

NuTone

Field Service
TECH TIP
NEWS

RI-0015

TECH TIP NUMBER

04-27-01

DATE

IM-5006

PRODUCT

MASTER SPEAKER NOISE REDUCTION

SUBJECT

The attached noise reduction field modification for the IM-5006 will greatly reduce the AC hum heard from the master station's speaker.

The procedure is rather involved and requires the partial removal of the main PC board. For this reason, it is imperative that the problem be properly diagnosed. The following items should be checked/corrected before modification is installed.

1. Determine if AC hum is heard from remote stations; (none should be heard). If AC hum **does** exist at the remote stations, check:
 - a. Red pair and orange pair for loose or open connection, at master and all remotes
 - b. AC household wire in close proximity to intercom cable
 - c. Interference from light dimmers, motors, etc.
2. Master station is properly grounded.
3. Make sure that an external signal source is not creating noise by disconnecting chime, CD tape, phono antenna inputs and line output.
4. Make sure 401-T transformers are being used with the system.

Note: This hum reduction modification should only be performed by a qualified service technician.

IM-5006 NOISE REDUCTION

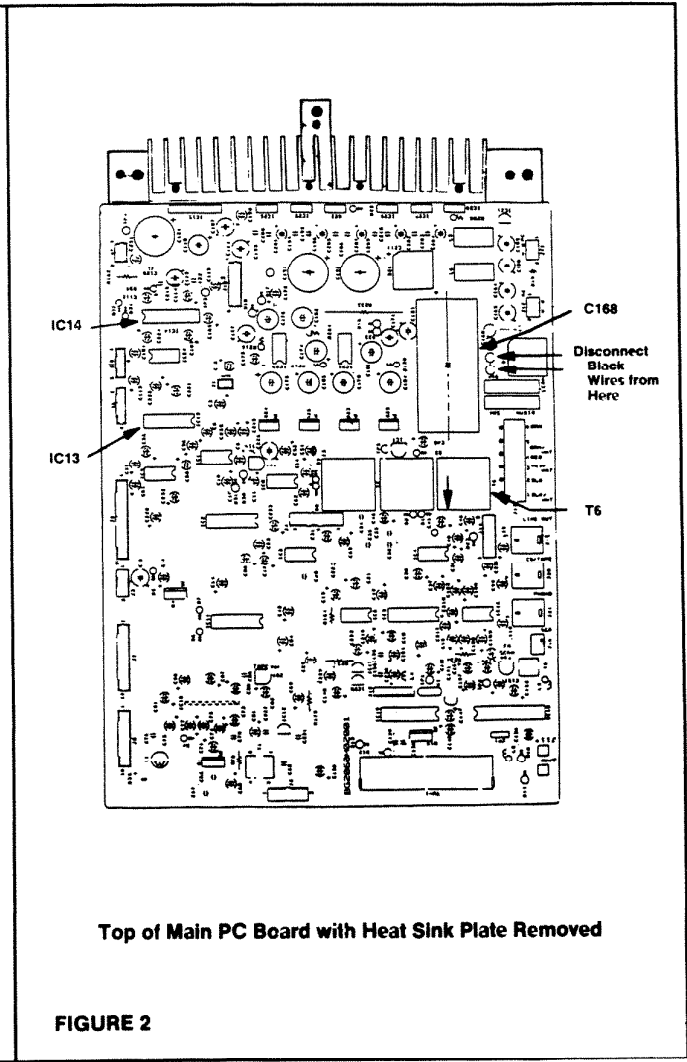
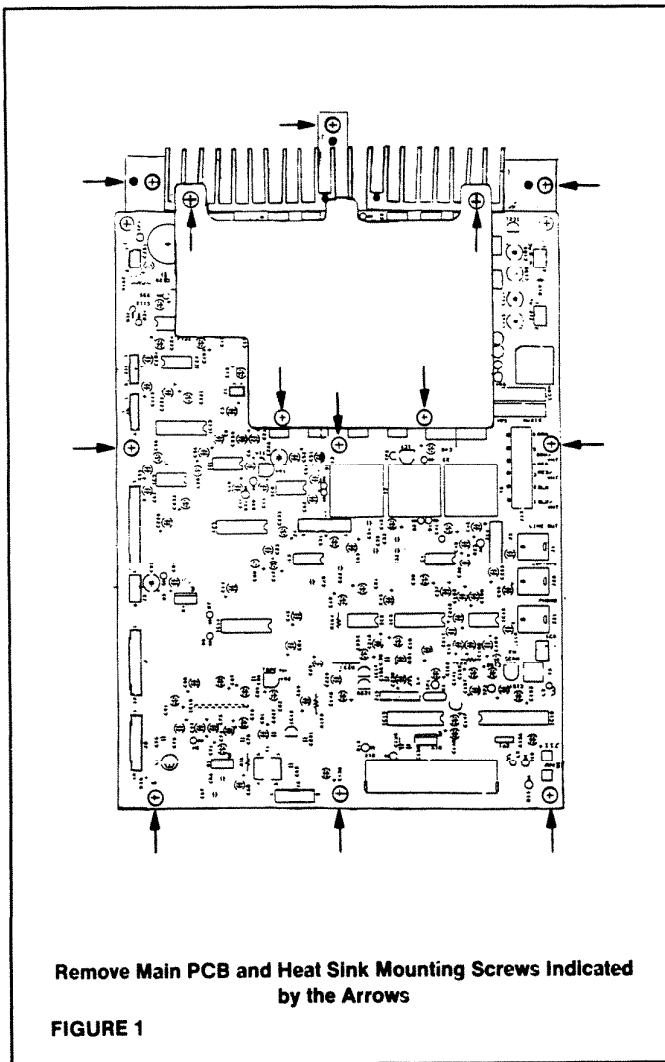
PURPOSE: To reduce the quiescent noise level (hum) at the master station.

TOOLS REQUIRED: Phillips screw driver, wire cutters, soldering iron, solder, vacuum desoldering tool (Radio Shack 64-2120 or equivalent).

COMPONENTS: 10 inch length of 22 gauge wire, 5 inch section of 1/8" heat shrink tubing and 100 μ F 35V capacitor.

PROCEDURE:

1. Remove front panel mounting screws and allow the unit to lay parallel with the floor.
2. Disconnect main power from system by disconnecting low voltage AC supply wires from the transformers.
3. Remove main PC board and heat sink mounting screws indicated by the arrows on Figure 1.
4. Disconnect the green wire connected to the right hinge.
5. Disconnect the black wires located on the right side of the main PC board as illustrated in Figure 2.
6. Locate C168 and T6 on the main PC board (see Figure 2).



7. Once located, stand main PC board on its side so access to the back of the PC board is possible. Examine Figures 3 and 4 to locate the areas which will require desoldering.

8. Desolder and remove C168.

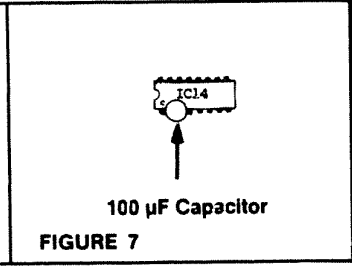
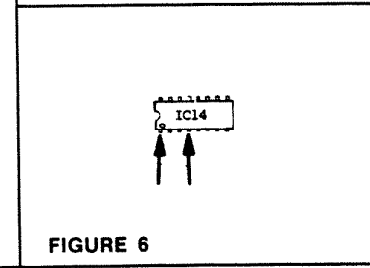
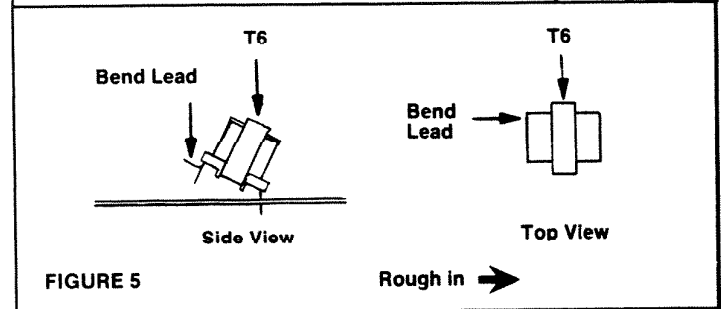
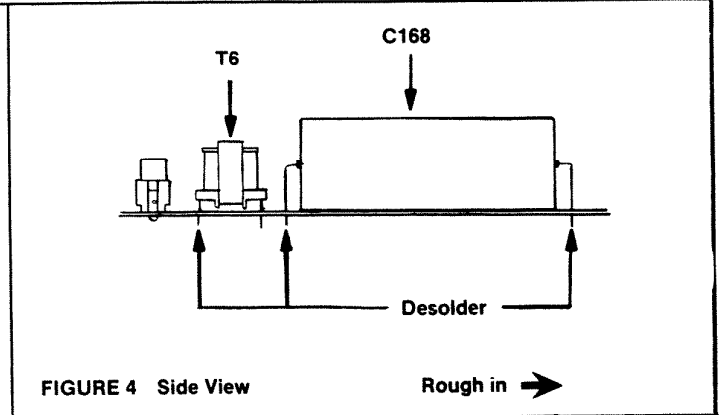
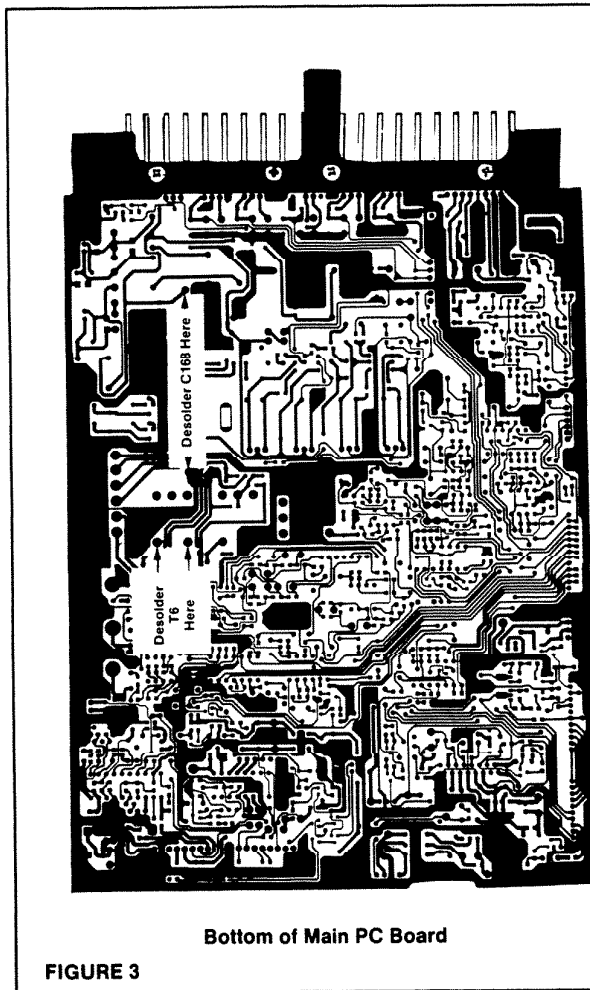
9. Desolder the secondary of T6 and angle T6 so the leads of the secondary are pulled out from the PC board as illustrated in Figure 5.

Note: Heat from the soldering iron may need to be applied to the secondary of T6 to free it from the PC board.

10. See Figure 5. Once T6 has been desoldered, locate the pin on the **LEFT** side of secondary and bend at a 90° angle away from the transformer.

11. After the pin on T6's secondary has been appropriately bent, install transformer back into mounting hole making sure the bent lead of the transformer does not come into contact with the PC board.

12. Solder a 5" piece of 22 gauge wire onto the bent pin of T6. Connect the other end of the wire to Pin 7 of IC13 as illustrated in Figure 8.



13. Install 22 gauge wire and heat shrink tubing onto Capacitor C168 as illustrated in Figure 9.
14. Install C168 through the bottom of the main PC board **making sure the arrow on the capacitor is pointing away from the rough-in** as shown on Figure 8.
15. Once installed, position C168 on the right side of the main PC board as illustrated on Figure 8.
16. Next locate Pins 1 and 4 on IC14 (Figures 2 and 6).
17. See Figure 7. Install 100 μ F capacitor between Pins 1 and 4 of IC14, connecting the negative lead of the capacitor to Pin 1.
18. Install heat sink plate. Install main PC board onto front panel. Attach green ground wire to the right hinge. Connect the black wires to the appropriate terminals on the main PC board.
19. Reconnect the low voltage power supply leads as follows: **Connect the top pair of leads to the transformer located on the right side of the rough-in. Connect the bottom pair of wires to the transformer located on the left side of rough-in.** NOTE: This configuration may be different than the way the transformers were originally connected.
20. Check system for proper operation.

