

You asked for it!



David C. Rockola
President

Shortly after the Fireball 120 was introduced, we began to receive letters praising the Fireball mechanism.

Since then, thousands of messages have poured in from all parts of the world, saying that the Fireball has stayed on location longer and has given fewer out-of-order calls than any other phonograph.

Many folks asked if it were possible to put this revolutionary 45 R.P.M. mechanism into a smaller modernistic cabinet. After months of planning, with a world renowned modern furniture designer and our own engineering staff, we are happy to present the answer in: The Comet Fireball 120.

I am proud to attach my name to a machine so beautifully designed, containing a time-tested mechanism and occupying so little precious floor space—The Comet Fireball 120.

David C. Rockola

.....and here it is.....

ROCK-OLA Comet Fireball 120

Now, the original phonograph with 120 selections with its profit-proven trouble-free mechanism is encased in a cabinet especially styled for those who want complete modernity of design along with compact, efficient proportions.



Specifications*

Width: 29 $\frac{7}{8}$ in.

Depth: 26 $\frac{3}{4}$ in.

Height: 53 $\frac{1}{2}$ in.

Weight: (uncrated) 320 lbs.

(crated) 370 lbs.

*Cabinet Finish: Tawny Oak
trimmed with Limed Walnut*

*Coin Equipment: Single entry
for 5c, 10c, or 25c*

Easily converted to 10c play

Type record played: 45 RPM

*Tube complement: 2-6L6GT,
2-6SN7GT, 1-5U4*

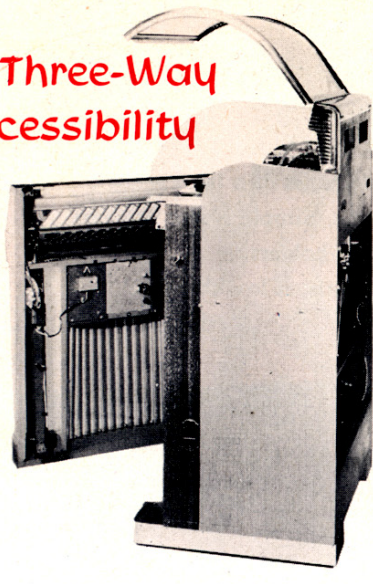
Speaker: 15" matched

*Rock-Ola Manufacturing Corp. reserves the right to make changes without notice in specifications, trim, colors, materials, models and to discontinue models.

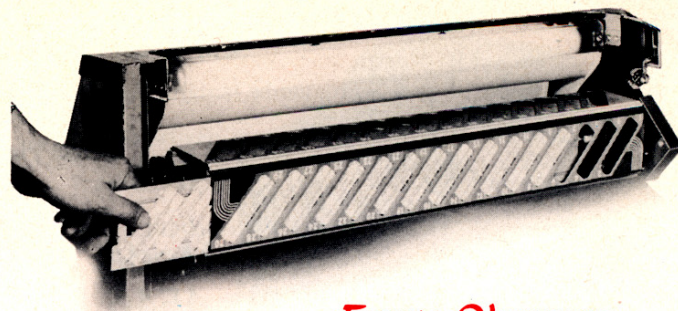
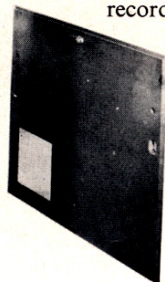
Model 1438

No groping or guessing when servicing the Comet.

Three-Way Accessibility

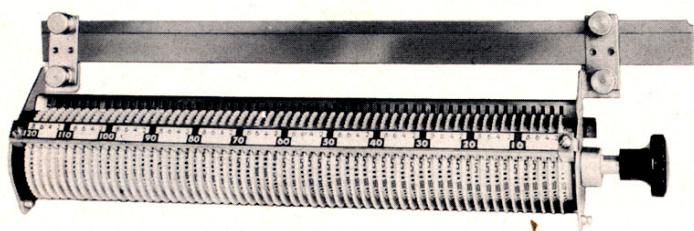


1. Full-width front door allows front or back accessibility.
2. Large easily removed back panel exposes mechanism and amplifier.
3. New plate glass dome swings out of way on three-way positive latch to make record changing a cinch.



Easy-Change Standard Title Strips

Easiest selecting and fastest programming. Four title holders allow breakdown into popular musical classifications of thirty tunes each. Foolproof loading lock secures program holder in place when closing front door.

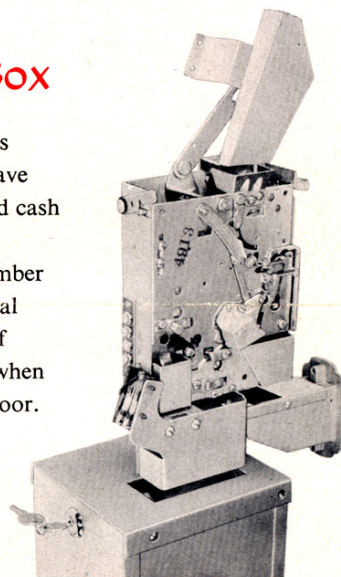


Popularity Meter

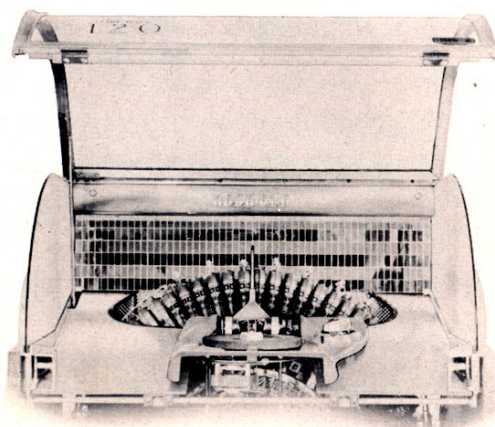
At a glance you can tell how many times each selection has been played. Saves collector's time because it's in full view.—Easy to read, so you can keep the top money makers on your programs. Simple to reset with convenient knob.

Coin Box

Anticipating the tremendous play of the Comet we have installed a jumbo-sized cash box that holds more than \$100.00. Keeps down number of collection calls. Safe metal box locked in corner of cabinet easily accessible when collector opens front door.



The original "120"

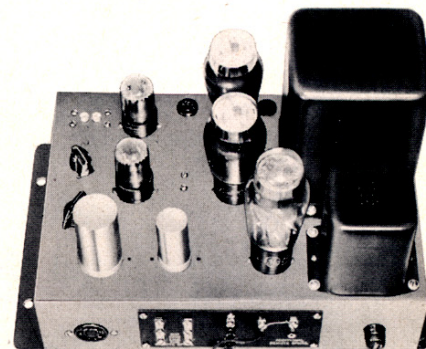


Window View

The sweeping lines of formed plate glass wins the favor of locations everywhere. Modern, clear view, easy to clean glass makes an attractive window with never a worry about cloud or discoloration. Three phase safety catch permits opening dome for changing records or needles without moving machine forward from wall.

Tru-Tone Amplifier

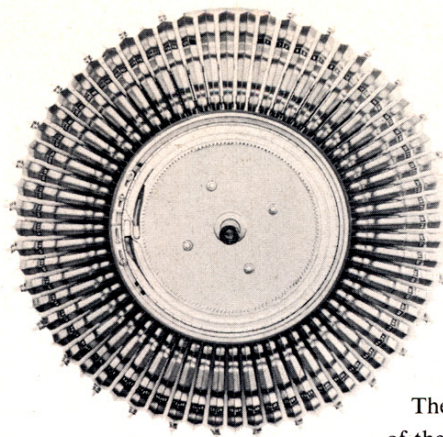
Known for years as outstanding in tone, the Rock-Ola amplifier has been further improved to give even finer tone quality. Bass and Treble easily adjusted to give emphasis where needed. Balanced for use with three-wire wall box. Fine full-range fidelity through big 15" matched speaker.





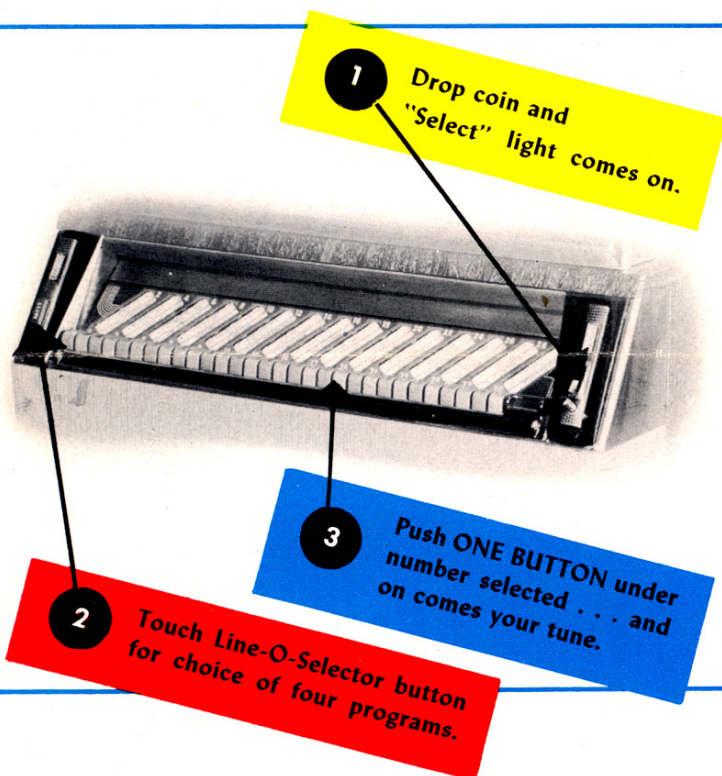
Modern Design

Cabinet developed by the world renowned modern furniture designer—
C. E. Waltman.
Outstanding synthetic film
Limed Walnut and
contrasting Tawny Oak
cabinet finish.
Uses only 5½ square feet of
floor space—less space
than phonographs
containing only one-third the
number of selections
in the Comet.



Revolving Record Drum

The tried and tested heart
of the Comet. Millions of plays
prove the superiority of this fascinating mechanism. Now
the gaily colored separators entice people to deposit coins
for the added attraction of watching it operate.



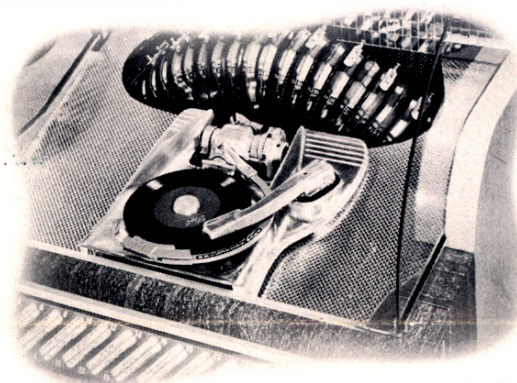
One Button Line-O-Selector

Choice of four programs of 30 selections each
with a touch of the Line-O-Selector button.

No guessing—alternate red and green buttons
line up with red and green title numbers.

More revenue because less time spent hunting,
picking and making up mind as to which selection
to choose.

Push just *One* (that's right, just one) button—
and on comes your tune. It's just so simple that *anyone*
can play the Fireball Comet.

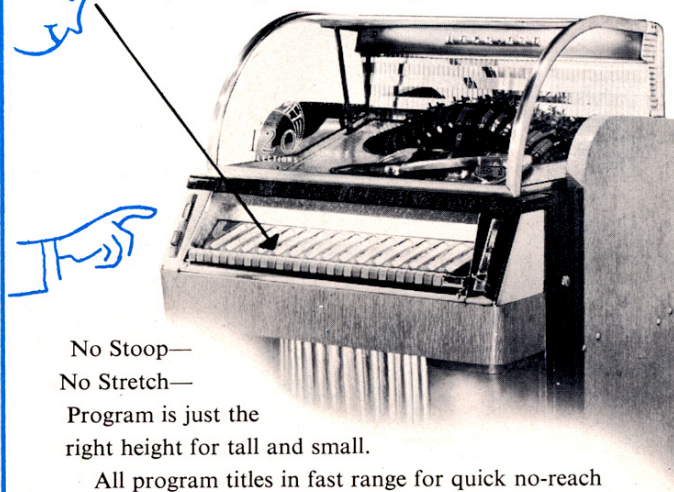


Robot Record Arm

Improved Geneva movement takes record from revolving drum
and places it gently on the turntable in natural playing position.
Flyweight, perfectly-balanced tone arm gives floating action
for longer record life. Needle brush removes dust and
other particles with every play.
Cheat-proof feature prevents free plays from bouncing or bumping.



Eye-Right Height



No Stoop—
No Stretch—
Program is just the
right height for tall and small.

All program titles in fast range for quick no-reach
tune selection.

Selection buttons invitingly easy to reach.

Chrome-Finished Wall Box



Model 1546

Height: 14"
Width: 11"
Depth: 7"

Get the "Plus" business by using the Comet Wall Box with either the Comet Playmaster or with the Comet Phonograph

through the improved Model 1717 Receiver.

Read the program as easy as turning the pages of a book.

Push only *One* button for tune. Simple 3-wire hookup

Easily changed *Standard* sized title strip holders.

Accumulates up to 31 plays without loss of coins.



Height: 42"
Width: 30 1/4"
Depth: 23"

Comet Playmaster

Brand New and Styled by Modern furniture designers.

Beautiful enough to show on any location—compact enough to be tucked away where space is at a premium. Rich Limed Walnut Finish—complete with 120 selection Comet Fireball mechanism.

Super-Tonette

Speaker

Model 1611

8" permanent magnet speaker with volume control. Location proven. Beautiful matched wood construction.



Height: 14 1/4" Width: 9 1/4" Depth: 6 1/2"



Deluxe Bar Bracket—Model 1531

All steel construction with brightly finished ornamental bar claw. Special patented mounting plate.

Height: 12 1/4" Width: 4 1/2" Depth: 5"

Universal Bar Bracket

Similar in construction and dimensions to Model 1531 (above) except without ornamental bar claw.

ROCK-OLA
Comet
120
ACCESSORIES

Rock-Ola Manufacturing Corporation
800 North Kedzie Avenue
Chicago 51, Illinois

You
asked for
it!

Airplane view of the Rock-Ola plant, where Engineering,
Electronic Development, Manufacturing and Assembling go
on under one roof.



Home of
the Fireball
Comet

Rock-Ola Manufacturing Corporation
800 North Kedzie Avenue
Chicago 51, Illinois



ROCK-OLA

INSTALLATION MANUAL

MODEL 1438

(COMET-FIREBALL-120)

ROCK-OLA *Manufacturing Corporation*

800 N. KEDZIE AVE., CHICAGO 51, ILLINOIS

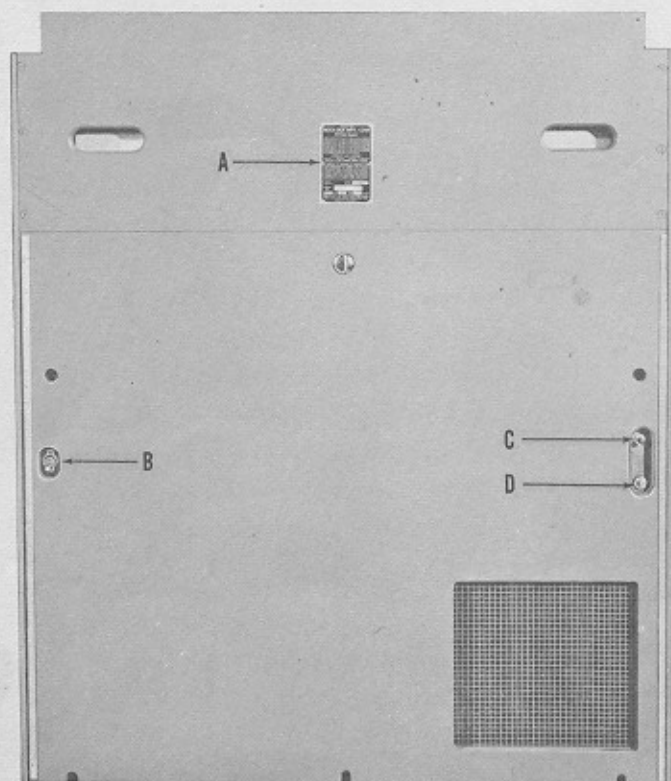


FIG. 1—Rear of Cabinet

117 V. LINE CORD

Check location power line outlet before plugging in phonograph. Make certain that outlet provides electrical requirements stamped on serial plate (A-Fig. 1) affixed to rear of phonograph cabinet. Power line should supply 117 volts—60 cycles—325 watts (max.)—single phase.

POWER AND LIGHT SWITCH

Master line switch (B-Fig. 1) is located on rear of phonograph.

Up position—ON

Down position—OFF

This switch controls all power to mechanism and lights. If coins are inserted for play credits while master switch is in "OFF" position, credits will not accumulate.

REJECT SWITCH

Location of this switch is on rear of phonograph (C-Fig. 1). To reject a record that is being played, depress plunger momentarily.

VOLUME CONTROL

Volume is adjusted by slotted shaft (D-Fig. 1) at rear of phonograph. Use key supplied or small screw driver.



Fig. 2—View of Amplifier and Power Distribution Panel

AMPLIFIER AND POWER PANEL

1. Make sure that tubes are tight in sockets.
2. Check tightness of plugs in receptacles.
3. At no time should tubes be removed from amplifier while phonograph is on.
4. The "START RELAY," "RECTIFIER" and dome light "BALLAST" is found on the power panel, which contains the power circuits for the entire phonograph.

LIGHTING EFFECT

1. Three 20-watt fluorescent tubes supply lighting in front door. Upper tube shown at (C-Fig. 3). Starter (E-Fig. 3) is located at door lock side of lamp.
2. Side tubes are shown at (J-Fig. 3). To replace left side tube (J-Fig. 3) lift lock latch (H-Fig. 3) at top of tube bracket. Raise tube bracket slightly and pull out. Remove wing screw at bottom of bracket for access to fluorescent tube. Right side tube can be similarly removed after socket bracket (F-Fig. 3) has been removed.
3. Cabinet lighting is accomplished with 20 watt fluorescent tube located in dome. Tube is accessible for replacement after two screws (B-Fig. 4) holding plastic panel are removed.

TO INSTALL TITLE AND CLASSIFICATION TABS

1. Two complete sets of classification tabs (8 to set) with adhesive backs, are supplied. Remove protective cloth from tab to expose adhesive, and press firmly to upper left and lower right of program panel (AD-Fig. 3).

2. To facilitate programming, tilt program holder back by applying slight downward pressure on bracket at (G-Fig. 3).
3. In this position, two title strip holders (B-Fig. 3) can be removed from the program panel, to facilitate changing title strips. Pull out title strip holders, (B-Fig. 3) insert title strips and return title strip holder into program panel.
4. To remove the two remaining title strip holders, rotate the program holder assembly by hand, one half turn, exposing the two title strip holders for quick insertion of title strips.
5. After title strip holders have been returned to program panels, move bracket (G-Fig. 3) forward, and allow program holder assembly to return to original position.

TO REPLACE NEEDLE

See instruction sheet "Series 'GC' Ceramic Pick-up Cartridge" packed inside cloth shipping bag.

TOP DOME ASSEMBLY

The top dome is held in an open position by means of locking latch (A-Fig. 4). The latch bar is held firmly in place by a spring lock which applies pressure against the locking latch.

To close top dome, apply slight pressure inward against locking latch and lower top dome.

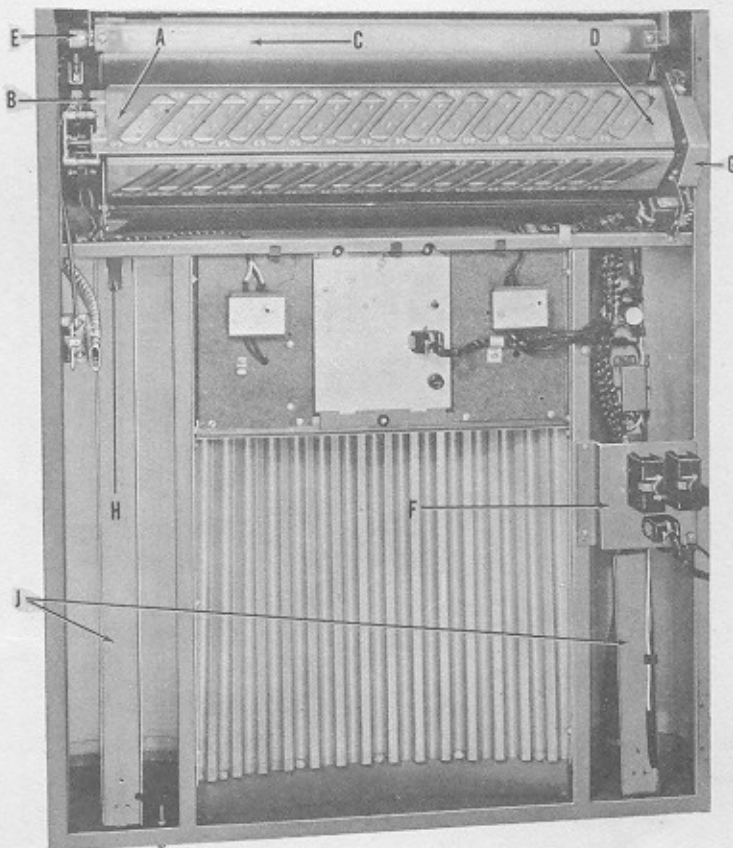


FIG. 3—Inside View of Front Door

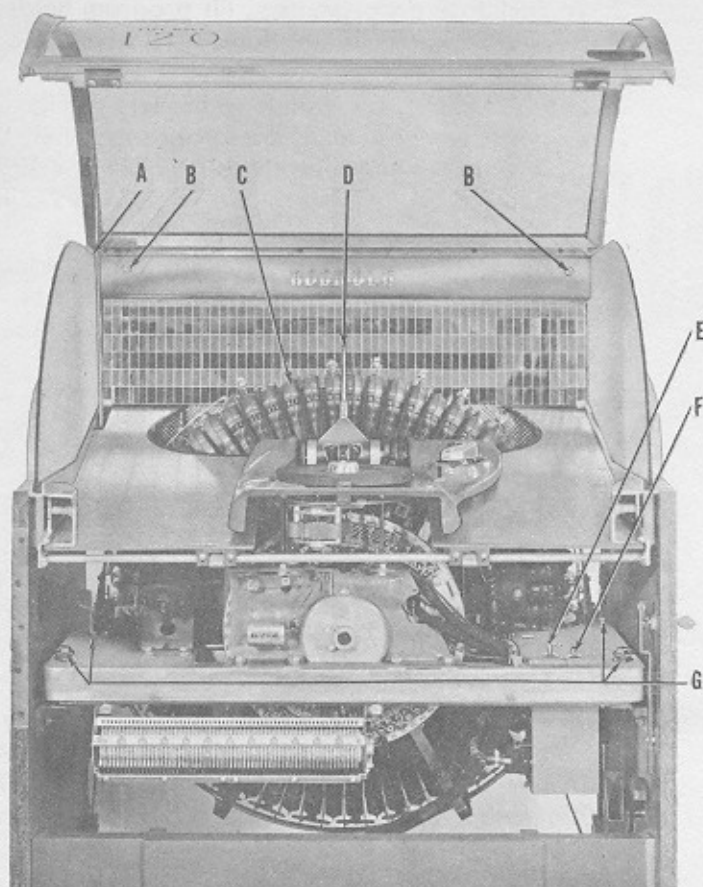


FIG. 4—Inside View of Cabinet

MECHANISM ANCHOR LOCKS

Four anchor bolts (G-Fig. 4) must be unscrewed as far as possible before operating phonograph. These bolts must be tightened securely whenever the phonograph is transported.

IMPORTANT: REMOVE WOODEN PACKING BLOCKS FROM UNDERNEATH MECHANISM CHASSIS BEFORE SETTING PHONOGRAPH IN OPERATION.

MECHANISM POWER SWITCH AND RECORD LOAD SWITCH

Mechanism power switch (F-Fig. 4) located on front side of the chassis in the control box may be operated at any time to stop mechanism at any point of operation. For service purposes, make certain that switch is left in "ON" position after servicing mechanism.

Depressing the record load switch (E-Fig. 4) located to the left of the mechanism power switch in the control box, causes the record magazine (C-Fig. 4) to rotate. Releasing the record load switch will stop the record magazine in any position to install or remove records.

TO INSTALL RECORDS

1. Depress "RECORD LOAD" switch (F-Fig. 4) and hold down until record magazine rotates.
2. If record magazine does not rotate due to phonograph being in "Music play" position; place tone-arm in record cut-off groove and allow grip arm (D-Fig. 4) to return record to record magazine. The record magazine will then rotate.
3. After record magazine begins to rotate, move "Mechanism Power" switch (F-Fig. 4) to "OFF" position.
4. Release record load switch in position desired to stop record magazine to install records.
5. After records have been installed, reset mechanism power switch to "ON" position.

TO REMOVE SLUG REJECTOR

1. Lift pawl (A-Fig. 7) on each side of slug rejector housing, pull top of slug rejector (B-Fig. 7) forward, lift up and forward to remove.
2. To replace, insert lower pivot pins of slug rejector into lower housing slots. Swing upper part of slug rejector back into position until both pawls lock upper two pins.

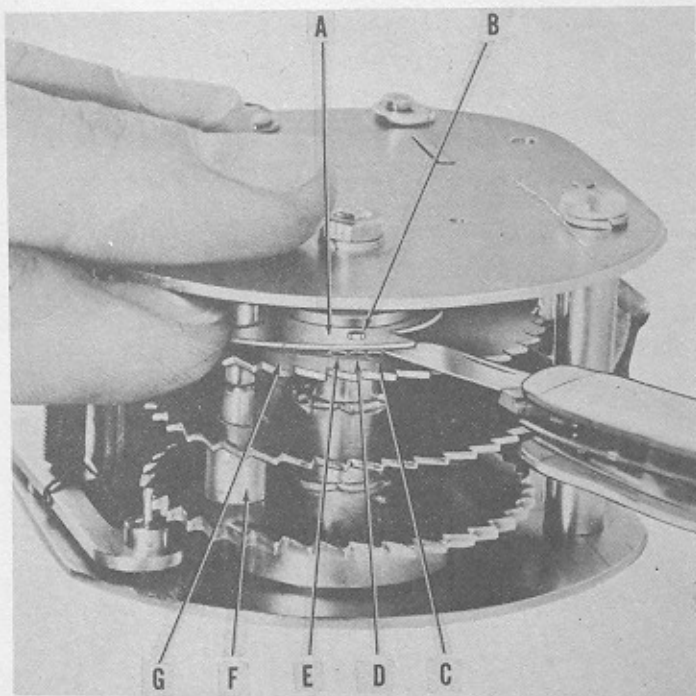


FIG. 5—View of Accumulator

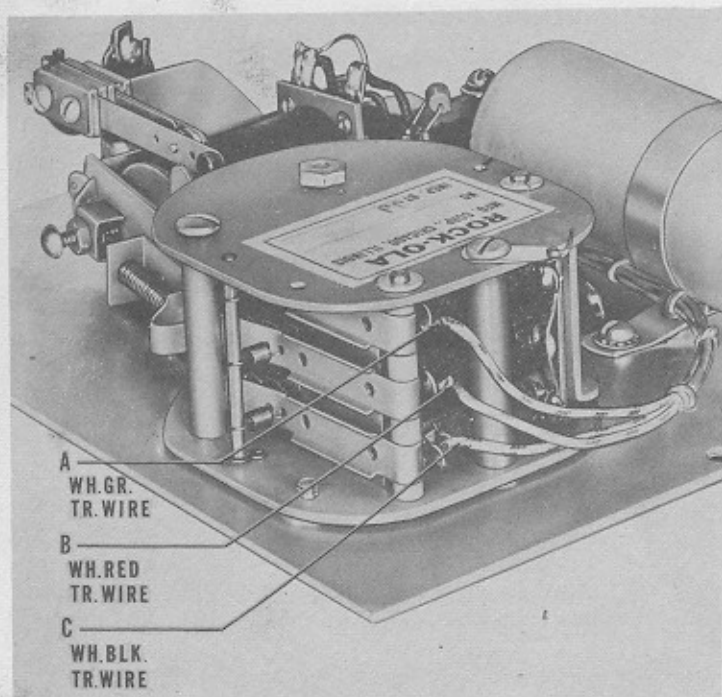
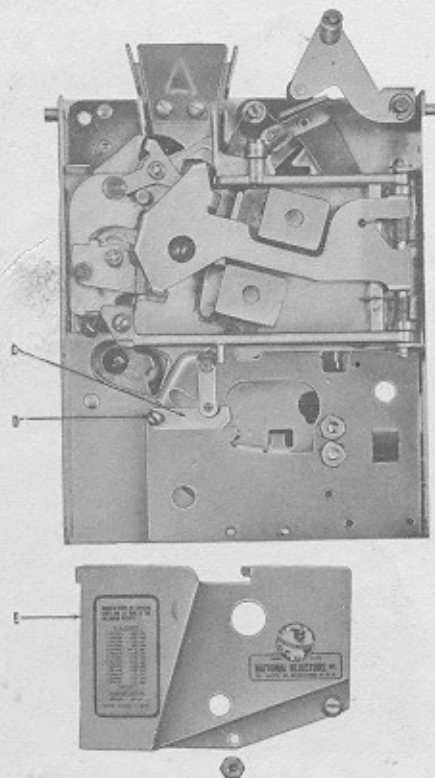


FIG. 6—Accumulator Assembly

TO ADJUST ACCUMULATOR

NOTE: All Rock-Ola Model 1438 phonographs are sent from the factory with the accumulator set to give one play for 5c, two plays for 10c, and five plays for 25c.

1. FOR ONE PLAY FOR 5c, TWO PLAYS FOR 10c AND SIX PLAYS FOR 25c OPERATION.



- A. Insert thin blade of pocket knife under quarter wafer (A-Fig. 5), twist slightly, raising wafer pin (B-Fig. 5) from hole.
 - B. Keep quarter wheel (G-Fig. 5) from rotating and move quarter wafer until wafer pin drops into six play hole (C-Fig. 5) farthest from ratchet spring stud (F-Fig. 5).
 - C. No wiring or slug rejector changes are necessary.
 - D. Replace decal on dome with properly designated one.
2. FOR ONE PLAY FOR 10c AND THREE PLAYS FOR 25c OPERATION.
- A. Same as 1A above.
 - B. Keep quarter wheel from rotating and move quarter wafer until wafer pin drops into three play hole (E-Fig. 5) closest to ratchet spring stud (F-Fig. 5).
 - C. Remove white-red tracer wire (B-Fig. 6) on accumulator and solder to terminal (C-Fig. 6) where white-black tracer wire is already connected.
 - D. Set slug rejector to reject 5c coins by removing cover plate on slug rejector (E-Fig. 7). Loosen screw (D-Fig. 7) and insert 5c coin stop (C-Fig. 7) under head of screw (D-Fig. 7). Tighten screw and replace cover plate.
 - E. Replace decal on dome with properly designated one.

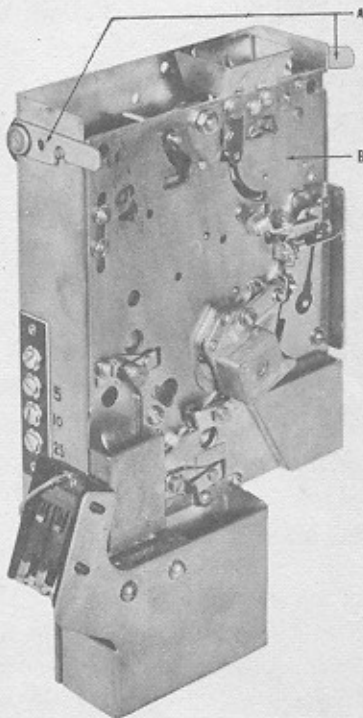


FIG. 7—Coin Mechanism

ROCK-OLA

PARTS LIST

FOR

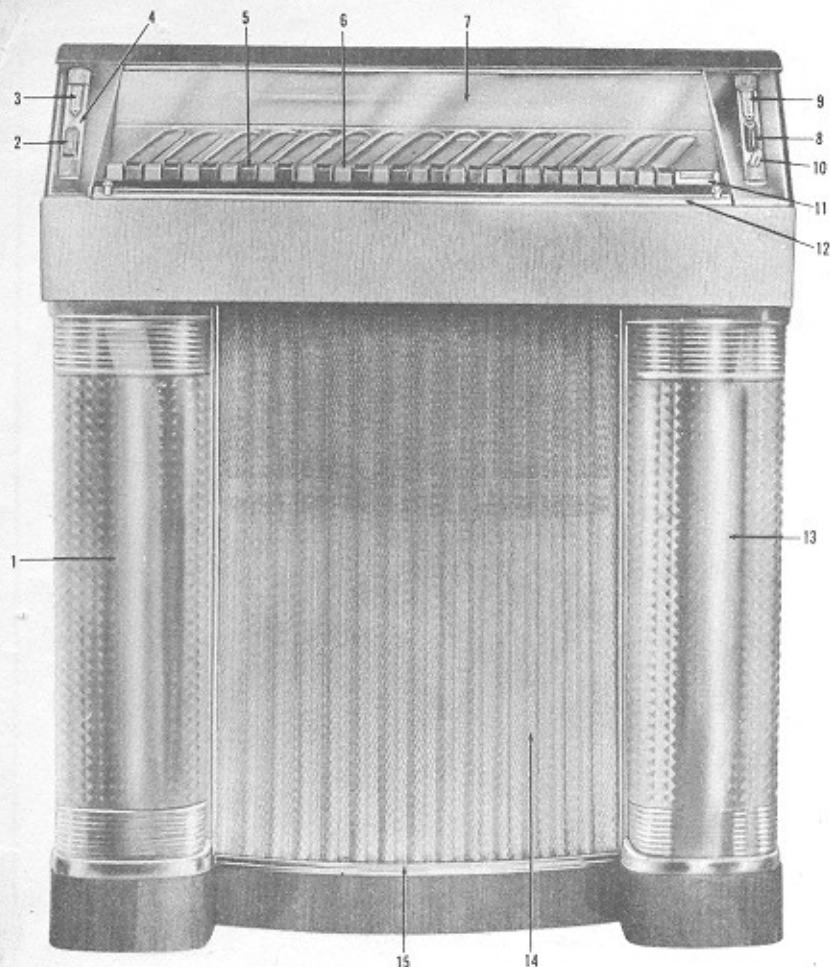
MODEL 1438 PHONOGRAPH

(COMET-FIREBALL-120)

ROCK-OLA MANUFACTURING CORPORATION

800 NORTH KEDZIE AVENUE

CHICAGO 51, ILLINOIS



No. 17610-A Door Assembly (Front View)

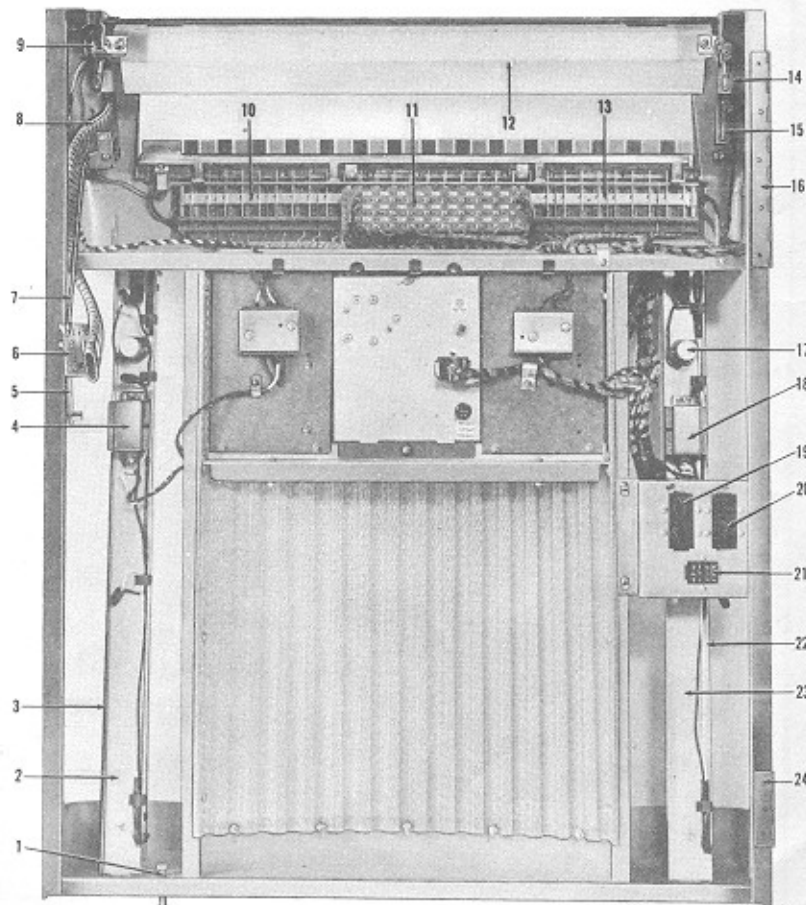
Part No. Description

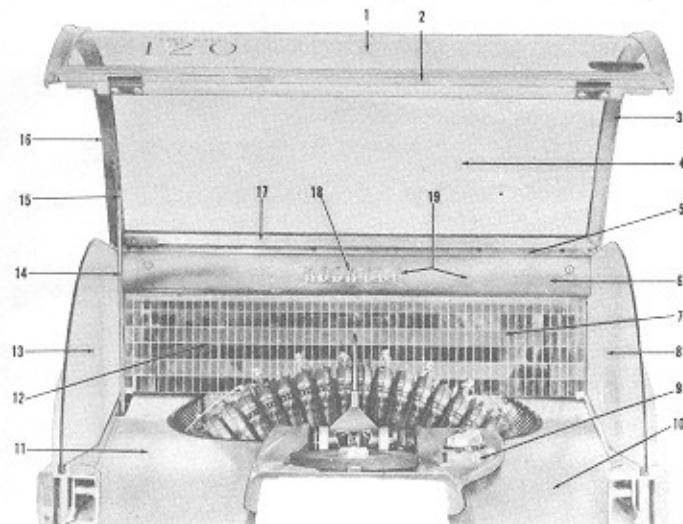
1	17492	Plastic Pilaster
2	17584	Program Change Button
3	17705	"Program Change" Window
4	17586	Program Change Casting
5	17686	Selector Button (Red)
6	16922	Selector Button (Green)
7	17499	Program Window
8	17585	Coin Slot Casting
9	17706	"Coins" Window
10	17676	Reject Button
11	17704	Select Window
12	16515-1	Key Plate
13	17492	Plastic Pilaster
14	17721	Perforated Grille
15	17667	Trim Moulding

No. 17610-A Door Assembly (Rear View)

Part No. Description

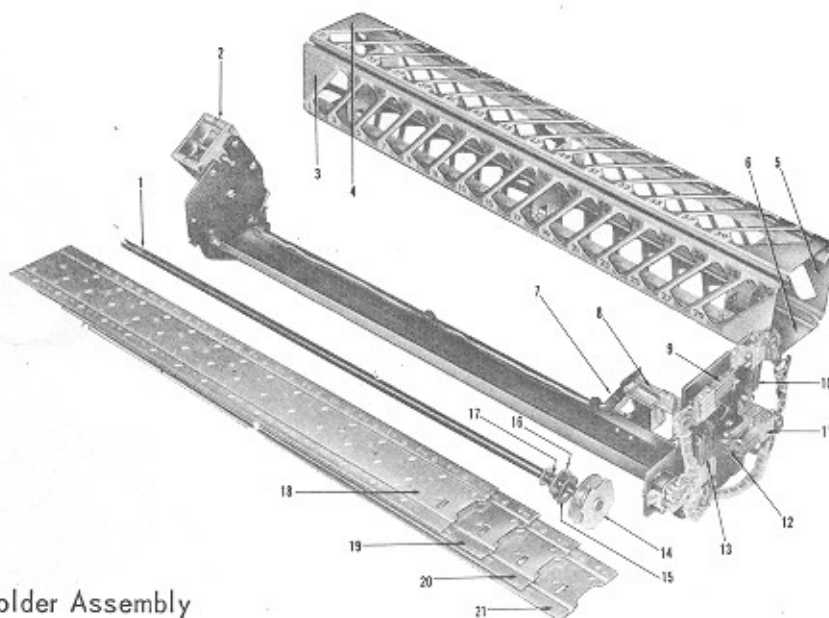
1	ST-264	1/4 - 20 x 1-1/2 Screw
2	17970-A	Pilaster Light Bracket Assembly
3	17925-A	Animation Cylinder Assembly (R.H.)
4	17693	14 - 15 - 20 Watt Ballast
5	15246	Cam Arm
6	17612	Reject Bracket
7	17761	Reject Button Cable
8	17759	Flexible Chute
9	17712	Light Socket (L.H.)
10	16561	End Key Switch
11	17224	Center Key Switch
12	17498	Light Shield
13	16561	End Key Switch
14	ST-3072	#47 Light Bulb
15	17665	Program Change Switch
16	17495	Door Hinge (Top)
17	11556	Fluorescent Light Starter
18	17693	14 - 15 - 20 Watt Ballast
19	16853	21 Position Jones Socket
20	16853	21 Position Jones Socket
21	16816	12 Position Male Connector
22	17926-A	Animation Cylinder Assembly (L.H.)
23	17970-A	Pilaster Light Bracket Assembly
24	17494	Door Hinge (Bottom)





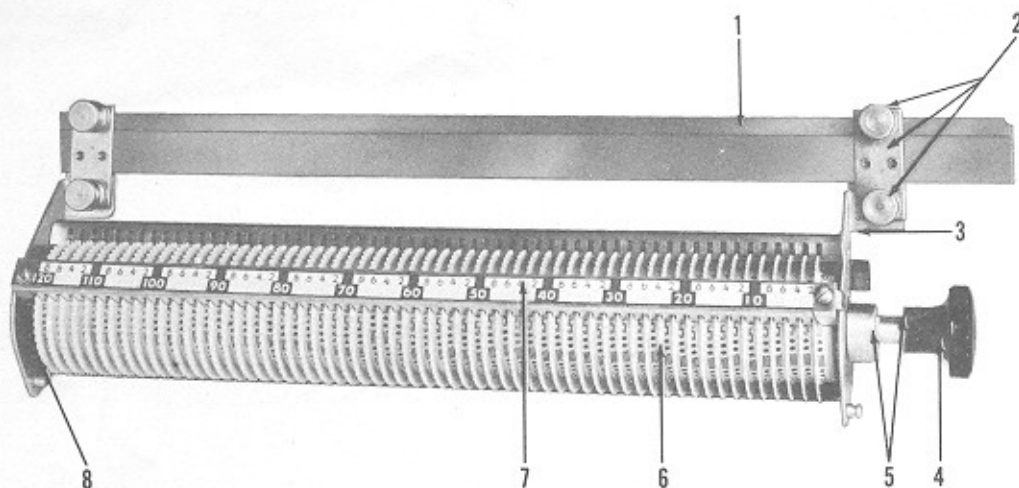
Dome - Dress Panels - Related Parts

Part No.	Description	Part No.	Description
1 17615-A	Dome Assembly	11 17936-A	Dress Panel Assembly (L.H.)
2 17489	Dome Extrusion (Front)	12 17709	Mirror Glass (L.H.)
3 17486	Dome Extrusion (R.H.)	13 17505	Dome Glass Side Panel
4 17491	Dome Glass	14 17503	Dome Latching Bar
5 17493	Dome Hinge	15 17881-A	Dome Bracket Assembly
6 17649	Dome Plastic Light Shield	16 17487	Dome Extrusion (L.H.)
7 17708	Mirror Glass (R.H.)	17 17682	Dome Extrusion (Back)
8 17505	Dome Glass Side Panel	18 17715	Dome Escutcheon
9 17593	Dress Cap	19 17909-A	Dome Plastic Light Shield Assembly
10 17935-A	Dress Panel Assembly (R.H.)		



No. 17885-A Program Holder Assembly

Part No.	Description	Part No.	Description
1 17696	Program Main Shaft	12 17934-A	Program Transfer Switch Assem.
2 17611	Program Drive Motor	13 17934-A	Program Transfer Switch Assem.
3 17888	Program Holder (Front) 1-30	14 17766-A	Keyboard Cut-Out Switch Cam Assembly
4 17889	Program Holder (Front) 31-60	15 17716	Friction Washer (Leather)
5 17890	Program Holder (Front) 61-90	16 17720	Steel Washer
6 17891	Program Holder (Front) 91-120	17 17751	Friction Spring
7 14365	.05 Mfd. Condenser	18 16501	Program Holder (Rear) 1-30
8 17681	Program Relay	19 16502	Program Holder (Rear) 31-60
9 17934-A	Program Transfer Switch Assembly	20 16503	Program Holder (Rear) 61-90
10 17934-A	Program Transfer Switch Assembly	21 16504	Program Holder (Rear) 91-120
11 17764-A	Keyboard Cut-Out Switch Assem.		

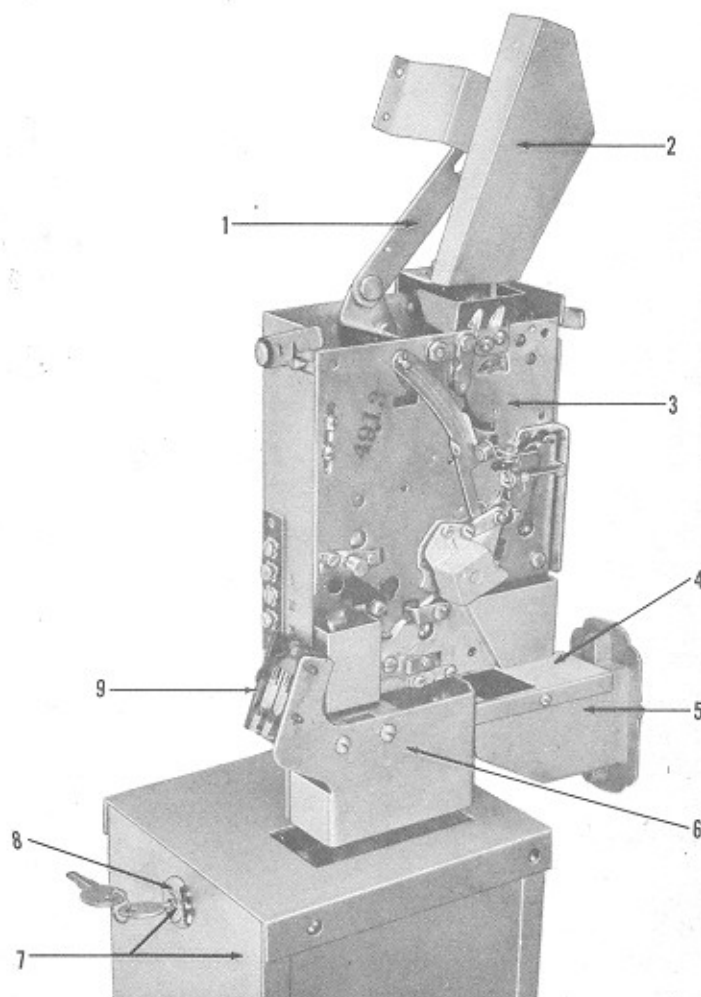


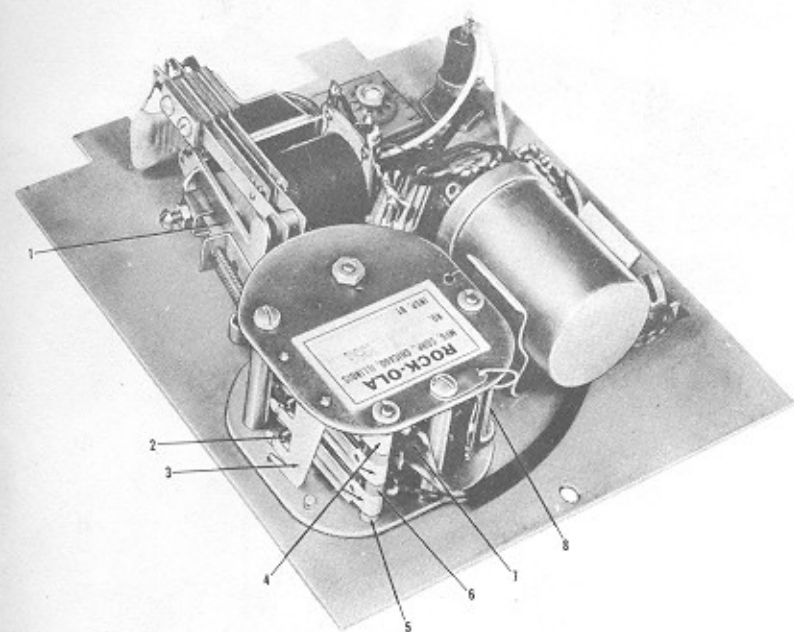
No. 17565-A Counter and Rail Assembly

Part No.	Description
1 17564	Rack - Counter
2 16657-A	Roller Mounting Plate Assembly
3 16654-A	Counter Side Plate Assembly
4 17227	Counter Knob
5 17569-A	Counter Shaft and Cam Assembly
6 16658-A	Counter Disc Assembly
7 16532	Counter Decal
8 16655-A	Counter Side Plate Assembly

Chute - Slug Rejector - Coin Switch -
Cash Box

Part No.	Description
1 17769-A	Slug Rejector Arm Link Assembly
2 17902-A	Coin Chute Riveting Assembly
3 15239	Slug Rejector
4 17587	Coin Return Cup Cover
5 12219-1	Coin Return Cup
6 15655	Coin Switch Guard
7 17899-A	Cash Box and Lock Assembly
8 ST-7381	Cash Box Lock
9 14072	Coin Switch



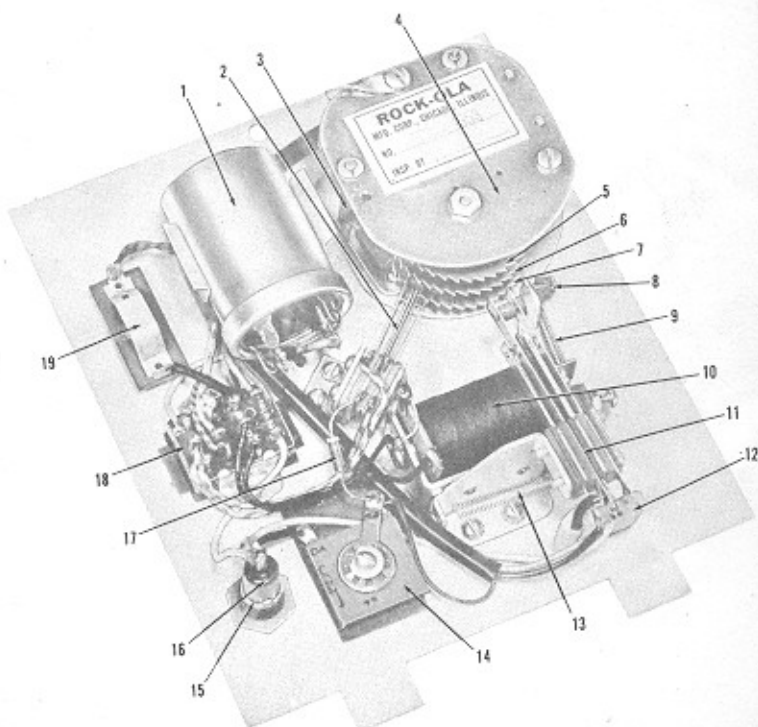


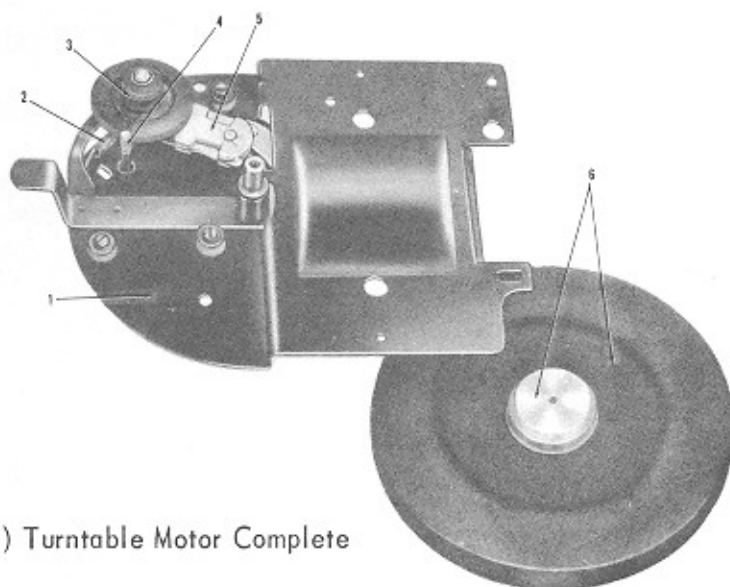
No. 17574-A Accumulator Assembly Complete
(End View)

Part No.	Description
1 14041-A	Reset Armature Riveting Assembly
2 14261	Tension Spring
3 16157	Spring Anchor
4 14014	Armature-Ratchet Detent
5 14017	Spacer-Ratchet Detent
6 14018	Spacer
7 14011	Coil - Electromagnet
8 14039-A	Ratchet Escapement Armature Assembly

No. 17574-A Accumulator Assembly
Complete

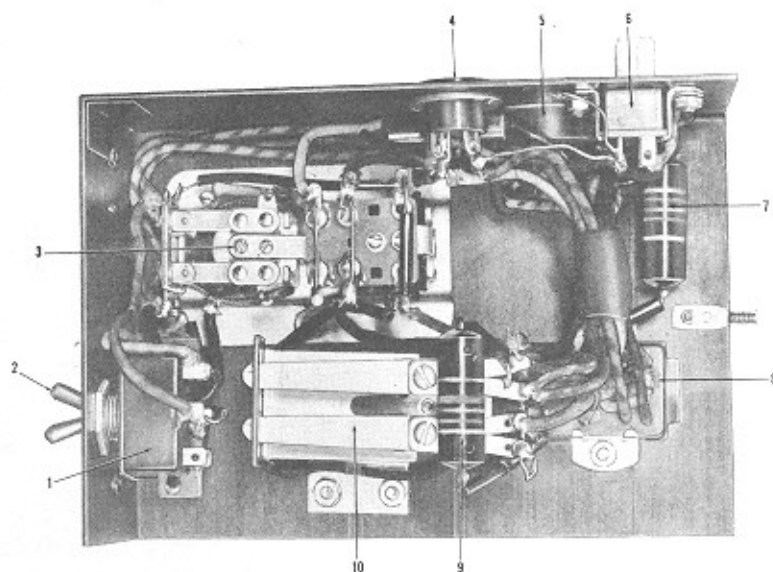
Part No.	Description
1 14416	Accumulator Capacitor
2 15254	Control Switch
3 14022	Torsion Spring
4 14132-A	Accumulator Assembly
5 14035-A	25¢ Ratchet and Hub Assembly
6 14036-A	10¢ Ratchet and Hub Assembly
7 14037-A	5¢ Ratchet and Hub Assembly
8 14027	Pawl - Reset
9 14028	Compression Spring
10 14030	Coil - Reset
11 14415	Switch - Selection Impulse
12 14363	3 Ohm 3 Watt Resistor
13 14029	Tension Spring
14 16812	Rectifier
15 ST-4306	1/10 Amp. Fusetron
16 11555	Fuse Holder
17 14097	47 Ohm - 1/2 Watt Resistor
18 16816	12 Contact Male Connector
19 15159	Momentary Push Switch





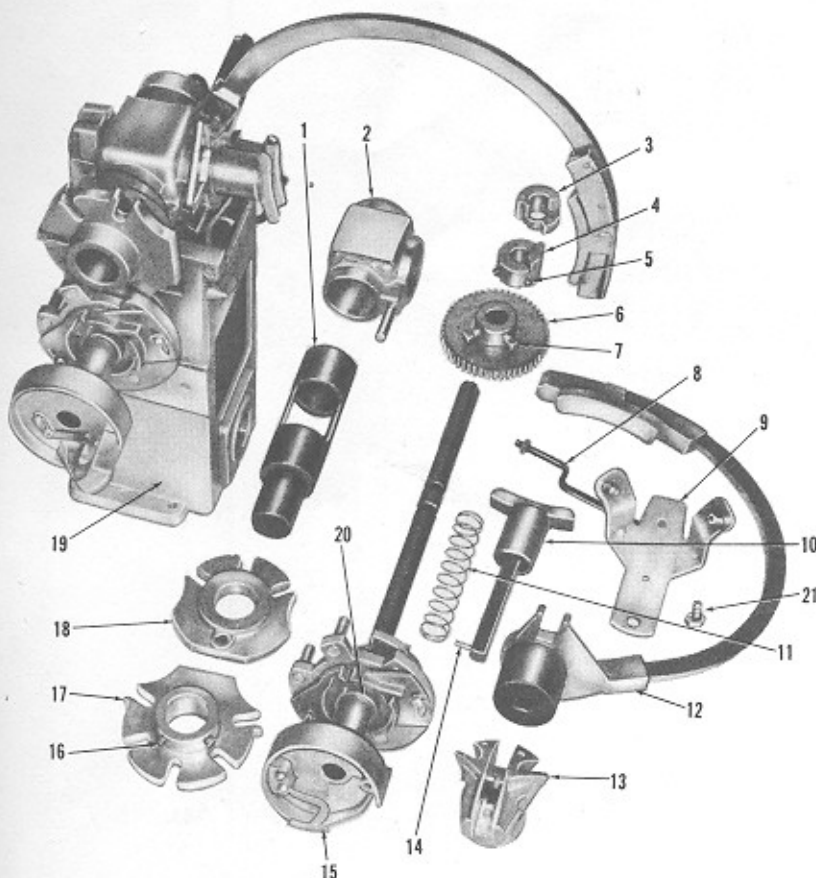
17462 (45 R.P.M.) Turntable Motor Complete

Part No.	Description
1 17462	Turntable Motor (45 R.P.M.)
2 17149	Idler Tension Spring
3 17148	Idler Wheel Assembly
4 17151	Rotor Shaft Pulley Spring
5 17150	Spring Plate Assembly
6 17160	Turntable with Center Locator



No. 17870-A Control Box Assembly

Part No.	Description
1 16912	Mechanism Service Switch
2 16913	Record Load Switch
3 17599	Interlocking Relay (D.C.)
4 16810	4 Prong Miniature Socket
5 PH-3732	8 Prong Socket
6 17595	4 Prong Plug
7 14365	.05 Mfd. 400 V. Condenser
8 16851	12 Contact Female Socket
9 14365	.05 Mfd. 400 V. Condenser
10 17849	Cancel Relay (D.C.)

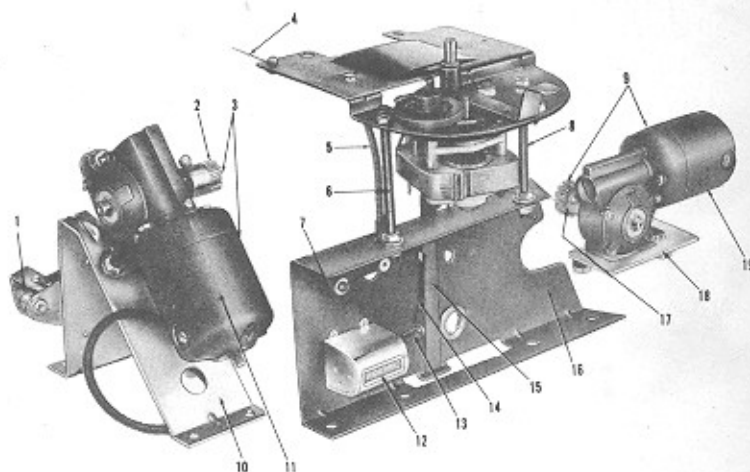


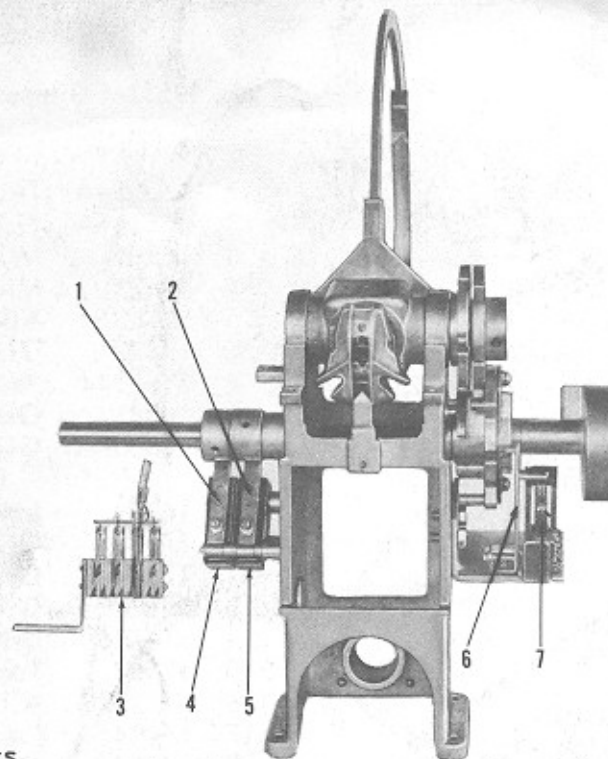
No. 17551-A Gripper Unit Assembly

Part No.	Description
1 17555-A	Trunnion Shaft Assembly
2 16671-A	Gripper Spider Assembly
3 16305	Micro Safety Cam - Outer
4 17679	Micro Safety Cam - Inner
5 ST-2262	Allen Set Screw
6 17470	Gripper Shaft Gear
7 ST-2244	Square Head Set Screw
8 16381	Gripper Connecting Rod
9 16683-A	Gripper Reversing Bracket Assembly
10 16297	Inner Gripper Casting
11 17133	Gripper Spring
12 17304-A	Gripper Arm Assembly
13 16299	Gripper Arm Reversing Cam
14 ST-516	Driv-Loc Pin
15 17524	Tone Arm Cam Keeper Spring
16 ST-2270	Allen Set Screw
17 16294	Geneva Gripper Release
18 16293	Geneva Gripper Turn-over
19 17552-A	Gripper Housing (with Bearing and Stud Only)
20 17557-A	Gripper Drive Shaft Assembly
21 16281	Shoulder Screw

Motors and Related Parts

Part No.	Description
1 17840-A	Reversing Switch Lever Assembly
2 16279	Gripper Motor Gear
3 17838-A	Gripper Motor Assembly
4 17786	Counter Cable
5 17787	Cable Housing
6 17689	Turntable Mounting Stud
7 17451	Counter Arm
8 17689	Turntable Mounting Stud
9 17839-A	Magazine and Pinion Assembly
10 17837-A	Motor Mounting Bracket Assembly
11 17613	Magazine and Gripper Motor
12 12312	Counter
13 17832-A	Spring Lever and Stud Assembly
14 17452	Counter Wire
15 17833-A	Counter Linkage Assembly
16 17830-A	Mounting Bracket and Stud Assembly
17 16440	Magazine Drive Pinion
18 17170	Motor Clamping Plate
19 17613	Magazine and Gripper Motor

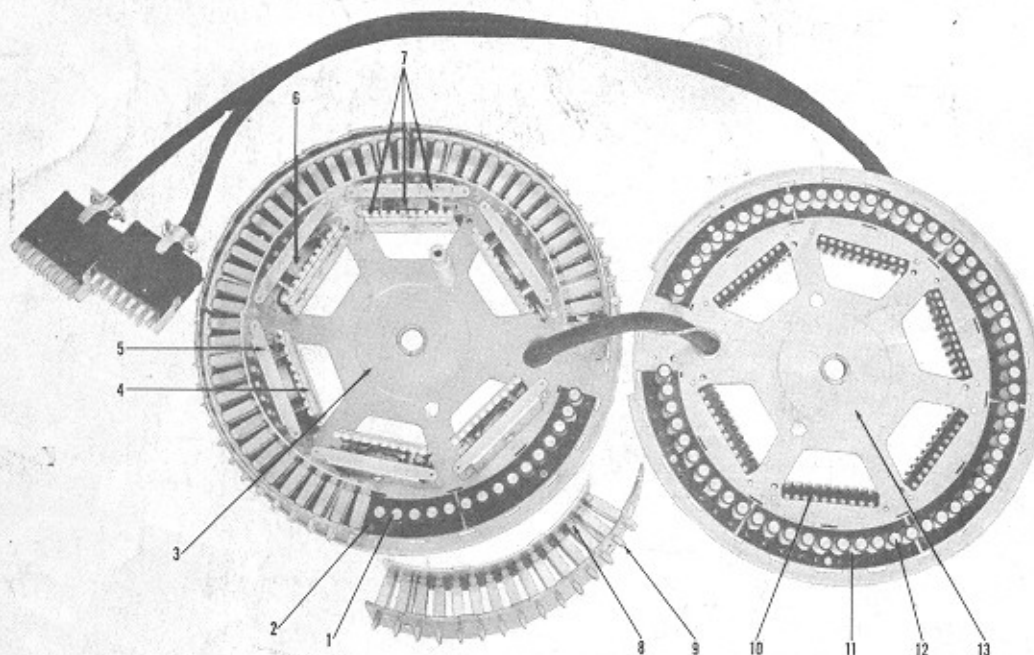




Switches and Related Parts

Part No.	Description
1 17445-A	Micro Switch Lever Assembly
2 17445-A	Micro Switch Lever Assembly
3 17807-A	Reversing Switch Assembly
4 11609	Micro Switch

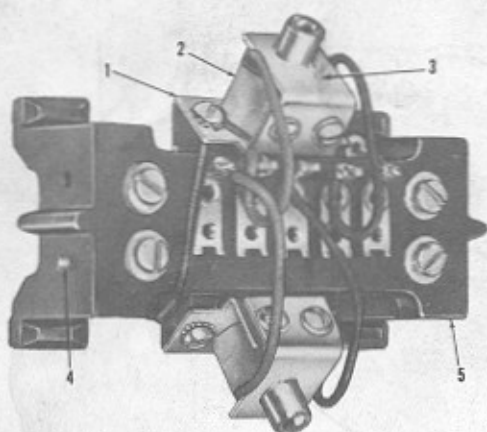
Part No.	Description
5 11609	Micro Switch
6 17067-A	Grip Switch Lever Assembly
7 16979-A	Grip Cam Switch and Bracket Assembly



No. 17334-A Selector Unit Assembly

Part No.	Description
1 16330	Selector Coil
2 16313	Selector Insulation - Bottom
3 17328-A	Selector Bottom Plate Assembly
4 16577-A	Clapper Armature Riveting Assembly
5 16575-A	Clapper Bracket Assembly
6 16329	Clapper Coil

Part No.	Description
7 16574-A	Clapper Assembly
8 16316	Armature Spring
9 16315	Selector Lever
10 16572-A	Selector Strip Contact Assembly
11 16313	Selector Insulator Bottom
12 16330	Selector Coil
13 16339-A	Selector Top Plate Assembly

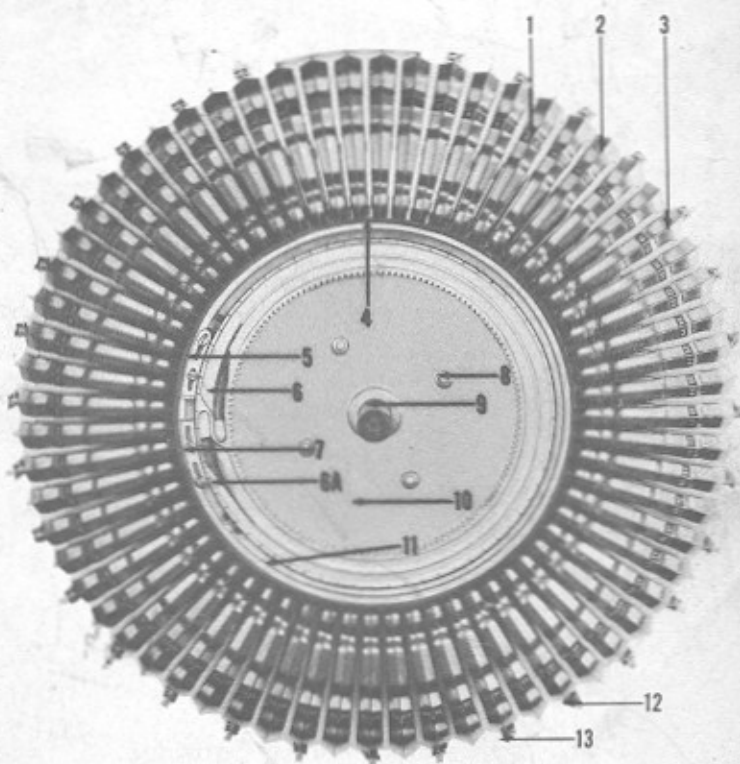


No. 17846-A Carriage Assembly Complete

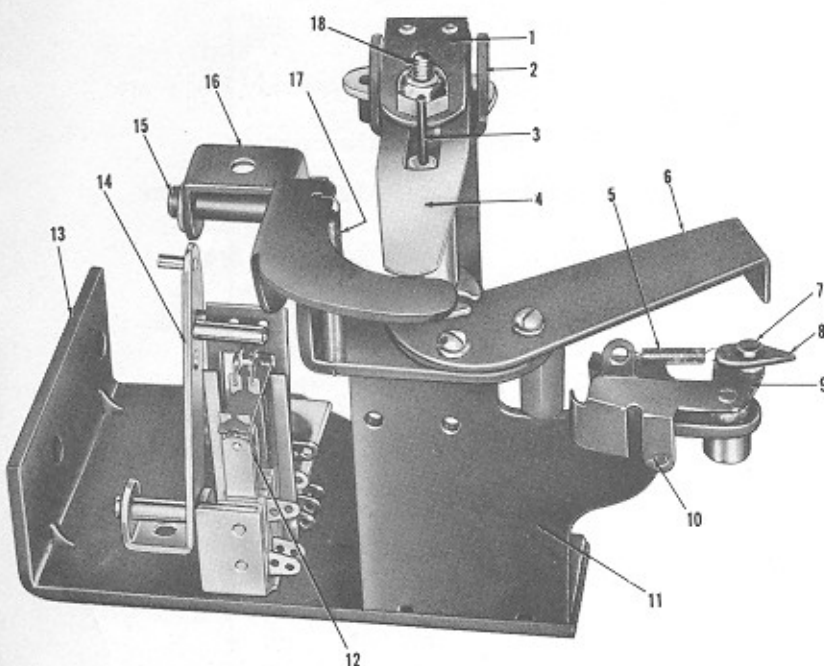
Part No.	Description
1 16347	Coil Mounting Bracket
2 17842	Cancel Coil (D.C.)
3 16348	Coil Mounting Bracket
4 ST-2272	Allen Set Screw
5 16613-A	Carriage Housing and Terminals (Only)
6 17825	Plunger Return Spring
7 17432-A	Coil Plunger Assembly
8 17946-A	Contact Assembly
9 16344	Spacer Pin
10 16351-1	Contact Block - Only
11 16350	Spacer Pin Retainer
12 17339-A	Carriage Contact Block Assembly
13 16349	Contact Retainer

No. 17316-A Record Magazine Assembly

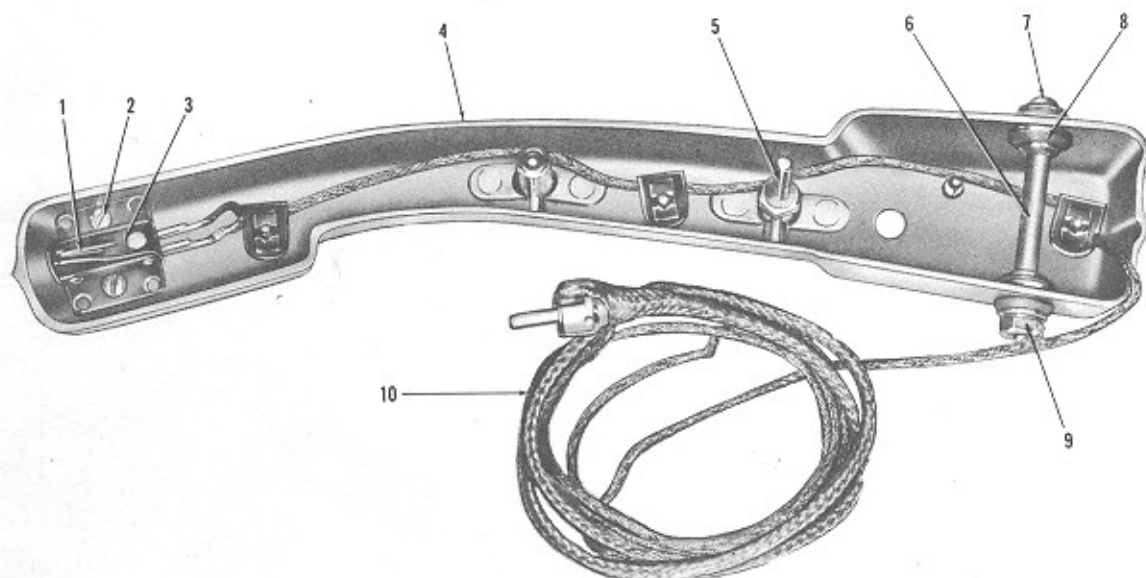
Part No.	Description
1 16395	Tray Decal
2 17440-A	Tray Riveting Assembly
3 17318-A	Tray and Keeper Assembly
4 17310	Rubber Ring
5 17322	Reversing Switch Trip Bracket (R.H.)
6 17152	Cam Track Spring (R.H.)
6A 17153	Cam Track Spring (L.H.)
7 17323	Reversing Switch Trip Bracket (L.H.)
8 16263	Spacer Shaft
9 16645-A	External Shaft Assembly
10 16252	Drive Gear
11 16250	Magazine
12 17312-A	Record Keeper Assembly
13 17956	Record Keeper Spring



Tone Arm Mounting

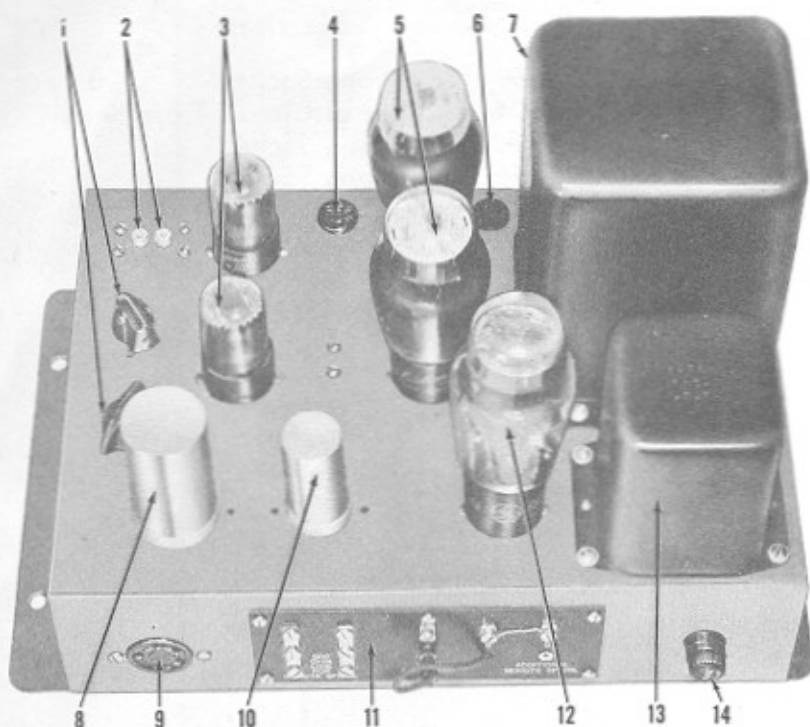


Part No.	Description
1 17779-A	Pivot Plate Assembly
2 17521	Tone Arm Pivot Plate
3 17547	Tone Arm Rest Pin
4 17533	Tone Arm Spring
5 10901	Tension Spring
6 17616	Ratchet Plate
7 17540	Pawl Stud
8 17475	Tone Arm Pawl
9 17776-A	Lever and Pawl Assembly
10 17543	Pawl Lever Spring
11 17774-A	Tone Arm Bracket Assembly
12 16979-A	Grip Cam Switch and Bracket Assembly
13 17473	Tone Arm Mounting Plate
14 17067-A	Grip Switch Lever Assembly
15 17539	Lifter Lever Stud
16 17784-A	Lifter Lever and Stud Assembly
17 17749	Lifter Lever Spring
18 ST-2279	8/32 x 1/2 Hollow Set Screw



No. 17790-A Tone Arm Assembly

Part No.	Description	Part No.	Description
1 17933	Needle (45 R.P.M.)	6 17549	Tone Arm Bearing
2 ST-1543	Screw	7 ST-752	6/32 x 1 3/4 R.H.M.S.
3 17016	Ceramic Pickup Cartridge (45 R.P.M.)	8 17697	Tone Arm Grommet
4 17791-A	Tone Arm Casting Assembly	9 ST-403	6/32 Hex Nut
5 17547	Tone Arm Rest Pin	10 17792-A	Input Plug Assembly

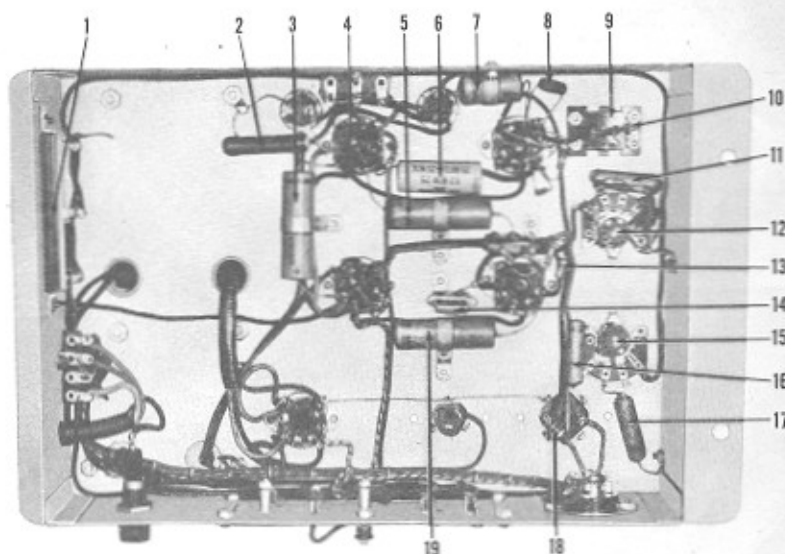


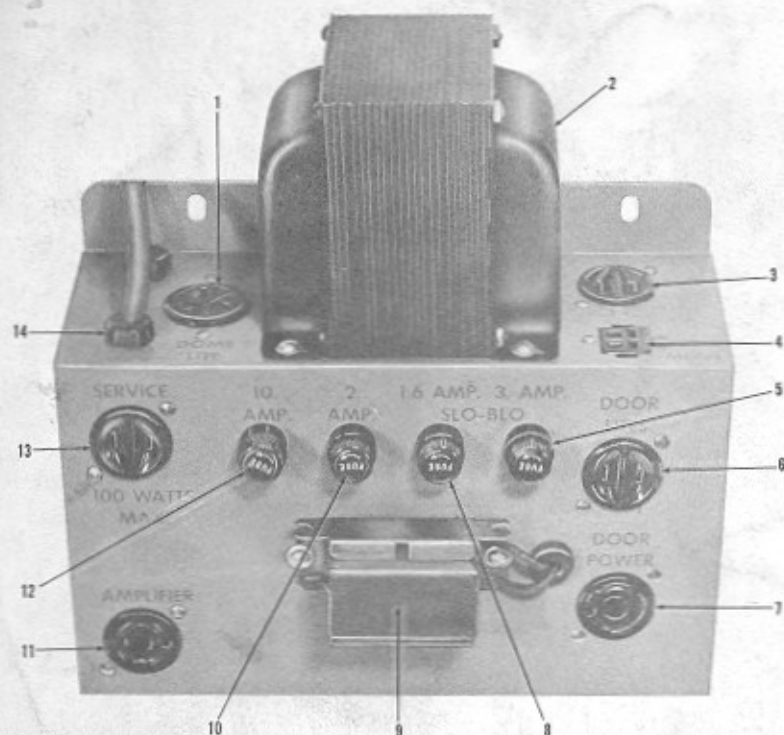
No. 17796-A Amplifier Assembly (Less Tubes)

Part No.	Description
1 11578	Pointer Knob
2 16904	Phonograph Connector
3 12546	6SN7 Tube
4 17275	Miniature 5 Prong Socket
5 PH-3191	6L6 Tube
6 16810	Miniature 4 Prong Socket
7 17221	Power Transformer
8 16926	Filter Capacitor
9 PH-3740	5 Prong Socket
10 16924	Input Capacitor
11 12769	Speaker Terminal Strip
12 PH-3190	5U4 Tube
13 17220	Output Transformer
14 PH-3523	3 Amp. Fuse

No. 17796-A Amplifier Assembly (Less Tubes)

Part No.	Description
1 16925	Filter Resistor
2 16927	200 OHM Resistor
3 PH-3177	50 Mfd. 50 V. Condenser
4 16228	100,000 OHM Resistor
5 13034	.1 Mfd. 600 V. Condenser
6 15204	25 Mfd. Capacitor
7 17788	.47 Mfd. 200 V. Condenser
8 16223	10,000 OHM Resistor
9 16904	Phonograph Connector
10 13382	680,000 OHM Resistor
11 17803	.015 Mfd. Capacitor
12 12994	Tone Switch
13 13015	47,000 OHM Resistor
14 16220	500 M Mfd. Mica Capacitor
15 12994	Tone Switch
16 PH-3512	.005 Mfd. Condenser
17 15194	.002 Mfd. Condenser
18 16222	6,800 OHM Resistor
19 13034	.1 Mfd. 600 V. Condenser



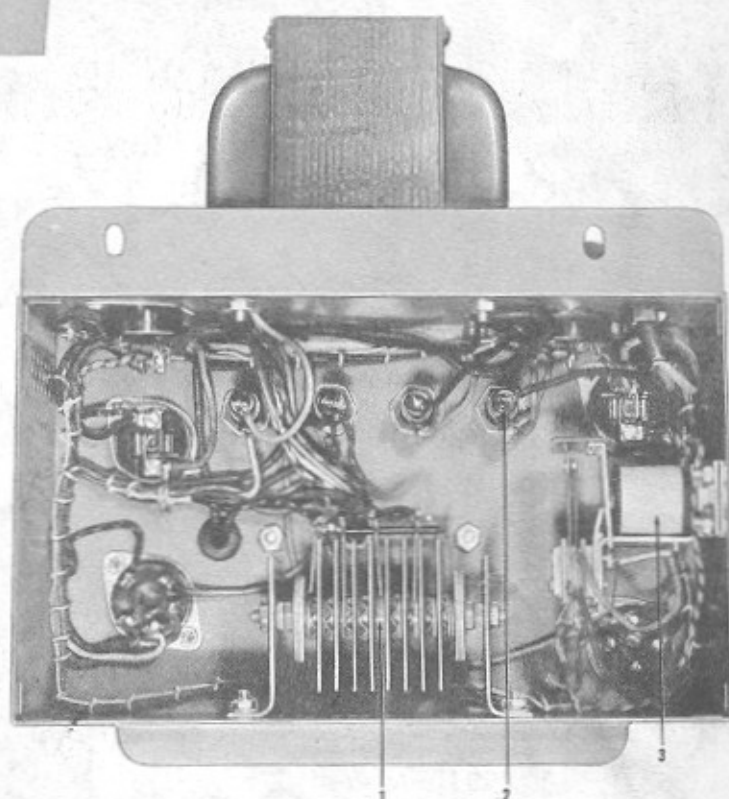


No. 17850-A Power Distribution Panel Assembly

Part No.	Description
1 11559	3 Prong Socket
2 17604	Control Circuit Transformer
3 PH-3270	2 Prong Socket
4 17596	4 Prong Socket
5 ST-3090	3 Amp. Slo-Blo Fuse
6 PH-3270	2 Prong Socket
7 PH-3740	5 Prong Socket
8 ST-4321	1.6 Amp. Fuse
9 17911	Dome Light Ballast
10 ST-4314	2 Amp. Fuse
11 PH-3722	4 Prong Socket
12 ST-3092	10 Amp. Fuse
13 PH-3270	2 Prong Socket
14 13206	Strain Relief

No. 17850-A Power Distribution Panel Assembly

Part No.	Description
1 17621	Power Rectifier
2 11555	Fuse Holder
3 17848	Start Relay (D.C.)



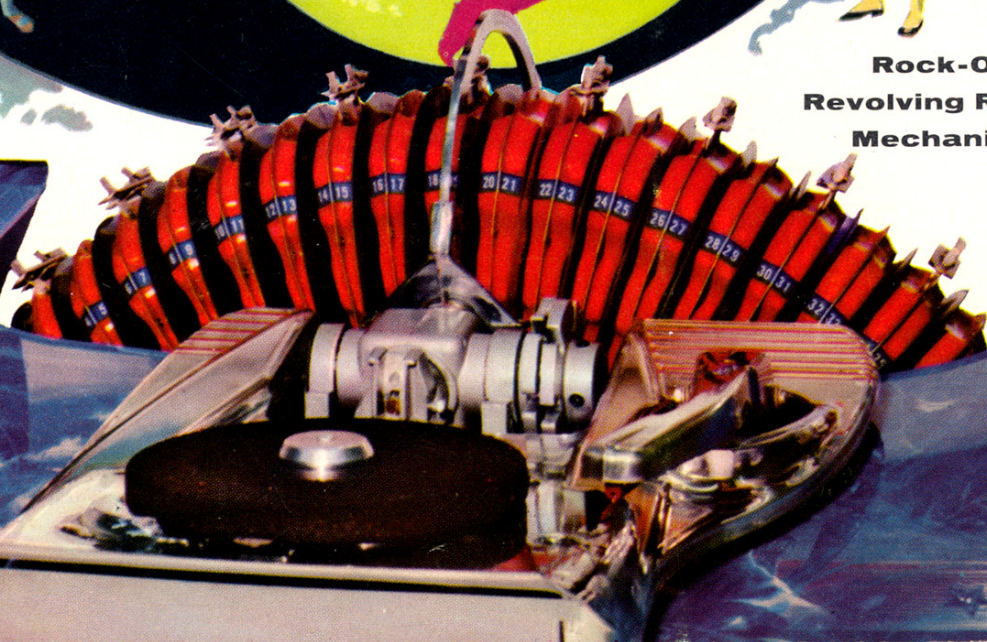
Additional Parts Listing

Part No.	Description
ST-3072	Type 47 bulb (select)
ST-6017	Caster
ST-6053	Caster socket
ST-7375	Rear door lock
ST-7380	Front door lock
12053	20 W. fluorescent tube
13362	Master line switch
15159	Momentary push switch
15162	Volume control potentiometer
17008	Needle brush

Part No.	Description
17181	Gripper arm decal (odd)
17182	Gripper arm decal (even)
17619	15 inch speaker
17714	Light socket (dome)
17722	5¢-10¢ and 6 for 25¢ decal
17723	5¢-10¢-25¢ decal
17724	10¢-25¢ decal
17748	Chassis mounting spring
17804	Brush wire
17817-A	Volume control assembly
17937-A	Rear door assembly

IRON CRIMINAL

Rock-Ola Revolving Record Mechanism



HI-FIDELITY

SELECTIONS

MUSIC

ROCK-OLA

Model 1442

SPECIFICATIONS

Width: 29 $\frac{3}{8}$ inches
Depth: 26 $\frac{3}{4}$ inches
Height: 53 $\frac{1}{8}$ inches

Weight:
(uncrated) 290 Lbs.
(crated) 340 Lbs.

Cabinet Finish:
Limed Walnut,
trimmed with
Caribbean Blue
Walnut.

Coin Equipment:
Single entry for 5c
10c and 25c
(easily converted
to 10c play).

Record Changer:
50 selections, 7"
Records, 45 R.P.M.

Tube Complement:
1-5U4G,
2-6L6G,
2-6SN7GT.



the **ROCK-OLA** well

rounded line

**for every location—
whether a swanky
supper club or a busy
little corner cafe...
there is a Rock-Ola
Phonograph designed
especially for you.**

EASY-CHANGE STANDARD TITLE STRIPS

Another big time saver for your service man. Title strip holders on both machines slide in and out in a whisk. Separate sections allow fast breakdown into various musical classifications. Use of standard sized strips allows higher visibility with full titles selling music for you.



TRUE HI-FIDELITY COMPONENT SPEAKERS

Clear low notes
through 12"
acoustically
matched speaker.



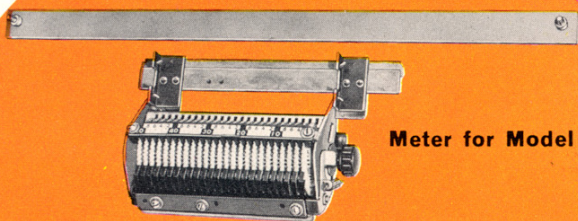
TRU-TONE AMPLIFIER

Rock-Ola's famous Tru-Tone amplifier handles full Hi-Fidelity output. Wide-range bass and treble adjustments give the emphasis you want. A flick of a switch gives Hi-Fidelity or standard tone as you prefer.

In addition to all these advantages, you still have the low, low upkeep of only five tubes.

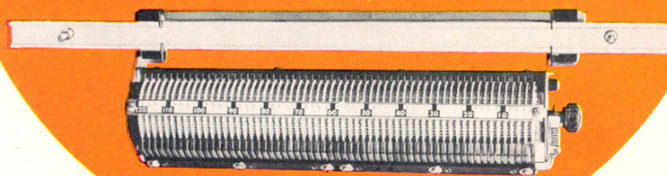


POPULARITY METERS



Meter for Model 1442

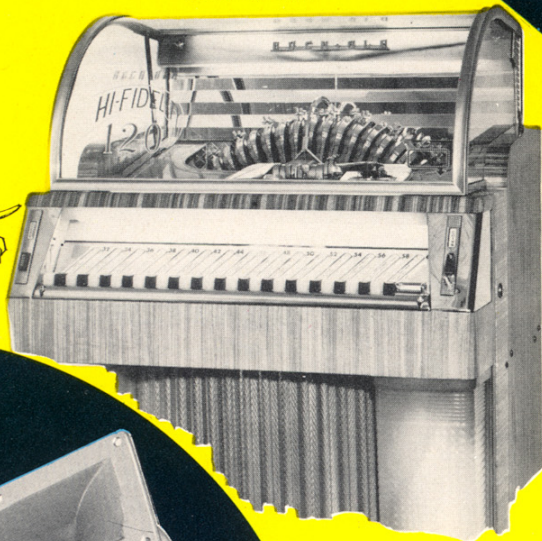
At a glance, you can tell the popularity of any one or all of the selections. All are in full view. All are easy to read for best programming. Simple to reset ALL selections with the twist of ONE convenient knob.



Meter for Model 1446

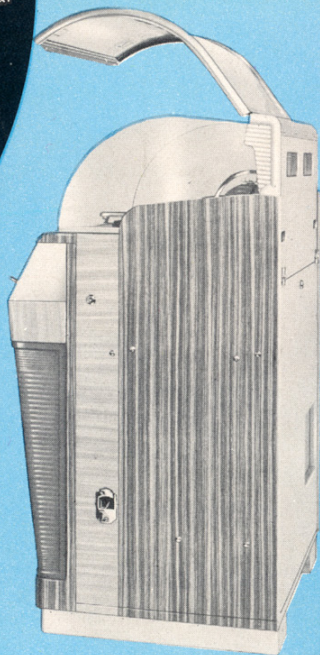
*Rock-Ola Manufacturing Corp. reserves the right to make changes without notice in specifications, trim, colors, materials, models and to discontinue models.

Eye-Right Height with ONE button
selection. Program on both
machines just right for
small or tall.



Selection buttons invitingly
easy to reach—and best of
all you push only
ONE button for tune.

Clean high notes from the
big heavy cast rectangular
horn loaded
compression driver unit.



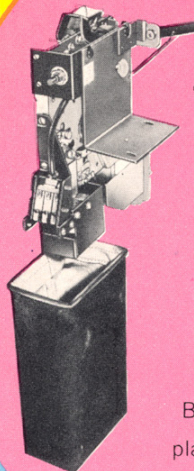
Changing records on Rock-Ola
phonographs is the easiest
you ever saw. Just lift the
dome to the desired height—
Three-way safety catch
holds it in place.
Engineered for full access to
records or needles without
moving machine
away from the wall.

with **ROCK-OLA** Hi-Fidelity

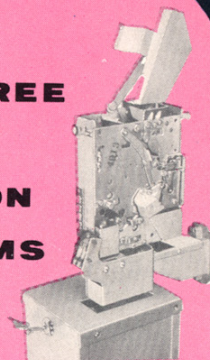
rounded Sound

Now, here at last is full range tone brought out by
a scientifically balanced team. Working together—
the compression driven unit and the matched
speaker gives you true Hi-Fidelity.

Generous
jumbo-sized cash
containers in both
Rock-Ola phonographs.



**TROUBLE-FREE
COIN
COLLECTION
MECHANISMS**



Built to take care of the tremendous
play you'd expect, you can go longer
without collecting. Securely fastened with
separate locks but easy to reach through
the front of the machine.

**True Hi-Fidelity tone
combined with modern
cabinet design, housing a
revolutionary low upkeep
mechanism can mean only
one thing—ROCK-OLA**

ROCK-OLA

HI-FIDELITY

SELECTIONS

MUSIC

Model 1446

SPECIFICATIONS

Width: 29 $\frac{3}{4}$ inches
Depth: 26 $\frac{3}{4}$ inches
Height: 53 $\frac{1}{2}$ inches

Weight:
(uncrated) 320 Lbs.
(crated) 370 Lbs.

Cabinet Finish:
Lined Walnut,
trimmed with
Caribbean Blue
Walnut.

Coin Equipment:
Single entry for 5c
10c and 25c
(easily converted
to 10c play),

Record Changer:
120 selections, 7"
Records; 45 R. P. M.

Tube Complement:
2-6L6GT,
2-6SN7GT,
1-5U4.



Accessories that increase Rock-Ola acceptance

Height 14 inches

Width 11 inches

Depth 7 inches



Shiny
Chrome finish.
Standard size
title strips.
One button selection
Accumulates up
to 31 plays.
Available in either
120 or 50 selection.

Simple 3-wire hookup

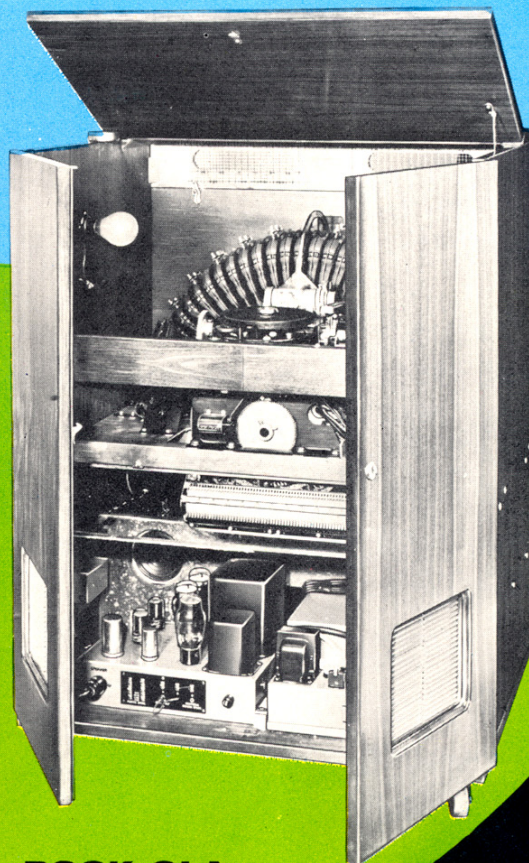
ROCK-OLA WALL BOX

UNIVERSAL BAR BRACKET



All steel construction with durable hammerloid finish. Special patented mounted plate. Height 13 inches.

Width 8 1/8 inches. Depth 8 inches.



ROCK-OLA PLAYMASTER

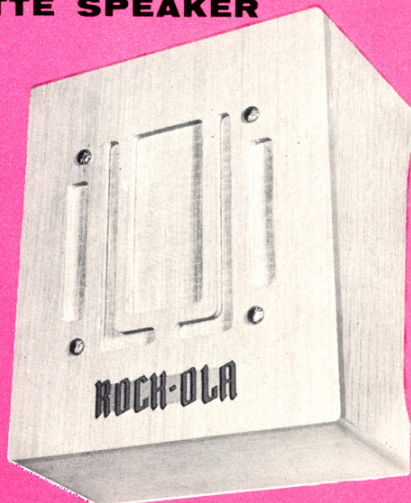
Outstanding limed walnut finished cabinet housing the dependable 120 selection

Rock-Ola mechanism. A beautiful piece of furniture that can be shown anywhere. Compact enough to tuck away under a counter, under the stairs or anywhere where space is at a premium.

Height 42 inches. Width 30 1/2 inches. Depth 23 inches.

SUPER-TONETTE SPEAKER

Outstanding reproduction from 8" permanent magnet location-tested speaker complete with volume control.



Blond or mahogany finish.

Height 11 inches

Width 9 3/4 inches

Depth 5 3/4 inches

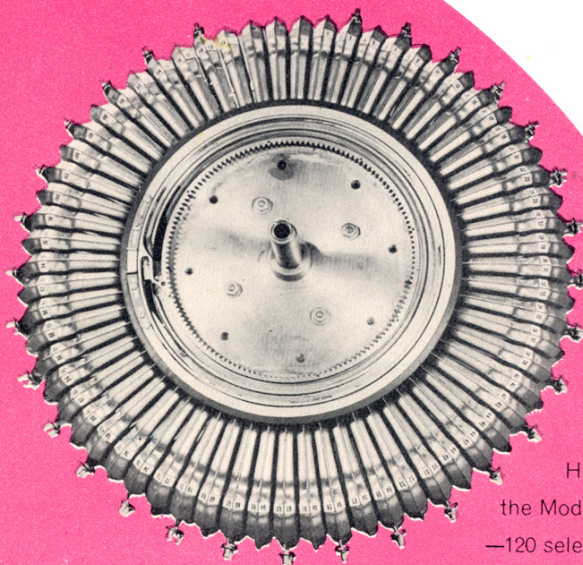
Locations
everywhere have found

increased interest and increased profit with the addition of Rock-Ola accessories. You, too, can get this "plus" business by installing this additional, dependable equipment.

..acclaimed by locations everywhere

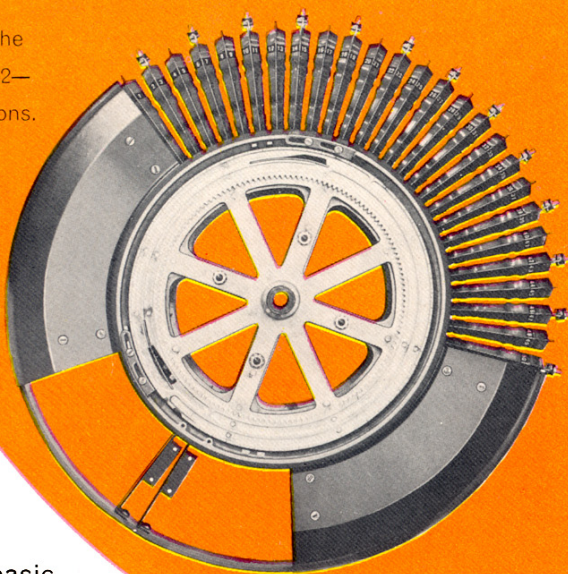
The heart of Rock-Ola phonographs tested and
proven by years of use and
millions of plays.

the proven **ROCK-OLA** revolutionary revolving record mechanism



Heart of
the Model 1446
—120 selections.

Heart of the
Model 1442—
50 selections.



Same basic
heart as the proven
120 selection revolving, record
drum. Delivery of records is fast,
positive and trouble-free.



**ROBOT
RECORD ARM**

Almost human action of the improved Geneva movement
picks the record from the revolving drum, and—oh, so
gently places it on the turntable in natural playing position.
Featherweight tone arm with Hi-Fidelity wide range pick-up
cartridge gives floating action for longer record life.

perfection...

**....of operation, attraction,
and design for your
greater profit...
is our goal**



David C. Rockola
President

With the introduction of each new model, we sincerely believe we have produced a phonograph that is as nearly perfect as it is feasible to build: perfect in design—perfect in quality of music—perfect in dependable, service free operation. These qualities made the first Rock-Ola the newest and finest coin-operated phonograph of its day and have made all succeeding models the newest and finest of their day.

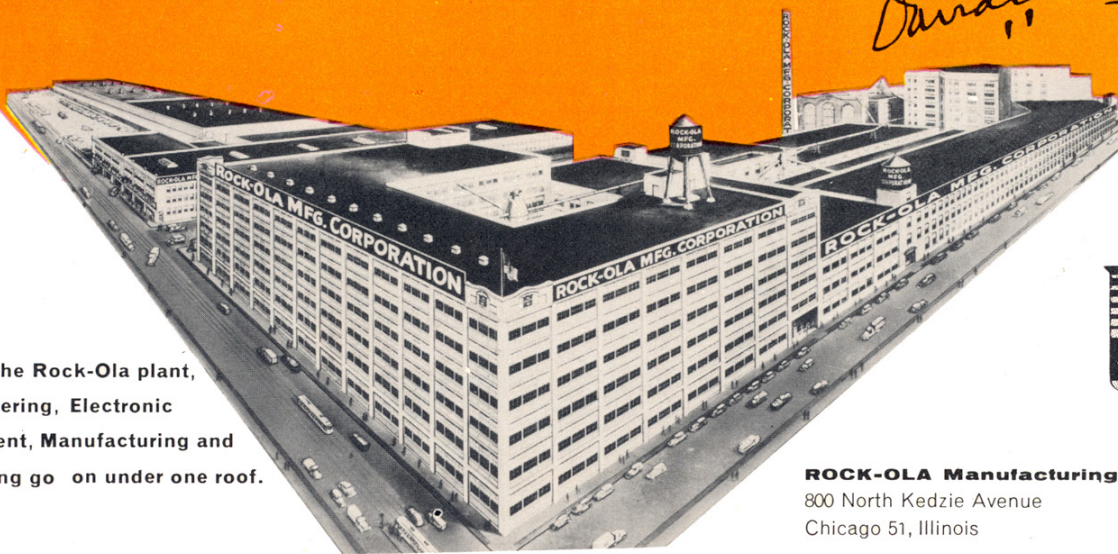
For, in the months between models, our engineers methodically search out and eliminate flaws and critically scrutinize every single part for possible improvement. New trends in music, in technique and in design are studied and applied. New ideas are tested over and over.

Now, once again we have reached a new level of perfection, NOT WITH ONE, BUT WITH TWO NEW HI-FIDELITY MODELS; the thrifty Model 1442, 50 selection, designed for locations that want the finest in music but require fewer selections, and the superb 120 selection, Model 1446. Both are small in size, big in plays and profits; both have the proven revolutionary Rock-Ola mechanism.

So again, Rock-Ola, the finest in coin-operated phonographs, is proud to introduce to the world the newest in music reproduction, design and service-free operations.

David C. Rockola

Airplane view of the Rock-Ola plant,
where Engineering, Electronic
Development, Manufacturing and
Assembling go on under one roof.



ROCK-OLA Manufacturing Corporation
800 North Kedzie Avenue
Chicago 51, Illinois

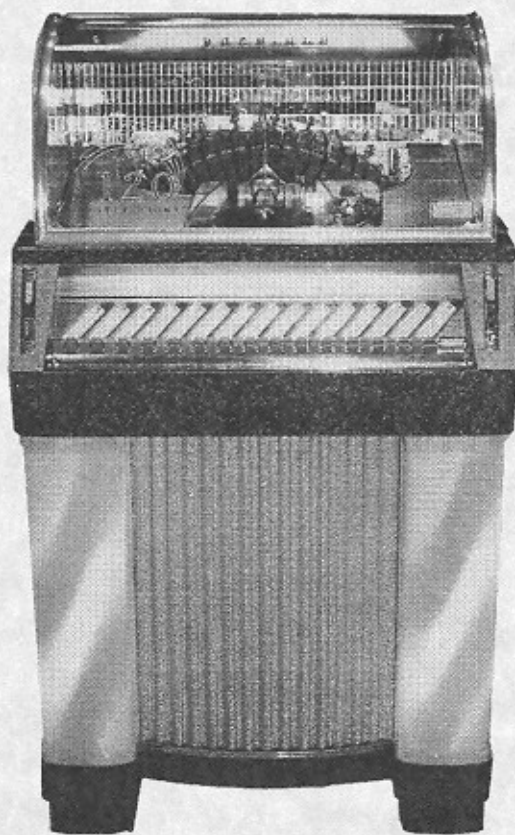
MODERN DISTRIBUTING COMPANY
3222 Tejon Street
Denver 11, Colorado

ROCK-OLA

INSTRUCTION MANUAL

Models 1438 and 1446

Comet - Fireball 120



ROCK-OLA MANUFACTURING CORPORATION
800 NORTH KEDZIE AVENUE
CHICAGO 51, ILLINOIS

OPERATING INSTRUCTIONS

MECHANISM CYCLE OF OPERATION

The mechanism cycle begins with the dropping of a coin in the phonograph which accumulates plays on the master ratchet wheel in the accumulator assembly.

When a selector button is pressed to make a selection, the corresponding selector coil in the selector coil bank assembly is momentarily energized, and a credit is removed from the master ratchet wheel in the accumulator assembly. The momentarily energized coil moves a selected lever to the outer edge or "play" position on the selector coil bank assembly.

This movement of any selection lever will close a circuit to the "Start" relay in the power distribution panel, which turns on the turntable motor, amplifier, and magazine motor. This motor revolves the record magazine and selector arm clockwise or counter-clockwise, depending on the position of the "magazine reversing switch". The selector arm rotates a carriage over the selection levers which radiate out of the selector unit assembly.

There are 120 levers, one for each record side, arranged in two parallel rows of 60 levers each. The levers for playing the even numbers are in the row toward the rear of the mechanism. The levers for playing the odd numbers are in the row towards the front. The selection sequence is such that even numbers are selected from 2 to 120, and odd numbers from 119 to 1.

Rotation of the magazine continues until a contact in the bottom of the carriage assembly strikes the selected lever in its path. This action closes a circuit to the "interlock relay trip coil", thereby repositioning its associated contacts. This short-circuits the magazine armature and dynamically brakes the motor causing the magazine to stop. In addition, a circuit is closed to the grip motor which revolves the cam shaft, and causes the jaws of the grip arm to grasp the record.

At this point the micro switch, located to the left of and adjacent to the grip mechanism housing, is operated by a cam. This disconnects the magazine motor armature.

As the grip motor continues to operate, the grip arm removes the record from the record magazine and proceeds to place it on the turntable. A mechanical action is involved in the gripper arm which determines proper turning or positioning for either odd or even selections.

As the record is being placed on the turntable, the outer micro switch lever falls into the groove of the cam. The micro switch closes a circuit to the proper "selector lever cancel solenoid" located on top of the carriage assembly, and causes the spring plunger to strike the selected lever, resetting it to its normal position. The solenoid continues to be energized until the grip cam, which is located at the right side of the grip housing, mechanically snaps a group of ganged switches called the "grip cam limit switches". These switches change position, opening the circuit to the energized solenoid, thus releasing the spring plunger. In addition, the grip motor circuit is interrupted and a circuit to the "interlock relay release coil" is completed. This releases the interlock relay to its original position, and places a short-circuit across the grip motor armature which causes it to stop.

During the above actions, the tone arm cam has placed the tone arm on the record, and the machine has reached the music cycle.

When the tone arm reaches the record cut-off groove, the tone arm switch closes the circuit to the "cancel relay coil". The cancel relay contacts close the grip motor circuit in such a manner that its direction of rotation is reversed and consequently the grip jaws engage the record and the arm returns the record to the magazine.

As the grip jaws begin to release the record, the inner micro switch is again operated, connecting a circuit to the magazine motor armature. After the grip jaws have released the record, the "grip cam limit switch" snaps to its original position and opens the cancel relay circuit. This in turn, disconnects power from the grip motor and short circuits it, causing the motor to stop. The relaxed contacts of the "grip cam switch" also close the muting circuit, and break the circuit to the "start relay" providing no additional selections are registered. As the "start relay" contacts open, the circuits to the turntable motor and amplifier are broken, causing them to be inoperative. This completes the mechanism cycle.

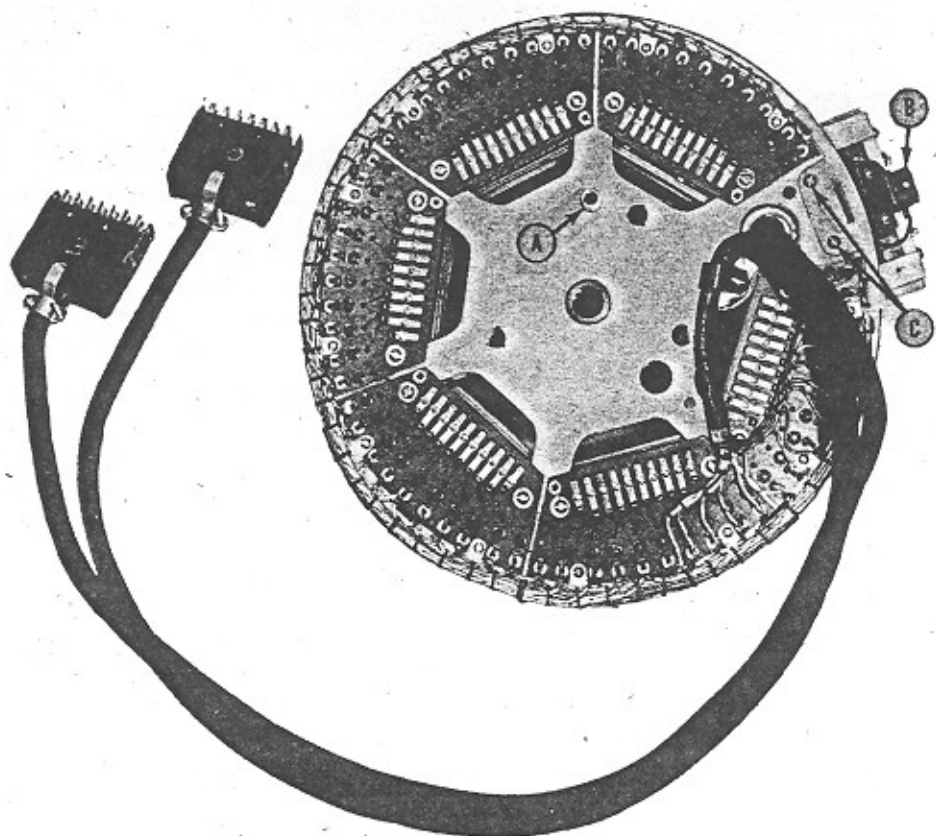


FIG. 1 SELECTOR UNIT

REMOVAL OF SELECTOR UNIT

The selector unit is suspended in the mechanism by a shaft inserted through the center of the selector unit into a hollow shaft which supports the record magazine. The selector unit is positioned and kept from rotating by means of a shoulder screw partially visible behind the counter drive gear, at (A-Fig. 1).

The procedure for removing the selector unit is outlined below:

1. Move the mechanism power switch to "OFF" position.
2. Depress the record load switch to rotate the record magazine, and position the record counter at the extreme right of the mechanism.
3. Take out 2 screws holding selector rail segment (C-Fig. 1) and slide out carriage assembly (B-Fig. 1). Do not remove cable wiring from carriage assembly.
4. Disengage selector cable from two cable clamps, remove white-brown wire leading to speed connector, and pull both Jones plugs out of front door sockets. Remove retaining spring from right side of selector unit.
5. Loosen two square head screws which fasten counter drive gear to shaft and two allen set screws on shaft at rear of mechanism. Remove shaft from the front and also the counter drive gear.
6. Place hand under selector unit for support, and remove shoulder screw at (A-Fig. 1). Lower selector unit and remove.

To re-install selector unit, the reverse order of procedure should be used. Caution must be taken in setting the record counter to properly record the playing selection. Before the two square head set screws in the counter drive gear are tightened into the grooved portion of the shaft, move the mechanism power switch to "ON" position and make a selection. Allow the gripper arm to select a record and place it on the turntable. Move the record counter so that the identically numbered counter dial (which corresponds to the record playing) is opposite to the bronze lever which actuates the counter dial. Then tighten the two square head set screws in the counter drive gear.

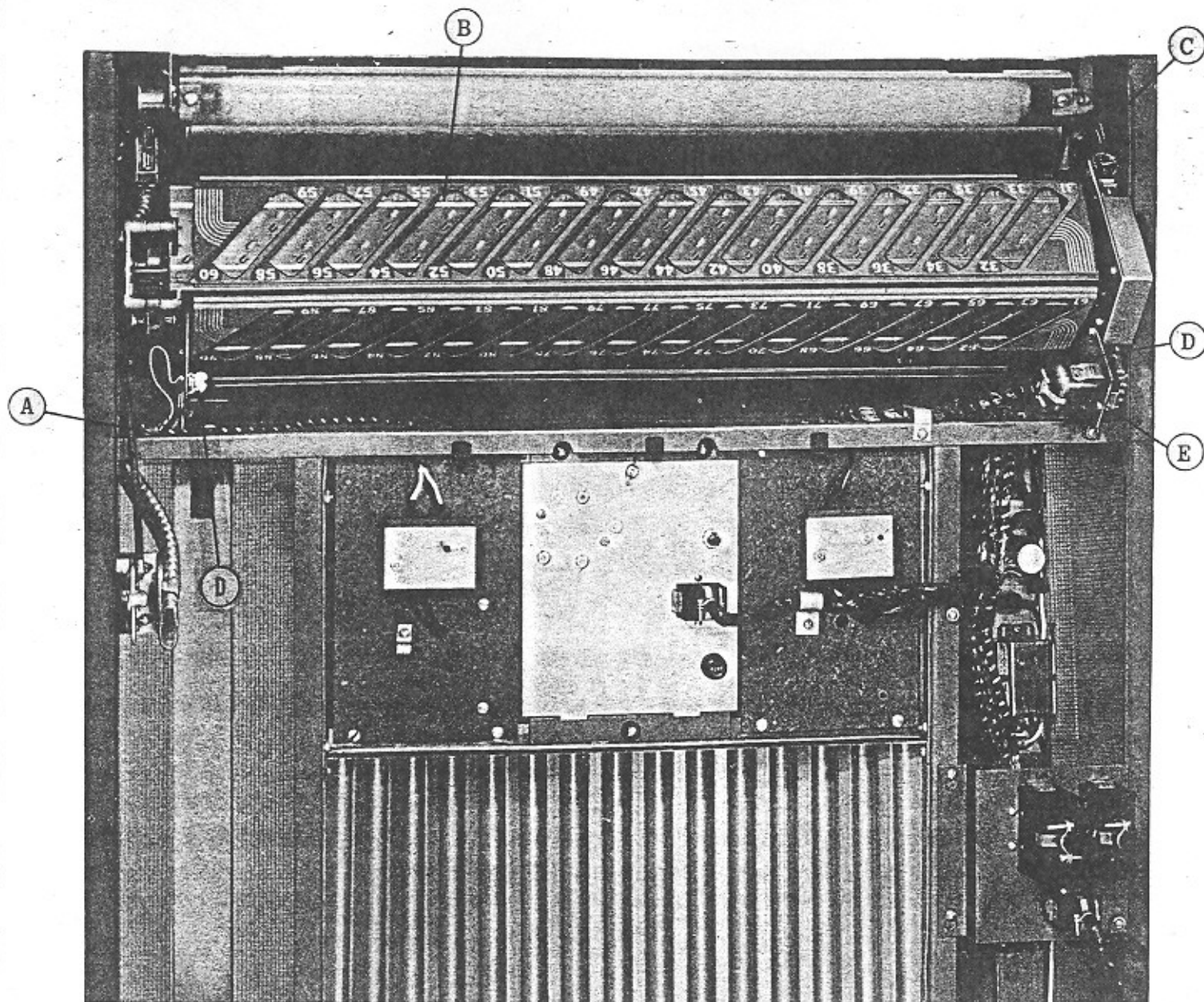


FIG. 2 PROGRAM HOLDER ASSEMBLY

REMOVAL OF PROGRAM HOLDER ASSEMBLY

The program holder assembly (B-Fig. 2) may be removed for servicing by removing the following:

1. Ground connection screw at (A) in Fig. 2.
2. Disconnect red wire at (C).
3. Pull twelve prong Jones plug out of socket at (E).
4. Remove two wing screws which mount program holder assembly at (D) and remove program holder unit.

After the program holder unit has been removed, the selector switches are readily accessible for easy servicing.

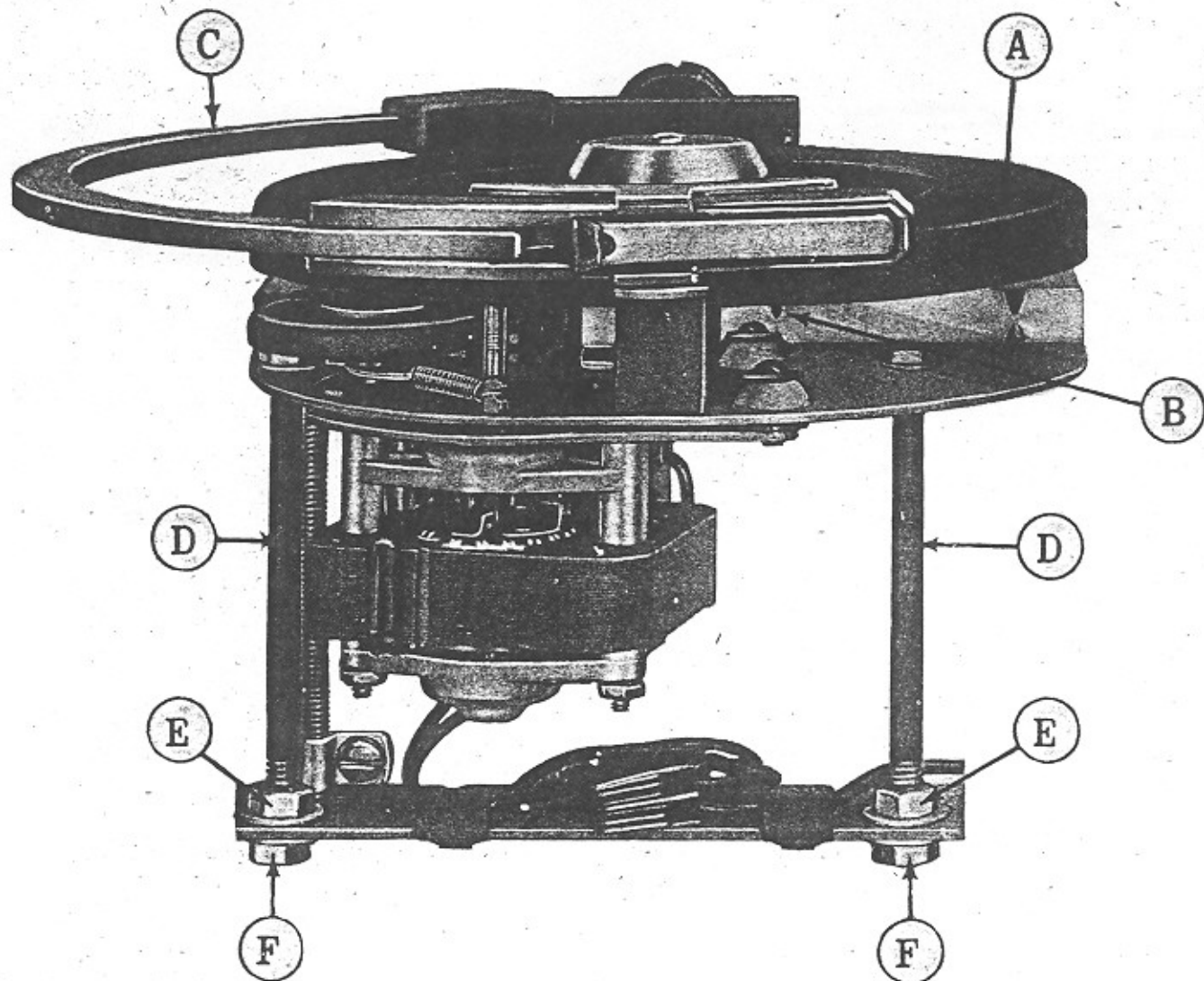


FIG. 3 TURNTABLE AND ASSOCIATED PARTS

TURNTABLE HEIGHT AND CENTERING

The turntable (A-Fig. 3) must be level and in proper alignment with the center line of the inner and outer gripper arm castings. With the gripper arm (C-Fig. 3) in play position over the turntable, the top surface of the outer and inner gripper arms will be $\frac{9}{32}$ inch above the playing surface of the turntable for a 7 inch record. The turntable mounting plate can be raised or lowered by loosening the lower lock nuts (F-Fig. 3) on the support studs (D-Fig. 3) and turning the upper adjustment nuts (E-Fig. 3) up or down to satisfy this condition. Shim washers can be inserted at (B-Fig. 3) between the gripper housing casting and the mounting plate to level the turntable with respect to the inner and outer gripper castings. The position of the gripper arm stop can be adjusted by bending the stop up or down.

To center a record over the turntable spindle, allow the gripper arm to lift a record from the record magazine. Before the record is placed on the turntable, move the mechanism power switch to "OFF" position. By rotating the gripper motor armature manually, lower the record to the turntable, and carefully observing the relationship of the turntable spindle to the center hole of the record. If adjustment is necessary, remove the turntable from the turntable motor by means of the screw in the centering locator.

After the turntable has been removed, two mounting screws and two hex nuts which fasten the turntable motor to the mounting plate are visible. Loosen the screws and hex nuts and shift the turntable plate in the direction necessary for perfect alignment. Then tighten the screws and nuts carefully so that the mounting plate does not shift out of position. When replacing the turntable, make certain that the rubber covered idler wheel is seated properly under the drive wheel of the turntable.

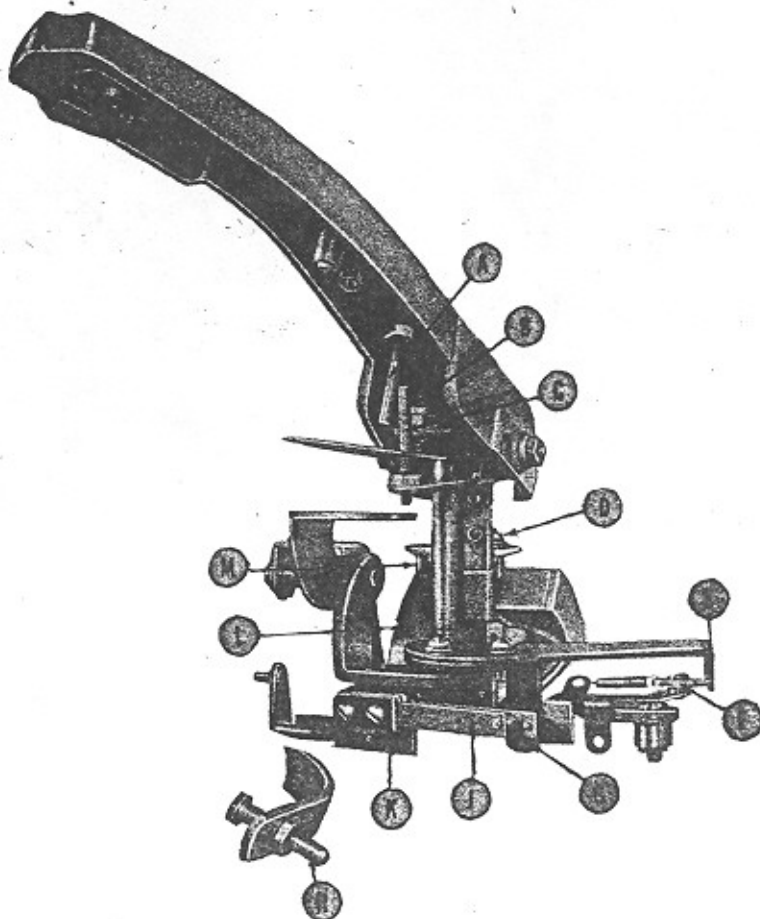


FIG. 4 TONE ARM ASSOCIATED PARTS

TONE ARM ADJUSTMENTS

The "set down" position of the needle on a 7-inch record is $\frac{3}{32}$ inch from the edge of the record. To obtain this position, cycle the mechanism and allow the tone arm to "set" on the record. Hold the inside cam plate stop pin (M-Fig. 4) against inside of tone arm cam (L-Fig. 4). Loosen screw at (D-Fig. 4) and move tone arm so that needle rests $\frac{3}{32}$ inch from edge of record. Then carefully tighten screw (D-Fig. 4).

The record "cut-off position" is $2\frac{1}{32}$ inches from the center of the record hole toward the outer edge of the record. The bracket at (G-Fig. 4) can be bent to actuate the tone arm switch (J-Fig. 4) when needle reaches the cut-off position. The trip dog (F-Fig. 4) is a safety device to prevent re-playing the same record by jarring the tone arm back across the record. The trip dog (F-Fig. 4) should release from bracket (E-Fig. 4) slightly before the needle reaches the record cut-off position. Bracket (K-Fig. 4) on which the tone arm switch is mounted can be bent to obtain this condition.

The needle pressure on the record is eight grams. When adjusting for needle pressure, turn adjusting screw (B-Fig. 4) accessible through the top of the tone arm, "clock-wise" to increase and "counter-clockwise" to reduce needle pressure. Needle pressure readings must be taken at the point of contact of the needle on the record.

The tone arm height must be adjusted so that the needle just touches the flocking on the turntable as the tone arm moves across it. Loosen nut which locks adjustment screw (C-Fig. 4). Turn screw "in" to increase height and "out" to decrease the height of the needle with respect to the flocking on the turntable.

There should be at least $\frac{3}{16}$ inch to $\frac{1}{4}$ inch clearance between the tone arm needle and the bow of the gripper arm as the tone arm passes over the gripper arm to "set down" position on the record. Adjustment screw (A-Fig. 4) can be turned "in" to decrease the clearance and "out" to increase the clearance between the gripper arm and the needle.

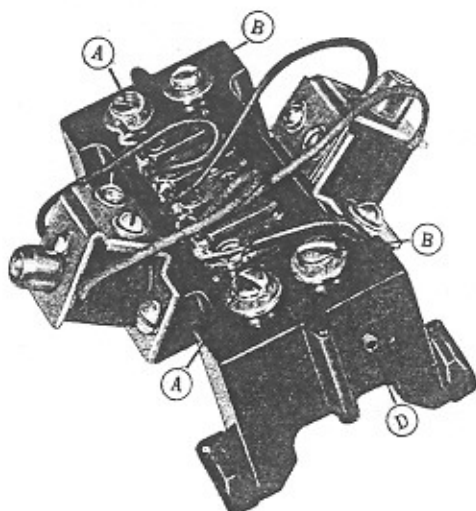


FIG. 5

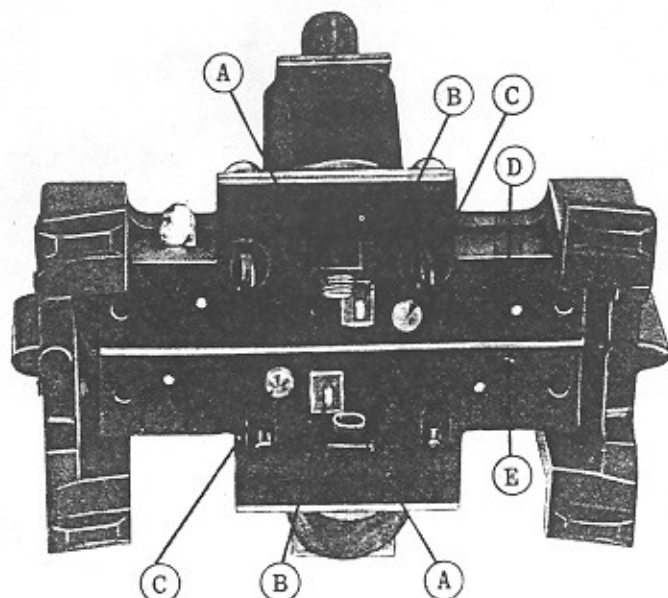


FIG. 6

CARRIAGE ASSEMBLY

CARRIAGE ASSEMBLY ADJUSTMENTS

The functions of the carriage assembly are: 1 - to search for a selector lever in "play" position, and upon locating the lever, stop the record magazine; thereby 2 - Aligning or "indexing" the proper record with respect to the gripper arm. 3 - Return the selector lever from "play" position to normal position in the selector unit.

The carriage assembly is rotated over the selector unit by means of the selector arm, and held in position at each end by adjusting screws (H-Fig. 4). The rotation of the carriage is stopped when the proper contact (B-Fig. 6) in the carriage is grounded by a selector lever in "play" position. The respective cancel solenoid plungers (A-Fig. 6) operate whenever the "cancel relay follow switch" drops into the cam. The spacer pins (C-Fig. 6) merely serve to keep the selector levers in position by lightly pressing against them as the carriage assembly moves over the selector unit. The carriage contact blocks (D-Fig. 6) and (E-Fig. 6) can be individually adjusted so that the rotation of the record magazine can be stopped in proper relation to the inner gripper arm when either an "odd" or "even" numbered record is selected. The contact block mounting screws (A-B-Fig. 5) and the one allen head set screw (D-Fig. 5) which is used for "fine" adjustment, can be turned "in" or "out" depending on the direction necessary for adjustment. Only one allen adjustment screw (D-Fig. 5) is visible. Another allen adjustment screw for contact block (D-Fig. 6) is located at the diagonal corner, near mounting screw (A-Fig. 5). After adjustment, the two contact block mounting screws (A-B-Fig. 5) must be tightened.

To adjust the carriage assembly, select number "one" record, and before the inner gripper arm contacts the record, move the mechanism power switch to "OFF" position. Carefully observe the location of the record with respect to the center line of the inner gripper arm. The record should be aligned as closely as possible to the center line of the inner gripper arm. If the record is not in perfect alignment, loosen one adjustment screw (H-Fig. 4) depending on the direction in which the carriage must be moved. Move the carriage assembly to the adjustment screw, and then tighten the other adjustment screw up to the carriage to keep it from shifting laterally. Be sure to tighten the lock nuts after adjustment. Then check the record alignment with number "sixty-one" record. If the alignment is off, the carriage assembly can be again adjusted by means of the adjustment screws (H-Fig. 4) to compensate for the difference between number "one" and "sixty-one" record.

The record alignment with respect to the inner gripper arm must also be checked with the number "two" and "sixty" records. However, if adjustment is necessary, the contact block (E-Fig. 6) must be adjusted by loosening the mounting screw (B-Fig. 5) and moving the contact block by means of the allen head screw (D-Fig. 5) which is provided for this purpose.

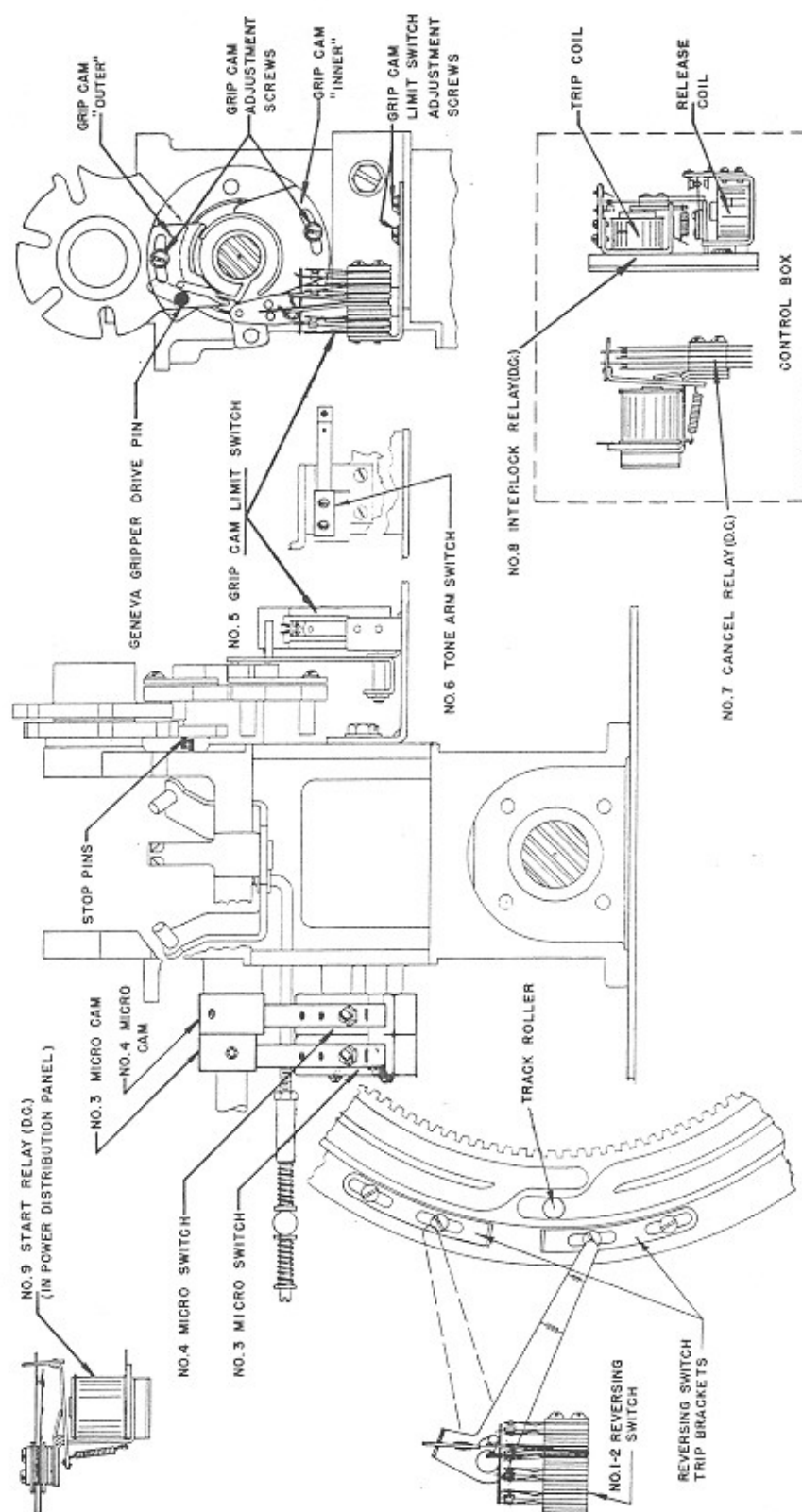


FIG. 7 PICTORIAL DIAGRAM OF MECHANISM AND ASSOCIATED PARTS

NO. 1-2 REVERSING SWITCH

DESCRIPTION OF OPERATION

This is a 4 PDT switch which is used to reverse the polarity of the magazine motor armature current, and to transfer the indexing and cancel solenoid circuits for odd or even selections. (See Diagram)

An actuating arm extends from the switch into the path of two adjustable trip brackets protruding from the front of the magazine casting. At the end of its cycle in a clockwise direction, one of the trip brackets moves the actuating arm "up"; thereby causing the magazine to rotate in a counter-clockwise direction. The opposite action applies at the end of the counter-clockwise rotation.

ADJUSTMENT

1. The clearance between the switch actuating arm and the end of the arm guide slot shall be equal for both operating positions of the switch. This is obtained by loosening the two screws holding the switch bracket to the mechanism chassis, and moving the switch assembly to the right or left.
2. Adjust the 2 trip brackets on the magazine so that the magazine reverses its direction of rotation as the center of the blank separator balance plate is exactly under the gripper arm. Check to see that this occurs while scanning the magazine back and forth.

NO. 3 MICRO SWITCH

DESCRIPTION OF OPERATION

This is a "SPDT" switch and is termed the "cancel relay micro follow switch".

Prior to the completion of the 1st half cycle of gripper cam shaft, the micro switch lever falls into the cam groove, closing a circuit to the proper carriage "selector lever cancel solenoid". On the return cycle, the "micro" lever is moved to the outer portion of the cam. This action completes a secondary circuit to the "cancel relay" which prevents the relay from unlocking in the event that the main power fails momentarily; the line plug is accidentally pulled from the wall outlet; etc.

ADJUSTMENT

When the lever rests in the cam groove, a slight "click" should be heard in the center of the drop off portion of the cam as the lever is moved manually. This lever has a set screw and lock nut arrangement for adjustment purposes.

CAM ADJUSTMENT

For adjustment see MICRO SWITCH No. 4.

NO. 4 MICRO SWITCH

DESCRIPTION OF OPERATION

This switch is called the "safety micro switch".

When the mechanism is in home position, the micro switch lever is positioned in the cam groove. After the machine indexes and the grip arm proceeds to remove a record from the magazine, the switch disconnects the magazine motor armature.

ADJUSTMENT

Same as Switch No. 3.

CAM ADJUSTMENT

Move the "service switch" on the control box to "OFF" position.

Manually, rotate the cam shaft by turning the knurled knob which extends from the grip motor housing clockwise, until the two "stop pins", located to the right and adjacent to the grip housing, meet. See Fig. No. 7.

Then, loosen the two set screws which fasten the "No. 4 micro cam" to the cam shaft. Rotate the cam so that the cam groove is facing the record magazine, and is flush to the gripper housing. With the "No. 4 micro switch lever" in the cam groove, slowly move the cam so that the groove will rotate in a downward direction until the back face of the micro switch lever strikes the back rise of the cam. Then tighten the allen set screws.

From this point, the "No. 3 micro cam" can be adjusted if necessary. Loosen the set screws in "No. 3 micro cam" and rotate, so that it is flush to the adjacent "No. 4 micro cam" and the gap distance between the two interlock edges is 3/16 of an inch.

NO. 5 GRIP CAM LIMIT SWITCH

DESCRIPTION OF OPERATION

This switch is called the "Grip Cam Limit Switch" and is a multi-pole snap-switch so arranged that two cams driven by the grip motor shaft cause the switch to snap at the limits of the grip cam shaft travel. These two limits are:

1. When record is placed on turntable, the grip jaws open; and
2. When record is reinserted into the magazine, grip jaws open.

In the home position (grip arm over magazine), all of the switch actuating contacts are made to the rear. One of the segments completes a circuit to the "D.C. Power Motors," "Interlock Trip Coil", and "Selection Lever Reset Solenoids". Another segment mutes the amplifier during machine cycling. A third segment completes a holding circuit to the "Start Relay".

The repositioning of this switch, which occurs as the record is placed on the turntable causes the following to occur.

1. Opens the circuits to the D.C. Power motors, interlock trip coil and selection lever reset solenoids, all of which have been previously energized.
2. Opens amplifier muting circuit.
3. Closes circuit to "cancel relay" and "interlock release coil".
4. Closes holding circuit to start relay.

CAM ADJUSTMENT

The function of the grip switch is to stop the cam shaft of the gripper in the magazine and turntable position, which is controlled by the "grip stop switch inner" and "grip stop switch outer" cams. When the gripper arm is in the magazine position, the cam shaft should be stopped so that the drive pin on the "Geneva gripper drive" is leaving the groove of the "Geneva gripper release" as shown in Fig. No. 7.

To adjust the grip cam switch in the above position, the locking screw of the "grip cam inner" will be below and to the rear of the cam shaft when mechanism is in the standby position. Cycle the mechanism by making a selection and stop the machine with the mechanism switch when the locking screw is brought around to the front in a convenient place to loosen the locking screw with a screw driver.

If it is necessary to stop the cam shaft sooner, lower the projecting tail of the cam, and to stop it later, raise the tail.

When the gripper arm is in the turntable position, the gripper cam should stop with the flat portion of the tone arm cam on top of the cam shaft and in a vertical plane. The locking screw of the "grip cam outer" is accessible to reach with a screw driver in either the standby or playing position.

If it is necessary to stop the cam shaft sooner, loosen the locking screw and raise the tail of the cam. If cam is to be stopped later, lower the tail.

When the cam shaft is revolving and bringing the record to the turntable, the cam pin of the grip switch assembly should be on the outside of the barrier wall. When the grip arm is returning the record to the magazine, the cam pin should be in the inside of barrier wall.

The grip cam switch assembly is adjustable "in" and "out" and can be moved in this manner by loosening the two screws fastening the switch bracket to the mounting plate. Grip cam switch unit should be located so that the cam pin will be set so that there will be an equal clearance between the barrier walls at the point where they overlap when the cam pin is in the inner and outer position.

NO. 6 TONE ARM SWITCH

DESCRIPTION OF OPERATION

When the tone arm has reached the record cut-off groove, the tone arm switch is actuated completing the circuit to the grip motor through the cancel relay contacts.

ADJUSTMENT

With the needle in "set down" position on the record (3/32 inch from edge of record) adjustment bracket (G - Fig. 4) should just touch the fibre stud on the back of the tone arm switch (J - Fig. 4). Air gap between switch contacts should be about .020. When tone arm needle reaches "cut-off" position (2 1/32 inches from center of record) trip dog (F - Fig. 4) should release slightly before tone arm switch contacts (J - Fig. 4) name.

NO. 7 CANCEL RELAY (DIRECT CURRENT)

DESCRIPTION OF OPERATION

This relay which is in the control box has two SPDT and two SPST contacts. In the relaxed position, this relay closes circuits to the grip motor, causing the grip arm to position a record on the turntable. When energized by the tone arm micro, the two SPDT contacts reverse the circuit to the grip motor armature and return the record to the magazine. One SPST contact is used to mute the speaker and the other serves as a locking contact for the coil. NOTE: This is a D.C. relay, and is not interchangeable with Models 1436 and 1436-A.

NO. 8 INTERLOCK RELAY (DIRECT CURRENT)

DESCRIPTION OF OPERATION

This relay, also located in the control box, is a mechanically latching type and has two coils which are termed the "Trip" and "Release" coils. The "Trip" armature has two single throw contacts, and the release armature has two sets of double-throw contacts which are connected in parallel to insure proper operation of the machine, should one set become dirty or fail to function.

In the normal position, (Prior to Indexing), the trip armature is relaxed and the release armature is mechanically latched down by an arm extending from the trip armature; with neither coil being energized. In this position, the two contacts on the trip armature are open and the forward contacts on the release armature are closed and condition the power motor circuits. The action of the device is as follows:

1. Carriage Indexing contacts strike a registered selector key and momentarily energize the interlock trip coil.
2. Trip armature operates, closing its two contacts which provide holding circuits to the Start relay and trip coil.
3. As the trip armature completes its stroke, the release armature relaxes, thereby re-positioning its contacts and mechanically latching down the trip armature. The release armature contacts short-circuit the magazine motor armature and apply power to the grip motor. This action results in the grip arm removing the record from the magazine and placing it on the turntable.
4. The device remains in this position until the "grip cam limit switch" operates, at which time the release coil is energized.
5. The release armature operates, placing its contacts in the forward position. This short circuits the grip motor, causing it to stop.
6. After the release armature completes its stroke the trip armature relaxes, mechanically latching down the release armature, and opening its two contacts.

NOTE: This is a D.C. relay and is not interchangeable with Models 1436 and 1436-A.

NO. 9 STARTING RELAY (DIRECT CURRENT)

DESCRIPTION OF OPERATION

This relay is located in the Power Distribution Panel and is called the "start relay". This relay is composed of two contacts. When the coil is energized by a selection, one contact will close the circuit to the turntable motor and the primary windings of the amplifier transformer. The second contact operates the magazine motor.

NOTE: This is a D.C. relay and is not interchangeable with Models 1436 and 1436-A.

PROGRAM PANEL OPERATION

The program panel is composed of four separate panels with thirty selections on each panel, and rotated by means of the program change motor, located at the extreme end of the panel. As the panel rotates, the two cams which are attached to the motor shaft, also rotate. A series of blade switches are positioned around the cams which when rotated, actuate the switches to their proper positions by the cam grooves. The position of the blade contacts close a circuit to the proper commoning relay in the selector unit assembly which will determine the proper selection.

On the inner portion of the selector unit, there are 6 commoning relays. Each relay coil when energized will close circuits to 20 selections.

Example:

On selections from 1 to 30, the cams have properly positioned the blade switches, and any selections made from 1-20 condition a selected selector coil circuit and energizes commoning relay "1". The relay fingers of which there are 20 are now resting on 20 selector coil contacts but will only complete a circuit to the selector coil which corresponded to the selection made. Selection from 21-30 will energize commoning relay "2". Since there are only 10 selections left, we use only 1/2 portion of the commoning relay "2" and the balance is used by selections from 31-40. This same pattern continues throughout the 120 selections.

ACCUMULATOR ASSEMBLY

The accumulator mechanism is designed to accumulate a maximum of thirty-three credits. After a deposited coin strikes one of the levers of the coin switch which is located below the slug rejector, the D.C. circuit is closed to a corresponding coil accumulator electro-magnet (B-Fig. 9). As the electro-magnet is energized, the armature ratchet detent (A-Fig. 9) and the ratchet escapement armature assembly (C-Fig. 9) are drawn to the pole-piece of the electro-magnet. The armature ratchet detent locks the ratchet and hub assembly, and releases the escapement armature stud, permitting the 5¢ ratchet and hub assembly (F-Fig. 8) to accumulate the correct number of credits.

The 5¢ ratchet (F-Fig. 8) is located nearest the base plate, the 10¢ ratchet (E-Fig. 8) is in the center, and the 25¢ ratchet (D-Fig. 8) is nearest the top frame plate. The stud which is riveted to the 5¢ ratchet extends through the 10¢ and 25¢ ratchet discs. When the 10¢ and 25¢ electro-magnets 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.

As the 5¢ ratchet rotates, the stud which was holding the control switch (B-Fig. 8) open, is rotated away from the control switch, and allows it to close. The top blades complete the circuit from the D. C. supply, through the reset contacts of the front door selection switches, to the 300 MFD. section of the electrolytic capacitor (A-Fig. 8). This charge on the electrolytic capacitor is dissipated in energizing the reset coil (J-Fig. 8) when a selector button is pressed. The gram pressure of the two top blades of the control switch is 35 to 40 grams, and the air gap is .015. The circuit to the "Select" light is completed when the two lower blades of the control switch close. The gram pressure of these blades is 10 to 15 grams, with a visible air gap between the blades.

When the reset coil (J-Fig. 8) is energized, the reset armature is pulled against the pole-piece of the reset coil. The reset pawl (G-Fig. 8) engages the 5¢ ratchet (F-Fig. 8) and moves the 5¢ ratchet back one tooth. The reset coil assembly (J-Fig. 8) must be adjusted, so that the reset pawl engages the 5¢ ratchet tooth approximately one-half of the tooth depth, and the stud on the ratchet escapement armature (C-Fig. 8) has about one-third of one tooth length overtravel.

As the reset coil armature moves against the pole-piece of the coil, it closes the selection impulse switch (H-Fig. 8). In closing, the left section of the switch should close slightly before the right section of the switch. The circuit through the left section of the switch is completed through the front door selection switches to a particular commoning relay coil in the selector unit assembly. The right section of the switch completes the circuit through the front door selection switches to a particular selector coil also in the selector unit assembly, corresponding to the selection made. The gram pressure of both sections of the selection impulse switch is 35 to 40 grams, with an air gap of .015. At the same time, the reset pawl (G-Fig. 8) moves the 5¢ ratchet back one tooth, and cancels one credit. When the last credit is cancelled the stud which is riveted to the 5¢ ratchet opens both sections of the control switch (B-Fig. 8) and breaks the circuit to the front door selection switches, the select unit assembly and the "Select" light.

A "Free Play" button has been provided, and is located on the accumulator assembly.

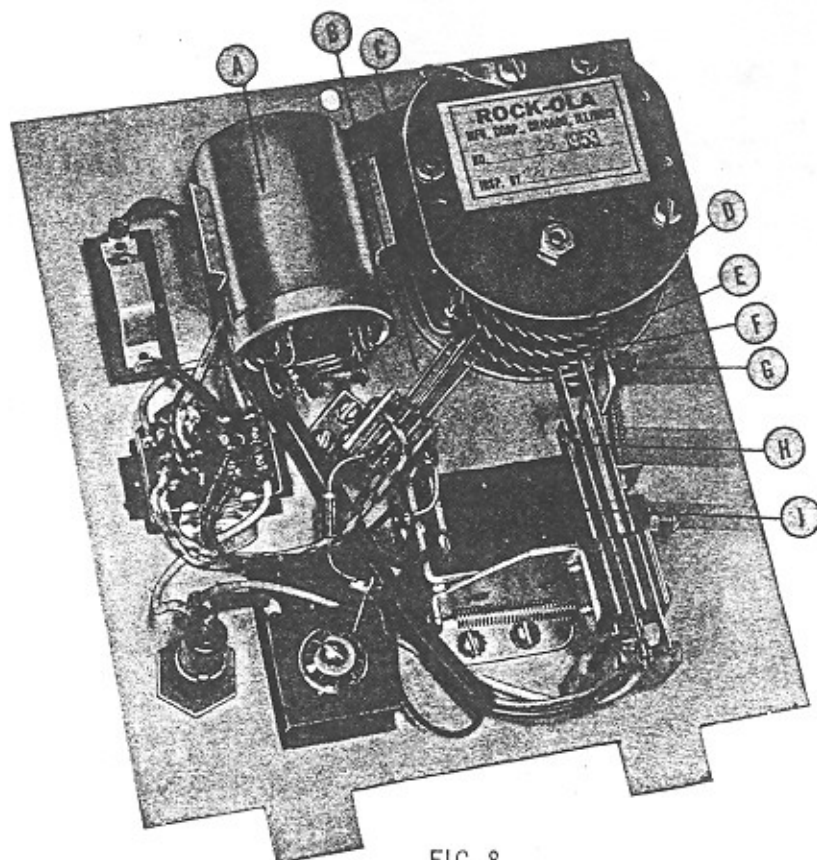


FIG. 8

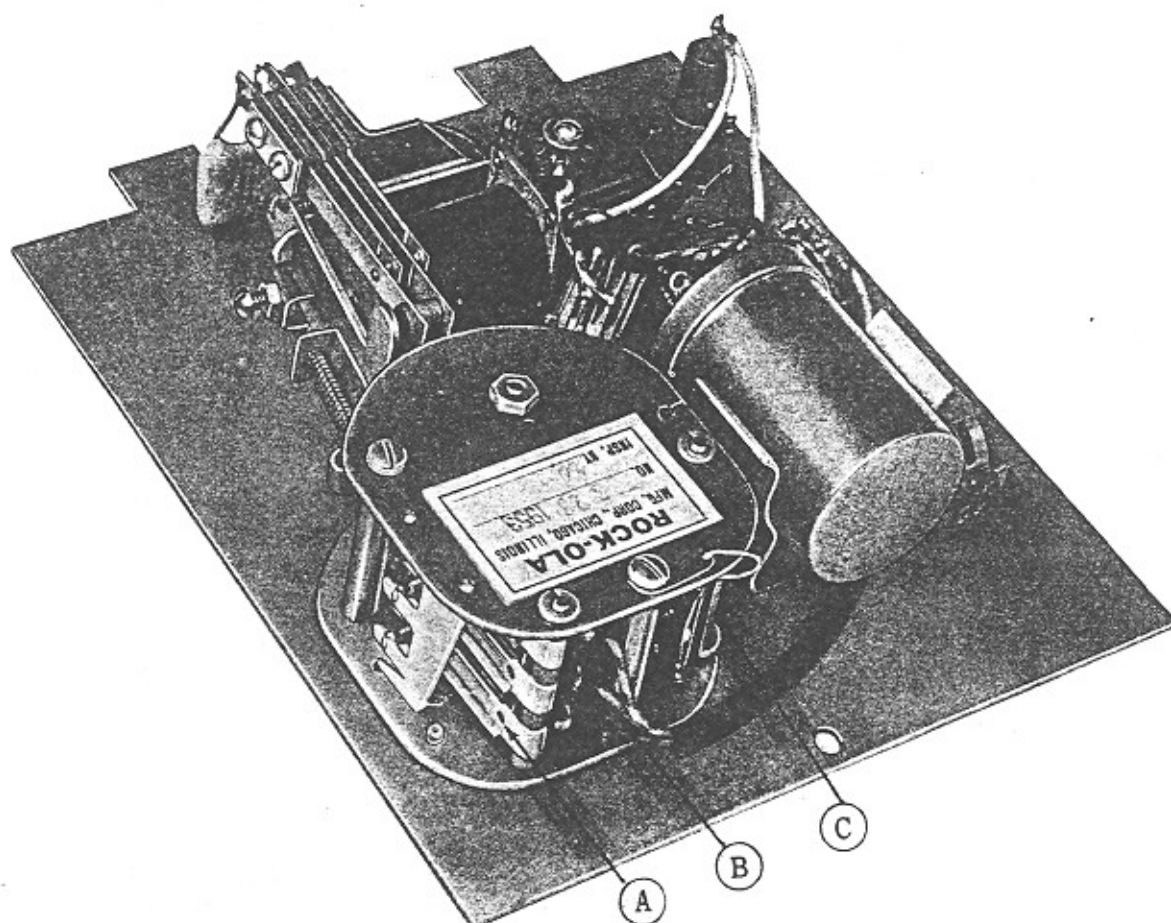
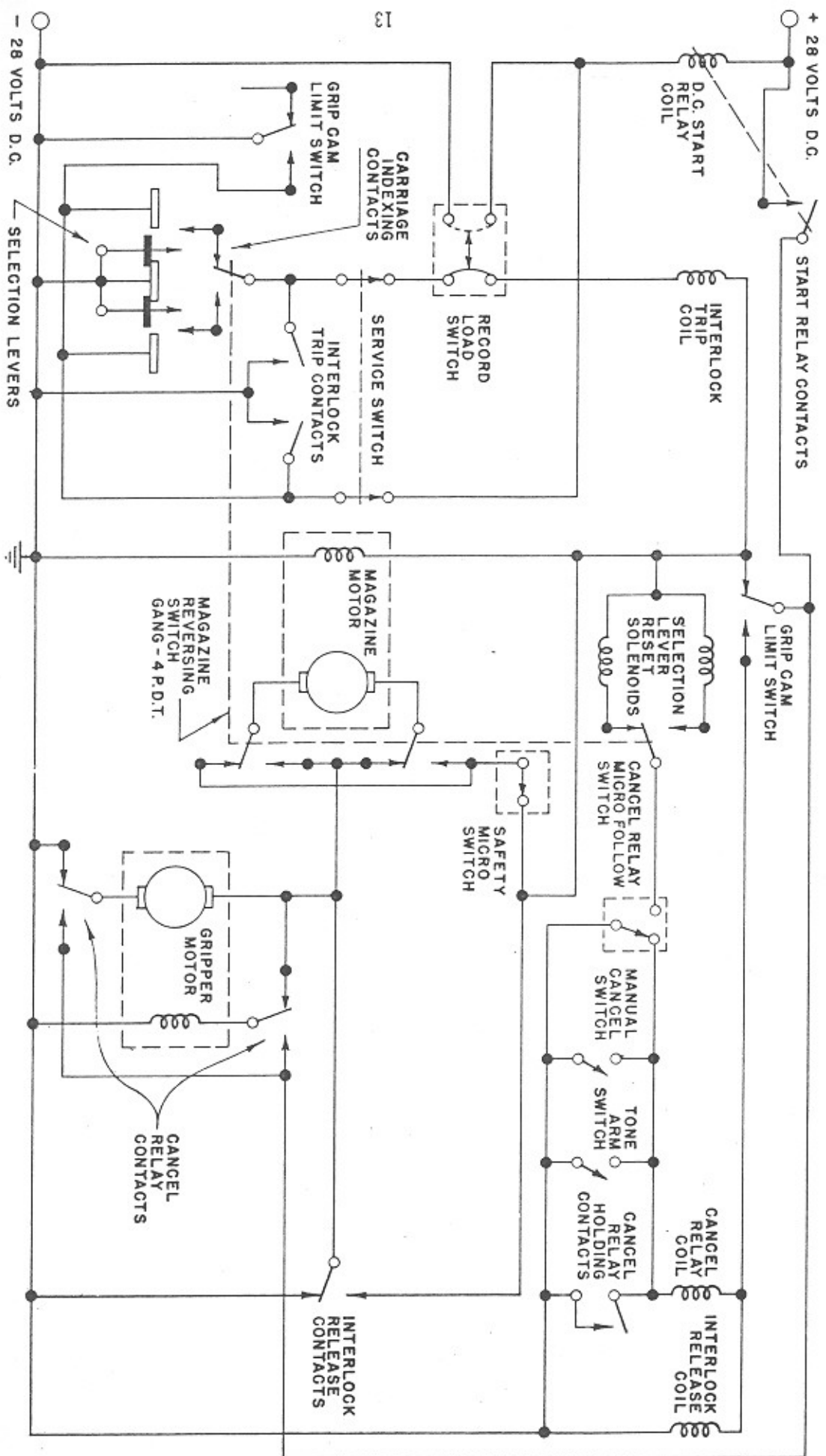


FIG. 9

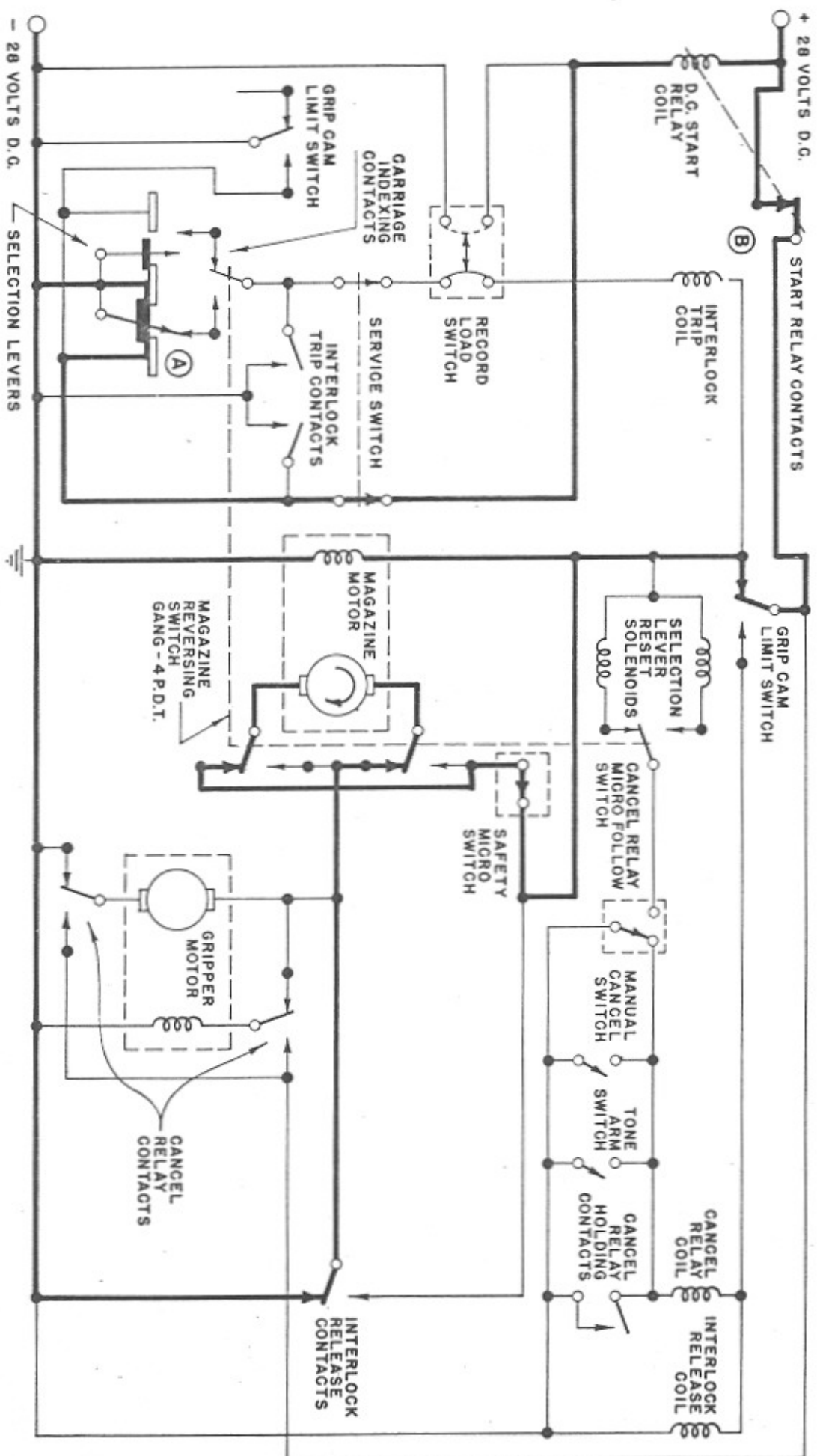
ACCUMULATOR ASSEMBLY



Sequence No. 1

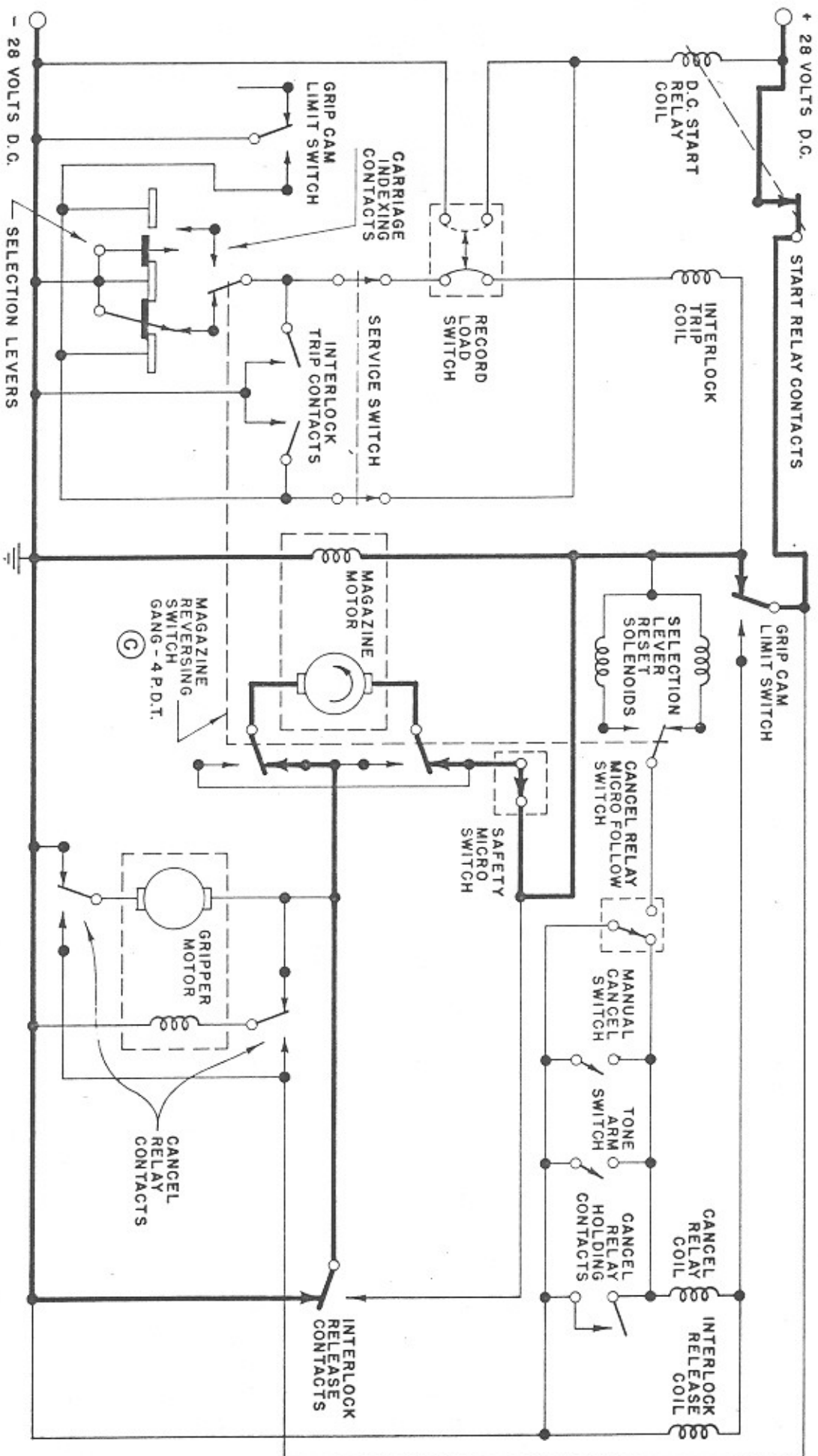
Power On - No Selections Registered.

Grip arm over magazine.



Sequence No. 2 SELECTION REGISTERED

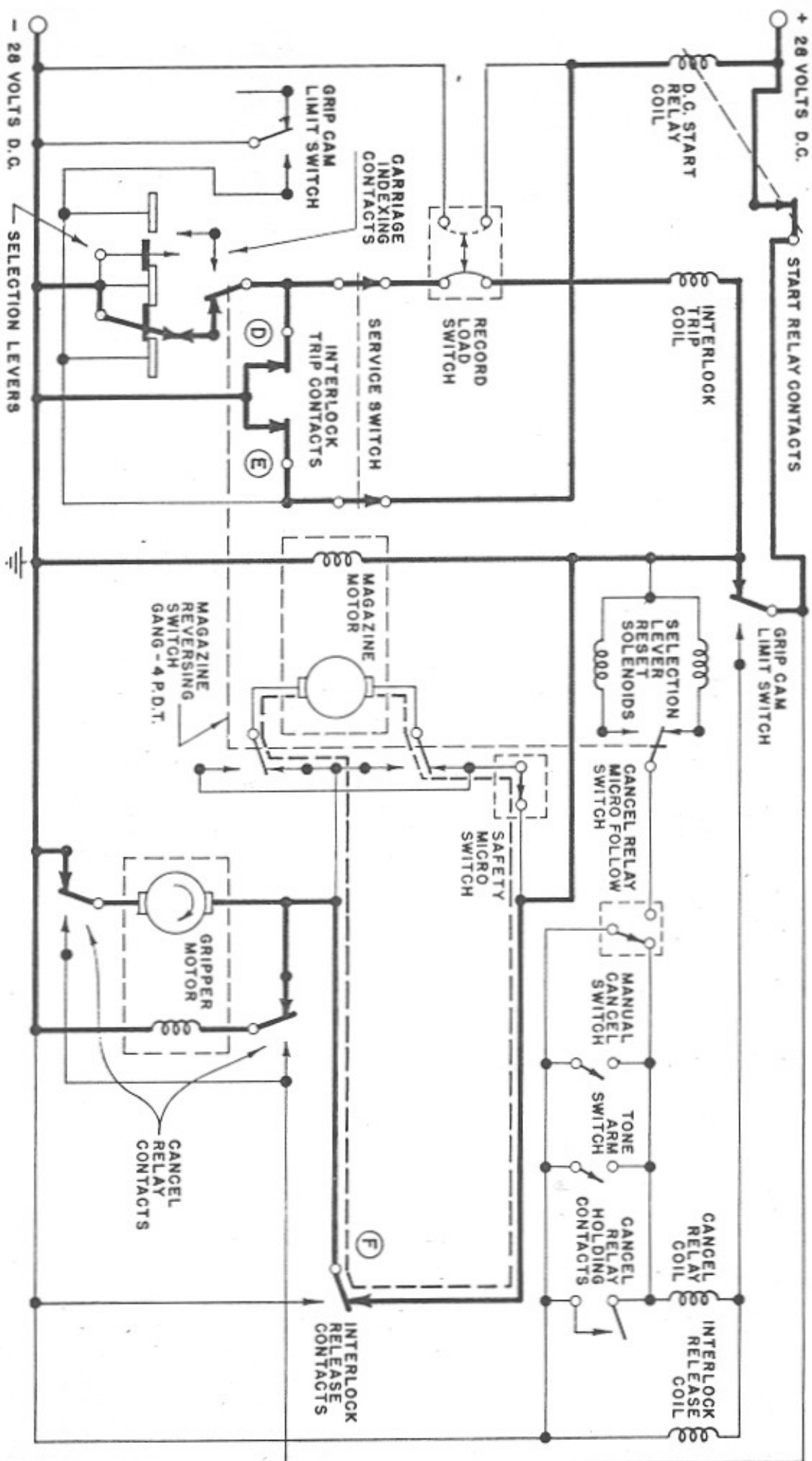
Outward movement of any selector lever by selector coil causes selector "bridge" "A" to complete the circuit to the D C "Start relay". Relay operates, starting amplifier and turntable motor (circuit not shown) and contact "B" closes circuit to magazine motor. Magazine begins to rotate.



Sequence No. 3 MAGAZINE REVERSES

Depending upon the previous stopped position and the particular selection now registered, it may be necessary for the magazine to reverse its direction of rotation. This occurs when the magazine "trip brackets" operate the reversing switch "C". This reverses the direction of the current through the magazine motor

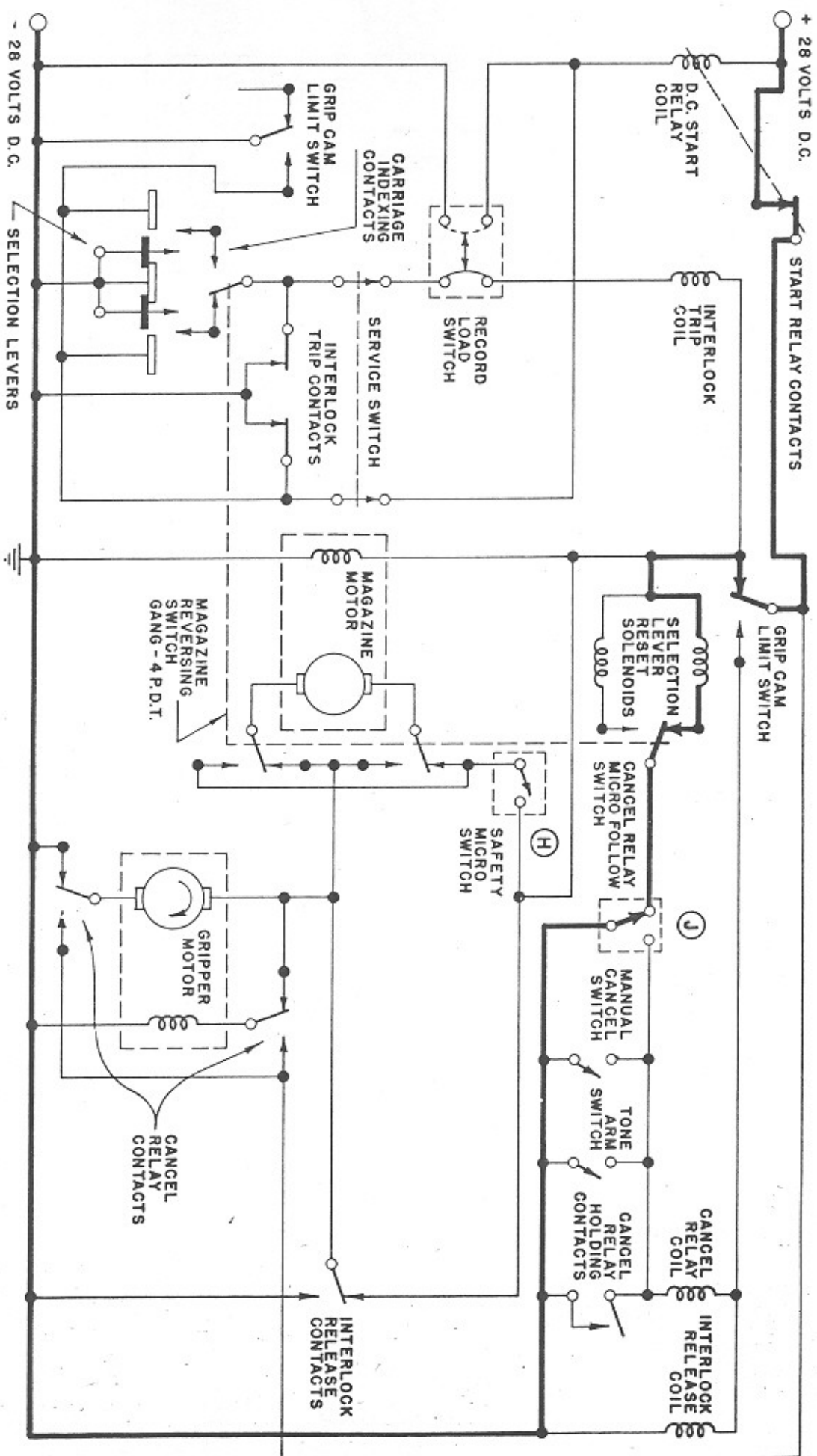
armature and causes the magazine to rotate in the opposite direction. Additional contacts on the reversing switch automatically connect the proper indexing contact and selection lever cancel solenoid for odd or even selections, depending on the direction of rotation of the magazine. (Dotted lines indicate the 4 reversing switch sections).



Sequence No. 4 RECORD INDEXED

The selector carriage, moving with the magazine, causes the indexing contact to strike the selection lever, thereby completing the circuit to the interlock trip coil. The interlock operates, closing contacts "D" and "E". Contact "E" provides a holding circuit to the "Start relay", and contact "D" provides a holding circuit to the interlock trip coil. As the trip armature of the

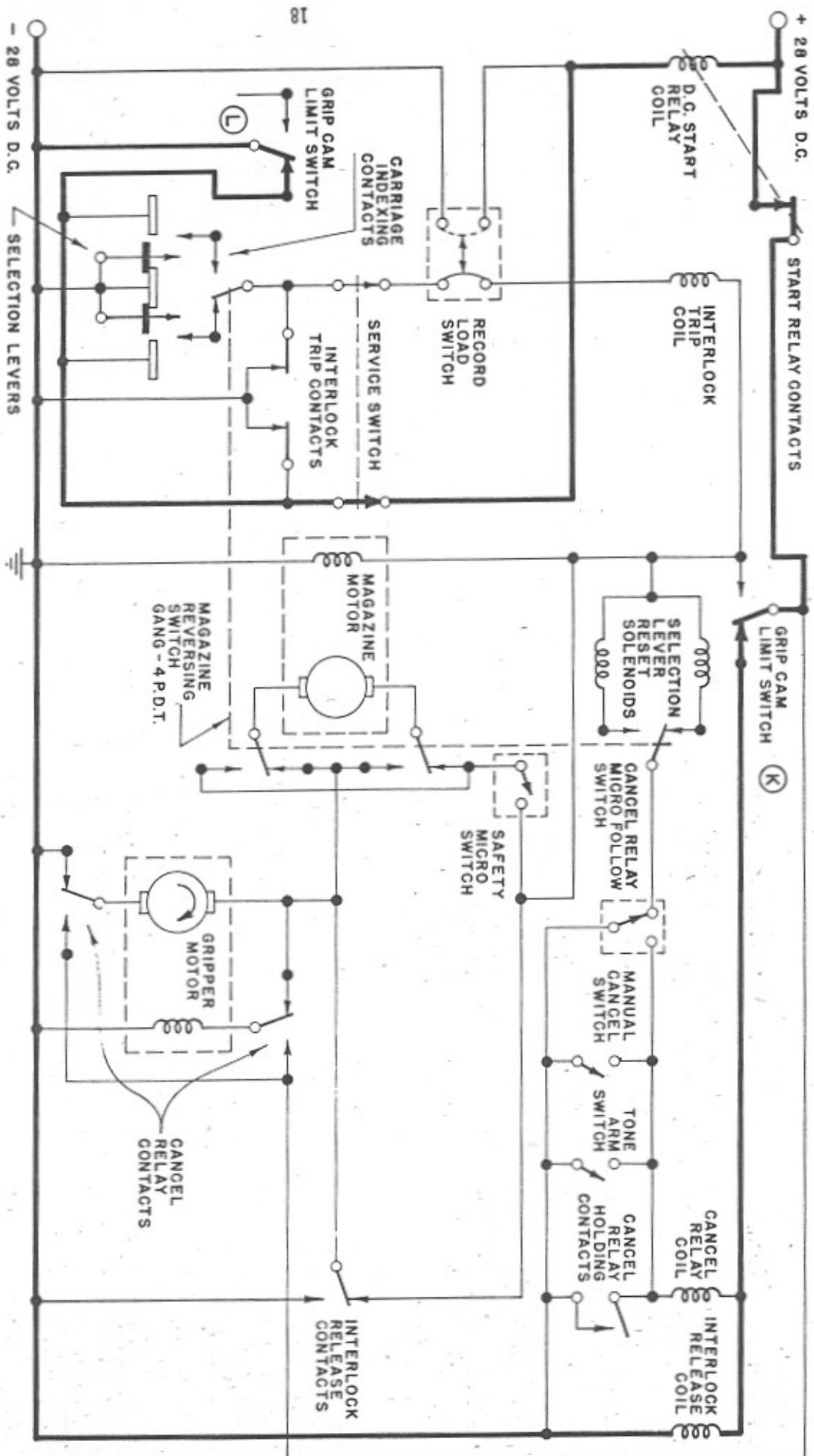
interlock completes its stroke, the release armature relaxes, repositioning contact "F". This short circuits the magazine motor armature (dotted lines), dynamically braking the magazine and bringing it to a quick stop. A circuit is simultaneously completed to the gripper motor thru the relaxed cancel relay contacts, causing it to engage the indexed record.



Sequence No. 5 SELECTOR LEVER RESET

Just prior to the grip jaws engaging the record, a cam operates the "Safety micro switch" "H", thereby disconnecting the magazine motor armature. The grip-per motor continues to operate and places the record on the turntable. At this point, the "Cancel relay follow

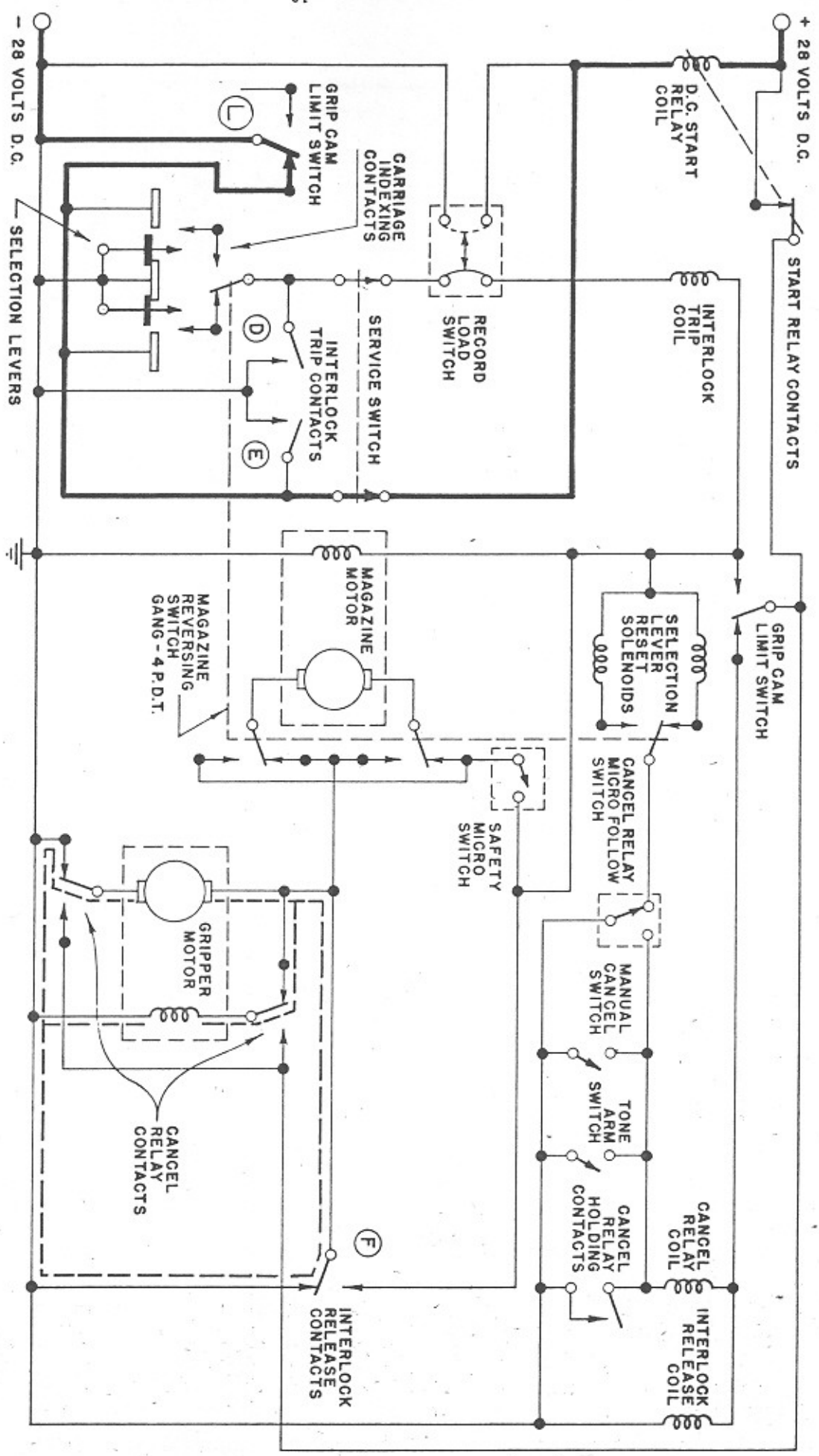
switch "J" operates and closes the circuit to the proper "Selection lever reset solenoid". This causes a spring plunger to push the registered selector lever to its normal position.



Sequence No. 6 RECORD TRANSFER CYCLE COMPLETED

Continued operation of the gripper motor opens the grip arm jaws and places the tone arm into the record entry groove. At this point, a cam operates the "Grip cam limit switch" "K" and "L". Switch section "K" breaks the interlock trip coil, gripper motor, and selec-

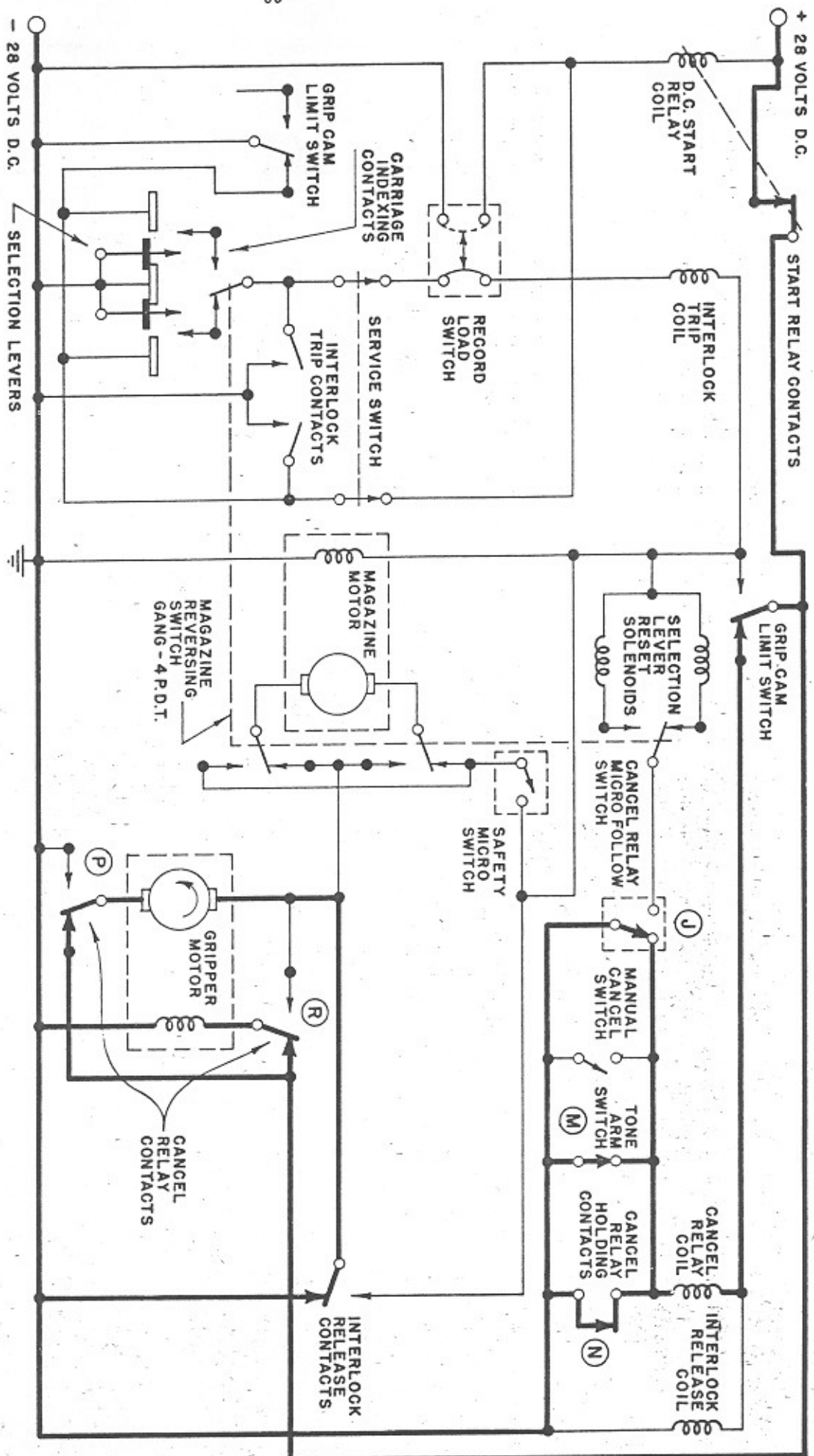
tion lever reset solenoid circuits, and completes a circuit to the interlock release coil. It also makes a connection to the cancel relay coil for use in a later sequence. Switch section "L" completes a holding circuit to the start relay.



Sequence No. 7 GRIP MOTOR STOPS

The energized "Interlock release armature" places contact "F" in its original position. This places a short circuit across the gripper motor, dynamically braking it and stopping the grip mechanism. As the "Interlock release armature" completes its stroke, the

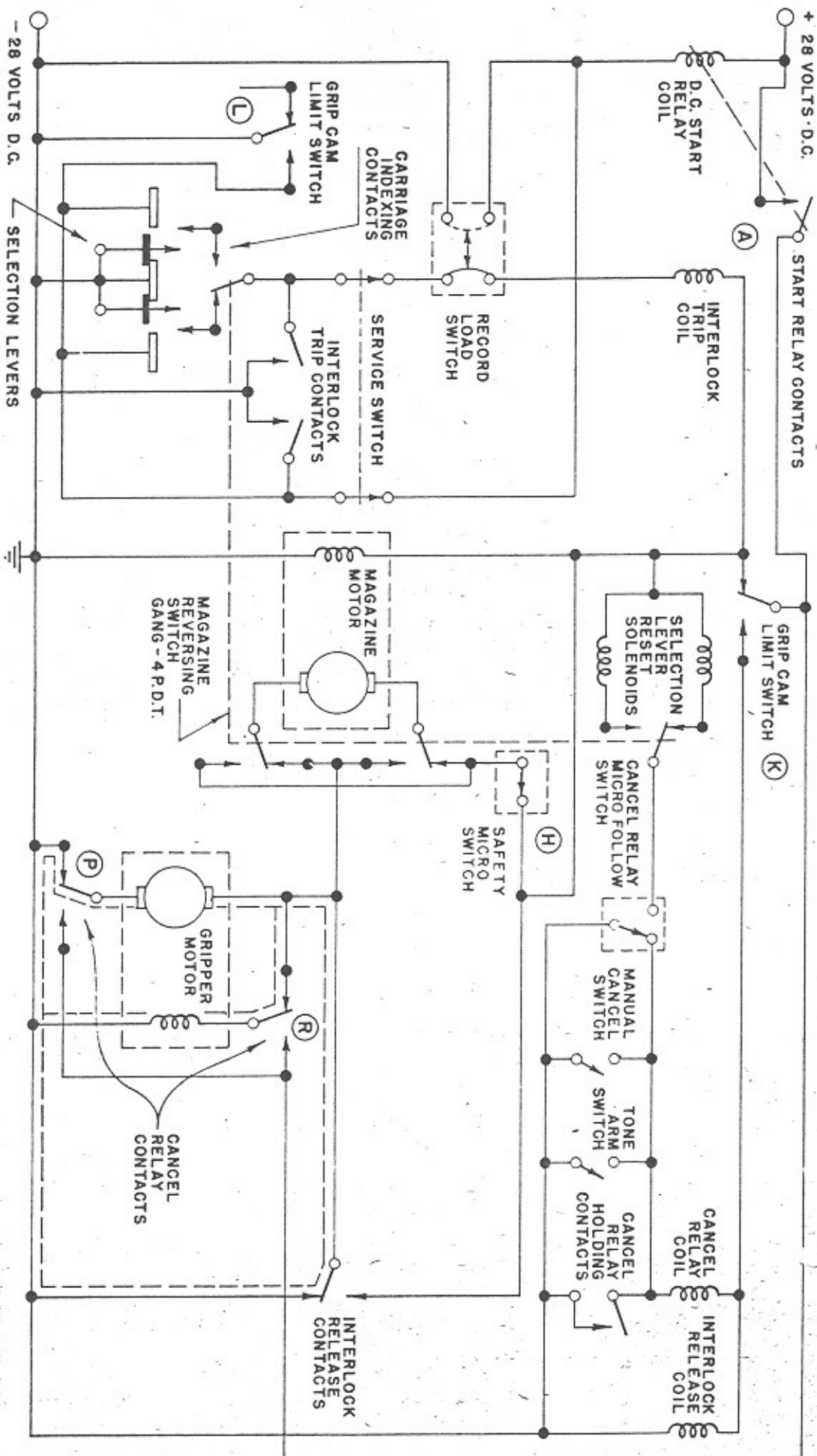
"Interlock trip armature" relaxes, thereby opening contacts "D" and "E". Contact "E" removes the holding action from the start relay, which is now being held by the "Grip cam limit switch" contact "L". Music cycle now begins.



Sequence No. 8 MUSIC CYCLE ENDED

As record play is ended, the tone arm moves into the cut-off groove and operates the tone arm switch "M". This completes a circuit to the cancel relay thereby closing contact "N" and repositioning contacts "P" and "R". Contact "N" serves as a locking contact for the cancel relay in order to provide for momentary energizing. Contact "P" and "R" complete the grip

motor circuit in such a manner that its direction of rotation is reversed closing the gripper jaws on the record. At this point micro switch "J" is operated by cam shaft and places a holding circuit to the cancel relay coil in parallel with the locking contact "N". The gripper then proceeds to return the record to the stack.

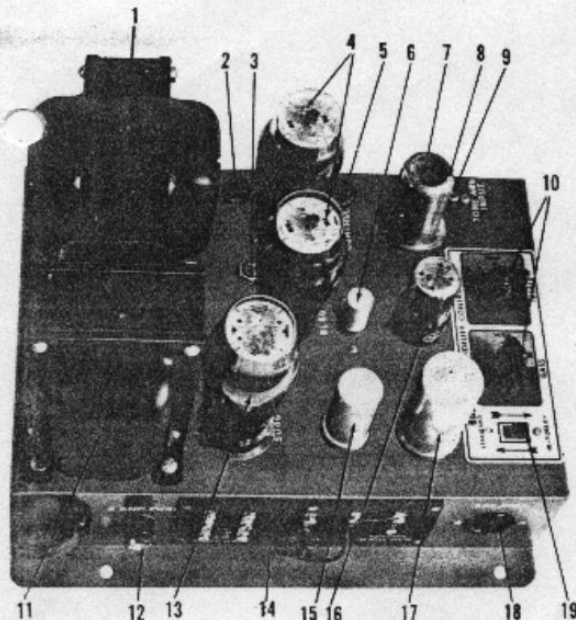


Sequence No. 9 CYCLE COMPLETED

As the grip arm jaws begin to release the record in the magazine, the camshaft re-closes the safety micro switch "H". After the grip arm jaws open, the camshaft resets the grip cam limit switch "K" and "L". Section "K" opens the cancel relay circuit, thereby allowing the relay to relax, and section "L" opens the start relay circuit, provided no additional selections are registered.

This opens contact "A" thus shutting off power to the D.C. motors, and also opens the amplifier and turntable power circuits. Contacts "P" and "R" return to their relaxed positions and short-circuit the gripper motor, which brakes to a stop.

Model 1446

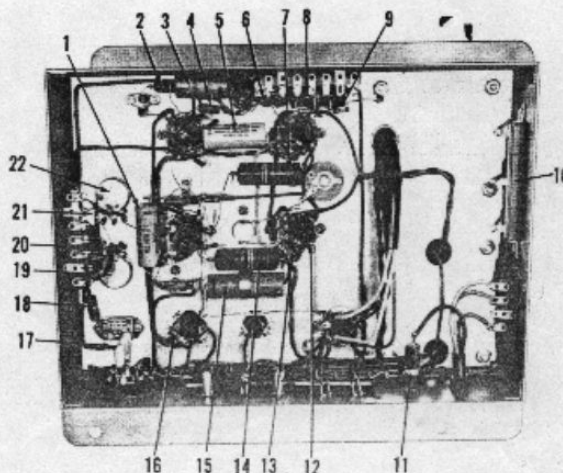


No. 18666-A Amplifier Assembly (Less Tubes)

Part No.	Description
1 18594	Power Transformer
2 16810	4 Prong Miniature Socket
3 18411	Hum Control
4 PH-3191	6L6 Tube
5 17275	Miniature 5 Prong Socket
6 18436	Standee Resistor
7 12546	6 SN7 Tube
8 18412	Tube Shield
9 18402	Input Socket
10 11578	Pointer Knob
11 18593	Output Transformer
12 PH-3523	3 Amp. Fuse
13 PH-3190	5U4 Tube
14 12769	Speaker Terminal Strip
15 16924	Input Capacitor
16 12546	6 SN7 Tube
17 16926	Filter Capacitor
18 18414	6 Prong Socket
19 18403	Slide Switch

No. 18666-A Amplifier Assembly (Less Tubes)

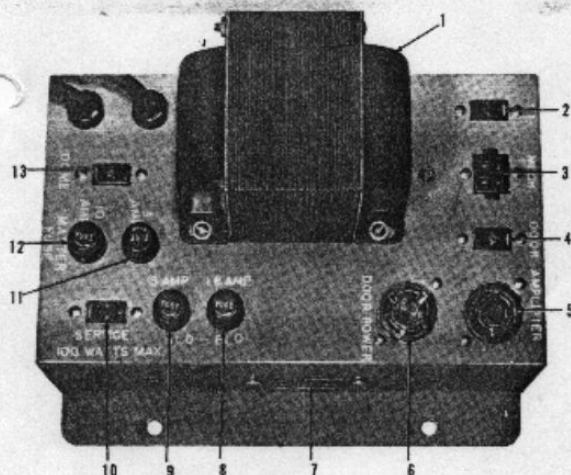
Part No.	Description
1 15204	25 Mfd. Condenser
2 18417	.01 Mfd. 400 V.D.C. Condenser
3 17788	.47 Mfd. 200 V. Condenser
4 15187	12,000 Ohm Resistor
5 15204	25 Mfd. Condenser
6 18664	1000 Mmfd. Condenser
7 18399	.1 Mfd. 600 V. Condenser
8 18663	.1 Mfd. 200 V. Condenser
9 16225	3900 Ohm Resistor
10 16925	Filter Resistor
11 11555	Fuse Holder
12 16224	1000 Ohm Resistor
13 16228	100,000 Ohm Resistor
14 18399	.1 Mfd. 600 V. Condenser
15 PH-3177	50 Mfd. 50 V. Condenser
16 16222	6,800 Ohm Resistor
17 14094	7 Ohm 5 Watt Resistor
18 18420	.002 Mfd. 400 V. Condenser
19 18651	Bass Control
20 18416	.022 Mfd. 400 V. Condenser
21 18676	18,000 Ohm Resistor
22 18632	Treble Control



No. 19705-A Power Distribution
Panel Assembly

Part No. Description

1	17604	Control Circuit Transformer
2	19006	Miniature Outlet
3	17596	4 Prong Socket
4	19006	Miniature Outlet
5	PH-3722	4 Prong Socket
6	PH-3740	5 Prong Socket
7	19008	6 Prong Jones Socket
8	ST-4321	1.6 Amp. Fuse
9	ST-3090	3 Amp. Slo-Blo Fuse
10	19006	Miniature Outlet
11	PH-3523	3 Amp. Fuse
12	ST-3092	10 Amp. Fuse
13	19006	Miniature Socket



No. 19705-A Power Distribution
Panel Assembly

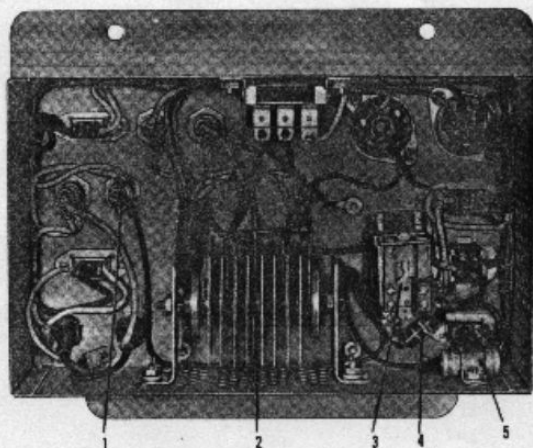
Part No. Description

1	11555	Fuse Holder
2	17621	Power Rectifier
3	18859	Start Relay (D.C.)
4	18417	.01 MFD. 400 V. Condenser
5	15476	.002 MFD. 1200 V. Condenser

Additional Parts Listing

Part No. Description

1	ST-3046	Type #44 Bulb
2	ST-6028	Caster
3	ST-7379	Cash Door Lock
4	ST-7392	Rear Door Lock
5	ST-7394	Front Door Lock
6	12053	20 W. Fluorescent
7	13362	Master Line Switch
8	15159	Momentary Push Switch
9	17008	Needle Brush
10	17804	Brush Wire
11	17958	Leveling Bolt



Part No. Description

12	19726	10¢ and 3 for 25¢ Decal
13	19725	5¢ - 10¢ - 25¢ Decal
14	19724	5¢ - 10¢ - 6 for 25¢ Decal
15	18930	Cash Door Frame
16	18938	Cash Bag
17	19727	10¢ and 4 for 25¢ Decal
18	19292	15" Hi-Fi Speaker
19	19106-A	Volume Control Assembly
20	19614-A	Skid Front Casting Assem.(R.H.)
21	19615-A	Skid Front Casting Assem.(L.H.)
22	19172-A	Cash Door Assembly

