

8.6 CLUTCH TEST AND REPLACEMENT

Test and (if necessary) replace the clutch as follows:

Tools needed for testing clutch:

- 5/64" hex wrench (Allen wrench)
- 3/16" hex wrench (Allen wrench)
- crank tool #83-0010 (see Section 11.3)
- medium flat-tip screwdriver
- volt/ohm meter

Tools needed for replacing clutch:

- 1/4" hex wrench (Allen wrench)
- 5/16" hex wrench (Allen wrench)
- 7/16" open-end wrench
- 1/2" open-end wrench

- fixture #T83-3100 (see Section 11.3)
- large regular pliers
- propane torch

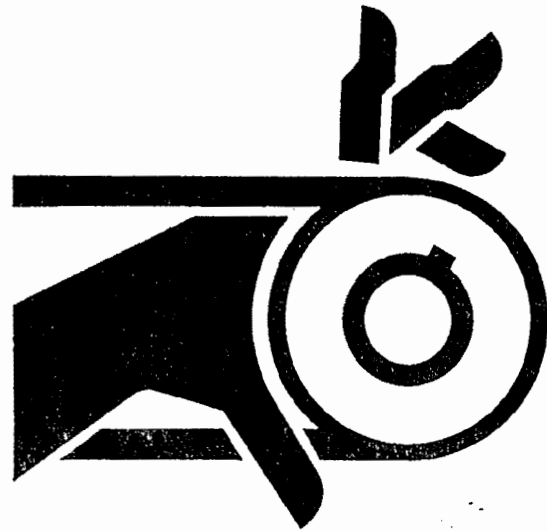
1. Press "OFF" button on control panel.

Note

Use the Illustrated Parts List in Chapter 11 of this manual as an aid in testing and replacing the clutch. When you see something like "Remove back panel (202, Fig 4)" in the following procedure, the number (202) refers to a picture of the back panel (and how the back panel is attached to the press) in Figure 4 of the Illustrated Parts List.

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2. Unscrew clutch guard screws (101, Fig 1.) with 3/16" hex wrench.
3. Unhook clutch guard (105) from press. Clutch guard has two hooks that hook onto top of press.
4. Turn set up switch to "RUN" position.
5. Press "ON" button on control panel.
6. Manually trip press and see if clutch slips when press is tripped. The flywheel will move faster than the clutch's armature if the clutch slips when the press is tripped (see Figure 8.6 A). Also, the clutch may make a grinding sound if it is slipping. The clutch will slip if it is worn out or if it has grease in it. If the clutch slips, replace it according to steps 7-8, 16, & 18-54. If the clutch does not work at all, go to Step 7.

! WARNING

Keep hands away from drive belt when motor is running. Remove or secure all loose clothing (neck ties, loose sleeves, etc.). You may get seriously injured if you do not.

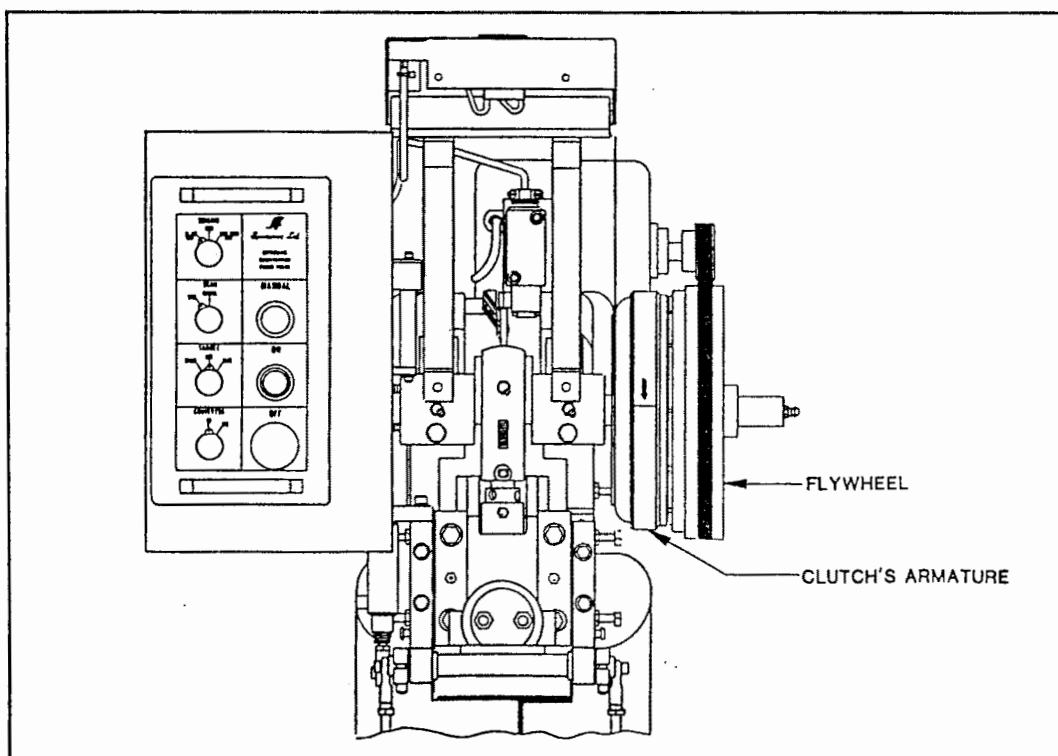


Figure 8.6 A

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7. Turn disconnect switch to "OFF" position.
8. Remove back panel screws (201, Fig. 4) with 5/64" hex wrench and remove back panel (202) if not already done so.
9. Check very carefully for broken or loose wires in the motor starter box, especially around TB1 terminals 12 and 13. See Figure 8.6 B. If any broken or loose wires are found, repair them and then see if the press works.
10. Turn disconnect switch to "ON" position.
11. Turn set up switch to "SET UP" position. See Section 3.1.2 for location of set up switch.

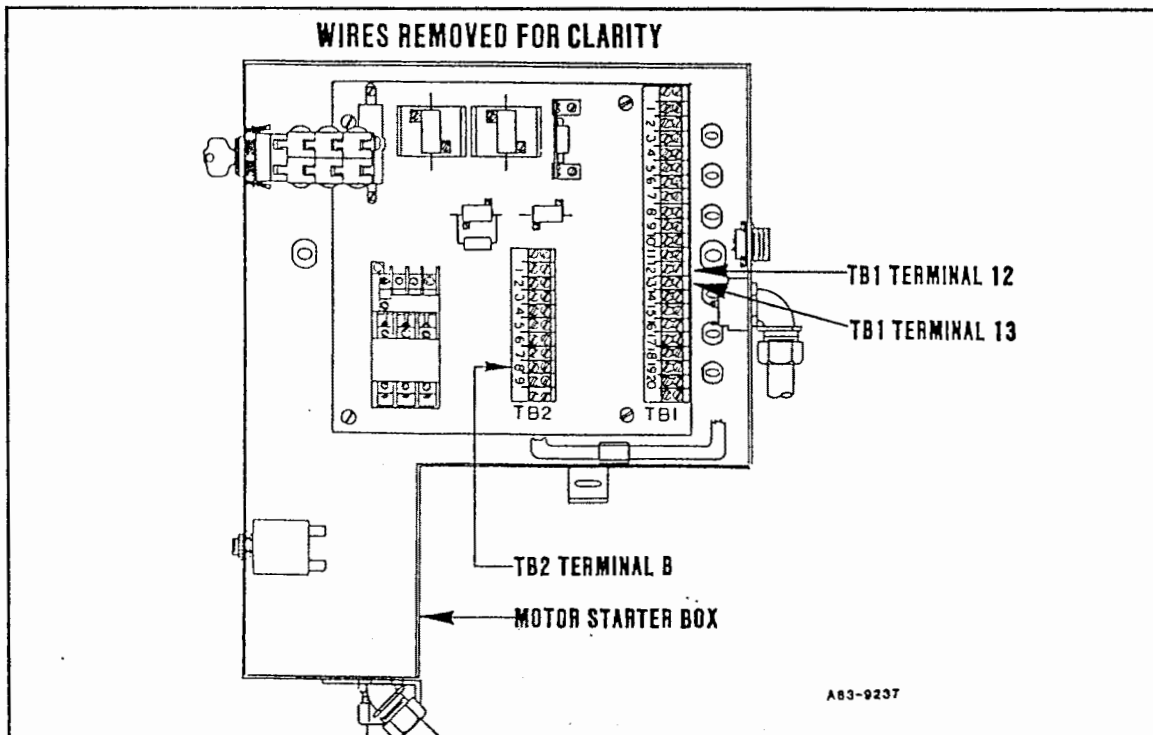
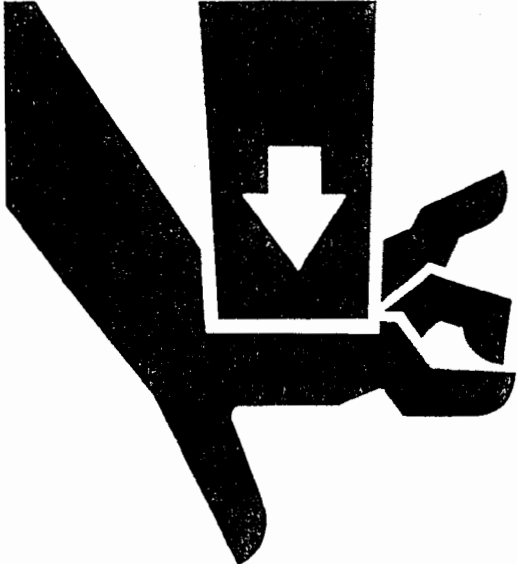


Figure 8.6 B


8.6 CLUTCH TEST AND REPLACEMENT

! WARNING



Make sure set up switch is in "SET UP" position before doing the following steps. You can get seriously hurt if you do not.

! WARNING



* Never do live electrical tests on the press when you are alone. Always make sure that someone is present to help you in case you get shocked.

* Do not touch bare electrical terminals when doing live electrical tests. You can get fatally shocked if you do.

12. Press "ON" button on control panel.

13. Put crank tool over crankshaft as shown in Figure 8.11 A in Section 8.11.2 and turn crankshaft until punch is in its highest position. Figure 8.11 A shows the press with the clutch guard on. In this procedure the clutch guard has already been removed. The purpose of Figure 8.11 A is to show what the crank tool looks like and where to put it.

14. Use Table 8.6 A and preceding Figure 8.6 B for this step:

TEST FOR:	IF:	THEN:
a. 160 ± 10 volts DC across terminals:	160 ± 10 volts <i>are</i> across both sets of terminals --	Go to step 15.
TB1 12 & TB2 8(ground) TB1 13 & TB2 8(ground)	160 ± 10 volts <i>are not</i> across both sets of terminals --	Replace the electronics package according to steps 7-14 in Section 8.1.4.

Table 8.6 A

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⚠ WARNING



Turn off and tag disconnect switch before doing the following steps. You can be fatally shocked if you do not. See Section 3.1.5 for location of switch.

15. Turn disconnect switch to "OFF" position. See Section 3.1.5 for location of disconnect switch.

16. Loosen TB1 terminal 13 screw with screwdriver and remove lug from terminal. See Figure 8.6 B. The terminal has to be removed in order to get the proper reading in the next step.

17. Use Table 8.6 B and preceding Figure 8.6 B for this step:

TEST FOR:	IF:	THEN:
a. 225 ± 10 ohms across TB1 12 and wire lug removed from TB1 13.	225 ± 10 ohms <i>are present</i> --	Reattach wire lug to TB1 13, reassemble press, and replace electronics package according to steps 7-14 in Section 8.1.4.
	225 ± 10 ohms <i>are not present</i> --	Go to step 18.

Table 8.6 B

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18. Loosen TB1 terminal 12 with screwdriver and remove lug from terminal. See preceding Figure 8.6 B.
19. Pull clutch coil wire harness out of motor starter box.
20. Run drivebelt off of flywheel.
21. Loosen screw in outer collar (354, Fig. 11) with 3/16" hex wrench.
22. Pull outer collar off of crankshaft.
23. Pull flywheel (357) off of crankshaft. Bearings (355) will remain in flywheel.
24. Unscrew 3 autogap units (361) from flywheel with 5/16" hex wrench.
25. Remove clutch plate (360) and autogap springs (359).
26. Loosen screw in inner collar (358) with 3/16" hex wrench.
27. Pull inner collar off of crankshaft.
28. Heat bearing race (356) up with propane torch and then pull race off of crankshaft with pliers. Race may have to be heated up quite a bit to be removed. Race will turn a brownish color when its ready to be removed.
29. Remove bushing bolts (362) with 7/16" wrench.
30. Screw bushing bolts into *threaded holes* of bushing and tighten bolts with your fingers. See Figure 8.6 C.
31. Alternately tighten bushing bolts 1/4 turn with 7/16" wrench until bushing (363) is pulled out of coil (364). Then, remove bushing bolts from bushing. See Figure 8.6 C.
32. Loosen anti-rotation jam nut (368) with 1/2" wrench.
33. Unscrew anti-rotation bolt (366) from side of press with 1/4" hex wrench. See Figure 8.6 D.
34. Unscrew anti-rotation nut from anti-rotation bolt and pull bolt out of clutch coil tab.
35. Pull clutch coil (364) off crankshaft. Leave key (376) on crankshaft.
36. Place new clutch coil onto crankshaft so that it is 3/8" [9.5mm] away from bearing block. See Figure 8.6 D. Make sure that coil is placed properly over key. Then secure the coil in place with bushing and bushing bolts. Be sure to alternately tighten the bushing bolts 1/4 turn apiece.
37. Put anti-rotation bolt through clutch coil tab and then screw anti-rotation jam nut a few turns onto bolt.



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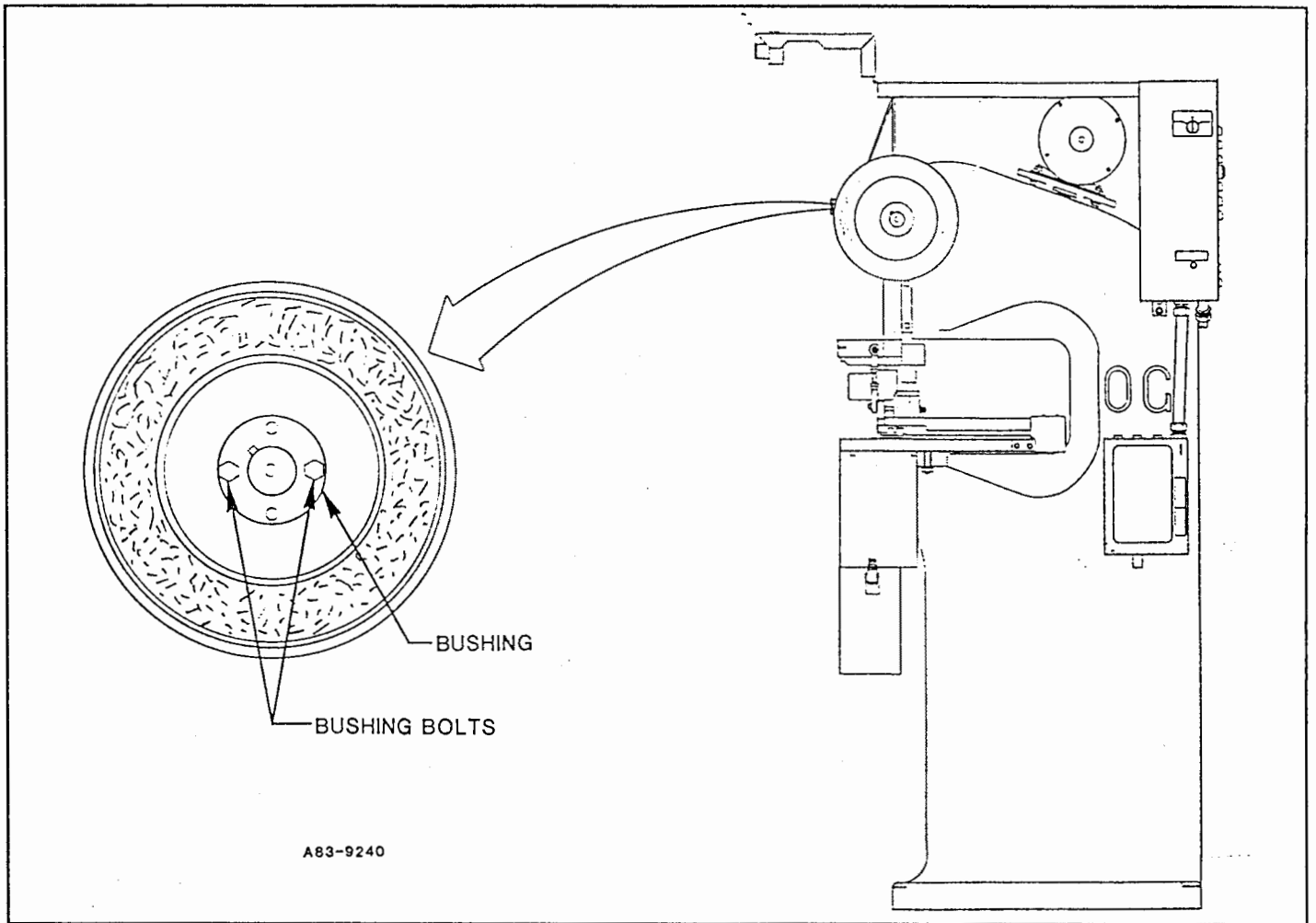


Figure 8.6 C

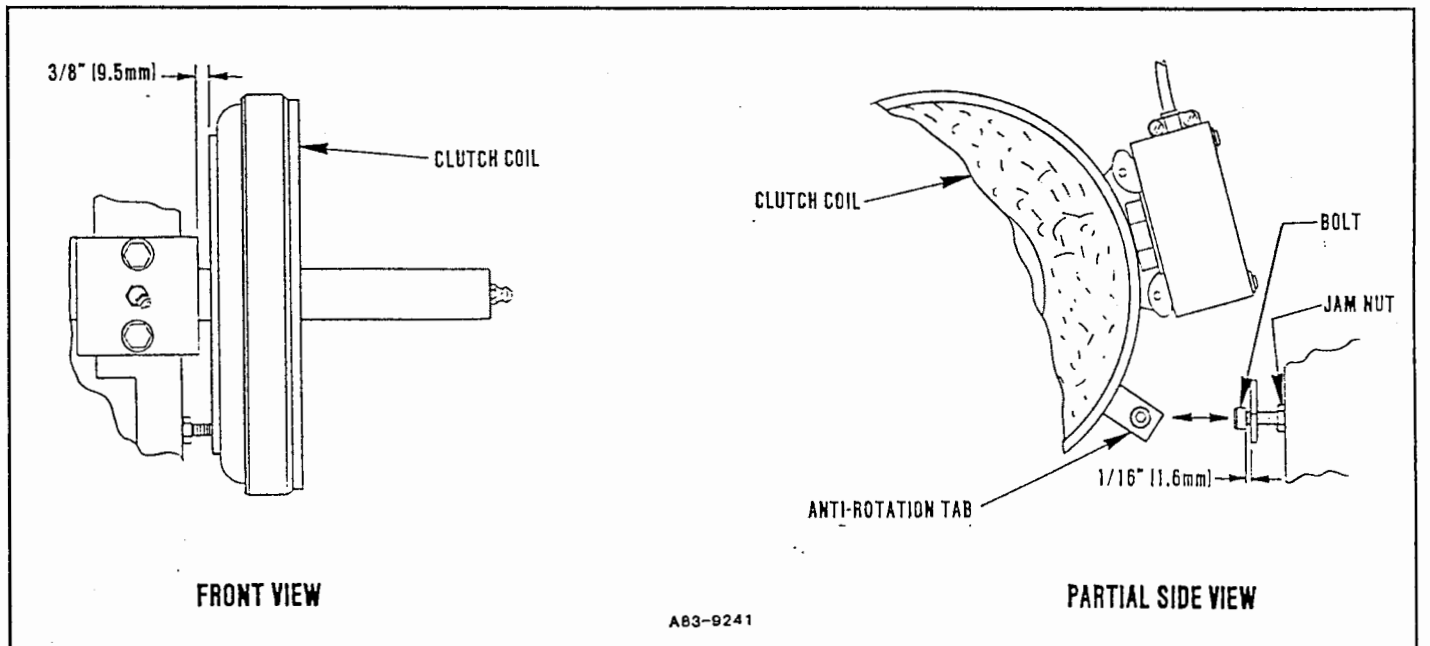


Figure 8.6 D

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38. Screw anti-rotation bolt a few turns into press casting and then secure the bolt in place by tightening jam nut against casting as shown in Figure 8.6 D.
39. Feed clutch coil wire harness into motor starter box.
40. Connect clutch coil wire lugs to TB1 terminals 12 and 13. See Figure 8.6 B. It does not matter which lug goes on which terminal.
41. Tighten terminal screws with screwdriver.
42. Slide inner collar (358) onto crankshaft.
43. Slide fixture #T83-3100 (733, Fig. 23) over crankshaft and against coil as shown Figure 8.6 E.
44. Slide inner collar up to fixture as shown in Figure 8.6 E.
45. Secure inner collar in place by tightening inner collar screw with 3/16" hex wrench.
46. Pull fixture off of crankshaft.
47. Heat bearing race (356, Fig. 11) up with propane torch and then push race onto crankshaft and up to inner collar with pliers. Race may have to be heated up quite a bit to be installed. Race will turn a brownish color when its ready to be installed.
48. Remove any burrs or scratches on race with Emery cloth or file.
49. If bearings (355) in flywheel are damaged or worn out, press bearings out of flywheel and press new bearings into flywheel. If bearings are OK, go to step 50.
50. Attach autogap springs, clutch plate, and autogap units to flywheel as shown in Figure 8.6 F. Tighten auto gap units with 5/16" hex wrench.

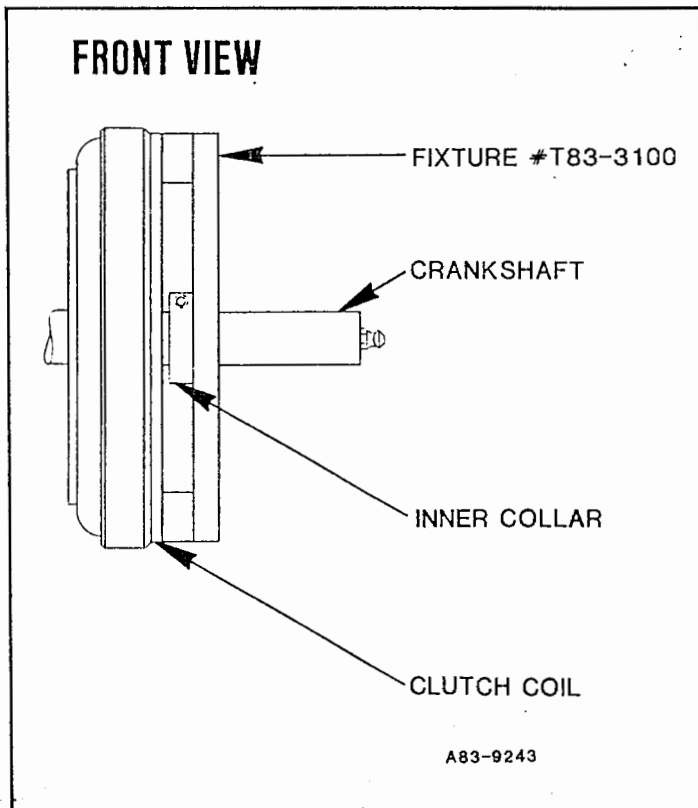


Figure 8.6 E

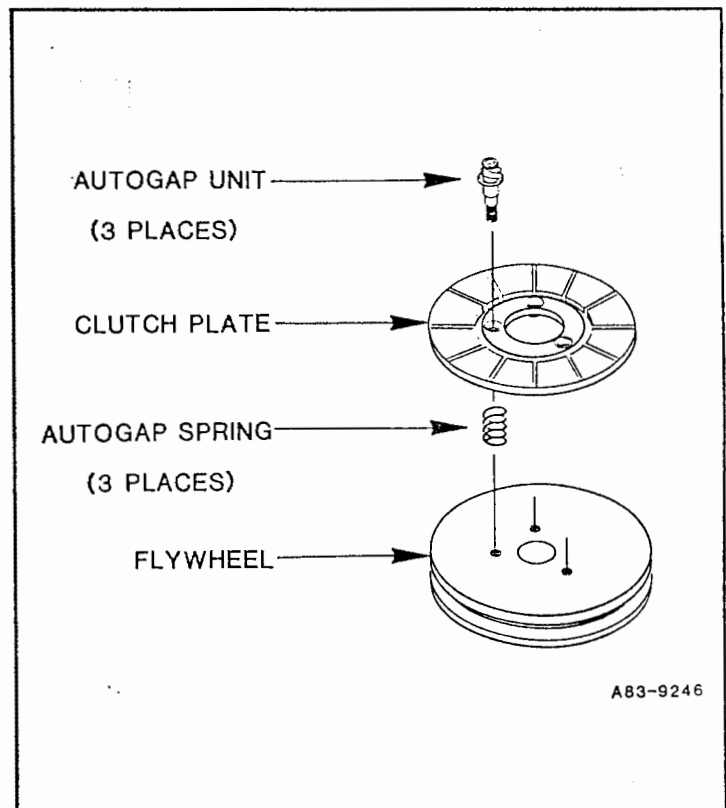


Figure 8.6 F

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51. Slide flywheel (357) onto crankshaft and up to inner collar (358).
52. Slide outer collar (354) onto crankshaft and up to flywheel.
53. Tighten outer collar screw with 3/16" hex wrench.
54. Reattach clutch guard (105, Fig. 1) and back panel (202, Fig. 4).

8.7 HOLD-DOWN MAINTENANCE

The following sections deal with problems that the hold-downs may have.

8.7.1 HOLD DOWN LINKAGE, CYLINDER, AND TUBING INSPECTION AND REPAIR

Inspect and (if necessary) repair the hold-downs as follows:

Tools Needed:

- 3/16" hex wrench (Allen wrench)

1. Press "OFF" button on control panel.

Note

Use Figure 1 of the Illustrated Parts List in Chapter 11 of this manual as an aid in inspecting the hold-downs. When you see something like "Unhook brake guard (117)" in the following procedure, the number (117) refers to a picture of the brake guard (and how the brake guard is attached to the press) in Figure 1 of the Illustrated Parts List.

2. Remove electronics package according to steps 7-10 in Section 8.1.4.
3. Unscrew brake guard screws (113) with 3/16" hex wrench.
4. Unhook brake guard (117) from press. Brake guard has two hooks that hook onto top of press.
5. Make sure hold-down air tubing is hooked up to hold-down unit as shown in Figure 8.7 A. If an end of the tube is disconnected, reconnect it and go to step 6.

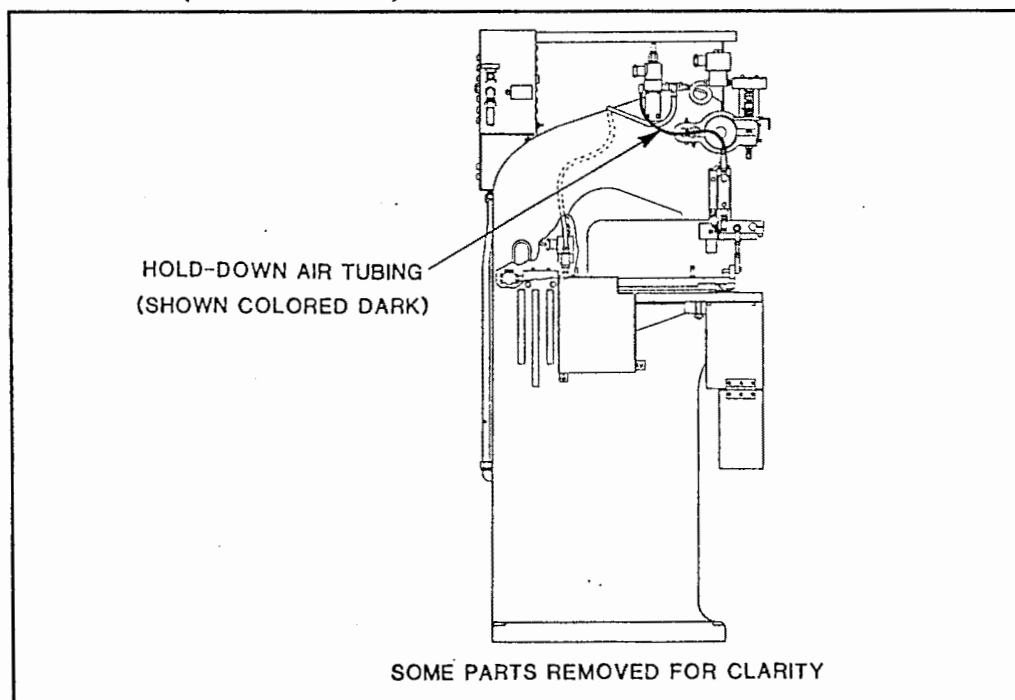


Figure 8.7 A

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51. Slide flywheel (357) onto crankshaft and up to inner collar (358).
52. Slide outer collar (354) onto crankshaft and up to flywheel.
53. Tighten outer collar screw with 3/16" hex wrench.
54. Reattach clutch guard (105, Fig. 1) and back panel (202, Fig. 4).