle free. Large spacious halls at ground level.
Huge free car park, disabled facilities. Delicious refreshments at QRP
prices! Bar - Display of Morse keys and QRP rigs - C.W. "Sign in".
Talk in on S22. Admission £1. Some tables at £5 but please book early.
For further details, Les Jackson, G4HZJ, g4hzj@btinternet.com or 01942 870634

Bowood Electronics Ltd

Suppliers of electronic components

Batteries, Buzzers, Capacitors, Connectors, Diodes, Cases, Ferrites, Fuses, Heatshrink, IC's, Inverters, LED's, PCB, Potentiometers, Power Supplies, Presets, Rectifiers, Relays, Resistors, Soldering Equipment, Stripboard, Switches, Test Meters, Thermistors, Thyristors, Tools, Transistors, Triacs, ...

Catalogue available NOW

Please send 41p stamp or visit our website.

Website: <http://www.bowood-electronics.co.uk>

E-mail:

sales@bowood-electronics.co.uk



Mail order only.

7 Bakewell Road, Baslow, Derbyshire. DE45 1RE. UK Telephone/Fax: 01246 583777

WANTED: PCIM LCD Frequency Display, or to know where to obtain the same.
Logan, MØLOG, 9 Charminster Cl. Gt. Sankey, Warrington, WA5 1JY. 01925 659946.

WANTED: Urgently required setting up information for Hustler Antenna Model 5BTV. Will pay any copying and postage costs. T.G. Jones, M1FAF, 354 Bridgeman St. Bolton. BL3 6SJ. Tel: 01204 384885.

Amateur Radio in a Lovely Place: The G3RJV Wooden Lodge in the Dovey Valley in Wales [complete with QRP station] is almost ready for use.
For details contact G3RJV [see page 2] or email g3rjv@gqrp.com

New Receiver CW Filter

Luigi Adriatico 10KWK, Via Nomentana 263, 00161 ROMA, ITALY

In my previous article "Receiver CW Filter" published in SPRAT 101, I proposed a good *passive* CW Filter with 90Hz bandwidth @ -3dB and $f_0 = 628\text{Hz}$.

The circuit here shows an optimum *active* filter with 20Hz bandwidth @ -3dB, $f_0 = 650\text{Hz}$ and a gain of about 20dB.

I tested it in my Howes 20m DC receiver. The reception of CW stations is excellent and the noise without signal and with the volume gain fully clockwise is totally absent.

The heart of the filter is an active filter integrated circuit UAF42AP by Burr Brown International (USA) which is available in the RS catalogue (Code 311-580).

The R3 and R5 trimmers must be set at 65K* with a digital ohmmeter.

R7 is the BF amplifier volume control and its circuit is shown in my previous article (SPRAT 101).

Power supply is dual and the range is $\pm 6\text{V}$ to $\pm 18\text{V}$.

Parts List

RA = 8R2 – 1W

R1,R2 = 1K ($\pm 1\%$)

R3,R5 = 100KA

R4,R6 = 180K ($\pm 1\%$)

R7 = 22KB

L = 100mH (RS 228-371)

C = 600n (6x100n)

C1,2,3,4,6,7 = 100n

C5 = 39n

C8,C9 = 1000u – 50VL

IC1 = UAF42AP (RS 311-580)

Pottenstein-Treffen 2003

Das traditionelle Treffen in Pottenstein fuer Mitglieder des G-QRP-Clubs findet auch 2003 wieder am letzten Wochenende im April (25/26/27) statt. Weitere Infos gibt es von DJ3KK, POB 801, D-25697 Meldorf (bitte SASE) - oder auf der

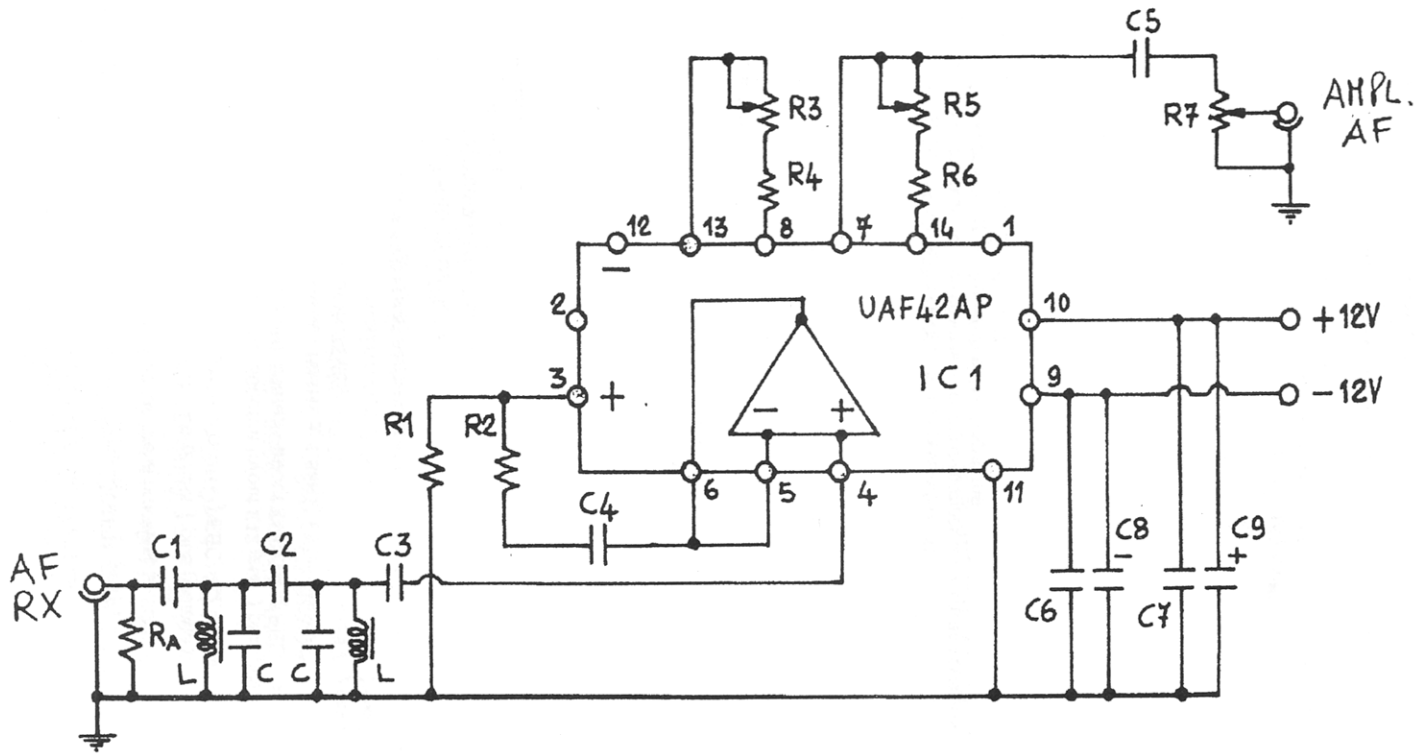
Homepage:<http://www.g-qrp-dl.de>

Zu Vortragsthemen und Beiträge usw. bitte Bernd via DK3WX@DARC.de kontaktieren
vy 72 es awds Bernd,DK3WX - Fred,DJ3KK - Klaus,DL8MTG - Franz,DJ9EO

The traditional meeting in Pottenstein/Germany for members of the G-QRP-Club will be held at the last weekend of April 2003 (25/26/27). Further infos via DJ3KK, POB 801, D-25697 Meldorf (pse SASE) and on our homepage: <http://www.g-qrp-dl.de>

Lecture and article etc., please contact Bernd via DK3WX@DARC.de

vy 72 es hpe cu Bernd,DK3WX - Fred,DJ3KK - Klaus,DL8MTG - Franz,DJ9EO



GQRP Club Sales

Graham Firth, G3MFJ, 13 Wynmore Drive, Bramhope, LEEDS. LS16 9DQ

(Non-members prices are in brackets)

Radio Projects for the Amateur by VK3XU. £6 (£7.50) } plus postage per book: UK - £1.25;
GQRP Club Antenna Handbook. £5 (£6.25) } EEC - £2.90; DX - £3.50

6 pole 9MHz SSB crystal filter 2.2kHz @ 6 dB, 500ohm in/out £12 (£14) } plus postage: UK - 50p;
6 pole 9MHz CW crystal filter 500Hz @ 6dB, 50ohm in/out £12 (£14) } EEC - 80p; DX - £1

Pair LSB/USB carrier crystals HC18U wires - [9MHz ± 1.5kHz] £6 (£7) pair } plus postage (any
MC1350 at £2.25 (£3) each; SA602AN at £1.75 (£2); } quantity) 30p (UK)
IRF510 FETs £1.25 (£1.50) each; } 40p EEC; 70p (DX)

NJ-QRP Club pad cutters (Sprat 109) - £4.50 each inc post UK, £5.00 EEC & DX

Toroid cores - Available in packs of 5 - max of 2 packs of each per member

T37-2 - 65p; T37-6 - 75p; T50-2 - 90p; T50-6 - £1.10; T68-2 - £1.80; T68-6 - £2.20; FT37-43 - 70p

Plus postage - up to 5 packs = 30p (UK), 50p (EEC), 75p (DX); 5 - 10 packs = 60p, £1, £1.50 etc.

Please note some slight price adjustments on these. (The packs may have the old prices on them!)

MK484 radio on a chip - £1.00 (£1.50) inc postage & circuit diagram.

Sprat on CD (1 to 109) - £10 inc postage.

G-QRP Club mouse mats £3.50 each inc post UK £4.00 EEC & DX

MAR-4 RF amplifier - 8dB gain at DC to 1GHz! £1.75 each inc postage - Limited stock - one per member!

Miniature calling frequency crystals (watch crystal size - very low power) -

3.560, 14.060, 21.060, 28.060 £2 each, plus postage (any quantity) 30p (UK), 40p (EEC), 70p(DX). Very limited stock - one of each frequency per member.

These should be used in very low power circuits - they are tested before dispatch & no returns can be entertained.

New Items

Electret mic inserts - 10p each) postage as for

2SC536 transistors - FT-100MHz, hFE-320, VCBO-40V - 5 for 50p) IRF510 - any quantity

MORE TOROIDS!! Price per pack of 5 - FT50-43 - £1.20; FT37-61 - £1.00; FT50-61 - £1.20

Postage as above - These were on order at the time of writing, delivery may be delayed by Christmas post!!!

Back issues of SPRAT - 50p each. *At the time of printing, I have most issues from 78 (except 84)*

Plus postage (sorry about the large postage charges - posting magazines is not cheap nowadays!):

UK : 1st magazine 33p + 17p each extra magazine

EEC : 1st magazine 75p + 26p each extra magazine

DX : 1st magazine 115p + 50p each extra magazine

To keep within second class postage limits, all orders may be sent in more than one package!

Cheques (UK) and payable to G-QRP Club (cheques payable to me will be returned!)

Sorry, but cheques in Euros are uneconomical to us due to bank exchange charges!

Visa/Mastercard. Please quote full card number/expiry date. We can only send the goods to the card owner's registered address. Sorry, we do not accept Debit Cards such as Switch or Connect.

UK members only - to help reduce our bank charges, please can you use cheques/credit cards only for orders over £5. For orders less than £5 - please use postage stamps (any denomination £1 or less please), or uncrossed postal orders (more expensive for you due to poundage charges, however, £3.49 (for example) costs half as much as £3.50 and I won't complain!)

You can order via e-mail to g3mfj@gqrp.com and if you wish to send credit card details over e-mail, you can send them, split into two parts (for security), to me, via my two different ISPs - g3mfj@gqrp.com and g3mfj@gqrp.co.uk

You can check availability (or even order) on (+44) (0)113 267 1070 (But please do not expect my family to be able to discuss club sales matters!!). Fax to the same number (by arrangement only)

If, with your order, you give me an e-mail address, this allows me to inform you of any problems with supply.

2003 QRP CALENDAR

1 st Jan	Last day of Winter Sports
4/5 th Jan	2000z-2300z EUCW 160m Contest -
1 st Feb	Last Day for Winter Sports logs to G3XJS
15 th Feb	Last Day for Chelmsley 2002 logs to G3XJS
28 th Feb -	
2 nd Mar	1600z Friday – 2359z Sunday CZEBRIS
8 th Mar	AGCW Contest
10 th -13 th Mar	Yeovil FunRun 1900-2100z each day
22 nd Mar	Junction 28 QRP Convention
23 rd Mar	0900z-1200z Somerset Homebrew Contest
21 st Apr	1400z-2000z(Every Easter Monday) Slovak Low Power Sprint
30 th Apr	Last Day for CZEBRIS logs to G3XJS and OK1AIJ
1 st June	Red Rose QRP Festival
8 th June	Yeovil QRP Convention
17 th Jun	IARU Region 1 International QRP Day Contest
5 th -6 th Jul	1500z-1500z Original QRP Contest
17 th Jul	Last Day for International QRP Day Contest logs to G3XJS
11 th Oct	Rochdale QRP Convention.
26 th Dec –	
1 st Jan 2004	G-QRP Winter Sports
27 th -28 th Dec	Original QRP Contest

Please advise G3XJS of any errors/omissions.

Micro Radio Products

A range of economical easily built projects on Tripad circuit board. This offers advantages on cost. The current range is shown below: -

Coming Soon!		Regenerative Communications Receiver.
RB001	Regenerative SW Broadcast Radio	£10.40
RB002	AF Amplifier (Suitable as Intermediate Exam Project	£5.40
RB003	MW Radio (Suitable as Intermediate Exam Project	£8.50
RB004	80m DC Receiver	<i>No Longer Available.</i>
RB005	Boosted Short Wave Crystal Set (Aprox 6 – 15 MHz)	£9.70

Post & Packing £1.50 for up to 2 kits. If ordering, please note cheques payable to D.Rowlands.Please allow up to 28 days for delivery.

Other radio and electronics projects kits are being developed. Details will be advertised in SPRAT when they become available. For details, please send SAE to D Rowlands Micro Radio Products Dept. GQ, 7 Broomfield Road Swanscombe Kent DA10 0LU Tel 01322 381303 (ask for David) after 7pm or Email to Microradio@Telco4u.net, mentioning SPRAT.

ANTENNAS - ANECDOTES - AWARDS

Gus Taylor G8PG 37 Pickerill Road, Greasby, Merseyside, CH49 3ND

NO ANTENNA ? YOU MUST BE JOKING !!

AAA Technical Staff.

There is a saying amongst Editors of, and contributors to, technical hobby magazines that every three years there will be a new crop of readers who are eager to learn some of the tricks of the trade. This being the case, we have no hesitatin in giving a resume of some of the ways one can improvise an antenna in a so-called "impossible" location.

USE OTHER EXISTING ANTENNAS. Two likely sources are outdoor TV antennas and outdoor FM broadcast antennas. A simple ATU such as an L-network should allow one to tune to several hf amateur bands simply by clipping a wire onto the outside of the co-axial connector at the bottom of the antenna feeder (disconnect it from the TV or FM radio first, of course.) CAUTION. If using this method in a hotel or apartment block make sure that there is no masthead or other common amplifier in the TV antenna circuit.

GUTTERS AND DOWNSPOUTS. Where such fittings are made from galvanised iron they are ready made antennas, and were successfully used by various Resistance radio operators during World War 2. If you can reach out a window to a gutter it is easy to clip a wire on to it using an aligator clip. But make sure it is metal. In France we found a plastic gutter made to look like iron ! To connect to a galvanised downspout put several turns of wire round it and secure in place with tape.

CENTRAL HEATING. Make sure the connection point is clean and free from paint, then connect a wire to the system with the aid of a Jubilee clip. Use a length of wire as a counterpoise, making it as long as is convenient. QRP operators have used this idea successfully in places as far apart as the U.K. and Russia. If you want to use QRO make sure nobody can get an rf burn from the metal of the central heating system.

WIRE FENCE NVIS. NVIS (Near Vertical Incidence Signalling) uses low antennas and a frequency about 20% below the MUF to signal over distances of up to about 300 miles. You have taken the QRP rig alongto the picnic spot chosen by the XYL, but find there are no trees to support the /p antenna. There are two possibilities. If there is a farmers fence made from reasonably clean galvanised iron wire hook on to the top wire of the fence for an antenna and on to the bottom wire for a counterpoise, or lay wires over bushes and on the ground.

USE YOUR IMAGINATION . Over the years people have made radio contacts using the metal mattress of a hotel bed, the curtain rail, bedroom washbasin pipes, and other equally unlikely sources. If you can load it via an atu it will usually radiate. The other important tools are a suitable atu and a simple absorption wavemeter / radiation meter .Never be afraid to experiment - you may be amazed at the results you get.

MANY,MANY THANKS

On 1st September last I fell while gardening and broke my right hip. Re-setting the break required an operation and eight weeks in hospital, and although I am now mobile on crutches it will be many more weeks before I am fully recovered. Just how word of the accident got around so fast I am not sure, but there was a magnificent response from my many QRP friends who sent messages of sympathy and good wishes (and also from my fellow FOC members). There were too many messages for each one to be answered individually, so may I take this opportunity of thanking everyone for their kindness. It really did raise my morale at a very difficult time. During the 8 weeks a number of Award applications were received. These have now all been dealt with, but another problem has appeared. The stock of blank certificates and large envelopes I keep at my desk is almost exhausted, and the rest of my stock is in the loft. To get it means climbing a ladder, something I cannot yet do. So, if there is any delay in my response to your Award application please be patient.

AWARD NEWS

The big news is that Peter, DJoGD, has now reached the magnificent total of 260 DXCC countries worked with QRP. The vast majority of these countries were worked using CW, but ssb was used at the end. Peter has written an account of how he achieved this tremendous total, and it will be published shortly in the G3RJV "QRP" feature in the RSGB journal "Radcom". Peter is also well known for his FY/DJoGD operation, and has given many of us our first FY contact. Well done Peter - this is real QRP !

QRP Master. We welcome MoCDP and F6ACC to the Worshipful Company.
QRP Countries. 260 (!!) DJoGD ; 100 DL1HTX ; 25 GW4ALG.
Worked G QRP Club. 180 GW4ALG ; 100 F6EQO ; 60 F6ACC, 2EoATZ.
Two-way QRP. 50 DL1HTX ; 20 S53MA , GW4ALG ; 10 LU5DYV .

GOLD 222 QRP AWARD

Not a solitary comment on our suggestion for this Award made in the last issue of SPRAT, so the time has come to forget any possible modifications to the existing Award scheme and concentrate on working as much as possible. As shown above, the existing scheme can let you get a reward for world-beating country total.

THE BROKEN HIP SPECIAL ANTENNA

Take two metal crutches and stand one on top of the other with the aid of their plastic arm and hand grips. Connect them together electrically with a short jump lead, then connect them to the antenna via a similar lead and tune up. There was a contest on 14 Mhz and 10 minutes brought contacts with 5 European countries with 3 watts into the crutches leaning against the shack wall. Could this be a world first ?

COMMUNICATIONS AND CONTESTS

Peter Barville G3XJS

e-mail: g3xjs@ggrp.com

40 Watchet Lane, Holmer Green, High Wycombe, Bucks HP15 6UG.

My apologies for mistakenly crediting Roy Walker (G0TAK) with being Chairman of the Scarborough Special Events Group in the last SPRAT. The 'real' Chairman Roy is, of course, Roy Clayton (2E0000).

WINTER SPORTS

I'm sure you don't need reminding that, hopefully about the time you receive this edition of SPRAT, Winter Sports will be in full swing again (26th December to 1st January inclusive). This 'World Leader' of enjoyable QRP events continues to attract excellent support, and is one which members (and non-members) look forward to with great anticipation. The HF bands buzz with QRPers meeting new friends, and renewing acquaintances the world over. If VHF/UHF is your preference, then that's good too – the only 'rule' is that you use QRP on the bands. The G4DQP Trophy is awarded to the best, and most interesting, log (not necessarily the log with the most DX), so send me your log of the QRP contacts you have made during the event by the end of January. There are no points to claim, no total to work out, no multipliers, just a wonderful opportunity for you to indulge in a whole week of QRP FUN. Go make a noise on the bands!

AGCW NEW CONTEST RULES

A reminder (see SPRAT 112) that there is now only one AGCW Contest each year which will be held on the second Saturday in March (8th March 2003) 1400z-2000z.

Participants: All licensed amateurs and SWLs. Single-OP only, only one single TX and one single RX or one single TRX is allowed at any given time. Mode is only CW (A1A). The use of keyboards and automatic CW decoders is not allowed.

Call: "CQ QRP TEST"

Categories: VLP: max 1W output or 2W input. QRP: max 5W output or 10W input.

MP: max 25W output or 50W input. QRO: more than 25W output or 50W input.

Exchange: RST, serial, category, AGCW membership number (eg 579001/QRP/897)

Bands: 80m, 40m, 20m, 15m, 10m

Scoring: QRO-QRO: Zero points, QRP-VLP, QRP-QRP, VLP-QRP and VLP-VLP: 3 points - all other QSOs: 2 points.

Multipliers: 1 multiplier point for every AGCW member station per band

Final Score: Sum of QSO-points multiplied by sum of multiplier points for all bands.

Logs: Columns: UTC, Call, exchange sent, exchange received, multiplier points, QSO points. Separate log sheets for each band are required. Cover sheet: own call, address rig and power used in the contest, final score claimed, and a signed statement that the entry is within the spirit of the Contest, and that the Contest rules have been observed.

Deadline: 30th April (Results available via SASE)

Manager: Edmund Ramm, DK3UZ, Anderheitsallee 24, Bramfeld, 22175 Hamburg.

Electronic entries via e-mail should be sent to: qrp-test@agcw.de

YEOVIL QRP CONVENTION 2003

The Convention will be held on Sunday 8th June 2003 at the Digby Hall, Sherborne, Dorset. The Convention will follow the usual pattern with lectures,

Construction Challenge, traders etc. There will be no formal dinner this year, but it is hoped that there will be an informal gathering on the Saturday for a meal at a venue yet to be suggested.

Yeovil FunRun 2003 details.

Monday 10th March 2003 to Thursday 13th March 2003 inclusive, 1900 to 2100 UTC

Bonus Stations: GB2LOW from G3CQR, Sherborne, on 3563 & 7023kHz, GW4ALG in Chepstow on 3558 & 7028kHz, and PA0RBO in Veere on 3553 & 7033kHz (all +/- 2kHz).

Frequencies: 3560kHz and 7030kHz, both +/- 10 kHz.

Contacts: Contacts should be between QRP stations with a maximum 5 watts output CW. However contacts with QRO stations are permitted, but with reduced points value. (see "Scoring" below). All stations may be worked ONCE EACH EVENING on EACH BAND. Funrun Bonus Stations will be operating each evening randomly for one hour on each band.

Call: "CQ FR"

Scoring: Each QSO with another QRP station scores 10 points.

Each QSO with any Funrun Bonus station (including GB2LOW) scores 25 points.

Each QSO with a QRO station scores 3 points.

All duplicates must be marked and no points claimed. Points will be deducted for unmarked duplicates at twice that particular QSO score.

Exchange: RST, Serial Number (see below), Output power and name.

Serial Number: The three figure number must start at any random number of your choice not less than 100 and must be increased by one for each QSO throughout the WHOLE of the contest. However, the three Funrun Bonus Stations listed above will all commence at 001, with all leading zeros being sent.

Entry Sheets: Separate log sheets for each band, with sub-totals for each evening, preferably in the RSGB format. A separate RSGB style cover sheet stating the Rig, Output Power, and aerial.

Entries should be sent to G. W. Davis, G3ICO, Broadview, East Lanes, Mudford, Yeovil, Somerset BA21 5SP to arrive not later than Thursday 27th March 2003.

Entries will be accepted by E-mail to george@mudford.fsnet.co.uk

Awards: Certificates will be awarded for the highest score for any THREE evenings out of the four, on each band and also for the highest overall total score for any THREE evenings on both bands. These evenings do not necessarily have to be the same on 3.5 MHz and 7 MHz. A certificate will also be awarded to the station consistently using the lowest power. All certificates will be presented at the Convention on 30th March 2003 immediately after the lunch break.

SWL's: Listener reports will be appreciated and a certificate will be awarded to the listener who submits the most comprehensive report.

Note, apart from the Club's GB2LOW, the other two Bonus Stations, as in previous years, have been selected from last year's entrants. This provides not only variety but also allows a geographical spread of their locations. Your comments on any aspect of the FunRun will be appreciated. Further information from G3ICO, postal and E-mail addresses above, Tel. No. 01935 425669.

Yeovil Construction Challenge 2003 details:

The Challenge will be to produce a Tx on 3560kHz running from one AA cell. It will have no more than 2 active components, but no IC's. YARC will supply a 50 ohm dummy load with a diode feed to a digital voltmeter. The winning Tx will be the one giving the greatest voltage on the meter. In the case of a tie, the number of components will be taken into account. These rules have been thought up in haste, and there may be the odd couple of loopholes! However the winner will be expected to have fully observed the spirit of the challenge.

EUCW 160m CONTEST 2003

The rules of the 2003 EUCW 160m contest, translated in 6 languages, sponsored by UFT, is now available at: "http://perso.club-internet.fr/jacar/eucw_160m.html"

Further information from: Jac, F5YJ (UFT 636 - REF 51137) Email : f5yj@qsl.net

CZEBRIS 2003

1600z Friday 28th February to 2359z Sunday 2nd March, around the usual QRP cw frequencies: 3560, 7030, 14060, 21060, 28060kHz. If the bands are open, you are welcome to try a VHF/UHF log. In case you've forgotten the scoring system for this popular event:

Your Location		QSO With Station In			
		UK	OK/OM	Eu	Non-Eu
UK	:	2	4	2	3
OK/OM	:	4	2	2	3
Eu	:	4	4	1	2
Non-Eu	:	4	4	2	1

No multipliers. Final score is total number of points scored. Separate logs for each band showing (for each qso) date, time, callsign, exchange sent/received, and a summary sheet showing your name, callsign, claimed score for each band, and brief details of your station should be sent by the end of April to G3XJS (UK entries). Non-UK entries go to OK1AJI (Karel Behounek, Na sancich 1181, 533705 Chrudim IV, Czech Republic). We are both happy to receive logs by email: "g3xjs@gqrp.com" and "karel.line@seznam.cz".

Please try and support this friendly event – even if you are only able to get on the bands for a short while – and send in a log.

SOMERSET HOMEBREW CONTEST

This Contest is an ideal opportunity for those who have not tried entering a contest before, whether you are a newcomer to HF, or an 'old timer'! The Contest lasts for only 3 hours on a

Sunday morning, and you can run at a pace to suit you. In addition – and this is important - it actively encourages the use of home made equipment.

For the first time we are including the HF bands, in order to give our overseas members a better opportunity of joining the fun, and of winning the £50 voucher (to be used towards any Walford Electronics product) generously donated by Tim Walford.

Equipment: Either the Tx or the Rx (or both) must be home made, but not necessarily by yourself.

When: Sunday 23rd March, 0900z until 1200z.

Mode: Any mode is permitted (including cross mode).

Freqs: Around the normal QRP cw and ssb frequencies on 80/40/20/15/10m.

Call: "CQ HBC Contest" (ssb) and "CQ HBC Test" (cw).

Exchange: rst/serial/power (eg 579/SC021/3W). Serial must start with any random number of your choice, not less than 100, and increment by one throughout the Contest. Stations not in the Contest may send any serial (eg 001).

Scoring: Any station may be claimed once per band.

QSO's with QRP stations score 2 points. QSO's with QRO stations score 1 point.

Final score is the total number of points (there are no multipliers), BUT deduct 25 points if you did not build either the Tx or Rx yourself.

Entries to G3XJS by the end of April, with log sheets showing times, bands, stations worked, reports sent/received, and points claimed. Please supply details of equipment used, power and antenna(s), together with a declaration that your station was operated in accordance with the Contest rules. In the event of a tie, Tim will draw the winner from his hat!

Enjoy your QRP, and please let me have any items for inclusion in the next issue by the end of January. 72 de QRPeter

WANTED: Compact Roller Coaster with turns counter, 20 to 30 microhenrys. John Teague, G3GTJ, QTHR, 01963 240319.

WANTED: Hands GQ-Plus or RDX109 and McKay Dymek DR-333 or DR-360, mail or phone to: Andreé Knott DD3LY, Hardenbergstrasse 4, 24105 Kiel, Germany, e-mail: andree.knott@t-online.de, phone: ++49-431-89353.

FOR SALE Lake TU3-LF Mk 2 Antenna Tuning Unit Kit (unused). £30.00. Jeff-G3LWM Email :g3lwm@pabay.org or leave message on 01255 678855.

FOR SALE: "Complete HF station consisting Trio TS530SP c/w mic, MFJ ATU, SWR/PWR meter, HS5 Phones, SP520 spkr, spare set of valves, antenna 3 trap dipole c/w balun, all manuals. £400. prefer buyer collects. Yaesu FT50R Handheld dual band trcvr c/w spkr/mic, charger etc., £75. John G4VPU (Whitley Bay) 0191-2522304, johnina@lincone.net".

FOR SALE:- FT817 ATX multiband portable telescopic whip used once, brand new £55 ONO. PRC10 army radio 38-55 MHZ ideal for 6m FM £40 ONO for details etc please call David G6UEB on 01322 381303, email davidrowlands@mail.ru or write to D.Rowlands 7 Broomfield Rd Swanscombe Kent DA10 0LU

FOR SALE: US-Code Converter HAGELIN M-209-B (W.W. 2) in ufb condition incl. tape. Euro 865.- + shipping. Max Altmann DJ7RU, max-dj7ru@t-online.de or Tel: 0049-9947-2128

SSB & Data Report

Dick Pascoe GØBPS. Seaview, Crete Road East. Folkestone. CT18 7EG
Tel 01303 894390 – Email gØbps@gqrp.com

Tim M0CZP wrote with the following,

Having completed my Epiphyte 2 I am amazed at it's performance. Although it's only 5 watts out I have worked 15 countries in 10 or so operating days. Best DX has been CT3 and YU so far and I have managed to break pile-ups on a couple of occasions. I even got a 59+5 from EA! The antenna is a homebrew inverted V cut for 80M and fed via a Howes T-match ATU. The apex of the V is only 20ft or so (the chimney of the house) and the legs drop down to 8 - 10ft at the ends - so nothing very special. The Epiphyte has a couple of mods (from Sprat articles and from the Epiphyte 3 circuit) and also has the Epiphyte digital display which works a treat. Very complimentary comments have been received on the audio quality of the transmission and the rig even worked straight after having been put into it's case (the first few QSO's were with it spread all over the bench)! QRP SSB really does work!

Strong gales at GØBPS took out the top of the tower and with it the doublet.

But hopefully all will be working again by the time you read this. Enjoy the new year and all it brings..

The AntMan - For all your wire antenna requirements.

Try our PSK31 Interface just £23.45 inc P/P

Send for free catalogue now!

Dick Pascoe GØBPS - is The AntMan

Seaview House, Crete Road East, Folkestone Kent. CT18 7EG - www.theantman.co.uk

NEW! 'Copper Island' Construction Outfit

Complete 262-Piece Outfit for 'Manhattan-Style' Construction,

The Alternative "Surface Mount" Technology - Without the Eyestrain!

No Etching With Messy Chemicals - No Drilling Tiny Holes - Simply Glue & Solder!

Outfit contains 200 x 5mm Round Pads - 20 x 8 Pin, 15 x 14 Pin, 10 x 16 pin IC Pads, 10 x Pads for KANK Series Coils, 48 Sq.Inches of Single-Sided Copper Laminate Board. Tools included: Tweezers, Adhesive, Solid Abrasive Block, Pressure Rod, Full Instructions. All You Need in a Handy Compartment Box with Hinged Lid - Just Add Your Components!

Complete Outfit Just £15.00 + £2.95 P&P, By Mail Order Only, From:-

Mr. D. J. Walters, 11 King George V Avenue, Mansfield, Notts. NG18

4ER 01623 465443

www.copperisland.biz E-mail: pentode@ntlworld.com

FOR SALE: Built MFJ-9320 QRP CW transceiver for 20M. Super little rig, ideal introduction to QRP fun. Only £60: less than 10% the cost of an FT817! Also "Practical Receivers for Beginners", "Practical Transmitters for Novices", "How to Pass the RAE": the lot for £5, plus postage. Chris, M3ERE. Phone 0151-924-1525 or e-mail c.g.gibson@liv.ac.uk.

MEMBERS' NEWS



by Chris Page G4BUE

Highcroft Farmhouse, Gay Street,
Pulborough, West Sussex RH20 2HJ.

Tel: 01798 815711

E-mail: g4bue@adur-press.co.uk

GØPOT "just had to share his excitement" on the G-QRP Internet Reflector on 27 August: Michael said, "After putting together a FOXX-3 20m transmitter from Kanga last week, I fired it up at the weekend and gave a tentative call. **IIBAY** replied almost immediately with a RST589 to my tiny 500mW signal. In my excitement (and due to my poor CW 'ear') I only managed to really copy his call, name and signal report but I am now charged up with enthusiasm to get my CW up to speed and try more low power madness". **M3KPW (G7RTI)** also had excitement in September. Klaus wrote, "Yesterday at lunch time, in the car park at work (on the edge of London), I set up my fishing pole and wire dipole for 20m. I planned to plug the FT-817 into the lighter socket, but I forgot, it was our second car in which the plug doesn't work! The nicads were fully charged so I got on the air within about 15 minutes and worked SSB into OE3 with what I thought was 5W, not realising that at 5W battery driven, the power indicator will flash - but it didn't flash so I was using 2.5W! My report was 54 to 56. This is the beauty of QRP - there is always the possibility of a contact and I don't mind whether it is local, European or DX, as long as I get out".

Congratulations to **M13MVT** on obtaining his callsign and his FT-817 on the same

day after 20 years SWLing as **RS86081**. Carl celebrated by working **TM8CDX** (Clipperton Island) on SSB on 27 September, **P43P**, **HC8N**, **VP5JM** in the CQ WW RTTY Contest, "plus too many USA and Canada stations to list!" All contacts were on 20m with 5W and a dipole five metres high. **GØAYD** is QRV 16 October - 3 March as **Z3/GØAYD** and has been using SSB on 20m for an hour sked with local friends at 1100 local time. Dave afterwards QSYs to 14060kHz for QRP QSOs for about half an hour. **GM4XQJ** was planning to be QRV from EA8 at the end of November, subject to industrial action at Scottish airports. Brian was planning to be QRV on the 10, 15 and 20m QRP QRGs.

GW4ALG has been QRV on 160m "As a result of comments from **G4GDR** about the low level of QRP activity on the band in the Summer SPRAT. I have tried to be more active on 160m with QRP. Also, on the evenings of 18 and 19 October, I loaded up my balloon supported antenna for 160m and running 5W CW to this 24 metres vertical, I QSO'd EA, G, HB9, OH, DL, LY and also two-way QRP with **G3CMJ** and **LAØCX**". Steve continued his 5MHz work with two-way QRP QSOs with members **G3YMC**, **G3TLH** and **G3DNF** and says, "The rig is still a VXO transmitter but is now in a nice little box and has a 5 to 29MHz receive converter for use with my K2 as a tuneable IF".

G4COL says, "Well done **GM4JMU**. I have just done the modification described in Sprat 112 and now have a stable 30m Cub, covering 10103 to 10121kHz (R5 shorted)". *Musings on an Experiment in QRP* is the title of an article by Bob Locher, **W9KNI**, recently added to the Elecraft Web site, <http://www.elecraft.com/TechNotes/tech_notes.htm>. Bob (author of *The Complete DX'er*) describes how he re-ignited his passion for DXing by building and chasing DX with his K2. He has a number of good pointers for prospective DXers (and he is now up to over 300 countries worked on his K2!). K2 users may like to know that there is "a major update to the K2 transceiver (and K2/100), starting with serial number 3000" writes **WA6HHQ** and **N6KR**. Full details are on the Elecraft Web site.

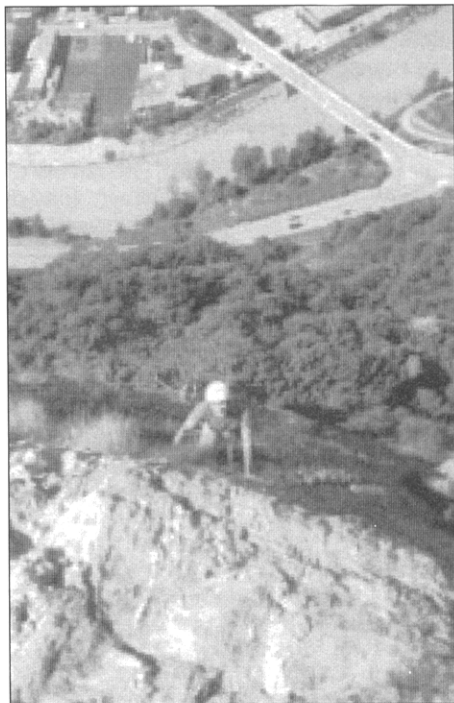
G4CFT asked if **GW4ALG** could give

details of his QRP success on 4m. Steve obliged Mike by saying, "I tested my 4m QRP rig in the 70 MHz Trophy Contest operating 'portable style' from the picnic table in our back garden, running 5W CW to a five element Yagi at 10 feet. The rig was a FT-480 (old 2m multimode rig) driving an equally old Microwave Modules 2m to 4m transverter. The Yagi was made up from various Jaybeam antenna parts and during the contest I worked 12 stations in G, GD, GM and EI. So, under the right conditions, 5W can be very effective indeed. I would be interested in working with another member to develop a simple rig for 4m to help increase QRP activity on the band. Because not all rigs have transverter facilities, I would suggest that a VXO CW transmitter and receive converter combo might be an attractive solution for many QRPers".

MW5HOC (GW7HOC) worked 7X and LZ from his south Wales QTH with his FT-817 and 5W SSB and an 18 inch indoor antenna! Darren says, "I plugged in a DV-27X (18 inch) 11m antenna. and after a bit of playing around, it was tuned. I sat upstairs on my bed, connected 10 feet of wire to the back of the 817 and heard many USA stations and quite a few from Europe and soon had them in the log. I am tempted to adapt a 11m rubber duck type antenna to 10m and think it would still need a counterpoise, but I get the feeling that it need not have to be that long. It's not just QRP that can be fun, but also using very small inefficient antennas. Now if I can just get an 18 inch long antenna for my 40m FOXX-3!". **MØBLT** also likes "tating" about with antennas" and says, "I ran some wire down the garden that I bought from a boot sale for a pound and tuned it against an earth stake and had good results on 80m. I don't even know how long it is, I just ran it down the garden and rested it approximately 12 feet high on top of some conifers!".

GM3MXN is using a convoluted magnetic loop with good results. Tom says, "It's in the loft and made of old UR67 coax on a three feet timber frame secured by tie wraps. The gamma match is 50 ohm coax used as a single wire and SWR is excellent on 80, 40 and 30m but 5 MHz has not been tried yet".

VK2KET worked your scribe (running QRO!) on 20m and says, "Never thought it would ever be possible to work you with QRP. I was a member of the G-QRP Club ten years or so back, but have only just become active on HF. It is my first QSO with CW and at QRP levels". Alex will now be renewing his G-QRP Club membership. **M5AEF** has been QRV on 5MHz since August and says, "The most striking thing is the ease with which low-power contacts can be made, on a seemingly flat and quiet band. There is very little interference, except for the occasional strong carrier". Robin continues, "I have made 100 QSOs all within the UK, but have had listener reports from Germany. The best distance worked to date is 643kms with **GM3OXU** in Oban. He was using 10W into a full-wave delta loop. Although contacts over 500kms do tend to be quite difficult, it is the range



The height members go to get on the air! This is IK2NBU when he was QRV with QRP from Gran Sasso d' Italia Mountain with his FT-817 last summer.

100-500kms that can be achieved with comparative ease. The short distances less than 100kms, can be difficult also, with multipath propagation taking place; the continuous rapid fading of low power, local signals, evidences this". Robin uses a simple half-wave inverted vee dipole up 4.5 metres and FT-757 modified for wideband and QRP. He says, "At the moment my activity is confined to SSB and 1W, but in the Spring I will be constructing a loop antenna and also operating CW from the comfort of the house! I have also made contacts into South Wales and Northern Ireland on an almost daily basis. There are a few military stations regularly active also. I am aware that there are other G stations out there experimenting with milliwatts on this band. Hopefully, we will hear their stories in due course". **GW4ALG** sent **G6RO** his prototype Marathon QRP transmitter for 5MHz for testing and Ron says the results are "absolutely amazing". The first day he worked **G3CCH**, **G3KEV** and then Steve himself followed by **G3OLB** and **MMØALM** (both at over 350km). A later QSO with **EIØCF** has given him four countries with 5W or "about 4mW ERP". Ron is willing to help others become QRV on the band with QRP.

GØKYA has a 100 feet oak tree about 30 feet away at the bottom of his garden and decided to use a catapult, three golf balls, some wire and a nylon cord to erect a W3EDP (85 feet end fed) antenna. Steve says on the first day he drilled through the golf ball and attached nylon cord (the garage now stinks of burning rubber due to the golf ball) and then attempted to catapult a ball over the top of the tree. The ball hit his thumb, hit the catapult, hit the tree, the cord broke free and the ball got tangled in the tree! He tried to pull the golf ball and cord out of the tree where it was stuck and the branch eventually broke and landed on him, whereupon he gave up in disgust! On the second day he bought some 15lb breaking strain nylon fishing line and three 28g weights and after attaching a weight to the line, left the reel at his feet and fired the catapult held upside down whereupon the weight sailed over the tree first shot enabling the wire to be pulled up and the an-

tenna connected. Steve says, "The moral is to use fishing line and a lead weight. The antenna seems to be working as expected. I have used one before at my last QTH and it is about the same or better than a dipole on HF and better than my mag loop on 80m".

Writing on 28 October, John, **WB4OZF**, referring to the new Ten-Tec Argonaut V (516) transceiver says, "Well it has finally arrived! What a rig! This one is destined to be another classic Argonaut radio. I have not seen any reviews yet as I have one of the first ones shipped. All I do know is I hear signals on it that my mono-band could not detect and with its DSP and PBT, I can copy signals that were unreadable on my old rig. I ordered the TXCO option and found that it has *no* drift. I set the rig to 14.299999 and after 12 hours it was still 14.299999. It is not cheap, but worth every bit I paid". Internet users might like to check out **K8ZT**'s monthly Web column *QRP Community* for the ARRL at <<http://www.qsl.net/k8zt/qrp-com.html#columns>>.

GM3MXN had trouble with car parking sodium lamps causing interference on 20m and so he built a little unit with two 2N3866 amplifiers, (from a circuit by **W1ETC** in his article 'Electrical Antenna Null Steering' in the October 1982 *QST*) and a RF switch from the *Circuit Handbook*. The phasing line is RG174 and Tom says the noise at S7 has now gone. Referring to the CQ WW SSB Contest at the end of October, he writes, "Sitting here listening to the contest with the usual shambles of the encroachment into the CW end of 40m by SSB operators who blatantly disregard the band plan, I think this should be highlighted wherever possible". **G3YMC** is now up to 152 DXCC with his K2, including **ZL7C**. Dave is QRV on 5MHz with a little 5W VXO rig (the circuits are on the Internet at <<http://www.dsergeant.btinternet.co.uk/fivemegs/fivemegs.htm>>). He says, "There is a lot of interest in QRP on 5MHz and I have had QSOs with members **G3OLB**, **GW4ALG**, **G3TLH**, **GØTAK**, **G3MBN** and **G3NIJ** - some on two-way QRP. The band shows great promise for inter-G QRP working".

Let me know how your winter goes, including pictures, by 20 February please.

Rig Broken or needs alignment?
Commercial/Homebrew equipment repaired & aligned
Ten-Tec repair specialist, spare parts ordering service available

Adur Communications

Belmont Buildings, The Street, Bramber, West Sussex. 01903 879526

Ten-Tec Kits Now In Stock

www.g3tux.co.uk - for kits, keys QRP

Just arrived: FT 817 'Pack It' operating manual for FT817 -
the famous Yellow Book by VE3AYR, now in **2nd edition!**

Palm **Code Cube** keyer, slots into the back of your Palm mini paddles. Uses PK3 keyer chip.
Another stunning design from DL9SCO. DF4ZS **RF Speech Clipper** for FT817, mounts in the
MH31 mic. continues to sell faster than Jo can produce them!

Wide range of FT817 accessories and aerials, +kits and keys

Check the website for prices/ordering 73, Chris G3TUX

The Wurzel RX

**Simple Controllable Regenerative TRF 20, 40 and 80m with Polyvaricon tuning
RF amp. Detect and AF stages, RF attenuator, output for med Z phones**

Supplied with all hardware for open style

For UK GQRP Club members, £35 inc P & P

See article in Spring 2002 issue for full details

Walford Electronics

Upton Bridge Farm, Long Sutton, Langport, Somerset TA10 9NJ

See www.users.globalnet.co.uk/walfor

May the Gauss be with you!! Tesla these out today.

The force will be with you, with these very strong *Magnets*. Powerful & charged to saturation.
30mm square 14mm thick. 10 for £12 or 100 for £60 post paid (UK)

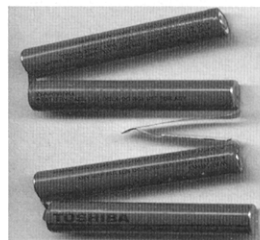
One Cell of an offer Still available

A rechargeable battery pack containing 4 x AAA-L cells. The
AAA-L cell is the same diameter as the AAA, but the length is the
same as the AA cell. Therefore an ideal cost effective replacement
for an AA cell should you, with a little ingenuity, find a suitable
sleeve to build up the diameter slightly.

They are NiMH reportedly being of 1Ahr in capacity. A Test by
G4XAT showed 850 mAhR.

These cells are all new, manufactured by Toshiba.

We offer as follows 4 packs, that is a total of 16 cells, for £7.00
including UK P&P.



Ni-Cads just arrived:- All new branded stock retail packed.

700mAh Ni-Cad AA 12 for £10 ALSO 100mAh Ni-Cad PP3 3 for £12 All post paid (UK)

Look out for us at the rallies, or use mail order: - Sorry Magnets not available for export.

JAB Electronic Components. PO Box 5774. Birmingham B44 8PJ

Fax 0121-681-1329 e-mail Peter@JAB.demon.co.uk

Our web site is now being built at www.jabdog.com

Cheque or Postal Orders (Payable to P A Thomas please). MasterCard or VISA also welcome.

THE SPECIALIST QSL CARD PRINTER

from

ADUR VILLAGE PRESS

(Chris Page, G4BUE)



- ⌚ High quality designing and printing but cheap prices and fast turn around
- ⌚ Artwork and proof included in the price - minimum order just 250 cards
- ⌚ Multi colour and two sided QSLs - standard thickness or thicker card
- ⌚ Lots of amateur radio clip-art available or your drawing scanned to size
- ⌚ No extra charge for coloured ink or card - guaranteed satisfaction
- ⌚ Four cheaper basic designs to choose from for contest / general QSLing

SAE for
samples
and more
details to:-



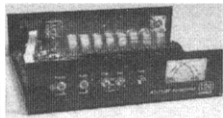
Highcroft Farmhouse, Gay Street, Pulborough, West Sussex RH20 2HJ.

Telephone: 01798 815711

VAT 620 5819 54

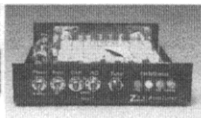
E-mail: g4bue@adur-press.co.uk

Automatic Antenna Tuners



AT-11MP

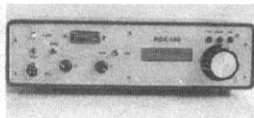
5-150 Watts
£219 assembled
£189 cased kit



Z11

0.1-60 Watts
£169 assembled
£149 cased kit

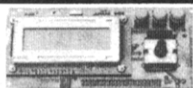
RDX-109 Transceiver



RDX-109MP

20w SSB/CW Tcvr.
Full kit £399

DDS VFO SIG/GEN



DDS3

A 0-41MHz VFO or
signal generator.
Includes a 2x16 dis-
play with program-
mable offsets
£150 assembled
£120 kit

HANDS ELECTRONICS

TEGRYN, LLANFYRNACH PEMBS SA35 OBL
TEL 01239 698 427

www.rf-kits.demon.co.uk
or 2x1st stamps for a
catalogue

QRPproject - QRP and Homebrew International, Berlin Germany

Official distributor of

Hands Electronics, Wilderness Radio, Small Wonder Labs, OHR, DL-QRP-AG and Ulm-key.

QRP-Kits and more. All kits with Warranty of Functionality (WoF), Alignment Service,

Helpdesk (e-mail), German or English manuals, Supported by QRPeter DL2FI

Visit our homepage <http://www.qrpproject.de> or ask for free catalog

All orders can be done by e-shop system or surface mail.

QRPproject, Saarstr. 13, 12161 Berlin, Germany.

Tel: +493085961323. Fax: +493085961324 e-mail: sales@qrpproject.de



Of interest to all CW operators, whether veteran or novice, this unique bi-monthly magazine provides an invaluable source of interest, reference and record relating to Morse telegraphy past, present and future. Annual subscription (6 issues) is £15 to UK, £17 to Europe, £20 world-wide, or send £2.50 for a sample issue. All cheques payable to Morsum Magnificat.

Published by The Nilski Partnership, The Poplars, Wistanswick, Market Drayton, Shropshire TF9 2BA.

Tel: 01630 638306 - Fax: 01630 638051 - Email: zyg@morsemag.com - Web: <http://www.morsemag.com>

I-Q Electronic Design

69 Angus Close, Chessington,
Surrey. KT9 2BN

QUARTZ CRYSTALS

400kHz/£3.95

455.2kHz/£1.75

1MHz/£2.95

1.4MHz/£9.95

2.00MHz/£2.95

3.560MHz/£3.50

4.00MHz/£0.25

4.194304MHz/£0.10

4.9152MHz/£1.70

8.9985MHz/£2.95

9.0MHz/£2.95

9.0015MHz/£2.95

10.7MHz/£1.54

11.0592MHz/£1.60

11.155MHz/£3.50

Parallel resonance 30pF Load C. HC49 package

P & P £1.50 + 17.5% VAT

~Crystal & Ceramic Filters ~Yaesu crystals

~Matched crystals, filter applcn, 9MHz & 10MHz +/- 50Hz £18/8 units

~1.4MHz USB/LSB Filters £15.00. ~10.7MHz 10kHz Filters £10.50

Xtal Circuits, Applications Booklet £5.00. Ceramic Resonators, Applications Booklet £3.50

Tel: 020 8391 0545, Fax: 020 8391 5258, email: vincent@jakomin.fsnet.co.uk

KEYSOLAR SYSTEMS

4 GLANMOR CRESCENT
NEWPORT
GWENT NP9 8AX
TEL/FAX 0633 - 280958

Small Scale Solar and Wind Power

New Range of P.V. Modules with 6 & 10 yr Warranty. DIY Wind Generator Plans & Parts

Book and Booklets on all types of Power Generation and other projects

Ring or FAX for special offer PV Plates and details of our range of "repaired" modules

For Info Sheets enclose SAE SPRAT Size + 38p stamps

The Kits with ALL the Bits !

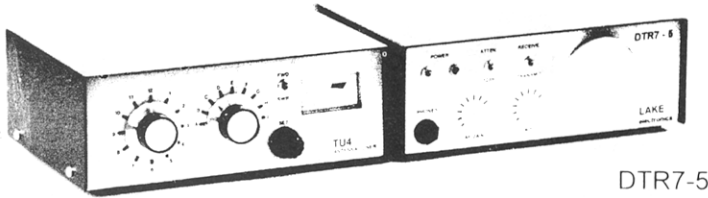
LAKE Electronics

7 Middleton Close, Nuthall, Nottingham NG16 1BX

Tel: (0115) 9382509

E-Mail : radkit@compuserve.com

Internet : <http://ourworld.compuserve.com/homepages/radkit>



TU4

DTR7-5

The "DTR" series of Single Band CW Transceivers, all of similar basic specification, now come in three versions :

DTR3-5 (80m) DTR7-5 (40m) DTR10-5 (30m)

All feature : Internal power adjustment, 25mW (or less) to 7W (or more)
 Low-pass output filter : better than -50dB harmonic attenuation.
 Receive (DC) sensitivity < 1 μ V MDS, selectivity about 250Hz @ -6dB.
 Stable VFO covers 100kHz up from the lower band edge.
 Receive attenuator 12dB, RIT \pm 4kHz
 Power requirement - 1A (key down) at 12 - 14 Vdc

(For a completely independent assessment and an objective comparison with other QRP rigs, see Peter Hart's review in October 1995 RADCOM)

Kit price, including ALL components AND hardware **£97.80 plus £4.00 postage**

These kits can be specially built to order for £172.00, inclusive.

TU4 Antenna Tuner

Frequency range 1.5 - 30MHz
Power rating 80 watts (CW)
Very sensitive SWR meter - less than 1/2 watt for full scale reading.
SO239 for co-ax, terminals for end fed wire and balanced feeder
4:1 balun included.

Kit price - ALL parts and hardware - **£68.00 plus £4.00 postage**

Ready Built - £88.00 plus £4.00 pp.



For Sale!

Kanga Products

Due to other commitments
Kanga Products is for sale.

Kanga's range of QRP kits is known
worldwide and we have outlets in
Europe and the United States.

For details please telephone
John G4EDX on 0115 9670918
Or e-mail John@kanga.demon.co.uk