

SERVICE MANUAL and PARTS LIST

ROCK-OLA

Phonette
Wall Box

MODEL 500
160 Selections

MODEL 501
100 Selections

ROCK-OLA MANUFACTURING CORPORATION

800 N. KEDZIE AVE., CHICAGO, ILL. 60651

■ PHONETTE SPEAKER OPERATION

Connect the Phonette audio leads to the 11 contact terminal block only. Set the Phonograph controls as shown below.

Stereo-Monaüral switch to Stereo position.

Number of Phonette's used.	Main Stereo or Machine Speakers Power Switch position.	Machine speakers Pad position.
1 to 2	18 Watt	Adjust for desired balance of loudness between the Machine Speakers and Phonette Wall Box Speakers.
3 to 5	12 Watt	
6 to 8	8 Watt	
9 to 12	4 Watt	

The Model 501 Wall Box is designed to operate with a Rock-Ola 100 selection phonograph and Model 500 with a 160 selection phonograph. Both models are audio type and are operated on 24 volts, 60 cycle that is supplied from the signal generator in the Receiver Unit. The Program Lights and Select Lights are type #47 lamps, operated from the 6 volt tap on the Auto Transformer in the Wall Box. It requires a 11 wire cable to do the following:

1. Four (4) wires are required to supply power to the Wall Box. Two (2) of the four wires supply power to the Gear Motor, Auto Transformer, Relays and the Accumulator Check-Off Solenoid. The third wire is a over-lapping lock-out circuit from the Receiver to the Lock-Out Relay. The fourth wire in conjunction with one of the power circuit wires constitute the Signal circuit that keys the Receiver Unit.
2. Four (4) wires to operate the Wall Box Audio System. Three (3) of the wires operate the left and right channel wall box speakers. The fourth wire establishes a "locking" circuit from the phonograph to the Audio Control Relay in the Wall Box. This allows speakers to be ON in that particular wall box that is registering a selection. The wall box Volume Level is controlled by the customer thru the use of an external 3 Position Volume Control Switch.
3. The last three (3) wires are Coin counting

circuits from the wall box to the Wall Box Adapter mounted in the Coin Counter Unit. (This equipment is optional.)

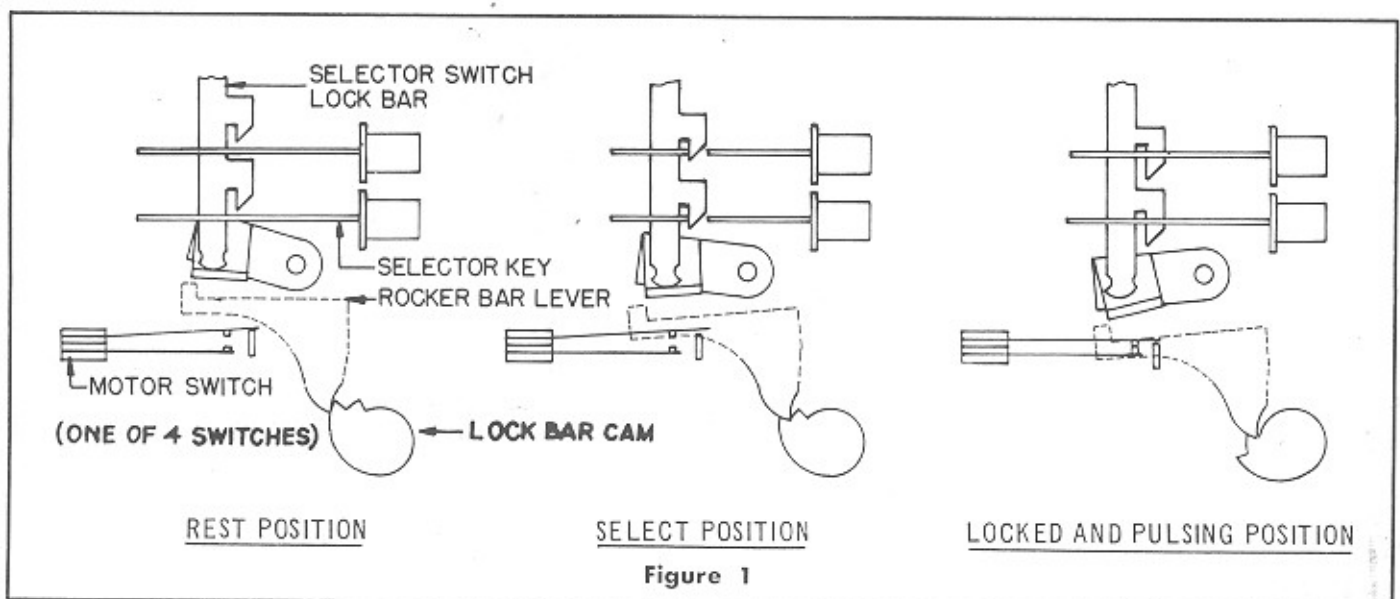
The wire inter-connecting cable should not be smaller than #18 gauge (for each wire) in order that the voltage drop from the phonograph to the wall boxes be kept to a minimum. Do not use excessively long lengths of cable (80 ft. max. for #18 gauge) and do not connect more than six wall boxes to any one length of cable.

The 25 volt signal transformer in the Receiver Unit is capable of supplying power to 12 Wall Boxes. Using more than this number of boxes may result in burning out the 3 Amp. Fustat on the Receiver Unit, or the prolonged heating of the transformer may cause it to fail.

The operation of the 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 the connected contacts on the Contact Biscuit Assembly. (Sequence Diagrams of the wall box operation are shown starting with Page 8.)

Pressed on the shaft of the gear motor is a Cam Cluster which is used to perform operations as follows:

1. The bottom cam operates the pushbutton switch Lock Bar.



2. The center cam operates an Anti-Cheat Switch and four Motor Carry-over Switches. (See Fig. 3)

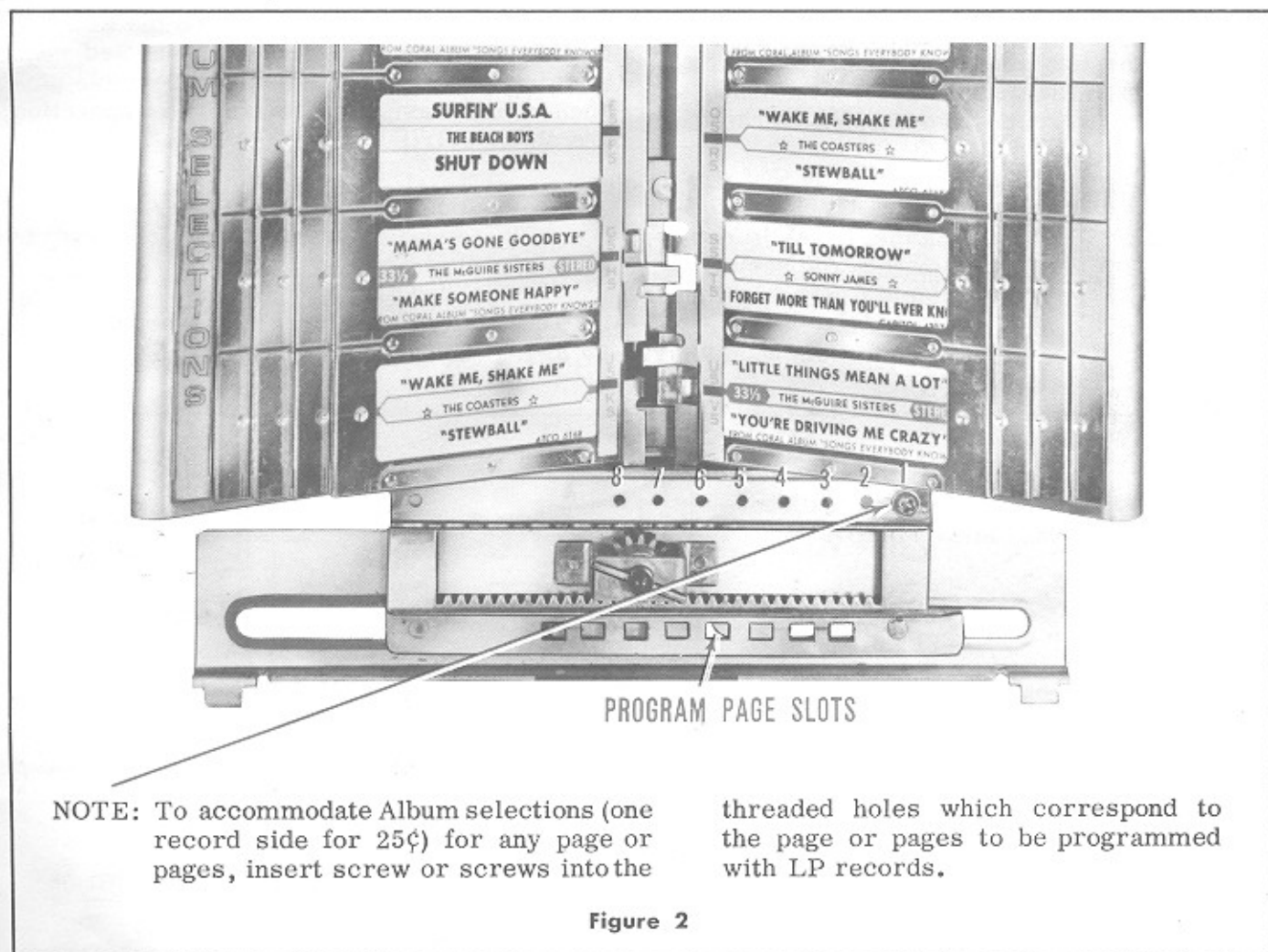
There are three important positions of the cam cluster for each cycle, namely, the Rest Position, Select Position, and the Locked and Pulsing Position. These positions are shown in Fig. 1.

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

When a credit is established by a deposited coin, the circuit to the gear motor is completed through the accumulator switch contact and the grounded contact wiper. The contact

wiper is then rotated away from the contact plate, 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 pushbutton is pressed the circuit to the gear motor is again closed causing the lock bar to drop to its lowest position. This is the Locked and Pulse position. As the contact wiper rotates, a train of pulses corresponding to the selection made, are transmitted to the Receiver Unit. Simultaneously, a mechanical "page latch" is moved forward engaging the program page slot. (See Fig. 2) This action prevents pages being turned during the selection pulsing cycle.



In completing its cycle, the lock bar 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 short contact wiper will come to rest on the contact plate and the cam cluster will resume its Rest Position. On the other hand, if more than one credit was established, the wiper will not rest on the contact plate, but will move past it and come to rest at the Select Position. The cycle will then again be repeated when a selector button is pressed.

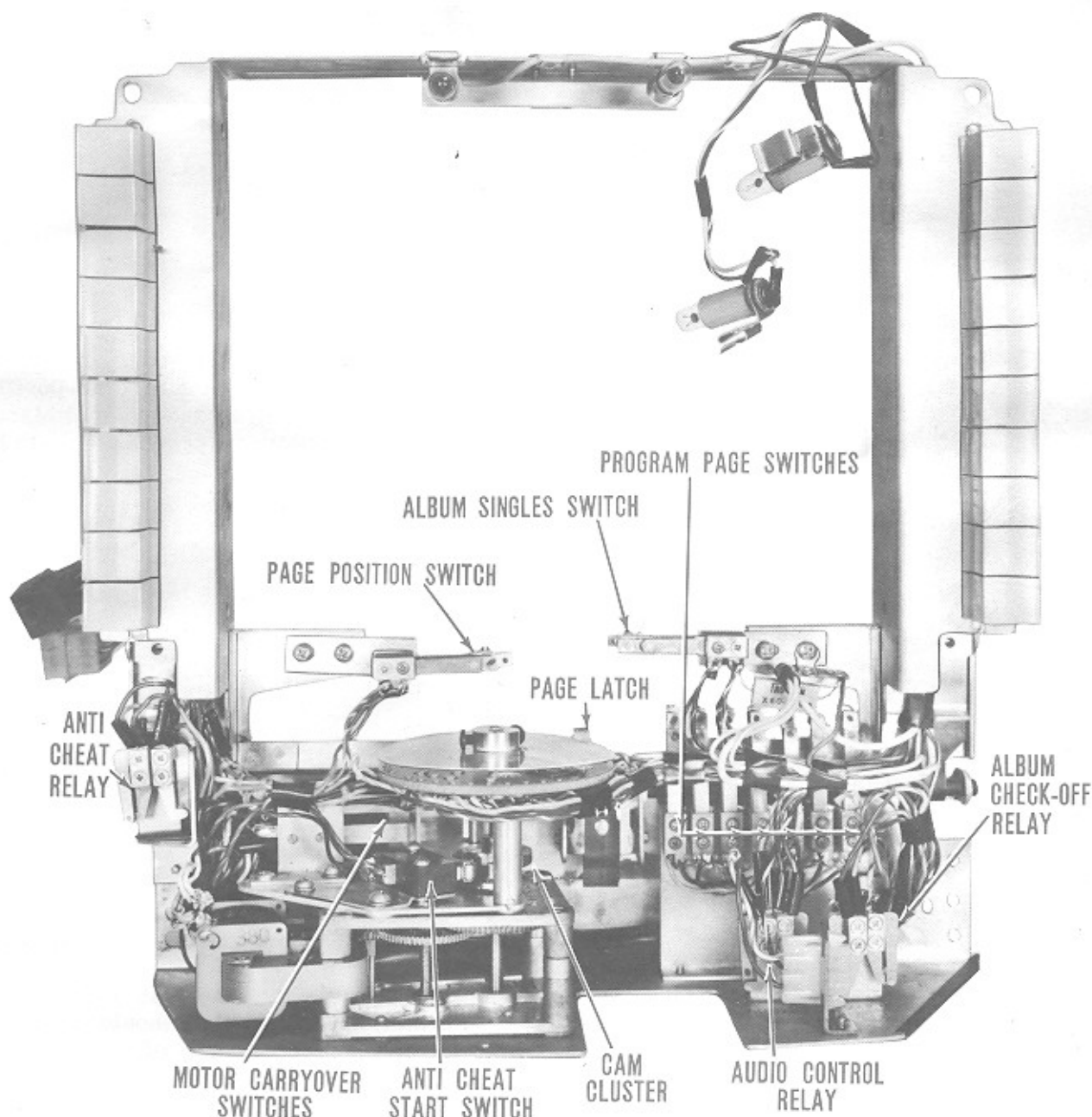


Figure 3

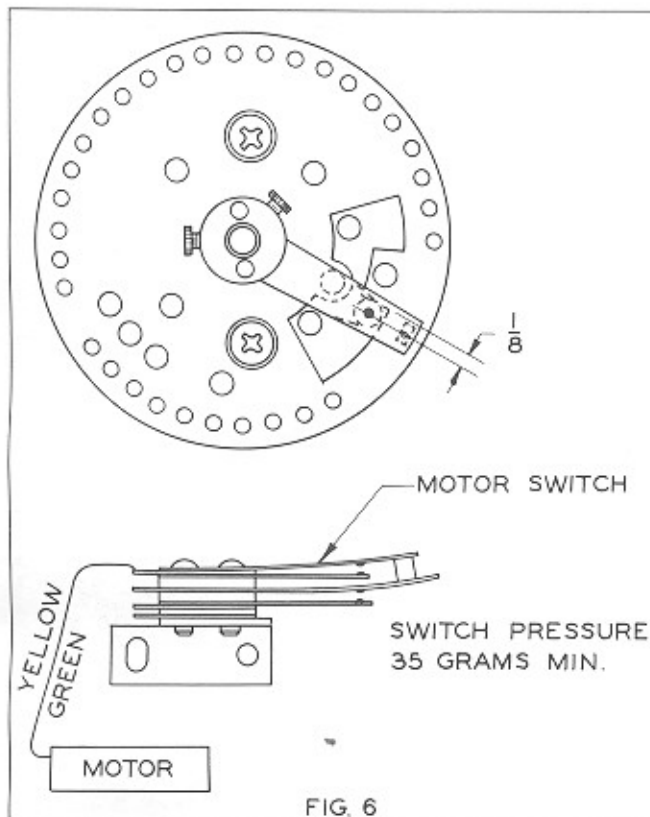


FIG. 6

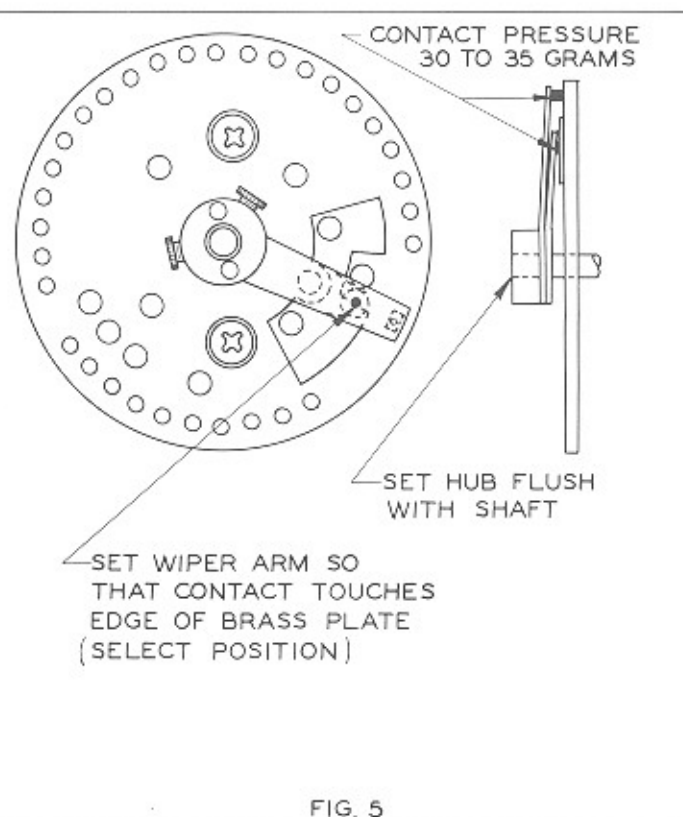


FIG. 5

■ GEAR MOTOR

The gear motor is designed to operate at a normal speed of 20 revolutions per minute. The acceptable speed tolerances are between 19 and 21 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.

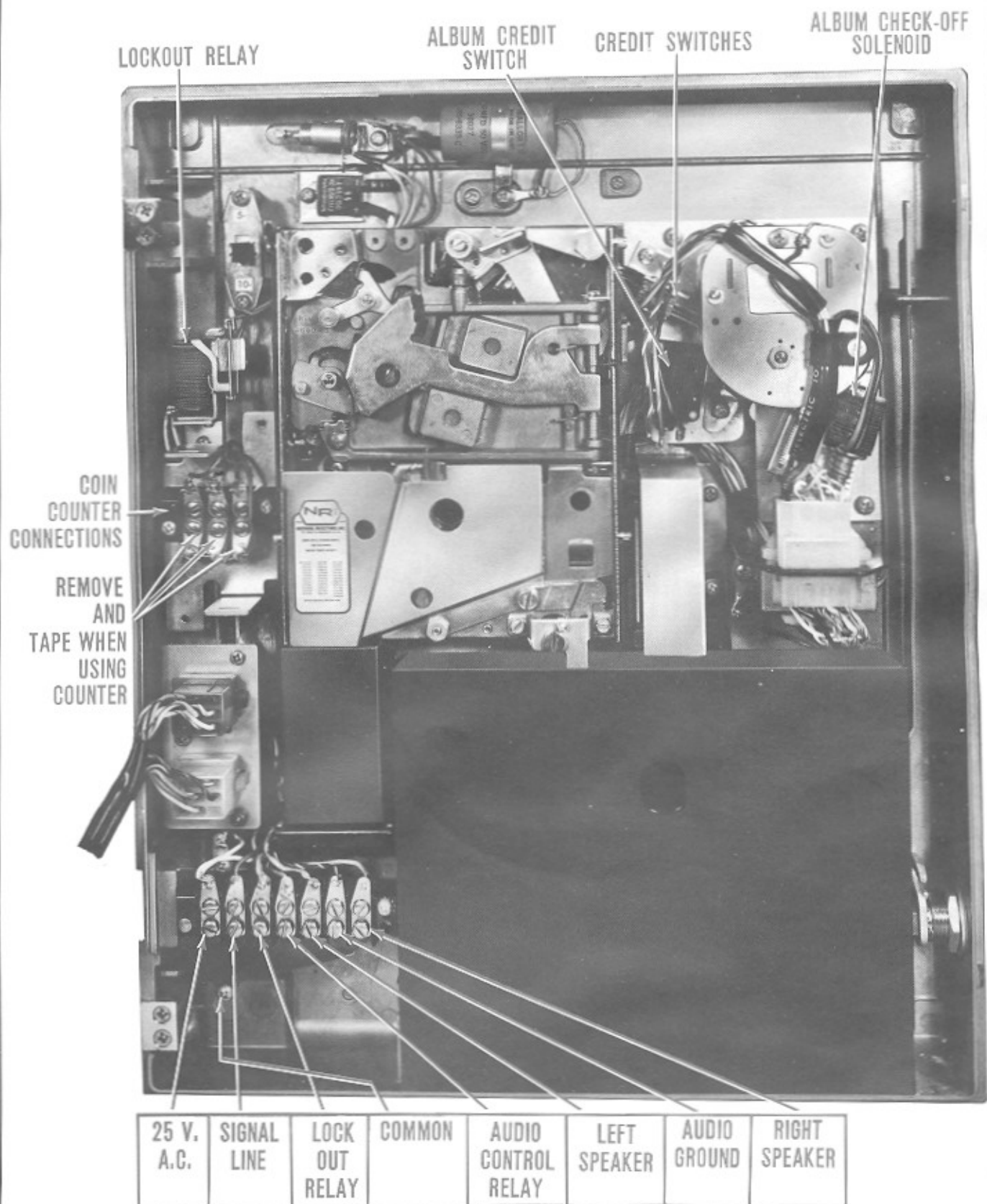
The cam cluster of the gear motor should be lubricated with #105 Lubriplate, and the shaft bearings with a drop of S.A.E. 10 motor oil. Never lubricate the motor clutch mechanism.

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 wiper arm on the gear motor shaft so that the center of the contact of the short wiper arm rests on the edge of the lower left side of the "U" position of the contact plate. Set hub flush with shaft. (See Fig. 5.)
3. Tighten the set screws in the collar of the contact wiper arm, and adjust the contact wiper arm pressure to approximately 40 grams on both contacts. (See Fig. 5.)
4. The motor switch pressure is 35 grams minimum. The switch should be adjusted to open when the center of the contact of the short wiper arm comes to rest about 1/8" before it reaches the edge of the lower left side of the "U" position of the brass contact plate. (See Fig. 6.)



LOCKOUT RELAY

ALBUM CREDIT SWITCH

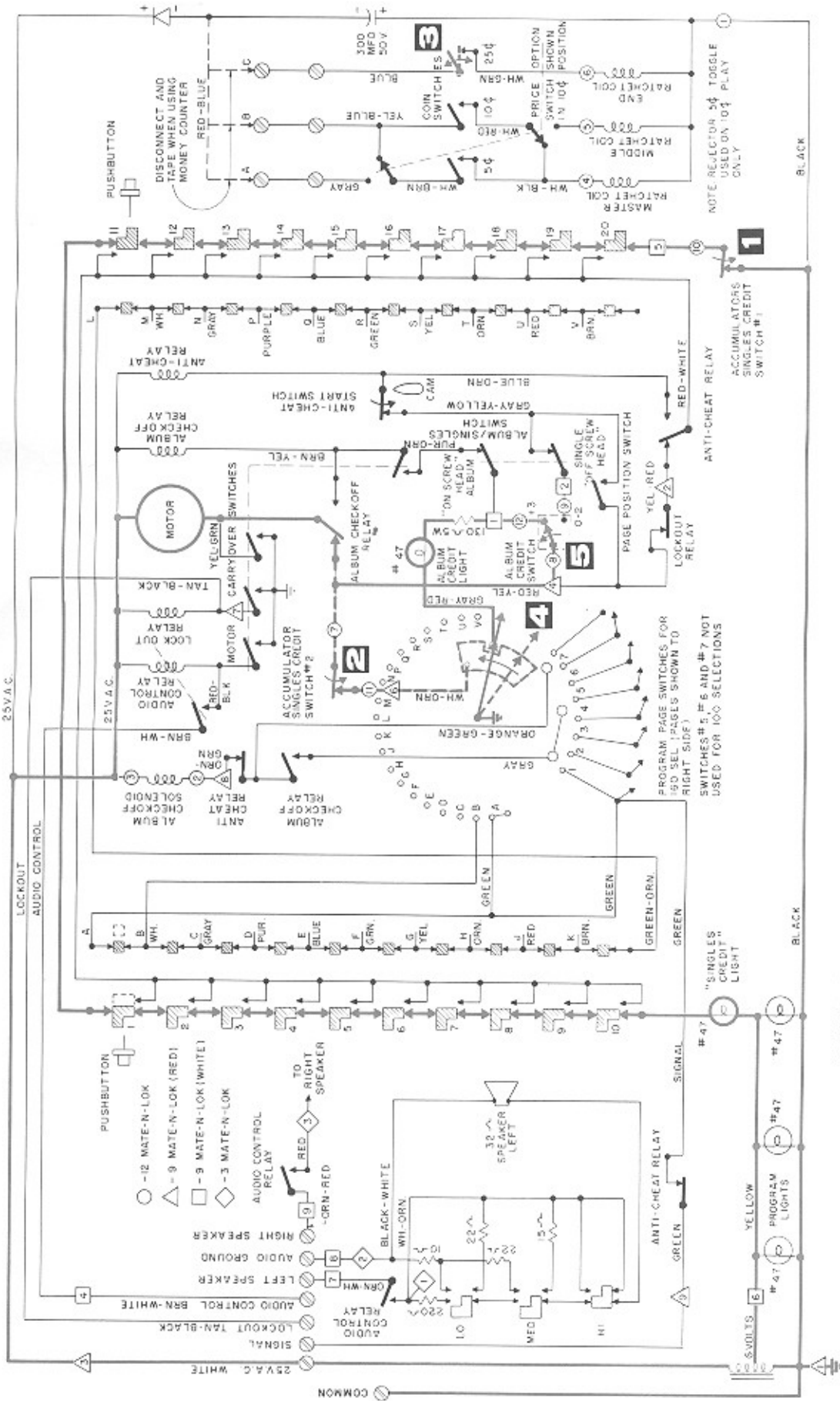
CREDIT SWITCHES

ALBUM CHECK-OFF SOLENOID

COIN COUNTER CONNECTIONS

REMOVE AND TAPE WHEN USING COUNTER

25 V. A.C.	SIGNAL LINE	LOCK OUT RELAY	COMMON	AUDIO CONTROL RELAY	LEFT SPEAKER	AUDIO GROUND	RIGHT SPEAKER
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MODEL 501-100 SELECTION - MODEL 500-160 SELECTION WALLBOX

■ SEQUENCE NO. 1-25c COIN DROPPED

After the coin passes through the slug rejector, the 25¢ coin switch No. 3 is pulsed, closing circuit to the proper electro magnet in the accumulator. This allows the master ratchet to escape three teeth. Each tooth represents a "single" play. The released ratchet will:

- (a) Close accumulator Credit Switches No. 1 and No. 2 and,
- (b) actuate the Album Credit Switch No. 5 to a "3 or more" credit position.

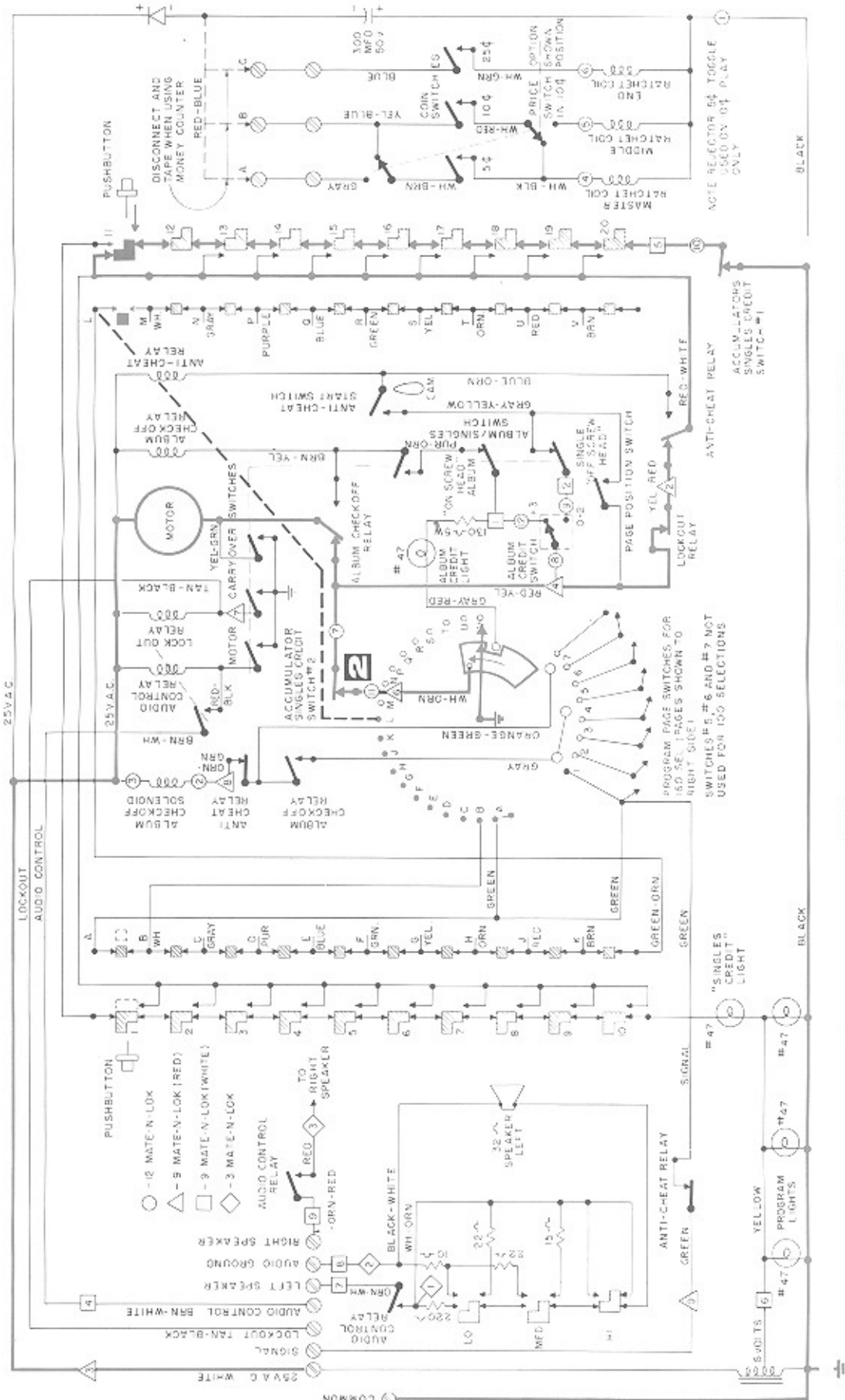
Accumulator Credit Switch No. 1 completes a circuit to the "Single Credit" light through the pushbuttons' switches.

Accumulator Credit Switch No. 2 completes a circuit to the gear motor through the grounded Wiper Contact No. 4.

The Wiper is rotated away from the Contact Plate to the notched portion, thereby breaking the circuit to the motor. This is the Select Position and allows the Selector Button to lock immediately upon being pressed.

The Wiper in the notch contacts the Album Credit Light Rivet which completes a circuit to the lamp through the Album Credit Switch No. 5.

The customer can now make one Album Selection or three Single Selections.



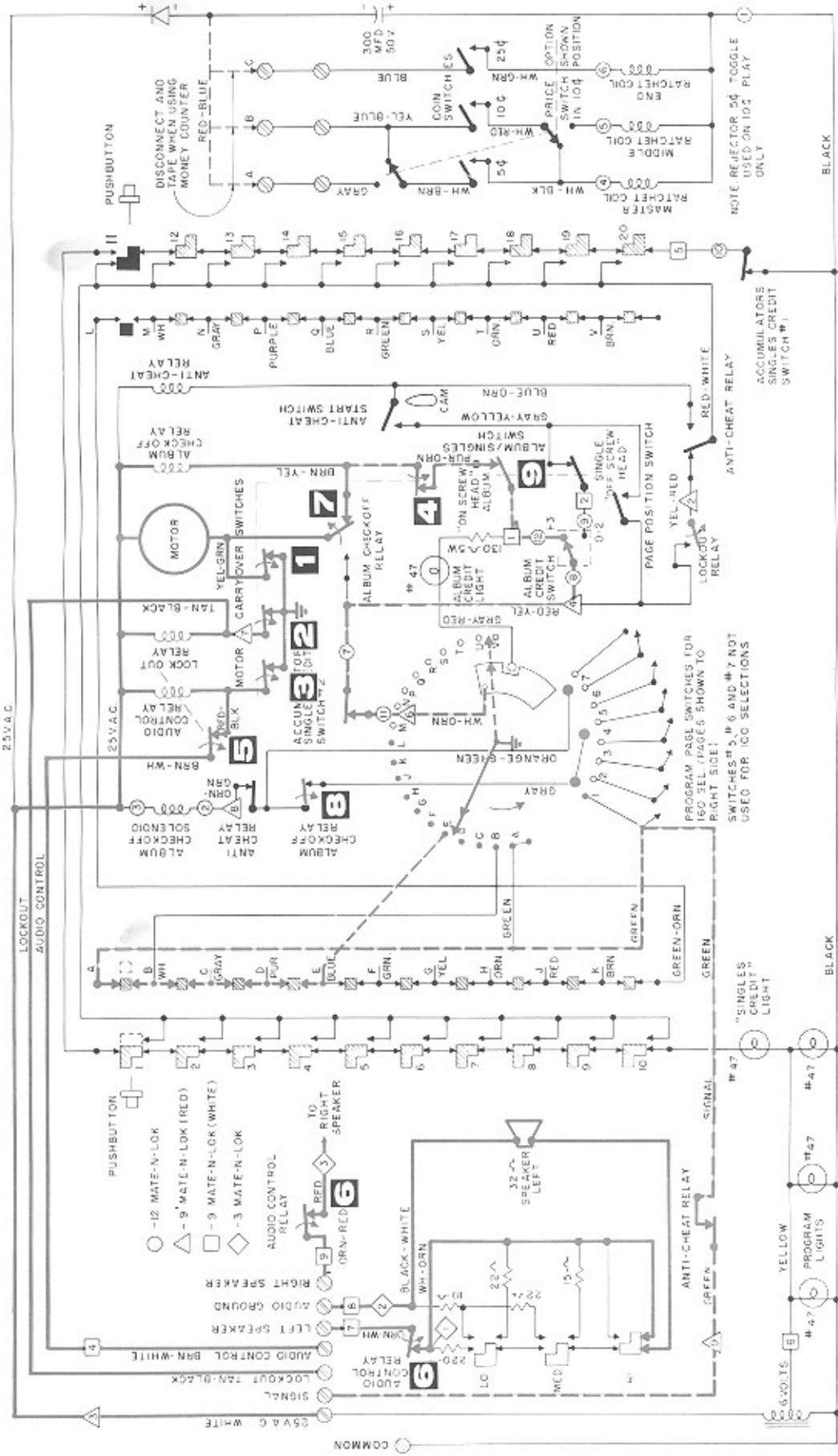
MODEL 501-100 SELECTION - MODEL 500 - 160 SELECTION WALLBOX



■ SEQUENCE NO. 2—ALBUM RECORD SELECTED (EXAMPLE—NO. 11)

When the push button is pressed, the circuit to the gear motor is closed through the center contacts of the PB switches. The Wiper rotates across the brass plate, connecting a momentary holding circuit to the motor

through the Accumulator Credit Switch No. 2. Simultaneously, the PB Lock Bar drops to its lowest position, locking the selected button and Program Pages. This is the Locked and Pulsing Position.



MODEL 501-100 SELECTION - MODEL 500 -160 SELECTION WALLBOX

■ SEQUENCE NO. 3—FIRST TRAIN OF PULSES START—WALLBOX SPEAKERS OPERATE

The rotating motor causes the center cam on the cam cluster to close four (4) Motor Carry-Over Switches. Their function is as follows:

Switch No. 1 is a motor holding circuit which provides for a complete revolution.

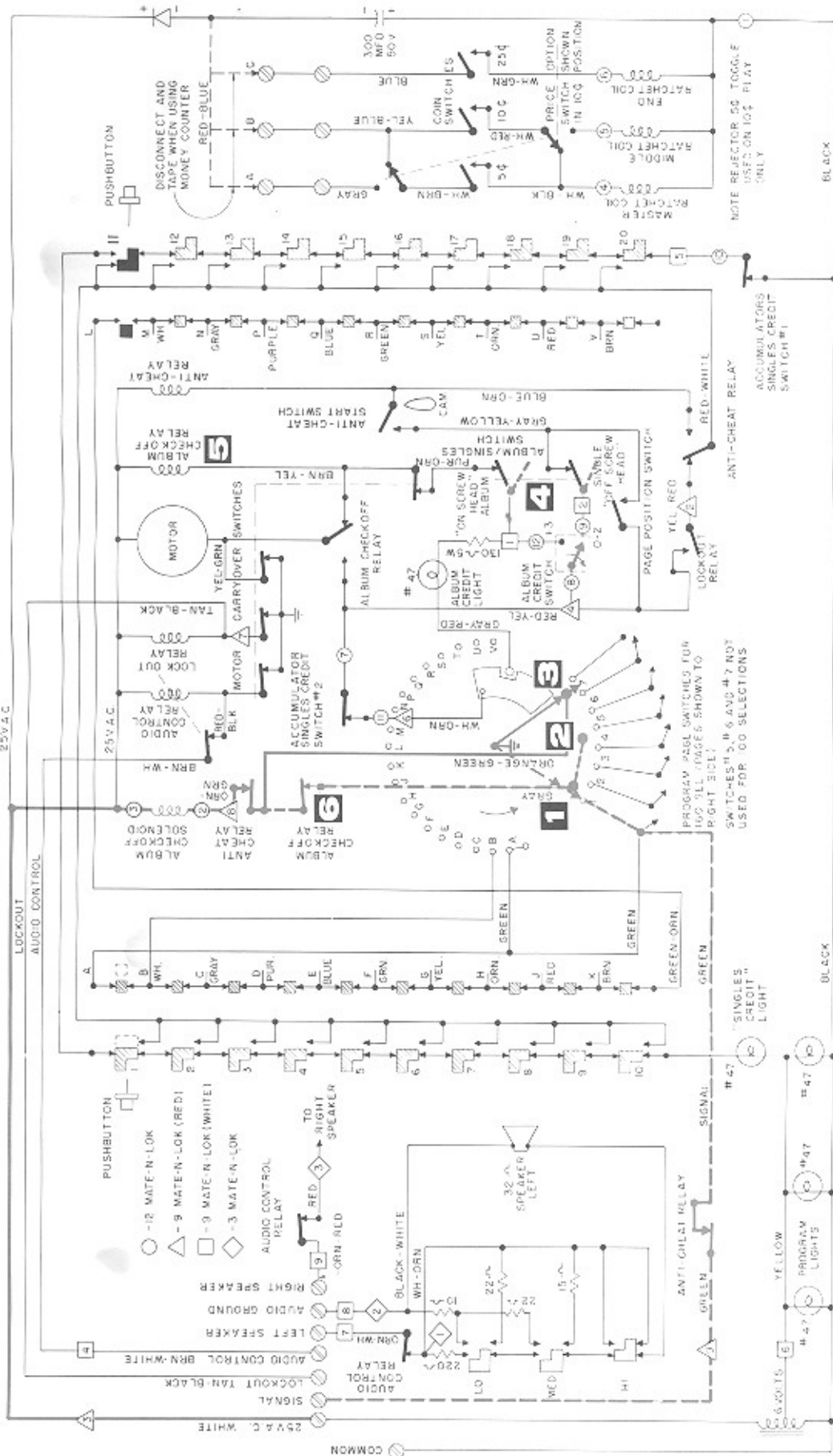
Switch No. 2 completes a circuit to every Wall Box Lock-Out Relay in the system. This "holds" all Wall Box selections in abeyance except the one that is in operation until the receiver and write-in system have registered a selector lever.

Switch No. 3 operates the Audio Control Relay which will connect audio circuits to the wall box speakers

through the closed audio control relay contacts No. 6. Contact No. 5 connects holding circuit to the audio control line from the phonograph.

Switch No. 4 energizes the Album Check-Off Relay through Album/Singles Credit Switch No. 9, which "locks up" through its own transferred relay contact No. 7. Closed contact No. 8 connects accumulator check-off circuits to the disc contacts.

NOTE: If the phonograph is in a Music Cycle during the time the Wall Box is registering a selection, the audio system to that wall box will be connected for the duration of all selections registered on the phonograph selector.



MODEL 500-100 SELECTION - MODEL 500-160 SELECTION WALLBOX

NOTE REJECTOR 50 TOGGLE SWITCH ON 10¢ PLAY ONLY

PROGRAM PAGE SWITCHES FOR 10¢ ALL PAGES SHOWN TO RIGHT SIDE! SWITCHES #5, #6 AND #7 NOT USED FOR 00 SELECTIONS

DISCONNECT AND TAPE WHEN USING MONEY COUNTER

25VAC

LOCKOUT AUDIO CONTROL

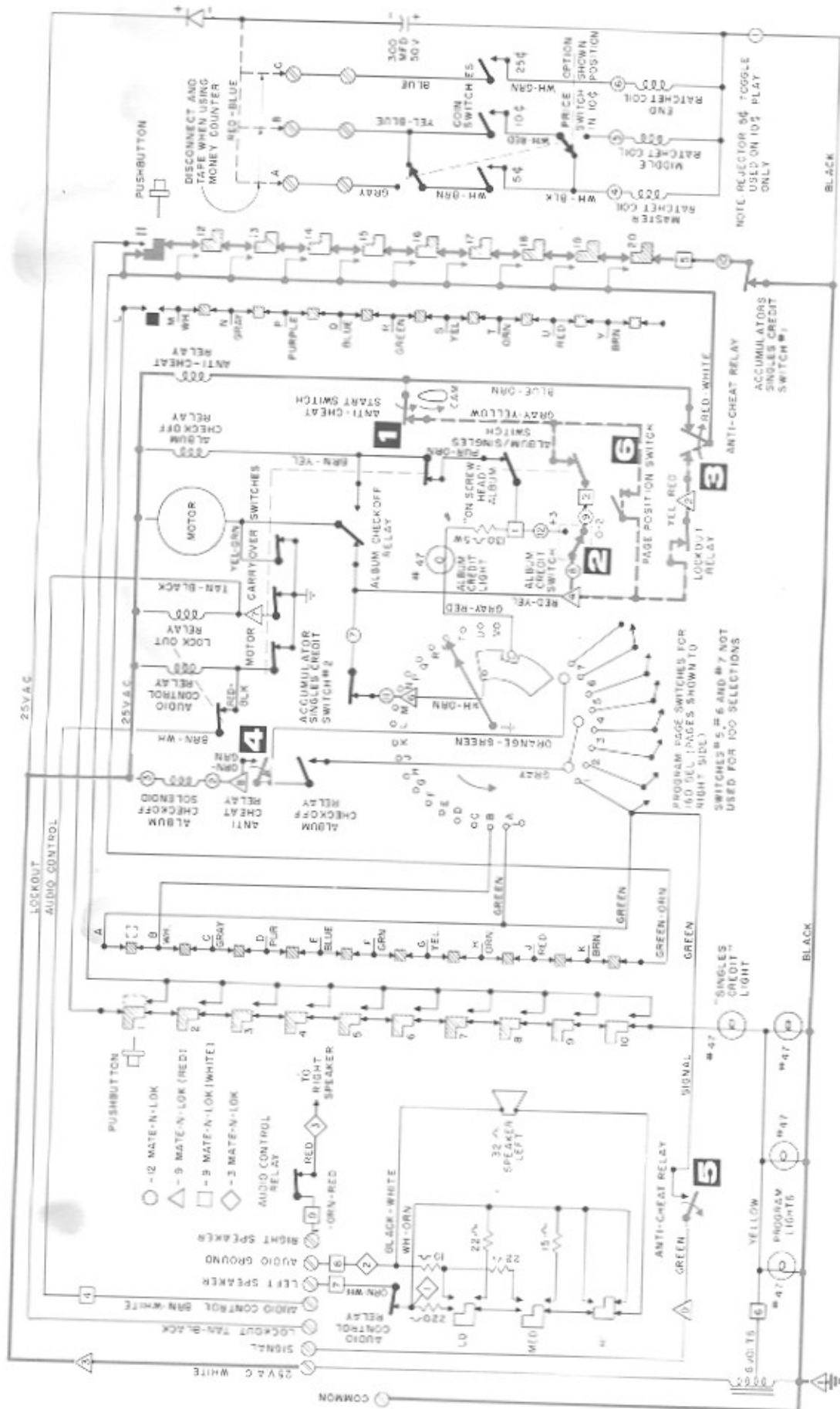
25VAC WHITE

COMMON

■ SEQUENCE NO. 4—SECOND PULSE TRAIN BEGINS—3 CREDITS REMOVED FROM ACCUMULATOR

During the second pulse interval, the inner wiper strikes contacts No. 1, No. 2, and No. 3. Each contact provides a pulse to the Album Check-Off Solenoid, thereby removing three credits from the Accumulator. At the same time, the Album Credit Switch is reset to "Singles" play only. The cycle is completed when the Wiper Arm comes to rest on the notched plate.

NOTE: In the event a "Singles" record had been selected, the Album/Singles Switch No. 4 would be off the "screw head". This disconnects the circuit to the Album Check-Off Relay No. 5, allowing relay contact No. 6 to remain open. The Album Check-Off Solenoid would now operate once through disc contact No. 3, removing only one credit from the accumulator.



■ SEQUENCE NO. 5—LESS THAN 3 CREDITS ESTABLISHED—ALBUM SELECTION MADE

To play an Album selection, the electrical circuits require that the Album Credit Switch No. 2 must be transferred whenever three or more credits are established on the Accumulator. If less than three credits are registered, the Album Credit Switch will remain in a "Singles" credit position only.

Any Album selection now made will energize the Anti-Cheat Relay through the cam operated Anti-Cheat Start Switch No. 1. (This will cause a "dry run" to occur, the object of which is to release the depressed PB without removing credit or entering a selection in the phonograph. The energized Anti-Cheat Relay will transfer contacts No. 3, No. 4, and No. 5.

Switch No. 3 becomes a holding circuit to the anti-cheat relay for the duration of the motor rotation.

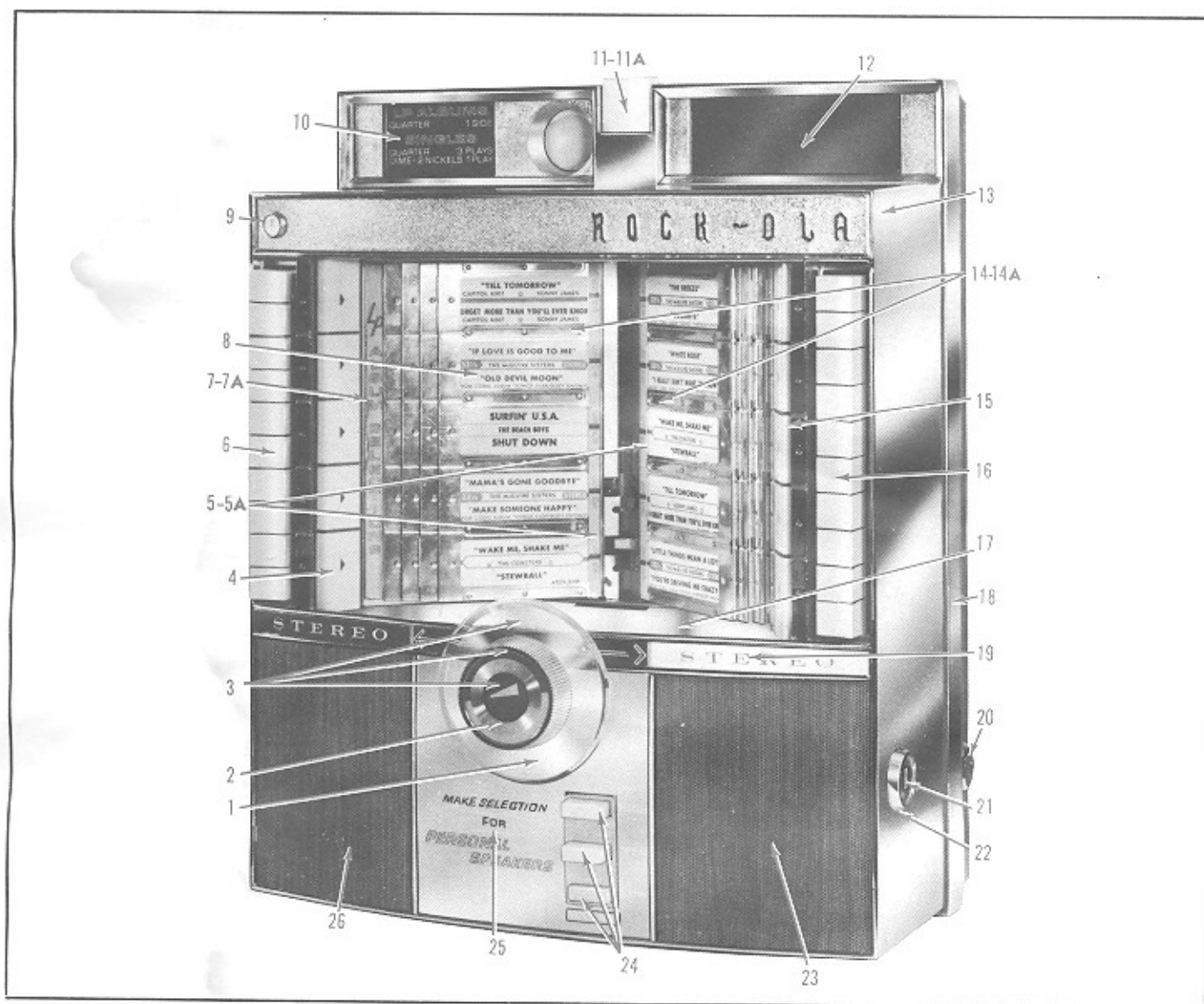
Switch No. 4 disconnects the credit check-off circuit

from the disc to the check-off solenoid to prevent the removal of credits from the Accumulator.

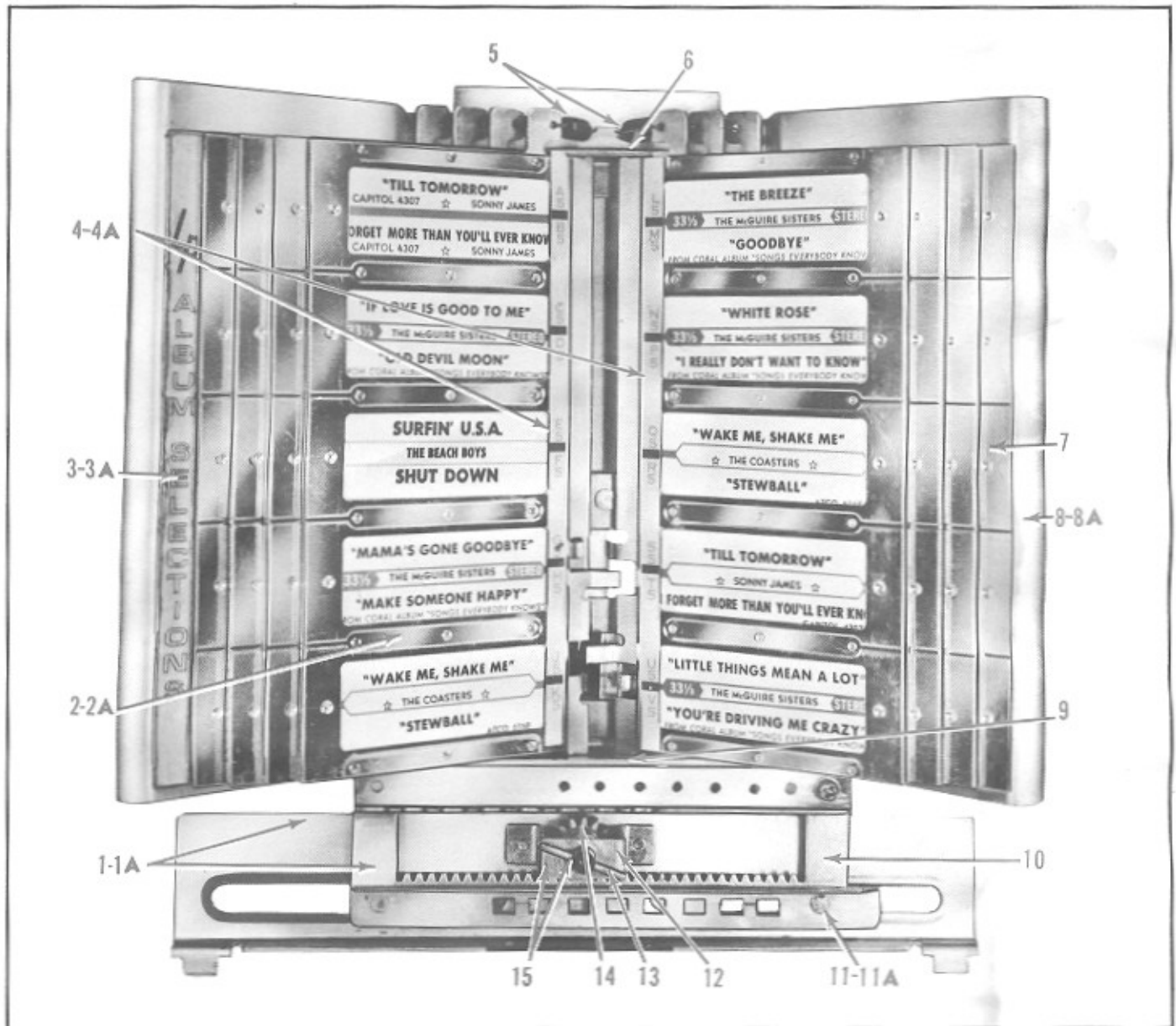
Open Switch No. 5 disconnects pulsing circuits to the Receiver during the Wiper rotation on the disc.

After completion of the motor rotation, the depressed push button is released. The customer may now add coins to re-select an Album selection or make "Singles" selections.

NOTE: The above cycle also prevails if the customer makes a selection while the Program Pages are not in a flat position. The position of the page determines whether the Page Position Switch No. 6 is closed or open. If closed, the Anti-Cheat Relay will operate, thus preventing the customer from receiving a wrong selection.

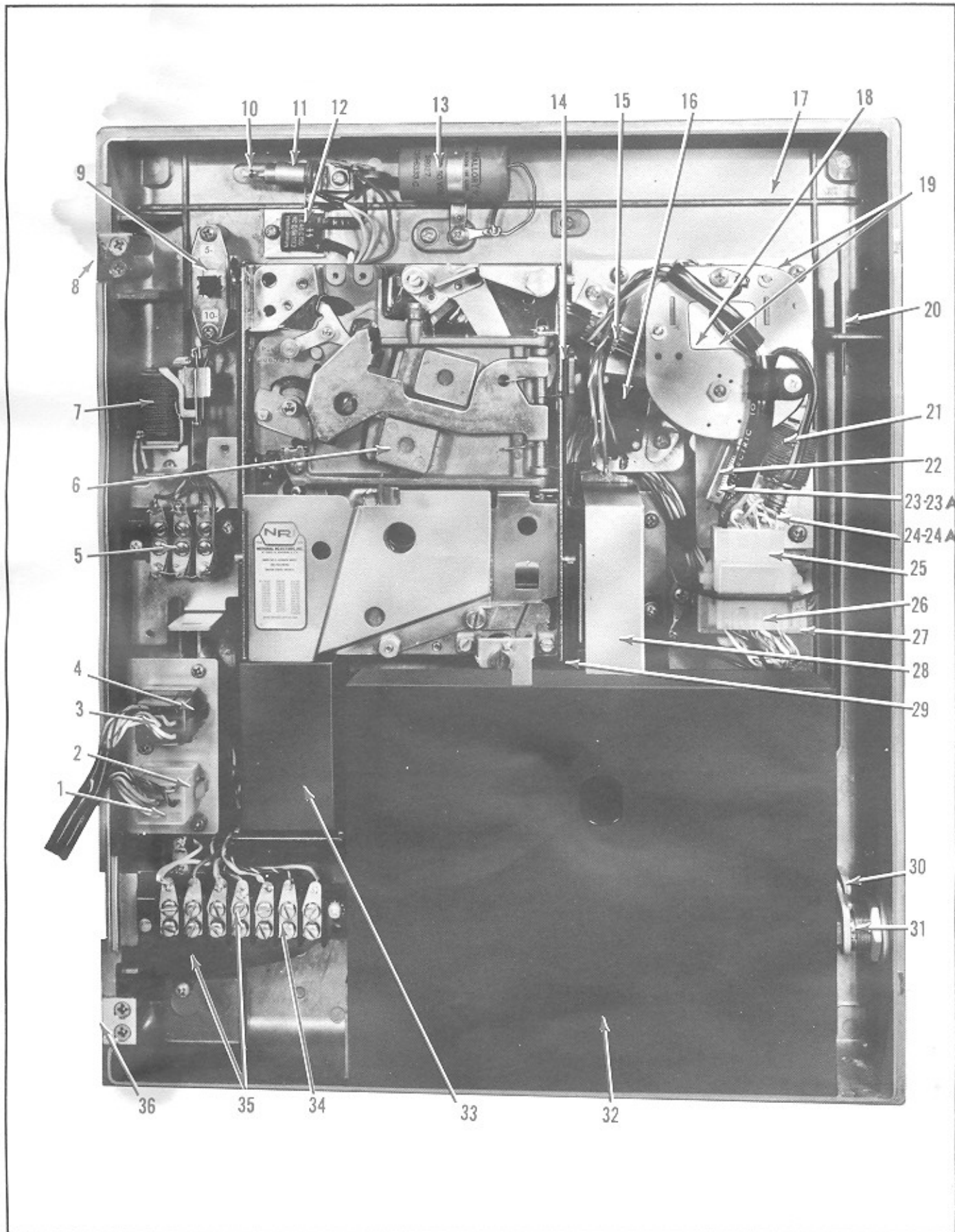


Item	Part No.	Description	Item	Part No.	Description
1	37052-2	Program Knob Disc	13	37562	Wall Box Front
2	37586	Program Knob Insert	14	37655-A	Program Holder Assembly (160 Selection)
3	37650-A	Program Knob & Disc Assembly	14A	37730A	Program Holder Assembly (100 Selection)
4	37003-2	Glass Extrusion (L.H.)	15	37002-2	Glass Extrusion (R.H.)
5	37577	Index Tab (160 Selection)	16	37048	Key Switch Button
5A	37576	Index Tab (100 Selection)	17	37705-A	Bottom Dress Plate Assembly
6	37048	Key Switch Button	18	37563	Wall Box Back
7	37578	Album Indicator Strip	19	37589	Stereo Insert
7A	37644	Single Indicator Strip (Not Shown)	20	ST-7416	Lock & Key
8	37050	Wall Box Window	21	37587	Side Emblem Insert
9	37588	Top Emblem Insert	22	37009	Side Emblem
10	37608	Pricing Window	23	37639	Speaker Grille (R.H.)
11	37058	Reject Button W/Shaft	24	37580	Volume Control Button
11A	37054	Reject Button Return Spring (Not Shown)	25	37585	Center Front Panel
12	37606	Select Glass	26	37640	Speaker Grille (L.H.)



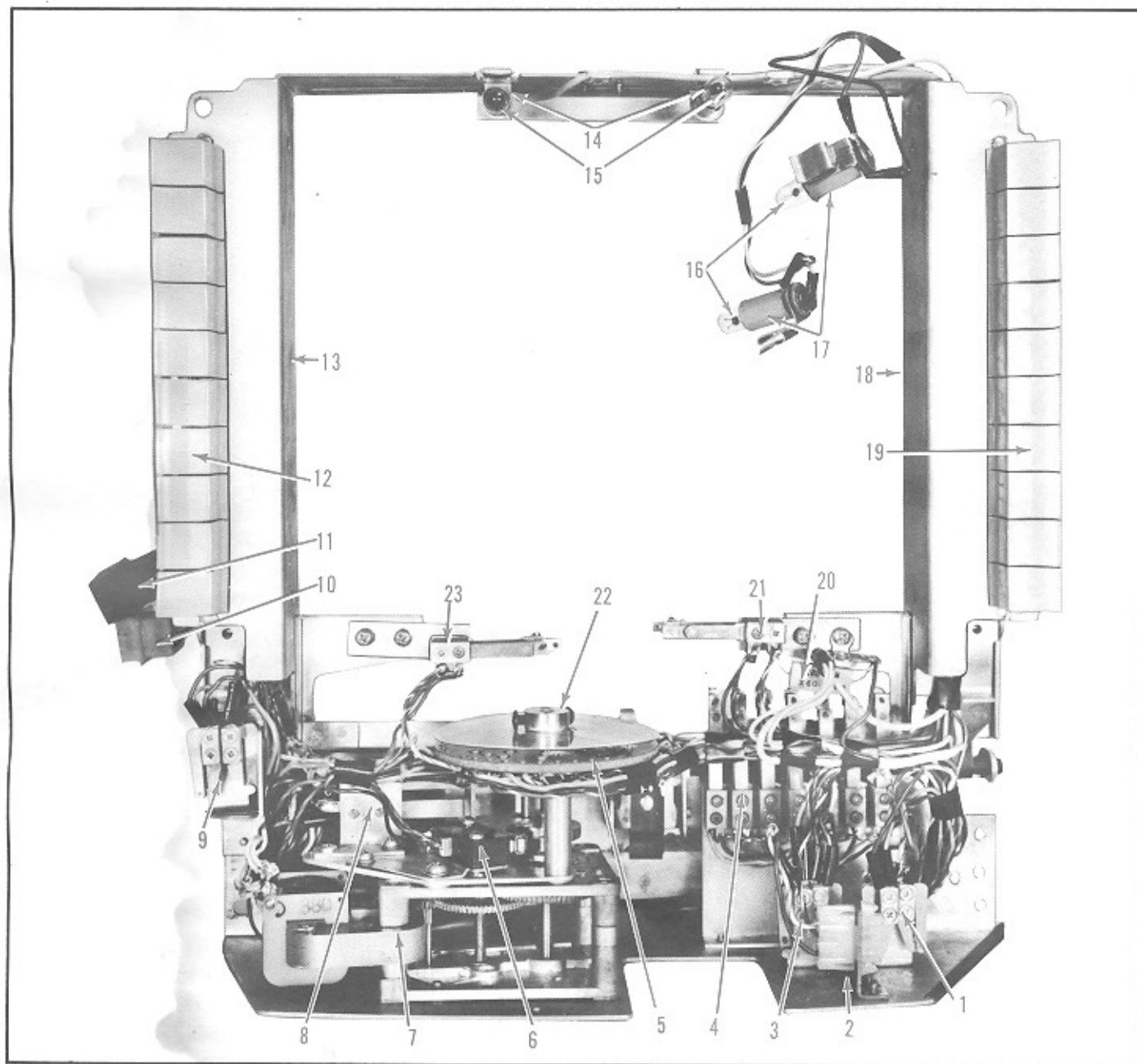
NO. 37730-A PROGRAM HOLDER ASSEMBLY (100 SELECTION)
NO. 37655-A PROGRAM HOLDER ASSEMBLY (160 SELECTION)

Item	Part No.	Description	Item	Part No.	Description
1	37729-A	Back Plate & Slider Assembly (100)	8	37657-A	Back Plate Assembly (Only) (160)
1A	37656-A	Back Plate & Slider Assembly (160)	8A	37728-A	Back Plate Assembly (Only) (100)
2	37660-A	Program Leaf Assembly (Even)	9	37029	Page Support Bracket
2A	37661-A	Program Leaf Assembly (Odd)	10	37658-A	Slider Assembly
3	37578	Album Indicator Strip	11	37552	Slider Stud
3A	37644	Single Indicator Strip (Not Shown)	11A	37026	Slider Spacer (Not Shown)
4	37576	Index Tab (100)	12	37536	Guide Bracket
4A	37577	Index Tab (160)	13	37074	Clutch Engagement Pin
5	37672	Page Spring	14	37024	Slider Gear & Shaft
6	37030	Upper Page Bracket	15	37659-A	Slider Gear & Bracket Assembly
7	37161-A	Program Spacer Plate Assembly (100)			

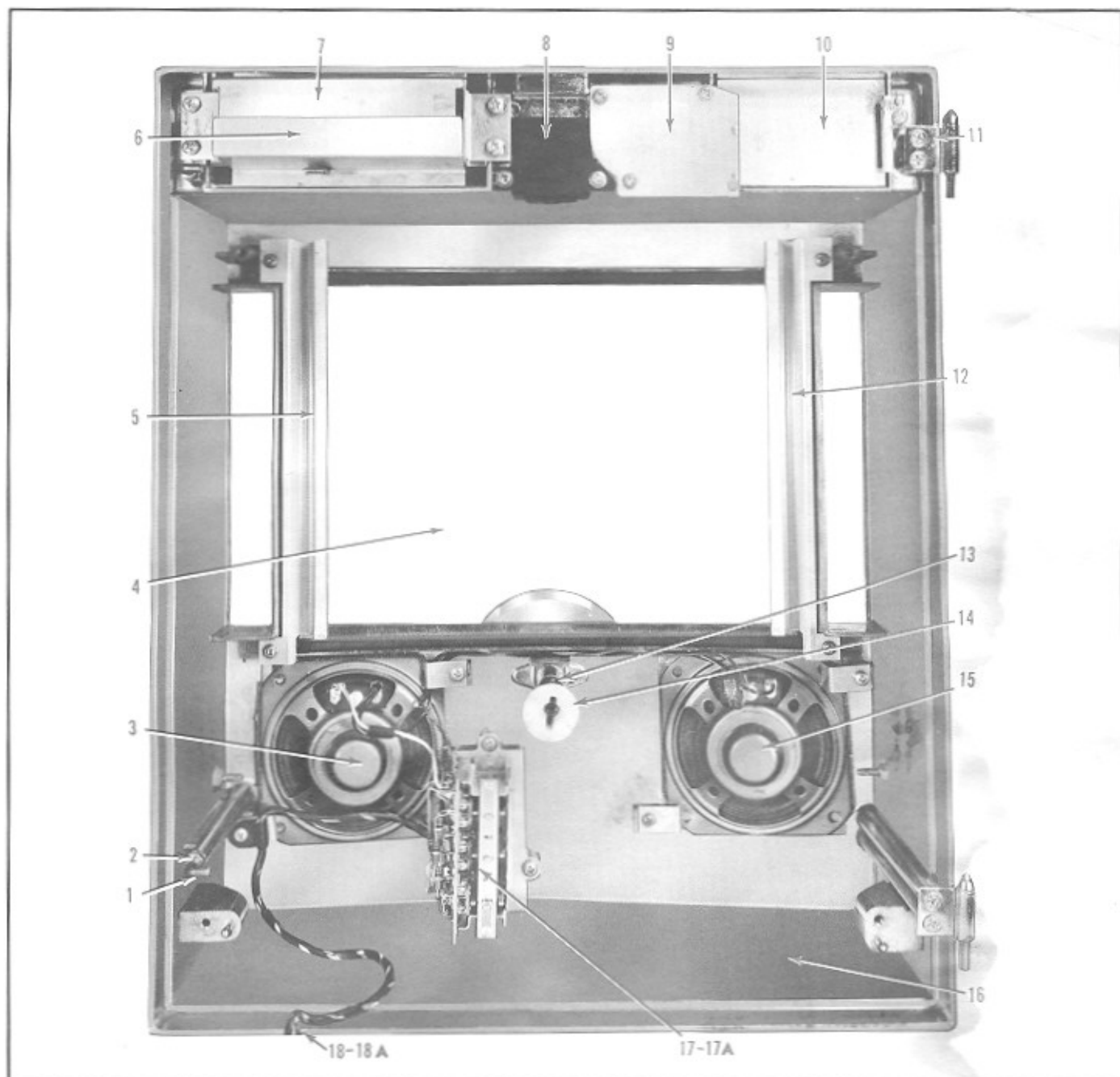


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Item	Part No.	Description	Item	Part No.	Description
1	V-7012	9 M-N-L Pin Housing - White	20	37093-A	Lock Bar Riveting Assembly
2	V-7013	9 M-N-L Socket Housing - White	21	37600	Reset Coil
3	V-7014	9 M-N-L Pin Housing - Red	22	37567	Reset Pawl Guide
4	V-7015	9 M-N-L Socket Housing - Red	23	17982	Reset Pawl
5	37618	Terminal Block (3)	23A	14028	Compression Spring
6	37697-A	Rejector & Reject Arm Assembly	24	34559	Return Spring
7	14995	Lockout Relay	24A	37570	Reset Armature
8	ST-5278	Wall Box Hinge (Female)	25	V-7020	12 M-N-L Pin Housing - White
9	37420	3 Pole D.T. Switch	26	V-7021	12 M-N-L Socket Housing - White
10	ST-3072	#47 G.E. Bulb	27	14814-2	Wall Box Transformer
11	37172	Select Light Socket	28	14886	Coin Switch Cover
12	35363	Rectifier	29	37665	Coin Switch (5¢ - 10¢ - 25¢)
13	35879	300 MFD. 50 V.D.C. Capacitor	30	37033	Lock Latch
14	37426-A	Slug Rejector Housing Assembly	31	ST-7416	Lock & Keys
15	37622	Control Switch & Bracket	32	37602	Cash Box
16	39611	Album Play Switch (Acro)	33	37067	Coin Return Chute
17	37563	Wall Box Back	34	37564	Terminal Block (7)
18	37721-A	Accumulator Assembly (Only)	35	37677-A	Terminal Block Riveting Assembly
19	37663-A	Accumulator Assembly (Complete)	36	ST-5278	Wall Box Hinge (Female)



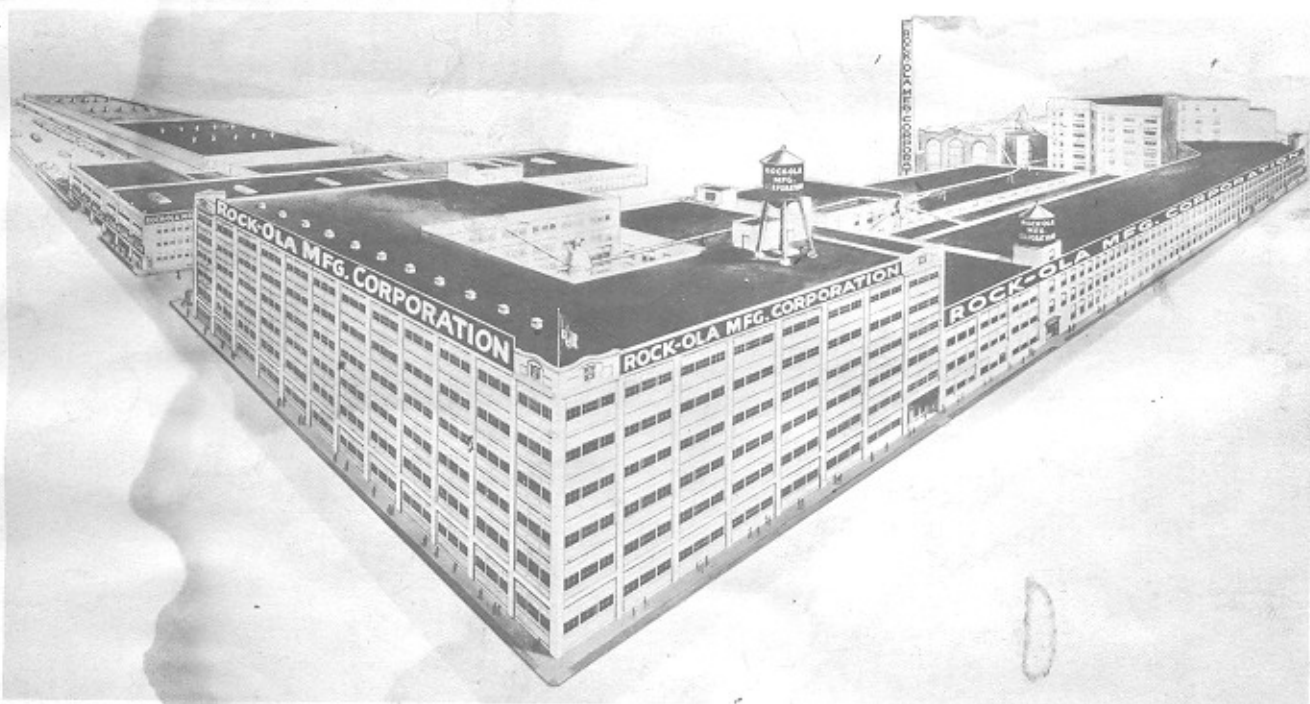
Item	Part No.	Description	Item	Part No.	Description
1	37717	Album Check-Off Relay	12	37048	Key Switch Button
2	V-7047	3 Circuit Socket Housing - White	13	37047	Selector Switch (L.H.) (Not Shown)
3	37716	Audio Control Relay	14	37173	Program Light Socket
4	37573	Page Switch (7 Req)	15	ST-3072	#47 G.E. Bulb
5	37689-A	Biscuit Assembly	16	ST-3072	#47 G.E. Bulb
6	37709	Anti-Cheat Switch (Cherry E-33-21K)	17	37625	Select Light Socket
7	37542	Gear Motor W/Cams	18	37046	Selector Switch (R.H.) (Not Shown)
8	37700	Motor Cycle Switch & Bracket	19	37048	Key Switch Button
9	37718	Anti-Cheat Relay	20	37636	130 OHM 5 Watt Resistor
10	V-7012	9 M-N-L Pin Housing - White	21	37702	Album Switch
11	V-7014	9 M-N-L Pin Housing - Red	22	37614	Wiper Arm
			23	37701	Open Page Switch



Item	Part No.	Description	Item	Part No.	Description
1	14729	Lock Pin	11	ST-5268	Wall Box Hinge (Male)
2	ST-402	8-32 Hex Nut	12	37003-2	Glass Extrusion (L.H.)
3	37582	Speaker	13	37057-1	Clutch Compression Spring
4	37050	Wall Box Window	14	37017-1	Front Clutch
5	37002-2	Glass Extrusion (R.H.)	15	37582	Speaker
6	37590	Light Box	16	37562	Wall Box Front
7	37606	Select Glass	17	37535	Volume Control Switch
8	37103-A	Reject Button Mounting Bracket Assembly	17A	37627-A	Volume Control Switch & Cable Assembly
9	37637	Coin Chute Back	18	V-7046	3 Circuit M-N-L Pin Housing
10	37608	Pricing Window	18A	V-7003	M-N-L Pin (Not Shown)

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The Rock-Ola factory in Chicago is the largest factory of its kind in the world devoted to the production of Coin Operated Equipment. It consists of a ground area of three and one-half city blocks with 23 buildings and a floor area of more than one-half million square feet.



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