



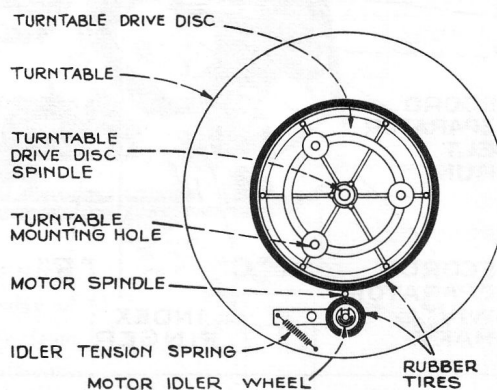
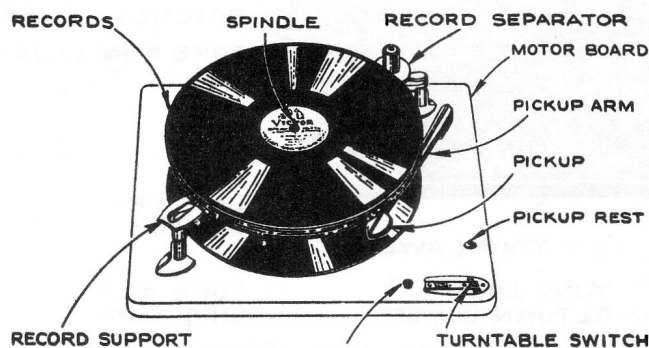
RCA Victor

RP-158

Automatic Record Changer

TECHNICAL INFORMATION AND SERVICE DATA

SERVICE DIVISION • RCA VICTOR COMPANY LIMITED • MONTREAL



Operation

The RP-158 is a record changing mechanism designed for the automatic playing of records. It will play twelve 10-inch or ten 12-inch records at a single loading.

To Operate:

1. Turn the record support located at the left front corner to the 10-inch or 12-inch position as desired.
2. Place the records on the record support and record separator posts.
3. Push the turntable switch to the "On" position.
4. Press the "Start-Reject" button. The entire series of records will now play without further attention and the pickup will swing to its rest position at the end of the last record. (For completely automatic operation all records must have the standard eccentric tripping groove. Otherwise it may be necessary to press the "Start-Reject" button to change the record).
5. When the last record has been played, push the turntable switch to stop the turntable. The mechanism is now ready for another loading.
6. To reject a record being played, press the "Start-Reject" button.

Lubrication

The RP-158 turntable is driven by a drive disc screwed to the turntable. It is important that the drive motor spindle and the rubber tire on the friction drive disc as well as that on the idler wheel be kept clean and free

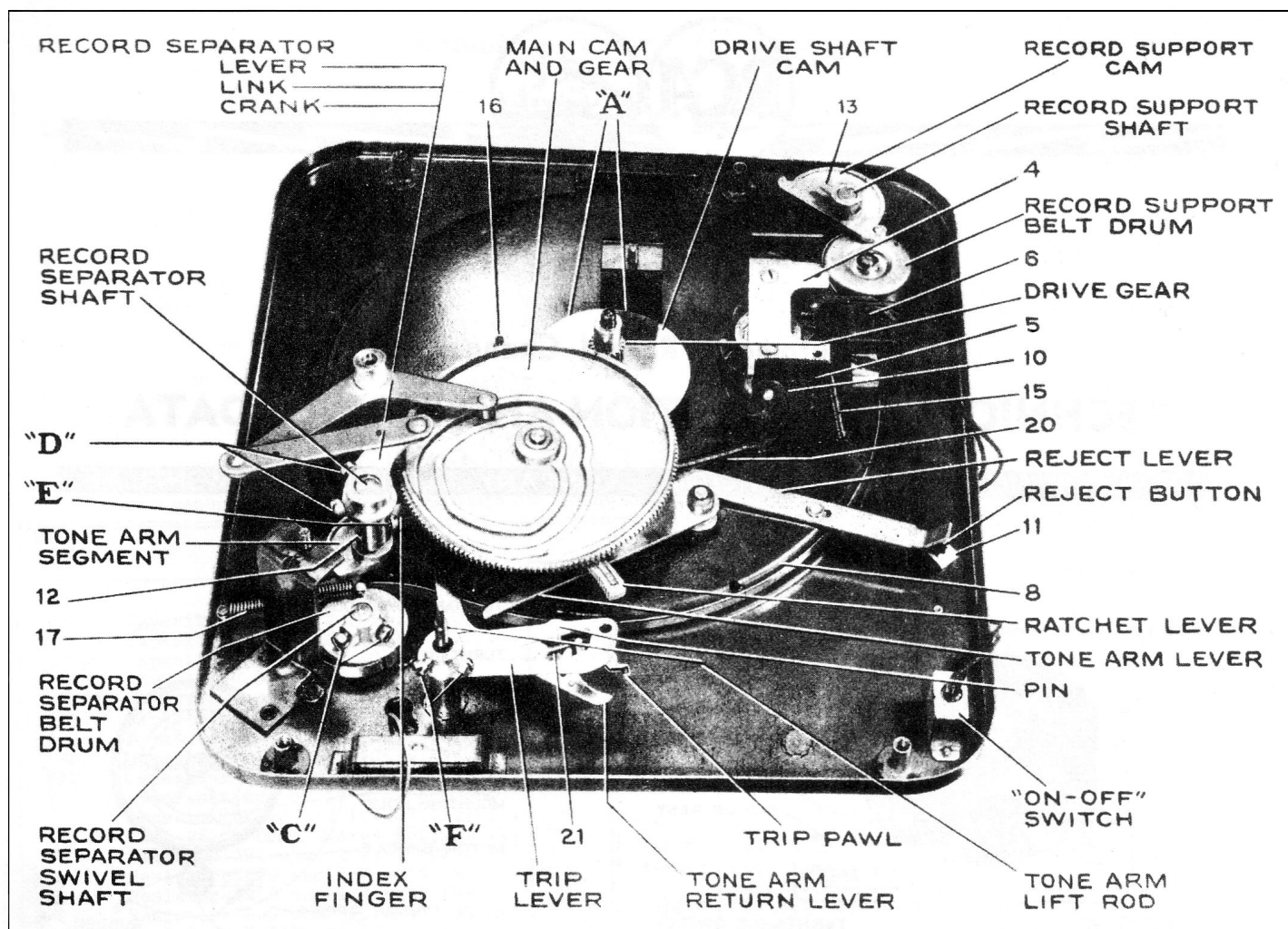
from oil, grease, dirt, or any foreign material at all times. Any quick drying naphtha is satisfactory for cleaning these parts. The drive motor bearing is lubricated from felt washers at the bottom and top. A light machine oil should be used at these points.

On all bearing surfaces except the motor bearings medium machine oil should be used.

Cautions

Before servicing the automatic changer, inspect the assembly to see that all gears, cams, springs, levers, etc., are correctly assembled and in good working order.

1. Never use force to start or stop the motor or any part of the record changing mechanism.
2. Warped or damaged records may cause the mechanism to jam.
3. A cracked or chipped record may damage the sapphire.
4. Warped records may slide on one another while playing and result in unsatisfactory reproduction.
5. Do not leave the records on the record posts or on the turntable as they may warp, particularly in warm climates. Warped records may be flattened by placing them on a flat surface with a heavy flat article placed on top of them for a few days.
6. If, for any reason, the mechanism stalls, turn off the turntable switch and remove the records from the posts. Start the turntable by turning the switch on and allow the pickup arm to complete its cycle.
7. Do not tighten copper-plated, cone-pointed screws until final adjustment has been made.



(Illustration shows Brace Stock No. 38630 Removed)

Function of Principal Levers

Main Cam and Gear

Directs and coordinates all cycle operations.

Tone Arm Lever

Directs horizontal motion of tone arm.

Tone Arm Return Lever

Keeps tone arm moving in with receding tone arm lever and provides proper landing.

Trip Lever

Its latch acts on ratchet lever to start the automatic cycle.

Record Separator Lever Train (Lever-Link-Crank)

Directs motion of separator knife and shelf.

Ratchet Lever

Transfers motion from trip lever or reject lever to start automatic cycle.

Tone Arm Elevating Lever

Tone Arm Elevating Rod

Directs vertical motion of tone arm.

Transfers motion of elevating lever to tone arm.

Reject Lever

Starts automatic cycle at will of operator.

Separator Knife

Separates record from stack and supports stack during cycle.

Separator Shelf Drive Gear

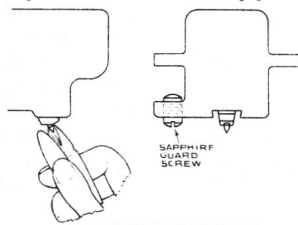
Supports stack during playing time. Transfers motion of turntable to main cam and gear.

Drive Cam Pawl and Wheel

Engage to connect turntable spindle to drive gear during cycle.

Replacement of Sapphire

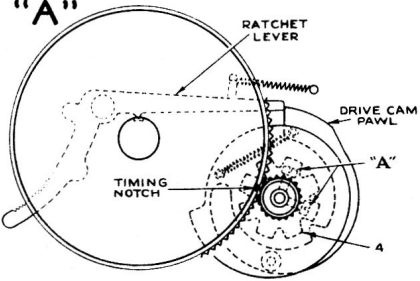
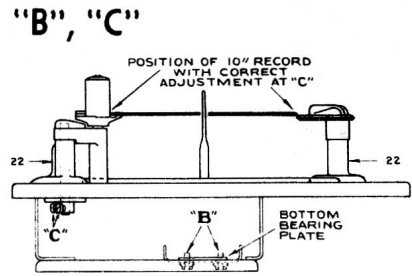
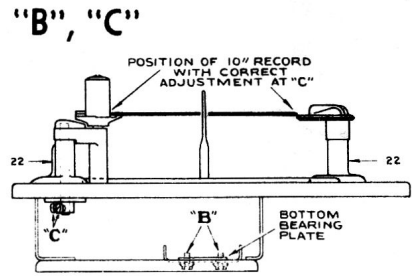
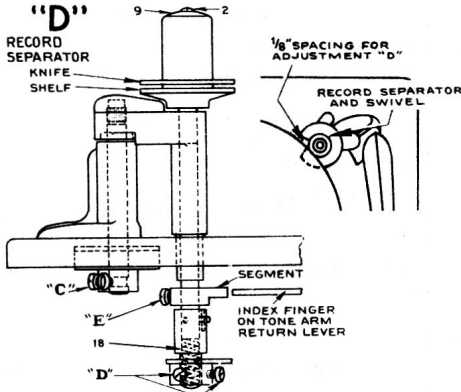
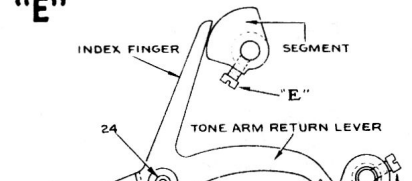
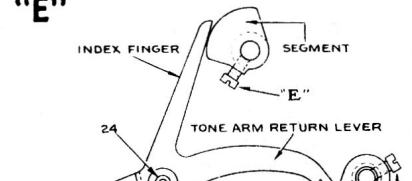
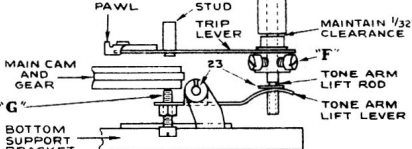
As an additional precaution against rough handling, the top of the sapphire is dipped in a rubber cement before being inserted in the pickup. To remove the sapphire, grasp it firmly with a pair of tweezers, give it a few turns to loosen the cement and then pull it out. Much easier handling of the sapphire will result if the tweezers are



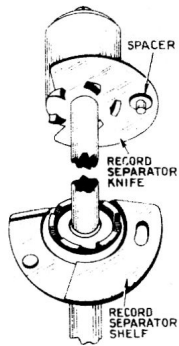
notched with a file as shown. Naphtha may be used as a thinner should difficulty with the rubber cement be experienced.

Before inserting the new sapphire it should be dipped in the rubber cement previously thinned with naphtha. After insertion clean the point with naphtha if there is any doubt as to the presence of cement.

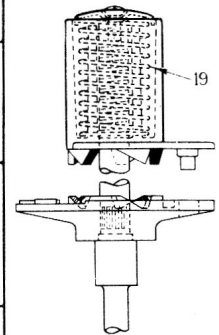
Quick-Reference Chart for Automatic Record Changer Adjustments

<p><i>Mechanism jams. General irregularity of operation.</i></p> <p><i>(Mechanism Timing)</i></p>	<p>With the ratchet lever and the pawl on the drive shaft cam in playing position as shown, remove the bottom support bracket. Remove the "C" washer on the main cam shaft and slip the cam down far enough that it can be rotated with respect to the drive gear. Then rotate it until the timing notch is positioned as shown. Put the main gear back in mesh with the drive gear, replace the "C" washer, place the elevating lever on the cam ridge. Make certain the separator lever train is in its correct position and replace the bottom support bracket.</p>	<p>"A"</p> 
<p><i>Turntable does not turn freely.</i></p> <p><i>(Turntable Bottom Bearing Position)</i></p>	<p>Loosen the bottom bearing screws "B" and position the bottom bearing plate until the turntable revolves freely. Tighten the screws and check by applying a.c. to the turntable motor then shutting it off and noting that the turntable continues to make at least twelve revolutions.</p>	<p>"B", "C"</p> 
<p><i>Records strike separator post or fail to stay on record shelf.</i></p> <p><i>(Spacing Between Record Posts)</i></p>	<p>Turn the record support post to the ten-inch position. Loosen set screws "C," hold the separator post against the end of its slot in the motorboard and turn the belt drum to take up any slack in the belt. Tighten the zinc-plated, blunt-nosed screw and check to see that a ten-inch record fits the posts as shown. Then tighten the copper-plated, cone-pointed screw.</p> <p>The twelve-inch position is automatically maintained.</p>	<p>"B", "C"</p> 
<p><i>Records do not drop at proper time.</i></p> <p><i>(Record Shelf Tim- ing)</i></p>	<p>Place a ten-inch record on the posts. Loosen the set screws "D" and turn the record separator shaft until the edge of the record-separating knife is one-eighth inch away from the edge of the record. The teeth on the inner circumference of the knife should be resting in the bottom of their slots at the time the adjustment is made. Tighten the zinc-plated screw first, run through cycle several times as a check, then tighten the copper-plated screw.</p>	<p>"D"</p> 
<p><i>Tone arm continues to repeat playing of top record or jams when part way in on record.</i></p> <p><i>(Segment height or radial position)</i></p>	<p>Take all records off the posts. Loosen the set screw "E." Set the record separator segment so that the index finger of the pickup arm return lever rides on the middle of the segment, as shown. Rotate the cam until it is in such a position that the index finger will never ride off either end. Check to see that the index finger rides in over top of the cam when the record shelf is depressed by the weight of one record. Tighten the set screw.</p>	<p>"E"</p> 
<p><i>Sapphire does not land at correct point on 10- inch record.</i></p> <p><i>(Tone Arm Position With Respect To Trip Lever)</i></p> <p><i>Correct dimension from outside edge of spindle to sapphire 4 11/16 inches.</i></p>	<p>Place a ten-inch record on the turntable and rotate the changer through cycle until the sapphire is just ready to land. Make sure that the index finger of the pickup arm return lever is against the record separator shaft and that the tone arm trip lever stud is held firmly against the return lever. Loosen the set screws "F" and move the pickup arm to the correct landing position. See that there is a 1/32 inch clearance between the pickup arm bearing and the set screw collar. Tighten the zinc-plated screw, run the changer through cycle several times as a check, then tighten the copper-plated screw.</p> <p>The twelve-inch landing position is automatically maintained.</p>	<p>"E"</p> 
<p><i>Top of pickup arm strikes stack of rec- ords or sapphire fails to clear the records on the turntable.</i></p> <p><i>(Pickup Arm Height While In Cycle)</i></p>	<p>Rotate the changer through cycle until the pickup arm has risen to its maximum height above the turntable but has not begun to move out. At this point adjust the screw "G" until the distance between the turntable and the sapphire is one and three-sixteenths inch. Tighten the locknut.</p>	<p>"F", "G"</p> 

Miscellaneous Service Hints



<i>Tone arm continues to repeat playing top record of the stack.</i>	Check adjustment E. Record separator shaft, or the spring on which it rests, is binding on the shaft bushing. Pin on record separator shaft is binding in its slot. Shaft spring is too weak.
<i>Improper landing on 10 and 12 inch records.</i>	Check adjustment F. Feed-in spring bent too far in front of tone arm return lever.
<i>Irregular landing on 10 and 12 inch records.</i>	Check adjustment C. Insufficient tension on belt.
<i>Loud clicking noise resulting from drive cam pawl slipping out of teeth in cam wheel.</i>	Check mechanism timing adjustment. Make certain that pickup arm lever is not binding on its stud.
<i>Mechanism Jams</i> <i>Tone arm continues to come down in rest position.</i>	Check adjustment E. Record separator shaft or the spring on which it rests is binding on the shaft bushing. Pin on record separator shaft is binding in its slot. Shaft spring is too strong.
<i>Trips continuously.</i>	Reject button is binding in its bushing. Reject lever spring is too weak or the reject lever is binding on its guide slots.
<i>Sapphire strikes motor board.</i>	Bend the pickup arm support bracket until the sapphire clears the motorboard by approximately 3/32 of an inch.



Cycle of Operation

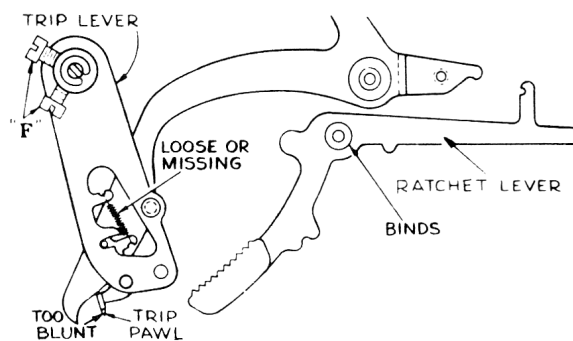
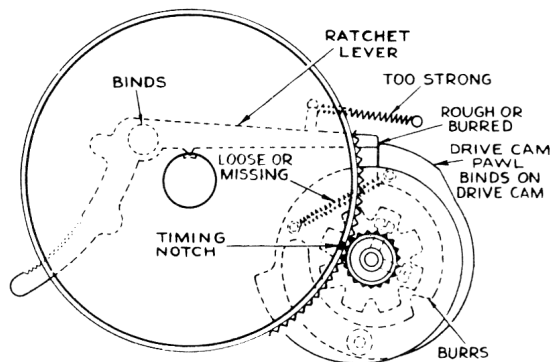
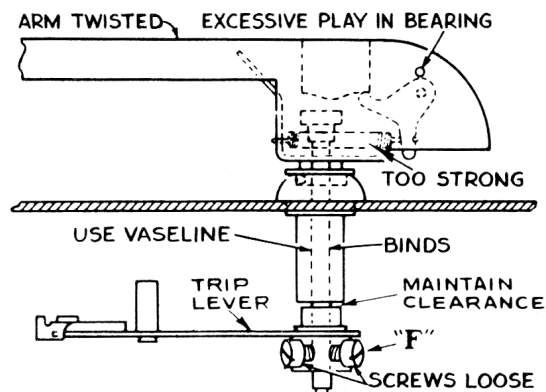
The changer can be conveniently rotated through the change cycle by pushing the reject button and revolving the turntable by hand. Eight turntable revolutions are required for one change cycle.

Function	Explanation
Operator	Turn Record Support to 10" or 12" Position as Desired
	1. Separator post positions itself by means of belt drive.
	Place Records on Posts
Operator	1. Separator shaft is pushed down against its spring and carries segment out of path of index finger.
	Press Start Button
	1. Reject lever moves in and pushes ratchet lever. 2. Ratchet lever is pushed out of eccentric step on main gear shaft and releases drive cam pawl. 3. Drive cam pawl engages toothed wheel and it revolves carrying drive gear with it.
Automatic Cycle	Tone Arm Rises
	1. Main cam and gear revolves with drive gear. 2. Stud on tone arm lever rides in top track on main cam and directs movement of the lever. 3. Tone arm elevating lever rides up on ridge on main cam and pushes tone arm up by means of elevating rod.
	Tone Arm Moves Out
	1. Tone arm lever pushes on trip lever stud. 2. Trip lever moves out. 3. Tone arm return lever is carried along by trip lever stud, and by stud on main cam top track.
	Record Knife Separates Bottom Record from Stack after Gauging Thickness of Record
	1. Stud on separator lever follows main cam bottom track and directs the motion of the lever. 2. Through the separator link and crank, the separator lever turns the separator shaft. 3. Knife turns with shaft and strikes edge of bottom record. 4. Separator shaft continues to revolve and teeth on inner circumference of knife ride up on shelf teeth until knife is carried high enough against the action of spring 19 to move in over top of record.
	Record Drops to Turntable
	1. Separator shaft continues to turn until knife supports stack of records and shelf moves out from under bottom record.
	Tone Arm Moves In
	1. Separator shaft reverses rotation. 2. Tone arm lever moves away from trip lever stud. 3. Tone arm return lever pushes on trip lever stud. 4. Trip lever moves in.
	Tone Arm Lowers Sapphire on to Record
	1. Index finger on tone arm return lever moves against separator shaft to insure proper landing position. 2. Tone arm elevating lever rides down on main cam ridge thus lowering the elevating rod and the tone arm. 3. Separator shaft returns knife to original position and allows stack of records to rest on shelf.
	Sapphire Moves In to Music Groove
	1. Feed-in spring on tone arm return lever pushes against stud on trip lever.
	Record Begins to Play
	1. Ratchet lever rides down into eccentric step on main gear shaft and blocks drive cam pawl. 2. Pawl is disengaged from drive cam wheel. 3. Drive gear and main gear stop.

Illustrated Hints for Record Changer RP-158

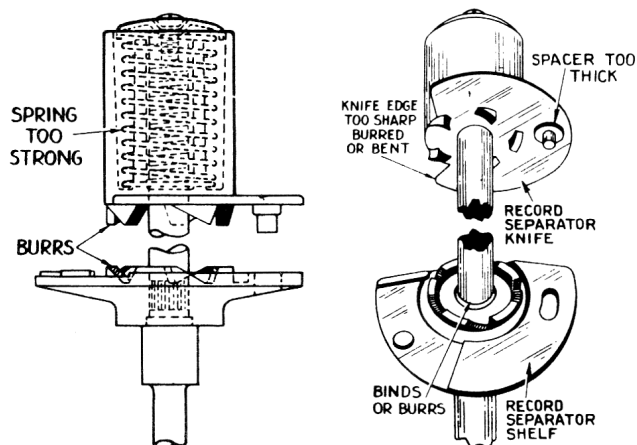
Fails to Trip:

First check adjustment "F". Do not tighten screws "F" too tightly or the hollow pivot shaft will be distorted.



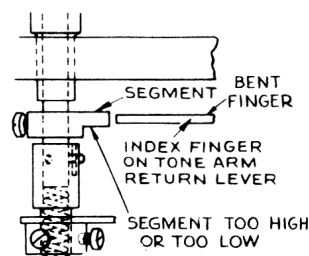
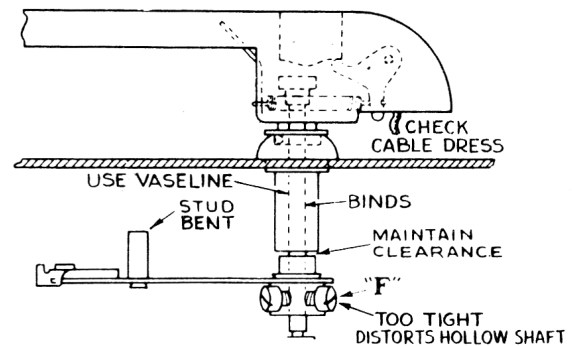
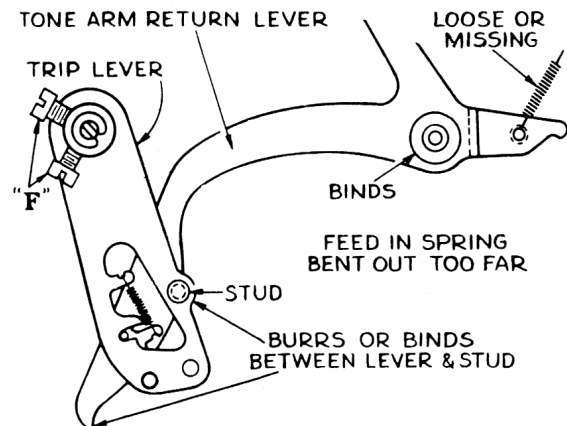
Jams Records:

Record too thick, too thin, warped, or has rough edge.

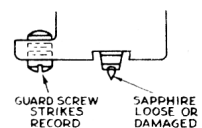


Lands Incorrectly:

First check adjustments "F", "C", "M", "E".

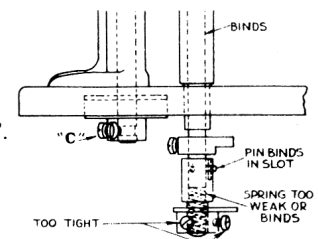


Fails to Track or Distorts:



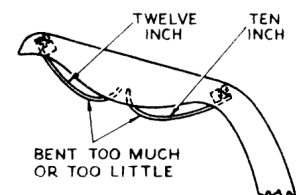
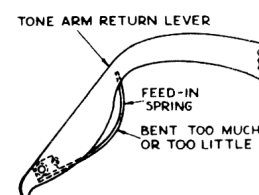
Repeats Playing of Last Record:

First check adjustment "E".

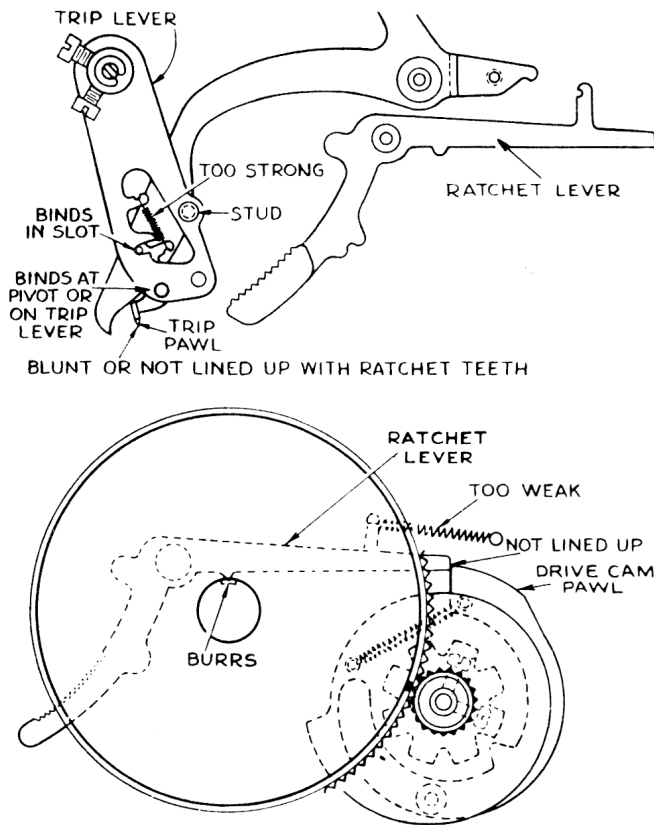


Incorrect Feed-in:

The feed-in spring does not have any effect until just after the pickup has landed on the record. It then springs back to its original shape pushing against the trip lever stud and moving the pickup toward the music grooves.

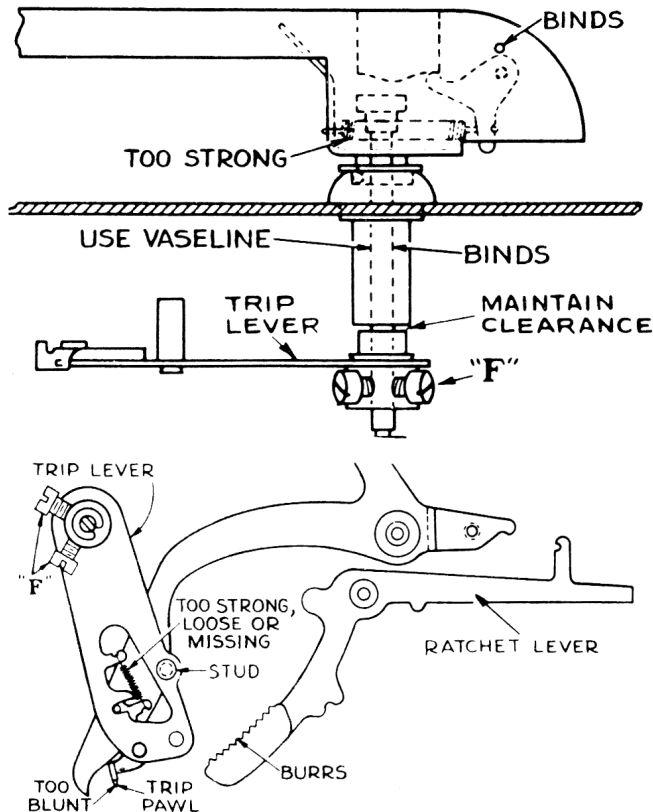


Trips Early:

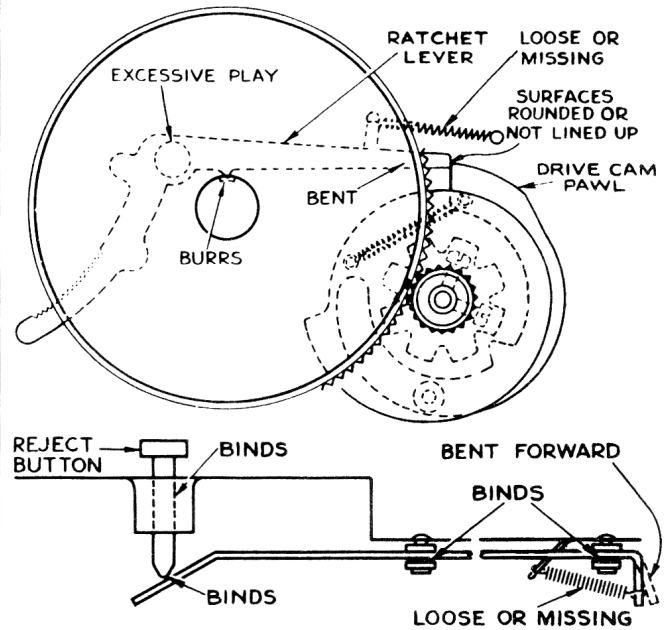


Repeats Grooves:

First check adjustment "G".

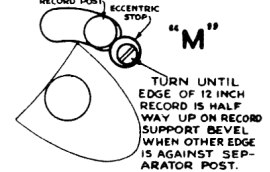


Trips Continuously:

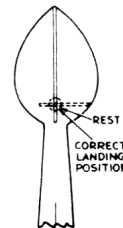


12-Inch Record Post Spacing:

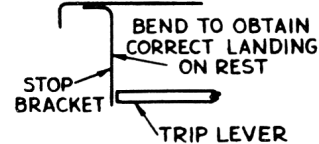
THIS ADJUSTMENT HAS BEEN ADDED ON LATE PRODUCTION RP-158



Incorrect Landing on Rest:

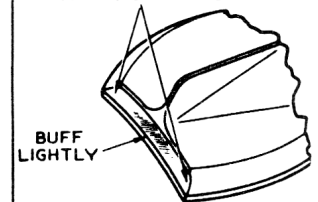


KEEP PICKUP CABLE & SHORTING SWITCH LEADS CLEAR



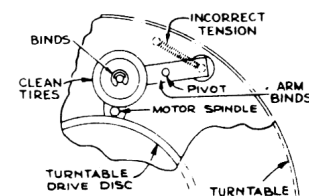
Record Stack Unsteady:

RECORD NOT SUPPORTED AT TWO POINTS



Slow Speed: Turntable spindle binds on bottom bearing.

Incorrect tension on motor support spring.



Cabinet Leveling.—

If the sapphire fails to enter the starting groove, raise the right-hand side of the cabinet by inserting thin spacers under the legs. If the pickup slides over a few grooves, raise the left-hand side of the cabinet.

Sapphire Pressure.—

In this mechanism, the correct pressure is approximately $1\frac{1}{2}$ ounces, measured at the sapphire. Adjust the spring (3) in the tone-arm base if necessary.

Caution.—

Do not touch the tone arm when playing either one or more records automatically, to avoid possibility of disturbing automatic adjustment.

To Remove the Turntable.—

To remove the turntable, loosen set screws "A" and lift the turntable up.

To Remove Pickup Arm.—

One of the tone arm bearings has a slotted head and can be turned out to facilitate removal of the tone arm. Raise the tone arm and loosen the bearing set screw. Turn the bearing partly out through the hole in the side of the tone arm and lift the arm off.

Replacement Parts

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

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
PICKUP AND ARM ASSEMBLIES			
38602	Arm--Pickup arm shell only.....	38622	Lever--Link and lever assembly--fastens on record separator shaft.....
38603	Arm--Pivot arm and shaft--less spring.....	38656	Lever--Ratchet lever.....
38610	Crystal--Pickup crystal cartridge, sapphire and shielded cable.....	38637	Lever--Reject lever.....
38607	Cushion--Lift rod cushion (rubber)(1).....	38633	Lever--Tone arm lever.....
38458	Nut--Speed nut to hold cable in arm (Pkg. 2).	38631	Lever--Tone arm lift lever.....
39387	Plate--Bottom plate for pickup arm--less screws.....	38618	Lever--Tone arm return lever.....
38606	Rod--Lift rod--less cushion.....	38619	Lever--Tone arm segment--fastens on record separator shaft--less screw.....
39564	Sapphire--Pickup Sapphire.....	38632	Lever--Trip lever--less pawl spring.....
38609	Screw--No. 4-40 x $1/4$ in. headless set screw for pickup arm--Pkg. of 10.....	33225	Nut--Speed nut for reject button (11) (Pkg. of 10).....
38605	Screw--No. 4-40 x $1/4$ in. screw to mount crystal, Pkg. of 25.....	38740	Pin--Drive pin for record separator shaft (12) end bushing (Pkg. of 2).....
38611	Screw--No. 4-40 x $3/16$ in. headless set screw for pickup crystal (oval point) Pkg. of 5.	38474	Pin--Record support shaft cam pin (13) (Pkg. of 2).....
39388	Screw--No. 4-40 x $3/16$ in. screw for pickup arm bottom plate--Pkg. of 25.....	4577	Plug--2-prong male for motor and switch leads
38608	Screw--No. 6-32 x $9/32$ in. headless set screw for pickup arm--Pkg. of 15.....	38624	Ratchet--Ratchet wheel for turntable spindle (14).....
30585	Spring--Pivot arm spring (3) (Pkg. of 2)....	38469	Screw--Oval head screw for record separator cap (2) (Pkg. of 2).....
38604	Stud--Pivot arm spring stud and nut.....	38626	Screw--No. 8-32 x $1/4$ in. cone point set screw for ratchet wheel (Pkg. of 3).....
MOTOR ASSEMBLIES (50-60 Cycle) (Motor No. 91706-1)			
37108	Bearing--Bottom bearing and bracket (4)....	38625	Screw--No. 8-32 x $1/4$ in. set screw for ratchet wheel (Pkg. of 5).....
37107	Bearing--Top bearing and bracket.....	31118	Screw--No. 10-32 x $5/16$ in. cone point set screw for record separator crank trip lever, and drum (Pkg. of 2).....
37109	Bracket--Motor mounting bracket (5).....	32869	Screw--No. 10-32 x $5/16$ in. set screw for drum, tone arm segment, record separator crank, and trip lever (Pkg. of 10).....
37111	Coil--Motor field coil assembly (6).....	38652	Shelf--Record separator shelf and shaft.....
38612	Motor--105-125 volts, 60 cycle.....	38471	Spacer--Record separator spacer (washer) (Pkg. of 3).....
37106	Pad--Rotor thrust pad (Pkg. of 2).....	38628	Spring--Cam pawl and ratchet lever spring....
37110	Rotor--Motor rotor complete with fan.....	30585	Spring--Motor idler arm spring (Pkg. of 2)...
38847	Sleeve--Motor spindle sleeve for 50 cycle conversion.....	38643	Spring--Motor tension spring (15).....
MOTOR ASSEMBLIES (25 Cycle) (Motor No. 91655-3 or 8)			
36954	Armature--Motor armature and shaft for 25 cycle motor.....	38635	Spring--Ratchet lever spring (16).....
36952	Cap--Bakelite cap for motor.....	38642	Spring--Record separator belt drum spring(17)
36951	Capacitor--1.25 mfd. for motor (2 required).	38621	Spring--Record separator shaft bottom spring (16).....
36726	Motor--105-125 volts, 25 cycle.....	38468	Spring--Record separator spring (19).....
MOTORBOARD ASSEMBLIES			
38640	Arm--Motor idler arm--less wheel.....	39554	Spring--Reject button spring.....
3658	Ball-- $3/32$ in. steel ball for tone arm bearing (7) (Pkg. of 6).....	38636	Spring--Reject lever spring.....
10129	Ball--Bearing ball for spindle (Pkg. of 5)...	38634	Spring--Tone arm lever spring (20).....
38647	Bearing--Turntable spindle bearing.....	39038	Spring--Tone arm return lever spring.....
38616	Belt--Record support to separator belt (8)...	38562	Spring--Trip lever pawl spring (21)
38630	Brace--Angle brace, or bottom support bracket and spindle bearing plate	39569	Stop--Eccentric stop for record separator support.....
38620	Bushing--Record separator shaft end bushing.	38645	Support--Record support and shaft (left hand front post).....
38638	Button--Reject button.....	38648	Support--Separator support (2 used)(22).....
38627	Cam--Drive shaft cam and pawl--less spring..	32875	Switch--"On-Off" switch.....
38641	Cam--Main cam.....	38615	Swivel--Record separator swivel and shaft...
38646	Cam--Record support shaft cam.....	37873	Tire--Rubber tire only for drive disc.....
38470	Cap--Record separator cap (9).....	38623	Turntable--Turntable finished plate only....
38657	Disc--Turntable drive disc and spindle--less rubber tire and turntable.....	33726	Washer--"C" washer for motor idler arm or idler wheel (Pkg. of 5).....
38463	Drum--Record separator belt drum.....	20165	Washer--"C" washer for ratchet lever, tone arm lift lever, or tone arm lift rod (23)(Pkg. 2)
38617	Drum--Record support belt drum.....	2917	Washer--"C" washer for tone arm lever, tone arm return lever, record support belt drum, link, or cam (24) (Pkg. of 5).....
38639	Escutcheon--Index escutcheon.....	38560	Washer--Felt washer for tone arm bearing (Pkg. of 3).....
34368	Grommet--Rubber grommet for motor mounting (10) (Pkg. of 4).....	38629	Washer--Felt washer for turntable spindle bottom bearing (Pkg. of 3).....
38467	Knife--Record separator knife.....	36274	Wheel--Motor idler wheel.....