



WURLITZER
5250 WALL BOX
and 2100 STEPPER

THE WURLITZER COMPANY
NORTH TONAWANDA, NEW YORK

5250 WALL BOX
2100 STEPPER

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MODEL 5250 - 200 SELECTION WALL BOX

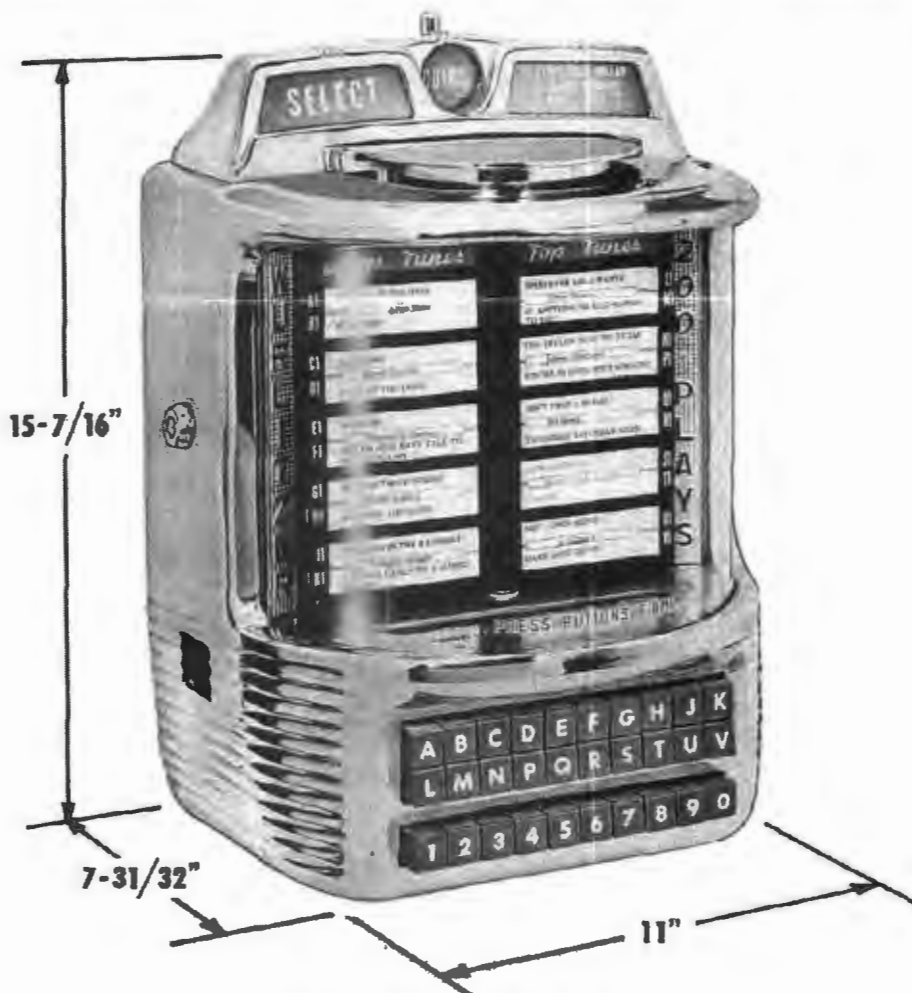


Fig. 1. MODEL 5250 WALL BOX

1. DESCRIPTION

a. The Model 5250 Wall Box (Fig. 1) features a well-lighted, wide range, glass program window, single coin entry for nickel, dime, quarter, and half dollar, lighted window to flash "SELECT" when credits are available at the accumulator. The coin return or "scavenger" button is located at the top, directly behind the coin entry.

b. The two button selection system is identical with that of the Model 5210. The first button pressed may be released by pressing another button of the same series, however when any button of the second series is also pressed, all buttons will be latched until the selection, indicated by the number and letter buttons depressed has been completed.

c. A single "ace lock" secures the chromium cover to the mounting base. The cover, in turn,

retains the cash box (Item 6, Fig. 2) and the program page assembly (Item 3, Fig. 2). These two units are immediately accessible when the cover is removed as shown. Figure 3 shows the mounting arrangement for the "four denomination" slug rejector (Item 4, Fig. 3) and accessibility of the coin counter mechanism (Item 6, Fig. 3) and selector switch and button assembly (Item 7).

d. Following are basic specifications of the Model 5250 Wall Box:

Height	15-7/16"
Width	11"
Depth	7-31/32"
Weight	28 lbs.
Selections	200
Slug Rejector	National Four Denomination
Lock	Ace-Four Point Locking

2. ACCESSIBILITY

a. To remove the cover assembly, unlock the ace lock on the left side of the cover and slide the cover straight forward from the base assembly.

b. To remove the program page assembly for programming or access to the mechanism, depress the lock slide at the upper right hand corner of the page assembly (Item 4, Fig. 2) and slide the assembly forward off its mounting pins (Items 2 and 7, Fig. 2).

c. The cash box (Item 6, Fig. 2) is accessible for removal as soon as the cover has been removed. Slide the "coin return cup and cash box" assembly to the left and out of its mounting rails (See Fig. 4).

d. To remove the slug rejector (See Fig. 3) first remove the left hand hinge pin at (Item 1) for the top casting assembly (Item 4, Fig. 4) and raise the casting as shown. The coin separator (Item 8, Fig. 4) is locked in position by the spring latch (Item 2, Fig. 3). Unlatch the coin separator and lift it from the mounting channel. The 5, 10, 25¢ component (Item 9, Fig. 4) may now be raised enough to disengage its lower studs and then its upper studs. The 50¢ component of the slug rejector (Item 1, Fig. 4) is built into the mounting channel as shown in Figure 4. To remove the slug rejector mounting channel for access to the cam follower and the bracket for the slug rejector lock, remove the terminal strip (Item 1, Fig. 5) and then the three channel mounting screws (Item 3, 5, and 12, Fig. 4).

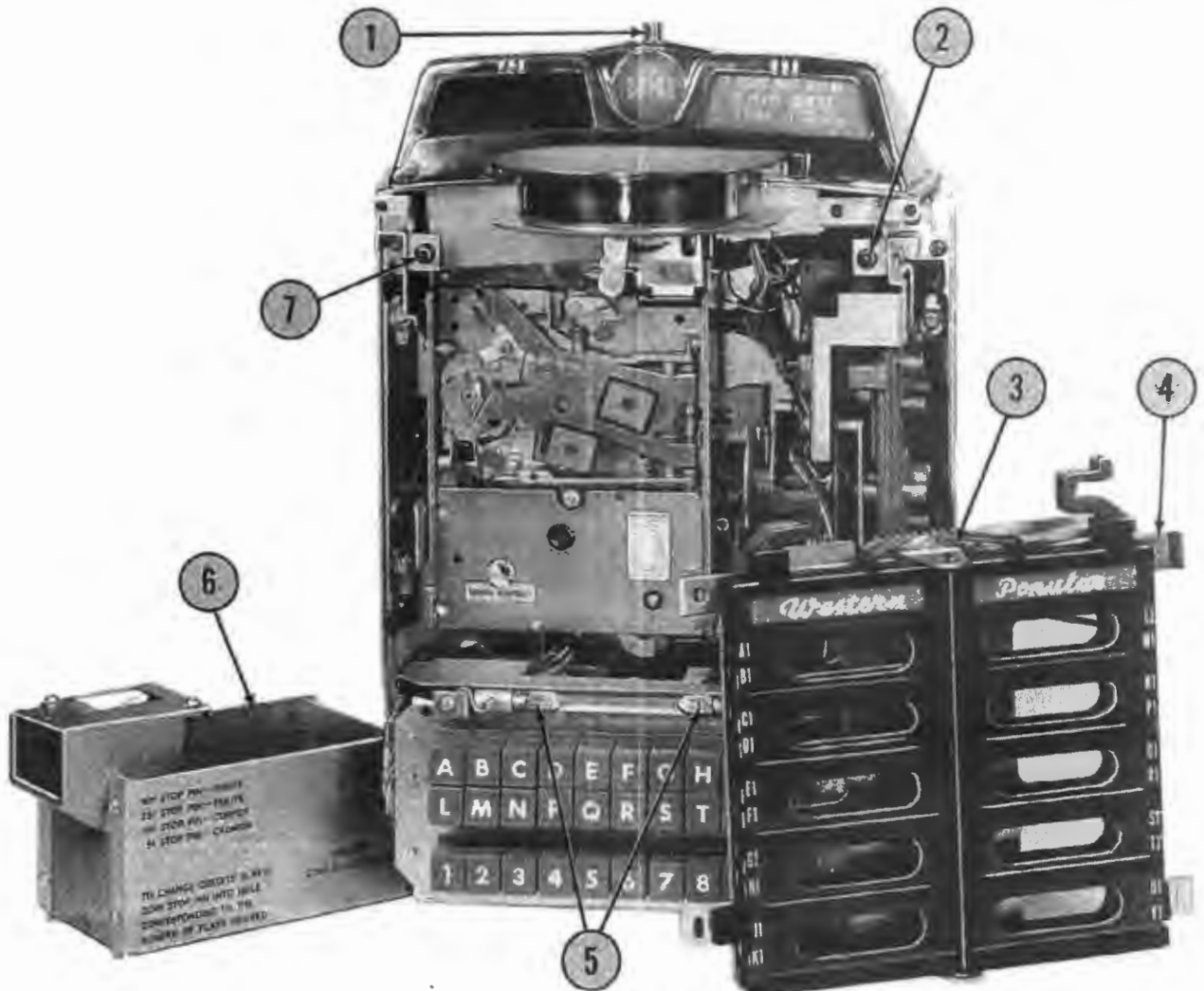


Fig. 2. ACCESSIBILITY

1. Scavenger Rod and Lever Assembly	110224	5. Program and Selector Button Lights,	
2. Pin, Program Lock	67580	Mazda No. 47	45985
3. Program Page Assembly	110259	6. Coin Return Cup and Cash Box Assembly	69995
4. Lock Slide, Program Page Assembly	67579	7. Pin, Program Lock	67580

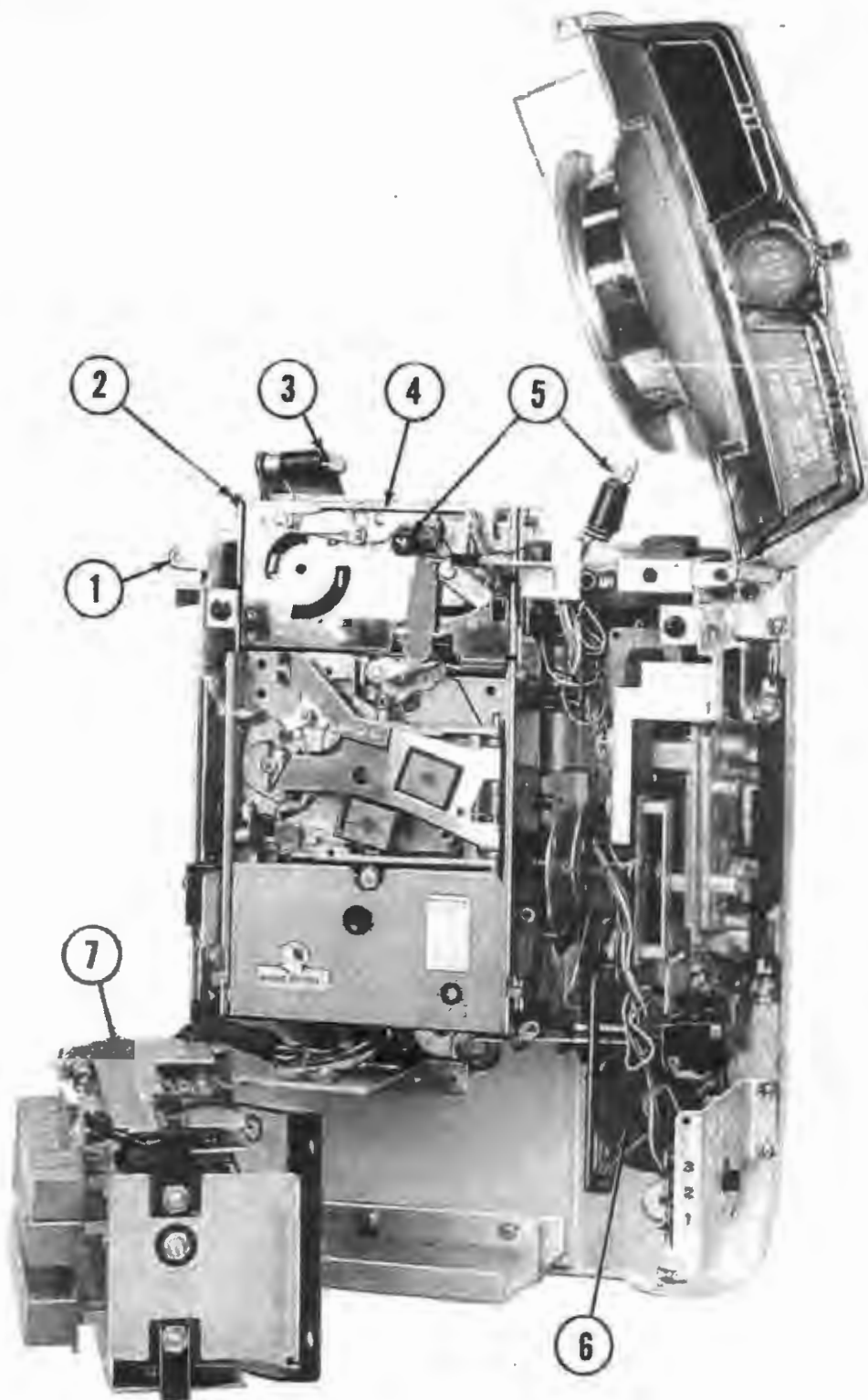


Fig. 3. COMPONENTS

- | | | | |
|--|--------|---|--------|
| 1. Hinge Pin, Top Casting | 110149 | 5. Coin Entry and Instruction Plate Lights,
Mazda No. 47 | 45985 |
| 2. Latch Spring, Slug Rejector
(National Rejectors, Inc.) | | 6. Coin Selector Wheel, Hub, and Stop Pin Assembly | 110209 |
| 3. "Make Selection" Light, Mazda No. 47 | 45985 | 7. Selector Switch and Cable Assembly | 110211 |
| 4. Slug Rejector Assembly | 110228 | | |

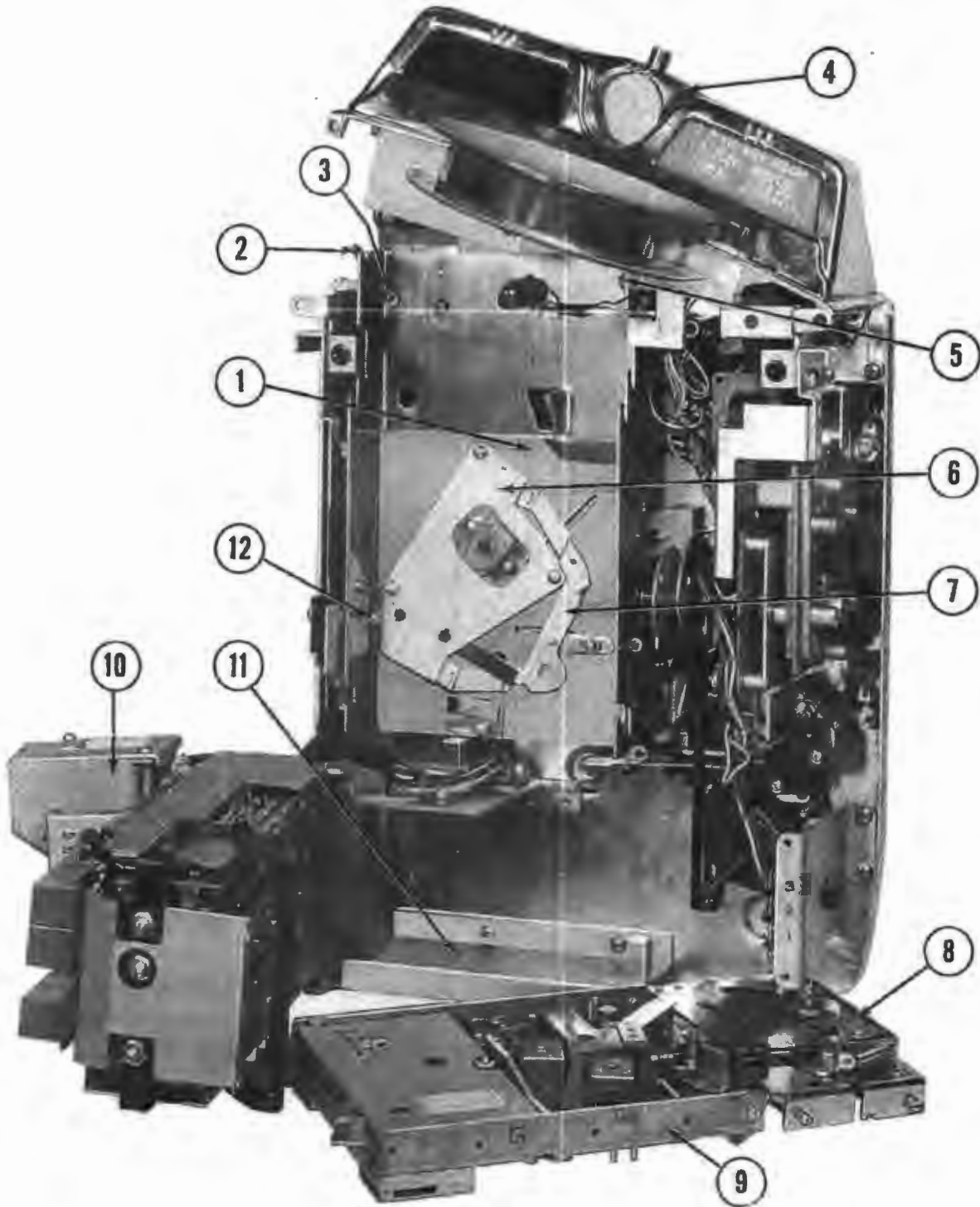


Fig. 4. COMPONENTS

1. Mounting Channel and 50¢ Rejector Component (National Rejectors, Inc.)		110253
2. Latch Spring, Coin Separator Component (National Rejectors, Inc.)		110254
3. Screw, Slug Rejector Mounting	73533-33	
4. Top Casting Assembly	110223	
5. Screw, Slug Rejector Mounting	73533-33	
6. Spring and Mounting Plate Assembly,		
		Rejector Lock
		7. Hinge and Pin Assembly, Rejector Lock
		8. Coin Separator Component (National Rejectors, Inc.)
		9. 5, 10, 25¢ Component (National Rejectors, Inc.)
		10. Coin Return Cup and Cash Box Assembly
		11. Slide and Stud Assembly, Cash Box
		12. Screw, Slug Rejector Mounting
		73533-33
		69995
		67151

e. As shown in Figures 4, and 5, the coin selector wheel, (Item 7, Fig. 5) and associated components are readily accessible when the hinge plate and selector switch assembly is swung open on its hinge pins. This assembly is held in place by the two screws at Items 6, Fig. 5.

3. OPERATION - - - -

The Model 5250 Wall Box is mechanically operated by its drive motor (Item 3, Fig. 6). The motor is controlled by the switching net work and thus drives the mechanism through one complete cycle of operation each time a selection is made.

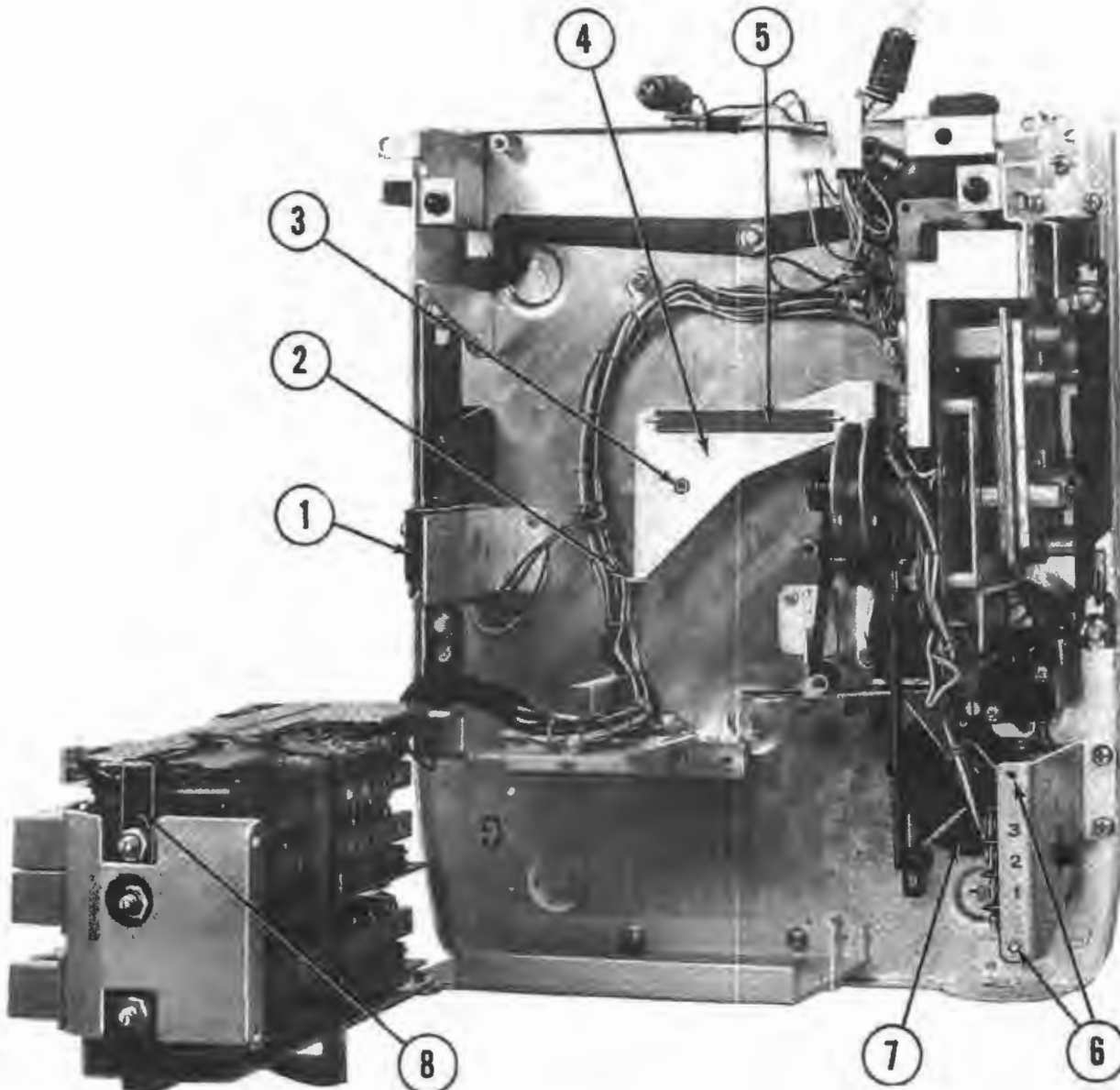


Fig. 5. COMPONENTS

1. Terminal Strip	68920	5. Spring, Retainer, Cam Follower	110137
2. 50¢ Lock Pin and 5 - 10 - 25¢ Actuator		6. Screw, 8 - 32 x 1/4 "	73533-34
3. Spring, Return, Cam Follower	66072	7. Coin Selector Wheel and Hub Assembly	110209
4. Cam Follower and Pin Assembly, Reflector Lock	110212	8. Lock Bar and Adjusting Screw Assembly	67079, 67433

a. The motor is directly connected to the "coupling, insulator, and spring" assembly (Item 4, Fig. 6), which is coupled to and accurately timed with the "main shaft and cam" assembly (Item 2, Fig. 6).

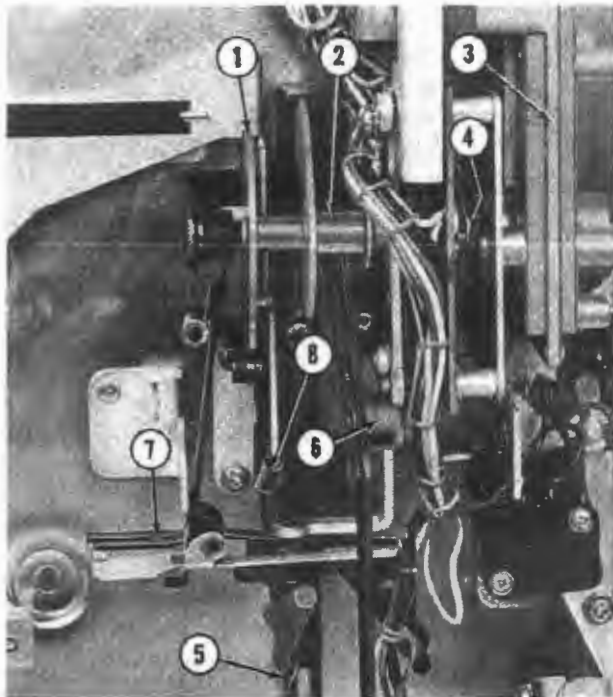


Fig. 6. MAIN CAM SHAFT FUNCTIONS

1. Cam and Pin Assembly	110204
2. Cam and Shaft Assembly	110202
3. Motor Assembly	69918
4. Coupling, Insulator, and Spring Assembly	110470
5. Cancel Pawl	69905
6. Arm, Hub, and Roller Assembly	67424
7. Coin Feeler and Hub Assembly	69932
8. Spring, Coin Feeler	110514

b. In mechanical sequence the function of the "cam and pin" assembly (Item 1, Fig. 6) is first to release the "cam follower and pin" assembly of the slug rejector lock components (Item 12, Fig. 7). This action produces "coin return" during the entire cycle of operation and prevents more than one coin at a time entering the coin tracks.

c. The selector switch lock component of the cam assembly (Item 5, Fig. 7) performs the next or simultaneous function by releasing the "arm, hub, and roller" assembly (Item 6, Fig. 6) to its selection position. The "lock bar (Item 8, Fig. 5) and adjusting screw" assembly is actuated by movement of the "arm, hub, and roller" assembly to produce latching action for the "make selection" phase of operation as described in paragraph 1, b.

d. Another simultaneous function is performed at this time, by the outer surface of the "cam and pin" assembly referred to in paragraph "b". The "quick return" segment (Item 10, Fig. 7) of this cam

releases the cam follower (Item 12, Fig. 7) of the coin feeler arm (Item 9, Fig. 7). The coin feeler (Item 7, Fig. 6) is thus actuated under spring loading and engages the coin in its proper coin track. The right hand end of the coin feeler will engage a coin selector stop pin corresponding to the coin present on the coin paddle.

e. The selector switch lock component of the cam assembly described in paragraph "c" next releases the "arm, hub, and roller" assembly to a totally locked position of the selector switch latch bars. All selector buttons are thus held firmly in place until the mechanism has completed its selection cycle.

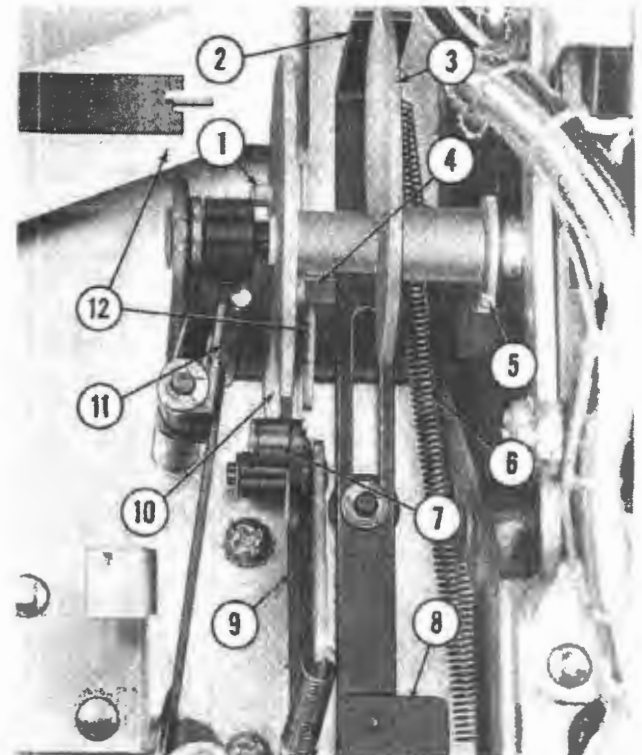


Fig. 7. FUNCTIONS, CAM AND PIN ASSEMBLY

1. Cam Pin, Coin Drop	110242
2. Accumulator Slide Bracket and Cancel Pawl Assembly	69904
3. Cam, Cancel and Accumulator	69939
4. Cam Pin, Rejector Lock	110559
5. Cam, Selector Switch Latch	62750
6. Spring, Accumulator Slide Bracket	110515
7. Roller, Cam Follower, Coin Feeler	58188
8. Bracket, Accumulator	69907
9. Arm, Hub, and Roller Assembly, Coin Feeler	67424
10. Quick Return Segment, Coin Feeler Action	
11. Mounting Lever, Coin Paddle	69915
12. Cam Follower and Pin Assembly, Reject Lock	110212

f. Immediately following the release of the coin feeler, described in "d", the cancel and accumulator cam" (Item 3, Fig. 7) starts release of the "accumulator slide, bracket, and pawl", (Item 2, Fig. 7) assembly which actuates under spring loading to advance the coin selector wheel and the cancel wheel to a point determined by the denomination of the coin,

the position of the coin feeler, and the setting of the stop pin for that particular coin.

g. At approximately the point where the accumulator bracket (Item 8, Fig. 7) has advanced the cancel wheel to one credit, the "coupling, insulator, and spring" assembly has started making electrical contacts for the pulse circuit to the stepper. These pulses will continue to a point, in the cycle of operation, where the button lock cam is about to release the selector buttons. The timing of the various operating cams and the "coupling, insulator, and spring" assembly is a built-in feature controlled by assembly fixtures used in production.

h. The next mechanical function will be performed by the return action of the "cancel and accumulator cam (Item 3, Fig. 7). During this return action, the cancel pawl (Item 5, Fig. 6) will engage the "cancel wheel and hub" assembly (Item 2, Fig. 8) and retard its accumulation one tooth. One credit is thus cancelled each time a selection cycle is executed.

i. Immediately following the action described in "h" the "cam and pin" assembly (Item 10, Fig. 7) produces "quick return" action for the coin feeler which was actuated as described in paragraph "d".

j. A second pin located on the "cam and pin" assembly (Item 1, Fig. 7) performs the next mechanical action by engaging the cam shaped upper end of the "coin paddle mounting lever" (Item 11, Fig. 7). This action swings the lower end of the mounting lever to the right and removes the coin paddle, dropping the coin into the cash box.

k. As soon as the pin passes the upper end of the "coin paddle mounting lever", the coin paddle will retract under spring loading to its original position for further acceptance of coins.

l. The first pin of the "cam and pin" assembly now re-engages the "cam follower and pin" assembly of the slug rejector lock components to reset the slug rejector for further acceptance of coins.

m. Concurrent with the action described in "k", the selector switch lock cam starts re-setting the arm, hub, and roller assembly (Item 6, Fig. 6). However, the selector switches will not be released until the outer contactor of the "coupling, insulator, and spring" assembly (Item 4, Fig. 6) has passed the last pulse patch on the contact plate.

n. The electrical conditions pertaining to the various mechanical phases of the cycle may be determined by noting the functional schematic diagram (Page 41), and watching the position of the "coupling, insulator, and spring" assembly with relation to the contact plate assembly.

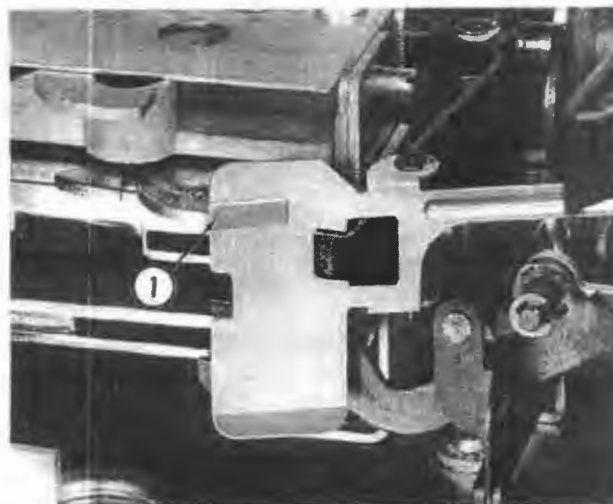


Fig. 9. COIN PADDLE AND SECOND NICKEL

1. Nickel Section of Coin Paddle

69916

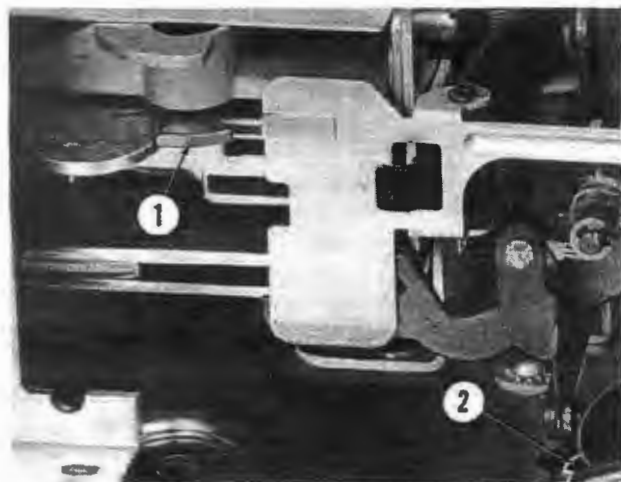


Fig. 8. COIN FLIPPER AND FIRST NICKEL

1. Nickel Flipper (National Rejectors, Inc.)
2. Cancel Wheel and Hub Assembly

69945

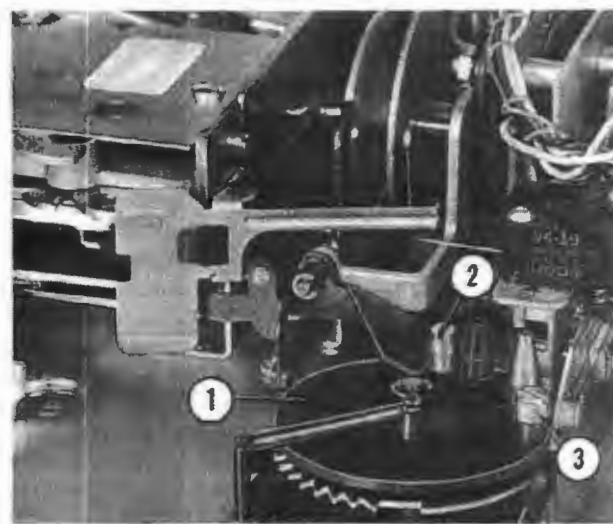


Fig. 10. ACCUMULATOR ACTION

1. Coin Selector Wheel and Pin Assembly
2. Dime Stop Pin, 1 Dime or 2 Nickels
3. Nickel Stop Pin, Out of Range

110210
69886
69885

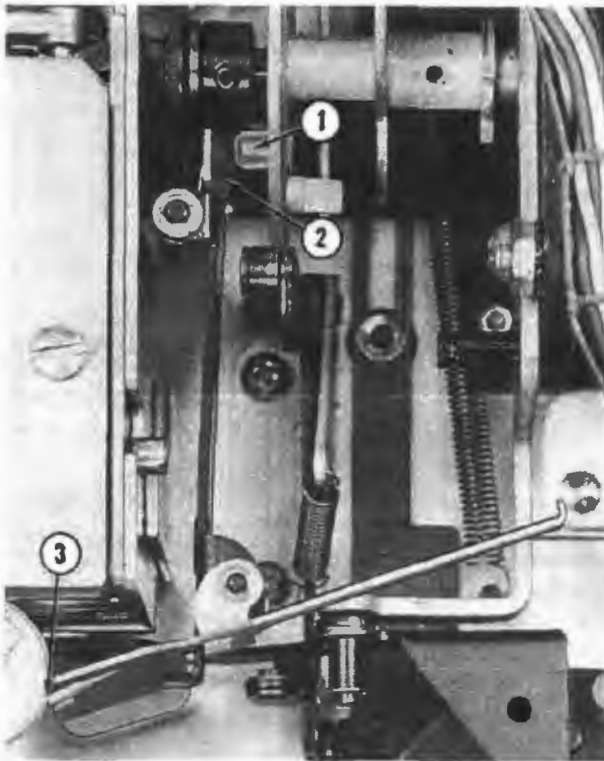


Fig. 11. NICKEL COIN DROP

- | | |
|---|--------|
| 1. Coin Drop Pin, Cam and Pin Assembly | 110204 |
| 2. Cam Shaped End of Coin Paddle Mounting Lever | 69915 |
| 3. Nickel Section of Coin Paddle | 69916 |

o. During one complete cycle as described above, the "coin selector wheel and pin" assembly (Item 1, Fig. 12) will function to set up credits in accordance with the denomination of the coin which intercepts the coin feeler. Due to slug rejector action the first nickel presented will be engaged by the "nickel flipper (Item 1, Fig. 8) which deflects it into the cash box without action on the coin paddle. The second nickel will be engaged by the opposite edge of the nickel flipper and guided to the coin paddle as shown at Item 1, Fig. 9. The dime "stop pin" (Item 2, Fig. 10) is set in the "coin selector wheel (Item 1, Fig. 10) to provide one play and the nickel stop pin (Item 3) is set in an inactive position. Therefore one play will be delivered for two nickels or for one dime.

p. As the coin drop pin component (Item 1, Fig. 11) of the cam and pin assembly engages the cam shaped end (Item 2, Fig. 11) of the coin paddle mounting lever, the coin paddle will be moved to the right as shown at Item 3, Fig. 11. The coin will accordingly be freed to drop into the cash box. The action is similar for the dime, quarter, or half dollar, at their several sections of the coin paddle (See Fig. 16).

q. When a quarter is accepted by the slug rejector, it will drop on next to the rear section of the coin paddle as shown in Figure 13. The "feeler and hub" assembly (Item 2, Fig. 13) will thus be positioned so that its right hand end will pass over

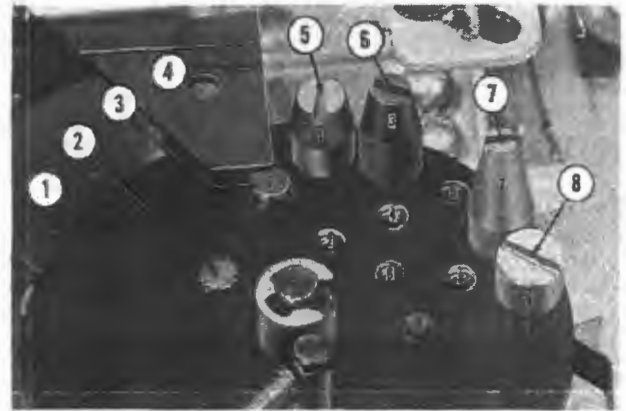


Fig. 12. COIN SELECTOR WHEEL

- | | |
|---|--------|
| 1. Coin Selector Wheel, Hub, and Pin Assembly | 110210 |
| 2. Accumulator Drive Pin, Coin Selector Wheel | 69899 |
| 3. Zero Stop Pin, Coin Selector Wheel | 69896 |
| 4. Stop End of Coin Feeler and Hub Assembly | 69932 |
| 5. Dime Stop Pin | 69886 |
| 6. Quarter Stop Pin | 69887 |
| 7. Half Dollar Stop Pin | 69891 |
| 8. Nickel Stop Pin (Out of Range) | 69885 |

the ten cent stop pin and the quarter stop pin will engage the coin feeler and stop the coin selector wheel at the pre-determined three play position as shown at Item 3, Fig. 13.

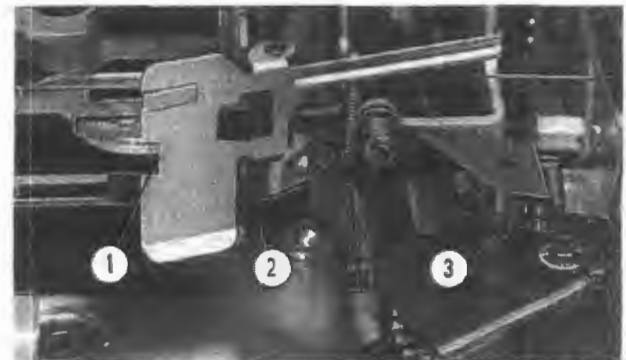


Fig. 13. COIN SELECTOR WHEEL

- | | |
|--|-------|
| 1. Quarter Section of Coin Paddle | 69916 |
| 2. Coin Feeler and Hub Assembly | 69932 |
| 3. Quarter Stop Pin in 3 Play Position | 69887 |

r. When a half dollar is accepted by the slug rejector, it will drop on the rear section of the coin paddle as shown in Figure 14. The "feeler and hub" assembly will thus be positioned so that its right hand end will pass the ten cent stop pin and the quarter stop pin. The fifty cent stop pin will thus engage the coin feeler and stop the coin selector wheel at the pre-determined seven play position as shown at Item 4, Fig. 14.

s. The cancel action described in "h" will retract the "cancel wheel and hub" assembly (Item 2, Fig. 14) one tooth for each selection cycle of the mechanism. The trip cam on the circumference of the cancel wheel will thus return to its original "at rest" position to open the key switch when the last credit has been cancelled.

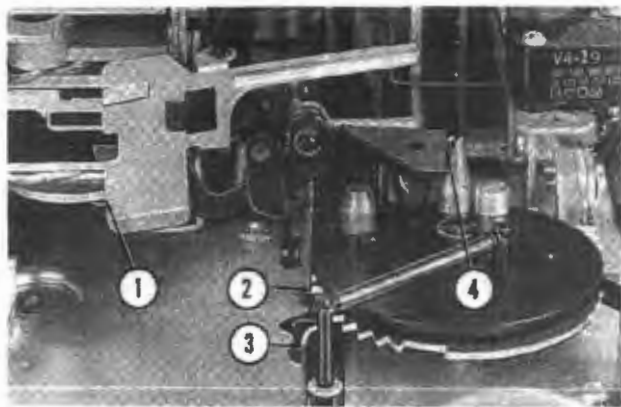


Fig. 14. COIN SELECTOR WHEEL

- | | |
|--|-------|
| 1. Half Dollar Section of Coin Paddle | 69916 |
| 2. Cancel Wheel and Hub Assembly | 69945 |
| 3. Cancel Pawl | 69905 |
| 4. Half Dollar Stop Pin in 7 Play Position | 69891 |

4. INSTALLATION

The Model 5250 Wall Box may be used with Wurlitzer 200 selection phonographs. Impulse stepper and junction box assembly is standard in current 200 selection models.

a. Cover and Program Holders

(1) Unlock the cover at the single "Ace lock" located on the left hand side, and slide the cover forward from its guide pins.

(2) Release the program holder at its upper right hand corner by pressing inward on the protruding latch. The assembly will slip forward off its mounting studs.

(3) Insert double title strips in each number group as indicated on the margin of the program pages. The selection letter and number should correspond with the arrangement of the selections as set up on the phonograph. Classification strips for the tops of the pages will be found packed in a small bag.

b. Preparation

(1) Remove the "cash box and coin return cup" assembly from the left hand side. Remove the left hand mounting stud for the top casting and raise the casting to clear the slug rejector. The slug rejector may be removed in the conventional manner by unlatching and removing the coin separator first.

(2) There are two hanger type mounting holes in the base plate, at the top about two inches from the sides of the base plate. The right hand hole is not accessible for a screw driver and will therefore be hung on a pre-set screw. The mounting channel of

the slug rejector has a "cut-out" to accommodate a screw driver at the upper left hand mounting screw. A third mounting point is accessible directly beneath the slug rejector. Two auxiliary mounting points are provided near the lower edge of the base. These mounting holes have been indexed for use with counter brackets (Kit 142) Part No. 58681. "Knock-outs" are provided at the lower right and left hand corners of the base for use where concealed wiring is installed.

(3) The "anti-cheat guard" (Part No. 60321) is provided to cover the bottom cable entrance where concealed wiring has been installed. It functions to prevent tampering at the lower cable entrance.

c. Mounting

(1) Mount the Wall Box in the desired location, in a perfectly level position, with suitable wood screws or anchor bolts as required. It is recommended that the height of the lower end of the Wall Box be 51 inches from the floor level for open wall mounting and one inch above the table level for booth or table mountings.

(2) Bar and counter mounting may be installed by using one Kit No. 142 (Part No. 58681) mounting bracket for each Wall Box to be so mounted.

d. Stepper Facilities

(1) The Model 5250 Wall Boxes are designed to function in parallel groups of four, maximum. The stepper junction box assemblies of Models 2000, 2100, and 2150 provide a terminal strip for one group of "one to four" Wall Boxes. Additional groups of Wall Boxes may be operated by using one Model 222 Booster (Part No. 46375) for each group of four.

(2) The stepper-junction box assembly of the Model 2017 provides a terminal strip for one group of four Wall Boxes as described in "a", and the control box assembly provides a second terminal strip for a second group of four Wall Boxes. Additional groups of four each may be operated by use of one Model 222 booster for each group.

e. Operation

(1) Connect Model 5250 Wall Boxes in parallel groups of four, maximum, and run three wire cable (Part No. 56066) from each group to the phonograph.

(2) The cable should be concealed as far as practicable and kept as dry as possible. Fasten the cable securely at all corners and every eighteen inches.

(3) Connect the cable from one group of Wall Boxes to the junction box-stepper unit of the phonograph as follows:

Wall Box Terminals No. 1 to Stepper Terminal No. 1 (Pulse)

Wall Box Terminals No. 2 to Stepper Terminal No. 2 (Common)

Wall Box Terminals No. 3 to Stepper Terminal No. 3 (Power)

f. Model 222 Booster Operation

(1) When one or more Model 222 Boosters are used for additional Wall Box groups, connect the three wire cables, in parallel, from one of the separate groups as follows:

Wall Box Terminals No. 1 to Booster Terminal No. 1 (Pulse)

Wall Box Terminals No. 2 to Booster Terminal No. 2 (Common)

Wall Box Terminals No. 3 to Booster Terminals No. 3 (24V Power)

(2) The spade connector on the adapter cable of the Model 222 Boosters will be connected to the stepper terminal No. 1 or to the No. 1 terminal of a previously connected Model 222 Booster. In other words, all No. 1 (Pulse Wires) will be connected together.

(3) The current run of Model 222 Boosters have been wired to eliminate the use of the green wire with the spade lug. The pulse circuit has been carried through the No. 1 pin of the adapter socket and plug. However, on stepper Models 2000, 257, and 253, the eight prong booster socket has not been connected to the No. 1 terminal of the Wall Box terminal strip, of the stepper. It will, therefore, be necessary to provide a jumper from the No. 1 pin of the booster socket to the No. 1 terminal of the Wall Box terminal strip on the stepper. This change may easily be accomplished inside the chassis pan of the stepper unit.

g. Fuse Protection

(1) A 3 Amp. Fustat is provided in each Model 222 Booster for protection of the transformer and the line to the Wall Boxes.

(2) Line protection for the first group of Wall Boxes is provided by a 3 Amp. Fustat located on the junction box-stepper unit of the phonograph.

h. Inspection

Test each Wall Box for proper acceptance of coins, rejection of slugs, mechanical operation, and correct selection at the phonograph.

5. ADJUSTMENTS

a. Slug Rejector

The slug rejector is a product of National Rejectors, Inc. of St. Louis, Missouri. Service information and parts may be obtained from them or their branch offices. Adjustments should be made in accordance with recommendations contained in their "Rejector Manual".

b. Coin Paddle Alignment

The coin paddle is a pre-set component which has been fixture aligned in production to meet the following requirements:

(1) The four separate sections of the coin paddle (Items 2, 1, 7, and 6, Fig. 15) should align with the four corresponding coin exits of the slug rejector as shown with the nickel, dime, quarter, and half dollar coins resting on and depressing the coin paddle to the stop tab (Item 5, Fig. 15) of the coin paddle mounting lever.

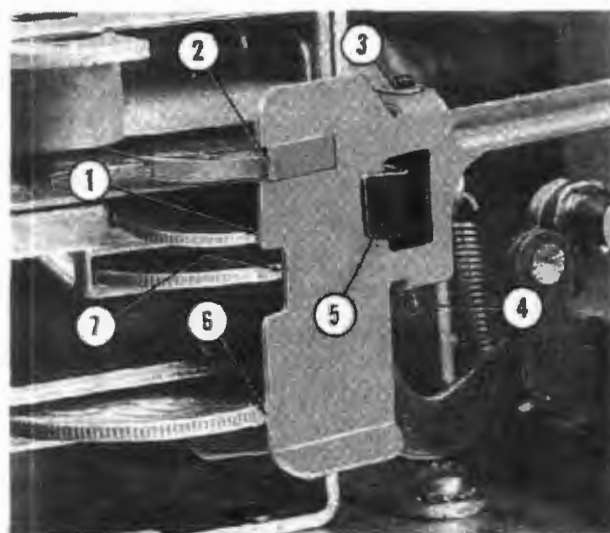


Fig. 15. COIN PADDLE ALIGNMENT

1. Dime Section of Coin Paddle	69916
2. Nickel Section of Coin Paddle	69916
3. Retaining Ring	73724-9
4. Shaft, Coin Paddle Mounting	62756
5. Stop Tab, Coin Paddle Mounting Lever	69915
6. Half Dollar Section, Coin Paddle	69916
7. Quarter Section, Coin Paddle	69916

(2) The coin paddle must operate freely on its mounting bracket and shaft (Item 4, Fig. 15). There must be no friction at the retaining ring (Item 3).

(3) When one coin weighing 2.1 grams is placed in the dime exit, resting on the dime section of the coin paddle, its weight alone should depress the coin paddle and actuate the coin switch.

c. Coin Switch Adjustment

Adjustment of the coin switch should be accomplished with the mechanism in its normal "at rest" position. The service switch (Item 3, Fig. 17) located on the right hand mounting bracket for the selector switches, should be turned "off".

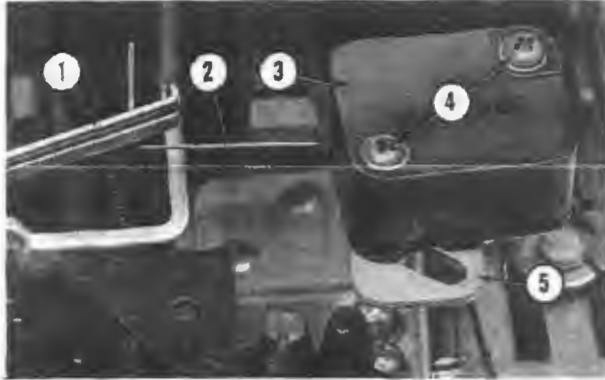


Fig. 16. COIN SWITCH ADJUSTMENT

- | | |
|---------------------------------|--------------------|
| 1. Extension, Coin Paddle | 69916 |
| 2. Arm, Coin Switch | 62164 |
| 3. Coin Switch | 57851 |
| 4. Mounting Screws, Coin Switch | 73503-29, 73503-31 |
| 5. Elongated Mounting Hole | |

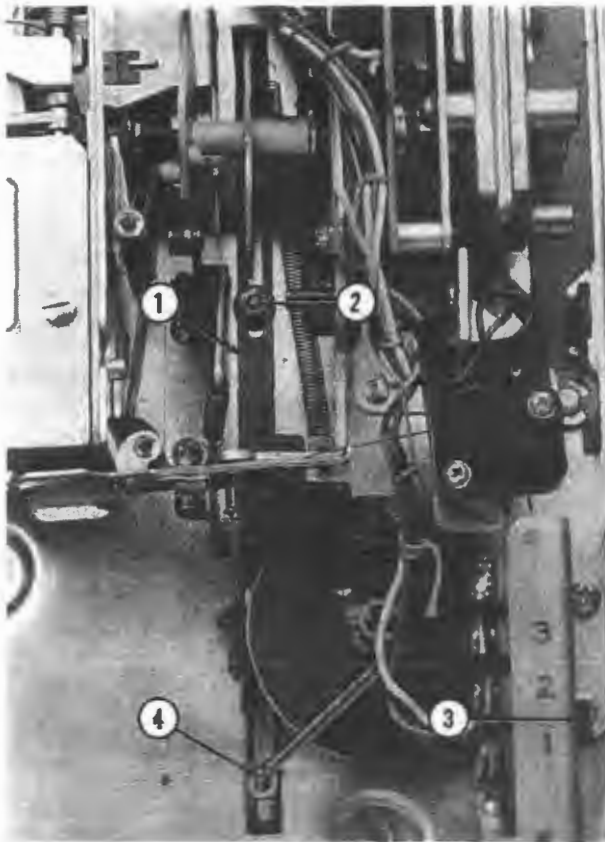


Fig. 17. ACCUMULATOR SLIDE BRACKET AND CANCEL PAWL

- | | |
|--|--------|
| 1. Accumulator Slide, Bracket, and Cancel Pawl | 69904 |
| 2. Mounting Stud, Upper, Accumulator Slide | 69938 |
| 3. Slide Switch (Service) | 61649 |
| 4. Mounting Stud, Lower, Accumulator Slide | 110291 |

(1) Insert a coin in the slug rejector and note the action of the coin paddle on the arm of the coin switch (Item 2, Fig. 16). The arm should be raised enough to actuate the coin switch and provide over-travel of 1/8" as measured at the tip of the switch arm.

Adjustment may be made by loosening the two mounting screws (Item 4, Fig. 16) and adjusting the switch on its mounting bracket to provide an equal amount of over-travel after closing and after opening.

(2) Following the tightening of the two mounting screws the switch should be re-checked for proper action. If necessary, repeat the adjustment.

d. Accumulator Slide, Bracket, and Cancel Pawl

(1) The accumulator slide, bracket, and cancel pawl assembly (Item 1, Fig. 17) is assembled to operate freely on its two mounting studs (Items 2 and 4, Fig. 17). Its requirements for engagement with the accumulator wheel (Item 11, Fig. 18) are

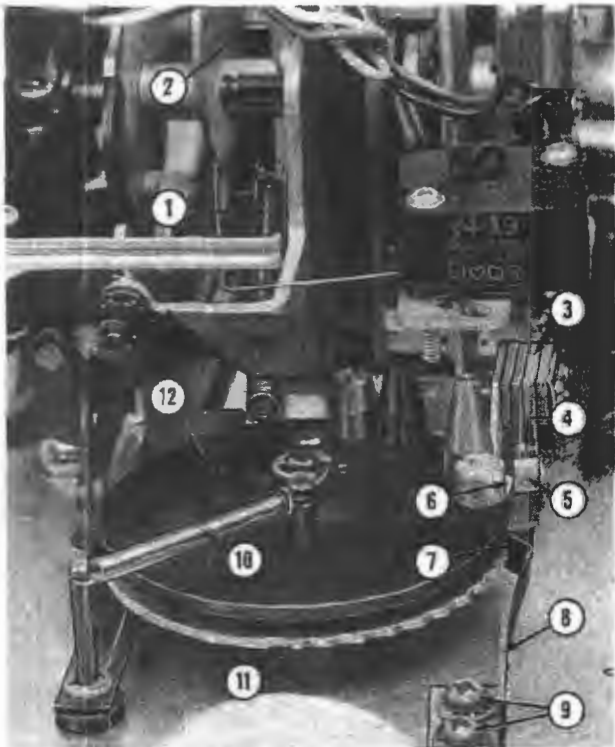


Fig. 18. DETENT SPRING SETTING

- | | |
|--|----------|
| 1. Spring, Accumulator Slide | 110515 |
| 2. Accumulator Slide at Maximum Throw | |
| 3. Key Switch and Bracket Assembly | 110247 |
| 4. Contact Opening 1/32" | |
| 5. Nylon Actuator | |
| 6. Trip Tooth of Accumulator Wheel | |
| 7. Formed End of Detent Spring | |
| 8. Detent Spring and Bracket Assembly | 110207 |
| 9. Screws, Detent Spring Mounting | 73533-21 |
| 10. Retracting Spring, Coin Selector Wheel | 110516 |
| 11. Cancel Wheel and Hub Assembly | 69945 |
| 12. Coin Selector Wheel, Hub, and Pin Assembly | 110210 |

governed by fixture assembly, thus requiring no adjustment. In case of damage or excessive wear the assembly should be replaced.

(2) The cancel pawl has been aligned by fixture assembly to provide engagement with the accumulator cancel teeth as shown at Item 1, Fig. 19. With the accumulator slide raised to its maximum by the cancel cam (Item 2, Fig. 18) the engagement of the cancel pawl with the cancel teeth (Item 2, Fig. 19) should be one half the depth of the tooth (Item 2, Fig. 19). It is important that the cancel pawl clears the second tooth below the cancelled tooth to insure cancellation of one play only during the following cancel function.

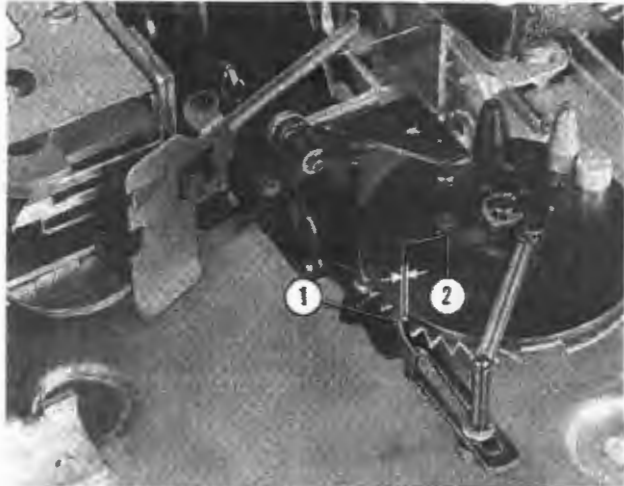


Fig. 19. CANCEL ACTION

1. Cancel Pawl Engagement
2. Measurement, 1/2 Tooth Depth

(3) The position of the accumulator wheel at the time of total cancellation is thus determined by the cancel pawl, the accumulator slide bracket, and the cancel cam in its position of maximum throw.

e. Detent Spring Adjustment

With the several requirements, described in "d", established, the setting of the detent spring and bracket assembly (Item 8, Fig. 18) may be accomplished by loosening the two mounting screws (Item 9, Fig. 18) and moving the bracket to a position that will seat the formed end of the detent spring (Item 7, Fig. 18) in the first detent of the accumulator wheel. The pressure of the spring on the accumulator wheel at Item 7 should be about 40 grams, but in no case, great enough to resist the accumulator action of the driving spring (Item 1, Fig. 18). It should be noted at this time that the tension of the driving spring must over-ride the combined influence of the detent spring and the retracting spring (Item 10, Fig. 18) of the coin selector wheel to insure full credit for a half dollar deposit.

f. Key Switch Adjustment

(1) The requirements described in "d" and "e" pre-determine the setting of the key switch and bracket assembly (Item 3, Fig. 18). The key switch and bracket have been assembled to provide 20 to 30 grams contact pressure when released. This is a requirement and should be checked to insure good conductivity. If necessary, the individual blades should be carefully re-formed to provide the required pressure.

(2) The two mounting screws for the key switch and bracket assembly may be loosened to permit moving the bracket on its elongated mounting holes. With the accumulator wheel in its fully cancelled position and the mechanism "at rest" as shown, the bracket should be set to position the nylon actuator (Item 5, Fig. 18) against the trip tooth (Item 6, Fig. 18) of the accumulator wheel and provide contact opening of 1/32".

(3) When the "coin selector wheel and stop pin" assembly is actuated for 2 nickels, single play, the stop end of the coin feeler (Item 1, Fig. 20) will engage the dime stop pin (Item 2, Fig. 20) at a low point on the body of the pin. In this mechanical condition the trip tooth (Item 4, Fig. 20) should be entirely clear of the nylon actuator (Item 3, Fig. 20) and the detent spring fully seated in the second detent of the accumulator wheel as indicated at Item 6. When the nickel stop pin (Item 5, Fig. 20) is used for five cent play, it would be engaged as indicated at Item 2, and the key switch condition would be as indicated at Items 4 and 3.

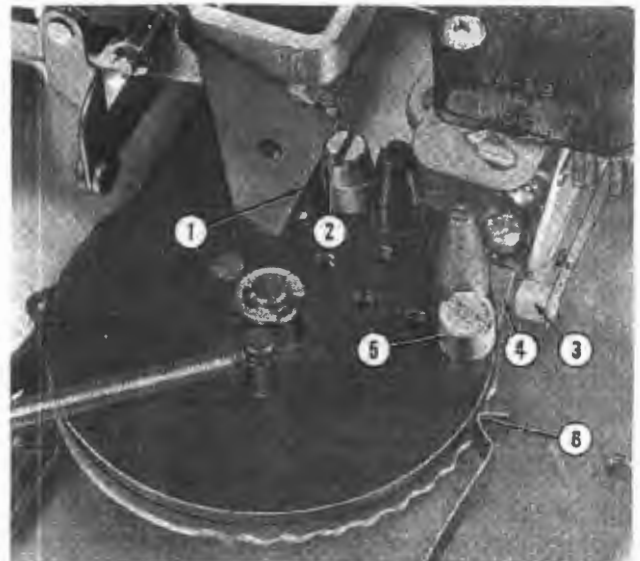


Fig. 20. SINGLE PLAY SETTING, COIN SELECTOR STOP PINS

- | | |
|---|--------|
| 1. Stop Edge of Coin Feeler | 69932 |
| 2. Stop Pin, 10¢ | 69886 |
| 3. Nylon Actuator | |
| 4. Trip Tooth of Accumulator and Cancel Wheel | 69945 |
| 5. Stop Pin, 5¢ | 69885 |
| 6. Formed End of Detent Spring | 110207 |

(4) When the "coin selector wheel and stop pin" assembly is actuated for a dime as shown at Item 6, Fig. 21, the coin feeler will intercept the dime stop pin (Item 1, Fig. 21) near the top of the pin (Item 2, Fig. 21). The advance of the accumulator wheel will be one detent, only, as described in (3) and the trip tooth (Item 3, Fig. 21) of the cancel wheel must be completely clear of the nylon actuator (Item 4, Fig. 21).



Fig. 21. SINGLE PLAY FOR DIME

- | | |
|--------------------------------|--------|
| 1. Stop Edge of Coin Feeler | 69932 |
| 2. Stop Pin, 10¢ | 69886 |
| 3. Trip Tooth of Cancel Wheel | 69945 |
| 4. Nylon Actuator | |
| 5. Formed End of Detent Spring | 110207 |
| 6. Dime Section of Coin Paddle | 69916 |

(5) When the "coin selector wheel and stop pin" assembly is actuated for a quarter as shown at Item 1, Fig. 22, the stop edge (Item 2, Fig. 22) of the coin feeler will intercept the 25 cent stop pin (Item 3, Fig. 22) near the top of the pin and the accumulator wheel will advance to the fourth detent as shown at Item 4. This setting of the quarter stop pin provides three plays.

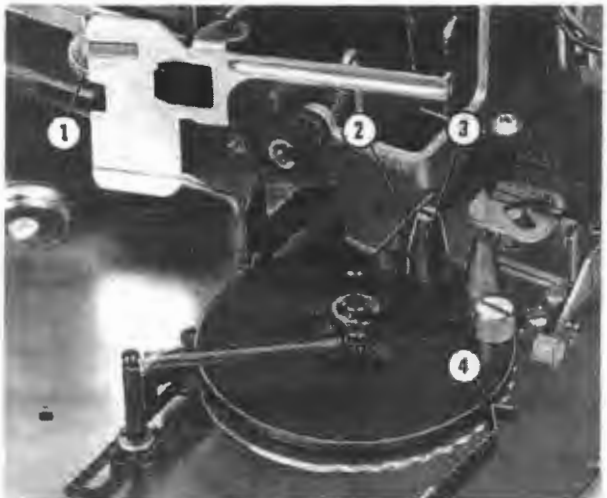


Fig. 22. THREE PLAYS FOR QUARTER

- | | |
|-----------------------------------|--------|
| 1. Quarter Section of Coin Paddle | 69916 |
| 2. Stop Edge of Coin Feeler | 69932 |
| 3. Quarter Stop Pin | 69887 |
| 4. Formed End of Detent Spring | 110207 |

(6) When a half dollar drops on the coin paddle as shown at Item 1, Fig. 23, it drops between the two forked tips of the coin feeler and positions the stop edge (Item 2, Fig. 23) of the coin feeler to intercept the 50¢ stop pin (Item 3, Fig. 23) at its standard setting of seven plays. The accumulator wheel is thus advanced to the eighth detent position as shown at Item 4.



Fig. 23. SEVEN PLAYS FOR HALF DOLLAR

- | | |
|---------------------------------------|--------|
| 1. Half Dollar Section of Coin Paddle | 69916 |
| 2. Stop Edge of Coin Feeler | 69932 |
| 3. Stop Pin, 50¢ | 69891 |
| 4. Formed End of Detent Spring | 110207 |

(7) The number of credits accumulated for each of the four acceptable coins may be changed by screwing the various stop pins into the coin selector wheel at holes corresponding to the number of credits desired. Figure 24 represents the location in the coin selector wheel, of the various settings available and the numerals indicate the number of credits accumulated at that particular stop position.

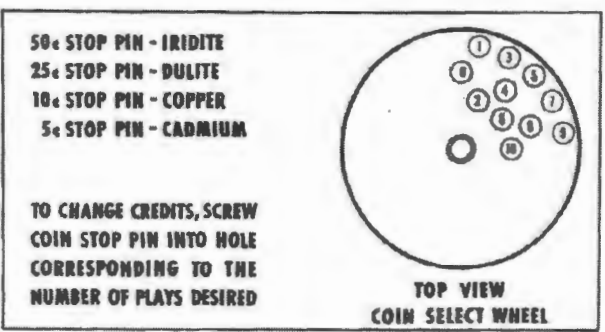


Fig. 24. COIN SELECTOR WHEEL SETTINGS

g. Coin Drop Requirements

As the coin drop pin (Item 3, Fig. 25) passes the maximum point of actuation at the cam shaped end of the coin paddle mounting lever (Item 4, Fig. 25) the coin paddle must be moved far enough to the right to provide complete freedom of the coin between the two points Item 6, and Item 7, Figure 25. This requirement applies to each of the four coins as located in their respective sections of the coin paddle as shown in Figure 15. Particular attention should be given the nickel coin drop to insure proper re-set of the nickel flipper.

h. Cam Shaft End Play Adjustment

On the left of the main cam shaft assembly is a collar with a socket head set screw (Item 2, Fig. 25). This collar should be positioned and locked to the cam shaft at a point that will provide .003 " to .007" clearance as measured between the collar and the flanged surface of the left end bearing (Item 1, Fig. 25).

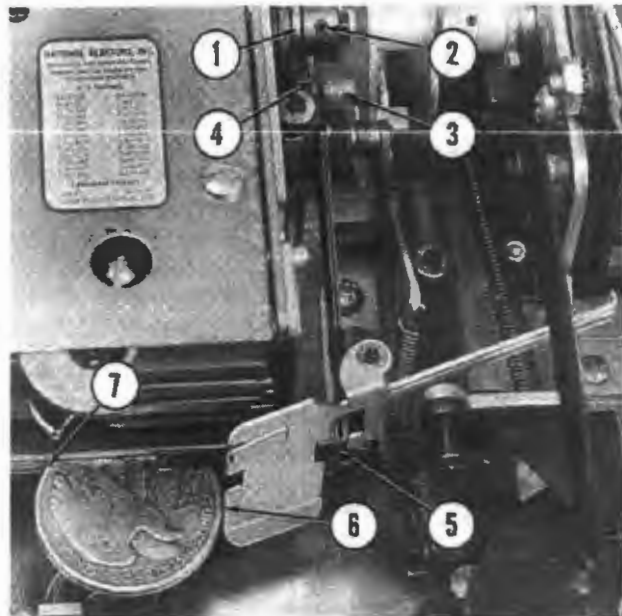


Fig. 25. COIN DROP REQUIREMENTS

1. Flange of L.H. Bushing	58175
2. Collar and Set Screw	62743, 73511-19
3. Cam Pin, Coin Dump	110242
4. Cam Shaped End of Coin Paddle Mounting Lever	69915
5. Stop Tab End of Coin Paddle Mounting Lever	69915
6. Half Dollar Section of Coin Paddle	69916
7. Edge of Half Dollar Coin Track	

i. Selector Switch Lock Adjustment, Figs. 26, 27, and 28.

The three phases of selector switch locking are governed by the "selector switch lock" cam (Item 1, Fig. 26) which is an integral part of the whole cam assembly (Fig. 26). The first phase of the selector switch lock linkage, in the "at rest" position of the mechanism is controlled by the two surfaces of the cam shown at Items 3, and 4, Fig. 26. In the "at rest" position, the "arm, hub, and roller" assembly (Item 5, Fig. 27) will have its maximum effect on the "pivot arm and pin" assembly (Item 6, Fig. 27). When the "lock bar and adjusting screws (Item 3, Fig. 27) are properly set, the mechanical condition of the three "selector switch latch bars (Item 4, Fig. 28) will be as represented in Figure 28, to leave all selector switches entirely free of any latching action as indicated at Item 5, Figure 28. An approved method for selector switch latch bar adjustment may be accomplished as follows:

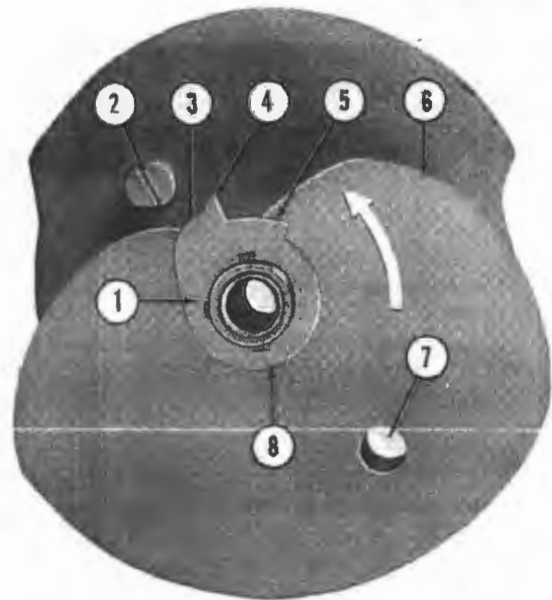


Fig. 26. SELECTOR SWITCH LOCK CAM

1. Cam, Selector Switch Lock	62750
2. Pin, Slug Rejector Lock	110559
3. Cam Surface, "At Rest"	
4. High Point of Cam, Leaving "At Rest"	
5. Cam Surface, "Make Selection"	
6. Cancel and Accumulator Cam	69939
7. Fixture Guide Holes	
8. Low Surface, Selector Phase of Cycle	

(1) With the "selector switch lock cam" (Item 1, Fig. 26) in the "at rest" position and its cam follower on the surface indicated at Item 3, Figure 26, set the adjusting screws (Item 3, Fig. 27) to just produce latching action of the switch push rods (Item 3, Fig. 28) when buttons are depressed.

(2) Slowly turn the screws clockwise until the latched push rods are released.

(3) Starting at the released condition established in " (2) " continue to turn the adjusting screws one complete turn in the clockwise direction to provide approved over-travel of 1/32".

(4) If the above adjustment is accurately accomplished, the "selector switch latch bar" (Item 4, Fig. 28) will not bottom when the cam follower of the "arm, hub, and roller" assembly (Item 5, Fig. 27) is on the highest point (Item 4, Fig. 26) of the "selector switch lock cam". Also all selector switches should be locked out or in when the cam follower is on the low surface (Item 8, Fig. 26) of the cam. The intermediate section (Item 5, Fig. 26) of the cam is the "make selection" sector. It positions the selector switch latch bar to engage the switch rods at a point (Item 1, Fig. 28) where switches will be latched when depressed, but may be released by pressing another in the same group. Items 1, 2, and 5, Fig. 28 indicate the points of engagement of the latch bar in the three conditions created by the selector switch lock cam.

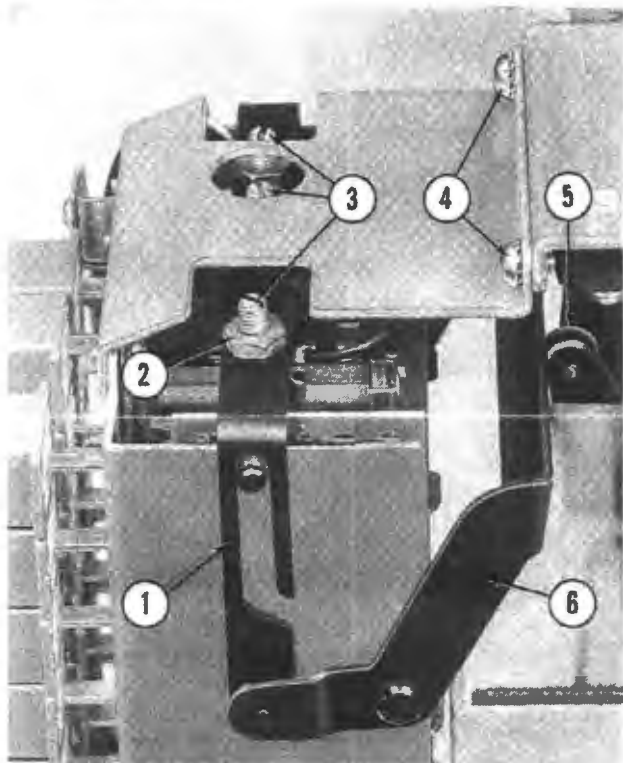


Fig. 27. SELECTOR SWITCH LOCK LINKAGE

- | | |
|--|----------|
| 1. Lock Bar | 67079 |
| 2. Lock Nuts, 10 - 32 Hex. | 73603-8 |
| 3. Adjusting Screws | 67433 |
| 4. Screw, 8 - 32 x 3/16" R.H. Sems | 73533-33 |
| 5. Roller, "Arm, Hub, and Roller Assembly" | 67398 |
| 6. Pivtor Arm and Pin Assembly | 67618 |

(5) During the selection phase of the cycle, when the cam follower of the "arm, hub, and roller" assembly is on the low section (Item 8, Fig. 26) of the cam, the selector switches will be latched to full depths as indicated at Item 2, Fig. 28. In this condition, no switches may be depressed and none may be released. Under operating conditions,

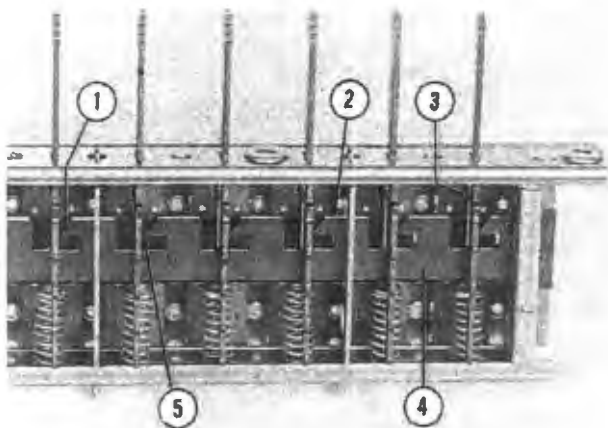


Fig. 28. SELECTOR SWITCH LATCH BAR

- | | |
|--|-------|
| 1. "Make Selection" Point of Latching | |
| 2. Full Latched Position (Selection Phase) | |
| 3. Latch Strike in Switch Rods | |
| 4. Selector Switch Latch Bar | 66894 |
| 5. Full Released Position (At Rest Phase) | |

release of the selector switches must not occur before the selector contact of the "coupling, insulator, and spring" assembly has passed the last pulse patch on the contact plate.

J. Test Requirements, Mechanical

For trouble free operation, the Wall Box should meet the following mechanical test requirements:

(1) With the power turned off, and no credits accumulated, place the cam shaft in the normal "at rest" position.

(2) Drop a dime into the coin entry. With the dime resting on the coin paddle, advance the cycle manually until the coin feeler is intercepted by the dime and the "coin selector wheel and stop pin" assembly has started to rotate. Slowly continue advancing the cycle and watch the advance of the accumulator wheel with relation to the formed end of the detent spring. When the rotation of the coin selector wheel is stopped by the coin feeler and the 10¢ stop pin, the accumulator wheel should have advanced exactly one detent position, coming to rest in the second detent for one play.

(3) Test the coin selector mechanism in the same manner for "3 plays for a quarter" and for "7 plays for a half dollar."

(4) When all credits are cancelled, the last cancellation should move the "accumulator and cancel wheel" exactly into the first detent position and the trip tooth should actuate the key switch to 1/32" contact opening.

k. Test Requirements, Electrical

(1) With the mechanism in the "at rest" position, with no credits on the accumulator wheel, and the power switch "on", manually turn the "coupling, insulator, and spring" assembly in a clockwise direction, as viewed from the motor end of the drive shaft, until the rotor contact completes a circuit to the motor. This contact should tend to drive the coupling back in a counter-clockwise direction. The driving tendency must occur while the contact of the long arm is still on the "at rest" patch of the contact plate.

(2) Turn the service switch "off". Set the long contact arm in the blank space between the "at rest" and the "make selection" patches. Turn the service switch "on". Power must drive the long contact arm into the "make selection" patch.

(3) With the mechanism in the "make selection" position, turn the service switch "off" and turn the cam and shaft assembly clockwise, as viewed from the motor end, until stopped against the high point of the button latch cam. Turn the service switch "on". The long arm contact should be on the "make selection" patch of the contact plate.

(4) With the power still on, advance the long arm contact along with the "make selection" patch in its normal direction of rotation. Before the contact leaves the "make selection" patch, the motor must start and drive the mechanism through the remainder of the cycle to the "at rest" position.

NOTE: The timing factor is determined by fixture assembly in production.

Failure to perform as described above may indicate bent contact arms, bent drive pin or electrical failure.

6. MAINTENANCE

For trouble free operation, it is recommended that each Wall Box receive periodic inspection of the test requirements, cleaning of the coin equipment in accordance with National's "Rejector Manual" and bulletin "National Rejector Cleaning Procedure", and cleaning of the operating components of the Wall Box, and lubrication. Lubricants should be applied very lightly at the points indicated in Figure 29 and the accompanying list:

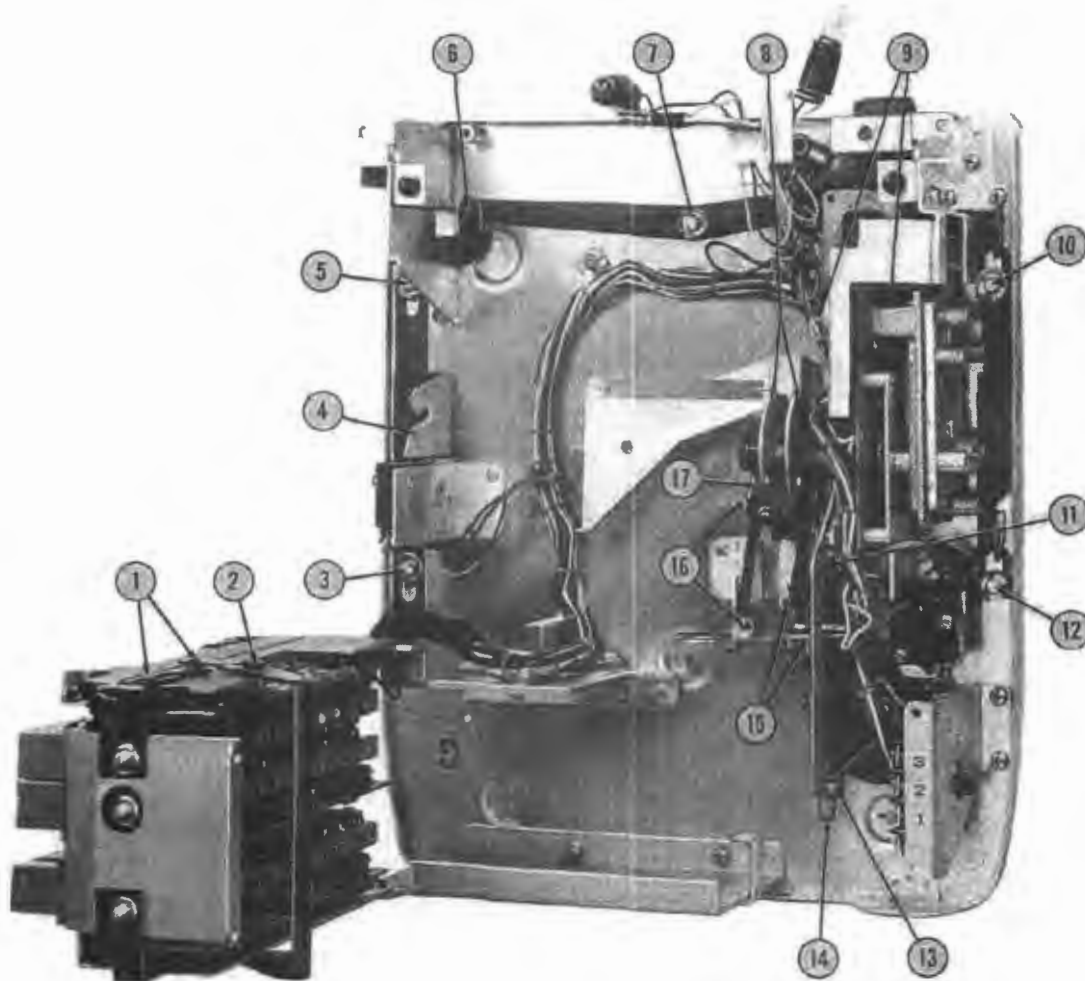


Fig. 29. LUBRICATION

Grease - Keystone, C.P. Soft (1 lb. Can)
Oil, Wax Free and Acid Free

67500A
S.A.E. 10

- | | | | |
|---|-----------|--|-----------|
| 1. Fulcrum Points, Guide Pins, Selector Switch Lock | C.P. Soft | 10. Guide Pin, Cover Lock Bar | C.P. Soft |
| 2. Fulcrum Points, Pivot Arm and Pin | S.A.E. 10 | 11. Fulcrum Point, Arm, Hub, and Roller Assembly | S.A.E. 10 |
| 3. Guide Pin, Cover Lock Bar | C.P. Soft | 12. Guide Pin, Cover Lock Bar | C.P. Soft |
| 4. Lock Strike, Cover Lock Bar | C.P. Soft | 13. Roller, Selector Switch Lock Actuating | S.A.E. 10 |
| 5. Guide Pin, Cover Lock Bar | C.P. Soft | 14. Cancel and Accumulator Slide and Pawl | S.A.E. 10 |
| 6. Link Pins, Lever and Pin Assembly | S.A.E. 10 | 15. Fulcrum and Link Points, Coin Feeler | S.A.E. 10 |
| 7. Pivot Pin, Lever and Pin Assembly | S.A.E. 10 | 16. } Shaft Coin Paddle | S.A.E. 10 |
| 8. Working Surfaces of Main Cams | C.P. Soft | } Mounting Stud, Coin Paddle Mounting Lever | S.A.E. 10 |
| 9. Motor Bearings, Left and Right | S.A.E. 10 | 17. Cam Shaped End of Mounting Lever | C.P. Soft |