CHAPTER 9
ADJUSTMENT

The following sections contain adjustment procedures that may have to be performed on the Model-83 press.

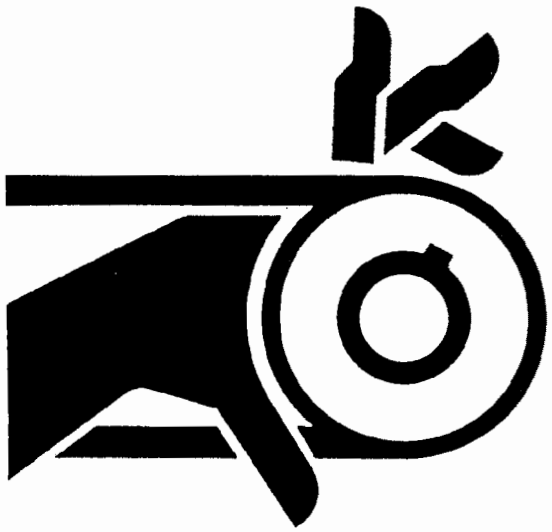
9.1 BRAKE ADJUSTMENT PROCEDURE

Adjust the brake as follows:

Tools Needed:

- ➢ 3/16" hex wrench (Allen wrench)
- ➢ 7/8" open-end wrench
- ➢ felt-tip screwdriver

⚠WARNING



1. Do not turn on press until told to do so in the following steps.

2. Remove or secure all loose clothing (neckties, loose sleeves, etc.) before doing the following steps.

3. Keeps hands away from orange-painted and moving parts when doing the following steps.

Note

Use Figure 1 of the Illustrated Parts List in Chapter 11 of this manual as an aid in adjusting the brake. When you see something like "Remove ram guard (112)" in the following procedure, the number (112) refers to a picture of the ram guard (and how the guard is attached to the press) in Figure 1 of the Illustrated Parts List.

1. Press "OFF" button on control panel.
2. Turn ram guard screws (111) 1/4 turn counterclockwise with screwdriver and remove ram guard (112) if installed.
3. Unscrew crank guard screws (123) with hex wrench and flip hinged crank guard up (133) if not already done so.
4. Turn set up switch to "RUN" position.
5. Press "ON" button on control panel.
6. Press and hold "MANUAL" button on the control panel and then press foot switch three times. This will trip the press three times. If the press cycles more than once or continuously after the first time the foot switch is pressed, go to step 8 a. Otherwise, go to step 7. Make sure that you press the foot switch all the way down and hold it down until each punch cycle is completed.

9.1 BRAKE ADJUSTMENT PROCEDURE

7. If, after the third trip, the timing mark is between the 15° ATDC and 40° ATDC marks as shown in Figure 9.1 A, the brake is properly adjusted and you should continue to follow the troubleshooting chart in Chapter 5. If the timing mark is not between the 15° ATDC and 40° ATDC marks, adjust the brake according to either step 8 a or 8 b depending on where the timing mark lines up.

8.

a. If the 40° ATDC mark stops past the timing mark as shown in Figure 9.1 A, turn the upper nut on the brake assembly (see Figure 9.1 B) turn clockwise. Then, manually trip the press again three times. If the timing mark lines up with the 15°-20° ATDC range as shown in Figure 9.1 C after the third trip, the brake is properly adjusted and the press can be reassembled. If not, repeat the the steps above until the timing mark lines up with the 15°-20° ATDC position. Then reassemble the press.

NOTE

If the timing mark will not line up with the 15°-20° ATDC range regardless of how many times the upper nut is turned or if the brake spring is totally compressed, adjust the brake stroke according to Section 9.2.

b. If the 15° ATDC position stops short of the timing mark as shown in Figure 9.1 A, do step 8 a above but instead of turning the upper nut clockwise, turn it counterclockwise.

9.1 BRAKE ADJUSTMENT PROCEDURE

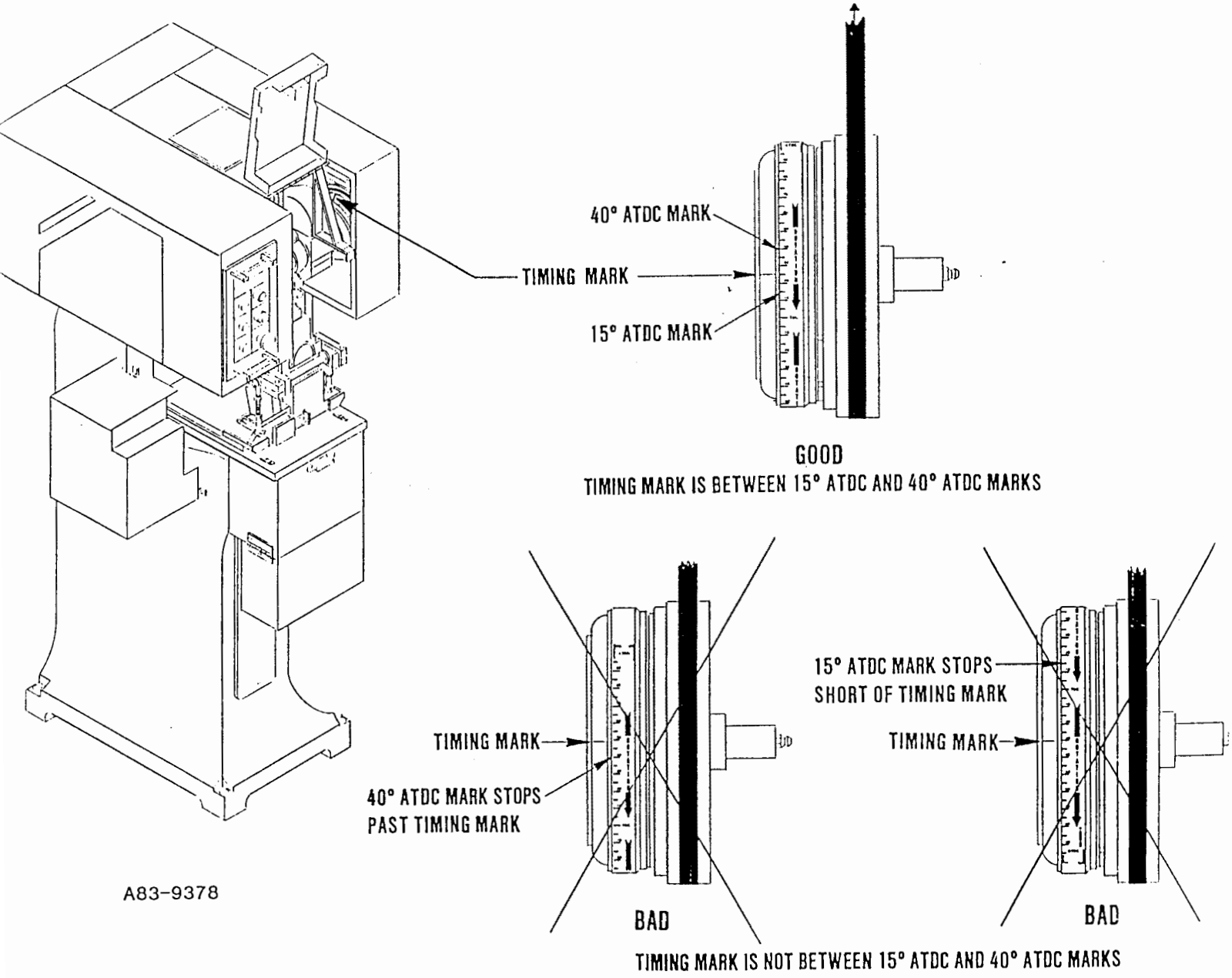


Figure 9.1 A

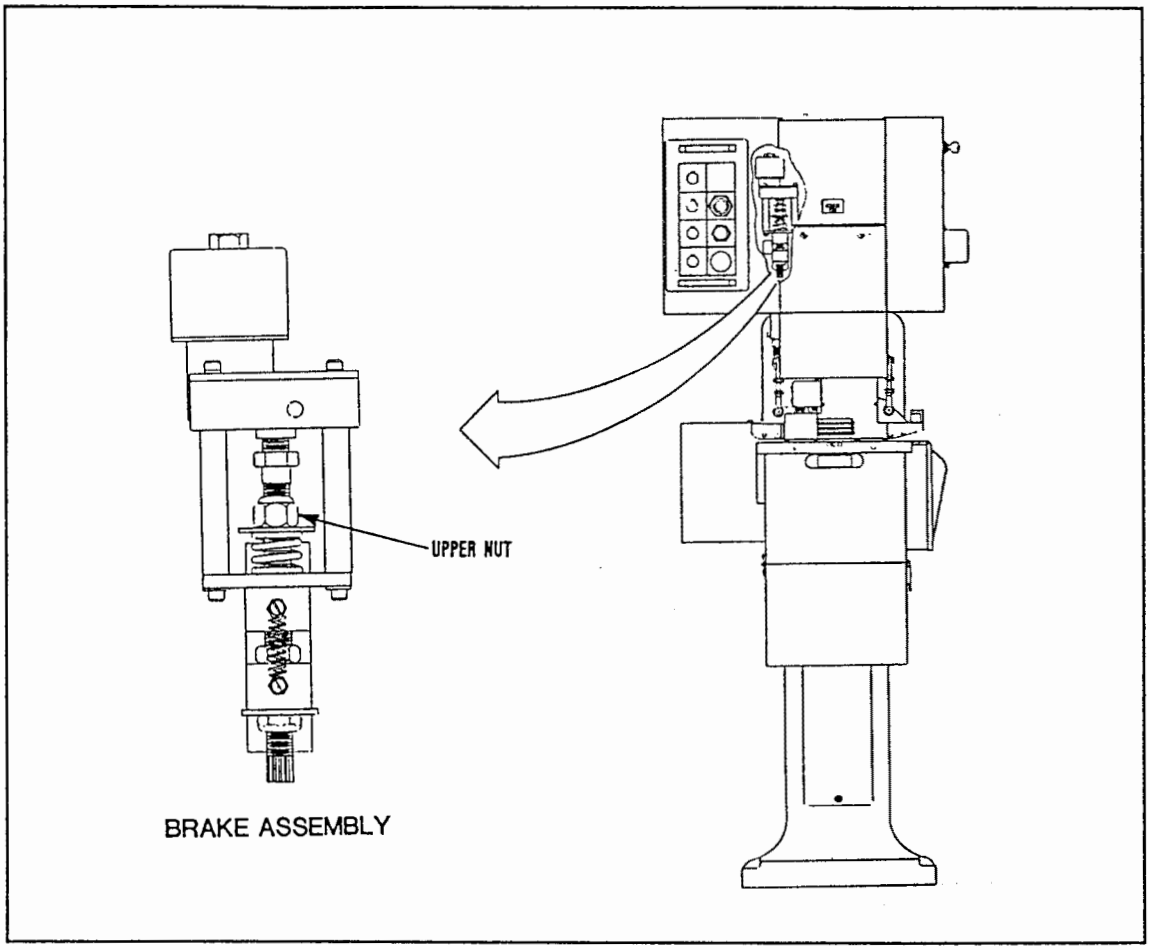


Figure 9.1 B

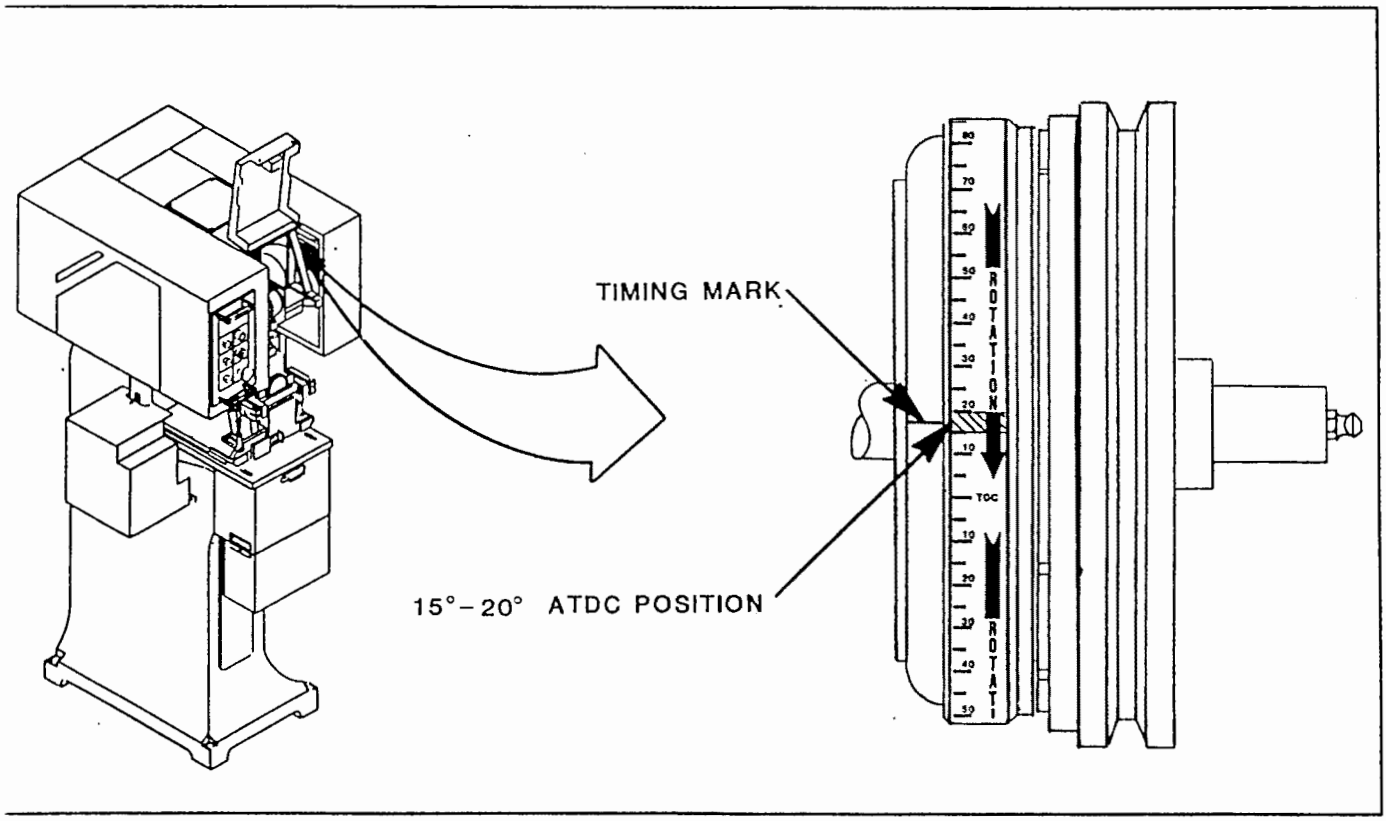


Figure 9.1 C

9.2 BRAKE STROKE ADJUSTMENT

Readjust the brake stroke as follows:

Tools Needed:

- **3/16" hex wrench (Allen wrench)**
- **1/4" hex wrench**
- **3/4" open-end wrench**
- **7/8" open-end wrench**
- **flat-tip screwdriver**
- **needle-nose pliers**
- **thin strip of light-colored tape**

Note

Use Figure 1 of the Illustrated Parts List in Chapter 11 of this manual as an aid in adjusting the brake stroke. When you see something like "Remove ram guard (112)" in the following procedure, the number (112) refers to a picture of the ram guard (and how the guard is attached to the press) in Figure 1 of the Illustrated Parts List.

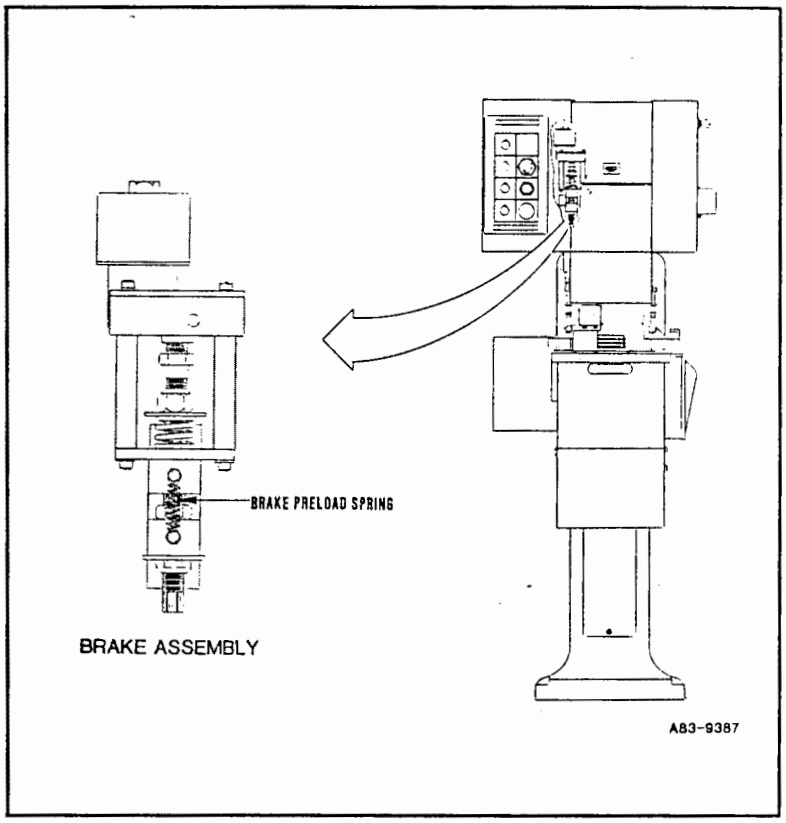


Figure 9.2 A

1. Press "OFF" button on control panel.

Make sure press is turned off before doing the following steps. You can get seriously hurt if you do not.

2. Turn ram guard screws (111) with screwdriver until they pop up and then remove ram guard (112) if not already done so.

3. Unscrew crank guard screws (123) with hex wrench and flip hinged crank guard up (133) if not already done so.

4. Remove brake preload spring with needle-nose pliers. See Figure 9.2 A.

9.2 Brake Stroke Adjustment

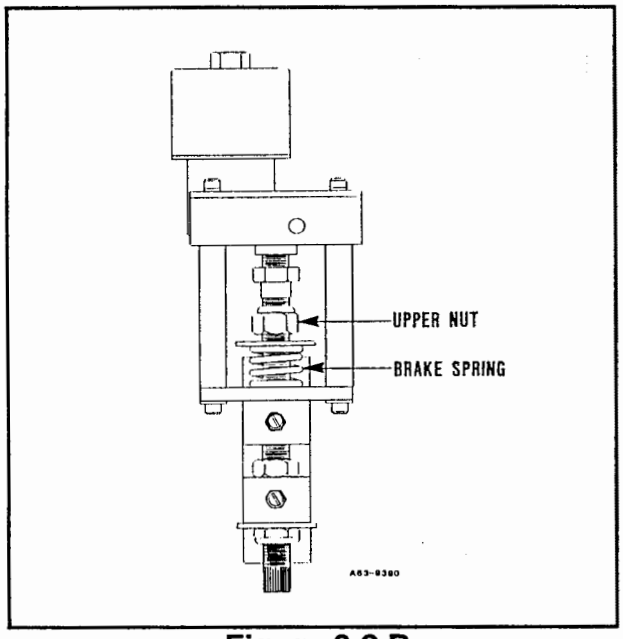


Figure 9.2 B

5. Using 7/8" open-end wrench, turn upper nut counterclockwise until brake spring is fully relaxed. See Figure 9.2 B

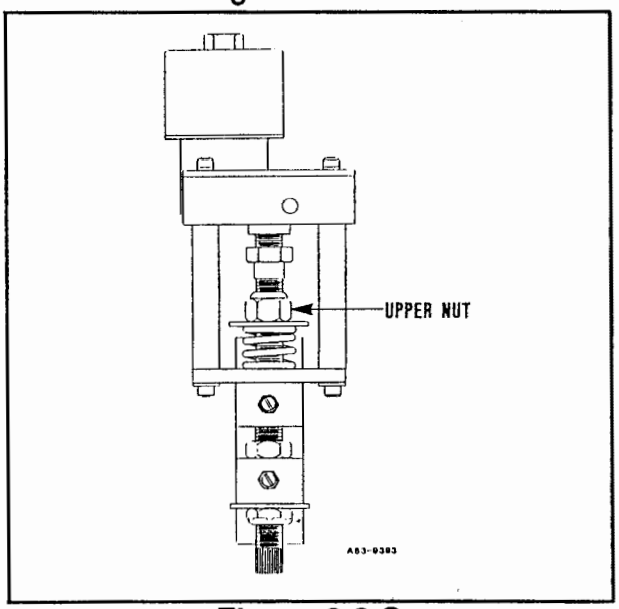


Figure 9.2 C

6. Turn upper nut clockwise until it just starts to compress brake spring. See Figure 9.2 C.

7. Turn the upper nut two turns clockwise to compress the spring. See Figure 9.2 C.

8. Turn set up switch to "SET UP" position.

9. Press "ON" button on control panel.

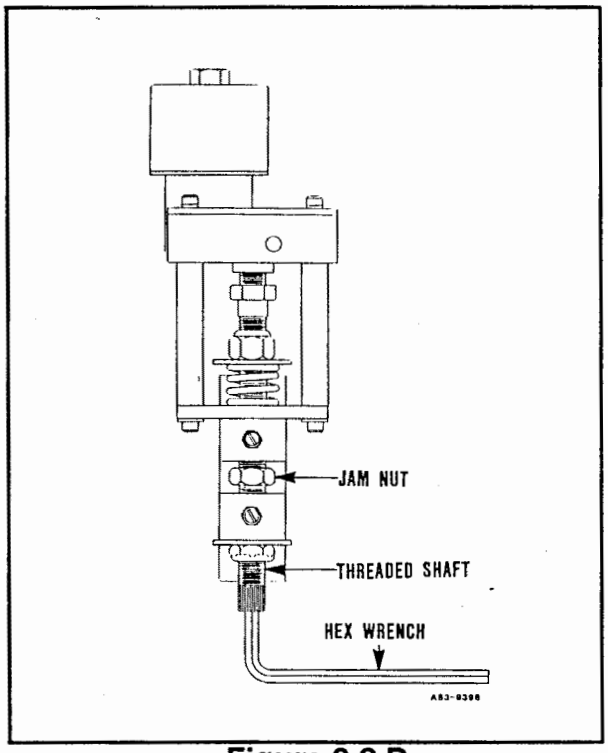


Figure 9.2 D

10. Using 7/8" open-end wrench, loosen jam nut a few turns while holding threaded shaft still with hex wrench. See Figure 9.2 D.

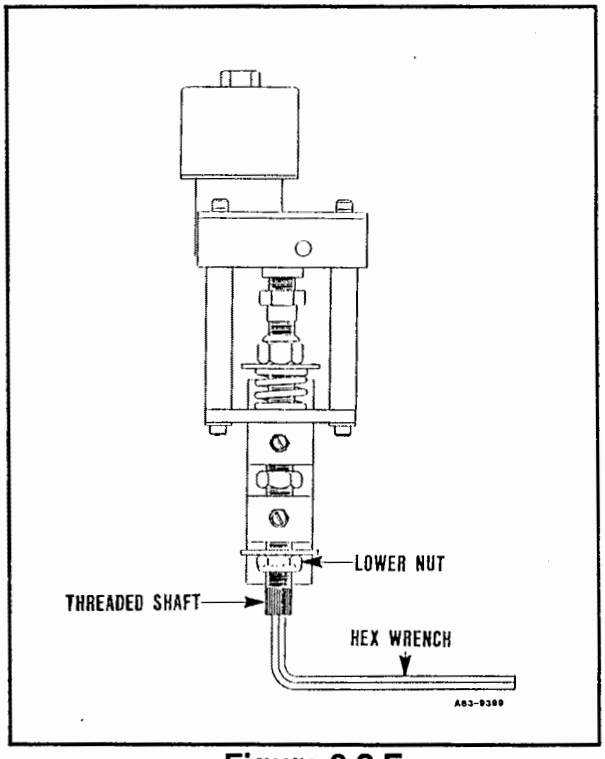


Figure 9.2 E

11. Using 3/4" open-end wrench, loosen lower nut a few turns while holding threaded shaft still with hex wrench. See Figure 9.2 E.

9.2 Brake Stroke Adjustment

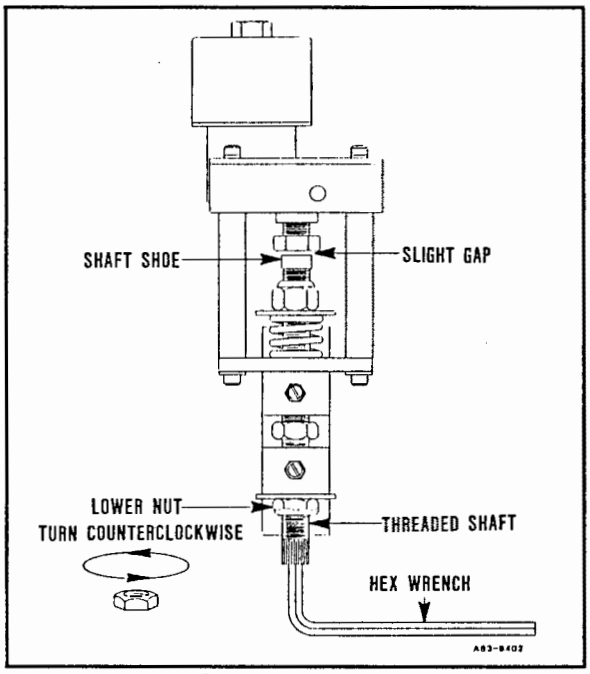


Figure 9.2 F

12. While holding threaded shaft still with hex wrench, tighten lower nut as shown in Figure 9.2 F until a slight gap appears between the shaft shoe and brake cylinder adjusting screw.

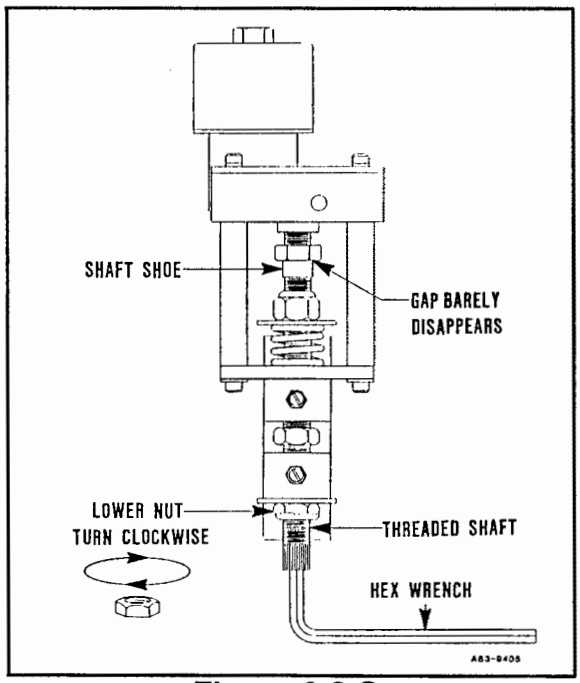


Figure 9.2 G

13. While holding threaded shaft still, loosen lower nut as shown in Figure 9.2 G until the gap just barely disappears. The shaft shoe should still be able to rotate after the gap disappears. See Figure 9.2 G.

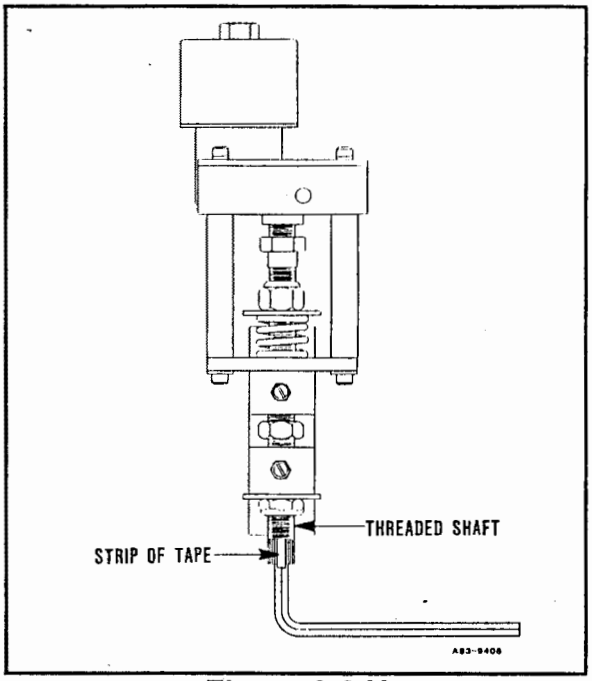


Figure 9.2 H

14. Put a thin strip of tape on the threaded shaft as shown in Figure 9.2 H.

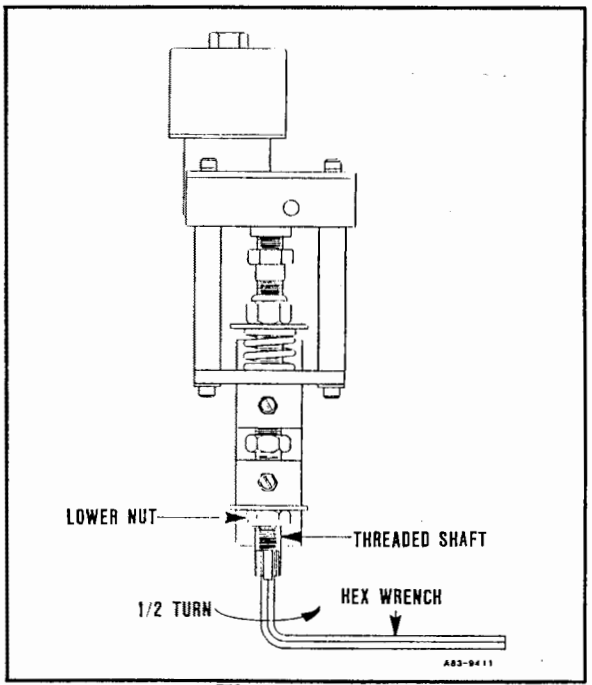


Figure 9.2 I

15. While holding lower nut still, turn threaded shaft 1/2 of a turn as shown in Figure 9.2 I. Use the strip of tape to determine 1/2 of a turn (the tape will be facing the rear of the press after 1/2 of a turn). See Figure 9.2 I.

9.2 Brake Stroke Adjustment

16. Using 7/8" open-end wrench, tighten jam nut down while holding threaded shaft still with hex wrench. See Figure 9.2 J.

17. Press "OFF" button on control panel.

18. Turn set up switch to "RUN" position.

19. Reattach brake preload spring with needle-nose pliers.

20. Adjust brake according to steps 6-8 in Section 9.1.

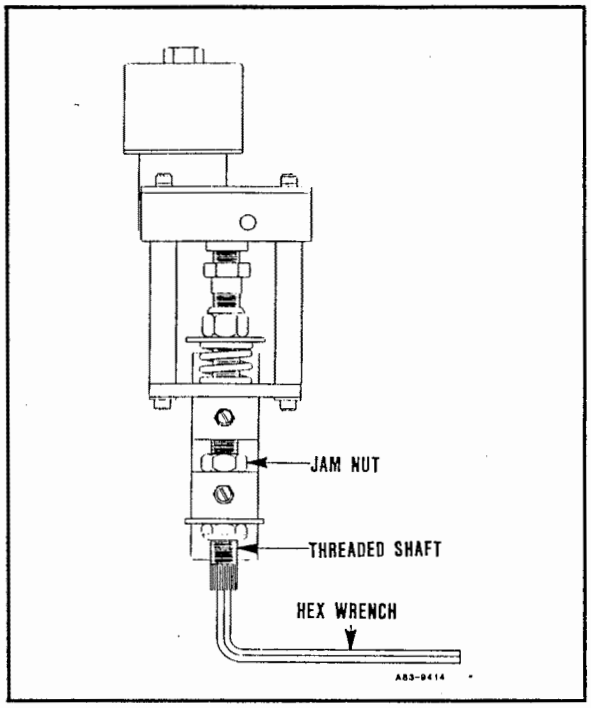


Figure 9.2 J

9.3 GIBS ADJUSTMENT

Adjust the gibs as follows:

Turn set up switch to "SET UP" position before adjusting gibs. You can get seriously hurt if you do not.

Tools Needed:

- **9/16" open-end wrench**
- **9/16" socket with socket handle and extension**
- **crank tool #83-0010 (see Section 11.3)**
- **medium adjustable-end wrench**
- **medium flat-tip screwdriver**
- **needle-nose pliers**

1. Turn set up switch to "SET UP" position if not already done so.

2. Press "ON" button on control panel.

3. Pop up crankshaft cover button by pulling on button with needlenose pliers. The cover should flip up after the button is pulled. See Figure 8.11 A in Section 8.11.2.

4. Put crank tool over end of crankshaft. See Figure 8.11 A in Section 8.11.2.

9.3 Gibs Adjustment

5. Turn the crankshaft back and forth. It should take a little bit of force to move the crankshaft back and forth but not enough force that it is difficult to move the crankshaft. If it takes a little bit of force to move the crankshaft back and forth, continue to follow the troubleshooting chart -- the gibs are properly adjusted. If it difficult to move the crankshaft or if the crankshaft is very easy to turn, adjust the gibs as follows:

Note

Use Figure 1 of the Illustrated Parts List in Chapter 11 of this manual as an aid in adjusting the gibs. When you see something like "Remove ram guard (112)" in the following procedure, the number (112) refers to a picture of the ram guard (and how the guard is attached to the press) in Figure 1 of the Illustrated Parts List.

6. Turn ram guard fasteners (111) 1/4 turn counterclockwise (until they pop up) with screwdriver.

7. Remove ram guard (112).

8. Loosen right gib mounting bolts with 9/16" socket, socket handle and extension. See Figure 9.3 A

9. Loosen right gib jam nuts with 9/16" open-end wrench. See Figure 9.3 A.

10. Turn right gib adjustment bolts clockwise or counterclockwise to increase or decrease the amount of force needed to turn the crankshaft. See Figure 9.3 A.

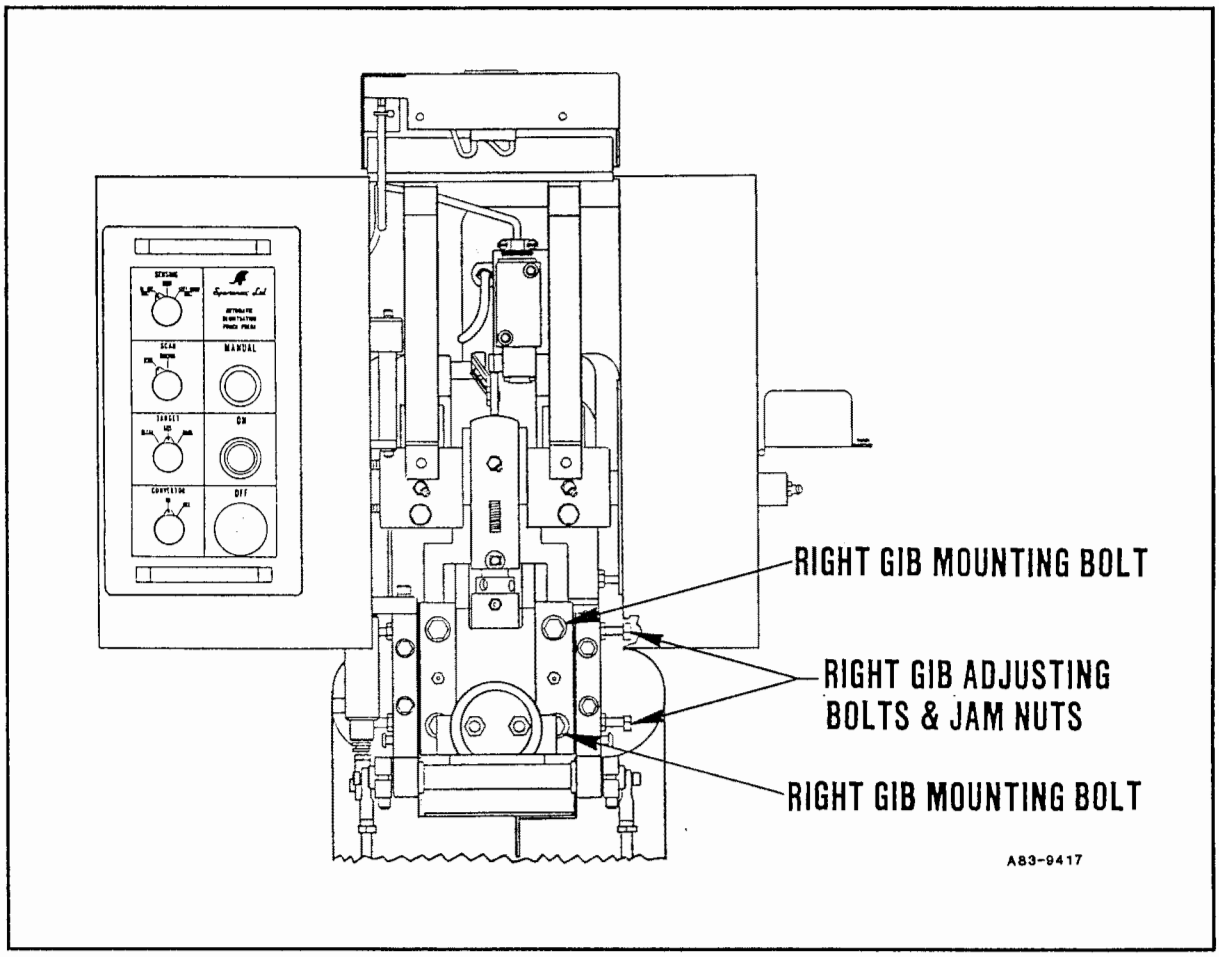


Figure 9.3 A

9.3 GIBS ADJUSTMENT

11. Recheck the amount of force needed to turn the crankshaft and readjust the right gib adjustment bolts as required.

12. Tighten the right gib jam nuts.

13. Tighten the right gib mounting bolts.

14. Recheck the amount of force needed to turn the crankshaft. If the crankshaft is OK, go to step 15. If the crankshaft is too tight, do steps 8-13 again but this time do not tighten or loosen the right gib adjustment bolts so much.

CAUTION

After adjusting the gibs, always check the tooling alignment according to Section 8.11.3. Adjusting the gibs may put the tooling out of alignment which may cause serious damage to the press. Also, if you were referred to this section from Troubleshooting Section 5.2.14 because the press was punching poor quality holes, check if the tooling has been damaged before checking the tooling alignment. Sometimes, when the gibs become loose, the tooling will fall out of alignment and get damaged.

15. Check the tooling alignment according to Section 8.11.3.

16. Pull the crank tool off of the crankshaft.

17. Reattach the ram guard (112) and close the crankshaft cover (110).

Note

The brake may have to be adjusted after the gibs are adjusted. If the press cycles more than once or does not complete a full punch cycle after the gibs are adjusted, adjust the brake according to Section 9.1.

9.4.1 RAM SWITCH TIMING CHECK

Tools Needed:

- **3/16" hex wrench (Allen wrench)**
- **crank tool #83-0010 (see Section 11.3)**
- **medium flat-tip screwdriver**
- **needle-nose pliers**

1. Press "OFF" button on control panel.

Make sure press is turned off before doing the following steps. You can be seriously hurt if you do not.

Note

Use Figure 1 of the Illustrated Parts List in Chapter 11 of this manual as an aid in inspecting the ram switch. When you see something like "Remove ram guard (112)" in the following procedure, the number (112) refers to a picture of the ram guard (and how the guard is attached to the press) in Figure 1 of the Illustrated Parts List.

2. Turn ram guard fasteners (111) 1/4 turn counterclockwise (until they pop up) with screwdriver.

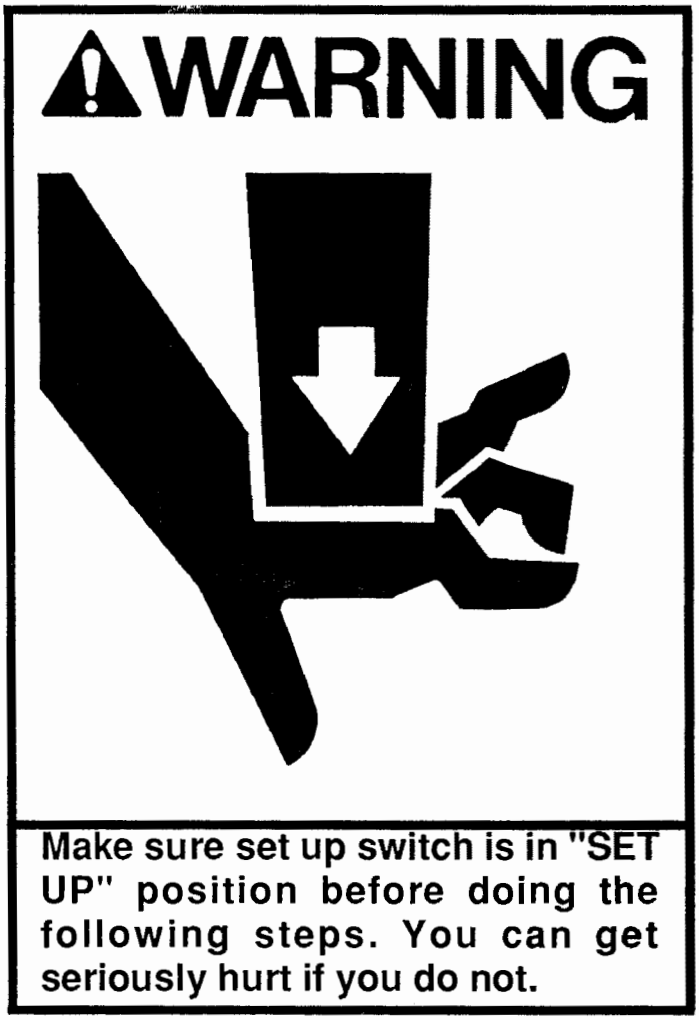
9.4.1 RAM SWITCH TIMING CHECK

3. Remove ram guard (112).

4. Unscrew crank guard screws (123) with 3/16" hex wrench.

5. Flip hinged crank guard (133) up.

6. Turn set up switch to "SET UP" position. See Section 3.1.2 for location of set up switch.



7. Press "ON" button on control panel.

8. Pop up crankshaft cover button by pulling on button with needle-nose pliers. The cover should flip up after the button is pulled. See Figure 8.11 A in Section 8.11.2.

9. Put crank tool over end of crankshaft. See Figure 8.11 A in Section 8.11.2.

10. Using crank tool, turn crankshaft until timing mark on clutch coil cover lines up with the TDC position on the rotation plate as shown in Figure 9.4 A.

11. Slowly turn crankshaft in direction of rotation arrow until you hear clutch plate close. The clutch plate should close when the timing mark is between the 60° ATDC and 90° ATDC marks on the rotation plate as shown in Figure 9.4 B. The ATDC end of the rotation plate on older Model-83s only goes up to 65°. If your press is equipped with this type of rotation plate, you will have to estimate where the 90° ATDC mark would be.

12. Continue to slowly turn crankshaft in direction of rotation arrow until you hear the clutch plate open. The clutch plate should open when the timing mark is between the 80° BTDC and 85° BTDC position as shown in Figure 9.4 C.

13. If the clutch plate closed when the timing mark was between the 60° ATDC and 90° ATDC marks and opened when the timing mark was between the 80° BTDC and 85° BTDC marks, the ram switch is properly adjusted, continue to follow the troubleshooting chart. Otherwise, adjust the ram switch according to Section 9.4.2.

9.4.1 RAM SWITCH TIMING CHECK

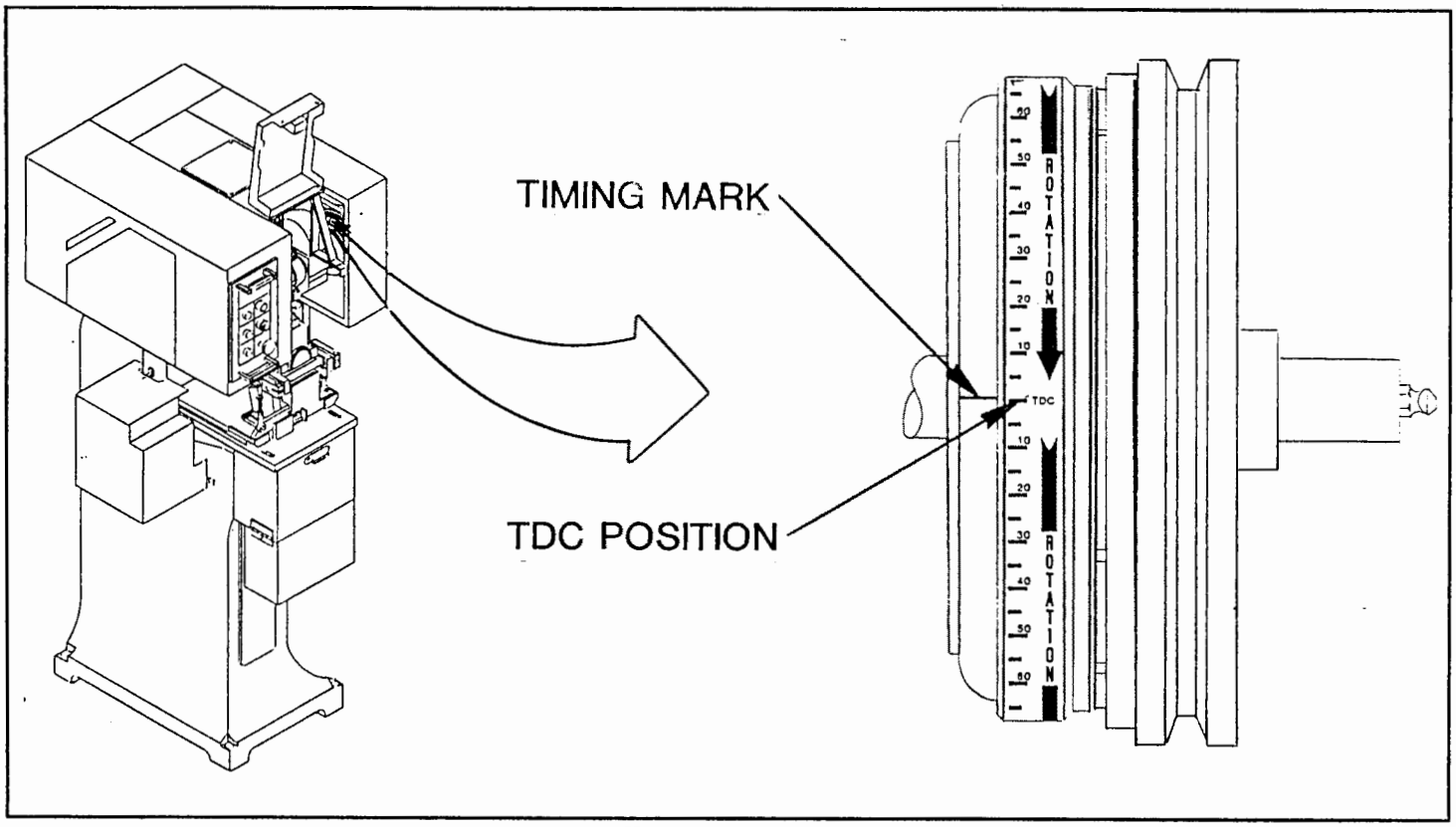


Figure 9.4 A

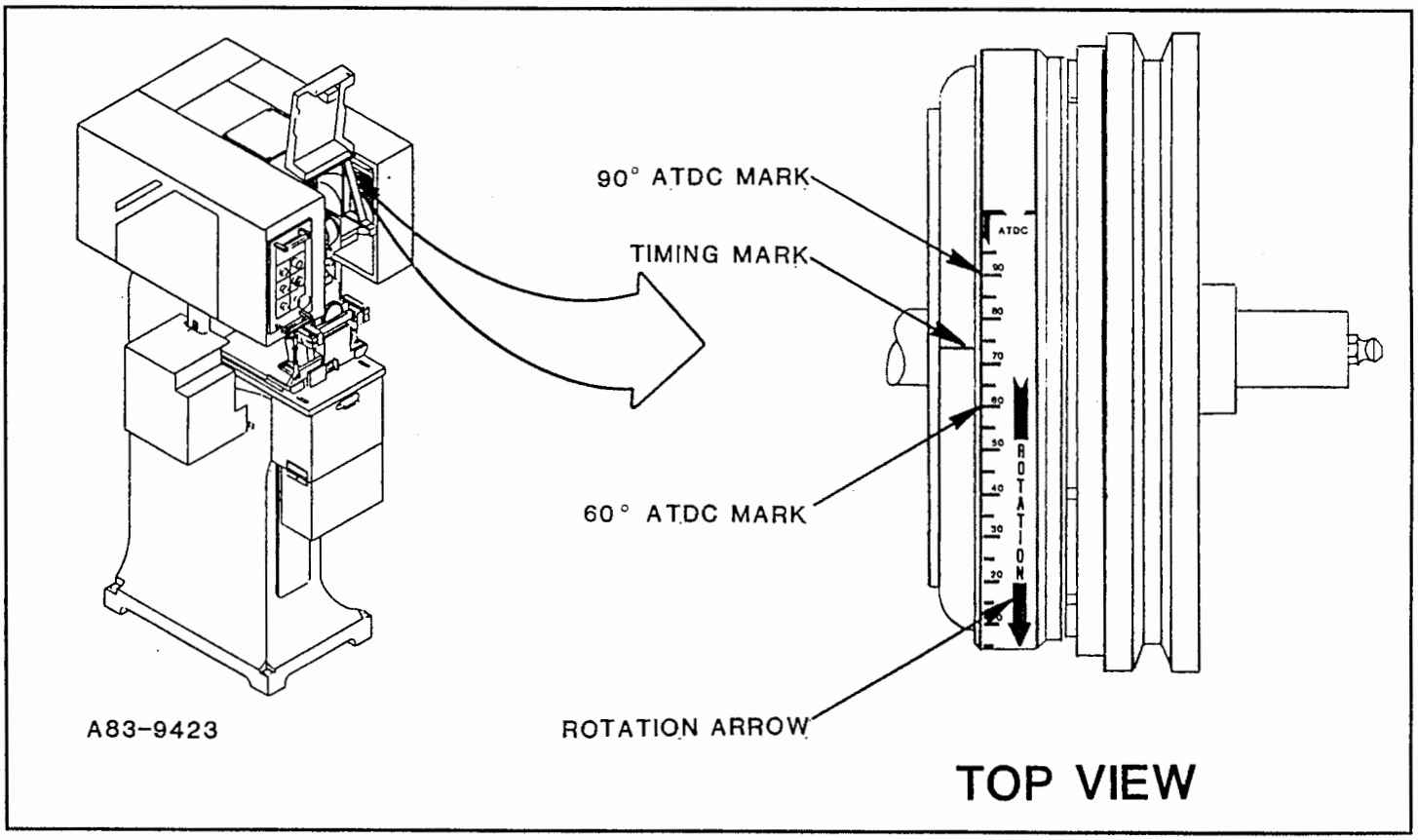


Figure 9.4 B

9.4.1 RAM SWITCH TIMING CHECK

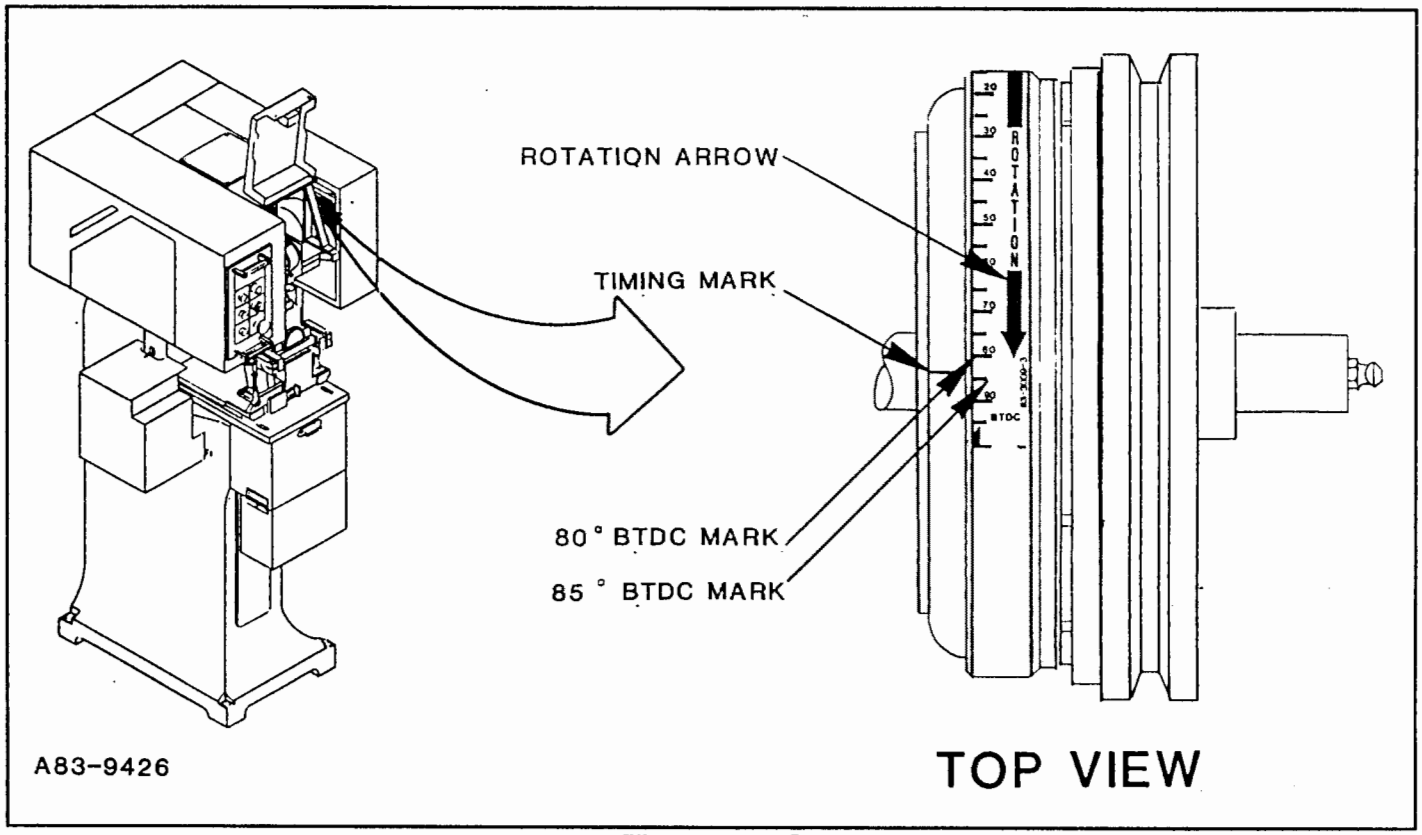


Figure 9.4 C

9.4.2 RAM SWITCH ADJUSTMENT

Adjust the ram switch as follows:

Tools Needed:

- **5/32" hex wrench (Allen wrench)**
- **3/16" hex wrench (Allen wrench)**
- **3/8" open-end wrench**
- **medium flat-tip screwdriver**

Note

Use the Illustrated Parts List in Chapter 11 of this manual as an aid in adjusting the ram switch. When you see something like "Remove top panel (127, Fig. 1)" in the following procedure, the number (127) refers to a picture of the top panel (and how the panel is attached to the press) in Figure 1 of the Illustrated Parts List.

1. Unscrew four top panel screws (126, Fig. 1) with screwdriver and remove top panel (127).
2. If the clutch plate closes when the timing mark is between the 60° ATDC and 90° ATDC marks, go to step 3. Otherwise, do the following:

a. Using 3/16" Allen wrench, loosen ram switch front/back adjusting bolts as shown in Figure 9.4 D.

b. Slide switch assembly forward if clutch plate closes before the timing mark is between the 60° ATDC and 90° ATDC marks or backward if clutch plate closes after the timing mark is between the 60° ATDC and 90° ATDC marks.

c. Tighten ram switch front/back adjusting bolts.

d. Recheck ram switch timing and repeat steps a through c as required.

e. Go to step 3.

9.4.2 RAM SWITCH ADJUSTMENT

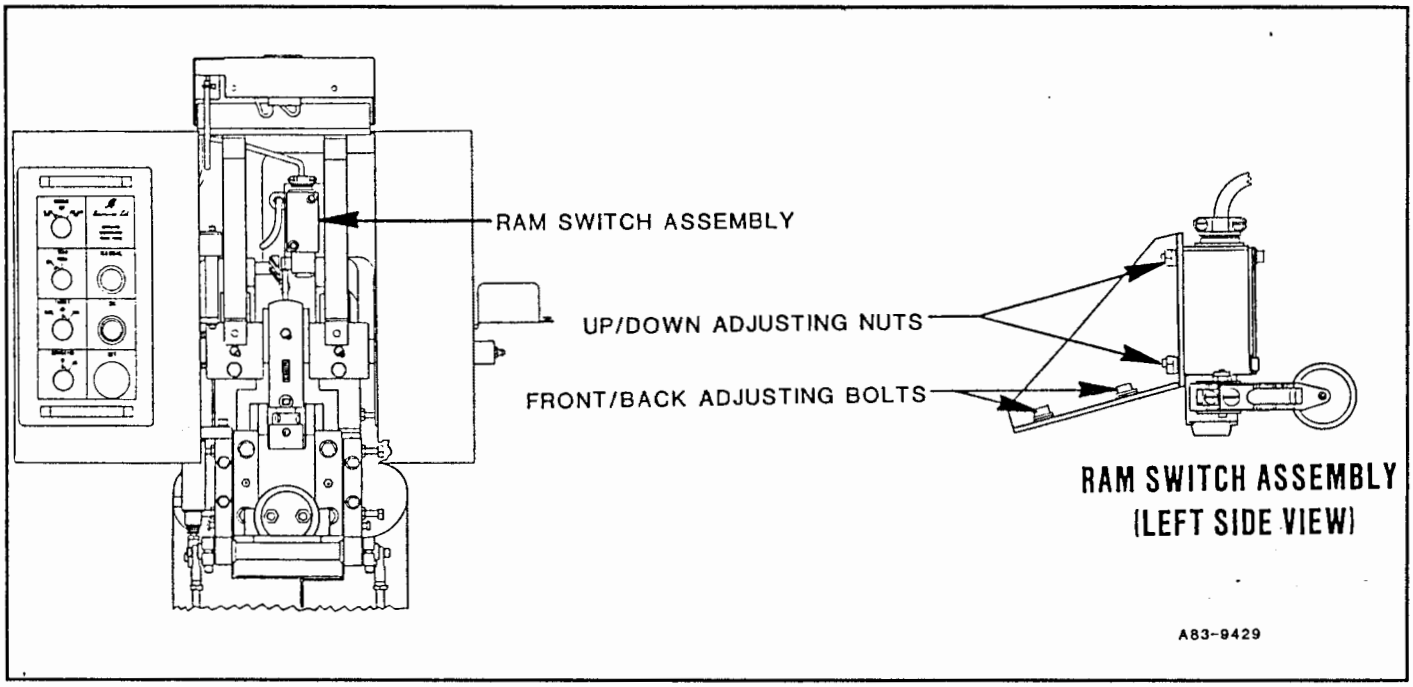


Figure 9.4 D

3. If the clutch plate does not open when the timing mark is between the 80° ATDC and 85° ATDC marks, do the following:

a. Using 5/32" Allen wrench and a 3/8" open-end wrench, loosen ram switch up/down adjusting nuts. See Figure 9.4 D.

b. If clutch plate opens before the timing mark is between the 80° BTDC and 85° BTDC marks, slide the switch up. If clutch plate opens after the timing mark is between the 80° BTDC and 85° BTDC marks, slide the switch down.

c. Tighten ram switch up/down adjusting nuts.

d. Recheck ram switch timing and repeat steps a through c as required.

4. Remove crank tool and close crankshaft cover.

5. Reattach top panel (127).

6. Reattach crank guard (133) and ram guard (112).

9.5 DRIVE BELT INSPECTION AND ADJUSTMENT

The following two sections cover drive belt inspection and adjustment.

9.5.1 DRIVE BELT INSPECTION

Inspect the drive belt 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 drive belt. When you see something like "Remove clutch guard (105)" in the following procedure, the number (105) refers to a picture of the clutch guard (and how the guard is attached to the press) in Figure 1 of the Illustrated Parts List.

9.5.1 DRIVE BELT INSPECTION

Make sure press is turned off before doing the following steps. You can get seriously hurt if you do not.

2. Unscrew clutch guard screws (101) with 3/16" hex wrench.

3. Unhook clutch guard (105) from press. Clutch guard has two hooks that hook onto top of press.

4. Check to see if the drive belt is broken or damaged. If drive belt is broken or damaged, go to Section 9.5.2. If drive belt is OK, go to step 4. See Figure 9.5 A for location of drive belt.

5. Press down on the middle of the drive belt with your thumb. If the drive belt cannot be pressed down more than 1/2" (12mm) as shown in Figure 9.5 A, continue to follow the troubleshooting chart -- the belt is properly adjusted. If the drive belt can be pressed down more than 1/2" (12mm), adjust the belt according to Section 9.5.2.

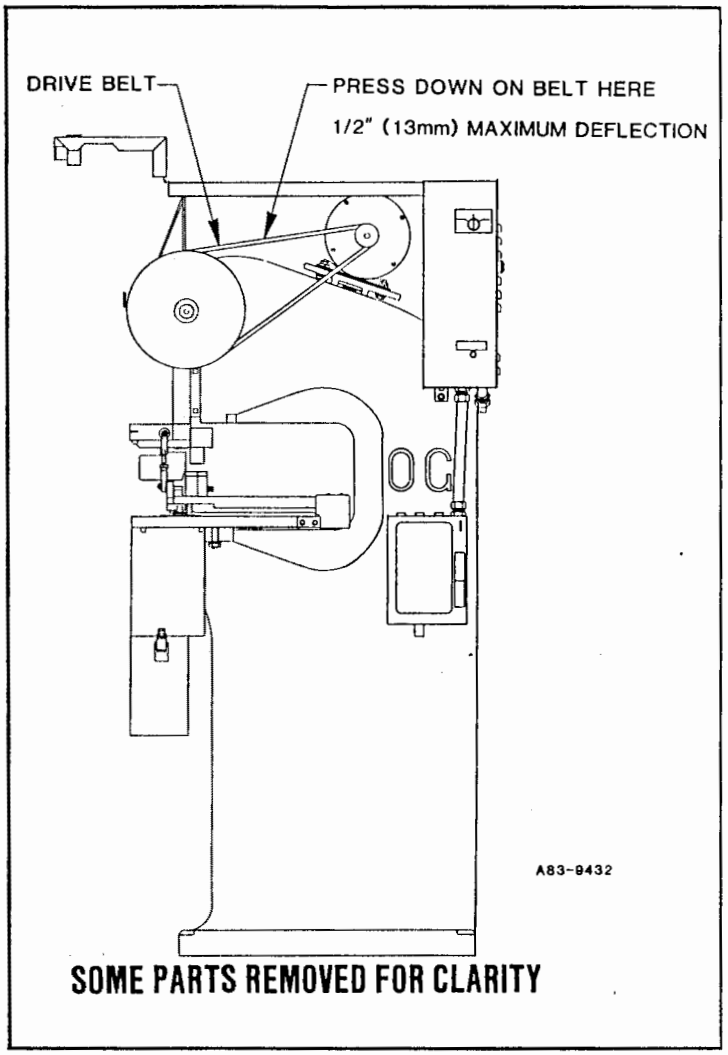


Figure 9.5 A

9.5.2 DRIVE BELT ADJUSTMENT/REPLACEMENT

Adjust and (if necessary) replace the drive belt as follows:

Tools Needed:

- **3/16" hex wrench (Allen wrench)**
- **two 1/2" open-end wrenches**
- **large flat-tip screwdriver**

Note

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

9.5.2 DRIVE BELT ADJUSTMENT/REPLACEMENT

Turn press off before doing the following steps. You can get seriously hurt if you do not.

1. Remove electronics package according to steps 7-10 in Section 8.1.4.
2. Unscrew brake guard mounting screws (113, Fig. 1) with 3/16" hex wrench.
3. Unhook brake guard (117) from press. Brake guard has two hooks that hook onto top of press.
4. Loosen (but do not remove) motor mounting nuts (157, Fig. 2) and bolts (157) with two 1/2" open-end wrenches.
5. If new drive belt is to be installed, remove the old belt and run the new belt onto the motor pulley and the flywheel pulley.
6. Pry the base of the motor away from the eyebolt (235, Fig. 3) with large screwdriver to tighten drive belt.
7. Tighten motor mounting bolts (156, Fig. 2) and nuts (157)
8. Recheck drive belt tension and retighten the belt if necessary. Middle of belt should not depress more than 1/2" (12mm) after it is tight. See Figure 9.5 A.
9. Reattach brake guard (117, Fig. 1).
10. Reinstall electronics package according to steps 11-14 in Section 8.1.4.
11. Reattach clutch guard (105).

9.6 HOLD-DOWN VALVE ADJUSTMENT

Adjust the hold-down valve as follows:

Tools Needed:

➢ **medium flat-tip screwdriver**

1. Press "OFF" button on control panel.

Make sure press is turned off before doing the following steps. You can get seriously hurt if you do not.

9.6 HOLD-DOWN VALVE ADJUSTMENT

Note

Use Figure 1 of the Illustrated Parts List in Chapter 11 of this manual as an aid in adjusting the hold-down valve. When you see something like "Remove ram guard (112)" in the following procedure, the number (112) refers to a picture of the ram guard (and how the guard is attached to the press) in Figure 1 of the Illustrated Parts List.

2. Turn ram guard fasteners (111) 1/4 turn counterclockwise (until they pop up) with screwdriver.

3. Remove ram guard (112).

4. Turn set up switch to "SET UP" position.

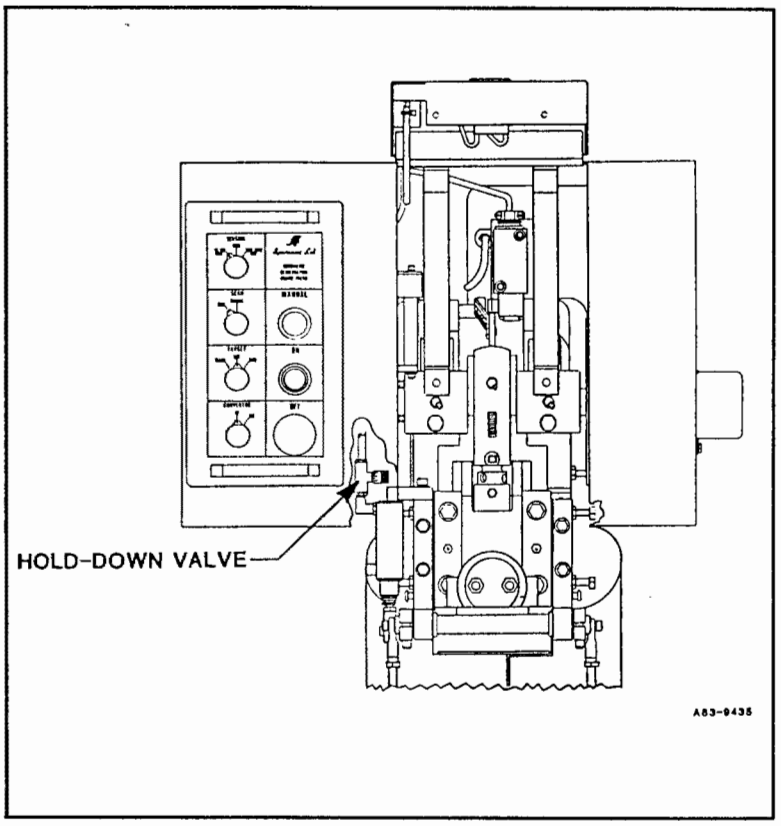
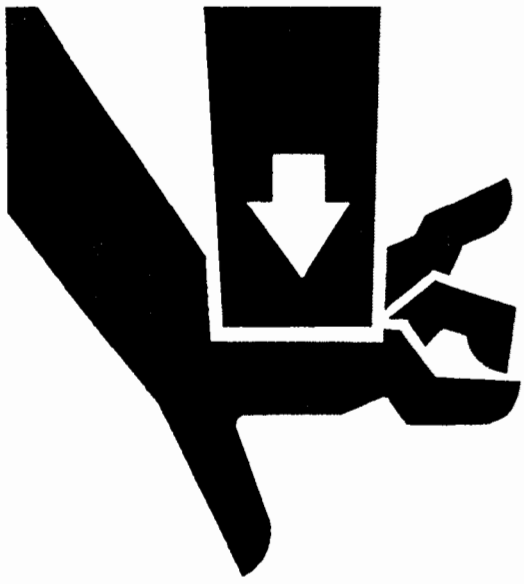


Figure 9.6 A

⚠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.

5. Press "ON" button on control panel.

6. Test the hold-down pressure as follows:

a. Insert a sheet of material that is typically punched under the hold-downs.

b. Press the foot switch.

c. When the hold-downs press on the sheet of material, try to pull the material out with moderate force. If the material comes out, turn the hold-down valve counterclockwise to increase the hold-down force. If the material does not come out but is damaged by the hold-downs, turn the hold-down valve clockwise to decrease the hold-down pressure. See Figure 9.6 A for location of hold-down valve.

7. Reattach the ram guard (112).

9.7 SENSING HEAD DIAL ADJUSTMENT

Adjust the sensing head dials as follows:

1. Punch a hole in a target.

2. If the hole is punched left or right of the center of the target, adjust the left-right sensing head dial and punch another target. See Figure 9.7 A. Keep adjusting the left-right sensing head dial until the hole is centered on the target in the left- to-right direction.

2. (cont.)
If the hole is punched behind or in front of the center of the target, adjust the in-out sensing head dial and then punch another target. See Figure 9.7 B. Keep adjusting the in-out sensing head dial until the hole is centered on the target in the front-to-back direction.

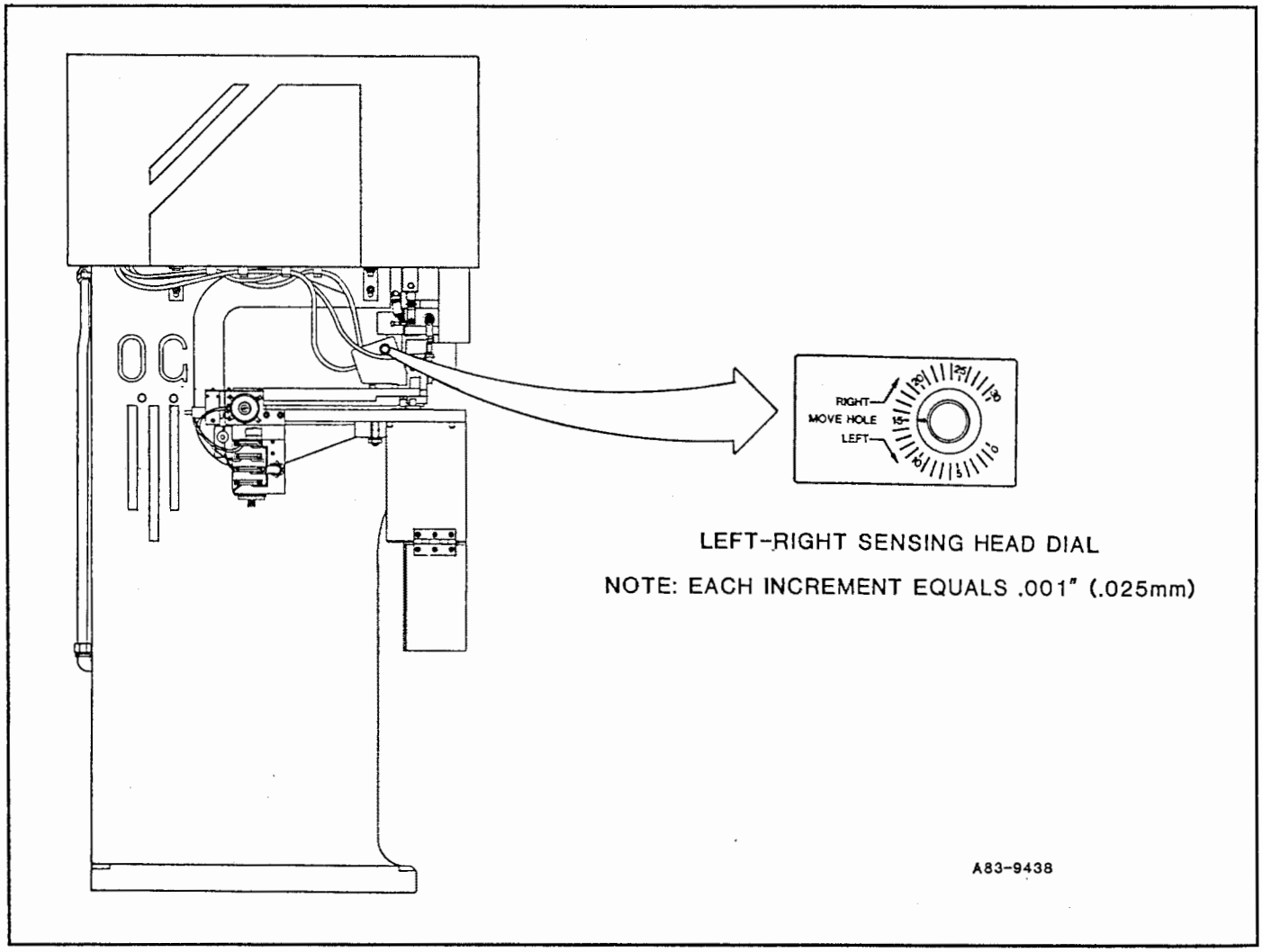


Figure 9.7 A

9.7 SENSING HEAD DIAL ADJUSTMENT

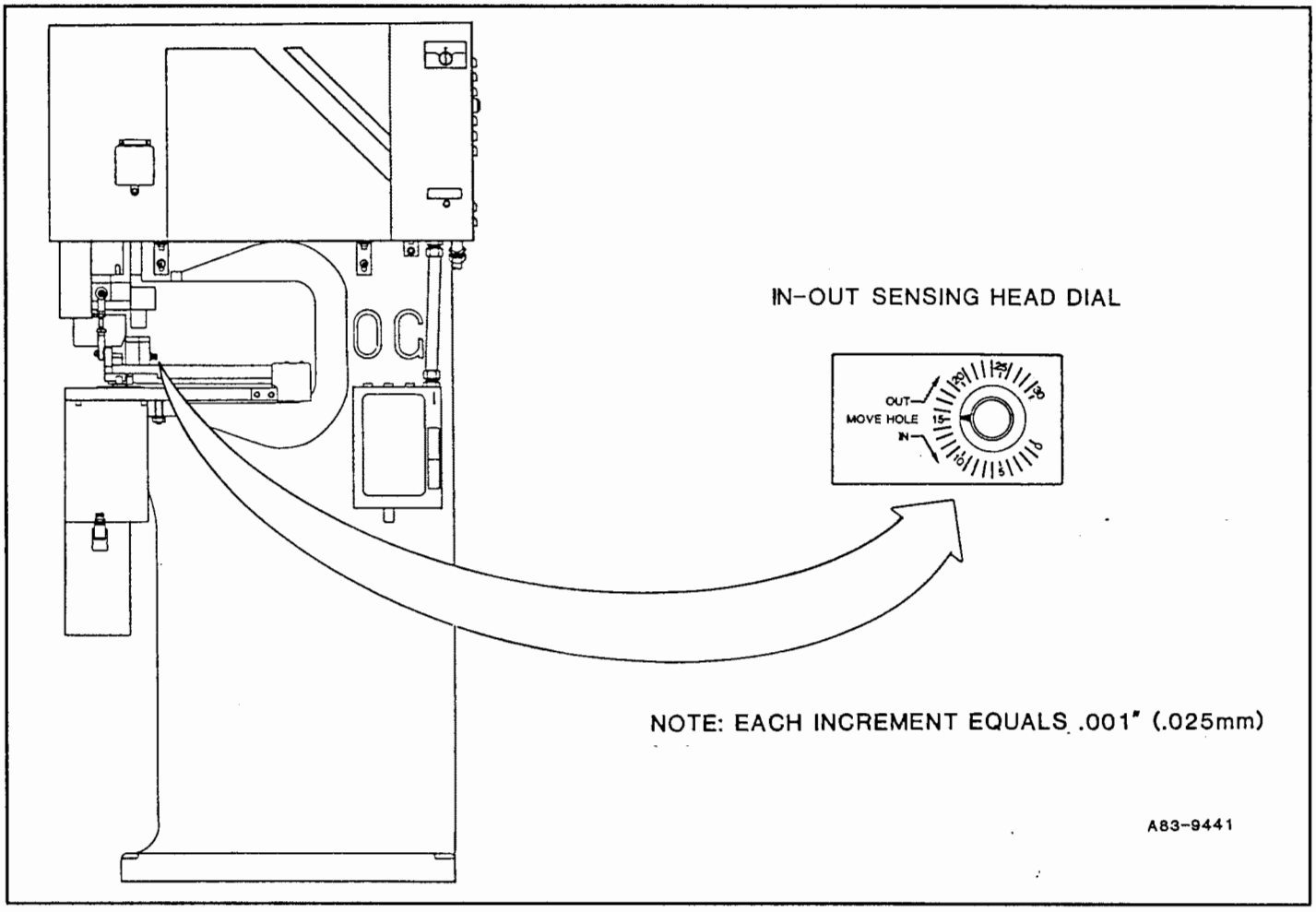


Figure 9.7 B

9.8 AIMING LIGHTS' POTENTIOMETER ADJUSTMENT

Adjust the aiming lights' potentiometer as follows:

Tools Needed:

➢ **sheet of white paper**

1. Press "ON" button on control panel.

2. Turn "TARGET" switch on control panel to "LITE" position.

3. Place sheet of white paper under punch (where target would usually go).

4. Turn aiming lights' potentiometer (see Figure 9.8 A) clockwise or counterclockwise until beam of light on paper becomes square-shaped and uniform as shown in Figure 9.8 B. If light will not become square-shaped and uniform or if there is no light at all, continue to follow troubleshooting chart.

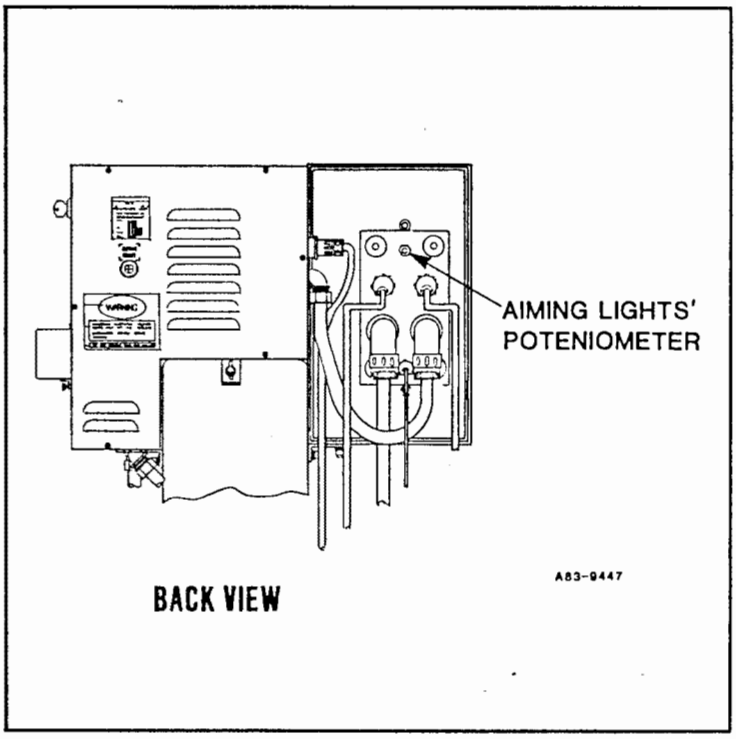


Figure 9.8 C

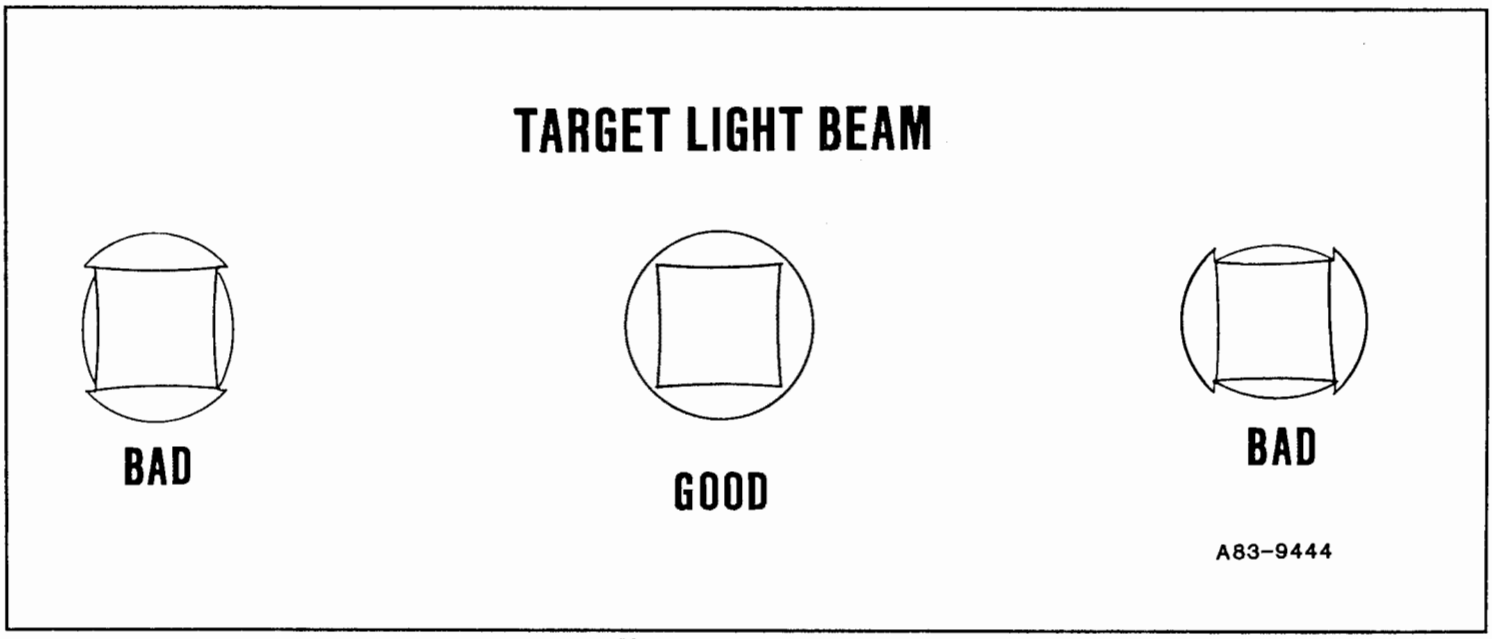


Figure 9.8 B