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SERVICE MANUAL



MODEL ARC-50

4-SPEED AUTOMATIC RECORD CHANGER

DIMENSIONS : H-6½", W-13⅛", D-11¼" WEIGHT : 8.8 lbs.

SPECIFICATIONS

Type :	4-speed Automatic Record Changer
Turntable Speed :	16, 33⅓, 45 & 78 r. p. m.
Turntable :	11"
Motor :	4 Poles Outer Rotor Induction Motor
Record Capacity :	Up to 6 pcs. (Nominal)
EP Spindle :	EPS-10

Model	Compliance	Frequency Responce	Channel Balance	Channel Separation	Tracking Force
ARC-50B	10×10 ⁻⁶ cm/dyne	20~20,000Hz	Within 2dB	Better than 20dB at 1kHz	4~5g
ARC-50C	//	//	//	//	//
ARC-50D	3×10 ⁻⁶ cm/dyne	30~10,000Hz	Within 3dB	Better than 15dB at 1kHz	5~9g
ARC-50E	10×10 ⁻⁶ cm/dyne	20~20,000Hz	Within 2dB	Better than 20dB at 1kHz	4~5g
ARC-50F	//	//	//	//	//

PICK UP TYPE

MODEL	Pick Up Ass'y	Cartridge	Stylus	Output Voltage	
ARC-50B	PM-504Sa	MD-1014	DT-31	2.3~4mV	V. Type Magnet
ARC-50C	PM-504Sb	MD-1013B	DT-29B	2.5~5mV	Moving Magnet
ARC-50D	PCD-506S (C) b	CS-1027D	DTS-4	0.22~0.4V	Ceramic
ARC-50E	PM-504Sa	MD-1014	DT-31	2.3~4mV	V. Type Magnet
ARC-50F	PM-504Sb	MD-1013B	DT-29B	2.5~5mV	Moving Magnet

PHONO MOTOR TYPE

MODEL	Type	Power Source	Phono Motor Ass'y	Pulley
ARC-50B	4 Pole Outer Rotor Induction	120V 60Hz	EM-42041-A	G6504-B (60Hz)
ARC-50C	"	100V 50/60Hz	EM-42041-B	G6504-B (60Hz) G6504-A (50Hz)
ARC-50D	"	120V 60Hz	EM-42041-A	G6504-B (60Hz)
ARC-50E	"	120V 60Hz	EM-42041-A	G6504-B (60Hz)
ARC-50F	"	100V 50/60Hz	EM-42041-B	G6504-A (50Hz) G6504-B (60Hz)

TERMINOLOGY

- a. LEAD-IN : Pick-Up raises itself, moves to left and lowers the needle-point at a fixed position.
- b. LEAD-OUT : When needle reaches the end of groove, the pitch suddenly roughens. At this signal, the Pick-Up raises itself and moves toward the rest.
- c. AUTO-CUT : To stop playing in the middle of a tune, move the knob to "REJ" position. Pick-UP raises itself and returns to its rest.
- d. SELECT : Set the knob at 7", 10" or 12", depending on the size of record. Pick-UP automatically lowers to the correct starting point.
- e. SHUT-OFF : At the end of record, the Pick-UP returns to rest and automatically cuts off power. Simultaneously, the idler frees itself from Pulley and Turntable.

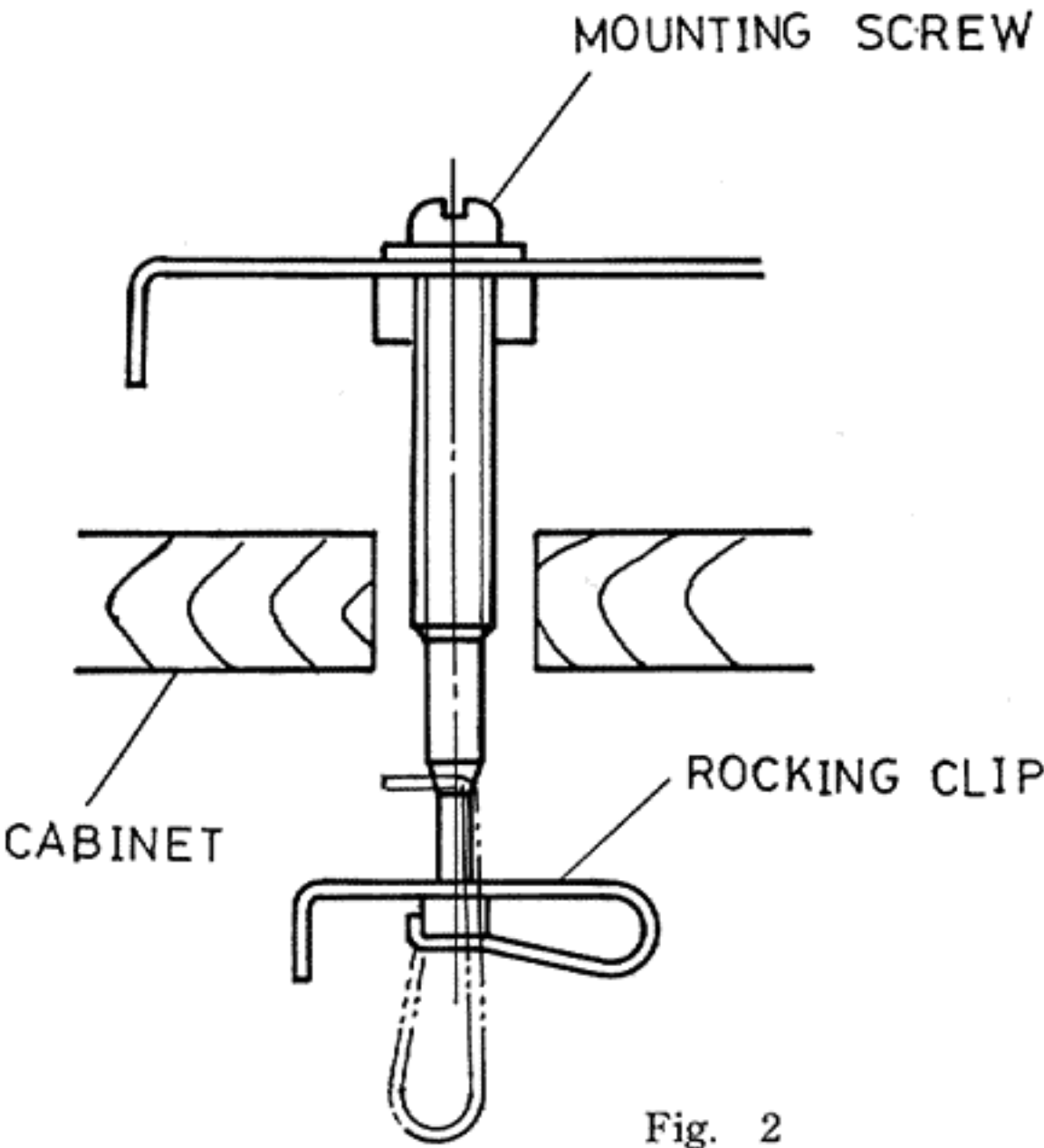


Fig. 2

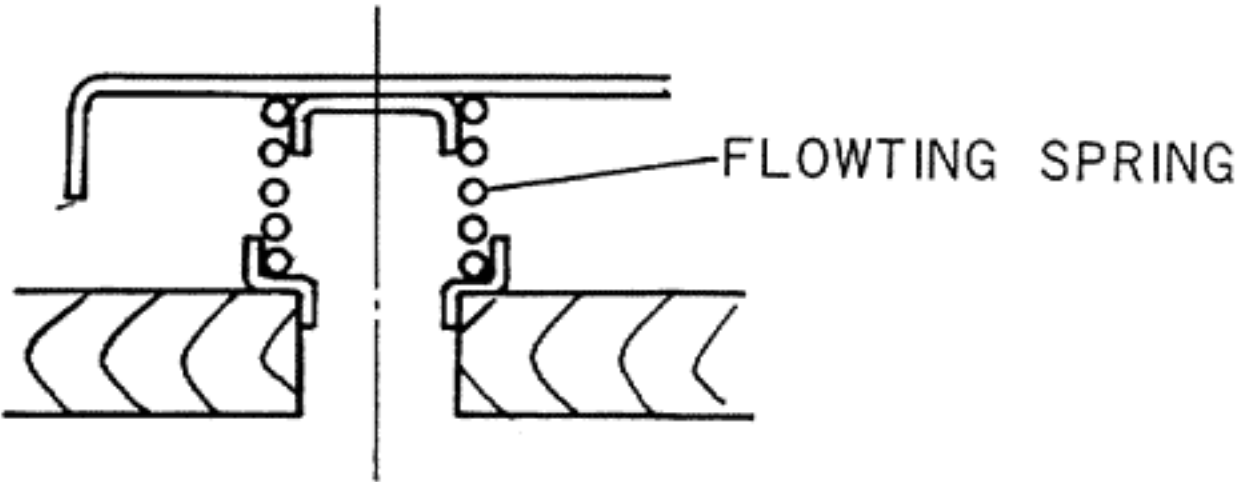


Fig. 3

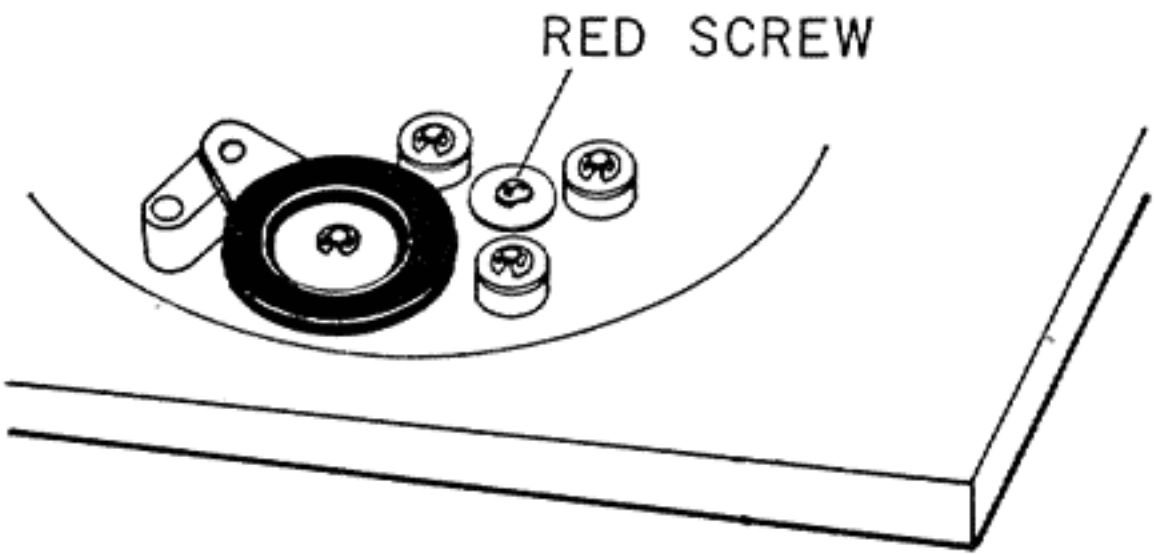


Fig. 4

IMPORTANT WHEN INSTALLING

- a. Unwrap the Record-Changer and turn the Mounting Screw clock-wise as shown in Fig. 2. Changer is now detached from cabinet and is floating. (Fig. 2)
- b. Check the Floating Spring to see if the record-changer is correcting in the cabinet. (Fig. 3)
- c. Remove the screw marked red which fixes the Phono Motor. Check to see if it is correctly floating (Fig. 4)

HOW TO USE RECORD-CHANGER

- a. Lift the Record Support and place six records in the Spindle.
- b. Set the Speed Knob to figure corresponding to record revolution.
- c. Set the Select Knob to 7", 10" or 12", depending on the size of record.
- d. Free the Hook which holds the Pick-Up.
- e. Pull the Start Knob fully to the "REJ" position. Pick-Up raises itself and the record starts playing.
- f. Move the knob to "REJ" position to stop playing in the middle of a tune.

MANUAL OPERATION

- a. To play a record on turntable, move the Start Knob to ON-MANU position (do not bring it to "REJ"). Push the Cueing Lever to up-right position and bring the pick-up over the record.
- b. Pull the Cueing Lever slowly to original position. The needle touches record and playing starts.

REPEAT PERFORMANCE

- a. For repeat performance, keep the Record Support at unset position (keep it away at extreme right).
- b. When the Record Support is kept in set position (in center, pressing the records), the playing stops automatically when the final record is finished.

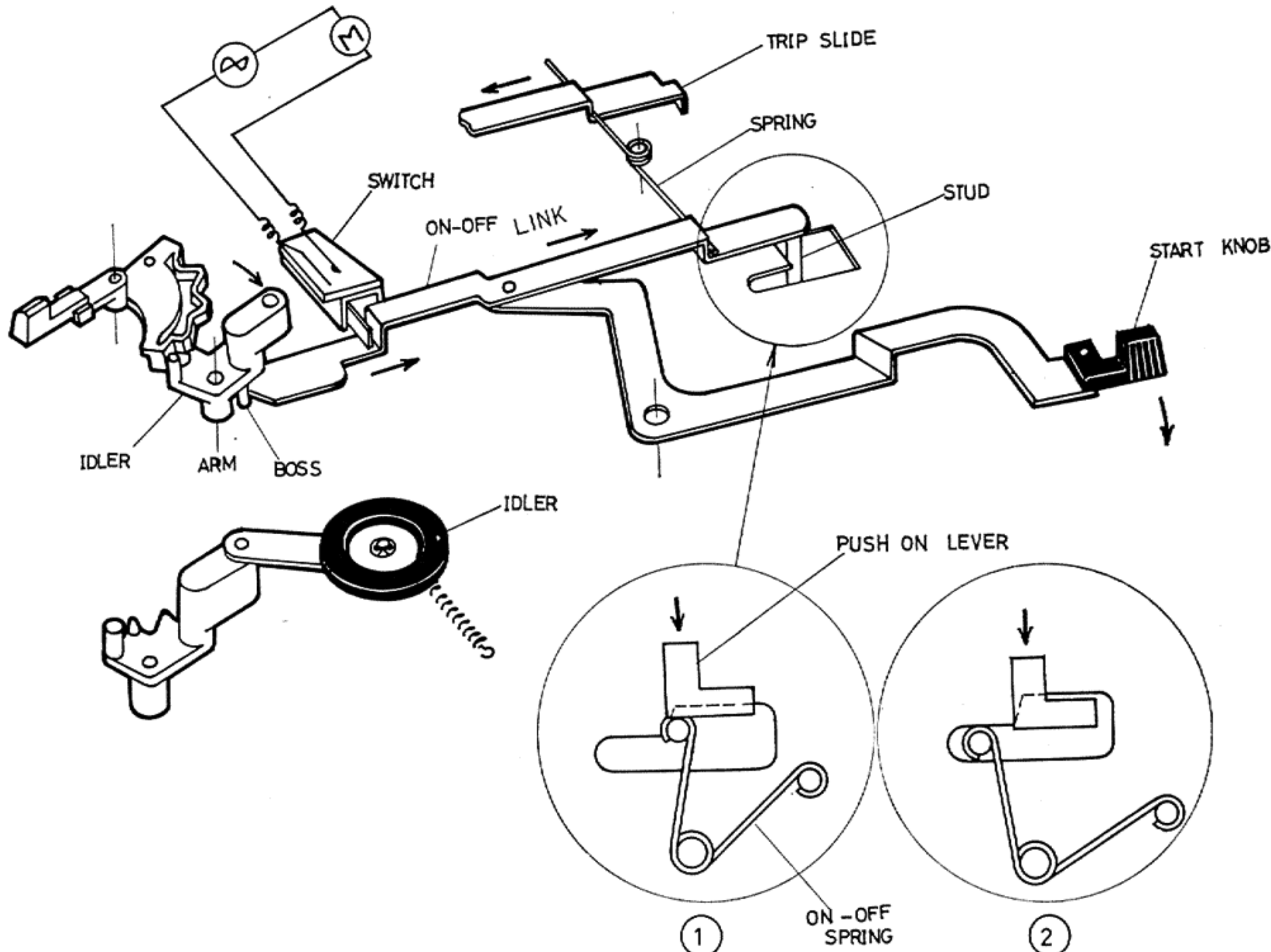


Fig. 5

START (Fig. 5)

- a. When the Start Knob is pulled fully toward the operator, On-Off Link moves in the direction of the arrow, dropping the stud into a hollow cut in the base.
- b. This action turns on the switch automatically, starting the motor.
- c. On-Off Link Plate, which was pressed against the Boss of Idler Arm, moves in the direction of the arrow. This releases the roller toward pulley, starting to revolve the turntable.

CHANGE CYCLE START (Fig. 6)

- a. When On-Off Link Plate starts moving in the direction of the arrow, the spring turns and releases Trip Slide toward left, as shown by the arrow.
- b. The Engagement of Main Gear interlocks with the Projection of Turntable Gear (Fig. 6) revolving the Main Gear in the direction shown by the arrow. This starts the Change Cycle.

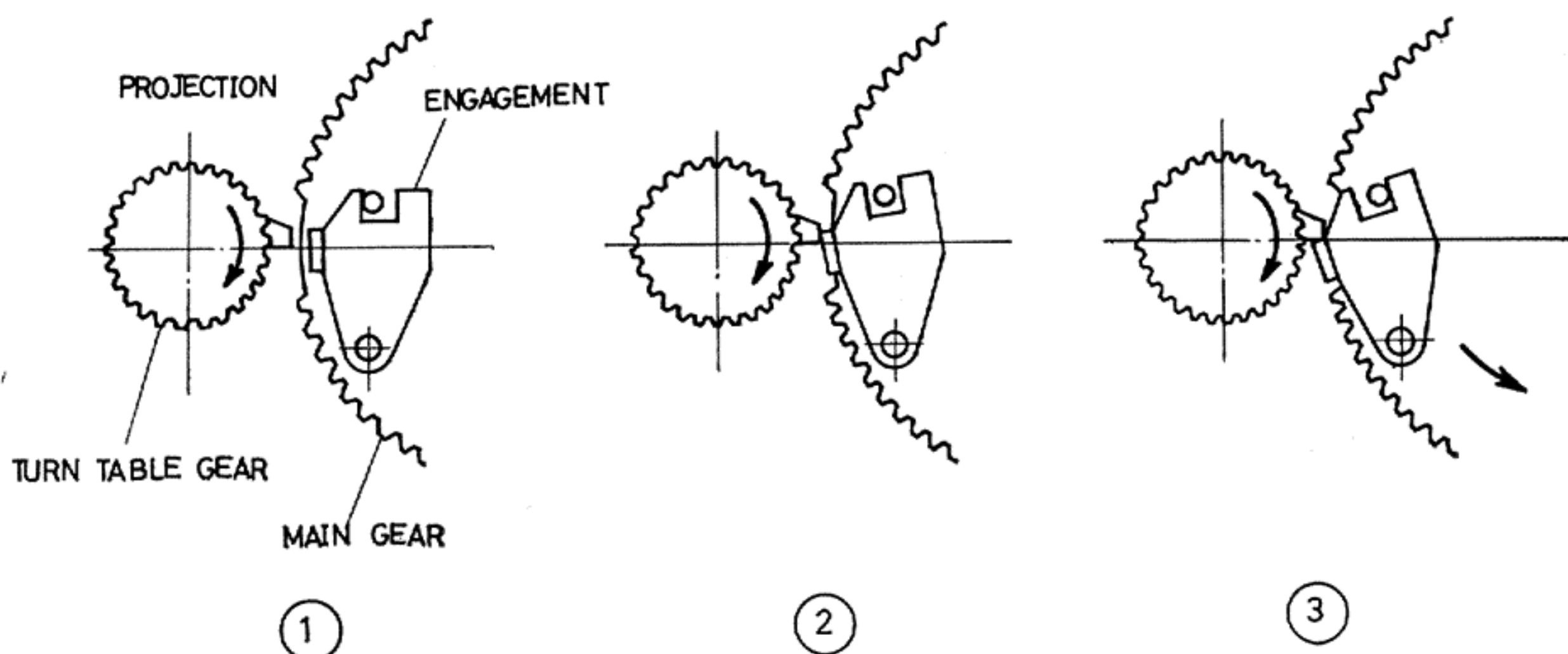


Fig. 6

LEAD-OUT (Fig. 7)

- a. When the needle reaches run-out groove from sound groove, the Arm Lever pushes the Trip Slide.
- b. Trip Slide, in turn, pushes the Trip Feed plate. This action moves the Engagement, which rests lightly on the Trip Feed Plate toward the Projection of Turntable Gear.
- c. ① of Fig. 6 indicates the position of Main Gear at rest.

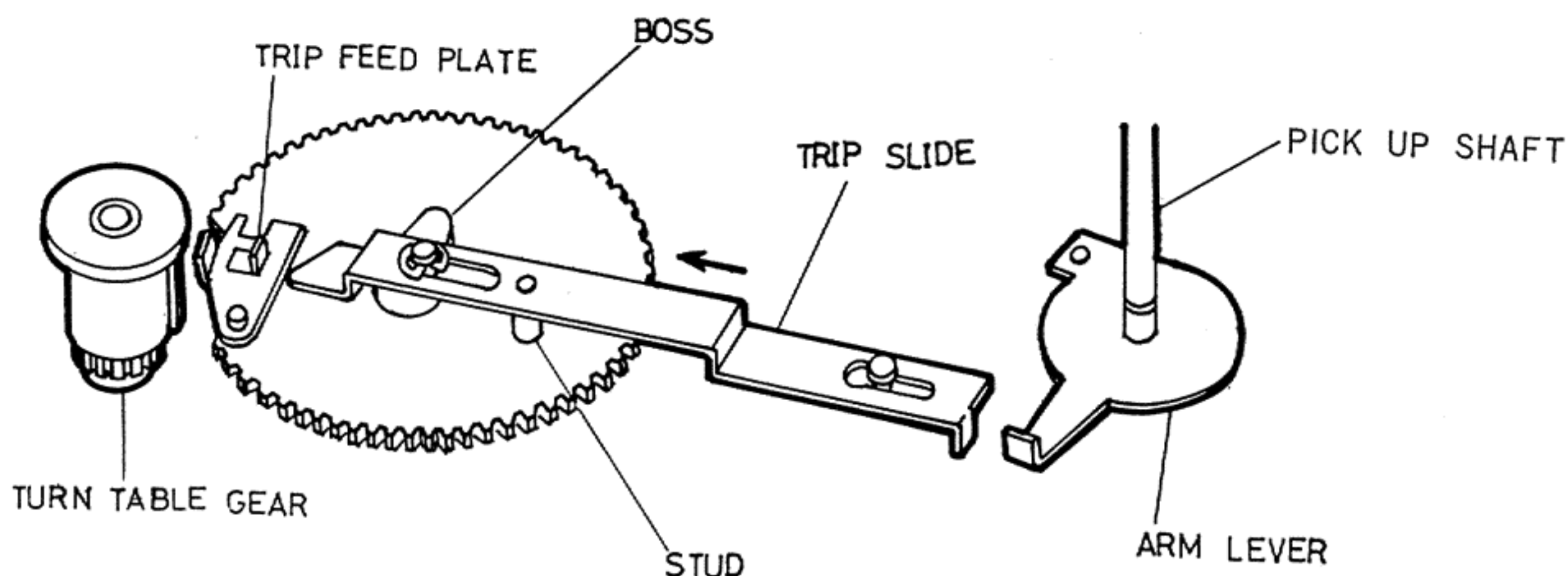


Fig. 7

- d. ② shows the very moment the Engagement touches the Projection of Turntable. When music is being played, however, the Projection pushes back the Engagement, preventing it from interlocking with Main Gear.
- e. When the Pick-Up reaches the run-out groove, the pitch becomes rough and interlocks the Projection an Engagement as shown in (3), starting the Change Cycle effect.
- f. When Change Cycle starts, the H. Plate moves toward A direction (Fig. 9) as the Main Gear revolves. The H. Plate this pushes the Stud of Arm Lever, moving the Arm Lever and the Index Lever toward A direction, and returning the Pick-Up to rest for a Lead-Out position.
- g. Simultaneously (Fig. 7 & 8), the Cam pushes the Stud and returns the Trip Slide to original position.
- h. When Main Gear nears the end of revolution, the Trip Feed Plate touches Turntable Gear, returning the Trip Feed Plate as well as the Engagement to their original position.

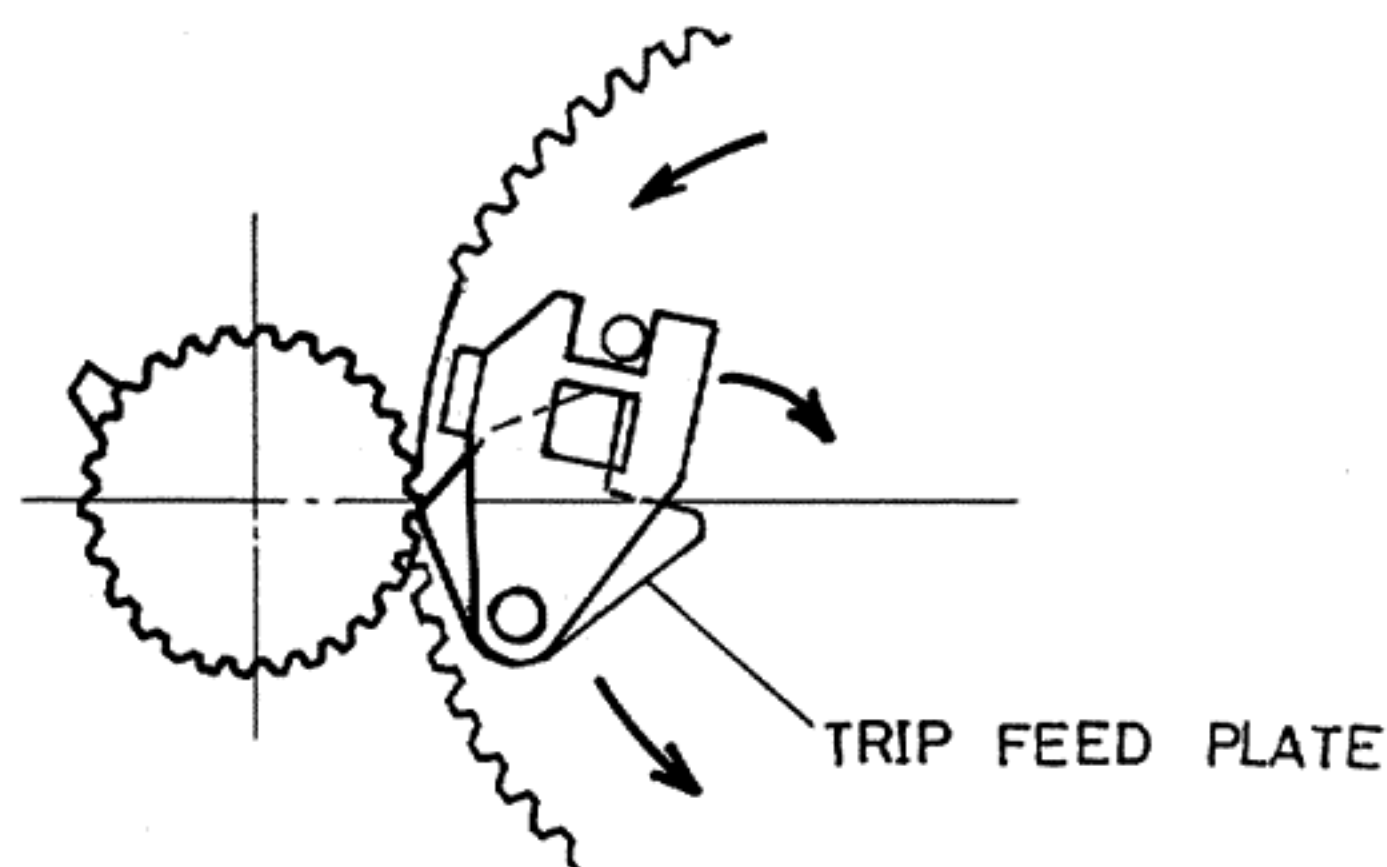


Fig. 8

LEAD-IN (Fig. 9)

- a. When the Pick-Up is lead out, the Stud of Index Lever fits into the hole of Lead-In spring.
- b. When the Main Gear revolves, the H. Plate moves toward B direction. This action causes the Lead-In spring to pull the Index Lever and Arm Lever, completing the Lead-In position when Index Lever touches the Stopper.
- c. When the Pick-Up Lead-In, the Arm Lever slows down, revolution of Cam (Fig. 10) pushes the Elevator upward and creates friction between Arm Lever and Friction Lever. This action stabilizes the Lead-In.
- d. While record is being played, the V. Lever stays down and creates an opening between Friction Lever and Arm Lever rubber. Thus, it prevents the needle (stylus) from moving forward.

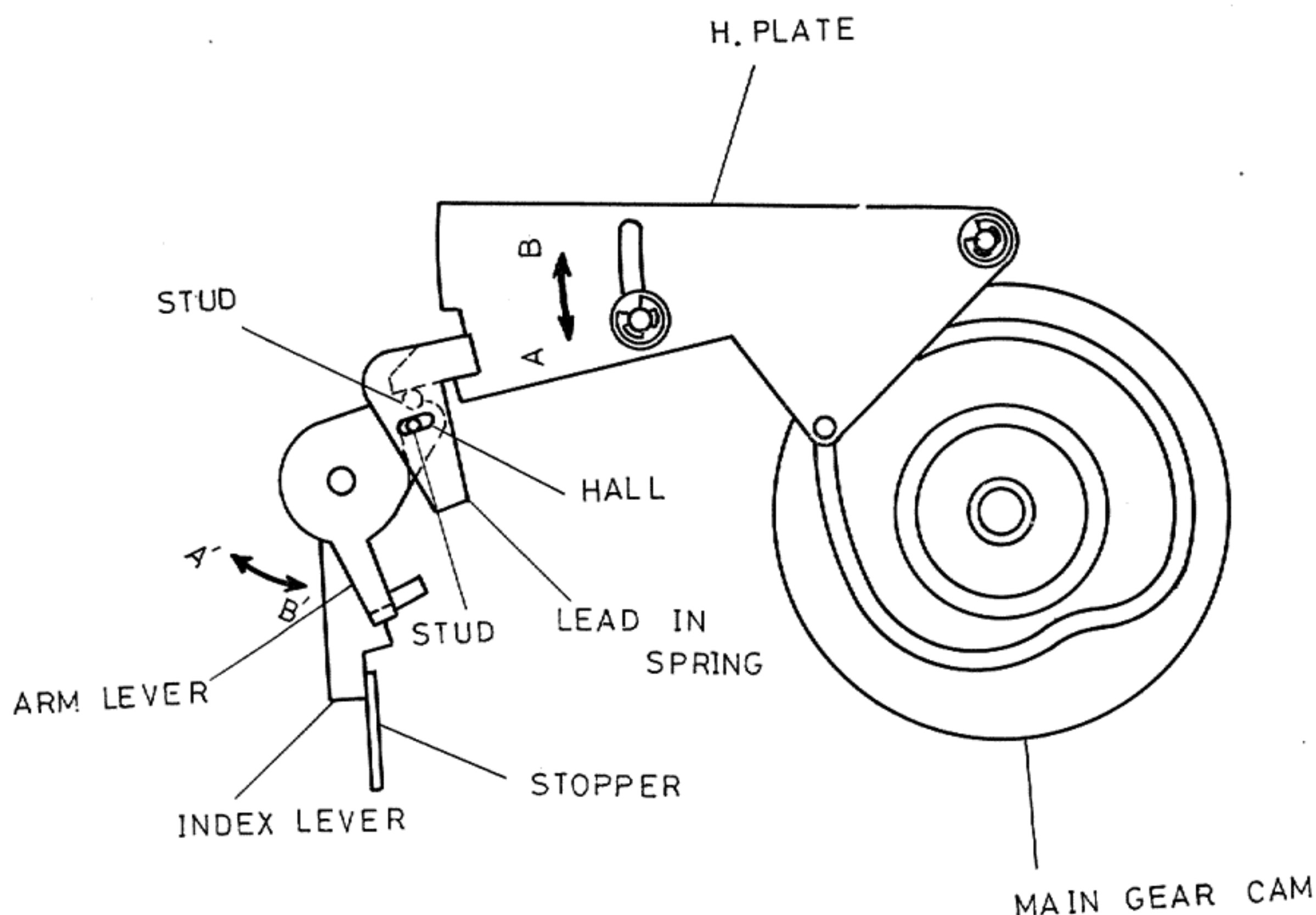


Fig. 9

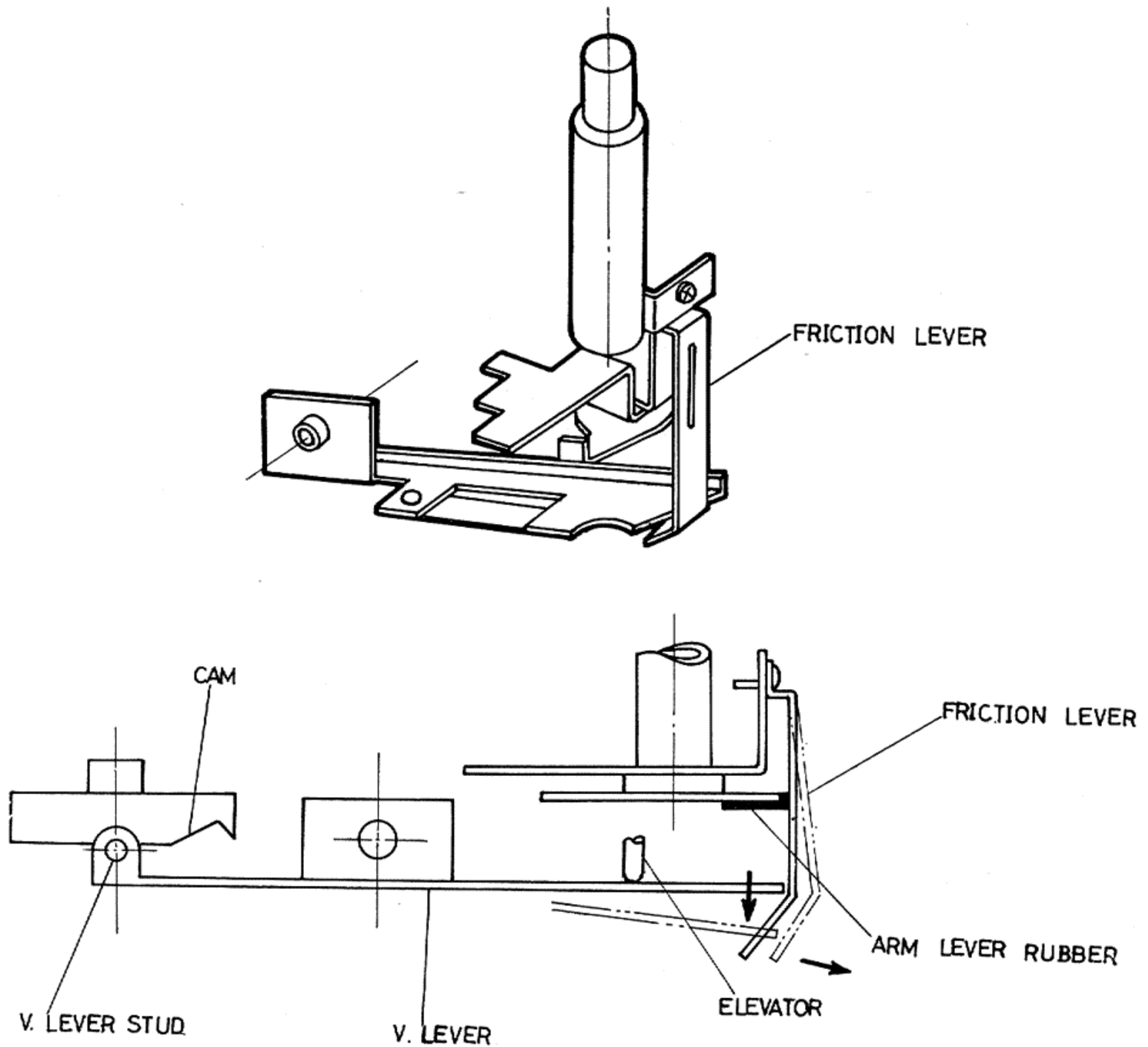


Fig. 10

SELECT (Fig. 11)

- a. Depending on the angle of Stopper at the time of lead-in, the halting position of the Index differs.
- b. ① is Lead-In for 7" record.
- ② is Lead-In for 10" record.
- ③ is Lead-In for 12" record.

RECORD DROP (Fig. 12)

- a. When the Main Gear revolves and the record is about to drop, pressure is put on the Roller, moving the Ejector Link Plate toward direction of the arrow.
- b. Movement of the Ejector causes the record to drop.
- c. The opening between the Hook and Spindle is thinner than two records put together but thicker than one record. This ensures dropping one record at a time.
- d. Refer to Fig. 13.
 - ① shows the condition when records are leaded.
 - ② shows the Ejector pressing the record. Note the second record is touching the Hook.
 - ③ shows the record is about to drop as the Ejector completes its action of pressing.

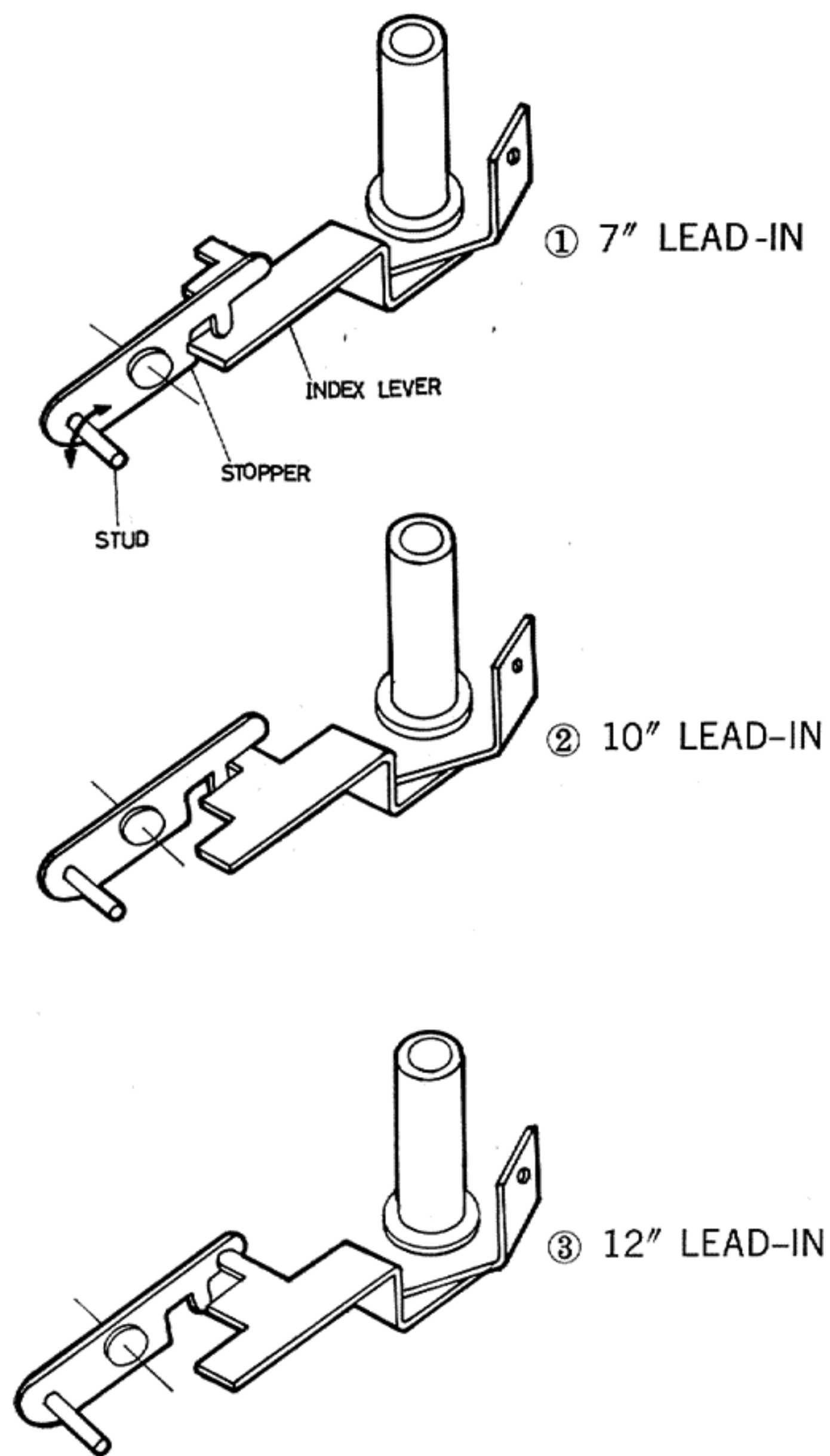


Fig. 11

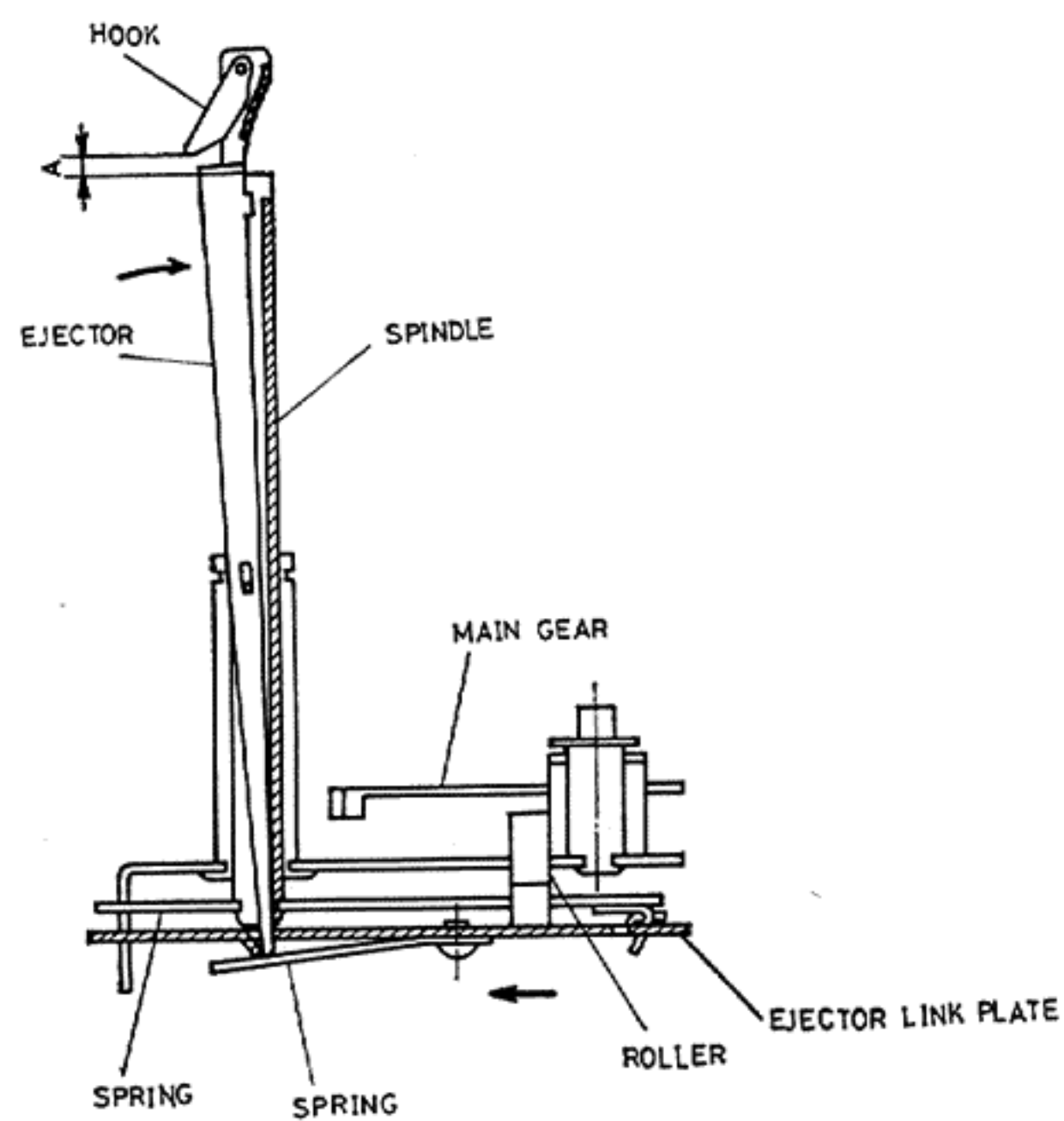


Fig. 12

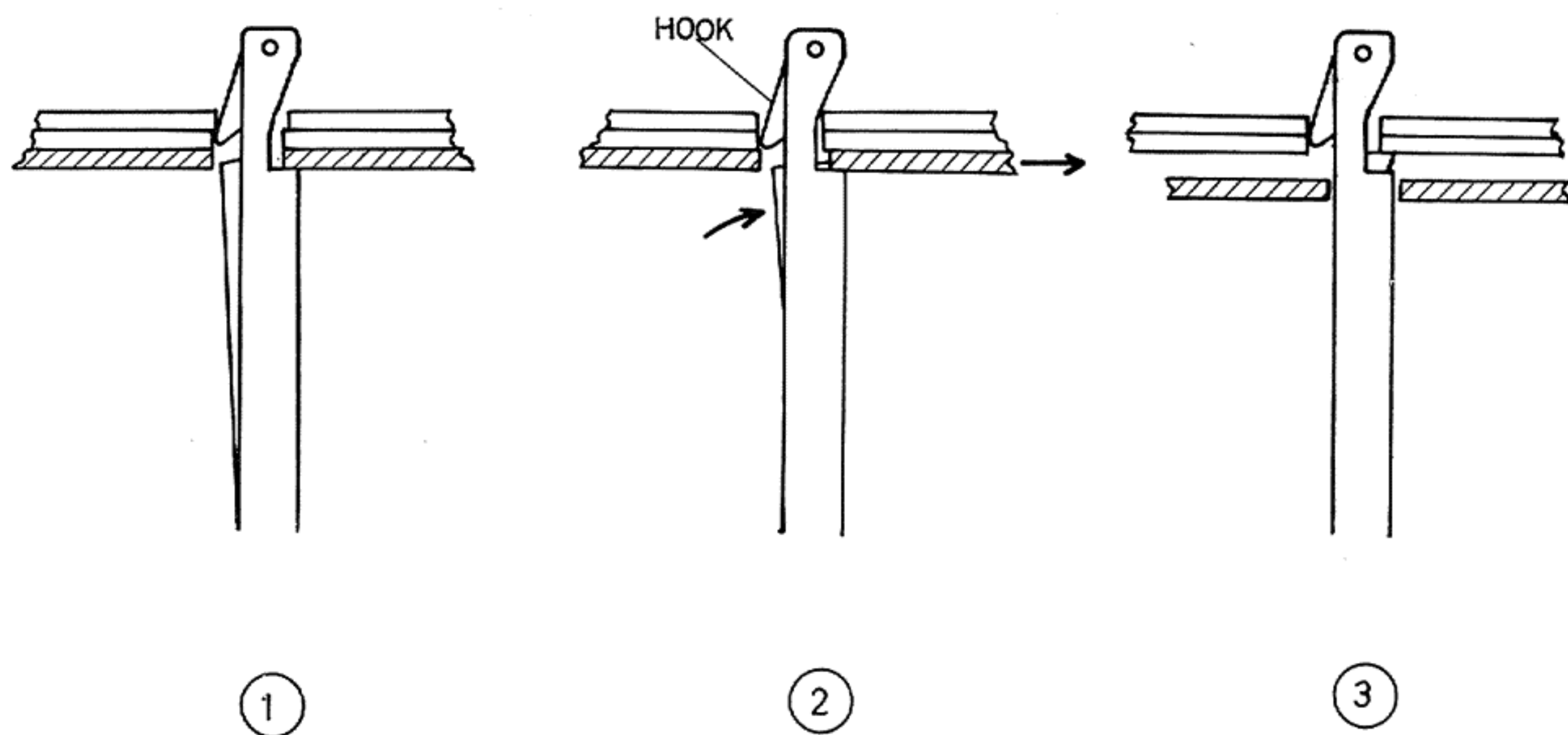


Fig. 13

SHUT-OFF (Fig. 14 & 15)

WHEN SUPPORT IS RAISED (Fig. 14)

- a. When Support is raised, the Shift Lever activates and places the Stopper above the Index Lever. This frees the Index Lever, making it possible to repeat Lead-In and Lead-Out.
- b. Since the inclination of Pilot Rod at this moment is also 45°, the Stud of On-Off Link and Push-Off Lever does not interlock with each other. Consequently, one complete revolution of the Main Gear ensures only one action of the Shut-Off Lever.

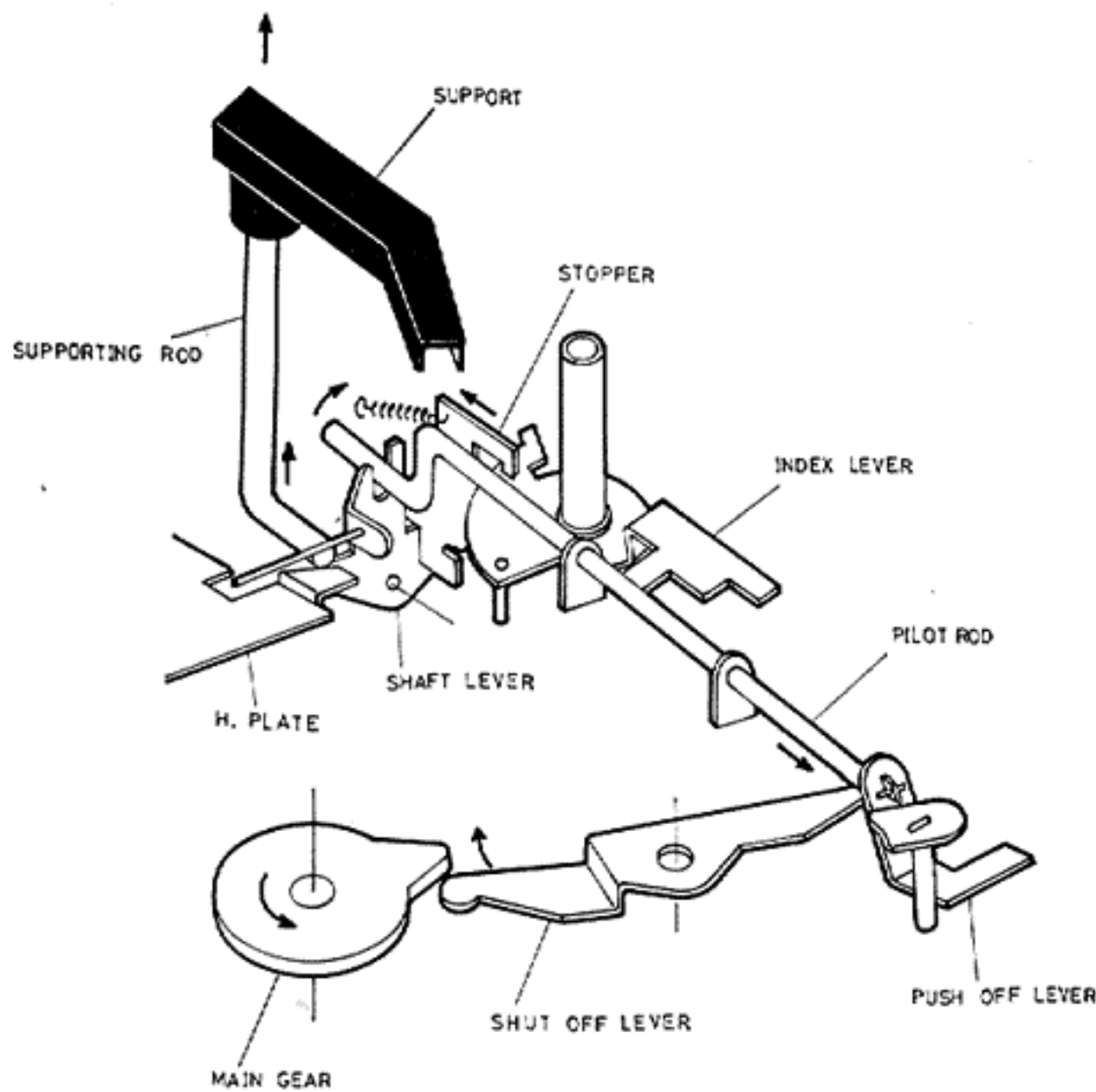


Fig. 14

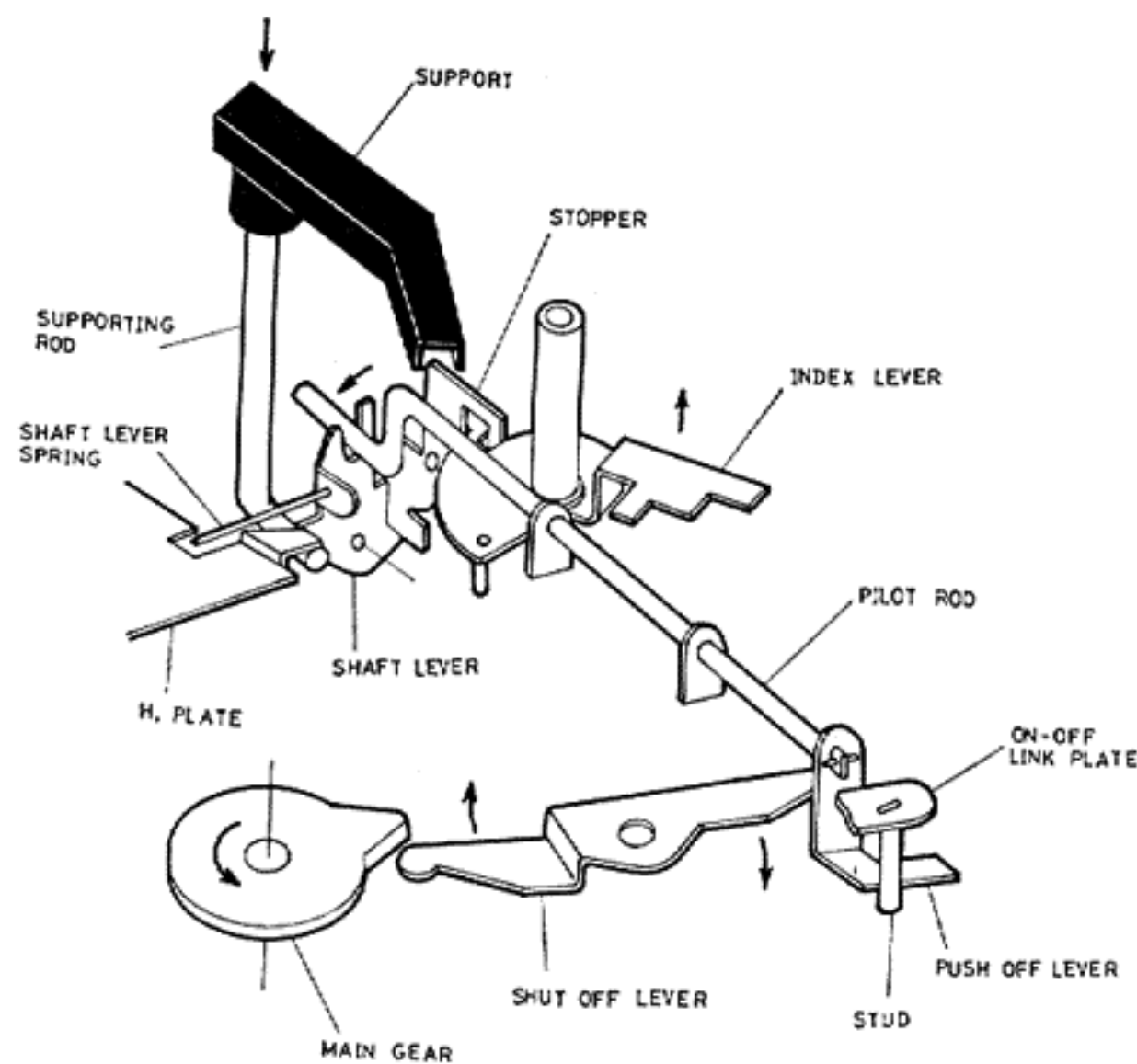


Fig. 15

WHEN SUPPORT IS LOWERED (Fig. 15)

- a. When the final record drops from the Spindle, the Shift Lever spring hooks itself to H. Plate. This ensures the lead-in action as it prevents Support from dropping.
- b. When the Index Lever moves in the direction of the arrow, the Stopper fits into a hollow cut in the Index Lever and locks it. Thus, no Lead-In action occurs.
- c. At the same time, the Pilot Rod revolves and links the Push-Off Lever with the Stud of On-Off Link Plate. By so doing, it activates the Shut-Off Lever and presses the Push-Off Lever, causing Main Gear Cam to revolve once.
- d. ① and ② in Fig. 5 shows the shut-off action of the On-Off Spring.

ADJUSTMENT (Fig. 16)

- a. Adjustment of lead-in :
When Pick-Up dropping position is too deep, turn the Adjustment Screw counter-clockwise. When too shallow, turn it clockwise to adjust.

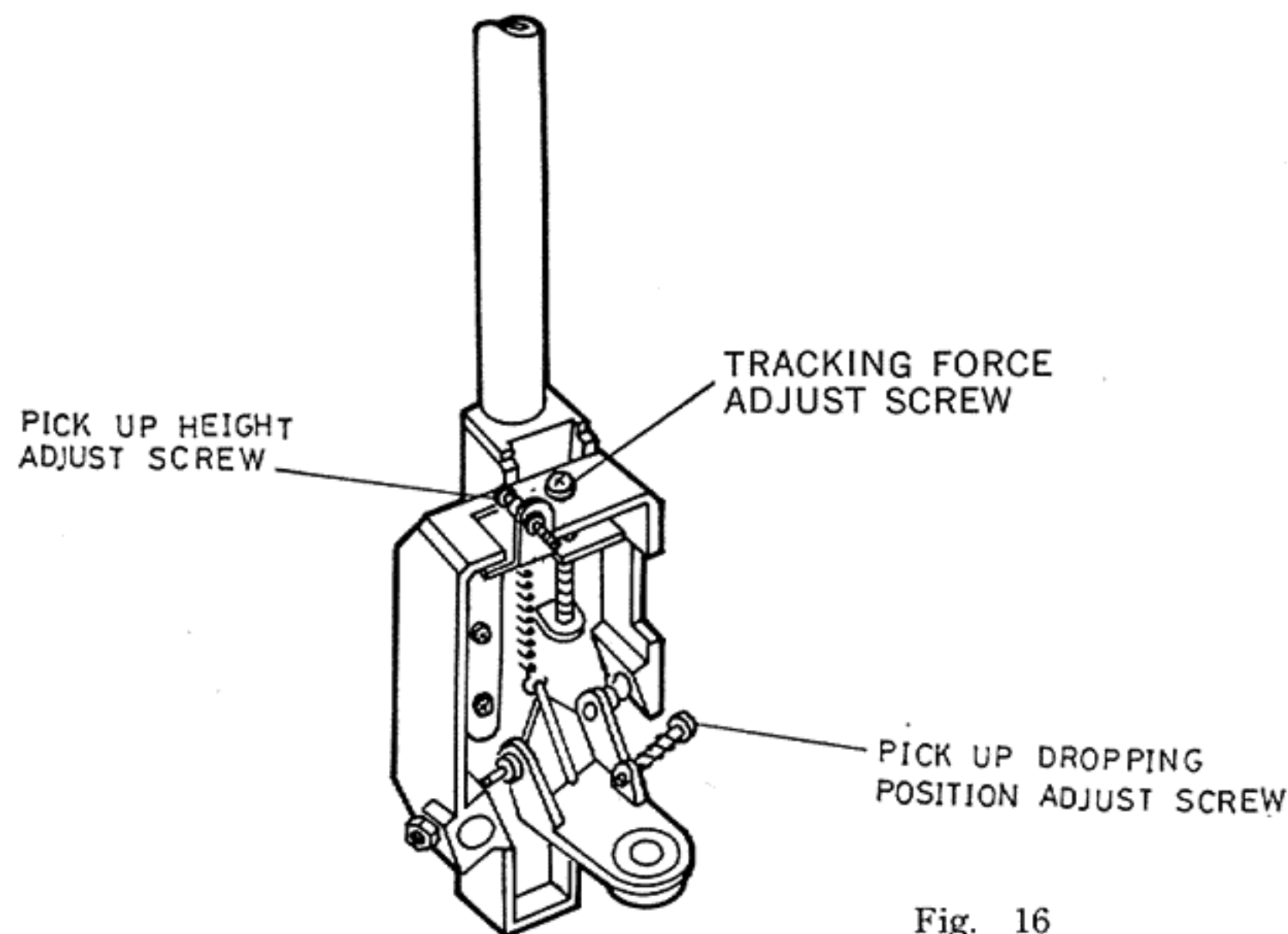


Fig. 16

b. Adjustment of TRACKING FORCE :

Turn adjustment Screw clockwise to decrease pressure on Stylus and counter-clockwise to increase it.

c. Adjustment of Pick-Up Height :

Turn the screw clockwise to raise the needle-point and counter-clockwise to lower the point.

NOTE : The best way to adjust is to place 6 records on turntable and see that there is still an opening between needle-point and record. Or, adjust so that the Head does not touch the record on Spindle.

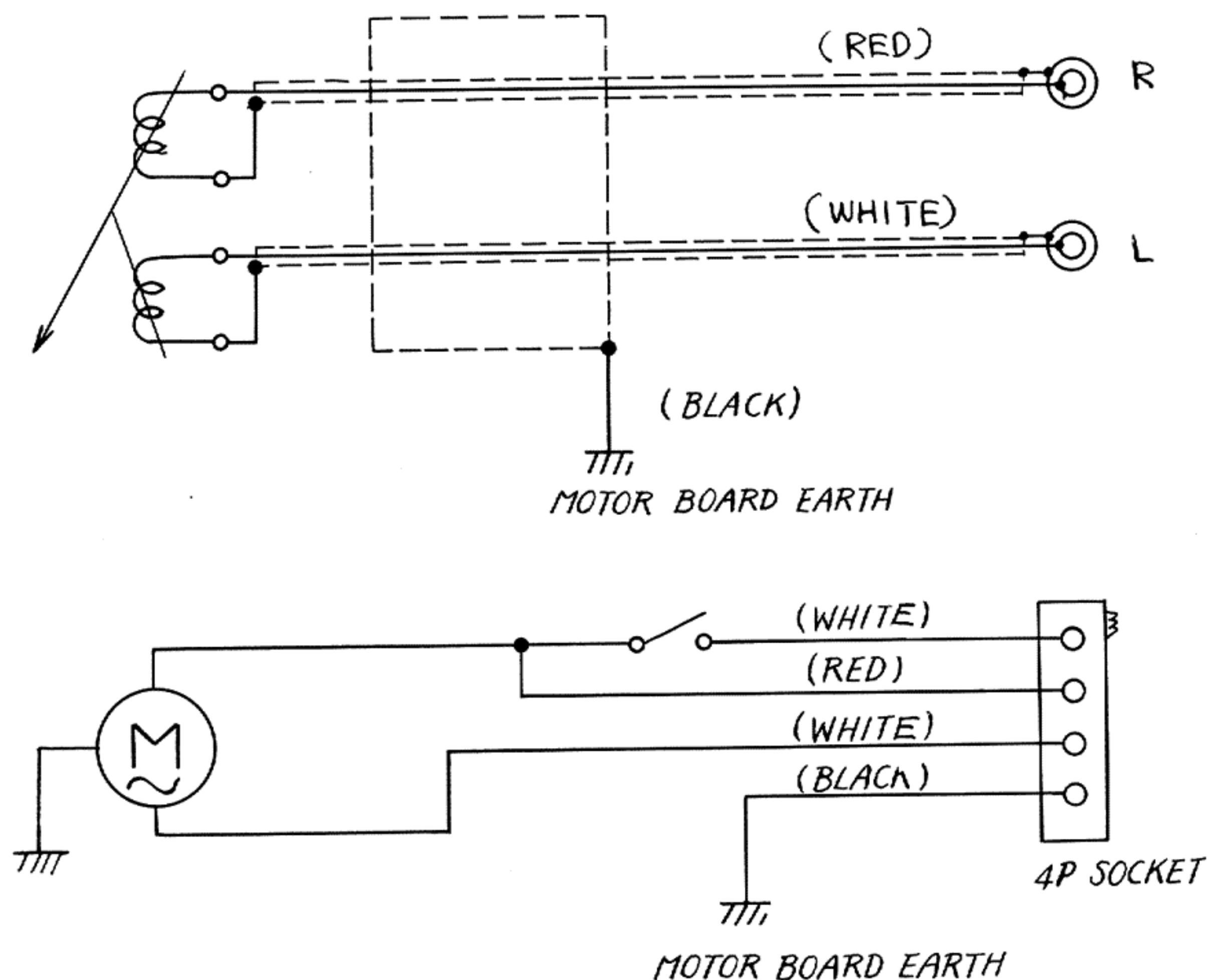
LUBRICATION

a. To prolong the life of Changer, lubricate the parts shown in the diagram every 500H.

- b. Oil Diagram 1 Good grade, soft grease.
 Diagram 2 "
 Diagram 3 Good grade, thin Spindle Oil.
 Diagram 4 Good grade, soft grease.

SCHEMATIC DIAGRAM

MAGNETIC CARTRIDGE



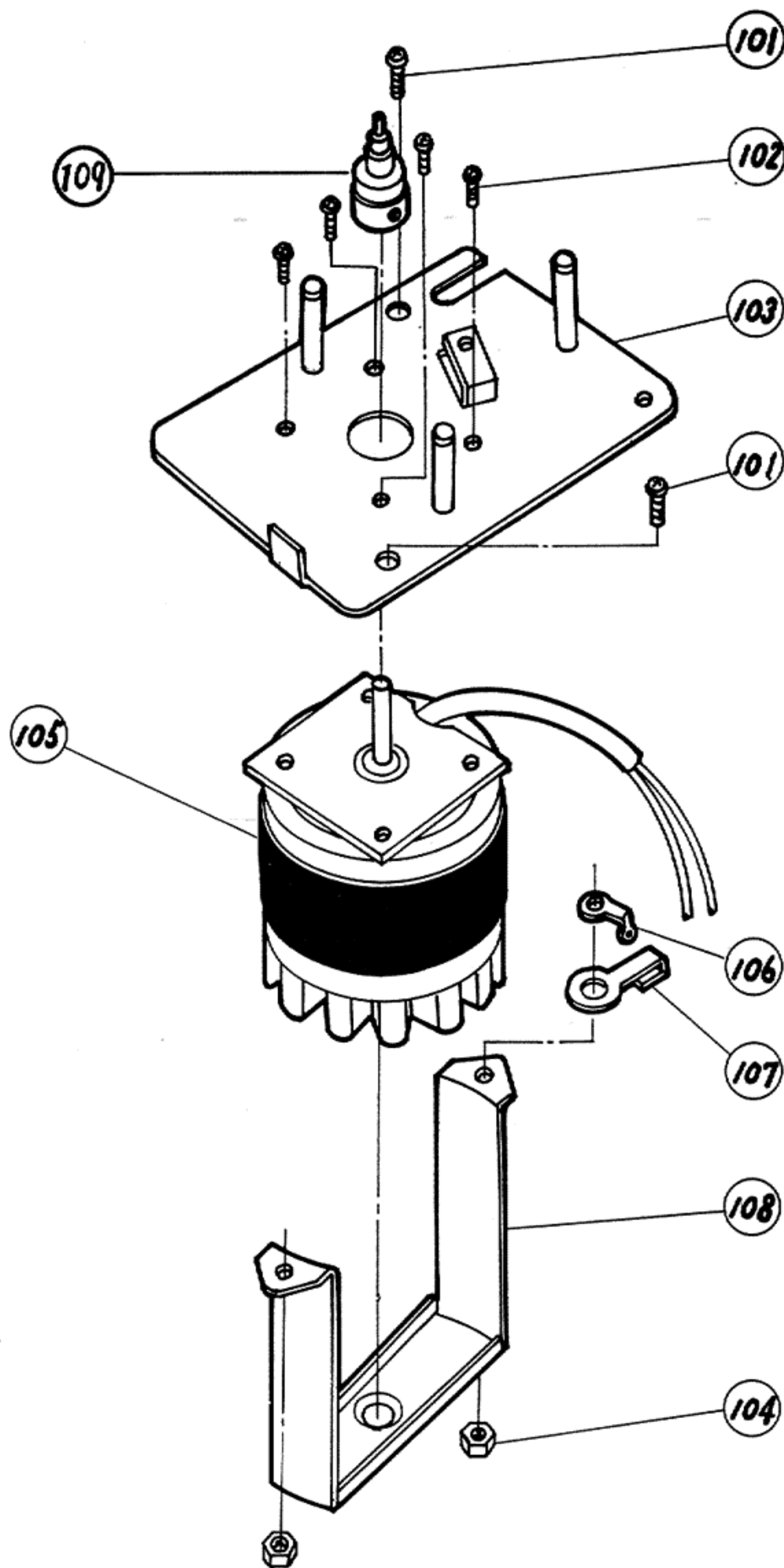


Fig. 17

ANALYSIS PARTS LIST EM-42041-B

ANALYSIS NO.	PARTS NO.	PARTS NAME
101	LPSP4008ZS	Ass'y Screw
102	LPSP3005ZS	"
103	M3580AS	M. M. Plate Ass'y
104	NTB4000S	Nut
105	M3295-FS	m-420C Motor Ass'y
106	52396	Terminal Lug
107	S4709-1	Wire Clamp
108	M6319-A	Thrusst Bracket Ass'y
109	M6504AS	50Hz Pulley
	M6504BS	60Hz Pulley

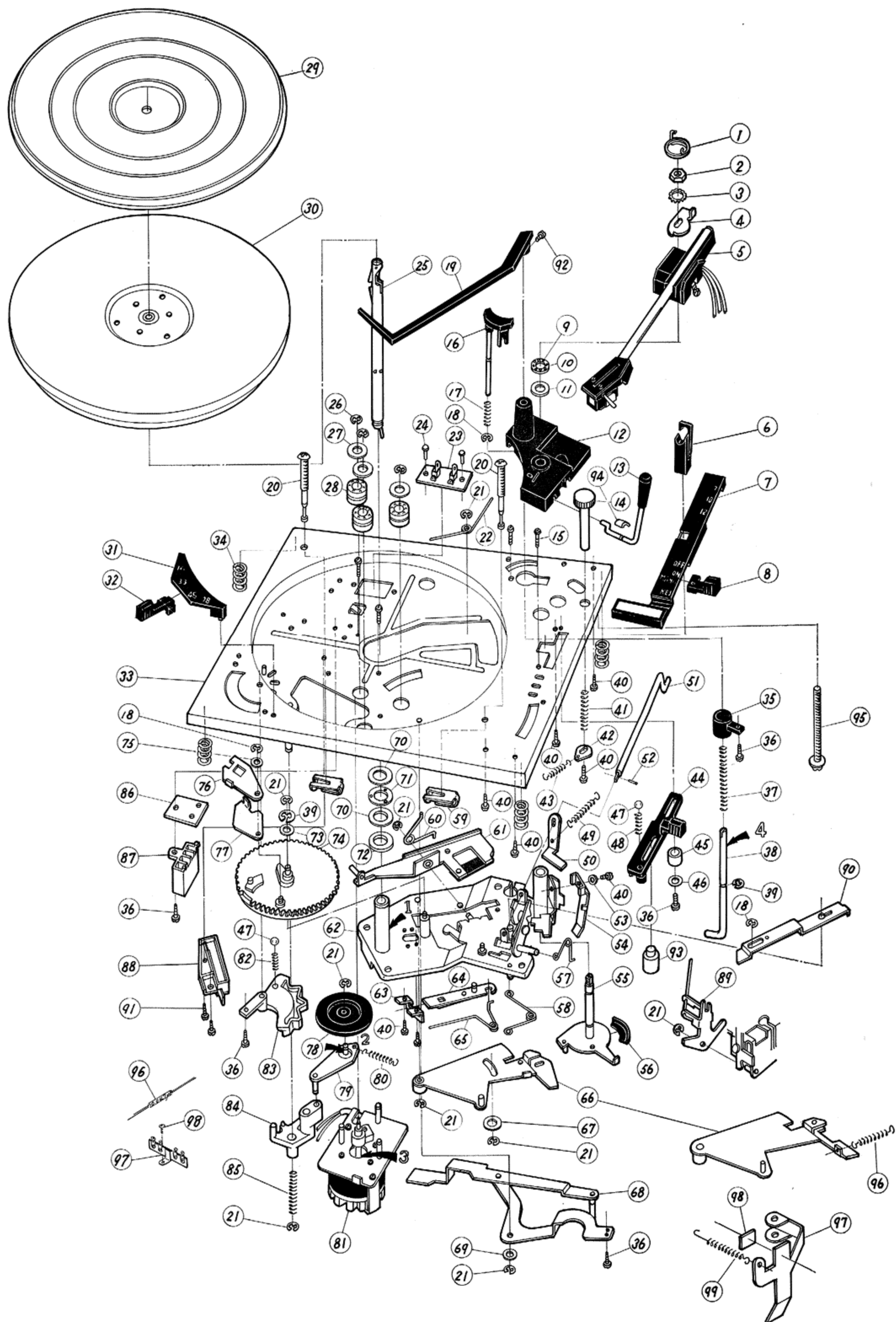


Fig. 18

ANALISIS PARTS LIST ARC-50

ANALISIS NO.	PARTS NO.	PARTS NAME	ANALISIS NO.	PARTS NO.	PARTS NAME
1	G4519	Spring	51	G8557	Pilot Rod
2	G5053S	Nut	52	SPE1606	Spring Pin
3	G4036	Washer	53	WNS3000N	Washer
4	G8526	Binder	54	G40439	Friction Rubber
5		See List	55	G4515-GS	Arm Lever Ass'y
6	G8849-A	Rest Ass'y	56	G6204	Friction Lever
7	G3525-A	Control Panel Ass'y	57	G8546	Spring (Select Lever)
8	G8508	Knob	58	G8513	Spring (ON-OFF)
9	1/16"	Steel Ball	59	G6774	Locking Clip
10	G6246	Bearing Holder	60	G8563	Spring (V. Lever)
11	G4517	Thrust Washer	61	G8548-A	V. Lever Ass'y
12	G2172	Pick-up Base	62	G2145-AS	Base Sub Ass'y
13	G8523-C	Cueing Lever	63	G8569	Bracket
14	G40004	Knob	64	G8566-A	Ejector Link Plate
15	LPSP3006ZS	Tapping Screw	65	G8568	Spring
16	G3473-A	Elevator Ass'y	66	G3477-A	H. Plate Ass'y (Spring)
17	G8521	Spring (Elevator)		G3477-B	H. Plate Ass'y (Lever)
18	REE2000	"E" Ring	67	Q03091-109	Washer
19	G2171	Support	68	G3468-A	Start Lever Ass'y
20	G8353-1S	Mounting Screw	69	Q03091-137	Washer
21	REE3000	"E" Ring	70	G4590	Thrust Washer
22	G8512	Reject Spring	71	G5070-4	Bearing Ass'y
23	E6119-B	Jack Ass'y	72	G8387	Bearing Cushion
24	RTA3004	Rivet	73	G8552	Washer
25	G3474-B	Spindle Ass'y	74	G2223	Main Gear Ass'y
26	REE4000	"E" Ring	75	WSB3000N	Washer
27	G8570	Washer	76	G8553	Engagement Pawl
28	52992-1	Rubber Bushing	77	G8554	Trip Feed Plate
29	G2170-A	Turn Table Covering	78	M4591-D	Idler Ass'y
30	G2169-A	Turn Table Ass'y	79	M6016-B	Idler Arm Ass'y
31	G3523	Speed Change Cover	80	G40512	Idler Spring
32	G8846	Knob	81		Motor (See List)
33	G1150-AS	Motor Board Ass'y	82	G8511-2	Spring
34	G8501-2	Flowting Spring	83	G3522	Cam (Speed Change)
35	G8845	Bracket	84	G8840-2	Idler Arm
36	SBSB3008Z	Tapping Screw	85	G8510-2	Spring (Speed Change)
37	G4003	Spring	86	G6525	Insulator
38	G40005	Plate	87	E04110	4P Socket Housing
39	REE5000	"E" Ring	88	G3200	Switch Arm
40	SBSB3006Z	Tapping Screw	89	G8548-A	Shift Lever
41	G4003	Spring	90	G8555-A	Trip Slide Ass'y
42	G40005	Plate	91	SBSB3010ZS	Tapping Screw
43	G40506	Spring (Inside Force)	92	SBSB3006NS	Tapping Screw
44	G3472	Knob (Select)	93	G8529	Stud (Base Mount)
45	G4500-2	Roller	94	G40358	Spacer
46	Q03091-127	Washer	95	G6566-3	Mounting Screw
47	3/16"	Steel Ball	96	G40613	Spring (H. Plate)
48	G8511-2	Spring	97	G40507	Friction Lever
49	G8559	Spring	98	G40510	Friction Lubber
50	G8558	Push Off Lever	99	G40508	Spring

Requirement to Customers

- ◎ For the purpose of prompt supply of service parts, inscribe parts number, parts name, and model name correctly when you order.



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