ROCK-OLA

SERVICE MANUAL

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INSTALLATION INSTRUCTIONS

AND

PARTS LIST

FOR

MODEL 1544 and MODEL 1546

(3 WIRE—120 SELECTION WALL BOX)

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MODEL 1544 and 1546 WALL BOXES

The Model 1544 and 1546 Wall Boxes operate on 24 volts A.C. 60 cycles, and are supplied from the signal transformer in the receiver unit. The program lights and the select light are type 47 lamps, operated from the 6 volt tap of the auto transformer in the wall box. Power is supplied to the wall box through a three wire cable; two of the three wires supplying power to the gear motor and the auto transformer, and the third wire in conjunction with one of the power circuit wires constitutes the signal circuit that keys the Receiver Unit.

The operation of the three wire system requires intermittent pulsing of the pulse relays in the receiver unit and is accomplished when the grounded contact wiper arm on the wall box gear motor passes over connected contacts on the contact biscuit assembly. A circuit diagram of the wall box is shown in Fig. 2.

The operating elements of the wall box consists of the push button switches, contact wiper arm, gear motor, and the control switches, namely, the motor switch and the accumulator switch. Pressed on the shaft of the gear motor is the cam cluster, consisting of three cams which are used to perform operations as follows: 1. The inside cam operates the push button switch lock bar. 2. The center cam operates the motor switch. 3. The outside cam operates the accumulator assembly.

There are three important positions of the cam cluster for each cycle, namely, the Rest Position, Select Position, and the Locked and Pulsing position. These positions are shown in Fig. 1.

At the Rest Position, in which no credits are established, the selector buttons are free to move in and out, because the lock bar cam is holding the selector switch lock bar up, thereby disengaging the selector keys. Likewise, the motor switch is held open by the motor switch cam.

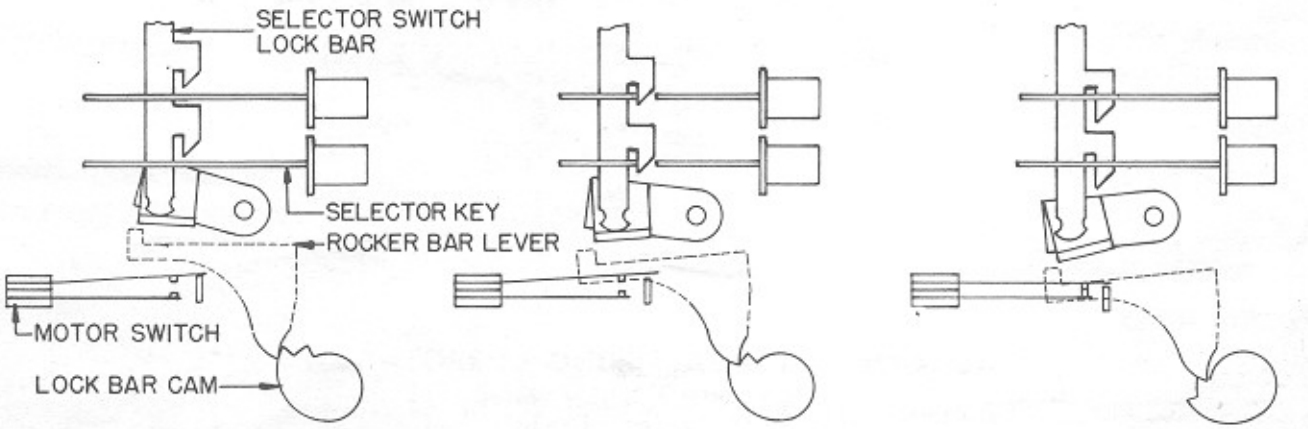


Fig. 1

When a credit is established by a deposited coin, the circuit to the gear motor is completed through the accumulator switch contacts and the grounded contact wiper arm, energizing the gear motor. The contact wiper arm is then rotated away from the two large contacts, thereby breaking the circuit to the gear motor. This is the Select Position. The rocker bar lever, through the action of the lock bar cam on the cam cluster has lowered to the select position, moving the selector switch lock bar downward. This results in the selector button locking immediately upon being pressed.

As a selector button is pressed, the circuit to the gear motor is again closed, by means of the other accumulator switch and through the center contacts of the selector switch. The gear motor through its train of gears begins to revolve, causing the motor switch cam on the cam cluster to close the circuit to the gear motor through the motor cycle switch, by means of the switch lever. Simultaneously, the lock bar drops to its lowest position. This is the Locked and Pulse position. As the contact wiper arm rotates, a train of pulses corresponding to the selection made, are transmitted to the receiver unit. During the period of the pulse cycle, the accumulator cam of the cam cluster, operates the accumulator lever assembly which removes a credit from the accumulator. In completing its cycle, the lock bar cam on the cam cluster allows the selector key to be released through the action of the rocker bar lever and selector switch lock bar. The switch lever, through the action of the motor switch cam of the cluster opens the circuit to the gear motor by means of the motor switch, which completes the cycle. If only one credit was established, the contact wiper arm will come to rest on the first large contact of the contact disc assembly and the cam cluster will assume its rest position. On the other hand, if more than one credit was established, the contact wiper arm will not rest on the first large contact, but will move past the second large contact, and come to rest at the Select Position. The cycle will then again be repeated when a selector button is pressed.

ACCUMULATOR ASSEMBLY

The accumulator assembly is designed to establish a maximum of twenty-six credits, and it is not necessary to make a selection after each coin deposited.

The 5¢ ratchet is located nearest the base plate, the 10¢ ratchet is in the center, and the 25¢ ratchet is nearest the top frame plate. The stud which is riveted to the 5¢ ratchet extends through the 10¢ and 25¢ ratchets. When the 10¢ and 25¢ electromagnets are energized, they are released in the same manner as the 5¢ ratchet. The stud which is riveted to the 5¢ ratchet, permits it to rotate two or five teeth, depending on the denomination of the deposited coin. (Complete coin conversion instructions are outlined in the "Installation Instruction" section, in this manual.

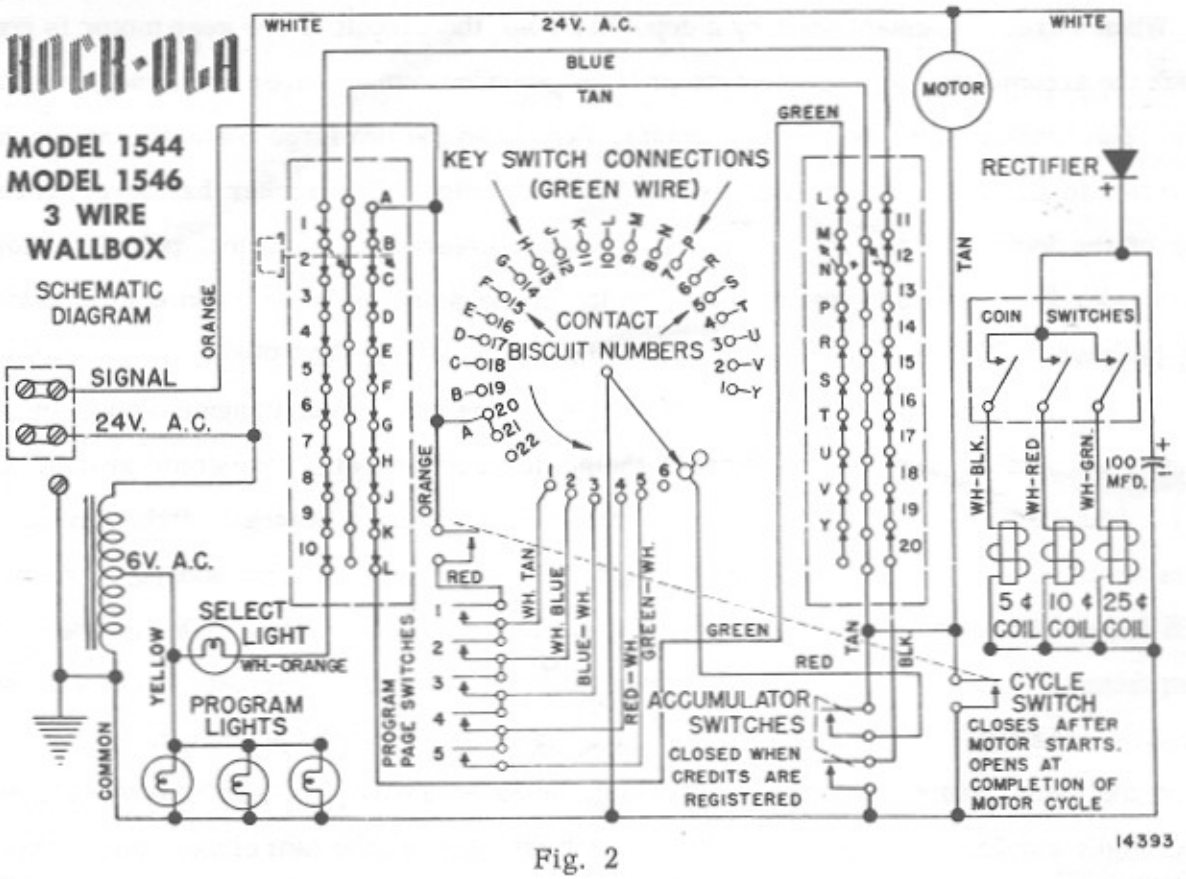


Fig. 2

The gram pressure of both accumulator switches is 30 grams, and the air gap is .015.

Credits are removed from the 5¢ ratchet by the accumulator lever assembly, which is actuated by the cam cluster. The pawl which is riveted to the accumulator lever assembly, moves the 5¢ ratchet back one tooth for each selection made. If the pawl moves the 5¢ ratchet back two teeth, the condition can be corrected by adjusting the tail of the pawl.

GEAR MOTOR

The gear motor is designed to operate at a normal speed of 24 revolutions per minute. The acceptable speed tolerances are between 23 and 25 revolutions per minute. If the motor speed is slow, or fast, erratic selection will result. If there are no binds in the motor, and the gear train is free from dirt or foreign material, the gear motor must be replaced. Because of its construction, individual parts cannot be replaced.

The cam cluster of the gear motor should be lubricated with #105 Lubriplate, and the shaft bearings with a drop of S.A.E. 10 motor oil. Never lubricate the motor clutch mechanism.

The contacts of the contact disc assembly must not be lubricated. A lint-free cloth, saturated with carbon tetra-chloride can be used to clean the contact biscuit disc.

The #105 Lubriplate can also be used to lubricate the pivot points of the rocker bar lever, and the switch lever. To reduce friction, use #105 Lubriplate at the point where the rocker bar lever engages the selector switch lock bar.

If it becomes necessary to re-position the contact wiper arm on the contact biscuit assembly, the following procedure is to be followed:

1. Turn the gear motor manually until the rocker bar lever falls into the first notch of the cam farthest away from the contact biscuit assembly. (See "select position" of Fig. 1).
2. Set the wiper arm on the gear motor shaft, so that the contact rests in the center of the second large disc contact.
3. Tighten the set screw in the collar of the contact wiper arm, and adjust the contact wiper arm pressure to approximately 40 grams.
4. The motor switch pressure is 35 grams minimum and should be adjusted to open so that the wiper comes to rest in the center of the first large contact.

PROGRAM LEAF SWITCHES

The contact pressure of the five program leaf switches is between 30 and 35 grams. The air gap is from 1/32 inch to 1/16 inch when the program page leaf engages the lower curved blade of the program leaf switch. Caution must be taken to see that the program leaf switches do not obstruct the program pages from fully closing.

SELECTOR SWITCH BAR

The selector switch lock bar has three positions which correspond to the three steps on the lock bar cam of the cam cluster. (See Fig. 1). In "rest position" (no credit) the selector keys are free to move in and out. In this position, the rocker bar lever engages the selector lock bar, so that the selector keys move midway in the openings of the lock bar. In "select position" (credit established) the rocker bar lever engages the selector lock bar so that the selector keys strike midway on the angle portion of the lock bar. The selector keys when fully depressed are then latched behind the lock bar. In "locked and pulse position" the rocker bar lever will lower the lock bar, and the selector keys strike the top portion of the lock bar. This will not allow any keys to be depressed while the contact wiper arm rotates, and holds the latched key in locked position.

The rocker bar lever extension which engages the lock bar can be bent up or down at either end to satisfy these conditions.

SLUG REJECTOR

The National Rejectors, Inc. Type 2660 slug rejector must be cleaned periodically to maintain proper operation. If the slug rejector has operated satisfactorily for some period of time, and then becomes erratic in operation, the difficulty can usually be traced to dirt or foreign material in the coin tracks. A lint-free cloth, saturated with carbon tetra-chloride can be used to keep the slug rejector clean.

CAUTION:

Do not use reach powders in this equipment. Their highly corrosive action causes switch

INSTALLATION INSTRUCTIONS
FOR
MODEL 1544 and MODEL 1546 – THREE WIRE, 120 SELECTION – WALL BOX

Model 1544 and 1546 Wall Boxes are designed to operate with Model 1436, 1436-A, 1438, 1446 and 1448 phonographs, and operate at 24 volts A.C. 60 cycles input. When the wall boxes are operated with the Model 1436, 1436-A, 1438 and 1446 phonographs, they are connected to the Model 1717 receiver unit. In the case of the Model 1448 phonograph, the wall boxes are connected to the Model 1925-8 Receiver Unit.

WALL BOX INSTALLATION INSTRUCTIONS

Remove the front case by inserting the key and turning it in a counter-clockwise direction to release the locking latch in the Wall Box. Remove the program holder by lifting the locking catch at the top left side of the program holder, and pull the program holder forward, and out of the wall box. Remove the slug rejector by merely lifting it up and out of the wall box. This will expose the knockout holes, which are used for mounting the wall box on a bar, counter or table.

NOTE: All knockout holes which are provided for mounting the wall box are opened by tapping them out firmly with a blunt punch. The two knockout holes for mounting the wall box on the wall, are located at the top left and right corners of the back casting. Mount two screws in the wall with location corresponding to the two upper holes of the wall box. Place the wall box so that the screws are in the slotted portion of each hole. Now insert a third screw into one of the two lower holes in the back casting. Before tightening the screws to provide rigid fastening for the wall box, make certain that surface of the wall on which the wall box is mounted, is substantially flat. The back casting should be shimmed with wood or cardboard to provide a flat surface. A curved surface will distort the back casting, and prevent proper operation of the wall box.

All lamps are readily accessible for replacement purposes. WARNING - Burned out lamps must be replaced with #47 - .15 amp. lamps only.

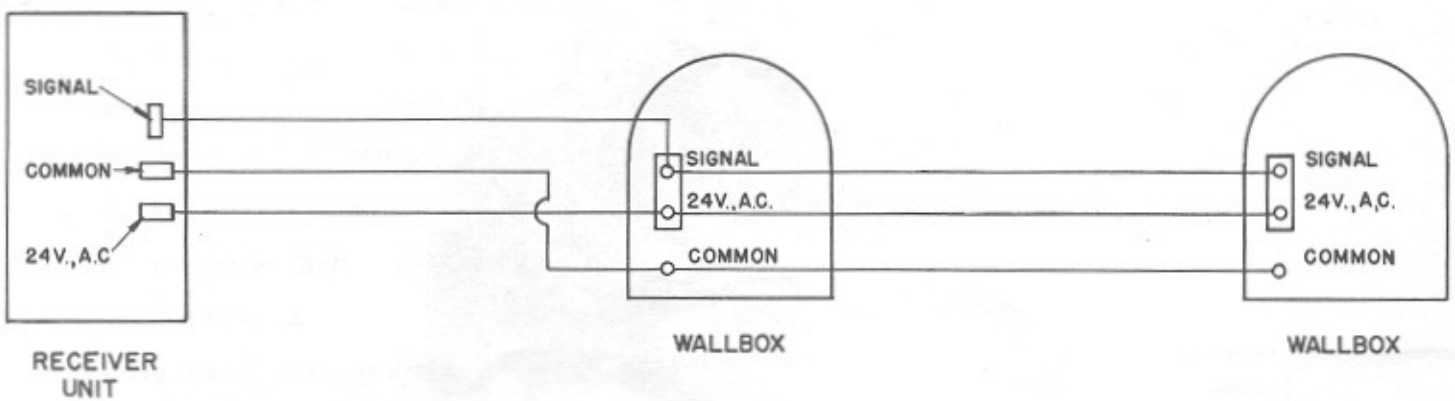
The cash box is located at the lower right side, and is accessible only after the front case is removed. The slug return cup is located on the lower left side.

At the Phonograph, the line switch is used to turn the wall box, off or on. If a coin is deposited with the line switch in "off" position, the coin will be lost and the customer cannot make a selection. The accumulator will add up to a maximum of thirty-three credits. It is not necessary to make a selection after each credit is established.

Model 1540 Deluxe Bar Bracket, Model 1539 Universal Bar Bracket and Model 1541 Universal Bar Bracket, are available for mounting the Wall Box on a counter, bar, or table.

WALL BOX AND RECEIVER UNIT CONNECTING CABLE INSTRUCTIONS

Solder one end of the 3 wire cable to the 3 terminal Jones plug (Rock-Ola #14215) furnished with each receiver; being sure to note the color coding of the individual 3 wires with respect to the identifying legend stamped on the chassis at the 3 terminal socket, so that the proper connections can be made at the wall boxes. The terminal strip in the wall box has a similar legend, except for the "common" connection, which in the wall box is a grounding lug located below the terminal block. Note that solder lugs are provided for connecting to and from the wall box. USE THESE LUGS; DO NOT CLINCH THE WIRES AROUND THE TERMINAL SCREWS AND THEN TIGHTEN AS THIS WILL RESULT IN A POOR CONNECTION AND CAUSE MALFUNCTIONING. CONNECT ALL WALL BOXES AS SHOWN BELOW. BE SURE THAT ALL THREE WIRES ARE POLARIZED AT THE WALL BOX AND RECEIVER UNIT, OR IMPROPER OPERATION WILL RESULT.



The three wire inter-connecting cable should not be smaller than #18 gauge (for each wire) in order that the voltage drop from the phonograph to the wall boxes be kept to a minimum. Do not use excessively long lengths of cable (80 ft. max. for #18 gauge) and do not connect more than six wall boxes to any one length of cable. The 25 volt signal transformer in the Model 1717 Receiver Unit is capable of supplying power to twelve wall boxes. Using more than this number of boxes may result in burning out the 3 amp. fusetat on the receiver unit, or the prolonged heating of the transformer may cause it to fail.

MODEL 1544 and 1546 (3 WIRE - 120 SELECTION) WALL BOX
COIN CONVERSION INSTRUCTIONS

ONE PLAY 5c — TWO PLAYS 10c — SIX PLAYS 25c
ONE PLAY 10c — AND THREE PLAYS 25c
ONE PLAY 10c — AND FOUR PLAYS 25c

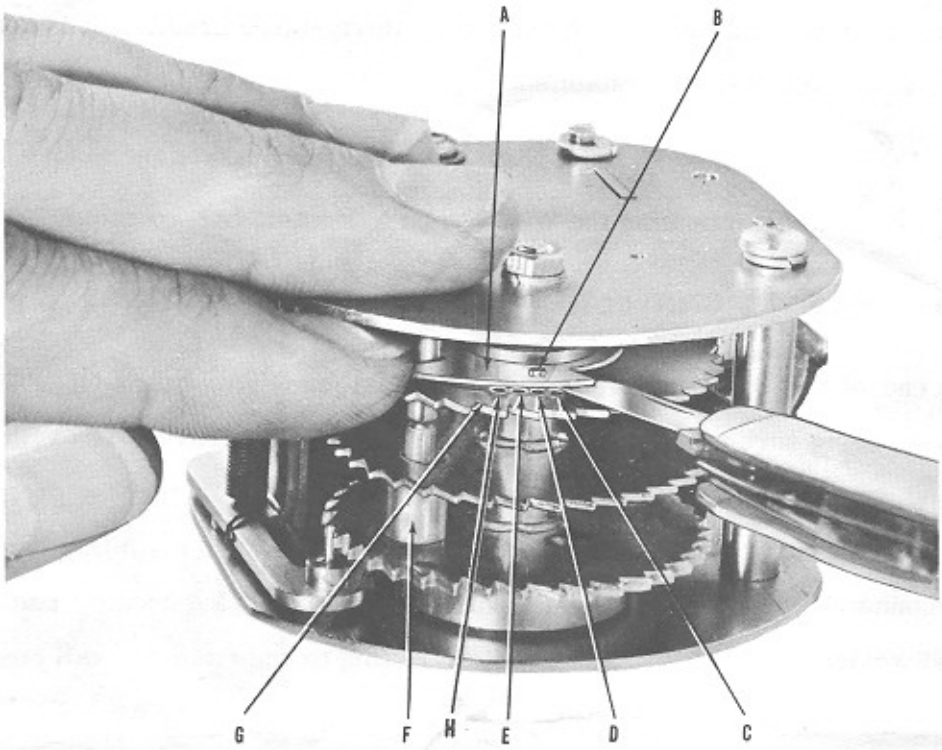


FIG. 3 - VIEW OF ACCUMULATOR

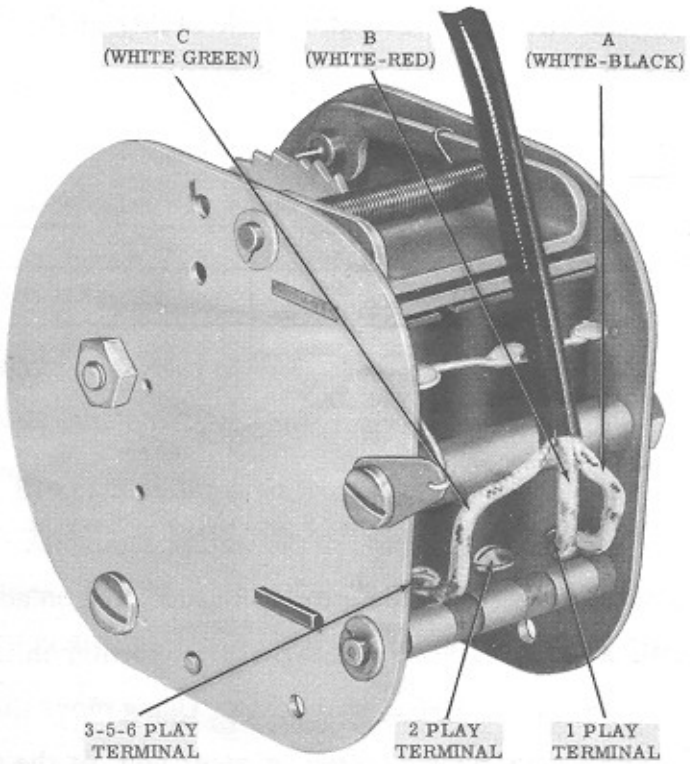


FIG. 4 - VIEW OF ACCUMULATOR

NOTE: ALL ROCK-OLA MODEL 1544 - 1546 (3 WIRE, 120 SELECTION) WALL BOXES ARE SET FOR ONE PLAY 5¢ - TWO PLAYS 10¢ - FIVE PLAYS 25¢ - OPERATION.

For example, accumulator in Fig. 4 has been wired to show position of wiring for 1 play 10¢ and 3 plays for 25¢ operation, or 1 play 10¢ and 4 plays for 25¢ operation.

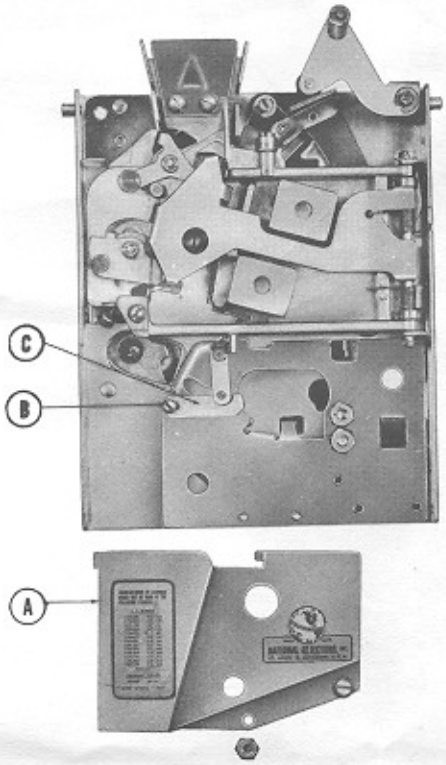


FIG. 5

TO ADJUST ACCUMULATOR AND SLUG REJECTOR

1. FOR ONE PLAY 10¢ and THREE PLAYS 25¢ OPERATION.
   A. Insert thin blade of pocket knife under quarter wafer (A-Fig. 3), twist slightly, raising wafer pin (B-Fig. 3) from hole.
   B. Keep quarter ratchet wheel from rotating and move quarter wafer until pin drops into three play hole (H-Fig. 3) closest to ratchet spring stud (F-Fig. 3).
   C. Remove white-red tracer wire (B-Fig. 4) from two play terminal on accumulator, and solder to one play terminal where white-black tracer wire (A-Fig. 4) is already connected.
   D. To reject 5¢ coins, remove cover plate on slug rejector (A-Fig. 5) after first removing slug rejector from Wall Box.
   E. Loosen screw (B-Fig. 5) and insert 5¢ coin stop (C-Fig. 5) which is included in the Wall Box under head of screw (B-Fig. 5) and tighten screw. Replace cover plate (A-Fig. 5) and insert slug rejector into Wall Box.
   F. Replace plastic coin instruction plate on Wall Box with properly designated one.
2. FOR ONE PLAY 5¢, TWO PLAYS 10¢ and SIX PLAYS 25¢ OPERATION.
   A. Same as 1-A above.
   B. Keep quarter ratchet wheel from rotating and move quarter wafer until pin drops into six play hole (C-Fig. 3) farthest from ratchet spring stud (F-Fig. 3).
   C. Same as 1-F.
3. FOR ONE PLAY 10¢ and FOUR PLAYS 25¢ OPERATION.
   A. Same as 1-A above.
   B. Keep quarter ratchet wheel from rotating and move quarter wafer until pin drops into four play hole (E-Fig. 3), which is the second hole from the ratchet spring stud (F-Fig. 3).
   C. Same as 1-C above.
   D. Same as 1-D above.
   E. Same as 1-E above.
   F. Same as 1-F above.

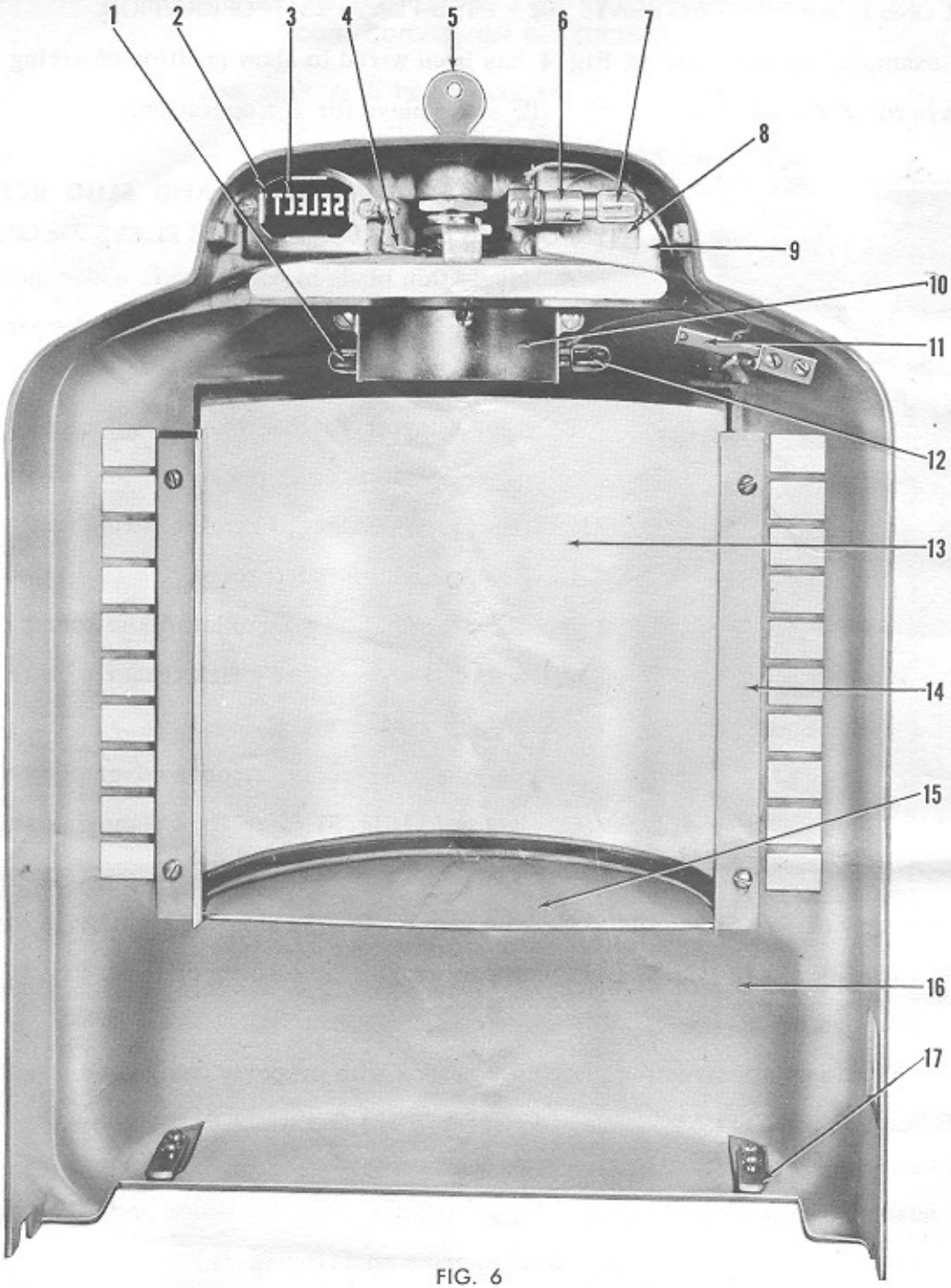


FIG. 6

ITEM	PART NO.	DESCRIPTION
1	ST-3072	#47 Lamp - 6.3 Volt
2	14223	Make Selection Clamp
3	14190	Select Window
4	14278	Reject Button Spring
5	ST-7379	Wall Box Lock
6	14218	"Coins" Light Socket
7	ST-3072	#47 Lamp - 6.3 Volt
8	14272	Coin Insert Window
9	14267	Coin Insert Clamp
10	14173	Light Deflector
11	14208	Wall Box Cover Contact Switch
12	ST-3072	#47 Lamp - 6.3 Volt
13	14189	Wall Box Window
14	14550	Window Retainer
15	14347	Instruction Plate
16	14442	Wall Box Front (Chrome finish)
17	14186	Cover Locator Bracket

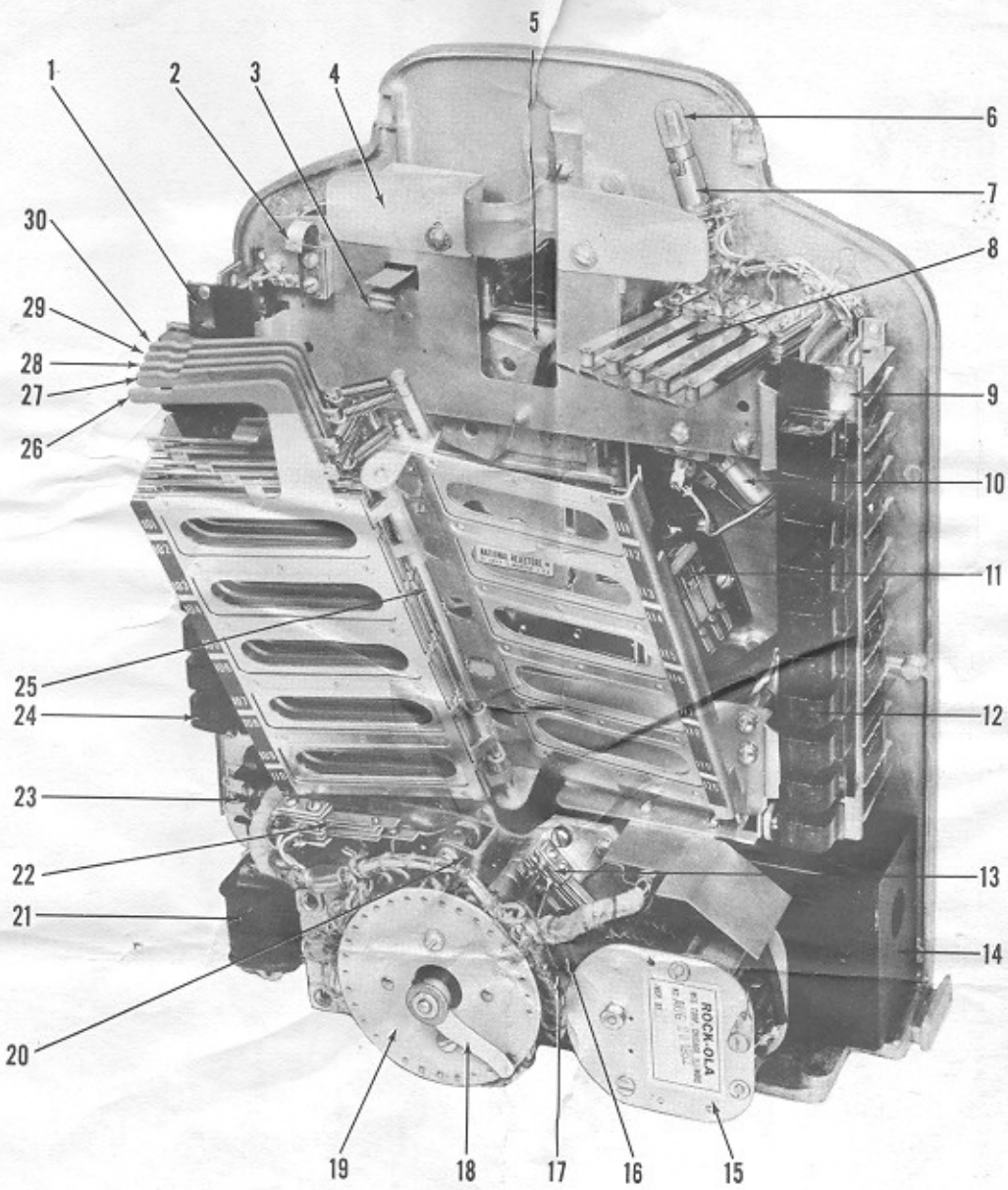


FIG. 7

ITEM	PART NO.	DESCRIPTION
1	14151	Push Button Switch (L.H.)
2	14209	Program Holder Contact Switch
3	14156	Program Holder Latch Spring
4	14171	Light Baffle
5	14312-A	Slug Rejector Assembly
6	ST-3072	#47 Lamp - 6.3 Volt
7	14219	"Make Selection" Light Socket
8	14210	Program Leaf Switch
9	14150	Push Button Switch (R.H.)
10	14206	Wall Box Capacitor
11	14072	Coin Switch
12	14148	Wall Box Button
13	14211	Accumulator Switch
14	14220	Cash Box
15	14580-A	Accumulator Assembly
16	14275	Accumulator Lever Spring
17	14308-A	Accumulator Lever Assembly
18	14536	Wiper Arm
19	14322-A	Biscuit Riveting Assembly
20	14159	Rocker Bar Lever
21	14149	Gear Motor (with Cams)
22	14338	Motor Cycle Switch
23	14217	Terminal Block
24	14148	Wall Box Button
25	14317-A	Program Leaf Pivot Shaft Assembly
26	14407-A	#5 Program Leaf Assembly
27	14316-A	#4 Program Leaf Assembly
28	14406-A	#3 Program Leaf Assembly
29	14315-A	#2 Program Leaf Assembly
30	14405-A	#1 Program Leaf Assembly