Service Manual

DUMONT 45 R.P.M. RECORD CHANGER*

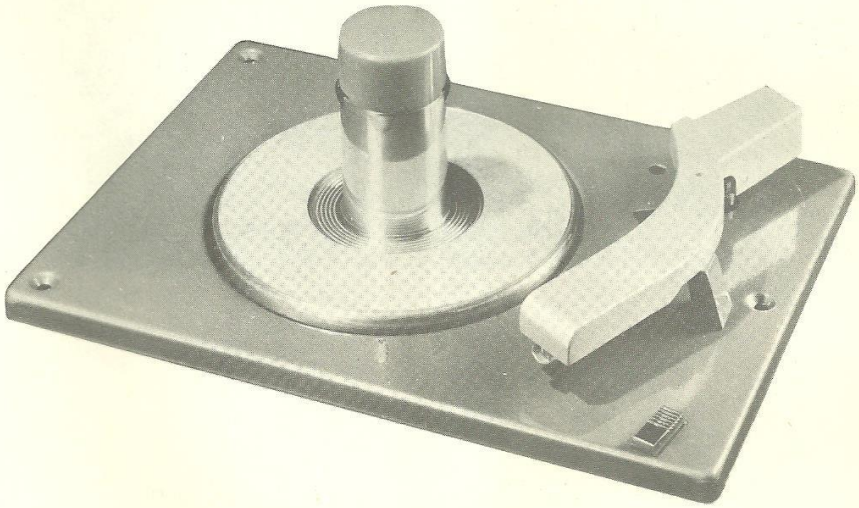

FIGURE 1—TOP VIEW

GENERAL INFORMATION

The Du Mont 45 RPM changer is designed to play and change automatically the new small-diameter (6⅞″), fine-groove phonograph records. It will handle up to eight records, in sequence, at a loading. This changer is of the new "Spindle-Loading," rapid-changing type. It is designed to operate from a supply of 110-volt, 60-cycle AC. The last record will be repeated until the changer is turned off.

* (Used in the model RA-108A Bradford Teleset.)

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— TELESET SERVICE CONTROL DEPT. —

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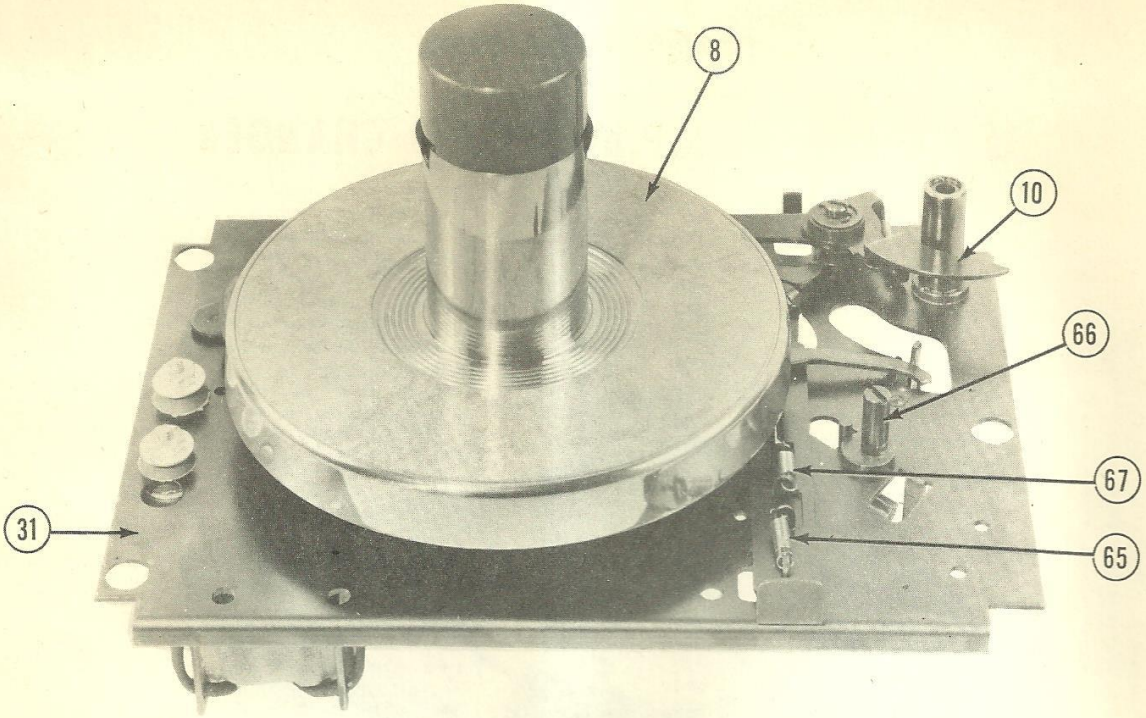


FIGURE 2

AUTOMATIC OPERATION

To operate this changer, be sure the mechanism is out of cycle and the pickup arm is on the arm rest before loading.

2. Remove the needle guard.

3. Place a series of the new small-diameter (6⅞″), fine-groove records on the spindle, allowing them to come to a rest on the record supports (6)—part of assembly (5 and 6).

4. Apply power to the drive motor (80).

5. Push the reject control knob (18) forward and let go. The mechanism will automatically play, in sequence, one side of each record stacked on the separator shelves. The last record will be repeated until the changer is turned off.

6. To reject a record being played, pull the reject knob (18) away from tone arm reset and release.

7. To repeat a record being played, remove all remaining records from the separator shelf (6). The remaining record will continue to repeat until additional records are replaced on the spindle, or the changer is turned off.

8. At conclusion of playing and as the last record is being repeated, lift the tone arm from the record and place on arm rest; then turn the changer off.

Caution

1. Do not handle the tone arm while the mechanism is in cycle.

2. Do not use force to release a jam.

3. Do not try to remove the records on the turntable if the turntable is stopped in cycle.

4. Do not try to operate the mechanism if the separator knives (4) protrude from the center post when the mechanism is out of cycle.

Apply power to the turntable; as the turntable revolves, press gently against the protruding discs (4) until they disappear inside the spindle. Do not do this during a change cycle.

CHANGE CYCLE

The change cycle is started by either pulling the reject control knob (18) away from the tone arm rest, which actuates the reject plate (63 and 64) moving the trip pawl (76) into tripping position, or by the action of the trip lever assembly (53), pushing the trip pawl (76) into tripping position, as the tone

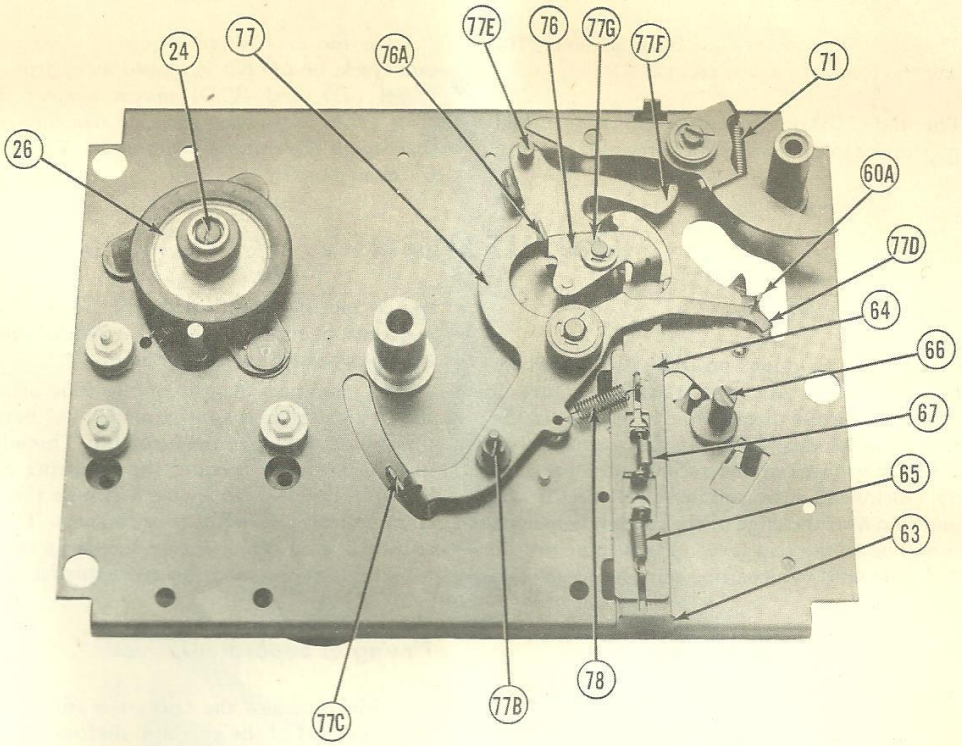


FIGURE 3

arm moves into the tripping groove of the record.

As the turntable rotates, a small projection (8A) extending from the underside of the turntable contacts the end of the trip pawl (76). Upon contact, the stud on the trip pawl (76) is forced against the main lever assembly (77) causing the follower stud (77B), Figure 3, of the main lever (77) to be forced through the slot and into the cycling cam groove (8B), Figure 5, thus starting the change cycle.

The change cycle operation is very rapid, due to the fact that it takes only one revolution of the turntable to complete a cycle. Therefore, as the follower stud (77B) moves in the cam track (8B), the following operations take place:

1. Finger (77D) of the main lever (77) moves away from the pawl (60A).

2. The end of the main lever (77C), extending below the motor board, moves away allowing the muting switch (49) to close.

3. At the same time, the stud (77E) pushes against the tone arm lift lever (70), which, in turn, raises the tone arm.

4. The end (77F) of the main lever (77) contacts the stud (53A) on the trip lever (53), starting the tone arm on its outward movement and end (77G) resets the trip pawl (76). The stud (53A) then moves against the lever assembly (60); therefore, as the tone arm reaches its outermost position, the tone arm is locked in position by the latch (60A), clamping the stud (53A) on the tone arm return lever (53).

5. While the tone arm is moving outward, the end (77C) moves in to block the rotation of the star wheel (43) and the shaft and gear assembly (7). Since the turntable continues to rotate while the star wheel and shaft remain stationary, the two small gears of the assembly (5 and 6) rotate around the gear of the gear and shaft assembly (7). This action is necessary to cause the shelves to recede, due to the eccentricity of the two small gears (6A), and the shelves to pivot out to select the lower record of the stack and to support the remaining records while the bottom record drops to the turntable.

At this point of rotation of the turntable, the main lever (77) is reversed in direction.

1. The end (77F) retains contact with the stud (53A) on the trip lever to stabilize the inward movement of the tone arm which is being pushed in by the return lever (60). This inward movement of the tone arm is stopped by stud (60B) of the return lever (60) coming in contact with the eccentric adjusting stud (66), thus positioning the tone arm for set down.

2. The stud (77E) moves away from the lever (70) lowering the tone arm to the record.

3. The stud (77B) of the main lever is now pulled through the slot in the cam by the force of the spring (78).

4. As the main lever is being pulled out of the cam track, end (77C) is moved away from the star wheel (43), end (77D) moves against the pawl (60A), thus unlatching the tone arm, and end (77C) then opens the muting switch (49). This completes the change cycle.

ADJUSTMENTS

Tone Arm Set Down

Normally, the set-down position is adjusted by turning the eccentric adjusting stud (66), Figures 2 and 3, made accessible through the hole (AA) in the motorboard (exploded view). If the pickup lands on the music grooves of the record, turn the stud slightly clockwise; turn counter-clockwise if the arm lands too near the edge of the record. However, if for any reason the trip lever (53) is loose on the shaft (15), the set-down position must be adjusted as follows:

1. Place a record on the turntable.

2. Set the adjusting stud (66) in a neutral position.

3. Move the reject knob (18) forward and release.

4. Turn the turntable clockwise, by hand, until the tone arm starts to lower. At this point, the lever (53) is held by the pawl (60A) of the lever assembly. Be sure screw (56) is loose enough to slide lever (53).

5. Push up on the lever (53) and down on the tone arm (11), leaving approximately .010″ vertical play.

6. While holding the lever (53) in position, move the tone arm over the starting groove of the record.

7. Tighten the clamp screw (56).

8. Turn the power on, push the reject knob forward, and observe the landing point.

9. A finer adjustment may be made by turning the adjusting stud (66) as described in the first part of the set-down adjustment.

Tone Arm Height

The correct height of the tone arm (11), while out of cycle, is approximately 1/16″ between the needle and the motorboard (17). To obtain this adjustment, bend the lug (15A) *exploded view* in the direction needed for proper height.

The maximum height of the tone arm, during the change cycle, is approximately ¾″ between the needle and the top of the turntable. This adjustment may be made by turning the adjusting stud (68). Turning the stud clockwise will raise the arm, and counterclockwise will lower the arm. This height-adjusting stud (68) is made accessible through the hole (BB) in the motorboard (exploded view).

Timing of Separator Knives

1. Make certain the two gears (6A) are meshed with the gear of the gear and shaft assembly (7).

2. Loosen the two set screws (42) sufficiently to permit the star wheel (43) to rotate without disturbing the shaft (7).

3. Position the separator knives as shown in Figure (6).

4. Move the reject knob (18) forward and release. Rotate the turntable slowly, by hand, until the end (77C) of the main lever moves in far enough so when the star wheel (43) is rotated it contacts the end (77C).

5. Tighten the set screws and check the adjustment by running the changer through several change cycles.

The separator knives must rotate 360° and return to the starting position, as indicated in Figure (6).

Automatic Tripping Adjustment

The changer should trip when the needle leaves the last playing groove. The adjustment is obtained by bending the long end of the trip pawl (76).

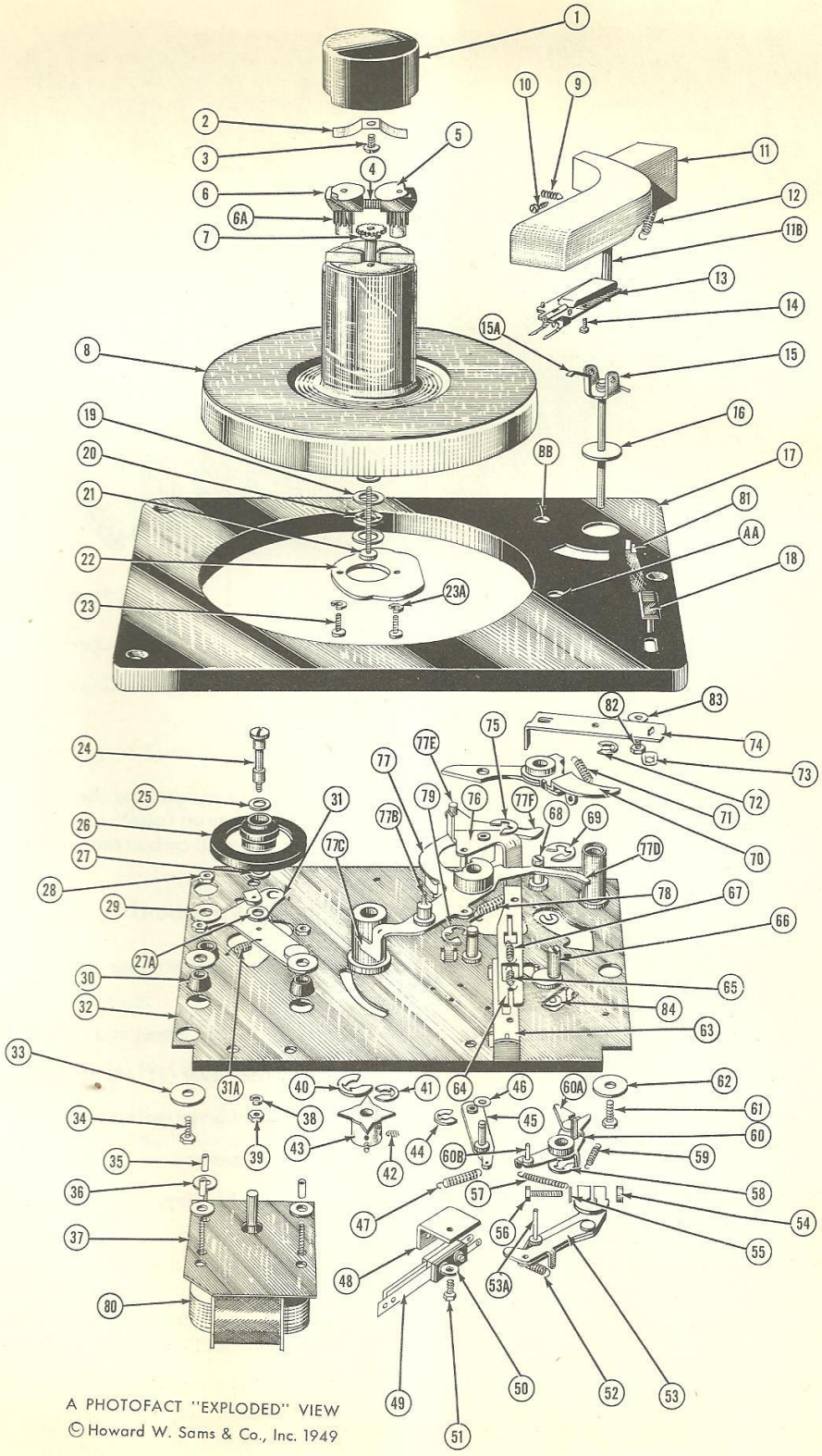
TROUBLES

Fails to Trip

1. Stud (8A) of the turntable, Figure 5, broken off.

2. The dog (76A), Figure 3, bent, thereby not coming in contact with the stud (8A).

3. The long end on the trip pawl (76) bent away



A PHOTOFACT "EXPLODED" VIEW

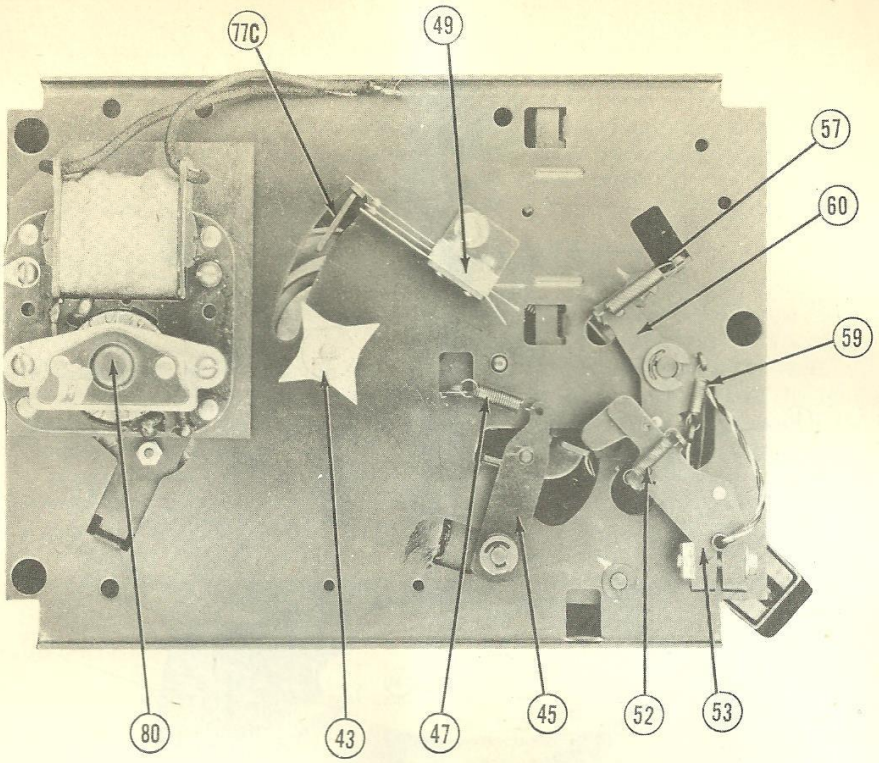


FIGURE 4

from the point of contact of the trip lever (53) for automatic tripping and the reject plate (64) for manual tripping.

4. Trip lever (53) loose on the tone arm shaft (15).
   (a) For proper adjustment of this trouble, see "Tone Arm Set Down" under "ADJUSTMENTS."

5. Spring (52) loose.

6. Spring (47) loose.

Failure to Cycle

1. The stud on the trip pawl (76) that actuates the main lever bent or broken.

2. Follower stud (77B) broken.

Stalling During the Change Cycle

1. Turntable cam (22) off center, not leaving enough space for the follower stud (77B) to pass in the groove.

2. Spring (57) loose. This condition may allow the stud (53A) to pass behind the pawl (60A).

3. Oil and grease on rubber idler wheel and turntable rim; clean with carbon tetrachloride.

Wow (Speed Variation)

1. Idler wheel (26) binding on tight bearing stud (24).

2. Grease on idler wheel and turntable rim.

3. Idler wheel lever (31) binding.

4. Idler wheel lever spring loose.

5. Defective motor.

6. Turntable binding.

Repeats Grooves

1. Bind in tone arm pivot shaft, no vertical play. See "Tone Arm Set Down"—Items (4 and 5).

2. Lug (15A) bent too high not allowing tone arm to rest on record. See "Tone Arm Height" under "ADJUSTMENTS."

3. Spring (12) tension too great.

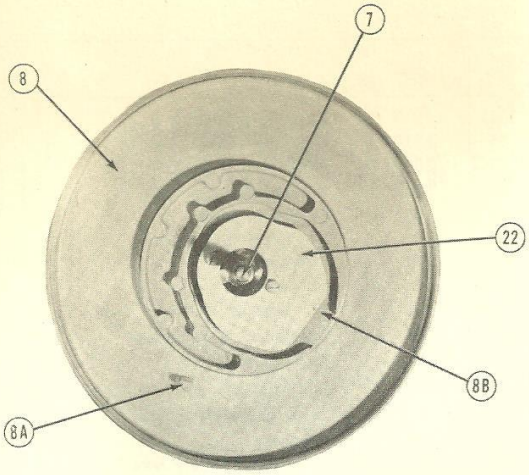


FIGURE 5

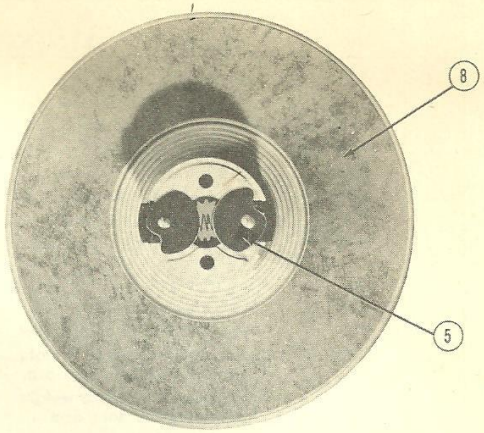


FIGURE 6

4. Pivot stud (9) too tight causing binding.

Continuous Tripping

1. Spring (78) missing.
2. Trip plate (63) binding.

Improper Landing of Tone Arm

1. Lever (60) binding in pivot.
2. Spring (59) loose.
3. Main lever end (77D) bent.
4. Stud (53A) loose.
5. Eccentric stud (66) loose.
6. Spring (57) missing.

Record Fails to Drop to Turntable

1. Star wheel (43) loose on shaft (7). See "Timing of Separator Knives" under "ADJUSTMENTS."

Records Drop On or Hit Tone Arm

1. Star wheel (43) improperly timed. See "Timing of Separator Knives" under "ADJUSTMENTS."

No Sound During Playing

1. Defective Cartridge (13).
2. Defective wiring.
3. Check position of muting switch (49) with changer out of cycle.
4. Defective amplifier.

Changer Trips Before End of Cycle

1. The long end of the trip pawl (76) bent. See "Automatic Tripping Adjustment."

Failure to Trip Manually

1. Spring (67) loose.
2. Turned up end of slide (63) bent in.

LUBRICATION

Additional lubrication should not be required for a long period of time; however, in cases of unusual use, or high operating temperature, the changer should be lubricated as follows:

1. Light machine oil (SAE No. 10) should be used to oil the bearings of the drive motor.
2. Use a good light grease on all bearing surfaces except the motor bearings; on all other sliding surfaces.

Caution

Do not oil or grease the record separator knives. Avoid over lubrication. Do not allow grease or oil to come in contact with rubber idler wheel (26), the drive motor shaft, or the turntable rim. All grease, oil, or any other foreign material should be cleaned from these parts with carbon tetrachloride or naphtha.

PARTS LIST

Ref. No.	Part No.	Description	No. Used
1	3R3	Spindle nose	1
2	4R9	Flat spring, spindle nose	1
3	6R9	6-32 x ¼" RHM screw	1
4	4R7	Coil spring (separator bolt spring)	1
5	RA18	Separator and bolt assembly	1
6	RA18	Separator and bolt assembly	1
7	RA19	Gear and shaft assembly	1
8	RA20	Turntable and shaft assembly (less mat)	1
	7R7	Turntable mat.	
9	2R3	Tone arm pivot stud	1
10	6R3	4-40 x 3/16" fil. hd. m. screw	1
11	RA50	Tone arm, pivot, stud, weight assembly R.C.A. tone arm	1
	RA51	Tone arm, pivot, stud, weight assembly E.V. tone arm	
	RA52	Tone arm, pivot, stud, weight assembly Shure tone arm	
12	4R6	Coil spring, counterbalance	1
13	8R1	RCA cartridge, sapphire needle	1
	8R4-2	Electro-Voice cartridge, sapphire needle	1
	8R4-3	Electro-Voice cartridge, sapphire needle (with ground lug)	1
	8R5-2	Shure Bros. cartridge, sapphire needle	1
	8R4-1	Electro-Voice cartridge, osmium needle	1
	8R5-1	Shure Bros. cartridge, osmium needle	1
14	6R4	2-56 x 3/16" flat hd. m. screw (RCA cartridge)	2
	6R13	4-40 x 5/32" slotted fil. hd. m. screw (Shure Bros. cartridge)	2
	6R16	4-40 x ⅛" slotted fil. hd. m. screw (Electro-Voice cartridge)	2
15	RA16	Tone arm support bracket and shaft assembly	1
16	5R18	Washer (tone arm) (thrust)	1
17	RA23	Motor board—RCA	1
	37	Motor board—Crescent	1
	RA36	Motor board—Crescent 1⅛" AC switch mounting bracket	1
18	3R10	Reject control knob	1
19	5R3	Washer	2
20	7R12	Ball thrust bearing	1
21	6R7	6-32 x 1¾" slotted fil. hd. screw	2
22	1R4	Turntable cam	1
23	6R6	4-40 x ¼" fil. hd. screw	2
23A	5R5	No. 4 split lock washer	2
24	2R1	Idler wheel stud	1
25	5R7	Washer (idler)	1
26	RA10	Idler wheel and bearing assembly	1
27	5R6	Washer (idler)	1
27A	1R23	Spring washer	1
28	7R2	6-32 hex nut	3
29	5R10	No. 6 flat washer	3
30	7R4	Rubber grommet	3
31	1R12	Idler wheel lever	1
31A	4R5	Coil spring (idler pulley plate)	1
32	RA12	Sub-base assembly	1
33	5R16	No. 8 flat washer	3
34	6R10	8-32 x ⅜" hex hd. screw	3
35	2R2	Motor spacer bushing	3
36	5R10	Washer	3
37	1R24	Deflection plate	1
38	5R5	No. 4 split lockwasher	1
39	7R1	4-40 hex nut	1
40	5R1	"C" washer	1
41	5R2	"C" washer	1
42	6R8	Bristol cup pt. set screw	2
43	3R7	Star wheel	1
44	5R2	"C" washer	1
45	RA8	Lever assembly	1
46	5R19	Washer	1
47	4R3	Coil spring (safety lever)	1
48	1R10	Mounting bracket (muting switch) } Assembly	1
49	7R13	Muting switch } Assembly	
50	5R15	No. 6 flat washer	1
51	6R2	No. 6 x 5/16" hex head screw self tapping	1
52	4R11	Coil spring (trip cushion spring)	1
53	RA3	Trip lever assembly	1
54	7R6	No. 8 square nut	1
55	5R14	No. 8 flat washer	1
56	6R5	8-32 x ¾" hex hd. m. screw	1
57	4R4	Coil spring (tone arm return)	1
58	5R4	"C" washer	1
59	4R8	Coil spring (tone arm recoil)	1
60	RA9	Lever assembly	1
61	6R10	6-32 x ⅜" hex head screw (see item 34 for quantity)	
62	5R16	No. 8 flat washer (see item 33 for quantity)	
63	1R13	Reject plate	1
64	1R18	Reject plate	1
65	4R2	Coil spring (reject assembly)	1
66	RA21	Set-down adjustment stud	1
67	4R2	Coil spring (reject assembly)	1
68	2R23	Height adjustment stud	1
69	5R4	"C" washer	1
70	RA5	Bushing and lever assembly	1
71	4R10	Coil spring (tone arm safety spring)	1
72	5R2	"C" washer	1
73	7R11	Speed nut	1
74	1R21	Reject coupling lever	1
75	5R2	"C" washer	1
76	RA6	Trip pawl assembly	1
77	RA7	Main lever assembly	1
78	4R1	Coil spring (main lever)	1
79	5R4	"C" washer	1
80	7R3	Motor 110-volt, 60-cycle	1
81	3R9	Tone arm rest	1
82	6R2	No. 6 self tapping screw	1
83	5R15	Flat washer	1
84	5R17	Spring lock washer	2