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Dear Logikit CMOS-4 Keyer owner:

We have found that the PC board for your Logikit CMOS 4 keyer was designed such that the 5-volt voltage regulator draws a steady current of about 1.5 mA from the battery pack at all times, regardless of whether the keyer is in use or not. This will drain the batteries within a few months.

The following steps will fix the problem:

Disassembly:

- 1) Remove the four 4-40 screws securing the top cover of the keyer and set both the (4) screws and the top cover aside.
- 2) Remove the center battery from the battery pack and set it aside.
- 3) Remove the two 4-40 screws securing the pushbutton PC board and set them aside.
- 4) CAREFULLY remove the SPEED control mounting hardware and set it aside.
- 5) Remove the two 4-40 nuts and two split washers securing the keyer PC board and set them aside.
- 6) Lift the keyer PC board away from the screws over which it is mounted, and set the two white nylon standoffs aside.

Note that it will probably be easier for you to allow the SPEED control and the push-button PC board to hang free as you remove the keyer PC board.

Modification of the Keyer PC Board:

- 7) Turn the keyer over and slide the keyer PC board out slightly from the case (see Figure 1 on the following page).
- 8) Locate the PC board trace which connects the ungrounded side of C2 to the cathode (banded) end of D3 (see Figure 2 on the following page).
- 9) Using a SHARP a sharp knife (an X-acto knife, or single-edged razor blade are preferable) CAREFULLY cut the trace between C2 and the cathode (banded) end of D3 (see Figure 3 on the following page),

An easy and relatively painless method of cutting this trace is to make two (2) straight down cuts in the trace, about 1/16" (1.6mm) apart, cutting completely through the copper of the trace. Then apply the tip of a (clean) HOT soldering iron to the trace between the two cuts. After about 10 seconds, the trace should lift off much more easily.

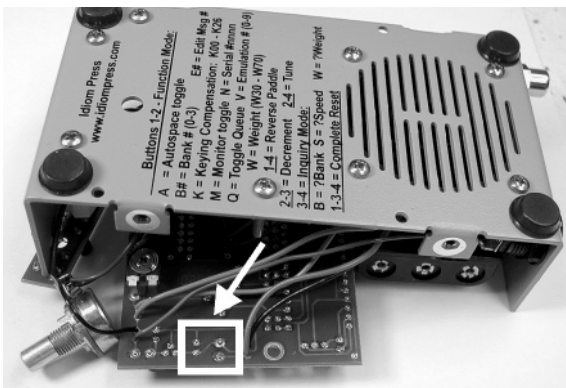


Figure 1

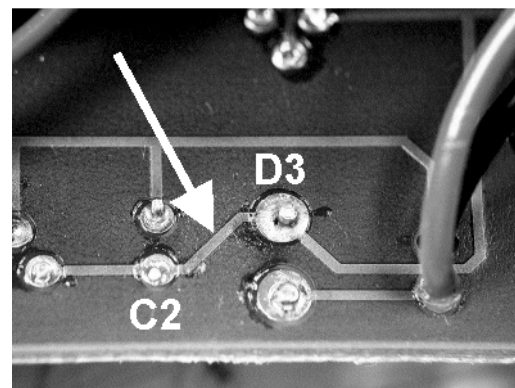


Figure 2

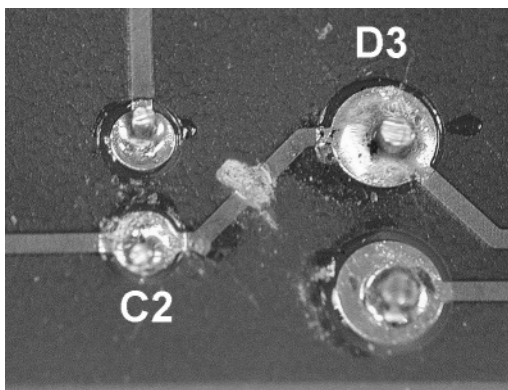


Figure 3

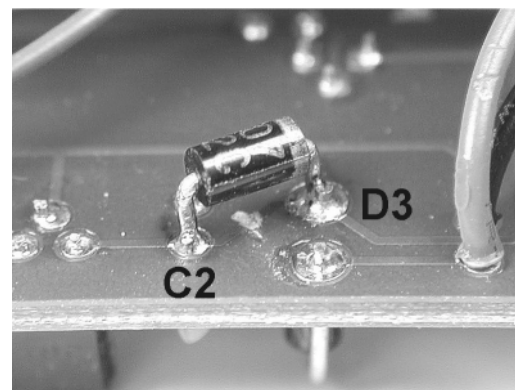


Figure 4

- 10) Regardless of how you cut the trace, use an ohmmeter to verify that the trace is cut (very high resistance).
- 11) Install a 1N400x diode (or any diode of the 1N4001 thru 1N4007 series) across the cut trace as follows:
 - A) Bend the diode leads straight down, right AT the body of the diode.
 - B) Cut the leads so they extend no less than 1/16" (1.6mm), but no more than 1/8" (3.2mm), past the bottom of the diode body (see Figure 4).
 - C) Lightly tin each lead with solder.
 - D) If required, apply a small amount of additional solder to the soldered joint at C2 (only) where the diode will be installed. DO NOT apply additional solder to the connection at D3 yet.
 - E) Referring to figure 4, place the diode with its cathode (banded) end on the solder pad for D3 and its anode (UNbanded) end on the solder pad for C2. HOLD the

diode in position and briefly touch the tip of your soldering iron to the pad at C2, melting the solder and securing one end of the diode at that point.

- F) In a similar manner, secure the other end of the diode to the solder pad at D3. Note that you may have to add a small amount of solder to this joint in order to properly attach the new diode.
- G) After both ends of the new diode are soldered into place, it is a good idea to go back quickly and reheat both joints, one at a time, to ensure a good connection.

Reassembling the Keyer:

- 12) Reinstall the SPEED control into its mounting hole in the front panel and **loosely** install its mounting hardware.
- 13) Reinstall the pushbutton PC board, and **loosely** install its two mounting screws.

Ensure that you have not accidentally captured any of the pushbutton wires between the PC board and their standoffs.

- 14) Slip the white nylon standoffs over the two screws onto which the keyer PC board is mounted. Place the keyer PC board over the screws and secure with two 4-40 split washers and nuts.
- 15) Using a voltmeter, measure the voltage of each of the AAA cells. If any one cell measures less than 1.4 volts, replace them all now.
- 16) Reinstall any of the 3 AAA batteries you removed during disassembly.
- 17) Replace the top cover onto the keyer and **temporarily** secure with **two** (2) 4-40 screws.
- 18) Check for proper alignment of the pushbuttons through the holes in the top cover and make any adjustments to the position of the pushbutton PC board at this time.
- 19) Complete the installation of the top cover of the keyer.

With the modification in place, the voltage regulator can no longer draw current from the battery pack. Whenever the keyer is not in use the CPU automatically goes into sleep mode, and battery drain drops to the microamp level. The batteries will last for a very long time as the primary power source for the keyer.

If you require a diode for this fix, e-mail, write, or call us and we will be happy to immediately mail a diode to you at no charge.

We apologize for this inconvenience.

