

## SERVICE BULLETIN AMATEUR RADIO

SUBJECT TM-631A/731A MEMORY LOSS MODIFICATION.	DATE 08/08/90
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Some TM-631A/731A owners have reported that the transceiver intermittently loses its memory channel information when the power switch is turned on. The following modification will absorb pulses on the CPU interrupt line (INT4) and reconfigure the backup switching circuit to avoid unintentional memory loss.

Read all instructions before proceeding. Do not attempt this modification if it is beyond you capability.

REQUIRED PARTS: ZKIT-731MEMO                      The kit contains:

PART #	DESCRIPTION	QTY.
NJM78L06A	6V AVR	1
1SS133	DIODE	1
MTZ3.0JB	3.0V ZENER DIODE	1
CE04NW0J221M	220uF, 6.3V ELECTROLYTIC CAPACITOR	1
C91-0457-05	0.022uF CERAMIC CAPACITOR	1
CK45B1H103K	0.01uF CERAMIC CAPACITOR	1
RD14BB2C103J	10K OHM, 1/6W RESISTOR	1
RD14BB2C102J	1K OHM, 1/6W RESISTOR	1
RD14BB2C472J	4.7K OHM, 1/6W RESISTOR	1
RK73FB2A472J	4.7K OHM, 1/10W CHIP RESISTOR	2

1. Disconnect the power supply, antenna, and microphone.
2. Remove the top and bottom covers (12 screws). Do not damage the speaker wires when removing the top cover.
3. Pull the Main Encoder, Volume, and Main Squelch knobs off the front panel. If a knob does not easily pull off, wrap a cloth around the knob and carefully pull it off with a pair of pliers. Be careful not to crush or scar the knob.
4. Remove the two brass colored screws from the top of the plastic front panel. **Figure 1**
5. Gently lift the two tabs on the bottom of the front panel and then pull the front panel off the transceiver. **Figure 2**
6. Remove the two black shades from the Balance and Sub-Squelch controls. **Figure 3**

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7. Remove the three brass colored screws from Control board B/3. **Figure 3**
8. Remove the brass colored screw that is mounted on the front panel chassis above the Power switch. **Figure 4**
9. Remove the brass colored screw that is mounted on the front panel chassis to the right of the microphone jack. **Figure 4**
10. Carefully pull Control board (B/3) away from the body of the transceiver.
11. Disconnect the two "wire type" cables from the body of the transceiver.
12. Disconnect the two flex cables from the Control board. The flex cables simply pull out of the connectors.
13. Remove IC102 from the Control board. Since this device is glued to the board, use a needle tip tool to lift each pin as you melt the solder. Then pry the chip off the board with a craft knife. **Figure 6**
14. Remove any excess glue and solder from the area where IC102 was located.
15. Remove chip resistor R103. Do not melt connector CN101. **Figure 6**
16. Cut the foil pattern between connector CN101 and chip capacitor C102. Make the cut as close to connector CN101 as possible. **Figure 6**
17. Prepare the 1SS133 diode for installation. The cathode lead will be cut and bent 90°. The diode must lay flat on the board and the cathode lead cannot touch the cut in the foil. Once the diode leads are prepared, solder the diode in place. **Figure 7**
18. Prepare the NJM78L06A 6V AVR for installation as shown in **Figure 8**. The leads to this device are very soft and can break when bent too often. Make each bend only once.
19. The 6V AVR will be mounted in place where IC102 was located. The board must first be prepared for the installation. Remove the protective coating from the foils as shown in **Figure 7**. These are the foils that were connected to pins 2 and 7 of IC102 and the ground foil that runs under the device.
20. Place the 6V AVR on the board and make sure the leads contact the foils. Cut the leads to size and then solder the device to the board. **Figure 9**
21. Prepare the 100µF capacitor, 10K ohm resistor, and 4.7K ohm resistor for installation. Place the parts on the board to size and cut the leads. Once the parts are prepared, solder them to the board. **Figure 10**

22. Locate R105. If the component is 47K ohm, change it to a 4.7K ohm chip resistor. The component's value can be determined by the numbers written on the case. If the device is labeled 473, it is a 47K ohm resistor and needs to be replaced. If the device is labeled 472, it is a 4.7K ohm resistor and does not need to be replaced. **Figure 10**
23. Straighten the tabs that hold the LCD assembly to the Control board. Carefully pull the LCD assembly off the Control board (do not break the flex cable). **Figure 5**
24. Remove C123. This chip capacitor is located in the corner of the board under the LCD assembly. **Figure 11**
25. Remove the protective coating from the foils as shown in **Figure 11**.
26. Place the 3.0V zener diode on the board. Size and cut the diode's cathode lead. Solder the lead to the board. **Figure 12**
27. Place the 1K ohm resistor on the board. The body of the resistor must be parallel to the diode. Size and cut the resistor's left hand lead. Solder the lead to the board. **Figure 12**
28. Bend the diode's anode lead and solder it to the resistor's right hand lead. Do not allow the leads to touch the board. Trim the leads after soldering. **Figure 12**
29. Prepare the 0.022uF capacitor for installation. Place the component on the board to size and cut the leads. **Figure 12**
30. Solder the left hand lead to the junction of the zener diode and 1K resistor. Do not let the connection touch the board. **Figure 12**
31. Solder the right hand lead to the board as shown. **Figure 12**
32. Replace C107 with the 220uF electrolytic. C107 is located between the Main and Sub rotary encoders. **Figure 3**
33. Mount the LCD assembly on the Control board and bend the four tabs to hold it in place. Make sure the LCD does not touch the leads of the new parts.
34. Connect the two flex cables to the Control board and then plug the two "wire type" connectors into the body of the transceiver.
35. Mount the Control board on the body of the transceiver and secure it with the three brass colored screws that go through the Control board. Be careful not to pinch any wires.
36. Install the brass colored screw that goes above the power switch and install the brass colored screw that goes to the right of the microphone jack.
37. Install the two black shades on the Balance and Sub-Squelch controls.

38. Slide the Lock, Balance, and Sub-Squelch controls to the left.
39. Slide the Lock, Balance, and Sub-Squelch knobs on the plastic front panel to the left.
40. Gently install the plastic front panel on the front panel assembly. Do not force the installation.
41. Install the two brass colored screws on the top of the plastic front panel.
42. Install the Main Encoder, Volume, and Main Squelch knobs.
43. Remove the two screws from the small board where the positive power lead connects on the bottom of the transceiver.
44. Solder the remaining 4.7K ohm chip resistor to the foil side of the board. Figure 13
45. Mount the board and install the covers on the transceiver.

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This modification may be covered under warranty.  
Time required to perform this modification is 1 hour or less.  
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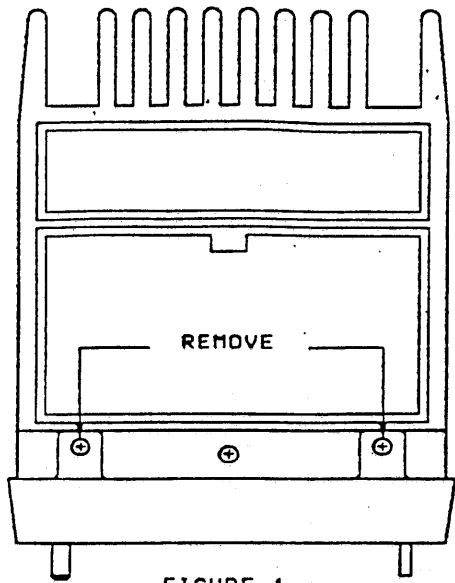


FIGURE 1

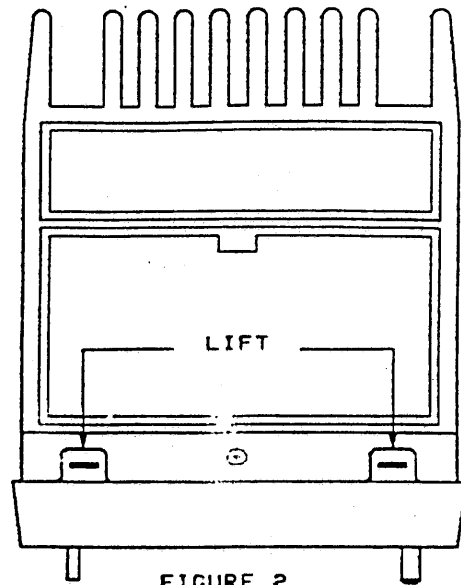


FIGURE 2

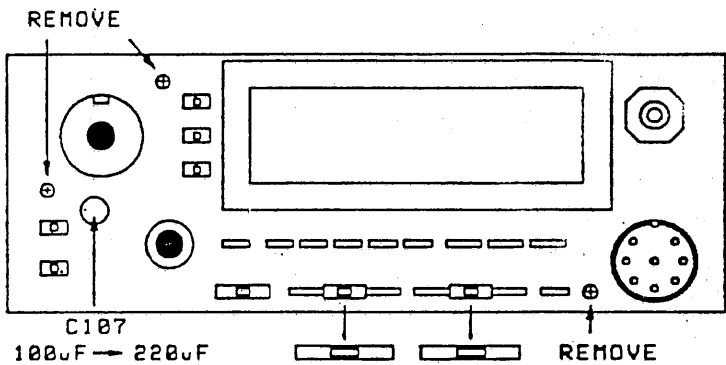


FIGURE 3

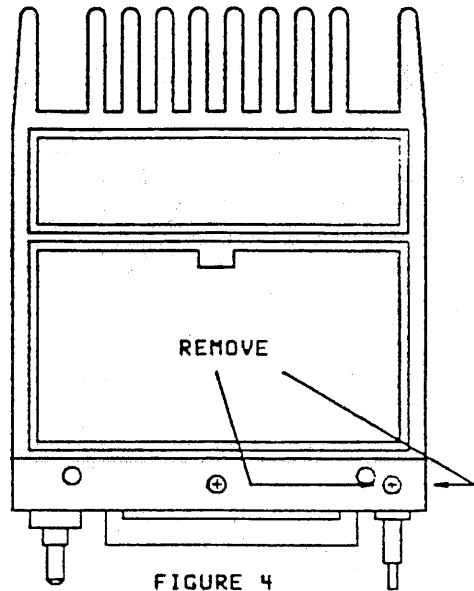


FIGURE 4

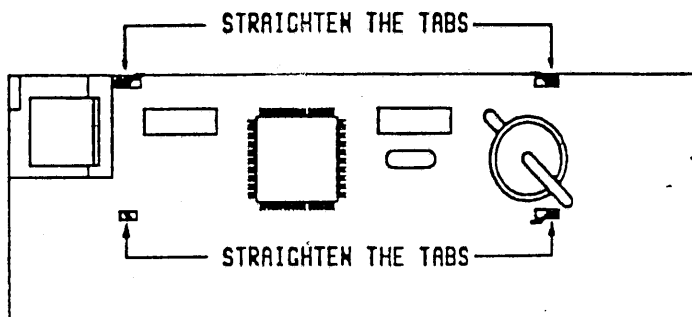


FIGURE 5

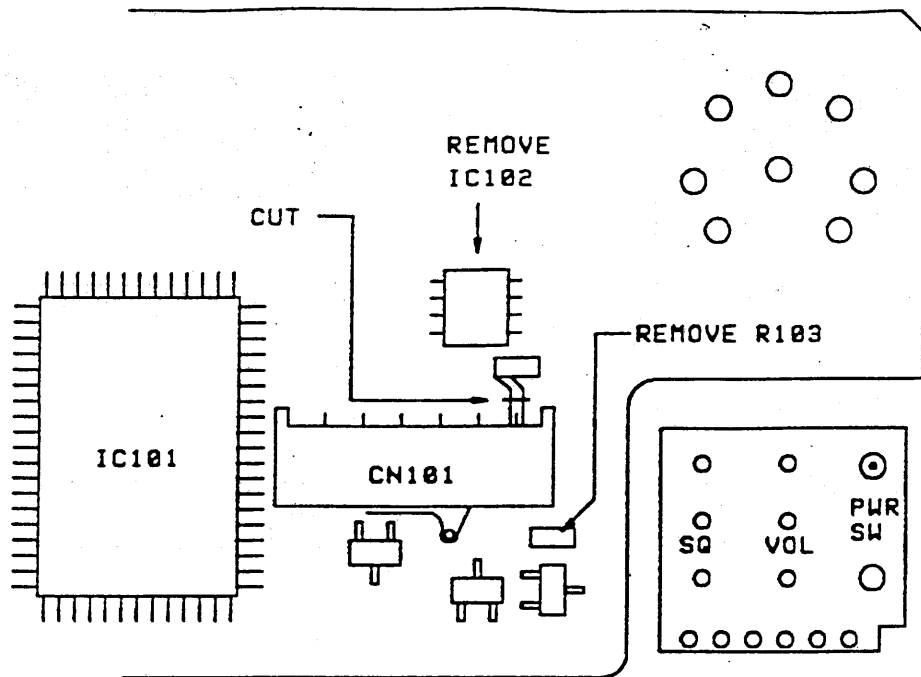


FIGURE 6

REMOVE PROTECTIVE COATING

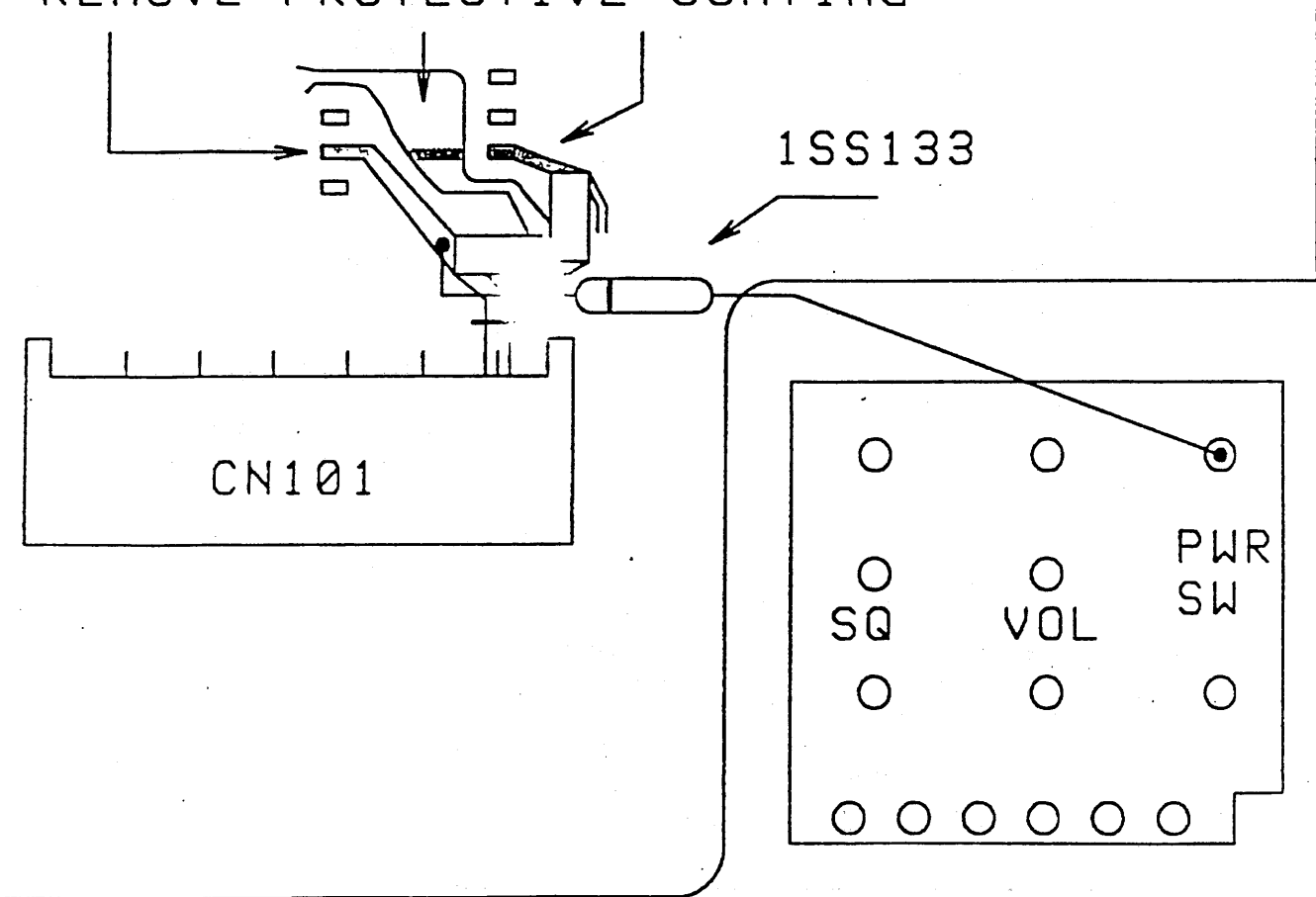


FIGURE 7

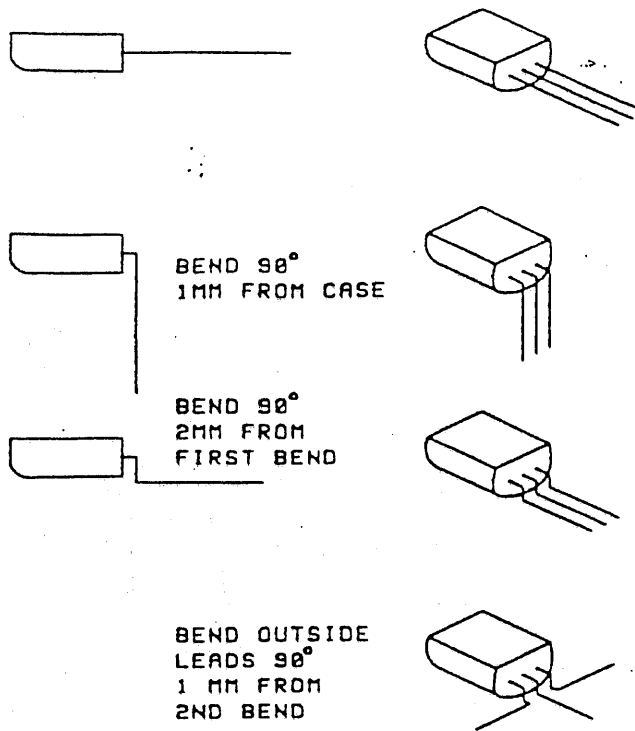


FIGURE 8

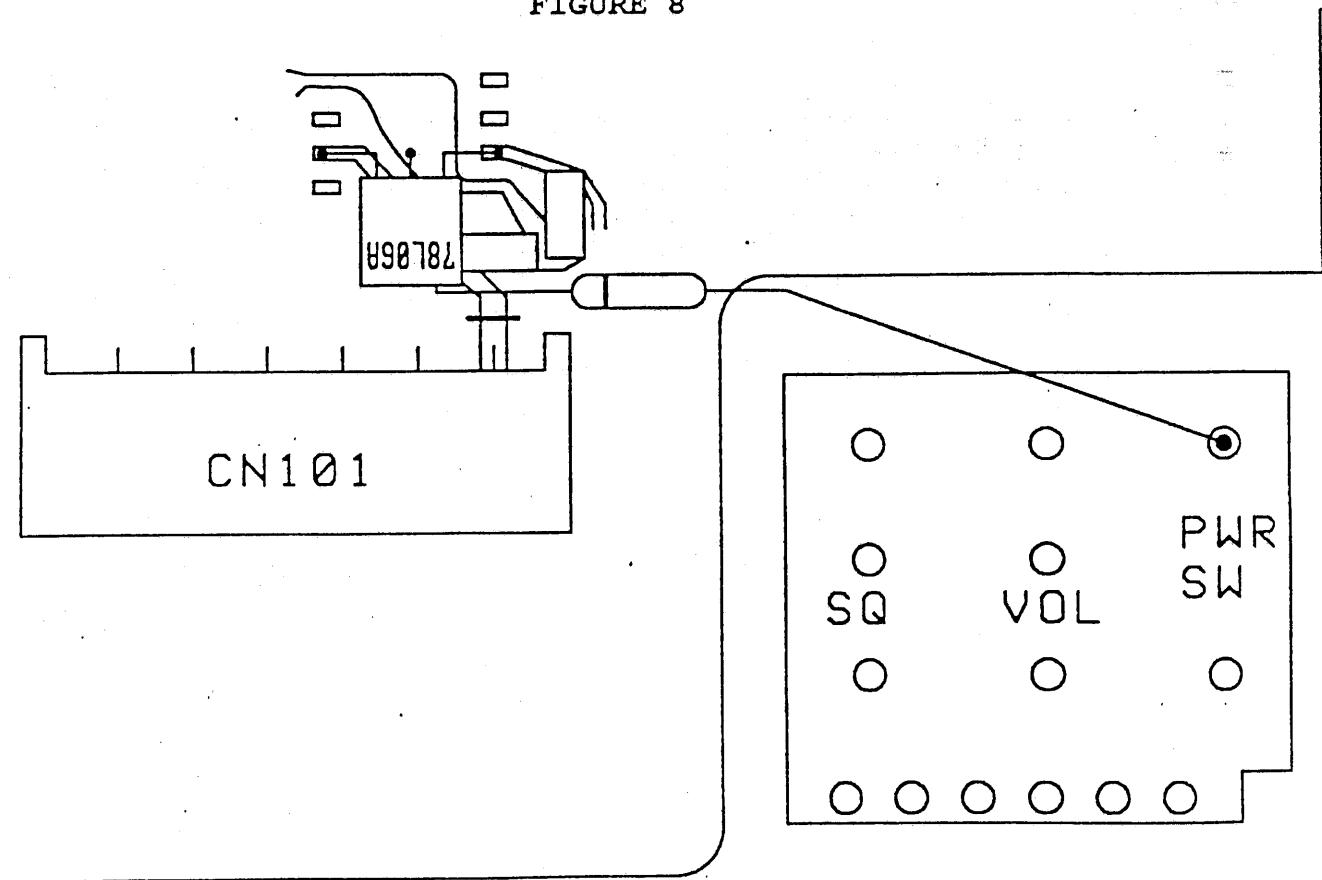


FIGURE 9

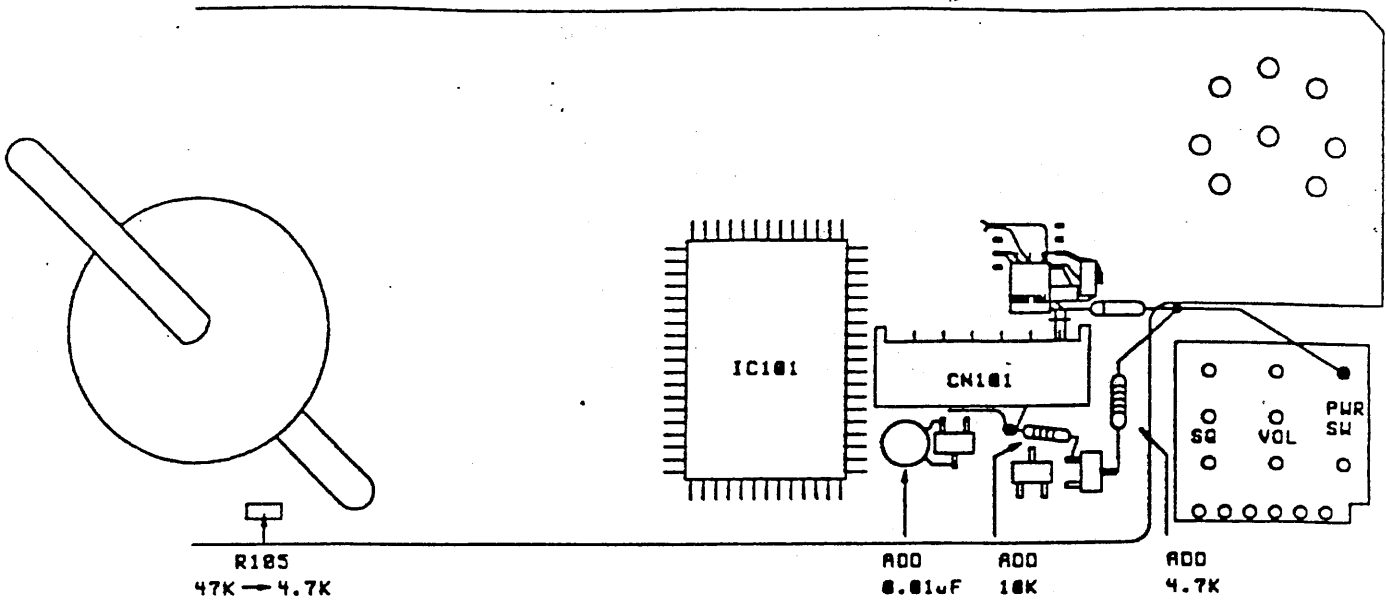


FIGURE 10

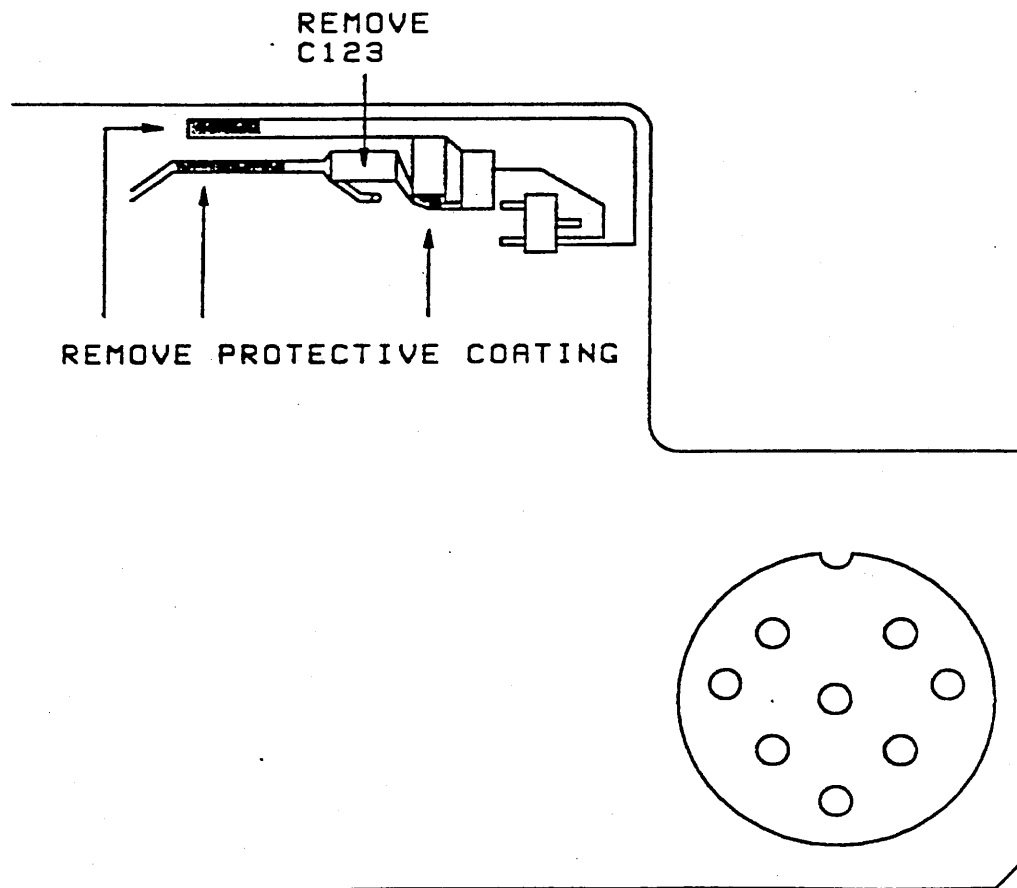


FIGURE 11



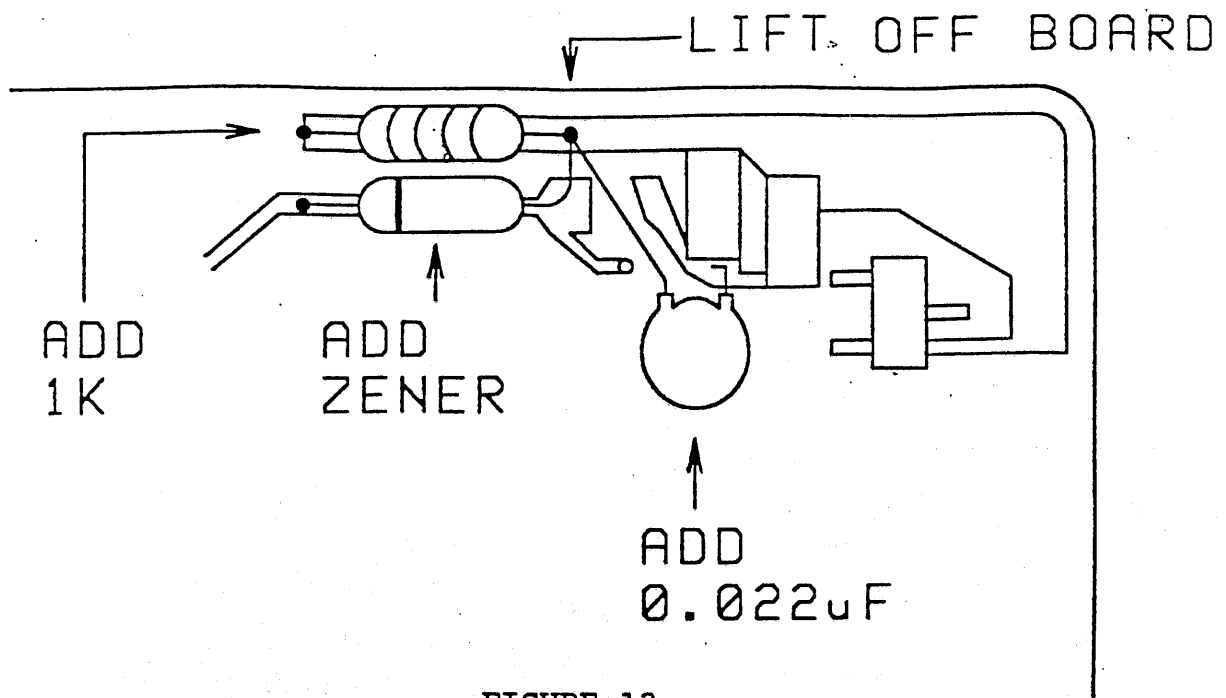


FIGURE 12

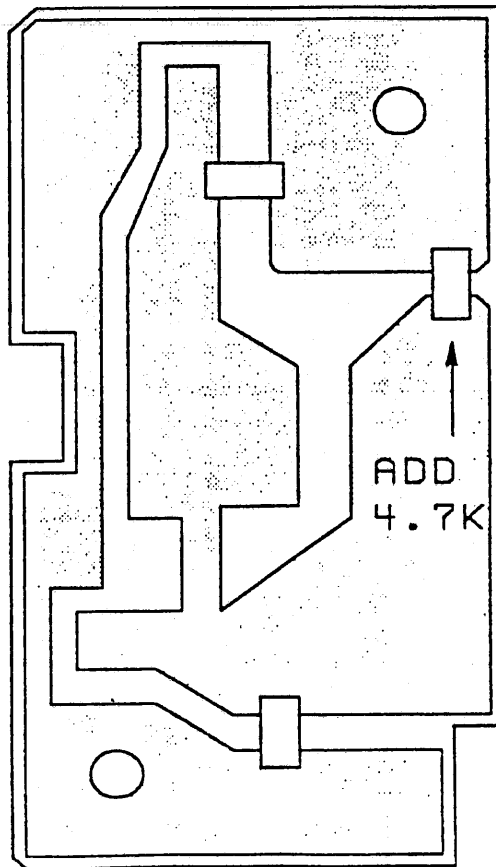


FIGURE 13

