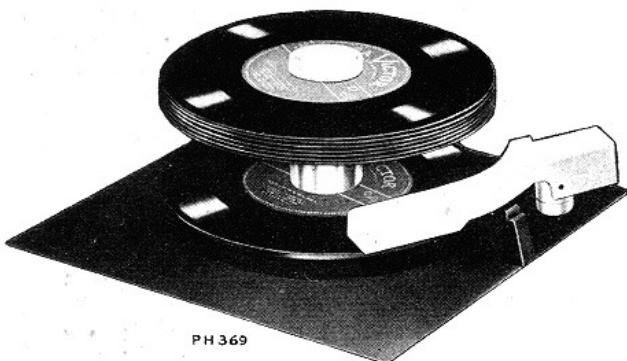




RCA VICTOR



RP-168 Series

Automatic Record Changer

Mfr. No. 274

SERVICE DATA

—1949 No. 5—

RADIO CORPORATION OF AMERICA
RCA VICTOR DIVISION
CAMDEN, N. J., U. S. A.

The basic RP168 mechanism includes the metal sub-panel and all necessary operating parts except the tone arm and trip lever assemblies. Instruments using the cabinet as the motor board will have additional items (other than the tone arm and trip lever assemblies) listed in the Service Data issued for the individual models.

RP-168-1: Record changer mechanism plus tone arm assembly
RMP-129-1: instrument cabinet is used as record changer motor board. Used in Models 9JY and 9EY3.

RP-168A-1: Record changer mechanism plus tone arm assembly
RMP-129-1 and metal motor board. Used in Models 9W101, 9W103, 9W105, 9TW333, 9TW390 and 9Y7.

Complete record changer parts listing (except output cable), included in this Service Data. Different types and lengths of output cables are used—listed in Service Data of Individual Instruments.

RP-168A-2: Record changer mechanism plus tone arm assembly
RMP-130-1 and metal motor board. Used in Berkshire Models.

AUTOMATIC OPERATION

1. Place a stack of records over the center post, with the desired selections upward the last record to be played on top.
2. Apply power to drive motor.
3. Push the "start-reject" knob to "start" and let go. The mechanism will automatically play in sequence one side of each record stacked on the separator shelves.
4. To reject a record being played push the "start-reject" knob to "reject."
5. At conclusion of playing and as the last record is being repeated, lift tone arm and place on rest. Push "on-off" knob to the "off" position.

SPECIFICATIONS

This mechanism is designed to play automatically a series of eight new RCA seven-inch fine groove records.

RPM	45
Pickup	Crystal
Sapphire dia.0009 inches
Pickup voltage output	Medium
Pickup force	5 grams

CAUTION

1. Avoid handling the tone arm when 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 protrude from the center post when the mechanism is out of cycle.

Turn Power control on. The turntable revolves. Press finger gently against protruding discs until they disappear inside the holder. Do not do this during a change cycle.

LUBRICATION

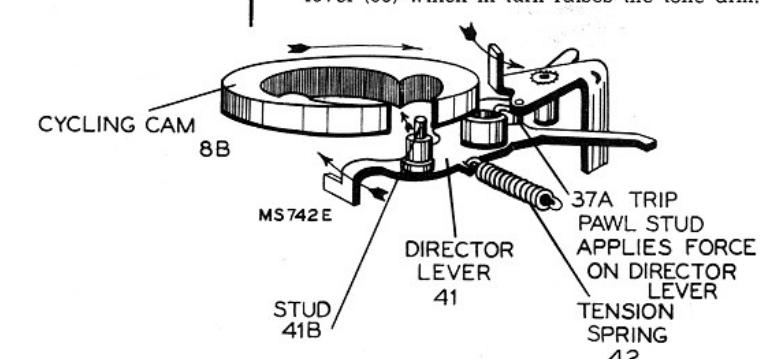
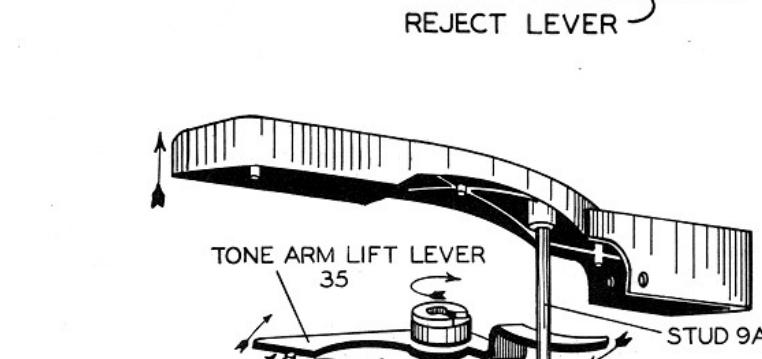
A light machine oil (SAE No. 10) should be used to oil the bearings of the drive motor.

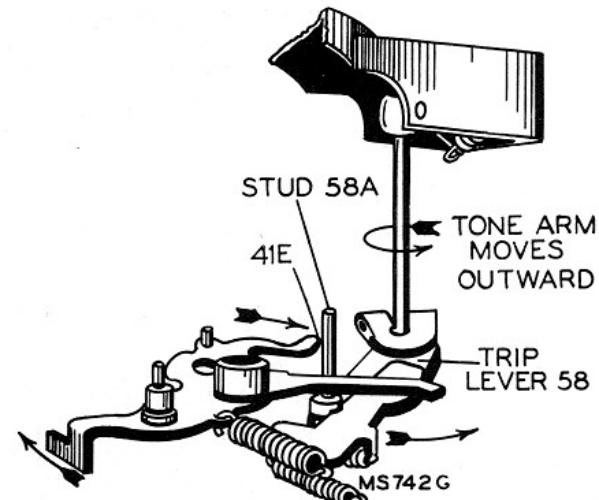
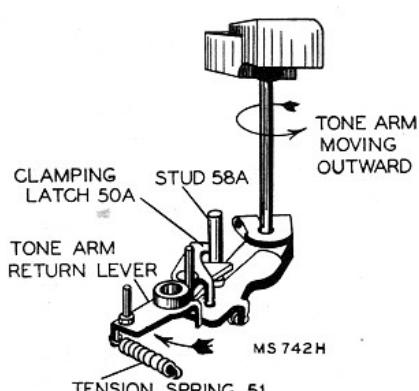
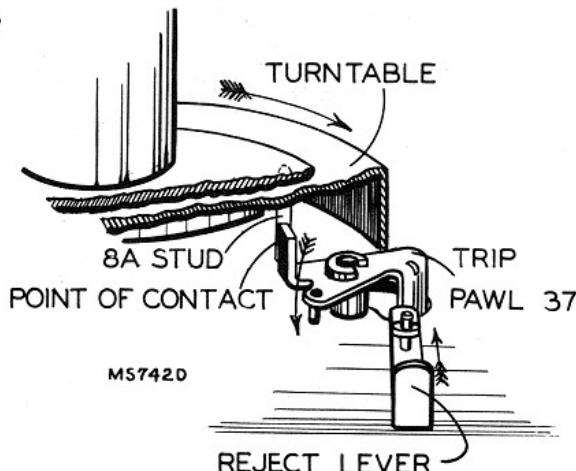
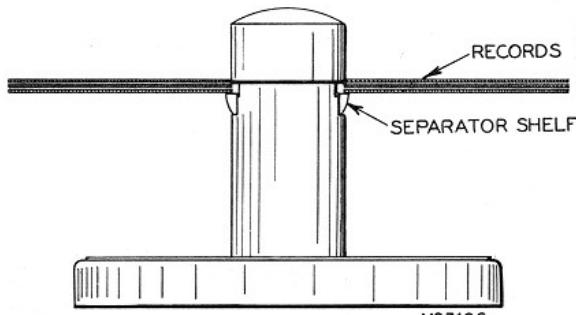
On all bearing surfaces, excepting the motor bearings, Houghton STA-PUT No. 320, or equivalent, should be used. On all other sliding surfaces, STA-PUT No. 512, or equivalent, is recommended. STA-PUT can be purchased from E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia, Pa.

(Do not oil or grease record separator shelves.)

It is important that the drive motor spindle and the rubber tire on the idler wheel be kept clean and free from oil or grease, dirt, or any foreign material at all times. Carbon tetrachloride or naphtha is satisfactory for cleaning these parts.

CYCLE OF OPERATION RP-168

Function	Explanation
Place records over the center post and turn the power on	1. Records rest on separator shelves protruding from either side of the center post.
Push start-reject knob	1. Start-reject knob which is linked to start-reject slide (45A) moves trip pawl (37) into tripping position. 2. As the turntable rotates the small projection (8A) extending from the underside of the turntable contacts end of trip pawl.
Tone arm rises	1. As the turntable continues to rotate it carries the trip pawl (37) along for a short distance. 2. The stud (37A) on trip pawl applies force against director lever (41) in opposition to tension spring (42). This force continues to be applied until the stud (41B) on the director lever has been forced through the slot and into the cycling cam (8B). 3. The end (41C) of the director lever extending below the motor board moves away allowing the muting switch (63) to close. 4. At the same time the stud (41A) pushes the tone arm lift lever (35) which in turn raises the tone arm.
Automatic Cycle	 <p>CYLCLING CAM 8B MS742E DIRECTOR LEVER 41 STUD 41B 37A TRIP PAWL STUD APPLIES FORCE ON DIRECTOR LEVER TENSION SPRING 42</p>  <p>TONE ARM LIFT LEVER 35 STUD 41A 41C MUTING SWITCH 63 CLOSES MS 742F</p>
Tone arm moves out	1. The end (41E) of the director lever (41) contacts stud (58A) on trip lever (58), starting the tone arm on its outward movement. 2. The stud (58A) on trip lever contacts tone arm return lever (50), pushing it outward against the tension spring (51). 3. As the tone arm reaches its outermost position, it is locked in position by the latch (50A) clamping the stud (58A) on the end of the tone arm return lever.



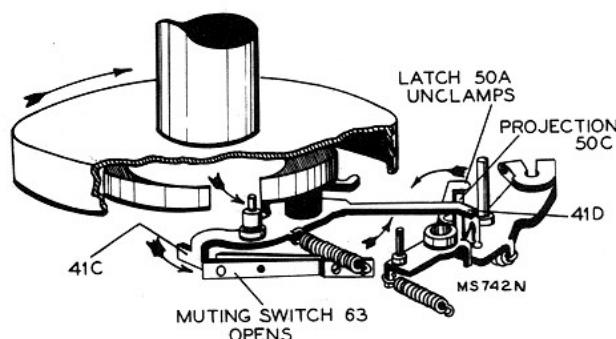
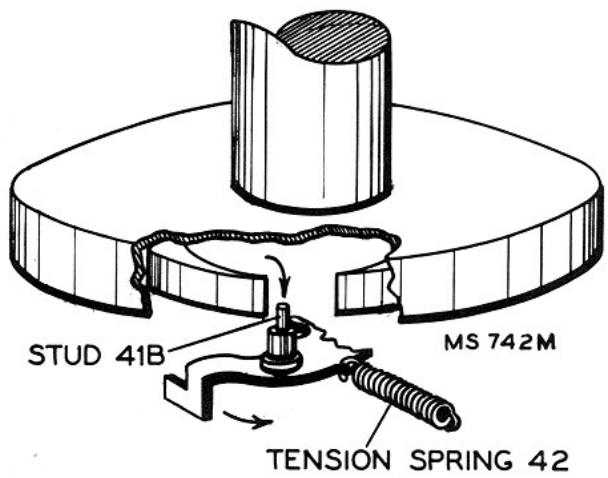
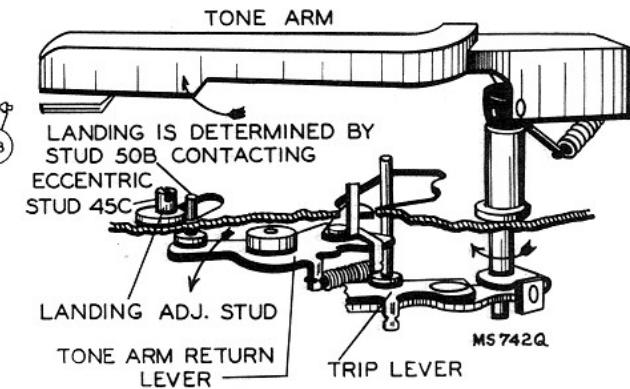
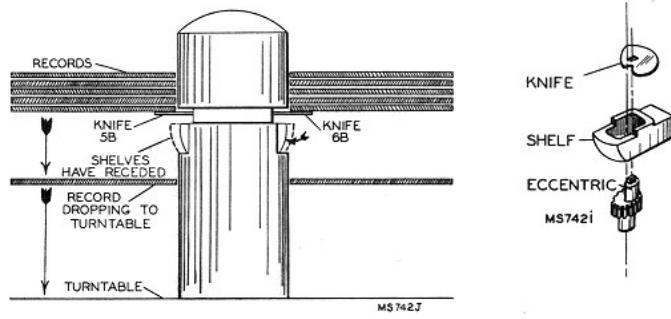
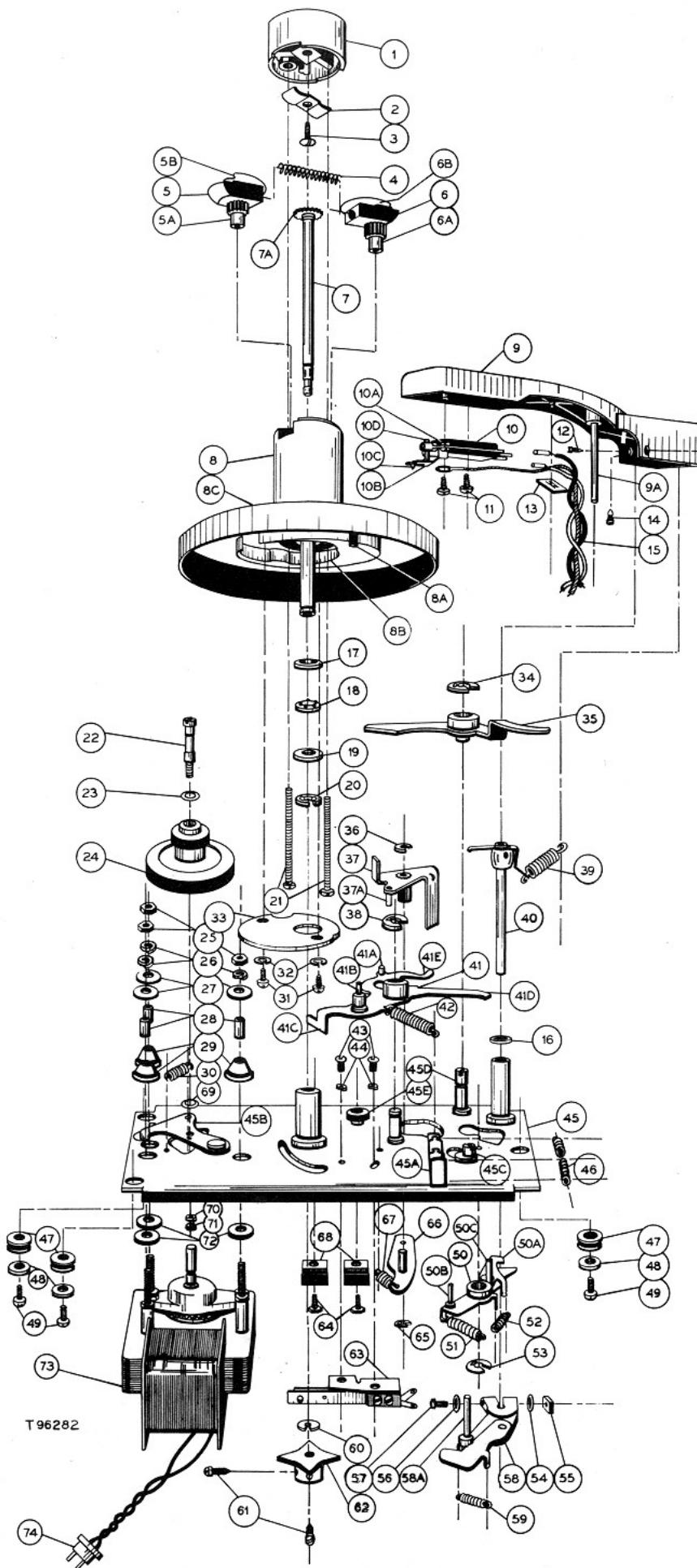
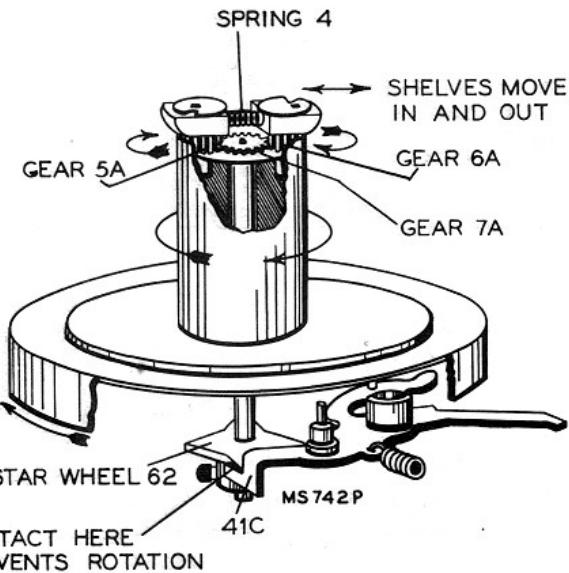
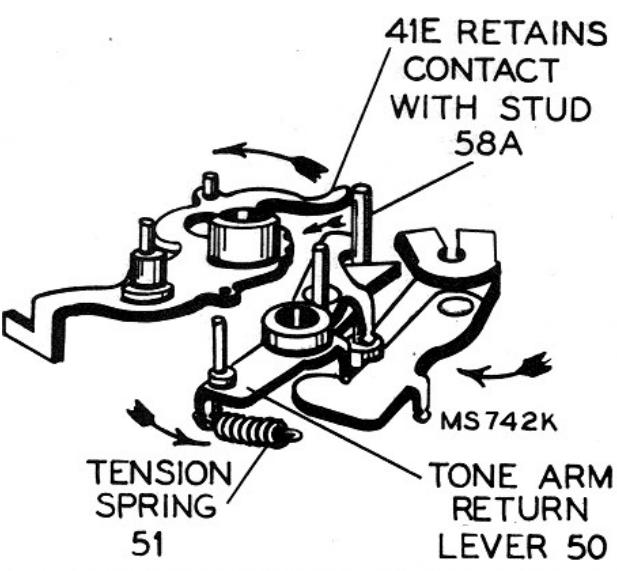


Fig. 1



Separator knives separate the lower record from the stack and allows the record to drop to the turntable

1. While the tone arm is moving outward the end (41C) of the director lever (41) extending below the motor board, contacts and prevents the star wheel (62) from rotating.
2. Since the turntable continues to rotate and the star wheel and shaft remain stationary. The two small gears (5A and 6A) embedded in the upper section of the center post rotate around the gear (7A) on the upper end of the star wheel shaft (7).
3. The eccentric extending from the upper end of the two embedded gears runs in a slot in the separator shelves (5 and 6). This produces the necessary action which causes the shelves to move in against the tension of spring (4).
4. As the shelves recede the separator knives (5B and 6B) mounted above each separator shelf, separate the lower record of the stack and support the remaining stack while the lower record drops to the turntable.



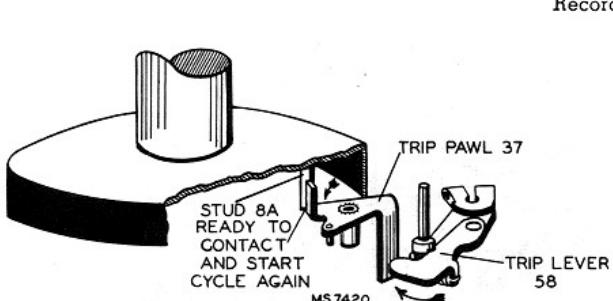
Tone arm moves in for landing

1. As the locator lever (41) continues to move toward the out of cycle position the end of the locator lever (41E) retains contact with the stud (58A) on the trip lever (58). This contact stabilizes the inward movement of the tone arm which is being pushed in by the tone arm return lever (50).
2. The inward movement of the tone arm is stopped directly above the landing position due to the stud (50B) on tone arm return lever coming in contact with the eccentric stud (45C).



Tone arm lowers sapphire to the record

1. The stud (41A) on director lever (41) continues to contact tone arm elevating lever (35) and lowers the sapphire on the start of the record.
2. As the turntable completes one revolution the stud (41B) on director lever is pulled through the slot in the cycling cam by the force produced by tension spring (42).
3. While the stud (41B) on director lever slides through the slot in the cam and assumes the out of cycle position, the end of the director lever (41D) contacts projection (50C) and unlatches the tone arm return lever (50).
4. The end (41C) of the director lever below the motor board moves away from the star wheel and opens muting switch.



Record plays

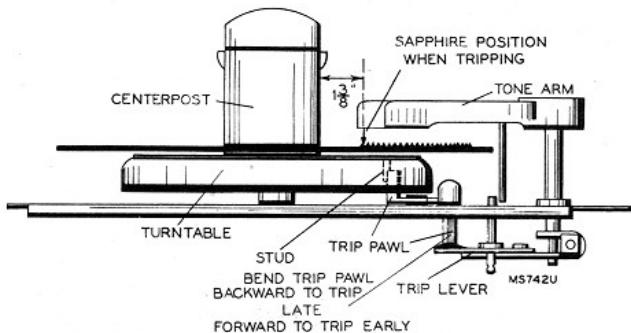
1. After the selection has been completed the sapphire moves into the tripping groove. At this time the trip lever (58) pushes the trip pawl (37) into position for engagement with the stud (8A) on the under side of the turntable.
2. This contact between stud (8A) and the trip pawl (37) starts another change cycle and the next record is moved into position for playing.

REPLACEMENT PARTS

STOCK No.	ILL. No.	DESCRIPTION	STOCK No.	ILL. No.	DESCRIPTION			
MODEL RP-168								
*74090 1		Nose—Spindle nose	*74088 63		Switch—Muting switch			
*74091 2		Spring—Spindle nose spring (formed)	33726 65		Washer—"C" washer for trip pawl lever			
3		Screw—No. 6-32 round head machine screw for spindle nose spring	*74245 66		Lever—Trip pawl lever			
*74095 4		Spring—Separator shelf return spring (.180" O.D. x 1-1 16"—10 turns)	*74100 67		Spring—Trip pawl take-up spring (.195" O.D. x $\frac{5}{8}$ "—20 1/2 turns)			
*74096 5		Separator—Separator knife, shelf and gear assembly	*74102 69		Washer—Dampening washer for idler wheel (bottom)			
*74096 6		Separator—Separator knife, shelf and gear assembly	70		Lockwasher—No. 4 lockwasher for idler wheel mounting stud			
*74092 7		Gear—Star wheel shaft and gear assembly	*74071 71		Nut—No. 4-40 hex nut for idler wheel mounting stud			
*74042 8		Turntable—Turntable and shaft complete with mat	73		Motor—105/125 volts, 60 cycles			
*74094 8A		Mat—Turntable mat	MODEL RP-168A-1					
*74080 17		Washer—Washer for turntable assembly	NOTE: Parts listed for mechanism RP-168 plus the following are those parts for the above Record Changer. (For Pickup and Arm Assembly RMP-129-1, see separate listing.)					
72349 18		Bearing—Turntable thrust bearing	*74256 16		Washer—Vellutex washer			
72688 20		Washer—"C" washer for turntable assembly	*74099 58		Lever—Trip lever (includes spring No. 59)			
21		Screw—No. 6-32 x 1 1/4" fillister head machine screw for turntable assembly (2 required)	74060 59		Spring—Trip lever spring (.171" O.D. x .695"—43 turns)			
*74079 22		Stud—Idler wheel mounting stud	73549		Emblem—"RCA-Victor" emblem			
*74078 23		Washer—Dampening washer for idler wheel (top)	*74210		Knob—Reject control knob			
*74077 24		Wheel—Idler wheel	*74211		Lever—Reject lever actuating lever			
*74132 25		Hardware—Motor mounting hardware consisting of Three (3) hex nuts	*74184		Motorboard—Motorboard complete with welded brackets and stud—less rest and operating parts			
26		Three (3) lockwashers	*74212		Nut—Speed nut for reject control knob			
27-72 28		Six (6) flat washers	*74185		Rest—Pickup arm rest			
*74087 29		Three (3) spacers	33726		Washer—"C" washer for mounting reject lever actuating lever			
*74089 30		Grommet—Rubber grommet to mount motor (3 required)	MODEL RMP-129-1					
		Spring—Idler wheel spring (.195" O.D. x .593" —14 turns)	Pickup and Arm Assembly (Used with 9EY3, 9JY and RP-168A)					
*74231 33		Cam—Follower cam	*74041 9		Arm—Pickup arm shell and stud less crystal, cable and rear pivot arm			
35969 34		Washer—"C" washer for tone arm lift lever	*74061 9B		Pivot—Tone arm pivot			
*74073 35		Lever—Tone arm lift lever	*74067 10		Crystal—Crystal cartridge complete including sapphire and guard			
33726 36		Washer—"C" washer for trip pawl	*74065 10A		Screw—No. 2-56 x 3/16" fillister head screw to mount crystal (2 required) or needle guard (2 required)			
*74072 37		Pawl—Trip pawl	*74069 10B		Guard—Needle guard			
35969 38		Washer—"C" washer for director lever	*74068 10C		Sapphire—Sapphire and holder			
*74076 41		Lever—Director lever	*74230 10D		Washer—Washer and nut to mount sapphire and holder			
*74084 42		Spring—Director lever spring (.195" O.D. x .732" —23 1/4 turns)	74065 11		Screw—No. 2-56 x 3/16" fillister head screw to mount crystal (2 required) or needle guard (2 required)			
43		Screw—No. 6-32 screw to mount muting switch	*74062 12		Screw—No. 8-32 x 13/32" cone point pivot adjusting screw			
44		Lockwasher—No. 6 lockwasher (external) to mount muting switch	38458 13		Nut—Speed nut to hold pickup cable			
*74070 45		Base—Sub-base assembly complete with all staked and riveted parts including idler lever and reject lever	74410 14		Screw—No. 4-40 x 3/16" fillister head set screw to lock pivot screw 74062			
*74082 45E		Washer—Felt washer (1/2" O.D. x 1/4" I.D. x 3/16" thick)	*74066 15		Cable—Twisted pickup cable (12") complete with connectors			
*74086 46		Spring—Reject lever spring (.203" O.D. x 13/16" —34 3/4 turns)	*74060 39		Spring—Pivot arm spring (.171" O.D. x .695"—43 turns)			
*74074 50		Lever—Return lever (includes spring No. 61)	*74059 40		Arm—Pivot arm and shaft			
*74085 51		Spring—Return lever actuating spring (.195" O.D. x 29 32"—37 1/2 turns)						
*74075 52		Spring—Return lever latch spring (.180" O.D. x .535"—21 1/2 turns)						
33969 53		Washer—"C" washer for tone arm return lever						
33726 60		Washer—"C" washer for star wheel shaft						
*74083 61		Screw—No. 6-32 x .281" cone point set screw for star wheel (2 required)						
*74081 62		Wheel—Star wheel						

TRIPPING ADJUSTMENT

The tripping should occur after the sapphire leaves the last playing groove. This point of tripping should be when the sapphire is 1 1/8 inches from the side of the centerpost. Bend end of trip pawl as required.



TIMING OF SEPARATOR KNIVES

1. Make certain the two embedded gears (5 and 6) are meshed with gear (7A) on the upper end of the star wheel shaft so the action of the separator knives are synchronized.
2. Loosen the two set screws (61) sufficiently to permit the star wheel to rotate without disturbing the shaft (7).
3. Position the separator knives as indicated in figure (3).
4. Push reject lever and rotate the turntable slowly by hand until the end (41C) of the director lever moves in far enough, so when the star wheel is rotated it contacts by the amount as indicated in figure (2).
5. Tighten the two set screws (61) and rotate the mechanism through a complete cycle.

The separator knives must rotate 360° and return to the starting position as indicated in figure (3).

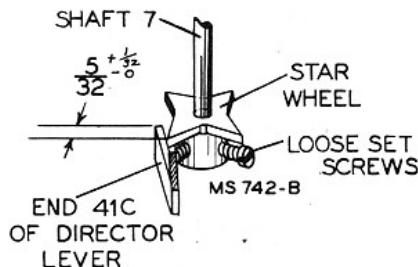


Fig. 2

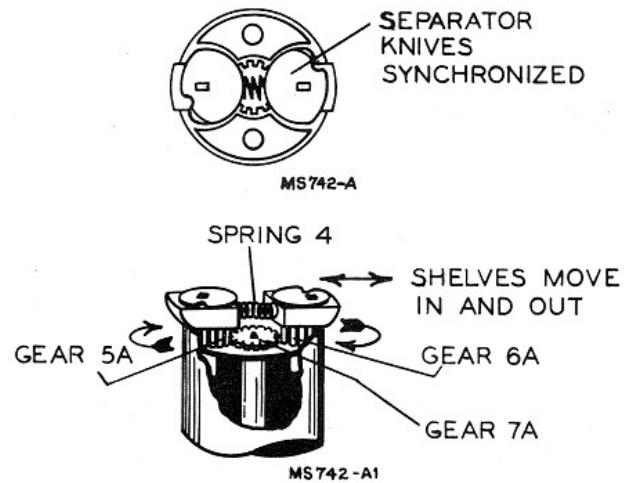


Fig. 3

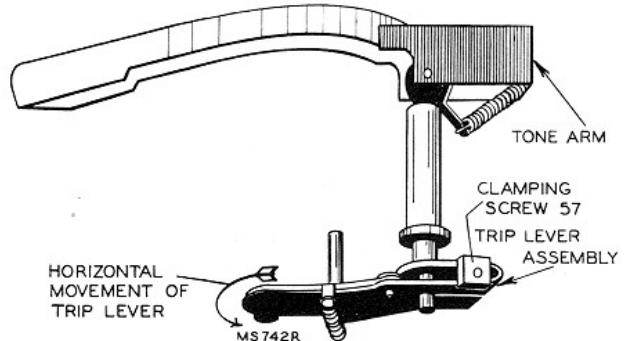


Fig. 4

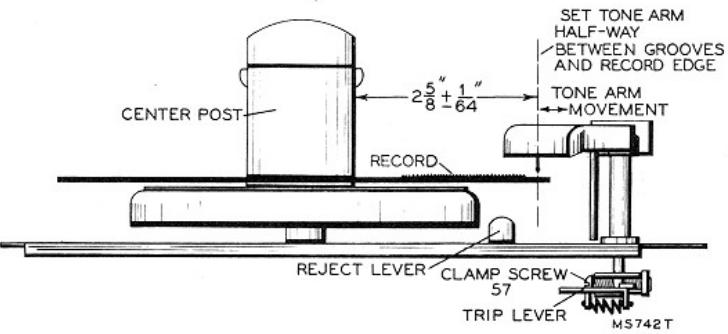


Fig. 5

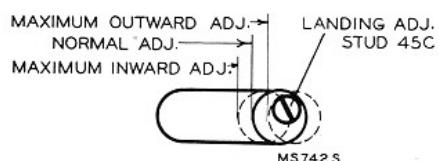


Fig. 6

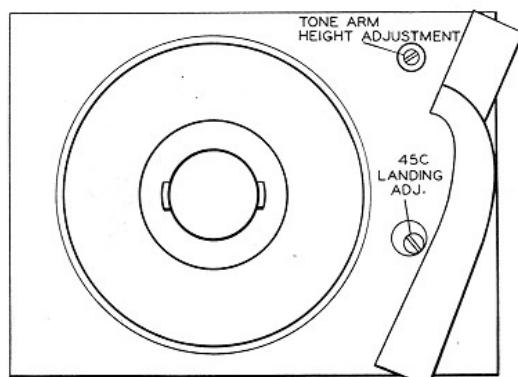


Fig. 7

OUT OF CYCLE HEIGHT OF TONE ARM

Bend tone arm lug so the sapphire point is approximately $\frac{1}{16}$ " above the motor board as shown in the sketch.

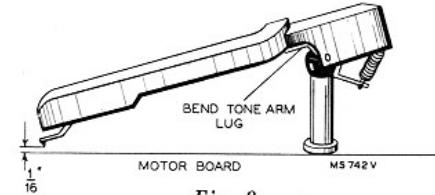


Fig. 8

TONE ARM IN CYCLE HEIGHT ADJUSTMENT

Set the mechanism in cycle. Turn the turntable by hand, until the tone arm has reached its maximum height. By means of a screwdriver turn the height adjustment stud until the distance between the top of the turntable and the sapphire point is $\frac{3}{4}$ ". Turning the stud clockwise will raise the arm and counter-clockwise will lower the arm.

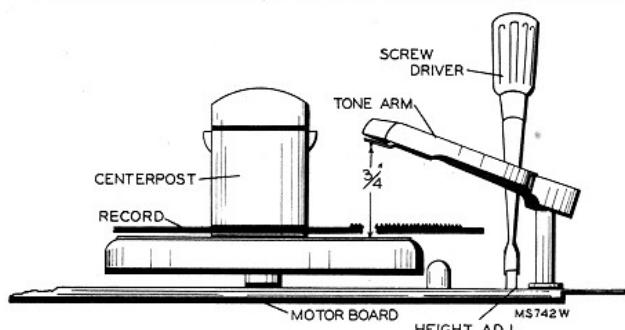
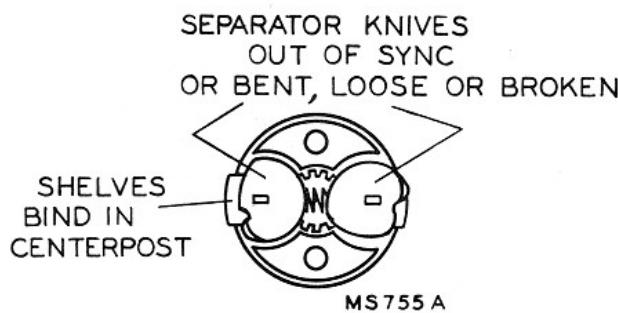
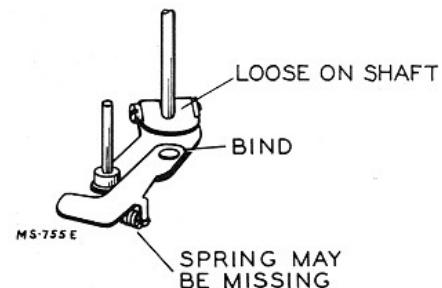
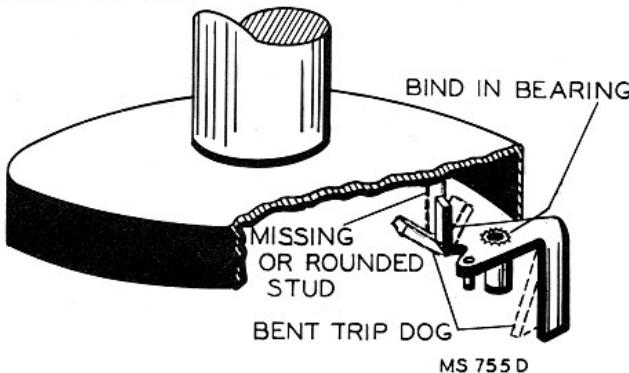
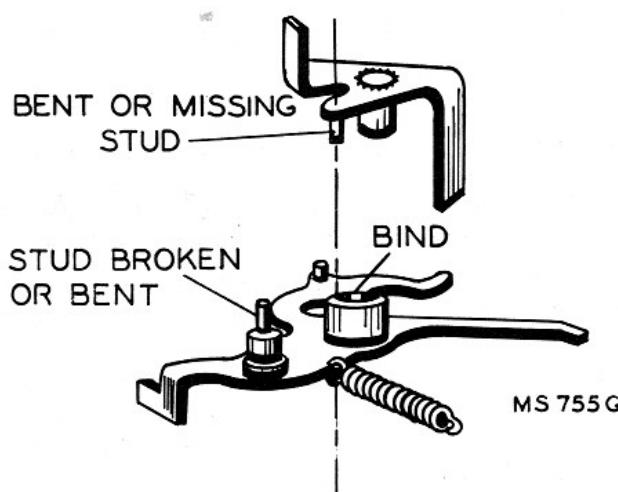


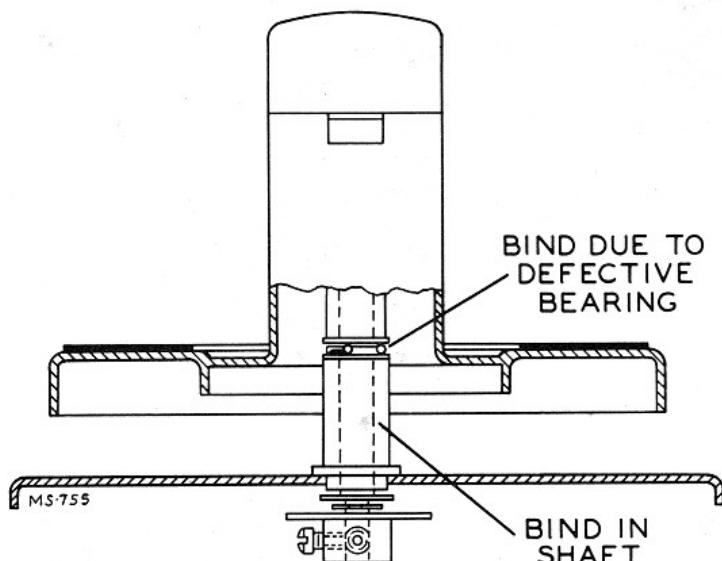
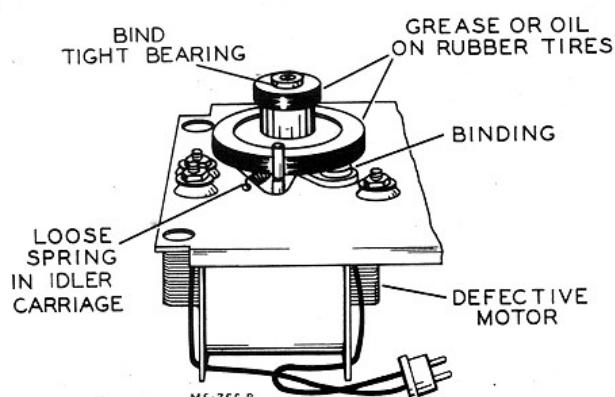
Fig. 9

IMPROPER RECORD SEPARATION**STAR WHEEL OUT OF SYNC**

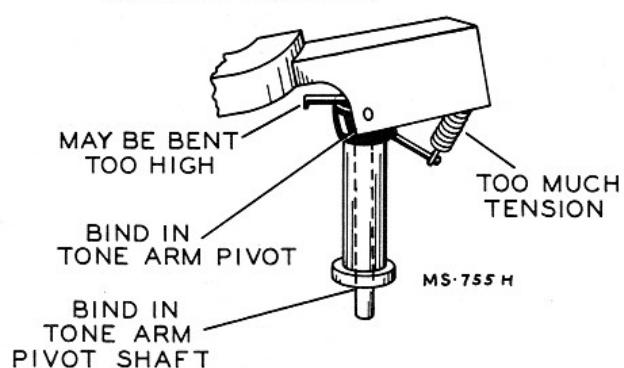
To insure proper dropping of records and avoid tilting of stack. It is important that the separator shelves move in and out freely. It is therefore essential that the shelves be free from burrs, grease, grit or dirt in general.

FAILS TO TRIP**FAILS TO GO INTO CYCLE**

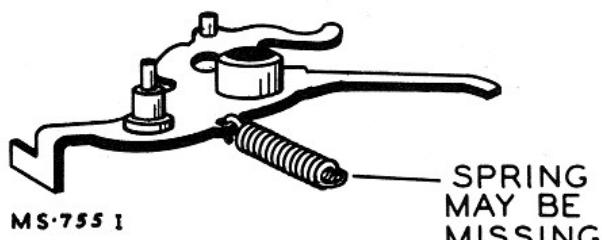
WOW (Speed Variation)



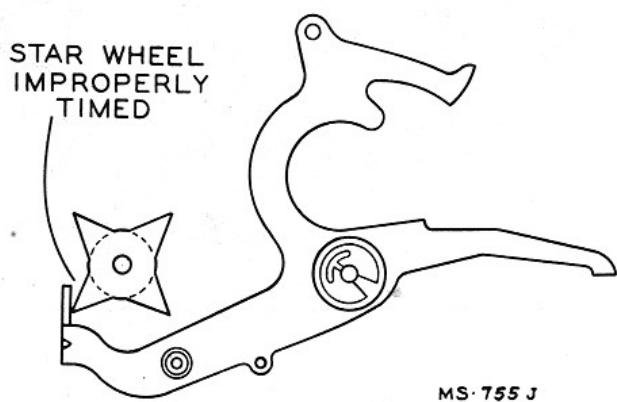
REPEATS GROOVES



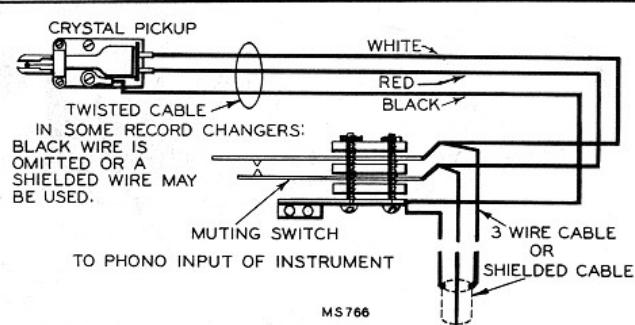
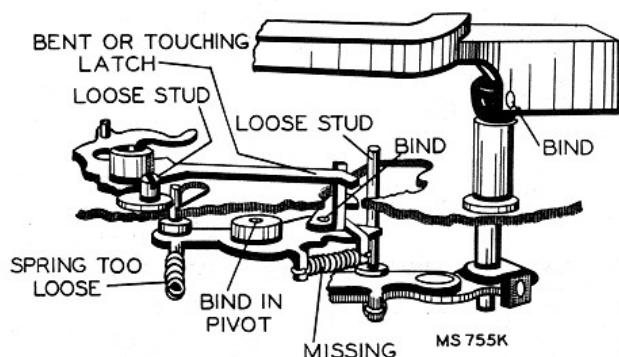
CONTINUOUS TRIPPING



RECORD DROP ON OR HIT TONE ARM



ERRATIC PICKUP LANDING



A BENT SAPPHIRE SUPPORT

CHIPPED SAPPHIRE

SAPPHIRE TOUCHING

TONE GUARD

LINT OR FOREIGN
MATERIAL IN GUARDA CHIPPED SAPPHIRE MAY CAUSE
SKIPPING OF GROOVES

A CHIPPED SAPPHIRE MAY CAUSE FAILURE TO TRIP

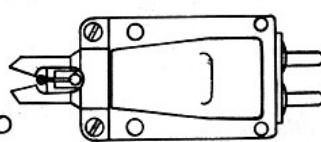


Fig. 10