## WURLITZER 2400 SERIES 2400, 2404, 2410 <br> SERVICE MANUAL



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## COIN EQUIPMENT

 2400S-2400, 2410S-2410, 2404S-2404References 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
9. Lower Coin Chute Assembly
10. Lever and Bracket Assembly

68552
11. Pin and Actuator Assembly
12. Coin Separator, 5-10-25-50

113854
13. 5-10-25 Cent Slug Rejector
,
National
14. Catch and Spring Assembly
15. Shipping Screw

64883
16. Coin Bag Housing Assembly

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 5-1025 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 Cain Chute Assembly

68552
7. Pin and Actuator Assembly

68545
8. Lever and Bracket Assembly, Reject Arm 9. Coin Separator

113854
10. Dust Cover and Liner Assembly
11. 5-10-25 Cent Slug Rejector
12. Coin Casting and Support Assembly

National
114643
National
113961
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 $6-25 \times 5 / 16^{\prime \prime}(6)$ | $73551-23$ |
| 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 $1 / 32^{\prime \prime}$ 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
3. Accumulator, Wheel and Hub Assembly

66045
4. Stud, Lever, Hub and Stud Assembly

6129
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 $1 / 32^{\prime \prime}$ 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, $1 / 32^{\prime \prime}$ Opening
4. Screws, Cancel Solenoid Adjustment

73533-22


Fig. 8. KEY SWITCH CLEARANCE ADJUSTMENT

1. Actuator, Key Switch
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,


Fig. 9. STOP LEVER AND QUADRANT INDEXING STRIP ADJUSTMENT

[^0]

Fig. 11. CANCEL STROKE ADJUSTMENT

1. Manually Actuate at this Point
2. Pivot Arm and Pawl Assembly

66125
3. Adjustment Cam, Eccentric
4. Pin and Pawl Assembly


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
2. Dimension, Engagement $1 / 3$ of Slant Surface
3. 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 . $005^{\prime \prime}$ clearance throughout the length of the arc and also provide $.002^{\prime \prime}$ to $.005^{\prime \prime}$ 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 $1 / 64^{\prime \prime}$ (Fig. 17, Item 1) between the bracket and the pawl.


Fig. 14. DUAL PRICE COIN REGISTER MECHANISM

1. Relay, Anti-Cheat
2. Relay, Pricing
3. Relay, T.R.\#1
4. Relay, Pulse
5. Slide Lock
6. Lower Coin Chute Assembly
7. Motor and Pin Assembly
8. Drive A.rm and Contact Assembly
9. Cap, 9 Circuit
10. Cap, 6 Circuit
11. Socket, 9 Circuit
12. Socket, 6 Circuit
114928
114889
114929
114949
111125
68552
113984
113980
113529
113527
113530
113528
13. Printed Board, Pricing
14. Solenoid, Cancel

113909
15. Printed Board, Credit Lights 113960

60717
16. Accumulator Assembly

114037
17. Ratchet Wheel and Contact Assembly

113992
18. Arm and Contact Assembly, Credit Lights 113991
19. Switch, Full Cycle

113627
20. Coin Stop Arm, Upper

113427
21. Coin Paddles, Coin Switch

114029
22. Coin Stop Arm and Bracket Assembly, Lower 113927
23. Coin Casting and Support Assembly

113961
24. Adjusting Screws, $8-32 \times 1 / 4^{\prime \prime}$, 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 $5 \dot{\phi}$ 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 $10 \phi$ 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
3. Screws, Accumulator Coin Adjustment, 6-32 $\times 1$ "Cap 73571-187
4. Feeler Gauge . $005^{\prime \prime}$
5. Spring, Ratchet Wheel

114003
6. Plungex, Cancel Solenoid 60717-1
7. Escapement Pawl Assembly 113945
8. Screw, Stop Bracket Adjustment, 6-32 $\times 1 / 4^{\prime \prime}$, 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
2. Stop Bracket, Cancel Pawl
3. Cancel Pawl and Lever Assembly
4. Spring, Ratchet Wheel
5. Plunger, Cancel Solenoid
6. Screws, Cancel Solenoid Adjusting
7. Solenoid, Cancel


Fig. 17. CANCEL PAWL STOP BRACKET ADJUSTMENT

1. Dimension, $1 / 64^{\prime \prime}$ Maximum
2. Spring, Cancel Pawl


Fig. 18. INDEMNG 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 5-1025 and $50 \phi$ 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
5. Adjusting Screw, $8-32 \times 1 / 4^{\prime \prime}$, R.H., Sems

73533-34
6. Adjusting Screw, $8-32 \times 1 / 4^{\prime \prime}$, 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 $5 \phi$ coin switch contacts should have a .030" opening and as the coin actuates the paddle it should deflect the stationary blade . $030^{\prime \prime}$, passing freely into the cash bag. With 10,25 , and $50 \phi$ 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 $.055^{\prime \prime}$ for the 10, 25 and $50 \phi$ 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. SEBRCTOR SWITCH AOAUSTMRMTS

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
2. Actuator, Movable Blade, Full Cycle Switch 3. Switch Assembly, Full Cycle

114000
4. Screw and Bearing Assembly, Adjusting

113627
5. Actuating Cam, Coin Stop Arm, Upper

113983 6. Actuating Cam, Coin Stop Arm, Lower

113427 7. 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]

Fig. 23. SELECTOR SWITCH ASSEMBLY, 2400 S

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, $150 \mathrm{Ohm}, 5 \mathrm{Watt}$, 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 $2400-\mathrm{S}$ 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
6. Latch Bar, Number Switch Assembly
7. Screw, Adjusting, Letter Adjusting Clip

116260
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 synchron-


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
7. Latch Bar, Letter Button
8. Connector Link, Number Switch Assembly 116249
9. Switch, Reset

116249
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 $\quad 66241$
16. Mounting Bracket and Insulator Assembly 116639


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 |

izing. 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.

## 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, $1 / 32^{\prime \prime}$ Clearance
2. Square Stud, Pawl Stud and Spacer Assembly, Letter 65009
3. Square Stud, Pawl Stud and Spacer Assembly, Number 56712
4. Dimension, $1 / 32^{\prime \prime}$ Clearance
5. Spring, Solenoid Retracting
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 $1 / 32^{\prime \prime}$ 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, $1 / 32^{\prime \prime}$
5. Elastic Stop Nut
6. Dimension, $1 / 32^{\prime \prime}$
7. Square Stud, Pawl and Spacer Assembly, Number

56712
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 $1 / 32^{\prime \prime}$
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 $1 / 32^{\prime \prime}$ to $1 / 16^{\prime \prime}$ 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 $1 / 32^{\prime \prime}$. When the latch solenoid coil is energized and a letter button is latched in, the letter latch switches should close with a $1 / 32^{\prime \prime}$ 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 $1 / 32^{\prime \prime}$ 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 $1 / 32^{\prime \prime}$. 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
2. Over-ride Switch Assembly (4)
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
8. Actuating Bar, Rocker Arm
9. Wobble Ring

67927
10. Sockét, 3 Circuit 111528
11. Cap, 3 Circuit

111528
12. Rocker Arm

67926
68717
13. Nylon Gear, Selector Motor

## 4. ELECTRIC SELECTOR ADJUSTMRNTS

## 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 $1 / 32^{\prime \prime}$ to $3 / 64^{\prime \prime}$ 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 $1 / 16^{\prime \prime}$ 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 $\mathrm{E}-8, \mathrm{~K}-8, \mathrm{Q}-8$ and


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)
4. Housing, Female 111528, Male

65952
111526
Contacts for housing
111527
5. Over Ride Switch
6. Lower plate and Spacer Assembly

65952
69492
67927
68650
110480
$\mathrm{V}-8$. 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. 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, $8-32 \times 3 / 16^{\prime \prime}$, R.Hd. Sems 73533-33
9. Screw, Adjusting $8-32 \times 7 / 8^{\prime \prime}$, Hex Hd. 73793-87
10. Centering Shaft and Plate Assembly 115812
11. Screws, Mounting (3) 73692-49

教
$K$ 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)
(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 $1 / 32^{\prime \prime}$ gap at the normally open contacts and have a $1 / 32^{\prime \prime}$ 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
4. Spring
5. Stop Arm, L.H., "B" Setting

64722
64654
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
4. Guide Bracket, R.H.

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 as sembly while the rear mounting plate is securely fastered 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

[^0]:    1. Hub and Lever Assembly, Lockout 66130
    2. Screws, Adjusting, Index Strips
    3. Stop Lever and Spring Assembly
    4. Indexing Strip, Dime and Half Dollar
    5. Indexing Strip, Quarter
    6. Screws, Adjusting, Index Strips 66133
    7. Screws, Cancel Solenoid Adjustment
    8. Guard, Cancel Pawl
    9. Pivot Arm Assembly
[^1]:    1. Contact Spring, L.H., Credit Lights

    113566
    2. Contact Spring, Accumulator

    113916

