

Here is a quick review of my work installing the W8JI key click mod.

If you have not already done so look at these URLs. The first one is for the FT1000MP; the second is for the Mark V. Look at both since the boards of the two radios are very similar and you will get a good idea of what you are looking for when you see the boards.

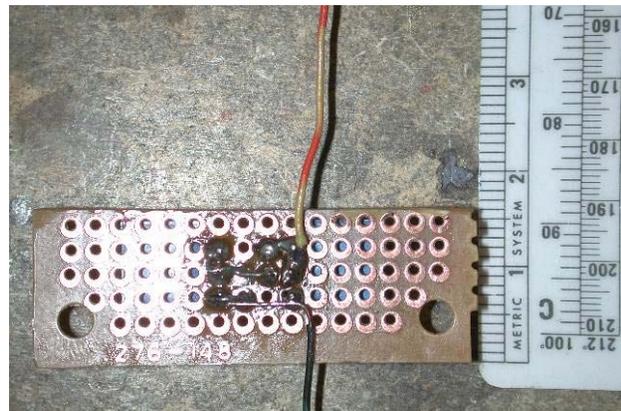
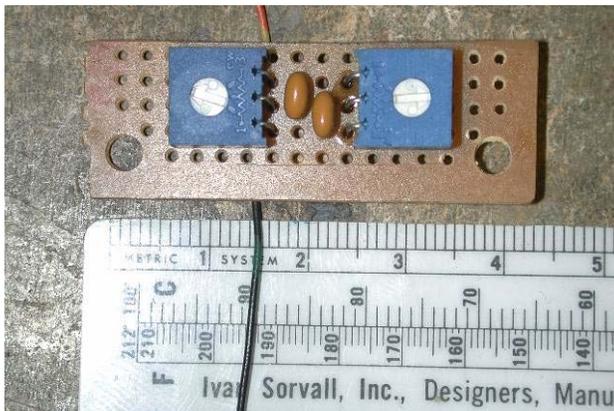
[http://www.w8ji.com/keyclick\\_mp.htm](http://www.w8ji.com/keyclick_mp.htm)

[http://www.w8ji.com/ft1000mk\\_v.htm](http://www.w8ji.com/ft1000mk_v.htm)

<http://www.k1ttt.net/technote/Inradkeyclickmod2.pdf>

Also check the [www.va3cr.net](http://www.va3cr.net) website for additional pictures and notes.

The picture below shows the small board that I built to hold the capacitors and the pots the are connected to points on the Filter Board. As I recall I used 470K and 15K pots for R1 and R2 respectively. Unfortunately all of my exact value information is in my lab notebook in Idaho and I am in Minnesota writing this. I will update the values when I get to Idaho in February.



The next pictures show getting to the RF board where you install one capacitor. You remove the covers and look at the top of the radio. The lower right shows the heat sink and in the center above the heat sink is the fan. The URL references will give step by step instructions which should be printed out for reference before you begin the process of doing the work.

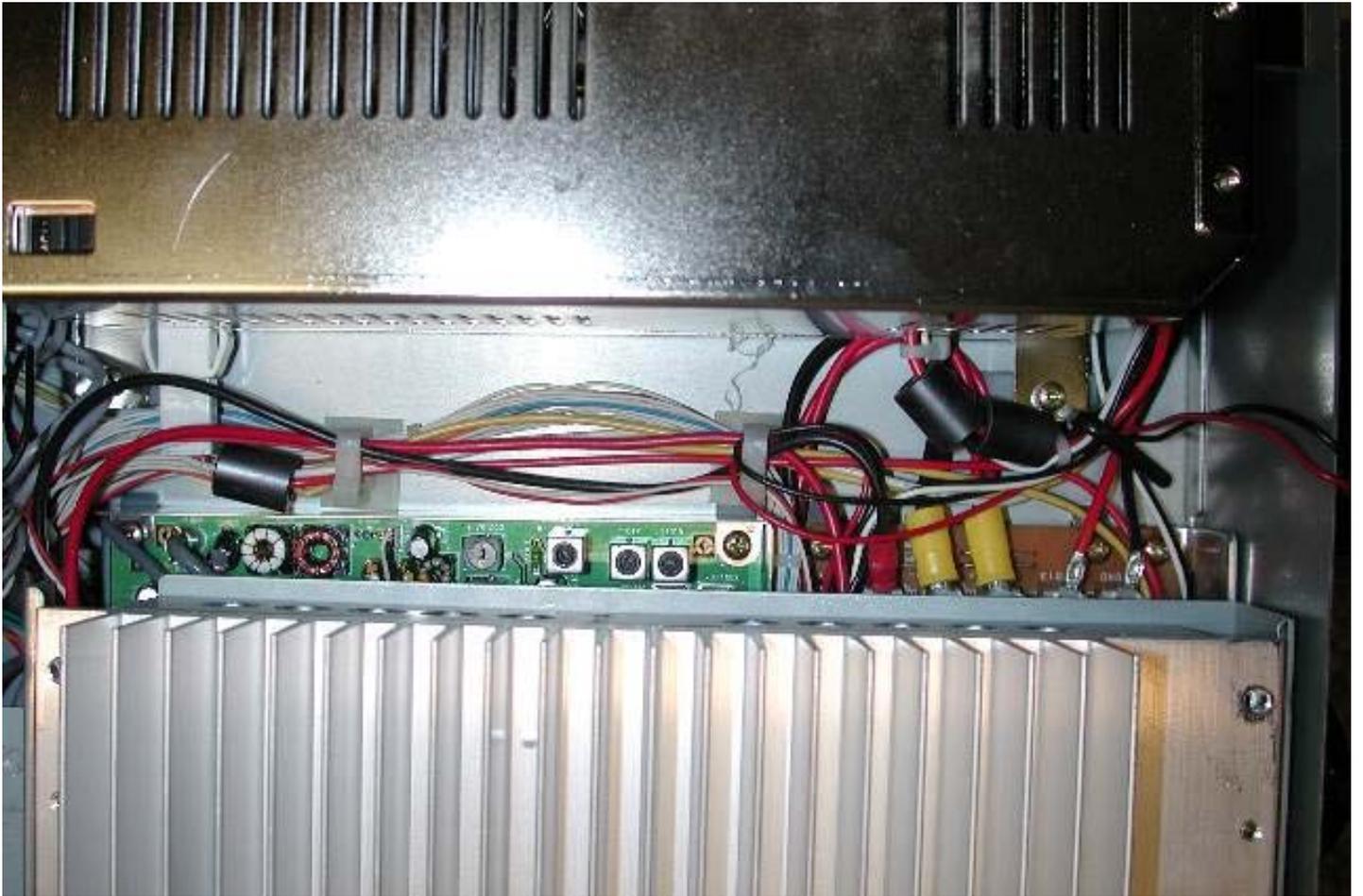
In the lower left corner is the RF output. The yellow boxes in the board near the back panel coax jacks are the antenna relays that have been discussed on the FT1000 reflector from time to time.



Remove the fan and set it alongside the radio..



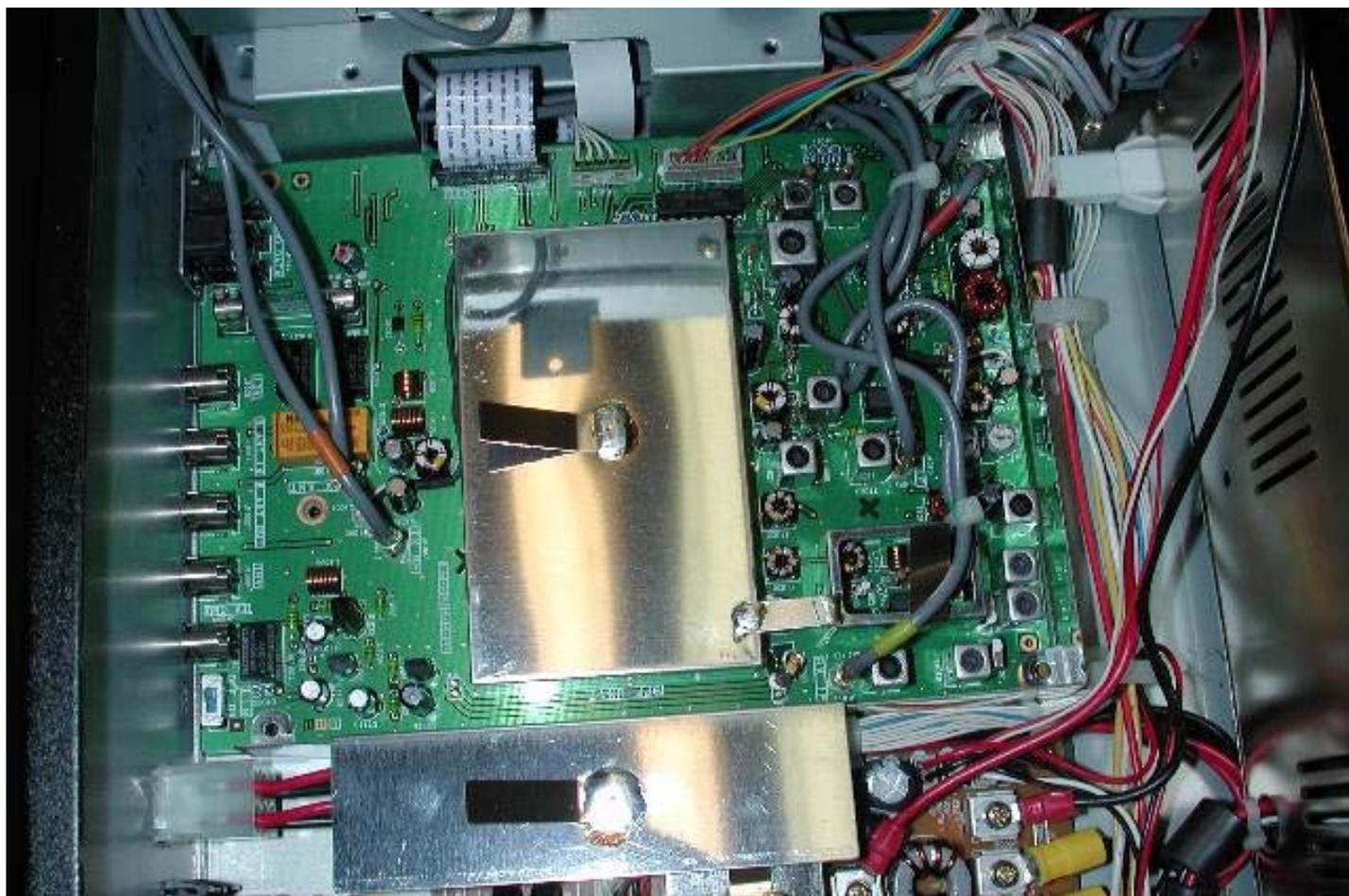
Then you unclip the plastic tabs that hold the cables and remove the heat sink mounting screws and flip up the heat sink to get at the RF board.



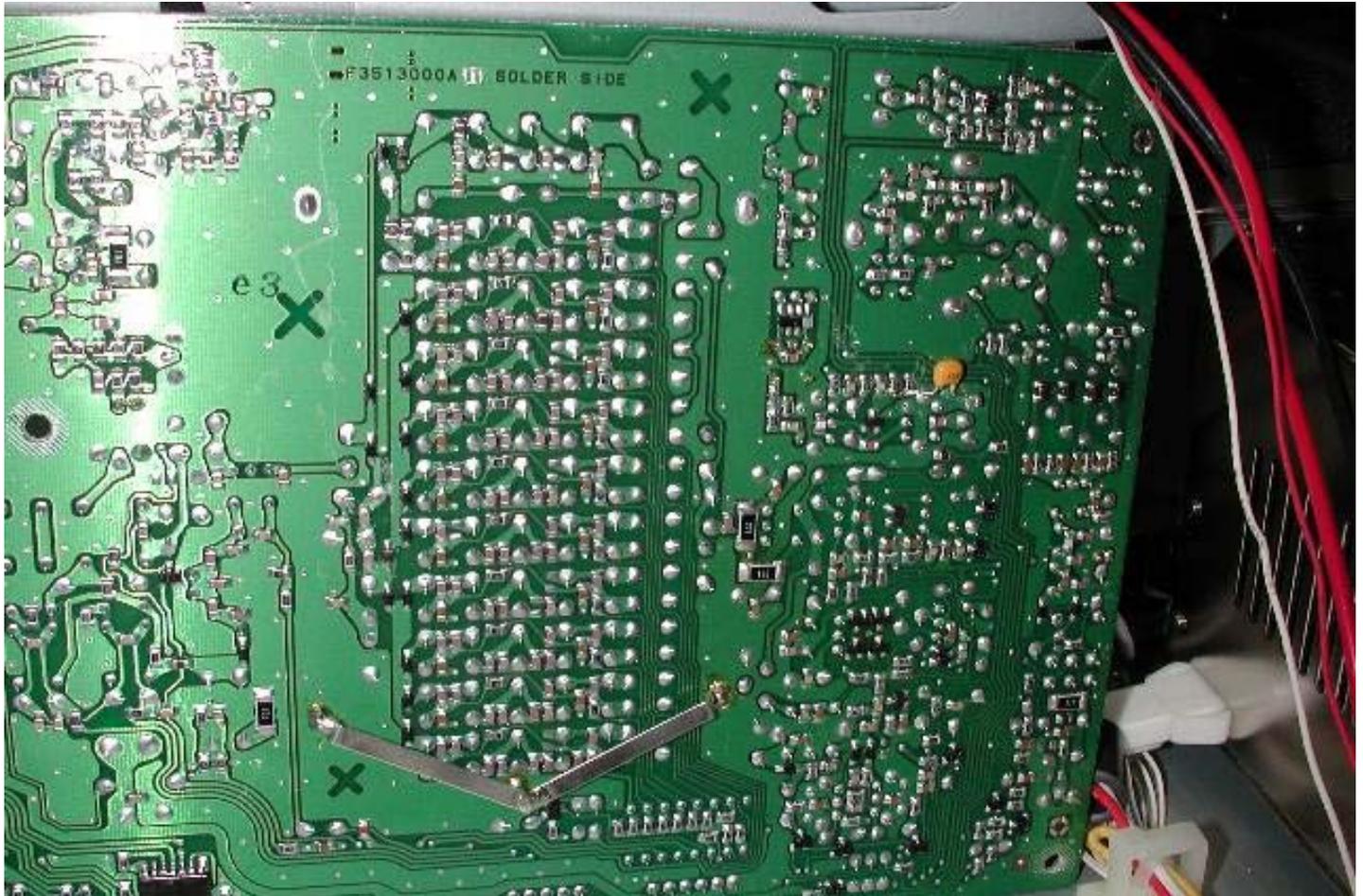
Flip the heat sink to the left side to expose the RF Board..



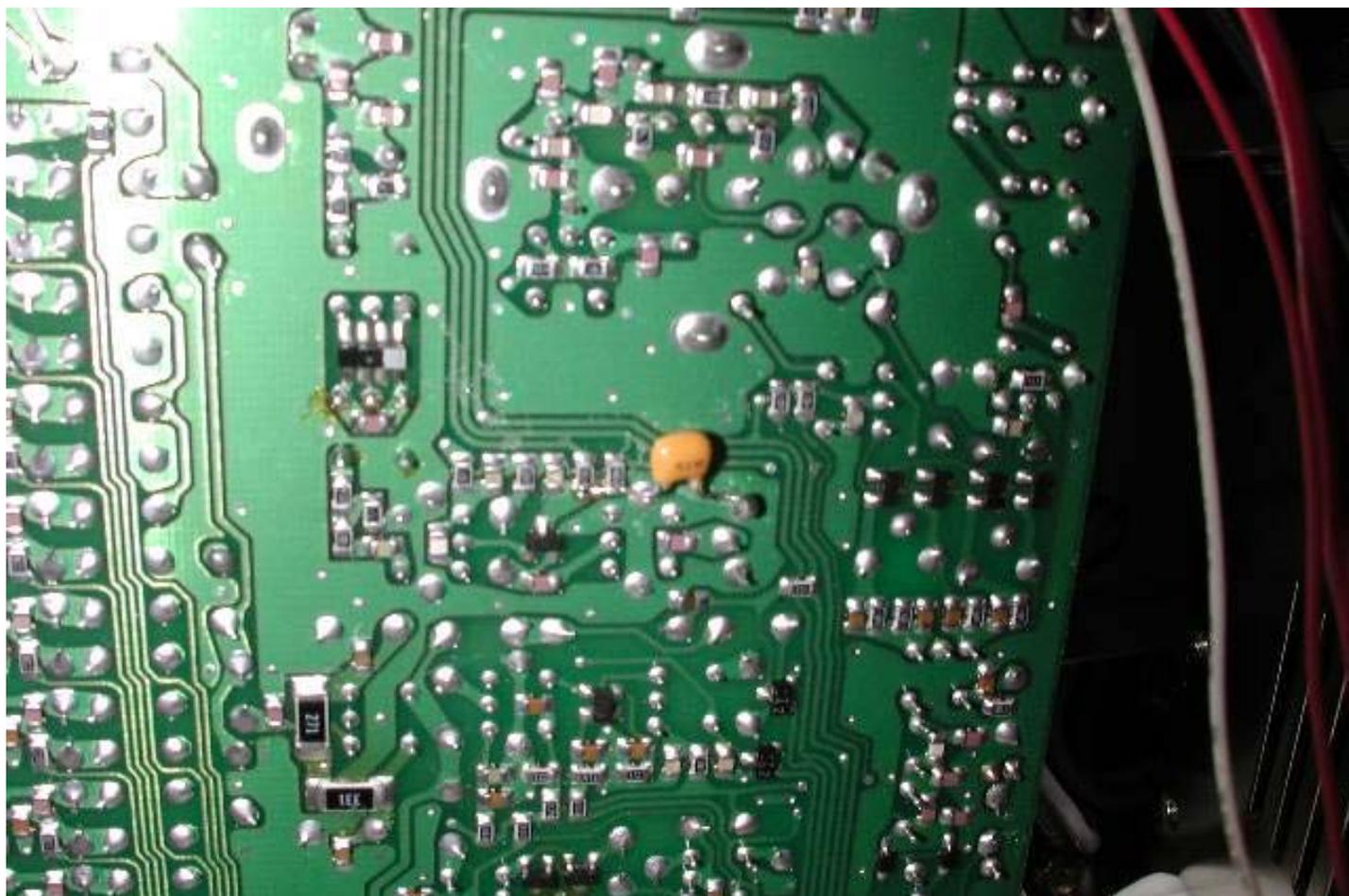
Below is a view of the RF board.  
Remove all of the mounting screws that hold the board and carefully lift it so you can get at the backside of the board.



Below is what you will see when you look at the backside of the board. . The capacitor on the top right side is the one I added. Note that the three little chip capacitors (left of the added cap) are connected together giving a easy point for the left lead connection.. The right side lead connection is easy to place. (See the close up following the picture below)



This is a close up of the location where the capacitor on the RF board goes. Use a low wattage soldering iron, short capacitor leads and take lots of time to be sure you are using the correct points. It is easy to do, but it doesn't hurt to be very methodical.



After installing the capacitor, put the RF Board back and restore the cables and the heat sink so everything is as it was.

Turn the radio over and find the IF board and the Filter Board. The picture below shows the board with the INRAD IF mod in place (immediately to the left of the right hand side ribbon cables). The INRAD IF Mod was removed later and the INRAD Roofing Filter Mod installed in the same space. This is NOT the board that is involved with the key click mod.



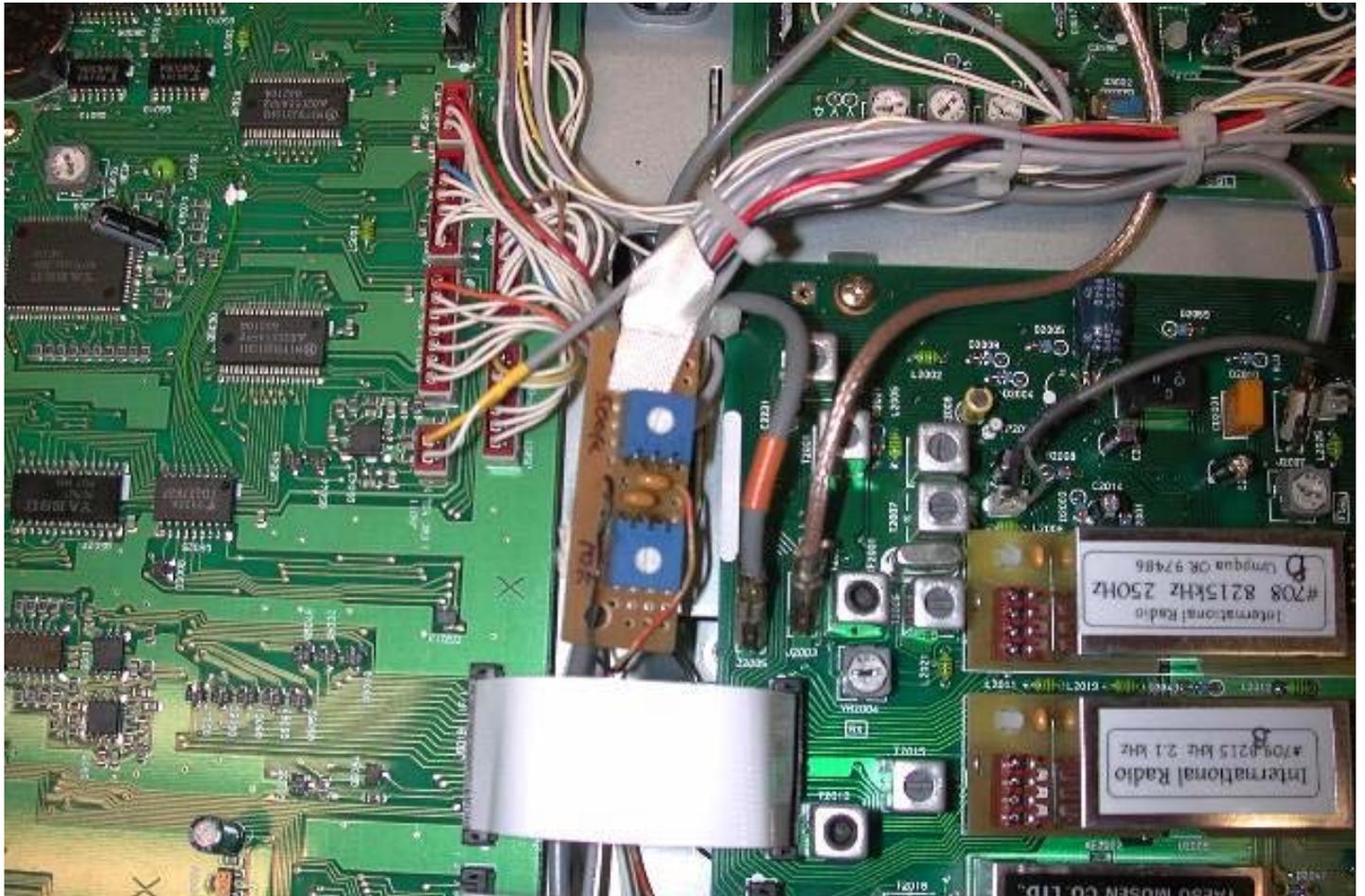
The picture below shows the filters installed. This is the board that will have the rest of the key click mod work. The ribbon cables at the right side are the ones you will need to remove so that you can get at the back of the board. Once you remove the ribbon cables you remove the board mounting screws and flip the board so that the top as we see it here is at the bottom. (See picture following the one below).



Below is a picture of the 'flipped' board. The top of the unflipped board is now the bottom.. Notice where I put the black (ground) wire from my little perf board. The yellow orange wire is the one that goes from the junction of R1 and C1 in the W8JI URL reference above to the capacitor. Look for the very distinctive trace. The wires wrap around the edge of the board and go to the perf board which will be mounted on the cable bundle to provide easy access to the trimmer pots.



The picture below shows the board back in its normal position. I used glass tape to mount the board on the bundle because I had some. I would have preferred to use some small Velcro tabs or some of the foam sticky tabs, but did not have them on hand. The board is mounted on the cable bundle that runs along the left side of the filter board as viewed from the rear of the radio. This picture was taken so that the front of the radio is at the bottom and the back of the radio is at the top.



The two pots are conveniently placed so you can adjust them. Be alert to the fact that the correct setting is somewhat sharp and it may take a bit of back and forth adjusting between the two pots to get the clicks reduced so that they are at least 30 dB down within +/- 500 Hz of the transmit frequency. Reducing them substantially is an easy adjustment; reducing them the best you can for your radio takes a little more time. However, once the adjusting is done you will not adjust it again so the time spent is well worth it.

I used about 70 dB of attenuation which had input and output impedances of 50 ohms between the output of the MP and the input to my second receiver (IC-706) to prevent it from being fried. The RF output of the MP was set to minimum which produced a signal of S9+40 dB or so in the ICOM. If you don't have attenuators you probably should transmit into a dummy load and see if you can't get enough pick up from a small wire used as the antenna of the second receiver. **DO NOT CONNECT THE FT1000MP DIRECTLY TO A SECOND RADIO WITHOUT ATTENUATORS IN SERIES WITH THE CONNECTION !!!!**

If there are questions you may contact me via email.

Tod Olson, KØTO

[tod@k0to.us](mailto:tod@k0to.us)