

Application Note: K3 Hardware AGC Modification (SMD)

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⚠ THIS SET OF MODIFICATIONS SHOULD BE PERFORMED ONLY BY SOMEONE EXPERIENCED IN WORKING WITH SURFACE-MOUNT DEVICES (SMDs). IF YOU HAVE ANY CONCERNS ABOUT YOUR ABILITY TO SAFELY COMPLETE THIS MODIFICATION, RETURN YOUR K3 (OR JUST THE RF PC BOARD) TO ELECRAFT FOR SERVICE.

⚠ This modification applies only to K3 RF boards rev. A and above.

Preparing for Disassembly

Tools Required

1. #1 size Phillips screwdriver.
2. Soldering iron with a fine tip (0.06" / 1.5mm or smaller recommended)
3. 63/37 or 60/40 Sn/Pb-content rosin-core solder, 0.015" to 0.025" diameter

The following tools are strongly recommended:

4. ESD wrist strap.
5. Static dissipating work pad.
6. Magnifier, 4X or higher power, head-mounted or hand-held

Procedure

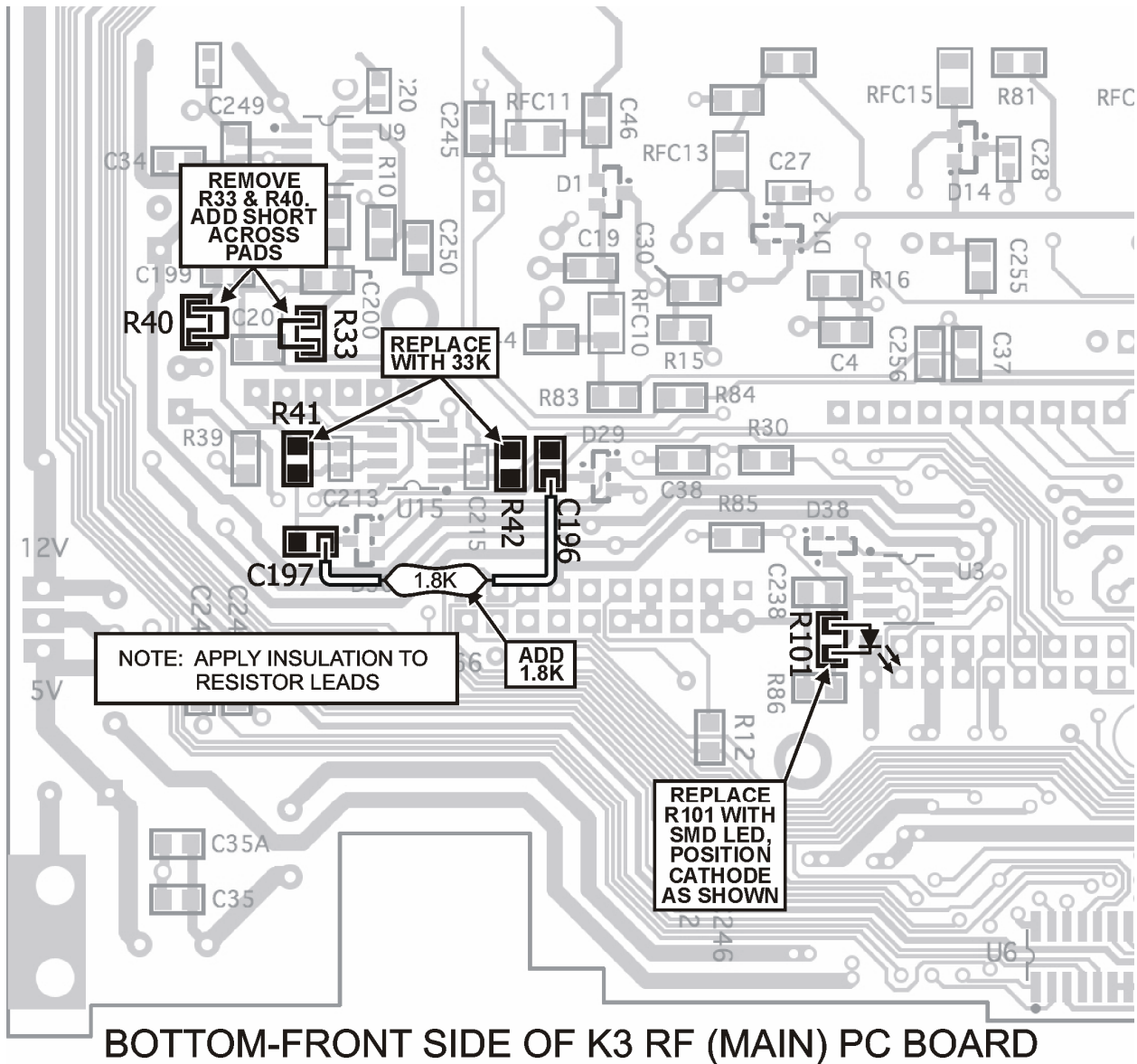
Disconnect power and all cables from your K3.

Remove the front bottom cover of the K3 and set it aside in a safe place.

⚠ CAUTION: Touch an unpainted metal ground or wear a grounded wrist strap before touching components or circuit boards inside the K3. See *Preventing ESD Damage* on page 1 for more information.

Place your K3 in front of you, upside down, with the front of the radio facing you. The area in which you will be working will be the left-front corner of the RF board, which is now visible.

⚠ If you do not have access to specialized SMD removal equipment, you may find it helpful to use two (2) fine-tipped soldering irons, placed at each end of the SMD to be removed, so you can melt the solder at both ends of the device at the same time. Do not apply heat to the PC board for any longer than necessary to remove the original device and to reinstall the new device.



BOTTOM-FRONT SIDE OF K3 RF (MAIN) PC BOARD

Refer to the illustration (above) for all component change and placement information.

Modification Steps

1. REMOVE SMD resistors R33 and R40, and REPLACE each with a short across their pads.
2. REMOVE SMD resistors R41 and R42, and REPLACE each with a 33k SMD resistor.
3. Install small-diameter insulation over both leads of a 1.8K (BRN-GRY-RED) 1/4W resistor. Form each lead of the resistor as required (see illustration above). Trim the resistor leads and insulation to length and install the resistor between C196 and C197 as shown above.
4. REMOVE SMD resistor R101, and REPLACE with a RED SMD LED. BE SURE to locate the CATHODE lead of the LED to the BOTTOM PAD of the two pads.

This completes the modification steps.

Refer to the K3 Owner's Manual and re-calibrate the S-meter to S9 with a 50µV signal input at the ANT jack of the K3.