

Improving the IC202 Receive performance.

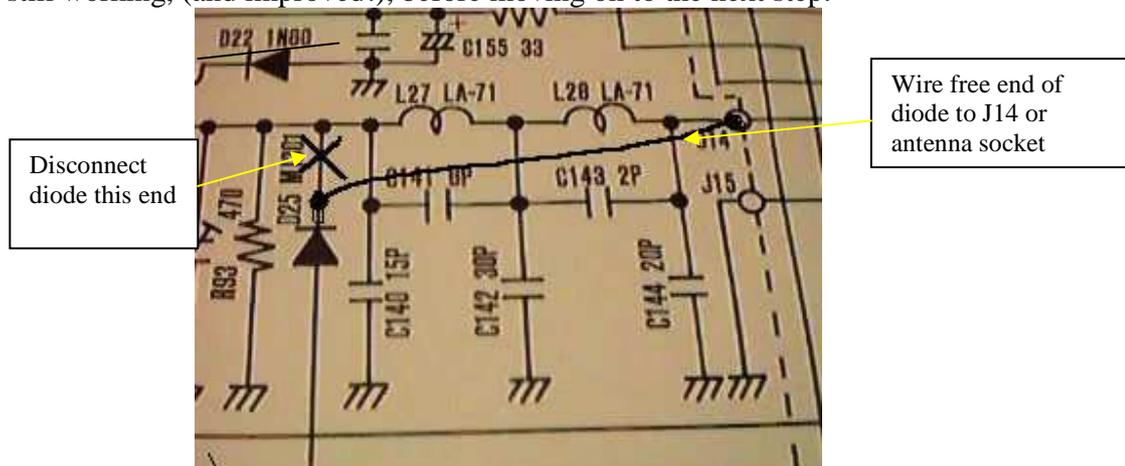
After recently acquiring an original Icom IC202 'talking handbag' 2 metre SSB transceiver, I was a little disappointed to find that although the VXO tuning is so much better than more recent stepped digital types, the receive sensitivity and noise left a little to be desired.

I set out to search the internet for some improvements to what in all other respects is a great little rig, and found two main sources of information. PE1HWO has a whole section on his web site covering the IC202, and WW2R (G4FRE) has a section relating to improvements on his site. Surprisingly, that was about all the information I found on IC202 mods, as this was and still is a very popular little rig to use either barefoot, and feeding transverters, etc.

All the resources found on these sites I printed out and checked over, as there appeared to be some discrepancies between information. Finally, I decided to perform the following modifications, that have audibly improved the receiver. I unfortunately do not have access to any test equipment for noise measurement, etc, but I can HEAR the difference, lower noise and better gain!

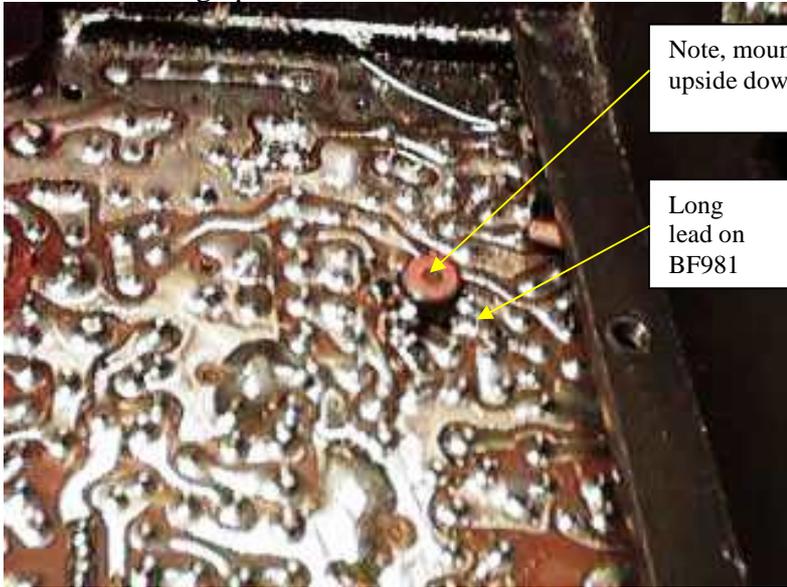
Mod 1. This is a straightforward one. Looking at part of the circuit diagram reproduced below, see that D25, which is a PIN diode going to the RX front end gets re routed to bypass the Lo pass filter. This filter has a 3dB insertion loss, and is really intended to filter the Tx side of things. To achieve this, simply locate D25 on the PCB, (see later picture), cut the anode end flush with the circuit board, or desolder from below. This will disconnect it from the L27/C140 junction. The anode end of the PIN diode will now be hanging in free space. Solder an insulated wire link between the free end of the diode and either J14 on the circuit board, or direct to the antenna connector centre, whichever connection you find the most accessible.

After completing this mod, power up the radio and check the received signal strength of a signal to ensure all is still working, (and improved!), before moving on to the next step.



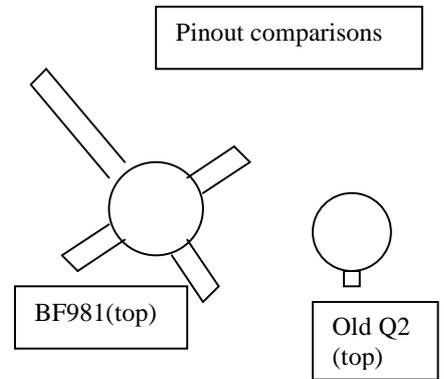
Mod 2 Replacing the older type 3SK40 with a BF981 dual gate FET. The existing transistor, (Q2), needs to be removed from the circuit board. Fortunately, the PCB can stay in place, as simply removing the battery tray exposes the relevant area of PC track to work on. Remove the .01 disc ceramic capacitor soldered to Q2's case and place to one side. Carefully desolder Q2 after identifying its location. See picture on next page. Again, put Q2 to one side, just in case of accidents with the replacement BF981! At least you will be able to solder it back in circuit if need be.

The replacement BF981 transistor is in a totally different package, and I found the most straightforward way of mounting this device is on the track side of the PCB. This eliminates the need to drill out lead holes to accommodate the thicker transistor leads of a BF981. Identify the pinout designation of the BF981, (below), before mounting upside down to the track side:



Note, mounted upside down

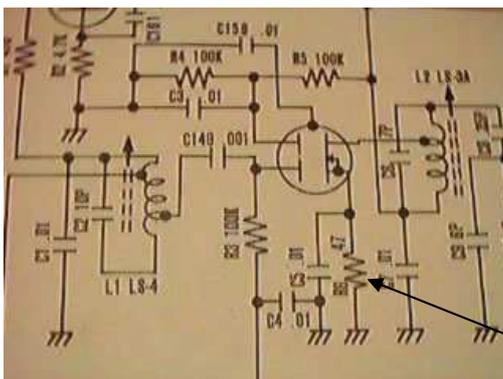
Long lead on BF981



Underside of main PCB in battery compartment

Study the picture above, and familiarise yourself with the where the long lead on the BF981 will be placed. All the other leads will simply solder to adjacent pads where the old 3SK40 came from. Ensure the body of new transistor is kept close to the PCB, as re fitting the battery holder may squash it! Locate R6, which is a 47 ohm resistor adjacent to Q2, (see circuit diagram), and short it out on the track side of board. This effectively re biases the new transistor. That's it!

Apply power and test the improved RX against a known signal, and marvel at the improvement!

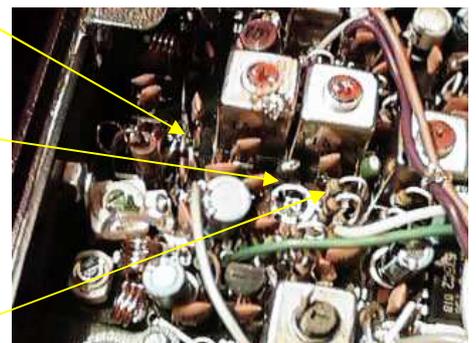


Short out R6

D25 in this area

Q2

R6



There is another published mod I came across that I do NOT recommend. This involves removing the core from L1 and replacing it with a trimmer. It sounds good in theory as the ferrite is lossy at 144Mhz, but after having to destroy the ferrite core to get it out, (it is glued in place), fitting a number of different trimmers failed to work adequately. I then had the task of desparately rummaging through the junk box for another ferrite slug that would fit! You can see it at the bottom of the picture above. I was lucky to have found a compatible one.

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