

# ELECRAFT KPA100 SHIELD UPGRADE INSTRUCTIONS

Rev. B, Feb. 10, 2004

**NOTE: An additional upgrade to the KPA100 was recently made available (KPA100MDKT). This upgrade allows the KPA100 to tolerate higher SWR before limiting power (2:1 vs. 1.5:1), and is highly recommended.**

This upgrade improves grounding of the KPA100 shield, reducing RF coupling between the KPA100 and the K2 RF board. This is especially important when load SWR is high.

Also included is a shield for the KPA100 speaker, which will prevent the speaker magnet from having any effect on the K2's VCO relays, located directly below the speaker when the KPA100 module is installed.

The kit should include the following items:

(1)	Replacement KPA100 shield	E100137
(3)	Spring clip	E980058
(4)	4-40 x 3/16" panhead screw (1 spare)	E700015
(4)	4-40 hex nut (1 spare)	E700055
(4)	Split lock washer (1 spare)	E700004
(2)	Solder lug	E700062
(1)	Speaker shield	E980087
	Sandpaper	E850090

Turn off the K2. Remove the KPA100 module (six screws) and unplug all interconnecting cables. Save all of the hardware.

Lay the KPA100 assembly upside down on a soft cloth, with the rear panel facing you.

Remove the original KPA100 shield, which will no longer be needed. Save all of the hardware.

Orient the new shield as shown in the illustration on the back of this instruction sheet (top view). The top and back edge views show the proper orientation of the spring clips, which will be installed in the next step.

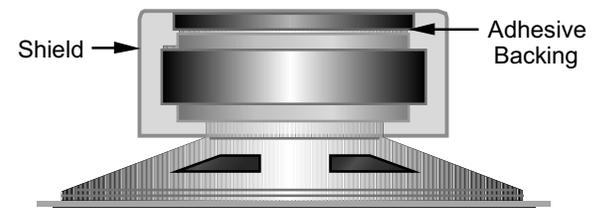
Install spring clips on the shield at the locations identified by the letter C. As shown by the dotted lines, the clips should be installed on the bottom side of the shield. Use 4-40 x 3/16" **black** pan head screws, 4-40 nuts, and split lock washers. The lock washers go between the nuts and the spring clips.

Each clip should be perpendicular to edge of the shield, and extending beyond the edge by about the amount shown. If necessary, loosen the hardware slightly and adjust the positions of the spring clips so that they closely match the drawing. Then re-tighten the hardware.

Place the shield assembly onto the KPA100. The three spring clips on the shield should face downward (toward the KPA100 PC board). The spring clip in the rear should be touching bare metal at the inside of the rear panel. When the shield is aligned with its standoffs, this clip should be slightly compressed.

Secure the shield with the original hardware (4-40 x 1/4" pan head).

Locate the speaker shield. Remove the backing from the self-adhesive pad inside the shield (Figure 1). Install the shield over the speaker magnet, keeping it approximately centered.



**Figure 1**

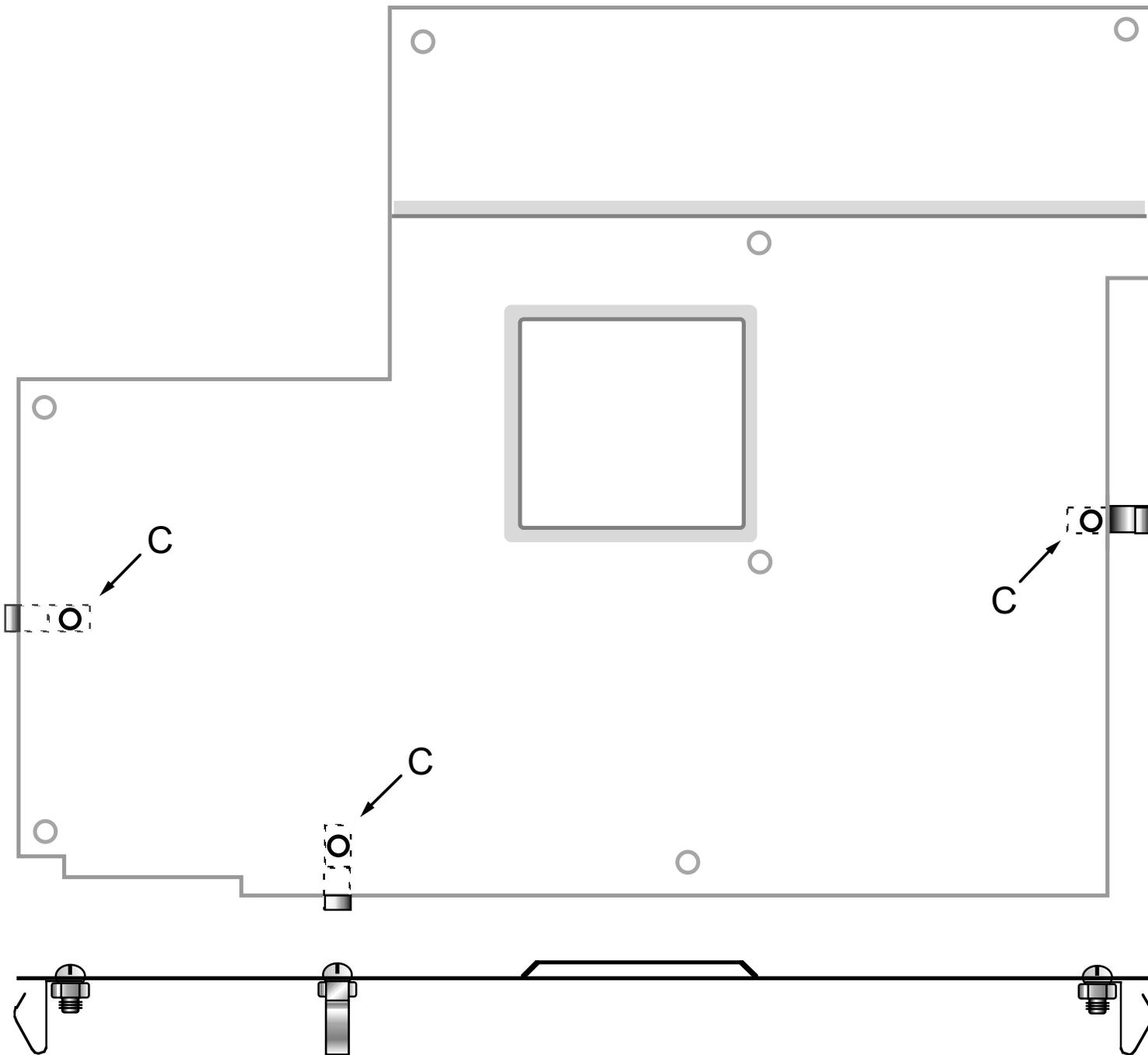


Figure 2

- The two solder lugs will be used to form a ground strap between the shield and rear panel as shown in Figure 3. Attach one lug to the shield screw nearest the SO239 connector. The lug replaces the lock washer, which can be saved as a spare.
- Attach the second lug to the upper-right of the four screws holding the SO239 connector to the rear panel. This lug also replaces the original lock washer.
- Using long-nose pliers, fold the second lug down at a 90-degree angle so that it overlays the first as shown below. Trim the excess length off the end of the first lug.
- Solder the two lugs together.
- Tighten the hardware to ensure good contact at both ends of the ground strap.

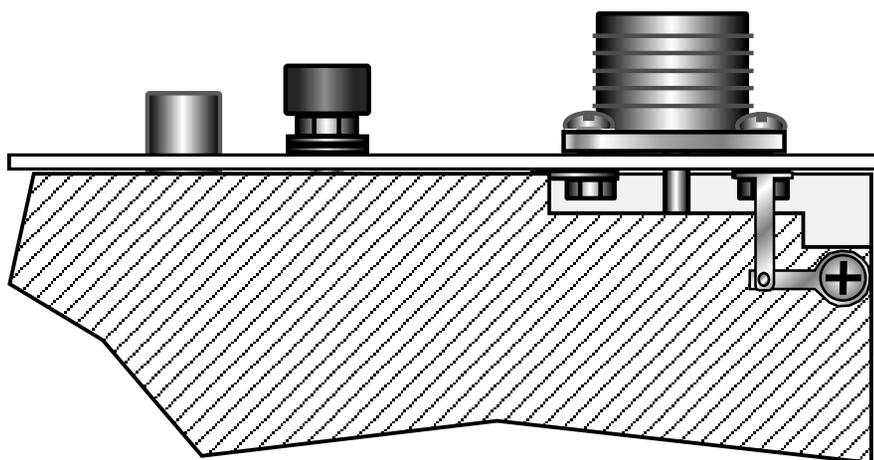


Figure 3

- Turn the KPA100 assembly over carefully and install it in the K2, re-connecting all cables. Make sure the left and right spring clips are touching the side panels, and that none of the interconnecting cables are pinched.
  - Secure the KPA100 to the K2 only at the four locations identified as **1**, **2**, **5**, and **6** in Figure 8 of your KPA100 manual (page 20). Use 4-40 x 3/16" **black** pan head screws. Do not install the remaining two screws yet.
  - Remove the right side panel of the K2 (four screws).
  - Examine the cables connecting the K2 and KPA100. Move the ribbon cable and speaker cable toward the front of the K2. They should not be touching the KSB2 or KNB2 modules, if present.
  - Hold the right side panel up to the K2, and note where the KPA100 shield clip contacts the panel. Mark this spot with a pencil. **Note:** Be sure to mark the *inside* of the panel. When you're looking for the spring clip contact point, four of the five side panel screw holes should line up with 2-D fasteners. The fifth screw hole, at the top-middle of the side panel, should line up with the grooved channel on the KPA100 heat sink.
  - Lay the side panel on a soft cloth. Using sand paper or a Dremel tool (or equivalent), remove enough paint from around the marked location so that the spring clip will make good contact. Paint should be removed from an area about 1/4 to 1/2" (6-12 mm) in diameter.
  - Remove the left side panel. Mark the shield clip contact point, then remove the paint from this area as described above.
-  The side panel screws that attach to the KPA100's heat sink thread into the thin grooved channels. In the next step, be careful not to overtighten these screws, as this could strip the grooves. If these grooves ever do become stripped, you can replace the original 4-40 screws with 5-40 Tap-Tite screws (Elecrafter order #SDSCRKT.)
- Attach the side panels to the K2 (five screws each). Observe the caution above when securing side panel screws to the heat sink.

**This completes the KPA100 shield upgrade.**