

Section 6: Mechanical Adjustments

LUBRICATION

Your phonograph mechanism requires no lubrication.

UNSCHEDULED MAINTENANCE

This section contains adjustment, removal, and replacement procedures that should be followed whenever a malfunction has occurred.

MECHANISM MAINTENANCE AND ADJUSTMENTS



CAUTION:

The CD mechanism is extremely sensitive to static discharges. The photo diodes and the laser are more sensitive to discharges than MOS IC's. Careless handling may immediately destroy components within the player or cause undetectable damage that will lead to failure after several weeks or even months of use. Before you touch the player, discharge your hands and tools by touching a grounded metal part of the phonograph, such as the amplifier or power supply chassis. If you need to remove the CD player for servicing, place the CD player into the anti-static bag (shipped with the phonograph for this purpose) immediately after you remove it from the phonograph.

CD Player Mechanism

The only maintenance required on the CD player is an occasional cleaning of the lens. If you need to clean the CD player lens, follow the lens cleaning procedure on *Page 3-12* in Volume 1 of the Service Manual.

CD Player Maintenance

The CD player does not require any adjustments or field replaceable parts. Individual parts and components are not available for distributor or field repairs. All CD players that require repair must be sent to Rowe for service.

Removing the Mechanism Control Unit

If you have followed the troubleshooting procedure in *Section 5*, and you have found the mechanism control unit needs to be removed for factory service, follow this procedure:

1. Turn the POWER switch (on the bottom of the phonograph) to the OFF position.
2. Remove all connectors from the mechanism control unit, loosen the two mechanism control unit mounting screws (*Figure 6-1*), and remove the mechanism control unit. Then remove the 14-pin ribbon connector.

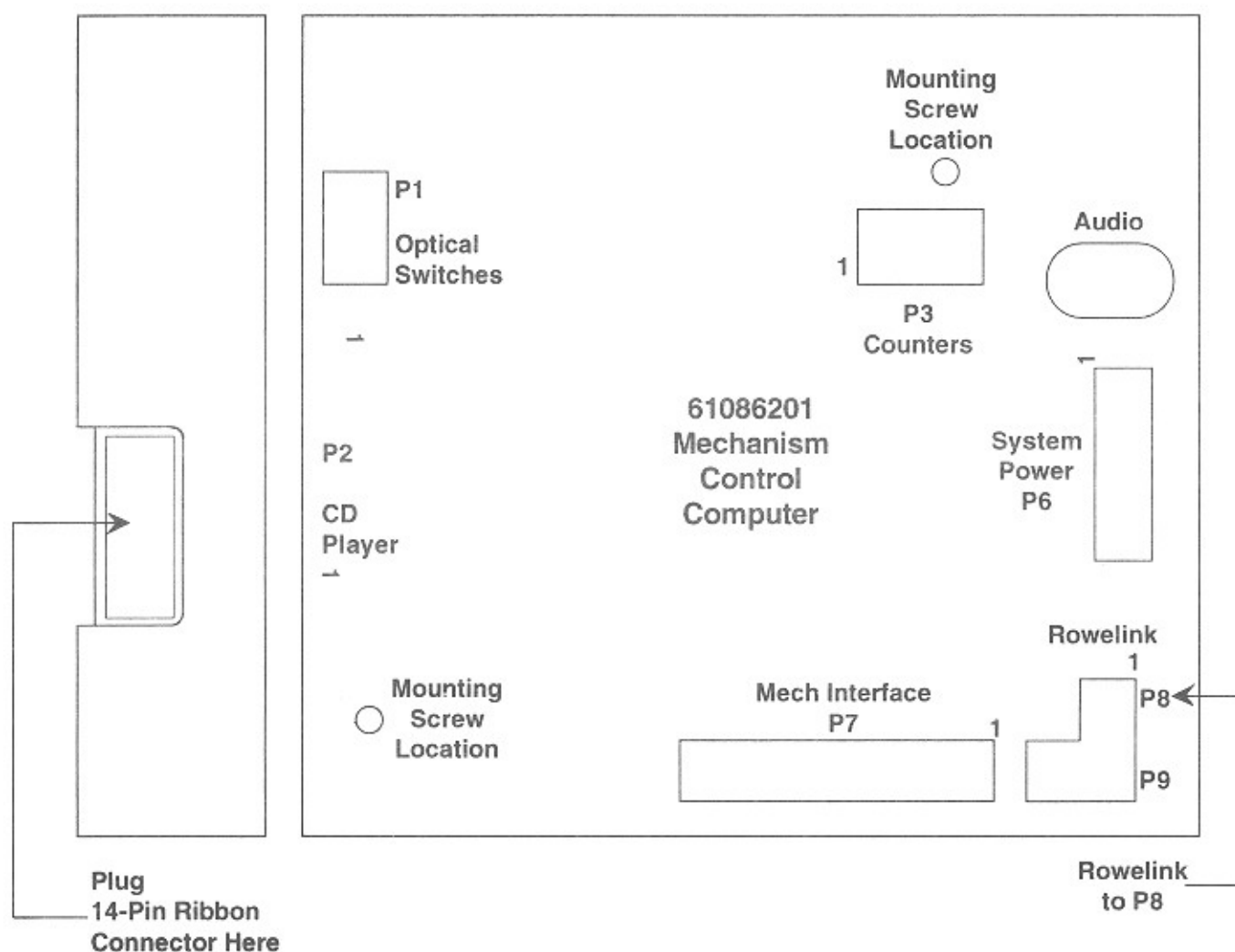


Figure 6-1. Mechanism Control Connecting Diagram

Removing The CD Player

1. Read the following Caution before you remove the CD player:



CAUTION:

The CD mechanism is sensitive to static discharges. The photo diodes and the laser are more sensitive to discharges than MOS IC's. Careless handling may immediately destroy components within the player or cause undetectable damage that will lead to failure after several weeks or even months of use. Before you touch the player, discharge your hands and tools by touching a grounded metal part of the phonograph, such as the amplifier or power supply chassis. If you need to remove the CD player for servicing, place the CD player into the anti-static bag (shipped with the phonograph for this purpose) immediately after you remove it from the phonograph.

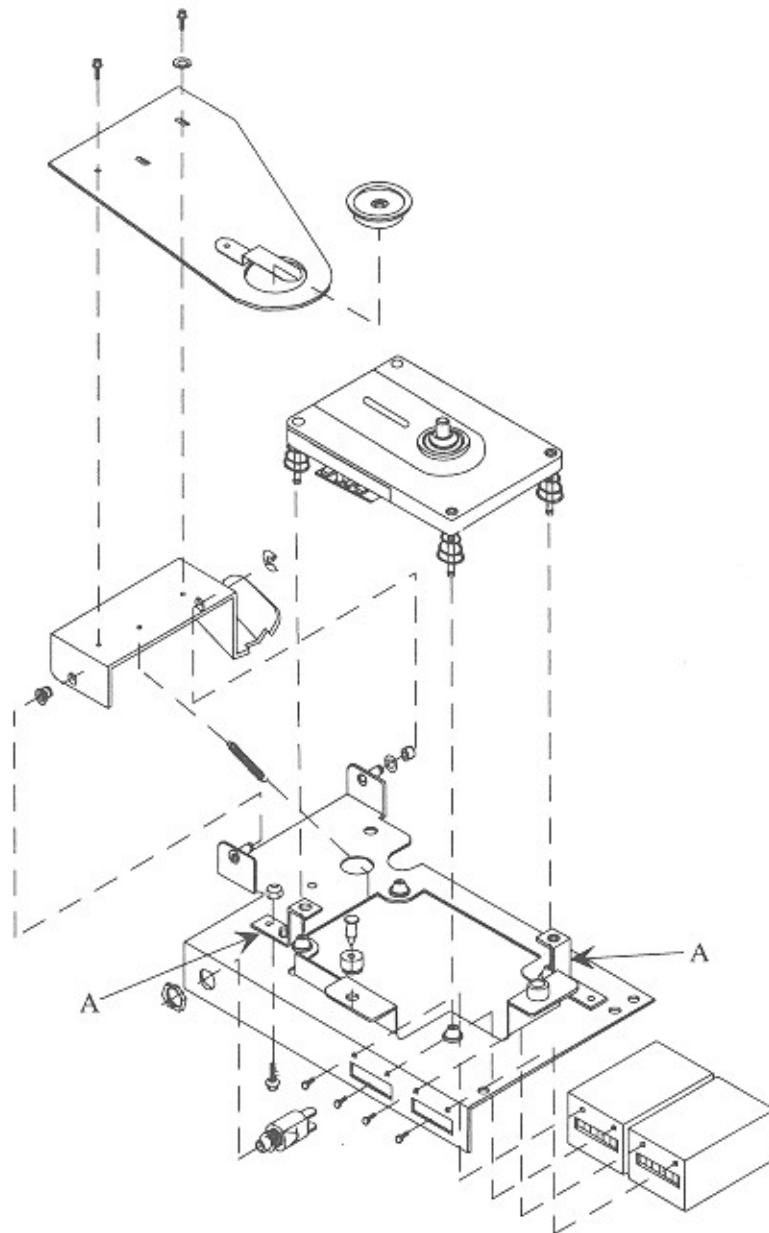


Figure 6-2. Removing The CD Player

2. To remove the player, loosen the screws holding the two retaining brackets (A) in place, swing the brackets out of the way, and lift the player straight up until the ribbon cable connections are easily accessible. Disconnect the ribbon cable at the three locations on the player. Note that the 4-pin connector with the black stripe on the cable connects at the front of the player.
3. Immediately place the CD player into the anti-static bag (supplied with the phonograph) and return the CD player to your distributor.
4. To replace the CD player, reverse the previous steps. Make sure that the four grommets are in place in the holes in the mounting plate before setting the player springs onto the grommets. When you have properly positioned the CD player, make sure that all grommets are seated and that the CD player sets level in the mechanism frame.

Hold Down Assembly And Hold Down Plate Height

SERVICE CHECK

With the gripper bow in the play position and the disc on the turntable (the outer cam switch is actuated), the aluminum hold down plate (*Figure 6-3*) should be $3/32$ to $5/32$ inch ($1/8 \pm 1/32$) under the flange of the magnetic hold down hub.

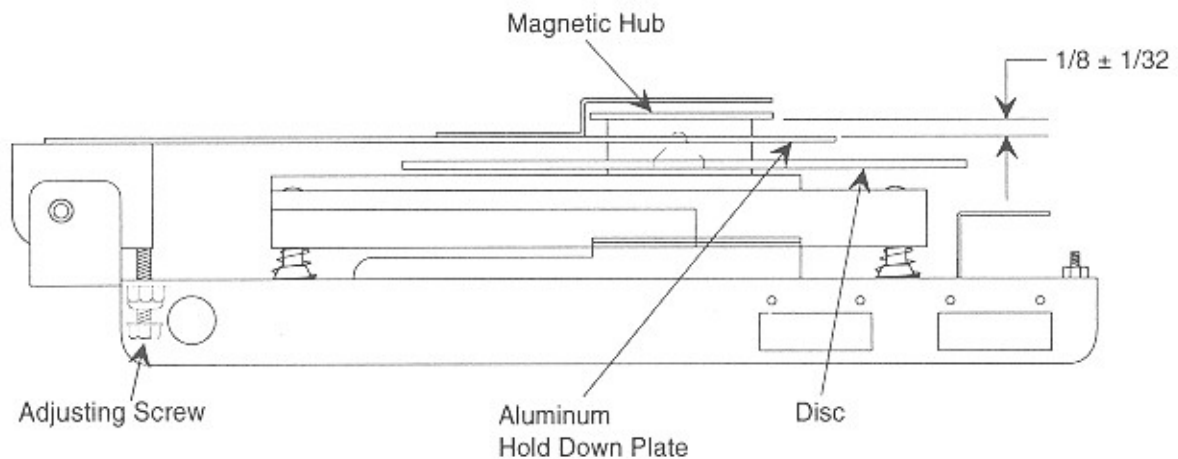


Figure 6-3. Hold Down Plate

ADJUSTMENT

If the hold down plate height is not correct, turn the adjustment screw (*Figure 6-3*) until the $3/32$ to $5/32$ inch ($1/8 \pm 1/32$) height is attained.

HOLD DOWN PLATE CENTERING

Refer to *Figure 6-4* for this adjustment.

1. With the gripper bow in the PLAY position and the disc on the turntable, loosen the two centering adjustment screws slightly.
2. Look straight down on the turntable hub and rotate the hold down plate until it is centered around the magnetic hold down hub.
3. Tighten the two centering adjustment screws and recheck the previous adjustments.

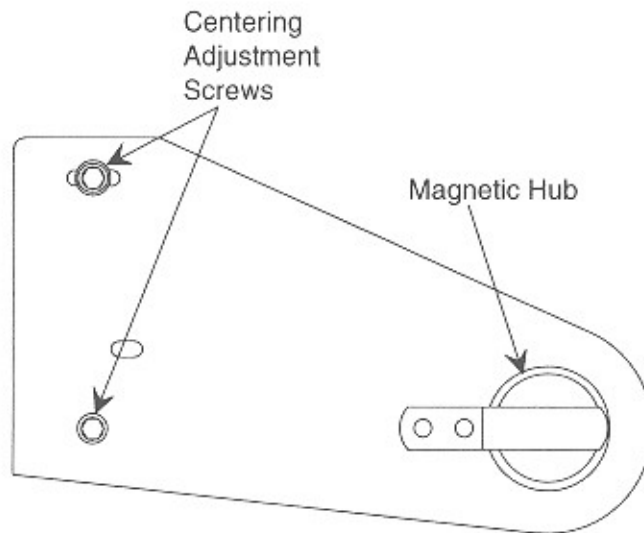


Figure 6-4. Hold Down Plate Centering

Optical Switch Adjustment

1. Push in the detent plunger so the magazine can be rotated to Position 99. Engage the detent plunger.
2. Loosen the optical switch bracket mounting screw, turn the adjustment knob counterclockwise to the top of its travel, and move the bracket down to the bottom of its travel (*Refer to Figure 6-5*). Snug the optical switch mounting screw so the bracket can move with resistance.
3. With the detent plunger engaged, rotate the magazine counter-clockwise to remove gear backlash and maintain pressure for Steps 4 and 5.
4. Turn the adjustment knob clockwise until both the INDEX and HOME LED's are ON.

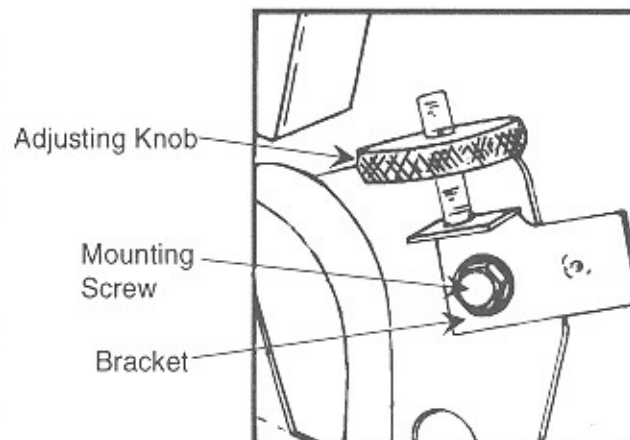


Figure 6-5. Optical Switch Adjustment

5. Continue turning the adjustment knob clockwise until the INDEX LED goes OFF. The HOME LED must remain ON. Then turn the knob one full turn clockwise and tighten the mounting screw. The INDEX LED must be OFF and the HOME LED can be ON or OFF.
6. Push in the detent plunger and rotate the magazine to Position 06.
7. With the detent plunger engaged, rotate the magazine in both directions as far as you can by hand (taking up the gear backlash in both directions). The INDEX and HOME LED's will remain OFF when properly adjusted.
8. Push in the detent plunger and rotate the magazine to Positions 56, 07, and 57. Repeat *Step 7* at each position.

Sprag Assembly

ADJUSTMENTS

The following steps must be used to make sprag assembly adjustments.



WARNING:

Turn the power OFF before servicing the sprag assembly.

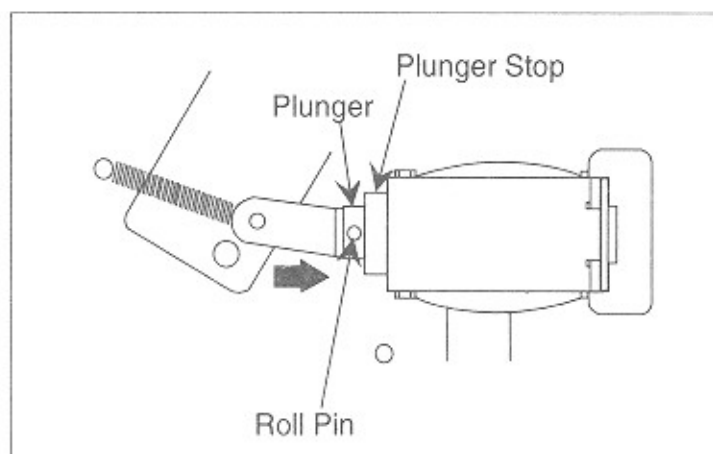


Figure 6-6. Sprag Assembly (Plunger)

1. Refer to *Figure 6-6*. Depress the solenoid plunger until the roll pin bottoms on the plunger stop (actuate by pressing on the plunger).
2. Rotate the disc magazine and note the clearance between the sprag lever and the sprag wheel located on the backside of the sprag plate assembly.

The sprag lever must not touch the sprag wheel and the clearance must be .015 to .025 inches (See *Figure 6-7*). It will be necessary to remove the sprag assembly if corrections are required.

SPRAG ASSEMBLY REMOVAL

1. To remove the sprag assembly, disconnect the wires to the solenoid and motor, remove the three mounting screws, and slide the assembly out of the right side of the mechanism (See Figure 6-8).
2. Loosen the solenoid mounting screws (See Figure 6-9). With the roll pin against the plunger stop, position the solenoid so there is a .015 to .025-inch gap between the sprag lever and the highest point on the sprag wheel (See Figure 6-7).
3. Tighten the solenoid mounting screws.
4. Replace the sprag assembly into the mechanism. Reconnect the Black and White/Blue wires to the solenoid and the Yellow and Yellow/Black wires to the magazine motor.

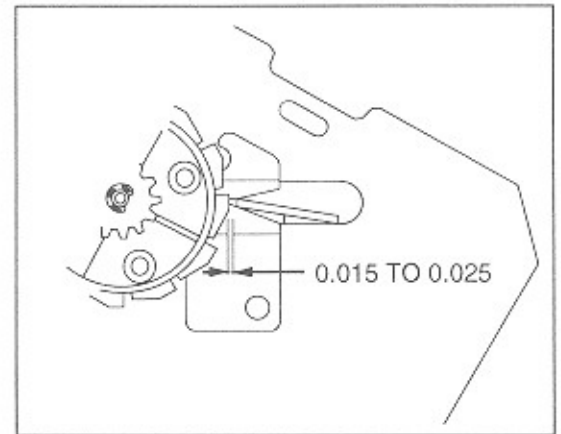


Figure 6-7. Sprag Wheel

5. After you have replaced the sprag assembly, perform the *Aligning Magazine Stopping Position with the Gripper Bow* procedure in this section.
6. To adjust the optical switch, refer to *Optical Switch* in this section.

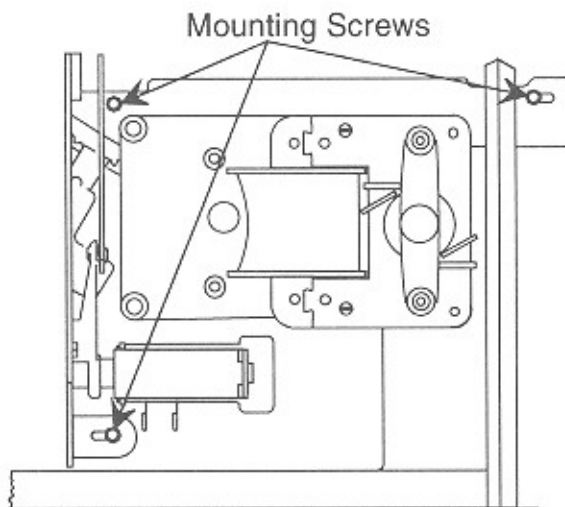


Figure 6-8. Sprag Assembly Removal

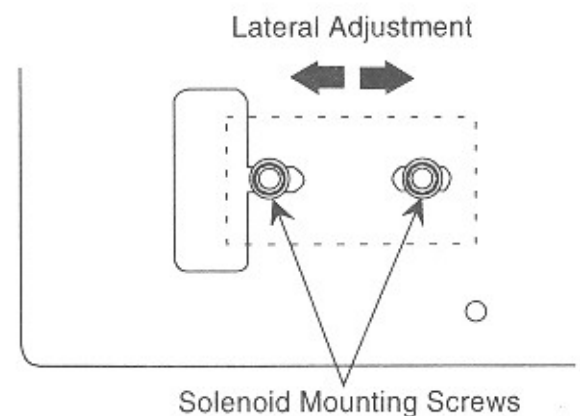


Figure 6-9. Lateral Adjustment

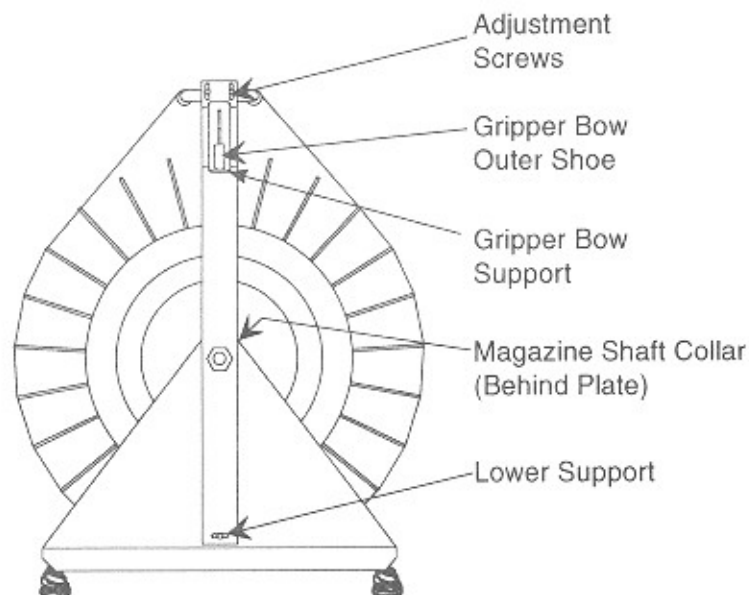


Figure 6-10. Magazine Belt Adjustment

Disc Magazine And Gripper Bow Support

See *Figure 6-10* for this adjustment.

ADJUSTMENT

To eliminate magazine end play and to adjust the gripper bow support:

1. Loosen the set screws in rear magazine shaft collar. Push the collar onto the magazine shaft to eliminate end play. Tighten the set screws.
2. Loosen the lower screw that holds the gripper bow support to the mechanism frame.
3. Adjust the gripper bow support so the gripper bow outer shoe is centered in the opening.
4. Tighten the support to the frame with the lower screw.

Magazine Belt Adjustment

1. Loosen the two adjustment screws shown in *Figure 6-10*.
2. Raise the bracket to tighten the belt around the magazine.
3. Check that the belt rides evenly in the center of the belt guides, all the way around the magazine.
4. Tighten the two adjustment screws.

Cam Switch

ADJUSTMENTS

If it is necessary to remove the switch cam from the transfer motor, the following procedure must be followed to ensure that the cam is properly located and not 180 degrees out of position.

Position the inner lobe so it is pointing in the same direction as the crank. Turn the cam so that neither cam lobe is on a switch before removing or installing the cam (See *Figure 6-11*).

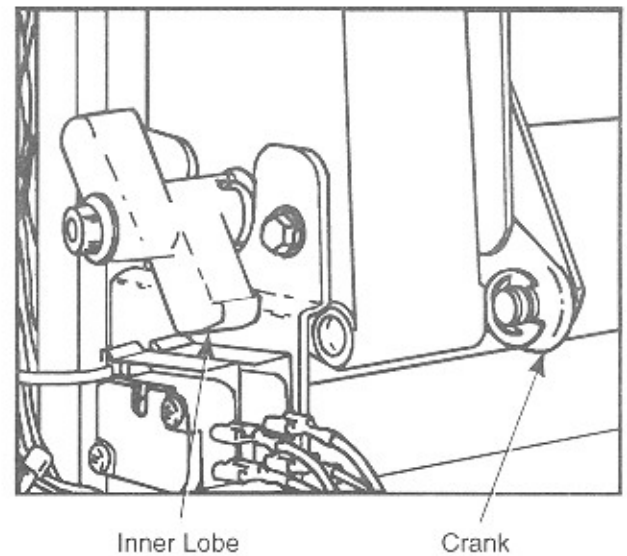


Figure 6-11. Cam Switch

CAM SWITCH CHECK AND ADJUSTMENT

1. Check that the leaf spring is resting in the cam lobes and that the switch plunger just touches the bottom of the leaf spring as shown in *Figure 6-12*.
2. To adjust the switches, loosen the mounting screw under the plunger end and move the switch housing as described in the previous step (See *Figure 6-12*).
3. Tighten the mounting screw and recheck operation.

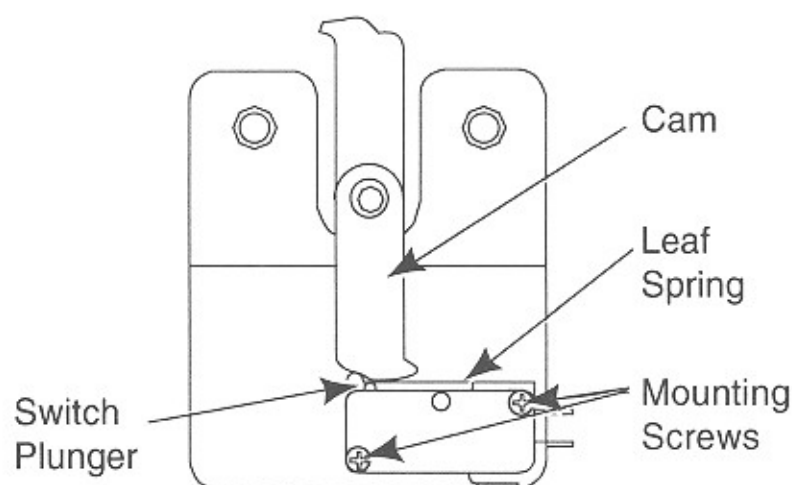


Figure 6-12. Cam Switch Adjustment

Aligning Magazine Stopping Position with the Gripper Bow

1. Place a disc in any position in the disc magazine and rotate the magazine until this disc is in the top position. Allow the magazine sprag lever to engage and lock the magazine in this position.
2. Using a 5/32-inch Allen wrench in the end of transfer motor shaft, turn the motor shaft clockwise until the gripper bow starts to lift the disc out of the magazine (*See Figure 6-13*).
3. With the disc and gripper bow in this position, rock the magazine to the left and right to make sure the magazine vertical slot is centered relative to the edge of the disc.

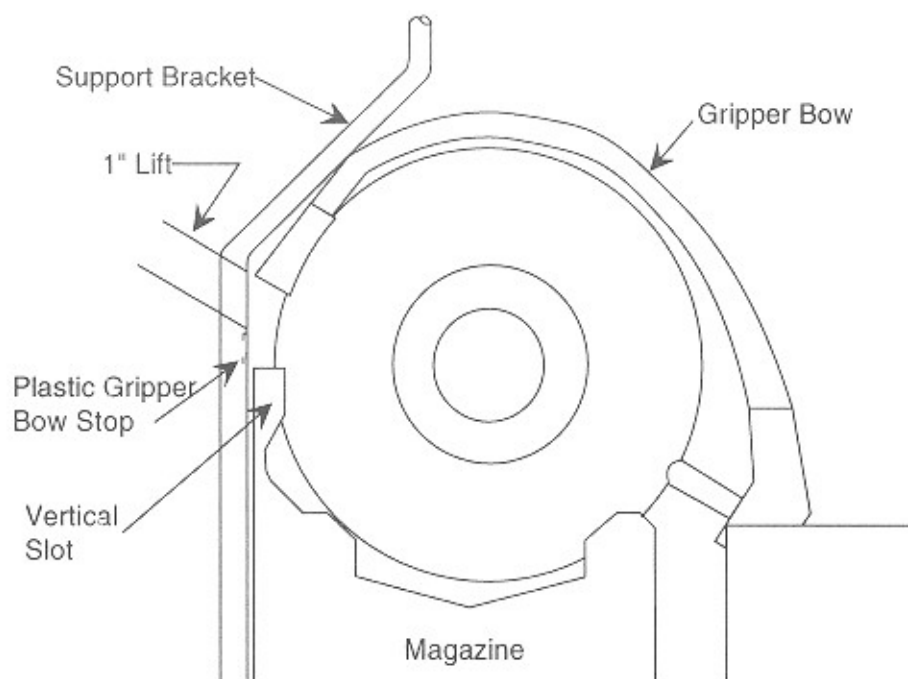
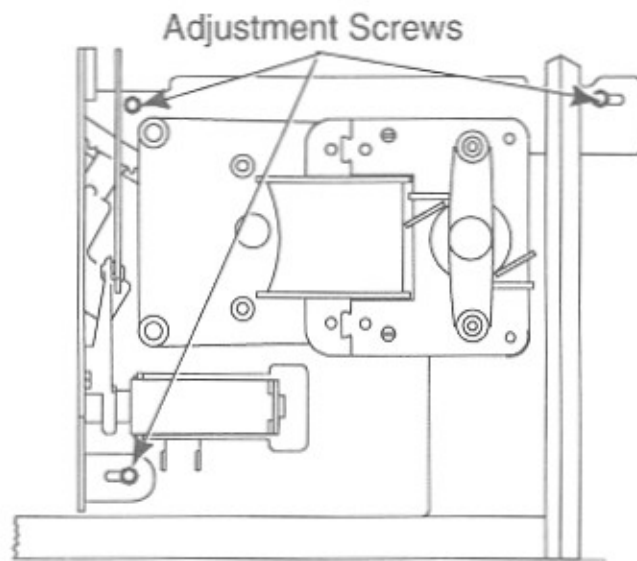


Figure 6-13. Magazine and Gripper Bow Stopping Position

IF ADJUSTMENT IS NECESSARY:

4. Loosen the three adjustment screws in the magazine motor mounting plate.
5. With the sprag wheel locked, move the magazine until the disc is centered in the magazine vertical slot. The adjustment screws will be approximately centered in the slots. *See Figure 6-14.*
6. Tighten the three screws in the magazine motor mounting plate securely.
7. Perform the *Optical Switch Adjustment* described earlier in this section.

**Figure 6-14. Magazine Adjustment**

Title Page Assembly Adjustments



WARNING:

Do not attempt to turn the CD title pages by hand. If the title page assembly is unplugged or not operating electronically, use the title page knob on the drive shaft of the assembly to turn the pages. (See *Figure 6-15*).

REMOVING THE TITLE PAGE ASSEMBLY FROM THE PHONOGRAPH

Open the top door. If not done previously, remove the two shipping screws (#8 x 5/8" wood screws, threaded into the back wall of the phonograph) located at the bottom of the title page assembly mounting brackets. See *Figure 6-15*. Unplug the title page assembly, release the latch at the upper left side, then lift and pull the assembly out of the phonograph.

SWITCHES

There are no switch in the title page assembly. Switch operation can be checked by manually turning the pages with the title page knob. When the last moving page has turned on each end of the rack the home switch should be actuated. (NOTE: The front page - titles 06 through 11 - never moves.) The index switch should actuate in the time between page turnings. In case of damage, check as above and make any corrections by bending the switch bracket. See *Figure 6-16*.

PAGE REMOVAL

Unlike previous CD-100 jukeboxes, the individual title pages can be removed from the title page assembly without disassembly of the entire assembly. This greatly simplifies any major work on the title page assembly, as the pages can first be removed, then replaced as the last step. To remove any number of pages, the page being removed must be in a flat position (up or down). Grasp the center and flex out until the end pins disengage the pivot holes. Replace a page by positioning the pins on one end of the page in the rack and flexing the page until the pins on the other end can be seated in the pivot holes.



WARNING:

After installing a page as described above, the pages in the center of the rack must be snapped into the center pivot guide. Failure to do so will result in jammed pages. See *Figure 6-15*.

ASSEMBLY AND TIMING CHECK

To check for proper alignment of the drive system, place the title page assembly on end with the motor end up, and perform the following steps.

1. Turn the title page knob to flip all the pages to the forward position. This will drive the carriage in the opposite direction. See *Figure 6-16*.
2. Remove the light block and the slide cover.
3. Under the slide cover, remove the plastic slide trap and forked-end page drive link, noting their relative positions for reassembly. With these part removed the assembly should be as shown in *Figure 6-17*.
4. If alignment is correct, reassemble drive link, slide trap, slide cover, and light block, **without changing motor shaft position**.

- Turn the title page assembly over and perform the same check on the opposite end, making sure the crank pin is in the down position and the crank is close to touching the cutout. If either or both ends do not appear as shown in *Figure 6-17*, proceed to the next step.

ALIGNMENT

If the timing check indicates misalignment, perform the following steps. After removing the slide cover, light block, slide trap, and drive link.

- Using a $1\frac{1}{32}$ " nut driver, remove the #8-32 nut that holds the crank in place and pop the crank off by using a screwdriver or the open jaws of a pair of needle nose pliers. Position all parts as shown in *Figure 6-18*. The holes in the white reduction gear and the motor bracket and the slot in the endplate should be in line. To verify this, use a $1/8$ " diameter pin and slide it through the opening. Reinstall the crank with the arm facing the reduction gear pin. **NOTE: The roll-pin should be vertical.** All the pins (drive shaft, crank pin, and reduction gear pin) should be in a straight line.
- Check for broken teeth on gear rack, white gear and crank gear.
- After making any necessary alignments, reinstall the crank with the pin down as shown in *Figure 6-17*.
- Replace the $1\frac{1}{32}$ " nut. The crank should drop over the roll-pin. Then replace the drive link, slide trap, slide cover, and light block.
- Without changing motor position**, make the same adjustments on the opposite end of the title page assembly (the carriage will be in the opposite end).

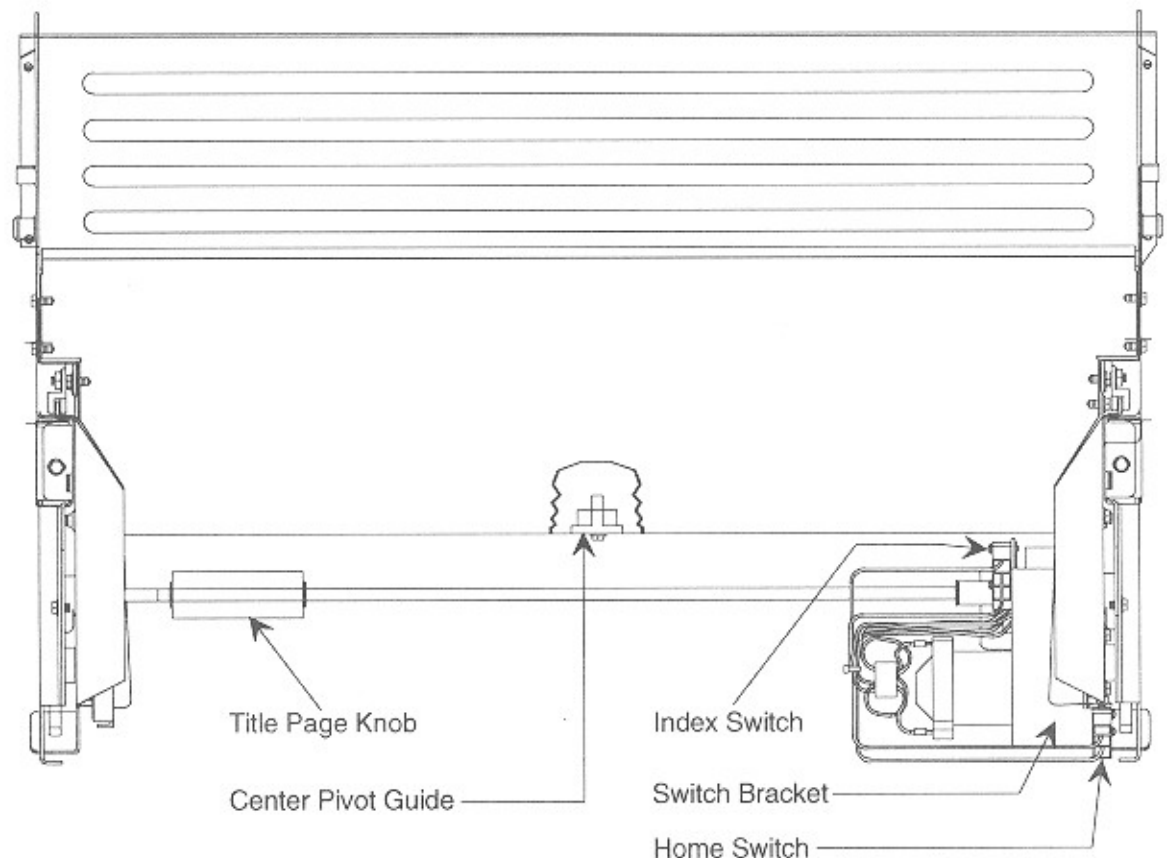
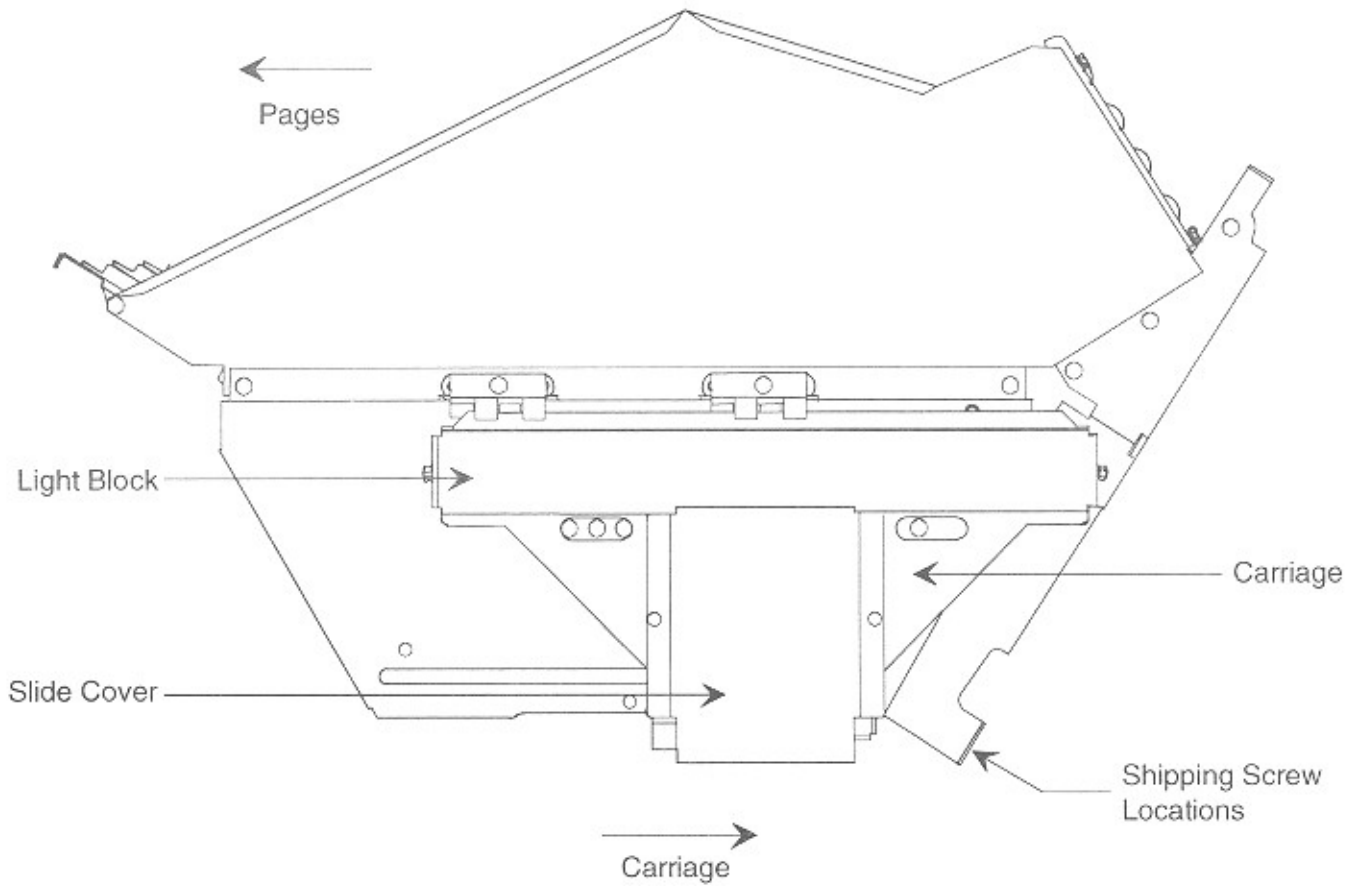


Figure 6-15. Title Page Assembly



For alignment position turn title page knob to move carriage to the right. Pages will now be to the left.

Figure 6-16. Title Page Assembly - Motor End

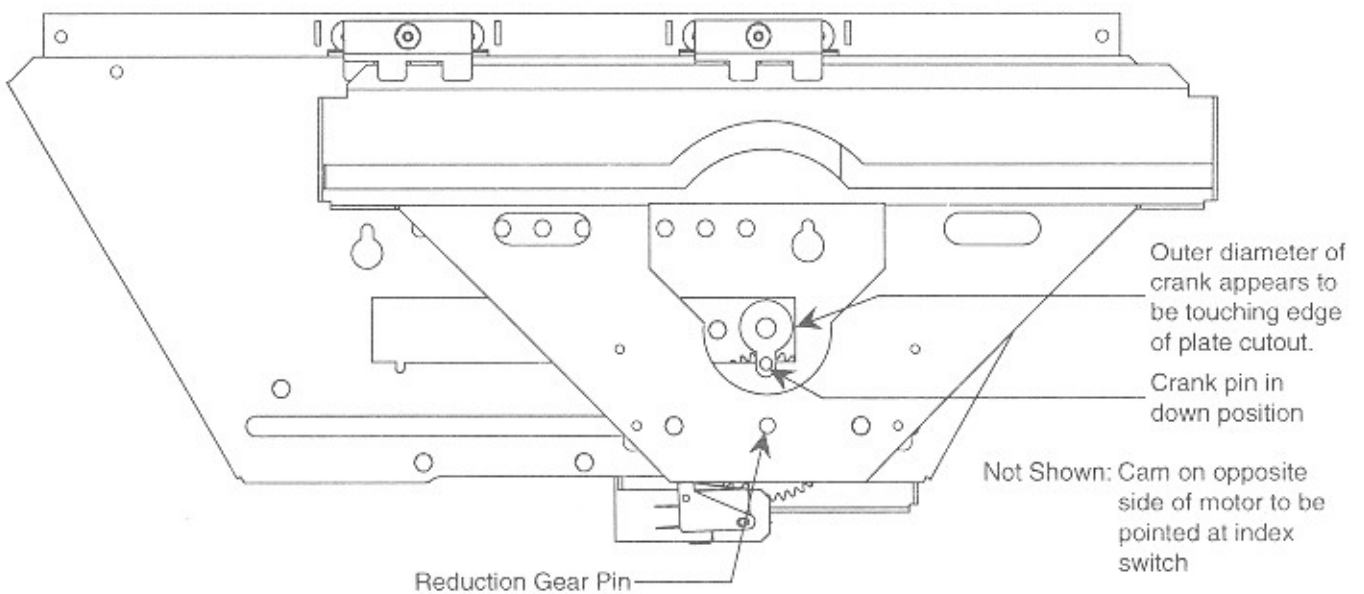


Figure 6-17. Title Page Assembly - Motor End

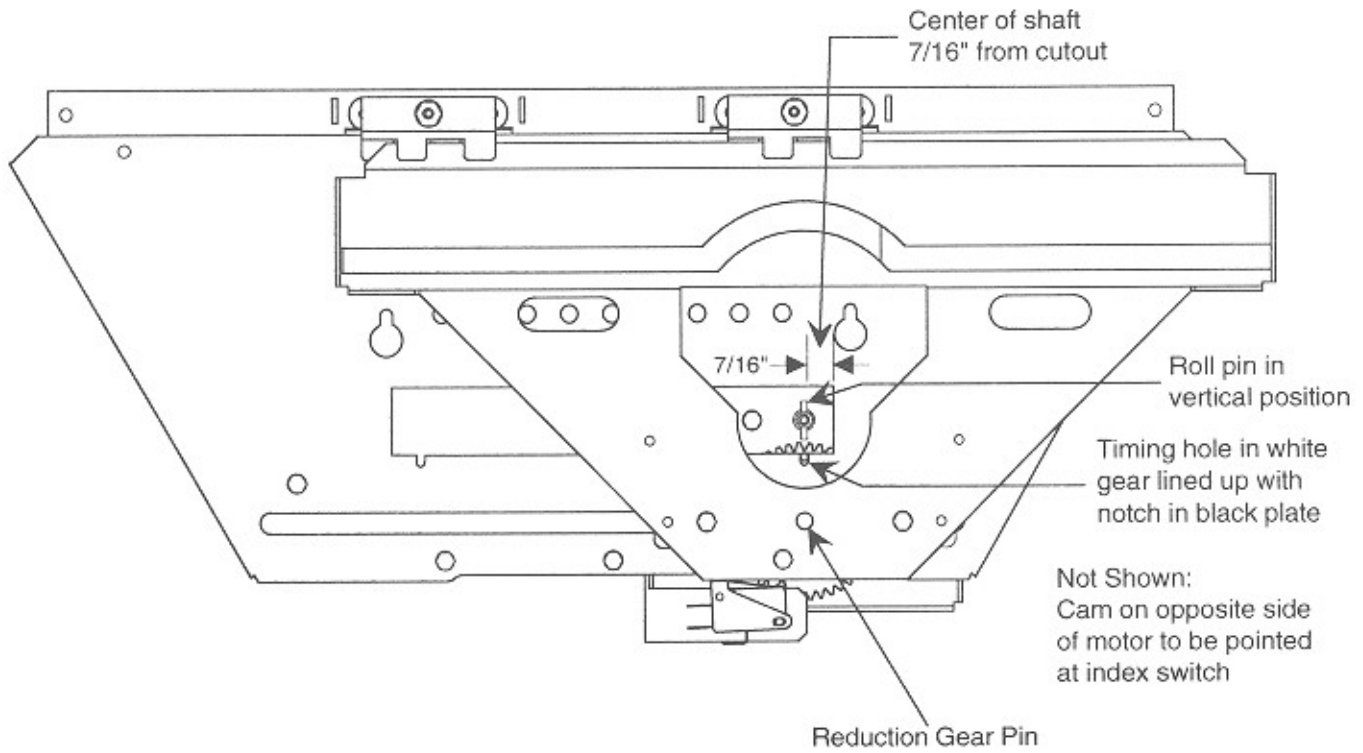


Figure 6-18. Title Page Assembly - Motor End

DOOR SPRING REPLACEMENT

1. Open the top door.
2. While another person keeps the door open, find the appropriate style spring end fitting (See *Figure 6-17*) and follow the instructions below.

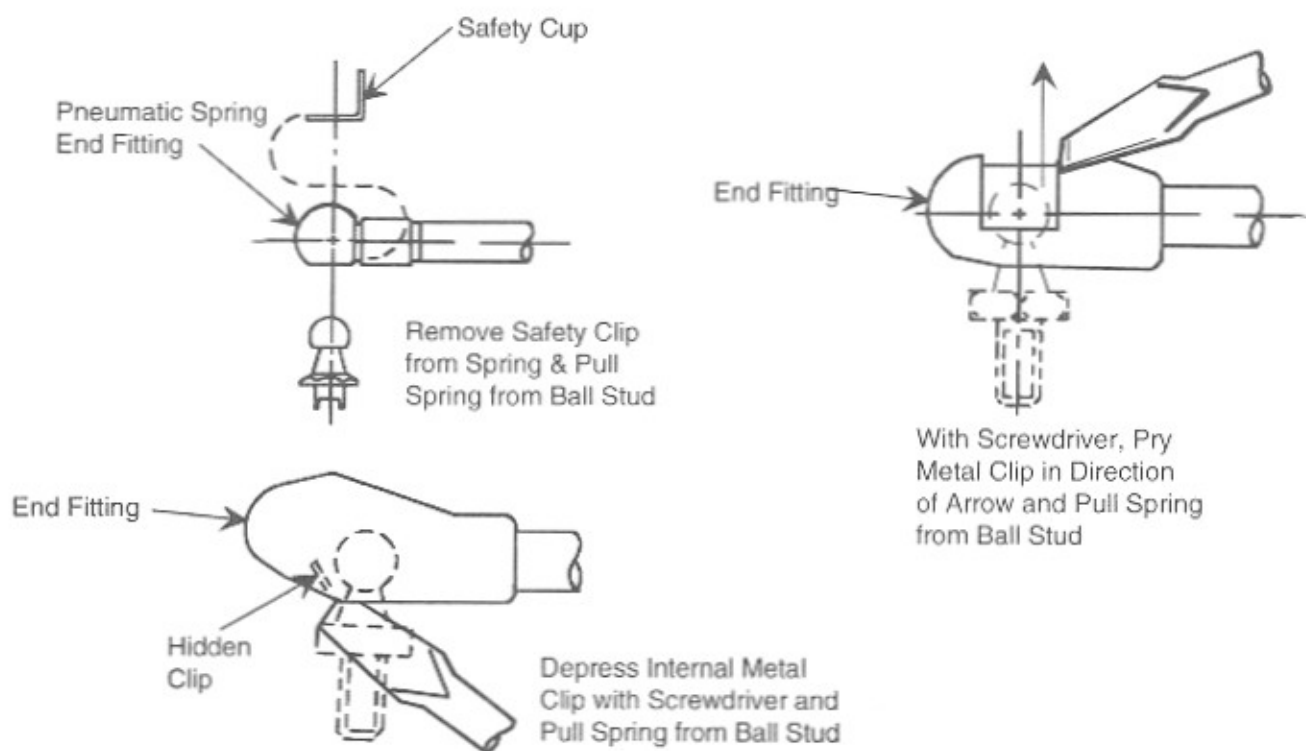


Figure 6-19. Door Spring Fittings

GLASS REPLACEMENT



WARNING:

The top door glass can break or fall on you if you do not follow the recommended removal procedure. For your safety, Rowe does not recommend that you replace the top door glass while the door is on the phonograph. The proper procedure requires two people to remove the top door safely.

Refer to *Figure 6-20* on the next page as you follow the steps below.

1. Unplug the power to the phonograph.
2. Open the cabinet door and remove the title rack.
3. Unplug the low voltage harness at the connector on the upper left side of the phonograph and the 110V harness on the upper right side. Unplug the harness from the keyboard display (two connectors). Disconnect the harness from the cable clamps on the top door. Remove any ground wires that extend from the cabinet to the door.
4. Remove all of the top door hinge screws **except** for one screw and one nut at each end of the hinge.
5. With your helper holding the top door open, disconnect the door springs (*See Figure 6-19 on the previous page*).
6. Remove the two remaining top door hinge screws and nuts while your helper continues to hold the door open.
7. Carefully lift the top door off the phonograph and set it on a clean smooth working surface, with the outside of the door facing down.
8. Remove all of the screws from the trim on the right and left side of the glass. The two trim pieces clamp the glass to the door.
9. Remove the keyboard/display latch mechanism.
10. Lift the door far enough to slide the trim out.
11. Protect your hands by wearing gloves and remove any remaining broken glass from the door. Use a brush or vacuum if necessary to remove smaller pieces of glass.
12. Note that on the top and bottom the door glass was setting on a "lip."
13. Lift the door far enough to slide the new glass underneath, into and through the opening far enough to clear the lower lip. Continue holding the door up and slide the glass back until it is setting on the lower lip.
14. Re-install the trim and all other hardware removed in steps 8 and 9.
15. Lift the door back onto the phonograph and attach all screws and nuts removed in steps 4 and 6. Be sure the door is centered before tightening the screws.
16. While your helper holds the door, reconnect the door springs and make sure the springs are properly supporting the door.
17. Reconnect the harnesses and the ground wires removed in Step 3.
18. Reinstall the title rack and reconnect the harness.
19. Plug in the phonograph and play a selection. Make sure the title rack pages turn and all lights are on.
20. Check the clearance between the top door and the CBA and slide the CBA out if necessary.