

## **8.10 SERVO MOTOR SYSTEM MAINTENANCE**

The following sections deal with maintenance problems that the servo motor system might have.

### **8.10.1 SERVO MOTOR SYSTEM TEST**

Test the servo motor system as follows:

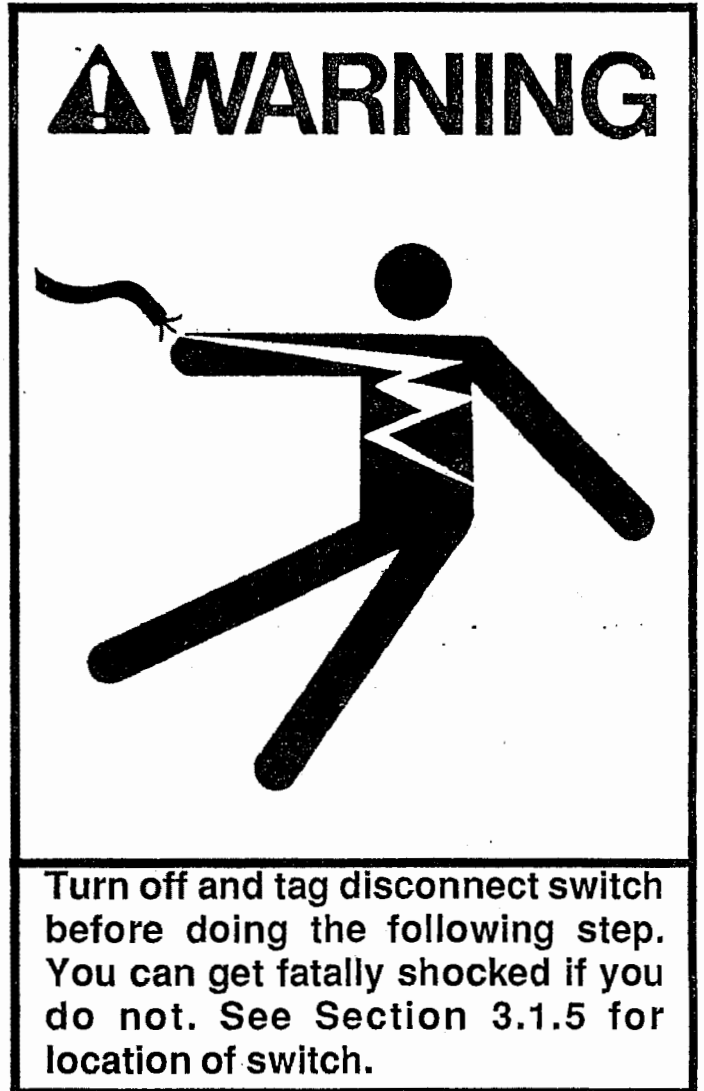
#### **NOTE**

Check if corrector platform cable is attached to the electronics package as shown in Figure 2.3 B in Section 2.3 before testing the servo motor system. If the cable is disconnected, reconnect it and recheck the press.

#### **Tools Needed:**

- 5/32" hex wrench (Allen wrench)
- small flat-tip screwdriver
- volt/ohm meter

1. Turn disconnect switch to "OFF" position.



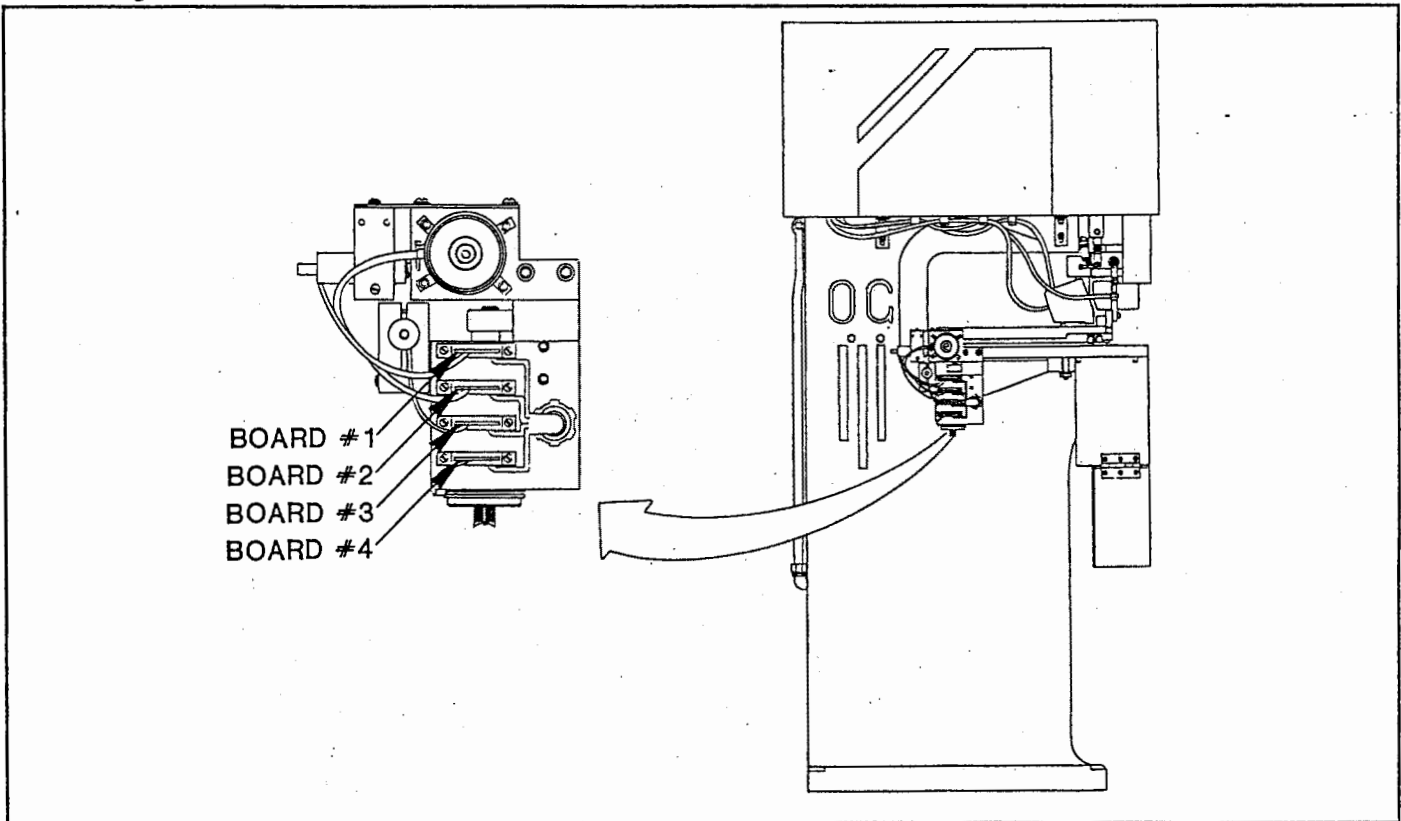
#### **Note**

Use the Illustrated Parts List in Chapter 11 of this manual as an aid in testing and repairing the servo motor system. When you see something like "Remove servo cover (135, Fig. 1)" in the following procedure, the number (135) refers to a picture of the servo cover (and how the servo cover is attached to the press) in Figure 1 of the Illustrated Parts List.

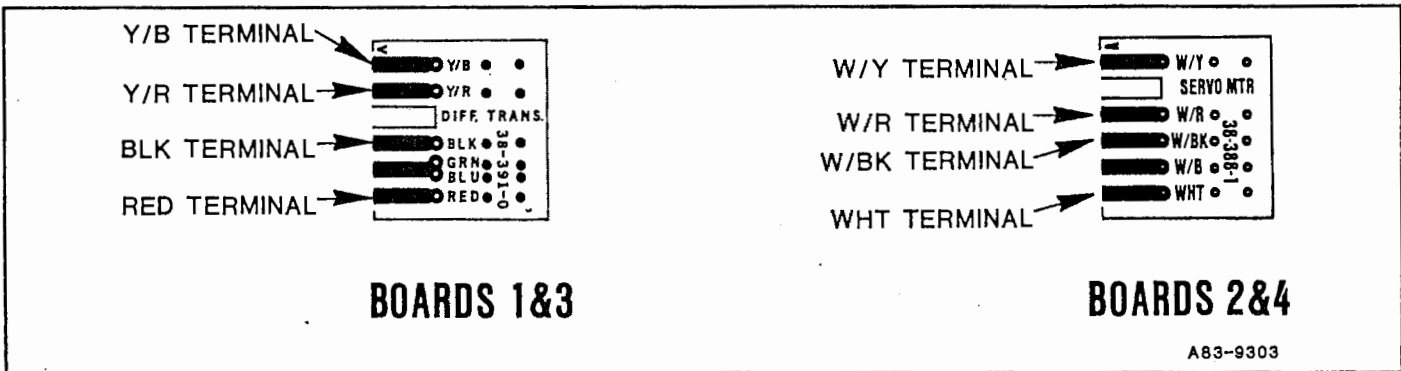
2. Remove servo cover screws (135, Fig. 1) with 9/64" hex wrench and remove servo cover (139).
3. Remove board retaining bar screws (491, Fig. 13) and lock washers (492) with screwdriver.

**8.10.1 SERVO MOTOR SYSTEM TEST**

4. Remove board retaining bar (493) and sponge tape (494).
5. Pull board #1 out of its socket (see Figure 8.10 A).
6. Test for 160-190 ohms across RED and BLK terminals on board #1 with volt/ohm meter (see Figure 8.10 B). If 160-190 ohms are present, go to step 7. If 160-190 ohms are not present, replace the in-out transformer according to Section 8.10.4.
7. Test for 60-75 ohms across Y/B and Y/R terminals on board #1 with volt/ohm meter (see Figure 8.10 B). If 60-75 ohms are present, push board #1 back into its socket and then go to step 8. If 60-75 ohms are not present, replace the in-out transformer according to Section 8.10.4.
8. Pull board #2 out of its socket (see Figure 8.10 A).



**Figure 8.10 A**



**Figure 8.10 B**

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### **8.10.1 SERVO MOTOR SYSTEM TEST**

9. Test for 300-350 ohms\* across W/Y and W/R terminals on board #2 with volt/ohm meter (see Figure 8.10 B). If 300-350 ohms are present, go to step 10. If 300-350 ohms are not present, replace the in-out servo motor according to Section 8.10.2.
10. Test for 70-85 ohms\*\* across W/BK\*\*\* and WHT terminals on board #2 with volt/ohm meter (see Figure 8.10 B). If 70-85 ohms are present, push board #2 back into its socket and then go to step 11. If 70-85 ohms are not present, replace the in-out servo motor according to Section 8.10.2.
11. Pull board #3 out of its socket (see Figure 8.10 A).
12. Test for 160-190 ohms across RED and BLK terminals on board #3 with volt/ohm meter (see Figure 8.10 B). If 160-190 ohms are present, go to step 13. If 160-190 ohms are not present, replace the left-right transformer according to Section 8.10.5.
13. Test for 60-75 ohms across Y/B and Y/R terminals on board #3 with volt/ohm meter (see Figure 8.10 B). If 60-75 ohms are present, push board #3 back into its socket and then go to step 14. If 60-75 ohms are not present, replace the left-right transformer according to Section 8.10.5.
14. Pull board #4 out of its socket (see Figure 8.10 A).
15. Test for 300-350 ohms\* across W/Y and W/R terminals on board #4 with volt/ohm meter (see Figure 8.10 B). If 300-350 ohms are present, go to step 16. If 300-350 ohms are not present, replace the left-right servo motor according to Section 8.10.3.
16. Test for 70-85 ohms\*\* across W/BK\*\*\* and WHT terminals on board #4 with volt/ohm meter (see Figure 8.10 B). If 70-85 ohms are present, push board #4 back into its socket and then go to step
17. If 70-85 ohms are not present, replace the left-right servo motor according to Section 8.10.3.
18. Reattach sponge tape (494) and board retaining bar (493) with board retaining bar screws (491) and lock washers (492).
19. Reattach servo cover (139, Fig. 1) with servo cover screws (135).
20. Continue to follow troubleshooting chart. The servo motor system is not the cause of the problem.

\*NOTE: For Singer brand servo motors, this value is 375-425 ohms.

\*\*NOTE: For Singer brand servo motors, this value is 90-110 ohms.

\*\*\*NOTE: W/BK is replaced by W/G on some #2 and #4 boards.

### **8.10.2 IN-OUT SERVO MOTOR REPLACEMENT**

Replace the in-out servo motor as follows:

#### **Tools Needed:**

- 7/64" hex wrench (Allen wrench)
- 9/64" hex wrench (Allen wrench)

#### **Note**

Use the Illustrated Parts List in Chapter 11 of this manual as an aid in replacing the in-out servo motor. When you see something like "Remove in-out servo motor (534, Fig. 13)" in the following procedure, the number (534) refers to a picture of the servo motor (and how the servo motor is attached to the press) in Figure 13 of the Illustrated Parts List.

### 8.10.2 IN-OUT SERVO MOTOR REPLACEMENT

1. Loosen clamp collar (530, Fig. 13) screw with 7/64" hex wrench. If screw does not line up with access slot as shown in Figure 8.10 C, turn the shaft knob until it does.
2. Remove in-out servo motor mounting screws (531), lock washers (532), and clamps (533) with 9/64" hex wrench.
3. Pull in-out servo motor (534) off of mounting block (538).
4. Place new in-out motor on mounting block (538) and secure in place with clamps (533), lock washers (532), and screws (531).
5. Tighten clamp collar screw. See Figure 8.10 C.
6. Push board #2 into its socket (see Figure 8.10 A).
7. Reattach sponge tape (494) and board retaining bar (493) with board retaining bar screws (491) and lock washers (492).
8. Reattach servo cover (139, Fig. 1) with servo cover screws (135).

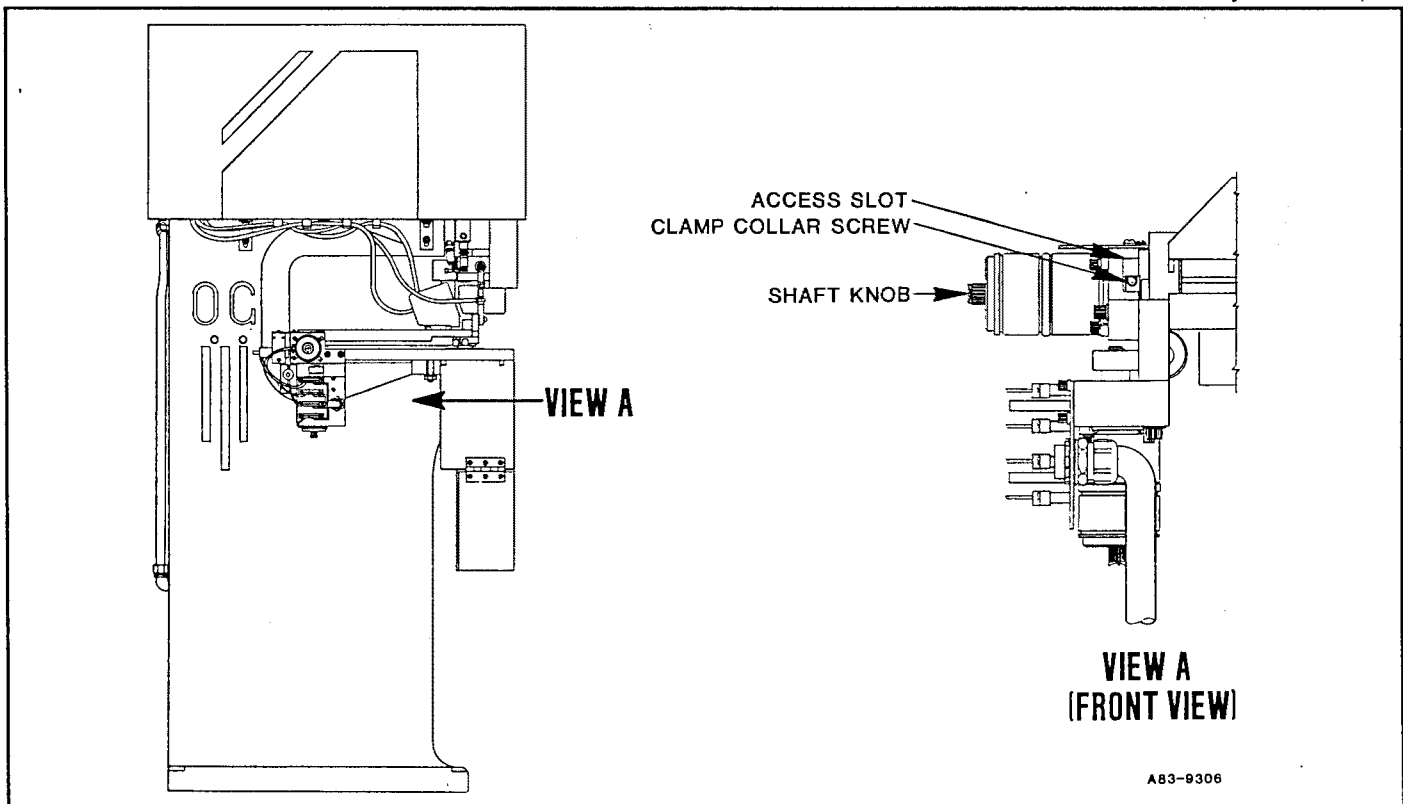


Figure 8.10 C

### 8.10.3 LEFT-RIGHT SERVO MOTOR REPLACEMENT

Replace the left-right servo motor as follows:

**Tools Needed:**

- 7/64" hex wrench (Allen wrench)
- 9/64" hex wrench (Allen wrench)

#### Note

Use the Illustrated Parts List in Chapter 11 of this manual as an aid in replacing the left-right servo motor. When you see something like "Remove left-right servo motor (515, Fig. 13)" in the following procedure, the number (515) refers to a picture of the servo motor (and how the servo motor is attached to the press) in Figure 13 of the Illustrated Parts List.

**8.10.3 LEFT-RIGHT SERVO MOTOR REPLACEMENT**

1. Loosen clamp collar (510, Fig. 13) screw with 7/64" hex wrench. If screw does not line up with access slot as shown in Figure 8.10 D, turn the shaft knob until it does.
2. Remove left-right servo motor mounting screws (511), lock washers (513), and clamps (514) with 9/64" hex wrench.
3. Pull left-right servo motor (515) off of mounting block (519).
4. Place new left-right motor on mounting block (519) and secure in place with clamps (514), lock washers (513), and screws (511).
5. Tighten clamp collar screw.
6. Push board #4 into its socket (see Figure 8.10 A).
7. Reattach sponge tape (494) and board retaining bar (493) with board retaining bar screws (491) and lock washers (492).
8. Reattach servo cover (139, Fig. 1) with servo cover screws (135).

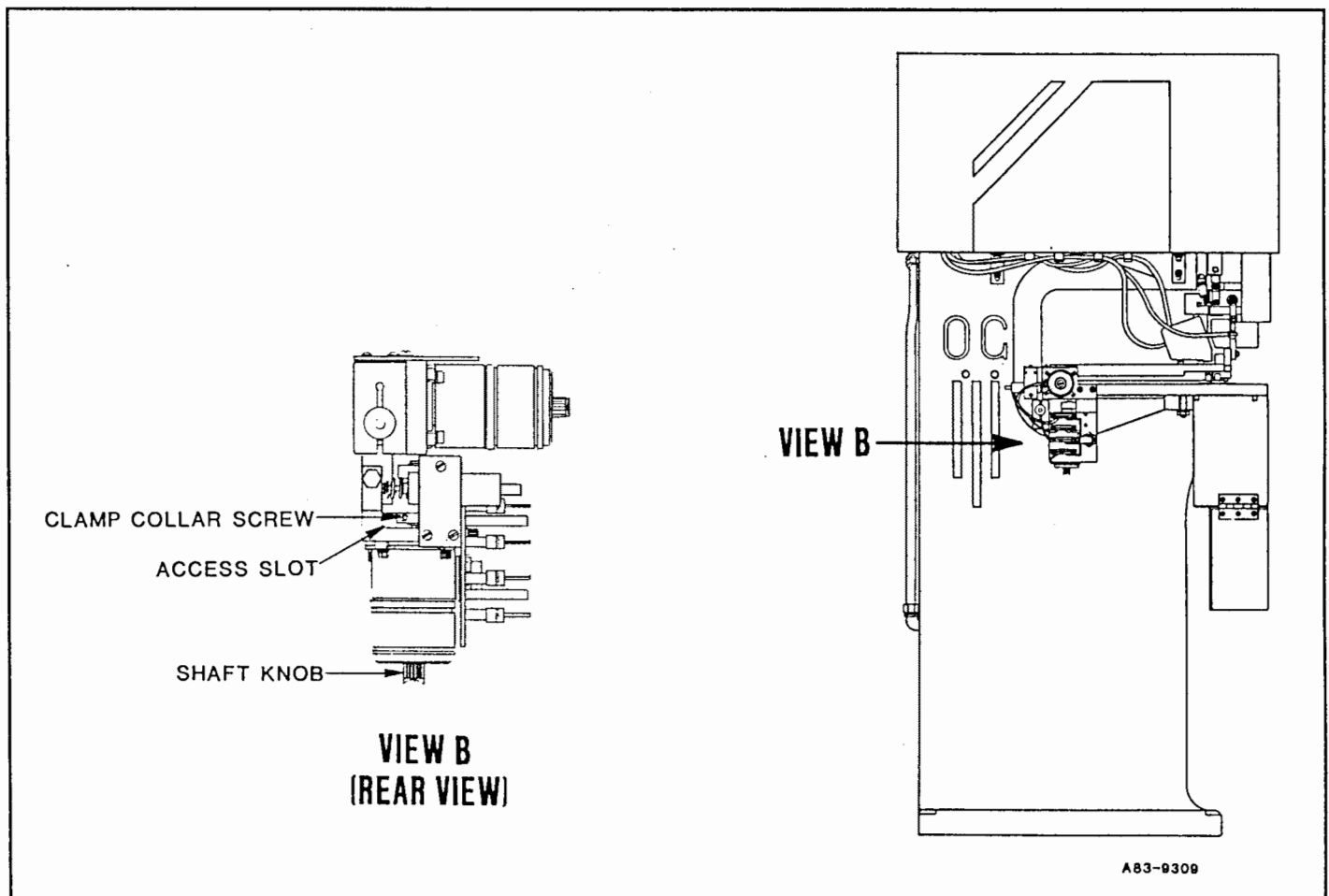


Figure 8.10 D

# Spartanics Ltd. M-83 Punch Press

## 8.10.4 IN-OUT TRANSFORMER REPLACEMENT

Replace the in-out transformer as follows:

### Tools Needed:

- small flat-tip screwdriver

### Note

Use the Illustrated Parts List in Chapter 11 of this manual as an aid in replacing the in-out transformer. When you see something like "Remove in-out transformer (522, Fig. 13)" in the following procedure, the number (522) refers to a picture of the transformer (and how the transformer is attached to the press) in Figure 13 of the Illustrated Parts List.

1. Loosen transformer clamp screw (521, Fig. 13) with screwdriver.
2. Pull in-out transformer (522) out of clamp (525).
3. Place new transformer in clamp (525) but do not tighten clamp screw (521) yet.
4. Push board #1 into its socket (see Figure 8.10 A).
5. Reattach sponge tape (494) and board retaining bar (493) with board retaining bar screws (491) and lock washers (492).
6. Turn disconnect switch to "ON" position.
7. Turn set up switch to "SET UP" position.
8. Press "ON" button on control panel.
9. Slide transformer in or out until top of bearing block on hold-down frame moves to its highest position as shown in Figure 8.10 E. When bearing block is in its highest position, tighten transformer clamp screw (521) with screwdriver.
10. Reattach servo cover (539, Fig. 1) with servo cover screws (535).

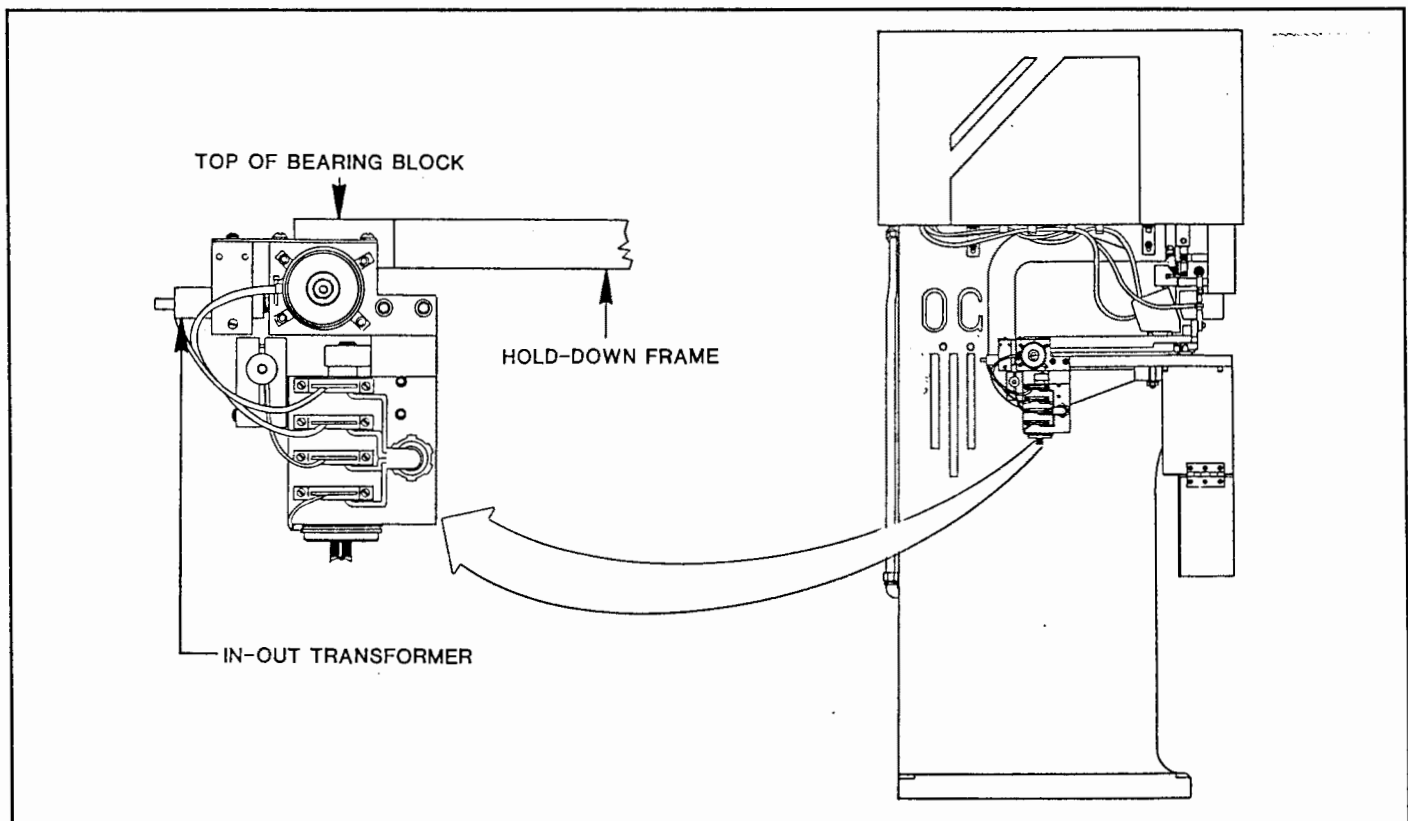


Figure 8.10 E

### 8.10.5 LEFT-RIGHT TRANSFORMER REPLACEMENT

Replace the left-right transformer as follows:

**Tools Needed:**

- > small flat-tip screwdriver

**Note**

Use the Illustrated Parts List in the back of this manual as an aid in replacing the left-right transformer. When you see something like "Remove left-right transformer (500, Fig 13)" in the following procedure, the number (500) refers to a picture of the transformer (and how the transformer is attached to the press) in Figure 13 of the Illustrated Parts List.

1. Loosen transformer clamp screw (499, Fig. 13) with screwdriver.
2. Pull left-right transformer (500) out of clamp (503).
3. Place new transformer in clamp (503) but do not tighten clamp screw (499) yet.
4. Push board #3 into its socket (see Figure 8.10 A).
5. Reattach sponge tape (494) and board retaining bar (493) with board retaining bar screws (491) and lock washers (492).
6. Turn disconnect switch to "ON" position.
7. Turn set up switch to "SET UP" position.
8. Press "ON" button on control panel.
9. Slide transformer in or out until edge of servo motor bearing lines up with edge of mounting block as shown in Figure 8.10 F. Make sure that you view the bearing and mounting block straight on and not from an angle. When bearing lines up with mounting block, tighten transformer clamp screw (499) with screwdriver.
10. Reattach servo cover (439, Fig. 1) with servo cover screws (435).

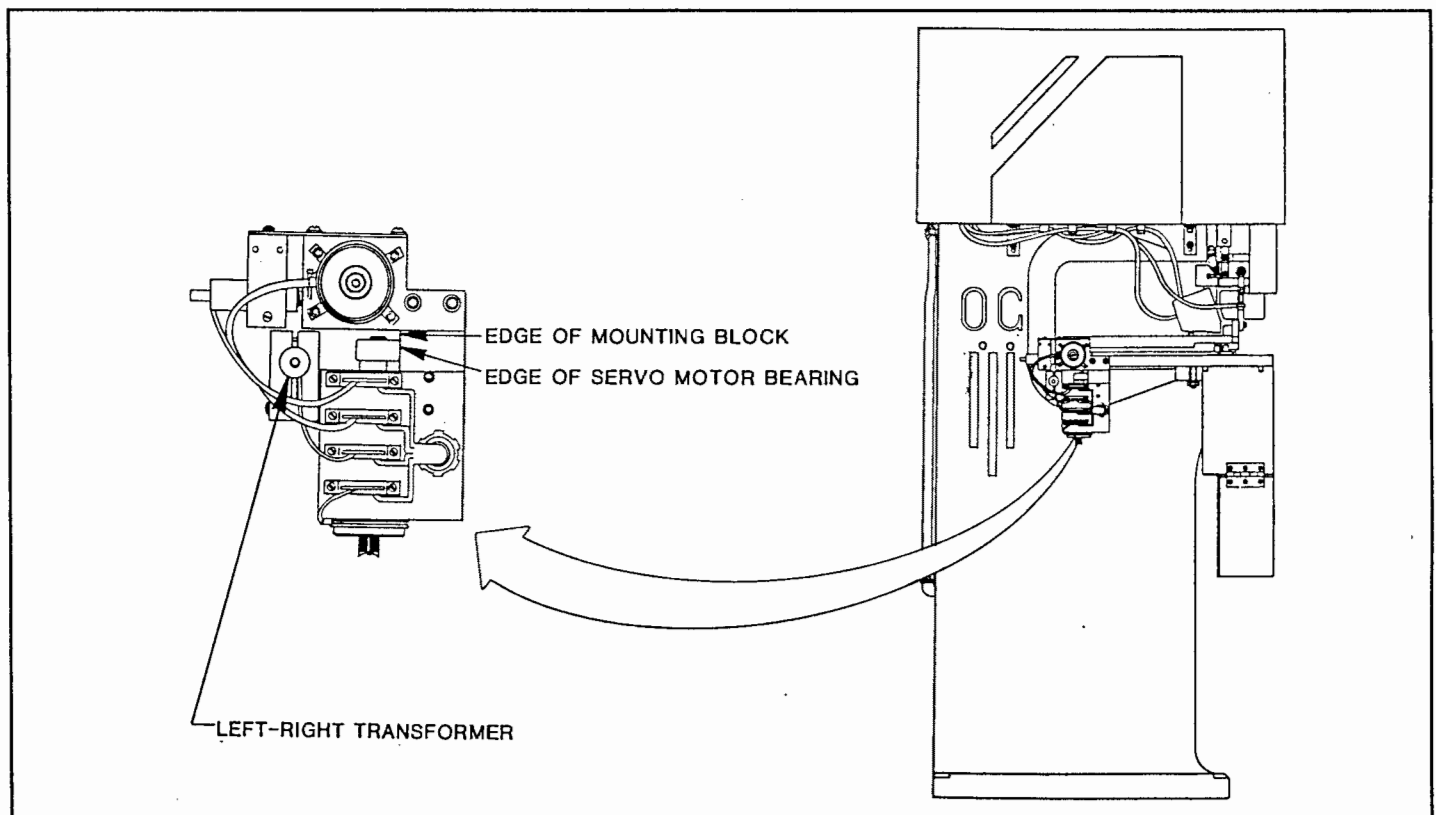


Figure 8.10 F