FIG. 1—TOP VIEW

GARRARD
MODEL RC60

GENERAL INFORMATION

The Garrard Model RC60 is a single-post mechanism, designed to automatically play up to eight 10-inch or 12-inch records, mixed in any order. This changer will shut off automatically at the completion of the last record. The changer has a specially designed spindle, which will not enlarge record holes and prevents slipping and skidding of records on the turntable.

Due to the wide voltage range of the motors, it may be necessary on some power supplies to make a slight re-adjustment of the speed indicator lever so that the turntable will have the proper speed of 78 R.P.M.

Manufactured by **THE GARRARD ENGINEERING AND MANUFACTURING CO., LTD.**
SWINDON: WILTS: ENGLAND

Distributor: **GARRARD SALES CORPORATION, 315 BROADWAY, NEW YORK 7, NEW YORK**

THIS CHANGER HAS BEEN USED IN POSTWAR PRODUCTION BY THE FOLLOWING MANUFACTURERS:

Barker Bros.....818 W. 7th Street, Los Angeles, California
Bel Canto
Fisher Radio Co.....41 E. 47th Street, New York, New York
Freed Radio Corp.....200 Hudson Street, New York, New York
London Gramophone
Pilot Radio Corp.....3706 36th Street, Long Island City, New York
Scott Radio Labs. Inc.....4541 Ravenswood Avenue, Chicago, Illinois

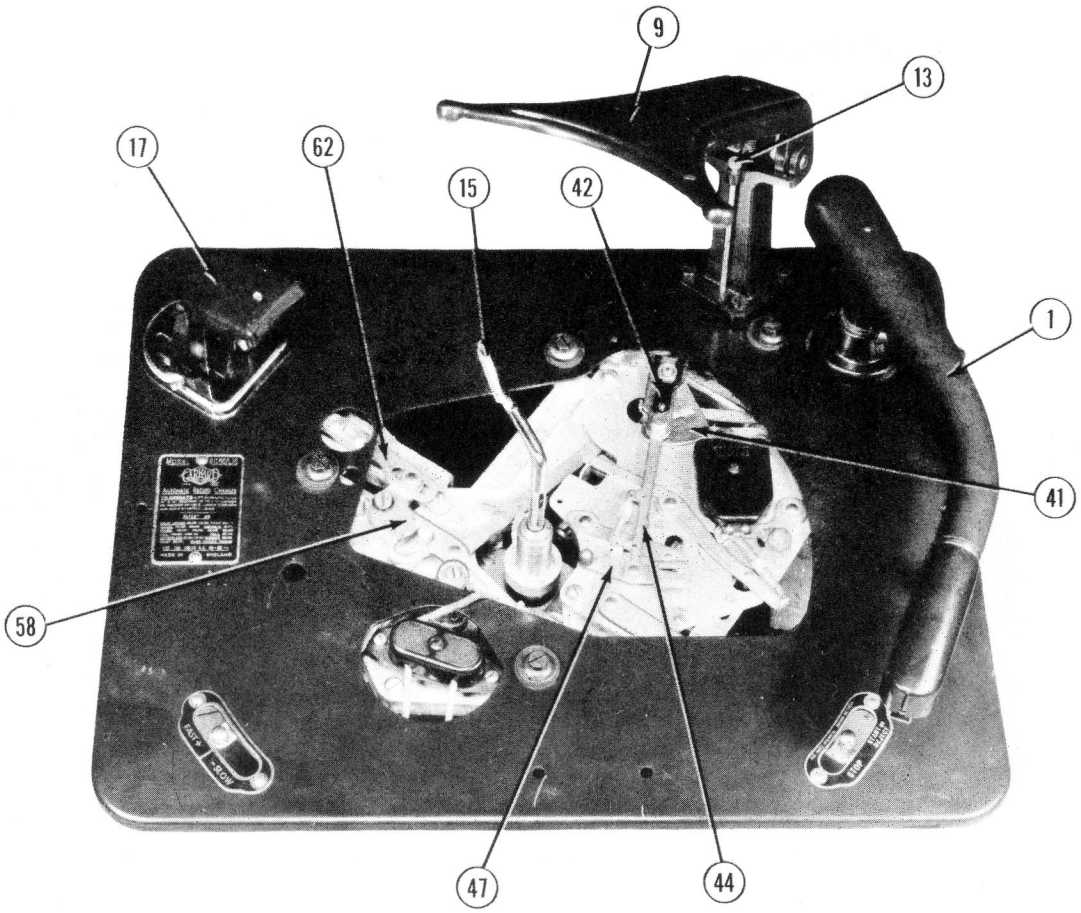


FIG. 2—TOP VIEW LESS TURNTABLE

OPERATING INSTRUCTIONS

1. If a permanent needle is not used in the pickup crystal, insert a needle of a good type. Turn the head of the pickup arm to insert the needle.

2. Raise the overarm (9) to its upward position.

3. Place the record spindle (15) in position, the sloping part leaning toward the record platform (17).

4. Place any number up to eight records, in any order, on the record spindle, letting them rest on the platform.

5. Lower the overarm (9) to the records.

6. Move the control knob (49) to the "Start" and "Reject" position. The changer will now play the entire stack of records and on completion of the last record, the pickup arm will return to the rest post and will automatically shut off.

Any record not required to be played may be automatically rejected by moving the control knob (49) to the "Reject" position and releasing.

The changer can be stopped by moving the control knob to the "Stop" position. Connected to the control lever and knob (49) is the reject mechanism. If the changer is switched off while playing a record, the reject comes into operation when switching on again. If there are no records on the platform when the changer is switched on, the pickup arm will swing out to its rest position and the changer will automatically shut off; otherwise, the next record will drop to the turntable and will be played.

NOTE: If the changer has been stopped for any reason, with the pickup arm not on the rest, the arm should not be interfered with but the motor should be restarted and the arm allowed to return to the rest.

Repeating Records

A record may be repeated by removing all the records on the off-set step of the spindle and leaving the overarm in a raised position.

Playing Record Manually

Home recordings, warped and odd-sized records should be played manually:

1. Raise the overarm (9) until it snaps into position.

2. Place a record on the turntable.

3. Push down on the pawl (18) and move the control knob to the "Start or Reject" position. Hold the pawl in the position until the platform (17) moves all the way back.

4. Hold the pickup arm off the turntable until the change cycle is completed; then place it on the record.

5. To shut the mechanism off, move the control knob to the "off" position and place the pickup arm on the rest post.

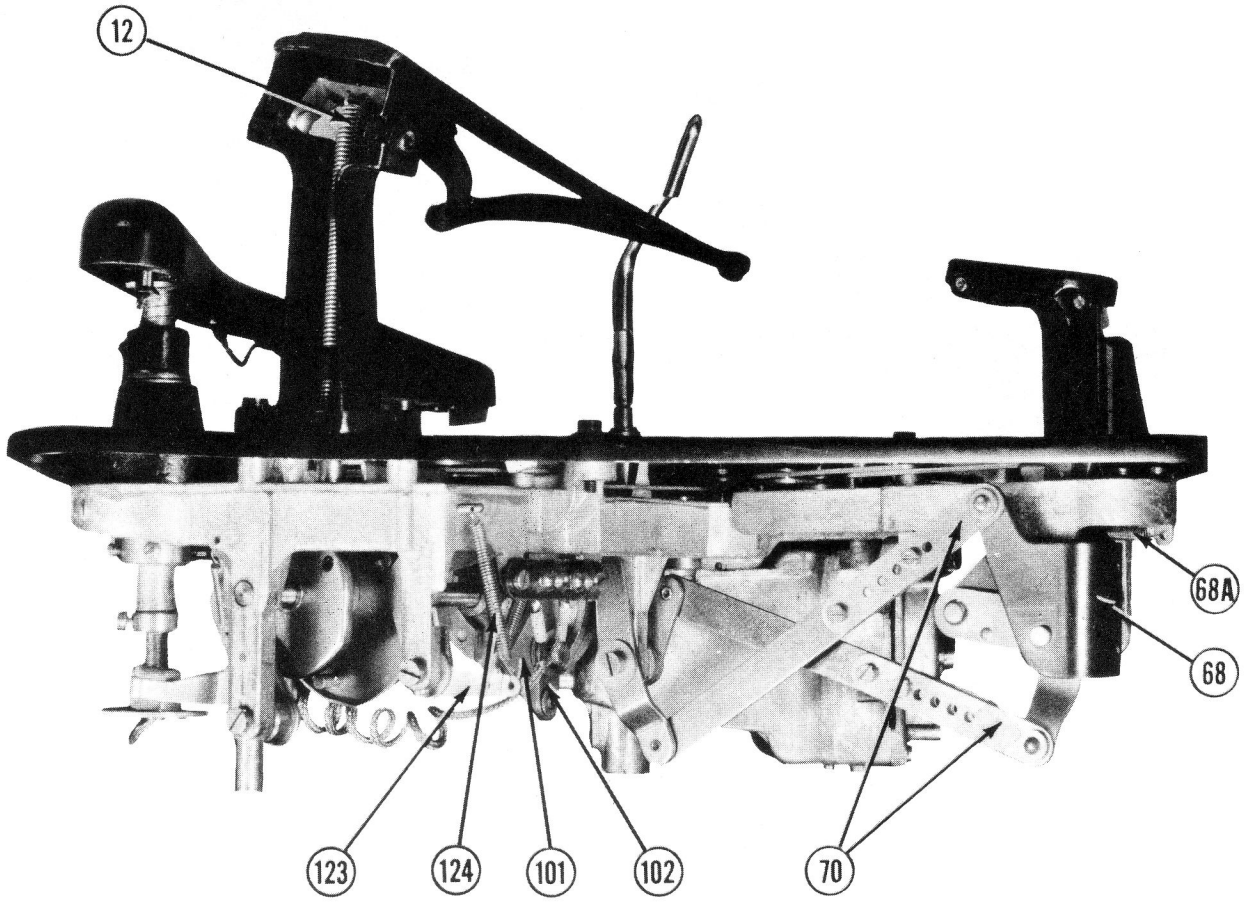


FIG. 3—BACK VIEW

CHANGE CYCLE

The change cycle may be started by either moving the switch control lever and knob (49) to the "Stop" or "Reject" position, or by any fast lead in movement of the pickup arm as it comes to within 2⅜" of the spindle.

1. By moving the switch control lever (49) to the "Start" or "Reject" position, the switch link (50), which is connected to the control lever, is moved against the stud of the switch lever unit (53). This actuates the switch unit which, in turn, engages the switch (54) and starts the motor assembly. The switch lever unit is latched in position by the release lever (51).

At the same time, the stud and finger of the switch link (50) contacts and moves the shutoff clutch lever (79) and the clutch tripping link (130) (seen in Fig. 4) from in front of the clutch lever (97). The shutoff lever (79) is latched in an outward position during the automatic operation by the shutoff clutch latch lever (81).

NOTE: If the mechanism has been stopped automatically, the clutch lever (97) will be blocked by the shutoff clutch link (79). If in playing operation (at the end of a cycle), the clutch lever will be blocked by the clutch tripping link (130). See Fig. 4.

2. As the pickup arm moves into the fast lead-in groove of the record, the mechanism is tripped by the velocity tripping mechanism.

The clutch lever (97), no longer blocked, engages the pinion of the motor assembly (109), which is in constant rotation. This causes the platform cam unit (96), the swing cam unit (92), and the lifting cam unit (86), which are fastened to the cam shaft (85), to turn as one unit. One complete revolution of the unit takes the changing mechanism through a complete change cycle.

The lifting lever unit (84) pushes down on the friction disc (91) as it rides around the lifting cam (86), thereby actuating the lifting tube unit raising the pickup arm from the record.

The swing cam (92) has now travelled far enough to move the lateral cam lever (129) against the pickup swing lever (87), thus swinging the pickup arm clear of the records. As the swing lever (87) moves out, it carries the positioner lever (89) with it by the spring (87A). This brings the positioner lever in contact with the pin on the selector lever (82). The automatic trip link (40) is carried with the swing lever (87) by the finger (87B), thus resetting the velocity tripping mechanism.

The platform cam lever (126), following the cam (96), actuates the platform (17), which, as a result, selects the records, sets the position for the pickup arm set down, and pushes the records off the spindle.

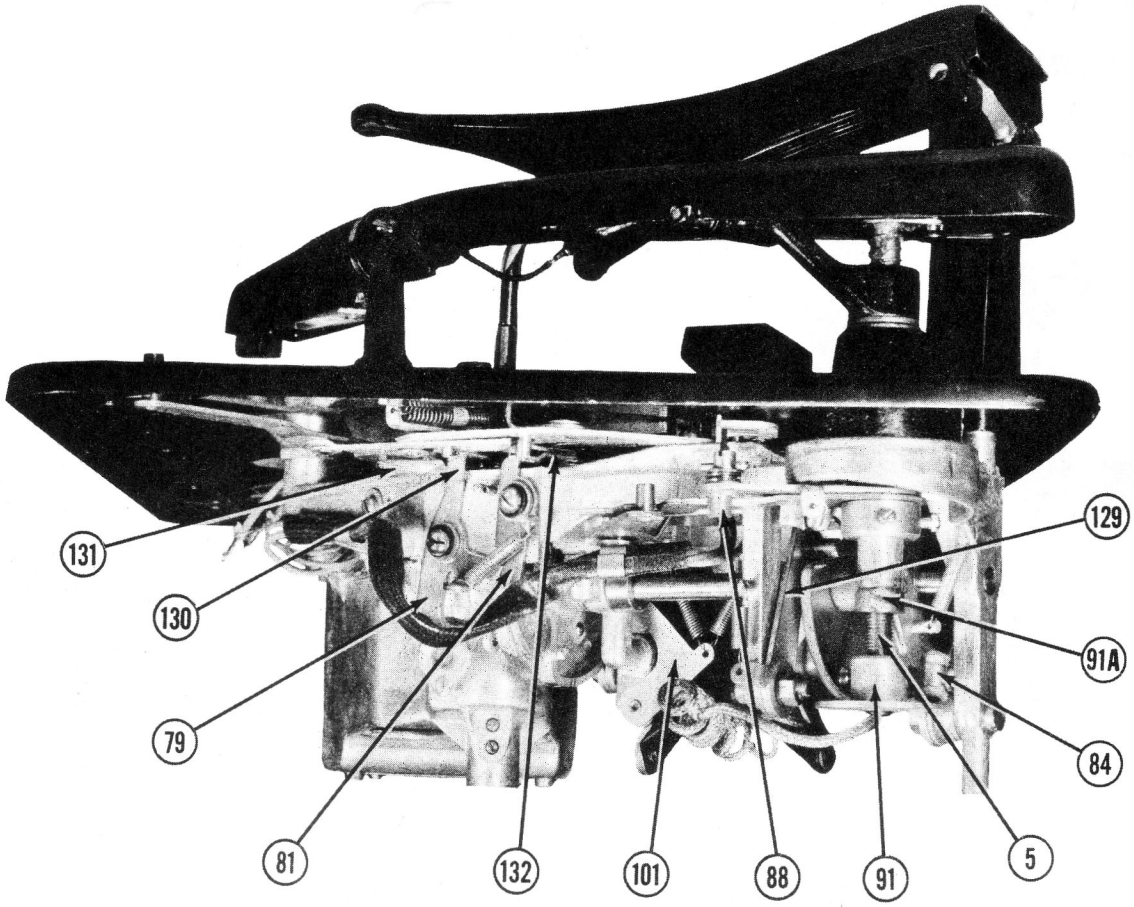


FIG. 4—RIGHT SIDE VIEW

The lateral cam lever (129), following cam (92), now moves away from the swing lever (87), thereby allowing spring (87A) to move the swing lever and, in turn, the pickup arm in until the eccentric pin (88) contacts the positioning lever (89), which positions the pickup arm for set down.

The friction of the lifting lever pad against the friction disc (91) holds the pickup arm in place as the pickup arm is lowered to the record by the action of the lifting lever (84).

The clutch lever (97) of the cam (96) moves against the clutch tripping link (130) disengaging the clutch lever from the pinion.

The overthrow lever (123) now engages the pin of the swing cam (92) preventing any backward movement of the unit. This completes the change cycle.

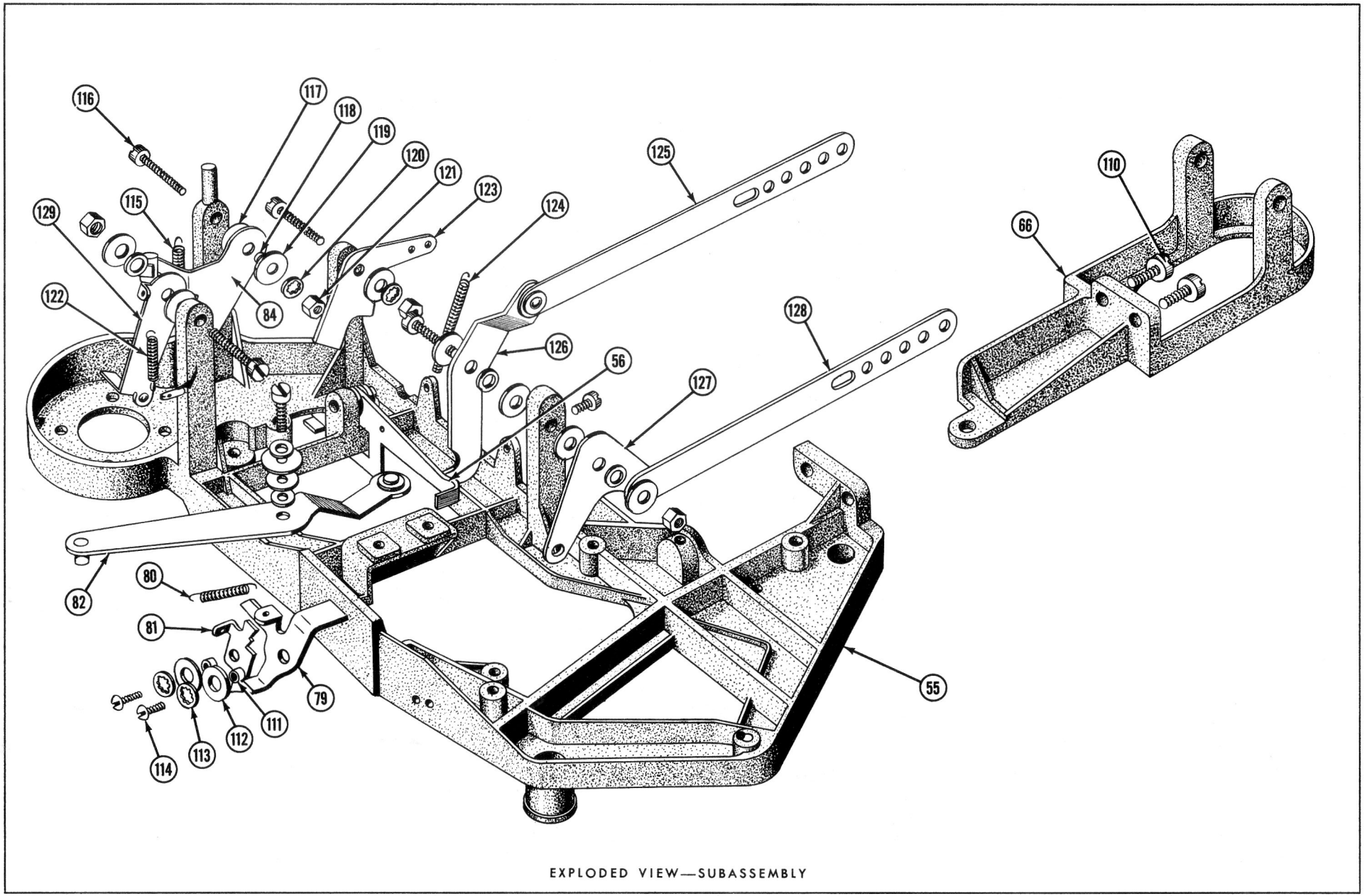
Determination of the Set-Down Point and Record Selection

With the presence of a 12-inch record on the platform (17), the pawl (18) will be depressed. This prevents the platform from being blocked for any backward movement; therefore, as the cam (96) rotates, the spring (68A) pulling on the platform lever (68) causes the pin of the cam lever (126) to follow the inner cam track of cam (96). As a result, the platform moves backward, moving the pawl (18) from under the 12-inch record. Connected to the platform unit is the selector operation lever (69), which, in turn, actuates the following connected parts, the delay lever (62), inter. selector lever (58), selector link (57), and the selector lever (82). This moves the pin of the selector lever (82) to point "A" of the positioner lever (89), thereby determining the 12-inch set-down point for the pickup arm.

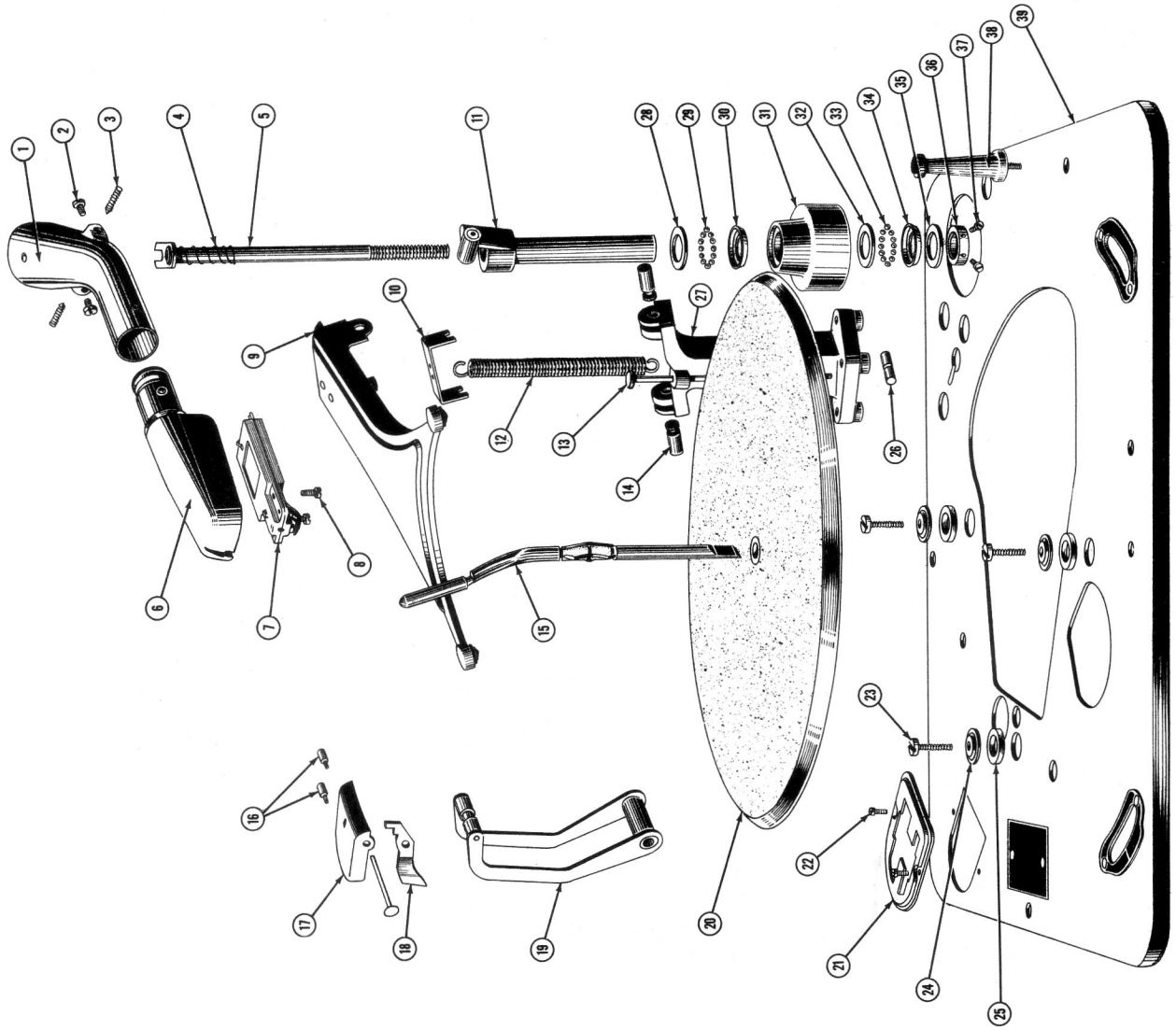
The platform now moves forward. The pawl (18), now in a raised position, moves against the record pushing it off the platform and spindle dropping it to the turntable.

As the platform continues to move forward, it is tilted down by the action of the tilting cam lever (127). This is done to prevent the pawl (18) from striking the next record and pushing it off the platform; that is, if the next record is a 10-inch record. The platform now returns to its normal raised position.

With a 10-inch record on the platform, the pawl (18) will be in its normal raised position; therefore, any backward movement of platform will be blocked by the platform stop (64) as the end of the pawl moves against it. Blocking of the platform causes the platform cam lever (126) to move around the cam instead of in the groove. The platform now moves forward pushing the 10-inch record off the platform, thus dropping it to the turntable. As the platform moves forward, the positioning mechanism is actuated, moving the pin of the selector lever (82) into step "B" of the positioner lever



EXPLODED VIEW—SUBASSEMBLY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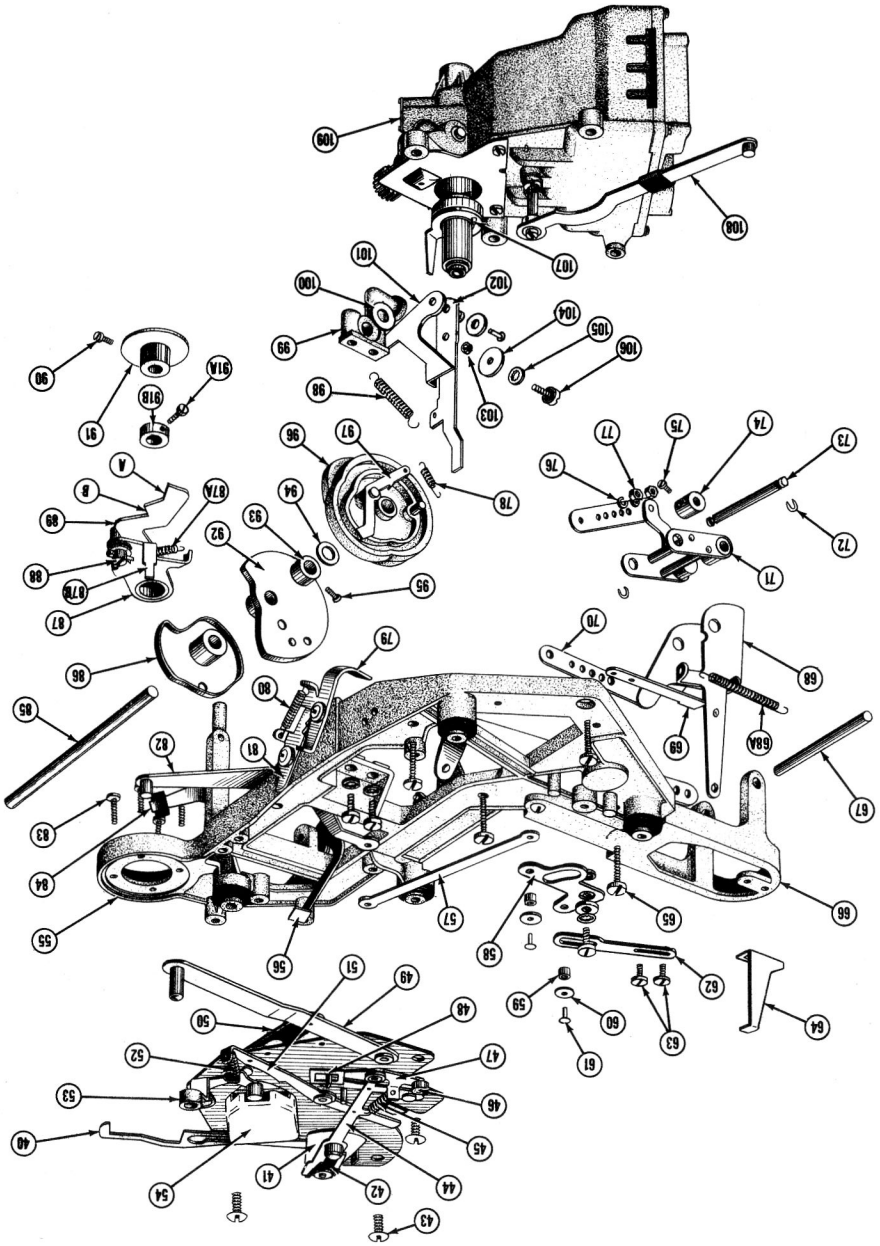
GARRARD
MODEL RC60



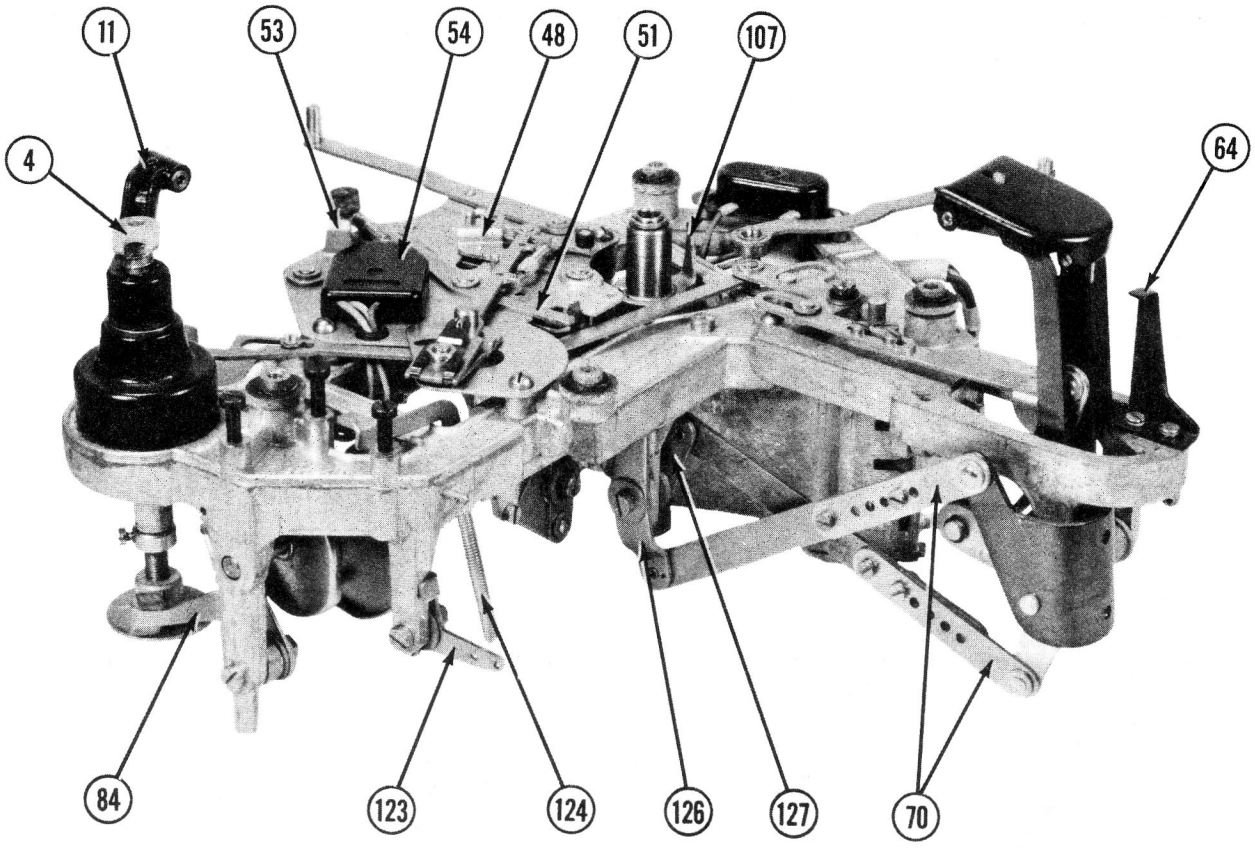


FIG. 5—BACK VIEW—UNDER CHASSIS ASSEMBLY

(89), thereby setting the mechanism for 10-inch set down.

Velocity Trip

The finger (87B) of the pickup swing lever (87) contacts and moves the automatic trip link (40) as the pickup arm moves to approximately 2⅜" of the spindle. The trip link then actuates the friction plate (41), which, in turn, pivots (by friction) the operation lever (44) and trip lever (47) toward the striker. The motion is very slow due to the needle following the playing groove of the record. This allows the striker to slightly hit the rubber pad (46) of the trip lever (47), causing the operation lever to be slipped on the friction plate; however, when the pickup arm moves into the fast lead in groove of the record, the trip lever will be moved into the path of the striker. The striker then hits the trip lever (47) causing the clutch release lever (48) and the tripping link (130) to be actuated. This trips the mechanism and starts a new cycle.

Automatic Shutoff

Normally, the shutoff link (102) is blocked by the shutoff release lever (56); i.e., when there are records on the spindle or the overarm is in a raised position.

When the last record has dropped to the turntable, the overarm drops down pushing the shutoff pin (13) against the shutoff release lever (56). This pivots the release lever (56) away from the shutoff link (102). When the last record has finished playing, the mechanism is tripped returning the pickup arm to a rest position on the arm rest (38). At this point a boss on the platform cam (96) moves against the shutoff actuating lever (101), and, as a result, the actuating lever, through the spring (98), pulls the shutoff link (102) against switch release lever (51) and the shutoff clutch link (132). The release lever shuts off the switch while the clutch link trips the shutoff clutch levers (81) and (79), thereby allowing lever (79) to block the cam clutch lever (97) and disengage the cam clutch lever from the pinion; this completes the shutoff cycle.

ADJUSTMENTS

Pickup Arm Height

If the pickup arm does not set down on the first record, the following adjustment can be made:

1. Loosen the set screw (91A) and rotate the adjustment collar (91B). Counterclockwise will lower the pickup arm while a clockwise rotation will raise the arm.

(a) This adjustment should be made with the changer out of cycle.

CAUTION: There should be no friction between the pad of the lifting lever (84) and the friction disc (91) when the changer is out of cycle. This is

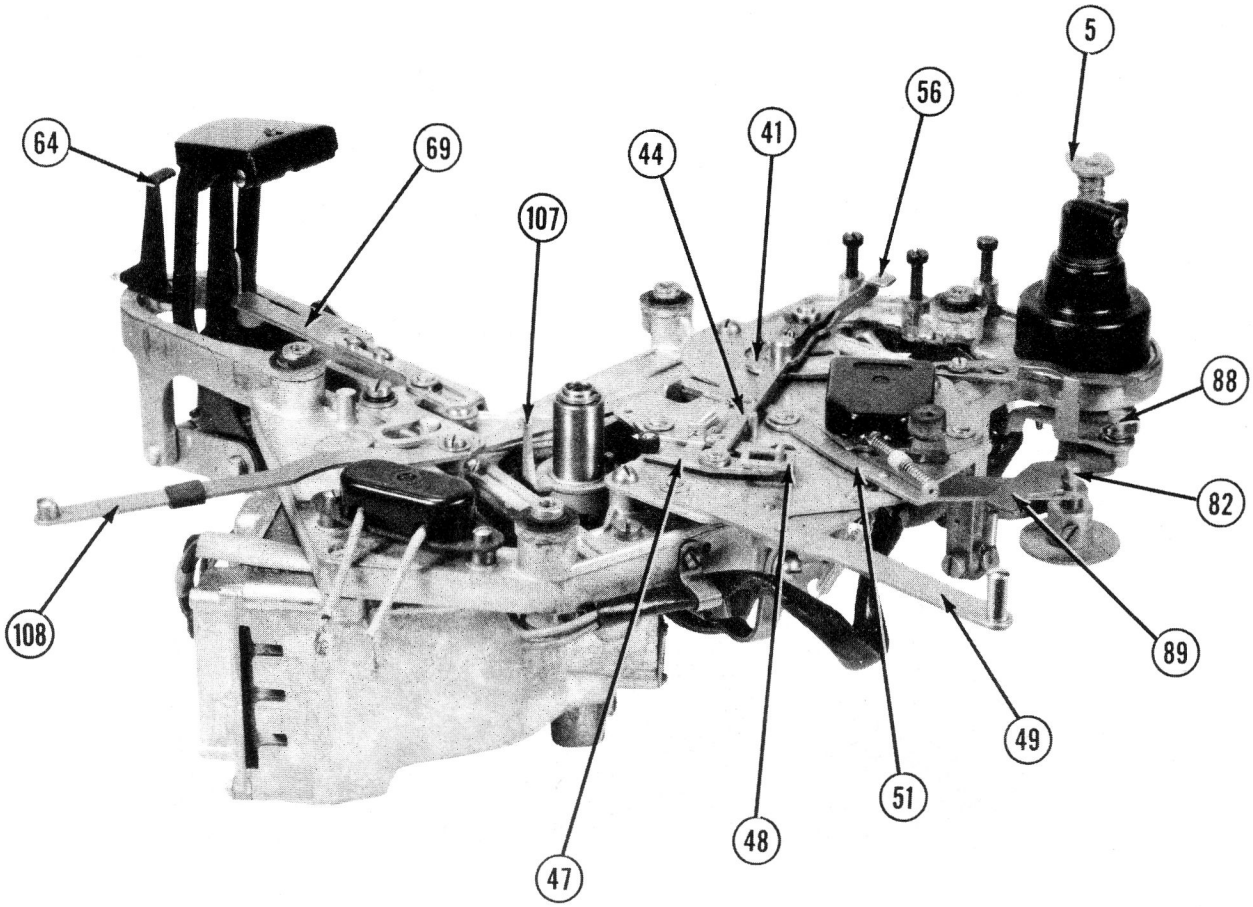


FIG. 6—FRONT VIEW—UNDER CHASSIS ASSEMBLY

to allow free movement of the pickup arm across the record.

If the pickup arm does not clear the top record of a stack of eight records or the top of the arm rest (38), the following adjustment can be made:

1. Loosen the set screw (90) and turn the friction disc (91). Counterclockwise will lower the arm; clockwise will raise the arm. This adjustment is made when the pickup arm is at its maximum height during the change cycle. After the adjustment is made, tighten the set screw and rotate the turntable clockwise until the changer is out of cycle. Check the pad of the lifting lever (84) and the friction disc (91); there should not be any friction between these two parts.

Pickup Arm Set-Down Point

If, for any reason, the pickup lever unit (87) has been removed, the pickup set-down point may be readjusted by the following procedure:

1. Place a 10-inch record on the turntable.
2. With the changer out of cycle, place the pickup arm so that the needle will be in the starting groove of the record.
3. Push up on the lever unit (87) so that it does not bind on any parts.
4. Move the positioner lever (89) against the pin of the selector lever (82), being sure that the pin of selector lever engages the positioner lever at point "B" of lever (89).
5. Tighten the set screws and check the adjustment.
6. A finer adjustment can now be made by turning the eccentric pin (88).

(a) To make this adjustment, place the pickup arm on the rest. The eccentric pin may be adjusted through the hole in the base plate. A quarter of a turn in either direction will give the maximum adjustment. After this adjustment has been made, switch on the changer and check the dropping position and readjust, if necessary.

Record Platform Adjustment

The platform has been properly adjusted at the factory to accommodate records of average size.

If, for any reason, the platform and its coupling links (70) have been removed, they may be replaced and properly adjusted, as seen in Figures 3 and 5.

The bottom link, which pivots at the bottom of the tilting lever (71), controls the platform lift, while the top link controls the distance the platform moves inward.

Automatic Trip

If the changer does not trip when the pickup arm moves in the eccentric groove of the record, the tension of the friction spring (42) must be increased. To make this adjustment, remove the turntable and turn the friction adjusting screw in a

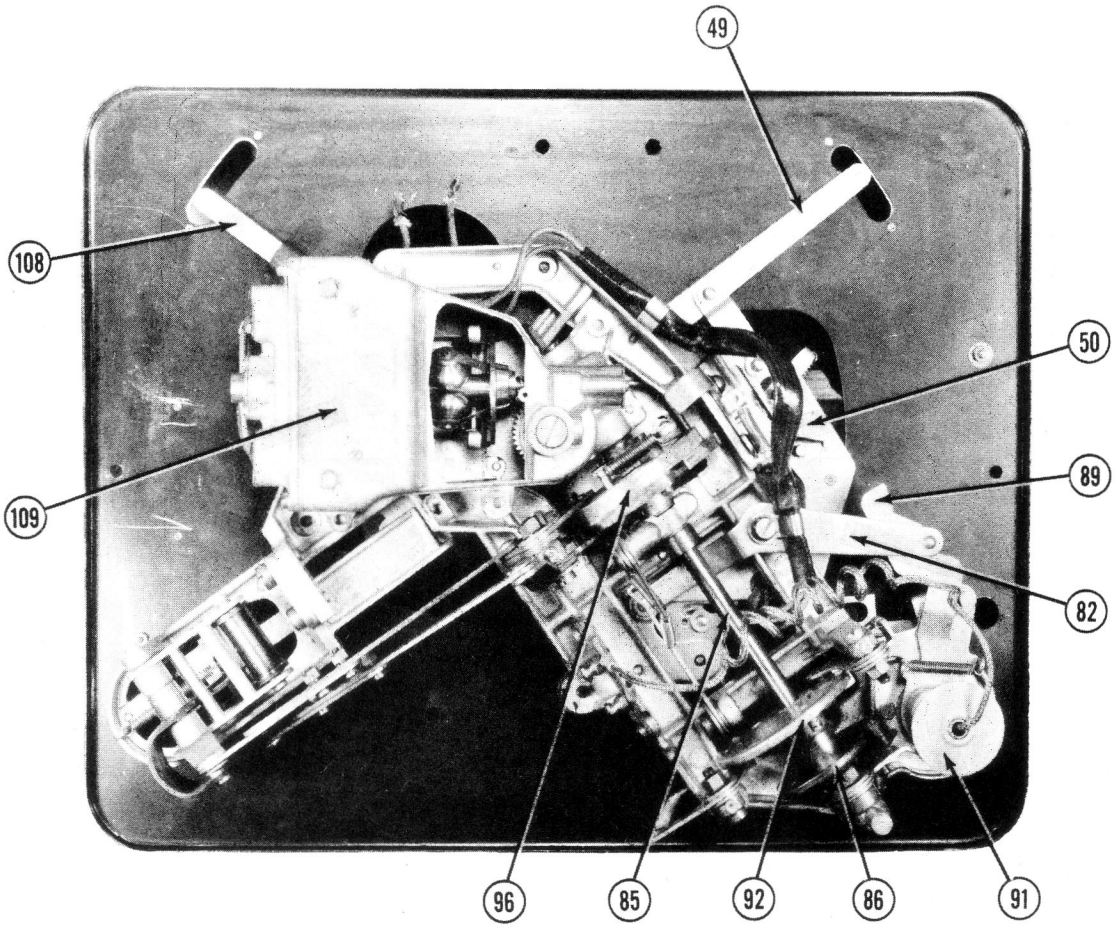


FIG. 7—BOTTOM VIEW

counterclockwise direction; about half a turn is all that should be necessary.

If the changer trips before the end of a record, the tension of the spring should be decreased.

TROUBLES

Pickup Arm Height Incorrect

1. See adjustment on "Pickup Arm Height."

Pickup Does Not Land Correctly on the Record

1. See adjustment on "Pickup Arm Set-Down Point."
2. Spring (87A) loose or missing.
3. Binding in the pickup arm spindle.

Continuous Cycling

The continuous cycling of the changer may be caused by:

1. Spring (131) of the clutch tripping link missing. Fig. 4.
2. Reject mechanism binding.

The Changer Does Not Trip at the End of a Record

1. See adjustment on "Automatic Trip."
2. Spring (78) missing.

The Changer Does Not Shut Off After Last Record

1. Spring (98) loose or missing.
2. Spring (80) loose or missing.
3. Lever (79) binding.

At the End of a Change Cycle, a Continuous Clicking Is Heard

1. Spring (124) of the overthrow lever (123) loose, allowing back lash of the control shaft and units. This allows the clutch lever (97) to slip over the teeth of the pinion.

LUBRICATION

Use a few drops of light machine oil on the following parts:

1. The ball bearings (29) and (33) of the pickup arm spindle.
2. The motor bearings, made accessible when removing the turntable.

Use a light grease on the following:

1. Switch lever unit 53.
2. Shutoff switch lever release (51).
3. Switch link (50).

CAUTION: Do not let any oil come in contact with the friction plate (41). Avoid overlubrication.

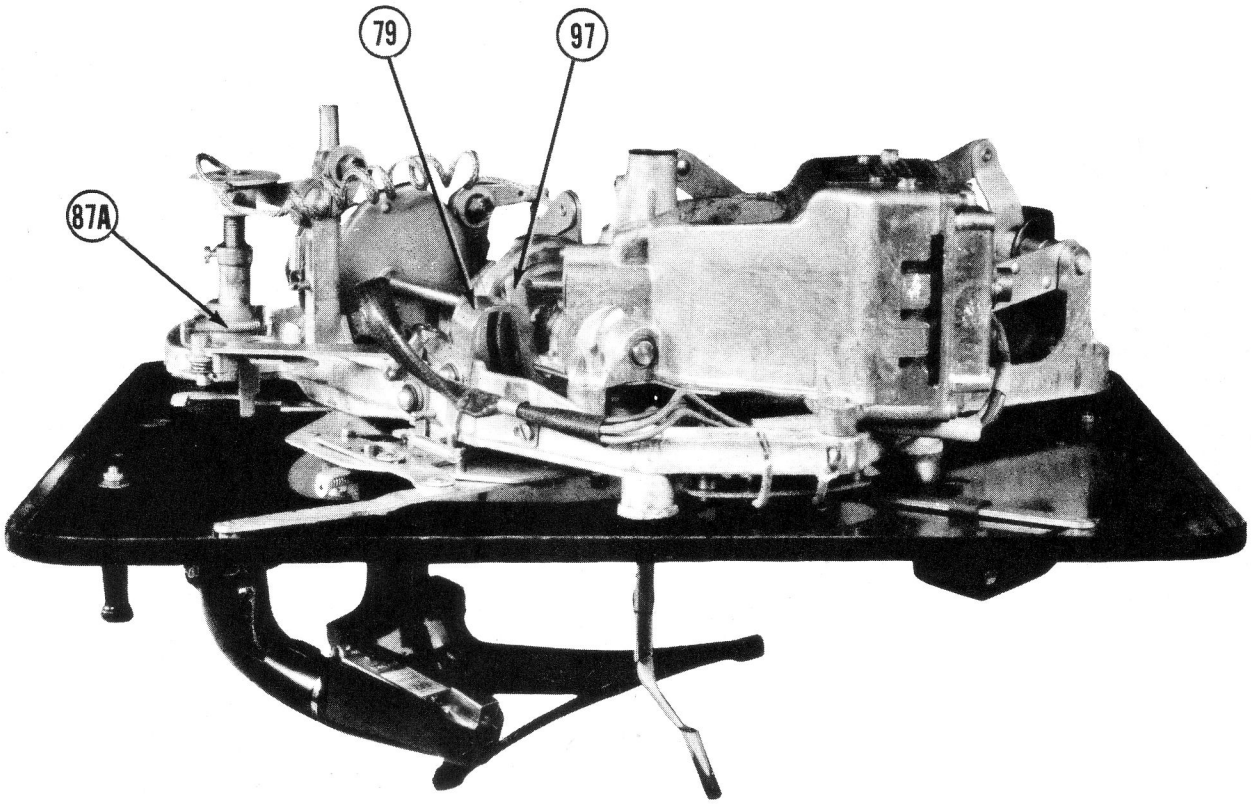


FIG. 8—BOTTOM FRONT VIEW

PARTS LIST

Ref. No.	*Part No.*	DESCRIPTION	*Ref. No.*	*Part No.*	DESCRIPTION
1	A45125	Pickup arm complete with pin	22	A40038	Screw
2	A40020	Locking screw		A41008	Nut
3	A40019	Pivot screw	23	A40018	Sub-assembly mounting screw
4	A1504	Spring	24	A40508	Steel washer
5	A45134	Lifting tube unit	25		Rubber grommet
6		Pickup head	26		Grooved pin for overarm spring
7		Cartridge	27	A45115	Overarm bracket
8		Cartridge mounting screw	28	A40510	Thrust washer
9		Overarm	29	A43200	Ball bearings
10	A45121	Spring lever	30	A45144	Ball race
11	A45130	Pickup arm spindle	31	A45143	Pickup base
12	A45119	Overarm spring unit	32	A40510	Thrust washer
13	A45116	Shutoff pin	33	A43200	Ball bearings
14	A45123	Pivot pin	34	A45144	Ball race
15	A45380	Record spindle	35	A40510	Thrust washer
16	A40030	Screw	36	A45145	Retaining collar
17	A45150	Platform	37		Set screws for retaining collar
18	A45169	Pawl	38	A45276	Pickup rest
19	A45151	Platform support unit	39	C45102	Base plate
20	A45390	Turntable	40	A45184	Automatic trip link
21	A45263	Platform cover	41	A45516	Friction plate

PARTS LIST

Ref. No.	Part No.	DESCRIPTION
42	A41513	Friction spring
43	A40033	Screw
44	A45173	Operation lever unit
45		Trip lever spring
46	A45179	Rubber pad
47	A45521	Trip lever and pin
48	A45185	Clutch release lever with pin
49	A45189	Switch control lever and knob
50	A45192	Switch link
51		Shut-off switch lever release
52	A41506	Spring
53	A45193	Switch lever unit
	A45199	Brake pad
54	A45201	Switch block
55	C45256	Base casting
56	A45260	Shut-off release lever
57	45234	Selector link
58	A45235	Inter. selector lever
59	A45161	Collar
60	A40514	Washer
61	A42005	Rivet
62	A45236	Delay lever
63	A40031	Screw
64	A45170	Platform stop
65	A40018	Motor mounting screw
66	B45168	Platform bracket
67	A45165	Pivot pin
68	B45163	Platform lever
68A	A41508	Spring
69	A45164	Selector operation lever
70	A45160	Coupling link (short)
71	A45155	Tilting lever unit
72		"C" clamp
73	A45165	Pivot pin
74	A45168	Operating collar
75	A40024	Screw
76	A42501	Spring washer
77	A41012	Nut
78	A41506	Spring
79	A45262	Shut-off clutch lever
80	A41503	Spring
81	A45261	Shut-off clutch lever
82	A45231	Selector lever with pin
83	A40023	Pickup base mounting screw
84	A45268	Lifting lever unit
	A45858	Lifting lever pad
85	A45219	Cam shaft
86	A45223	Lifting cam unit
87	A45241	Pickup arm lever unit (positioner lever 89 and pickup swing lever 87)
87A	A41506	Spring
88	A45245	Eccentric pin
	A42502	Spring washer
89		Positioner lever (part of item 87)
90	A40021	Fixing screw
91	A45265	Friction disc unit
92	A45227	Swing cam unit
93	A45222	Cam shaft collar
94		Flat washer
95	A40024	Screw
96	A45213	Platform cam unit
97	A45216	Clutch lever
98		Shut-off link spring
98A		Shut-off release lever spring
99	A45221	Cam shaft bearing
100		Flat washer
101		Shut-off actuating lever
102		Shut-off link
103		Collar
104		Flat washer
105		Shakeproof washer
106		Screw
107	A45376	Striker assembly
108	A45387	Regular lever with knob and rubber sleeve
109		Motor assembly
110	A40028	Platform mounting screw
111	A45161	Collar
112	A40504	Washer
113	A42520	Shakeproof washer
114	A40183	Screw
115	A41503	Spring
116	A40025	Screw
117	A45274	Distance collar
118	A45161	Collar
119	A40512	Washer
120	A42520	Shakeproof washer
121	A41006	Nut
122	A41503	Spring
123	A45227	Overthrow lever
124	A41503	Spring
125	A45249	Coupling link (long)
126	A45246	Sub-assembly platform cam lever
127	A45250	Sub-assembly tilting cam lever
128	A45249	Coupling link (long)
129	A42558	Pickup lateral cam lever unit
130		Clutch tripping link
131	A41503	Spring
132		Shut-off clutch link