

AUTOMATIC RECORD CHANGER

124196 SERIES

SERVICE DATA

— 1952 No. 5 —

HEAD OFFICE SERVICE DEPARTMENT RCA VICTOR COMPANY, LTD. MONTREAL, QUE.

SPECIFICATIONS

Turntable	speed33 $\frac{1}{3}$, 45 or 78 r.p.m.
Record cap	pacityUp to 14 seven-inch or
	12 ten-inch or 10 twelve-inch or 10 ten- and twelve-inch intermixed
124196-1	115 V. 60 cycle motor—using maroon finish arm and Pickup Stock No. 75044.
124 19 6-2	115V. 25 cycle motor—using maroon finish arm and Pickup Stock No. 75044.
124196-3	115 V. 60 cycle motor—using gold finish arm and Pickup Stock No. 75044.
124196-4	115 V. 25 cycle motor—using gold finish arm and Pickup Stock No. 75044.

INDEX

Lubrication	. 2						
Stylus Replacement	. 2						
Record Stabilizer Arm	. 2						
50/60 Cycle Conversion	. 2						
Adjustments	. 3						
Cycle of Operation 4	o 7						
Exploded View of Mechanism							
Replacement Parts 9 to	12						

CONTROLS

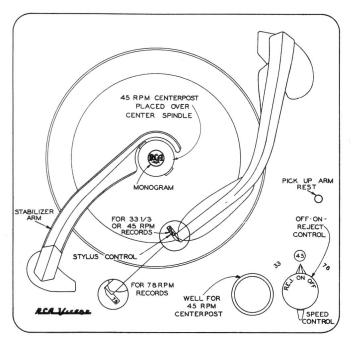
The record changer has a dual control on the motor-board and a stylus selector control on the pickup arm. The inner control (circular knob) is the OFF-ON-REJECT control. Turning this knob to the center position energizes the motor and starts the turntable, when turned to the right (clockwise) it starts the mechanism into complete automatic operation. The mechanism will shut off automatically after the last record has been played but can be shut off manually by turning this knob to the left (counter-clockwise).

The outer control (double ended lever) is the speed control. It has three normal positions, "33", "45", "78" to select the turntable speed desired and a neutral position (midway between "45" and "78"). The control should be turned to this neutral position if the changer is not expected to be in use for an extended period of time.

The stylus control has two normal positions (right and left) and one shipping position (lever pointing up). When playing 33½ or 45 r.p.m. records the lever is turned so that "33-45" is visible on the TOP of the lever; likewise for 78 r.p.m. records "78" should be visible on the TOP.

The removable centerpost is for use with 45 r.p.m. records having the large centerhole. It must be placed over the center spindle with the "RCA" trademark monogram FACING to the FRONT. When not in use it is placed in a well at the front of the motorboard.

To load or remove records, the record stabilizer is lifted and turned off-side. After loading it is turned to the center where it rests on top of the stack of records.



Controls

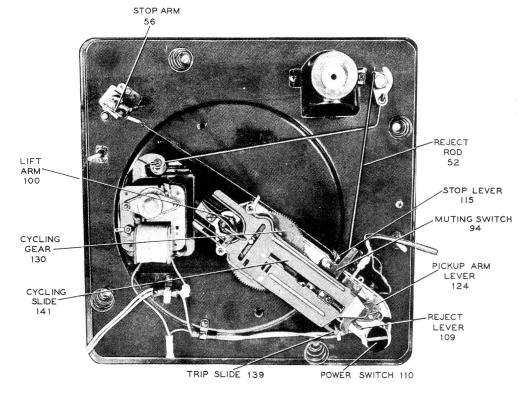


Figure 1—Bottom View

LUBRICATION

The mechanism is properly lubricated when it leaves the factory, additional lubrication should not be necessary for a long period of time. If the mechanism has unusual use or high operating temperatures, it may be necessary to lubricate more frequently.

It is suggested to use lubricant S-5262 on:

- 1. Pickup arm pivot.
- 2. Points of sliding contact with cycling slide, including:
 - a. elevating rod
 - b. lift arm
 - c. roller on cycling cam
 - d. pickup arm return lever
 - e. pickup arm lever
- 3. End of selector lever contacting tab on cycling gear.
- 4. Turntable thrust bearing.
- 5. Sparingly on a trip slide.
- 6. All points of sliding contact.

Apply a small quantity of light machine oil to:

- Trip pawl pivot.
- 2. Cycling engagement pawl pivot.
- 3. Bearing of record stabilizer.
- 4. Elevating rod.
- 5. Bearing of lift arm.
- 6. Bearing of reject lever.
- 7. Bearing of stop lever.
- 8. Bearing of cycling gear.
- 9. Motor bearings.

NOTE: Keep oil or grease away from all rubber parts.

Stylus Replacement

PICKUP NO. 75044

The styli are held in position by small thumb nuts (one for each stylus). Loosen the nut to remove stylus.

CAUTION:

The internal element of the pickups can be fractured by use of excessive force. It is advisable to grip stylus with pliers instead of holding pickup case while removing nuts.

Although the 78 and the 45-331/3 styli are mechanically interchangeable, they should be replaced in such manner that the stylus which is coded red will contact the record when "33-45" on the stylus selector knob is visible from the top.

Record Stabilizer Arm

Two types of stabilizer arms are in use. Type "A" when raised and moved outward will remain projected beyond the edge of the motorboard. Use Stock Number 76941 (plum) record stabilizer housing. Type "B" when raised and moved outward will return to within the edge of the motorboard. Use Stock Number 77256 (plum) record stabilizer housing, and Stock Number 77257 record stabilizer return spring.

The replacement stabilizer arm (plum) Stock Number 77255 can be used with either Type "A" or Type "B".

50/60 Cycle Conversion

Models 124196-1 and 124196-3 are made for 60 cycle operation but may be converted to 50 cycle operation.

Models 124196-2 and 124196-4 are made for 25 cycle operation only.

To convert the above listed models it is necessary to replace the motor which is available under stock number \$-6717.

ADJUSTMENTS

14 STYLUS FORCE ADUSTMENT HEIGHT ADJUSTMENT 20 A LANDING ADJUSTMENT

Figure 2-Adjustments

LANDING ADJUSTMENT

Only one landing adjustment is necessary. The landing position of the stylus is adjusted by means of the eccentric stud (20A), mounted on the pickup arm support bracket. When adjusted for correct landing on one size of record, the landing position for other sizes of records is automatically corrected.

PICKUP ARM HEIGHT ADJUSTMENT

The pickup arm height during cycle is adjusted by means of the hex head screw (17), located in the pickup arm.

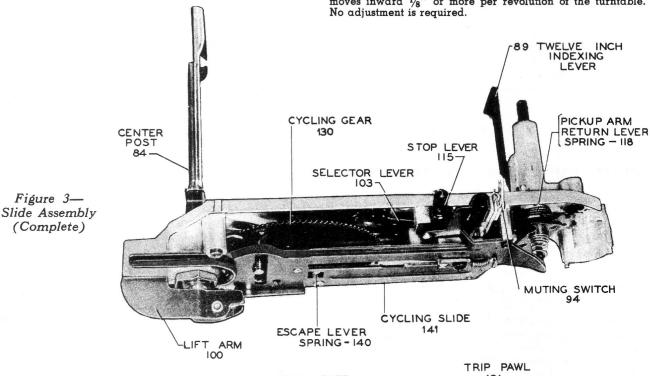
Turn control knob to "REJ" and rotate turntable by hand until arm has risen to its maximum height. Adjust screw so that stylus is 1% above turntable.

STYLUS FORCE ADJUSTMENT

Stylus force should be $7\frac{1}{2}$ to $9\frac{1}{2}$ grams. Loosen screw (14), and move slide until the correct force is obtained.

TRIPPING

The tripping method used in this mechanism is a combination of velocity and fixed diameter. Velocity tripping is effective between 4% and 3% diameters, when the stylus moves inward $\frac{1}{8}$ or more per revolution of the turntable. No adjustment is required.



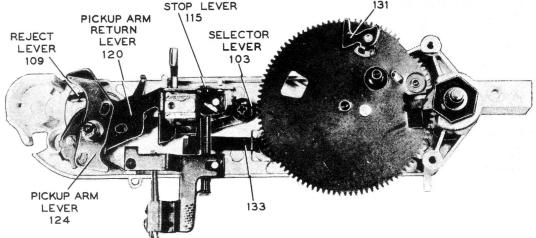


Figure 4—
Slide Assembly
(View with
Slide Removed)

TURN ON-OFF-REJECT CONTROL KNOB TO REJECT POSITION & RELEASE

- The on-off-reject control knob, through the linkage of the function control lever (54), reject rod (52), and reject lever (109) actuates the power switch and the trip slide (139).
- The closing of the power switch energizes the motor and starts the turntable rotating.

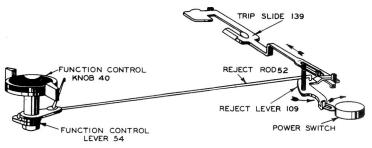


Figure 5

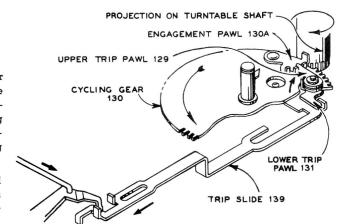


Figure 6

CYCLING STARTS

- The trip slide (139) in its movement contacts the lower trip pawl (131) and moves both the lower and the upper trip pawls which are linked together. The movement of the upper trip pawl (129) actuates the cycling engagement pawl (130A) sufficiently to cause it to engage with the projection on the hub of the rotating turntable.
- 2. The contact between the cycling engagement pawl (130A) and the projection on the turntable hub gives the necessary push for the teeth in the cycling gear (130) to engage the teeth in the shaft of the turntable and thus start the change cycle.

PICKUP ARM RISES & MOVES OUTWARD

- As the cycling gear rotates, the stud (130B) mounted on the underside of the gear, rides inside a slot cut in the cycling slide (141). The rotation of the cycling gear pushes the cycling slide back, and later, allows it to return.
- As the slide moves away from the center post, an incline formed on the end of the slide causes the elevating rod (123) to rise and lift the pickup arm.
- 3. At the same time that the elevating rod is pushed upward, the pickup arm lever (124) is also pushed up by the force transferred through the spring (125). The raising of the pickup arm lever causes the two formed dimples in the pickup arm lever to engage the two holes in the pickup arm return lever (120), and couple them together. This directs the movement of the pickup arm during change cycle.
- 4. The cycling slide continues to move away from the center post until the formed end of the slide pushes against the pickup arm return lever. This relieves the force of pickup arm return lever against stop lever (115). This permits the stop lever return spring (114) to return the stop lever to the normal (raised) position.
- The end (115A) of stop lever (115) pushes trip slide back ready for the next change cycle.

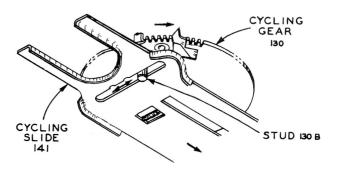
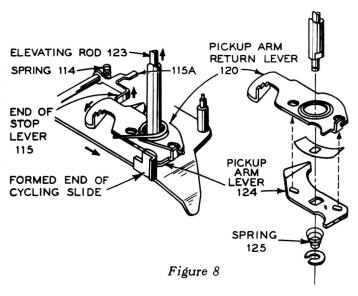


Figure 7



RECORD DROPS TO TURNTABLE

- After the cycling slide has raised the pickup arm and is moving it outward, the lift arm (100) is actuated by the cycling slide.
- The lift arm pushes up on the shaft extending from the bottom end of the center post. This shaft actuates the push-off mechanism inside the center post, and the record drops to the turntable.

SELECTION OF LANDING POSITION

- During rotation of the cycling gear the riveted tab (130C) near the center of the gear, pushes down on one end of the selector lever (103) (which is pivoted in the center) thereby raising the other end causing it to latch on the end (89A) of the twelve-inch indexing lever (89).
- The mechanism is thus automatically indexed to land on a ten inch record unless the selector lever (139) is disengaged from the end of the twelve-inch indexing lever.

7 Inch Indexing:

The ten-inch indexing lever (133) is pivoted in the center and one end (133A) is held (by tension of spring) against the top surface of the cycling gear. A hole in the gear will permit the end of the indexing lever to lower and thus raise the opposite end of the lever. A projection (133B) on the lever will at the same time lift the selector lever, permitting it to engage the top step of the pickup arm return lever (120). This position allows the pickup arm to land on the edge of the seven-inch record.

10 Inch Indexing:

The ten-inch indexing lever will lift the selector lever unless a record on the turntable contacts the rubber tip of the ten-inch indexing lever (133), and prevents it from rising. When the lever is prevented from rising, the selector lever will remain in position to engage the middle step of the pickup arm return lever.

12 Inch Indexing:

When a twelve-inch record drops to the turntable, it strikes the twelve-inch indexing lever (89) and forces it backward. This disengages the end of the selector lever

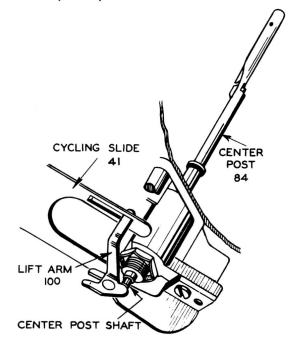
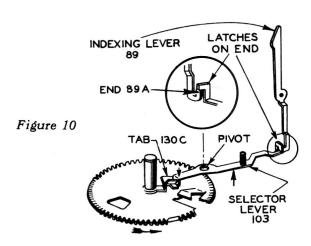
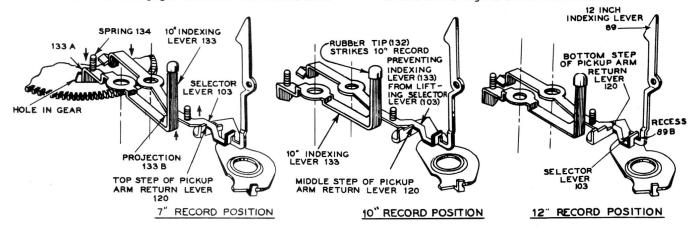


Figure 9



(103) from the edge of the indexing lever and permits the selector lever to drop down into the recess (89B) at the end of the indexing lever. This position of the selector lever causes it to engage the bottom step of the pickup arm return lever (120) and will push the pickup arm to land on the edge of a twelve-inch record.



PICKUP MOVES IN FOR LANDING

 As the cycling slide returns, the formed end (141A) on the slide moves back, permitting the pickup arm return lever spring (118) to expand. This causes the pickup arm return lever (120) to move the pickup inward until the pickup arm return lever comes against the selector lever (103). The pickup is now directly above the point of landing.

PICKUP LANDS ON RECORD

- The elevating rod (123) slides down the incline on the slide permitting the pickup to land on the start of the record.
- A cut-away portion (130D) of the teeth of the cycling gear stops the return movement of the slide before completion of cycle. The stud (130B) in the cycling gear rests in the first indentation (offset from center) of the slide to stabilize it in this position.
- 3. Just before the cycling gear completes cycle, a small tab (141C) on cycling slide makes contact with lower trip pawl (131) thereby moving upper trip pawl and cycling engagement pawl back. This prevents the reengagement with the projection on the turntable hub which would start a new change cycle.
- 4. On the next revolution the projection on the hub of the turntable engages with a formed lug (130E) on the outer edge of the cycling gear. The cycling gear will then rotate until the second cut-away portion (130F) of the teeth again stops the movement of the slide, this time at completion of the cycle. The stud on the cycling gear rests in the second indentation (center) of the slide to stabilize it in this position.

The purpose of this pause in the cycle is to allow the pickup to enter the starting groove of the record before the full effect of the feed-in spring is applied to the pickup arm.

RECORD PLAYS

- As the record plays, the pickup moves in toward the center of the record carrying the trip slide along. This is due to the contact made with the pickup arm lever which turns with the pickup arm pivot.
- 2. The trip slide contacts the lower trip pawl, causing both (lower and upper) trip pawls and the cycling engagement pawl to move slightly with each revolution of the record. This slight movement of the pawls is reversed each time the projection on the turntable hub comes in contact with the cycling engagement pawl. The back movement is taken up in the friction connection between the upper and lower trip pawls.

TRIPPING

This slight movement of the pawls continues as long as the pickup moves in at a constant rate of speed. When the stylus leaves the recorded section of the record, the rapid acceleration results in rapid movement of the cycling engagement pawl. The cycling engagement pawl assumes a position in which the projection on the turntable hub makes a positive contact and the cycling cam is pushed sufficiently for engagement between the teeth of the cycling gear and the teeth on the turntable hub. This starts change cycle.

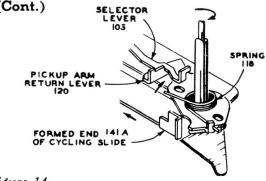
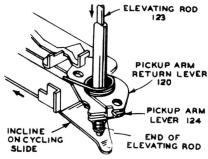


Figure 14



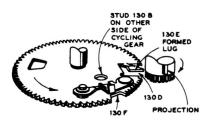
CONTACT

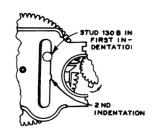
TAB
141C

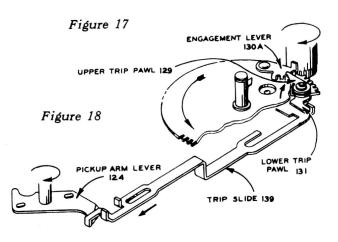
ENGAGEMENT
PAWL
96A

CYCLING SLIDE

Figure 16







MECHANISM STOPS AFTER PLAYING OF LAST RECORD

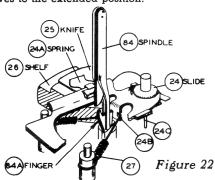
After the mechanism has been tripped it again follows the preceding sequence of cycling and playing the records until the last record of the stack has been played.

- As the last record of the stack drops to the turntable the record stabilizer drops and actuates the stop arm (115). This stop arm in turn applies force to stop lever (115) through spring (115B) and connecting wire (137). At this moment the cycling slide is in the outermost position (away from centerpost) and the end (115B) of stop lever is forced against escape lever (141B) which prevents it from lowering any further.
- 2. As the cycling slide returns to the out of cycle position the end (115B) of stop lever slides off the escape lever permitting the end to extend down through the slot in the cycling slide. At this time the pickup arm return lever has rotated too far to be blocked by the other end (115C) of the stop lever and the pickup is permitted to land on the record.
- 3. After the last selection has been played the mechanism again goes into change cycle, and the cycling slide moves into its outermost position. At this moment the force which has been applied to the stop lever from the record stabilizer causes the end (115B) to lower, thus extending further through the cycling slide. The other end (115C) of stop lever raises and blocks the pickup arm return lever which at this moment is held back by the cycling slide.
- 4. As the cycling slide moves back, it carries the raised trip slide along until finally the formed end (139A) of the trip slide pushes reject lever which in turn actuates the power switch (110). This removes the power from the drive motor and mechanism stops.
- The elevating rod (124) lowers the pickup arm to the rest.

45 R.P.M. CENTERPOST

For playing of 45 r.p.m. records which have a $1\frac{1}{2}$ inch center hole, the 45 r.p.m. centerpost is placed over the $\frac{1}{4}$ inch centerpost. The push-off finger (84Å), which is part of the $\frac{1}{4}$ inch centerpost actuates the slide (24), this slide actuates the separator knives (25Å & 25B) and separator shelves (26Å & 26B) of the 45 r.p.m. centerpost.

As the push-off finger moves up it engages a finger (24B) of the slide (24) in the 45 r.p.m. centerpost; and, as it moves horizontally, it pushes the slide against the tension of the slide return spring (27). A projecting pin (24C) on the bottom of the slide engages both shelves and both knives and forces them to turn on their pivots. The shelves are pivoted near their center and are caused to retract as the slide is forced to move by the push-off finger. The knives are pivoted at their ends and are forced outward at the same time that the shelves are retracted. A formed spring (28) returns the shelves to the extended position.



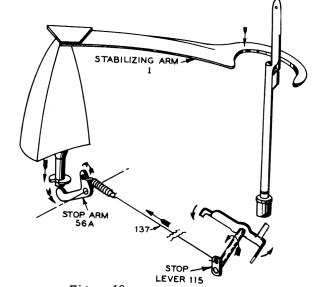


Figure 19

CYCLE OF OPERATION (Cont.)

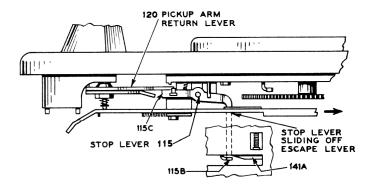
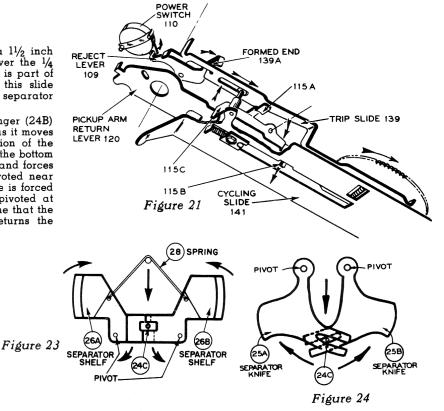
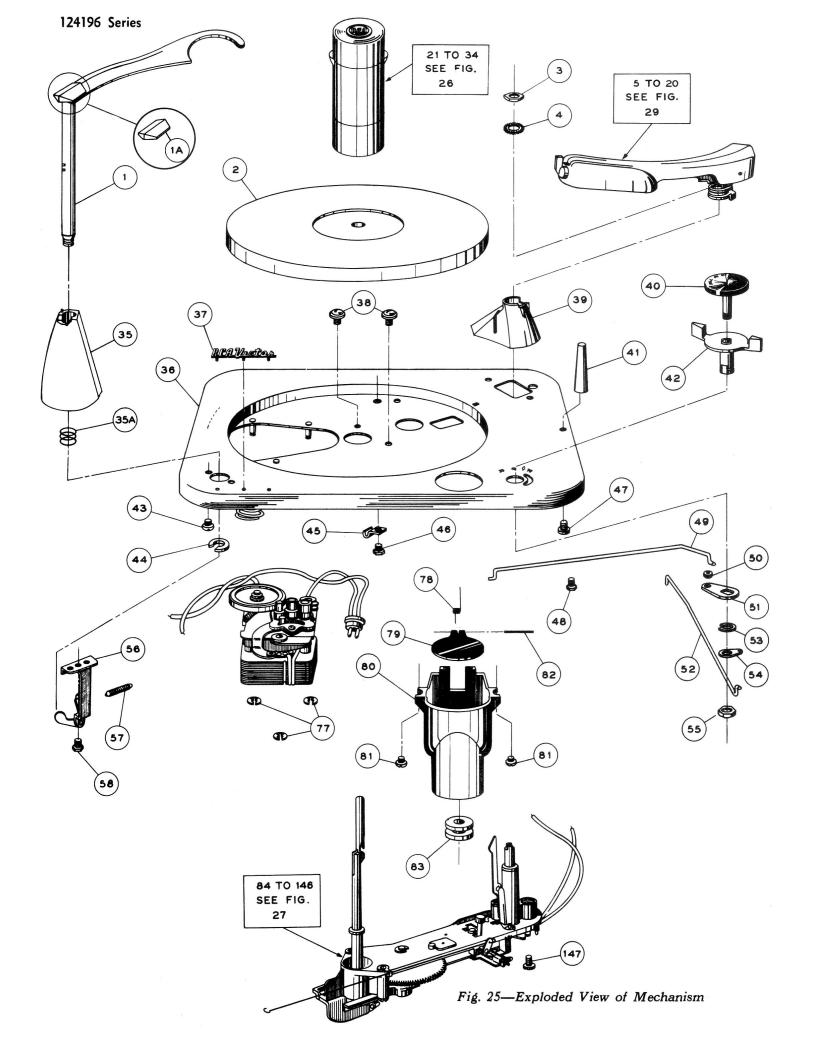
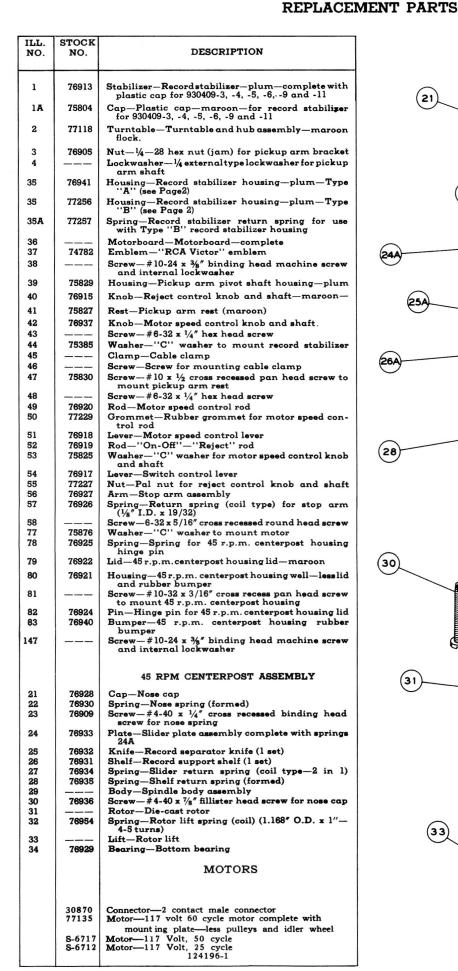


Figure 20

124196 Series







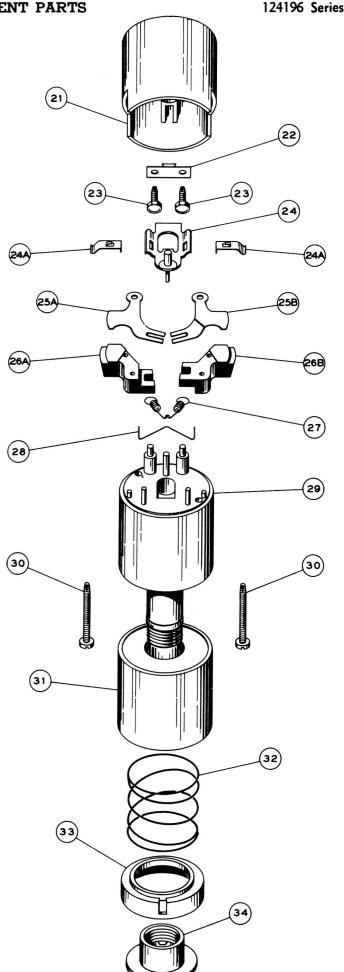


Fig. 26-45 r.p.m. Centerpost Assembly

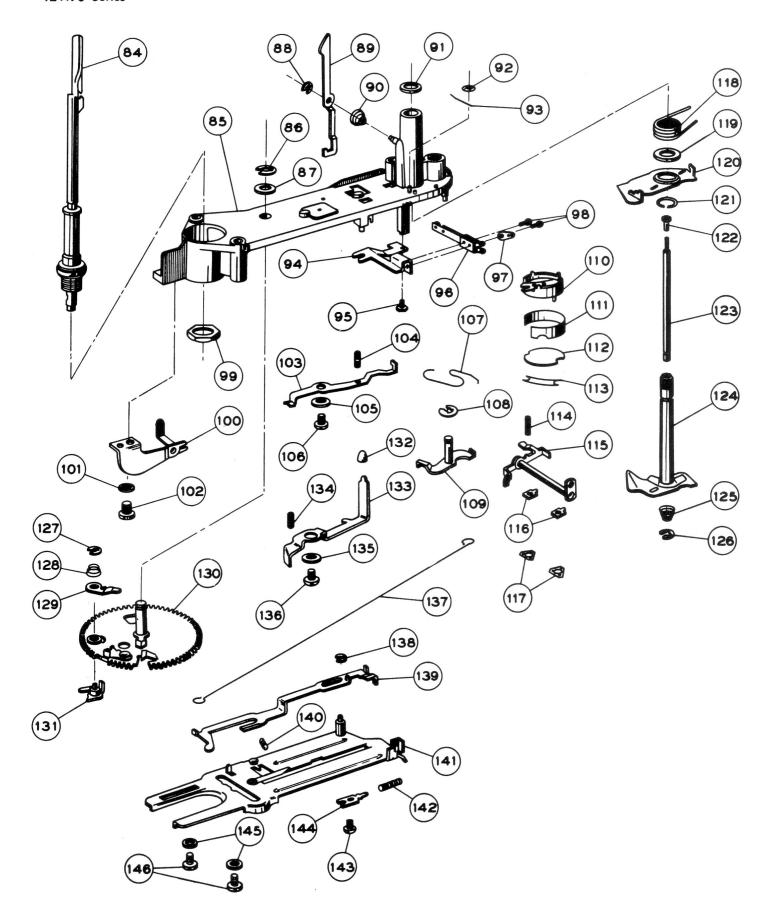


Fig. 27—Slide Assembly

ILL. NO.	STOCK NO.	DESCRIPTION	ILL. NO.	STOCK NO.	DESCRIPTION
		SLIDE ASSEMBLIES	132 133	76900 76901	Bumper—Rubber bumper for 10" indexing lever Lever—10" indexing lever
84	76904	Centerpost — 33½-78 r.p.m. centerpost complete with	134	76314	Spring—Return spring (coil type) (.125" O.D. x 7/16" —14 turns)
85	76910	bearing Frame—Main frame—(die-cast)	135		Washer—Metal washer (steel) (1/32" x 7/16" O.D.
86	75373	Washer—"C" washer for mounting cycling gear	100		x .140)
87	75845	Washer—Fibre washer for mounting cycling gear	136 137	75862	Screw—#6-32 x 1/4" hex head screw Link—Control link
88	75397	Washer—"C" washer for 12" indexing lever			Washer—"C" washer
89	75844	Lever—12" record indexing lever	138 139	75397 76950	
90	76309	Spring—12" record indexing lever spring	140	75861	Slide—Trip slide Spring—Escape lever spring (coil) (.120" O.D. x 1/3"
91	76903	Washer—Pickup thrust washer (fibre)	140	13001	—21 turns)
92	75841	Nut—Speed nut for 12" indexing lever return spring	141	76956	Slide—Cycling slide and cam assembly—less escape
93	75842	Spring—12" indexing lever return spring (formed)	1		lever spring
94 95		Bracket—Muting switch bracket Screw—#4-40 x 1/4" hex head (indented) thread	142	77228	Spring—Stabilizing spring (coil) for cycling slide (.146" O.D. x ¾"—14½ turns)
		cutting screw to mount muting switch assembly	143		Screw-#6-32 x 1/4" hex head screw
96	77191	Switch—Muting switch—less mounting bracket	144	75872	Plate—Bearing plate for cycling slide
97		Terminal—#4 locking terminal for muting switch assembly	145	76897	Washer—Metal washer (brass) for cycling slide
98		Screw—#3-48 x 13/32" binding head machine screw for muting switch	146		Screw—#6-32 x 1/4" hex head screw
99		Nut-1/2-20 pal nut for mounting 331/3-78 r.p.m. spindle			PICKUP ASSEMBLIES
100	75864	Arm—Lift arm	10	75044	Pickup—Crystal pickup complete with two styli
101		Screw—#10-24 x 3/8" binding head machine screw and internal lockwasher	10A 10B	75497	Stylus—Osmium tip stylus and holder (.003" r., uncoded) for 78 r.p.m.
102		Screw—#10-24 x 3/8" binding head machine screw and internal lockwasher	10B	75496	Stylus—Osmium tip stylus and holder (.001" r., coded red) for 45-33½ r.p.m. Nut—Knurled nut to mount stylus
103	75859	Lever—Landing selector lever	100	75274	CONTROL PROGRAM STANDER SERVICE CONTROL CONTRO
104	75860	Spring—Return spring (coil type) for landing selector lever (.110" O.D. x 3/8"—14 turns)	5	76902	PICKUP ARM ASSEMBLIES Knob—Stylus selector knob less screw
105		Washer—Metal washer (steel) (1/32" x 7/16" O.D. x .140)	6	76898	Screw — #2-56 x 3/16" headless set screw for stylus selector knob
106		Screw—#6-32 x 1/4" hex head screw	7	76949	Arm-Pickup arm shell (Gold) for 124196-3, -4
107	76312	Spring—Reject spring (special)	7	100A001	Arm—Pickup arm shell (Maroon) for 124196-1, -2
108 109	75392 75856	Washer—"C" washer for mounting reject lever Lever—Reject lever	7A 7B	76948 76947	Screw—Pickup arm mounting bracket pivot screw Bearing—Pickup arm mounting bracket pivot
110	75857	Switch—"On-Off" switch complete with insulating strip (111) and cover (112)	8	75808	bearing Cable—Three (3) wire pickup cable complete with
112) 113	76908	Retainer—Switch cover retainer (flat)	8	163A001	connectors for 124196-3, -4 Cable—Three (3) wire pickup cable complete with
114	76314	Spring—Return spring (coil type) (.125" O.D. x 7/16"			connectors for 124196-1, -2
115	76313	-14 turns)	9		Screw—#4-40 x 1/8" fillister head screw to mount pickup cartridge
116	77258	Lever—Stop lever Strip—Bearing strip for stop lever shaft	11	76957	Swivel—Pickup cartridge mount and swivel as-
117	76912	Nut-Speed nut for mounting stop lever bearing shafts	11	130A001	sembly for 124196-3, -4 Swivel—Pickup cartridge mount and swivel assem-
118	76944	Spring—Pickup arm return lever spring (coil) (.593" O.D.—3½ turns)	12		bly for 124196-1, -2
119	75848	Washer—Fibre washer for pickup arm pivot shaft	13	75809 75810	Spring—Pickup arm counterbalance spring Bracket—Pickup arm weight adjustment bracket
120	75849	Lever—Pickup arm return lever		10010	(slide)
121	75850	Retainer—Retaining ring for pickup arm return	14	76899	Screw—#6-32 x ½" round head screw for pickup arm weight adjustment bracket
122	76952	Nut-Elevating rod adjustment nut	15	76896	Screw—#4 x 1/4" binding head sheet metal screw to
123	76951	Rod—Elevating rod	10	76010	mount swivel assembly in arm
124	76946	Shaft—Pickup arm pivot shaft and lever	16	75812	Spring—Lock spring (coil type) for height adjust- ment screw
125	76906	Spring—Thrust spring (conical) for elevating rod	17	75813	Screw—Height adjustment screw (hex head—
126	77269	Ring—Retaining ring			#5-40 thread)
127	75397	Washer—''C'' washer	18	76943	Spring—Tension spring (coil) for landing adjust-
128	77249	Spring—Trip pawl spring	19	76911	ment stud Cam—Landing adjustment cam
129	77250	Pawl—Trip pawl—upper	20	76907	Bracket—Pickup arm mounting bracket complete
130	76955	Gear—Cycling gear complete with shaft and en-			with pin
131	76953	gagement pawl 130A Pawl—Trip pawl—lower	20A 20B	75816 75818	Stud—Landing adjustment stud (eccentric) Nut—Speed nut for landing adjustment stud

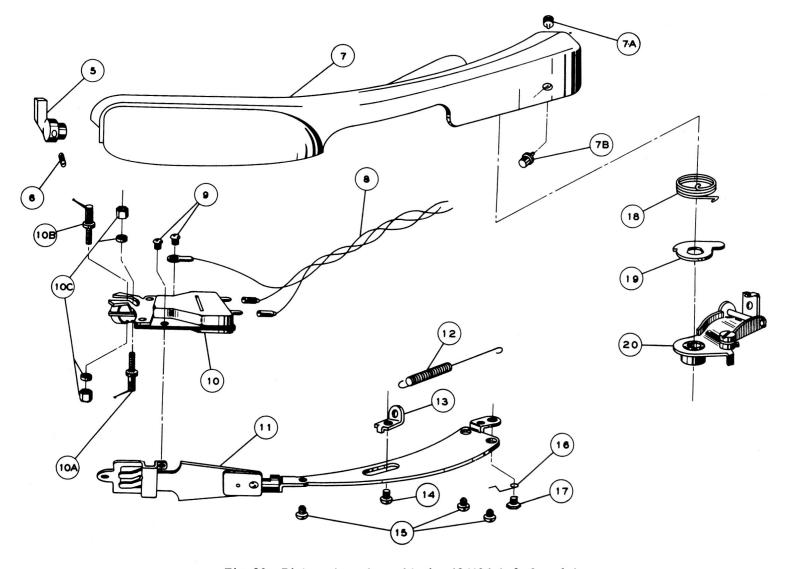


Fig. 28—Pickup Arm Assembly for 124196-1, 2, 3 and 4