

The full cycle switch (Item 3, Fig. 21) should be set to provide good contact with at least .030" wiping action. The opening of the contacts, when actuated by the cam end of the upper coin stop arm (Item 5, should occur at a point that will stop the mechanism with the "adjusting screw and bearing" assembly (Item 4) resting in the detent of actuating cam (Item 6).

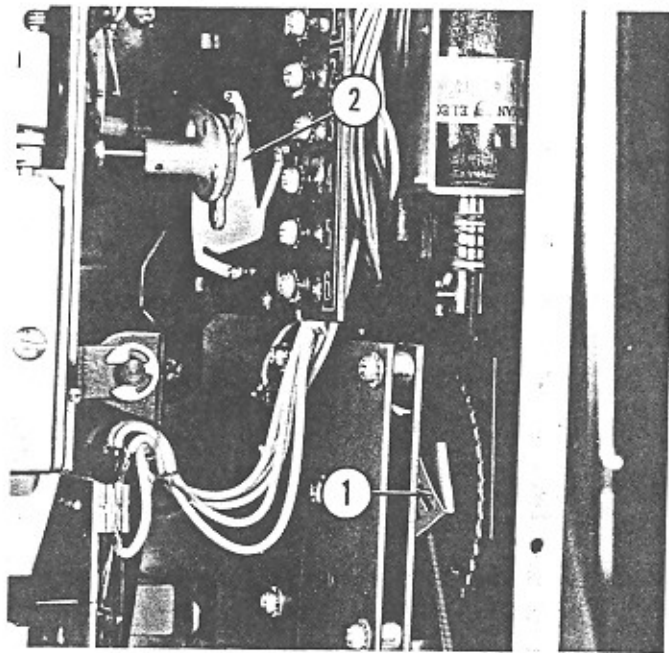


Fig. 22. CONTACT SPRING PRESSURE

- | | |
|---|--------|
| 1. Contact Spring, L. H., Credit Lights | 113566 |
| 2. Contact Spring, Accumulator | 113916 |

The contact springs of the credit light contractor (Item 1, Fig. 22) should have pressure on the printed board of 15 to 30 grams. The contact springs of the accumulator contactor (Item 2) should have pressure on the printed board of 15 to 30 grams.

ELECTRIC SELECTOR SYSTEM 2300-2300S

Fig. 23. Selector Switch Connector Link Adjustments.

It is essential that both the letter and the number button switches, as well as their latch bars, operate freely with no drag, from their maximum depressed position to their complete retracted position. The respective latch bars (Item 5, Fig. 23) of these switches must engage freely with the switch push rods and retract freely when the switch push rods are released. The two letter switch latch bars are joined together by the connector link (Item 8) and coupled to the "shaft, link and lever" assembly (Item 3). This coupling point is adjustable by means of the adjusting clip (Item 9). The adjustment of this clip should provide minimum back lash consistent with complete freedom of operation. The adjustment screw (Item 7) is provided to synchronize the movement of the two letter switch latch bars. The number switch latch bar is coupled to its "shaft, link and

lever" assembly (Item 2) in the same manner as described for the letter switches. Adjustment of the clip (Item 10) should be accomplished under the requirements described for the letter switch linkage.

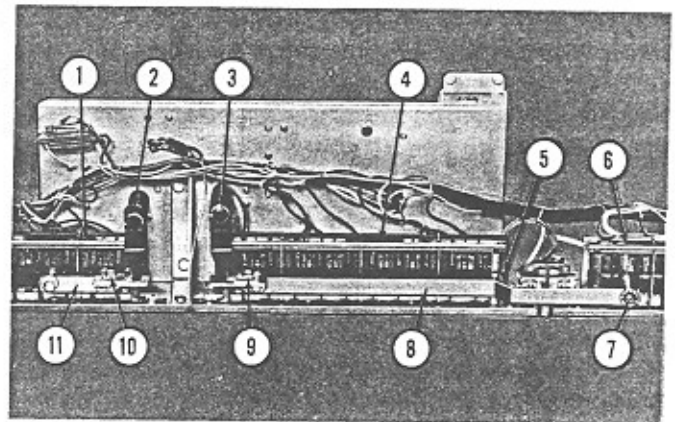


Fig. 23. SELECTOR SWITCH CONNECTOR LINK ADJUSTMENTS

- | | |
|---|--------|
| 1. Selector Switch, Numbers | 111581 |
| 2. Shaft, Link and Lever Assembly, Numbers | 111898 |
| 3. Shaft, Link and Lever Assembly, Letters | 111897 |
| 4. Selector Switch, Letters | 111582 |
| 5. Latch Bar, Selector Switch, Letters | |
| 6. Selector Switch, Letters | 111582 |
| 7. Adjustment Point to Synchronize Latch Bars | |
| 8. Connector Link, Letter Latch Bars | 111750 |
| 9. Adjustment Clip, Letter Linkage | 61343 |
| 10. Adjustment Clip, Number Linkage | 68280 |
| 11. Connector Link, Number Switch | 111736 |

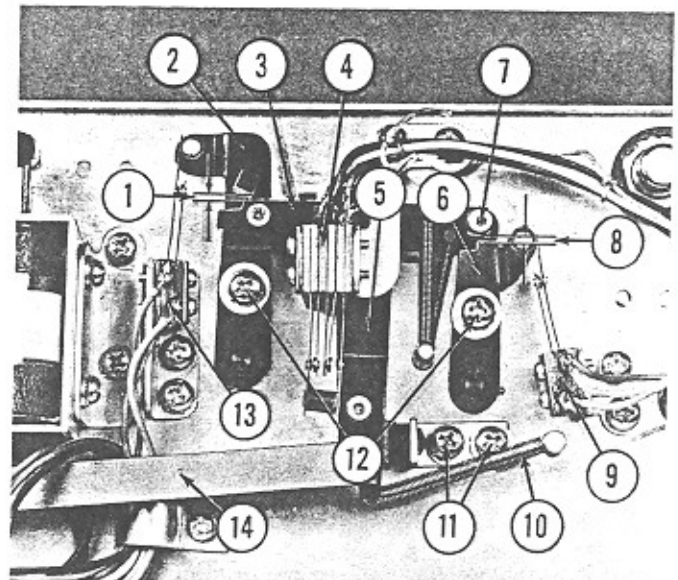


Fig. 24. SELECTOR SWITCH AND SOLENOID ADJUSTMENT

- | | |
|--|----------|
| 1. Dimension 1/32", Square Stud on Pawl to Trip Lever | |
| 2. Pawl, Stud and Spacer Assembly, Letters | 65009 |
| 3. Trip Lever, Stud and Spacer Assembly, Letters | 56714 |
| 4. Switch, Bracket and Brace Assembly, Latch Solenoid | 112046 |
| 5. Release Lever, Stud and Spacer Assembly | 56713 |
| 6. Trip Lever and Spacer Assembly, Numbers | 65010 |
| 7. Pawl, Stud and Spacer Assembly, Numbers | 56712 |
| 8. Dimensions 1/32", Square Stud on Pawl to Trip Lever | |
| 9. Switch and Bracket Assembly, Series, Numbers | 66007 |
| 10. Spring, Solenoid Retracting | 57130 |
| 11. Adjusting Screws, Solenoid Stop Bracket | 73533-34 |
| 12. Adjusting Screws, Trip Lever | 73533-34 |
| 13. Switch and Bracket Assembly, Series, Letters | 111810 |
| 14. Crank and Link Assembly | 111720 |

a. Adjustment of the latch solenoid stop bracket (Item 11, Fig. 24) should be made with the "crank and link" assembly (Item 14) retracted against the stop bracket under tension of the retracting spring (Item 10). Loosen the two stop bracket screws (Item 11) and move the bracket on its elongated mounting holes to provide $1/32$ " clearance (Items 1 and 8) between the square stud on the pawl (Item 2) and the adjacent trip lever (Item 3). Check this dimension after tightening the stop bracket screws. If necessary, repeat the adjustment to obtain an average dimension as indicated at Items 1 and 8.

b. The adjusting screws (Item 12, Fig. 24) for the number trip lever (Item 6) and the letter pawl (Item 2) serve to take up the backlash in their respective linkages. With any one of the selector buttons fully depressed, and with the latch solenoid actuated, the pawl (Item 2) should be set to permit full engagement of the trip lever (Item 3) with the square stud of the pawl (Item 2). There should be a minimum of backlash at the selector buttons to insure good contact of the selection switch. In like manner the square stud of the number pawl (Item 7) should engage the trip lever (Item 6) when any one of the number buttons is fully depressed.

c. Adjustment for release lever clearance (See Item 5, Fig. 24) may be best accomplished by removal of latch solenoid switch assembly (Item 4).

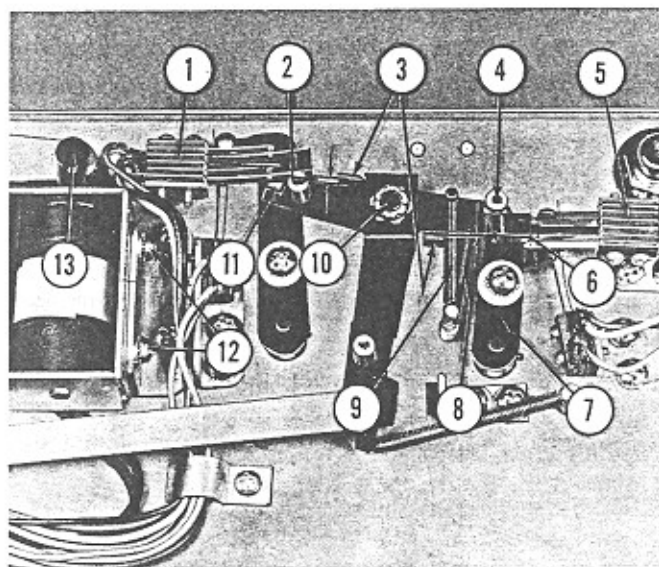


Fig. 25. SELECTOR SWITCH LATCH ADJUSTMENT

1. Switch, Letter Latch	60518
2. Dimension $1/32$ ", Trip Tab of Release Lever to Trip Lever	
3. Trip Tabs of Release Lever, Stud and Spacer Assembly	
4. Square Stud, Number Pawl	
5. Switch, Number Latch	60518
6. Dimension $1/32$ ", Trip Tab of Release Lever to	
7. Trip Lever and Spacer Assembly, Numbers	65010
8. Spring, Number Pawl	57129
9. Spring, Letter Trip Lever	57128
10. Elastic Stop Nut, Mounting Stud	23879
11. Square Stud, Letter Pawl	
12. Adjusting Screws, Latch Solenoid	73533-34
13. Plunger, Latch Solenoid	112104-1

a. The latch solenoid should be loosened at its mounting screws (Item 12, Fig. 25) and lowered on its mounting bracket. The latched position of the selector switch linkage should be established as described under Fig. 24 and the latch solenoid, with its plunger (Item 13, Fig. 25) held firmly bottomed in the solenoid, adjusted on its mounting bracket to provide $1/32$ " clearance as shown at Items 2 and 6. The closest of the two release tabs (Item 3) to its corresponding pawl and stud (Item 11) or trip lever (Item 7) should be $1/32$ " when the square studs are fully engaged. It is important that the trip lever (Item 3, Fig. 24) the release lever (Item 5, Fig. 24) and the "pawl and stud" assembly (Item 7, Fig. 24) operate freely with minimum looseness, on their mounting stud (Item 10, Fig. 25). The elastic stop nut shown at Item 10 is adjustable for this purpose.

b. The latch solenoid switch should be re-mounted and adjusted on its elongated mounting holes to provide $1/32$ " to $1/16$ " opening of its normally closed contacts when the latch solenoid is held in its fully actuated condition as shown in Fig. 25. At the same time its normally open contacts should close with enough over-travel to provide good wiping action of the contacts.

c. The letter and number latch switches (Items 1 and 5, Fig. 25) are assembled and adjusted, in production, with all contacts normally open. This should be $1/32$ ". When the latch solenoid is actuated electrically under normal operating conditions or pre-set manually as described above, the mounting screws of the switch brackets may be slightly loosened and the assembly moved to provide good contact of the switch blades, with sufficient over-travel to produce wiping action of about $1/32$ ".

d. The letter and number series switches (Items 13 and 9, Fig. 24) are pre-set in production to provide normally closed contacts with 30 to 40 grams of contact pressure. When the latch solenoid is actuated electrically under normal operating conditions or pre-set manually as described above, the series switch mounting screws may be slightly loosened and the "switch and bracket" assembly moved to provide contact opening of $1/32$ ".

a. The forward mechanical stop adjustment for the number quadrant (Item 1, Fig. 27) may be accomplished as follows:

Depress number solenoid No. 0 (Item 11, Fig. 27) and turn the rotating plate and rocker assembly (Item 1, Fig. 26) in a clockwise direction by turning the nylon gear (Item 13) of the selector drive motor. One of the stop pins (Item 6, Fig. 27) will engage the depressed plunger of stop solenoid No. 0 and start moving the number quadrant assembly (Item 1, Fig. 27). Continue the rotation until the number quadrant

stops against the forward stop screw (Item 3, Fig. 27). At this point the tips of rocker arms (Item 12, Fig. 26) should be aligned with twenty corresponding latch pins designated as No. "O" eg. "AO", "BO", "CO" etc. Also the rocker actuating bars (Item 8, Fig. 26) must be aligned with their respective letter solenoid plungers. Repeat the above procedure using number stop solenoid No. 1 (Item 10, Fig. 27) to provide the forward stop position.

NOTE: It may be necessary in some cases to justify the above requirements to provide correct indexing of the rocker arms under electrical operation.

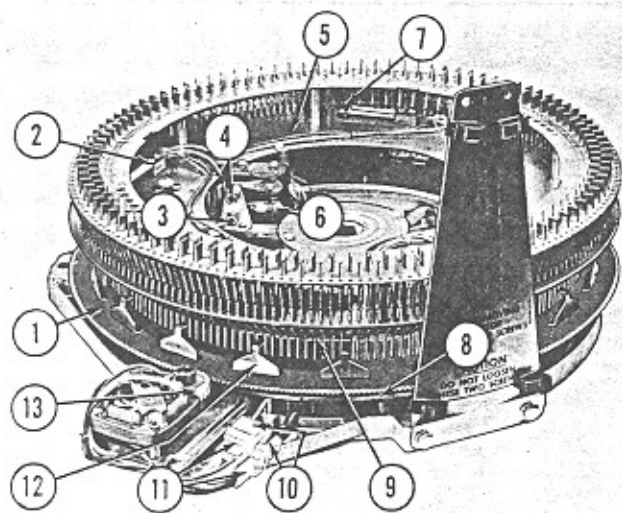


Fig. 26. ELECTRIC SELECTOR ADJUSTMENTS

1. Rotating Plate and Rocker Assembly	68245
2. Over-ride Switch Assembly (4)	65952
3. Adjusting Screw, Start Switch	73515-38
4. Adjusting Screw, Reverse Switch	73515-36
5. Lower Plate and Spacer Assembly	68448
6. Start Switch	61596
7. Nylon Spacer, Wobble Ring (4)	68650
8. Actuating Bar, Rocker Arm	
9. Wobble Ring	67927
10. Socket, 3 Circuit	111528
11. Cap, 3 Circuit	111526
12. Rocker Arm	67926
13. Nylon Gear, Selector Motor	68717

b. The start switch (Item 6, Fig. 26) should be set to actuate by the forward rotation of the number quadrant. Set the adjusting screw (Item 3, Fig. 26) to produce switch action at the forward stop position established above. Over-travel of $1/32$ " to $3/64$ " should be added to the adjustment screw (Item 3, Fig. 26).

c. The rear mechanical stop (Item 8, Fig. 27) should be set to provide $1/16$ " over-travel of the number quadrant following release action of the start switch. The number quadrant is retracted by its coil spring (Item 9, Fig. 27).

d. The reverse switch adjusting screw (Item 4, Fig. 26) will be adjusted with the number quadrant retracted against its rear stop adjustment as estab-

lished above. Turn the reverse switch adjusting screw clockwise until the switch is actuated. Then turn it counter-clockwise until the switch again actuates in its retracted position. Continue the counter-clockwise rotation for $1/2$ turn of the screw to provide correct over-travel.

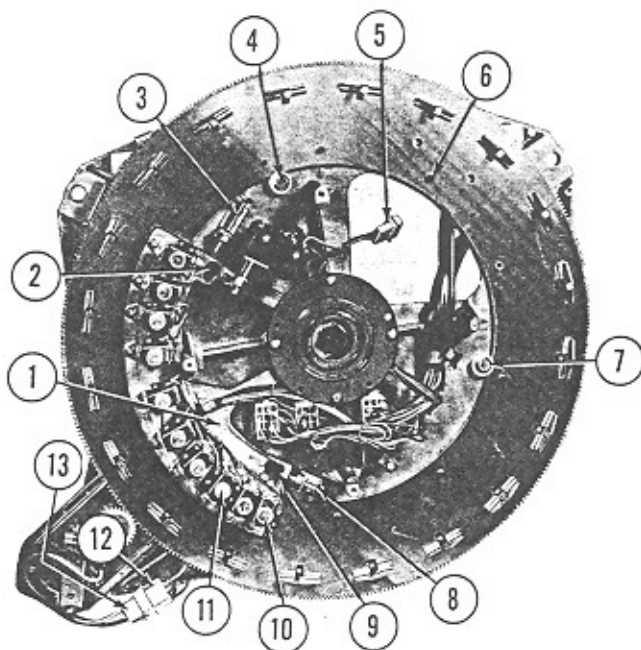


Fig. 27. ELECTRIC SELECTOR ADJUSTMENTS

1. Mounting Casting Assembly	113734
2. Shoulder Stud	68649
3. Screw, Forward Stop	73793-122
4. Stud, Guide Roller	68657
5. Cap, 3 Circuit	111526
6. Stop Pin, Rotating Plate (10)	115411
7. Shoulder Stud, Eccentric, Guide Roller	69659
8. Screw, Rear Stop	73793-122
9. Spring Retracting	62773
10. Number Stop Solenoid No. 1	68804
11. Number Stop Solenoid No. 0	68617
12. Socket, 3 Circuit	111528
13. Cap, 3 Circuit	111526

e. Adjustments for the selector cranks and indexing with the record carrier will be covered following installation and alignment of the electric selector with the record changer.

CONTROL SWITCH ADJUSTMENTS 2300-2300S

Based on the correct setting of the record guide, the safety switch adjusting screw (Item 2, Fig. 28) should be set as follows:

a. Turn the safety switch adjusting screw (Item 2) counter-clockwise until the switch is released to its normally open condition.

b. Turn the safety switch adjusting screw back in a clockwise direction until the switch again actuates.

c. Continue the clockwise rotation of the adjusting screw for one half to one full turn after switch actuation to provide the required over-travel.

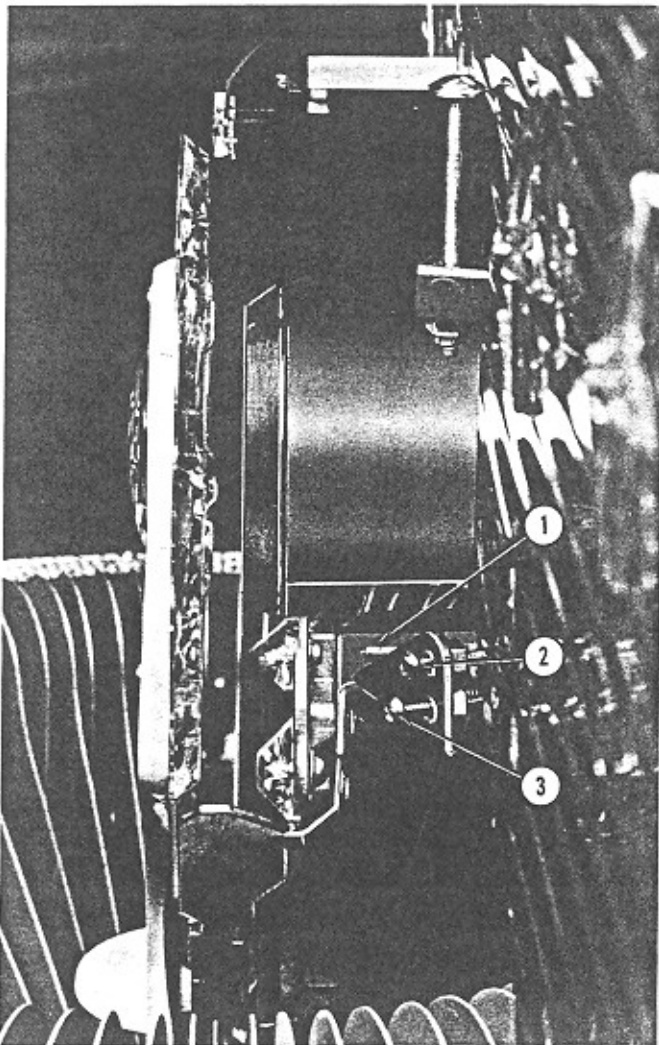


Fig. 28. SAFETY SWITCH SETTING

1. Spring, Record Guide Retracting	59606
2. Screw, Safety Switch Adjustment	73800
3. Screw, Record Guide Adjustment	73656-74

a. When a selector latch pin (Items 1 and 2, Fig. 29) is released, the wobble ring (Item 7) on which four spacers (Item 8) are mounted, will be displaced, causing one or more of the spacers to actuate one or more of their respective over-ride switches (Items 3 and 5). The wobble ring rests on shoulders of the 200 selector latch pins as shown in the cut-away section of Fig. 29. There is no adjustment provided for the over-ride switches, however, the forming of their blades should provide $1/32''$ to $1/16''$ normally open condition and positive contact with good wiping action of one or more of the switches when the wobble ring is displaced by any one of the selector latch pins.

b. Check for proper over-ride switch action by using several different selector pins at various points around the selector drum. Switch action may be readily identified by listening for over-ride relay action when contact is made by one of the over-ride

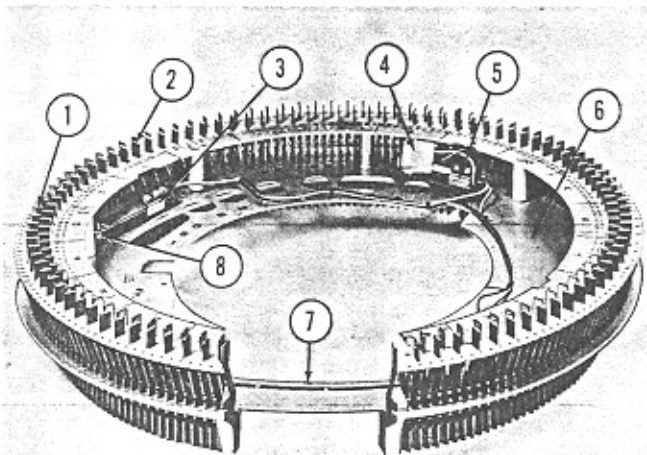


Fig. 29. SELECTOR PLATE AND LATCH PIN ASSEMBLY

1. Latch Pin, Outer	110941
2. Latch Pin, Inner	110942
3. Over-ride Switch	65952
4. Housing	Female 111528 Male 111526
Contacts for Housings	111527
5. Over-ride Switch	65952
6. Lower Plate and Spacer Assembly	69492
7. Wobble Ring	67927
8. Spacer, Wobble Ring	68650

switches. The relay action should occur at about one third of the travel distance of the selector latch pin when it is released. Also the relay should be released at about the same point when the latch pin is reset.

The carriage switch (Item 2, Fig. 30) functions as the actuating component for the reversing relay. Therefore, its operation must be closely synchronized with the rotating position of the record carrier. Its proper adjustment is dependent on the correct mechanical adjustment of several other sub-assemblies of the record changer. Adjustment of the carriage switch may be accomplished as follows:

With the record carrier and the selector crank approaching a selected latch pin, set the carriage switch actuating screw (Item 3) to produce switch action at a precise point where the corresponding back-stop pawl of the record carrier drops into engagement with the correct tooth of the record carrier casting. Over-travel tolerance of $1/32''$ to $3/64''$ beyond the initial point of engagement should be provided.

NOTE: The above adjustment should be verified at 6 well distributed inner latch pins and 6 well distributed outer latch pins. The adjustment should, if necessary, be justified to conform. The selector crank stop adjustment, which is described under mechanical adjustments will nominally coincide with the carriage switch setting.

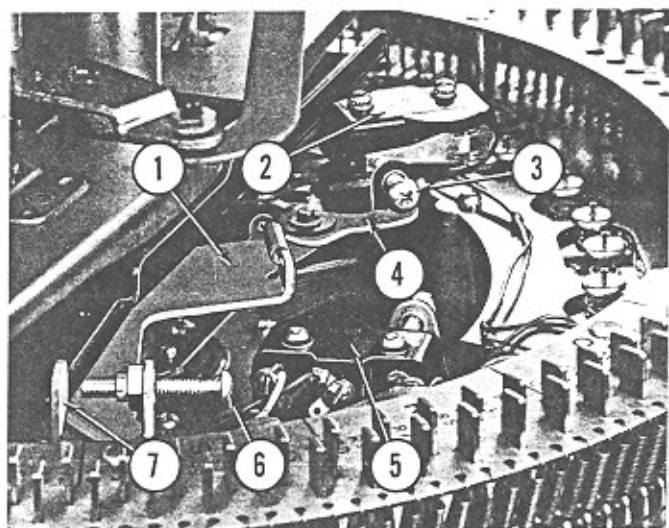


Fig. 30. CARRIAGE SWITCH ADJUSTMENT

1. Selector Shaft and Adjusting Plate Assembly	115669
2. Carriage Switch	110557
3. Screw, Carriage Switch Adjusting	73502-95
4. Switch Lever and Stop Nut Assembly	110937
5. Reverse Switch	61596
6. Screw, Selector Crank Stop Adjustment	73503-95
7. Stop Tab, Selector Crank (See Item 1)	

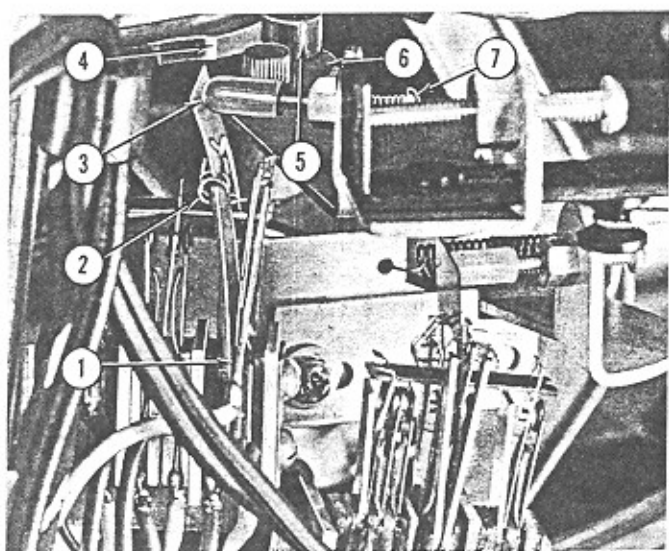


Fig. 31. TRANSFER SWITCH ADJUSTMENT

1. Transfer Switch	59569
2. Over Center Spring	59569-1
3. Position of Switch to Start Adjustment	
4. Lobe, Transfer Switch	
5. Roller, Actuating	56592
6. Actuating Arm, Transfer Switch	59691
7. Adjusting Screw, Transfer Switch	73574-31

The transfer switch (Item 1, Fig. 31) is a part of the "switch and bracket" assembly mounted on the rear of the chassis casting below the record changer motor. The actuating arm (Item 6) for the transfer switch has one adjusting screw, which regulates the action of the transfer switch. The actuating arm pivots on the chassis casting and is operated by its roller (Item 5) against one of the lateral lobes (Item 4) of the main cam. Adjustment of the transfer switch may be accomplished as follows:

a. Advance the record changer cycle of operation until the roller (Item 5, Fig. 31) is at the base of the long cam lobe (Item 4). In this condition the adjusting screw (Item 7) should be backed off enough to clear the actuating tab of the transfer switch.

b. Advance the cycle to a point where the roller (Item 5, Fig. 31) rides up on the cam lobe (Item 4).

c. Turn the adjusting screw (Item 7, Fig. 31) clockwise until the transfer switch is actuated over-center by its toggle spring (Item 2). After the switch has actuated, continue advancing the adjusting screw to provide $1/32''$ to $1/16''$ over-travel as measured at the tip of the screw. The screw has 32 threads per inch, therefore one to two full turns of the screw will suffice.

d. Turn the service switch "on" and test the mechanism through several cycles to verify the adjustments.

NOTE: When no selector latch pins are in the raised position the transfer switch functions to terminate the cycle of operation. The position at which this condition occurs is generally referred to as the "at rest" position of the record changer.

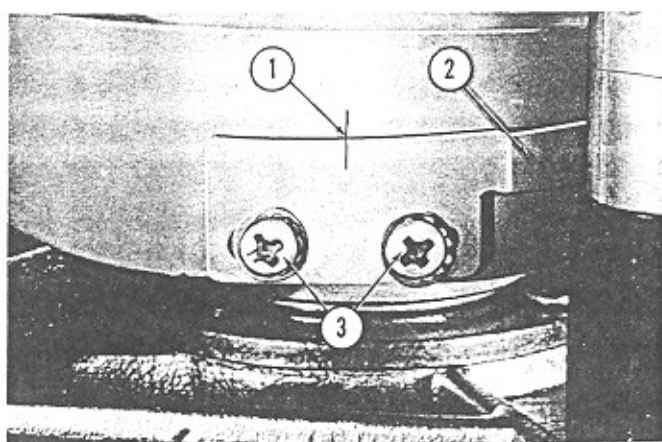


Fig. 32. MUTE AND PLAY SWITCH TIMING

1. Timing Marks, Main Cam and Adjustable Cam	
2. Adjustable Cam, Mute and Play Switch	62768
3. Locking Screws, Adjustable Cam	73534-14

The cam lobe (Item 2, Fig. 32) that operates the mute and play switch is mounted to the lateral surface of the main cam by two locking screws (Item 3). It is adjustable to permit advance or delay in the action of the mute and play switch. Item 1 shows index lines on the main cam and on the adjustable lobe for mute and play switch operation. Adjustment of this lobe as shown is accurate in the majority of cases, however, the following procedure may be used to check the accuracy of the setting or, if necessary, to re-adjust:

a. Set the "Mute and play" cam lobe so that the timing marks align as shown in Fig. 32.

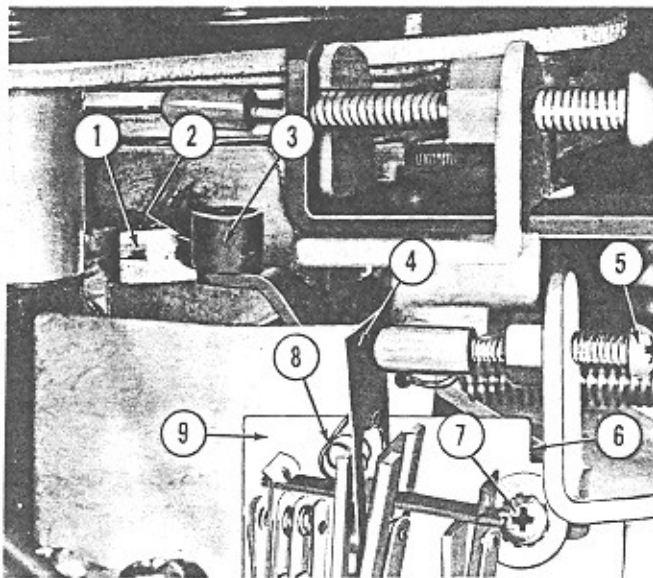


Fig. 33. STOP PLATE SETTING, MUTE AND PLAY SWITCH

1. Mute and Play Switch Cam	62768
2. Zero to 1/64" Clearance (Stop Plate Setting)	
3. Roller, Mute and Play Switch Actuating Arm	56592
4. Switch Tab, Over-travel Measured at This Point	
5. Actuating Screw	73574-31
6. Stop Position	
7. Locking Screws (One Hidden)	73534-14
8. Over-center Spring	59569-1
9. Stop Plate	62769

b. Advance the cycle of operation to a point where the roller of the actuating arm (Item 3) is at the base of the cam lobe (Item 1, Fig. 33) but still resting on the surface of the main cam. Adjust the stop plate (Item 9) to bear against the actuating arm at Item 6, to provide 1/64" clearance between the roller and the main cam as indicated at Item 2.

c. Set the actuating screw (Item 5, Fig. 33) of the mute and play switch actuating arm to provide actuation of the mute and play switch under the spring loading of the actuating arm. Over-travel action after switch operation should be 1/32" to 1/16" as measured at the switch tab (Item 4). Advance the cycle to position the roller on the highest point of the mute and play switch cam and check for complete retraction of the switch and over-center action of the toggle spring (Item 8). In some cases it may be necessary to justify the adjustment of the actuating screw (Item 5) to obtain satisfactory over-travel in both positions of the mute and play switch.

d. For final check under operating conditions, operate the mechanism to its playing position and closely observe the actuating cam for the turntable during trip or cancel switch operation. If there is any forward motion of the cam when one of these switches actuate, the mute and play switch is stopping the mechanism ahead of its best playing position. In this event set the mute and play switch cam lobe in a slightly retarded direction (to the left as viewed from the rear). Also closely observe the actuating cam

for the turntable as the mechanism stops in its playing position. If there is any reverse action of the cam at the playing position, the mute and play switch is allowing the mechanism to pass beyond its best playing position. In this event set the mute and play switch cam lobe in a slightly advanced direction (to the right as viewed from the rear).

e. It may be necessary to repeat one of the above settings to insure the best playing position and provide complete freedom of the tone arm from its handling levers.

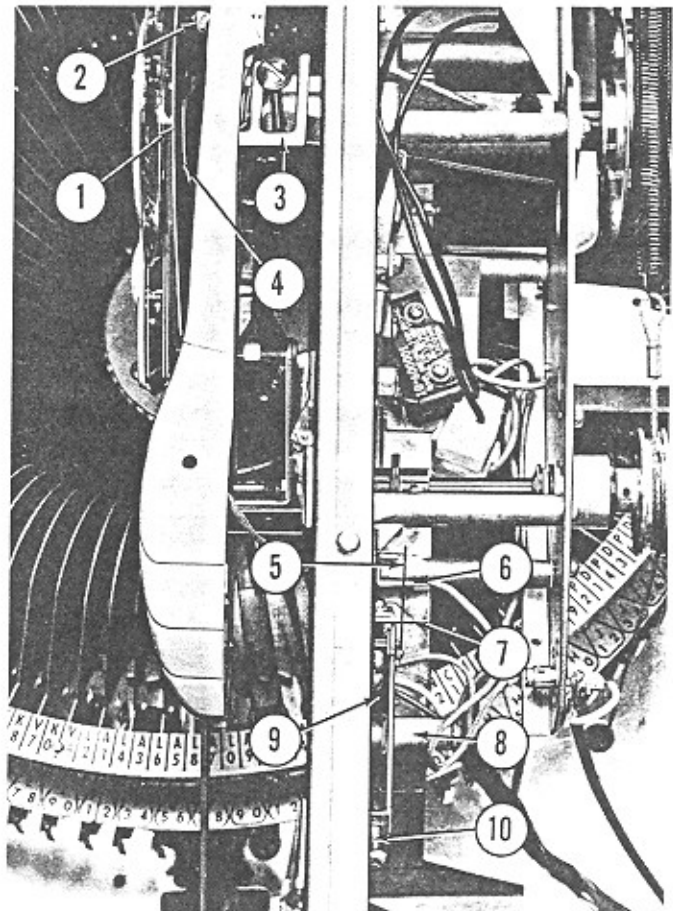


Fig. 34. TRIP SWITCH SETTING

1. Record Disc	X42226
2. Pick-up Needle	57525
3. Latch Bracket, Tone Arm Feed-in	
4. Trip Groove	
5. Arm, Trip Switch	59583
6. Actuating Bracket (Part of Tone Arm)	
7. Stop Bracket, Trip Switch	59432
8. Mounting Bracket, Trip Switch	59739
9. Micro Switch, Trip	57851
10. Adjusting Screw, Trip Switch	73793-86

The trip switch adjustment is located at the right rear of the top support casting. It is actuated by the bracket (Item 6, Fig. 34) of the tone arm assembly. The action of the trip switch may be advanced or retarded by turning the adjustable stop screw (Item 10). The operation of the trip switch should occur after the needle has left the playing groove and is accelerated toward the center of the record by the

trip groove of the record. Records vary considerably in the length of their playing grooves and therefore require a trip switch adjustment that will accommodate the majority of records used. Where "extended play" records are used, the required trip point is $3/32$ " nearer the center than for "standard play" records. Factory adjustment of the trip mechanism is made in accordance with R. I. A. A. standards, which includes "extended play" records. One of the two following methods may be used for making the trip switch adjustment:

a. Using Fixture Disc X42226

From the "at rest" position of the record changer, advance the cycle to a point where the record clamp just actuates to hold the record in place on the turntable and turn off the power at the service switch or at the main switch.

b. Manually release the record clamp by pulling back on the record clamp plate at the rear of the turntable shaft, and install fixture disc X42226 on the turntable with the tone arm markings facing the rear.

c. Manually advance the cycle of the record changer by turning the shaft of the changer motor counter-clockwise, as viewed from the rear, until the tone arm is released for compliance with the record grooves. The tone arm latch bracket (Item 3, Fig. 34) should be entirely free from the feed-in adjusting screw as shown.

d. The trip switch adjusting screw (Item 10, Fig. 34) should be set at a point which will produce switch action when inward movement of the tone arm positions the pick-up needle $3/32$ " beyond the trip groove marking on the fixture as shown at Item 2.

e. Alternate method, adjustment by measurement: Advance the record changer cycle of operation as indicated in step "a".

f. Using a standard record instead of the fixture disc, perform steps "b and c" as described above.

g. The trip switch adjusting screw (Item 10, Fig. 34) should be set at a point which will produce switch action when inward movement of the tone arm positions the pick-up needle $1-1/4$ " to $1-5/16$ " from the outer circumference of the turntable pilot.

NOTE: The above methods for trip switch setting provide satisfactory action for a majority of 7", 45 R. P. M. records.

The service switch is located on the junction box at the rear of the phonograph. It serves as an aid in making adjustments by stopping the changer motor at any phase of the cycle of operation.

The loading switch also functions to stop the changer motor and is located at the front of the phonograph to operate in conjunction with the loading lever. It will stop record changer only in the "at rest" position for changing of records. Selections may be made while the loading switch is off, however, over-ride switch action is intercepted by the loading switch and will not operate the mechanism until the loading lever is returned to its playing position.

RECORD CHANGER 2300-2300S

The roller guides for the record liftarms guide tips (Items 2 and 12, Fig. 35) are mounted on top of the chassis mounting plate just below the record carrier. Mounted at the upper ends of the record lift arms are the two guide tips (Items 2 and 12). These tips are pivot mounted on the shaft (Item 4) and spring loaded by a torsion spring (Item 10) to spread them apart as shown. When the record lift arms are held down in the "at rest" condition of the record changer, these guide tips are held compressed by the bracket

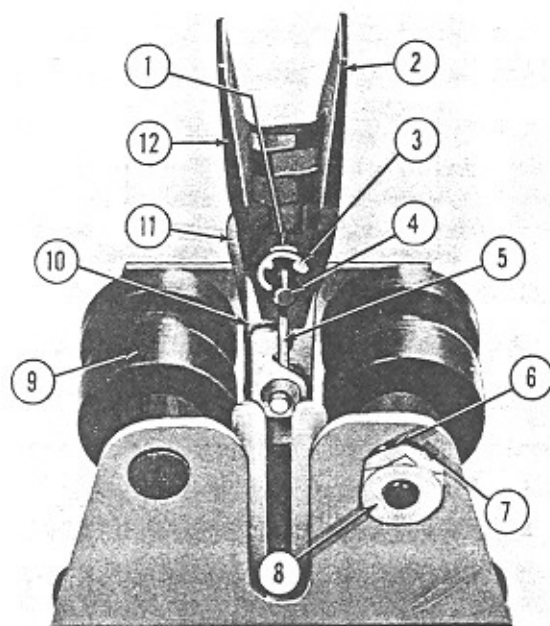


Fig. 35. BRACKET AND ROLLER ASSEMBLY, LIFT ARM GUIDE

1.	Washer (2 used)	65937
2.	Guide Tip, R. H.	65730
3.	Retaining Ring	73724-9
4.	Shaft	65938
5.	Stop, Guide Tips	65526
6.	Washer	54024
7.	Lock Washer	73605-5
8.	Nut, 6-32 Hex.	73601-6
9.	Roller, Lift Arm Guide (2 used)	65939
10.	Spring, Guide Tips	65812
11.	Guide Plate	68290
12.	Guide Tip, L. H.	65731