



**RP-168 SERIES**  
(Second Issue)



# RCA VICTOR



AUTOMATIC RECORD CHANGER  
**MODEL RP-168 SERIES**

(SECOND ISSUE)

**SERVICE DATA**

—1950 No. 7—

HOME INSTRUMENT SERVICE DIVISION  
RCA VICTOR COMPANY LTD.  
MONTREAL, CANADA

## DESCRIPTION

The record changer mechanism may be used either with or without a metal motorboard. When a metal motorboard is not used, the instrument cabinet serves as the motorboard. Two major changes have been made since the start of production. One change is the type of pickup arm rest, original design used a visible rest on the motorboard or instrument cabinet which has been replaced by a rest on the sub-base. The other major change is in the record separators, the original type used rotating gear type of separators which were replaced by a push-out type of separators.

Many other changes have been made and there are differences in the color and finish of some parts when used with certain instruments. These changes did not necessarily involve a change in the identification applied to the bottom of the mechanism sub-base.

Three different pickups are in use: Two (2) crystal pickups, one (1) magnetic pickup.

Replacement parts should be ordered only by stock number. Refer to the illustrations and parts listings for identification.

## MECHANICAL 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

## 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.

## 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, Stock No. S-5262 should be used. On all other sliding surfaces, Stock No. 5462 is recommended. Prices supplied on request.

(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

Function	Explanation
Place records over the center post and turn the power on	<ol style="list-style-type: none"><li>1. Records rest on separator shelves protruding from either side of the center post.</li></ol>
Operator Push start-reject knob	<ol style="list-style-type: none"><li>1. Start-reject knob which is linked to start-reject slide (45A) moves trip pawl (37) into tripping position.</li><li>2. As the turntable rotates, the small projection (8A) (extending from the underside of the turntable) contacts end of trip pawl.</li></ol>
Automatic Cycle Pickup arm rises	<ol style="list-style-type: none"><li>1. As the turntable continues to rotate it carries the trip pawl (37) along for a short distance.</li><li>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).</li><li>3. The end (41C) of the director lever extending below the motorboard moves away, allowing the muting switch (63) to close.</li><li>4. At the same time the stud (41A) pushes the pickup arm lift lever (35) which in turn raises the pickup arm.</li></ol>

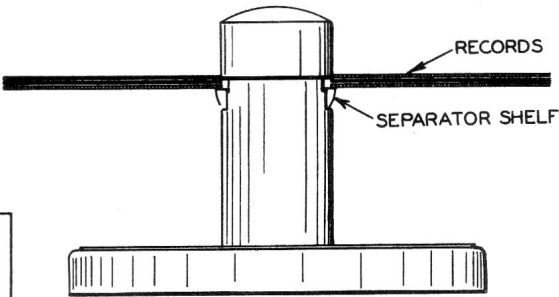


Figure 1.

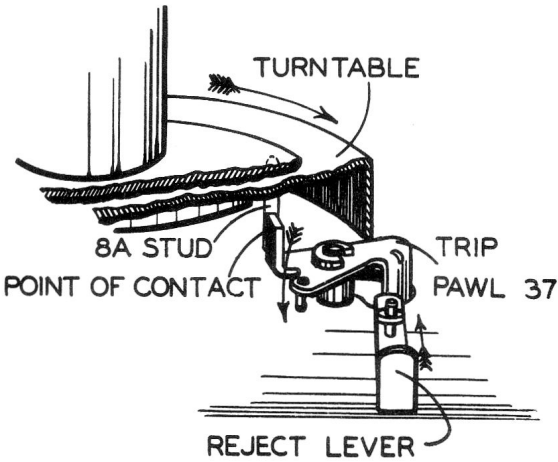


Figure 2.

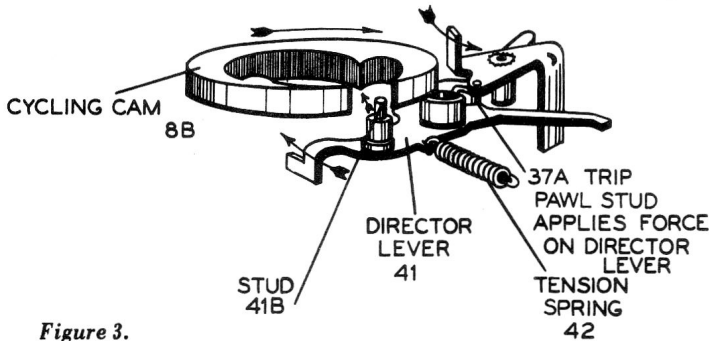


Figure 3.

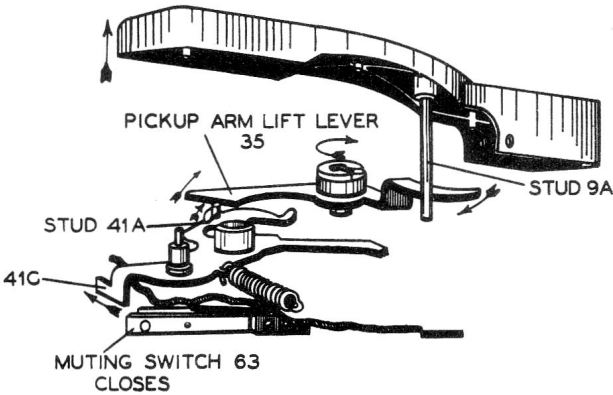


Figure 4.

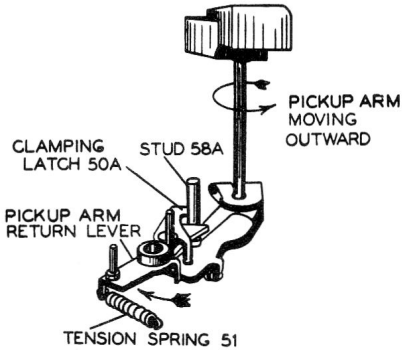


Figure 5.

Pickup arm moves out	<ol style="list-style-type: none"><li>1. The end (41E) of the director lever (41) contacts stud (58A) on trip lever (58), starting the pickup arm on its outward movement.</li><li>2. The stud (58A) on trip lever contacts pickup arm return lever (50), pushing it outward against the tension spring (51).</li><li>3. As the pickup arm reaches its outermost position, it is locked in position by the latch (50A) clamping the stud (58A) on the end of the pickup arm return lever.</li></ol>
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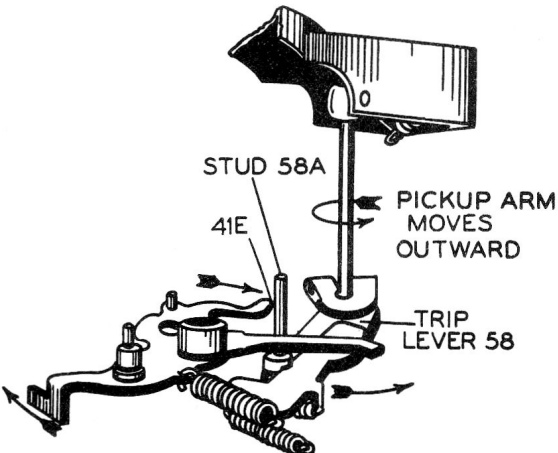
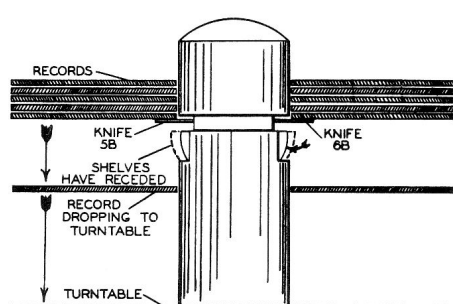
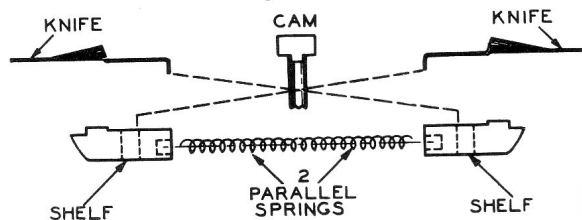


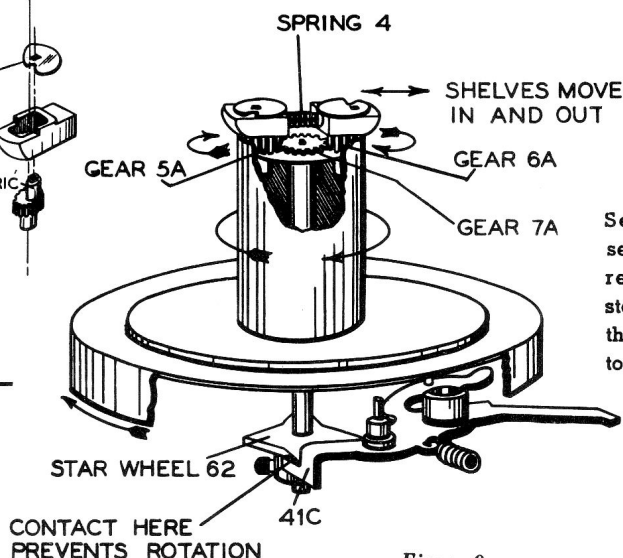
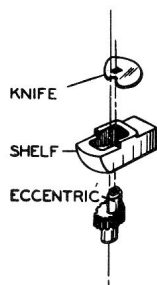
Figure 6.



**Figure 7.**



**Figure 8.**



**Figure 9.**

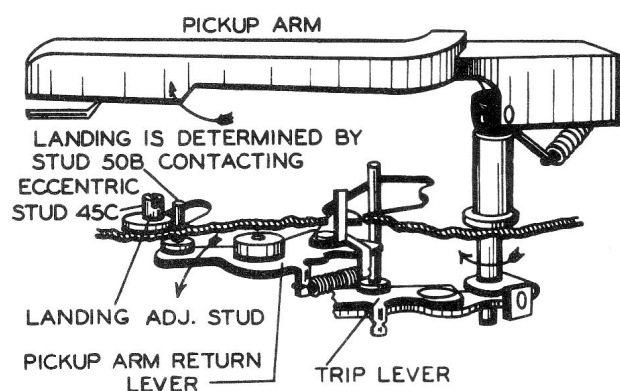
Separator knives  
separate the lower  
record from the  
stack and allows  
the record to drop  
to the turntable

1. While the pickup arm is moving outward, the end (41C) of the director lever (41) extending below the motorboard, 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 turns in a slot in the separator shelves

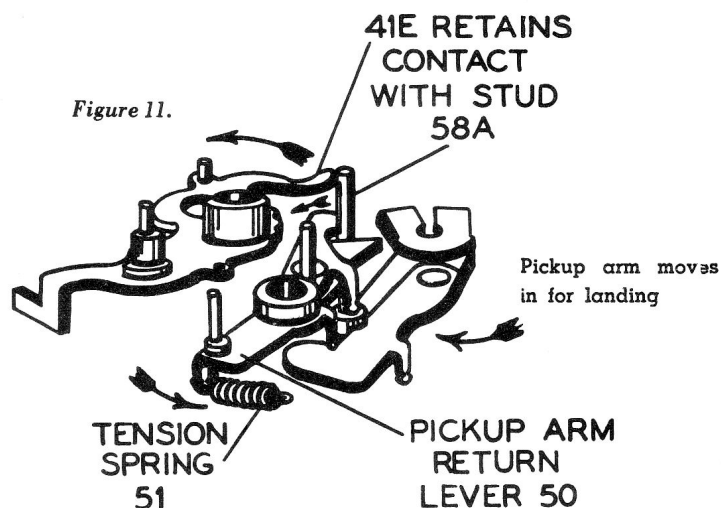
(5 and 6). This causes the shelves to move in against the tension of spring (4).

A later type of record separators (knives and shelves), illustrated in Figure 8, are actuated by a cam at the top of the shaft. No gears are used. The cam pushes out on the knives which in turn pull in on the opposite shelves.

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 records while the lower record drops to the turntable.



**Figure 10.**



**Figure 11.**

1. As the director lever (41) continues to move toward the out of cycle position the end of the director lever (41E) retains contact with the stud (58A) on the trip lever (58). This contact stabilizes the inward movement of the pickup arm which is being pushed in by the pickup arm return lever (50).

2. The inward movement of the pickup arm is stopped directly above the landing position due to the stud (50B) on pickup arm return lever coming in contact with the eccentric stud (45C).

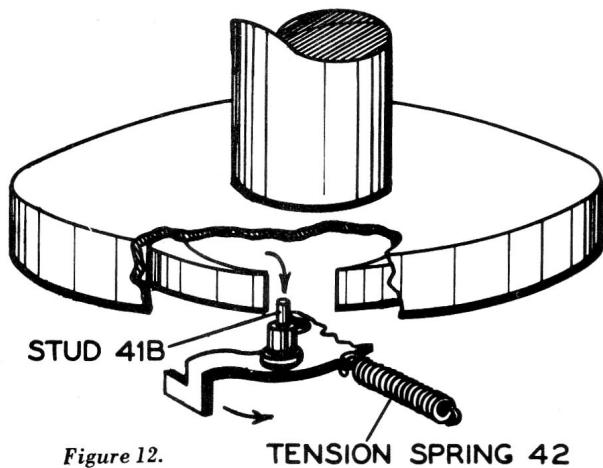


Figure 12.

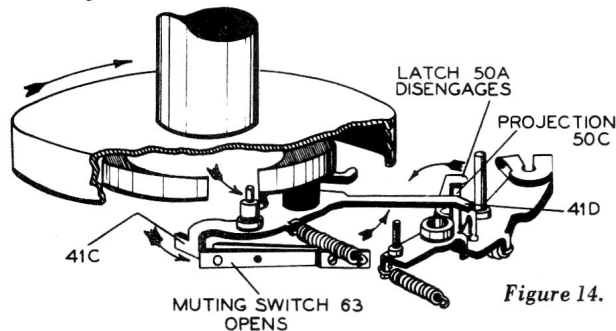


Figure 14.

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 underside 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.

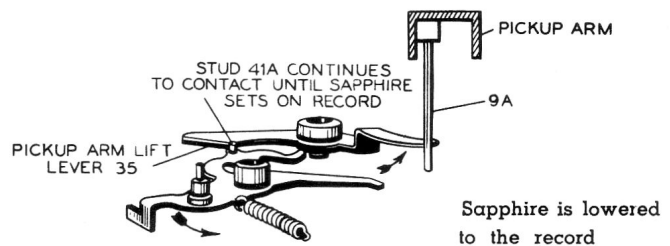


Figure 13.

1. The stud (41A) on director lever (41) continues to contact pickup 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 tension spring (42).
3. The end of the director lever (41D) contacts projection (50C) and unlatches the pickup 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.

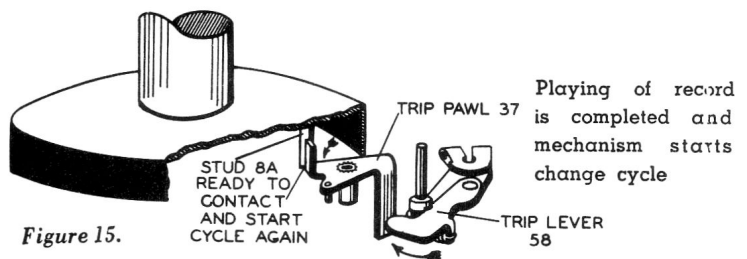


Figure 15.

## SERVICE HINTS

### VARIABLE RELUCTANCE PICKUP (Stock No. 74466)

To remove the stylus assembly, insert a bent paper clip or equivalent tool into the stylus stud pin socket at point "A." Press the assembly out from the cartridge with the tool as shown by the arrow in the illustration below.

To replace the stylus assembly, insert the stud pin into the recess "A," with the locating tab positioned above the locating slot "B" between the two pole pieces. Press assembly in firmly by applying pressure upon the stud pin at point "C" with a blunt tool. Care must be taken to press assembly only at point "C" so as not to damage or distort the stylus arm.

### Care of Pickup

LINT MAY COLLECT TO CLOG THE OPENING IN THE GUARD AT THE STYLUS POINT AND CAUSE POOR RECORD REPRODUCTION. This may require occasional cleaning of the guard opening—clean by carefully brushing with a small soft brush.

### Replacement of Stylus

**Caution:** Never bend the stylus support wire.

#### CRYSTAL PICKUPS (Stock Nos. 74067

Remove the two screws holding sapphire guard in place and remove the 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.

Extreme care should be used when loosening the nut so that the twisting motion does not break the crystal. Take hold of the lower end of the shaft with a pair of pliers while loosening or tightening the nut, being very careful so as not to strip the threads or break the crystal.

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.

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 beyond the guard so that the guard will not touch the record. If necessary, bend the guard a little.

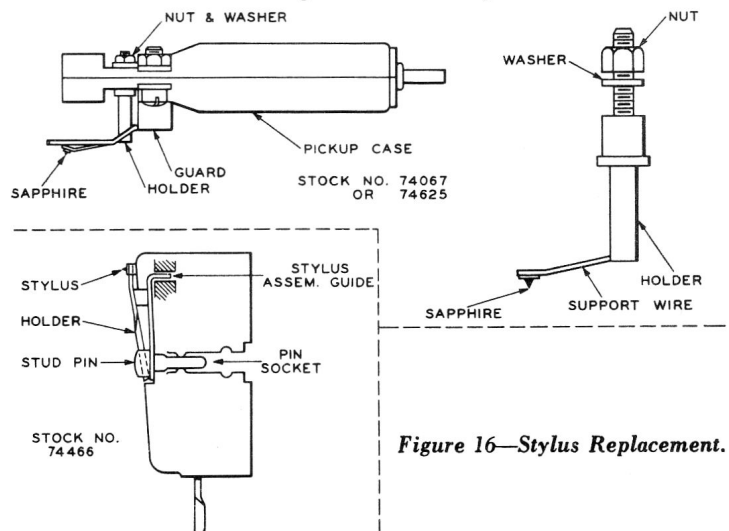


Figure 16—Stylus Replacement.



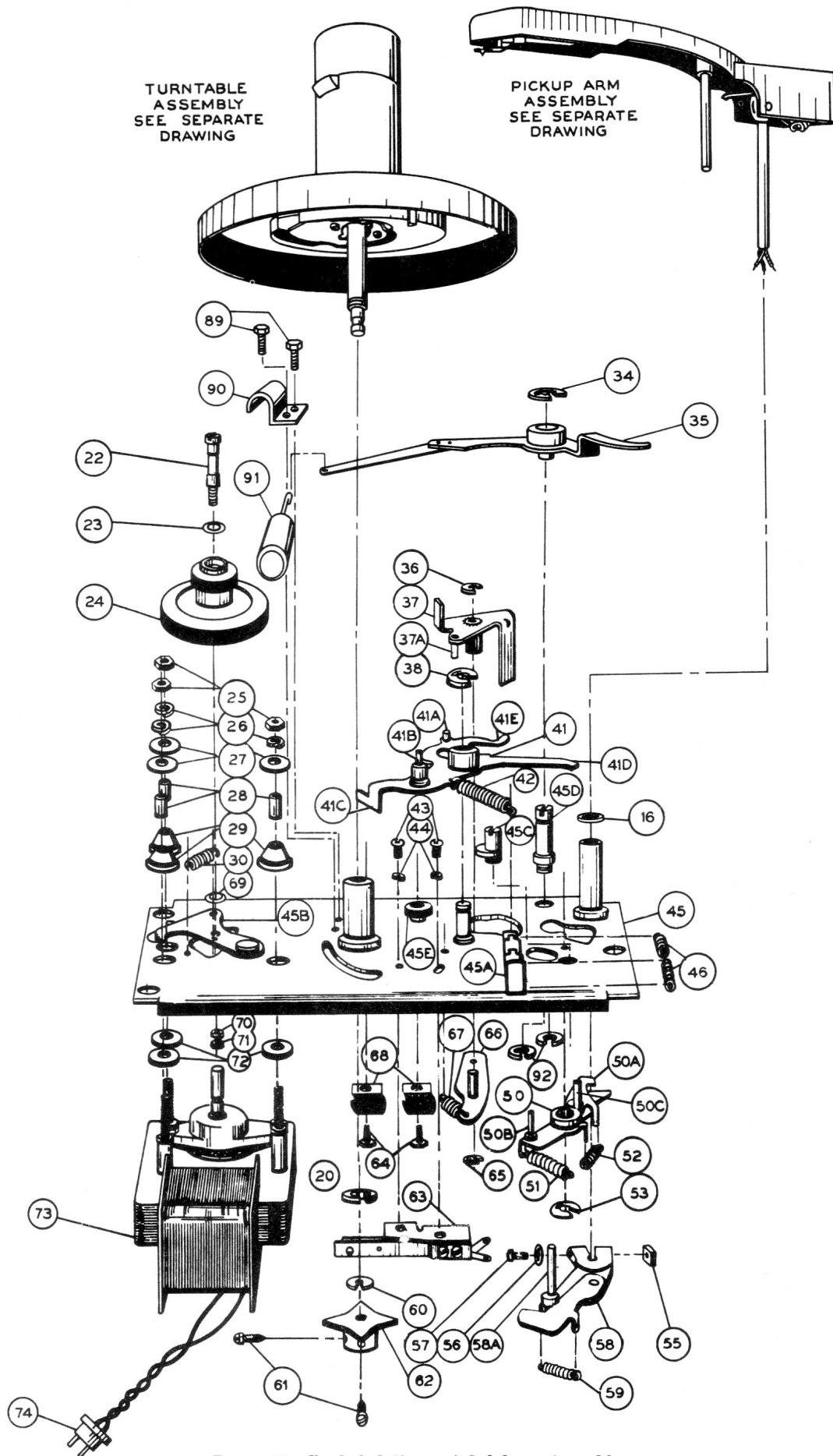


Figure 17—Exploded View of Sub-base Assembly.

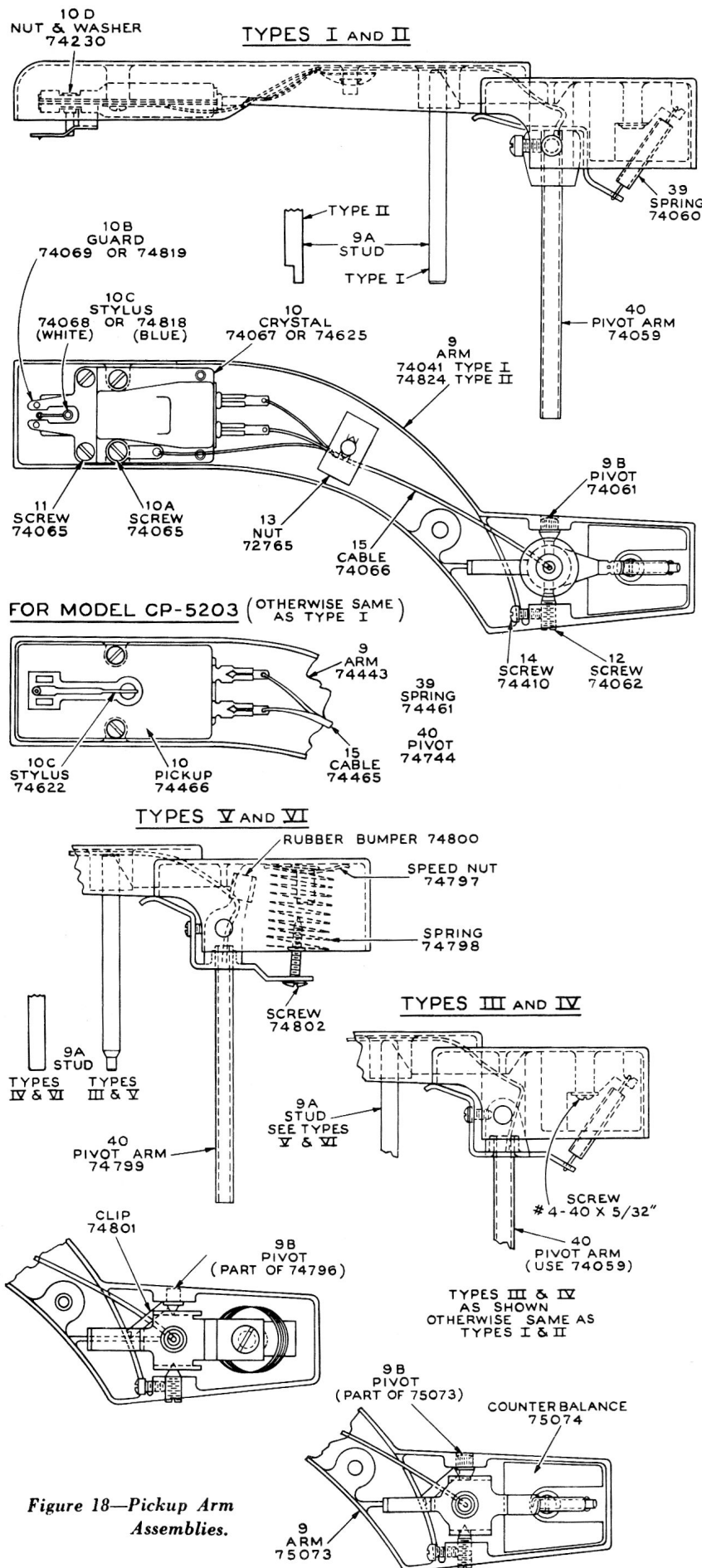


Figure 18—Pickup Arm Assemblies.

## SUB-BASE ASSEMBLIES

### Type I

Sub-base Stock No. 74070. Has staked studs for spring anchors and one-piece reject lever.

### Type II

Same as Type I, except it uses a two-piece reject lever. Use Stock No. 74743 Sub-base (Type III) for replacement.

### Type III

Sub-base Stock No. 74743. Same as Type II, except that it has pickup arm rest on sub-base (when motorboard rest is used, the sub-base rest is to be deformed).

### Types II-25, III-25

Same as Types II and III except brass.

### Type IV

Sub-base Stock No. 74468. It uses an a.c. input connector and audio output jack mounted on a separate bracket. Used only with Model CP-5203.

### Type V

Sub-base Stock No. 74856. Has turned up lances for spring anchors. Idler wheel mounting plate (45B—Stock No. 74814) is removable. It has pickup arm rest on sub-base (when motorboard rest is used, the sub-base rest is to be deformed).

### Type VI

Stock No. 74803. Similar to Type V. It has pickup arm rest on sub-base. Idler wheel mounting plate (45B) is secured to the sub-base with a shoulder rivet.

### Type VI-25

Similar to Type VI except brass.

### Type VII

Same as Type VI, except it does not have pickup arm rest on sub-base. Use Stock No. 74803 (Type VI) for replacement (the pickup arm rest is to be deformed).

### NOTE: Types VI and VII

Late production of these types have the idler wheel mounting stud (22) staked to its mounting plate. The idler wheel retainer (horseshoe washer) is Stock No. 75081.

### NOTE: Type V

Two different main levers (director lever) are used, depending upon which turntable assembly is used. Lever (41), Stock No. 74076 has a long end (41C) and is used with Turntables Types I and II. Lever (41), Stock No. 74857 has a short end and is used with Turntable Type III.

## PICKUP ARM ASSEMBLIES (LESS PICKUP)

### Type I

Arm Stock No. 74041. Stamped 970488. Pickup arm stud (9A) is full diameter for entire length (do not use where pickup arm rest is on sub-base). Lead counterbalance is riveted to arm.

Arm Stock No. 74443. For Model CP-5203 only. Black finish, otherwise similar to No. 74041.

### Type II

Arm Stock No. 74824. Same as No. 74041 except that stud (9A) has a flat on one side at bottom end. Can be used with either type of pickup rest.

### Type III

Arm stock No. 75073. Stamped 3R1. Similar to No. 74824 except that a different pivot (9B) is used and the lead counterbalance is fastened to the arm with a screw. Stud (9A) is of smaller diameter at bottom end. Can be used with either type of pickup rest. Use only with No. 74059 pivot arm.

### Type IV

Same as Type III except that stud (9A) is of full diameter for entire length. Use No. 75073 for replacement.

### Type V

Arm Stock No. 74796. Stamped 3R1. Similar to Type III except that a different pivot (9B) is used and the lead counterbalance is not used. A  $\frac{5}{8}$ " O.D. counterbalance spring is used. Can be used with either type of pickup rest. Use only with No. 74799 pivot arm.

### Type VI

Same as Type V except that stud (9A) is of full diameter for entire length. Use No. 74796 for replacement.

# REPLACEMENT PARTS FOR MODEL RP-168 SERIES

Insist on Genuine Factory Tested Parts, which are readily identified and may be purchased from Authorized Dealers.

STOCK NO.	ILL. NO.	DESCRIPTION	STOCK NO.	ILL. NO.	DESCRIPTION
74256	16	Washer-Vellutex washer (Pkg.5)	74473	--	Bracket-metal bracket with power input connector and audio output jack - RP-168-2 only
74080	17-19	Washer-Washer for turntable bearing (Pkg.5)	74856	45	Base-sub-base assembly complete with all staked and riveted parts - less idler lever and reject lever. Type V with pickup rest
72349	18	Bearing-turntable thrust bearing	74803	45	Base-sub-base assembly complete with all staked and riveted parts including idler lever-less reject lever. Type VI with pickup rest.
72688	20	Washer-"C" washer for turntable assy.	S-5707	45	Base-sub-base assembly complete with all staked and riveted parts, including idler lever and reject lever-Type III - 25 - Brass
74079	22	Stud-Idler wheel mounting stud	S-5706	45	Base-sub-base assembly complete with all staked and riveted parts, including reject lever-less idler mechanism - Type VI - 25 - Brass
74078	23	Washer-Dumping washer for idler wheel (Top) (Pkg.5)	74860	45A-1	Lever-Reject lever-bottom section-for sub-base-Types V,VI and VIII
74077	24	Wheel-Idler wheel for all models except Model CP5203	74861	45A-2	Lever-Reject lever-top section, for sub-base - Types V,VI and VII
74470	24	Wheel-Idler wheel for model CP5203	74814	45B	Plate-Idler wheel mounting plate and stud-for sub-base Type V
74132	25	Hardware-Motor mtg.hardware consisting of three hex nuts	74870	45B-1	Retainer-Idler wheel retainer (Spring Sleeve)for use with No. 74814 plate (45B)
---	26	Three lockwashers	75081	45B-1	Retainer-Idler wheel retainer (horseshoe washer)for use with sub-base types VI and VII(late production)
---	27-72	Six flat lockwashers	74804	45B-2	Washer-Idler wheel bearing washer ( $\frac{1}{2}$ " O.D. x .185" I.D. x .032" thick)for sub-base types VI and VII (late production)
---	28	Three spacers	74430	45-C	Stud-Eccentric stud for landing adjustment
74087	29	Grommet-rubber grommet to mount motor (Pkg.2)	74429	45-D	Stud-Eccentric stud for height adjustment
74089	30	Spring-Idler wheel spring (and direction lever)	74082	45-E	Washer-Felt washer( $\frac{1}{2}$ " O.D. $\frac{1}{4}$ " I.D. x 3/16" thick (Pkg.5)
35969	34-38	Washer-"C" washer for tone arm lift lever (Pkg.5)	74086	46	Spring-Reject lever spring(Pkg.2)
74073	35	Lever-pickup arm lift lever for mechanisms without dashpot	74427	46	Spring-Reject lever spring for sub-bases having two-piece reject lever (Pkg.2)
74757	35	Lever-pickup arm lift lever for mechanisms with dashpot	74070	50	Lever-return lever(includes spring #51)
---	35	Lever-Two piece pickup arm lift lever (Use No.74073 or 74757)	74085	51	Spring-Return lever actuating spring
74805	--	Spring-Tension spring for two piece pickup arm lift lever (.170" O.D. x $\frac{3}{4}$ "	74075	52	Spring-Return lever latch spring
33726	36	Washer-"C" washer for trip pawl (Pkg.5)	---	54	Washer ) To clamp trip lever
74072	37	Pawl-trip pawl	---	55	Nut ) (Ill. No.58)
74076	41	Lever-Director lever for use with turntable having rotating gear record separators	---	56	Washer ) To pivot arm shaft
74857	41	Lever-Director lever for use with turntable having push-out record separators	---	57	Screw ) (Ill. No.40)
73084	42	Spring-Director lever spring (Pkg.2)	74099	58	Lever-trip lever(includes items 54,55,56 and 59)
---	43	Screw-#6-32 screw to mount muting switch	74426	59	Spring-Trip lever spring
---	44	Lockwasher-#6 lockwasher(external) to mount muting switch	33726	60	Washer-"C" washer for star wheel shaft (Pkg.5)
74070	45	Base-sub base assy complete with all staked and riveted parts including idler lever and reject lever - Type I without pickup rest	74083	61	Screw-#6-32 x .281" cone point set screw for star wheel (Pkg.3)
74743	45	Base-sub-base assembly complete with all staked and riveted parts including idler lever and reject lever-Type I without pickup rest	74081	62	Wheel-Star Wheel
74743	45	Base-sub-base assy complete with all staked and riveted parts including idler lever and reject lever. Type III with pickup rest	74088	63	Switch-Muting switch
74468	45	Base-sub base assembly complete with all staked and riveted parts including idler lever and reject lever less #74473 bracket - Type IV - for RP-168-2, used only on Model CP-5203	---	64	Screw-#8x1/4" self tapping screw
			33726	65	Washer-"C" washer to retain trip pawl lever (Pkg.5)
			74245	66	Lever-Trip pawl lever
			74100	67	Spring-Trip pawl take up spring (Pkg.2)
				68	Clamp-Cable clamp

## REPLACEMENT PARTS FOR MODEL RP-168 SERIES (Cont'd)

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STOCK NO.	ILL. NO.	DESCRIPTION	STOCK NO.	ILL. NO.	DESCRIPTION
74078	69	Washer-Dampening washer for idler wheel (bottom) (Pkg.5)	74066	15	Cable-3-wire twisted pickup arm cable complete with connectors
---	70	Washer-#4 lockwasher for idler mounting stud (Ill.No.22)	74465	15	Cable-Shielded pickup arm cable complete with connectors-Model CP-5203 only
---	71	Nut-#4-40 hex nut for idler wheel mounting stud (Ill. No.22)	74060	39	Spring-Counter-balance spring(.171" O.D.x.695" .43 turns)for Pickup Arm Types I,II,III and IV when using No.74067, No.74625 or No.74984 pickups (most models)
---	72	Washer-Part of No.74133-See Ill. No.27	74461	39	Spring-Counter-balance spring(.185" O.D. x .695" - 29 $\frac{1}{2}$ turns) for Model CP-5203 only
74071	73	Motor-115 volt, 60 cycle motor complete with connector-shaded pole type. Not suitable for 50 cy. conversion	74798	39	Spring-Counter-balance spring(5/8" O.D.-11 turns)for Pickup Arm Types V and VI(Stock No.74796)
S-5248	73	Motor-115 volt-25 cycle motor	74797	--	Nut-Speed nut to hold No.74798 spring in Pickup Arm Types V & VI
74469	73	Motor-115 volt,60 cycle motor complete with connector and 5 mfd. capacitor for RP-168-2 <u>only</u>	75074	--	Weight-Lead counter-balance weight for Pickup Arm Types III and IV
74621	--	Capacitor-Motor capacitor for No. 74469 Motor	---	--	Screw No.4-40 round head screw to hold No.75074 weight to No.75073 Arm
30870	74	Connector-Two prong male plug connector for motor cable	74059	40	Arm-Pivot arm and shaft for use with all pickup arms having lead counter-balance except Model CP-5203
---	89	Screw-#8x $\frac{1}{2}$ " self tapping screw	74744	40	Arm-Pivot arm and shaft for Model CP-5203 only
74859	90	Clamp-To mount dash-pot	74799	40	Arm-Pivot arm and shaft for use with pickup arm types V and VI
74428	91	Dash-pot-pneumatic dash-pot complete with plunger	74802	--	Screw-No.4x9/16" oval head counter-balance adjusting screw for use with No.74799 pivot arm
74431	92	Washer-"C" washer for mounting adj. studs No. 74429 (Ill.No. 450) and No.74430(Ill.No.45 C)	74800	--	Bumper-Rubber bumper for No.74799 pivot arm
74041	9	Arm-Pickup arm shell and stud - with pivot (9R)and lead counter-balance type 1 for use with rest on motor board	74090	1	Nose-Spindle nose-RED(early type-thin wall) for Turntable Type I
74443	9	Arm-Pickup arm shell and stud-with pivot (9B and lead counter-balance for model CP-5203 only-black finish	74620	1	Nose-Spindle nose-RED'late type-thick wall)for Turntable Type I or II
74824	9	Arm-Pickup arm shell and stud-with pivot((B)and lead counter-balance -Type II for use with rest on sub-base	74863	1	Nose-Spindle nose-RED-for Turntable Type III
75073	9	Arm-Pickup arm shell and stud with pivot (9B)less lead counter-balance-Type III for use with either type of pickup rest	74472	1	Nose-Spindle nose-BLACK-for Turntable Type I
74796	9	Arm-Pickup arm shell and stud-with pivot(9B)-less balance spring-Type V for use with either type of pickup rest	74795	1	Nose-Spindle nose-BLACK-for Turntable Type III
74061	9B	Pivot-Pickup arm pivot-for use with arms No.74041, No.74443, No.74824, No.75058 only (Pkg.3)	74091	2	Spring-Spindle nose spring-formed - for spindle nose No.74090, No.74620 or No. 74472
74067	10	Pickup-Crystal pickup cartridge complete including sapphire and guard	74862	2	Spring-Spindle nose spring-formed wire - for spindle nose No.74863 or No.74795
74466	10	Pickup-Magnetic pickup cartridge complete with stylus-for model CP-5203 only	---	3	Screw-No.6-32 round head machine screw for spindle nose spring No. 74091
74065	10A	Screw-#2-56x3/16" fillister head screw to mount No.74067 crystal pickup (Pkg.2)	74095	4	Spring-Separator shelf return spring (.180" O.D. x 1-1/16" - 10 turns)for turntable types I and II
74464	10A	Screw-#2-56x $\frac{1}{2}$ " fillister head screw to mount No.74466 pickup-for Model CP-5203 only	74866	4	Spring-Separator shelf return spring (.118" O.D. x $\frac{3}{4}$ " -16 turns) - two requires for Turntable Type III
74069	10B	Guard-Stylus guard for No.74067 pickup	74096	5-6	Separator-Separator knife,shelf and gear assembly for Turntable Types I and II
74068	10C	Sapphire-Sapphire and holder	74865	5-6	Shelf-Separator shelf for Turntable Type III
74622	10C	Stylus-Diamond stylus and holder for No.74466 pickup(Model CP-5203)	74864	5B	Separator-Separator knife for Turntable Type III
74230	10D	Washer-and nut-to mount No.74068 stylus (Pkg.5)	74092	7	Shaft-Star wheel shaft and gear assembly for Turntable Types I and II
74065	11	Screw-#2-56x3/16"fillister head screw(Pkg.2)to mount stylus guard on No.74067 pickup	74867	7	Shaft-Star wheel shaft with cam for Turntable Type III
74062	12	Screw-#8-32x13/32"cone point pivot adjusting screw (Pkg.2)	33726	--	Washer-"C" washer for top of No. 64766 shaft
72765	13	Nut-Speed nut to hold pickup arm cable(Pkg.2)	74042	8	Turntable-Turntable with TAN MARBLE-IZED mat-Type I-Use No.74090 RED NOSE (thin wall)
74801	--	Clip-Spring clip to hold pickup arm cable(used only on pickup arm Type V and VI No.74796	75065	8	Turntable-Turntable with TAN MARBLE-IZED mat-Type I-use No.74620 RED NOSE (thick wall)
74410	14	Screw-No.4-40x3/16"fillister head screw to lock pivot screw No. 74062 (Pkg.3)			

# REPLACEMENT PARTS FOR MODEL RP-168 SERIES (Cont'd)

Insist on Genuine Factory Tested Parts, which are readily identified and may be purchased from Authorized Dealers.

STOCK NO.	ILL. NO.	DESCRIPTION	STOCK NO.	ILL. NO.	DESCRIPTION
74813	8	Turntable-Turntable with TAN MARBLE-IZED mat-Type III-Use No.74863 RED nose	74424	76	Screw-No.8-32x1½" special screw (with tapped hole)for mounting record changer(3 required)-use with No.74209 cover(III.No.75)
74445	8	Turntable-Turntable with BLACK mat-Type I-Use No.74472 BLACK nose	74582	76	Screw-No.8-32x1½" special screw (non-tapped hole)for mounting record changer(3 required)-use with No.74581 cover(III.No.75)
75145	8	Turntable-Turntable with RED mat-Type I-Use No.74452 BLACK nose	73549	77	Emblem-"RCA Victor" emblem-metal
75059	8	Turntable-Turntable with RED mat-Type III-Use No.74795 BLACK nose	74674	77	Emblem-"RCA Victor" emblem-plastic
74094	8C	Mat-Turntable mat-TAN MARBLEIZED	74422	78	Spring-Conical spring for mounting record changer-upper L.H. side (2 req'd)
74471	8C	Mat-Turntable mat-BLACK	74423	79	Spring-Conical spring for mounting record changer-bottom(3 req'd)
74794	8C	Mat-Turntable mat-RED	74208	80	Nut-Tee nut for mounting record changer(3 required)
---	21	Screw-No.6-32 x 1½" fillister head (holds nose to spindle)two required for Turntable Type I	74184	81	Motorboard-Motorboard complete with welded brackets and stud-less rest and operating parts for all models with motorboard rest
74868	21	Screw-No.6-32x1-5/8" fillister head screw 'holds nose to spindle)two required for Turntable Types II and III	74444	81	Motorboard-Motorboard complete with welded brackets and stud-less operating parts-for Model CP-5203
74869	21A	Washer-No.6 flat washer(for use under No.74868 screw-two required for Turntable Types II and III)	74987	81	Motorboard-Motorboard complete with welded brackets and stud-less operating parts-for all models without motorboard rest
---	31	Screw-No.4-40 x 3/8" fillister head screw(for use with cam III No.33) two req'd for Turntable Type I	74185	82	Rest-Pickup arm rest-maroon-for all models(where required)
---	32	Washer-No.4 lockwasher-for use with cam(III.No.33)-two required for Turntable Type I	74446	82	Rest-Pickup arm rest-black-used on Model CP-5203 only
74231	33	Cam-Follower cam for Turntable Type I	74210	83	Knob-Reject control knob-maroon
74623		Hardware-To mount sub-base to plastic cabinet of Model 9EY3	74467	83	Knob-Reject control knob-black
	47	Three (3) grommets )	74421	84	Spring-Conical spring for mounting record changer-upper R.H. side (1 required)
	--	Three (3) spacers )	74212	85	Nut-Speed nut for reject control knob
	48	Three (3) flat washers)	---	86	Screw-No.6 self-tapping screw
---	49	Screw-No.8-32x3/4"-for Models 9EY3	33726	87	Washer-"C" washer for mounting reject lever actuating lever
---	49	Screw-No.8-32x1/2"-for 9JY and VA45	74211	88	Lever-Reject lever actuating lever
---	49	Screw-No.8-32x3/8"-for instruments using spring mounting of motorboard			
74209	75	Cover-Mounting screw cover(threaded type 3 required)-use with No.74424 screw (III.No.76)			
74581	75	Cover-Mounting screw cover(plug-in type 3 required)-use with No.74582 screw (III.No.76)			

## REFER TO REPLACEMENT PARTS PRICE LIST FOR PRICES

Items listed but without stock Nos. are not stock items.

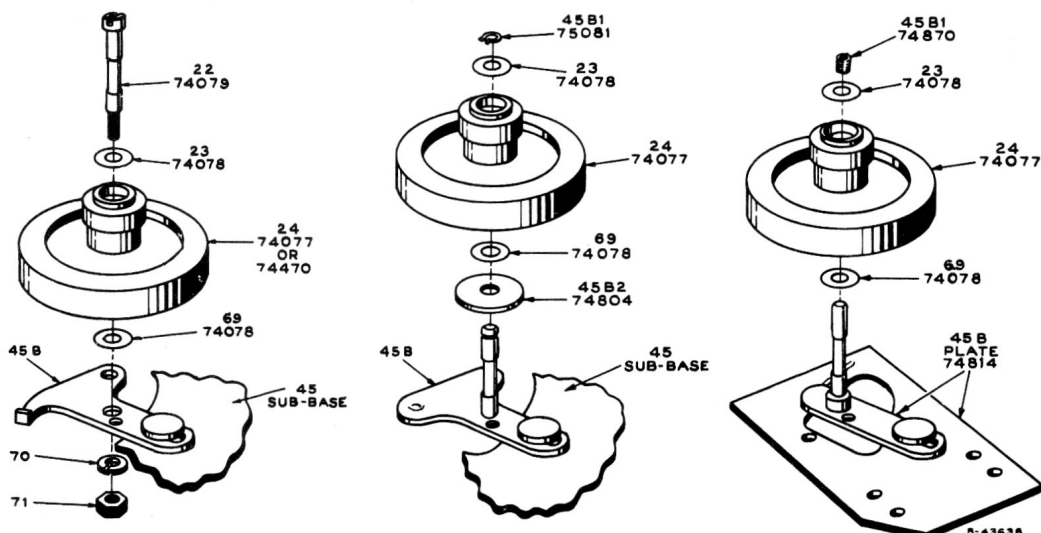


Figure 19—  
Idler Wheel  
Mounting.



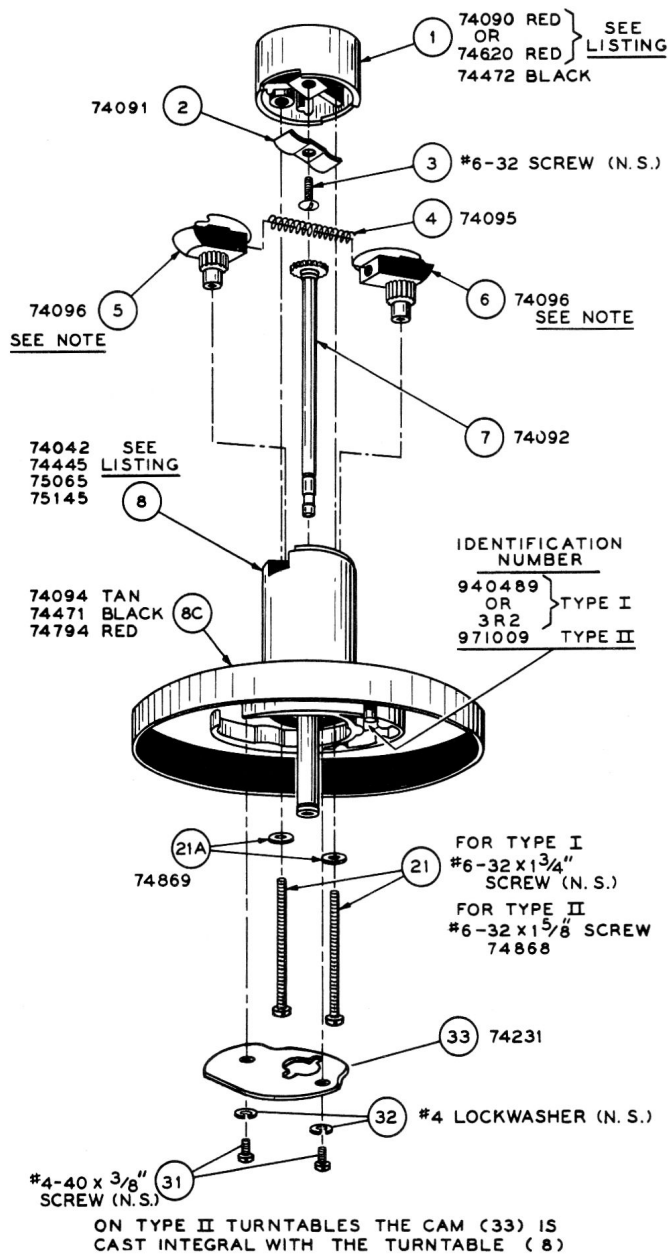


Figure 20—Turntable Assemblies, Types I and II.

### Main Lever vs Record Separators:

Two different main levers (director lever) are used depending upon the type of record separators being used.

Stock No. 74076 lever is used only with the rotating gear type of record separators. The end (41C) that engages the star wheel is long.

Stock No. 74857 lever is used only with the push-out type of record separators. The end (41C) that engages the star wheel is short.

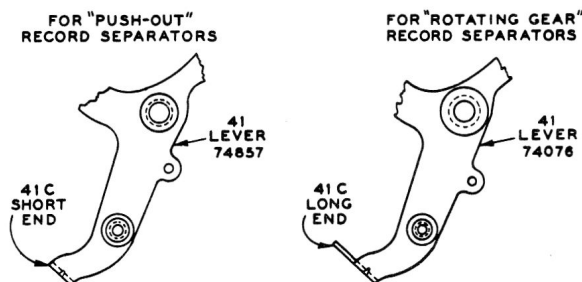
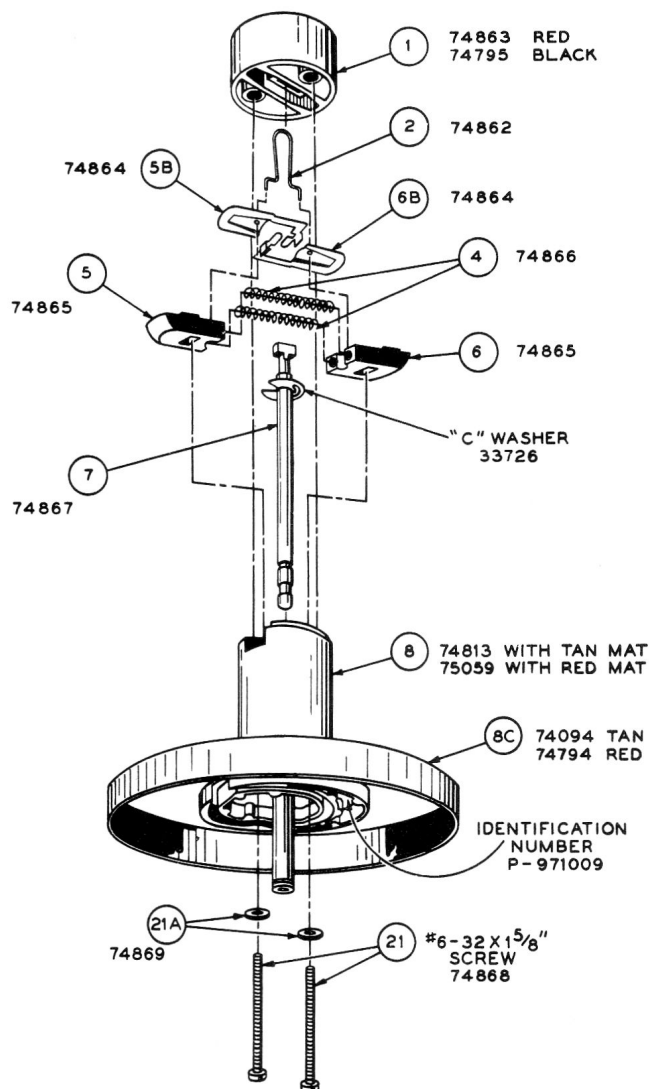


Figure 22—Main Lever.



NOTE: Use care in disassembly to prevent loss of springs. Remove screws—lift nose slightly—hold both separator knives down against shelves—then remove nose.

Figure 21—Turntable Assemblies, Type III.

### TURNTABLE ASSEMBLIES

#### Type I

Turntable Stock No. 74042. Stamped 940489 or 3R2. Has TAN MARBLEIZED mat and uses rotating gear type of record separators. Use No. 74090 spindle nose—RED (thin wall)

Turntable Stock No. 75065. Same as No. 74042, except for diameter at top of spindle. Use No. 74620 spindle nose—RED (thick wall)

Turntable Stock No. 75145. Same as No. 75065, except that it has a RED mat. Use No. 74472 spindle nose—BLACK

Turntable Stock No. 74445. Same as No. 75065, except for finish and BLACK mat. Used only on Model CP-5203. Use No. 74472 spindle nose (BLACK)

#### Type II

Stamped 971009. Follower cam (33) is a part of the turntable casting. Otherwise, similar to No. 75065. Use No. 75065 turntable, and No. 74231 cam for replacement

#### Type III

Stock No. 74813. Stamped 971009. Has TAN MARBLEIZED mat and uses push-out type of record separators. Use No. 74863 spindle nose—RED. Although this turntable bears the same stamping as Type II, it does not have the shafts required for mounting the rotating gear type of separators

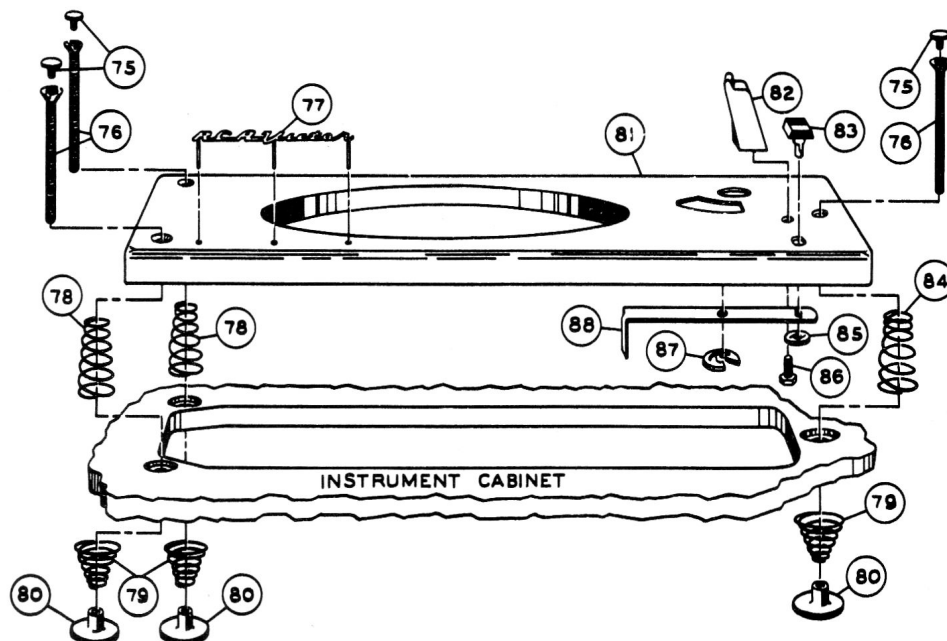
Stock No. 75059. Same as No. 74813, except that a RED mat is used. Use No. 74795 spindle nose—BLACK

#### NOTE: Main Lever (41)

Stock No. 74076 lever (with long end 41C) is used in conjunction with rotating gear type of record separators. Stock No. 74857 lever (with short end 41C) is used in conjunction with push-out type of record separators



Figure 23—  
Motorboard Assemblies.



## CHANGES—SERVICE HINTS (Continued from Page 4)

### Pickup Arm Rest:

Two different types of pickup arm rest are in use. The original type was visible on the motorboard. The type presently in use is a metal projection on the sub-base.

The correct grouping of parts must be used, refer to descriptive text on page 6. The two types are illustrated below.

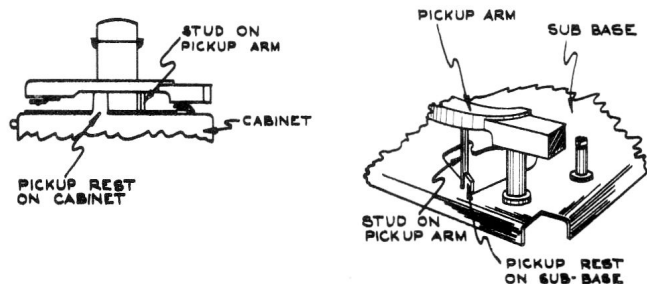


Figure 24—Pickup Arm Rest.

### Spindle Nose and Turntable (Type I):

The wall thickness of the spindle nose (Ill. No. 1) has been increased and the machined shoulder at the top of the turntable decreased accordingly. Thick wall spindle nose will not fit on early type turntable. The new type red spindle nose (thick wall) is available as Stock No. 74620.

NOTE: The screws (Ill. No. 21) which hold the spindle nose to the turntable should not be tightened too tight. The spindle nose can be distorted and cause records to bind.

Figure 26—Spindle Nose.

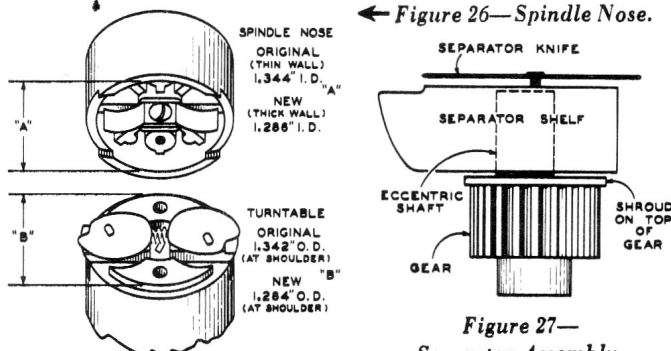


Figure 27—  
Separator Assembly.

### Sub-base Mounting:

The sub-base is attached directly to metal motorboards and to the cabinets of Models 9JY and VA-45 with three screws and three washers. No grommets or spacers are used.

On all other instruments, the sub-base is cushion mounted to the plastic cabinet with rubber grommets metal spacers, screws and washers. The mounting is illustrated below.

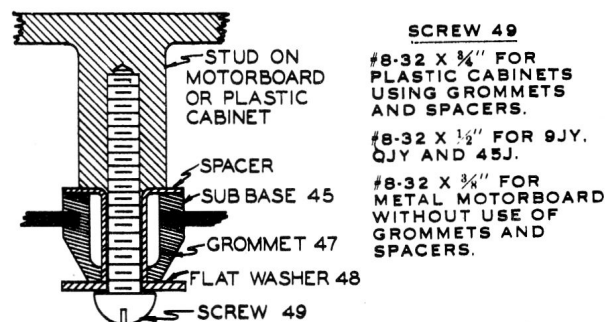


Figure 25—Sub-base Mounting.

### Separator Assemblies (Rotating Gear Type):

A flat has been added to the separator gears eccentric shafts. This flat permits the shelf (Ill. Nos. 5 and 6) to stay out until the nose of the blade (Ill. Nos. 5B and 6B) is approximately half-way out. Then the shelf retracts fast. This faster action minimizes unequal dropping of records.

The two types of separator assemblies (Stock No. 74092 Ill. No. 7) are NOT INTERCHANGEABLE. In addition the early type has been grouped according to mold number (at bottom of spring hole) and installed in pairs.

Group Mold Number	Group Mold Number	Group Mold Number
1, 3, 5	9, 10	0, 8

Assemblies of one group should not be mixed with assemblies of another group or unequal dropping of records may occur. If a matched pair is not available, first check timing of separator knives then the dropping of records; it may be necessary to file the edge of the shelf which released the record last.

The late type (having a flat on the eccentric shaft) do not need to be grouped, but an early assembly should not be used in conjunction with a late assembly (use two early or two late assemblies). The late type may be identified by its having a shroud at the top of the gear (see Figure 27).

# CHANGES—SERVICE HINTS (Continued)

## Turntable Bearing Thrust Washers:

Three thrust washers (Ill. Nos. 17 and 19) are now being used in mounting the turntable. This is done because it was found that the top edge of some idler wheels would contact a non-machined surface on the underside of the turntable and cause noise similar to that caused by a rough idler wheel.

## Jamming:

On early RP-168-1 mechanisms it was sometimes possible to jam the mechanism by maintaining pressure on the reject button during cycle. If such jamming should occur check the following:

1. The tip radius of the reject lever (Ill. No. 45A) should be  $\frac{1}{16}$ ".
2. The edges of the trip pawl (Ill. No. 37) should have a slightly rounded edge (.010" radius).

Present production uses a two piece spring loaded reject lever (Ill. No. 45A) which eliminates the possibility of jamming caused by pressure on the reject button.

Jamming can also be caused by incorrect positioning of the director lever (main lever) (Ill. No. 41) in relation to the star wheel (Ill. No. 62). See Figure 35.

## Intermittent Non-Tripping:

The trip lever spring (Ill. No. 59) has been increased in tension to provide better tripping action. The new spring has 30 turns and is available as Stock No. 74426.

To reduce friction a washer has been added between the trip pawl (Ill. No. 37) and the trip pawl lever (Ill. No. 66). It is available as Stock No. 74453.

## Eccentric Adjustment Studs:

In early production the eccentric landing (Ill. No. 45C) and height (Ill. No. 45D) adjustment studs were staked to the sub-base assembly. They are now secured to the sub-base assembly with "C" washers. The landing adjustment stud (Ill. No. 45C) is available as Stock No. 74430. The height adjustment stud (Ill. No. 45D) as Stock No. 74429 and the "C" washer (Ill. No. 92) as Stock No. 74431.

## Pneumatic Dashpot

A pneumatic dashpot (Stock No. 74428) has been added to improve pickup arm landing. The dashpot case is clamped to the base sub-assembly and the plunger is attached to the long end of the tone arm lift lever (Ill. No. 35) (Stock No. 74757).

### ERRATIC PICKUP LANDING

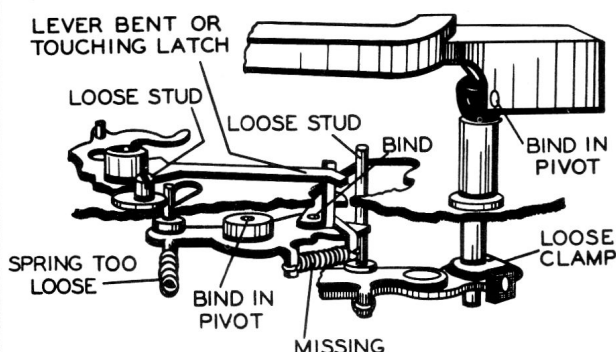


Figure 28.

### DISTORTED OUTPUT

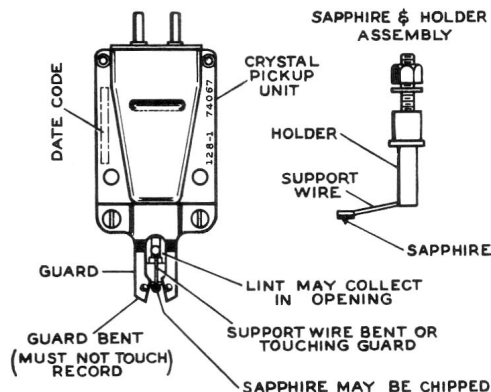


Figure 29.

### WOW (Speed Variation)

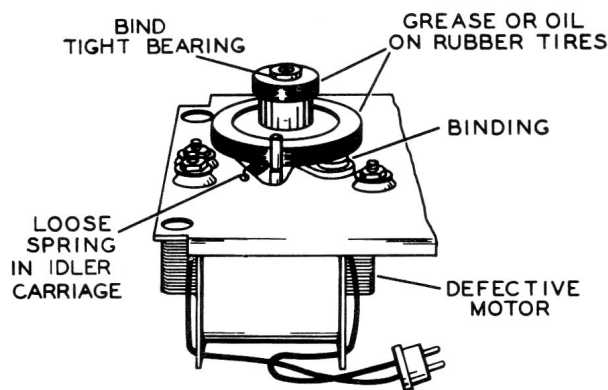


Figure 30.

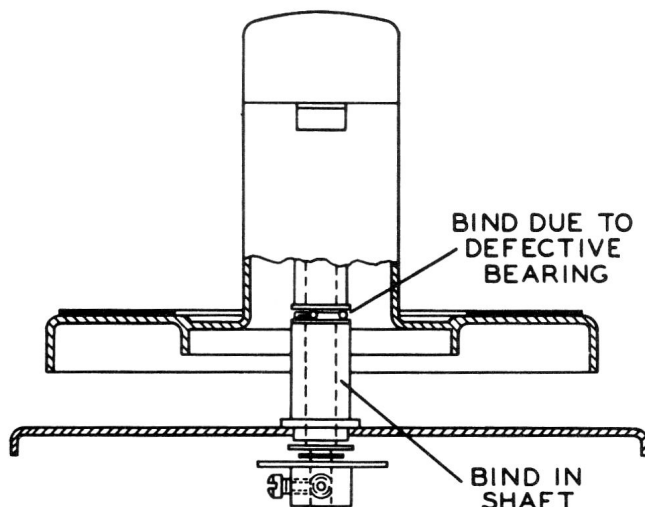


Figure 31.

## ADJUSTMENTS

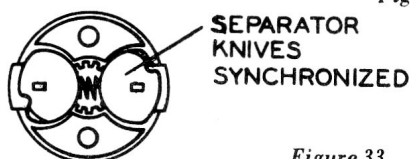
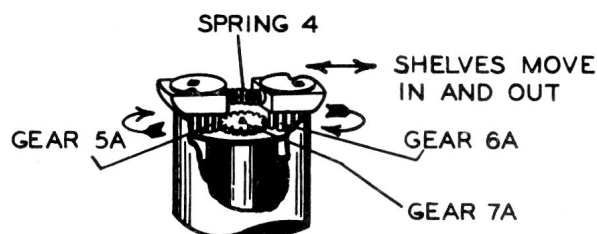
### Adjustment Sequence:

1. Synchronize separator shelf (Ill. No. 5) and separator knife (Ill. No. 5B) action (necessary only on rotating gear type of record separators).
2. Adjust position of star wheel (Ill. No. 62).
3. Adjust position of director lever (main lever) (Ill. No. 41) in relation to the star wheel by bending if necessary.
4. Adjust tone arm pivot screw (Ill. No. 12) for minimum side play without binding.
5. Adjust sapphire height above motorboard.
6. Adjust tripping position.
7. Adjust landing position.
8. Adjust pickup arm height during cycle.
9. Adjust position of muting switch so that contacts are open  $\frac{1}{32}$ " during playing and are closed during cycle.

### Separator Synchronization:

The following applies only to the rotating gear type of record separators:

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 is synchronized.



### Star Wheel Position:

1. Turn the star wheel so that the separator knives are in the position indicated in Figure 33 for rotating gear type of separators or fully retracted for push-out separators.
2. Loosen the two set screws (61) sufficiently to permit the star wheel to rotate without disturbing the shaft (7).
3. Rotate the star wheel points directly to a cam screw or nose screw (visible through slot) as shown in Figure 34.
4. Tighten the two set screws (61) and rotate the mechanism through a complete cycle to check operation. The separator knives must rotate  $360^\circ$  to the starting position as indicated in Figure 33.

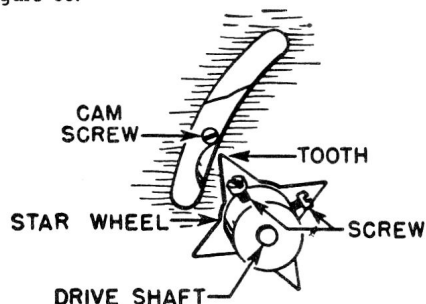


Figure 34—Star Wheel Timing.

### Director Lever Position:

Push reject lever and rotate the turntable slowly by hand until the end (41C) of the director lever moves in to its limit of travel so when the star wheel is rotated it contacts by the amount indicated in Figure 35 for lever with long end. For lever with short end, the star wheel should first contact the end (41C) approximately  $\frac{1}{16}$ -inch from the front or leading edge of the lever.

If the end of the director lever (main lever) is too close to the star wheel, it will jam. If too far away, it will cause erratic record dropping. If in doubt and unable to measure, move the end toward the star wheel until most of the play is removed when the star wheel is moved back and forth at this setting. With the push-out record separators and the lever with short end, there will be considerable play but the tension of the separator springs holds the star wheel against the lever.

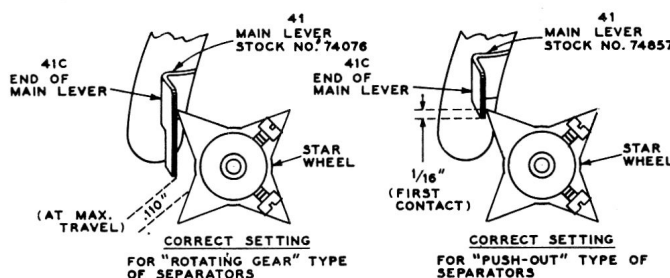


Figure 35—Setting of Director Lever.

### Pivot Screw Adjustment:

Loosen the pivot locking screw (14) and adjust the pivot screw (12) for minimum side play without causing binding.

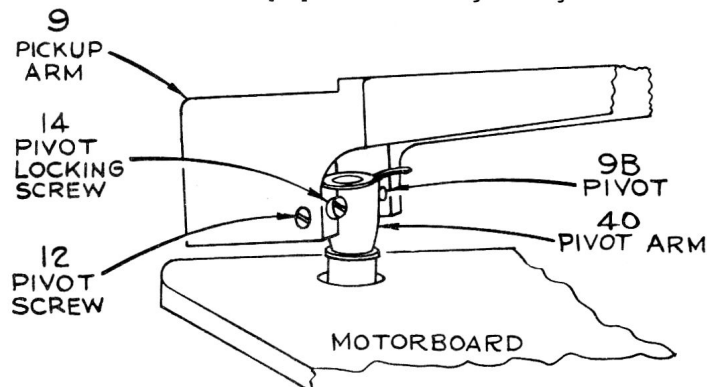


Figure 36.

### Sapphire Height Adjustment (Out of Cycle):

Bend the lug on the pivot arm (40) so that the sapphire point is approximately  $\frac{1}{16}$ " above the motorboard.

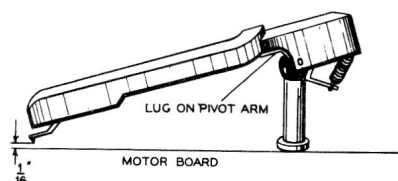


Figure 37.

### Tripping Adjustment:

1. Assemble the pickup arm and trip lever assemblies as shown in Figure 38. Leave the clamping screw (57) loose enough to permit horizontal movement of the trip lever on the shaft. (Allow approximately .010 inch vertical end play.)
2. Turn the eccentric landing adjustment stud (45C) to determine the inward and outward limit of adjustment, then turn it to a setting half-way between the limits.

# ADJUSTMENTS (Continued)

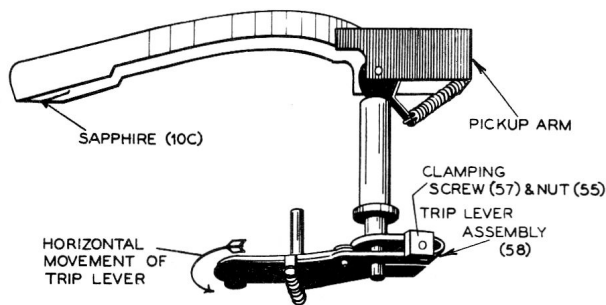


Figure 38.

- Tripping should occur when the sapphire reaches a position  $1\frac{9}{32}$ " from the near side of the turntable spindle. This position is adjusted by holding the trip lever and moving the pickup arm inward or outward to obtain the specified position.
- A convenient way of measuring this distance is to make a mark on the back side of a stroboscope disc  $1\frac{9}{32}$ " from the inner edge, place the disc on the turntable, with the turntable revolving, hold the disc stationary and move the pickup arm very slowly in towards the turntable spindle.
- After this position has been obtained, tighten the clamping screw (57) and recheck the tripping position and vertical end play.

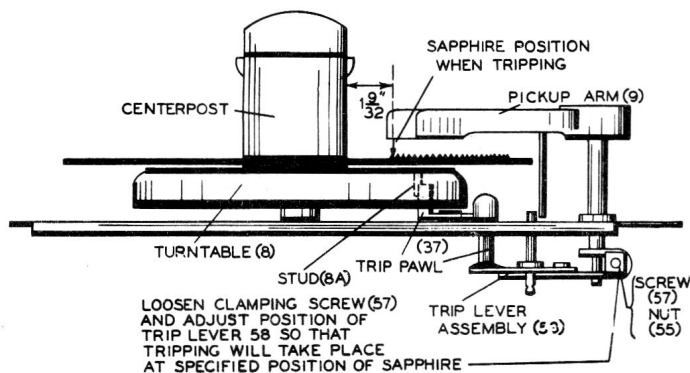


Figure 39—Tripping Position.

## Landing Adjustment:

- After the tripping adjustment has been made as described above, turn the eccentric landing adjustment stud (45C) so that the sapphire will set down on the record half-way between the outer edge and the first music groove. This position is  $2\frac{5}{8} \pm \frac{1}{64}$ " from the turntable spindle. The location of the adjustment stud is illustrated in Figure 42.

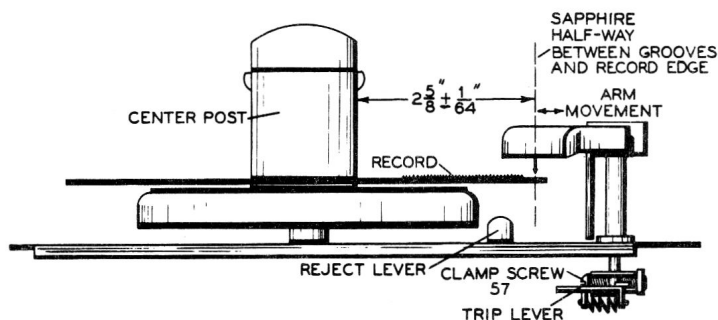


Figure 40—Landing Position.

## Pickup Arm Height Adjustment (In Cycle):

Set the mechanism in cycle. Turn the turntable by hand, until the pickup arm has reached its maximum height. By means of a screwdriver turn the height adjustment stud (45D) until the distance between the top of the turntable and the sapphire point is  $\frac{3}{4}$ ". Use that position of the eccentric stud which causes the pickup arm to rise during clockwise adjustment of the stud. The location of the adjusting stud is illustrated in Figure 42.

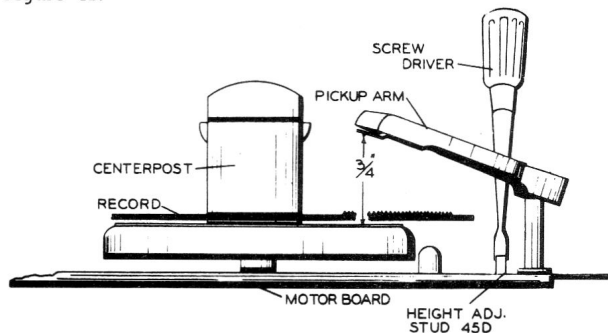


Figure 41—Height Adjustment.

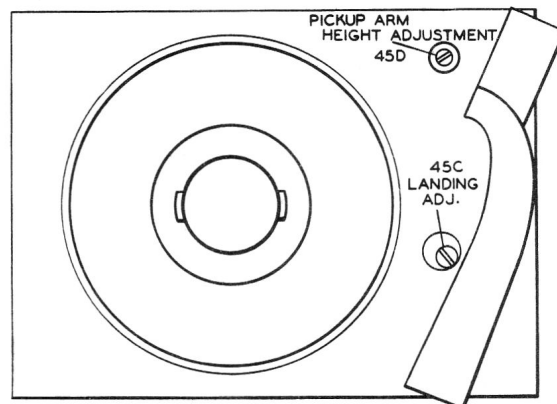


Figure 42—Height and Landing Adjustment Studs.

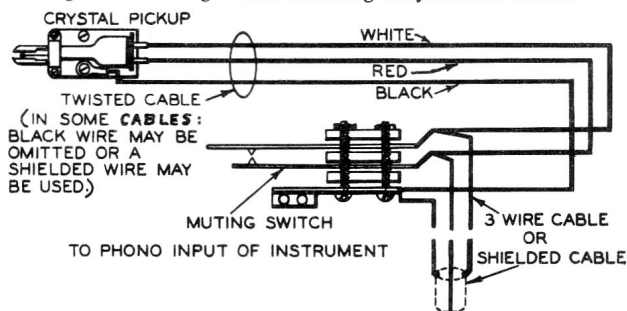


Figure 43—Pickup Muting Switch Wiring.

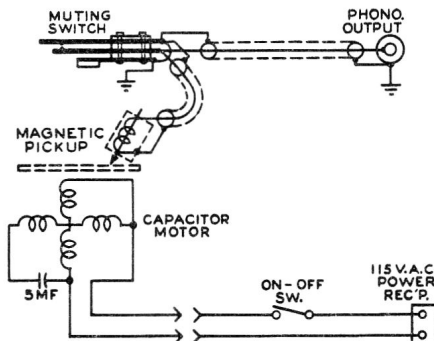


Figure 44—Schematic Diagram (Model CP-5203).

# SERVICE HINTS (Continued)

## REPEATS GROOVES

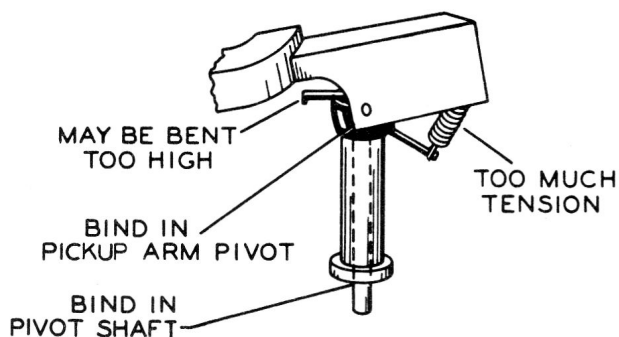


Figure 45.

## CONTINUOUS TRIPPING

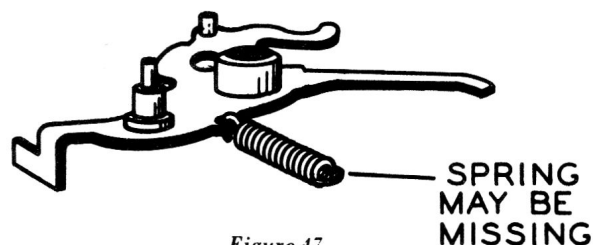


Figure 47.

## FAILS TO GO INTO CYCLE

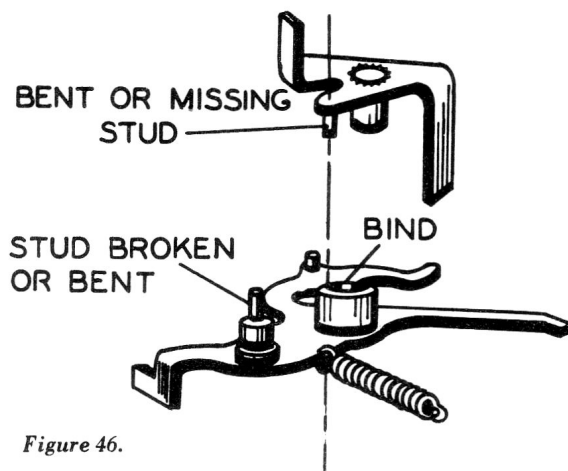


Figure 46.

Weak director lever (main lever) spring (Ill. No. 42) or excessive tension on muting switch may cause poor unlatching action and erratic pickup landing.

A drop of cement (Duco Household Cement or similar) applied to the ends of springs will prevent their becoming unhooked. Use care to prevent cementing turns of the springs.

## RECORD DROP ON OR HIT PICKUP ARM

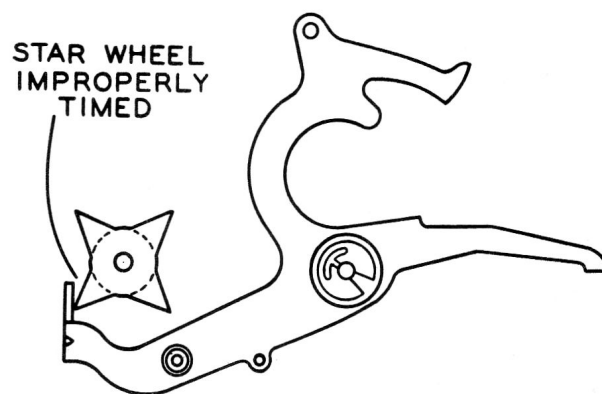


Figure 48.

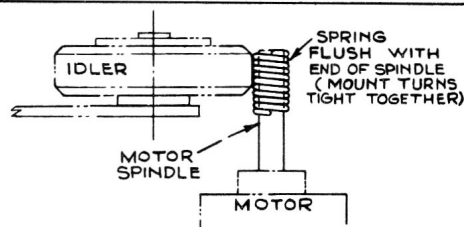


Figure 49—Spring Sleeve Installed on 60-Cycle Motor Spindle for Operation on 50-Cycle Supply.

## CHANGE IN STYLUS COLOR CODE

The identification color on the bottom of the stylus holder has been changed to provide identification of a factory process.

Stylus Stock No. S-5413

Used in pickup Stock No. 74067 (RMP 128-1). Identification color may be either WHITE, BLACK or RED.

Stylus Stock No. S-5529

Used in later production pickup Stock No. 74067. Identification color may be either BLUE or GREEN.

Pickup Stock No. 74466 (RMP 130-1) uses a stylus (Stock No. 74622) which has a BLACK paint coding. It is used only with Model CP-5203.

## EXTENDED PLAY "EP" RECORDS—45 RPM

## A. GENERAL

The "Extended Play" records have increased playing time, which is made possible by recording to a smaller diameter. "Extended Play" records may be recorded to a minimum diameter of 4.25", or  $1\frac{3}{8}$ " from the side of the centerpost of the record player.

## B. RECORD CHANGER PRE-TRIPPING

The record changer arm should trip when the stylus tip is  $1\frac{9}{32}$ " from the centerpost. Record changers which are adjusted to this specification will operate correctly with "EP" records.

Changers which have been improperly adjusted, or which have been adjusted to trip earlier on standard records, may trip at a diameter greater than 4.25". The player may not, therefore, reproduce the ending

passages of the modulated grooves of those records which have been recorded to the minimum diameter. When this condition occurs, a tripping adjustment is indicated.

## C. REVIEW OF RCA VICTOR 45 RPM RECORD CHANGER TRIPPING ADJUSTMENTS.

Tripping adjustments for these record changers are shown on the other side of this sheet. Before making an adjustment, cycle and test the mechanism to determine that it is otherwise operating normally, and that an adjustment is necessary. To measure the tripping distance conveniently, the back of a stroboscope disc can be marked off at  $1\frac{9}{32}$ " from the center hole, or a  $4\frac{1}{16}$ " diameter circle can be inscribed about the center hole.

## 1. RP-168 CHANGER

Assemble pickup arm and trip lever assemblies as shown. Leave clamping screw (57) loose enough to permit trip lever horizontal movement on the shaft. Turn eccentric landing adjustment stud screw to determine outward and inward adjustment limits, and then set half-way. Hold the trip lever and move pickup arm inward or outward until mechanism trips when stylus is  $1\frac{9}{32}$ " from the centerpost. Tighten clamping screw after determining correct adjustment.

