

Icom HM-151 modifications for the Icom IC-7000 HF/VHF/UHF Radio

After looking at the MIC Circuit and looking at several MIC MOD's and comparing them I think that this MOD is the most thorough, and cheapest to do with the original hand microphone that comes with the IC-7000.

The IC-7000 does not have a descent DSP TX equalizer that can adjust out the problems the MIC has with baseness and LOW audio output level as well as sounding like you're talking in a barrel.

This audio can be drastically improved by removing the small SMD 1 fared capacitor at C30 and replacing it with a .22uF "Mouser part number 810-C3216X7R1H224K"

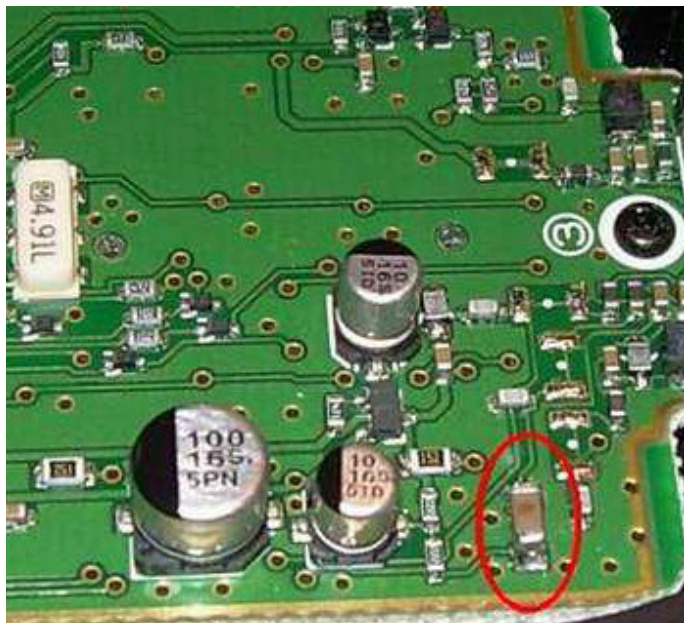
If you don't shop at Mouser Electronics the Manufacture (TDK) part number is: C3216X7R1H224K and changing out the MIC Element.

With the rear Shell removed on the HM-151, remove the 3 small Philips head screws holding the Board to the front Shell of the MIC.

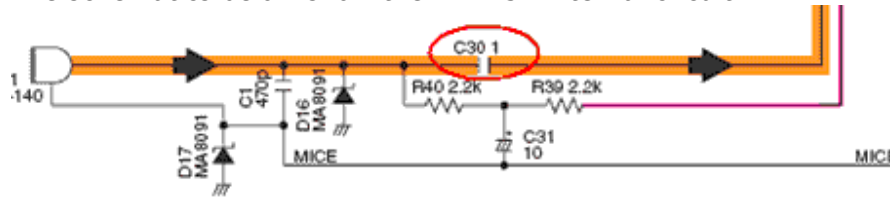
Next lay the MIC down on a NON STATIC surface such as a static protective Plastic bag.

Using Soldier Wick and a very small tip 25Watt soldering Iron and carefully remove the solder from both sides of capacitor C30 circled in the Photo below.

Now carefully solder back in this location the .22uF Capacitor which is the same physical size as the original Capacitor was.



The schematics below show the HM-151 internal circuit.



Please be aware that un-soldering and re-soldering such tiny SMD components is difficult so if you don't think your hands are steady enough or you just don't think you can do it then contact a Radio / Electronics Shop to do it for you, it will take a experienced tech just a couple minutes to do the soldering required.

NOW, we need to look at the small Microphone on the front of the MIC circuit board (Under the KEYPAD), it is the 6mm silver device on the KEYPAD side of the MIC circuit board.

You now need to remove the solder using some Solder Wick and low Wattage Soldering Iron on the BACK side of the circuit board (same side as the Capacitor was on) from the MIC Pins.

There is quite a bit of slop in the MIC pin connection holes so the MIC should just fall out if you get the solder removed completely.

Now you will need the NEW higher gain and BETTER Audio Quality MIC element which is Mouser Part Number: 665-POM-2735P-R, Manufacture number PUI-Audio POM-2735P-R

Before you install the new MIC Element use a hot Glue gun put a small dab of glue between the solder pins, (this will hold the MIC element off the circuit board and further into the KEYPAD MIC hole.)

You want just enough glue so the MIC's Solder pins just barley come thru the back side of the circuit board, then Solder the pins to the Circuit Board.

The MIC is Polarized so be sure it goes back in the same orientation as the Element you removed (the Polarity is the same as the original if you use the Part number above MIC).

If you have made it this far you almost finished.

Now take the Rubber Keypad and using a SMALL pair of diagonal wire cutters or small scissors and cut the hole where the microphone comes thru to about the size of the MIC element. You can use the OLD MIC element to see how big it needs to be.

Now you need to find a VERY small piece of foam to be used for the Wind screen, we used foam from a Pelican case and cut it about 1/8" thick X 1/4" diameter.

Now you will want to find a small Drill Bit about the size of the existing hole on the outside front part of the MIC's Plastic SHELL and drill a small hole on both sides of the existing MIC hole, (there is a groove that can be drilled out.) THIS IS THE BLACK PLASTIC FRONT COVER.

Now Place the Foam you cut earlier in the inside of the front shell of the MIC covering the 3 holes, 2 of which you just drilled. Now you can reinstall the Button Key Pad and the MIC circuit board in the front shell using the 3 small Philips head screws and test the MIC to make sure it works.

Now you need to decide if you want the MIC to be heavier or not?

If you want to make the MIC heavier go to your fishing tackle box and find some "Fishing sinkers" and using your hot glue gun, Glue these in the rectangle hole in the back MIC shell to your desired weight, If you use the bell shaped sinkers be sure to remove the brass bail going thru the sinker or this could cause RF Noise. Be sure to use a good amount of HOT glue or if your not in a hurry EPOXY to pot the Led sinkers securely in the back of the MIC shell, you don't want them to fall out.

Now take some more Foam and cut it out so it will fill the back shell of the MIC (including over the sinkers if you used them) to deaden the hollow sound of the MIC, once you have the foam cut make sure the MIC will go back together without the circuit board pushing against the foam, if it touches the circuit board then your foam is to thick and you need to take some of the thickness out, when your satisfied with a good fit then use rubber cement and glue the foam to the back shell of the MIC.

Now reassemble the MIC and plug it in to the radio to make sure it works, (I did this along the way so I didn't have to take the MIC apart each time I changed something).

You will want to play around with the MIC settings (TBW)'s. Here's my setting below

MIC Gain about 30 to 50 %
Compression about 1 or 2

Ragchew W="L" 100
W ="H" 2900
DX1 Like a Heil HC5
W="L" 200
W ="H" 2900
DX2 Like a Heil HC4
W="L" 300
W ="H" 2700

Your setting will of course vary depending on how close tolerances the MIC manufacture has and how the Radio is aligned.

The cost of the parts for this MOD is VERY minimal without shipping charges.
\$1.74 US MIC Element is Mouser Part Number: 665-POM-2735P-R
\$0.17 US .22uF Capacitor Mouser part number 810-C3216X7R1H224K

I order from MOUSER ALL the time so shipping doesn't raise the price much so I would suggest ordering other items that you may someday need, they have a HUGE catalog to pick items from that is online at <http://www.mouser.com>

73's WX7Y Bret Mills