

Lift the withering spell off those ailing ceramic filters!

SV8Y original post can be found here:

<http://sv8ym.blogspot.com/2010/10/lift-withering-spell-off-those-ceramic.html>



As promised, here is the solution to the "withering ceramic filter" problem. The mod here was performed in a TM-D710, but the concept presented holds for all similarly affected rigs.

First of all, take a look at the photo on the left (*click on the pictures to enlarge*). There are **four ceramic filters in the '710**, two (wide-narrow) for each receiver. Our first step is to cut two PCB traces converging at each filter's input and output pins, bridge them, and then solder a size 1306, 0.1 μ F / 25V or 50V SMD ceramic capacitor from each bridge to the filter's input and output pins (**8 capacitors** in all

for the '710). This way, the DC switching voltage is blocked by the capacitor, that passes only the small AC (signal) component into and out of the filter. Removing the DC bias from the filters is all that is needed to avoid filter failure.



The **first photo** shows (with the red arrows) the eight traces to be cut with a **very fine-tip** grinding tool. Notice that there are 16 cuts for the 710, eight are shown completed, the other eight are in the red circle on the left (the circuit topology is identical).

Take a look at the **second photo** (*click to enlarge*), showing the completed job for a filter set. As you see, **fine wire bridges** have been soldered, bypassing the cut-off portion of the circuit that was going to the filter pins, and the ceramic capacitors are also in place, soldered between the wire bridges and the filter's input / output pins.

The **third photo** (*click to enlarge*) shows the completed job for all four filters. **I must say**, that although very simple, this mod is a bit difficult because of the very small dimensions of the traces and SMD components. **Extreme care** is required, along with the **proper tools** and ability to work with them. **It's easy to make a disaster out of the job**, so please be careful!! If you don't feel up to the job, have somebody qualified to do it!

The same concept holds for any transceiver that has DC bias voltage applied to ceramic filters. The objective is to block the DC bias with the capacitor, but otherwise maintain intact the circuit's filter switching functionality, which in most rigs is accomplished by properly biasing switching diodes.

Please note: If your filters have already deteriorated, they must be replaced or [repaired](#) before the mod. The symptoms of deteriorated or failed filters are: "deaf" receiver, crackling noises heard during reception of otherwise full-quieting level signals in FM receivers, crackling noises with no antenna connected in SSB receivers.

Good luck!

Posted by SV8Y