

Elecraft K3 AF Amplifier Output Modification

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Introduction

This modification protects the K3's audio amplifier if either speaker output is connected to a short circuit or very low impedance load. Two 470 ohm, 1/4 watt resistors are added to the output circuit to suppress potentially damaging voltage spikes that might otherwise occur.

If desired, Elecraft will supply the two resistors for only the shipping expense. Call or visit www.elecraft.com to order AFOPMDKT.

The resistors are common leaded parts. No work with SMDs is required to perform this modification.

Was This Change Incorporated in My K3 at the Factory?

This modification is needed for all K3s shipped to date containing either a Revision XB or Revision A KIO3 board. You must inspect the KIO3 board to see whether the modification has been made. Modified boards will include the leaded resistors shown in Figure 4. You can see the resistor in the lower part of the figure by removing the top cover as shown in Figure 1 and inspecting the side of the KIO3 board facing away from the rear panel.

Tools Required

You will need a No. 1 Phillips screwdriver, diagonal cutters, long nose pliers and a temperature controlled ESD-safe soldering iron with rosin core small diameter solder. A grounded wrist strap and ESD dissipating mat are recommended whenever you work inside your K3.

Procedure

⚠ Observe ESD precautions when working inside your K3. Wear an ESD wrist strap or touch an unpainted, metal ground frequently while working.

Remove the K3 top cover as shown in Figure 1. As you lift the cover off unplug the speaker wire that connects to the KIO3 board in the left rear corner of the K3.

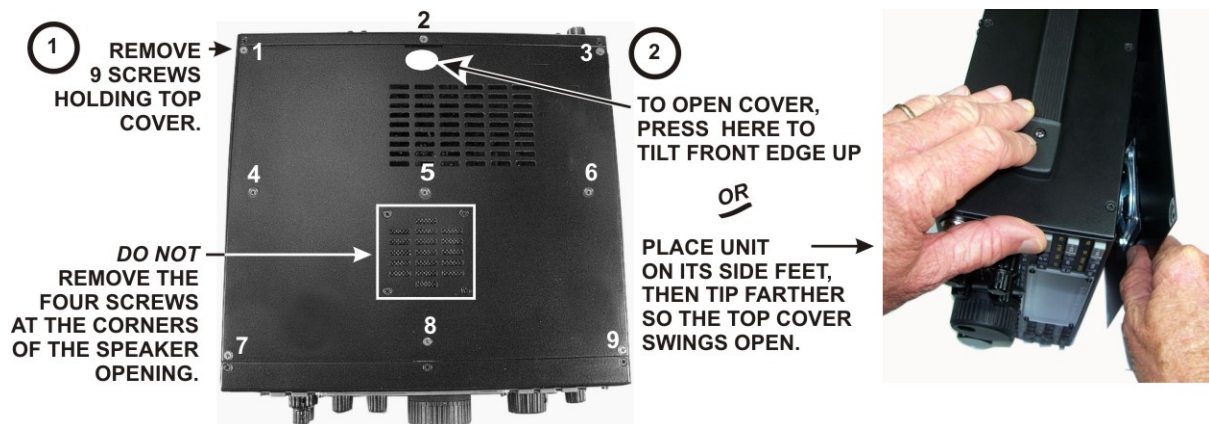


Figure 1. Removing the Top Cover.

- ☐ Remove the four jack screw nuts with their lock washers and the two black pan head screws from the KIO3 rear panel as shown in Figure 2. Remove the rear panel and set it aside.

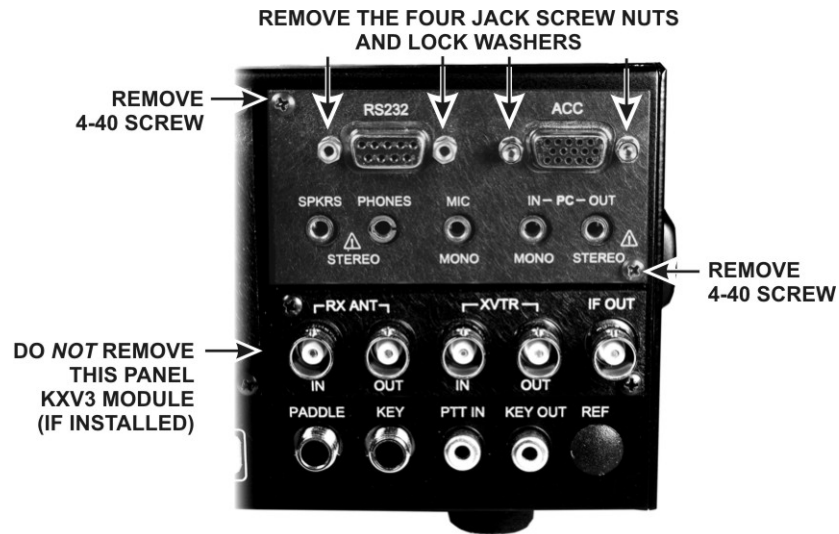


Figure 2. Removing the KIO3 Rear Panel.

- ☐ Remove the KIO3 main board as shown in Figure 3.

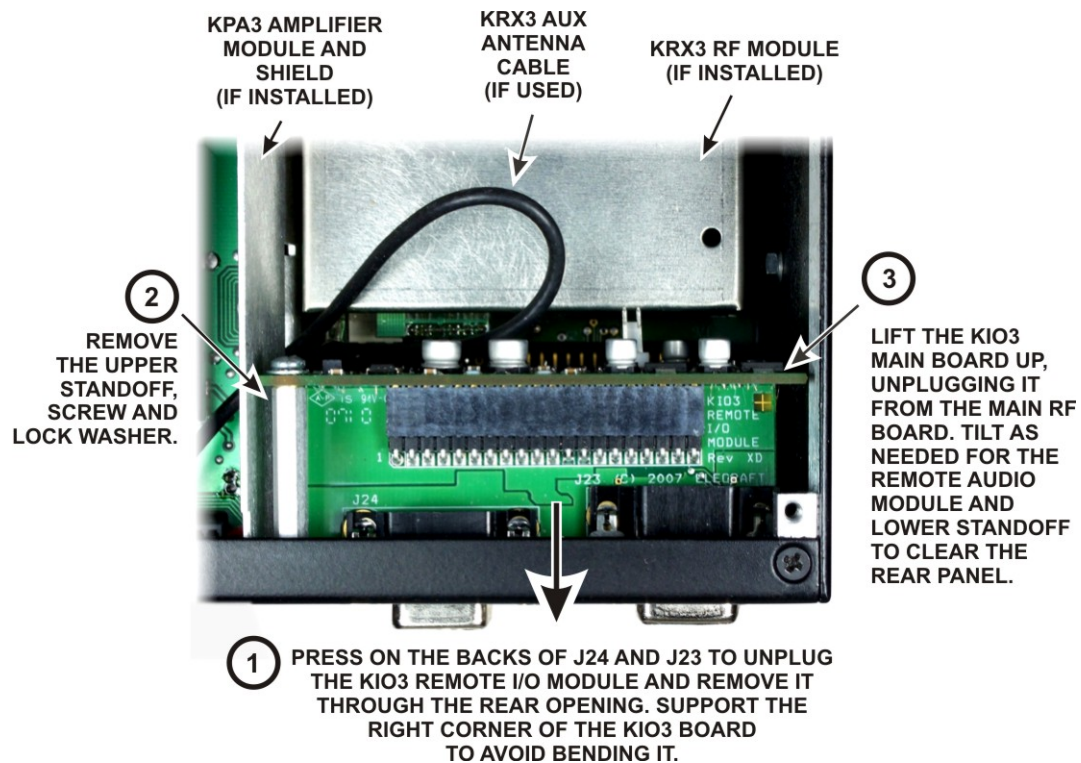


Figure 3. Removing the KIO3 Main Board.

Mount the 470 ohm resistors on the KIO3 main board as shown in Figure 4. Note that one resistor is mounted on each side of the KIO3 board. If it is more convenient, you can remove the standoff and audio I/O board.

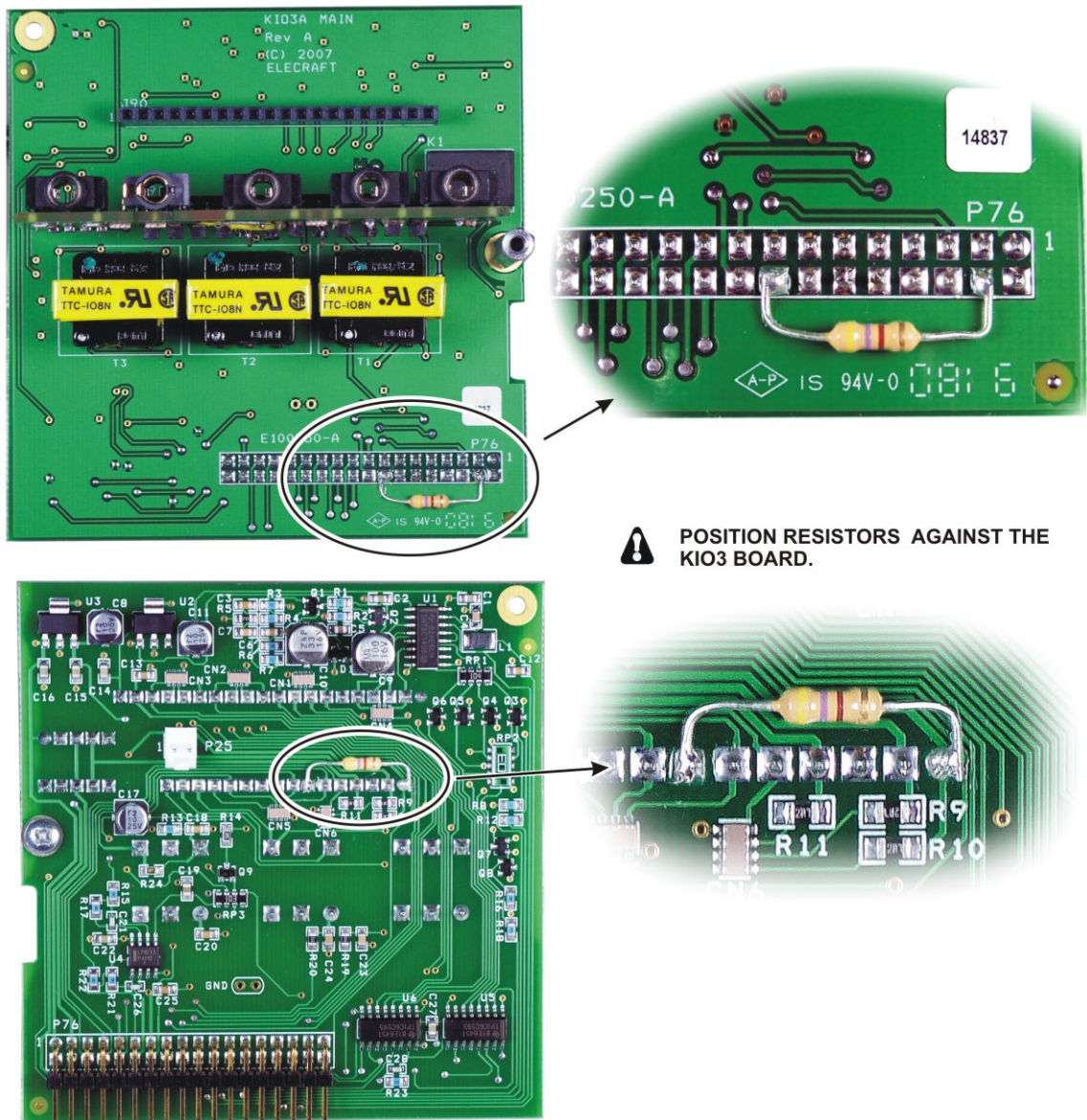


Figure 4. Installing the 470 Ohm Resistors.

Check the board very carefully for solder bridges and confirm that you mounted the resistors across the pads shown.

If you removed the lower standoff earlier to work in the KIO3 board, replace it using the 1/4" 4-40 pan head screw and inside tooth lock washer.

If you removed the KIO3 Audio I/O module, plug it into J91 on the KIO3 main board. It will only fit one way. If you try to install it upside down the pc board will strike relay K1.

- Replace the KIO3 main board by reversing the procedure shown in Figure 3:
 1. Install the KIO3 main board in the K3. Be sure the Audio I/O module connectors line up with the openings in the rear panel.
 2. Replace the KIO3 Remote I/O module, supporting the main KIO3 board with your fingers as you mate the connector.
 3. Replace the upper standoff using the 1/4" 4-40 screw and inside tooth lock washer you removed.
- Replace the KIO3 rear panel and hardware shown in Figure 2. Hint: Do not tighten any of the screws or jack screw nuts until all of them have been started on their threads. Be sure to tighten all of them.
- Hold the top cover above the K3, route the speaker wire under the stiffener bar and plug it into P25 on the KIO3 board at the left rear of the K3 as shown in Figure 5

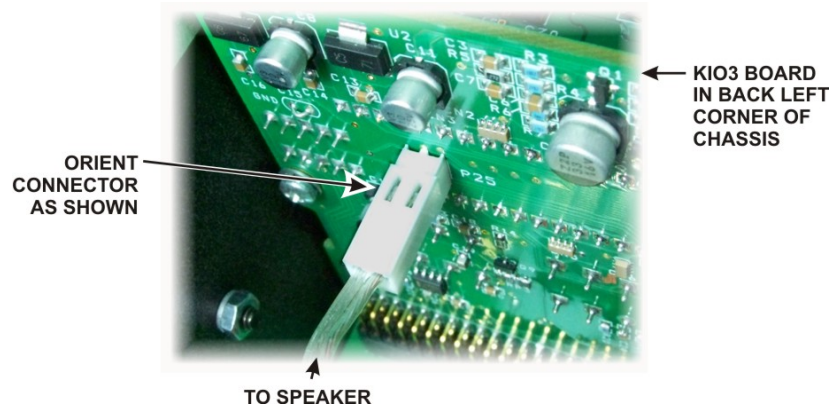


Figure 5. Connecting Speaker Wire.

- Replace the nine top cover screws shown in Figure 1. Replace and tighten all the screws. Loose or missing screws may result in birdies or other hard-to-locate problems with your K3.

That completes the AF amplifier output modification.