



RCA Victor

960260-2

AUTOMATIC RECORD CHANGER

TECHNICAL INFORMATION AND SERVICE DATA

1946—20

SERVICE DIVISION

RCA VICTOR COMPANY LIMITED

MONTREAL

Features

1. This mechanism is designed to play automatically a series of twelve 10-inch or ten 12-inch standard records of the 78 r.p.m. type.
2. It will play manually records up to 12 inches in diameter.
3. Tripping system is of "constant diameter" type, insuring reliable automatic operation on all records made to RMA proposed standards.
4. It is a simple operation of turning one record support to change from 10- to 12-inch records or vice versa.
5. Cycling mechanism is disconnected completely while records are being played. This reduces the load on the drive motor, thereby reducing the tendency for "wow" or rumble.

Manual Operation

1. Rotate the record separator shelf clockwise for 10-inch or counterclockwise for 12-inch position (numerals 10 or 12 pointing towards center post).
2. Place the record to be played on the turntable and turn the power switch on.
3. Place the pickup on the start of the record.

Note: The mechanism should be allowed to complete cycle before attempting to move tone arm to the rest position.

4. Turn power switch off
5. Remove the record by raising straight up without tilting.

Automatic Operation

1. With the power switch in the off position rotate the record support shelf as required for 10- or 12-inch records until the record size indicated on the support cover is pointing toward the center post. (Rotate clockwise for 10-inch and counterclockwise for 12-inch records.)
2. Place the records to be played in a stack with desired selections upward and in proper sequence with the last record on top. Load them on the changer by placing them over the center post and resting on the record support shelf. Place record stabilizing clip on top of the record stack.
3. Turn power switch on and press down firmly but momentarily on the end of the tone arm and let go. The changer will continue to play one side of the entire stack automatically.

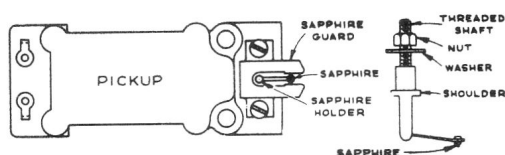
The tone arm can be moved to the rest position any time the mechanism is not in cycle.

4. Turn the power switch off and remove the stack from the turntable by placing fingers of both hands directly opposite and under the stack. Then lift straight up—"don't tilt" or squeeze stack. Turning the support shelf one-fourth turn facilitates removal of records.

Cautions

1. Avoid handling the tone arm or rotating record support assembly while mechanism is in cycle.
2. Never turn the power switch off, leaving the mechanism in cycle for an extended period of time.
3. Do not allow the records to remain on supports when not in use.
4. Do not allow oil or grease to come in contact with any rubber parts.
5. Do not install instrument near source of heat. Excessive heat may damage the pickup cartridge.

REPLACEMENT OF SAPPHIRE



Caution: Never bend the sapphire support wire.

The nut on the sapphire holder assembly is locked by a light cement (such as Glyptal). Extreme care should be used when loosening the nut so that the twisting motion does not break the crystal.

Remove the two screws holding the sapphire guard in place and remove guard. Remove the small nut and washer on the threaded shaft of the sapphire holder and gently push the shaft through the hole in the armature shaft until the sapphire holder assembly comes free.

Use of a drop or two of acetone will facilitate the removal of the nut and shaft. Do not use force as the crystal may be broken.

Insert threaded shaft of replacement sapphire holder through armature shaft and replace the washer and nut. Make sure that the sapphire is in the correct position. Take hold at the lower end of the shaft with a pair of pliers while tightening the nut, being very careful so as not to strip the threads or break the crystal. Replace the sapphire guard, positioning it by means of the oversize screw slots. Make certain that the sapphire and its supporting wire are centered in the guard. Tighten the guard screws. Before using, check to see that the sapphire projects far enough (approx. .020) beyond the guard so that the guard will not strike the record. If necessary, bend the guard a little. Apply a drop of light cement (such as Glyptal) to the sapphire nut holder.

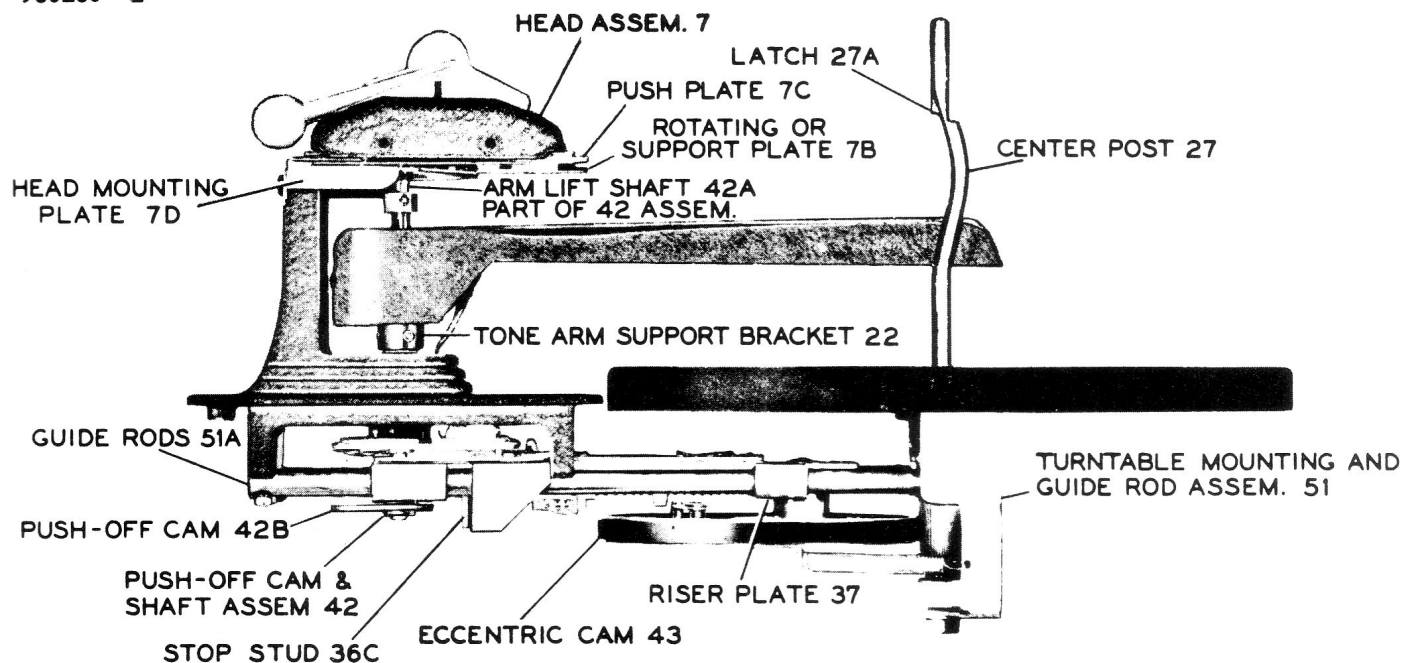


FIG. 1

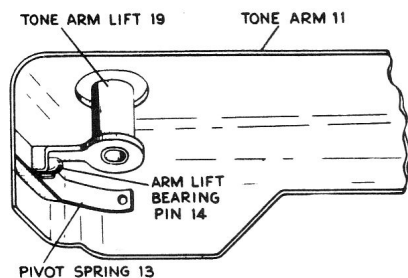


FIG. 3

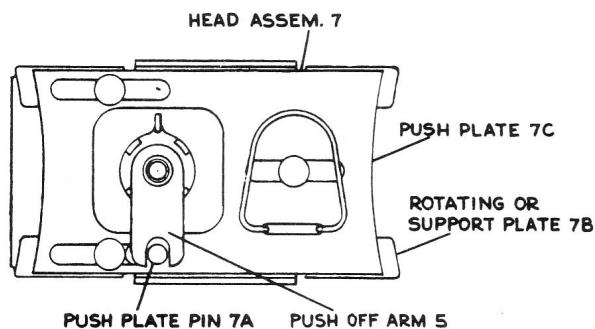


FIG. 4

FUNCTIONS OF PRINCIPAL PARTS

Head Assembly—7, 7A, 7B, 7C

Supports outer edge of record stack and pushes the record off notch in center post and allows it to drop to the turntable while the mechanism is going through cycle.

Center Post—27, 27A

Supports the entire stack of records, and together with the off-set notch and latch in the center post, provides a means for separating records.

Tone Arm Lift Assembly—19

Couples tone arm to riser plate 37 through arm lift shaft 42A, thereby transferring the action for the vertical motion of the tone arm during change cycle.

Arm Control Assembly—31, 31A, 31B, 31C

Provides a tie between tube 31B, bracket 31C and tone arm support bracket 22, thereby directing the horizontal movement of the tone arm during change cycle. Arm control pin 31A slides along track in arm control plate 36, and in so doing,

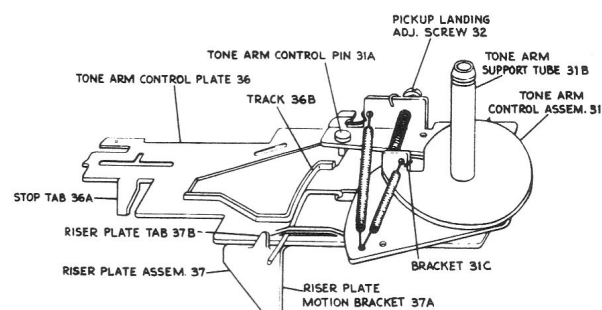


FIG. 2

determines the point of landing of the pickup and the point of trip of the mechanism. It also incorporates landing adjusting screw 32.

Arm Control Plate Assembly—36, 36A, 36B, 36C

Incorporates a track 36B which controls the pickup landing and the tripping of the mechanism.

Stop tab 36A functions as portion of the tripping device, stud 36C, contacting push-off cam 42 controls, the point of landing for both 10- and 12-inch records.

Riser Plate Assembly—37, 37A, 37B, 37C

Provides mounting for eccentric cam 43, and incorporates an inclined track 37C, which controls the vertical movement of the tone arm.

Riser plate tab 37B pushes against curved portion of cam on arm control assembly 31, providing a control for the horizontal movement of tone arm during change cycle.

Riser plate bracket 37A contacting push-off arm 42B provides the necessary motion for push plate 7C.

Eccentric Cam—43

Transfers motion from turntable to riser plate 37 during cycling.

Push-Off Cam and Shaft Assembly—42, 42A, 42B

Provides a means of mechanically coupling tone arm lift 19 and push plate 7 assemblies to main cycling mechanism.

Cam 42B contacting stud 36C controls the position of arm control plate while in cycle, which determines the landing point of the pickup on 10- or 12-inch records.

Turntable Mounting and Guide Rod Assembly—51, 51A

Incorporates the main bearings for the turntable and provides a mounting for guide rods 51A.

ADJUSTMENTS

Tone Arm Adjustment

The tone arm height should be so adjusted as to permit the sapphire to engage and ride in the grooves of one record placed on the turntable, but at the same time prevent the tone arm from touching the records on the supports while the mechanism is going through cycle, fig. 5.

1. With the mechanism out of cycle, lift tone arm and check, and make certain tone arm lift 19 engages pin 14 as shown in fig. 6.
2. With the pickup near the edge of the record, loosen the set screw (with Bristo Wrench #6), holding collar 10, fig. 9, and moving it up or down on shaft 42A, so as to have the conditions indicated in sketch, fig. 5.

Preliminary Landing Adjustments

An accessible landing adjustment screw 32 is provided, but if for any reason the tone arm support bracket has become loose or removed, proceed as follows:

1. With the mechanism out of cycle, turn adjustment screw 32, fig. 8, clockwise as far as it will go, then turn counter-clockwise two or three full turns.
2. Set head assembly for 12-inch position; place a 12-inch record on turntable.
3. Press down on the reject button and rotate the turntable by hand, causing the mechanism to cycle until the pickup is about to land on the record. In this position, the arm control pin 31A is in a position on track 36B as indicated by "s" and adjustment screw 32 remains against bracket 31C as indicated in fig. 8.
4. Loosen the two set screws holding the tone arm support bracket.
5. While holding this position, place the sapphire in the starting groove of the record, and tighten two set screws in the tone arm support bracket.

Final Landing Adjustment

The exact landing adjustment can be made by pressing the reject button and rotating the turntable by hand until the pickup is about to land. Then turn adjustment screw 32, fig. 8, until the sapphire is directly above the starting groove of the record. If the mechanism continues to land incorrectly after this adjustment has been made, compensate the difference by turning the screw 32 slightly. Turning screw counter-clockwise will move the landing towards the center post.

Positioning Push-off Arm

1. With the mechanism out of cycle, turn the push-off cam to such a position, so that the arm makes a 90° angle with the slide bars as shown in fig. 10. Make certain the large radius side of cam is toward the stud 36C when the support post is in the 12-inch position.
2. Place push-off arm 5 over push-off cam shaft 42A, and engage push-off plate pin 7A near the top edge, fig. 7. Tighten set screws.
3. Press down on reject button and rotate the turntable slowly by hand, making certain push plate does not reach its limit, or push-off arm does not come down against push plate when the riser plate is in its outermost position. If push plate should reach limit, or push-off arm should come down against push plate before riser plate reaches its outermost position, back-off either one until corrected.
4. Check this for both 10- and 12-inch setting.

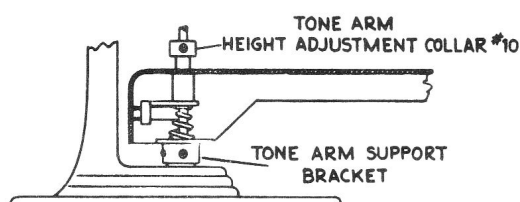


FIG. 9

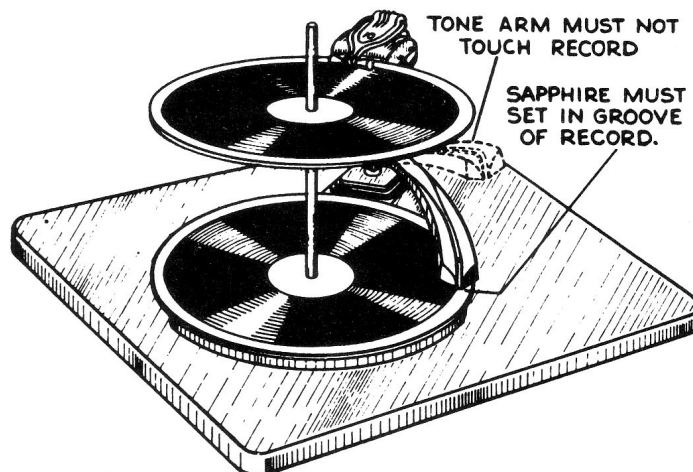


FIG. 5

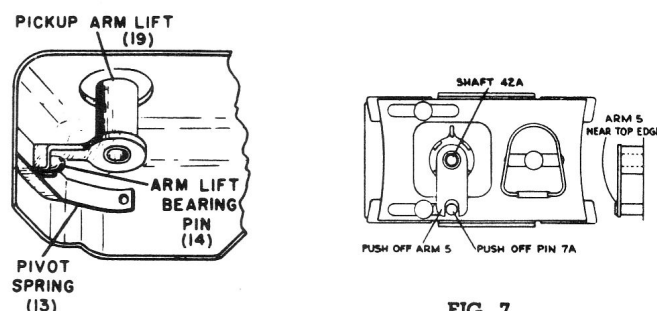


FIG. 6

FIG. 7

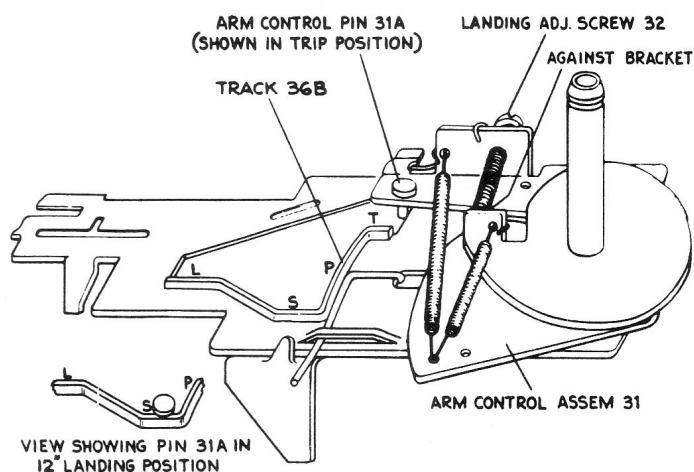


FIG. 8

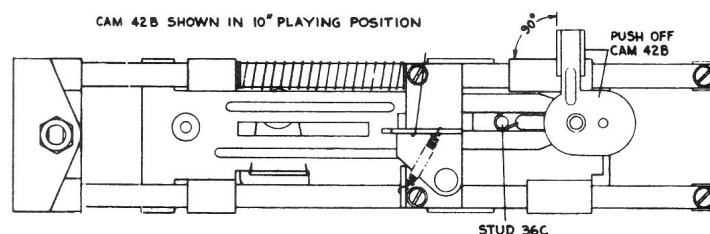


FIG. 10

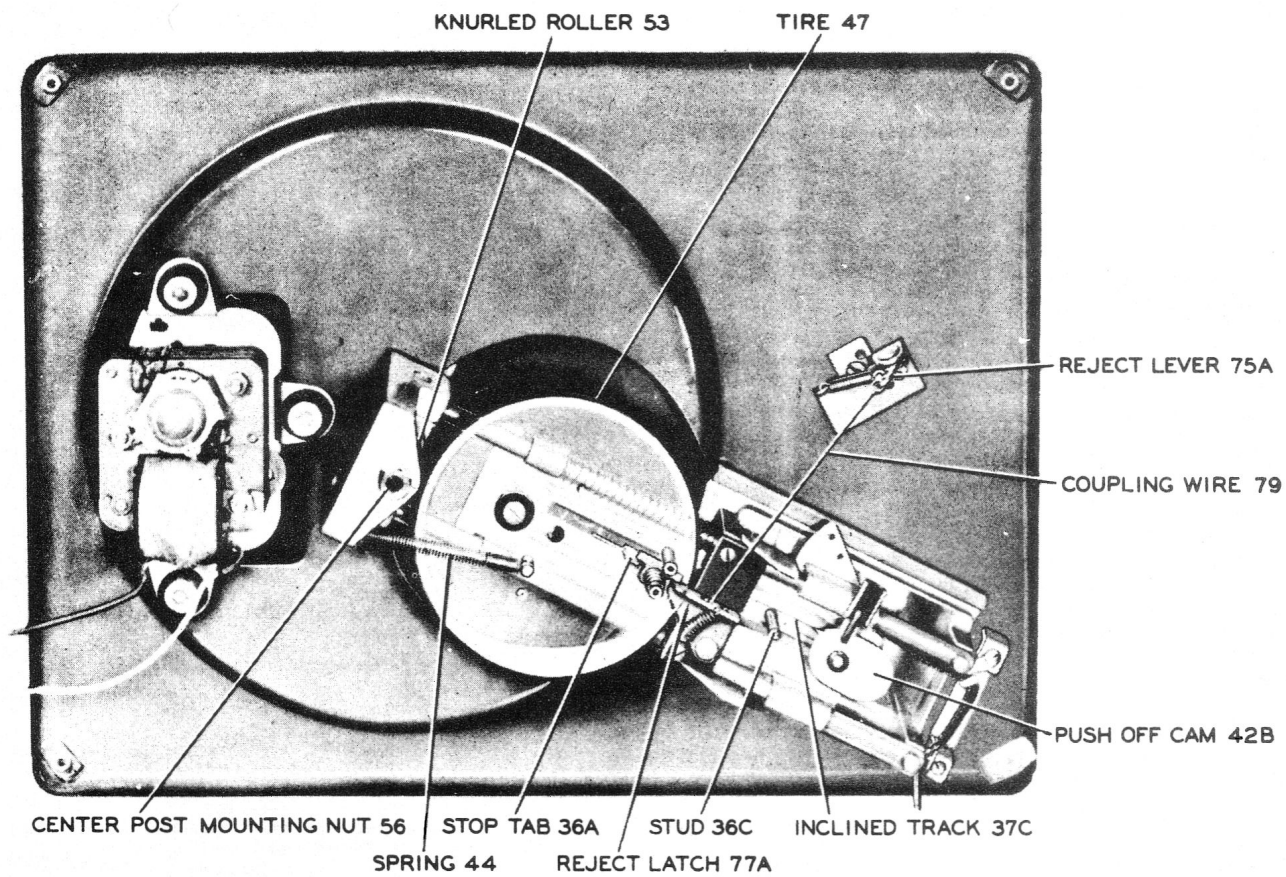


FIG. 11

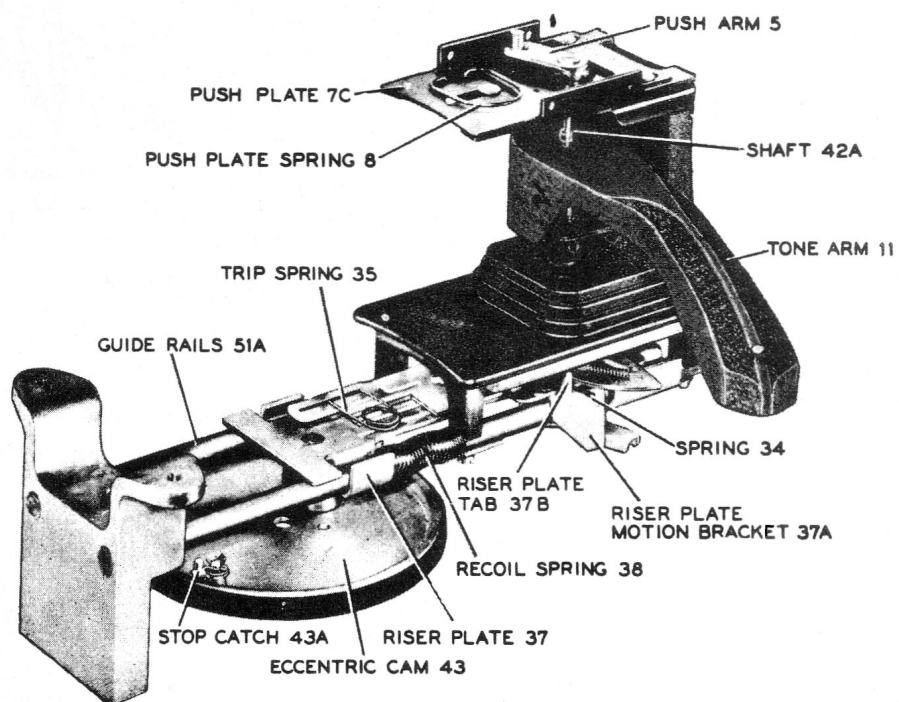


FIG. 12

CYCLE OF OPERATION

Turn record support to 10- or 12-inch position as desired and place a stack of records on supports.	1. Turning record support positions the push-off cam 42B through the linkage of push-off arm 5 and push-off shaft 42A. In so doing it determines the distance of movement of control plate 36 which governs pickup landing.
Reject button.	1. Press down on tone arm; this actuates reject button on which it is resting. 2. Reject button actuates reject lever. 3. Reject lever transfers action to reject latch 77A through coupling wire 79. 4. The unlatching of reject latch allows eccentric cam 43 to be pulled against rotating knurled roller 53 which starts cycle.
Record plays.	1. While the record is being played and the tone arm moves toward the center of the record, the arm control pin 31A on arm control assembly 31 moves along track 36B as designated by "P," fig. 13. 2. As pickup moves into trip groove on record, tone arm control pin 31A moves into recess in control plate 36 at point indicated by "T," fig. 13. 3. Trip spring 35 pulls arm control plate 36 towards center post 27, and in so doing allows stop tab 36A on arm control plate 36 to stop catch 43A on eccentric cam 43.
Cycling starts.	1. Spring 44 pulls eccentric cam 43, causing rubber tire 47 to engage rotating knurled roller 53. 2. Eccentric cam 43 mounted on riser plate transfers energy to force the riser plate assembly back along the guide rails 51A away from center post 27. 3. As riser plate moves, the push-off cam and shaft assembly 42 rides along the inclined track 37C of the riser plate 37. 4. This action results in the push-off cam and shaft assembly 42 being pulled down.
Tone arm raises and moves out.	1. The tone arm lift 19 sliding on shaft 42A is pulled downward, contacting lift bearing pin 14, and causing tone arm to raise and clear record. 2. The riser plate tab 37B contacting curved portion of arm control assembly 31, which is coupled to tone arm support bracket assembly, causes the tone arm to be moved outward away from, and clears the edge of the records. Arm control plate is also being carried along by tab 37B contacting spring 34.
Record is separated and drops to turntable.	1. As riser plate 37 continues to travel further along guide rods 51A, the riser plate motion bracket 37A contacts and rotates the push-off cam and shaft assembly 42. 2. Push-off arm 5, being coupled to push-off cam and shaft assembly 42, is rotated, causing push plate 7C to push record off of projection on center-post and dropping it to the turntable. Note: The small separator latch 27A in the end of the center post functions as a thickness gauge, allowing only one record to be pushed off the projection at one time.
Mechanism continues to cycle, returning tone arm and positioning it for landing.	1. As eccentric cam 43 is returning to minimum diameter (out of cycle position), riser plate is being pushed back to normal position by recoil spring 38. At the same time, the push plate spring 8 is pushing the push plate 7C and push-off arm 5 back to normal position. 2. The portion of arm control assembly mounting the control pin 31A, and the control bracket 31C, are hinged on the plate forming part of assembly 31. Since the pin 31A has followed the track 36B and the curved portion of bracket 31C was forced out by motion of tab 37B, the tension of spring 30 is tending to pull them together as the riser plate is returning to normal position. The governing factor in determining how far the bracket will be pulled in, is the setting of the landing adjustment screw 32.
Pickup lands.	1. During part of the change cycle when riser plate was in the outermost position, and carrying arm control plate along by tab 37B contacting spring 34, the stud 36C is stopped by cam 42B. This acts as a gauge to determine the point of contact of pin 31A on arm control track 36B. This cam having two different radii will govern the distance arm control plate can travel since this is set when the record size change is made. If the smaller radius side of cam 42B is toward stud 36C, the arm control pin 31A will ride portion of track 36B designated by "L", causing the pickup to land on 10-inch records. On the other hand, if the larger radius portion of cam is toward the stud, the pin will ride along track designated by "S", which determines landing point on 12-inch records.

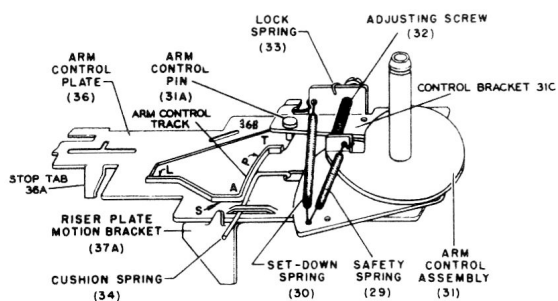


FIG. 13

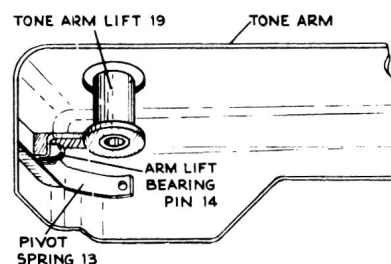
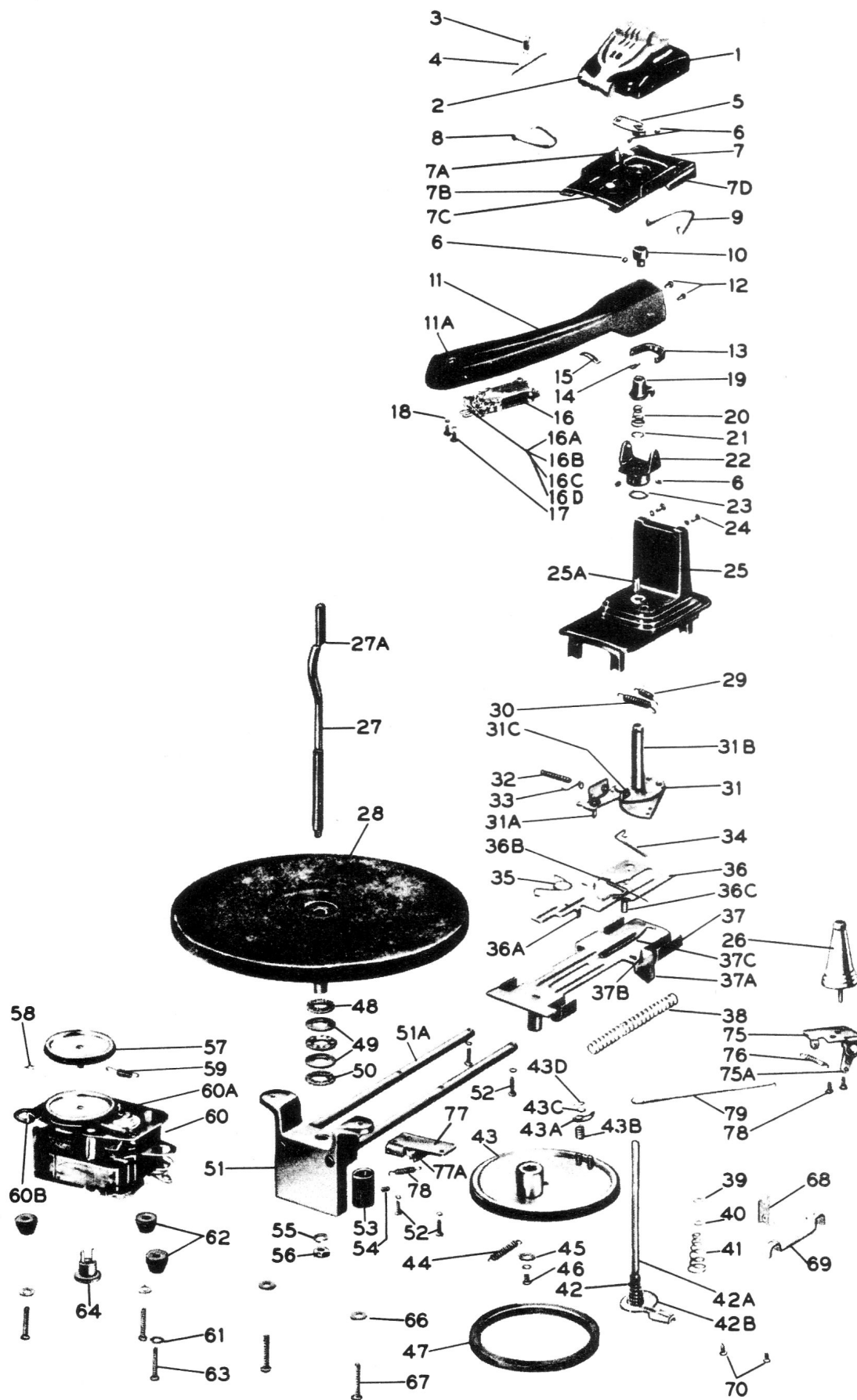


FIG. 14



PHOTOGRAPH OF PARTS

FIG. 15

Replacement Parts

Insist on genuine factory tested parts, which are readily identified and may be purchased from authorized dealers.

REF. NO.	STOCK NO.	DESCRIPTION	REF. NO.	STOCK NO.	DESCRIPTION
PICKUP AND ARM ASSEMBLIES			9	71211	Spring-Head plate mounting spring (on bottom mounting plates).
11	71283	Arm-Pickup arm shell including tone arm eye (11A) pivot spring (13) and arm lift bearing pin (14) rivets (12)	10	72461	Collar-Lift adjusting collar.
15	S-3466	Clip-Spring clip to hold pickup leads in arm.	25	72467	Base-Operating mechanism mounting base less all removable parts.
16	70338	Crystal-Permanent sapphire crystal cartridge complete.	27	71235	Centerpost.
16A	72345	Sapphire - Sapphire holder.	MOTORBOARD ASSEMBLIES (BOTTOM)		
16B	38452	Guard - Sapphire guard.	29	72469	Spring-Safety spring.
16C	37763	Screw - #2-56 x 1/8" screw for sapphire guard.	30	72470	Spring-Landing tension spring.
16D	70341	Nut-nut for sapphire holder.	31	72471	Control-arm control plate, includes 31 A, B and C.
19	72462	Lift - Tone arm lift.	32	72472	Screw-landing adjustment screw.
20	72463	Spring-Brake spring.	33	72473	Spring-lock spring(for landing adjustment)
21	72464	Ring-Arm control support tube retaining ring.	34	72474	Spring-Cushion spring.
22	72465	Support-Tone arm support.	35	72475	Spring-Trip spring.
23	72466	Washer-Spring washer.	36	72476	Plate-Arm control plate ass'y.- including (36A,B and C)
26	72468	Rest-Tone arm rest and reject button.	37	72477	Riser-Riser plate ass'y-including 37A, B and C
MOTOR ASSEMBLIES			38	71191	Spring-Recoil spring.
28	71237	Turntable.	42	72478	Cam-push-off cam(42B)and shaft(42A)
57	S-3082	Wheel-Rubber tired drive wheel.	43	72479	Cam-Eccentric Cam and tire-including 43A, B, C and D
58	71177	Pin-Cotter Pin.	43A	72485	Catch - Reject catch.
59	71185	Spring-Drive wheel tension spring.	43B	72486	Spring-Reject catch support spring.
60	S-3642	Motor-Complete 110V. AC 60 Cycle.	44	72480	Spring-Eccentric Cam Spring
60	S-3641	Motor-Complete 110V. AC 25 Cycle.	47	71198	Tire-Rubber tire only for eccentric cam.
64	30870	Plug-2 prong male plug for motor cable.	48	71239	Washer-one set of cork washers for turntable.
MOTORBOARD ASSEMBLIES (TOP)			49	71238	Bearing-Turntable thrust bearing.
1	72456	Cover-cover assembly including record clip (4), spring (3) and plastic clip (2)	51	71188	Support-Turntable mounting support, including guide rods.
3	71232	Spring-Record clip spring.	53	72481	Roller-Turntable shaft knurled roller
4	71233	Rod-record clip rod.	54	71200	Screw-#8-32 x 1/8" bristol set screw for knurled roller.
5	72458	Arm-Push-off arm.	56	71236	Nut-hex,nut for centerpost.
7	72459	Slide-slide ass'y including push plate pin (7A), rotating Plate (7B) push plate 7 (C), mounting plate (7D) push plate spring (8) and mounting plate spring (9).	71	39386	Cable-Shield output cable with pin plug.
8	72460	Spring-push plate spring(Top of Push Plate).	72	31048	Plug-Pin plug for pickup cable.
			75	72482	Lever-Reject lever assembly.
			77	72484	Plate-Reject mounting plate and arm assembly.
			79	72483	Wire-Reject trigger wire.
			MISCELLANEOUS		
			71761	# 6 Bristo Wrench - 4 spline.	
			71762	# 8 Bristo Wrench - 6 spline.	

Changer Will Not Complete Cycle

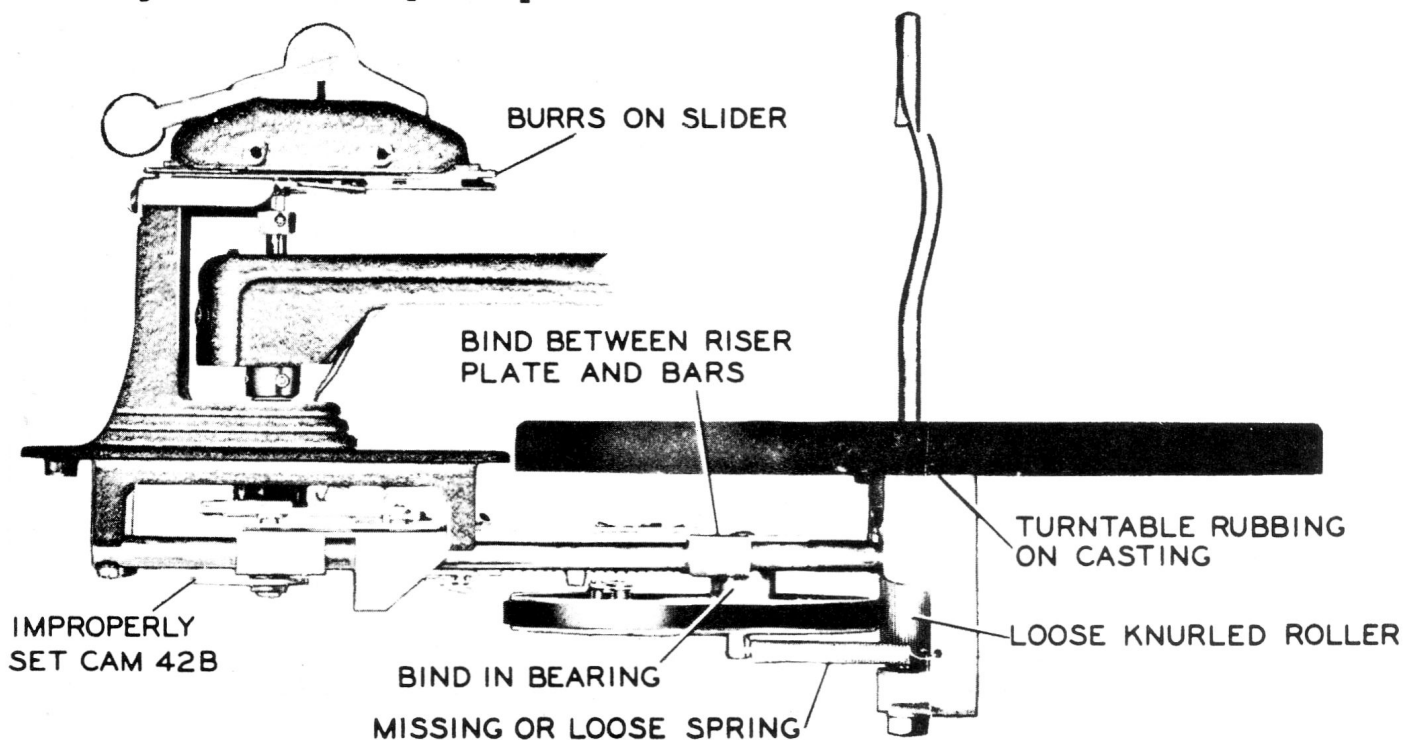


FIG. 16

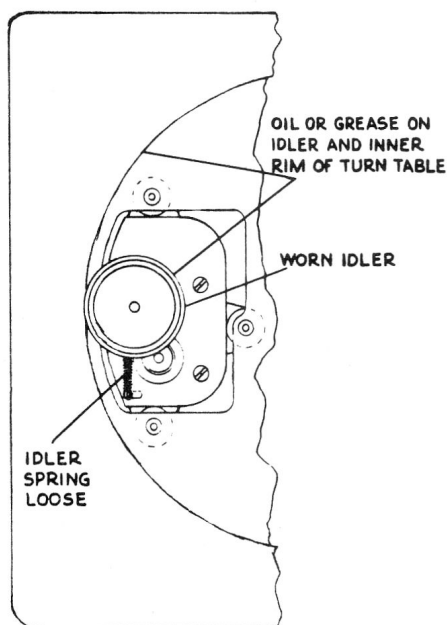


FIG. 17

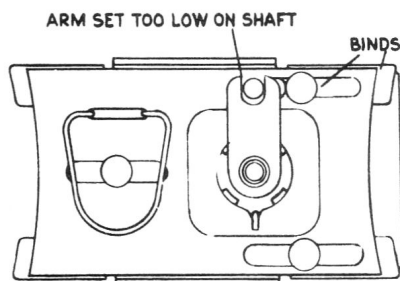


FIG. 18

Records Do Not Separate or Drop Properly

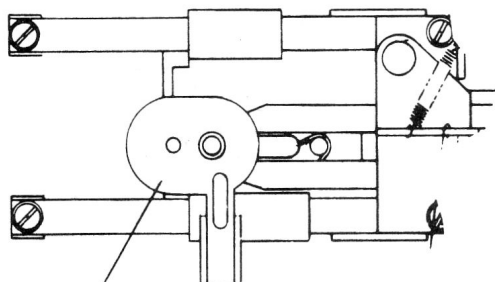


FIG. 19

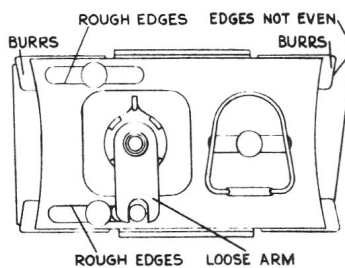


FIG. 20

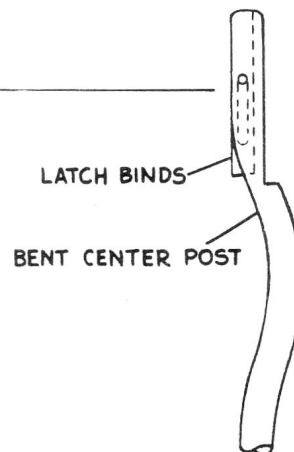


FIG. 21

Pickup Repeats Grooves

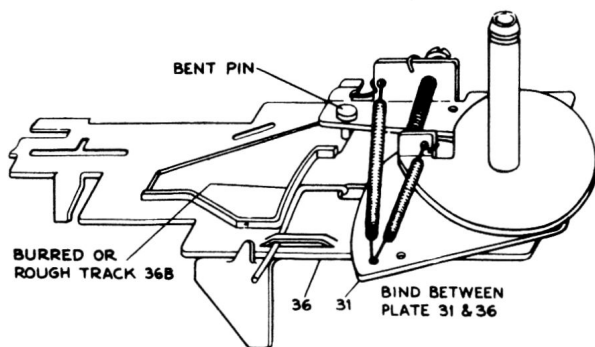


FIG. 22

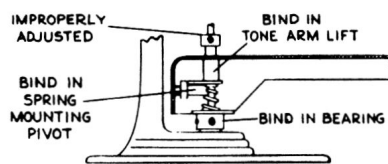


FIG. 23

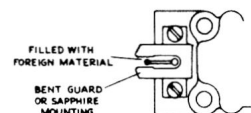


FIG. 24

"Wow" or Slow Turntable Speed

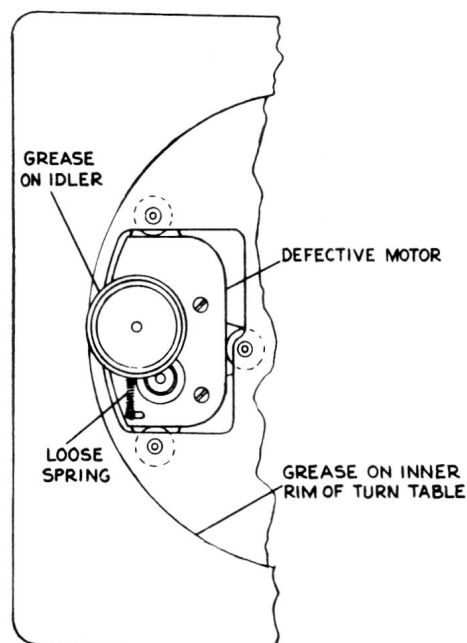


FIG. 25

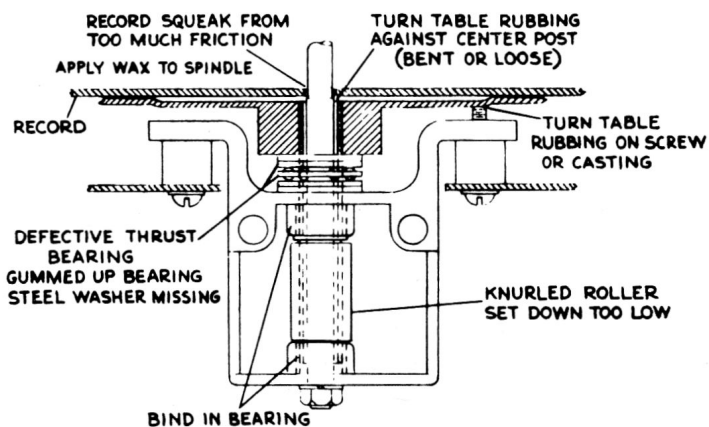


FIG. 26

Continuous Tripping

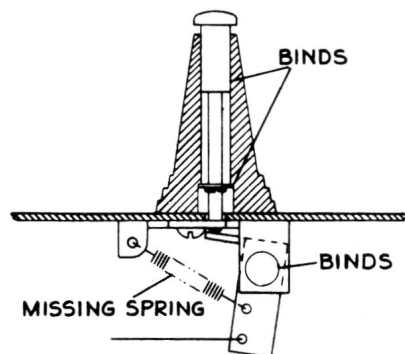


FIG. 27

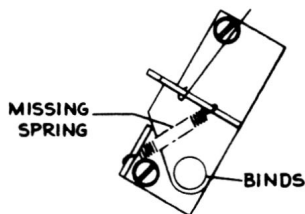


FIG. 28

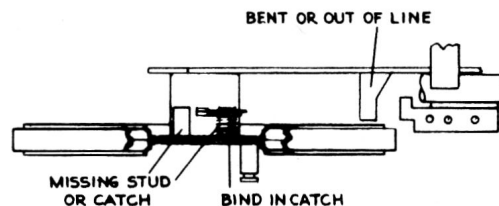


FIG. 29

Improper Pickup Landing

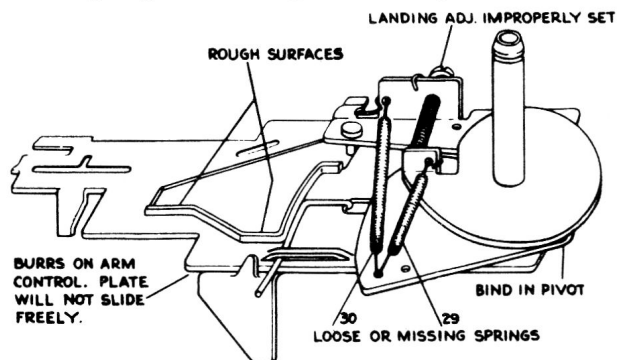


FIG. 30

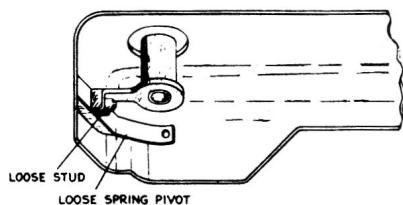


FIG. 32

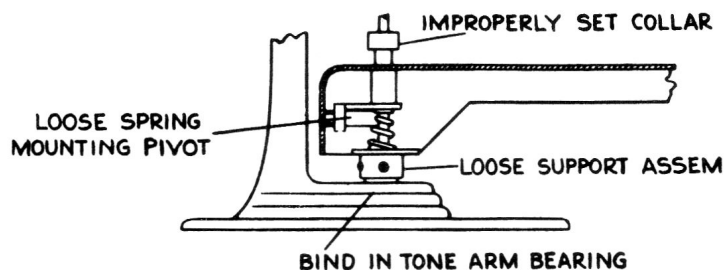


FIG. 31

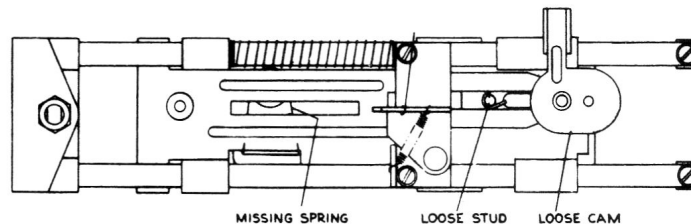


FIG. 33

Failure to Trip or Go into Cycle

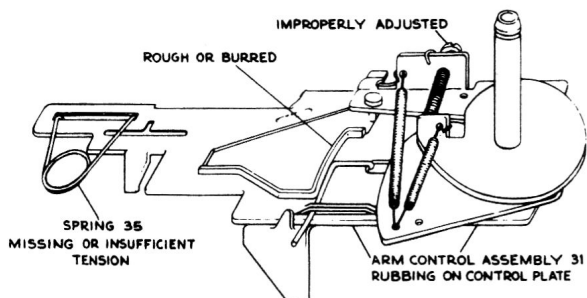


FIG. 34

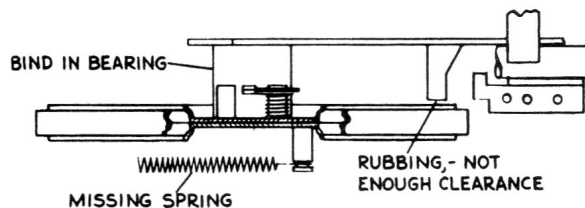


FIG. 35

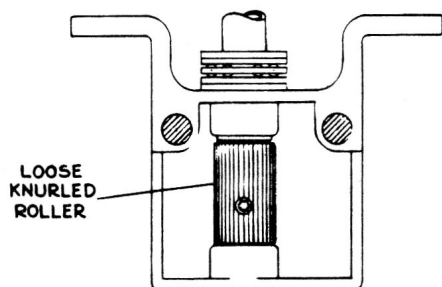


FIG. 37

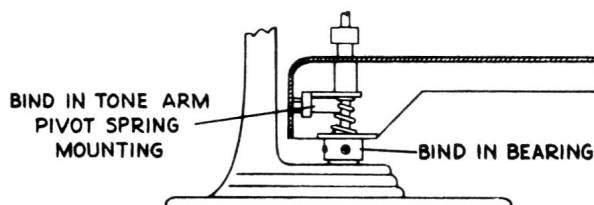


FIG. 36

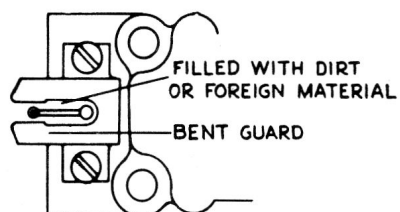


FIG. 38

Tone Arm Fails to Leave Rest Automatically

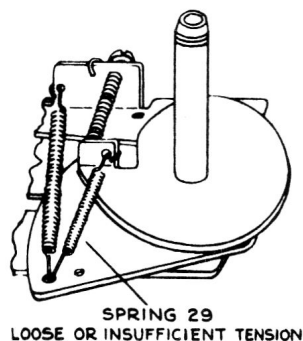


FIG. 39

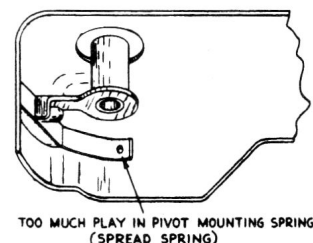


FIG. 39A

Premature Tripping

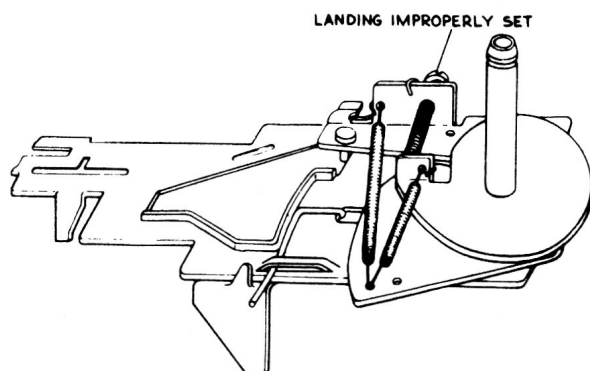


FIG. 40

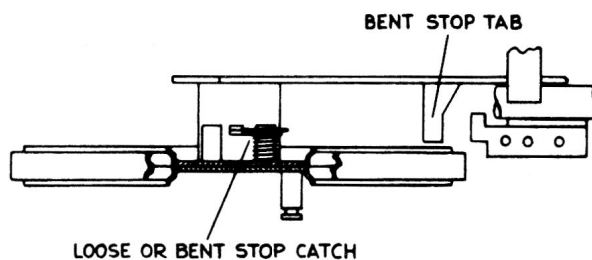


FIG. 41

Distorted or No Output

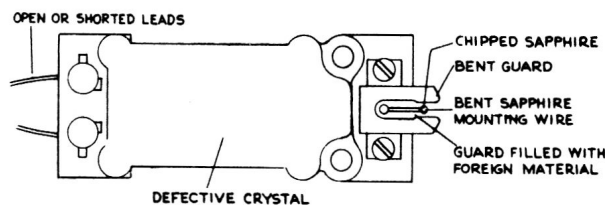


FIG. 42

Feedback or Howl

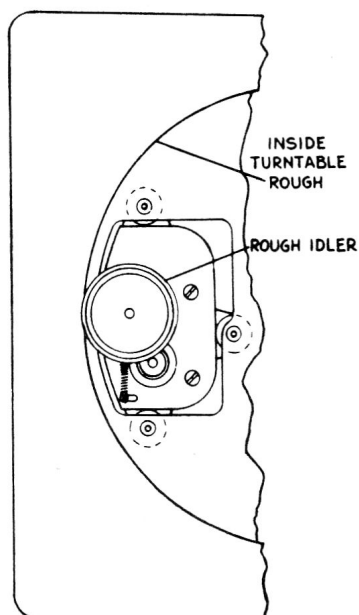


FIG. 43

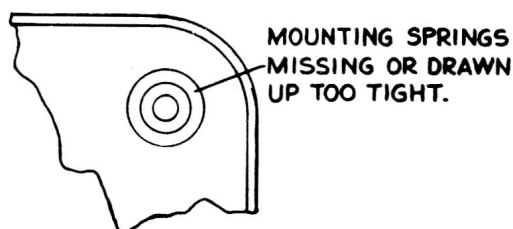


FIG. 44

Lubrication of Turntable Bearing

If binding or freezing of turntable bearing occurs the turntable shaft should be removed and polished with very fine emery cloth or crocus cloth. Clean off any bearing metal or foreign particles from the shaft, including the set screw burr. Next, bevel the top edge of the top bearing slightly, with a knife or scraper. Clean the shaft and the bearing with carbon tetrachloride, removing oil and grease, being certain to clean out any chips which may have dropped into the bottom bearing. Lubricate all moving surfaces with a light coating of vaseline.