WIRELESS WALL-O-MATIC TYPE W4-L56

5c — 10c — 25c

INSTALLATION INSTRUCTIONS

To mount the Wireless Wall-O-Matic, insert the key in the lock and rotate it 90 degrees clockwise. This will release the latches and allow the case to be taken off. There are three holes in the back plate for mounting. The upper two are slotted for fitting over screws already set in the wall at the proper points. The lower hole is for rigid mounting, by means of a screw, after the Wall-O-Matic has been hung in place.

If the mounting place on the wall is uneven, the Wall-O-Matic mounting plate should be shimmed with cardboard or wood before tightening the three mounting screws. Tightening these screws on an uneven wall will bend the mounting plate, may seriously effect the operation of the Wall-O-Matic, and will cause the cover and lock to bind.

Plug into the nearest electric wall outlet or socket supplying 117 volts, 50 or 60 cycles A.C.

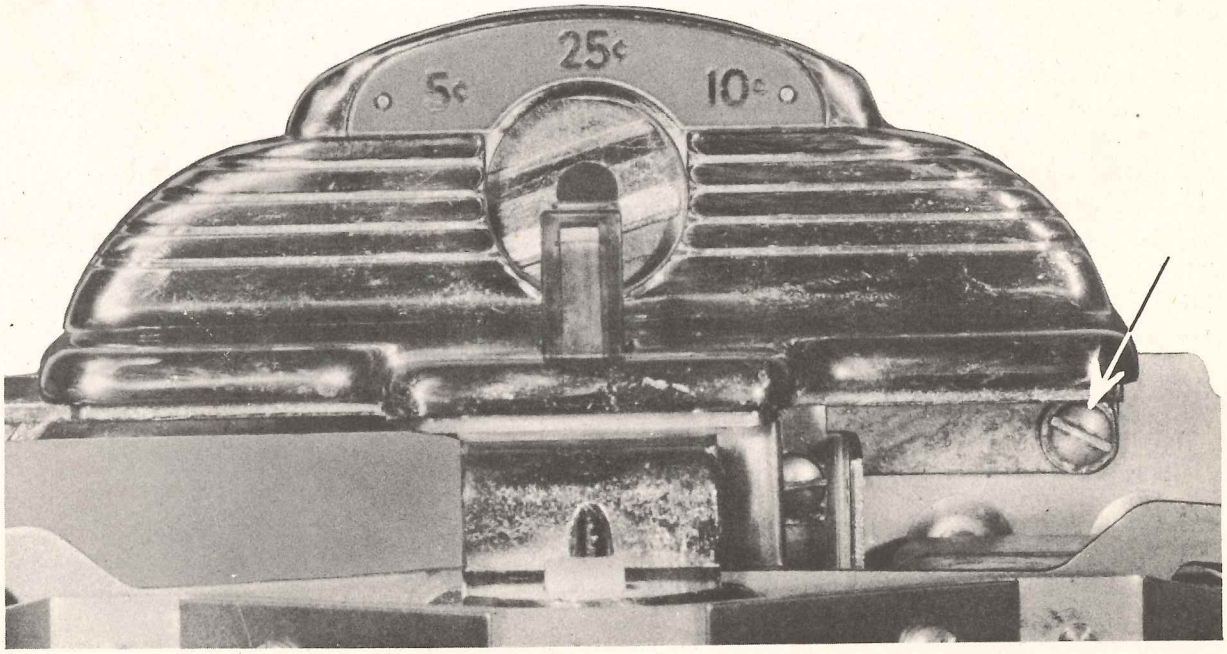
NOTE: THIS INSTRUMENT WILL NOT OPERATE ON DIRECT CURRENT AND WILL BE DAMAGED IF IT IS PLUGGED INTO A DIRECT CURRENT OUTLET.

The slug rejector is mounted on the coin drop slot. To remove the slug rejector for cleaning or service, remove the screw indicated in the illustration. The slug rejector and the coin slot can then be lifted up and out of the Wall-O-Matic.

The slug return cup is located at the lower left side of the Wall-O-Matic. The slug ejector button is directly in front of the coin drop slot.

The cash box is removed from the right side of the Wall-O-Matic and is accessible only with the case removed.

Remove copper plated snap-button (shipping fastener) located at top edge of program holder. The program holder is removed by sliding it approximately ¼" from its normal position toward the top of the case and lifting out. The program is illuminated with eight Type 51 lamps that turn on and off with the main switch.



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Thirty seconds after the current is turned on with a key in the main switch, the Wall-O-Matic may be operated. If a coin is deposited when the switch is turned off, the customer cannot make a selection and the coin is lost.

With the Wall-O-Matic switch turned on, a credit light, above the lock, goes on immediately after a coin is deposited in the coin slot. This light indicates that selections can be made. Only one coin at a time should be deposited and selections made before an additional coin is inserted. The credit light stays on only as long as there remain unspent credits for the value of the coin deposited. Make one selection for a nickel, two selections for a ten cent piece and five selections for a twenty-five cent piece.

The Wall-O-Matics are supplied with terminal brackets for open wiring installations. However, various types of conduit may be used in making installations. Terminal brackets are provided for the various types and can be obtained, under Seeburg Part numbers, as follows:

TYPE CONDUIT	SEEBURG PART NO.
#500 Wiremold	14083
#1900 Wiremold	14084
½" Tubing	14085

A hole cover, Seeburg Part No. 14082, is available for closing the cable entry hole if concealed wiring and the knock-out hole in the mounting plate is used for entry of the cables.

A Bar Bracket Assembly, Seeburg Part No. 500185, is available for rigidly mounting the Wall-O-Matic on bars, counters and tables.

The Wall-O-Matic has been thoroughly tested before leaving the factory. Unless damaged in shipment, no adjustments should be necessary.

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WIRELESS WALL-O-MATIC

TYPE W4-L56

The Wall-O-Matic, Type W4-L56, is a unit of the SEEBURG WIRELESS REMOTE CONTROL SYSTEM for making selections from a point removed from the SYMPHONOLA. It works in conjunction with the Selection Receiver in the Symphonola to control the record changer and effect the desired selections for the coins deposited, 5, 10, or 25c coins may be deposited establishing respectively, 1, 2, or 5 selection credits.

The W4-L56 Wall-O-Matic operates from a 115 volt, 50 or 60 cycle, AC circuit and may be connected to a convenient wall outlet or light socket in the location. No additional wiring is required for connecting the Wall-O-Matic to the Symphonola. The location wiring to which the units are connected provides the necessary connection between them. Selection impulses are generated in the Wall-O-Matic and are transmitted over the 115 volt AC wiring to the Selection Receiver in the Symphonola.

The functions of the Wall-O-Matic are:

1. To establish credits in the Wall-OMatic for the deposited coins.

2. To transfer the credits, one for each selection, with the selections to the Symphonola.

To fulfill the requirements of the first function there are a coin drop slot, a slug rejector for rejection of spurious coins, three coin switches, and a credit assembly for storing credits. The second function involves not only some of the component parts of the Wall-O-Matic but the Selection Receiver in the Symphonola as well. The requirements of the Wall-O-Matic in this function are fulfilled when a selection button is pressed to initiate an operating cycle resulting in a series of selection impulses being generated and sent into the location AC wiring system. (Note*).

Twenty selection switches are arranged in two banks of ten switch sections each. These switch sections are operated by selector buttons located at the front of the Wall-O-Matic. Pressing a button initiates the operating cycle and controls the selection circuits of the unit so a desired selection can be made.

A transformer changes the line voltage and supplies power for the program title illumination, for operation of two type 6C4 tubes, and for credit circuit and motor operation.

One of the 6C4 tubes, a tuned oscillator coil, and grid resistor and condenser comprise a generator of r.f. (radio frequency) current at 250 kilocycles. The other type 6C4 tube, connected as a rectifier, changes AC from the transformer to DC for operation of the r.f. generator. A 15 mfd., 250 volt condenser filters the output of the rectifier.

A rotating switch blade, making momentary contact with contacts on a selector disc, controls the r.f. generator so a series of evenly spaced selection impulses of 250 kilocycles current are generated. The rotating blade, or contact arm, is fastened to a shaft driven at a uniform speed by a 25 volt motor. Operation of the motor through a selection cycle is controlled by motor starting switches and a motor switch.

If there are two or more credits established and a selection button is still held in after a selection has been made, an interlock relay holds open the motor starting circuit until the selector button is released.

A service switch (see Fig. 10) is provided for convenience in tests requiring continuous r.f. output—steady signal.

*Note: It should be recognized that the Wall-O-Matic is but a part of the system of remote control. Full appreciation of its function in the system is had with the knowledge of the functions and operation of the rest of the system. Reference should be made to "Operation of Symphonola Control System" and "Theory of Operation of Wireless Remote Control System" in the General Information section of this manual. Further reference should be made to the information on the Master Selection Receiver, MSR1-L6, Section 5000, under " Theory of Operation", "Operation and Maintenance", "Alignment Procedure", and "Step Switch Assembly Function and Operation".

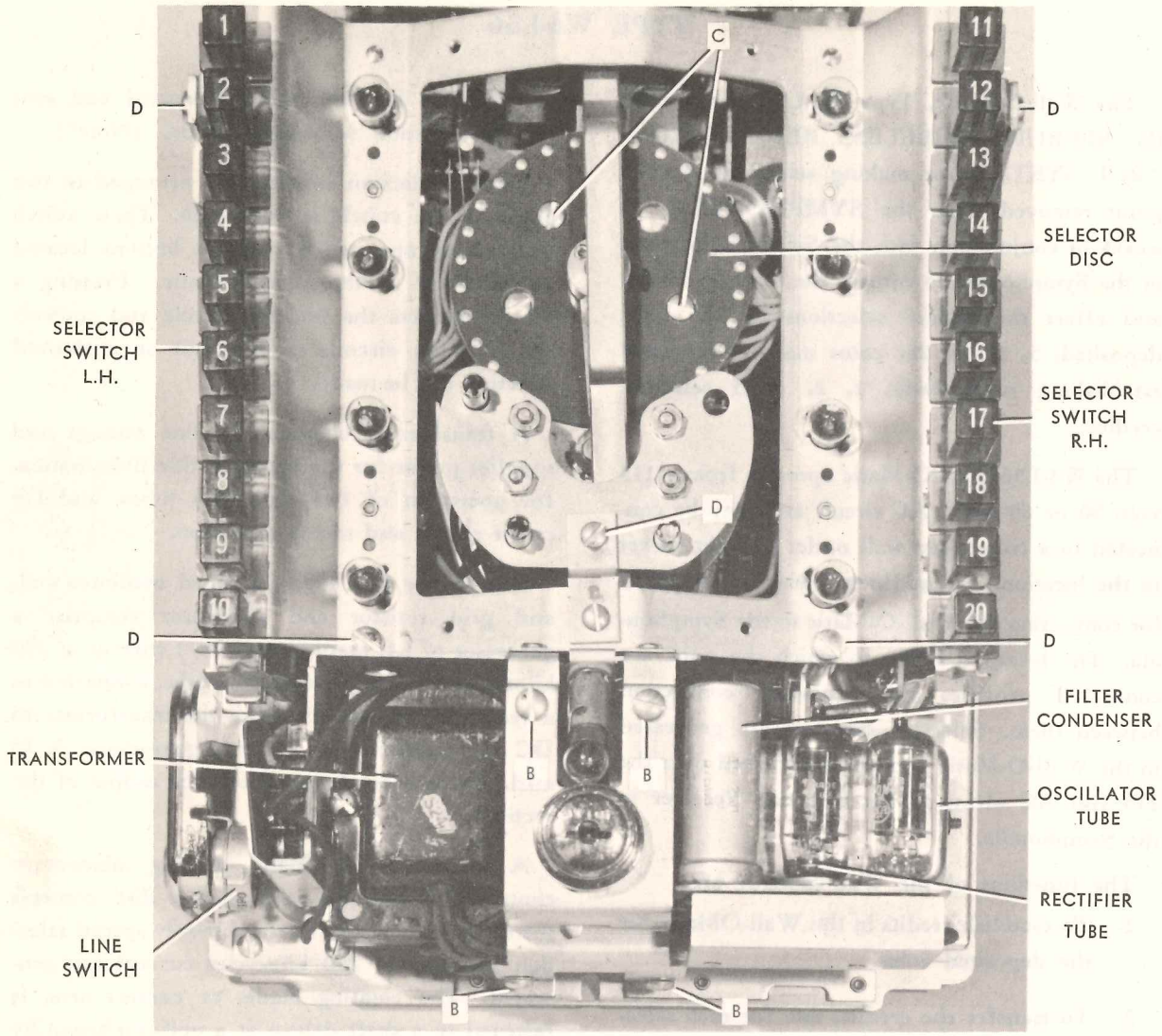

FIG. 9

THEORY OF OPERATION

The operating cycle of the Wall-O-Matic concerns two individual phases or operations. There is a control phase and a selection phase both of which occur simultaneously during one full turn of the contact arm that is fastened to the main shaft of the motor assembly. The control phase of the cycle begins when a coin is deposited in the coin drop slot and a selection button is pressed. This phase ends when a credit has been cancelled and the Wall-O-Matic is again restored to normal rest position with the selector button released. The selection phase of the operating cycle begins when a selector button is pressed and the contact arm begins its sweep of the selector disc. This phase ends when a predetermined number of selection impulses of uniform duration and spacing have been generated.

A 5, 10, or 25c coin is guided by the coin drop slot to the slug rejector. The rejector separates the coin paths so the coin falls onto the lever of the corresponding 5, 10 or 25c coin switch before dropping into the cash box. The switch lever, moved downward by the weight of the passing coin, momentarily closes the coin switch contacts to complete a circuit and energize the corresponding solenoid on the credit assembly. The plunger of the energized solenoid closes one

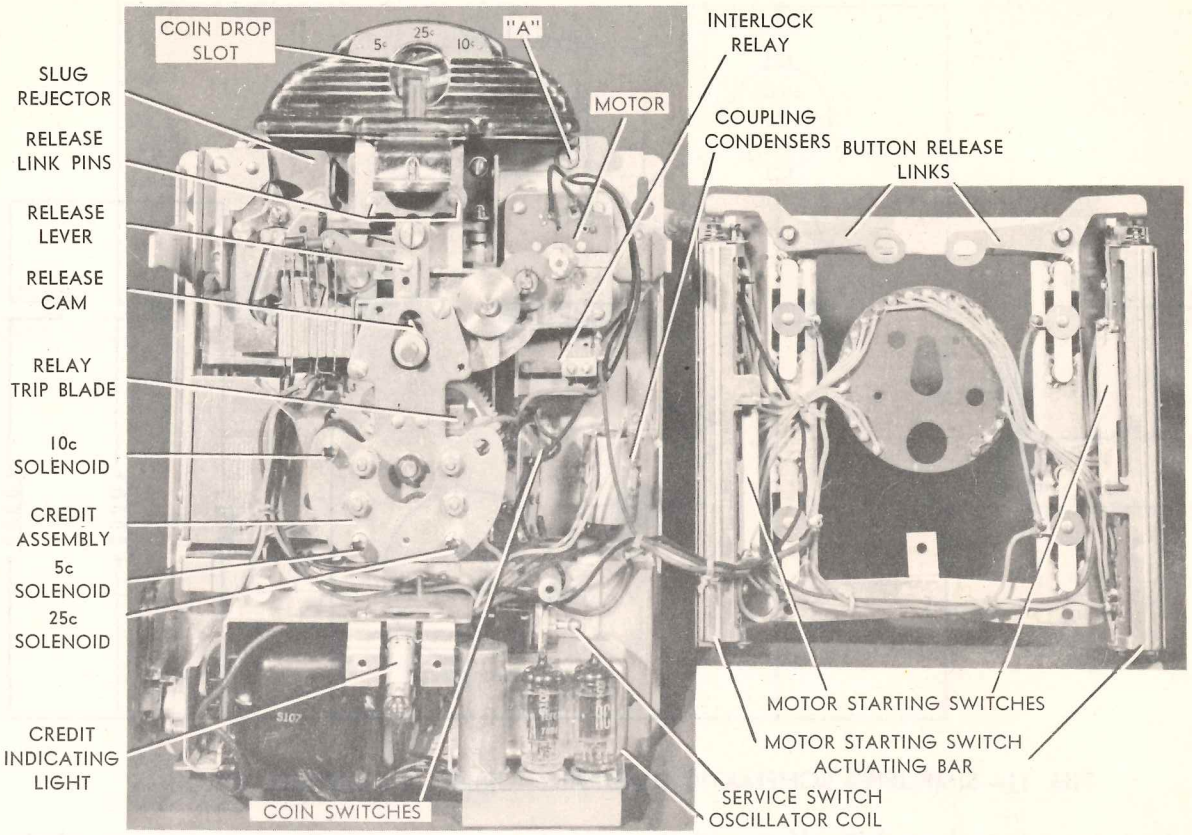

FIG. 10

of five snap-action switches. The closed snap-action switch establishes credit so selection can be made and turns on a credit indicating light.

There are two motor starting switches—one on each of the two selection switch assemblies. When a selection switch is operated by pressing a selector button, the shaft of the switch moves an actuating bar and closes the contact of a motor starting switch. With the credit switch closed by a credit solenoid, the motor starting switch, when closed, will complete the circuit to the motor through the normally closed contacts of the interlock relay. This circuit may be traced in Fig. 8 and Fig. 11.

A latch bar is incorporated in each of the selection switch assemblies. The purpose of the latch bar is to lock the selection switches in the pressed-in position or the normal position during the operating cycle and to release them when the cycle has been completed. Springs cause the latch bars to move to the locking position. Hooks on the bars lock the switch shafts in the pressed-in position.

The latch bars are mechanically linked to a button release cam mounted on the main shaft of the motor assembly. The bars are held by the cam so the selection switches are free to move in and out when the Wall-O-Matic is in the normal rest position. The button release cam turns when the motor starts and allows the button release lever assembly to fall. Because the lever is linked to the latch bars with the button release links, the bars are released and will lock the selection switches in position. When the motor has rotated the main shaft and cam a full turn, the cam lifts the release lever, moving the latch bars to the rest position, and the selection switches are released.

A relay trip blade (Fig. 10) connects to the interlock relay coil as shown in Fig. 8 and Fig. 11. When the motor starts and the release lever falls, the lower end of the lever grounds the trip blade so the relay is energized and opens the motor starting circuit. In order that the motor will continue to run, completing the operating cycle after the circuit through the interlock relay has been opened, a motor switch is closed when

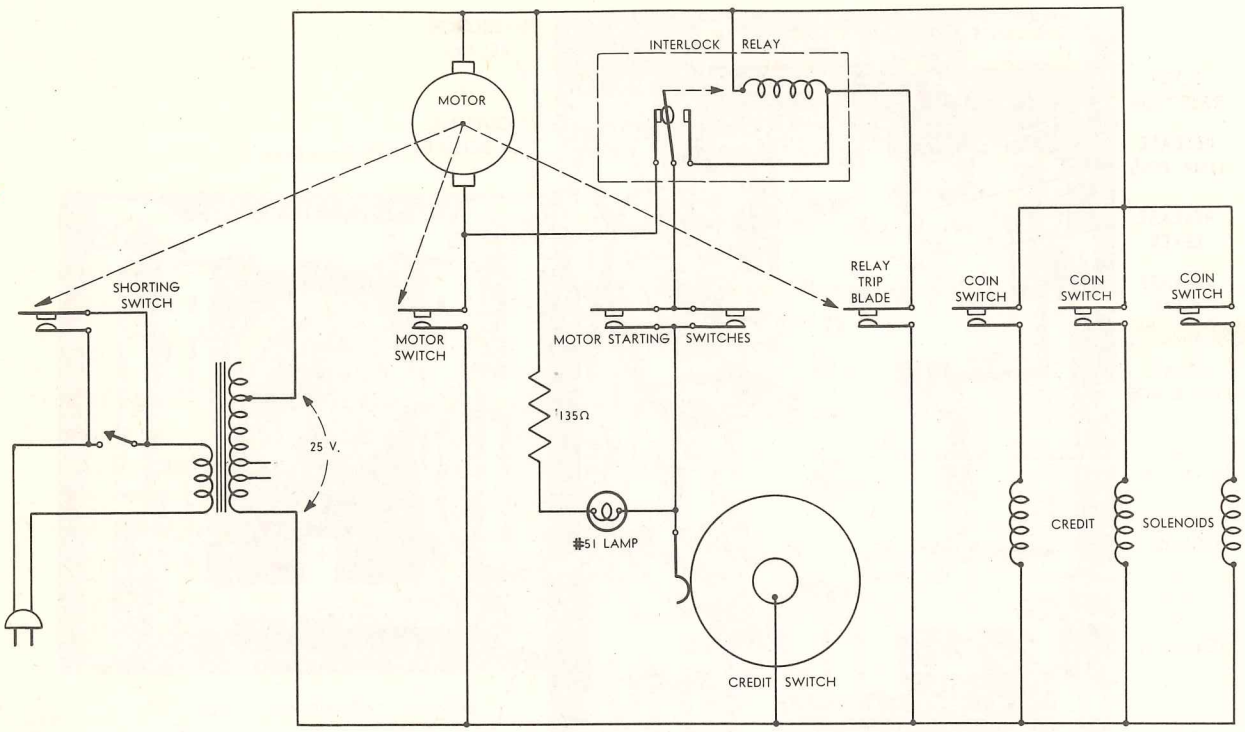

FIG. 11—SIMPLIFIED SCHEMATIC DIAGRAM—CREDIT & CONTROL CIRCUITS

the latch bar release lever falls off the release cam. Its connection in the motor circuit can be traced in Fig. 8 and Fig. 11.

The motor switch (Fig. 10 and Fig. 14) is operated by the release lever through the switch link. The switch is held open by the lever in the rest position of the Wall-O-Matic. When the lever falls, the switch closes, and a complete circuit is provided to the motor, independent of the circuit through the credit switch, the motor starting switch, and the interlock relay contacts. Near the end of the operating cycle, when the release lever is being raised by the release cam, the motor switch is opened and the motor comes to a stop with the release lever in the raised position. With the lever raised, the latch bars will have released the selector buttons and the motor starting switch will be open. The circuit to the interlock relay coil, through the relay trip blade will be open so the motor starting circuit through the relay contacts will be restored.

If there are credits remaining on the credit switch and a selector button is held in after the operating cycle is completed, the circuit to the interlock relay coil is maintained through the credit switch, the motor starting switch, and the interlock contacts (normally open contacts) of the relay.

The motor starting circuit will be open until the selector button is released allowing the interlock relay to again close the normally closed contacts.

Another switch, the "shorting" switch is connected to the line switch so the power to the Wall-O-Matic cannot be turned off during an operating cycle. It is controlled by the release lever in the same manner that the motor switch is operated. The connections for this switch may be traced in Fig. 8 and Fig. 11.

The selection phase of the operating cycle of the Wall-O-Matic is associated with the Selection Receiver in the Symphonola. The Selection Receiver sections involved are the impulse amplifier, the type 2050 tube, and the step switch assembly, and are designed to be operated by brief, evenly spaced impulses of 250 kilocycle r.f. current transmitted by the Wall-O-Matic over the AC wiring circuits of the location.

The r.f. current is generated in the Wall-O-Matic oscillator coil by the 6C4 oscillator tube.

The oscillator circuit is designed so the r.f. currents are generated only when the cathode circuit of the 6C4 tube is "grounded" to the frame of the Wall-O-Matic. The cathode circuit is connected to the contacts on the selector disc. The contact arm is grounded and, as it sweeps around the selector disc, it grounds, momentarily and successively, each of the contacts on the disc. During the brief interval that each contact is grounded, the r.f. generator is in operation. The motor drives the contact arm at a uniform rate and the contacts are evenly spaced so the Wall-O-Matic generates a series of 250 kilocycle impulses of uniform duration and spacing.

The output of the r.f. generator, or oscillator, is connected from the oscillator coil, through coupling condensers, to the AC line for transmission over the location wiring to the Selection Receiver. One of the output connections is made to the AC line through an output switch that is closed only during the operating cycle of the Wall-O-Matic. The switch is controlled by the release lever in the same manner that the motor and shorting switches are operated. The connection of the switch may be traced in Fig. 8 where it is represented as the lower pair of contacts of S4. The position of the switch may be seen in Fig. 14.

The two selection switch assemblies are made up of 10 switch sections each with each section connected to the next. The last or lower terminal of the left hand assembly (#1 to #10) is connected to the top terminal of the right hand assembly (#11 to #20) so there is a complete circuit through the assemblies from #1 switch section to #20 switch section. There are 25 contacts on the selector disc, six of which are connected together on the back of the disc. These six contacts are connected to the top terminal of the left hand selection switch assembly (#1) and to the cathode circuit of the oscillator. The remaining 19 contacts connect to the selection switch section. The circuit arrangement of this can be traced in Fig. 8. With all the switch sections in normal position, 25 contacts are connected to the cathode circuit. As the motor drives the contact arm through one complete turn, the oscillator will generate 25 impulses of 250 kilocycle current.

The step switch assembly in the Selection Receiver is designed to control record selection with 5 impulses more than the number of the record to be selected. That is, #1 record will be selected if 6 impulses (5 plus 1) are received; #2 record will be selected if 7 impulses (5 plus 2) are received; #20 record will be selected if 25 impulses (5 plus 20) are received.

If #1 button of the Wall-O-Matic is pressed to start the operating cycle, the #1 switch opens the cathode circuit to all the contacts on the selector disc except the six that are connected together on the back of the disc. As the contact arm revolves, the cathode circuit will be grounded six times resulting in six impulses. If #2 button is pressed, 7 contacts are connected to the cathode circuit and 7 impulses will be generated during the operating cycle. If #20 button is pressed, all the contacts are connected to the cathode circuit and 25 impulses will be generated.

OPERATION OF CREDIT ASSEMBLY

The credit assembly, shown in Fig. 12, includes five snap-action switches. The five switches are equally spaced around a credit switch that turns with a shaft. The shaft and switch are geared to the Wall-O-Matic motor so they turn one-fifth turn each time a selection is made. The snap-action switches are, therefore, advanced one position—the distance between them—for each selection made.

A reset bracket is mounted on the credit assembly frame. Each time a selection is made, the credit switch advances one position, and one of the snap-action switches moves past the bracket. When the snap-action switch that has been turned "on" (by a credit solenoid plunger) passes the bracket, it is engaged by the bracket and reset to the "off" position. With the credit switch off, no selections can be made and the credit indicating light is turned off.

The "5c solenoid" is mounted so its plunger turns on the snap-action switch that is one position from the reset bracket. Because the switch will be opened with one operation of the Wall-O-Matic, one credit is set up when a 5c coin is deposited.

The "10c solenoid" turns on the snap-action switch that is two positions from the reset bracket allowing two selections to be made before the switch is reset.

The "25c solenoid" is five positions from the

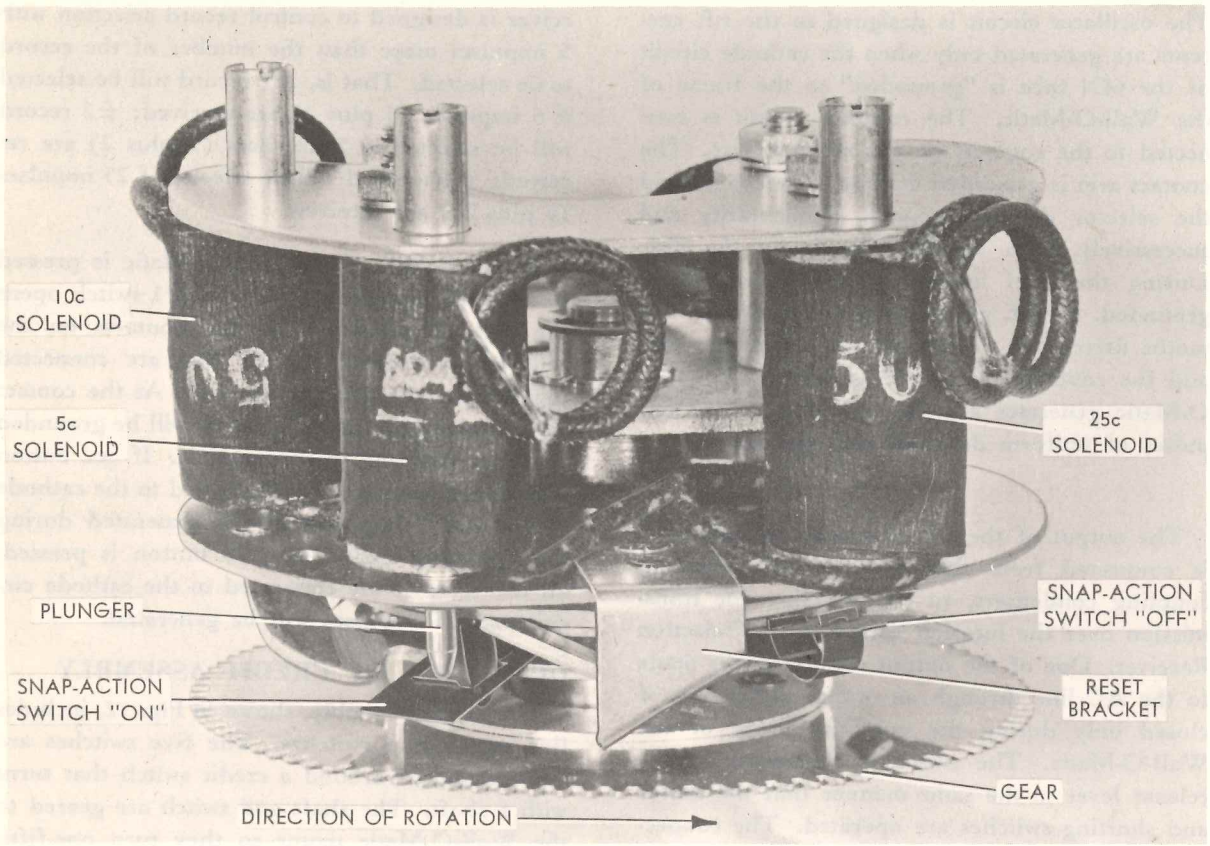

FIG. 12

reset bracket and will turn on the snap-action switch that allows five selections to be made before the switch is reset.

Electrical connection to the credit switch is made to ground through the shaft and to a collector ring with a contact brush.

MAINTENANCE AND SERVICE

The Wall-O-Matic is designed to work correctly with the associated Selection Receiver in the Symphonola. If erratic operation is had or if there is complete failure to operate, IT IS RECOMMENDED THAT AN ANALYSIS BE MADE OF THE POSSIBLE CAUSES BEFORE AN ATTEMPT IS MADE TO EFFECT REPAIRS OR ADJUSTMENTS. Correct operation of the Selection Receiver is just as important as corret operation of the Wall-O-Matic and a cause of trouble may be traced to the Receiver. Familiarize yourself with the theory of operation of the two units before attempting repairs. Cut-and-Try methods are seldom successful and usually result in loss of time if not outright failure to effect proper operation.

If the Wall-O-Matic motor does not operate, the motor control circuit should be checked. The credit switch, coin switches, motor starting switches, the interlock relay contacts, or the motor switch may be in need of cleaning. The line cord may be defective or the line cord plug may not be making contact in the outlet into which it is connected. The line switch may not be turned on.

If the Wall-O-Matic motor "runs" but fails to effect selection at the Symphonola, the tubes should be checked by substituting tubes known to be good. Check the 2050 tube in the Selection Receiver. Set up a "steady signal" and check, with a diode meter, the strength of the signal delivered at the Selection Receiver. Check the Wall-O-Matic and Selection Receiver alignment.

PROGRAM LIGHTING

WARNING: The transformer in the Wall-O-

Matic is designed for use only with #51 or #47 lamps for program lighting. The continued use of #44 or #55 lamps or other lamps of higher current rating will result in a burned out transformer.

CLEANING

The slug rejector should be kept free of dirt and dust. If a rejector has been working successfully and becomes erratic or fails to work at all, the trouble can generally be attributed to dirt or to some stoppage in the coin track. Cleaning only should correct the trouble.

The slug rejector may be removed for cleaning or inspection by taking out the screw marked "A" in Fig. 10 and lifting up by the coin drop slot.

Switch and relay contacts should be cleaned with a contact burnisher. *Do not use a file, sandpaper, or emery cloth.*

The contacts on the selector disc should be cleaned with a cloth saturated with carbon-tetrachloride. *Do not use emery cloth or sandpaper.* The contacts are silver plated brass. To sand them or clean them with an abrasive will remove the plating and expose the brass. The brass does not provide good contact and will require more frequent service as well as cause erratic operation. The contacts should not be lubricated.

The contact point on the contact arm should be cleaned with carbon-tet'. It is not necessary to remove it from the shaft. A piece of cloth saturated with carbon-tet' can be drawn under the contact point.

The selector switches and the motor gears should be kept free of dirt and dust by blowing out. Do not use roach powders of any kind. Most of the powders are highly corrosive and will soon cause failure of the switches. If powders have been used, the switches should be thoroughly cleaned.

CREDIT ASSEMBLY

The credit switch of the assembly may be removed for cleaning the snap-action switch contacts or the contact ring and brush. To remove the switch, proceed as follows with the Wall-O-Matic in the normal stopped position:

1. Remove the slug rejector.
2. Turn "on" the snap-action switches under the 5c and 25c solenoids. This may be done manually with a small screw driver or a match stick.
3. Remove the C-washer shown in Fig. 15.
4. The large driven gear on the shaft with the credit switch is accessible through the space provided by removing the slug rejector. Hold the edges of the gear and push, lightly, on the end of the shaft with a small screwdriver or a lead pencil. When the shaft has moved about one-half inch, the uppermost snap-action switch will come against a brass gear on the motor and gear assembly. DO NOT FORCE THE SWITCH AGAINST THE GEAR OR THE SWITCH WILL BE BROKEN.
5. Turn the large gear counter-clockwise until the snap-action switch clears the brass gear. Continuing the rotation of the gear, slide the shaft out of the bearing. The gear, shaft, and switch may be lifted out through the space provided by removal of the slug rejector.

When replacing the switch, be sure the release cam and the release lever pawl are as shown in Fig. 15 or the snap-action switches will not be in the correct relative positions when assembly is completed. To replace the switch, proceed as follows:

1. Turn "on" all the snap-action switches except the one that will be toward the top of the Wall-O-Matic when the credit switch is installed.
2. Start the end of the shaft into the bearing.
3. Turn the large gear and the switch so the snap-action switch will clear the brass gear.
4. Slide the shaft into the bearing. As the shaft slides in, turn the gear clockwise so the snap-action switch will be behind the brass gear.
5. Just before the large gear and the smaller drive gear are meshed, turn the gear and switch so the credit solenoid plungers are centered on the snap-action switches. The relative position of the switches and

plungers can be judged most easily with the "10c plunger".

6. When the switches and plungers are correctly centered, mesh the gears by rocking the large gear and seat the shaft in the bearing.

7. Replace the C-washer.

It is recommended that no attempt be made to adjust the snap-action switch springs. They are made of beryllium-copper, to assure long life, and can be very easily broken if an attempt is made to "spring" them for a change of adjustment. The springs are normal if a pressure of 35 to 40 grams applied to the tip of the moving blade will close the switch.

The contact ring on the credit switch and the brush should be cleaned with carbon-tet'. The contact pressure of the brush against the ring will be correct if the brush is pressed-in approximately 1/8" when the credit switch is in place.

REMOVAL OF SELECTOR SWITCH AND SELECTOR DISC

The selector switches and the selector disc may be removed for access to the motor as well as for inspection and thorough cleaning. Proceed as follows:

1. Remove the lock assembly by taking out the four screws marked "B" in Fig. 9.

2. Remove the contact arm.

3. Remove the two screws, holding the selector disc, marked "C" in Fig. 9.

4. Remove the five screws, marked "D" in Fig. 9, holding the reflector plate to which are fastened the selector switches.

5. Tilt the assembly by lifting out at the lower end so the release links and the pins on the release lever will uncouple and turn the links from under the lever.

6. Swing the assembly aside, hinging on the connecting leads on the right side as shown in Fig. 10.

In replacing the assembly, be sure the button release links are engaged with the pins on the release lever and check the position of the connecting wires to be sure they do not interfere with the operation of the motor starting switch on the right hand selector switch assembly.

LUBRICATION

The motor gears should be lubricated with # 105 Lubriplate. Shaft bearings and motor bearings should be lubricated with SAE 10 oil.

The scavenger linkage of the slug rejector can be sparingly lubricated with #105 Lubriplate at wear and friction points, but care should be taken so it does not get into the coin track or on the wiper blade of the rejector. Oil should not be used. The coin track of the rejector should be lubricated with Motor Mica. See Section 9000 of the Manual.

ALIGNMENT

Alignment means adjusting or aligning the Wall-O-Matic oscillator circuit to the same frequency to which the Selection Receiver is aligned. Alignment is made by means of either of the two adjusting screws in the end of the oscillator coil shield can. No change of the adjustment should be made at any time without the aid of a suitable meter for checking the adjustment. To change adjustment on a cut-and-try method is a waste of time and almost invariably results in failure of the Wall-O-Matic to operate properly.

There are two general methods of aligment. One is to adjust the oscillator to a predetermined frequency and then align the Selection Receiver to the Wall-OMatic. This method is described in the instructions for the #503,020 Diode and Frequency Meter, Section 98000 of this Manual. Another method is to adjust or align the oscillator to the Selection Receiver without regard to the frequency. This method is described in "Installation of Wireless Remote Control System" in the General Information section of this Manual. Both methods are acceptable and will insure correct alignment for proper operation.

STEADY SIGNAL

Continuous r.f. output from the Wall-O-Matic is desirable when aligning or checking impulse signal strength at the Selection Receiver. For a continuous output—generally called "steady signal"—turn the lever of the service switch (see Fig. 10) toward the back plate. One pole of this switch (marked S10, Fig. 8) grounds the oscillator cathode circuit for continuous operation of the oscillator. The other pole of the switch connects the oscillator output to the AC line. *Caution: Be sure to reset the service switch to the normal*

position (switch handle toward the front) when the steady signal is no longer needed. If the steady signal is left "on", the entire remote control system will be inoperative.

MOTOR

The motor is designed to operate the Wall-O-Matic through a complete cycle in a little more than 2 seconds. If the motor speed is slow the selection impulses will be slow and cause erratic operation of the step switch assembly in the Selection Receiver. The motor can best be checked for speed by allowing it to operate steadily and counting the turns per minute of the contact arm. Normal speed is 24 revolutions per minute. Acceptable speed limits are 21 to 26 RPM. If the motor is slow, check for excessive binding or friction. It the motor runs slow when there are no binds, it will have to be replaced.

ANTI-CHEAT SWITCHES

The anti-cheat switches, shown as part of the selection switches in Fig. 8, are operated by the latch bars. They open the selection circuit between the selector disc and the cathode circuit of the oscillator tube.

In the rest position of the Wall-O-Matic, when the latch bars are in a position that permits the selection switches to move freely in and out, the anti-cheat switches are open. The switches close when the latch bars lock the selection switches. If the Wall-O-Matic is mounted on an uneven surface, the selection switches can be misaligned enough to cause binding of the latch bars so they fail to fully close the anti-cheat switches. For this reason, the switches are "shorted out" with jumpers when the Wall-O-Matic leaves the factory.

In normal operation, if the anti-cheat switches are in use but do not close, no selection will be had regardless of what selection is made. The correction for this is to free the latch bars of possible binding, cleaning and adjusting the switches, or using jumpers to eliminate the switches.

6C4 TUBES

The tubes are interchangeable. One tube is connected as an oscillator, the other as a rectifier. A measure of their quality can be had by measuring the strength of the generated signal at the Selection Receiver with a diode meter or with a voltmeter at the Wall-O-Matic under steady signal conditions. To measure the voltage when the tubes are not delivering a steady signal is no index of their quality.

To use the voltmeter, set up a steady signal and measure the voltage from ground (negative) to the terminal of the filter condenser (positive). The voltage, with normal conditions, should be approximately 195 volts, as read with a 1000 ohm per volt (or higher resistance) voltmeter. Much more or less than this would indicate a weak or defective tube (or tubes) or a defective filter condenser.

To use the diode meter, set up a steady signal and plug in the meter at the Selection Receiver. If a tube is weak, a serviceable replacement will effect a higher meter reading. If a tube is "dead", there will be no meter reading and replacement should give immediate indication on the meter. The result of the tube replacement is checked more efficiently by checking the diode current at the Selection Receiver although the method is not as convenient as checking with a voltmeter at the Wall-O-Matic.

FILTER CONDENSER

A "dried out" filter condenser is reflected by low voltage at the Wall-O-Matic and by a lowered reading of the diode meter at the Selection Receiver. Bridging the condenser with one known to be good will show an increase of meter reading with either test. A leaking or shorted filter condenser will allow no appreciable increase in meter reading when bridged with a good condenser but the rectifier tube—the tube on the left—will be hotter than normal.

Further tests of the tubes and of the filter condenser can be made by a current test to the oscillator tube. With the Wall-O-Matic in the rest position, connect a milliameter between one of the six contacts at the start of the contact arm sweep (positive—100 ma. range) and the Wall-O-Matic frame (negative). Under normal conditions the current reading will be 8 to 14 ma. Less than this would indicate a weak oscillator

tube or rectifier tube or a defective filter condenser. A higher current—18 ma. or more—associated with low voltage, indicates a defective oscillator tube or some defect in the oscillator coil or circuit.

SELECTION SWITCHES

Failure of the selection switches to operate properly results, usually, in wrong selection. Continuity of the switches can be checked from the contacts on the selector disc. There should be a circuit between the first and last contact (in terms of contact arm rotation) when all the switches are in the normal rest position. A check of this can be made with an ordinary ohmmeter. THE LINE CORD SHOULD BE DISCONNECTED DURING THIS TEST. Connect the ohmmeter to the first and last contacts (see Fig. 15). Continuity should be indicated. An open circuit would indicate failure of one of the selection switches to make proper contact. Trace for an open circuit by connecting the ohmmeter to the first contact on the disc and to each contact in turn beginning with the second contact. A contact will be found where continuity is had but the next one and all beyond it will show no circuit. Numbering the contacts beginning with the first one, if the first open contact is #7, the #1 selection switch is not closing or there is a break in the wire from the #1 contact to the selector switch. If the first open contact would be #10 (for example), a defective #4 selection switch is indicated. If continuity is had to all the contacts except one, check for a broken connection between that contact and the selection switch.

The switches should be free from binding and the switch shafts should be straight. The latch bars should move freely.

COIN SWITCHES

Adjustment of the coin switches is shown in Fig. 13. Access to the coin switches is had by moving the coupling condenser (Fig. 10) or by removing the selector switch and selector disc assembly.

MOTOR, SHORTING, AND OUTPUT SWITCHES

Adjustment of the motor, shorting, and output switches (shown in Fig. 14) is made as follows with the release cam and release lever pawl in the relative positions shown in Fig. 15:

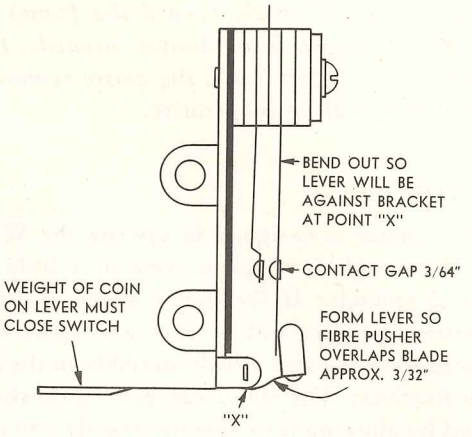

FIG. 13

1. Adjust the long blades of the switches so they bear to the right against the brass stud on the switch lever.
2. Adjust the contact gaps as shown in Fig. 14 by bending the short blades.
3. Adjust the pressure of the long blades (to the right) so the short blades will move approximately 1/32" to the right when the contacts close.
4. Readjust the contact gaps as required.
5. Check the adjustment by operation. The motor should stop with the release cam and lever pawl as shown in Fig. 15.

CONTACT ARM

1. Set the position of the contact arm on the shaft so it comes to a stop at the end of an operating cycle with the tip approximately midway between the first and last contacts on the selector disc as shown in Fig. 15.
2. The hub of the contact arm should be flush with the end of the shaft.
3. The contact point on the arm should press lightly against the surface of the selector disc. Adjustment for correct pressure can be made by forming the arm so the contact is just touching the surface of the disc when the hub is raised 1/16" to 1/32" from the normal flush position.
4. The contact end of the arm should be parallel with the surface of the disc when the point is centered on a contact.

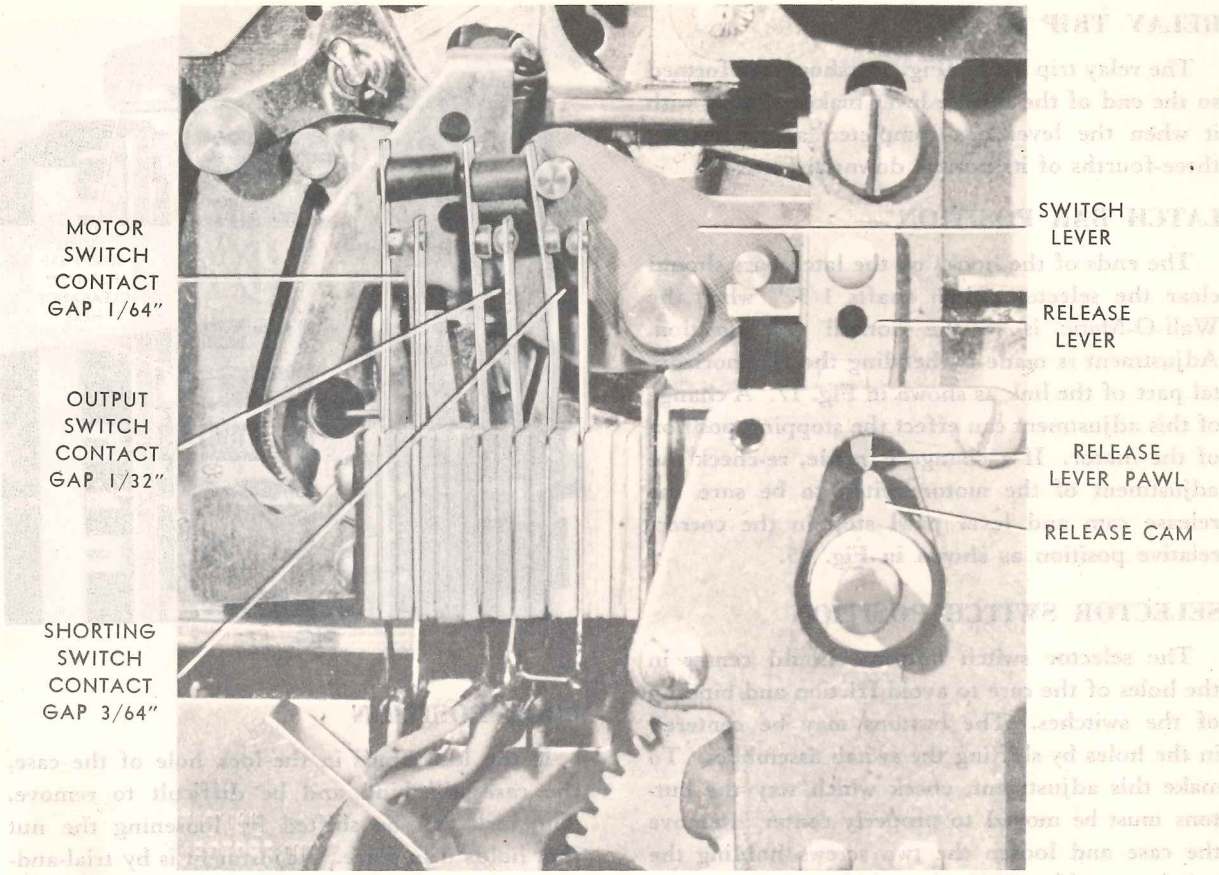

FIG. 14 MOTOR SHORTING AND OUTPUT SWITCHES

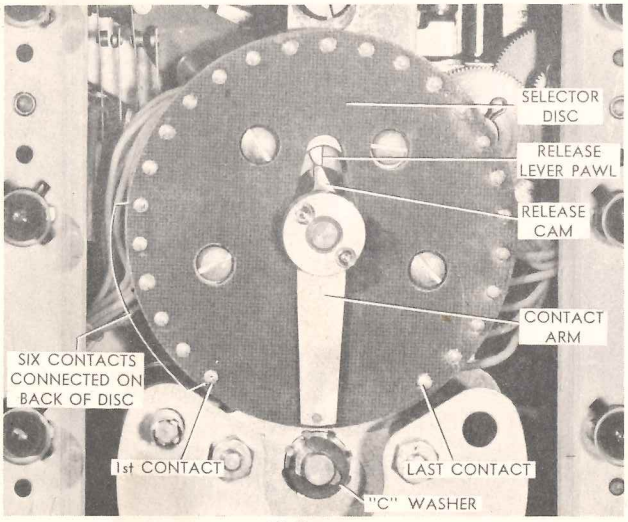

FIG. 15

MOTOR STARTING SWITCHES

The motor starting switches are accessible by removing the selector switch and selector disc assembly. They should be adjusted so the contacts do not close until the selector switch button is pressed almost all the way down. Adjustment in this manner will avoid starting the motor before the selector switch is pressed in far enough for the latch bar to engage and hold it. The final adjustment of the switches should be checked with each selector switch because of the possibility of a bowed actuating bar. A low place on the bar could cause failure of the motor starting switch to close.

INTERLOCK RELAY

Adjustment of the Interlock relay is shown in Fig. 16.

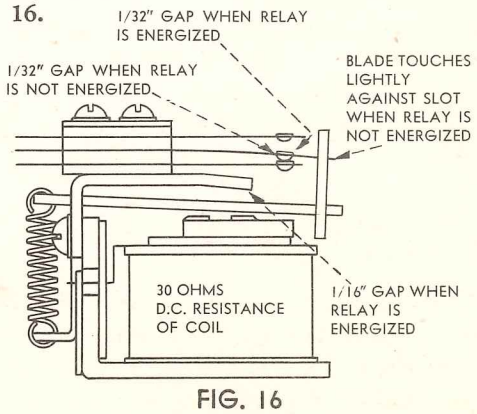

FIG. 16

RELAY TRIP BLADE

The relay trip blade (Fig. 10) should be formed so the end of the release lever makes contact with it when the lever has completed approximately three-fourths of its normal downward travel.

LATCH BAR POSITION

The ends of the hooks on the latch bars should clear the selector switch shafts 1/32" when the Wall-O-Matic is in the normal rest position. Adjustment is made by bending the flat horizontal part of the link as shown in Fig. 17. A change of this adjustment can effect the stopping position of the motor. If a change is made, re-check the adjustment of the motor switch to be sure the release cam and lever pawl stop in the correct relative position as shown in Fig. 15.

SELECTOR SWITCH POSITION

The selector switch buttons should center in the holes of the case to avoid friction and binding of the switches. The buttons may be centered in the holes by shifting the switch assemblies. To make this adjustment, check which way the buttons must be moved to properly center. Remove the case and loosen the two screws holding the switch assembly. Shift the switch and tighten the screws. Adjustment is a trial-and-error procedure.

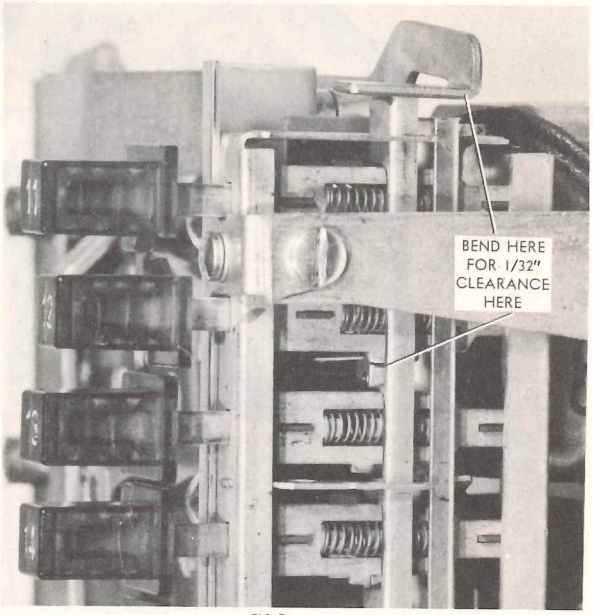

FIG. 17

LOCK POSITION

If the lock binds in the lock hole of the case, the case will bind and be difficult to remove. The lock can be shifted by loosening the nut that holds it in place. Adjustment is by trial-and-error, observing with the case in place, which way the lock must be shifted.