

Rev 3.0. **Changes from 2.2 are in bold type.**
10 October 2007

K1NQ, W1UE, KV1J and I have been looking over and building up some portions of the 6BPF boards and have come across some corrections that will need to be done before and as you build the boards. I've volunteered to put out the construction notes.

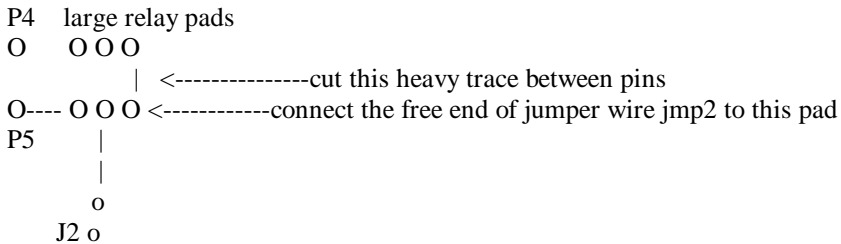
Essential updates:

1- The silkscreen pattern for D5 (the catch diode near K5) is backwards. The cathode band of this diode needs to go farthest away from the relay, not closest to it as marked. If you don't put this in right then Q4 will burn up when 40M is first energized. (The webpage schematic is not correct in this area either).

2- The transistors listed and sent for Q1-Q6 are the wrong part and should not be installed in the board. They need to be NPN's, not PNP's. PNP's will not work here. Any small signal or switching NPN transistor will do, like 2N3904 or 2N2222. If you do not have any, I suggest Radio Shack part number 276-1617, 15 transistors for \$2.59, enough for 2 boards and a few for your junkbox.

3- Jumper "jump2" needs correction. One side of it should go to the hole marked "jump2" near C56, but do not connect the other end to the hole marked "jump2" under K3. Instead this end of the wire needs to go to one of the pins of relay K8 as shown below. **Use a piece of hookup wire under the board for this, and not RG174.**

Also cut the trace shown.



View of K8 solder pads from bottom side of board

4- The holes for L1, L2, and L3 aren't large enough to accept the #16 wire that the toroids are wound with. Drill all the holes out to 1/16", but this will destroy the plating connecting the top pad to the bottom one on the PCB, so make sure to solder the wire on both sides of the board. Better yet, change to #20 wire to wind these inductors. See the "Inductor construction table (.xls file)" for more details.

5. Capacitors C18 and C19 in the 15M filter section need to be in parallel, not in series as laid out on the PCB. One way to fix this is to solder the two caps together and then bend the leads of one to go from the top hole of the C18 outline to the bottom hole (ground) of the C19 outline.

6. Some of the part designations in the initial documentation on the YCCC website changed on the final PCB. The listing that came with the parts kits is correct. For those that did not get parts kits, refer to the "updated 6bpf parts list" document for a complete listing. Especially note the changes for the 22, 56, 30, and 2.2 pf capacitors. (tnx N1MM)

Helpful information:

A. LED D3: the anode is the long lead and should go to the hole in the square pad. Do not solder this LED into the board. It will be on the front panel with extension leads connecting it to the PCB.

B. Coax jumper on top of board: use a 4" piece of the RG174 to go from "jmp1" located next to J1, over to "JUMP" located near Q1.

C. Bypass capacitors C67-C75 and C80-C86: the parts supplied have too narrow a lead spacing to fit the footprint in the board and need to be spread apart. Use a small needle nose plier to hold the lead when you bend it so as not to introduce small cracks in the seal of the ceramic body. Bend one lead as suggested below. Take care that the horizontal part of the bent lead does not short to any traces on the top of the board that go between the pads. This same technique should also be used for other caps having too close a lead spacing to fit the holes without straining the leads.



D. Capacitor C77 has the opposite problem to that above. Similarly bend one of its leads toward the other to shorten the spacing.

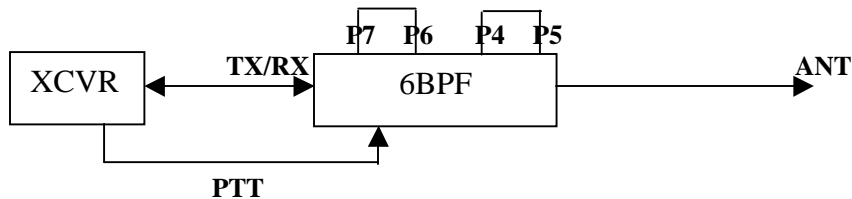
F. Cut lengths for the RG-174 coax.

9 3/4" for the piece going to J1 on the PCB

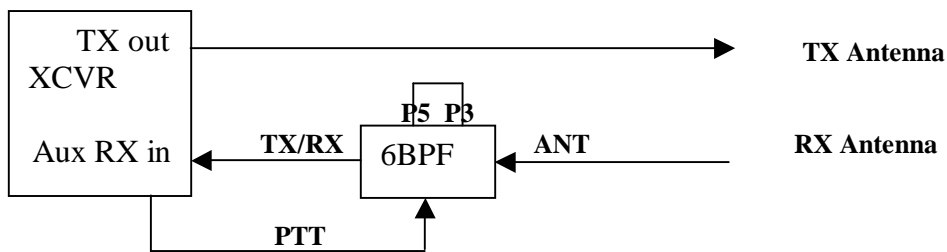
10 1/4" for the piece going to J2 on the PCB

G. Wiring of Option Jumpers P3-P7:

For using the filter with a radio that transmits and receives on the same connector (the usual situation), put a jumper between P7 and P6, and another between P4 and P5, and be sure to hook up a PTT signal to the filter. Keep the jumpers at least 1/8" away from other traces on the PCB. (And see K1NQ's warnings about the absolute necessity of using a PTT signal, and its delay requirement.) When you transmit, the TX/RX port of the 6BPF will then be switched directly to its ANT port, bypassing any selected filter section, but you must have proper PTT setup for that to happen.



For use with a radio's Aux RX input or a separate receiver, put just one jumper between P5 and P3.



This will disconnect the RX antenna and grounds the 6BPF TX/RX port during transmit. Again, see the K1NQ PTT setup warnings.

H. Delay putting in the largest caps until last, as they repeatedly got bent when the board was turned over. They could go in last, after the toroids. (tnx N1MM)

I. For spacers to mount the PCB in the box, use 1/4" high spacers for #6 screws. You can also use 2 dia 5/16" #6 nuts and a #6 flat washer as a spacer.

J. For the band decoder connector (J3) use the MALE on the chassis so that the cable end from the band decoder would not have live conductors exposed when it is not plugged in. The cable end would then be female. (The BOM looks like it has female on the chassis.)

Please let us know of any further comments for this list.