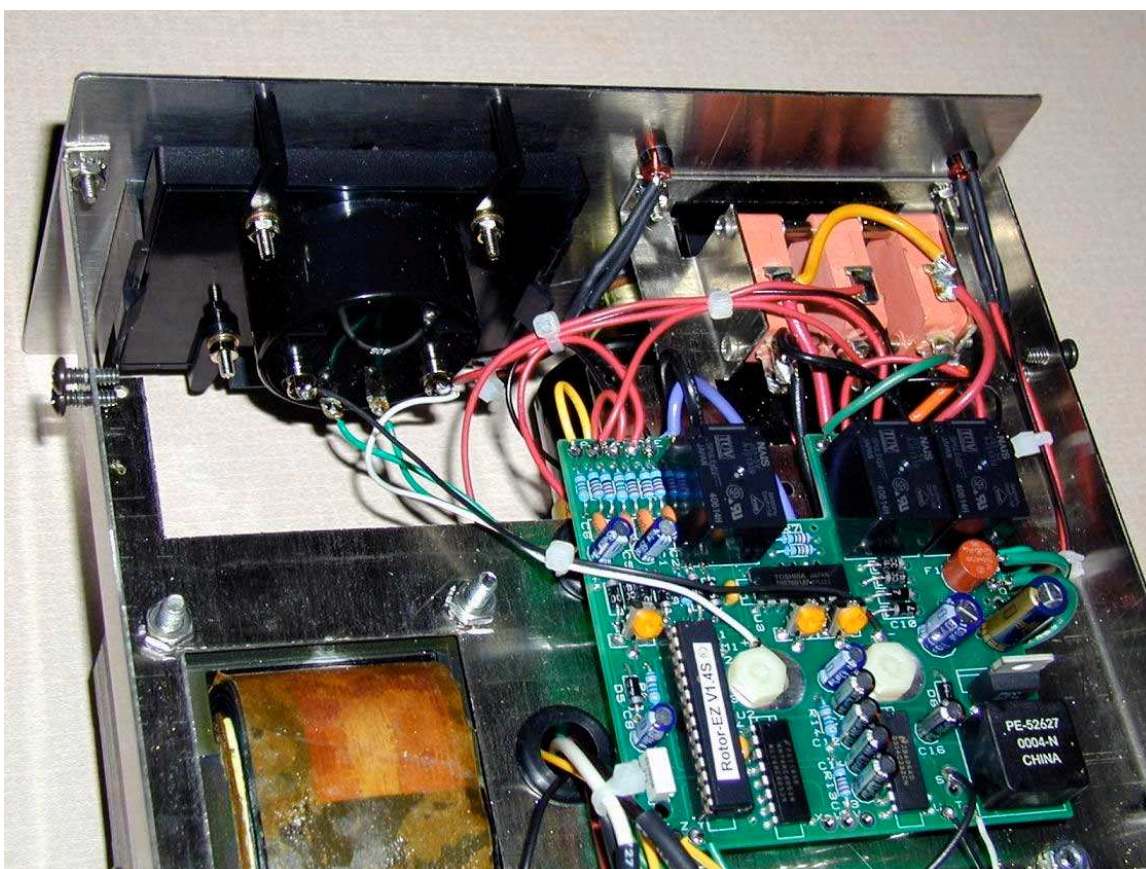


## Rotor-EZ Installation Instructions for New-Style CD-45II, HAM-IV, and T-2X Control Boxes

Recently Manufactured CD-45II, HAM-IV, and T-2X Rotator Control boxes have had a significant revision in their layout by the manufacturer. One way you can tell if your control box is from a new series is to inspect the meter movement. If the meter movement has solder terminals instead of screw terminals, then in all probability your unit is the latest series. (See photo.)

The following instructions are to be used for installing your Rotor-EZ board in such units. This document replaces the section that describes how to install the Rotor-EZ board in the document titled "Installation of Your Prewired Rotor-EZ Board".

This procedure requires additional parts, which are available on request from Idiom Press. Please specify that the parts are for the new-style control box.



The underside of the new-style control box, showing installed Rotor-EZ board. This picture is also available at <http://www.idiompress.com/rotor-ez-telex.jpg>

### **Additional parts needed**

2 x 3/4" 10-32 nylon screws  
6 x 10-32 nylon nuts  
2 x 6-32 nuts

### **Parts not used**

3 x Red LED (D14, D15, D16)  
3 x LED Holder

### **Rotor-EZ board Installation**

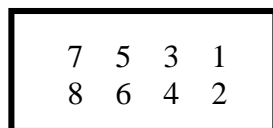
This procedure assumes that you have already installed jumpers to disable any unwanted options, as described in the document titled "Installation of Your Prewired Rotor-EZ Board". If you have not yet done so, please read that document first.

- Remove 7 wires (Red, Brown, Green, White, Brown, Black, Blue) from the CW, CCW, and BRAKE switches that go to the Brake Delay Board.
- Remove the two wires (Orange) from the Meter Lamp terminals.
- Remove the three screws from the Brake Delay Board.

**NOTE:** Unless otherwise noted, the following steps remove wires from the Brake Delay Board or specified terminal only. Leave the other end attached unless the instruction are to "completely remove" the wire.

- Remove the three pairs of wires (Black, Red) going to the CW, CCW, BRAKE LEDs from the Brake Delay Board.
- Remove the two wires going to the meter (Black, White) from the Brake Delay Board.
- Remove the two instrument transformer wires (both Green) from the Brake Delay Board.

**NOTE:** The pin numbering on the Control Unit Jones Plug as viewed from the solder side is:

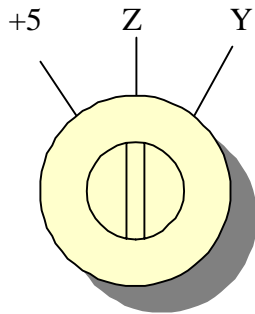


- Completely remove the wire (Black) from pin # 7 of the Jones plug and from the Brake Delay Board.
- Completely remove the wire (Yellow) from pin # 3 of the Jones plug and from the Brake Delay Board.
- Completely remove the wire (Brown) from the ground lug and from the Brake Delay Board.

- Completely remove all wires from the front panel Calibrate Pot and the rear panel Calibrate Switch.
  - Remove the Brake Delay Board from the chassis.
  - Remove the remaining two wires (Black, Blue) from the Brake switch. Put a piece of electrical tape over the bare end of each wire.
  - Remove the two Brake Delay Board standoffs nearest the edge of the chassis and secure each instrument transformer mounting screw with a 6-32 nut and the existing lock washer.
  - Remove Brake Delay Board standoff and screw nearest the center of the chassis. Enlarge that mounting hole to 3/16" (5 mm). **NOTE:** Be very careful to avoid damage to any wiring or components when drilling holes; it may help to remove the large motor start capacitor from its clip temporarily. Also, make sure to completely remove all metal shavings from the chassis.
  - Drill another 3/16" (5 mm) hole 1.1" (28 mm) toward the instrument transformer. The instrument transformer is the smaller transformer. 1.1" (28 mm) is the distance between the centers of the outer set of mounting holes in the Rotor-EZ circuit board. The Rotor-EZ board can be used as a pattern to find where the hole should be drilled.
  - Insert two 3/4" long nylon screws into the 3/16" (5 mm) holes from the top of the Control Unit chassis and secure them with two nylon nuts. Do not over tighten the nylon nuts.
  - Screw a second nylon nut part way down each nylon screw leaving approximately 3/16" (5 mm) of thread exposed.
  - Solder the wires (Black, White) from the meter to the middle of the Rotor-EZ board paying attention to +/- polarity marked on the meter.
  - Mount the Rotor-EZ board on the nylon screws using a 3<sup>rd</sup> nylon nut on each. The notch in the board should face the front of the Control Unit.
- Many of the following steps will ask you to install new wires in the control box. Two thicknesses of wire are provided: #24 gauge and #18 gauge. The #24 gauge wire is the thinner wire, and should be used unless the instruction specifically says to use the thicker #18 wire.
- Cut three 11" (28 cm) wires of different colors. Solder one wire to each of the three leads of the bicolor LED. Solder the wire on the lead nearest the notch on the side of the LED lip to Rotor-EZ hole "X". Solder the center LED wire to Rotor-EZ hole "W". Solder the remaining LED wire, which is connected to the shortest lead, to Rotor-EZ hole "V".
  - Cut two 6 1/2" (17 cm) wires and solder them to the meter light terminals.
  - Solder the other end of the meter light wires and the instrument transformer wires (Green) to Rotor-EZ "P" and "Q". One meter lamp and one instrument transformer wire in each hole! **NOTE:** Hole "R" is not used.
  - Cut an 11" (28 cm) wire. Solder one end to pin 1 of the Jones Plug and the other end to Rotor-EZ "S".

- Cut three 9" (23 cm) wires of different colors. Solder one wire to each of the terminals on the Calibrate pot noting which color wire goes to which terminal. Solder the other end to Rotor-EZ "+5", "Z", and "Y".

Calibrate Pot viewed from the back (solder) side



- Solder the anode wire (Red) from the CCW LED to Rotor-EZ "L".
- Solder the cathode wire (Black) from the CCW LED to Rotor-EZ "M".
- Solder the anode wire (Red) from the CW LED to Rotor-EZ "J".
- Solder the cathode wire (Black) from the CW LED to Rotor-EZ "K".
- Solder the anode wire (Red) from the BRAKE LED to Rotor-EZ "D".
- Solder the cathode wire (Black) from the BRAKE LED to Rotor-EZ "E".
- Cut a 7" (18 cm) wire and solder one end to pin 7 of the Jones Plug. Solder the other end to Rotor-EZ "A".
- Cut a 7" (18 cm) wire and solder one end to pin 3 of the Jones Plug. Solder the other end to Rotor-EZ "C".
- Cut a 3" (8 cm) #18 wire and solder one end to the common side of the CW and CCW switches. This side of the CW and CCW switches also has a wire (Red) going to pin 2 of the Jones Plug. Solder the other end to Rotor-EZ "O".
- Cut a 3" (8 cm) #18 wire and solder one end to the CW switch terminal that has a wire (Orange) going to pin 5 of the Jones Plug. Solder the other end to Rotor-EZ "I".
- Cut a 3" (8 cm) #18 wire and solder one end to the CCW switch terminal that has a wire (Black) going to pin 6 of the Jones Plug. Solder the other end to Rotor-EZ "N".
- Solder the wire (Black) from the power transformer to Rotor-EZ "G".
- Solder the wire (Blue) from the power switch to Rotor-EZ "F".
- Cut a 4" (10 cm) wire and solder one end to one terminal of the Brake switch. Solder the other end to Rotor-EZ "B".
- Cut a 10" (25 cm) wire and solder one end to the other terminal of the Brake Switch. Solder the other end to the "+5" terminal of the Calibrate Pot.
- The Brake switch should have only 2 wires connected to it. One goes to Rotor-EZ "B" and the other to the "+5" terminal of the Calibrate Pot.

If you have the RS-232 option, mount the supplied solder terminal under the transformer nut nearest the printed circuit board on the bottom of the unit. Insert the rubber grommet into the hole in the chassis that the serial cable will go through. Pass the molded serial cable through the rubber grommet to the solder terminal. Solder the shield/ground wire from pin 5 (green) to the solder terminal. Solder the wire from pin 3 (orange) to hole "U" of the PC board. Solder the wire from pin 2 (red) to hole "T" of the PC board.

Inspect your work for solder bridges and wiring errors. Confirm that no wire goes to hole "R".

The board installation is now complete. Please return to the Calibration section of the "Installation of Your Prewired Rotor-EZ Board" document, and follow the instructions there.