WURLITZER

2400 SERIES
2400, 2404, 2410

SERVICE MANUAL

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2400 SERIES PHONOGRAPHS

COIN EQUIPMENT

2400S-2400, 2410S-2410, 2404S-2404

References to "Right hand" and "Left hand" are made when viewing the phonograph from the front, unless otherwise specified.

The coin equipment used on all Wurlitzer 1960 Models consists of the conventional slug rejector assembly and either the single pricing coin register mechanism (playrak) or Wurlitzer's dual pricing coin register mechanism. These units are mounted inside of the right hand panel. The figures following show the method for removal of the units. The various parts are identified and listed as an aid in describing the adjustments which follow.

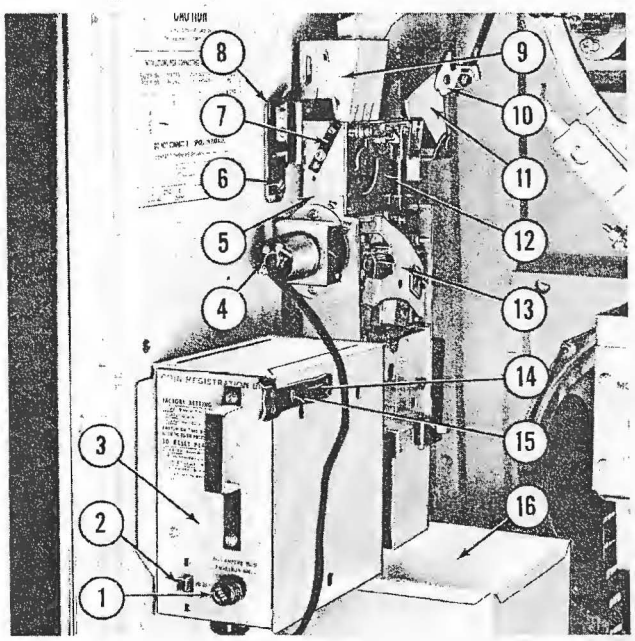

Fig. 1. COIN EQUIPMENT, PLAYRAK

1.	Fuse Post	51485
2.	Switch	62886
3.	Coin Register Mechanism, Playrak	115851
4.	Plug, 5 Pin	116617
5.	Slug Rejector Assembly, Bracket and Coin Separator	110982
6.	Shoulder Screw Top 116717 Bottom	116716
7.	Latch Spring, Coin Separator	National
8.	Slide Lock	111125
9.	Lower Coin Chute Assembly	68552
10.	Lever and Bracket Assembly	113854
11.	Pin and Actuator Assembly	68545
12.	Coin Separator, 5-10-25-50	National
13.	5-10-25 Cent Slug Rejector	National
14.	Catch and Spring Assembly	64883
15.	Shipping Screw	73531-1
16.	Coin Bag Housing Assembly	116352

Although those phonographs shipped from the factory with the playrak coin register mechanism are set for: 1 play - dime, 3 plays - quarter, and 7 plays - half dollar; they may be adjusted to nickel selection if desired. Remove the two screws (Fig. 2, Items 8 & 9), and set the nickel flipper (Item 10) in the position shown. Reverse the location of screws (Items 8 & 9) and replace the slug rejector. Move the slide switch (Fig. 1, Item 2) to the 5-10-25 position and reset the stop levers to the desired number of credits as shown in Figure 2, Item 2. The front plate of the playrak (Fig. 2, Item 1) is cut back to provide clearance for raising the unit and disengaging its hinge pins as shown in Figure 2, Item 11.

CAUTION!

Turn the line switch OFF before removing the playrak!

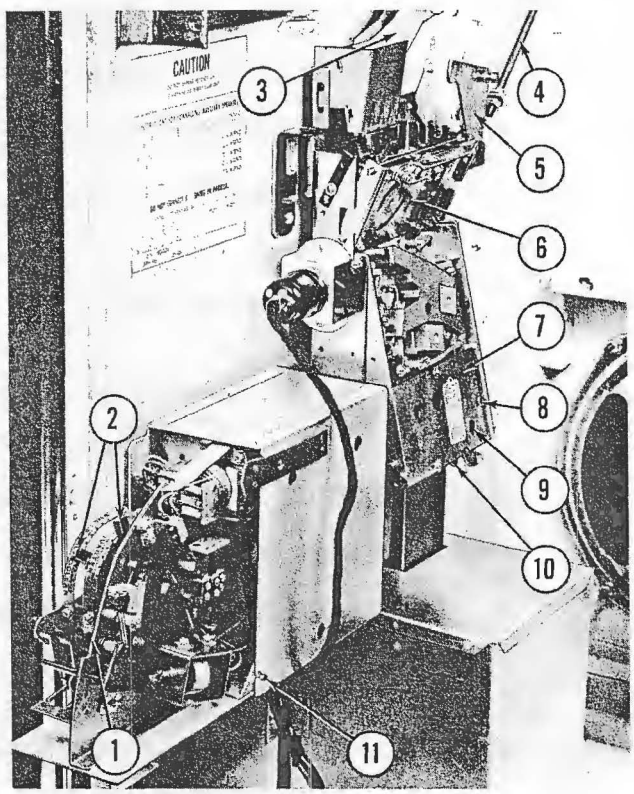

Fig. 2. REMOVAL OF COIN EQUIPMENT

1.	Front Plate	66039
2.	Stop Lever and Spring Assembly	66132
3.	Coin Chute Assembly	116303
4.	Reject Rod	116429
5.	Pin and Actuator Assembly	68545
6.	Coin Separator	National
7.	5-10-25 Cent Slug Rejector	National
8.	Screw, Truss Head	National
9.	Screw	National
10.	Nickel Flipper	National
11.	Pin, Hinge, (2)	66445

The 5-10-25 slug rejector may be removed by first removing the coin separator (Fig. 2, Item 6). The procedure is as follows: Raise the lower coin chute (Fig. 1, Item 9). Unlatch the lever (Item 10) and move the lever and bracket assembly aside. Release the latch spring (Fig. 1, Item 7), lift and remove the coin separator (Item 12) and the slug rejector as shown in Figure 2, Item 7.

CAUTION!

When replacing the slug rejector, handle with care so as to prevent damage to the nickel flipper (Fig. 2, Item 10).

The preceding instructions will also apply to the dual pricing coin register mechanism as shown in Figure 3.

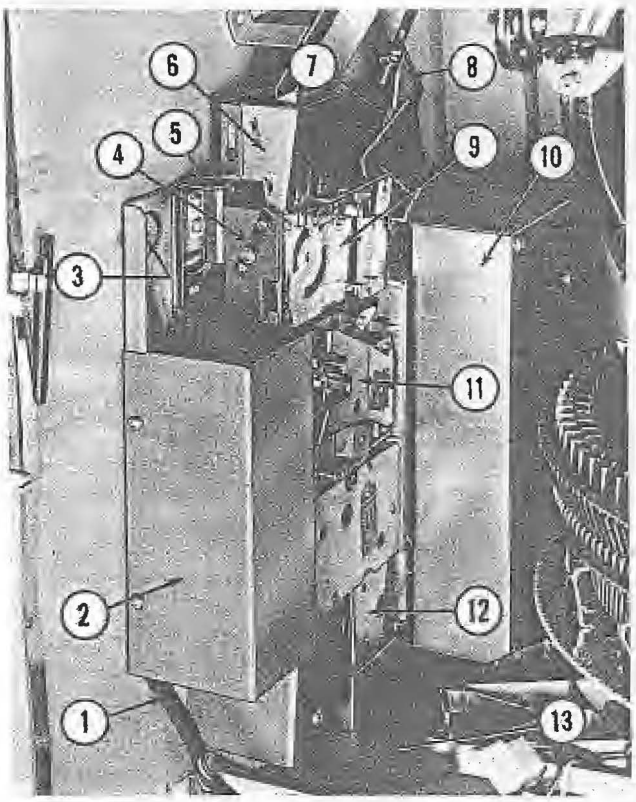

Fig. 3. DUAL PRICING COIN EQUIPMENT

1. Cable and Plug Assembly	115974
2. Shield, Relays	116268
3. Shipping Screw 5/8 - 8, R.H.	73592-21
4. Latch Spring, Coin Separator	National
5. Slide Lock	111125
6. Lower Coin Chute Assembly	68552
7. Pin and Actuator Assembly	68545
8. Lever and Bracket Assembly, Reject Arm	113854
9. Coin Separator	National
10. Dust Cover and Liner Assembly	114643
11. 5-10-25 Cent Slug Rejector	National
12. Coin Casting and Support Assembly	113961
13. Housing, Coin Bag	116352

The dual pricing coin register mechanism is a combination slug rejector and credit accumulator which will store up to a maximum of 20 credits. The unit is mounted on three shoulder screws and held by two shipping screws shown at Item 3. The entire assembly may be removed by disconnecting the cable plugs at the junction box, removing the two shipping screws mentioned above, lifting the slide lock (Fig. 3, Item 5) and disengaging the lever and bracket assembly (Item 7). Slide the top of the assembly back on its slotted mounting holes, tilt it toward the changer mechanism and lift off. Pricing changes may be made without removing the entire assembly. The pricing board is accessible by removing the cover and liner assembly (Item 10). Information on the various pricing arrangements is printed on the cover. By turning in the screws on the printed board (Fig. 4, Item 11) until contact is made with the patches, credits will be increased according to the instructions on the cover and liner assembly.

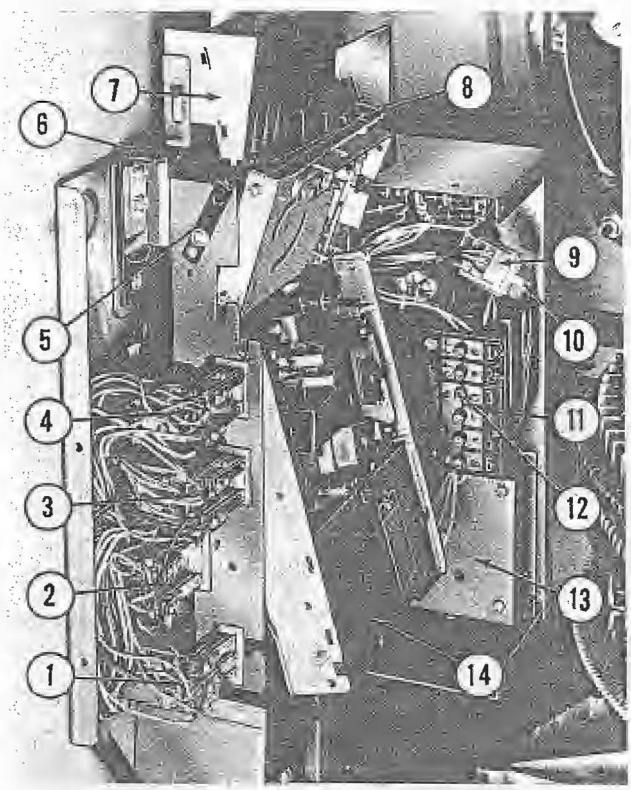

Fig. 4. COIN REGISTER ACCESSIBLITY

1. Relay, Anti-Cheat	114928
2. Relay, Pricing	114889
3. Relay, T.R. #1	114929
4. Relay, Pulse	114949
5. Latch Spring, Coin Separator	National
6. Slide Lock	111125
7. Lower Coin Chute Assembly	68552
8. Coin Separator	National
9. Cap, 9 Circuit	113529
10. Socket, 9 Circuit	113530
11. Printed Board, Pricing Strip	113909
12. Screw, Pricing Change 6-25 x 5/16"(6)	73551-23
13. Accumulator Assembly	114037
14. 5-10-25 Slug Rejector	National

Slug rejectors are the same on all models and are a product of National Rejector, Inc., of St. Louis, Missouri. It is recommended that National Rejectors, Inc., and their branch offices be employed for service or replacement of parts other than those indicated by Wurlitzer numbers. The mechanical adjustment of National components of the slug rejector assembly should be made in accordance with the "Rejector Manual", furnished by National Rejectors, Inc.

1. PLAYRAK ADJUSTMENTS

CAUTION!
Make these adjustments with the power OFF!

a. COIN SWITCH

The coin switches should be adjusted to provide a 1/32" opening of the contact points. This adjustment should be made when the coin paddle (Fig. 5, Item 3) is held against the coin exit of the rejector by the tension of the coin switch movable blade. The tension of the movable blades should be adjusted so that a thin coin, when stopped on the paddle and released, will actuate the movable blade; making contact with the stationary blade and clear the paddle. A pulse of more than 3 seconds duration should normally blow the .8 ampere fuse in the coin magnet (Fig. 6, Item 6) circuit.

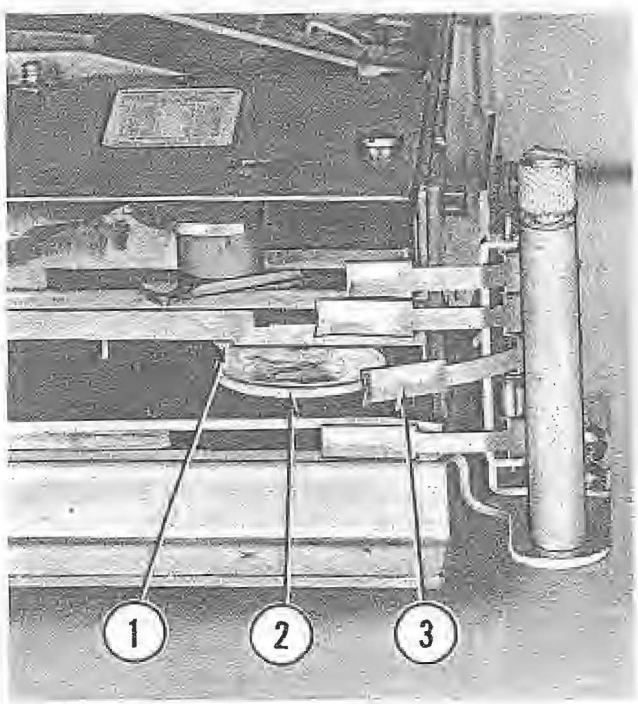

Fig. 5. COIN SWITCH ADJUSTMENT

1. Critical Point
2. Coin
3. Coin Paddle

The final test for the coin switches should be made with the coin assembly in the phonograph in its normal operating condition. Test each individual coin track, ten consecutive times, with coins of varied wear. If one coin fails to register correctly, that particular coin switch should be reexamined and if necessary, readjusted.

Before proceeding to playrak adjustments, check for the condition shown in Figure 6, Item 1. When the studs (Item 4) on the lower end of the two lever, hub and stud assemblies are engaged with the

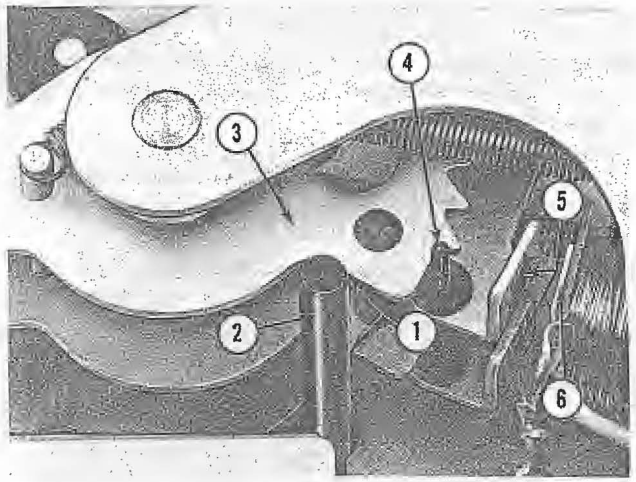

Fig. 6. PLAYRAK ADJUSTMENTS

1. Point of Contact, Driver Pin	
2. Driver Pin, Cancel Wheel	66045
3. Accumulator, Wheel and Hub Assembly	66131
4. Stud, Lever, Hub and Stud Assembly	66129
5. Armature End of Lever, Hub and Stud Assembly	
6. Coin Magnet, Coil Assembly	65770

first tooth of their respective accumulator wheels, as shown, the drive pin (Item 2) of the cancel wheel should rest squarely against the edge of the two accumulator wheels. Should this condition not exist, examine the playrak for bent studs or sprung frame. Correction should be made before proceeding with adjustments.

b. KEY SWITCH ADJUSTMENT

The key switch and bracket assembly may be adjusted by loosening its mounting screws (Fig. 7, Item 2) and moving the bracket to provide 1/32" opening of the key switch contacts (Item 3) when the insulating stud (Item 1) on the cancel wheel is resting slightly on the flat portion of the formed tip of the blade. With one credit on the accumulator wheel, the actuator (Fig. 8, Item 1) should clear the formed tip of the key switch blade as shown in Item 2.

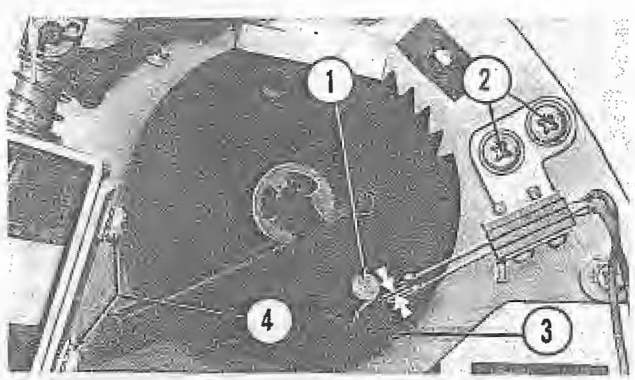

Fig. 7. KEY SWITCH ADJUSTMENT

1. Actuator, Key Switch	58255
2. Screws, Key Switch Adjustment, 6-32	73533-22
3. Dimension, 1/32" Opening	
4. Screws, Cancel Solenoid Adjustment	73533-22

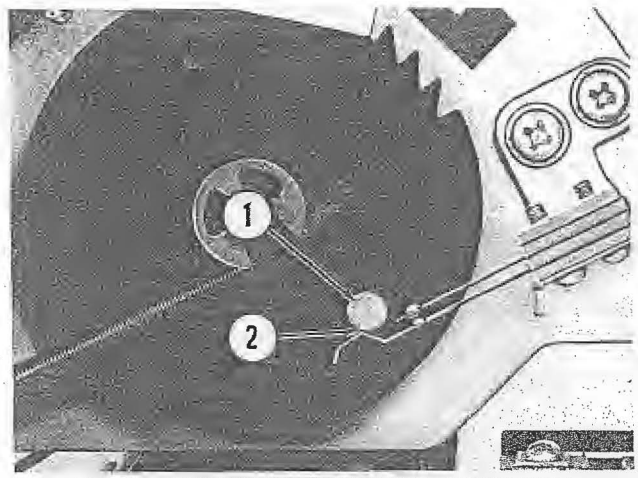

Fig. 8. KEY SWITCH CLEARANCE ADJUSTMENT

1. Actuator, Key Switch 58255
2. Clearance from Movable Blade

c. STOP LEVER AND QUADRANT INDEXING STRIP

The stop levers (Fig. 9, Item 3) should be set at 5 credits and the escapement studs released, allowing the two accumulator wheels to advance to 5 credits. The drive pin on the cancel wheel (Fig. 10, Item 1) should rest squarely against the edge of the accumulator wheels (Item 2). Should this condition not exist, loosen the indexing strip adjusting screws (Fig. 9, Items 2 & 6) and with the 10¢ - 50¢ indexing strip set at the center of its adjusting range, move the 25¢ indexing strip until the above condition is met. Tighten the adjusting screws in the indexing strips.

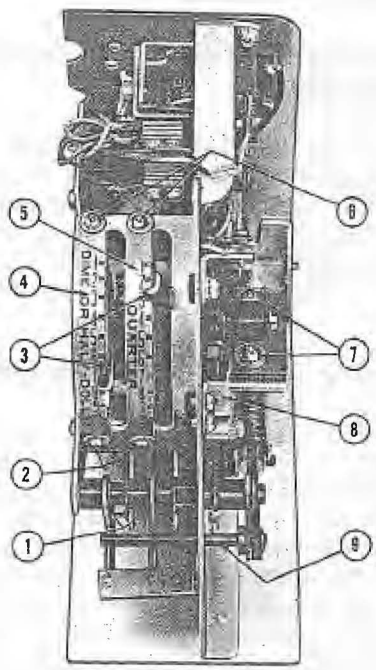

Fig. 9. STOP LEVER AND QUADRANT INDEXING STRIP ADJUSTMENT

1. Hub and Lever Assembly, Lockout 66130
2. Screws, Adjusting, Index Strips 73533-1
3. Stop Lever and Spring Assembly 66132
4. Indexing Strip, Dime and Half Dollar 66135
5. Indexing Strip, Quarter 66133
6. Screws, Adjusting, Index Strips 73533-1
7. Screws, Cancel Solenoid Adjustment 73533-22
8. Guard, Cancel Pawl 66393
9. Pivot Arm Assembly 66126

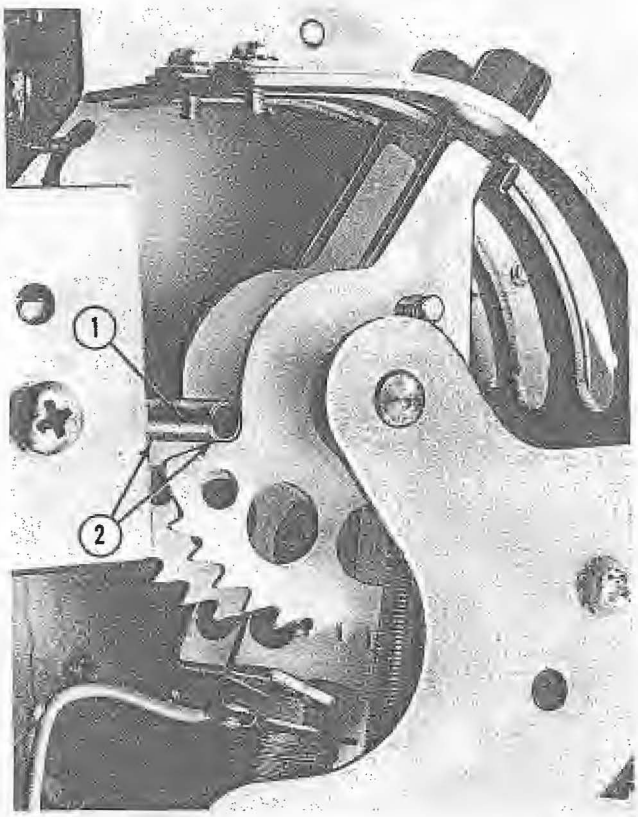

Fig. 10. STOP LEVER AND QUADRANT INDEXING STRIP ADJUSTMENT

1. Driver Pin, Cancel Wheel 66045
2. Accumulator Wheel and Hub Assembly 66131

d. CANCEL STROKE ADJUSTMENT

The cancel solenoid mounting screws should be loosened and the solenoid backed off before making this adjustment. The adjustment is made with the eccentric cam (Fig. 11, Item 3). The cancel stroke should be sufficient to return the accumulator wheel one full tooth plus .010" overtravel, as shown in Figure 12, Item 1.

NOTE!

The thickness of the red instruction tags accompanying the phonograph is approximately .010".

With cancellation held manually in position, as shown in Figure 11, Item 1, set the cancel solenoid up on its mounting bracket until its plunger is firmly bottomed. Tighten the adjusting screws and check for correct cancel action.

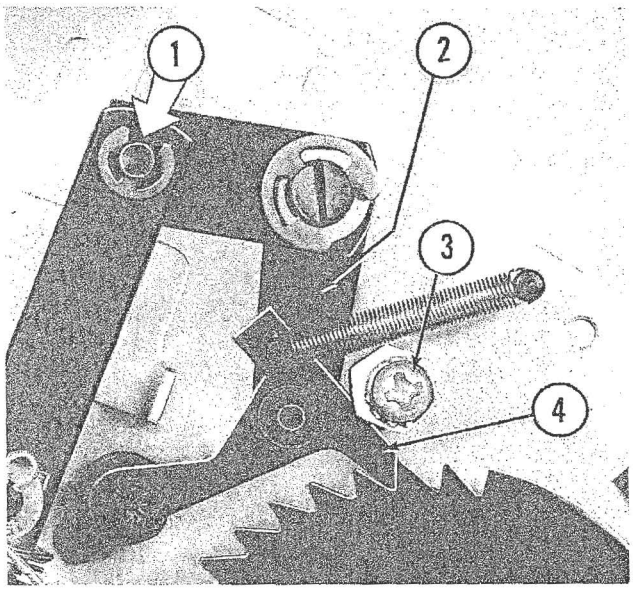

Fig. 11. CANCEL STROKE ADJUSTMENT

1. Manually Actuate at this Point
2. Pivot Arm and Pawl Assembly 66125
3. Adjustment Cam, Eccentric 42868
4. Pin and Pawl Assembly 66127

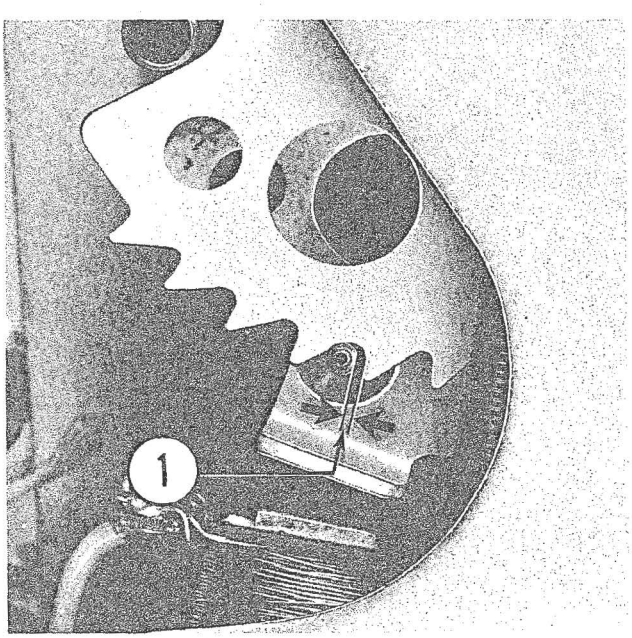

Fig. 12. ECCENTRIC CAM ADJUSTMENT FOR CANCEL STROKE

1. Dimension, .010" Overtravel

e. CANCEL PAWL STOP BRACKET ADJUSTMENT

Loosen the adjustment screws (Fig. 13, Item 1) and move the stop bracket to permit the cancel pawl to engage the tooth of the cancel wheel at a point 1/3 the length of the slant surface from the tip of the tooth (Item 3). During cancel operation, the cancel pawl stop bracket should be free from the edge of the cancel pawl (Item 4) marked "No Drag".

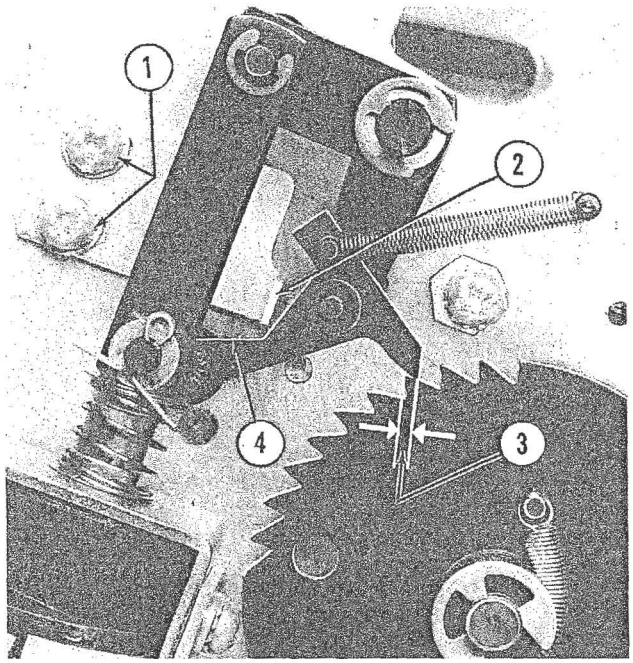

Fig. 13. STOP BRACKET ADJUSTMENT

1. Screws, Adjusting, Cancel Pawl Stop Bracket, 6-32 73533-21
2. Stop Bracket, Cancel Pawl 66069
3. Dimension, Engagement 1/3 of Slant Surface
4. No Drag of Pawl on Bracket

2. DUAL PRICING COIN MECHANISM ADJUSTMENT

Figure 14 is the dual pricing coin register mechanism with the covers and the slug rejector removed. The various components named, will be referred to in the following adjustment procedures and in the Trouble Shooting Chart. The unit is further broken down as an aid in viewing the various adjustments.

a. ACCUMULATOR PAWL ADJUSTMENT

Loosen the accumulator coil adjusting screws (Fig. 15, Item 3). Insert a .005" shim (Item 4) the full length of the radius gap between the armature and the magnet. Manually hold the armature in the operated position and move the magnet coil to provide a uniform .005" clearance throughout the length of the arc and also provide .002" to .005" clearance as indicated at Item 1. Tighten the adjusting screws and recheck for correct requirements.

b. CANCEL PAWL STOP BRACKET

Manually add three or more credits on the accumulator wheel (Fig. 15, Item 10). Holding the cancel solenoid plunger (Fig. 16, Item 5) in its operated position, adjust the stop bracket (Fig. 15, Item 9) for a maximum clearance of 1/64" (Fig. 17, Item 1) between the bracket and the pawl.

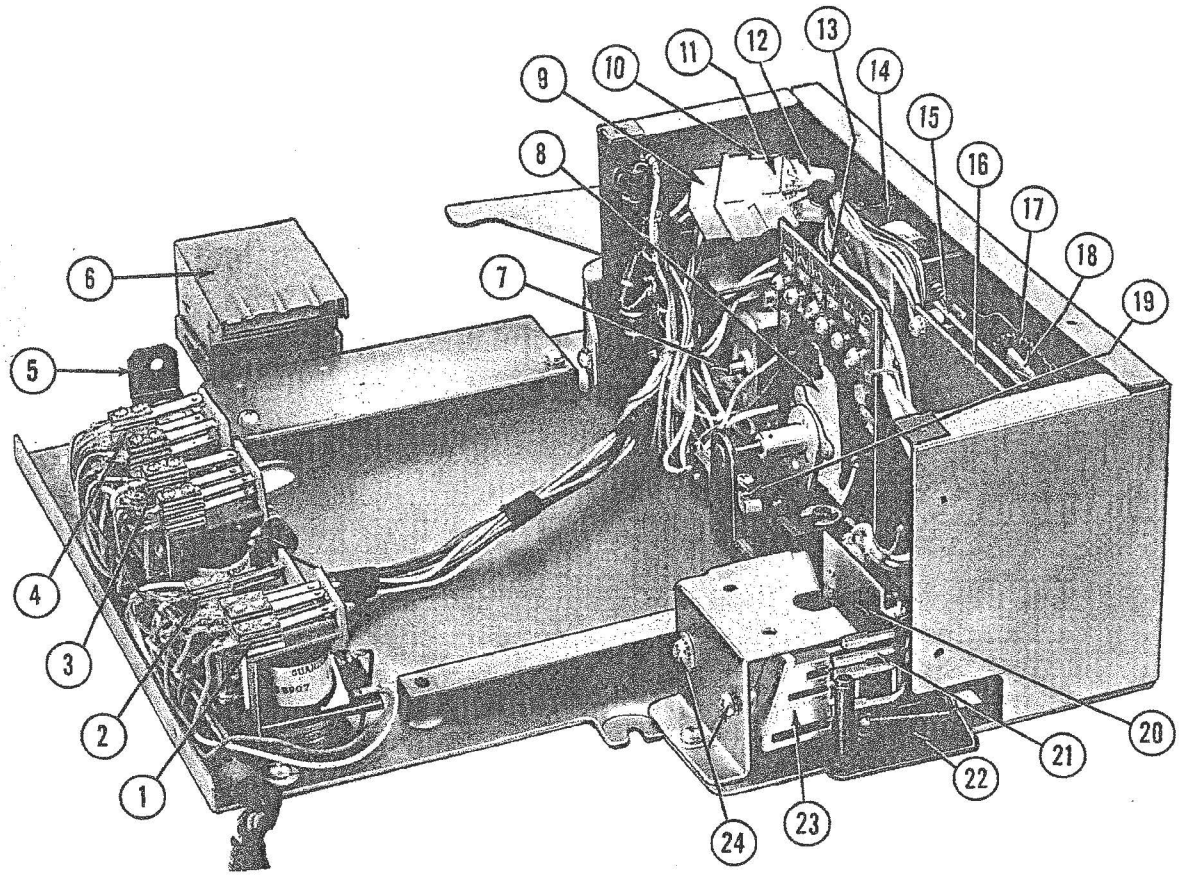

Fig. 14. DUAL PRICE COIN REGISTER MECHANISM

1. Relay, Anti-Cheat	114928	13. Printed Board, Pricing	113909
2. Relay, Pricing	114889	14. Solenoid, Cancel	60717
3. Relay, T.R.#1	114929	15. Printed Board, Credit Lights	113960
4. Relay, Pulse	114949	16. Accumulator Assembly	114037
5. Slide Lock	111125	17. Ratchet Wheel and Contact Assembly	113992
6. Lower Coin Chute Assembly	68552	18. Arm and Contact Assembly, Credit Lights	113991
7. Motor and Pin Assembly	113984	19. Switch, Full Cycle	113627
8. Drive Arm and Contact Assembly	113980	20. Coin Stop Arm, Upper	113427
9. Cap, 9 Circuit	113529	21. Coin Paddles, Coin Switch	114029
10. Cap, 6 Circuit	113527	22. Coin Stop Arm and Bracket Assembly, Lower	113927
11. Socket, 9 Circuit	113530	23. Coin Casting and Support Assembly	113961
12. Socket, 6 Circuit	113528	24. Adjusting Screws, 8-32 x 1/4", R.H.	73533-34

c. INDEXING OF PRINTED BOARD

With one credit on the accumulator wheel, the contact spring (Fig. 18, Item 1) should rest in the center of the 5¢ credit light patch (Item 3). The printed board may be rotated slightly by loosening its 4 mounting screws, 2 of which are shown at Items 2 and 4.

d. CANCEL SOLENOID ADJUSTMENT

The cancel action is factory set to take 3 credits off the accumulator wheel for each selection made. Through the circuitry of the pricing bars (Fig. 23, Items 20 & 22) and the pricing relay (Fig. 14, Item 2) one credit will be added before cancellation when a 10¢ selection is made.

To adjust the cancel solenoid, loosen the adjusting screws (Fig. 16, Item 6). Add 3 or more credits on the accumulator wheel. Holding the cancel solenoid plunger firmly bottomed in the solenoid, position the solenoid to just cancel 3 teeth at the escapement pawl (Fig. 15, Item 7). While holding the cancel solenoid plunger actuated, recheck the cancel pawl stop bracket (Fig. 15, Item 9) setting. The ratchet wheel should be securely engaged by the tip of the cancel pawl and stopped by the stop bracket, preventing further rotation of the ratchet wheel. Should this interlocked condition not exist, reset the cancel pawl stop bracket (adjustment b.).

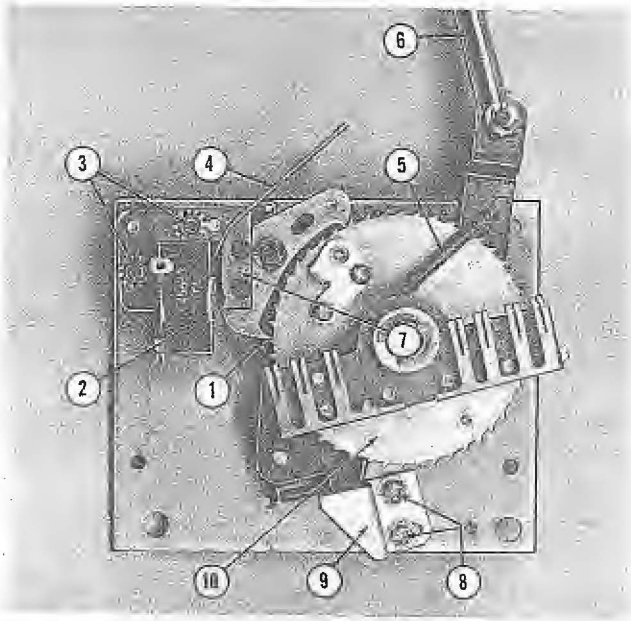

Fig. 15. ACCUMULATOR PAWL ADJUSTMENT

1. Dimension, .002" to .005" Clearance
2. Coil and Lamination Assembly, Accumulator 45787
3. Screws, Accumulator Coin Adjustment, 6-32 x 1"Cap 73571-187
4. Feeler Gauge .005"
5. Spring, Ratchet Wheel 114003
6. Plunger, Cancel Solenoid 60717-1
7. Escapement Pawl Assembly 113945
8. Screw, Stop Bracket Adjustment, 6-32 x 1/4", R.H. 73533-22
9. Stop, Cancel Pawl 114479
10. Ratchet Wheel and Contact Assembly 113992

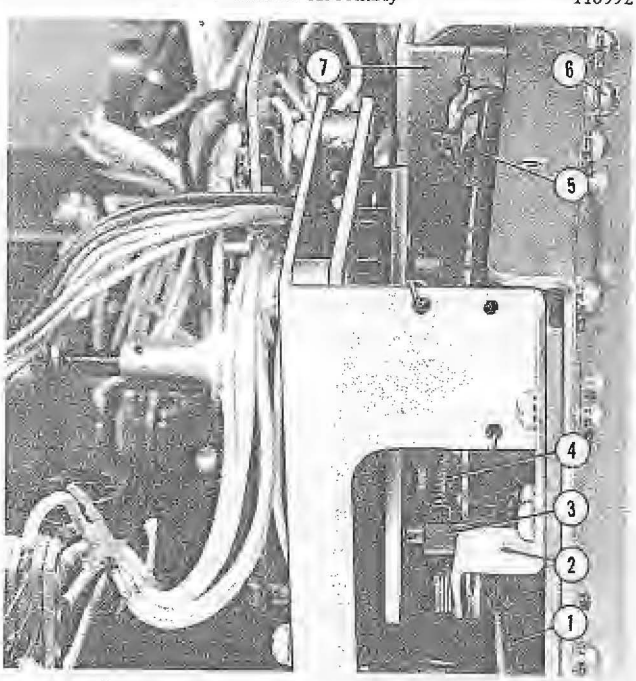

Fig. 16. CANCEL SOLENOID ADJUSTMENT

1. Spring, Cancel Pawl 113999
2. Stop Bracket, Cancel Pawl 114479
3. Cancel Pawl and Lever Assembly 114032
4. Spring, Ratchet Wheel 114003
5. Plunger, Cancel Solenoid 60717-1
6. Screws, Cancel Solenoid Adjusting 73533-22
7. Solenoid, Cancel 60717

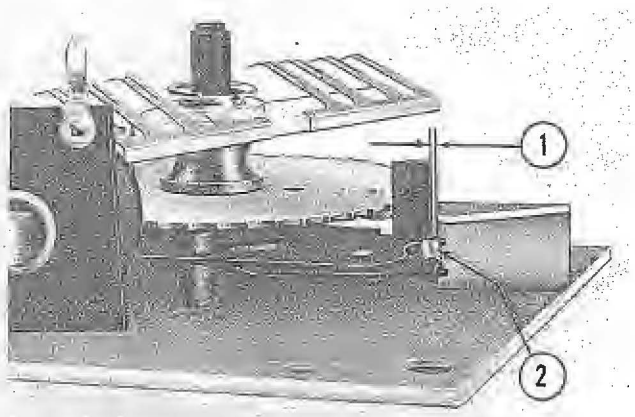

Fig. 17. CANCEL PAWL STOP BRACKET ADJUSTMENT

1. Dimension, 1/64" Maximum
2. Spring, Cancel Pawl 113999

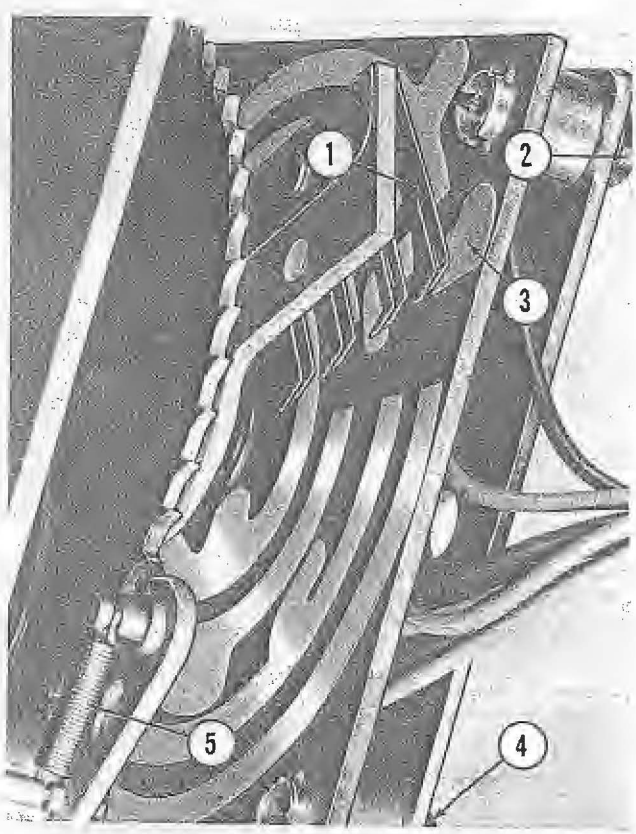

Fig. 18. INDEXING OF PRINTED BOARD

1. Contact Spring, L.H. 113566
2. Adjusting Screw, 6-32 73533-22
3. Five Cent Credit Patch, Printed Board
4. Adjusting Screw, 6-32 73533-22
5. Spring, Escapement Pawl 114430

e. COIN CASTING ADJUSTMENT

The adjusting screws (Fig. 19, Items 5 & 6) may be loosened to permit shifting of the coin casting (Item 4) so that its four coin tracks align with the four exits of the slug rejector. The 5-10-25 and 50¢ coins should pass freely from the slug rejector through the coin casting.

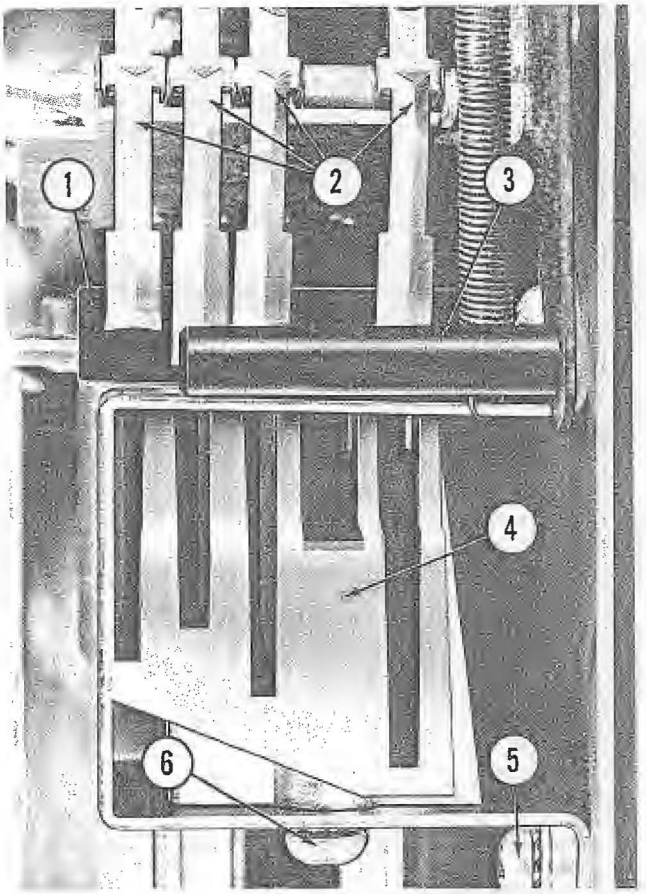

Fig. 19. COIN CASTING ADJUSTMENT

1.	Coin Stop Arm, Upper	113427
2.	Coin Paddles	
3.	Pin, Coin Stop	113585
4.	Coin Casting, Coin Chute, Lower	113229
5.	Adjusting Screw, 8-32 x 1/4", R.H., Sems	73533-34
6.	Adjusting Screw, 8-32 x 1/4", R.H., Sems	73533-34

f. COIN SWITCH ASSEMBLY ADJUSTMENT

CAUTION!

Turn the power OFF before proceeding with the following adjustments.

Each of the four coin paddles (Fig. 19, Item 2) should align accurately with their respective coin tracks. The retracting tension of the movable blades (Fig. 20, Item 6) should hold the coin paddles against the coin casting (Fig. 19, Item 4) in the at rest position. The 5¢ coin switch contacts should have a .030" opening and as the coin actuates the paddle it should deflect the stationary blade .030", passing freely into the cash bag. With 10, 25, and 50¢ coins resting on the lower coin stop (Fig. 20, Item 1). Lift each paddle to normal rest position and then release. The weight of each coin should operate its coin switch with .030" wiping action. The normally open coin switch contact gap should be .040" to .055" for the 10, 25 and 50¢ switches.

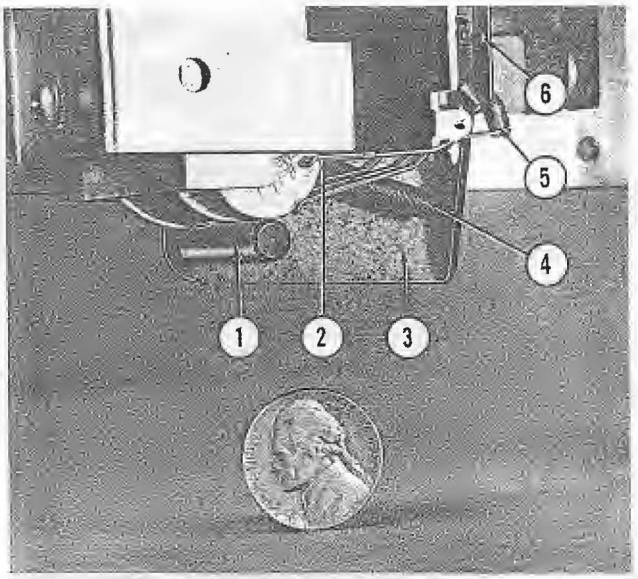

Fig. 20. COIN SWITCH ADJUSTMENT

1.	Pin, Coin Stop	113585
2.	Nickel Coin Paddle	
3.	Coin Stop Arm Assembly, Lower	113927
4.	Spring, Retracting, Lower Coin Stop Arm	59894
5.	Actuator, Coin Paddle	
6.	Movable Blade, Coin Switch	

g. FULL CYCLE SWITCH ADJUSTMENT

The full cycle switch (Fig. 21, Item 3) 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) in the detent of the actuating cam (Item 5).

h. CONTACT SPRING PRESSURE SETTING - CREDIT LIGHTS AND ACCUMULATOR

The contact springs (Fig. 22, Item 1) of the credit light circuits should have 15 to 30 grams pressure against the printed board. The rotary contact arm (Item 2) should also have 15 to 30 grams pressure against its printed board.

3. SELECTOR SWITCH ADJUSTMENTS

Due to the similarity between the selector switch assemblies, only close up views of the 2400-S and the 2404 are shown. Adjustment procedures are similar on all models. The selector switches, both letter and number, the push buttons and their respective latch bars (Fig. 24, Items 3, 6 and 9) must work freely with no bind. The latch bars must engage and disengage the push rods freely as the selector buttons are depressed and released. Should this condition not exist, examine the selector switch assembly for binds and correct before making any adjustments.

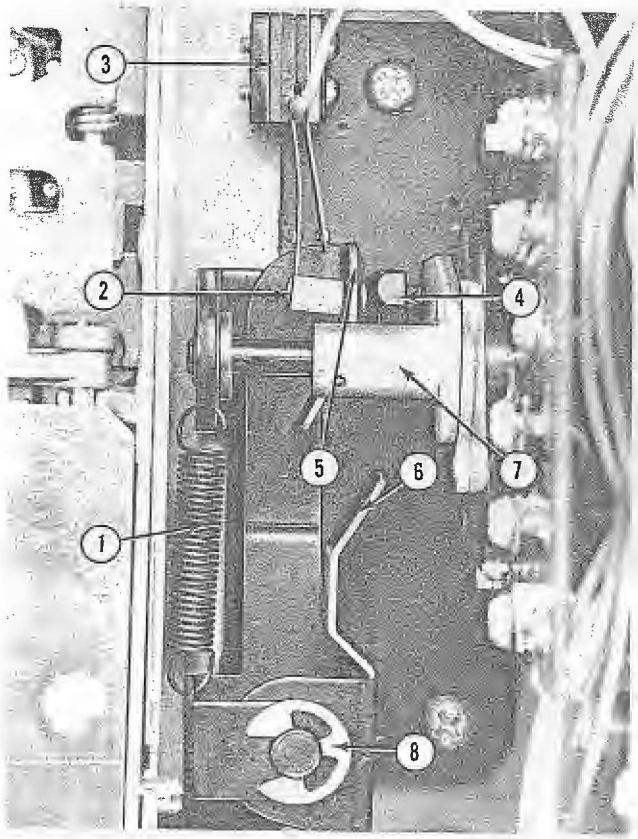

Fig. 21. FULL CYCLE SWITCH ADJUSTMENT

1. Spring, Coin Block Arm	114000
2. Actuator, Movable Blade, Full Cycle Switch	
3. Switch Assembly, Full Cycle	113627
4. Screw and Bearing Assembly, Adjusting	113983
5. Actuating Cam, Coin Stop Arm, Upper	113427
6. Actuating Cam, Coin Stop Arm, Lower	113927
7. Drive Arm and Contact Assembly	113980
8. Retaining Ring	73724-25

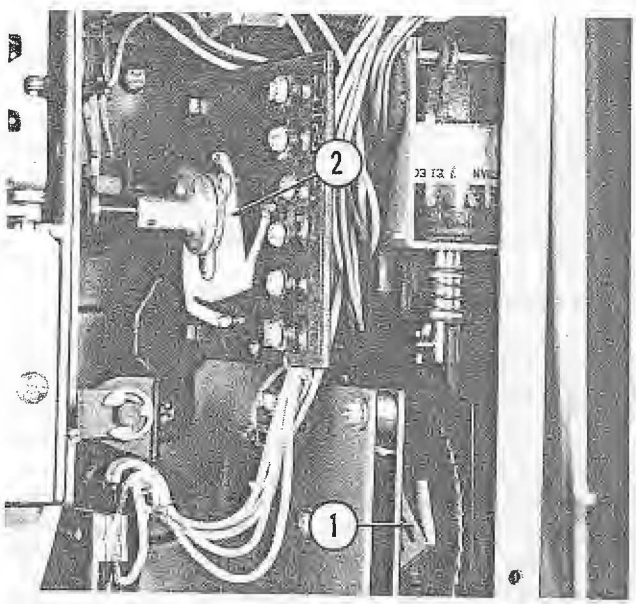

Fig. 22. CONTACT PRESSURE ADJUSTMENT, PRINTED BOARD

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

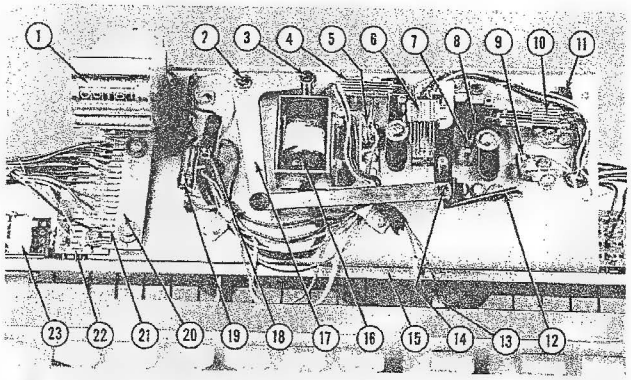

Fig. 23. SELECTOR SWITCH ASSEMBLY, 2400S

1. Electric Counter	45345
2. Retaining Ring	73724-18
3. Pin, Solenoid Plunger	65947
4. Switch, Letter Latch, Assembly	60518
5. Switch, Letter Series, Assembly	64981
6. Switch, Control, Assembly	114336
7. Spring, Letter Latch	57128
8. Spring, Number Pawl	57129
9. Switch, Number Series	64982
10. Switch, Number Latch	60518
11. Switch, Free Play	116723
12. Spring, Solenoid Return	57130
13. Light Socket, Select	66241
14. Retaining Ring	73724-15
15. Mounting Channel	116265
16. Solenoid, Latch	112104
17. Crank and Link Assembly	111720
18. Resistor, 85 Ohm, 5 Watt, Control	71886-3
19. Resistor, 150 Ohm, 5 Watt, Make Select Light	71883-2
20. Pricing Plate, Dime	113997
21. Edge Connector	114033
22. Pricing Plate, 15 Cent	113997
23. Switch, Reset	113249

a. SELECTOR SWITCH CONNECTOR LINK ADJUSTMENT

Figure 24 shows the underside of the 2400-S selector switch assembly. The connecting link (Item 5) between the two letter switch banks, synchronizes the movement of the letter switch latch bars (Items 3 and 9) and must be accurately set before making

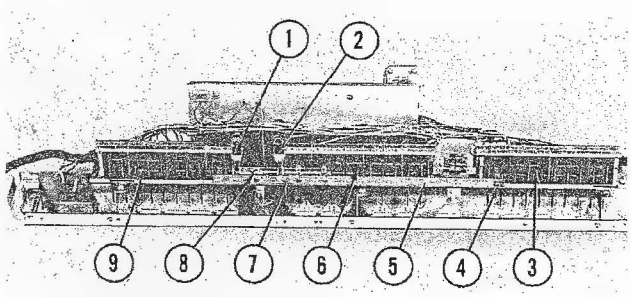

Fig. 24. CONNECTOR LINK ADJUSTMENT, 2400

1. Shaft, Link and Lever Assembly, Numbers	111898
2. Shaft, Link and Lever Assembly, Letters	111897
3. Latch Bar, Letter Switch Assembly	
4. Screw, Adjusting, Letter Button Connector Link	73533-44
5. Connector Link, Letter Switch Banks	116260
6. Latch Bar, Number Switch Assembly	
7. Screw, Adjusting, Letter Adjusting Clip	73533-34
8. Screw, Adjusting, Number Adjusting Clip	73533-34
9. Latch Bar, Letter Switch Assembly	

further adjustments. Press a letter button in the left bank and note the travel on its latch bar. Then press a letter button in the right bank, its latch bar should have exactly the same travel. Should the movement of the two latch bars vary, they may be synchronized by loosening the adjusting screw (Item 4) and shifting the connector link. The connector link (Item 5) is coupled to the shaft, link, and lever assembly (Item 2) by an adjustable clip (Item 7). This clip should be adjusted for minimum backlash consistent with freedom of movement. The same coupling method is employed between the number switch latch bar (Item 6) and its shaft, link, and lever assembly (Item 1). The adjusting screw (Item 8) may be loosened and the clip set to remove any backlash. Figure 25 shows the underside of the 2404 selector switch assembly. The number switch latch bars (Items 12 and 17) are connected together by the link (Item 8). The two latch bars may be synchronized by loosening the adjusting screw (Item 10) and shifting the connecting link. The clip, held by the adjusting screw (Item 2) should be set for minimum backlash consistent with freedom of movement. The letter switch latch bar (Item 7) is adjustable for minimum backlash by loosening the adjusting screw (Item 5) and moving the adjusting clip.

The 2410 selector switch assembly shown in Figure 26 has one number switch bank and one letter switch bank and will therefore not need synchronizing. The backlash between the latch bars and the shaft, link, and lever assemblies (Items 1 and 2) can be adjusted by means of the screws shown at Items 3 and 4.

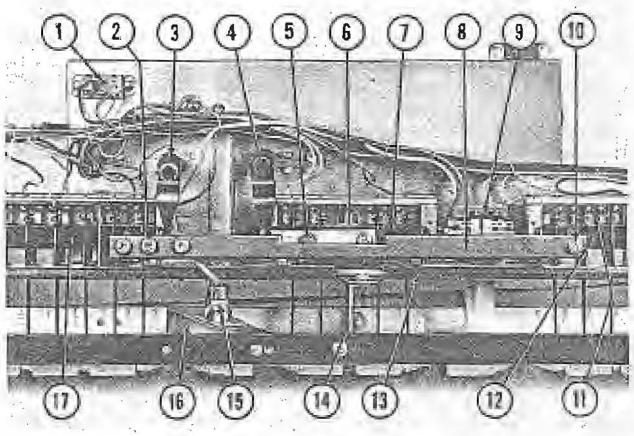

Fig. 25. CONNECTOR LINK ADJUSTMENT, 2404

1.	Switch, Free Play	116723
2.	Screw, Adjusting	
3.	Shaft Link and Lever Assembly, Numbers	111898
4.	Shaft Link and Lever Assembly, Letters	111897
5.	Screw, Adjusting	
6.	Switch Assembly, Letter Selector	116169
7.	Latch Bar, Letter Button	
8.	Connector Link, Number Switch Assembly	116249
9.	Switch, Reset	113249
10.	Screw, Adjusting	
11.	Selector Switch Assembly, Numbers	116179
12.	Latch Bar, Number Buttons	
13.	Mounting Channel	116264
14.	Mounting Bracket (3)	116250
15.	Light Socket and Wire Assembly	66241
16.	Mounting Bracket and Insulator Assembly	116639
17.	Latch Bar, Number Buttons	

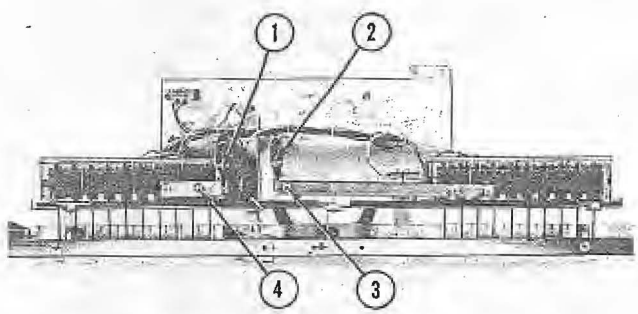

Fig. 26. CONNECTOR LINK ADJUSTMENT, 2410

1.	Hub and Lever Assembly, Numbers	111898
2.	Hub and Lever Assembly, Letters	111897
3.	Adjusting Clip, Letters	112417
4.	Adjusting Clip, Numbers	116369

b. LATCH SOLENOID STOP BRACKET ADJUSTMENT

The latch switches and control switch have been removed in Figure 27 as an aid in viewing the adjustment discussed. This adjustment should be made with the crank and link (Item 9) in its normal

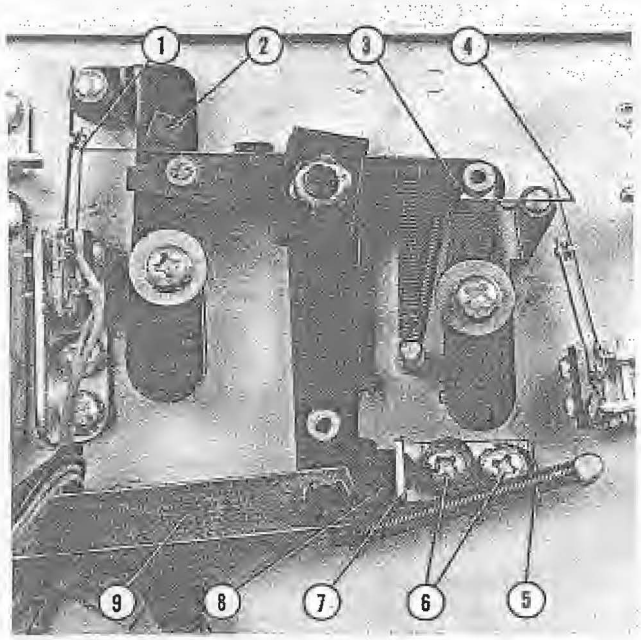

Fig. 27. STOP BRACKET ADJUSTMENT

1.	Dimension, 1/32" Clearance	
2.	Square Stud, Pawl Stud and Spacer Assembly, Letter	65009
3.	Square Stud, Pawl Stud and Spacer Assembly, Number	56712
4.	Dimension, 1/32" Clearance	
5.	Spring, Solenoid Retracting	57130
6.	Screws, Stop Bracket Adjusting	
7.	Stop Bracket	56628
8.	Bumper	54246
9.	Crank and Link Assembly	111720

rest position. Loosen the two adjusting screws (Item 6) and move the stop bracket (Item 7) to provide 1/32" clearance (Items 1 & 4) between the square studs and their adjacent levers. This adjustment applies to all of the 2400 series.

c. LATCH ADJUSTMENT

The adjusting screws (Fig. 28, Items 9 and 10) serve to take up the backlash in their respective linkages. Energize latch solenoid. Manually hold a letter button fully depressed. Loosen the screw (Item 10) and allow the square stud (Item 2) to seat itself in the notch of the trip lever (Item 3) and tighten the screw. Check all letter buttons for positive contact of their respective slide switches when the button is latched. The number button latching is adjusted in the same manner while manually holding a number button fully depressed. The adjusting screw (Item 9) should be loosened, allowing the square stud (Item 7) to seat in the notch of the trip lever (Item 8). Tighten the adjusting screw and check each number button for positive contact of their respective slide switches. This adjustment applies to all of the 2400 series.

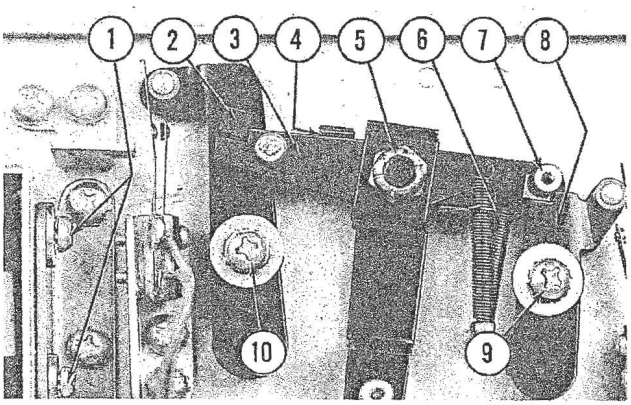

Fig. 28. RELEASE LEVER ADJUSTMENT

1.	Screws, Latch Solenoid Adjusting	
2.	Square Stud, Pawl Stud and Spacer Assembly, Letter	65009
3.	Trip Lever, Stud and Spacer Assembly, Letter	56714
4.	Dimension, 1/32"	
5.	Elastic Stop Nut	23879
6.	Dimension, 1/32"	
7.	Square Stud, Pawl and Spacer Assembly, Number	56712
8.	Trip Lever and Spacer Assembly, Number	65010
9.	Screw, Number Latch Adjusting	
10.	Screw, Letter Latch Adjusting	

d. RELEASE LEVER CLEARANCE ADJUSTMENT

Before attempting this adjustment, remove the latch solenoid control switch assembly (Fig. 29, Item 4). Loosen the latch solenoid adjusting screws (Fig. 28, Item 1). Manually hold the latch solenoid plunger in the actuated position with the plunger bottomed in the solenoid. Latch in a letter and a number button. Holding this condition, shift the latch solenoid on its mounting to provide a 1/32" clearance at the release tabs (Fig. 28, Items 4 and 6). Carefully maintain this setting and tighten the latch solenoid adjusting screws. This adjustment applies to all 2400 series.

e. CONTROL SWITCH ADJUSTMENT

Manually hold the latch solenoid plunger (Fig. 29, Item 1) in the actuated position. Loosen the adjusting screws (Item 5) and move the control switch and bracket to provide 1/32" to 1/16" opening of its normally closed contacts. The normally open contacts on the 2400 and 2410 models should close with a good wiping action.

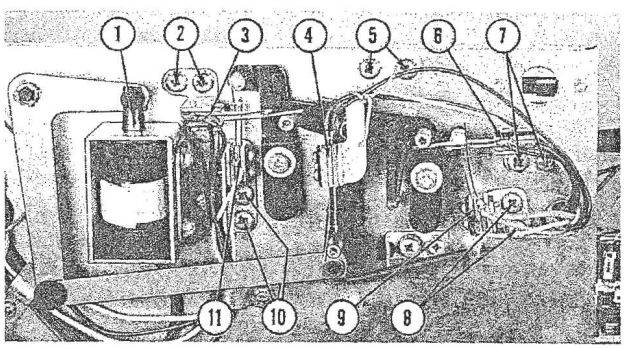

Fig. 29. CONTROL SWITCH ADJUSTMENT

1.	Plunger, Latch Solenoid	112104-1
2.	Screws, Letter Latch Switch Adjusting	
3.	Switch Assembly, Letter Latch	68247
4.	Switch Assembly, Control	65007
5.	Screws, Control Switch Mounting	
6.	Switch Assembly, Number Latch	68247
7.	Screws, Number Latch Switch Adjusting	
8.	Screws, Number Series Switch Adjusting	
9.	Switch Assembly, Number Series	66007
10.	Screws, Letter Series Switch Adjusting	
11.	Switch Assembly, Letter Series	111810

f. LETTER AND NUMBER LATCH SWITCH ADJUSTMENT

The latch switches are adjusted at the factory with all contacts normally open 1/32". When the latch solenoid coil is energized and a letter button is latched in, the letter latch switches should close with a 1/32" wiping action. Release the letter button by operating the "Release" button and latch in a number button. The number latch switch should close with a 1/32" wiping action. Should adjustment be required, the latch switch mounting brackets may be moved by loosening the mounting screws (Fig. 29, Items 2 & 7). This adjustment applies to all of the 2400 series.

g. LETTER AND NUMBER SERIES SWITCH ADJUSTMENT

The series switches are factory set to be normally closed with 30 to 40 grams contact pressure. With the latch solenoid plunger actuated and a letter selector button in its latched position, the

letter series switch (Fig. 29, Item 11) should have a contact opening of 1/32". The switch mounting screws (Item 10) may be loosened and the bracket moved to provide the proper adjustment. The number series switch (Item 9) may be adjusted in the same manner by loosening the mounting screws (Item 8). This adjustment applies to all of the 2400 series.

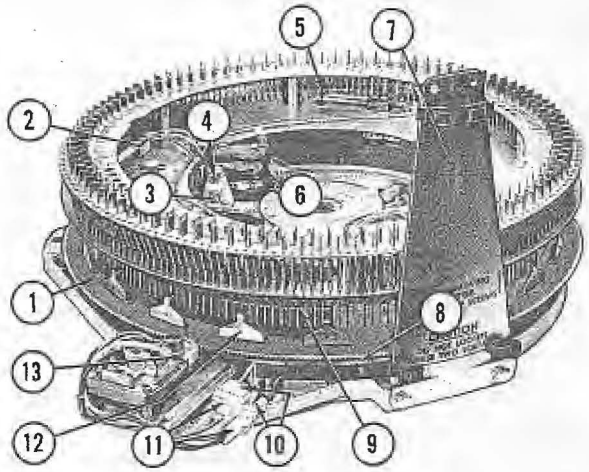

Fig. 30. ELECTRIC SELECTOR, 2400

1. Rotating Plate and Rocker Assembly	111481
2. Over-ride Switch Assembly (4)	65952
3. Screw, Adjusting, Start Switch	
4. Screw, Adjusting, Reverse Switch	
5. Nylon Spacer, Wobble Ring (4)	68650
6. Switch, Start, Micro	61596
7. Silk Screen and Support Plate Assembly	68799
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

4. ELECTRIC SELECTOR ADJUSTMENTS

a. ROTATING PLATE AND ROCKER ARM ADJUSTMENT

Rocker plate alignment on the 200 selection pin assembly is accomplished by adjusting the number quadrant's (Fig. 31, Item 1) forward stop screw (Item 4). Turn the power OFF, depress the number "0" solenoid plunger (Item 16) and turn the rotating plate and rocker arm assembly (Item 12) in a clockwise direction by turning the nylon gear (Item 18) of the selector drive motor. One of the 10 stop pins (Item 8) will engage the depressed plunger of the number "0" solenoid. Continued rotation of the nylon gear will drive the number quadrant (Item 1) until it rests against the forward stop screw (Item 4). In this position, the tips of the rocker arms (Fig. 30, Item 12) should be very slightly off center to the right, with the selector pins number "0" of each letter group A to V. Holding this position, check the letter solenoid plungers to see that they align with the rocker arm actuator bar (Fig. 30, Item 8). Repeat the above procedure using number "1" stop solenoid, rechecking the alignment of both the rocker arm tips and the actuator bars. Should adjustment be required, the stop screw (Fig. 31, Item 4) may be set to provide the correct alignment.

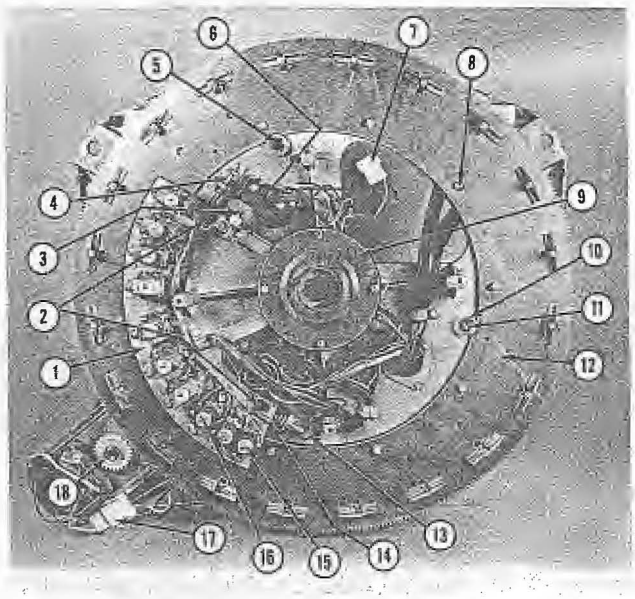

Fig. 31. ELECTRIC SELECTOR, 2400

1. Mounting Casting Assembly, Number Quadrant	115915
2. Shoulder Screw (3)	68649
3. Screw, Adjusting, Reverse and Start Switches	73793-88
4. Screw, Adjusting, Forward Stop	73793-122
5. Stud	68657
6. Micro Switch (2), Reverse and Start	110558
7. Cap, 3 Circuit	111526
8. Stop Pin, Rotary Plate and Rocker Arm Assembly (10)	115411
9. Contact Plate Assembly	66186
10. Retaining Ring	73724-31
11. Stud, Eccentric	69659
12. Rotating Plate and Rocker Arm Assembly	111481
13. Screw, Adjusting, Back Stop	73793-122
14. Spring, Quadrant Retracting	62773
15. Solenoid, Selector Stop, Number 1	68804
16. Solenoid, Selector Stop, Number 2-0	68617
17. Socket, 3 Circuit	111526
18. Nylon Gear, Motor and Gear Assembly	111913

b. START SWITCH ADJUSTMENT

The start switch (Fig. 30, Item 6) should be checked after any adjustment of the forward stop screw. It is actuated by the forward movement of the number quadrant. The actuating screw (Item 3) should be set to actuate the switch with 1/32" to 3/64" overtravel. The following method may be used to adjust the start switch. While manually holding the number coil quadrant in its forward stop position with the nylon drive gear, back out the start switch actuating screw until the switch actuates, then turn the screw in until the switch again actuates. Continue one full turn of the screw beyond the point of actuation.

c. BACK STOP SCREW ADJUSTMENT

The number quadrant (Fig. 31, Item 1) in its normal rest position is held against backstop screw (Item 13) by its retracting spring (Item 14). This adjusting screw should be set to provide 1/16" overtravel of the number quadrant (Item 1) after the start switch (Fig. 30, Item 6) resets on return of the number quadrant.

d. REVERSE SWITCH ADJUSTMENT

This adjustment should follow any adjustment of the back stop screw. While the number quadrant is in its normal rest position turn the adjusting screw (Fig. 30, Item 4) in until the reverse switch actuates. Then turn the adjusting screw (Item 4) out until the reverse switch resets. Turn the adjusting screw out an additional 1/2 to 1 turn for correct overtravel.

e. OVERRIDE SWITCH ADJUSTMENT

When a selector latch pin (Fig. 32, Item 1) is released the wobble ring (Item 7) is moved upward by the tension of the selector latch pin spring (Item 9). The spacer (Item 8) closes the contacts of one override switch. To check for correct switch action choose a selector pin midway between 2 spacers. Release the pin and slowly work the pin up and down. The override switch contacts at either side of the selector pin should close with good wiping action and allow the selector pin to make its full travel. Each pair of override switches should be checked using pins E-8, K-8, Q-8 and V-8. The override relay can be heard to operate and release as the switches make and break. The relay actuation and release should occur at approximately 1/3 the travel of the selector pin. Should adjustment be required it may be accomplished by forming the blades of the override switch with a suitable contact adjusting tool. The foregoing adjustment will apply to the 100 and 104 selector pin assembly although the override switches are mounted on the wobble plate.

(1) Pins number A-6, D-2, F-5 and H-10 should be used to check the override switches on the 100 selection pin assembly.

(2) Pins number A-20, A-23 and D-13 should be used to check the override switches on the 104 selection pin assembly.

f. ROTATING PLATE AND ROCKER ARM ADJUSTMENT - 2410S AND 2410

(1) The adjusting screws (Fig. 33, Item 8) should be loosened and the guide plate set to zero clearance with the stop bracket (Item 5) on the rocker plate assembly.

(2) The adjusting screw (Item 9) should be set to align the tips of the rocker arms (Fig. 35, Item 1) with the selector pins number 3, A through

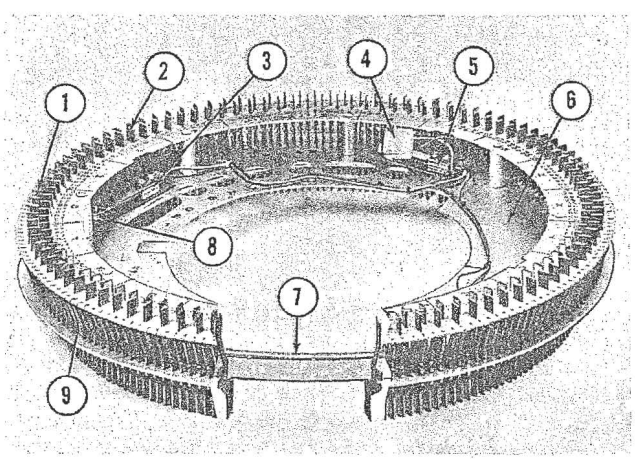

Fig. 32. SELECTOR PLATE AND LATCH PIN ASSEMBLY, 2400

1. Latch Pin, Outer (100)	110942
2. Latch Pin, Inner (100)	110941
3. Over-ride Switch (4)	65952
4. Housing, Female 111528, Male	111526
Contacts for housing	111527
5. Over Ride Switch	65952
6. Lower plate and Spacer Assembly	69492
7. Wobble Ring	67927
8. Spacer, Wobble Ring	68650
9. Spring, Latch Pin	110480

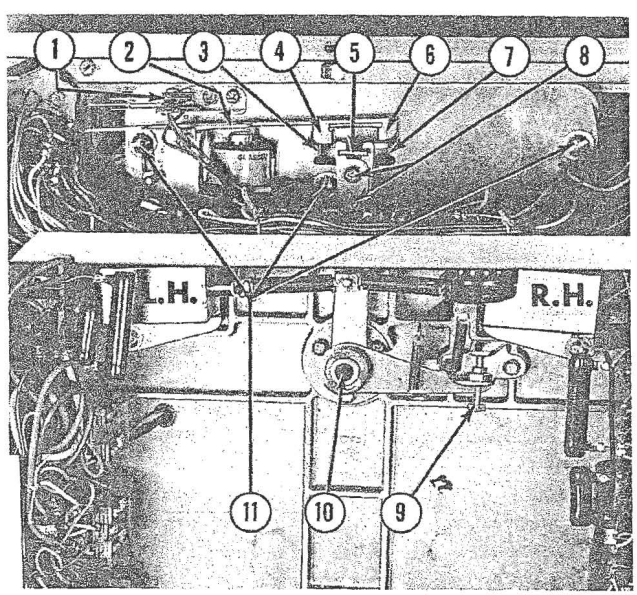

Fig. 33. ELECTRIC SELECTOR, 2410

1. Switch, Stop Magnet, Contact Assembly	115914
2. Armature, Stop Arm and Rivet Assembly	115862
3. Stop Position, L.H.	
4. Stop Tab, L.H.	
5. Stop Centering Yoke	115824
6. Stop Tab, R.H.	
7. Stop Position, R.H.	
8. Screw, Adjusting, 8-32 x 3/16", R.Hd. Sems	73533-33
9. Screw, Adjusting 8-32 x 7/8", Hex Hd.	73793-87
10. Centering Shaft and Plate Assembly	115812
11. Screws, Mounting (3)	73692-49

K and with the selector pins number 8, A through K. This is the normal rest position for the rocker plate assembly.

(3) Loosen the three mounting screws (Fig. 33, Item 11) and manually move the rocker plate until the stop bracket (Item 5) rests against the extreme right hand stop (Item 7). In this position the tips of the rocker arms (Fig. 35, Item 1) should align with the selector pins number 1, A through K and pins number 6, A through K. The mounting plate held by the screws (Item 11) may be moved to provide the correct alignment.

(4) Check the rocker arm alignment while holding the rocker plate in the extreme left hand stop position (Item 3). The tips of the rocker arms should be in alignment with selector pins number 5, A through K and pins number 0, A through K.

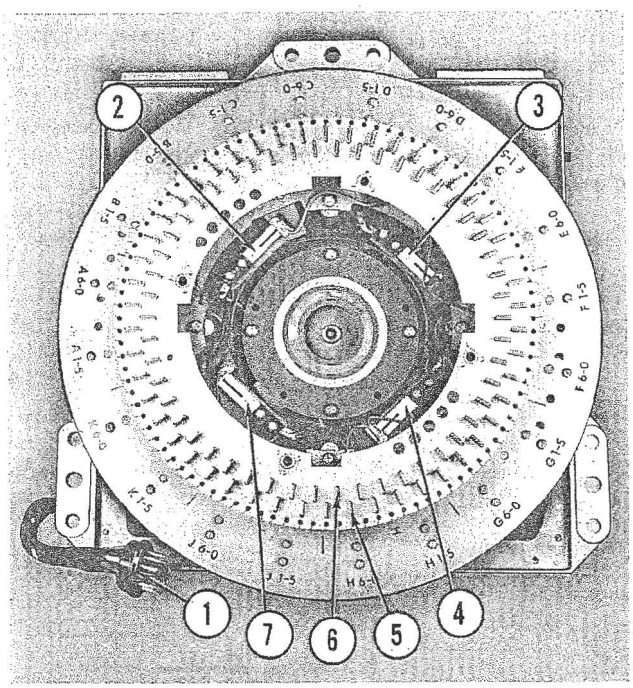

Fig. 34. ELECTRIC SELECTOR, 2410

1.	Plug, 11 Prong	54878
2.	Over-ride Switch, Contact Assembly	115918
3.	Over-ride Switch, Contact Assembly	115918
4.	Over-ride Switch, Contact Assembly	115918
5.	Latch Pin, Selector, Outer (50)	115807
6.	Latch Pin, Selector, Inner (50)	115806
7.	Over Ride Switch, Contact Assembly	115918

(5) Check the right hand intermediate position by manually operating the stop magnet armature (Item 2) and moving the rocker plate to position the stop bracket (Item 5) against the armature stop (Item 6). In this position the tips of the rocker arms should align with the selector pins number 2, A through K and pins number 7, A through K. Should adjustment be required the armature plate stop tab (Item 6) may be formed.

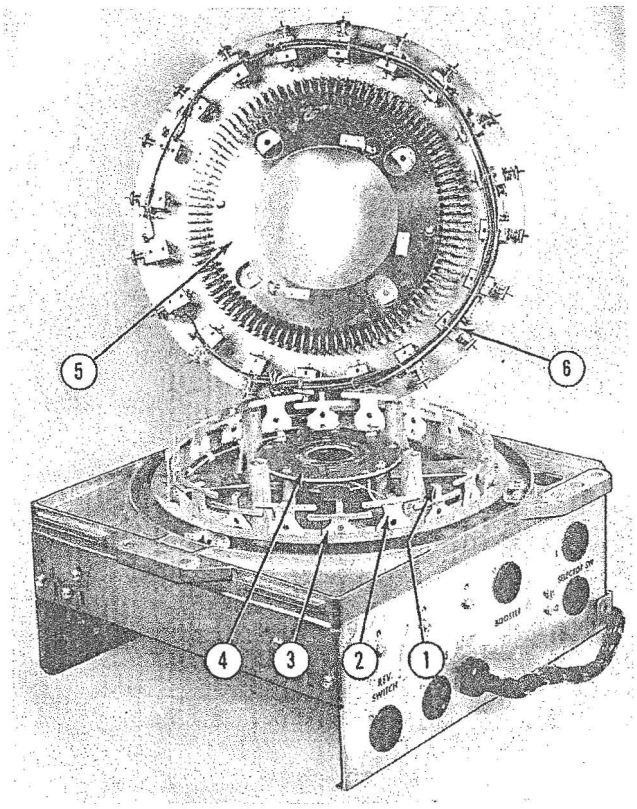

Fig. 35. ELECTRIC SELECTOR ASSEMBLY, 2410

1.	Tip of Rocker Arm	
2.	Rocker Arm, Long (10)	115788
3.	Rocker Arm, Short (10)	64618
4.	Contact Plate Assembly	66186
5.	Wobble Plate	115796
6.	Selector Solenoid (20)	64602

(6) The left hand intermediate stop position should be checked in the same manner as for the right hand. The stop bracket (Item 5) will be manually held against the intermediate stop on the stop magnet armature (Item 4). The rocker arm tips should align with the selector pins number 4, A through K and pins number 9, A through K. Should adjustment be required the stop tab on the armature plate (Item 4) may be formed.

g. STOP MAGNET SWITCH ADJUSTMENT

The stop magnet switch (Fig. 33, Item 1) should be set to provide a 1/32" gap at the normally open contacts and have a 1/32" wiping action when the switch is actuated. They should be adjusted to make before break.

h. ROTATING PLATE AND ROCKER ARM ADJUSTMENT - 2404

(1) The rocker plate is adjusted in its normal at rest position by loosening the 3 mounting screws (Fig. 36, Item 1) and shifting the stop coil assembly (Item 2) to locate the tips of the 26 rocker arms in alignment with the number 1 to 26 selector

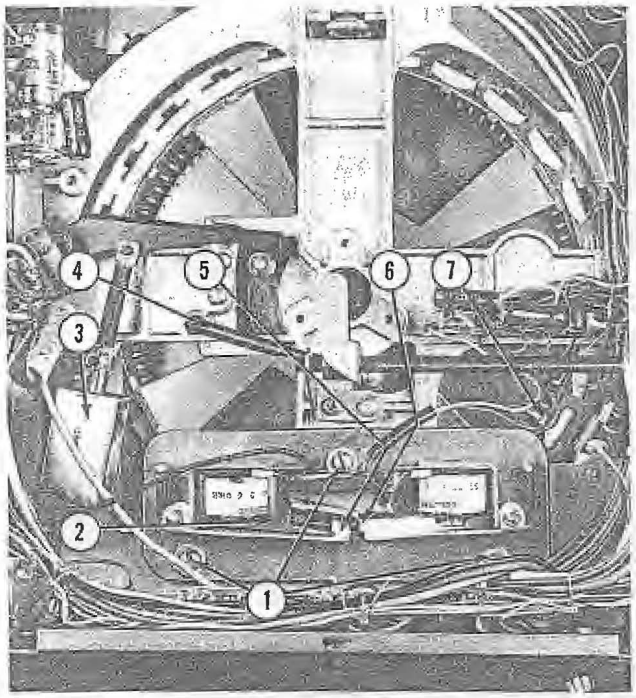

Fig. 36. ELECTRIC SELECTOR ASSEMBLY

1. Mounting Screws	
2. Mounting Plate and Magnet Assembly	64645
3. Solenoid, Driver	64722
4. Spring	64781
5. Stop Arm, L.H., "B" Setting	64654
6. Stop Arm, R.H., "C" Setting	64653
7. Rocker Arm Tip	

pins in the "A" group (Item 7). Manually move rocker plate to the limit of its travel and check the alignment of the tips of the rocker arms with 1 to 26 "D" selector pins. The stop coil mounting plate may be moved to obtain a satisfactory alignment at "A" and "D" positions.

(2) Manually operate "B" stop lever (Fig. 36, Item 5) and move the rocker plate to rest against the "B" stop (Item 5) and check the alignment of selector pins 1 to 26 in the "B" group with the tips of the rocker arms. Should adjustment be necessary the stop tab may be formed. Manually operate the "C" stop armature (Item 6) and move the rocker plate to the "C" stop position. The tips of the 26 rocker arms should align with the 26 pins in the "C" group. The stop tab on the "C" stop magnet armature may be formed if adjustment is required.

i. SELECTOR DRUM CENTERING

(1) Centering of the 200 selection electric selector assembly must be carefully done whenever the selector pin assembly is removed from the mechanism. The assembly is held in position by two mounting screws (Fig. 37, Item 6) and by the mounting plate (Fig. 30, Item 7) at the rear of the assembly. Observe the caution label on the rear plate and remove only the upper two screws.

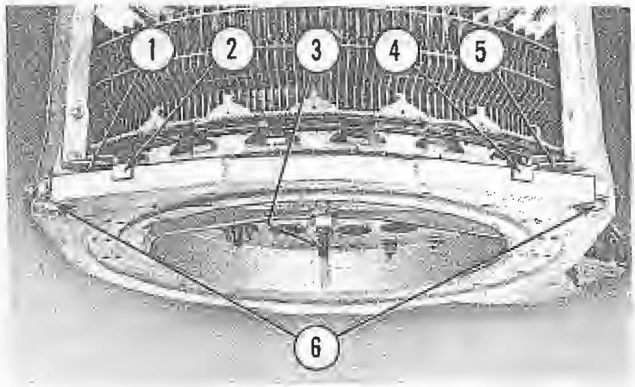

Fig. 37. ELECTRIC SELECTOR CENTERING

1. Guide Plate, L.H.	68757
2. Guide Bracket, L.H.	68759
3. Centering Shaft	69247
4. Guide Bracket, R.H.	68760
5. Guide Plate, R.H.	68758
6. Mounting Screws (2)	

The front edge of the casting is provided with two guide brackets (Fig. 37, Item 2 & 4) which fit over two guide plates (Item 1 & 5) on the front hangers. The engagement of these brackets serves to support the front of the selector pin assembly while the rear mounting plate is securely fastened by its upper screws. Centering shaft #69247 (Item 3) shipped with each phonograph, should be inserted through the center bushing and into the main selector shaft. The 2 front mounting screws (Item 6) should be turned in by hand until the selector pin assembly is in contact with the front hangers. While in this condition the selector pin assembly should be positioned so that the centering pin slides in and out of the main shaft freely. Maintaining this alignment the front screws should be tightened. Carefully check the selector crank arm adjustments and check for correct selections.

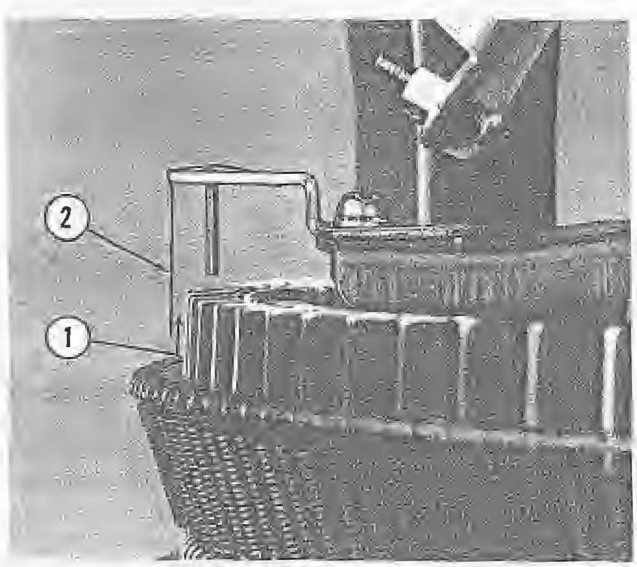

Fig. 38. ELECTRIC SELECTOR CENTERING

1. Uniform Clearance at all Points
2. Centering Clip 117006

j. Centering of the 100 selection selector pin assembly normally is not required if the original assembly is retained with its changer. The mounting is the same as the 104 assembly. However where selector pin assemblies are interchanged on the 100 selection changer the guide plates, one of which is shown in Figure 39, Item 3, should be loosened. The assembly loosely mounted on the three studs and centering shaft #69247 inserted through the center bushing (Fig. 33, Item 10) into the main shaft. Tighten the guide plate retaining screws and the three mounting screws. Remove the centering shaft and check the selector crank arm adjustments and for correct selections.

(1) Centering clip 117006 may be used as shown in Figure 38, Item 2 of the 200 selector assembly where centering shaft #69247 is not available.

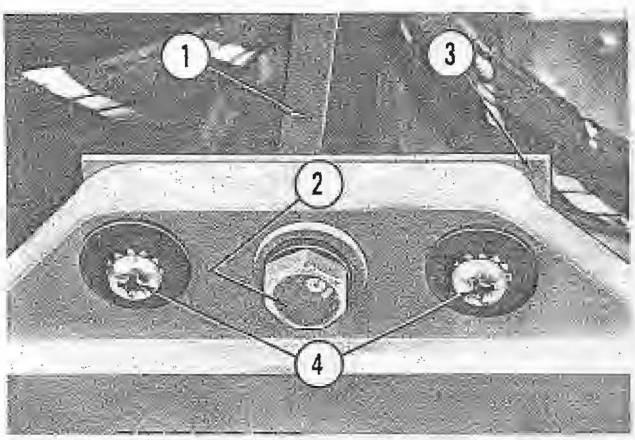

Fig. 39. GUIDE PLATES AND MOUNTING

1. Stud, Mounting, Selector (3)	64543
2. Selector Pin Assembly Mounting Screw (3)	73793-150
3. Guide, Alignment (3)	61850
4. Alignment Plate Retaining Screws, 8-32 x 3/4", R.H.	73533-40

k. Centering of the 104 selector pin assembly has been carefully done at the factory and if the original assembly is kept with its changer it will not need recentering provided the alignment plates, one of which is shown in Figure 39, Item 3, are not disturbed. The assembly may be easily removed by disengaging all cable plugs and removing 3 mounting screws (Item 2). The screws (Item 4) should not be loosened. However, if a selector pin assembly should be mounted on another changer the alignment plates must be loosened. The pin assembly should be loosely mounted on the 3 studs and the centering clip (Fig. 40, Item 2) snapped in place on the selector crank arm (Item 1). Shift the pin assembly on its mounting studs to obtain a uniform clearance between the centering clip and all selector pins (Item 3). Tighten the alignment plate retaining screws and the mounting screws. Check the selector crank arm adjustments and for correct selection.

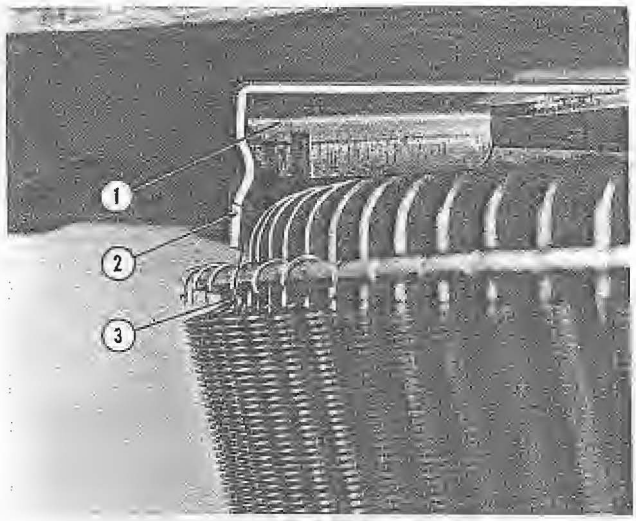

Fig. 40. ELECTRIC SELECTOR CENTERING

1. Selector Crank	59519
2. Centering Clip	61672-6
3. Uniform Clearance at all Points	

5. RECORD CHANGER ADJUSTMENTS

a. SELECTOR CRANK ARM CLEARANCE ADJUSTMENT - 2400 - 2410

(1) Both tip and bracket assemblies at the ends of the selector crank arms on the 200 and the 100 selector crank arm assemblies should clear the tips of the selector latch pins in their latched position by 1/16" (Fig. 41, Item 1) as the crank arms are rotated. To vary this dimension the screw (Fig. 41, Item 5) may be adjusted. The 100 selection changer has this adjusting screw in the same location but is adjustable from the top end instead of the lower end.

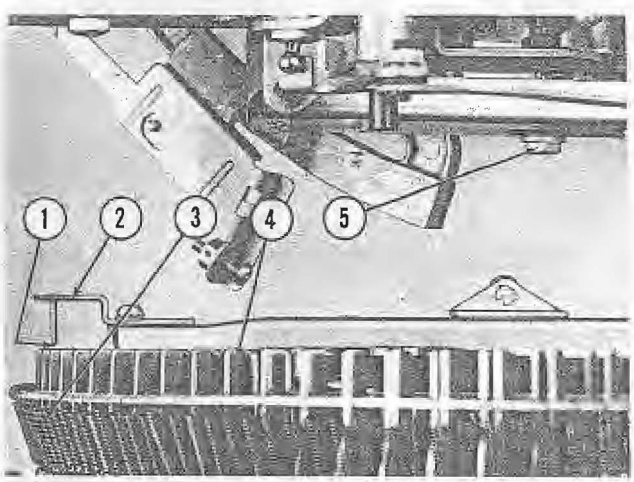

Fig. 41. SELECTOR CRANK CLEARANCE ADJUSTMENT, 2400, 2410

1. Dimension, 1/16"	
2. Tip and Mounting Bracket Assembly, Outer	110930
3. Spring, Latch Pins	110480
4. Latch Pin, Outer	110942
5. Screw, Crank Arm Clearance Adjustment	73793-124

b. SELECTOR CRANK ARM CLEARANCE ADJUSTMENT - 2404

This adjustment is made by turning the adjusting screw (Fig. 42, Item 3) to provide 1/32" clearance (Item 1) between the crank arm and the selector pins in their latched position.

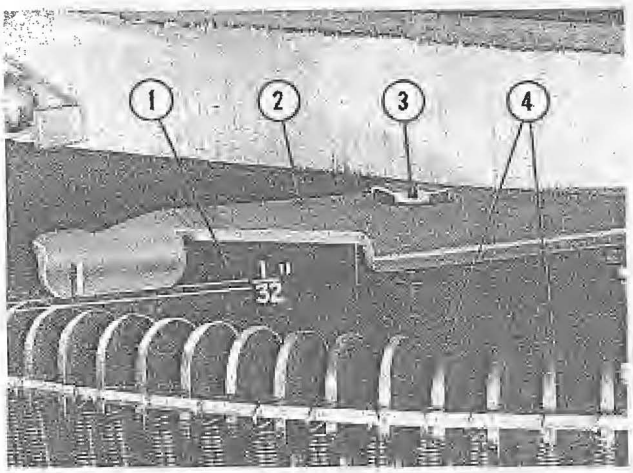

Fig. 42. SELECTOR CRANK ARM CLEARANCE ADJUSTMENT

1. Dimension, 1/32" to 1/16"	
2. Selector Crank	59519
3. Adjusting Screw	73790-139
4. Selector Pins	64606

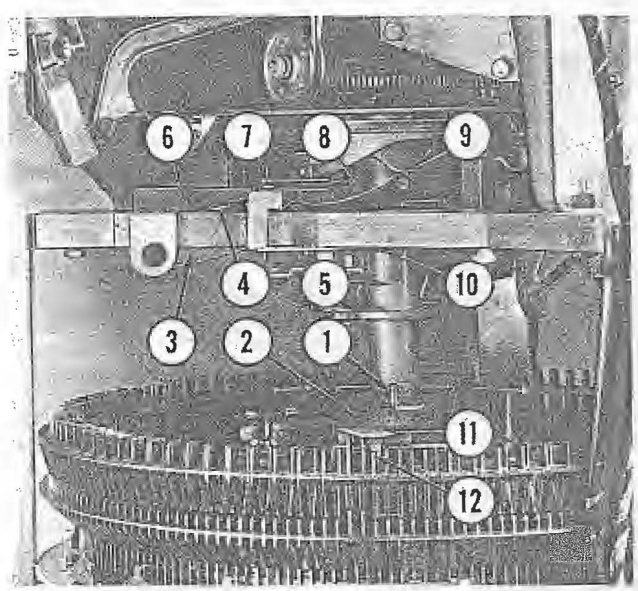

Fig. 43. CANCEL LEVER ADJUSTMENT, 2400

1. Actuator Arm and Link Assembly	110939
2. Selector Crank and Stop Nut Assembly	110943
3. Cancel Arm, Lower Assembly	59661
4. Spring	110934
5. Sleeve and Bushing Assembly	68483
6. Cancel Lever, Hub and Roller Assembly	59513
7. Adjusting Screw, Cancel Lever, 10-32 x 1-3/4"	73793-125
8. Dimension, 1/32" Over travel	
9. Point of Maximum Actuation	
10. Cancel Arm, Lower Assembly	59661
11. Tip and Mounting Bracket, Outer	110930
12. Point of Engagement, Tip and Latch Pin	

c. CANCEL ARM ADJUSTMENT 2400 - 2410

With a selector latch pin released and the tip of the selector crank arm engaged with the released latch pin (Fig. 43, Item 12), advance the mechanism in its cycle until the peak of the cancel lobe on the main cam (Item 9) has depressed the cancel lever to its maximum stroke. In this position the selector latch pin should be reset with a 1/32" clearance under the head of the adjusting screw (Item 8).

d. CANCEL ARM ADJUSTMENT - 2404

The adjusting screw (Fig. 44, Item 5) should be adjusted with the mechanism in its normal rest position to provide 1/8" to 5/32" between the tips of the lower cancel arm (Fig. 44, Item 1) and the shoulder of the cancel sleeve (Item 2). The retracting spring (Fig. 44, Item 4) should be holding the roller of the cam follower (Fig. 45, Item 6) against the surface of the cancel cam.

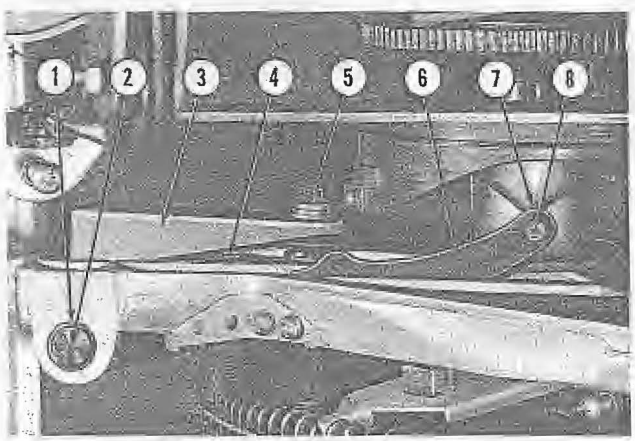

Fig. 44. CANCEL LEVER ADJUSTMENT, 2404

1. Retaining Ring	73728-50
2. Shaft, Cancel Arm	59640
3. Upper Cancel Arm Casting	59631
4. Spring, Cancel Arm Return	110934
5. Adjusting Screw 10-32 x 1-3/4" Hex Hd.	73793-125
6. Cancel Lever, Hub and Roller Assembly	59513
7. Cancel Position of Main Cam	
8. Roller and Shaft Assembly	59485

e. RECORD LIFT ARM RETRACTED ADJUSTMENT

The record lift arms are driven down by a lobe on the main cam driving against the roller on the roller shaft, link and lever assembly (Fig. 46, Item 5). In their down position both lift arms should bear lightly against their lower stop brackets with approximately 1/4" clearance between the lower edge of the record carrier separators and the top edge of the guide tips on the upper end of the lift arms. Should adjustment be required check that the mechanism is in normal rest position. Loosen the set screw (Fig. 46, Item 4), loosen the lock nut

(Item 3), turn the adjusting screw (Item 2) until the arms rest lightly against the lower stop brackets. Tighten the locknut and set screw. Recheck the arms for the required position.

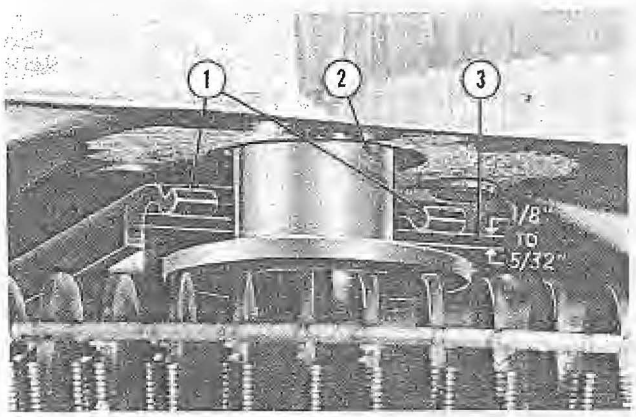

Fig. 45. CANCEL LEVER ADJUSTMENT, 2404

1. Cancel Arm, Lower Assembly	59661
2. Sleeve	59657
3. Dimension, 1/8" to 5/32"	

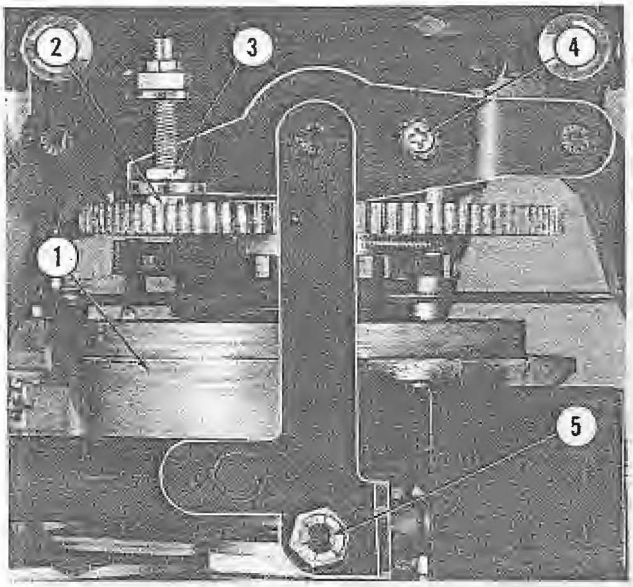

Fig. 46. RECORD LIFT ARM RETRACTING ADJUSTMENT

1. Main Cam	62792
2. Adjusting Screw 10-32 Hex Hd.	73660-161
3. Lock Nut	73785
4. Lock Screw	73533-34
5. Roller Shaft, Link and Lever Assembly	59599

f. ROLLER GUIDES - RECORD LIFT ARMS - 2400

(1) The roller guides for the record lift arm spring loaded guide tips are mounted on top of the chassis mounting plate. When the arms are down the guide tips are held straight in line and centered between the guide rollers. The adjustable bearing (Fig. 47, Item 11) should be set to provide .003" to .006" clearance between the guide tips and the rollers. Advance the mechanism in its cycle and allow the lift arm to travel to a position where the guide tips are out of the record separators. Stop the mechanism at this point and measure the opening between the guide tips (Fig. 48, Item 1). The inside dimension should be 7/16".

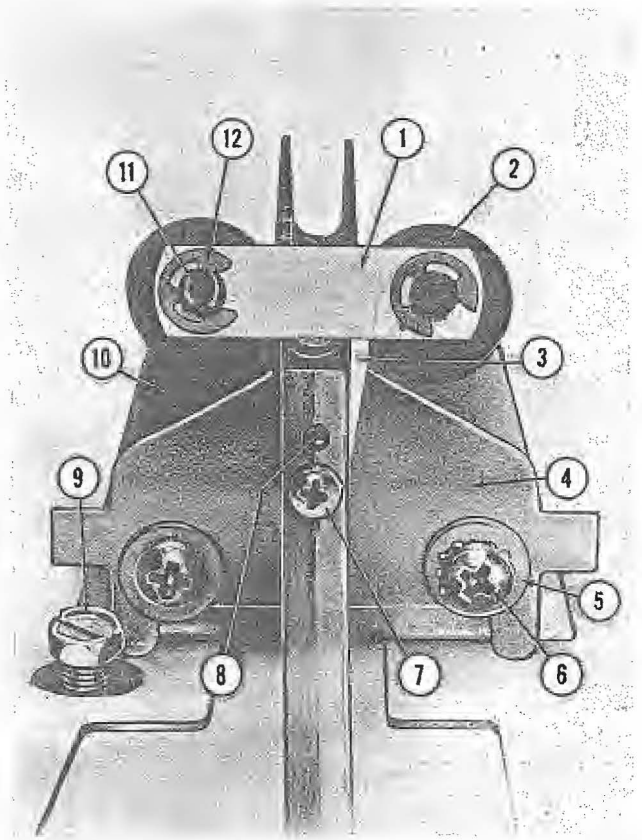

Fig. 47. BRACKET AND ROLLER ASSEMBLY, LIFT ARM GUIDE, 2400

1. Strap	65940
2. Spacer	65942
3. Guide Plate, Record Lift Arm	68290
4. Plate, Lift Arm Guide	66182
5. Washer	54024
6. Screw, 8-32 x 1/4", R. Hd.	73533-34
7. Screw, 4-40 x 5/8", R. Hd.	73533-7
8. Roll Pin	73782-32
9. Screw, Lift Arm Centering Adjustment	73660-161
10. Mounting Bracket, Hub and Pin Assembly	116836
11. Stud, Eccentric Adjustment	116831
12. Retaining Ring	73724-25

(2) ADJUSTABLE PLATE SETTING

The adjustable plate (Fig. 47, Item 4) should be located with the slot centered between the guide rollers. Advance the mechanism in its cycle until the lift arms are free to raise and lower. The guide tip bearing pin must enter and leave the slotted guide plate (Item 4) with no bind and the tips should stand straight entering the record holder. The guide tips spread evenly as they leave the guide rollers. Should they run off to one side they may be straightened by loosening the retaining screw (Item 7) and moving stop bracket (Fig. 48, Item 5).

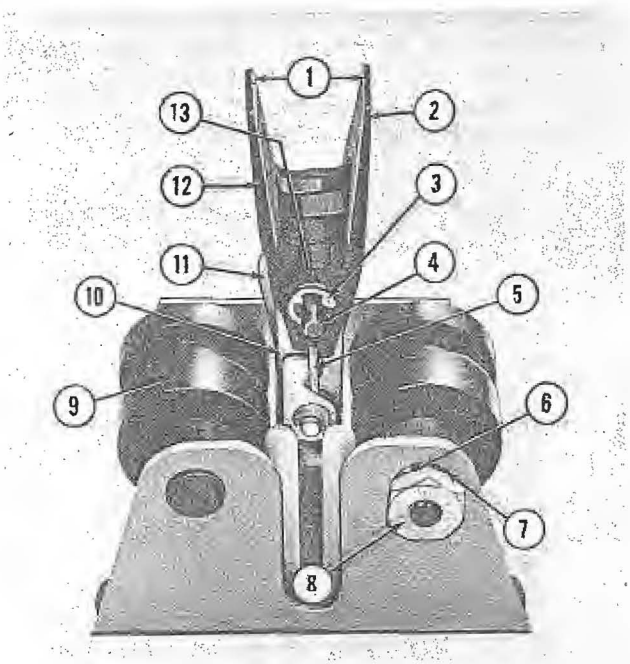

Fig. 48. BRACKET AND ROLLER ASSEMBLY, LIFT ARM GUIDE, 2400

1.	Dimension, 7/16"	
2.	Guide Tip, Right Hand	65730
3.	Retaining Ring	73724-9
4.	Shaft	65938
5.	Stop, Guide Tip	65526
6.	Washer	54024
7.	Lock Washer	73605-5
8.	Nut	73601-6
9.	Roller (2)	116833
10.	Spring, Record Lift Arm Tips	65812
11.	Guide Plate	68290
12.	Guide Tip, Left Hand	65731
13.	Washer	65937

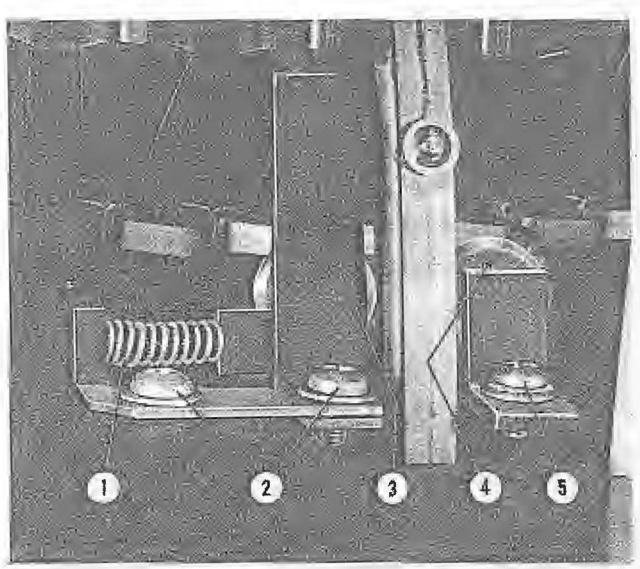

Fig. 49. ROLLER GUIDE ADJUSTMENT, 2410, 2404 LIFT ARMS

1.	Spring	60677
2.	Adjusting Screws	73568-106
3.	Mounting Bracket and Roller Assembly	60658
4.	Bracket and Roller Assembly	59704
5.	Mounting Screw	73676-47

g. RECORD LIFT ARM BRACKET AND ROLLER ASSEMBLY

The bracket and roller assemblies are mounted and located with a locating fixture at the factory after which scribe marks are made around the bracket. The scribe marks will be a guide in relocating the bracket should it be moved for any reason.

h. ROLLER GUIDES - LIFT ARMS 2410 AND 2404 SELECTOR

The stationary guide roller (Fig. 49, Item 4) should be set so that the roller rides squarely against the lift arm. The spring loaded roller should be set to allow smooth free travel of the lift arm up and down between the rollers.

i. RECORD LIFT ARM HEIGHT ADJUSTMENT ADJUSTMENT

The record lift arm height adjustment may be made by stopping the mechanism in play position with a normal size record (6-7/8" diameter) clamped on the turntable. Back out the adjusting screw (Fig. 50, Item 2) until the lift arm drags on the edge of the record. Make a scribe mark on the screw head and turn the screw in four full turns. The clearance between the edge of the record and the end of the record lift arm should be 3/32". Both lift arms should be checked.

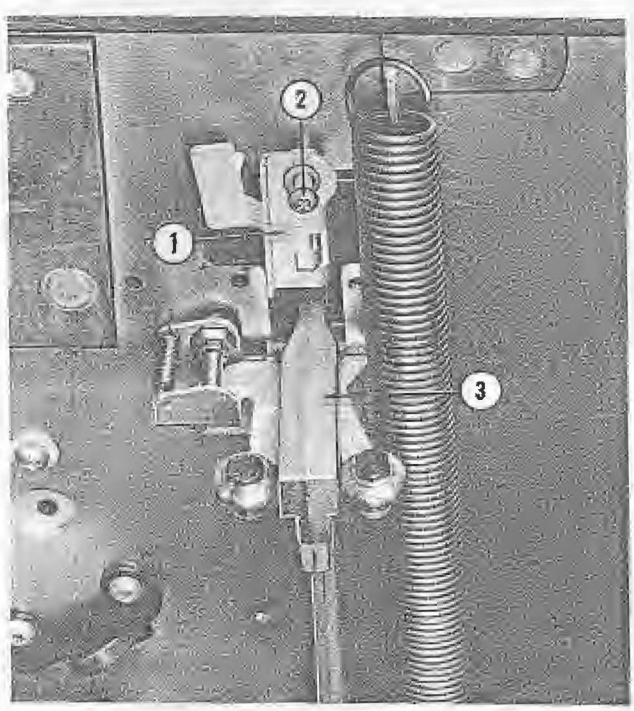

Fig. 50. LIFT ARM HEIGHT ADJUSTMENT

1.	Bracket and Nut Assembly	113205
2.	Adjusting Screw	73503-91
3.	Record Lift Arm, L.H.	65487

j. RECORD TRACK STOP BRACKET ADJUSTMENT

The record track stop adjustment may be made by stopping the mechanism in its play position with the normal size record clamped on the turntable. Loosen the bracket mounting screws (Fig. 51, Item 3) and insert a nickel between the flipper (record track) (Item 5) and the stop bracket (Item 2). Slide the bracket back until the flipper just touches the edge of the record. Tighten the screws and remove the nickel. Both stop brackets should be similarly adjusted.

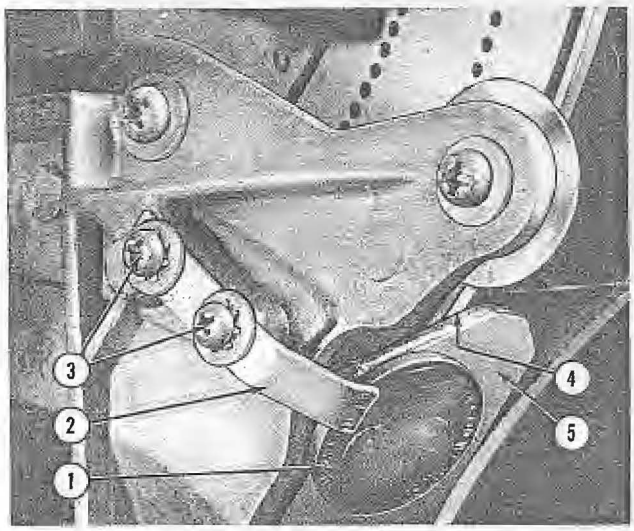

Fig. 51. RECORD TRACK STOP BRACKET ADJUSTMENT

1. Gauge, Nickel	
2. Stop Bracket	59434
3. Adjusting Screw 4-40 x 5/16", R.Hd.	73533-3
4. Point of Contact	
5. Record Track, Flipper	59425

k. RECORD LIFT ARM CENTERING ADJUSTMENT

The record lift arms on the 200 selector mechanism differ from those on the 100 or 104 mechanism in that they run free of the guide rollers until the arms are nearly at maximum height, at which time the ramp on the lower end of the arms contacts the adjustable guide roller bracket on the under side of the chassis (Fig. 52, Item 1 & 3). The ramp should enter and leave the rollers freely, with a clearance of .005" maximum. This dimension may be adjusted while the lift arm is in its play position by loosening the locking screw in the eccentric stud (Item 2) and turning the stud to the correct clearance and tightening the screw. With the mechanism still in its play position clamp a flat record on the turntable and check the alignment of the record with the record lift arm (Fig. 53, Item 4). Should adjustment be required, turning the adjusting screw (Fig. 52, Item 6) will center the lift arm with the record. The 100 and 104 mechanism lift arms are in contact with the guide rollers at all times. The above alignment has been factory set by forming and should need no adjustment.

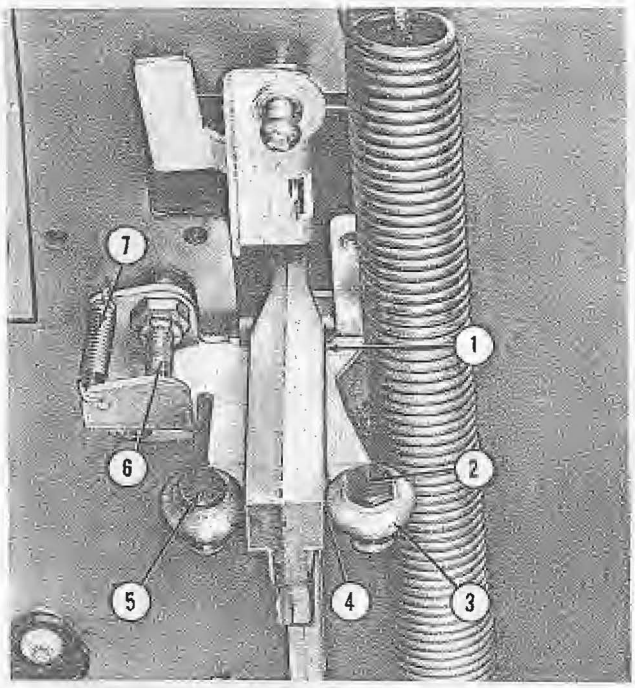

Fig. 52. LIFT ARM CENTERING, 2400

1. Ramp, Record Lift Arm	
2. Stud, Eccentric Adjustment	65986
3. Roller (2)	65989
4. Clearance, .005"	
5. Shoulder Rivet	65985
6. Screw, Lift Arm Centering Adjustment	73660-161
7. Spring	65958

1. BACK STOP PAWL ADJUSTMENT, 2400

The two back stop pawls are located on top of the chassis mounting plate to the right and left of center at the rear. Each of the back stop pawls will be adjusted independently. However, the adjustment procedure will be the same in both cases. Before proceeding with adjustment of the back stop pawls, the record changer should, otherwise, be in good running order.

(1) Slightly loosen the two mounting screws (Fig. 58, Item 2).

(2) Turn the record carrier slowly until the center line of one of the record compartments is in accurate alignment with the left hand record lift arm as shown in Figure 54. Carefully maintain this condition of alignment and set the left hand back stop pawl to engage with the adjacent tooth of the index wheel. The depth of engagement should be 1/32" to 1/16" as shown in Figure 58. Tighten the mounting screws. Alignment of the record compartments with the record lift arms must be kept within a tolerance of 1/32".

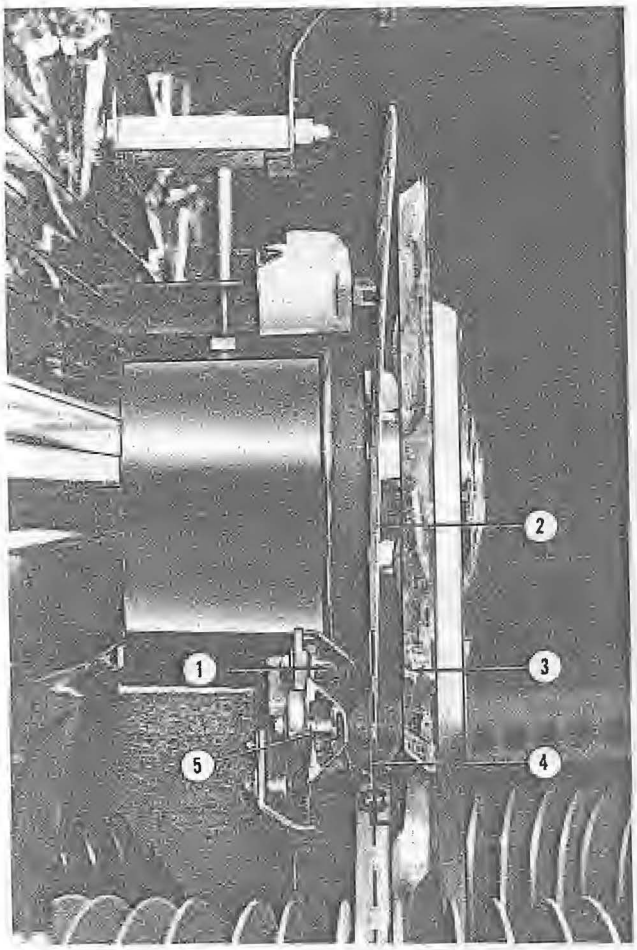

Fig. 53. RECORD LIFT ARM CENTERING ADJUSTMENTS

1. Bumper, Inner, Record Guide 59396
2. Record Disc, on Turntable
3. Record Guide Plate 111044
4. Center Line, Record Lift Arm
5. Bumper, Outer, Record Guide, Re-designed 117254

(3) The right hand back stop pawl should be set in the same manner as stated in steps (1) and (2) above.

(4) The same procedure will be followed to adjust the back stop pawls on the 2410.

(5) The back stop pawls on the 2404 are located at the front of the chassis mounting plate to the left and right of the center. The adjustment procedure will be the same as described for the 2400. Figure 56 shows one compartment of the record carrier located on the center line with the left hand record lift arm. This alignment should be checked at eight sectors of the record carrier.

NOTE:

Whenever back stop pawls are readjusted the selector crank arm adjustments must be checked for correct operation.

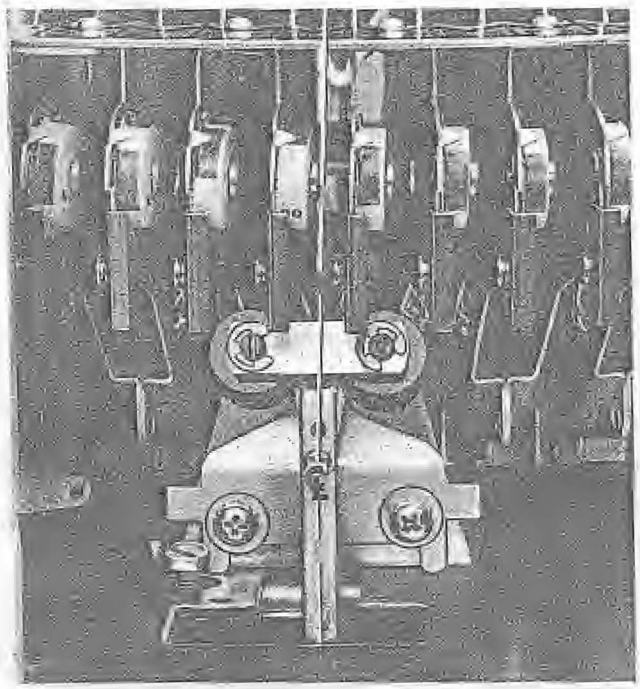

Fig. 54. CENTER LINE FOR BACK STOP PAWL SETTING

m. ACTUATING SCREW, PLUNGER RELEASE ADJUSTMENT, 2404

(1) Turn the power off.

(2) Make sure that the reversing switch actuating plunger is latched in its down position by manually depressing the upper cancel arm (Fig. 44, Item 6).

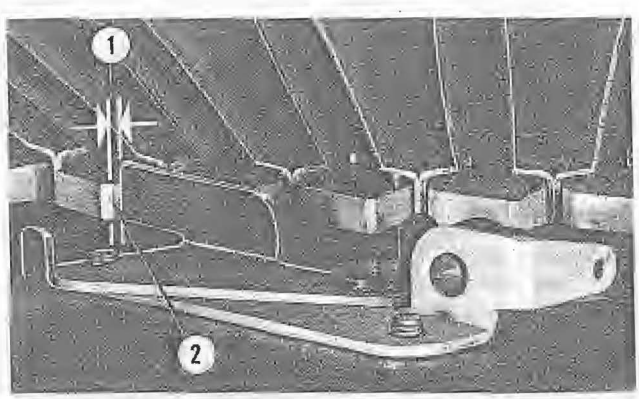

Fig. 55. BACK STOP PAWL DEPTH ENGAGEMENT

1. Dimension 1/32" to 1/16", Tip of Tooth to Face of Pawl
2. Tip of Tooth

(3) Release an odd number selector pin for the left hand back stop pawl. The selector pin chosen should stop the selector crank in a convenient position for adjustment.

(4) Turn the record carrier slowly by hand until the selector crank arm just touches the released pin.

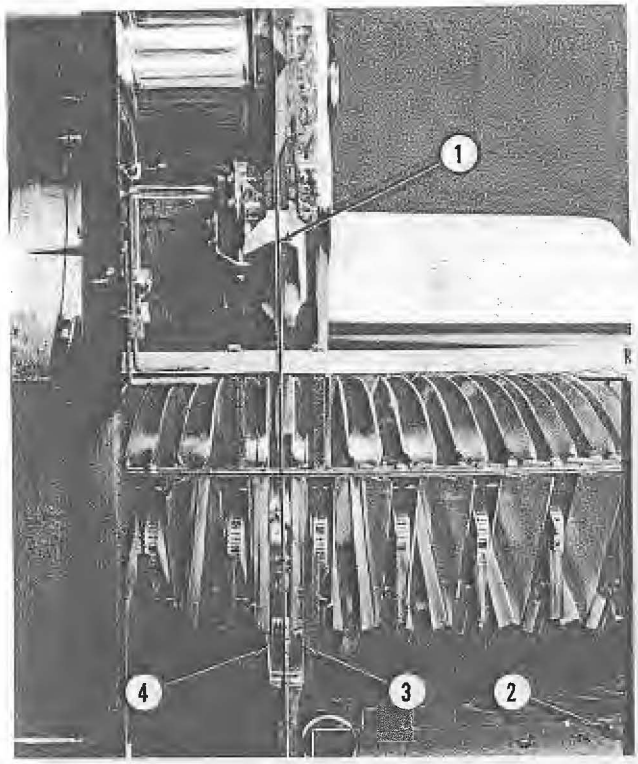

Fig. 56. CENTER LINE FOR BACK STOP PAWL SETTING

1. Center Line
2. Mounting Screws 73676-46
3. Guide Tip, L.H., Record Lift Arm 60711
4. Guide Tip, R.H., Record Lift Arm 61484

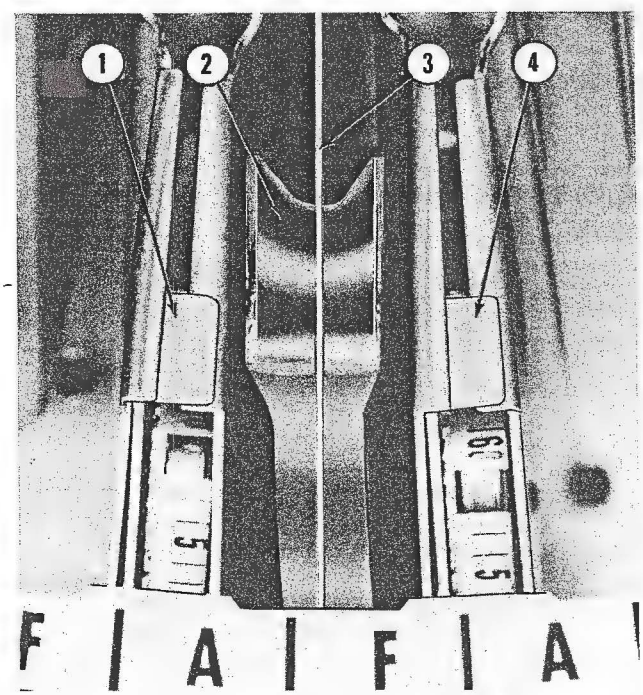

Fig. 57. ALTERNATE POSITION, RECORD LIFT ARM, FOR BACK STOP PAWL SETTING, 2410, 2404

1. Record Holder Assembly 59601
2. Arm, Record Actuator 59635
3. Center Line
4. Record Holder Assembly 59601

(5) Adjust the actuating screw (Fig. 59, Item 2) so that the plunger latch releases the reversing switch plunger when the correct tooth, as selected, has overtraveled the back stop pawl a distance of 1/16" to 3/32" (Fig. 58, Item 1).

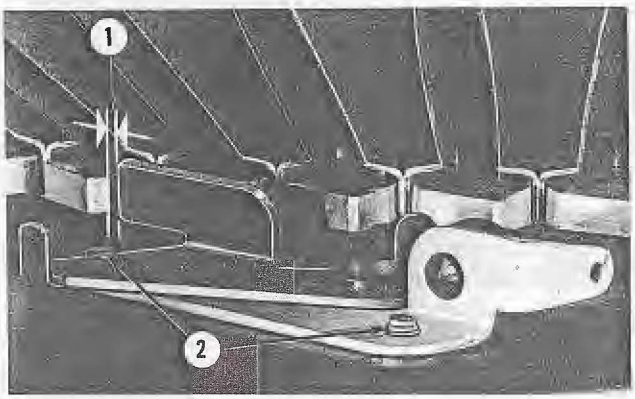

Fig. 58. BACK STOP PAWL OVER-TRAVEL

1. Dimension 1/16" to 1/32" Over-travel
2. Mounting Screws, Back Stop Pawl 73676-46

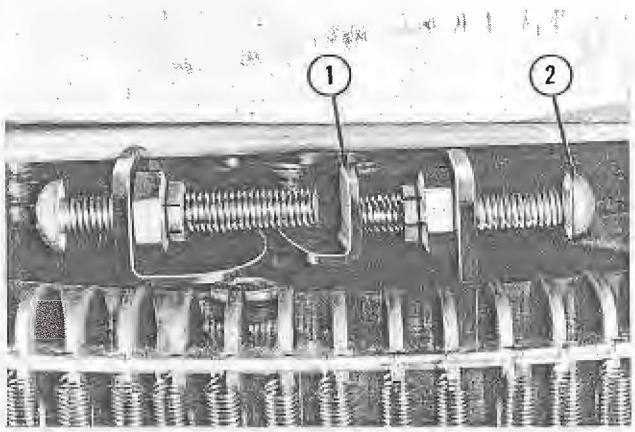

Fig. 59. PLUNGER RELEASE, ACTUATING SCREW ADJUSTMENT

1. Plunger, Release Arm 59572
2. Actuating Screw, Plunger Latch 73502-95

(6) Re-latch the reversing switch plunger by pressing down on the upper cancel arm (Fig. 44, Item 6) and release an even number selector pin to check the right hand back stop pawl. Check the position of the record carrier when plunger release occurs, in the same manner as described above.

(7) The timing between plunger release and back stop pawl engagement should be checked in eight different sectors of the record carrier. If the plunger release occurs too early, before the back stop pawl has engaged the correct tooth on the index wheel, it will result in wrong selections. If the plunger release occurs too late it may result in wrong selections by driving the index wheel far enough to engage the wrong back stop pawl and bind the selector crank arm against the selector pin. This may also cause the same selection to repeat.

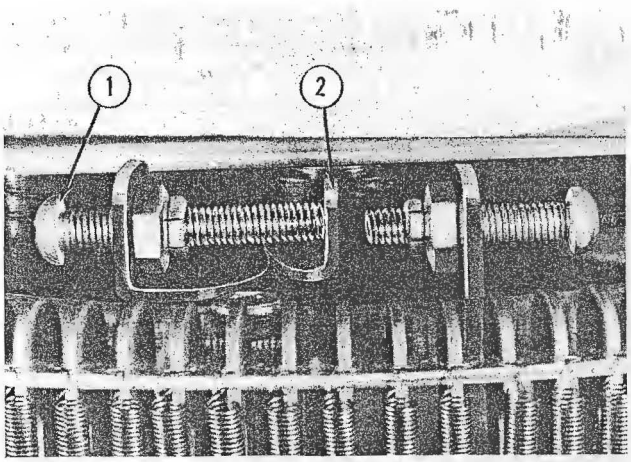

Fig. 60. STOP SCREW ADJUSTMENT, PLUNGER RELEASE ARM

1. Adjusting Screw, Latch Stop
2. Stop Tab, Plunger Release Arm

73502-97

n. STOP SCREW ADJUSTMENT, PLUNGER LATCH LEVER, 2404

Make sure that the reverse switch latch plunger is in its latched position by pressing down on the upper cancel arm (Fig. 44, Item 6). Turn in the stop screw (Fig. 60, Item 1) until it touches the latch lever (Item 2). Hold the plunger latch lever against the stop screw while turning the screw out until the plunger is released. Turn the screw out an additional 1/2 turn for overtravel. Check this adjustment by releasing an odd number selector pin. Manually turn the record carrier until the selector crank arm engages the released pin and releases the latch plunger. Continue rotating the record carrier by manually turning the changer motor shaft clockwise until the plunger latch lever (Fig. 60, Item 2) is held firmly against the stop screw (Item 1) by the actuating screw. The overtravel between the left hand back stop pawl and the correct tooth on the index wheel should be 3/16" maximum.

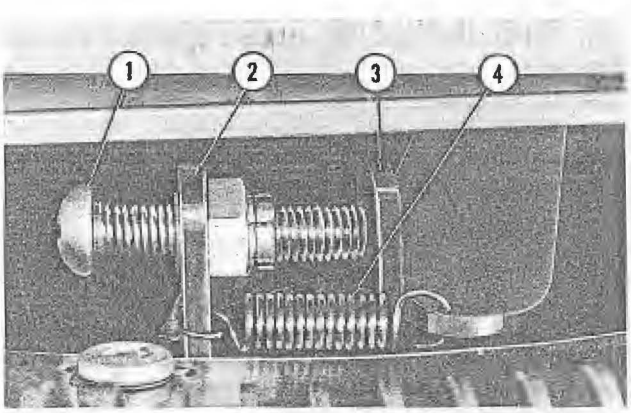

Fig. 61. KICK-OFF SCREW ADJUSTMENT

1. Adjusting Screw — 73502-95
2. Adjusting Bracket and Stop Nut Assembly — 59521
3. Adjusting Bracket, Selector Crank — 59522
4. Spring, Retracting — 59614

o. KICK-OFF SCREW ADJUSTMENT, 2404

The adjusting screw (Fig. 61, Item 1) for centering of the selector crank arm is mounted on the end of the "adjusting bracket and stop nut assembly" opposite the plunger latch stop screw and actuating screw. This screw provides adjustment of the selector crank "at rest" position, to avoid interference with the release of adjacent selector pins (Fig. 62, Item 2).

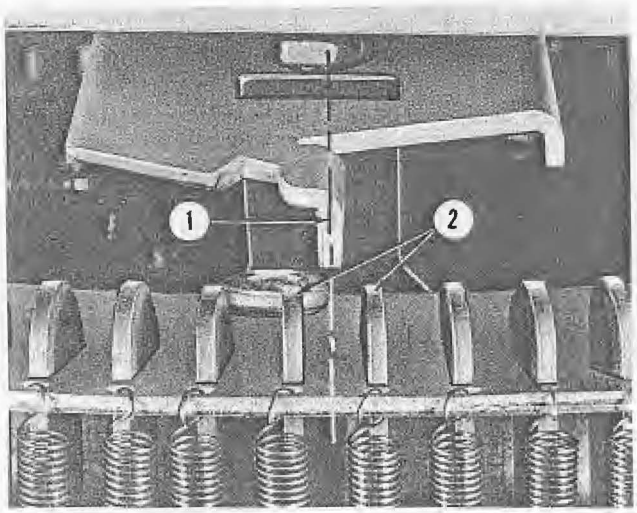

Fig. 62. SELECTOR CRANK ARM CENTERING

1. Center Line
2. Selector Pins

64606

(1) With the plunger latched in its "down" position, release any convenient selector pin.

(2) Turn the record carrier slowly, by hand, until the selector crank is stopped by the released pin and the reversing switch plunger is released.

(3) Make sure the corresponding tooth of the record carrier engages its backstop pawl at this point, and is held firmly against it.

(4) Cancel the selected pin by pressing down on the cancel lever (Fig. 44, Item 6).

(5) Adjust the selector crank kick off screw (Fig. 61, Item 1) so that the tip of the crank arm rests midway between selector pins.

p. ACTUATING SCREW ADJUSTMENT, CARRIAGE SWITCH, 2400, 2410

The 2400 and 2410 electric selectors use a reversing relay instead of two mechanically operated micro switches to reverse the changer motor. Therefore, the timing of the reverse relay will be controlled by the closing of the carriage switch (Fig. 63, Item 2).

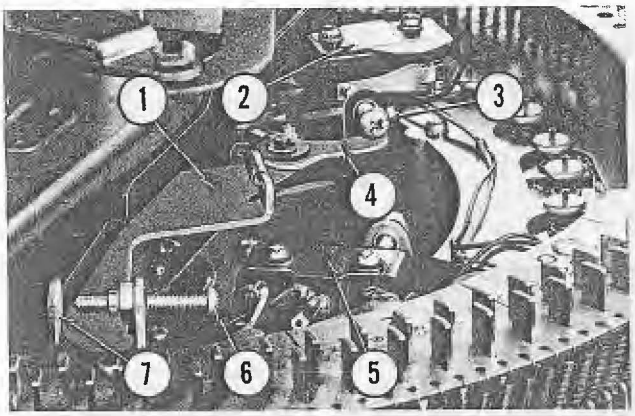

Fig. 63. ACTUATING SCREW ADJUSTMENT, CARRIAGE SWITCH

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)	

(1) Proceed as on the 2404 by turning the service switch OFF, release an odd number (inner) selector pin, rotate the record carrier until the selector crank arm engages the released pin (Fig. 64, Items 4 & 12). As viewed from the rear, manually turn the changer motor shaft clockwise until the reversing relay is heard to operate, at which point the right hand back stop pawl at the rear of the chassis mounting plate should have just dropped into engagement with a tooth on the index wheel. Allow overtravel of 1/32" maximum (Fig. 58, Item 1). Check this adjustment at twelve positions around the pin assembly using inner odd number pins. At no point should there be more than 1/32" overtravel of the index wheel tooth past the back stop pawl at the moment the reverse relay operates.

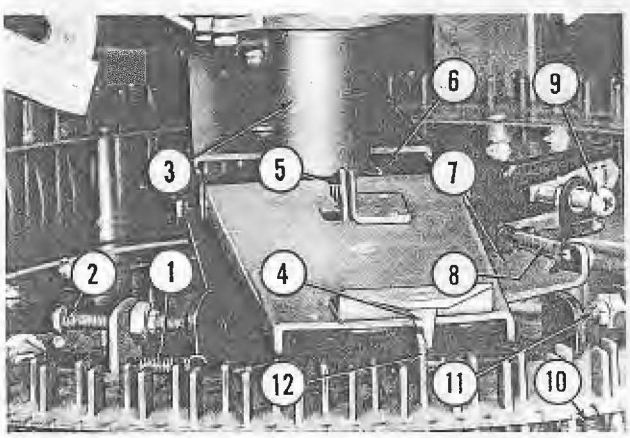

Fig. 64. STOP SCREW ADJUSTMENT, SELECTOR CRANK

1. Spring, Kick-off	110480
2. Adjusting Screw, Kick-off	73503-95
3. Cancel Sleeve and Bushing Assembly	68483
4. Tip and Mounting Bracket Assembly, Inner	110936
5. Link, Selector Crank Actuator Arm	110928
6. Actuator Arm and Link Assembly	110939
7. Selector Shaft and Adjusting Plate Assembly	110952
8. Spring, Switch Lever	68774
9. Adjusting Screw, Carriage Switch	73503-95
10. Spring, Selector Latch Pins	110480
11. Adjusting Screw, Selector Crank Stop	73502-95
12. Selector Latch Pin, Inner	110941

(2) Check the left hand back stop pawl, as viewed from the rear of the phonograph, by releasing an outer (even number) pin. The timing between backstop pawl engagement and reverse relay operation should be identical. If not,do not adjust the actuating screw since it was adjusted to time the right pawl with inner pins. The tip and mounting bracket assembly which engages the outer pins may be adjusted to time the carriage switch action with the left pawl to synchronize with the right pawl. This adjustment should be checked at several positions around the pin assembly using outer (even number pins.

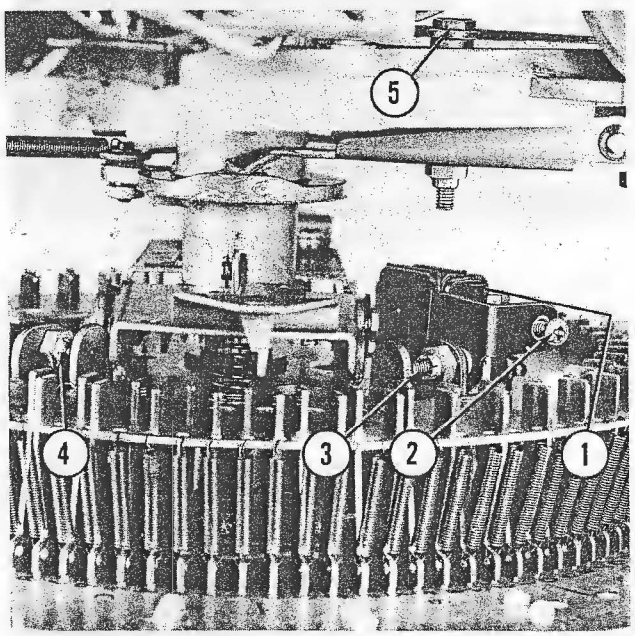

Fig. 65. ELECTRIC SELECTOR 2410

1. Micro Switch, Carriage	110558
2. Adjusting Screw, Carriage Switch Actuating	73503-72
3. Adjusting Screw, Stop	73503-91
4. Adjusting Screw, Kick-off	73503-93
5. Adjusting Screw, Selector Crank Clearance	73793-125

q. STOP SCREW ADJUSTMENT, 2400 and 2410

The stop screw serves to prevent momentum from driving the record carrier into the wrong selection. Check the setting of the stop screw (Fig. 64, Item 11) by releasing an inner pin and rotating the record carrier manually until the reverse relay is heard to operate. Continue by turning the changer motor shaft clockwise until the stop screw (Item 8) is resting against the tab of the stop bracket. At this point there should be 1/16" to 3/32" maximum overtravel between the back stop pawl and the tooth of the index wheel (Fig. 58, Item 1).

r. KICK-OFF SCREW ADJUSTMENT, 2400 AND 2410

Adjustment of the kick-off screw will be made with the index wheel held against a backstop pawl. The adjusting screw should be set to locate the tip (Fig. 66, Item 3) on the center line between the inner pin (Item 2) and the outer pin (Item 3). Check the alignment of the tip on the inner crank arm at twelve positions around the selector pin assembly and then the tip on the outer arm at twelve positions.

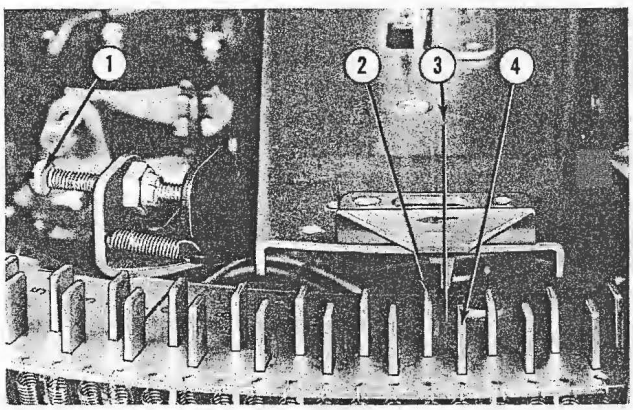

Fig. 66. KICK-OFF SCREW ADJUSTMENT

1. Screw, 10-32 x 1", R.H., Kick-off	73502-95
2. Selector Latch Pin, Inner	110941
3. Center Line of Bracket Tip	
4. Selector Latch Pin, Outer	110942

s. ACTUATING SCREWS, MICRO REVERSE SWITCHES, 2404

To adjust the reverse switches (Fig. 67, Item 1), turn the service switch OFF. Release any selector latch pin and rotate record carrier until selector crank arm engages selector pin and releases latch plunger. The reversing switch adjusting screws (Item 3) should travel 1/32" before the switches actuate. As the latch plunger is reset the adjusting screws should travel 1/32" before switch actuation.

t. TRANSFER SWITCH ADJUSTMENT, ALL MODELS

Release a selector pin and let the mechanism advance in its cycle until the roller (Fig. 68, Item 5) has passed the cam lobe (Item 6). Turn off service switch and back out the adjusting screw (Item 4) until the insulating stud clears the switch actuator. Advance the mechanism through its cycle until the roller (Item 5) is again on the cam lobe (Item 6). Turn the power OFF and adjust the screw (Item 4) until the transfer switch is actuated over center by its toggle spring (Item 2). The adjusting screw should be turned 2 full turns beyond this point for overtravel. Check the mechanism through several cycles for proper switch actuation.

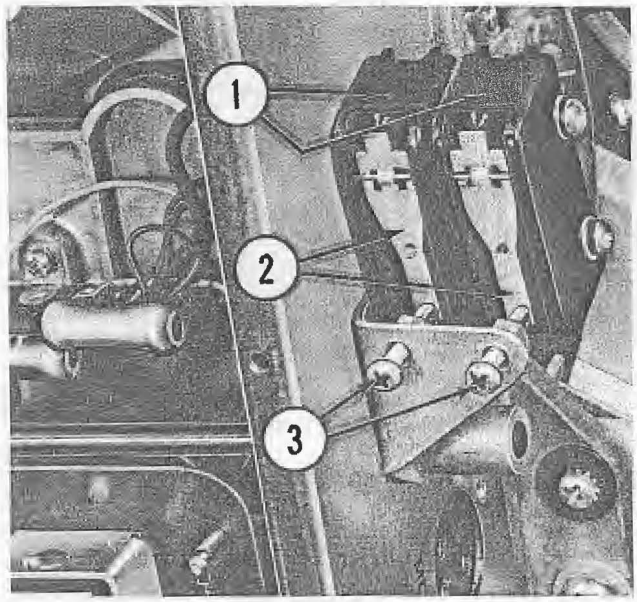

Fig. 67. REVERSING SWITCH ADJUSTMENT

1. Reversing Switches	61596
2. Switch Actuators	
3. Adjusting Screws	73503-73

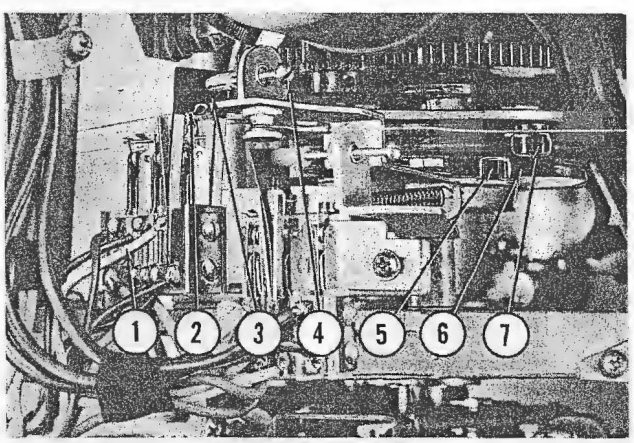

Fig. 68. TRANSFER SWITCH SETTING

1. Transfer Switch		59569
2. Over-Center Spring		59569-1
3. Position of Switch for Adjustment		
4. Adjusting Screw and Actuator	73574-31	58255
5. Roller, Transfer Switch Actuating Arm		56594
6. Long Lobe on Side of Main Cam		62792
7. Roller, Actuating Arm, Tone Arm		56594

u. MUTE AND PLAY SWITCH ADJUSTMENT, ALL MODELS

The mute and play switch is actuated by the adjustable cam lobe (Fig. 69, Item 2). The timing marks (Item 1) should be in alignment. Advance the mechanism in its cycle until the roller (Fig. 70, Item 3) is at the base of the lobe still resting on the surface of the main cam. Adjust the stop plate (Fig. 71, Item 6) to meet the actuating arm at (Item 3) with a maximum of 1/64" clearance between the roller and the surface of the main cam (Fig. 70,

Item 2). Manually turn the changer motor shaft counterclockwise until the roller is on the peak of the adjustable lobe. Continue turning the changer motor shaft in the same direction and as the roller rides off the adjustable lobe the play switch should be adjusted to actuate with 1/16" overtravel of the switch tab (Fig. 71, Item 2).

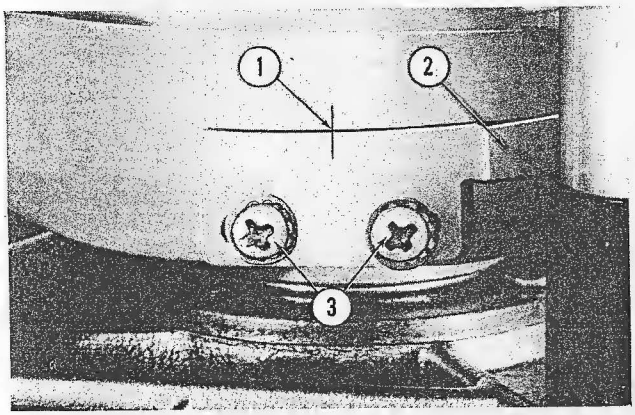

Fig. 69. TIMING OF MUTE AND PLAY SWITCH

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

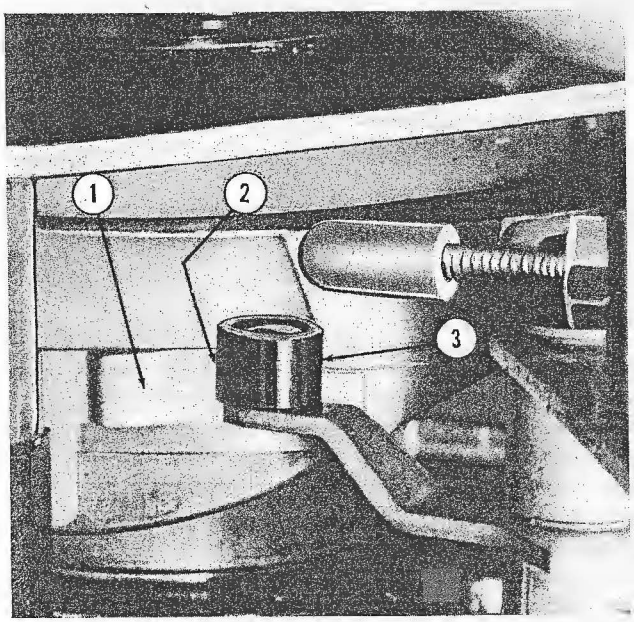

Fig. 70. STOP PLATE SETTING, MUTE AND PLAY SWITCH

1. Mute and Play Switch Cam	62768
2. Zero to 1/64" Clearance, Stop Plate Setting	
3. Roller, Actuator Arm, Mute and Play Switch	56592

Run the mechanism through several cycles to check for correct mute and play switch action. Observe closely for any forward movement of the record clamp cam (Fig. 72, Item 5) at the time the tone arm trip switch actuates or any return action of the cam at the time the play switch actuates to stop the changer in play position. Either condition existing requires readjustment of the play switch cam lobe (Fig. 69, Item 2).

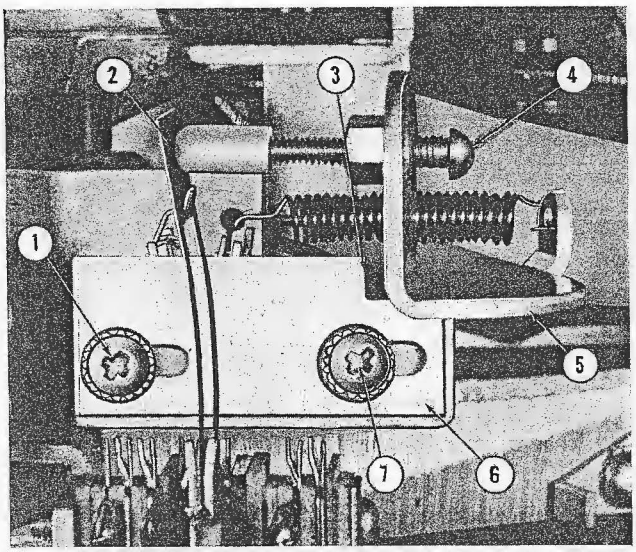

Fig. 71. STOP PLATE SETTING, MUTE AND PLAY SWITCH

1. Locking Screw	73533-22
2. Switch Tab, Over-travel Measured at this Point	
3. Stop Position	
4. Adjusting Screw	73574-31
5. Actuating Arm, Mute and Play Switch	62761
6. Stop Plate	62769
7. Locking Screw	73533-22

v. TURNTABLE ADJUSTMENTS, ALL MODELS

(1) The turntable release arm (Fig. 72, Item 4) must be centered about the hub of the record clamp plate (Item 2). Loosening the mounting screws (Item 6) will permit alignment of the rollers (Item 3).

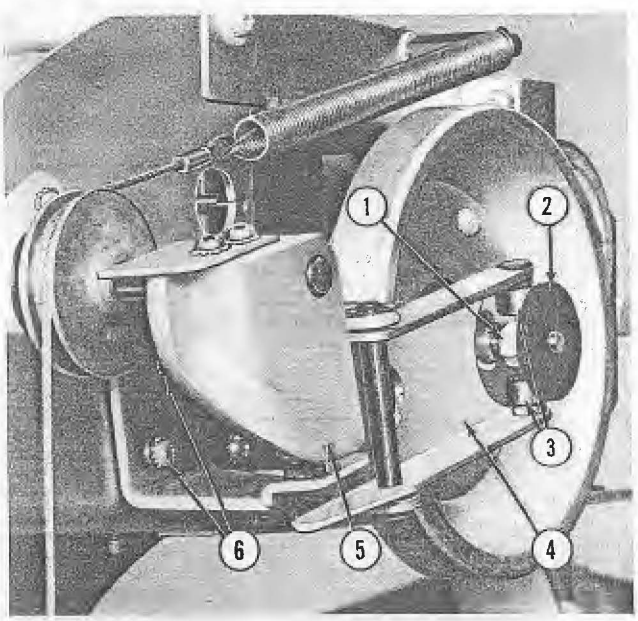

Fig. 72. RECORD CLAMP SETTING

1. Lock Nut	73601-10
2. Record Clamp Plate	63205
3. Turntable Release Arm Rollers	59485
4. Turntable Release Arm	59484
5. Record Clamp Cam	59464
6. Mounting Screws, Turntable Arm Bracket	73533-34

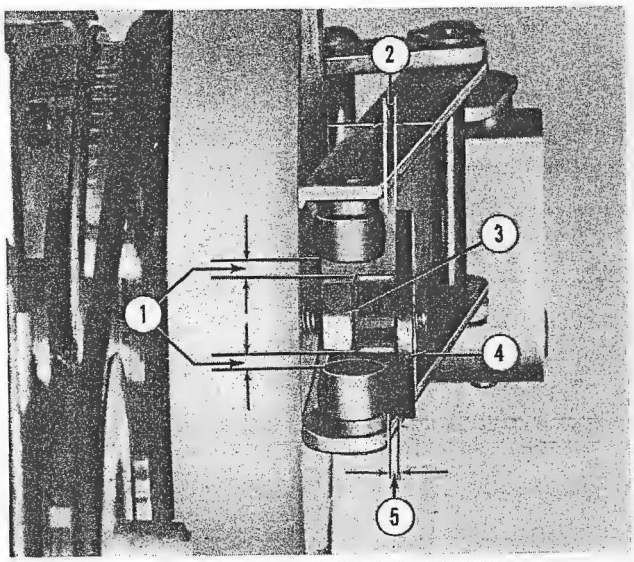

Fig. 73. RECORD CLAMP SETTING

1. Equal Distance
2. Record Clamp Plate Clearance 1/32" to 1/16"
3. Lock Nut 73601-10
4. Record Clamp Plate 63205
5. Record Clamp Plate Clearance 1/32" to 1/16"

(2) With a record in play position on the turntable, shut the power off. Pull back the clamp plate (Item 4) and loosen the locknut (Item 3). Release the clamp plate slowly to play position and adjust the clamp plate on the threaded clamp rod to provide 1/32" to 1/16" clearance (Fig. 73, Items 2 and 5) between the rollers and the clamp plate. Tighten the locknut. Manually return the record clamp cam (Fig. 72, Item 5) to its normal rest position and check the clamp rod for additional travel. The clamp rod must not jam in rest position, but should return far enough to retract the turntable pilot 1/32" to 1/16" inside the turntable assembly (Fig. 74, Item 1).

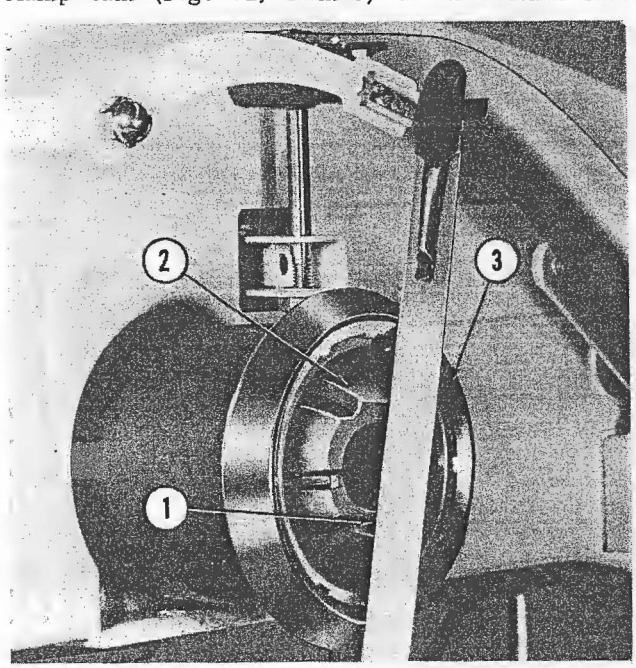

Fig. 74. TURNTABLE PILOT SETTING

1. Clearance 1/32" to 1/16"
2. Turntable Pilot 59449
3. Turntable 68033

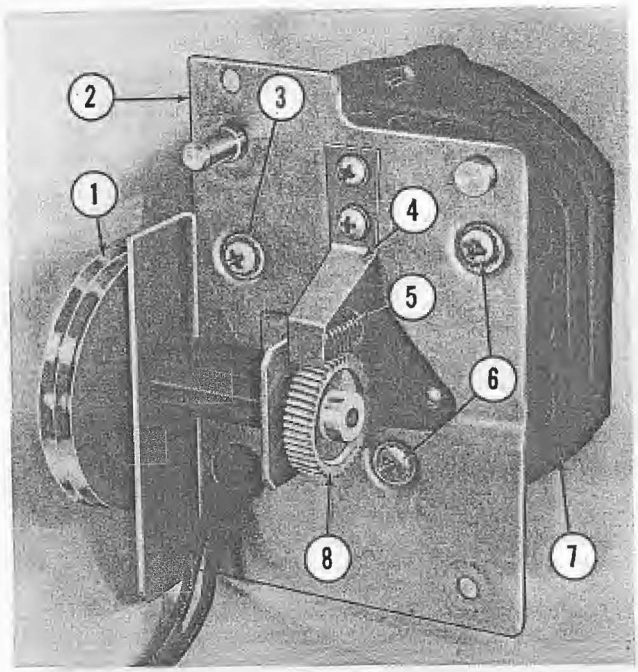

Fig. 75. TURNTABLE DRIVE GEAR ADJUSTMENT

1. Drive Pulley 115023
2. Motor Mounting Plate 60946
3. Screw, Motor Mounting 73533-22
4. Thrust Spring 60893
5. Worm Gear 115206
6. Screw, Motor Mounting 73533-22
7. Motor 115058
8. Drive Gear 65203

(3) The turntable table drive gears (Fig. 75, Items 5 and 8) are adjustable for alignment and mesh. The motor and mounting plate assembly may be removed from the top support casting by disconnecting the line plug (Fig. 76, Item 3) near the tone arm trip switch. Two lock nuts (Item 6) hold the mounting plate to the two top rubber mounts and a retaining ring (Item 9) holds the bottom stud. With the motor and mounting plate removed the motor may be shifted on the mounting plate by loosening the three screws (Fig. 75, Items 3 and 6) to center the worm gear over the nylon pinion gear and to mesh sufficiently for free running with a minimum of back lash. The thrust spring (Fig. 75, Item 4) should bear against the steel ball in the end of the worm gear with a pressure of 2-1/2 to 3-1/2 ounces. The gears and motor bearings should be well lubricated as indicated in the maintenance instructions.

(4) The turntable drive pulley is mounted on the driver gear shaft with an allen set screw (Fig. 76, Item 10). The pulley should be mounted on the shaft to allow approximately .006" end play.

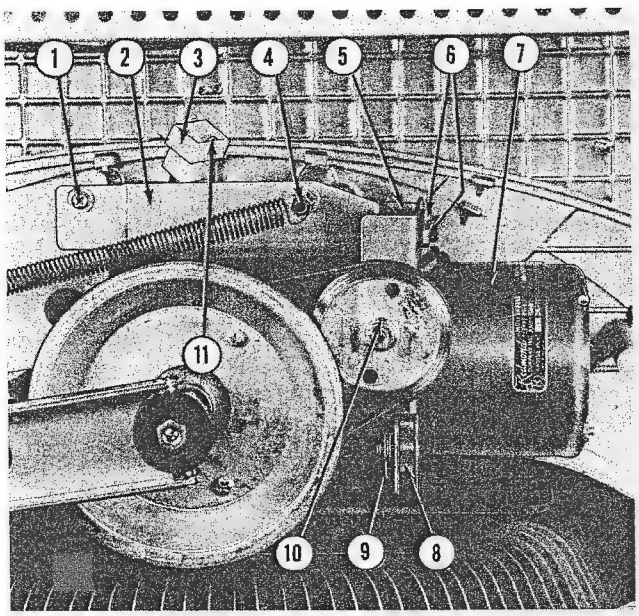

Fig. 76. TURNTABLE MOTOR MOUNTING AND BELT ADJUSTMENT

1.	Screw, 8-32 x 1/2" R.H. Sems	73533-38
2.	Mounting Bracket, Upper	60889
3.	Cap, Shown Disconnected	113527
4.	Spring Pin	61111
5.	Rubber Mount	60882
6.	Nut, 8-32 Hex.	73601-7
7.	Motor and Worm Assembly	116905
8.	Grommet	49884
9.	Retaining Ring	73724-25
10.	Set Screw, 6-32 x 3/16" Allen	73513-19
11.	Contact	111527

(5) The turntable drive belt tension is adjustable by loosening the stud (Item 4) and the screw (Item 1). The upper motor mounting bracket (Item 2) may be shifted on its elongated mounting holes.

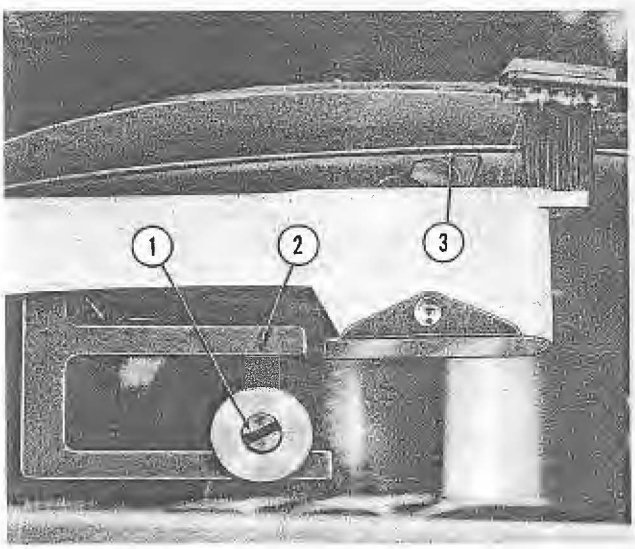

Fig. 77. TONE ARM FEED-IN ADJUSTMENT

1.	Tone Arm Stop Pin Assembly (Feed-in Adjusting)	115660
2.	Tone Arm Latch	64423
3.	Feed-in Start Position	

w. TONE ARM ADJUSTMENTS, ALL MODELS

(1) The tone arm feed in adjusting screw (Fig. 77, Item 1) is set at the factory using fixture X42226 (Item 3) and should need no adjustment. However, when a readjustment is required it may be accomplished by advancing the record changer in its cycle until a record is clamped on the turntable. Turn the service switch off before the needle contacts the record and adjust the feed in screw (Item 1) to position the needle in the feed-in groove of the record. The setting should be 2-5/8" to 2-11/16", measured from the outside circumference of the turntable pilot to the needle, to conform with R.I.A.A. standards.

(2) Tone arm latch bracket adjustment should be accomplished with a perfectly flat record in play position, the tone arm free from the latch bracket ready to play. The feed-in adjusting screw should be centered within the latch bracket (Fig. 78, Item 3). If adjustment is required, turn the adjusting screw (Item 5).

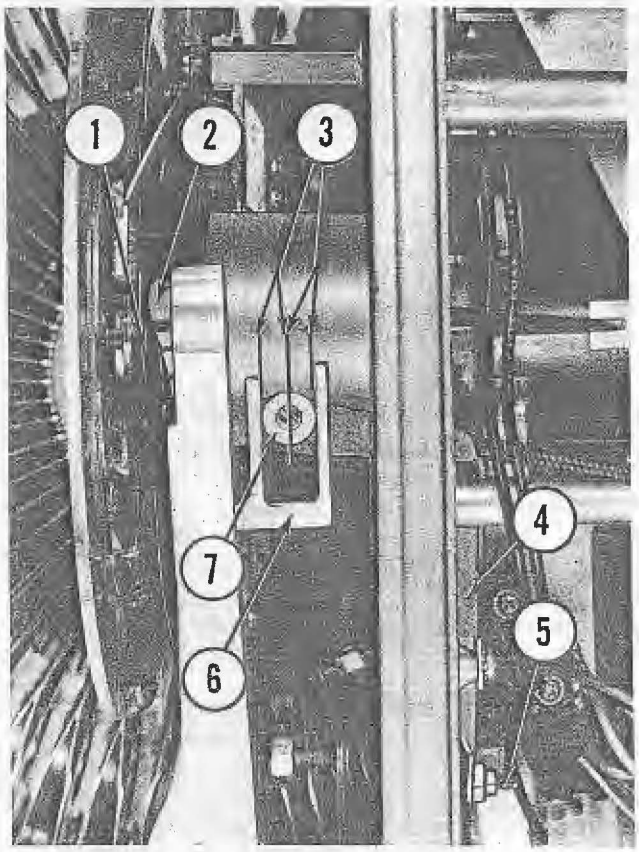

Fig. 78. TONE ARM LATCH LEVER ADJUSTMENT

1.	Record		
2.	Needle,	Cobra 57525	Stereo 116727
3.	Dimension, Equal Each Side		
4.	Tone Arm Release Bracket		116921
5.	Adjusting Screw		64427
6.	Tone Arm Latch Bracket		64423
7.	Stop Pin, Tone Arm Feed-in		115660

(3) Needle pressure adjustment may be accomplished by turning the stop nut (Fig. 79, Item 3) to vary the spring tension on the tone arm. With a record in play position and the power off, use a gram scale such as Graybar 70-D, measuring, at the end of the tone arm, the pressure needed to just pull the needle off the record (Fig. 79, Items 1 and 2). The recommended needle pressure on the "Cobra" pick up should be 10 to 12 grams and on the Sonotone Stereo needle it should be 4 to 5 grams.

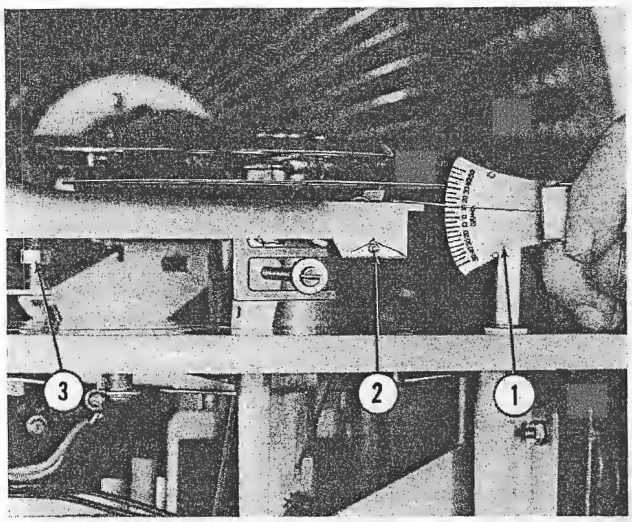

Fig. 79. NEEDLE PRESSURE ADJUSTMENT

1.	Gram Scale	
2.	Tone Arm, Free for Compliance	116142
3.	Stop Nut, Needle Pressure Adjustment	73865-8

(4) Tone arm balance adjustment should be accomplished with the mechanism in play position, no record on the turntable and the service switch off. Using a piece of thread (Fig. 80, Item 3) tie the tone arm in a position where the latch bracket (Item 2) clears the feed in screw (Item 1). Using a gram scale such as Graybar 70-D measure at the pick up end, the pressure needed to move the arm in either direction: i.e. up or down. When correctly balanced by the adjusting screw (Item 6) the arm should move with no more than 1 gram pressure at any position in its swing. If a gram scale is not available a light puff of air should move the arm.

(5) The tone arm trip switch (Fig. 81, Item 9) is adjustable by means of the screw (Item 10) and actuated by the bracket (Item 6). The switch is adjusted at the factory to R.I.A.A. standards which allows for extended play records. Due to the wide variations in records it may be necessary to readjust the trip switch. This may be done by measuring 1-1/4" to 1-5/16" from the edge of the centering hole in a standard record and marking. Place the record in the record carrier and select the marked side. Adjust the trip switch screw (Item 10) to produce switch action when the needle is on the mark.

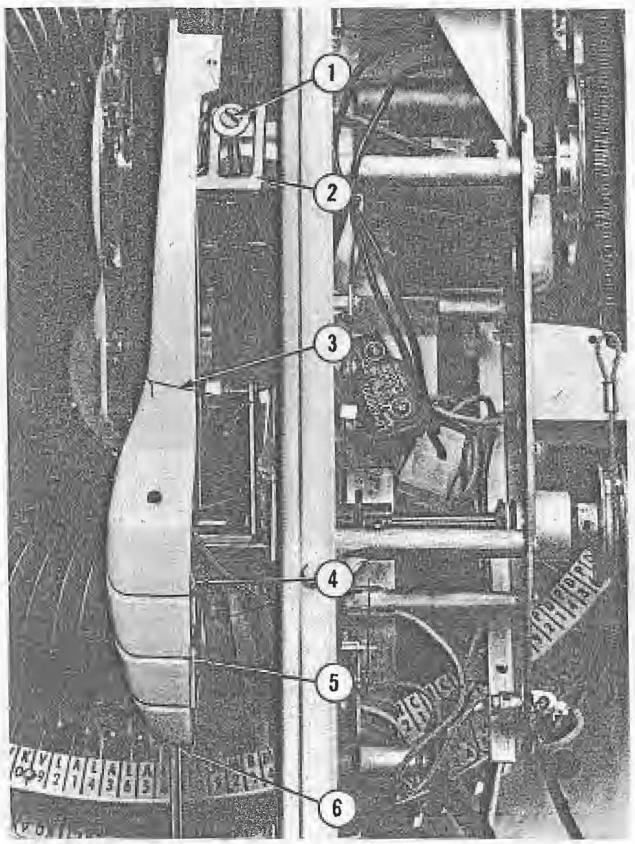

Fig. 80. TONE ARM BALANCING ADJUSTMENT

1.	Stop Pin Assembly, Tone Arm Feed-in	115660
2.	Latch Bracket, Tone Arm	64423
3.	Thread, Tie Down	
4.	Stop Nut, Tone Arm Balance	23879
5.	Balancing Weight and Bracket Assembly	65273
6.	Screw, Balance Adjustment	73575-100

(6) The tone arm needle brush adjustment should be accomplished with the phonograph in its normal at rest position. The needle brush (Fig. 82, Item 4) should be 1/4" to 1/2" below the cartridge. The dimension may be varied by loosening the mounting screws (Fig. 83, Item 1) and moving the idler wheel. The needle brush is actuated by the action of the transfer switch causing the brush to sweep across the tip of the stylus. The tip of the stylus should project into the brush a depth of 1/32" (Fig. 82, Item 5). The brush mounting bracket may be formed to provide the correct wiping action. Use care in adjusting the wiping action to avoid damage to the cartridge. Removal of the silicone damping grease between the stylus and the cartridge housing will result in poor tone quality.

x. CHANGER MOTOR PINION GEAR MESH

The changer motor pionion gear (Fig. 84, Item 4) mesh is adjustable by loosening the two mounting screws (Item 1). The motor and mounting bracket assembly (Item 2) may be shifted to provide minimum back lash between the pinion gear (Item 4) and main drive gear (Item 5) with no bind.