RCA VICTOR

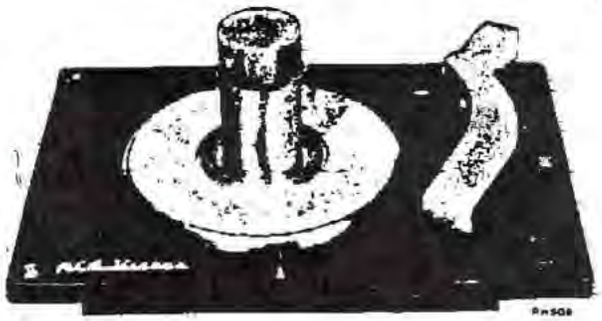
RP-168 Series

45 R.P.M. Automatic Record Changer

Mfr. No. 274

SERVICE DATA

—1949 No. 5—



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

TYPE AND MODEL IDENTIFICATION

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the type of pickup arm rest, the original design used a visible rest on the motorboard or instrument cabinet which has been replaced by a rest on the sub-base.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.

Five different pickups are in use: Two (2) crystal pickups, one (1) magnetic pickup and two (2) ceramic pickups. A listing of pickup vs. instrument model is given on page 14.

BECAUSE OF THE DIFFERENCES MENTIONED ABOVE, THE LABEL OR STAMPING ON THE SUB-BASE DOES NOT PROVIDE SUFFICIENT IDENTIFICATION FOR ORDERING REPLACEMENT PARTS.

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

The RP 168 Series record changer is used in the following instrument models:

RECORD PLAYER ATTACHMENTS
9HY, CP-5203, 45J, QHY

RECORD PLAYERS (without radio)
9EY3, 9EY31, 9EY32, 9EY35, 9EY36, 45EY, QEY3, 45EY1, 45EY15

RADIO-PHONOGRAPH COMBINATIONS
9QV5, 9W51, 9W78, 9W101, 9W102, 9W103, 9W105, 9W106, 9Y7, 9Y51, A55, A78, A106, A82, A91, A108, 9Y511, 4QV8C, 6QU3Y

RADIO-PHONOGRAPH-TELEVISION COMBINATIONS
9TW309, 9TW333, 9TW390, TA128, TA129, TA169, S1000
2T81, 6T84, 6T86, 6T87, 9T89

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.
5. At conclusion of playing and as the last record is being repeated, lift the pickup arm and place on its rest. Turn off the power to the drive motor.
6. Remove the stack of records by lifting them straight up.

SPECIFICATIONS

Turntable speed	45 r.p.m.
Records used	RCA seven-inch fine groove
Record capacity	Up to 10 records
Pickup force	5 grams
Stylus tip radius	.001 inch
Type of pickup	Ceramic, crystal or variable reluctance (magnetic)
Power supply	105-125 volts, 60 cycle, a.c.

(May be converted for use on 50 cycle power supply.)

CAUTION

1. Avoid handling the pickup 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.

During service, the position of the star wheel on the underside of the record changer may be accidently shifted; this may cause the separator knives to be extended when they should be concealed.

If the separator knives are thus extended — turn the power on so that the turntable is revolving, push the "start-reject" knob and allow the mechanism to complete a change cycle. If the knives continue to be extended — while the turntable is still revolving, gently press fingers against the extended knives until they disappear inside the center post. DO THIS ONLY WHILE MECHANISM IS OUT OF 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.

Function	Operator	Automatic Cycle
Place records the center post turn the powe		
	Push start-reject knob	
		Pickup arm rises
		CYCLING CAM

Figure 3.

Figure 5.

Pickup arm moves out

Third Edition—Third Printing
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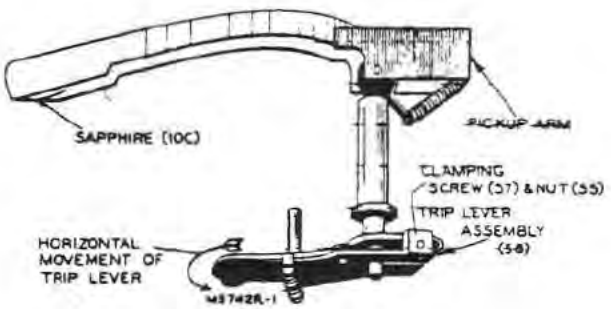


Figure 38.

3. 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.
4. 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.
5. After this position has been obtained, tighten the clamping screw (57) and recheck the tripping position and vertical end play.

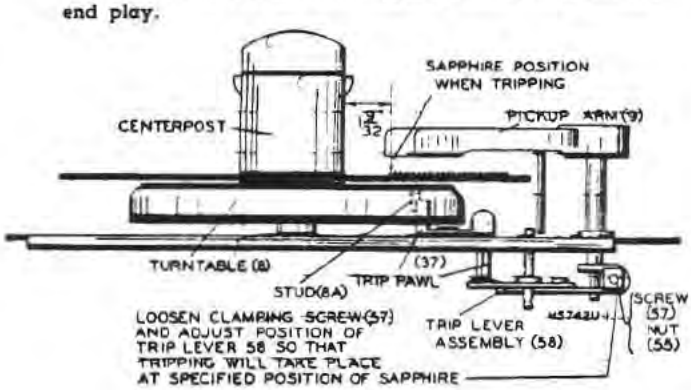


Figure 39—Tripping Position.

Landing Adjustment:

1. 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 $2\frac{5}{8}$" from the turntable spindle. The location of the adjustment stud is illustrated in Figure 42.

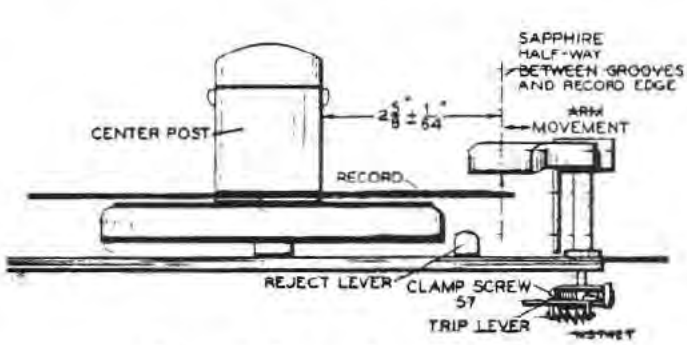


Figure 40—Landing Position.

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.

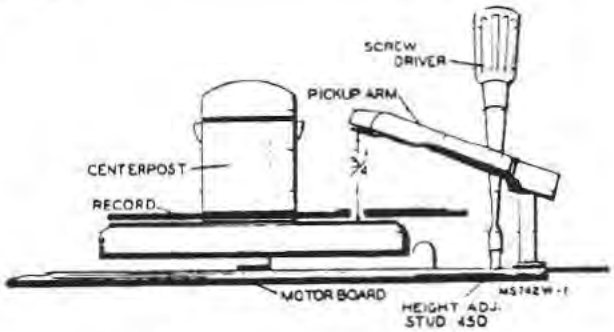


Figure 41—Height Adjustment.

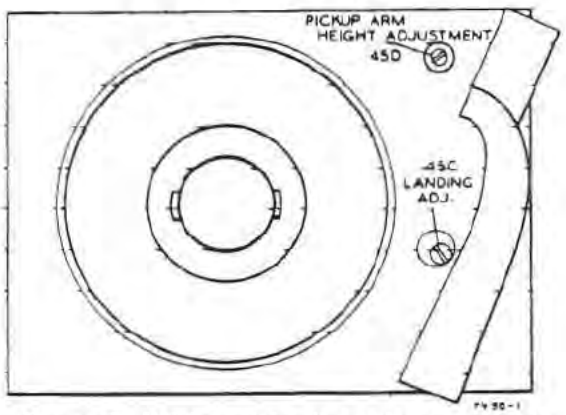


Figure 42—Height and Landing Adjustment Studs.

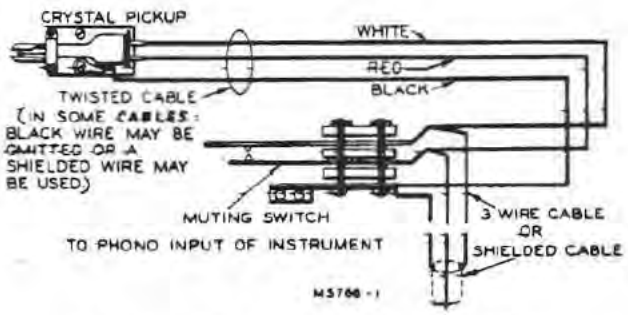


Figure 43—Pickup Muting Switch Wiring.

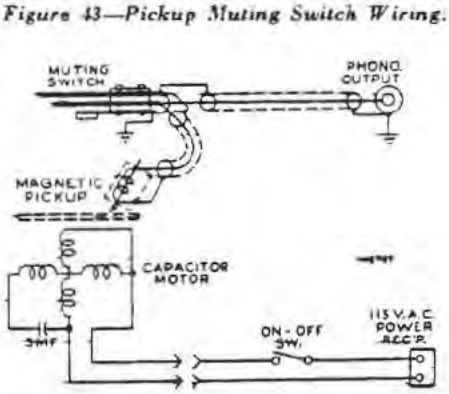


Figure 44—Schematic Diagram (Model CP-5203).

REPEATS GROOVES

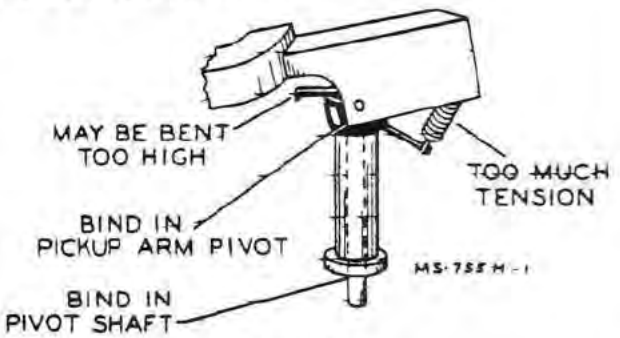


Figure 45.

CONTINUOUS TRIPPING

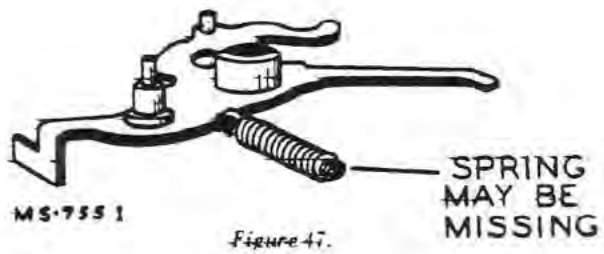


Figure 47.

FAILS TO GO INTO CYCLE

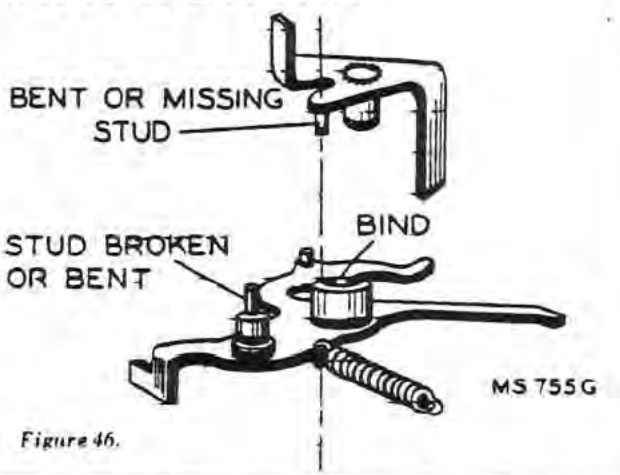


Figure 46.

RECORD DROP ON OR HIT PICKUP ARM

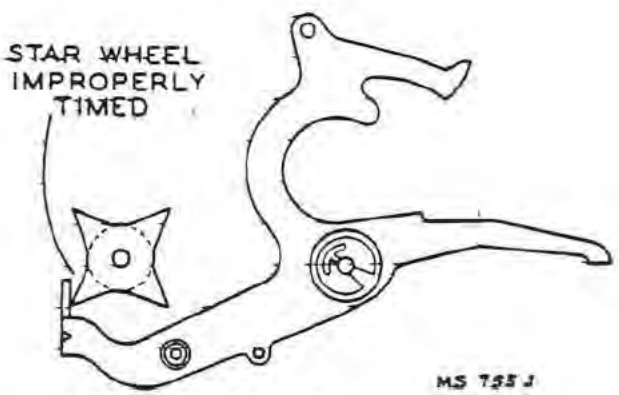


Figure 48.

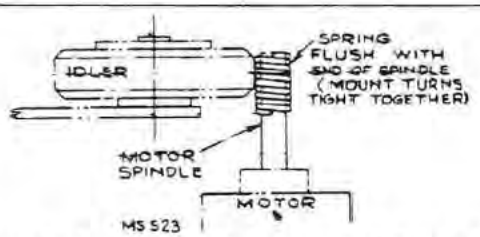


Figure 49—Spring Sleeve Installed on 60-Cycle Motor Spindle for Operation on 50-Cycle Supply.

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.

PICKUP UNIT vs. INSTRUMENT MODEL

It is important to use the correct pickup unit. The receiver chassis has compensation designed for one pickup and may be incorrect for other pickups.

Pickup Stock No. 74067 (RMP 128-1) uses a stylus (Stock No. 74068) which has a WHITE paint coding. It is used with the following instruments: 9EY3†, 9EY35, 9EY36, 9JY*, 9TW333, 9TW390, 9W101, 9W102, 9W103, 9W105, 9Y7, 45EY†, 45EY1, 45EY15 and 45J*.

Pickup Stock No. 74625 (RMP 128-2) uses a stylus (Stock No. 74818) which has a BLUE paint coding. It is used with the following instruments: A55, A76, A105, TA128, TA129, TA169, 9EY3†, 9EY31, 9EY32, 9TW309, 9W51, 9W78, 9W106, 9Y51, 45EY†, S1000, A82, A91, A108, 9Y511, 4QV8C, 6QU3Y, 2T84, 6T86, 6T87 and 9T89.

* Models 9JY and 45J.

No. 74067 pickup is recommended as replacement although No. 74625 has been used as a substitute in some instruments.

The characteristics of the two pickups differ in that No. 74067 has a greater output in the middle audio frequencies. The response of No. 74625 is more "flat" and has a greater output at high audio frequencies.

† Models 9EY3 and 45EY.

Use No. 74067 pickup in conjunction with RS132, RS132E or RS132F amplifier.

Use No. 74625 pickup in conjunction with RS132A amplifier.

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.

Pickup Stock No. 74984 is a ceramic pickup used only with Models QJY, QEY3 and 6QU3Y.

Pickup Stock No. S-5578 is a ceramic pickup used with Models 9QV5 and 4QV8C.

CHANGE IN STYLUS COLOR CODE

The identification color on the bottom of the stylus holder of Stock Nos. 74068 and 74818 has been changed to provide identification of a factory process.

Stylus Stock No. 74068

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

Stylus Stock No. 74818

Used in pickup Stock No. 74625 (RMP 128-2). Identification color may be either BLUE or GREEN.

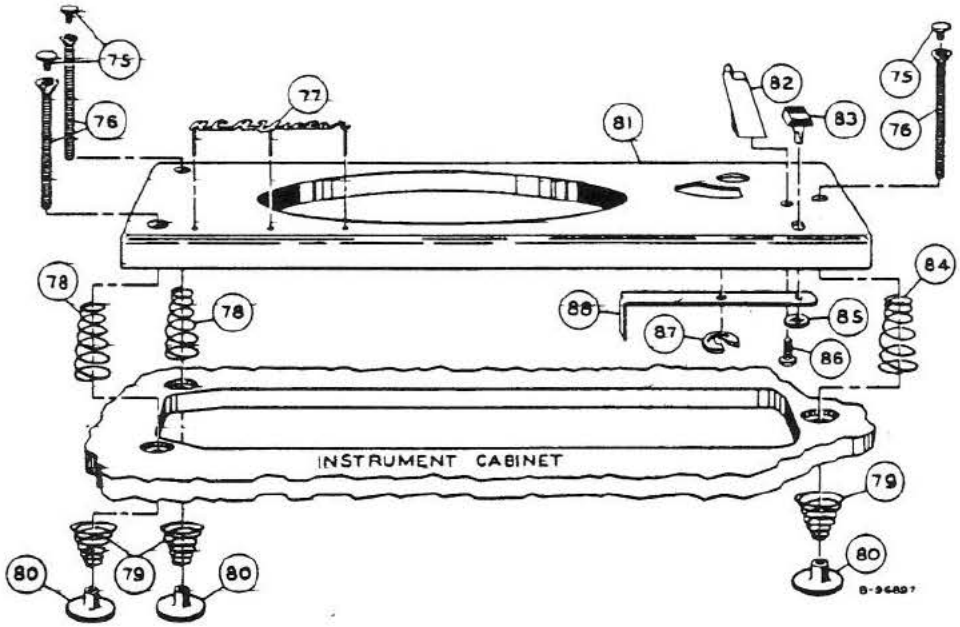


Figure 23
Motorboard Assemblies.

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.

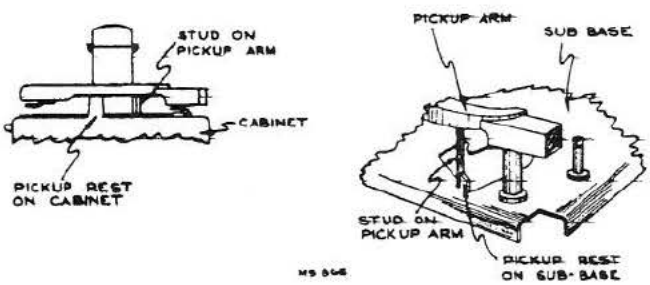


Figure 24—Pickup Arm Rest.

Sub-base Mounting:

The sub-base is attached directly to metal motorboards and to the cabinets of Models 9JY, QJY and 45J with three screws and three washers. No grommets or spacers are used except with Models 9EY31 and 9EY32.

~~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.

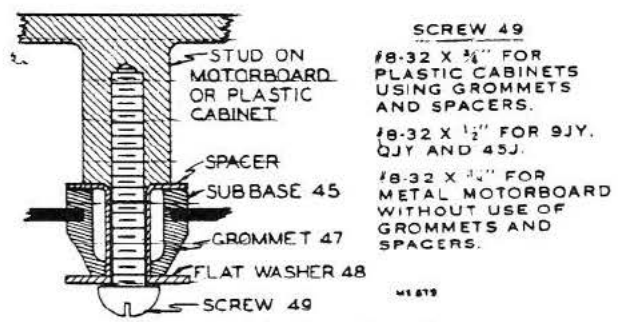
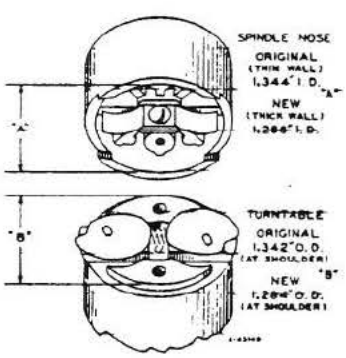


Figure 25—Sub-base Mounting.

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.*

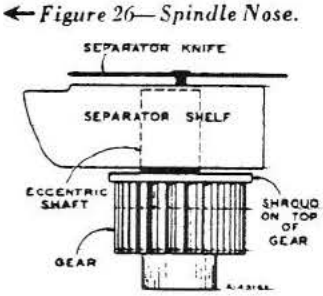


Figure 27—
Separator Assembly.

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 assemb~~lies (Stock No. 74096, Ill. Nos. 5 and 6) 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).

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 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).

Polarized Motor:

On some instruments the connection of the power leads of the motor should not be reversed. The leads are color coded and reversed leads may introduce objectionable hum. The record changer mechanisms using this motor are labeled RP 168B-6 or RP 168D-2 and are used with Models 45-EY and 45-EY-1.

Replacement motors (Stock No. 74071) may not be color coded and in such cases it will be necessary to determine the correct connection by trial.

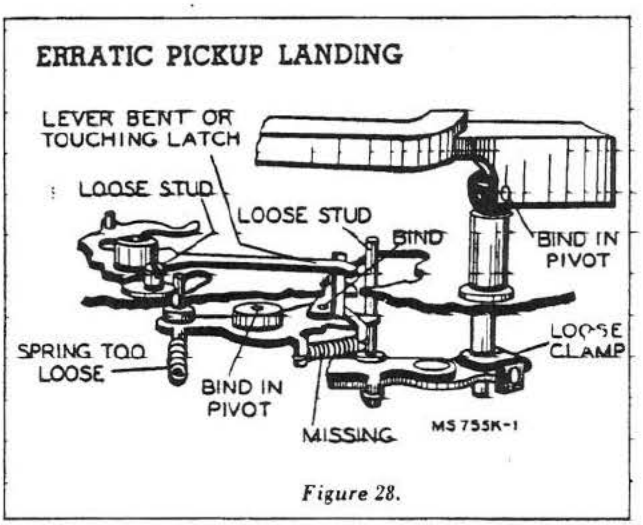


Figure 28.

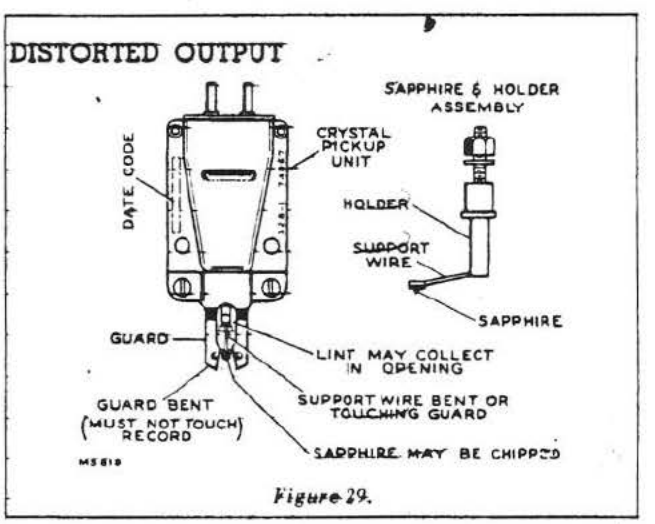


Figure 29.

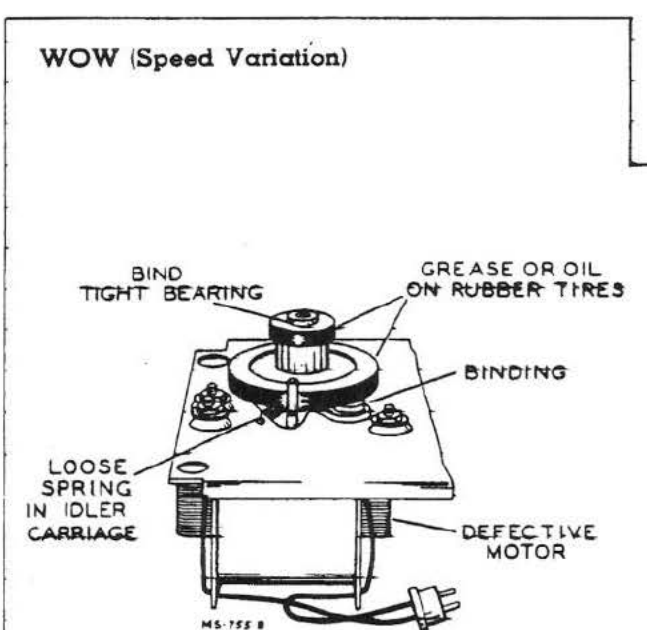


Figure 30.

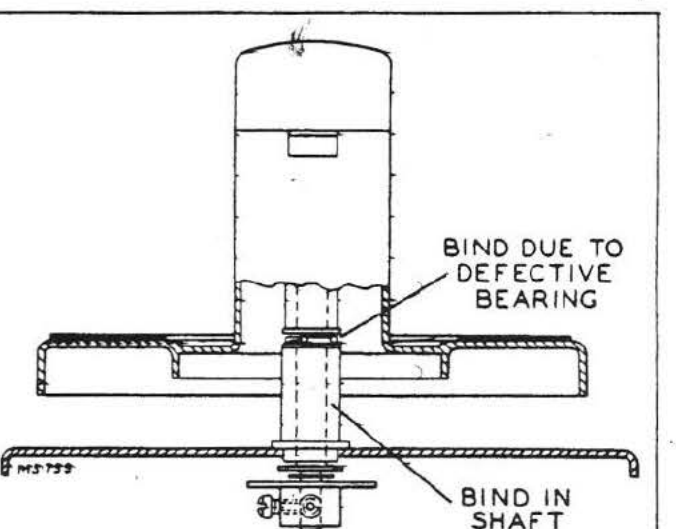


Figure 31.

SERVICE HINTS CONTINUED ON PAGE 14

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 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.

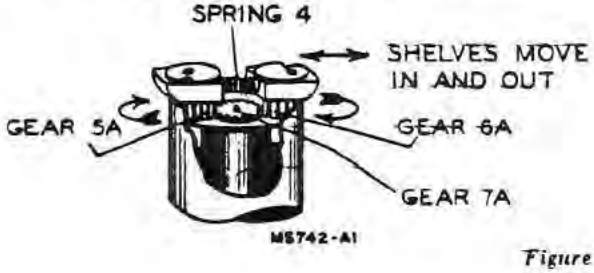


Figure 32.

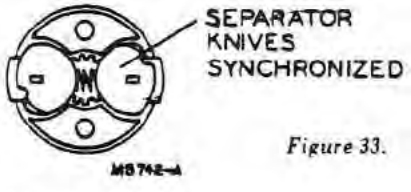


Figure 33.

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° to the starting position as indicated in Figure 33.

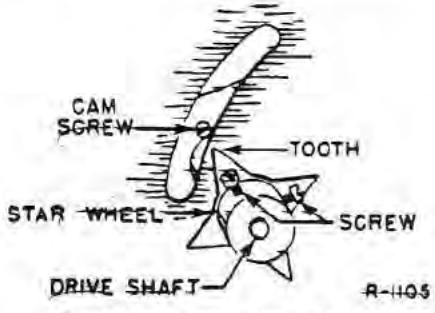


Figure 34—Star Wheel Timing.

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 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.

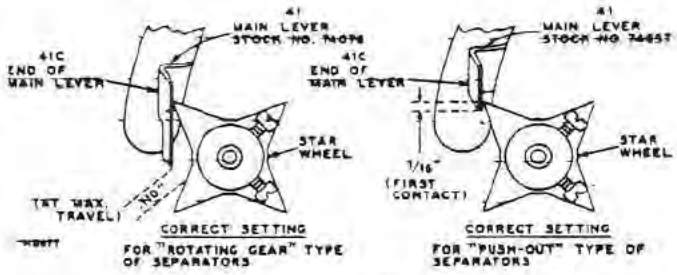


Figure 35- Setting of Director Lever.

Pivot Screw Adjustment:

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

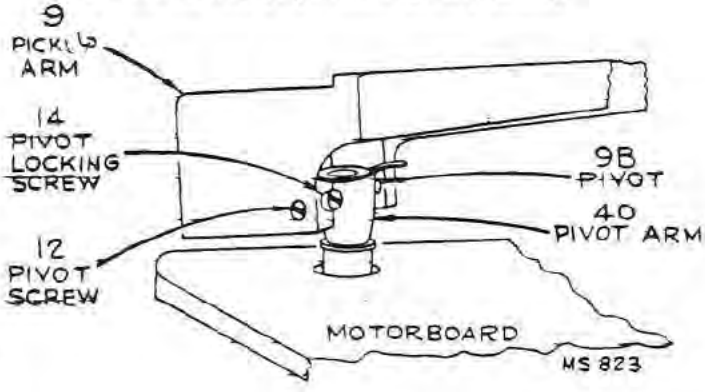


Figure 36.

Sapphire Height Adjustment (Out of Cycle):

Bend the lug on the pivot arm (40) so that the sapphire point is approximately 1/16" above the motorboard.

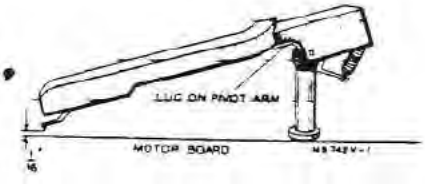


Figure 37.

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.

STOCK No.	Ill. No.	DESCRIPTION
		SUB-BASE ASSEMBLIES
74256	16	Washer—Vellutex washer (pivot arm shaft bearing washer)
74080	17-19	Washer—Washer for turntable bearing
72348	18	Bearing—Turntable thrust bearing
72688	20	Washer—"C" washer—turntable assembly retainer
74079	22	Stud—Idler wheel mounting stud—for Sub-base Types I, II, III, IV, early VI, and early VII
74078	23	Washer—Dampening washer for idler wheel—top
74077	24	Wheel—Idler wheel for all except Model CP-5203
74470	24	Wheel—Idler wheel for Model CP-5203
74858		Hardware—Motor mounting hardware consisting of:
	25	Three hex nuts
	26	Three lockwashers
	27	Three flat washers
	28	Three spacers
	29	Three grommets
74089	30	Spring—Idler wheel tension spring (.195" O.D. x .583"—14 turns)
35969	34	Washer—"C" washer to retain pickup arm lift lever
74073	35	Lever—Pickup arm lift lever for mechanisms without dashpot
74757	35	Lever—Pickup arm lift lever for mechanisms with dashpot
——	35	Lever—Two piece pickup arm lift lever (use No. 74073 or No. 74757 for replacement)
74805	—	Spring—Tension spring for two piece pickup arm lift lever (.170" O.D. x 3/4")
33726	36	Washer—"C" washer to retain trip pawl
74072	37	Pawl—Trip pawl
74453	—	Washer—Bearing washer between trip pawl (Ill. No. 37) and trip pawl lever (Ill. No. 66)
35969	38	Washer—"C" Washer to retain main lever
74076	41	Lever—Main lever (director lever) for use with turntables having rotating gear record separators
74857	41	Lever—Main lever (director lever) for use with turntables having push-out record separators
74084	42	Spring—Main lever spring (.195" O.D. x .800"—27 1/4 turns)
——	43	Screw—Screw to mount muting switch (No. 6-32 or No. 6 self tapping)
——	44	Washer—No. 6 lockwasher used with Item 43 (No. 6-32 screw)
74070	45	Base—Sub-base assembly complete with all staked and riveted parts, including idler lever and reject lever—Type I without pickup rest
74743	45	Base—Sub-base assembly complete with all staked and riveted parts, including idler lever and reject lever—Type III with pickup rest
74468	45	Base—Sub-base assembly complete with all staked and riveted parts, including idler lever and reject lever—less No. 74473 Bracket—Type IV—for RP-168-2—used only on Model CP-5203
74471	—	Bracket—Metal bracket with power input connector and audio output jack—RP168-2 only
74856	45	Base—Sub-base assembly complete with all staked and riveted parts—less idler lever and reject lever—Type V—with pickup rest
74803	45	Base—Sub-base assembly complete with all staked and riveted parts, including idler lever—less reject lever—Type VI—with pickup rest
75652	45	Base—Sub-base assembly complete with all staked and riveted parts—for mechanisms labeled RP 168D-1 or RP 168D-2 (same as Type V except having cut-out for clearance of motorboard switch)
74860	45A-1	Lever—Reject lever — bottom section — for sub-base Types V, VI, and VII
74861	45A-2	Lever—Reject lever—top section—for sub-base Types V, VI, and VII
74814	45B	Plate—Idler wheel mounting plate and stud—for sub-base Type V
74870	45B-1	Retainer—Idler wheel retainer (spring sleeve) for use with No. 74814 plate (45B)
75081	45B-1	Retainer—Idler wheel retainer (horseshoe washer) for use with sub-base Types VI and VII (late production)
74804	45B-2	Washer—Idler wheel bearing washer (1/2" O.D. x .185" I.D. x .032" thick) for sub-base Types VI and VII (late production)
74430	45C	Stud—Eccentric stud for landing adjustment
74429	45D	Stud—Eccentric stud for height adjustment
74082	45E	Washer—Felt washer (1/2" O.D. x 1/4" I.D. x 3/16" thick)
74086	46	Spring—Reject lever spring (.203" O.D. x 13/16"—34 3/4 turns) for sub-base having one piece reject lever—1 required
74427	46	Spring—Reject lever spring (.203" O.D. x .531"—13 turns) for sub-bases having two piece reject lever—2 required
74074	50	Lever—Return lever (includes spring Ill. No. 51)
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)
——	54	Washer — To clamp trip lever
——	55	Nut — (Ill. No. 58) to pivot
——	56	Washer — arm shaft (Ill. No. 40)
——	57	Screw —
74099	58	Lever—Trip lever (includes Items 54, 55, 56, 57 and 59)
74426	59	Spring—Trip lever spring (.171" O.D. x .595"—30 turns)
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
74088	63	Switch—Muting switch
——	64	Screw—No. 8 x 1/4" self tapping screw
33726	65	Washer—"C" washer to retain trip pawl lever
74245	66	Lever—Trip pawl lever
74100	67	Spring—Trip pawl take up spring (.195" O.D. x 5/8"—20 1/2 turns)
——	68	Clamp—Cable clamp
74078	69	Washer—Dampening washer for idler wheel (bottom)
——	70	Washer—No. 4 lockwasher for idler mounting stud (Ill. No. 22)
——	71	Nut—No. 4-40 hex nut for idler wheel mounting stud (Ill. No. 22)
——	72	Washer—Part of No. 74132—see Ill. No. 27
74071	73	Motor—115 volt, 60 cycle motor complete with connector—shaded pole type. Not suitable for 50 cycle conversion
74624	73	Motor—115 volt, 60 cycle motor complete with connector and No. 73158 spring sleeve (for 50 cycle conversion), shaded pole type
74469	73	Motor—115 volt, 60 cycle motor complete with connector and 5 mf. capacitor—for RP 168-2 only
74621	—	Capacitor—Motor capacitor (5 mf.) for No. 74469 motor
30870	74	Connector—Two prong male plug (connector) for motor cable
73158	—	Spring—Spring sleeve to convert motors No. 74624 to 50 cycle operation
——	89	Screw—No. 8 x 1/4" self tapping screw
74859	90	Clamp—To mount dash-pot
74428	91	Dash-pot—Pneumatic dash-pot complete with plunger
74431	92	Washer—"C" washer for mounting adjustment studs No. 74429 (Ill. No. 45D) and No. 74430 (Ill. No. 45C)
		PICKUP ARM ASSEMBLIES
74041	9	Arm—Pickup shell and stud—with pivot (9B) and lead counter-balance—Type I for use with rest on motorboard
74443	9	Arm—Pickup arm shell and stud—with pivot (9B) and lead counter-balance—for Model CP-5203 only—black finish
74824	9	Arm—Pickup arm shell and stud—with pivot (9B) and lead counter-balance—Type II for use with rest on sub-base
75058	9	Arm—Pickup arm shell and stud—with pivot (9B) and lead counter-balance—for Model 45EY only—two-tone finish
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
74796	9	Arm—Pickup shell and stud—with pivot (9B)—less balance spring—Type V—for use with either type of pickup rest
75996	9	Arm—Pickup arm shell and stud—with pivot (9B) and lead counterbalance—Type II—for use with rest on sub-base—for Model 45-EY-1—Maroon finish
74061	9B	Pivot—Pickup arm pivot—for use with arms No. 74041, No. 74443, No. 74824, and No. 75058 only (arms stamped 970488)
74067	10	Pickup—Crystal pickup cartridge complete including sapphire and guard—RMP 128-1
74625	10	Pickup—Crystal pickup cartridge complete including sapphire and guard—RMP 128-2
74466	10	Pickup—Magnetic pickup cartridge complete with stylus—for Model CP-5203 only
74984	10	Pickup—Ceramic pickup cartridge complete with stylus—for Models QJY and QEY3
*S-5578	10	Pickup—Ceramic pickup cartridge complete with stylus—for Model 9QV5
74065	10A	Screw—No. 2-56 x 3/16" fillister head screw to mount No. 74067 or No. 74625 crystal pickups or No. S-5578 ceramic pickup
74464	10A	Screw—No. 2-56 x 1/4" fillister head screw to mount No. 74466 pickup (Model CP-5203)
74986	10A	Screw—No. 2-56 x 3/16" screw for mounting No. 74984 pickup (Models QJY and QEY3)
74069	10B	Guard—Stylus guard for No. 74067 pickup (RMP 128-1)
74819	10B	Guard—Stylus guard for No. 74625 pickup (RMP 128-2)
74068	10C	Sapphire—Sapphire and holder (WHITE) for No. 74067 pickup (RMP 128-1)
74818	10C	Sapphire—Sapphire and holder (BLUE) for No. 74625 pickup (RMP 128-2)
74622	10C	Stylus—Diamond stylus and holder for No. 74466 pickup (Model CP-5203)
74985	10C	Stylus—Stylus and holder for No. 74984 pickup (Models QJY and QEY3)
74230	10D	Washer and Nut—to mount No. 74068 or No. 74818 stylus
74065	11	Screw—No. 2-56 x 3/16" fillister head screw to mount stylus guard on No. 74067 or No. 74625 pickups
74062	12	Screw—No. 8-32 x 13/32" cone point pivot adjusting screw
72765	13	Nut—Speed nut to hold pickup arm cable
74801	—	Clip—Spring clip to hold pickup arm cable (used only on pickup arm Type V and VI No. 74796)
74410	14	Screw—No. 4-40 x 3/16" fillister head screw to lock pivot screw No. 74062
74066	15	Cable—3-wire twisted pickup arm cable complete with connectors
74465	15	Cable—Shielded pickup arm cable complete with connectors—Model CP-5203 only
*S-5580	15	Cable—Shielded pickup arm cable complete with connectors—Model 9QV5 only
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)
74426	39	Spring—Counter-balance spring (.171" O.D. x .595"—30 turns) for Model 9QV5 only
74461	39	Spring—Counter-balance spring (.185" O.D. x .695"—29 1/4 turns) for Model CP-5203 only
74798	39	Spring—Counter-balance spring (5/8" O.D.—11 turns) for Pickup Arm Types V and VI (Stock No. 74796)
74797	—	Nut—Speed nut to hold No. 74798 spring in Pickup Arm Types V and VI
75074	—	Weight—Lead counter-balance weight for Pickup Arm Types III and IV
——	—	Screw—No. 4-40 round head screw to hold No. 75074 weight to No. 75073 Arm

REPLACEMENT PARTS—Continued

STOCK No.	ILL. No.	DESCRIPTION
74059	40	Arm—Pivot arm and shaft for use with all pickup arms having lead counter-balance except Model CP-5203
74744	40	Arm—Pivot arm and shaft for Model CP-5203 only
74799	40	Arm—Pivot arm and shaft for use with Pickup Arm Types V and VI
74802	–	Screw—No. 4 x 9/16" oval head counter-balance adjusting screw for use with No. 74799 pivot arm
74800	–	Bumper—Rubber bumper for No. 74799 pivot arm
		TURNTABLE ASSEMBLIES
74090	1	Nose—Spindle nose—RED (early type—thin wall) for Turntable Type I
74620	1	Nose—Spindle nose—RED (late type—thick wall) for Turntable Type I or II
74863	1	Nose—Spindle nose—RED—for Turntable Type III
74472	1	Nose—Spindle nose—BLACK—for Turntable Type I
74795	1	Nose—Spindle nose—BLACK—for Turntable Type III
74091	2	Spring—Spindle nose spring—formed—for spindle nose No. 74090, No. 74620, or No. 74472
74862	2	Spring—Spindle nose spring—formed wire—for spindle nose No. 74863 or No. 74795
——	3	Screw—No. 6-32 round head machine screw for spindle nose spring No. 74091
74095	4	Spring—Separator shelf return spring (.180" O.D. x 1 1/16"—10 turns) for Turntable Types I and II
74866	4	Spring—Separator shelf return spring (.118" O.D. x 3/4"—16 turns)—two required—for Turntable Type III
74096	5-6	Separator—Separator knife, shelf and gear assembly for Turntable Types I and II
74865	5-6	Shelf—Separator shelf for Turntable Type III
74864	5B 6B	Separator—Separator knife for Turntable Type III
74092	7	Shaft—Star wheel shaft and gear assembly for Turntable Types I and II
74867	7	Shaft—Star wheel shaft with cam for Turntable Type III
33726	–	Washer—"C" washer for top of No. 74867 shaft
74042	8	Turntable—Turntable with TAN MARBLEIZED mat—Type I—use No. 74090 RED nose (thin wall)
75065	8	Turntable—Turntable with TAN MARBLEIZED mat—Type I—use No. 74620 RED nose (thick wall)
74813	8	Turntable—Turntable with TAN MARBLEIZED mat—Type III—use No. 74863 RED nose
74445	8	Turntable—Turntable with BLACK mat—Type I—use No. 74472 BLACK nose
75145	8	Turntable—Turntable with RED mat—Type I—use No. 74472 BLACK nose
75059	8	Turntable—Turntable with RED mat—Type III—use No. 74795 BLACK nose
75997	8	Turntable—Turntable with MAROON mat—Type III—use No. 74863 RED nose
75998	8C	Mat—Turntable mat—MAROON
74094	8C	Mat—Turntable mat—TAN MARBLEIZED
74471	8C	Mat—Turntable mat—BLACK
74794	8C	Mat—Turntable mat—RED
——	21	Screw—No. 6-32 x 1 3/4" fillister head screw (holds nose to spindle) two required for Turntable Type I
74868	21	Screw—No. 6-32 x 1 5/8" fillister head screw (holds nose to spindle) two required for Turntable Types II and III
74869	21A	Washer—No. 6 flat washer (for use under No. 74868 screw—two required for Turntable Types II and III
——	31	Screw—No. 4-40 x 3/8" fillister head screw (for use with cam, Ill. No. 33)—two required for Turntable Type I
——	32	Washer—No. 4 lockwasher—for use with cam (Ill. No. 33)—two required for Turntable Type I
74231	33	Cam—Follower cam for Turntable Type I
		MOTORBOARD ASSEMBLIES
74623		Hardware—To mount sub-base to plastic cabinet of Models 9EY3, 9EY35, 9EY36, 9YS1, 45EY and QEY3 or sub-base to motorboard of Models 9EY31 and 9EY32, consisting of:
	47	Three (3) grommets
	–	Three (3) spacers
	48	Three (3) flat washers
——	49	Screw—No. 8-32 x 3/4" —for Models 9EY3, 9EY35, 9EY36, 9YS1, 45EY and QEY3
——	49	Screw—No. 8-32 x 1/2" —for 9JY, 45J and QJY
——	49	Screw—No. 8-32 x 3/8"—for instruments using spring mounting of motorboard
74209	75	Cover—Mounting screw cover (threaded type—3 required)—use with No. 74424 screw (Ill. No. 76)
74581	75	Cover—Mounting screw cover (plug-in type—3 required)—use with No. 74582 screw (Ill. No. 76)
74424	76	Screw—No. 8-32 x 1 3/4" special screw (with tapped hole) for mounting record changer (3 required)—use with No. 74209 cover (Ill. No. 75)
74582	76	Screw—No. 8-32 x 1 3/4" special screw (non-tapped hole) for mounting record changer (3 required)—use with No. 74581 cover (Ill. No. 75)
75057	76	Screw—No. 8 x 7/8" oval head wood screw for mounting record changer (3 required)—for Models 9EY31 and 9EY32
73549	77	Emblem—"RCA Victor" emblem—metal
74674	77	Emblem—"RCA Victor" emblem—plastic
74422	78	Spring—Conical spring for mounting record changer—upper L.H. side (2 required)
74423	79	Spring—Conical spring for mounting record changer—bottom (3 required)
74208	80	Nut—Tee nut for mounting record changer (3 required)
74184	81	Motorboard — Motorboard complete with welded brackets and stud—less rest and operating parts—for all models with motorboard rest except CP-5203, 9EY31 and 9EY32
74444	81	Motorboard — Motorboard complete with welded brackets and stud—less operating parts—for Model CP-5203
75076	81	Motorboard — Motorboard complete with welded brackets and stud—less rest and operating parts—for Models 9EY31 and 9EY32
74987	81	Motorboard — Motorboard complete with welded brackets and stud—less operating parts—for all models without motorboard rest
74185	82	Rest — Pickup arm rest — maroon — for all models (where required) except CP-5203, 9EY31 and 9EY32
74446	82	Rest—Pickup arm rest—black—used on Model CP-5203 only
75077	82	Rest—Pickup arm rest and latch—for Models 9EY31 and 9EY32
74210	83	Knob—Reject control knob—maroon
74467	83	Knob—Reject control knob—black
74421	84	Spring—Conical spring for mounting record changer—upper R.H. side (1 required)
74212	85	Nut—Speed nut for reject control knob
——	86	Screw—No. 6 self-tapping screw
33726	87	Washer—"C" washer for mounting reject lever actuating lever
74211	88	Lever—Reject lever actuating lever
74474	–	Switch—"ON-OFF" switch—used on Model CP-5203 only
32875	—	Switch—"ON-OFF" switch—used on Models A-82, A-91, A-108, 2-T-81, 6-T-84, 6-T-86, 6-T-87 and 9-T-89

Two different main levers (director lever) are used, depending upon which turntable assembly is used. Lever (41) Stock No. 74075 has a long end (41C) and is used with Turntables Type I and II. Lever (41) Stock No. 74857 has a short end and is used with Turntable Assembly Type III.

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

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

* Stock Nos. S-5578 and S-5580 are for use in instruments manufactured for RCA International Division and are not stocked by distributors in the U. S. A.

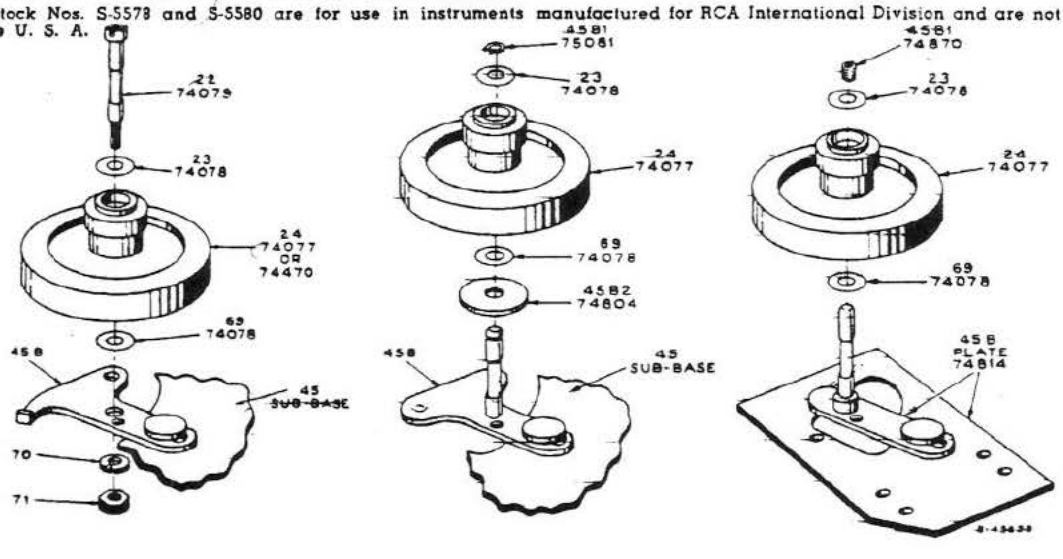
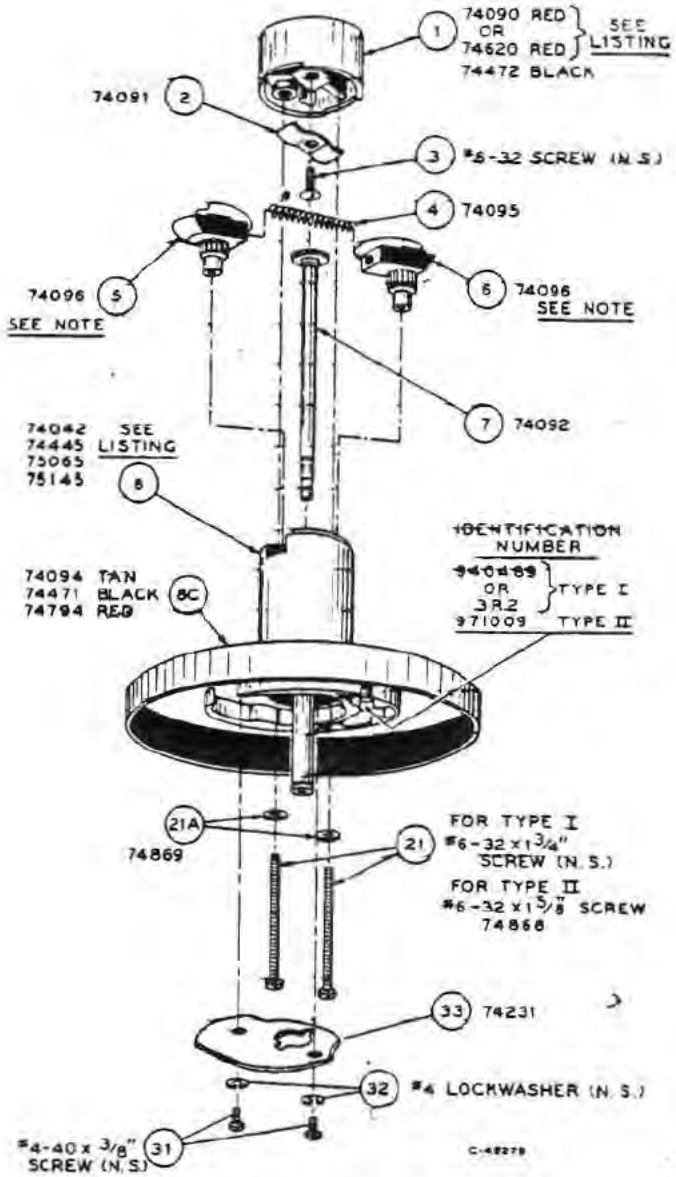


Figure 19—Idler Wheel Mounting.



ON TYPE II TURNTABLES THE CAM (33) IS CAST INTEGRAL WITH THE TURNTABLE (8)

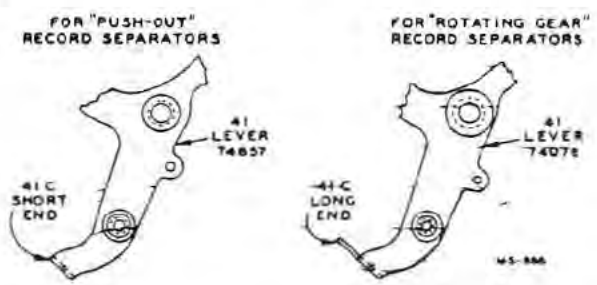
Figure 20—Turntable Assemblies, Types I and II.

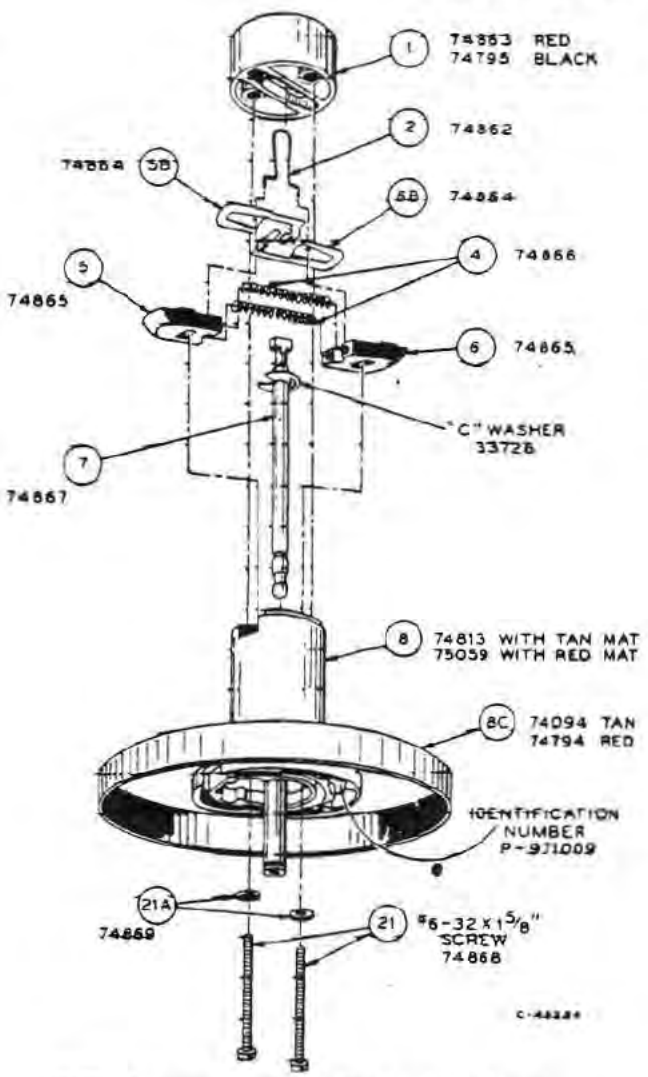
Main Lever vs Record Separators:

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.





NOTE: Use care in dis-assembly 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. 74471 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

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.

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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).

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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.

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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.

SERVICE HINTS

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 and 74625)

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.

VARIABLE RELUCTANCE PICKUP (Stock No. 74456)

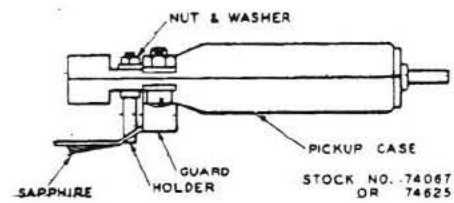
To remove the stylus assembly, insert a bent paper clip or equivalent tool into the stylus stud pin socket at point "A." Press the assembly out from the cartridge with the tool as shown by the arrow in the illustration below.

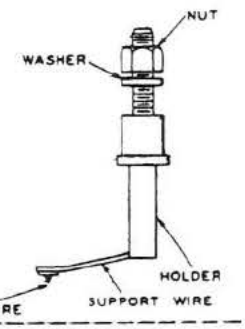
To replace the stylus assembly, insert the stud pin into the recess "A," with the locating tab positioned above the locating slot "B" between the two pole pieces. Press assembly in firmly by applying pressure upon the stud pin at point "C" with a blunt tool. Care must be taken to press assembly only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

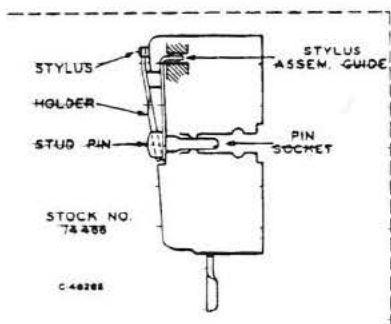
CERAMIC PICKUP (Stock No. 74984)

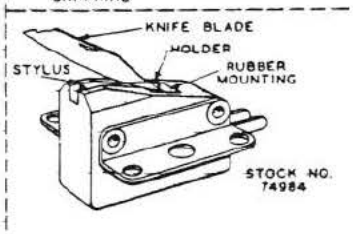
To remove stylus, insert the point of a knife blade between the stylus wire and the case. The stylus may be pried out of its rubber mounting with a twisting motion of the knife blade.

To replace stylus, push end of stylus wire down into its rubber mounting. Be certain that the stylus is centered in the groove of the pickup case.









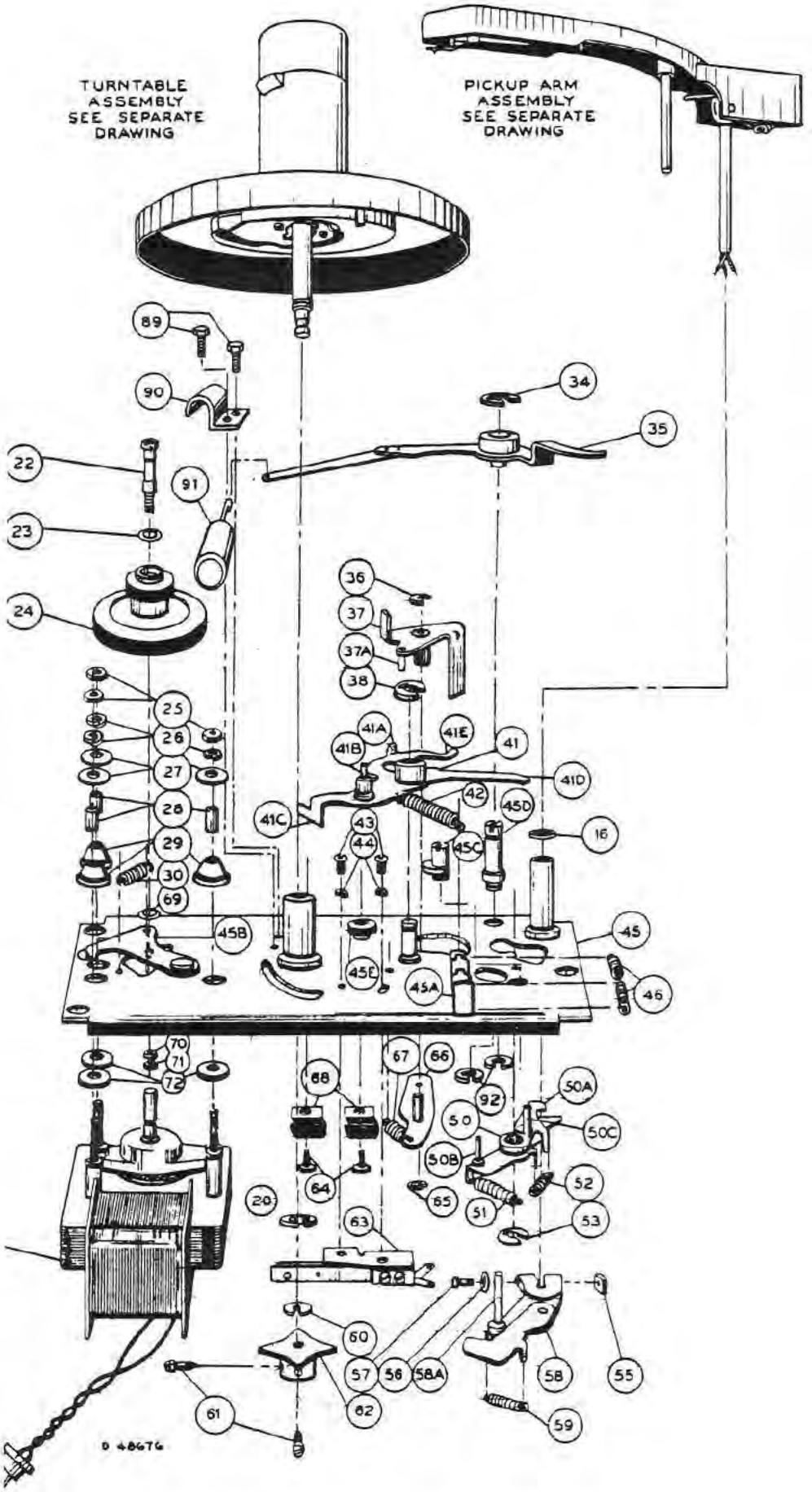
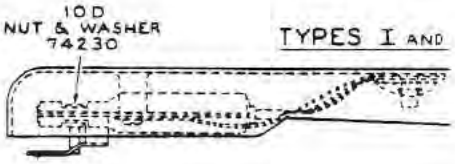
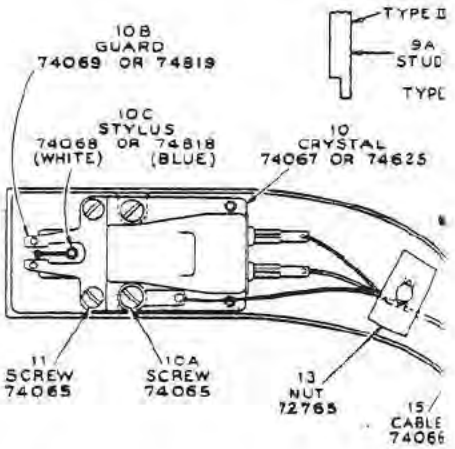
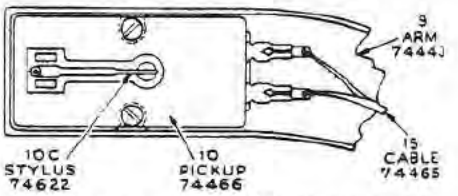


Figure 17—Exploded View of Sub-base Assembly.

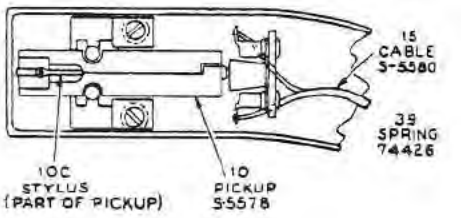




FOR MODEL CP-5203 (OTHERWISE SAME AS TYPE I



FOR MODEL 9QV5 (OTHERWISE SAME AS TYPE II



SUB-BASE ASSEMBLIES

Type I

Sub-base Stock No. 74070. Has staked s anchors and one-piece reject lever. E belled RP168-1 or RP168-3.

Type II

Same as Type I, ~~except it uses a~~ lever. Use Stock No. 74743 Sub-base if placement.

Type III

Sub-base Stock No. 74743. Same as T that it has pickup arm rest on sub-bas board rest is used, the sub-base re formed).

Type IV

Sub-base Stock No. 74468. It uses an nector and audio output jack mounted bracket. Labelled RP168-2 and used on CP-5203.

Type V

Sub-base Stock No. 74856. Has turned spring anchors. Idler wheel mountin Stock No. 74814) is removable. It is lat RP168B-1, etc. It has pickup arm res (when motorboard rest is used, the su ~~to be deformed~~).

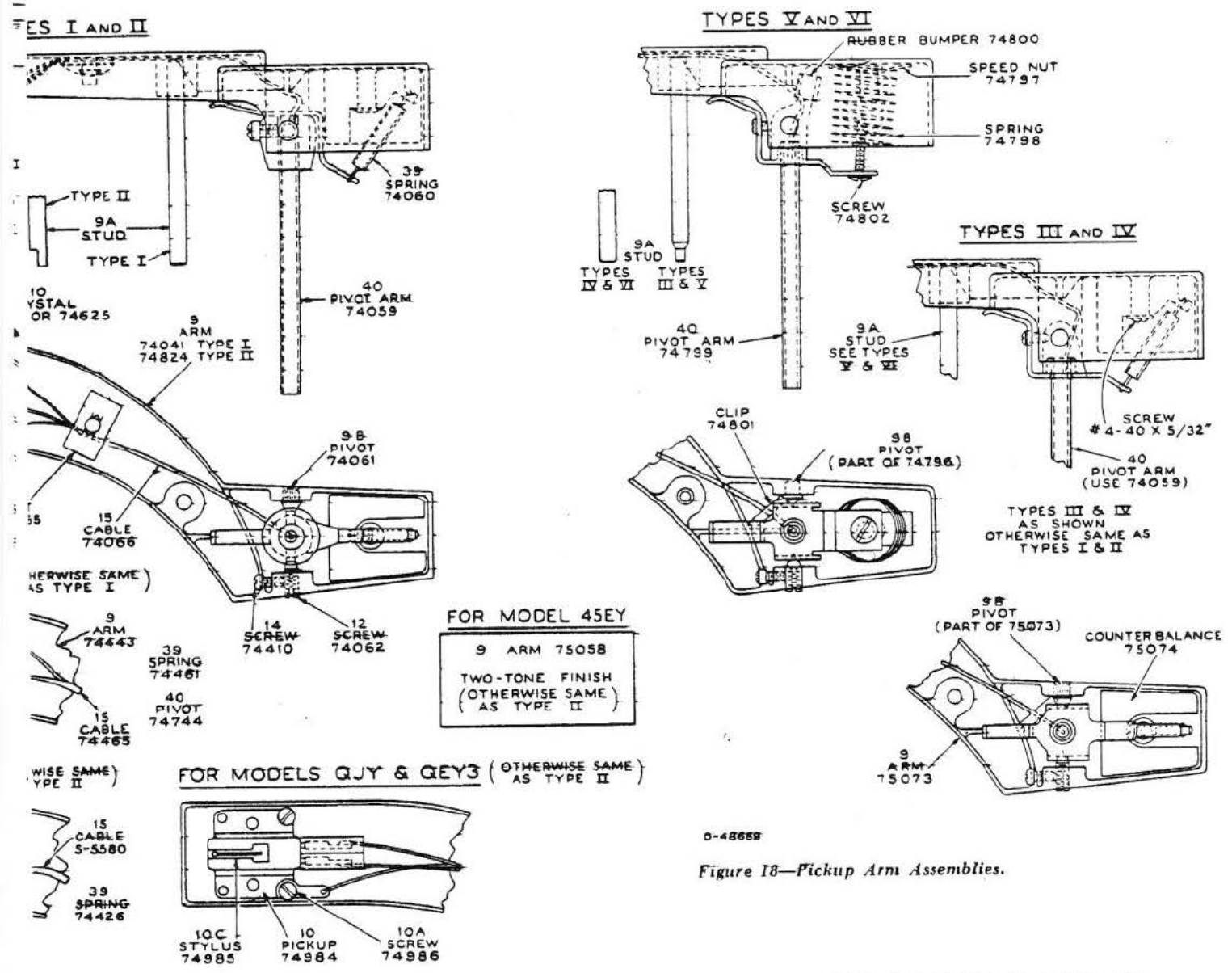


Figure 18—Pickup Arm Assemblies.

). Has ~~staked studs for spring~~ reject lever. Stamped or la-3.

~~it uses a two-piece reject~~ 43 Sub-base (Type III) for re-

13. Same as Type II, except est on sub-base (when motor-sub-base rest is to be de-

8. It uses an a.c. input con-jack mounted on a separate 2 and used only with Model

6. Has turned up lances for wheel mounting plate (45B— vable. It is labelled RP168-1, ickup arm rest on sub-base is used, the sub-base rest is

Type VI

~~Stock No. 74803. Similar to Type V, but it does not~~ bear any "RP168" identification. It has pickup arm ~~rest on sub-base. Idler wheel mounting plate (45B)~~ is secured to the sub-base with a shoulder rivet.

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 counter-balance 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.

Arm Stock No. 75058. For Model 45EY only. Two-tone finish, otherwise same as No. 74824.

Type III

Arm stock No. 75073. Stamped 3R1. Similar to No. 74824 except that a different pivot (9B) is used and the lead counter-balance 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 counter-balance is not used. A 5/8" O.D. counter-balance 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.

CYCLE OF OPERATION

Function	Explanation
Place records over the center post and turn the power on	1. Records rest on separator shelves protruding from wither 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.
Pickup 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 motorboard moves away, allowing the muting switch (63) to close. 4. At the same time the stud (41A) pushes the pickup arm lift lever (35) which in turn raises the pickup arm.
Pickup arm moves out	1. The end (41E) of the director lever (41) contacts stud (58A) on trip lever (58), starting the pickup arm on its outward movement. 2. The stud (58A) on trip lever contacts pickup arm return lever (50), pushing it outward against the tension spring (51). 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.

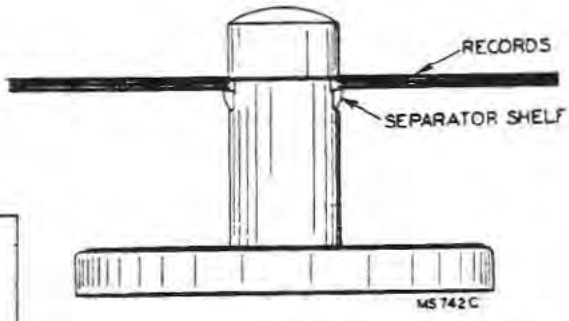


Figure 1.

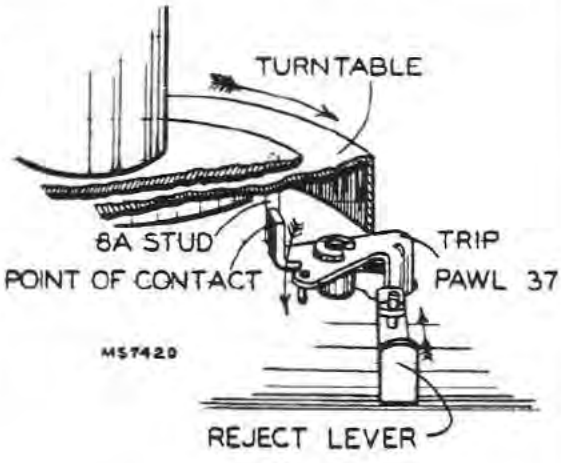


Figure 2.

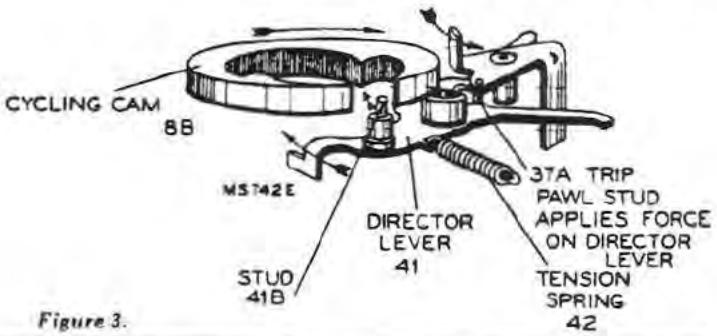
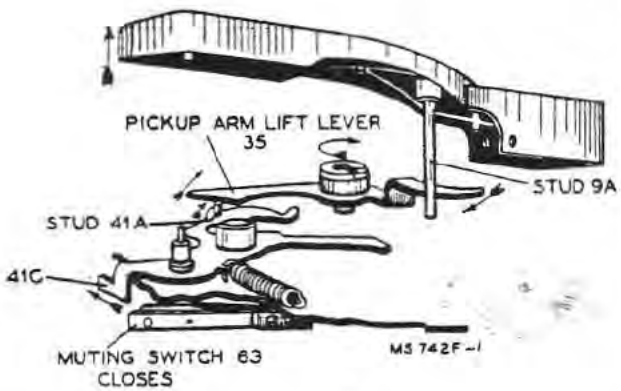


Figure 3.



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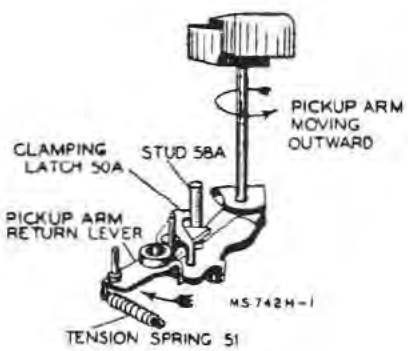
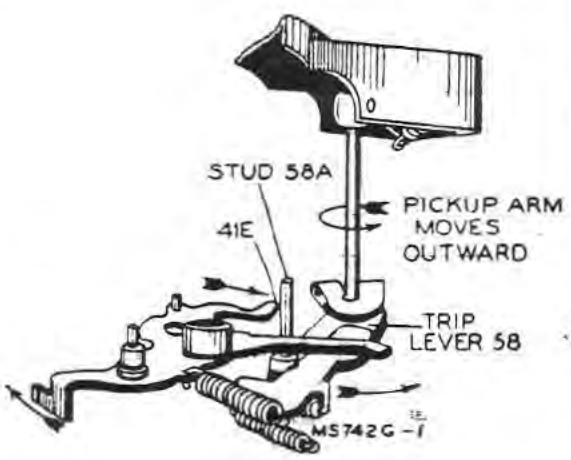
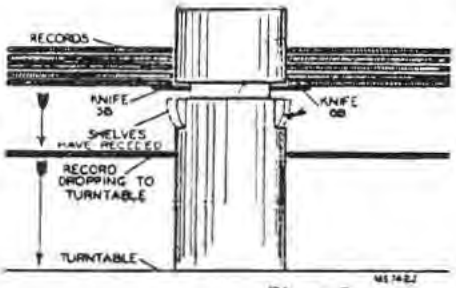
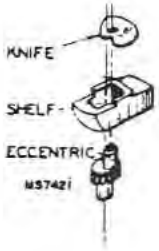


Figure 5.







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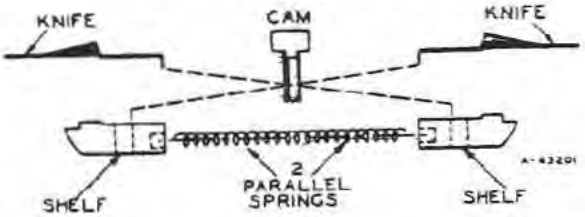

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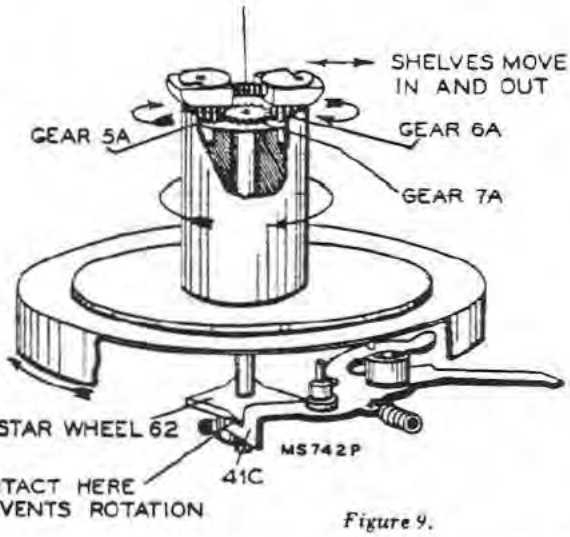

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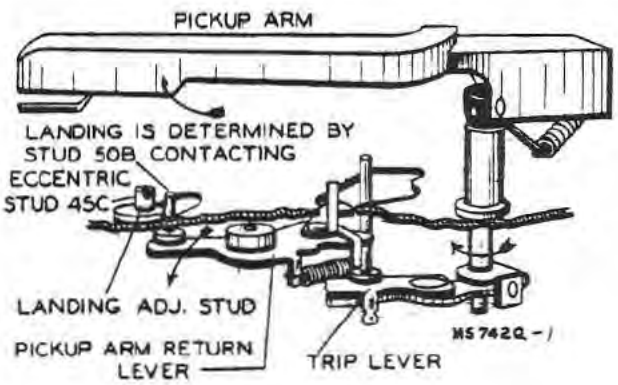
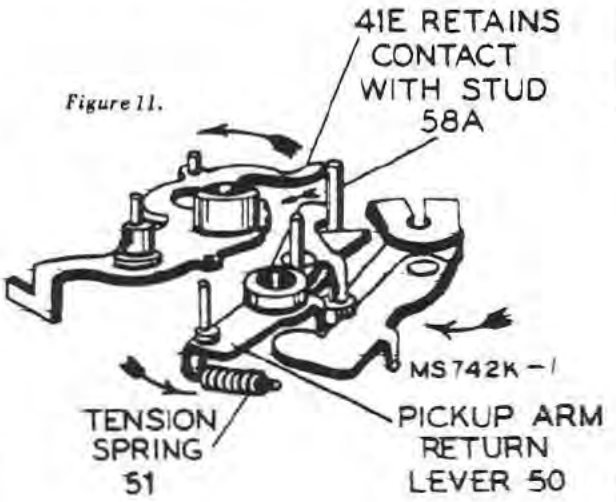
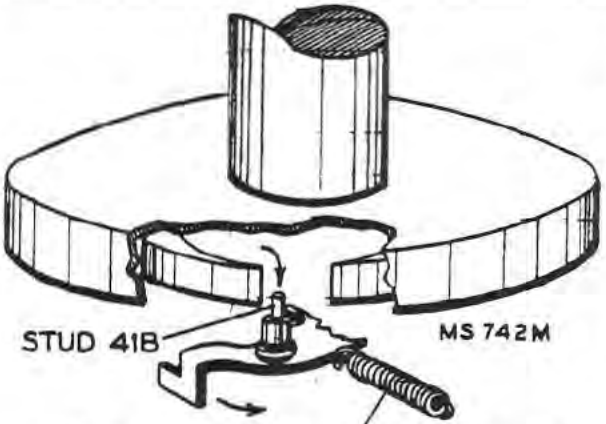


Figure 10.

Figure 11.





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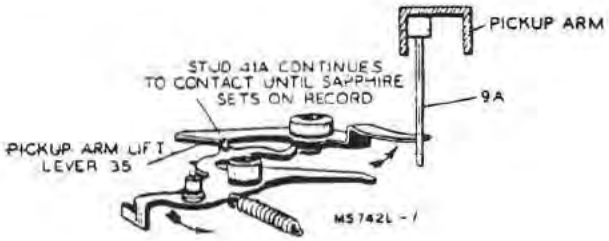

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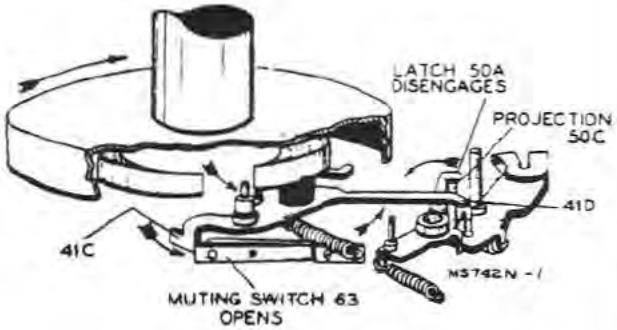

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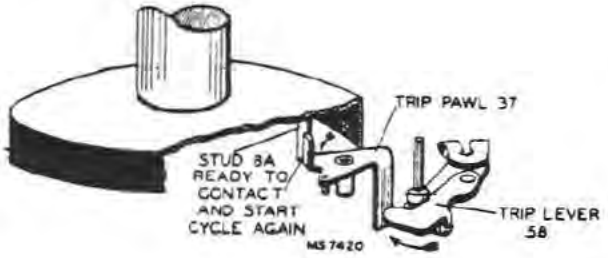

Figure 15.