

RCA VICTOR



RP-190 SERIES

45 R.P.M. AUTOMATIC RECORD CHANGER

SERVICE DATA

—1951 No. 4—

GENERAL SERVICE DIVISION
RCA VICTOR COMPANY LIMITED
MONTREAL, QUE.

MODEL IDENTIFICATION

RP-190-1 Uses pickup Stock No. 75476. (See Note in Parts List)

RP190-3 Same as RP190-1, except use 85 volt motor Stock No. 75937.

RP190-4 Same as RP190-1, except "ON-OFF" switch; however, they are physically interchangeable. Therefore, switch Stock No. 75733 is used as a replacement.

NOTE: The addition of small "a" to model number of all the above models indicates parts of different design have been added. See Page 12 for further information.

SPECIFICATIONS

Turntable speed.....	45 r.p.m.
Records used.....	RCA type seven-inch fine groove
Record capacity.....	12 records
Pickup force.....	Approx. 5 grams
Stylus tip radius.....	.001 inch
Power supply.....	105-125 volts, 60 cycle, a.c.

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. If the separator knives protrude from the center post when the mechanism is out of cycle, push the "start-reject" knob to reject and the condition should be corrected automatically.

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. Push the "start-reject" knob to "start" (forward) and release. The mechanism will automatically play in sequence one side of each record stacked on the separator shelves.
3. To reject a record being played, push the "start-reject" knob.

4. 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 by pushing back on control knob.

5. Remove the stack of records by lifting them straight up.

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.

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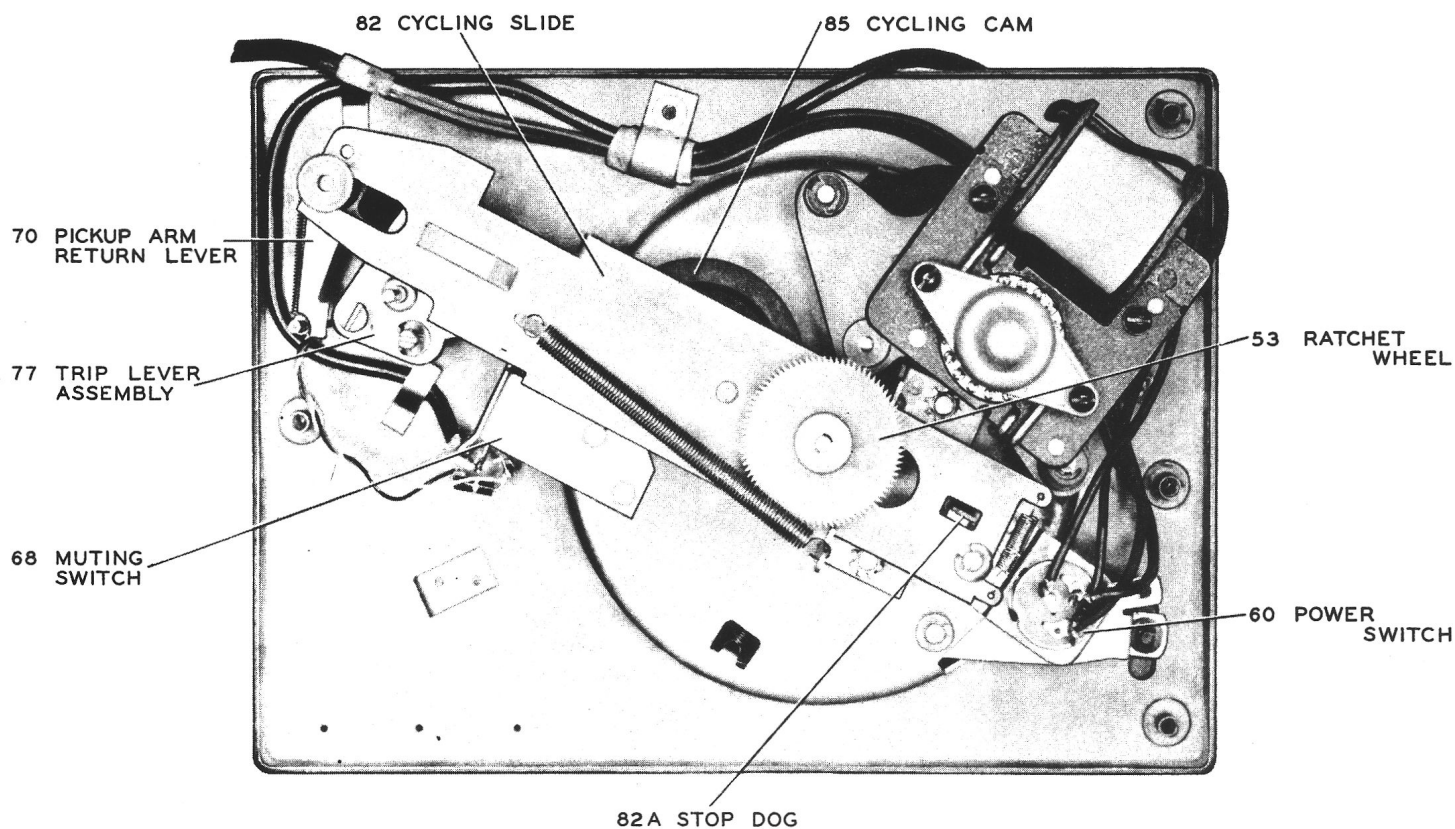


Fig. 1

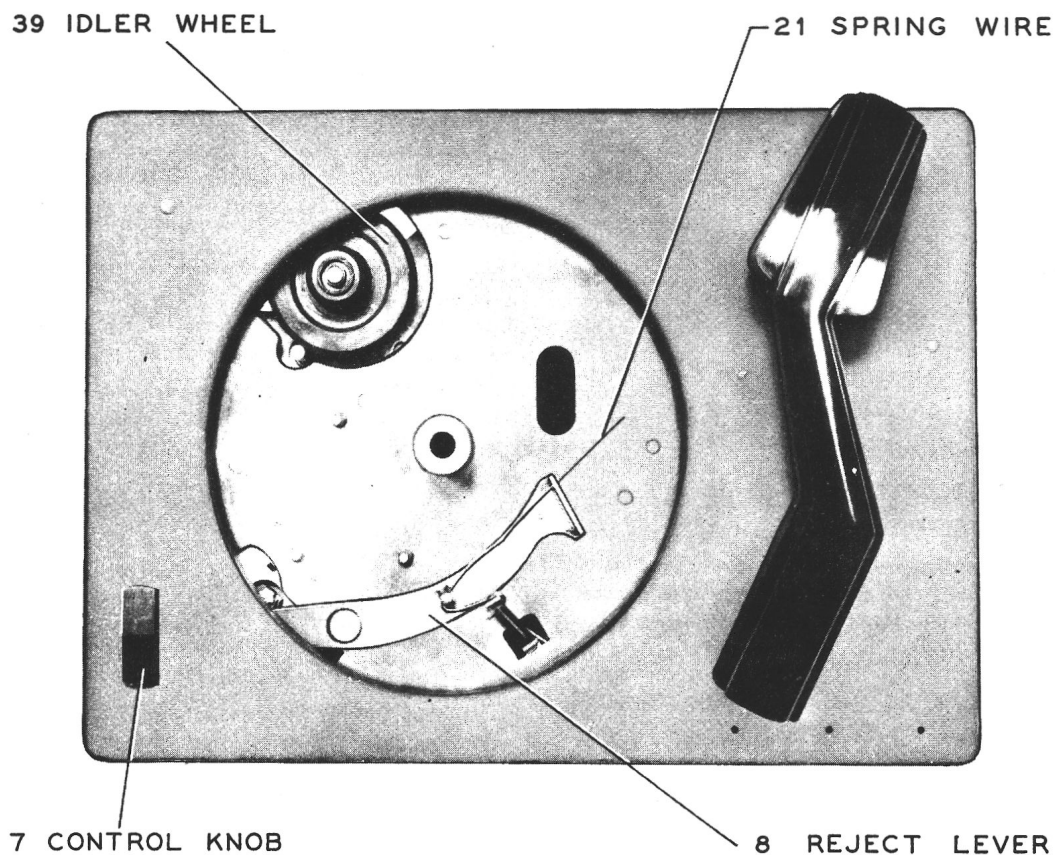


Fig. 2

Function of Principal Parts

Trip Lever (77)

The trip lever is mounted on the bottom end of the pickup arm vertical pivot shaft. The function is to transfer the movement of the pickup arm to parts of the operating mechanism below the motor board. The end of the trip lever contacts stud on cycling cam thereby starts tripping action.

Pickup Arm Return Lever (70)

The function of the pickup arm return lever is to provide a force necessary to push the pickup into landing position. The end of the pickup arm return lever is curved so as to provide a stop for trip lever. This stop determines landing position of the pickup.

Reject Lever (22)

The function of the reject lever is to transfer the action of the control knob to the cycling cam thereby starting a change cycle.

Muting Switch (68)

The function of the muting switch is to short the pickup leads to prevent amplifying of mechanical noise, of the mechanism during change cycle.

Cycling Cam (85)

The cycling cam is mounted on the cycling slide. The function of the cam is to transfer the rotary motion of the turntable shaft into sliding motion of the cycling slide.

Stop Dog (82A)

The stop dog is mounted on the end of cycling slide. The function of the stop dog is to engage the ratchet wheel on the separator shaft and prevent it from rotating, at the exact moment during change cycle.

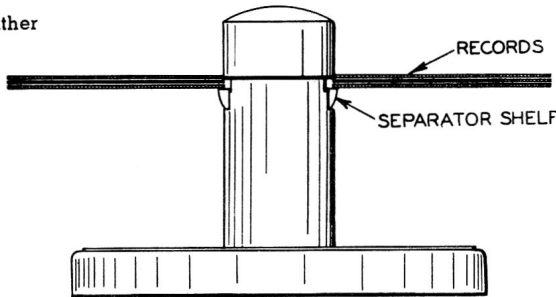
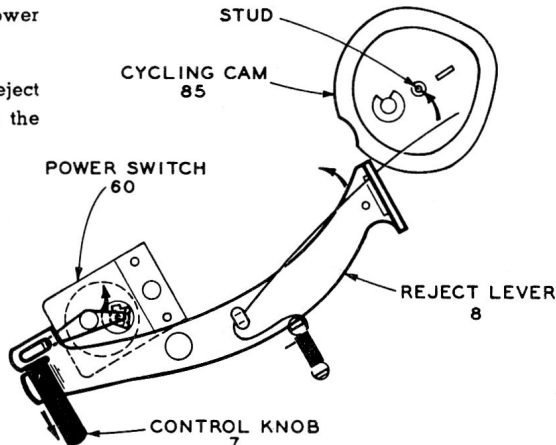
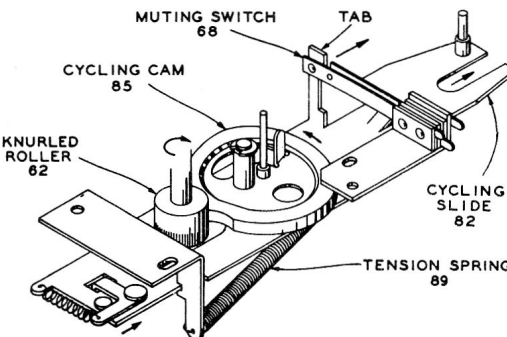
Ratchet Wheel (53)

The function of the ratchet wheel located on the end of the separator shaft is to keep the separator shaft stationary at the proper time, so as to actuate the separator mechanism inside the centerpost.

Cycling Slide (82)

The cycling slide is the main connecting medium between the various moving parts.

Cycle of Operation

FUNCTION	EXPLANATION
Place a stack of records over centerpost.	<ol style="list-style-type: none"> 1. Records rest on separator shelves protruding from either side of the centerpost.  <p style="text-align: center;">Fig. 3</p>
Push control knob to reject.	<ol style="list-style-type: none"> 1. The control first actuates the power switch applying power to the drive motor. This starts the turntable rotating. 2. Further movement of the control knob actuates the reject lever assembly (8) which contacts the stud mounted on the eccentric cycling cam and moves it slightly.  <p style="text-align: center;">Fig. 4</p>
Cycling starts.	<ol style="list-style-type: none"> 1. The slight movement of the eccentric cycling cam (85) is sufficient for engagement with the rotating knurled roller (62) mounted on turntable shaft. 2. The eccentric cycling cam which is mounted on the cycling slide (82) pushes the slide in the direction of the pickup arm pivot. In so doing tension is increased on the slide return spring (89). 3. The tab on the cycling slide moves back permitting muting switch to close.  <p style="text-align: center;">Fig. 5</p>

Cycle of Operation—Continued

Pickup raises from the rest.

1. As the cycling slide continues to move in the direction of the pickup arm pivot the small incline pressed in the slide causes the elevating rod (74) to lift the pickup arm from the rest.
2. The raised pickup arm moves inward slightly from the inward force of the pickup arm return lever (70), until the stud on the trip lever (77) assembly comes against edge of the cycling slide.
3. The cycling slide continues to move further, which pushes the trip lever back. The eccentric landing adjustment stud (79) contacts and pushes the pickup arm return lever (70) against the tension of the return spring (69).

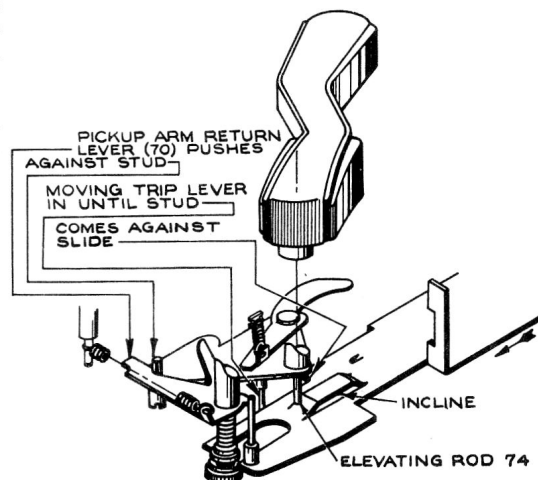


Fig. 7

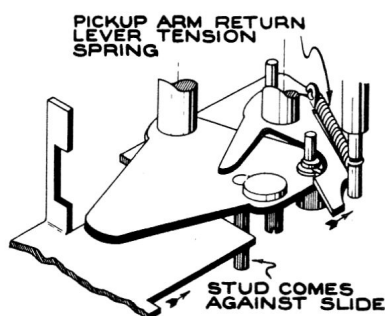


Fig. 6

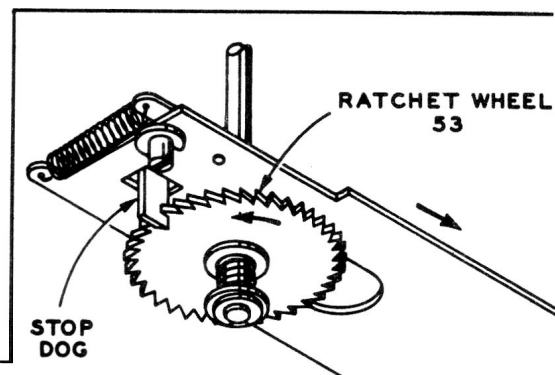


Fig. 8

Separator knives separate the lower record from the stack and the lower record drops to the turntable.

1. As the cycling slide reaches the limit in its movement in the direction of the pickup arm pivot, the stop dog mounted on the slide engages the rotating ratchet wheel (53).
2. The ratchet wheel and separator shaft (6) then remains stationary and the turntable continues to rotate.
3. The separator shelves and knives are coupled together in such a manner that the flattened end of the separator shaft pushes the knives out, which in turn pulls the opposite shelves in.
4. As the shelves recede, the separator knives mounted above the shelves move out and separate the lower record of the stack and support the remaining records while the lower record drops to the turntable.

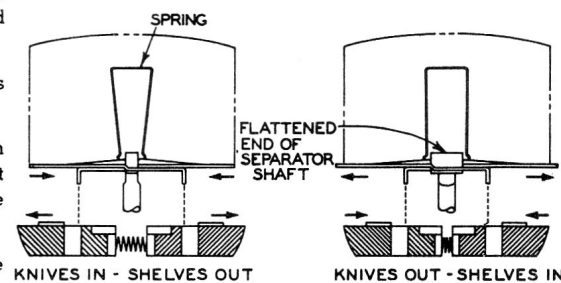


Fig. 9

Pickup moves in for landing.

1. The cycling slide moves away from the pickup arm pivot, due to the force produced by the tension spring (89) keeping the eccentric cycling cam against the rotating knurled roller (62). The knurled roller at this time is returning to the smaller diameter of the cam.
2. The stud on trip lever assembly follows the slide due to the force produced by the action of the pickup arm return lever.
3. After the slide has moved back a short distance the stud on the trip lever assembly no longer follows the slide since the landing adjustment stud comes against the curved stop on the end of the pickup arm return lever. At this moment the pickup is directly above the point of landing.
4. As the cycling slide completes the return movement the elevating rod slides down the incline which lowers the stylus on the record.

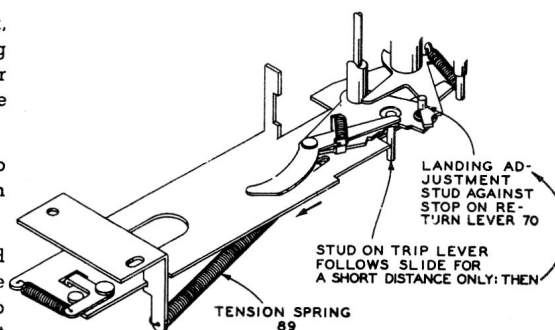


Fig. 10

Cycle completed and the record plays.

1. The tab on the cycling slide contacts and opens the muting switch.
2. The stud on the cycling slide pushes pickup arm return lever back to permit free motion of the pickup arm.
3. The change cycle is completed as the cycling slide comes against the stop bracket, at which time the knurled roller rotates in the cut away section of the cam.
4. As the record plays and the pickup arm moves inward.
5. When the stylus reaches the end of the selection the end of the trip lever contacts the stud on the cycling cam and pushes it slightly.
6. The slight movement of the cycling cam causes engagement with the rotating knurled roller, thereby starting a change cycle.
7. The mechanism repeats the preceding sequence of operations until the last record of the stack has dropped and has been played. This selection will be repeated until the pickup is lifted and placed on the rest.

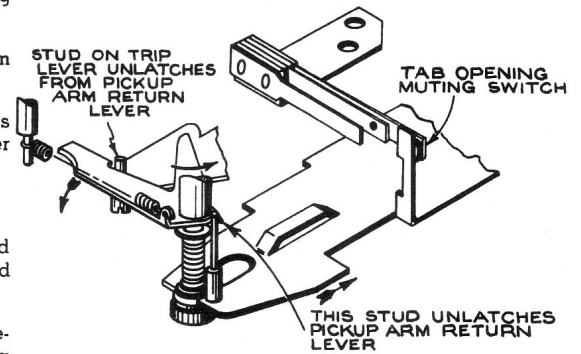


Fig. 11

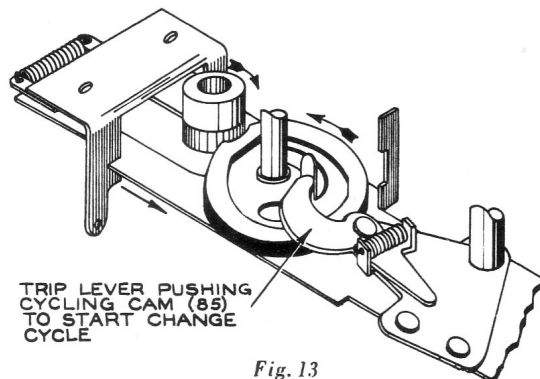


Fig. 13

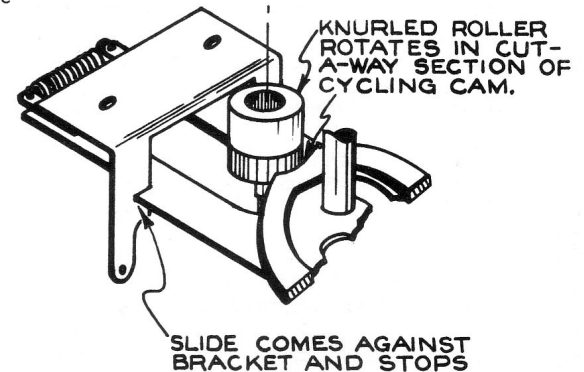
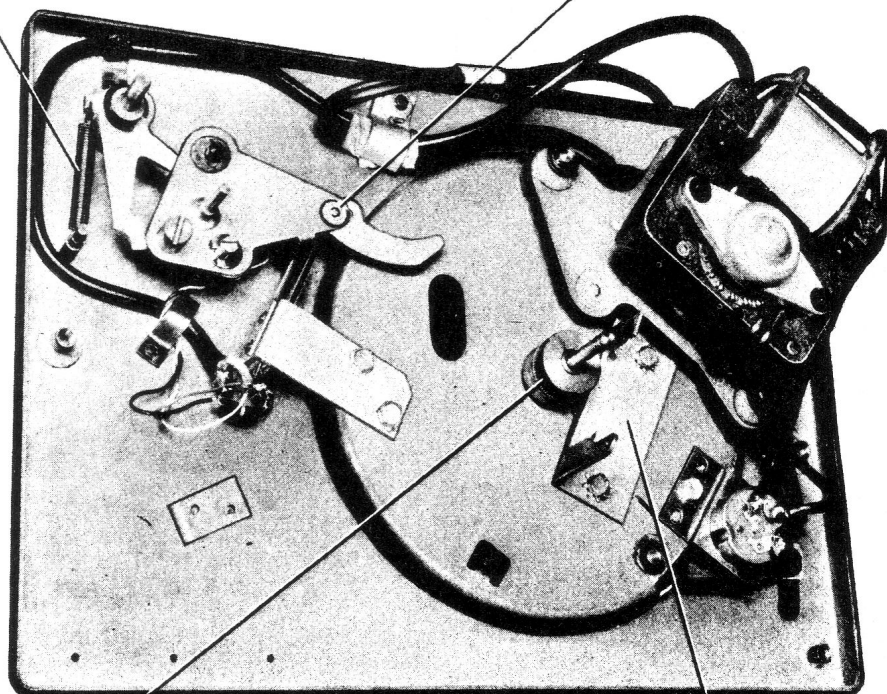


Fig. 12

DO YOU KNOW?

IF THIS SPRING IS LOOSE OR MISSING, PICKUP WILL NOT LAND PROPERLY

IF THERE IS A BIND IN THIS PIVOT, MECHANISM MAY NOT TRIP



IF THIS KNURLED ROLLER IS LOOSE, MECHANISM MAY FAIL TO COMPLETE CYCLE

IF THIS BRACKET IS IMPROPERLY ADJUSTED, THE CYCLING SLIDE MAY BIND OR CONTINUOUS TRIPPING MAY RESULT

Fig. 14

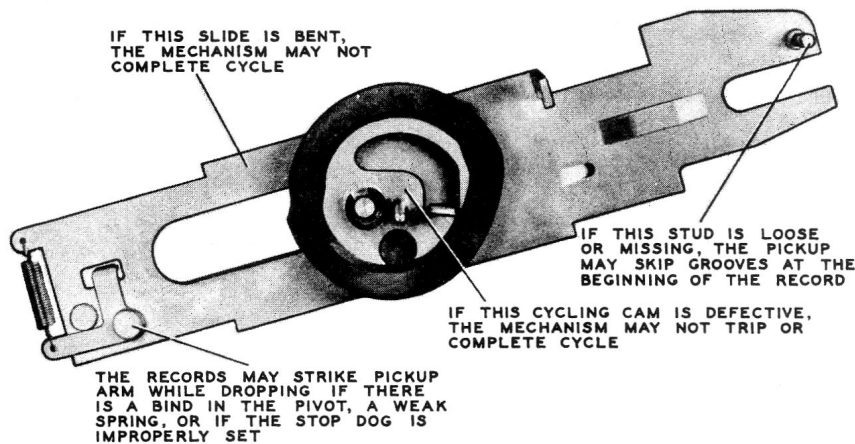


Fig. 15

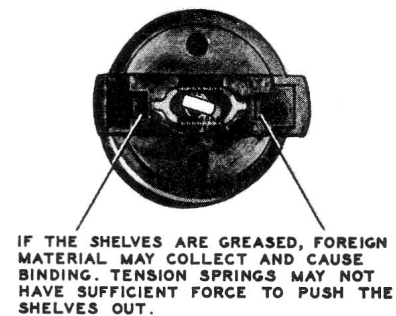


Fig. 16

SERVICE HINTS

REJECT CONTROL FAILS TO OPERATE

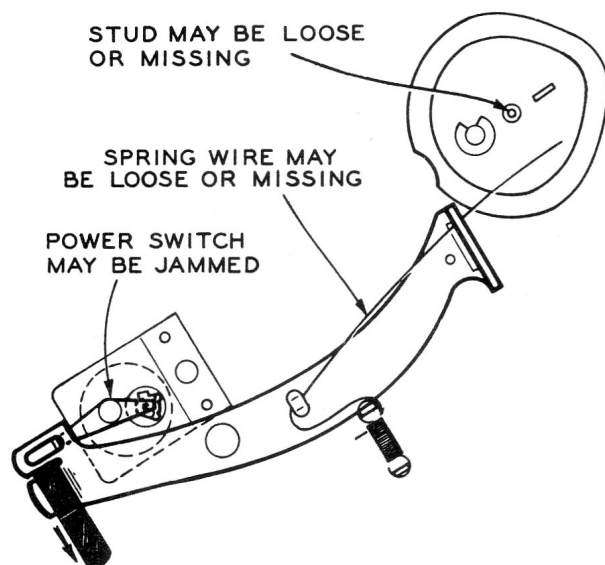


Fig. 17

MECHANISM FAILS TO SEPARATE RECORDS PROPERLY

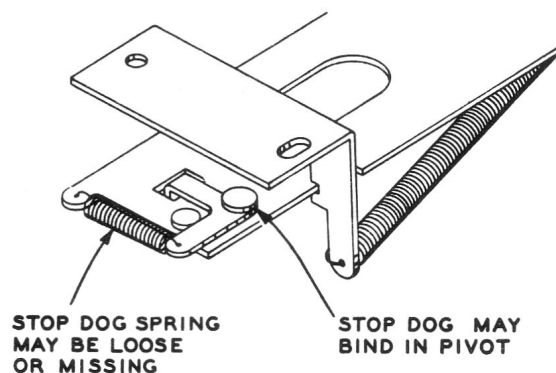


Fig. 18

RECORD STRIKES PICKUP ARM WHEN DROPPING

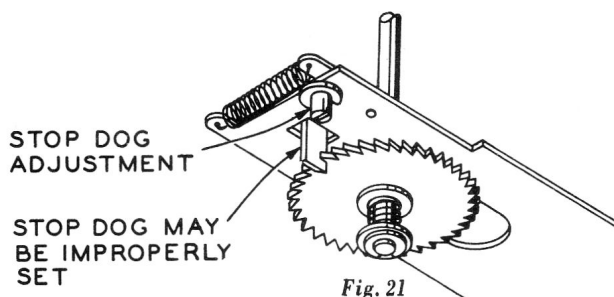
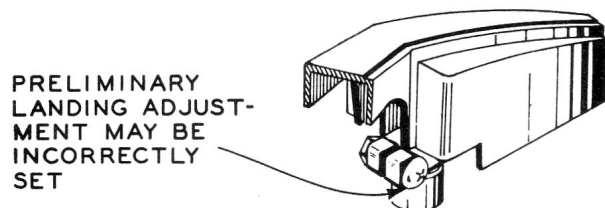


Fig. 21

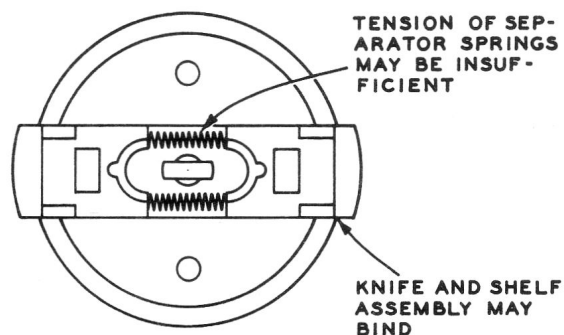


Fig. 19

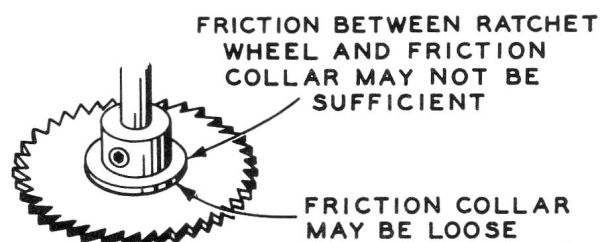


Fig. 20

PICKUP FAILS TO LAND PROPERLY

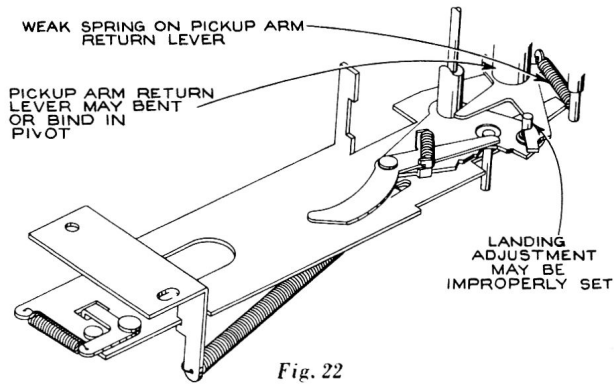


Fig. 22

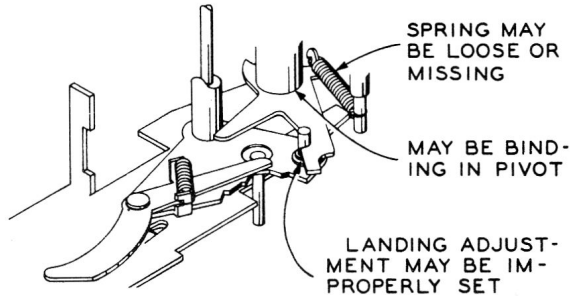


Fig. 23

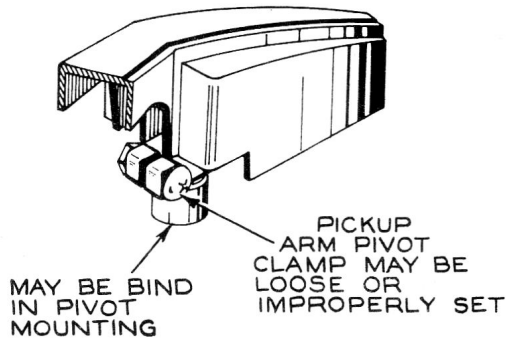


Fig. 24

DISTORTED OR NO OUTPUT

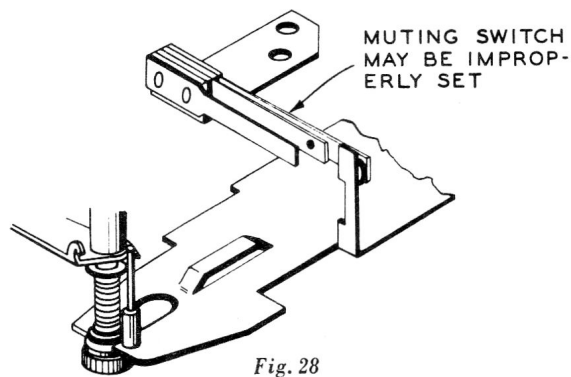


Fig. 28

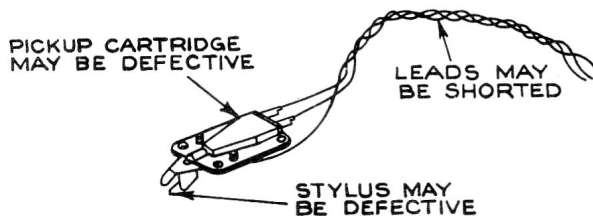


Fig. 29

PICKUP SKIPS GROOVES

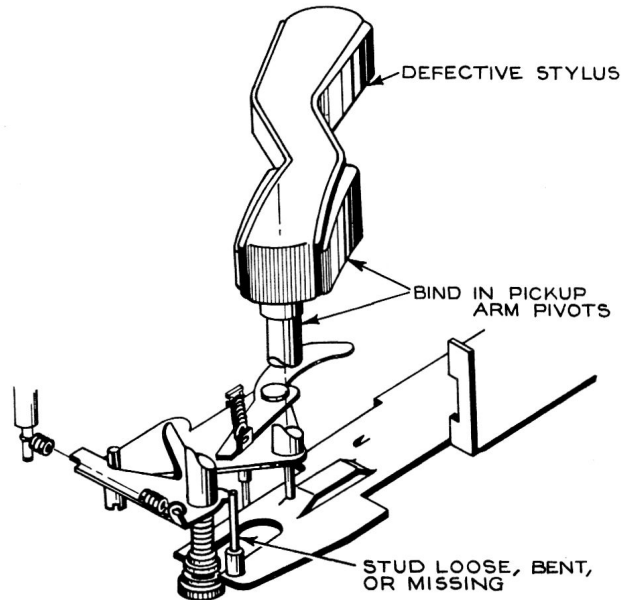


Fig. 25

MECHANISM FAILS TO TRIP

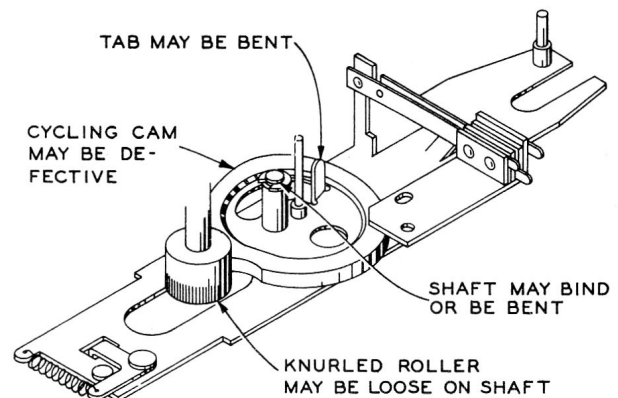


Fig. 26

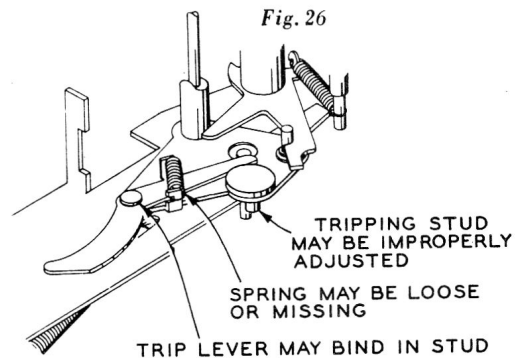


Fig. 27

PREMATURE TRIPPING

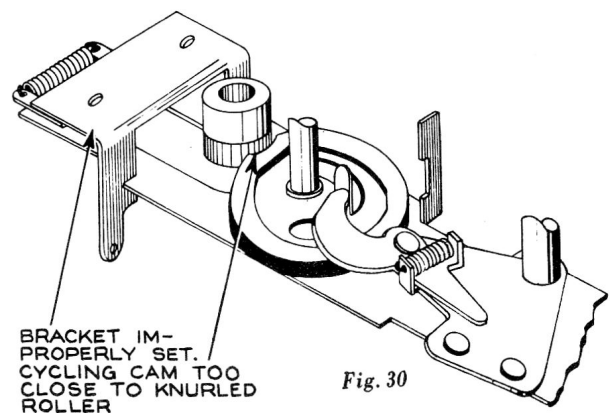


Fig. 30

"WOW" OR SPEED VARIATION

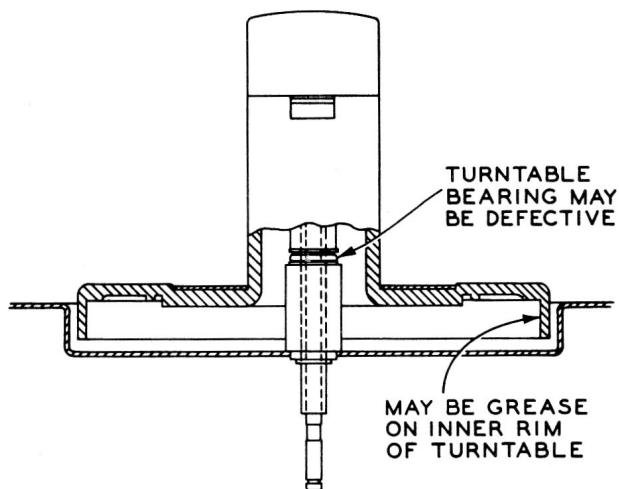


Fig. 31

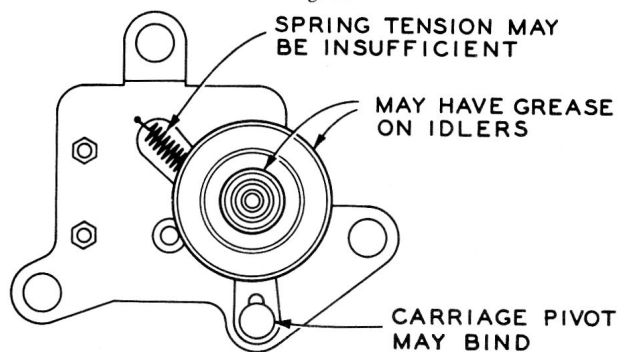


Fig. 32

CONTINUOUS TRIPPING

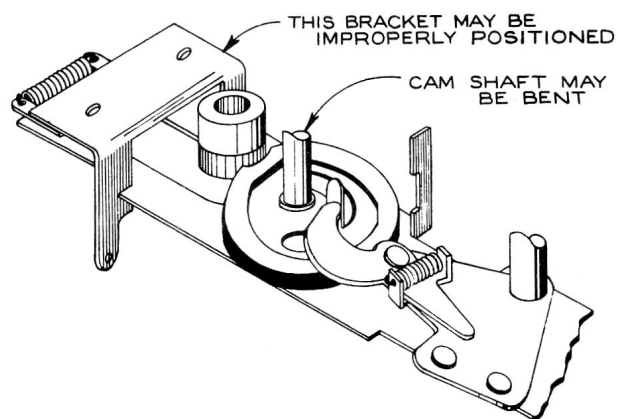


Fig. 34

RUMBLE

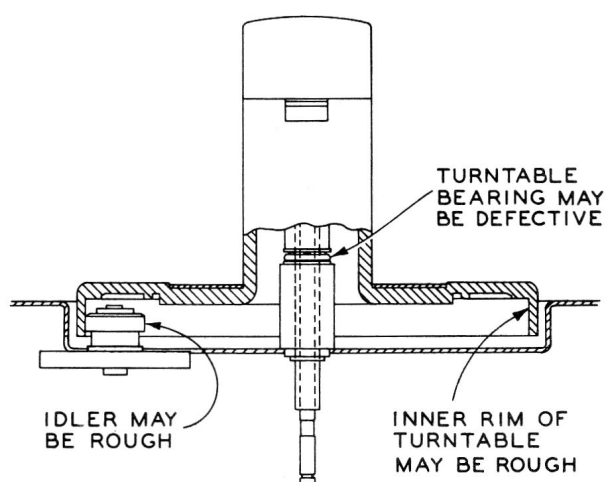


Fig. 33

MECHANISM FAILS TO COMPLETE CYCLE

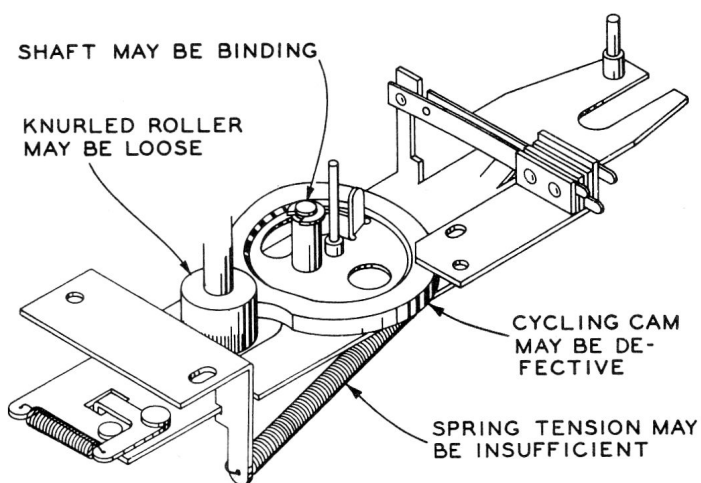


Fig. 35

ADJUSTMENTS

LANDING

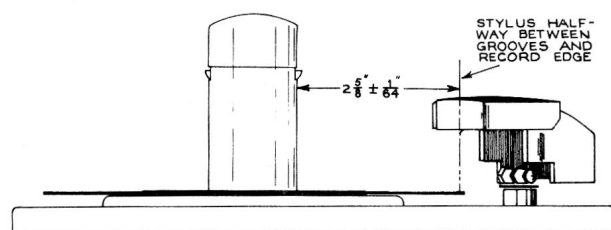


Fig. 36

TRIPPING

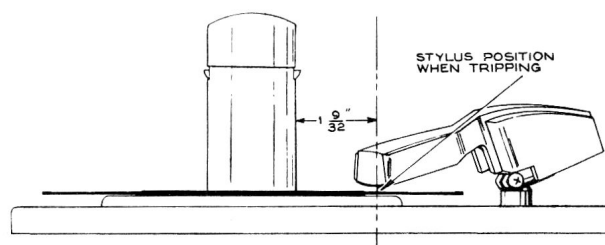


Fig. 37

ADJUSTMENTS (Continued)

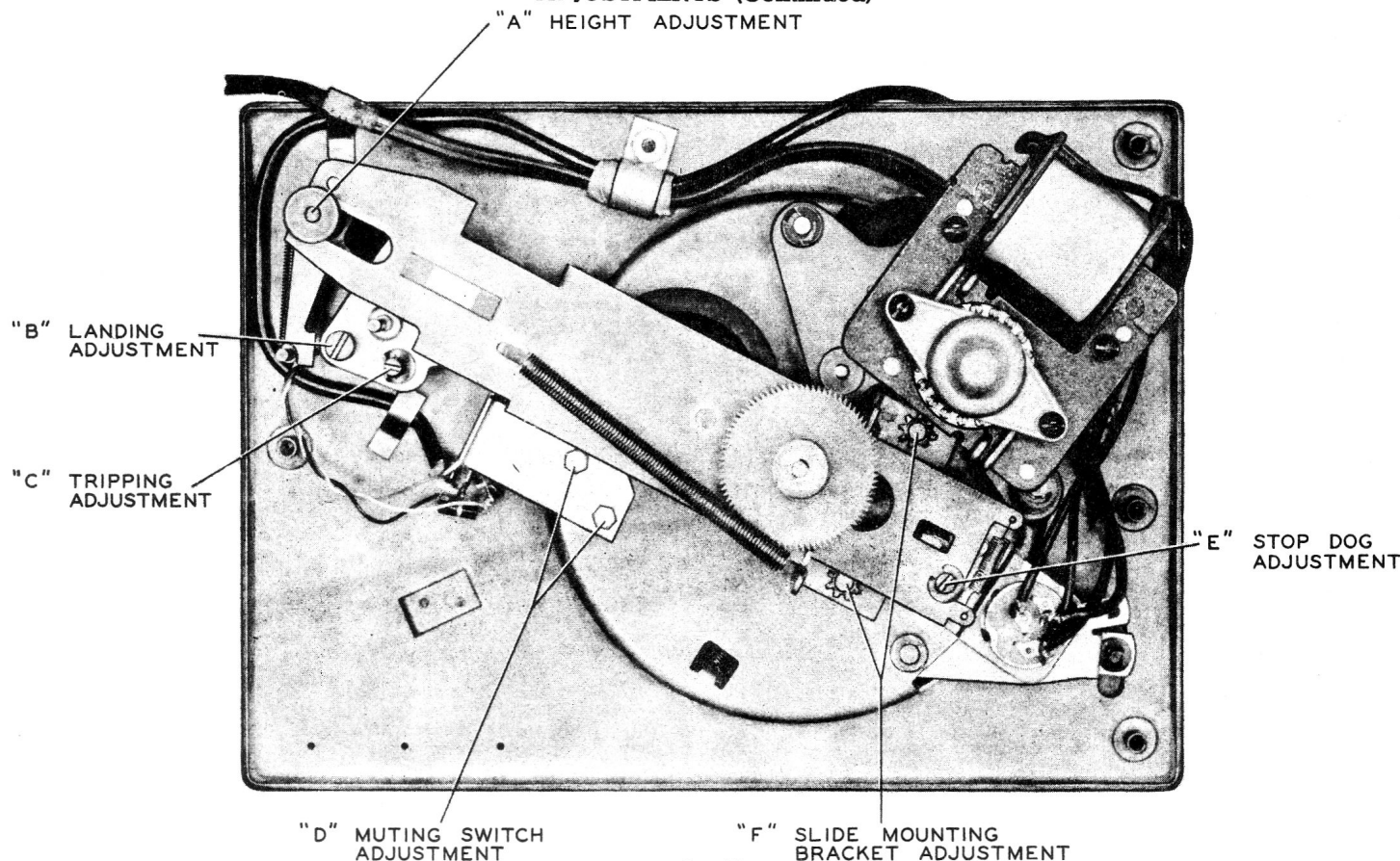


Fig. 38

LANDING ADJ.
ECCENTRIC STUD
IN MID POSITION

POSITION OF LANDING ADJ.
ECCENTRIC STUD FOR PICKUP
FURTHERST —

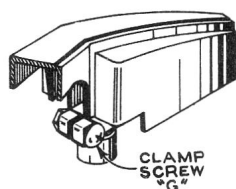


Fig. 39

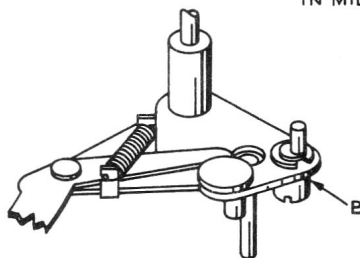


Fig. 40

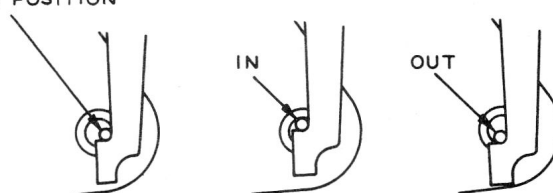


Fig. 41

Adjustments

Pickup Landing Adjustment:

Under ordinary conditions the landing adjustment is a screw-driver adjustment as shown. The adjustment of eccentric landing adjustment stud (B) gives approximately a $\frac{1}{4}$ " movement. (See Figs. 38, 40.)

If, however, the pickup arm has been removed it is first necessary to make an approximate landing adjustment as follows:

1. With the mechanism out of cycle and the clamp screw (G) (Fig. 39) loose, place pickup arm on the rest and tighten clamp screw enough to prevent the clamp from slipping on the shaft.
2. Set the landing adjustment stud (B) as shown (mid-adjustment). (See Figs. 40, 41.)
3. With the power removed, push reject control to reject. Rotate turntable by hand in the correct direction until the pickup is about ready to land.
4. Loosen clamp screw (G) and move pickup arm so the stylus is approximately $2\frac{3}{8}$ " from side of centerpost. Tighten clamp screw. (See Figs. 36, 39.)
5. Exact landing adjustment can now be made by a screw-driver on stud (B). (See Fig. 38.)

Pickup Height Adjustment (See Fig. 38):

Adjust knurled nut (A) until the distance (during change cycle) between the top of the turntable and the stylus point is approximately $1\frac{1}{8}$ ".

NOTE: If unable to adjust for sufficient height, it may be necessary to cut a few turns from the compression spring to allow more space on the shaft.

Tripping Adjustment (See Figs. 37, 38):

Adjust the eccentric tripping stud (C) until the mechanism trips when the stylus is $1\frac{9}{32}$ " from the side of the centerpost.

Mounting Bracket Adjustment (See Fig. 38):

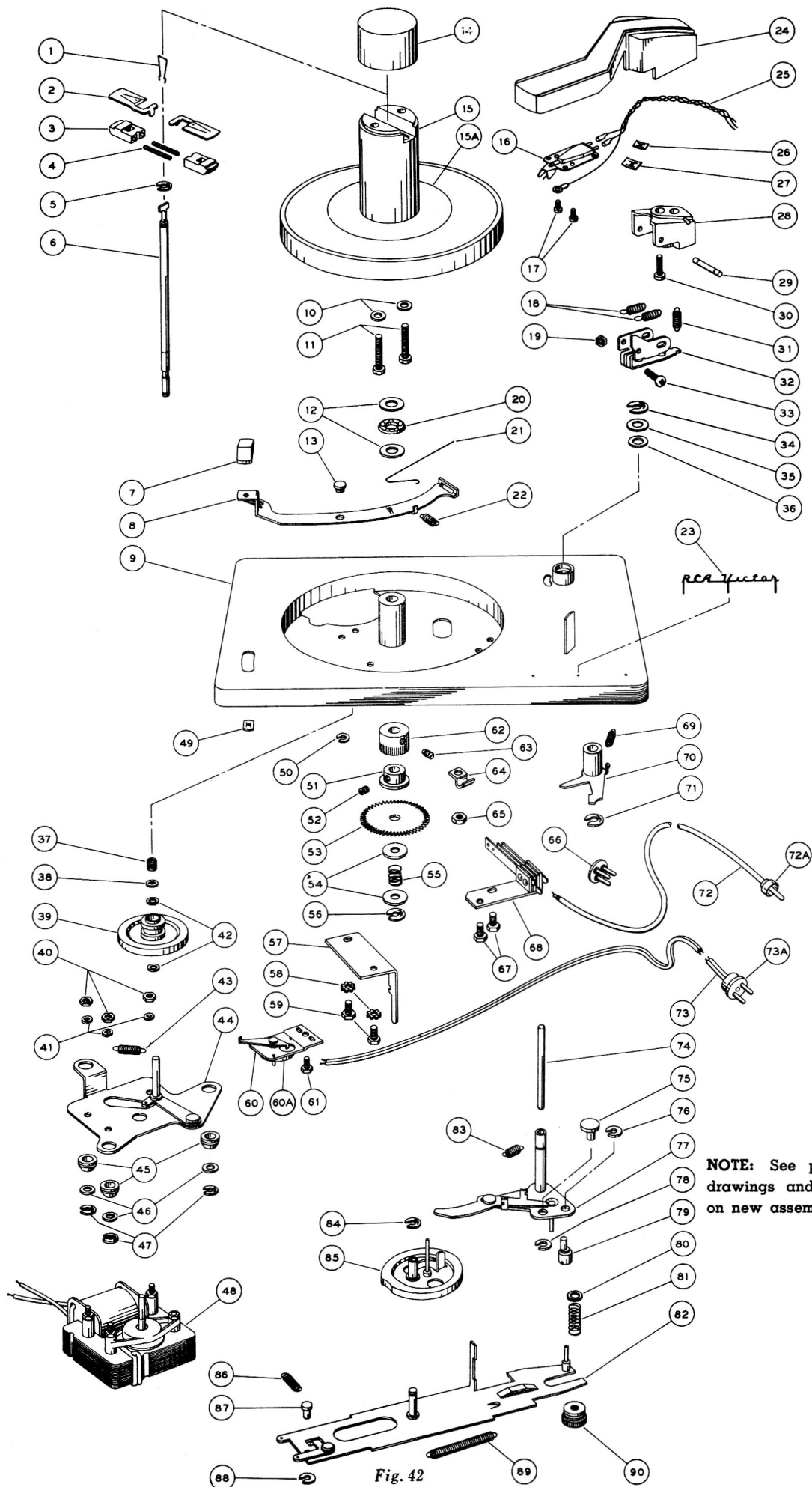
Loosen the two screws (F) and move the bracket so it is as near perpendicular to the slide as possible. Move back or forward until the cut away section of the cycling cam clears the knurled roller approximately $\frac{1}{16}$ ". Tighten screws.

Muting Switch Adjustment (See Fig. 38):

Loosen the two screws (D) and adjust the position of the switch so the contacts are approximately $\frac{1}{32}$ to $\frac{1}{16}$ inches apart when the mechanism is out of cycle. If the mounting screws do not give sufficient adjustment, bend tab on slide slightly.

Stop Dog Adjustment (See Fig. 38):

Turn the eccentric screw (E) until the record drops to the turntable without striking the pickup arm.



NOTE: See page 12 for drawings and information on new assemblies.

Fig. 42

REPLACEMENT PARTS

RP-190 Series

STOCK No.	ILL. No.	DESCRIPTION	STOCK No.	ILL. No.	DESCRIPTION
		RP190-1, RP190-2			
74862	1	Spring—Spindle nose spring—formed	75728	25	Cable—3 wire twisted pickup arm cable complete with connectors
74864	2	Separator—Separator knife	71095	26	Nut—Speed nut for cable—in rear of arm
74865	3	Shelf—Separator shelf	72765	27	Nut—Speed nut for cable—in center of arm
75756	4	Spring—Separator shelf return spring (.118" O.D. x 3/4" — 16 turns)	*75721	28	Weight—Counterbalance weight—die cast (see note)
33726	5	Washer—"C" washer to hold separator shaft and cam	*75724	29	Pin—Pin for anchoring shock absorbing springs (see note)
75757	6	Shaft—Separator shaft with cam	*75723	30	Screw—No. 6 x 11/16" fillister head screw to fasten counterbalance (see note)
75741	7	Knob—Control knob	75886	31	Spring—Counterbalance spring (.180" O.D. x .600" — 30 turns) (same for all instruments)
75739	8	Lever—Reject lever complete with formed spring	*75720	32	Swivel—Pickup arm swivel (see note)
75729	9	Board—Motorboard sub-assembly complete with welded and/or staked studs and rest	*75726	33	Screw—No. 8-32 x 5/8" cross recessed pan head machine screw to mount pickup arm (see note)
74869	10	Washer—No. 6 flat washer for under head of screws No. 75758	35969	34	Washer—"C" washer to mount trip lever
75758	11	Screw—No. 6-32 x 1" fillister head machine screw (holds nose to spindle)	75752	35	Washer—Steel thrust washer
74080	12	Washer—Thrust bearing washer	76005	36	Washer—Bearing washer for tone arm
75748	13	Stud—Reject lever mounting stud	74870	37	Retainer—Idler wheel retainer (spring sleeve type)
75755	14	Cap—Spindle nose cap—red	75887	38	Washer—Spring washer for idler wheel
75753	15	Turntable—Turntable and shaft assembly complete with finished disc	74077	39	Wheel—Idler wheel
75754	15A	Disc—Finished disc for turntable—part of No. 75753	—	40	Nut—No. 6-32 hex nut for mounting motor to idler lever plate assembly
74067	16	Crystal—Crystal cartridge complete with stylus	—	41	Lockwasher—No. 6 split lockwasher for No. 6-32 hex nut
74069	16A	Guard—Stylus guard for 74067	74078	42	Washer—Dampening washer for idler wheel
74065	16B	Screw—No. 2-56 x 3/16" fillister head screw to mount guard	75762	43	Spring—Idler wheel tension spring (.195" O.D. x 29/32" — 37 1/2 turns)
S-5529	16C	Stylus—Replacement Stylus for 74067	75759	44	Plate—Motor mounting plate complete with idler lever
74065	17	Screw—No. 2-56 x 3/16" fillister head screw to mount crystal	75761	45	Grommet—Rubber grommet for motor mounting plate
*75727	18	Spring—Shock absorbing spring (.187" O.D. x 3/4") (see note)	75749	46	Washer—Flat washer—metal (.0299" x .190" I.D. x 3/8" O.D.)—for mounting motor
*75725	19	Nut—No. 8-32 hex nut to mount pickup arm (see note)	33726	47	Washer—"C" washer to mount motor assembly
72349	20	Bearing—Thrust bearing	75760	48	Motor—117 volt, 60 cycle motor
75740	21	Spring—Reject lever spring (formed), part of reject lever	75937	48	Motor—80 volt, 60 cycle motor for RP190-3 (used on some 45EY3 instruments) (see instrument label)
75742	22	Spring—Reject lever return spring (.180" O.D. x .535" — 21 1/2 turns)	74212	49	Nut—Control knob speed nut
74782	23	Emblem—"RCA Victor" emblem	74431	50	Washer—Spring washer to mount reject lever mounting stud
*75719	24	Arm—Pickup arm shell only (see note)	75736	51	Collar—Friction collar
*76098	24	Arm—Pickup arm shell complete with counterbalance swivel and pin less crystal and cable (see note)	14974	52	Screw—No. 8-32 x 3/16" hex socket head—cup point—for friction collar
			75738	53	Wheel—Ratchet wheel
			75750	54	Washer—Flat washer—metal (.0299" x .180" I.D. x 9/16" O.D.)—for ratchet wheel, thrust spring
			75743	55	Spring—Ratchet wheel thrust spring (5/16" O.D. x 7/16" — 5 1/2 turns)
			33726	56	Washer—"C" washer to mount ratchet wheel
			75735	57	Bracket—Mounting bracket for slide assembly

* See note, page 12.

STOCK No.	ILL. No.	DESCRIPTION	STOCK No.	ILL. No.	DESCRIPTION
—	58	Lockwasher—No. 8 external teeth lockwasher for cycling slide mounting bracket	30870	73A	Connector—2 contact male connector for power cable
74670	59	Screw—No. 8 x $\frac{3}{8}$ " self-tapping hex head screw to mount slide assembly bracket	75731	74	Rod—Elevating rod
75732	60	Housing—"On-Off" switch housing and lever less switch	75768	75	Stud—Tripping adjustment stud
75733	60A	Switch—"On-Off" switch	74431	76	Washer—Spring washer for adjusting studs
—	61	Screw—No. 8 x $\frac{1}{4}$ " self-tapping hex head screw to mount "On-Off" switch	75767	77	Lever—Trip lever assembly less spring and tripping and landing adjustment studs
75737	62	Roller—Knurled roller	74431	78	Washer—Spring washer for adjusting studs
75751	63	Screw—No. 10-32 x 17/64" headless set screw—dog point—for knurled roller	75769	79	Stud—Landing adjustment stud
—	64	Clamp—Cable clamp for audio cable	75749	80	Washer—Flat washer—metal (.0299" x .190" I.D. x $\frac{3}{8}$ " O.D.)—to mount sub-motorboard
—	65	Nut—No. 8-32 hex nut to fasten cable clamp ILL. 64	75746	81	Spring—Height adjustment spring (.262" O.D. x 13/16" — 8 turns)
74192	66	Connector—3 contact male connector for audio cable	*75763	82	Slide—Cycling slide assembly complete with stop dog less cam wheel and stop dog adjusting stud (see note)
—	67	Same as 61	75742	83	Spring—Trip lever spring (.180" O.D. x .535" — 21½ turns)
75730	68	Switch—Muting switch	33726	84	Washer—"C" washer for cam wheel
76004	69	Spring—Pickup arm return lever spring (.195" O.D. x 1¼" — 69 turns)	75764	85	Wheel—Cam wheel and tire
75734	70	Lever—Return lever	75765	86	Spring—Stop dog tension spring (.195" O.D. x 11/16" — 24½ turns)
35969	71	Washer—"C" washer to mount return lever	75766	87	Stud—Adjusting stud for stop dog
—	72	Cable—Shielded audio cable (see Service Data for various instruments)	74431	88	Washer—Spring washer for stop dog adjusting stud
31048	72A	Plug—Pin plug for audio cable	75744	89	Spring—Slide assembly return spring (¼" O.D. x 2 23/32" — 90 turns)
—	73	Power cord (see Service Data for various instruments)	75747	90	Nut—Knurled nut for height adjustment

APPLY TO YOUR RCA DISTRIBUTOR FOR PRICES OF REPLACEMENT PARTS

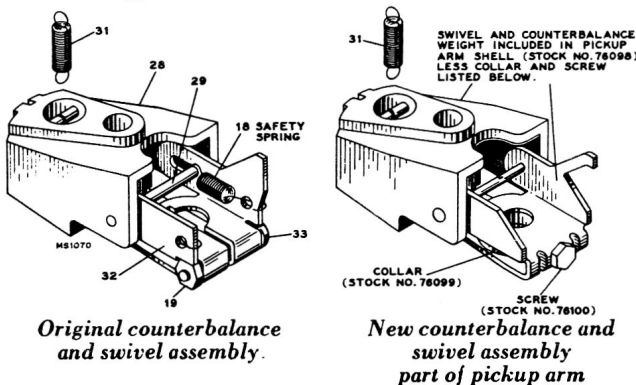
*The original production of Model RP190 record changer is provided with two safety springs located in the rear portion of the pickup arm. The purpose of these springs is to provide a limited amount of movement of the pickup arm during change cycle and continue to maintain the correct landing position.

In later production of the RP190 the same protection is maintained by the removal of the springs in the pickup arm and adding a spring and lever to the cycling slide.

The models incorporating the change are identified by the addition of a small letter (a) to the model number. For example: RP190-1a, etc.

The cycling slide stock number 76101 having the safety spring and lever can be used on either model.

The pickup arm and swivel assembly stock number 76038 has the swivel and counterbalance weight assembly cemented in the pickup arm shell. This makes it necessary to replace the entire assembly of arm, swivel, counterbalance weight (stock number 76098), collar (stock number 76099) and screw (stock number 76100) as a unit. This assembly should be used only in models marked with a small (a) or on models where the safety slide has been changed to the new type slide stock number 76101.



NOTE: The original crystal cartridge as supplied with the instrument uses a non-replaceable needle. The replacement cartridge 74067 is the standard 45 RPM cartridge and the replacement needle is S-5529.

Parts Identification for Mechanism Having Small (a) Following Model Number

