



SPRAT

THE JOURNAL OF THE G QRP CLUB

DEVOTED TO LOW POWER COMMUNICATION

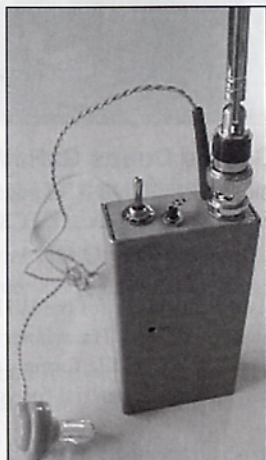
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WINTER 2005/6



40m for a Pound!



The Fredbox

Poundshop DC Radio ~ "Hatch" 160m AM TX

Leads for the FT817 ~ Plug-in Coils ~ Regulator Circuits

Fredbox 2m Handheld ~ Tonal RF Indicator ~ Parlez-Vous

Antennas-Anecdotes-Awards ~ Communications & Contests News

QRP Calendar 2006 ~ Member's News ~ Club Sales

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JOURNAL OF THE G QRP CLUB



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Rev. George Dobbs G3RJV

Welcome to SPRAT 125 – As you will see from the facing page we have lost yet another key member of the club. Mac, G3FCK, has produced his distinctive artwork for SPRAT for many years.

Below is the challenge for the W1FB Trophy for 2006. A theme that could produce a response from many members. The winner for 2005 will be announced in the next issue. I can handle most PC file formats for electronic submissions but I am also happy with hand written and hand drawn material for your SPRAT articles.

May I wish all members a fruitful and happy 2006.



The W1FB Memorial Award 2006

For 2006, the theme is **Shack Accessories**

Submit any design on this theme – those little [and large] useful extras that help to run your QRP station.

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.

72/3

G3RJV

Sad News – G3FCK – Silent Key

It is with great regret we announce the death of 'Mac' McNeill, G3FCK. His son Cameron wrote - *"I am sorry to tell you that my father died at the West Berkshire Community Hospital at the age of 83. He really enjoyed amateur radio after his service as a wireless operator in the RAF during the war. It was a great hobby for us both when I was younger. He loved Morse code and QRP work and enjoyed drawing for the Sprat. I thought Dad was a marvellous draughtsman and love seeing his diagrams in print. The G-QRP-Club gave his retirement a great deal of pleasure and sense of purpose."*

Mac's drawings gave SPRAT a distinctive style, many readers over the years of spoken of his work and the 'gentle touch' they gave to technical articles. He will be missed by us all.

A REQUEST - In light of the sad news above, SPRAT is now looking for people to help with illustrations. Currently I do the smaller circuits on a CAD program. The greatest need is for people with time to do larger circuit diagrams [the club could supply a simple to use CAD program – if required] and for help with line drawings of layouts and antenna projects. If you think you can help, please contact G3RJV.

G8PG Morse Tapes Resurrected

For many years the Morse practice tapes created by Gus Taylor G8PG were the staple diet for aspiring class A licence holders. Many hundreds of copies were made until cassette tapes became "old hat" and we stopped producing them.

In the meantime, many alternatives, including some really good free ones have become available. One that comes to mind is the superb "Koch Morse Trainer" from Ray G4FON and his program can be downloaded from www.g4fon.net

However, when listening to the G8PG tapes recently it became apparent just how good Gus's practice sessions were and it would be a shame that they wouldn't be available in a media that people wanted nowadays. So I have sampled them into MP3 format and added a simple HTML menu so that it will run on any reasonably modern computer. It will certainly work within Internet Explorer 5 or above, although as it uses CSS menus, it looks better in IE6 and works fine in Firefox. You could of course simply transfer the files into your portable MP3 player.

The price of the CD is £4.50 plus three second class stamps to cover costs and postage within the UK. All proceeds will go to Cancer Research and cheques should be made payable to them. I regret that I won't have facilities to fill DX orders. Non UK members who are willing to set up a similar copy/distribution service should contact me by email and we will print your details in the next Sprat. You can donate funds to a Cancer charity in your country. We are calling this QGRP product "care-ware" and it will be in honour of Gus who has been a club officer for more years than he probably cares to count!

Send orders to, Tony Fishpool G4WIF, 38 James Road, Dartford, Kent, DA1 3NF. email g4wif@ggrp.co.uk

Poundshop DC Radio

Peter Morris, G1INF, 131 Littlehampton Rd. Worthing. BN13 1QX

This article describes what is possibly the cheapest possible direct-conversion HF receiver, and is a testament to the true value of our disposable consumer society.

Means, motivation, weapon...

I get a thrill from making things do what they didn't ought'ta. You can buy very inexpensive VHF FM scanning radios in discount stores in many places on Earth, and I wondered if they could be modified to do anything else. Research revealed that the chips used by the various designs are invariably Chinese clones of the Philips TDA7088, and that this device has several interesting features:

- (1) A VCO, tunable from 1.5 to 110 MHz
- (2) A mixer
- (3) An IF amplifier tuned by an RC network

The rest of the device is for demodulating WBFM, muting weak signals, scanning the VCO range and locking on carriers. They are of no interest in the current project.

Too good to be true?

A daydream... If you tune the VCO to 7 MHz, feed the mixer with preselected 40 metre RF from a resonant antenna and alter the IF to pass 0-3KHz, then you have a direct-conversion 40 metre receiver. It appeared too obvious and easy, so I had to try it. I removed the VHF tuning coil, and replaced it with a 6.8uH choke and a larger capacitor in parallel with a trimmer to set the band-edge. I used the volume pot to feed the BB109 varicap, and put the single transistor output stage directly onto the output of the IF amp. I scaled-up the IF capacitors to drop the IF passband an octave-and-a-half and connected my favourite tunable receiving loop. I dipped the VCO tank at 7MHz and turned on...

The HF end of the tuning range was now around 7.15, and a BC station came through strong (or at least, its carrier's heterodyne did). Turning the pot clockwise took me down through the 'phone segment, and there were signals, but very weak. The happy surprise came below 7.045, where good cw was heard. The idea worked, but it wasn't complete.

I needed a compact, quick and dirty antenna to feed a compact, quick and dirty radio. I cut four feet of three-core mains flex and made a two-turn loop out of two of the cores, connected by a soldered joint and a 100p cap. The third core was used as a coupling loop. The signals were a little quiet with this, but I could still copy cw and strong SSB. These short magnetic loops are

easily tuned with a dip meter, their high Q gives a sharp dip. Simply cut them progressively until they dip at the middle of the target band.

The original Poundshop DC RX is still in almost daily use; I listen to it during lunch at work. The recently-started SSB QRP net on 7.115MHz remains too quiet for it, perhaps I need to be more patient! The loop antenna can be draped around your neck, hung from any handy hook or just laid on the table (vertical mag. loops can null-out interference, horizontally they're omnidirectional). The loop folds neatly into three coils, and the whole thing (radio, loop and earbuds) can then be stored in your pocket or a 25-disc CD-ROM spindle pack with the spindle cut out. Use a 'stick'-style donor radio (looks like an MP3 player) and the spindle can stay in!

Go on, try it!

The donor radios come in a range of styles, with at least four different PCBs in use, but the diagram should give the experimenter enough information to convert any TDA7088-based scanning VHF radio into a Poundshop DC RX. The diagram is definitive, and includes enhancements added by Sverre Holm LA3ZA, to whom I am indebted. The summary instructions are for one type of donor radio, and should therefore be taken as a general guide.

At 99 pence, it is a very cheap radio to work with. In the USA, they sell for a buck, with is even cheaper! The price includes a pair of 'earbud' headphones, and I found I removed more components than I added; so your junkbox will benefit. Please do not expect massive performance from this project, but I think you'll be surprised at what you can achieve with a gimmick radio and a little work. This receiver can be enhanced by adding AF amplification, tighter filtering, more bands, a preselector, RF preamp, a 'real' antenna; but then it becomes something other than a Poundshop radio.

Future experiments will be aimed at VHF NBFM, with 6, 4 and 2 metres in mind.

Summary of modifications to PMS Scanning VHF FM radio to produce a 7MHz direct-conversion SSB/CW receiver.

(1) VCO

1. Lift R1 (5k6) from pin 16.
2. Remove RESET, RUN and LIGHT switches.
3. Remove C5 (473).
4. Connect pin 16 to pin 14.
5. Remove L1 (osc. tuning).
6. Fit 7MHz tank in place of L1 (6.8uH / 50p / 20p trimmer)
7. Cut track between hot side of R2 (22k) and pot CW.
8. Remove "C6" link.
9. Connect R1 "loose" end to pot W.

10. Connect pot CW to Vp (+3V).

11. Replace C13 (103) with 15p (Reduces tuning span to around 115KHz).

(2) RF

1. Remove C1 (82p).

2. Connect pin 11 to antenna via 33p.

3. Connect other antenna end to pin 12.

(3) AF

1. Remove C8 (332).

2. Replace C10 (181) with 562.

3. Replace C9 (332) with 104.

4. Connect pin 15 to transistor base with 104.

5. Fit 22k from base to collector of transistor.

6. Connect pins 8 and 9 with 100n.

7. Bypass pin 3 the ground with 220u

NOTES

1. Trimmer fits in LIGHT switch area, and a hole drilled in the light switch button makes it accessible without opening the case.

2. A better antenna, perhaps via a matcher, will produce more signal but increases BCI.

3. The basic radio can have a 'standard' LM386 amplifier added for more AF gain, but remember that the TDA7088 can use no more than 5V supply. 4.5V from three cells is a good compromise.

4. In principle, any band from 1500KHz to 110MHz can be received by changing the tuning coil. I use ordinary axial chokes for coils. Screened coils may reduce BCI.

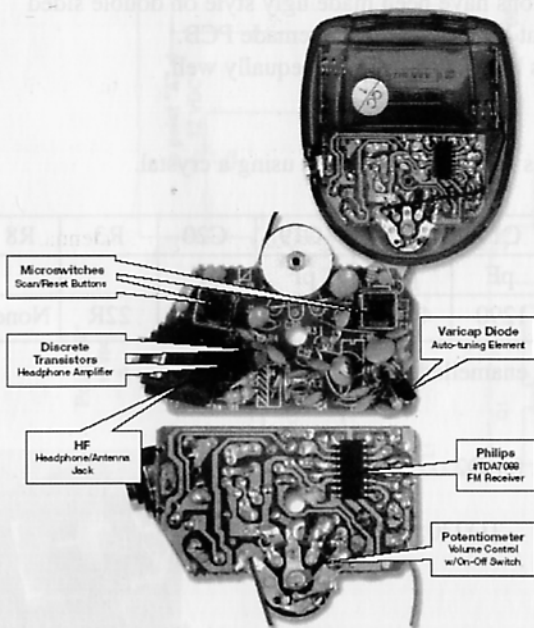
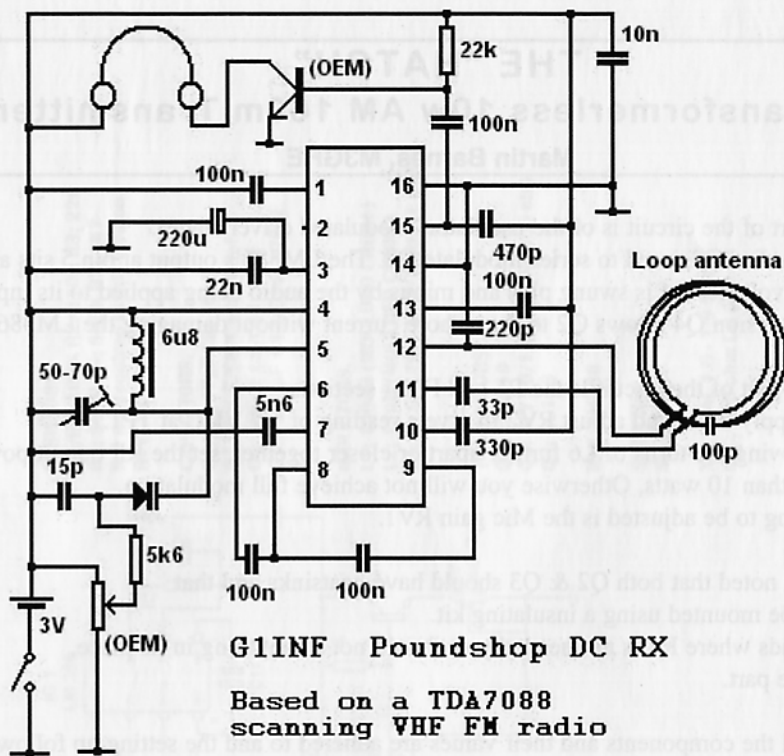
5. Loop antenna exits from light-bulb hole. The radio may be worn around the neck for convenience, or hung up, or laid on a table.

6. The supplied 'in-the-ear' headphones work well.

7. Strong SSB signals cause significant distortion, null them down by turning the antenna.

Acknowledgements

I would like to thank the many encouraging members on the Yahoo G-QRP Group, but especially Sverre Holm LA3ZA and Hans Summers GOUPL for their contributions.



The Poundshop Radio used by Hans Summers GOUPL
 See www.hanssummers.com

THE "HATCH".

A Transformerless 10w AM 160m Transmitter

Martin Barnes, M3GHE

The first part of the circuit is of the oscillator/ modulated driver stages. A LM386 audio IC is used to series modulate Q2. The LM386's output at pin 5 sits at half supply voltage and is swung plus and minus by the audio being applied to its input. In the new version Q4 allows Q2 to draw more current without damaging the LM386.

The second part of the circuit is the PA and Filter sections. To set up, apply drive and adjust RV2 to give a reading of 1.7 VDC at TP1. Then by moving the turns of L6 further apart or closer together, set the RF output power to no more than 10 watts, Otherwise you will not achieve full modulation. The last thing to be adjusted is the Mic gain RV1.

It should be noted that both Q2 & Q3 should have heatsinks and that Q3 should be mounted using a insulating kit. Also on bands where R8 is not needed you should not fit anything in its place, just omit the part.

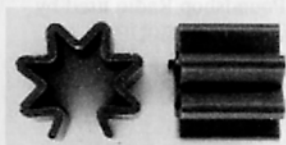
Provided all the components and their values are adhered to and the setting up followed, then the "Hatch" will work first time.

The layout isn't too critical, some versions have been made ugly style on double sided copper clad, some on single sided and at least one on a homemade PCB. Versions for the 80 and 40 Meter bands have built and work equally well.

The optional VFO can be used. But it is recommended that the circuit is first built and tested using a crystal.

BAND	L6	L7	Core	C17	C18	C19	C20	R3	R8
	Turns	Turns	Type	pF	pF	pF	pF		
1.8MHz	14	30	T50-2	1290	4610	1800	1800	22R	None

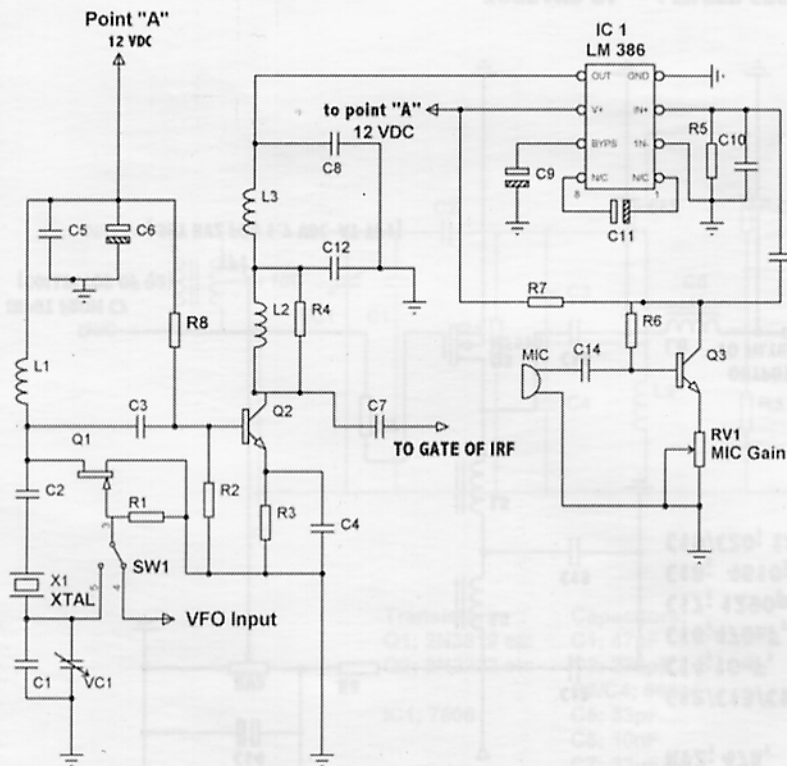
The coils are wound using 22-24 SWG enamelled covered copper wire



Heatsink for Q2

TO220 insulating kit for Q3





RESISTORS.

R1/R5; 100K R2; 470R R3; 22R
R4; 560R R6; 560K R7; 4K7
R8: not required in this version.
RV1; 1K

CAPACITORS.

C1/C3; 47pF C2; 10nF
C4/C5/C7/C8/C12; 100nF
C6; 100uF C9/C11; 10uF
C10; 680pF C13/C14; 470nF

INDUCTORS.

L1; 100uH (MOULDED CHOKE)
L2; 17uH (MOULDED CHOKE)
L3; 4 - 5 TURNS THRU FERRITE BEAD

TRANSISTORS.

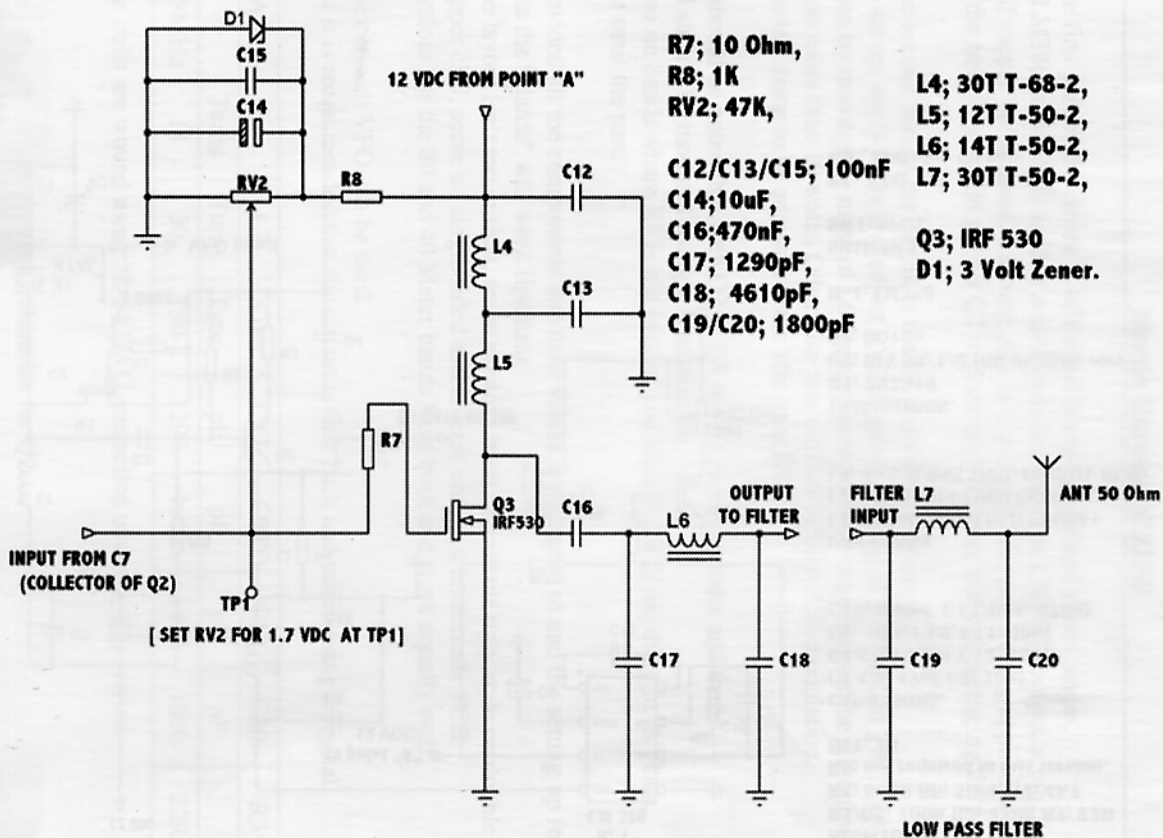
Q1; 2N3819
Q2; BFY 50/1/2 (OR 2N3866 etc)
Q3; BC108

IC 1; LM386

SWITCHES.

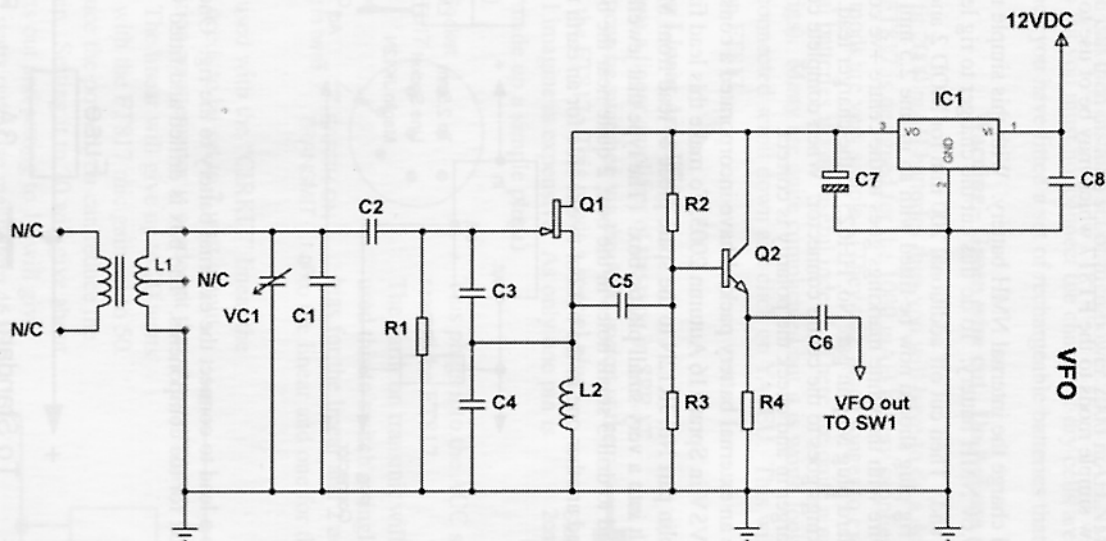
SW1; SPDT.

X1; XTAL 1.8 - 1.9 Mhz
MIC, 600 ohm CB type



TOPBAND PA and FILTER SECTION.

BAND	L
1.8MHz	KANK3333
VC1	75p
C1	120p
C2	560p
C3	1000p
C4	1000p



Transistors;
 Q1; 2N3819 etc
 Q2; 2N2222 etc

IC1; 7808

Capacitors;
 C1; 47pF
 C2; 270pF
 C3/C4; 560pF
 C5; 33pF
 C6; 10nF
 C7; 33uF
 C8; 100nF
 VC1; 25pF variable

Resistors;
 R1; 100K
 R2; 22K
 R3; 27K
 R4; 1K

Inductors;
 L1; KXNSK4173AO (TOKO)
 L2; 56uH (moulded choke)

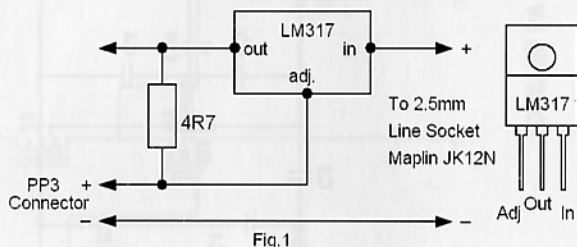
Useful Leads for the FT817

Eric Elsey, G3YUQ, 25 Elmsdale Rd. Wootton. MK43 9JW

I have spent a little time doing a few simple mods to the FT817 which may be of use to other members of the G-QRP Club.

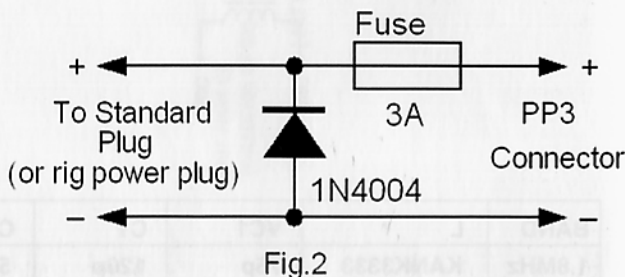
MOD 1. The charger supplied will charge the internal NMH battery. With this simple mod it can be used to charge an external 9.6v NMH battery. To do this cut the charger to rig lead about 200 mm from the rig's plug end. Then cut off additional 200 mm for MOD 2 and put this aside. The short lead with the rig plug should now be fitted with an in line 2.5 mm socket, Maplin part No. JK12N. The wire with the white markings goes to the centre +ve connection. Next connect a 2.5 mm standard plug Maplin part No. HH625 to the charger lead. Again the lead with the white markings goes to the centre connector. When complete connect the lead to the charger, plug the charger in and check the polarity is correct.

MOD 2. Make up a lead to charge an external battery pack. I have incorporated a constant current charger as detailed by 1K0VSV in Sprat 116 Autumn 2003. To make this lead first connect a 2.5 mm time socket Maplin part No. JK12N to the spare piece of lead from MOD 1. The constant current charger is built into a very small plastic box. (The type that jewellers use for rings is ideal). You will need to drill 3 small holes in the box, 2 quite near the bottom opposite each other for the leads and another one in the bottom to one side for an earth tag. Plug into charger and check polarity. You will then need a battery holder for 8 AA type batteries NIMH or NICADS. I used Maplin part RK44X. With this arrangement the FT817 charger should charge an external 2000 mA H battery in about 10 – 12 hours and a 1300 mA H battery in about 8 hours.



MOD 3 You now need to make up a lead to connect the external battery to the rig. Once again I have used a small plastic box for the components. The box is drilled and fitted with a solder tag as per MOD 2.

Inside the box is fitted a fuse and reverse protection diode. Note. It does not mention in the FT817 handbook if one is fitted. If you have a spare external plug for the rig then it can be fitted in place of the 2.5 mm plug. If not then fit the standard plug and use with the lead made up in MOD 1, to power the rig with an external battery.



MOD 4 Many FT817 owners will know of this MOD but for those that don't it is well worthwhile. The dry battery holder can be used for rechargeable cells and these can be charged by the normal FT817 charger. To do this you need to cut the green wire on the dry battery holder. You can then install a set of high power 2000 mA H NMH batteries. However now the wire is cut you must not connect the charger if dry cells are installed. To avoid this I suggest that once you have fitted a set of rechargeable batteries that a label is put over them stating:

Warning - Green wire cut. Do Not use alkaline batteries

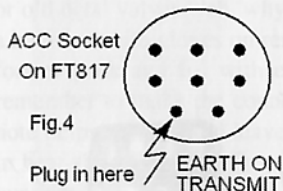
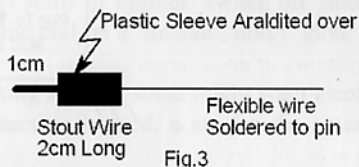
If you fit 2000 mA H batteries then you will have to do a double charge as the built in charger in the FT817 is designed for the 1000 mA H battery supplied with the rig.

These mods are very simple. (They take much longer to explain). Having a spare or two external batteries is very useful indeed. There are quite a number of mods for the FT817 (and other rigs). Many are quite complicated but it is worth looking at the website – mods.dk.

Once connected scroll down and click on YASEU. This will then list the rigs, scroll down and click on FT817.

Using a Linear Amplifier

I also use a linear amplifier of the type in SPRAT 123. It can be switched via the ACC socket at the rear of the FT817. This needs a special plug which I imagine is expensive. As only one pin is used I made up a simple plug.

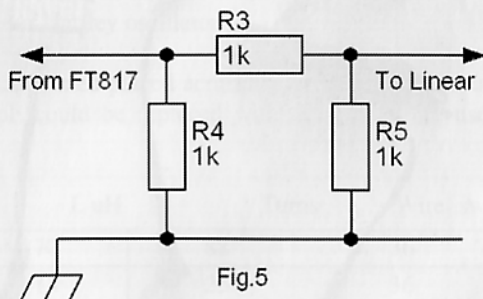


This plugs into the ACC socket, earth on transmit pin on the rear of the FT817.

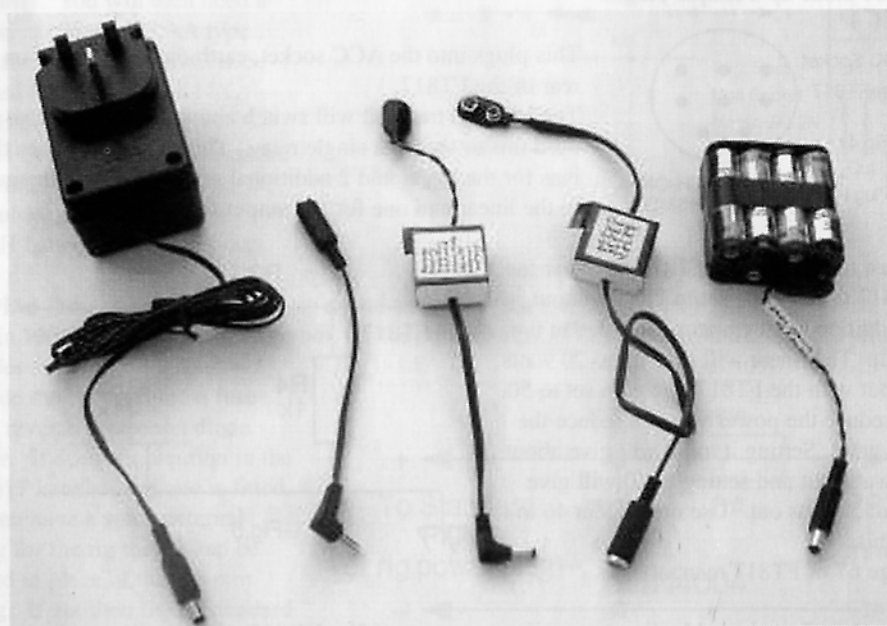
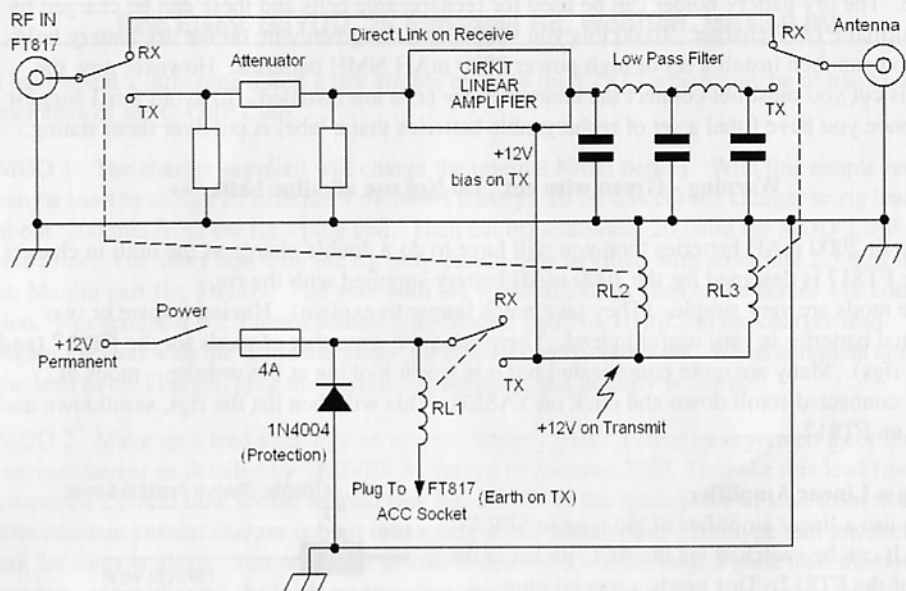
The earth on transmit will switch about 100 mA. I have used this to switch a single relay. This in turn switches the bias for the linear and 2 additional relays. One for the input to the linear and one for the output from the linear.

When used with the "CIRKIT" linear the FT817 needs to be set to ? watt output, in addition an attenuator is needed at the input. The linear will give up to 20 watts output with the FT817 mic gain set to 50. To reduce the power you can reduce the mic gain. Setting it to 20 will give about 10 watts out and setting to 10 will give about 5 watts out. Use menu item 46 to do this.

(Page 67 of FT817 manual)



The relays I used are Maplin ultra miniature type - ref No. YX94C. I normally run the linear from a 12 volt sealed lead acid battery. The battery could also power the FT817. You can also use a 9.6 NimH battery for the linear. Should produce 15 watts output.



[1]

[2]

[3]

[4]

[5]

How to make 'Plug-in' coils.

David Smith G4COE, 54 Warrington Rd. Leigh, Lancs. WN7 3EB

The idea came whilst rooting about for some 'long lost' component, 'a good radio amateur' never 'clods' anything out (I really should say throw – I'm from Lancashire see), I came across some old plastic solder tubes I saved, 5 pin DIN plugs flashed before my very eye's as they fell from the shelf and "hey presto", all we wanted now was copper wire, old transformers, coils & relay's – "me never clods anything away", it's as if someone switched a halogen lamp on with far too much voltage. I immediately thought of the 'Plug-in' Denco coils of ages past when 1 valve radios was the 'norm', how sadly missed.

So here we go.

The former can be any insulated tubing, plastic, fibreglass, paxolin or even test tubes, but you do have to be careful with water pipes, some may appear plastic but can be very lossy and no good for RF. An easy way to find out is to put a cup of water in the microwave and a piece of the pipe on the other side of the plate, when the water starts to simmer 'switch off' and if the plastics warm then its no good – might as well wind the coil on a 'tin can', don't 'clod' it, use it as an air vent on yur 2KW linear.

A diameter of 0.5" is about right, avoid anything smaller, some might want a coil with two windings or want one with three windings if reaction is used, a tap for the antenna or feedback could also be used.

The connectors that can be used are endless, audio DIN plugs, B9A valve base plugs or old octal valves...eh, why not? Wrap the valve in newspaper and give it a 'good crack' with a hammer, with gloves on remove all the gubbins CAREFULLY – there's your plug, mount the former pack and fill with epoxy, even a mic. socket will fit into to these solder tubes; do remember to make the connections before fitting using the same pins for each coil, keeping a note helps. Once fixed leave 24 hours to harden, the windings could be varnished or enclosed in heat-shrink sleeves, Denco coils were left uncovered. The windings are all close wound in our case.

As a rough guide, reaction a tenth of the total number of turns, feedback can be a link or tap quarter way up from earthy end for our Hartley oscillator

So with a 100pF tuning capacitor and a 22pF fixed placed across the coils would give us the following approximate coverage, the 22pF could be replaced with a variable and used as band-spread or fine tuner,

Range	Coverage MHz	L uH	Turns	Wire swg
1	1.7– 4.0	70	88	36
2	4 .0 – 9.4	13	25	36
3	8.3 – 19	3	12.5	22
4	13.0 - 31	1.2	6.5	22

All windings close wound, a very thin strip if masking tape on the former can help to hold the windings in place, keep the leads on the main winding short as practical.

A Couple of Useful 78xx Regulator Circuits

Stef Niewiadomski, Saddlestones House, Faringdon Road,
Stanford-in-the-Vale, Oxon.

Increasing the output voltage of a regulator

A low current regulated 6volt supply is very useful for powering VFOs, NE602s, etc and I generally don't bother with a zener diode and series resistor, but tend to use a small 3-terminal regulator. However, the 6volt 100mA 78L06 seems to be difficult to get hold of these days, whereas the 5volt 78L05 is still freely available. More output voltage can be coaxed from the 78L05 by connecting a 1N4148-type diode in series with the common/ground lead as shown in Figure 1(a): My measurements showed that about 4mA flows from this terminal of the regulator to ground, and is fairly independent of the load current, and this current is sufficient to turn the diode on, and hence raise the output voltage to about 5.7volts. Figure 1(b) shows 2 diodes in this ground path, raising the output voltage to about 6.4volts, which is close enough to 6volts for most purposes.

Regulator over-current indicator

Figure 2 shows a conventional 12volt stabilised circuit, using a 7812 1Amp regulator. The regulator needs at least 2volts between its input and output to enable its stabilising action. Typically the input voltage comes from a rectified and smoothed transformer secondary, and is often in the range 15-17volts. LED1 is the "12volt present" indicator and is illuminated by the current flowing through R1 from the 12volt output.

Now look at the network "over the top" of the 7812. Let's say the input voltage to the 7812 is 17volts. Therefore there is 5volts across the ZD1, R2 and LED2 chain, which is insufficient to cause the zener diode to conduct and LED2 stays extinguished.

Now let's say the output current drawn from the regulator exceeds its 1Amp maximum. As the current increases beyond 1Amp, the regulator starts to current limit, shutting down its output which moves towards 0volt. As this happens, the voltage across ZD1 increases and it turns on, and LED2 starts to illuminate, its current limited by R2. I measured how quickly the ZD1, R2 and LED2 chain switches on as the voltage across it increases. At 4volts, LED1 is fully extinguished. At 5volts it starts to glow faintly, and at 6volts it is glowing brightly. A glowing LED2 therefore indicates that the output current spec of the 7812 is being exceeded and it is shutting down.

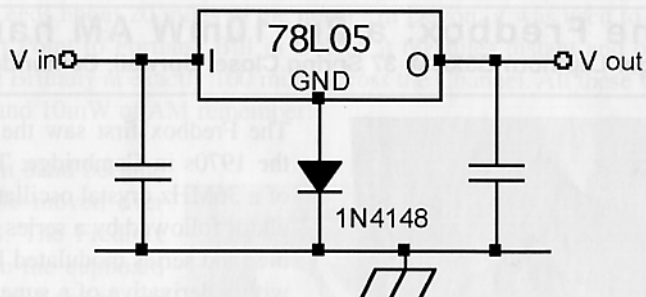


Fig. 1[a] 78L05 gives 5.7v volts

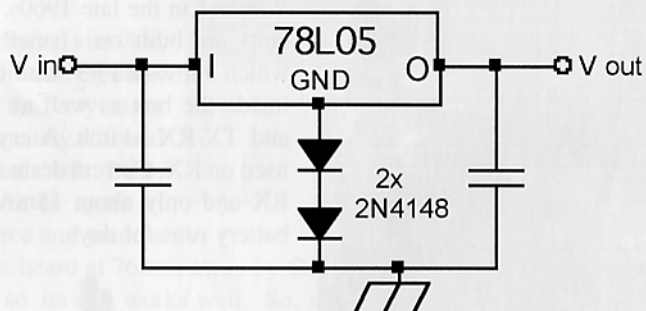


Fig. 1[b] 78L05 gives 6.4v volts

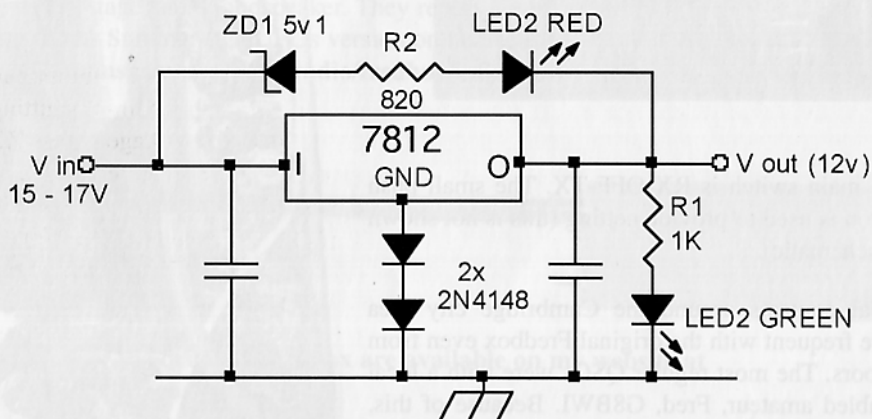


Fig.2. 7812 WITH OVERCURRENT LED INDICATOR



WIFB MEMORIAL ENTRY

The Fredbox: a 2m 10mW AM handheld

Roger Laphorn G3XBM, 37 Spring Close, Burwell, Cambridge. CB5 0HF



The Fredbox first saw the light of day in the 1970s in Cambridge. The TX consists of a 36MHz crystal oscillator and x2 modulator followed by a series modulated doubler and series modulated PA. This is used with a derivative of a super-regen receiver (the CQ2) that first appeared in Practical Wireless in the late 1960s. These two circuits are built on a small L-shaped PCB which allows a PP3 sized battery to be put inside the box as well as the microphone and TX-RX switch. A crystal earpiece is used on RX. Current drain is under 1mA on RX and only about 15mA on TX, so the battery runs for days.



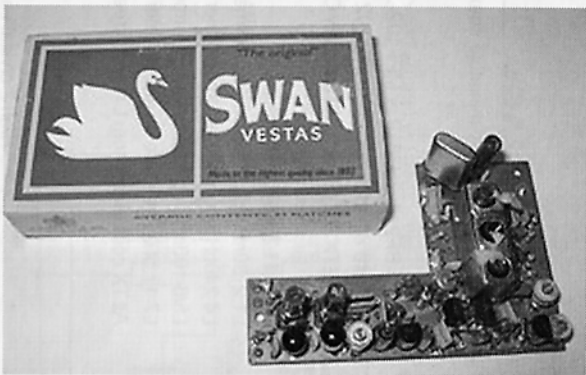
The main switch is RX-OFF-TX. The small push button is used to provide netting (this is not shown on schematic).

Local contacts around the Cambridge city area were frequent with the original Fredbox even from indoors. The most regular QSOs were with a local disabled amateur, Fred, G8BWI. Because of this, the little box became known as the **Fredbox**. The most exciting results took place away from Cambridge in Yorkshire and in South Devon.

In Yorkshire the Fredbox was regularly used to make QSOs from my in-law's house in Barnsley up to Leeds about 20 miles to the north. In Devon, it was used to make several QSOs from Start Point to Portland Bill in Dorset at 60 miles distant and one to a static mobile station in Brittany at exactly 100 miles across the Channel. All these were with just a whip antenna and 10mW of AM remember!

Gradually the 2m band became busier and people moved over to FM and SSB. The Fredbox was consigned to the cupboard and rarely saw the light of day again, until recently that is.

With a small revival in AM operation on 2m the Fredbox was rebuilt into the very same box which I fortunately still had using the original built PCB. It has been on the air again in the Cambridge area and made a few QSOs. It was heard at 76kms away by G1HDQ (using a whip antenna too) when last down in Devon, so its still works well. So, if you hear a weak AM signal calling CQ in the Cambridge area you know who it might be!



I would not recommend a direct copy of the circuit today as some parts might not be too easy to find, especially the coils. As a source of ideas for a *derivative* rig it is ideal. A 6m or 4m version would certainly be possible.

Recent reincarnations have been made by the Stevenage club, but their version has a beefier audio stage and a loudspeaker. They report it works well.

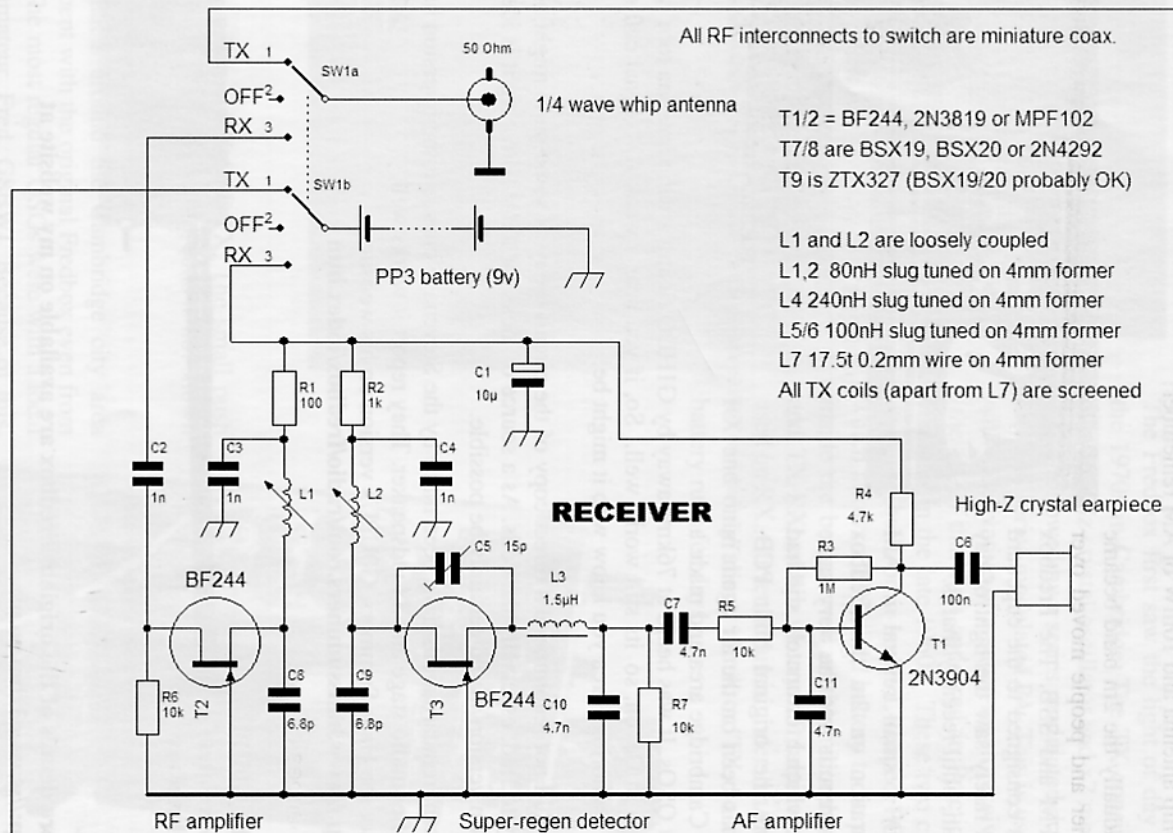
Also, see Hans Summers, G0UPL's version on his website.

<http://www.hanssummers.com/radio/fredbox/index.htm>

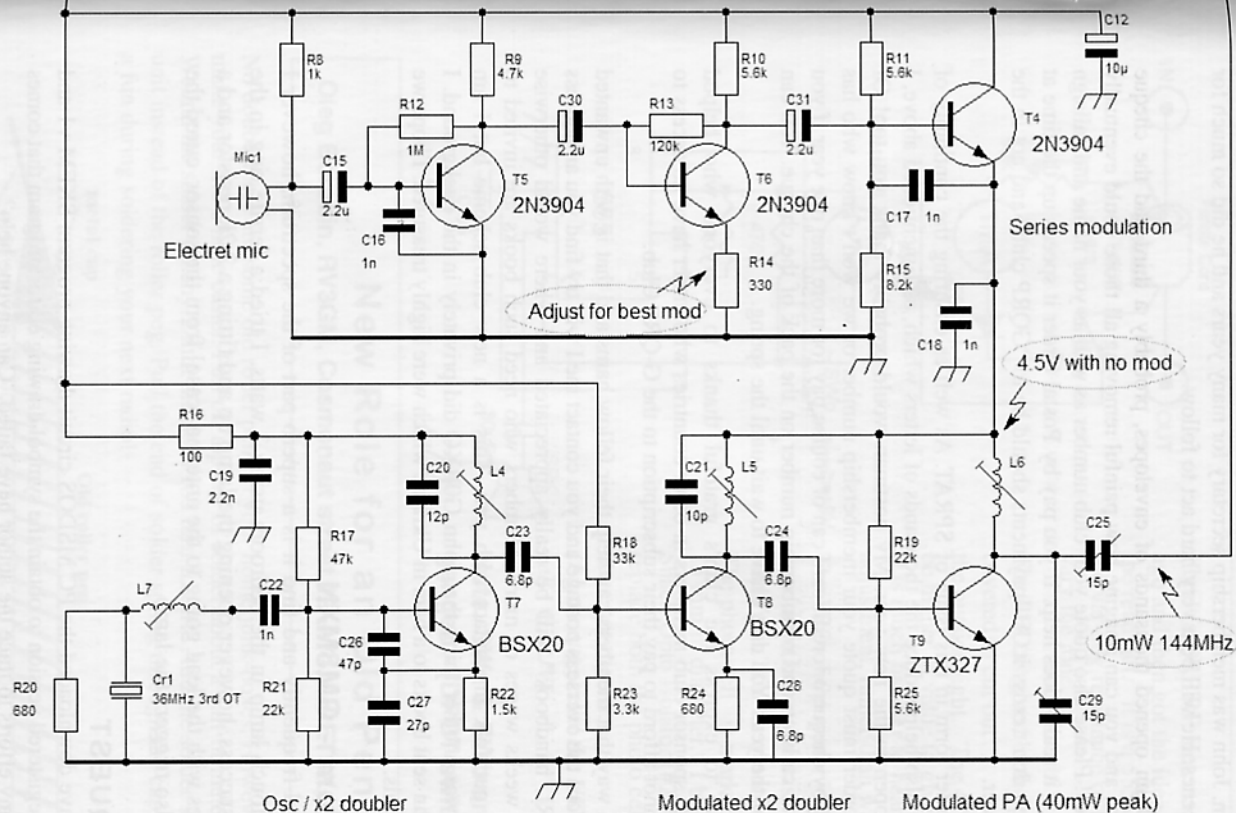
**The G0UPL
Version of
Fredbox**



More details of the original Fredbox are available on my website at <http://www.g3xbm.co.uk> .



TRANSMITTER



Fredbox 10mW 2M AM Transceiver

Copyright 2006

Roger Laphorn G3XBM

Renewing your G-QRP subscription and sponsoring a member. Tony Fishpool G4WIF - Membership Secretary

I would like to begin with a tribute to my predecessor – the late John Leak G0BXO who was the finest of gentleman. John was membership secretary for many years and he did so much for the club behind the scenes. He will be a very hard act to follow.

Each January when John opened thousands of envelopes, probably a third had the cheque stapled to other papers, and you can imagine how painful removing all those could eventually be. So please no staples! Please also quote your club number as well as your name and callsign in all correspondence – it really does help. If you pay by Postal Order it speeds up the time at the bank counter if you don't cross it. All payments should be to "GQRP club" and not in the name of any club officer.

There is a standing order form in this issue of SPRAT. As well as ensuring the continuity of receiving SPRAT you also help reduce the thousands of letters which, as I mentioned above, I will otherwise have open in the new year. My postman would probably thank you too! Of course, the standing order must quote your membership number or we won't know who has paid. Members paying by cheque or credit card can of course pay for more than one year if you wish. Please write your callsign and membership number on the back of the cheque. You can also pay at any time of the year. You don't have to wait until the spring.

Finally, I would like to express the club's grateful thanks to everyone who helped (and continues to help) sponsor club members in other countries who either have no access to hard currencies or cannot afford to pay their subscription to the G-QRP Club.

There is an additional way that members can help their fellow hams and that is with unwanted radio books. If can afford the overseas postage and you contact me I will try find you an address where "that old ARRL handbook" will be really appreciated and where would otherwise probably represent a weeks wages or more. Members who need such books are invited to contact me so I can put folk in contact with you. This is a new club scheme but I am discovering that this was another thing that John G0BXO did privately in the background. I heard recently that John sent books to a ham in Ukraine which were highly treasured. I hope we can do some more of this.

A Tip from Tom - GM3MXN

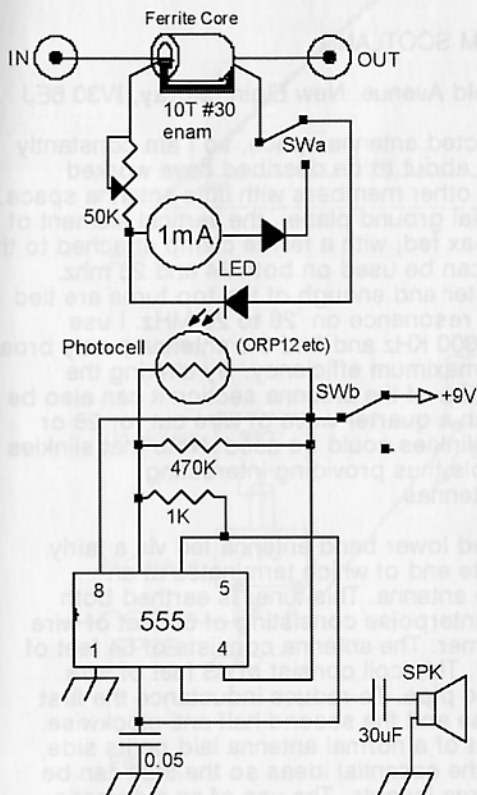
I use the 5MHz band frequently and find it is a superb part of the spectrum, however I switch on and off a touch lamp in the bedroom using 3 watts. I tried a ferrite ring in the supply lead with no success, however opening the lamp up and fitting a 2.2k resistor and a 100uH choke in series with the lead going to the antenna [case] from the sensor cured the problem. 1.8 MHz also triggers the lamp

MEMBER REQUEST

INFO WANTED: I have downloaded the PC MSDOS circuit drawing program SKEM v1 and would like to get the registered version to obtain the symbol drawing editor program that comes with it. However all my efforts to trace the author have failed. Can anyone help?
email phoward@tesco.net

QRP TONAL RF INDICATOR

Dick Pattinson VE7GC, 295 Price Rd. Salt Spring Island, British Columbia,
V8K 2E9, CANADA



I built a QRP RF meter a couple of months ago and then got the idea of adding tone to the read out. It is a 555 oscillator which uses the varying resistance of the photo cell to vary the tone.

The LED is glued to the photo cell and then covered to cut out the outside light. The 470 K resistor could be higher in value to give a lower initial note. It is much handier to hear the results of adjustment, rather than watching a meter.

The FSD of the meter is 1 ma full scale. I have a notice on the case "Start with minimum gain" for an obvious reason!!! The photo cell is marked "Holland" and is 15 mm in diameter. I believe that a Radio Shack Opto Isolator (#270-1628) would replace both the photo cell and the LED but have not tried it.

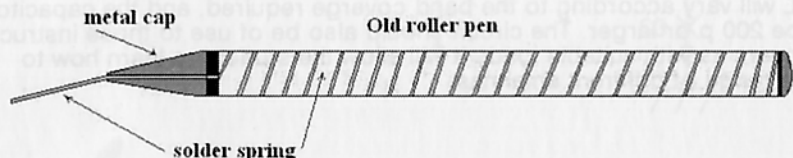
[I have suggested the UK ORP12 CdS photo-cell. G3RJV]

Note: SWa & SWb are ganged - [DPDT switch]

New Role for an Old Pen

Oleg Borodin, RV3GM, Cosmonaut street 19 - 74, LIPETSK, 398043. RUSSIA

No doubt, there are some old roller pens in your home junk-boxes. However, they may to make your life a little easier. Pull off a piece of solder about a half of meter long and cut it. Wound the solder on any 2 mm diameter rod turn-to-turn. Add the solder spring in the pen's unit instead of the roller peg. Pull the end of solder spring through the cap (see picture). Have a fun during soldering your next radio!



ANTENNAS - ANECDOTES - AWARDS

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

A COUPLE OF SPACE SAVERS FROM SCOTLAND

Eddie Mclean, GM4EWM, 21 Milnefield Avenue. New Elgin, Moray, IV30 6EJ

The bungalow I live in has very restricted antenna space, so I am constantly playing with small antennas. The two about to be described have worked well for me, and should be of use to other members with little antenna space. The first, shown in Fig 1, is a two radial ground plane, the vertical element of which is made from a slinky. It is co-ax fed, with a ferrite clamp attached to the cable near the feed point. It can be used on both 24 and 28 mhz. The slinky used is of 37.5 mm diameter and enough of the top turns are tied together to bring the antenna into resonance on 28 to 29 MHz. I use frequencies in the range 28060 to 29600 KHz and find the antenna pretty broad band, but a suitable atu will provide maximum efficiency. By altering the number of turns tied together at the top of the antenna section it can also be tuned to 24 MHz. The radials are each a quarter wave of wire cut for 28 or 24 MHz, but if roof space is limited slinkies could be used. Note that slinkies of 69.5 mm diameter are also available, thus providing interesting possibilities for small lower band antennas.

The second antenna, Fig 2, is a loaded lower band antenna fed via a fairly long length of co-ax cable the remote end of which terminates at an L-match tuner which in turn feeds the antenna. This tuner is earthed both to a ground connection and to a counterpoise consisting of 66 feet of wire helically wound on a plastic pipe former. The antenna consists of 54 feet of wire with a loading coil at the far end. This coil consist of 45 feet of wire wound on a 2.75 inch diameter plastic pipe. To reduce inductance the first half the the turns are wound clockwise and the second half anti-clockwise. In my installatin the final shape is that of a normal antenna laid on its side, but Fig 2 has been drawn to show the essential ideas so the they can be adapted for use in other restricted area layouts. The use of an automatic atu would also be a possibility in many instanases and could be money well spent

A VERSATILE ANTENNA COUPLER

G8PG

The circuit shown in Fig 3 can be configured to give either a high to low impedance coupler when S2 is open and S3 closed, a low to high impedance coupler when S2 is closed and S3 open, or a pi coupler when both these switches are closed. Also, if both S2 and S3 are open the coil L can be used as a loading coil at the base of a short antenna. Coil L will vary according to the band coverage required, and the capacitors can be 200 p or larger. The circuit should also be of use to those instructing beginners as with suitable loads it will allow the student to learn how to tune a range of different antennas.

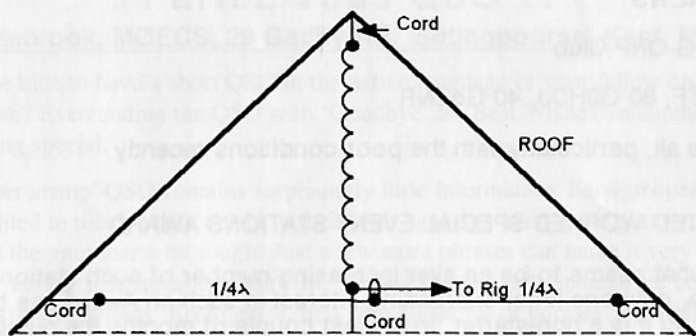


FIG.1.

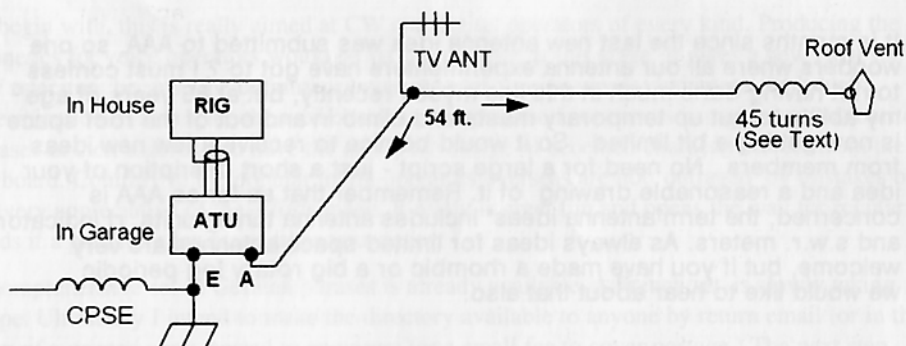


FIG.2.

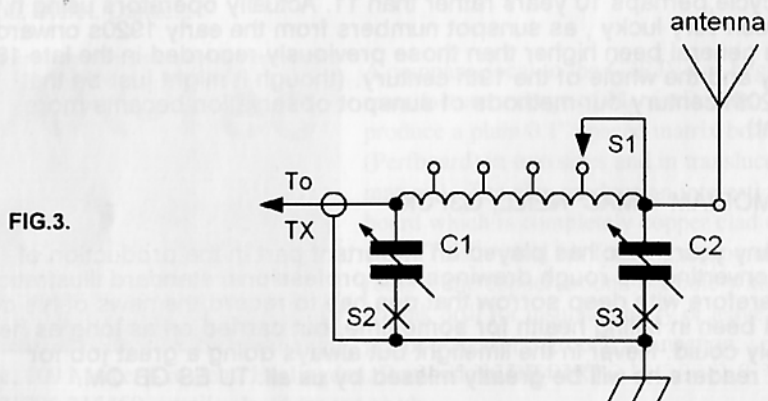


FIG.3.

AWARD NEWS

Worked G QRP Club

260 GoUTF, 80 G0HDJ, 40 GoZNR

Well done all, particularly with the poor conditions recently

SUGGESTED WORKED SPECIAL EVENT STATIONS AWARD

Despite what seems to be an ever increasing number of such stations on the bands, only one letter expressing interest in such an Award has been received, so it is a non-starter. In the last couple of months the number of TM stations operating from France has been large, which may be something to do with the 60th anniversary of the end of World War 2.

IS NOBODY DOING ANY ANTENNA EXPERIMENTS THESE DAYS ?

It is months since the last new antenna idea was submitted to AAA, so one wonders where all our antenna experimenters have got to ? I must confess to not having done much in this line myself recently, but at 85 years of age my ability to put up temporary masts and climb in and out of the roof space is now getting a bit limited . So it would be nice to receive a few new ideas from members . No need for a large script - just a short description of your idea and a reasonable drawing of it. Remember that as far as AAA is concerned, the term "antenna ideas" includes antenna tuning units, rf indicators and s.w.r. meters. As always ideas for limited space antennas are very welcome, but if you have made a rhombic or a big rotary log periodic we would like to hear about that also.

FAST DECLINE OF THE SUNSPOT CYCLE

The experts who predicted a very sharp decline in sunspot activity seem to have been proved right, with signals down and bands above 14 MHz often not open. These experts have also suggested that this may be a short cycle, perhaps 10 years rather than 11. Actually operators using h.f. have been very lucky , as sunspot numbers from the early 1920s onwards have in general been higher than those previously recorded in the late 18th century and the whole of the 19th century. (though it might just be that in the 20th century our methods of sunspot observation became more efficient).

IN MEMORIAM - "MAC" NEILL, G3FCK

For many years Mac has played an important part in the production of AAA, converting the rough drawings into professional standard illustrations. It is therefore with deep sorrow that one has to record the news of his death. He had been in failing health for some time, but carried on as long as he possibly could. Never in the limelight but always doing a great job for SPRAT readers he will be greatly missed by us all. TU ES GB OM.

Parlez Vous QSO ?!

Steve Seabrook, MØECS, 29 Gadby Rd. Sittingbourne, Kent. ME10 1TJ

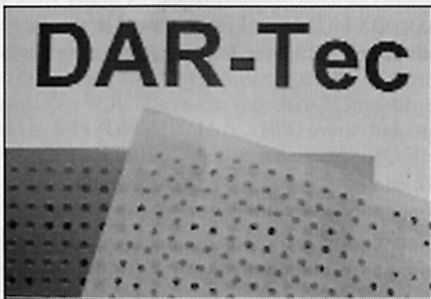
Wouldn't it be nice to have a short QSO in the native language of your fellow operator rather than in English? Even ending the QSO with 'Goodbye' or 'Best Wishes' in another language adds something special.

A basic 'rubber stamp' QSO contains surprisingly little information. Foreign operators are usually delighted to receive the contact in their own language even if the phraseology is awkward and the grammar a bit rough! Just a few extra phrases can make it very rewarding. Anyone who has taken advantage of the BBC's Talk French / Talk Spanish etc basic language courses will know how easy it is to get started with a handful of phrases. For radio, very little language is actually required. I am collating a directory of common radio phrases in foreign languages for use in a basic QSO. Among the ranks of radio amateurs there must be many folk who are fluent or capable linguists, and I would be delighted if you would like to contact me with a view to taking part in this voluntary project.

To begin with, this is really aimed at CW and digital operators of every kind. Producing the phonetics for voice operators would be far too difficult at this stage. It gives a new twist for CW operators because the unfamiliar letter order of foreign words challenges the brain's determination to anticipate the next character! Digital mode operators can queue up favourite phrases in their macros and have the added advantage of accented characters direct from the keyboard. Contrary to the popular myth, operators overseas are not 'outraged' by mistakes but are very appreciative of the efforts made. It really is great fun and opens the way for regular skeds if a particular language takes your fancy.

A comprehensive set of German phrases is already available. A French set is slowly taking shape. Ultimately I intend to make the directory available to anyone by return email (or in the form of a printed copy, posted to enquirers for a small fee to cover postage.) The next step would be a freely available directory on the Web. Naturally this would be a 'work in progress' with regular updates and feedback from participants. If you would be interested please contact me at ParlezVousQSO@m0ecs.waitrose.com or write to me at Parlez Vous QSO, c/o 29 Gadby Road, Sittingbourne, Kent. ME10 1TJ

Thank you, Merci, Danke...



A company local to the G3RJV has begun to manufacture a range of Matrix Boards. DAR-Tec produce a plain 0.1" spaced matrix board (Perfboard) in two sizes and in translucent FR4 material. They also produce an interesting matrix board which is completely copper clad on one side. This is ideal for forming a ground-plane – remove the copper around the hole with a countersink drill for insulated entry or leave the copper in place for a ground connection.

DAR-Tec, 109 Mercer Crescent, Haslingden, Rossendale. BB4 4RL.

Tel/Fax 01706 215450. email sales@dar-tec.co.uk.

Or order via Ebay: search for "Matrix Boards". Ebay user name JAMSANDTHINGS.

This is not a contest. Just enjoy plenty of slow Morse activity for a period of five days. The dates selected are intended to avoid weekend contest activity. Work any station, including members of EUCW clubs (see below), but send only in QRS. Standard QSO's with non-participating stations can be included in logs.

DATES/TIMES: From Monday 24th April 2006, 0001 UTC, to Friday 28th April 2006, 2359 UTC.

MODE: CW only.

POWER: Any authorised power.

CALL: CQ QRS. Stations may be worked once per day, per band.

FREQUENCIES: Recommended areas of activity, +/- 10 kHz of the FISTS calling frequencies, including WARC bands (see below), but contacts can be made on any frequency. Non-QRP stations should avoid calling CQ on the popular QRP frequencies (see below).

KEYS/SPEEDS: Use any type of key or keyer. No keyboard sending or pre-programmed messages from computers or keyers, but pre-programmed CQ calls or CQ loops are permitted. Maximum speed 14 words per minute (70 cpm). The speed of a QSO should be at the speed of the slower station.

CONTACTS: Normal friendly QSOs, no special requirements. QSOs with any station count. Work any station in any country, including stations not taking part in the QRS Party but try to persuade them to work QRS.

LOGS/FEEDBACK: This is not a contest, but logs and feedback will be welcomed in the following classes:

A - More than 10w input or 5w output power

B - QRP (10w input or 5w output, or less)

C - Shortwave listeners.

Logs should show Date, Time, Callsign, Name, QTH and EUCW Club/Number (if appropriate) of the stations worked/heard, and may include up to three votes for "Most Readable Morse Heard" (one vote per station).

AWARDS:

a) A certificate will be awarded to the three participants working/hearing the most stations in each class.

b) Certificates of Merit will be awarded to the three operators receiving most votes for the "Most Readable Morse Heard", provided the operators nominated have also submitted a log. If the operators receiving the most votes have not submitted a log the certificates of merit will be awarded to the qualifying operators with the next highest number of votes. In the event of a tie in first, second or third places, multiple certificates will be awarded, marked "Shared Award".

SEND LOGS TO:

FISTS/EUCW QRS Party Organiser,

Robert Walker M0BPT,

38 Wheatley Street,

West Bromwich,

B70 9TJ.

E-mail: m0bpt@blueyonder.co.uk

To be received by surface mail or e-mail not later than 31st May 2006.

NOTES

EUCW (European CW Association) Clubs:

AGCW-DL (Germany); Benelux-QRPC; BTC (Belgium); CFT (Belgium); CTC (Croatia); CT-CWC (Portugal); EACW (Spain); EA-QRPC (Spain); EHSC (Extremely High Speed Club); FISTS; FOC (First Class Operators Club); G-QRPC; GTC (Greece); HACWG (Hungary); HCC (Spain); HSC (High Speed Club); HTC (Switzerland); INORC (Italy); I-QRPC (Italy); IS QRP (Italy); ITC (Italy); LZCWC (Bulgaria); MCWG (Macedonia); OE-CWG (Austria); OHTC (Finland); OK-QRPC (Czech Republic); RTC (Germany); RU-QRP (Russia); SCAG (Scandinavia); SHSC (Super High Speed Club); SP-CWC (Poland); UCWC (C.I.S.); UFT (France); U-QRQC (C.I.S.); VHSC (Very High Speed Club); YL-CW-GP (Germany); 3A-CW-G (Monaco); 9A-CWG (Croatia).

EUCW Associated Clubs: CWAS (Brazil); GACW (Argentina); QRP-ARCI (U.S.A.).

FISTS Overseas Chapters: FISTS Down Under (Australia & New Zealand); FISTS East Asia; FISTS USA.

FISTS calling frequencies:

Recommended area of activity +/- 10 kHz

2m 144.058 MHz - 6m Use any authorised CW frequency

10m 28.058 MHz

12m 24.918 MHz

15m 21.058 MHz

17m 18.085 MHz

20m 14.058 MHz

30m 10.118 MHz