

CMOS-4 Service Bulletin #3

Dear Logikit CMOS-4 Keyer owner:

In an effort to improve the CMOS-4 we implemented some changes to add protection against transients to the power input and dot and dash inputs. All keyers sold after July 2006 should have this change implemented.

The following steps will add these changes:

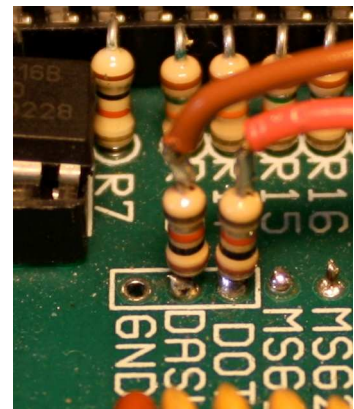
Disassembly:

- 1) Remove the four 4-40 screws securing the top cover of the keyer and remove the top cover.
- 2) If installed, remove the center battery from the battery pack.
- 3) Remove U1 and U2 from their sockets and place them on a non-static surface such as conductive foam or a piece of aluminum foil.
- 4) Remove the two 4-40 screws securing the pushbutton PC board.
- 5) Remove the SPEED control knob and mounting hardware.
- 6) Remove the two 4-40 nuts and two split washers securing the keyer PC board.
- 7) Lift the keyer PC board away from the screws over which it is mounted, and remove the two white nylon standoffs and the two screws.

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

Modification of the Keyer PC Board:

- 8) Tilt the keyer PC board out from the case to gain access to the back of the board.
- 9) Locate the wire connected to the dot input on the PC board and note its color. Remove the wire from the dot hole.
- 10) Locate the wire connected to the dash input on the PC board and note its color. Remove the wire from the dash hole.
- 11) Cut the leads on the two 1k 1/4 watt resistors to a length of 1/8 inch (3 mm).
- 12) Install one end of a 1k resistor in the dot hole and the other 1k resistor in the dash hole on the top of the PC board. See figure 1 at right.
- 13) Connect the previously removed dot and dash wires to the top side of their respective resistors.
- 14) Install SA5.0A diodes as follows:
 - A) Bend the diode leads straight down, about 1/8" (3 mm) from the body of the diode. The leads should end up spaced about 1/2" (13 mm).

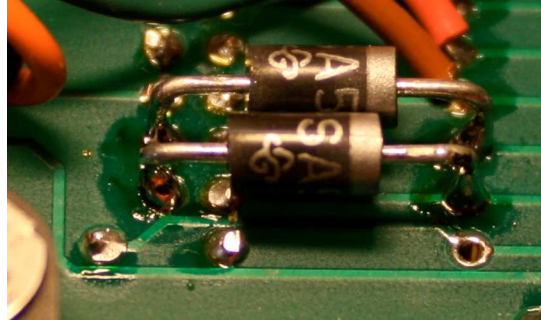


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B) Cut the leads so they extend no less than 1/16" (2 mm), but no more than 1/8" (3 mm), past the bottom of the diode body.

C) Lightly tin each lead with solder.

D) Place one diode with its cathode (banded) end on the solder pad for dot and its anode (unbanded) end on the ground solder pad for C6. See figure 2 at right. Hold the diode in position and briefly touch the tip of your soldering iron to the pad at C6, melting the solder and securing one end of the diode at that point.



E) In a similar manner, secure the other end of the diode to the dot solder pad. Restrain the resistor that is in the dot pad while applying solder. Note that you may have to add a small amount of solder to these joints in order to properly attach the new diode.

F) In a similar manner, install the second diode to the dash pad and the C5 ground pad.

G) After both ends of the new diodes 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.

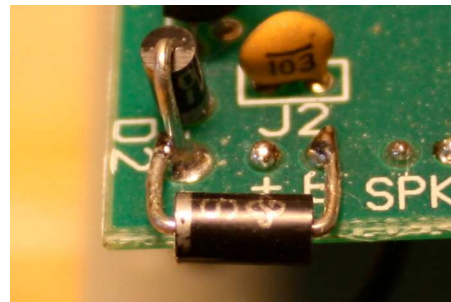
15) Install an SA22A diode as follows:

A) Bend the diode leads straight down, right at the body of the diode.

B) Cut the leads so they extend about 3/16" (5 mm) past the bottom of the diode body.

C) Lightly tin each lead with solder.

D) Place the diode with its cathode (banded) end on the solder pad for the anode end of D2 and its anode (unbanded) end on the ground solder pad between the + and SPKR pads. See figure 3 at right. Hold the diode in position and briefly touch the tip of your soldering iron to the ground pad, melting the solder and securing one end of the diode at that point.



E) In a similar manner, secure the other end of the diode to the D2 solder pad. Note that you may have to add a small amount of solder to these joints in order to properly attach the new diode.

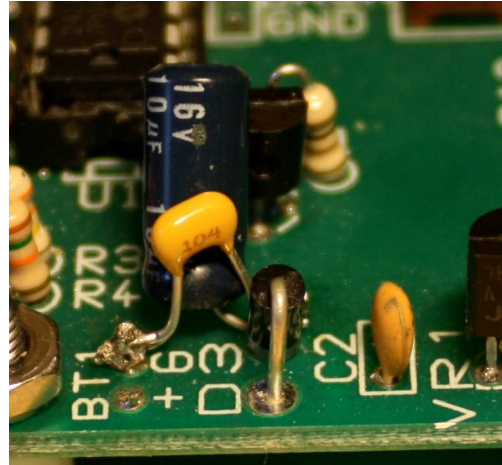
16) Install the 10 μ F and 0.1 μ F capacitors as follows:

A) Trim the leads on both capacitors to 1/4" (6 mm).

B) Bend the last 1/8" (3 mm) out at right angles.

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- C) If the body of D3 is tight against the PC board heat the connection with your soldering iron and slightly lift the body from the board surface.
- D) Adjust the capacitor leads so that they are spaced properly to attach to the BT1 G pad and the D3 cathode pad.
- E) Place the 0.1 μF capacitor with one of its leads on the solder pad for the cathode end of D3 and the other lead on the BT1 ground solder pad. Hold the capacitor in position and briefly touch the tip of your soldering iron to the ground pad, melting the solder and securing one end of the capacitor at that point.
- F) In a similar manner, secure the other end of the capacitor to the D2 solder pad.
- G) Place the 10 μF capacitor with its + lead on the solder pad for the cathode end of D3 and its - lead on the BT1 ground solder pad. See figure 4 at right. HOLD the capacitor in position and briefly touch the tip of your soldering iron to the ground pad, melting the solder and securing one end of the capacitor at that point.
- I) In a similar manner, secure the other end of the capacitor to the D2 solder pad. Note that you may have to add a small amount of solder to these joints in order to properly attach the new capacitors.



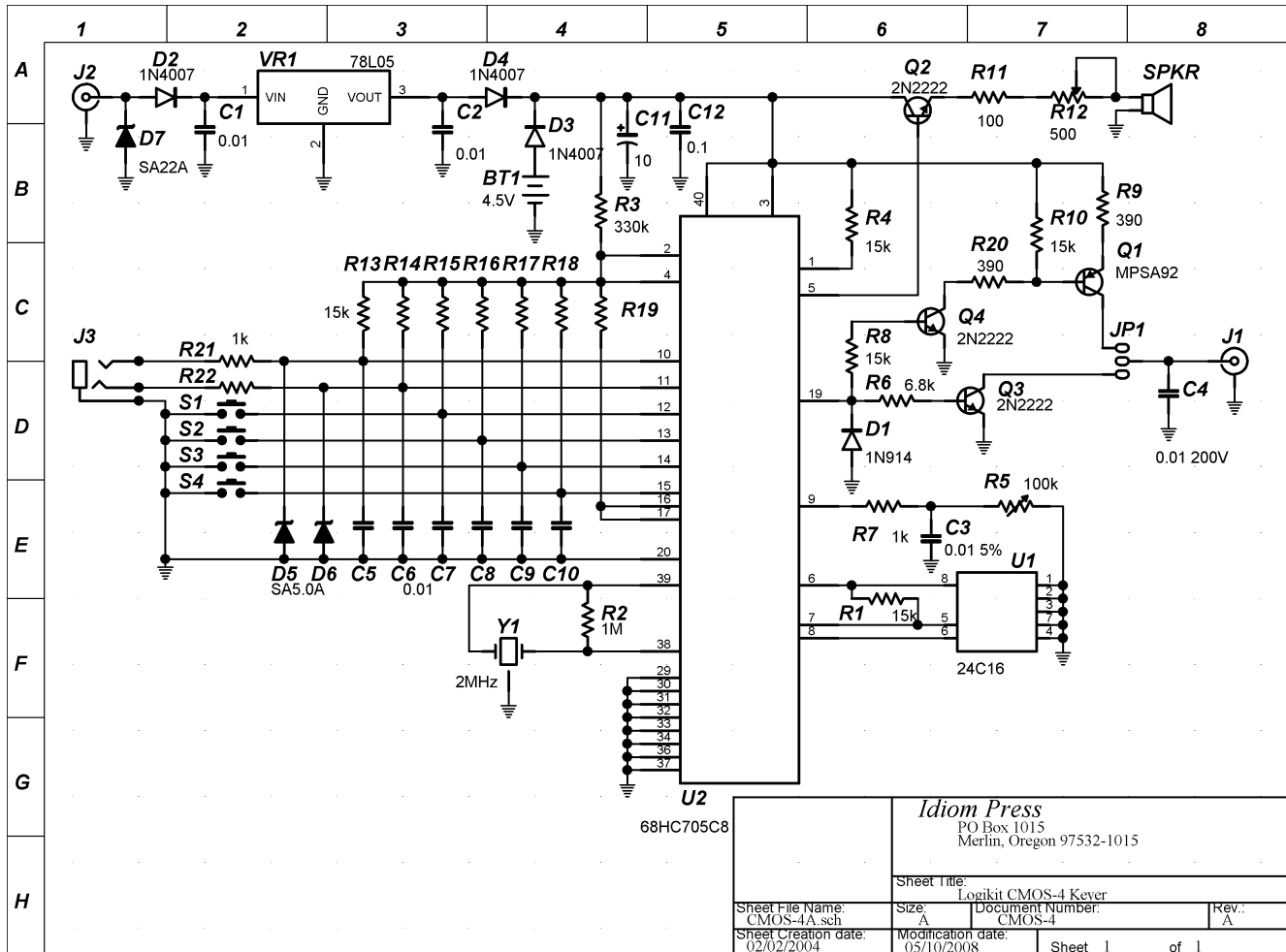
Reassembling the Keyer:

- 17) Reinstall the SPEED control into its mounting hole in the front panel using the previously removed mounting hardware.
- 18) Reinstall the SPEED knob.
- 19) Reinstall the pushbutton PC board, and install its two mounting screws. Ensure that you have not accidentally captured any of the pushbutton wires between the PC board and their standoffs.
- 20) Insert the two 3/4 inch (19 mm) PC board mounting screws up through the appropriate holes. Slip the white nylon standoffs over the two screws and place the keyer PC board over the screws. Secure with two 4-40 split washers and nuts.
- 21) Reinstall U1 and U2. **Caution** - make sure the end with the notch lines up with the notch on the socket.
- 22) Reinstall any of the 3 AAA batteries you removed during disassembly.
- 23) Replace the top cover onto the keyer and **temporarily** secure with **two** (2) 4-40 screws.
- 23) 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.
- 24) Complete the installation of the top cover of the keyer.

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CMOS-4 Service Bulletin #3 Parts list:

Ref.	Value	Vendor	Part number
C11	10 μ F	Mouser	75-515D25V10
C15	0.1 μ F	Mouser	80-C320C104M1U
D5,6	SA5.0A	Mouser	625-SA5.0A-E3
D7	SA22A	Mouser	625-SA22A-E3
R21,22	1 k Ω	Mouser	291-1K-RC



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