

ICOM HM-151 microphone mods (IC-7000)

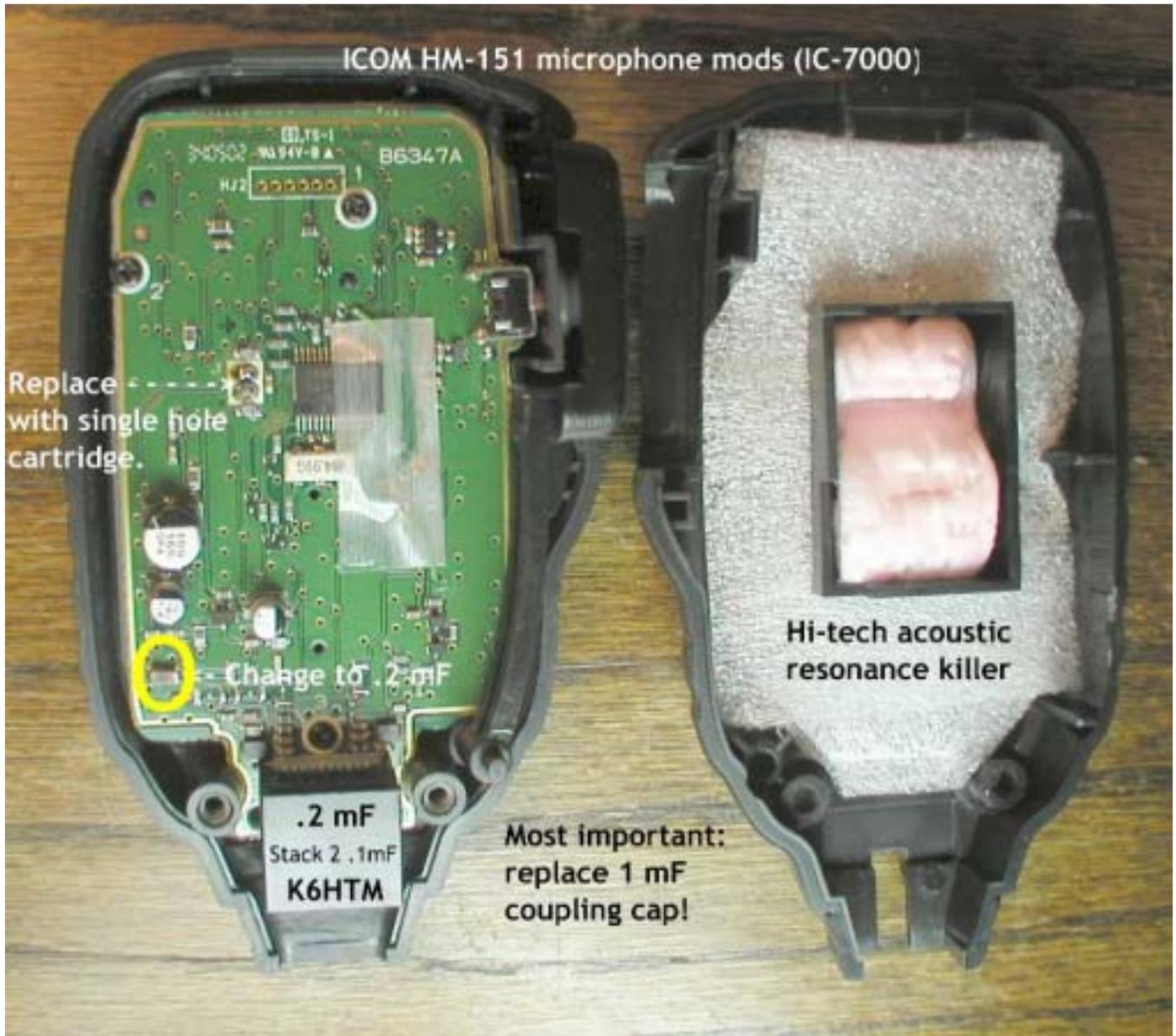
Replace
with single hole
cartridge.

Change to .2 mF

.2 mF
Stack 2 .1mF
K6HTM

Most important:
replace 1 mF
coupling cap!

Hi-tech acoustic
resonance killer



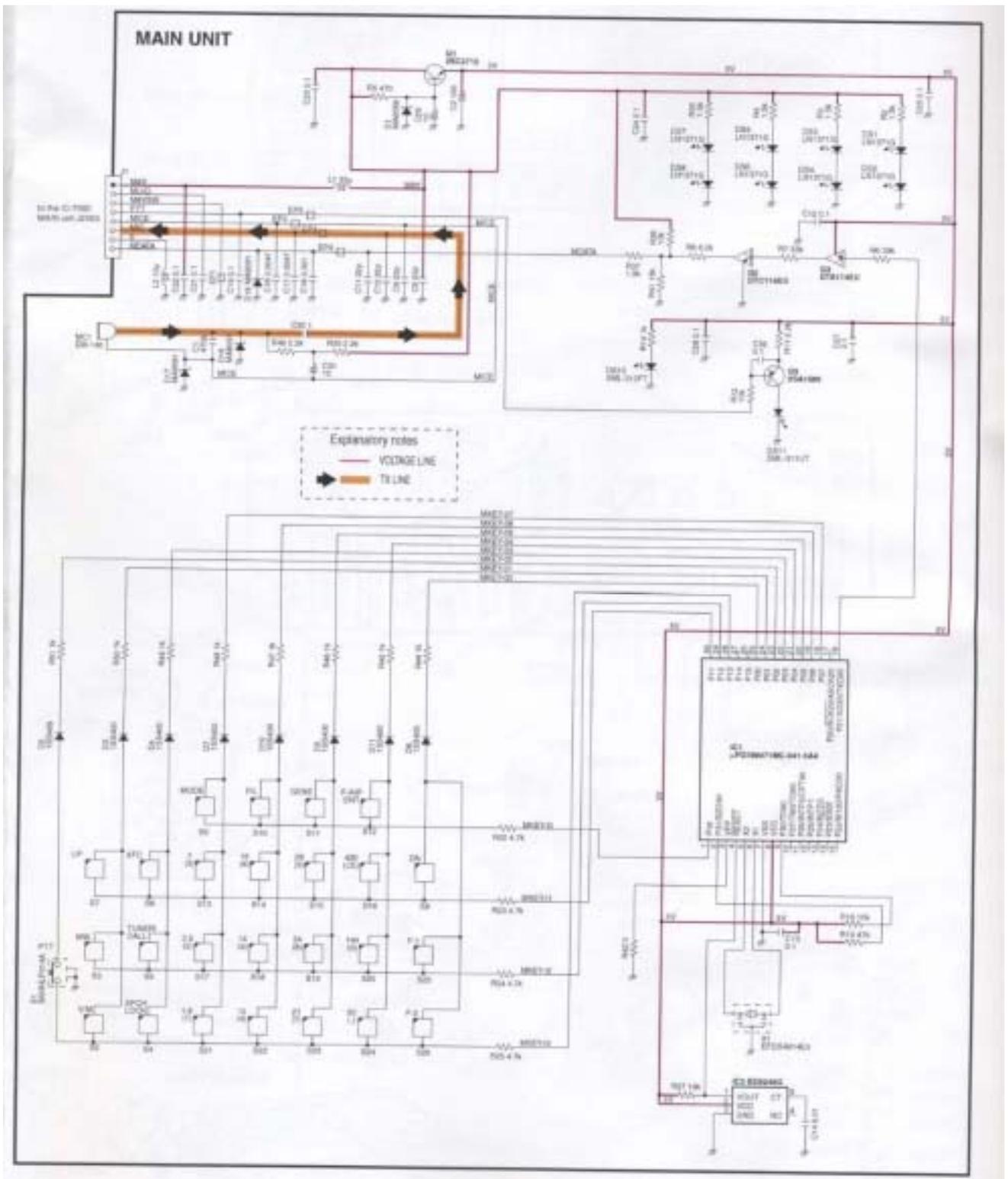


ICOM HM-151 microphone mod (IC-7000)

Replace 1mF coupling cap with .2mF.

K6HTM

Replace C30 with 0.2 μ F.



No enlarging holes or cutting out rubber chamber. Popcorn in rectangular chamber behind mic element reduces resonance.

Fill the rest of the shell with something. Glue a small pop filter over hole on outside of mic.

Sounds extremely good this way!

N.B. The Lock button on the mic works when the one on the rig appears not to. This note corrects a false impression from an early review.

-- K6HTM

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By way of further explanation

(Originally posted on IC-7800 Yahoo! Group, 3/5/2006)

Let me explain my mods. In case this fact is unknown ICOM originally intended to include a DSP bass/treble microphone equalizer in the IC-7000, but left it out of the final production version. You can verify this by reading older product descriptions. This was an oversight admitted to by ICOM! Bob Heil K9EID is developing an EQ that will fit in the microphone to get control over the audio range of the HM-151, which presently leaves a lot to be desired. It sounds too bassy. Even worse, there is a hollow resonance.

One attempt to improve the audio has been to drill the microphone hole bigger on the front of the microphone and cut out the rubber bubble which fits over the microphone cartridge inside. Not wanting to drill and cut I chose to replace the cartridge which has many tiny holes in it with the same size element but with only one hole, a little bigger. This is part number "MIKE-79" at www.allelectronics.com. This helped a little. The HM-103 microphone used on the 706-MIIG sounds even better.

When the service manual for the IC-7000 became available I saw that the audio coupling capacitor in the microphone circuit is 1 μ F, way too big for best audio. I replaced it with 2 ea 0.1 μ F caps stacked on top of each other, and got rid of the excessive bass response. There's enough room to use a capacitor that is not surface mountable if you can't deal with that. *(A single 0.22 μ F capacitor can be installed instead of two 0.1 μ F units. – Ed.)* Increasing the value above 0.2 μ F will add low-frequency response, if you like more.

I put the original microphone element (cartridge) back in place, and it sounds just fine. Changing this is a very low priority now but an option for experimenters. **Note:** The microphone cartridge (element) is not visible in the picture. It is on the other side of the board.

There are many tiny holes in the circuit board which pass sound behind it and into an empty square compartment. To kill these hollow resonances I filled the spaces with packing material. The microphone now sounds great, but it doesn't have quite the brilliance of the HM-103.

I highly recommend changing the coupling capacitor and stuffing the voids, because these measures preserve the integrity of the microphone and produce good results. Varying the transmit filter bandwidth does not address the problem of audio fidelity. I also recommend gluing a pop filter over the microphone hole.

Regarding the frequency lock: An early reviewer of the 7000 complained that when the Lock key on the front panel is activated, one can still change frequency while transmitting by turning the tuning knob. One ham said this happens only when activating the Lock on the front panel, but not when activating the Lock button on the microphone. I just tried mine and find the opposite to be true! You figure it out!

73, Charlie K6HTM, Chico, California